PREKIŲ PIRKIMO-PARDAVIMO SUTARTIES SPECIALIOSIOS SĄLYGOS

Sutarties pavadinimas	Kompiuterinis perimetras		
Sutarties data		Sutarties numeris	

1. SUTARTIES ŠALYS		
1.1. Pirkėjas	1.1.1. Pavadinimas	**VšĮ Kauno miesto poliklinika**
	1.1.2. Juridinio asmens kodas	135042394
	1.1.3. Adresas	Pramonės pr. 31, 51270 Kaunas
	1.1.4. PVM mokėtojo kodas	LT350423917
	1.1.5. Atsiskaitomoji sąskaita	LT047044060002942424
	1.1.6. Bankas, banko kodas	AB SEB bankas; banko kodas 70440
	1.1.7. Telefonas	+370 37 403999
	1.1.8. El. paštas	info@kaunopoliklinika.lt
	1.1.9. Šalies atstovas	Direktorius
	1.1.10. Atstovavimo pagrindas	Įstatai
1.2. Tiekėjas (jei Tiekėjas yra fizinis asmuo, skiltys atitinkamai pakoreguojamos)	1.2.1. Pavadinimas	**UAB Kavita**
	1.2.2. Juridinio asmens kodas	166725580
	1.2.3. Adresas	Gamyklos g. 48, LT-89104 Mažeikiai
	1.2.4. PVM mokėtojo kodas	LT667255811
	1.2.5. Atsiskaitomoji sąskaita	LT777300010002541137
	1.2.6. Bankas, banko kodas	AB Swedbank, b. k. 73000
	1.2.7. Telefonas	+370-443-65166
	1.2.8. El. paštas	info@kavita.com
	1.2.9. Šalies atstovas	T
	1.2.10. Atstovavimo pagrindas	Įgaliojimas

2. ATSAKINGI ASMENYS	
2.1. Pirkėjo kontaktiniai asmenys, atsakingi už Sutarties vykdymą, Prekių priėmimą	
Pirkėjo kontaktiniai asmenys, atsakingi už Sutarties ir pakeitimų paskelbimą pagal LR Viešųjų pirkimų įstatymo 86 straipsnio 9 dalies nuostatas	
2.2. Tiekėjo kontaktiniai asmenys, atsakingi už Sutarties vykdymą	
3. SUTARTIES DALYKAS	
3.1. Sutarties dalykas	Tiekėjas įsipareigoja Sutartyje numatytomis sąlygomis perduoti Pirkėjui Prekes, nurodytas Sutarties priede Nr.1, jame nurodytomis kainomis (taip pat ir instaliuoti/įdiegti/pajungti, apmokyti personalą, teikti garantinio

	aptarnavimo ir priežiūros paslaugas, atlikti techninę patikrą garantiniu laikotarpiu) (toliau – Prekės). Išsamus Prekių aprašymas ir kiti reikalavimai tiekiamoms Prekėms nustatyti Sutarties priede Nr. 1 „Prekių kaina, kiekis ir specifikacija" (toliau – Techninė specifikacija) ir Sutarties priede Nr. 3 „Pasiūlymas".
3.2. Pirkimo numeris	2135674 (pirkimo senoje CVP IS Nr. 735927, naujoje CVP IS ID. 150948)
3.3. Informacija apie Europos Sąjungos lėšomis finansuojamą projektą arba kitą projektą	Netaikoma
4. PREKIŲ PRISTATYMO TERMINAI IR PREKIŲ PERDAVIMO - PRIĖMIMO TVARKA	
4.1. Prekių pristatymo terminai, kai Prekės pristatomos dalimis	Tiekėjas Prekes įsipareigoja pristatyti ne vėliau kaip per **60 dienų** nuo Sutarties įsigaliojimo dienos Pirkėjo nurodytu laiku (darbo dienomis nuo 8 iki 16 val.) šiuo adresu: VšĮ Kauno miesto poliklinika, Kaunas *(nurodyta Sutarties 1 priede)*.
4.2. Prekių (ar jų dalies) pristatymo termino pratęsimas	Tiekėjas turi teisę į Prekių pristatymo termino pratęsimą, tačiau tik tuo atveju, jei atsiranda įrodymais pagrįstų kliūčių ar trukdymų, kurių atsiradimui Tiekėjas neturi įtakos ir už kuriuos jis neatsako ir kurie sukelti ir priskirtini tretiesiems asmenims, ar kitų aplinkybių, kurių Tiekėjas negalėjo iš anksto numatyti. Aplinkybės, kuriomis grindžiama būtinybė pratęsti Prekių tiekimo terminą, jokiu būdu negali priklausyti nuo Tiekėjo. Kiekvienu tokiu atveju, Tiekėjas raštu nedelsdamas, bet ne vėliau kaip per **3 darbo dienas**, apie tai praneša Pirkėjui, pateikdamas minėtų aplinkybių egzistavimo įrodymus. Nurodytas aplinkybes vertina Pirkėjas. Pirkėjui sutikus, Prekių pristatymo terminas gali būti pratęsiamas tik minėtų aplinkybių egzistavimo laikotarpiui, bet ne ilgiau nei **30 darbo dienų** laikotarpiui.
4.3. Užsakymų teikimo tvarka	Netaikoma
4.4. Dėl Prekių pristatymo dalimis vertės / apimties	Netaikoma
4.5. Reikalavimai prekių pristatymui ir kartu su Prekėmis pateikiami dokumentai	4.5.1. Tiekėjas įsipareigoja Pirkėjui pristatyti naujas, nenaudotas, gamintojo originaliose, nepažeistose pakuotėse (pakuotė turi atitikti atsparumo pakrovimo ir iškrovimo darbams taikomus reikalavimus, siekiant apsaugoti Prekes nuo meteorologinių veiksnių įtakos Prekių gabenimo ir sandėliavimo metu, užtikrinti Prekių išsaugojimą jas gabenant), neturinčias paslėptų trūkumų bei defektų Prekes, atitinkančias specifikacijas, kurios yra nurodytos Sutarties 1 priede. 4.5.2. Gamykliškai atnaujinti „renew", „refurbished", „remarked" komponentai neleistini. Prekių kokybė turi atitikti toms prekėms taikomus kokybės reikalavimus. 4.5.3. Prekių komplektiškumas turi atitikti suderinto asortimento reikalavimus. 4.5.4. Prekės pristatomos sukomplektuotos su visais būtinais reikmenimis, lietuviškomis technine ir naudojimo instrukcijomis, serviso dokumentacija, atitikties deklaracija (gaminio kokybės užtikrinimu)/sertifikatu (arba lygiaverčiais dokumentais, jei taikoma), kad būtų užtikrintas tinkamas prekių naudojamas. 4.5.5. Į visą Prekių komplektą turi įeiti visos detalės ir kitos sudedamosios dalys bei medžiagos (įskaitant, bet neapsiribojant nurodytomis Sutarties 1 priede „Techninė specifikacija), reikalingos normaliam Prekės naudojimui.

5. SUTARTIES KAINA IR ATSISKAITYMO TVARKA	
5.1. Sutarčiai taikomas kainos apskaičiavimo būdas	Fiksuotos kainos kainodara
5.2. Pradinės Sutarties vertė ir Sutarties kaina, kai taikoma <u>fiksuoto įkainio</u> kainodara	**5 pirkimo objekto dalis. Kompiuterinis perimetras, 1 vnt.**

Pradinė Sutarties vertė be PVM	8.800,00 Eur (aštuoni tūkstančiai aštuoni šimtai Eur ir 00 ct
21 % PVM	1.848,00 Eur (tūkstantis aštuoni šimtai keturiasdešimt aštuoni Eur ir 00 ct
Sutarties kaina (Pradinė Sutarties vertė + PVM)	10.648,00 Eur (dešimt tūkstančių šeši šimtai keturiasdešimt aštuoni Eur ir 00 ct

Bendra Sutarties kaina:

Pradinė Sutarties vertė be PVM	8.800,00 Eur (aštuoni tūkstančiai aštuoni šimtai Eu 00 ct
21 % PVM	1.848,00 Eur (tūkstantis aštuoni šimtai keturiasdeš aštuoni Eur ir 00 ct
Sutarties kaina (Pradinė Sutarties vertė + PVM)	10.648,00 Eur (dešimt tūkstančių šeši šimtai keturiasdešimt aštuoni Eur ir 00 ct

Šioje Sutartyje Pradinės Sutarties vertė yra lygi Tiekėjo pasiūlymo kainai be PVM, nurodytai už visą pirkimo dokumentuose ir Sutartyje nurodytą Prekių kiekį ir (ar) apimtį.

5.3. Sutarties kainos / įkainių perskaičiavimas taikant <u>peržiūros</u> taisykles	Sutarties įkainis bus perskaičiuojamas: dėl PVM tarifo pasikeitimo;
5.3.1. Sutarties kainos / įkainių peržiūra dėl PVM tarifo pasikeitimo	Jeigu Sutarties vykdymo metu pasikeičia PVM mokėjimą reglamentuojantys teisės aktai, darantys tiesioginę įtaką Tiekėjo tiekiamų Prekių Sutartyje nurodytai kainai/įkainiams, Sutarties kaina / įkainiai perskaičiuojami nekeičiant Prekių kainos / įkainio be PVM. Perskaičiuota Sutarties kaina / Prekių įkainiai įforminami Susitarimu ir turi būti taikomi nuo naujo PVM įvedimo datos (nepriklausomai nuo to, kada pasirašytas Susitarimas).
5.3.2. Sutarties kainos / įkainių peržiūra dėl kitų mokesčių, lemiančių Prekių kainos pokytį, pasikeitimo	Netaikoma
5.3.3. Sutarties kainos / įkainių peržiūra dėl kainų lygio pokyčio	Netaikoma

5.3.4. Sutarties kainos / įkainių peržiūra dėl kainų lygio pokyčio pagal Prekių grupių kainų pokyčius	Netaikoma
5.4. Sutarties kainos / įkainių apskaičiavimas taikant <u>kiekio (apimties)</u> keitimo taisykles	Netaikoma
5.5. Atsiskaitymo su Tiekėju terminas ir tvarka	Pirkėjas atsiskaito su Tiekėju ne vėliau kaip per 30 (trisdešimt) kalendorinių dienų nuo Sąskaitos patvirtinimo dienos.
5.6. Avansas	Netaikoma
5.7. Avanso užtikrinimas	Netaikoma
6. PREKIŲ KOKYBĖ IR GARANTINIAI ĮSIPAREIGOJIMAI	
6.1. Garantinis terminas	Prekėms nustatomas Tiekėjo pasiūlytas arba Prekių gamintojo taikomas Garantinis terminas, tačiau bet kokiu atveju **ne trumpesnis kaip (įrašyti):** 5 p.o.d. „Kompiuterinis perimetras" : 24 mėnesiai; Garantinis terminas, skaičiuojamas nuo Prekių perdavimo-priėmimo akto pasirašymo dienos.
6.2. Garantinė priežiūra	Garantinio termino laikotarpiu Tiekėjas, gavęs pranešimą apie Prekės trūkumus, privalo **ne vėliau kaip** per 5 darbo dienas pašalinti trūkumus. Prekių trūkumų nustatymo bei šalinimo tvarka nustatyta Bendrųjų sąlygų 7 skyriuje.
7. SUTARTIES VYKDYMUI PASITELKIAMI SUBTIEKĖJAI	
Sutarties vykdymui pasitelkiami subtiekėjai ir (ar) specialistai	Sutarties vykdymui subtiekėjai ir (ar) specialistai nepasitelkiami.
8. PRIEVOLIŲ PAGAL SUTARTĮ ĮVYKDYMO UŽTIKRINIMAS	
8.1. Prievolių pagal Sutartį įvykdymo užtikrinimas	Prievolių pagal Sutartį įvykdymas užtikrinamas: Netesybomis (delspinigiais, bauda).
8.2. Sutarties įvykdymo užtikrinimo pateikimas	Netaikoma
9. ŠALIŲ ATSAKOMYBĖ	
9.1. Pirkėjui taikomos netesybos už mokėjimų pagal Sutartį vėlavimą	Jei Pirkėjas, gavęs tinkamai pateiktą ir užpildytą Sąskaitą, uždelsia atsiskaityti už tinkamai Tiekėjo perduotas kokybiškas Prekes per Sutartyje nurodytą terminą, Tiekėjas nuo kitos nei nustatytas terminas dienos skaičiuoja Pirkėjui 0,1 (vienos dešimtosios) procento dydžio delspinigius nuo neapmokėtos sumos be PVM už kiekvieną vėlavimo dieną.
9.2. Tiekėjui taikomos netesybos	9.2.1. Jeigu Tiekėjas vėluoja vykdyti užsakymą, tiekti Prekes ar ištaisyti jų trūkumus arba nevykdo kitų sutartinių įsipareigojimų, Pirkėjas nuo kitos nei nustatytas terminas dienos Tiekėjui skaičiuoja 0,1 (vienos dešimtosios) procento dydžio delspinigius už kiekvieną uždelstą dieną nuo laiku neperduotų Prekių ar Prekių, turinčių trūkumų, kainos be PVM. 9.2.2. Tiekėjas privalo sumokėti Pirkėjui netesybas per 10 (dešimt) dienų nuo Pirkėjo pareikalavimo.

9.3. Tiekėjui / Pirkėjui taikoma bauda nutraukus Sutartį dėl esminio Sutarties pažeidimo	Nutraukus Sutartį dėl esminio Sutarties pažeidimo, nustatyto Sutarties Specialiosiose sąlygose, mokama 20 % (dvidešimt) procentų dydžio bauda nuo Pradinės Sutarties vertės be PVM, nurodytos Specialiųjų sąlygų 5.2 punkte.
9.4. Tiekėjui taikoma bauda dėl esamų subtiekėjų ar specialistų pakeitimo / naujų subtiekėjų pasitelkimo nesilaikant Bendrosiose sąlygose nurodytos subtiekėjų ir (ar) specialistų keitimo tvarkos	20 % (dvidešimt) procentų dydžio bauda nuo Pradinės Sutarties vertės be PVM taikomą už kiekvieną pažeidimo atvejį.
9.5. Tiekėjui taikomos baudos dėl aplinkosauginių ir (arba) socialinių kriterijų nesilaikymo	5 % (penkių) procentų dydžio bauda nuo Pradinės Sutarties vertės be PVM .
9.6. Tiekėjui / Pirkėjui taikoma bauda dėl konfidencialumo reikalavimų nesilaikymo	Netaikoma
9.7. Tiekėjui taikomos netesybos dėl pirkimo dokumentuose nustatytų kokybinių kriterijų nepasiekimo Sutarties vykdymo metu	Netaikoma
9.8. Tiekėjui taikomos netesybos dėl Sutarties įvykdymo užtikrinimo nepratęsimo	Netaikoma
9.9. Kitos netesybos	Jei Tiekėjas Sutarties galiojimo metu atsisako pristatyti Pirkėjui Prekes pagal Sutarties sąlygas ir dėl šios priežasties Pirkėjas priverstas nutraukti Sutartį dėl Prekių pirkimo, Tiekėjas moka Pirkėjui 20 % (dvidešimt procentų) baudą nuo Pradinės Sutarties vertės be PVM.
10. SUTARTIES GALIOJIMAS IR KEITIMAS	
10.1. Sutarties sudarymas ir įsigaliojimas	Ši Sutartis laikoma sudaryta ir įsigalioja nuo Sutarties pasirašymo dienos (antrosios Šalies pasirašymo dieną). Sutartis galioja iki visiško prievolių įvykdymo (kol bus išnaudota Pradinės Sutarties vertė).
10.2. Sutarties galiojimo termino pratęsimas	Netaikoma
11. SUTARTIES NUTRAUKIMAS	

11.1. Sutarties nutraukimo pagrindai	Sutartis gali būti nutraukiama rašytiniu Šalių susitarimu arba vienašališkai, Bendrosiose sąlygose nustatyta tvarka.
11.2. Esminiai Sutarties pažeidimai	11.2.1. jeigu Tiekėjas nevykdo prisiimtų įsipareigojimų už Sutartyje nustatytą Sutarties kainą / įkainius;
	11.2.2. jeigu Tiekėjas nesilaiko Sutartyje nustatytų Prekių tiekimo terminų 2 (du) kartus iš eilės arba vėluoja pristatyti Prekes daugiau nei 10 (dešimt) darbo dienų nuo Sutartyje nustatyto Prekių pristatymo termino;
	11.2.3. jeigu Tiekėjas pažeidžia Prekių pristatymo terminus ir priskaičiuotų netesybų už vėlavimą suma viršija 20 (dvidešimt) proc. Pradinės sutarties vertės;
	11.2.4. Tiekėjas pažeidžia Prekių pristatymo terminus ir dėl Prekių pristatymo vėlavimo Prekės tampa nebereikalingos;
	11.2.5. Tiekėjas daugiau kaip 2 (du) kartus pristato Prekes, kurios neatitinka Sutartyje ir (ar) Įstatymuose nustatytų reikalavimų Prekėms;
	11.2.6. Tiekėjo kvalifikacija tapo nebeatitinkančia pirkimo dokumentuose nustatytų Sutarties tinkamam vykdymui būtinų reikalavimų ir šie neatitikimai nebuvo ištaisyti per 14 (keturiolika) kalendorinių dienų nuo kvalifikacijos tapimo neatitinkančia dienos;
	11.2.7. Tiekėjas pažeidžia šios Sutarties nuostatas, reglamentuojančias konkurenciją, intelektinės nuosavybės ar konfidencialios informacijos valdymą;
	11.2.8. Tiekėjas pažeidžia Bendrųjų sąlygų nuostatas dėl Sutarties vykdymui pasitelkiamų naujų subtiekėjų ir (ar specialistų) / esamų subtiekėjų ir (ar) specialistų keitimo.
12. APLINKOSAUGINIAI IR SOCIALINIAI KRITERIJAI (taikoma, jeigu aplinkosauginiai ir (arba) socialiniai kriterijai nustatomi kaip Sutarties vykdymo sąlygos)	
12.1. Aplinkosauginių kriterijų nustatymo teisinis pagrindas	Aplinkosauginiai kriterijai Prekėms nustatomi vadovaujantis Aplinkos apsaugos kriterijų taikymo, vykdant žaliuosius pirkimus, tvarkos aprašo, patvirtinto 2011 m. birželio 28 d. įsakymu D1-508 „Dėl Aplinkos apsaugos kriterijų taikymo, vykdant žaliuosius pirkimus, tvarkos aprašo patvirtinimo" (toliau – Tvarkos aprašas) 4.4.4.4, 4.4.4.5, 6. punktais.
12.2. Su Prekių pakuotėmis susiję aplinkosauginiai kriterijai	Jeigu Prekės supakuojamos į antrinę pakuotę, ji turi būti perdirbamoji pakuotė pagal Lietuvos Respublikos mokesčio už aplinkos teršimą įstatymo nuostatas. Tiekėjas patiekdamas Prekes Pirkėjui, pateikia Prekės antrinės pakuotės tinkamumą perdirbti (perdirbamumą) patvirtinančius dokumentus (pavyzdžiui, pakuotės aprašymo dokumentą, techninį dokumentą, dokumentą iš akredituotų laboratorijų ar pakuočių atliekų perdirbėjų, ar eksportuotojų iš tvarkytojų sąrašo, ar kitus lygiaverčius objektyvius įrodymus). Už Prekių priėmimą atsakingas Pirkėjo atstovas, nurodytas šios Sutarties 2.1 punkte patikrina Tiekėjo pateiktus įrodymus dėl šiame punkte nustatytų reikalavimų laikymosi. Nustačius, kad Tiekėjas šiame punkte nustatytų reikalavimų nesilaiko, už Prekių priėmimą atsakingas Pirkėjo atstovas turi teisę Prekių nepriimti ir laikyti, kad Prekės turi trūkumų, kuriuos Tiekėjas privalo ištaisyti, kitu atveju Tiekėjui taikoma Specialiųjų sąlygų 9.5 punkte nurodyto dydžio bauda.
12.3. Su Prekių pristatymu susiję aplinkosauginiai kriterijai	Netaikoma
12.4. Su Prekėmis susijusių paslaugų (pavyzdžiui, montavimo,	Tiekėjas įsipareigoja pravesti mokymus, kuriuose būtų aptarti elektros energijos vartojimo efektyvumo didinimo aspektai (vartojimo parametrų reguliavimas ir tikslinimas, ir kt.).

apmokymo ir kitos parengimui naudoti skirtos paslaugos) teikimu susiję aplinkosauginiai kriterijai	Tiekėjas įsipareigoja Prekę sumontuoti taip, kad būtų pasiektas kuo didesnis vartojimo efektyvumas: Tiekėjas turi pateikti Pirkėjo poreikių vertinimą, pasiūlyti geriausius Prekės energijos vartojimo parametrus. Tiekėjas, atlikdamas techninę Prekės priežiūrą, pakartotinai turi tikslinti ir pasiūlyti geriausius Prekės vartojimo parametrus.
12.5. Su perkamomis Prekėmis susiję socialiniai kriterijai	Netaikoma
12.6. Su perkamomis Prekėmis susiję kriterijai	Tiekėjas turi užtikrinti, kad per Prekės naudojimo laikotarpį būtų galima įsigyti originalių arba joms lygiaverčių atsarginių dalių. Tiekėjas turi užtikrinti galimybę atnaujinti Prekės sudėtines dalis/sistemas, įskaitant ir programinę įrangą, siekiant prailginti Prekės efektyvaus panaudojimo laiką.

13. SUTARTIES PRIEDAI	
13.1. Priedas Nr. 1	Prekių kaina, kiekis ir specifikacija
13.2. Priedas Nr. 2	Prekių perdavimo—priėmimo aktas
13.3. Priedas Nr. 3	Tiekėjo pasiūlymas ir pasiūlymo paaiškinimai (jei tokių bus)
13.4. Priedas Nr. 4	Sutarties vykdymui pasitelkiami subtiekėjai ir (ar) specialistai

14. ŠALIŲ ATSTOVŲ PARAŠAI	
PIRKĖJAS	**TIEKĖJAS**
(parašas)	(parašas)

PREKIŲ KAINA (ĮKAINIS), KIEKIS IR SPECIFIKACIJA

Eil. Nr.	Prekės pavadinimas	Mato vnt.	Kiekis, vnt.	Mato vnt. kaina Eur be PVM	Suma Eur be PVM (4x5)
1	2	3	4	5	6
5 PIRKIMO OBJEKTO DALIS „KOMPIUTERINIS PERIMETRAS"					
1.	Kompiuterinis perimetras (Gamintojas Optopol, Lenkija, katalogo Nr. PTS-925W)	vnt.	1	8800,00	8800,00
	Bendra 5 pirkimo dalies suma Eur be PVM:				8800,00
	21 % PVM:				1848,00
	Bendra 5 pirkimo dalies suma Eur su PVM:				10648,00

Eil. Nr.	Techniniai reikalavimai	Reikalaujamos parametrų reikšmės	Atitikimas kokybiniams ir techniniams reikalavimams. Nuoroda į pridedamus, prekės atitikimą reikalaujamoms charakteristikoms įrodančius, dokumentus (bukletų, techninių aprašų puslapių Nr.)		
			Siūlomos prekės pavadinimas, techniniai parametrai	Pasiūlymo dokumentai, patvirtinantys siūlomos prekės techninius parametrus	
				dokumento pavadinimas	pasiūlymo lapo numeris
5.1.	Prietaiso paskirtis	Skirtas paciento regėjimo lauko įvertinimui statiniu metodu.	Skirtas paciento regėjimo lauko įvertinimui statiniu metodu. *Kompiuterinis perimetras, modelis: PTS-925W, gamintojas Optopol, Lenkija.*	Bukletas 5.P.d.	2, 6

Nr.	Parametras				Balai
5.2.	Perimetro ekrano diametras (Ø)	30±0,5 cm.	30 cm.	Bukletas 5.P.d.	6
5.3.	Tiriamojo lauko foninis apšvietimas	31,5±5% asb.	31,5% asb.	Bukletas 5.P.d.	6
5.4.	Stimulo spalva	Balta	Balta	Bukletas 5.P.d.	6
5.5.	Stimulo dydis (pagal Goldmann)	Ne mažiau nei 3	3	Bukletas 5.P.d.	6
5.6.	Tiriamo akipločio ribos	Horizontaliai:≥100°;	Horizontaliai:170°;	Bukletas 5.P.d.	3
5.7.	Maksimalus stimulo intensyvumas	≥10000 asb.	10000 asb.	Bukletas 5.P.d.	6
5.8.	Testų laukai	1. "10-2"; 2. "24-2"; 3. "30-2";	1. "10-2"; 2. "24-2"; "30-2";	Bukletas 5.P.d.	6
5.9.	Minimalus patikros testų pasirinkimas	2-jų zonų; 3-jų zonų; Defekto gylio.	2-jų zonų; 3-jų zonų; Defekto gylio.	Bukletas 5.P.d.	6
5.10.	Minimalus slenkstinių testų pasirinkimas	1. Slenksčio matavimas; Greitas slenksčio matavimas;	1. Slenksčio matavimas; Greitas slenksčio matavimas;	Bukletas 5.P.d.	6
5.11.	Minimalus specialių testų pasirinkimas	1. Vairuotojų tyrimas; 2. Binokulinis dvejinimosi tyrimas; 3. Virpėjimo (angl. flicker) tyrimas.	1. Vairuotojų tyrimas; 2. Binokulinis dvejinimosi tyrimas; 3. Virpėjimo (angl. flicker) tyrimas.	Bukletas 5.P.d.	6
5.12.	Pakartotinai atliekamų tyrimų analizė	1. Rezultatų palyginimas; 2. Defekto progresavimo įvertinimas.	1. Rezultatų palyginimas; 2. Defekto progresavimo įvertinimas.	Bukletas 5.P.d.	6
5.13.	Paciento žvilgsnio fiksacijos sekimas	1. Žvilgsnio sekimas; 2. Mirksėjimo sekimas (tyrimas stabdomas pacientui užmerkus akį)	1. Žvilgsnio sekimas; Mirksėjimo sekimas (tyrimas t.b. stabdomas pacientui užmerkus akį)	Bukletas 5.P.d.	6
5.14.	Paciento galvos padėties (aukščio) pozicionavimas	Motorizuotos smakro atramos pagalba	Motorizuotos smakro atramos pagalba	Bukletas 5.P.d.	8
5.15.	DICOM suderinamumas	Darbų sąrašo (angl. worklist) palaikymas; Rezultatų siuntimas.	Darbų sąrašo (angl. worklist) palaikymas; Rezultatų siuntimas.	Bukletas 5.P.d.	5

5.16.	Valdymas ir duomenų saugojimas	Integruotas priemonėje arba su kompiuterio pagalba (jei kompiuterio pagalba tada turi atitikti 5.17 punktą, jei integruotas priemonėje 5.17 punkto nepildyti)	Kompiuterio pagalba (Kuris atitinka 5.17 punktą)	Bukletas 5.P.d.	9
5.17.	Komplekte su kompiuteriu	Stacionarus kompiuteris su monitoriumi, klaviatūra, pele, arba nešiojamas kompiuteris, pilnai užtikrinantis prietaiso funkcionavimą. Kompiuteryje turi būti instaliuotos programos, būtinos prietaiso valdymui bei numatytiems tyrimams atlikti, pacientų duomenų bei tyrimų išsaugojimui.	Nešiojamas kompiuteris, pilnai užtikrinantis prietaiso funkcionavimą. Kompiuteryje instaliuotos programos, būtinos prietaiso valdymui bei numatytiems tyrimams atlikti, pacientų duomenų bei tyrimų išsaugojimui.	Bukletas 5.P.d.	9
5.17.1	Procesorius	Kompiuterio procesoriaus našumas pagal viešai publikuojamus Passmark performance CPU mark procesorių įvertinimo rezultatus, pateikiamus http://www.cpubenchmark .net/cpu_list.php (ne mažiau nei 7500. Nurodyti konkretų procesoriaus modelį. Procesoriaus sparta negali būti dirbtinai padidinta.	Kompiuterio procesoriaus našumas pagal viešai publikuojamus Passmark performance CPU mark procesorių įvertinimo rezultatus, pateikiamus http://www.cpubenchmark. net/cpu_list.php (14406. Procesoriaus modelis : intel core i5-1335u. Procesoriaus sparta nėra dirbtinai padidinta). Procesoriaus sparta nėra dirbtinai padidinta.	Bukletas 5.P.d.	9, 11
5.17.2	Suderinamumas	Kompiuteris turi būti suderintas su Microsoft Windows (Windows 10 arba naujesne versija))	Kompiuteris suderintas su Microsoft Windows (Windows 11 Pro versija)) operacine	Bukletas 5.P.d.	9

Nr.	Parametras	Reikalavimas	Siūloma	Nuoroda	Psl.
		...operacine sistema ir įtrauktas į Windows sertifikuotų produktų sąrašą	...sistema ir įtrauktas į Windows sertifikuotų produktų sąrašą		
5.17.3	Procesoriaus architektūra	Ne mažiau nei 64 bitai	64 bitai	Bukletas 5.P.d.	9
5.17.4	Operatyviosios atminties talpa	Ne mažiau nei 8 GB	8 GB	Bukletas 5.P.d.	9
5.17.5	Kietasis diskas	SSD tipo, duomenų skaitymo/rašymo greitis ne mažiau 500/500 MB/s, talpa ne mažiau nei 250 GB	SSD tipo, duomenų skaitymo/rašymo greitis 4348/3564 MB/s, talpa 512 GB	Bukletas 5.P.d.	9, 12
5.17.6	Operacinė sistema	Operacinė sistema Microsoft Windows Professional arba lygiavertė (OEM, Windows 10 arba naujesnė versija)	Operacinė sistema Microsoft Windows Professional (Windows 11 Pro versija)	Bukletas 5.P.d.	9
5.17.7	Monitorius (jei kompiuteris stacionarus)	LCD arba lygiavertis monitorius, ekrano įstrižainė nuo 23" iki 24,5", ekrano kraštinių santykis ne mažiau nei 16:9, ekrano taškų skaičius ne mažiau nei 1920x1080	Nešiojamas kompiuteris	Bukletas 5.P.d.	9
5.17.8	Priedai	Kompiuteris su monitoriumi arba nešiojamas kompiuteris komplektuojamas su visais kabeliais, adapteriais ir kitomis sudedamosiomis dalimis bei medžiagomis, reikalingomis visų užsakomos sistemos vidinių ir periferinių įrenginių sujungimui, užtikrinant sistemos funkcionavimą (pvz., maitinimo, kietojo disko kabeliai ir t.t.).	Nešiojamas kompiuteris komplektuojamas su visais kabeliais, adapteriais ir kitomis sudedamosiomis dalimis bei medžiagomis, reikalingomis visų užsakomos sistemos vidinių ir periferinių įrenginių sujungimui, užtikrinant sistemos funkcionavimą (pvz., maitinimo, kietojo disko kabeliai ir t.t.).	Bukletas 5.P.d.	9

Eil. Nr.	Parametrai	Reikalavimai	Siūlomos prekės parametrai	Dokumento pavadinimas	Dokumento lapo numeris
5.18	Duomenų spausdinimas	Gamintojo priemonėje integruotas spausdinimas (pateikiama kartu su spausdinimo popieriumi, ne mažiau nei 3 pakuotės) arba nespalvotas lazerinis spausdintuvas, arba rašalinis spausdintuvas, tyrimo rezultatų spausdinimui. Maksimalus spausdinimo lapas A4 formatas. Skiriamoji geba (raiška) ne mažiau nei 600x600 dpi. Pateikiama (-os) to paties įrangos gamintojo juodos spalvos dažomųjų miltelių kasetė (-ės), kurios (-ių) resursas ne mažiau kaip 4 000 standartinių A4 formato lapų.	Nespalvotas lazerinis spausdintuvas, tyrimo rezultatų spausdinimui. Maksimalus spausdinimo lapas A4 formatas. Skiriamoji geba (raiška) 1200x1200 dpi. Pateikiama to paties įrangos gamintojo juodos spalvos dažomųjų miltelių kasetė, kurios resursas 10 000 standartinių A4 formato lapų.	Bukletas 5.P.d.	13, 14, 15
5.19.	Komplekte su oftalmologiniu reguliuojamo aukščio elektriniu staliuku	Staliukas su 4 ratukais ir stabdžiais	Staliukas su 4 ratukais ir stabdžiais	Bukletas 5.P.d.	16

Kokybės kriterijai:

10 lentelė

Eil. Nr.	Kriterijaus (Qi) parametrai	Kriterijaus lyginamasis svoris ekonominio naudingumo įvertinime		Atitikimas kokybiniams reikalavimams. Nuoroda į pridedamus, prekės atitikimą papildomoms charakteristikoms įrodančius, dokumentus (bukletų, techninių aprašų puslapių Nr.)		
				Siūlomos prekės techniniai parametrai	Pasiūlymo dokumentai, patvirtinantys siūlomos prekės techninius parametrus	
		Ne	Taip		Dokumento pavadinimas	Dokumento lapo numeris
1.	Tyrimo rezultatų pateikimo forma HFA stiliumi.	Ne		Taip. Tyrimo rezultatų	Bukletas 5.P.d.	7

Nr.		Ne	Taip		Bukletas 5.P.d.	
				pateikimo forma HFA stiliumi.		
2.	Laikiklis korekciniams lęšiams tinkamas naudoti su standartiniais korekciniais lęšiais, reguliuojamos padėties prieš akį.	Ne / 0	Taip / 5	Taip. Laikiklis korekciniams lęšiams tinkamas naudoti su standartiniais korekciniais lęšiais, reguliuojamos padėties prieš akį.	Bukletas 5.P.d.	1, 17
3.	Standartinių ne mažiau kaip 10 tyrimų ir bent vieną gali sukurti vartotojas	Ne / 0	Taip / 5	Taip. Standartinių 12 tyrimų ir bent vieną gali sukurti vartotojas	Bukletas 5.P.d.	18, 19, 20
4.	Mirksėjimo sekimas (tyrimas stabdomas pacientui užmerkus akį)	Ne / 0	Taip / 5	Taip. Mirksėjimo sekimas (tyrimas stabdomas pacientui užmerkus akį)	Bukletas 5.P.d.	5
5.	Galimybę valdyti prietaisą per išorinį planšetinį kompiuterį bevieliu sujungimu.	Ne	Taip	Ne	(įrašyti)	(įrašyti)

Viešoji įstaiga Kauno miesto poliklinika   UAB „Kavita"

Prekių perdavimo—priėmimo aktas

==pasirinkti datą==
Kaunas

VšĮ Kauno miesto poliklinika, kodas 135042394 (toliau — **Pirkėjas**), kurios buveinė — Pramonės pr. 31, 51270 Kaunas, atstovaujama direktoriaus Pauliaus Kibišos, veikiančio pagal įstaigos įstatus, viena šalis, ir
==įrašyti tiekėjo pavadinimą==, kodas ==įrašyti juridinio asmens kodą== (toliau — **Tiekėjas**), kurios buveinė — ==[įrašyti adresą]==, kurią atstovauja ==įrašyti atstovo pareigas== ==įrašyti atstovo vardą ir pavardę==. ==pasirinkti== pagal ==įrašyti įgaliojimų pagrindą==, kita šalis,
vadovaujantis sudaryta viešojo pirkimo-pardavimo sutartimi ==pasirinkti datą== Nr. ==įrašyti Sutarties numerį==, sudarė šį Prekių perdavimo-priėmimo aktą:

1. Tiekėjas perduoda Pirkėjui Prekes —==nurodyti prekių pavadinimą== ==nurodyti kiekį==, kurių kaina be pridėtinės vertės mokesčio (toliau — PVM) ==nurodyti sumą skaičiais ir žodžiais bei mokėjimo valiutą==, PVM — ==nurodyti sumą skaičiais ir žodžiais bei mokėjimo valiutą==, **bendra kaina** — ==nurodyti sumą skaičiais ir žodžiais bei mokėjimo valiutą==, o Pirkėjas šias Prekes priima.
2. Prekės pristatytos, atitinka sudarytos pirkimo—pardavimo sutarties ==pasirinkti datą== d. Nr. ==įrašyti Sutarties numerį== sąlygas ir techninės specifikacijos reikalavimus, suinstaliuotos/įdiegtos/pajungtos, apmokytas personalas, pateikti visi reikalingi dokumentai, naudojimo ir priežiūros instrukcijos.
3. Šis aktas sudarytas 2 (dviem) egzemplioriais (po vieną Tiekėjui ir Pirkėjui), kurie turi vienodą juridinę galią.

Pirkėjo vardu priėmė:
Asmuo atsakingas už Sutarties vykdymą
==įrašyti atstovo vardą ir pavardę==

Už skyriaus (centro) turtą atsakingas asmuo
==įrašyti atstovo vardą ir pavardę==

A.V.

Tiekėjo vardu perdavė:

==įrašyti atstovo vardą ir pavardę==
A.V.

PREKIŲ PIRKIMO–PARDAVIMO SUTARTIES BENDROSIOS SĄLYGOS

1. PAGRINDINĖS SĄVOKOS IR SUTARTIES AIŠKINIMAS

1.1. Sąvokos

1.1.1. Šioje Sutartyje didžiąja raide rašomos sąvokos turi paskiau nurodytas reikšmes:

1.1.1.1. **Bendrosios sąlygos** – ši Sutarties dalis, kuri vadinasi „Prekių pirkimo-pardavimo sutarties Bendrosios sąlygos";

1.1.1.2. **Pirkėjas** – asmuo, kuris Specialiosiose sąlygose yra įvardytas kaip Pirkėjas, įsigyjantis Specialiosiose sąlygose ir Sutarties prieduose nurodytas Prekes;

1.1.1.3. **Pradinės sutarties vertė** – Specialiosiose sąlygose nurodyta vertė (be PVM);

1.1.1.4. **Prekės** – Specialiosiose sąlygose ir Sutarties prieduose nurodytos prekės (prekių pirkimas, nuoma, finansinė nuoma (lizingas), pirkimas išsimokėtinai, numatant jas įsigyti ar to nenumatant), taip pat įsigyjamų prekių pristatymo, montavimo, diegimo ir kitos jų parengimo naudoti paslaugos (toliau – su Prekėmis susijusios paslaugos), jeigu šios paslaugos tik papildo prekių tiekimą, kurias Tiekėjas įsipareigoja tiekti Pirkėjui pagal Sutartį ir galiojančių įstatymų bei kitų teisės aktų reikalavimus;

1.1.1.5. **Prekių perdavimo-priėmimo aktas** – dokumentas, kuriuo Tiekėjas perduoda, o Pirkėjas priima Prekes ir kuriuo Šalys patvirtina, kad pristatytos Prekės atitinka nustatytus reikalavimus. Jeigu Sutartyje yra numatytas Prekių pristatymas dalimis, Prekių perdavimo-priėmimo aktas gali būti sudaromas dėl kiekvienos dalies atskirai;

1.1.1.6. **Prekių trūkumai** – Prekių perdavimo-priėmimo metu ar Prekių garantinio termino galiojimo metu Pirkėjo ar (ir) trečiųjų asmenų nustatyti Prekių kokybės neatitikimai Sutarties ar (ir) įstatymų bei kitų teisės aktų reikalavimams, Prekių gedimai, paslėpti defektai, veiklos sutrikimai ar pan., dėl kurių Prekių nebūtų galima naudoti tam tikslui, kuriam Pirkėjas (jas) ketino naudoti, arba dėl kurių Prekių naudingumas sumažėtų taip, kad Pirkėjas, apie tuos trūkumus žinodamas, arba apskritai nebūtų tų Prekių pirkęs, arba nebūtų už Prekes mokėjęs tokio dydžio kainą;

1.1.1.7. **Sąskaita** – Tiekėjo išrašoma ir Pirkėjui apmokėjimui pateikiama sąskaita faktūra, PVM sąskaita faktūra ar kitas mokėjimo dokumentas už Tiekėjo perduotas bei Pirkėjo priimtas Prekes. Jeigu Sutartyje yra numatytas Prekių pristatymas dalimis, Sąskaita gali būti pateikiama dėl kiekvienos dalies atskirai;

1.1.1.8. **Specialiosios sąlygos** – Sutarties dalis, kuri vadinasi „Prekių pirkimo-pardavimo sutarties Specialiosios sąlygos" ir kurioje yra nurodytos konkretaus pirkimo objekto įsigijimą aptariančios sąlygos (tokios kaip Pradinės sutarties vertė, Prekių tiekimo terminai ir pan.) bei kiti konkretūs duomenys (tokie kaip Šalys, Prekės ir pan.), išvardyti priedai, taip pat nurodyti Bendrųjų sąlygų pakeitimai ir papildymai (jeigu tokie padaryti);

1.1.1.9. **Susitarimas** – tai dokumentas, kurį Šalys sudaro keisdamos Sutarties sąlygas VPĮ leidžiama apimtimi;

1.1.1.10. **Sutarties kaina** – pagal Sutartį Tiekėjui mokėtina galutinė suma, įskaitant visus privalomus mokesčius ir išlaidas;

1.1.1.11. **Sutarties sąlygos** – Bendrosios sąlygos ir Specialiosios sąlygos kartu;

1.1.1.12. **Sutartis** – Prekių pirkimo-pardavimo sutartis, kurią sudaro Sutarties sąlygos, Specialiosiose sąlygose išvardyti priedai ir Susitarimai;

1.1.1.13. **Šalis** – Pirkėjas arba Tiekėjas, kiekvienas atskirai, priklausomai nuo konteksto;

1.1.1.14. **Šalys** – Pirkėjas ir Tiekėjas kartu;

1.1.1.15. **Tiekėjas** – asmuo, kuris Specialiosiose sąlygose yra įvardytas kaip Tiekėjas, tiekiantis Specialiosiose sąlygose nurodytas Prekes;

1.1.1.16. **VPĮ** – Lietuvos Respublikos viešųjų pirkimų įstatymas.

1.1.1.17. Kitų Sutartyje didžiąja raide rašomų sąvokų reikšmės yra nurodytos Sutarties tekste.

1.1.1.18. Sutartyje neapibrėžtos sąvokos suprantamos ir aiškinamos taip, kaip jas apibrėžia VPĮ ir kiti įstatymai bei teisės aktai, galiojantys Sutarties sudarymo ir vykdymo metu.

1.1.1.19. Kitos Sutartyje vartojamos sąvokos ir terminai turi bendrinę reikšmę arba artimiausią Sutarties pobūdžiui specialiąją reikšmę, jei Sutartyje nėra nustatyta ir paaiškinta kitokia jų reikšmė.

1.2. Sutarties aiškinimas

1.2.1. Sutartis yra sudaryta ir turi būti aiškinama pagal Lietuvos Respublikos teisės aktus.

1.2.2. Jei Bendrosios sąlygos ir (ar) Specialiosios sąlygos prieštarauja VPĮ ir kitų teisės aktų reikalavimams, taikomos VPĮ ir kitų teisės aktų nuostatos.

1.2.3. Diena Sutartyje reiškia kalendorinę dieną.

1.2.4. Darbo diena Sutartyje reiškia bet kurią dieną, išskyrus šeštadienį, sekmadienį ir švenčių dienas Lietuvoje, nurodytas Lietuvos Respublikos darbo kodekse.

1.2.5. Terminai pagal Sutartį yra skaičiuojami metais, mėnesiais, savaitėmis, darbo dienomis, kalendorinėmis dienomis ir valandomis.

1.2.6. Kvalifikacija, rėmimasis kitų ūkio subjektų pajėgumais, Prekių apimtis, peržiūra suprantami taip, kaip nustatyta VPĮ bei jį įgyvendinančiuose teisės aktuose.

1.2.7. Jeigu Prekių perdavimo-priėmimo akto, kaip atskiro dokumento, reikalauti neprivaloma, Šalys susitaria, ir tai aiškiai nurodo Specialiosiose sąlygose, Prekių perdavimo-priėmimo aktu laikoma Sąskaita. Tais atvejais, kai išrašoma Sąskaita ir Prekių perdavimo-priėmimo aktas nepasirašomas, Sutarties nuostatos dėl Prekių perdavimo-priėmimo akto išrašymo taikomos ir Sąskaitos išrašymui.

1.2.8. Informuoti, pranešti, įspėti arba atsakyti reiškia pateikti informaciją, pranešimą, įspėjimą arba atsakymą Bendrosiose ir (ar) Specialiosiose sąlygose nustatyta tvarka.

1.2.9. Patvirtinti reiškia pateikti patvirtinimą raštu arba pasirašyti dokumentą be išlygų ar su išlygomis, išskyrus atvejus, kai asmuo, pasirašydamas dokumentą, nurodo, jog atsisako jį patvirtinti.

1.2.10. Jeigu Sutartyje nenurodyta kitaip, žodžiai, vartojami vienaskaitos forma taip pat reiškia ir daugiskaitą ir atvirkščiai, vienos giminės žodžiai apima ir kitos giminės atitinkamus žodžius, žodis asmuo reiškia tiek fizinius, tiek ir juridinius asmenis.

1.2.11. Jeigu Sutartyje nurodyta reikšmė skaičiais ir žodžiais skiriasi, vadovaujamasi žodžiais nurodyta reikšme.

1.2.12. Jei pateikiamos nuorodos į teisės aktus, turi būti taikomos aktualios teisės aktų redakcijos, jeigu nenurodyta kitaip.

1.3. Dokumentų viršenybė

1.3.1. Sutartį sudarantys dokumentai turi būti suprantami kaip papildantys vienas kitą. Bet kokio Sutarties dokumentų sąlygų neatitikimo ar neaiškumo atveju, toks neatitikimas ar neaiškumas pašalinamas dokumentus aiškinant tokia eilės tvarka:

1.3.1.1. Techninė specifikacija;

1.3.1.2. Specialiosios sąlygos;

1.3.1.3. Bendrosios sąlygos;

1.3.1.4. Pirkimo dokumentai (išskyrus techninę specifikaciją);

1.3.1.5. Pasiūlymas;

1.3.1.6. Kiti Specialiosiose sąlygose išvardinti priedai.

1.3.2. Tuo atveju, kai Šalių Susitarimu yra keičiamos Sutarties sąlygos, naujai sutartos Sutarties sąlygos turi viršenybę prieš pakeistąsias.

1.3.3. Jeigu Šalys susitaria dėl Sutarties sąlygų arba priedo papildymo nauja sąlyga, neatitikimo ar neaiškumo atveju tokia sąlyga turi viršenybę atitinkamai kitų Sutarties sąlygų arba kitų to priedo sąlygų atžvilgiu.

1.3.4. Jeigu Šalys susitaria dėl naujo priedo, Šalys turi sutarti dėl naujojo priedo įtraukimo į priedų sąrašą vietos ir jo reikšmės aiškinant Sutartį. Jeigu naujas priedas yra įterpiamas į priedų sąrašą, jam turi būti suteikiamas eilės numeris su viršutiniu indeksu, atsižvelgiant į priedų eiliškumą ir svarbą (pavyzdžiui, priedas Nr. 4[1]).

2. SUTARTIES DALYKAS

2.1. Tiekėjas įsipareigoja Sutartyje nustatytomis sąlygomis ir tvarka perduoti Pirkėjui Prekes, atitinkančias Sutartyje nustatytus reikalavimus, o Pirkėjas įsipareigoja priimti Sutarties sąlygas atitinkančias ir tinkamai patiektas Prekes bei sumokėti Tiekėjui Sutartyje nurodytą kainą Sutartyje nustatytomis sąlygomis ir tvarka.

2.2. Šalys, vykdydamos Sutartį, įsipareigoja laikytis visų Sutarties vykdymui taikytinų įstatymų bei kitų teisės aktų reikalavimų. Šalis turi teisę reikalauti, kad kita Šalis įvykdytų visus įstatymų bei kitų teisės aktų reikalavimus, taikomus Sutarties vykdymui. Nė viena iš Sutarties sąlygų nereiškia ir negali būti aiškinama kaip Pirkėjo atsisakymas įstatymuose bei kituose teisės aktuose numatytų ir Sutartimi neaptartų Pirkėjo kitų teisių ir garantijų, susijusių su netinkamu Prekių tiekimu ar jų kokybe, arba kaip Tiekėjo atsisakymas įstatymuose bei kituose teisės aktuose numatytų ir Sutartimi neaptartų Tiekėjo kitų teisių ir garantijų dėl atlyginimo už Prekes gavimo.

2.3. Tiekėjas privalo užtikrinti, kad Prekės atitiktų techninės specifikacijos reikalavimus ir Tiekėjo pasiūlymo sąlygas, būtų kokybiškos, tiekiamos tinkamai ir laiku, laikantis Sutarties sąlygų taip, kad tai labiausiai atitiktų Pirkėjo interesus, pagal geriausius visuotinai pripažįstamus profesinius, techninius standartus ir praktiką, panaudodamas visus reikiamus įgūdžius ir žinias.

3. TIEKĖJAS IR KITI SUTARTIES VYKDYMUI PASITELKIAMI ASMENYS

3.1. Kvalifikacija ir kiti Tiekėjo pasiūlymu prisiimti įsipareigojimai

3.1.1. Tiekėjas atsako už tai, kad visą Sutarties vykdymo laikotarpį Tiekėjas būtų kompetentingas, patikimas ir pajėgus (įskaitant ūkio subjektų, kurių pajėgumais remiasi Tiekėjas, pajėgumus) įvykdyti Sutarties reikalavimus:

3.1.1.1. turėtų teisę verstis ta veikla, kuri yra reikalinga Sutarčiai įvykdyti;

3.1.1.2. atitiktų tiekėjų kvalifikacijai pirkimo dokumentuose nustatytus Sutarties tinkamam vykdymui būtinus reikalavimus bei neturėtų pirkimo dokumentuose nustatytų pašalinimo pagrindų;

3.1.1.3. laikytųsi Tiekėjo pasiūlyme nurodytų įsipareigojimų, įskaitant, bet neapsiribojant – atitiktų pirkimo dokumentuose nustatytus kokybinių kriterijų reikšmes ir parametrus;

3.1.1.4. užtikrintų nustatytų kokybės vadybos sistemos ir (arba) aplinkos apsaugos vadybos sistemos standartų taikymą, jeigu to reikalaujama pirkimo dokumentuose, ir turėtų tą patvirtinančius dokumentus;

3.1.1.5. atitiktų nacionalinio saugumo interesus bei kilmės reikalavimus, jei tokie reikalavimai buvo numatyti pirkimo dokumentuose.

3.1.2. Tuo atveju, kai Tiekėjas yra jungtinės veiklos partneriai, jie Pirkėjui už Sutarties vykdymą atsako solidariai. Jeigu Tiekėjas remiasi ūkio subjektų pajėgumais, siekdamas atitikti finansinio ir ekonominio pajėgumo reikalavimus, Tiekėjas su tokiais ūkio subjektais už Sutarties vykdymą atsako solidariai (jeigu to buvo reikalaujama pirkimo dokumentuose).

3.1.3. Tiekėjas taip pat atsako už tai, kad Tiekėjas, Sutartį tiesiogiai vykdantys subtiekėjai ir specialistai atitiktų jiems įstatymų bei kitų teisės aktų ir (arba) pirkimo dokumentų nustatytus profesinės kvalifikacijos ir kitus reikalavimus bei turėtų teisę verstis ta veikla, kuriai jie pasitelkiami.

3.2. Subtiekėjų bei specialistų pasitelkimas ir keitimas

3.2.1. Tiekėjas įsipareigoja užtikrinti, kad Sutartį vykdys pirkime pasiūlyti ir kvalifikacijos bei kitus pirkimo dokumentuose nustatytus reikalavimus atitinkantys subtiekėjai ir (ar) specialistai. Šių asmenų veiksmai vykdant Sutartį Tiekėjui sukelia tokias pačias pasekmes ir atsakomybę, kaip jo paties veiksmai. Tiekėjas atsako už savo subtiekėjų ir specialistų veiksmus ar neveikimą.

3.2.2. Sutarties vykdymui pasitelkiami subtiekėjai ir (ar) specialistai (jeigu tokie pasitelkiami) nurodomi Specialiosiose sąlygose.

3.2.3. Tiekėjas turi teisę Sutarties vykdymui pasitelkti naujus, Specialiosiose sąlygose nenurodytus subtiekėjus, kurių pajėgumais nesirėmė pirkimo dokumentuose numatytiems kvalifikacijos reikalavimams pagrįsti. Sudarius Sutartį, tačiau ne vėliau negu Sutartis pradedama vykdyti, Tiekėjas įsipareigoja Pirkėjui

pranešti tuo metu žinomų subtiekėjų pavadinimus, kontaktinius duomenis ir jų atstovus. Pirkėjas taip pat reikalauja, kad Tiekėjas ne vėliau nei prieš 5 (penkias) darbo dienas informuotų apie minėtos informacijos pasikeitimus bei naujų subtiekėjų pasitelkimą visu Sutarties vykdymo metu. Pirkėjas (jeigu buvo taikoma pirkimo dokumentuose) turi patikrinti, ar nėra subtiekėjo pašalinimo pagrindų ir subtiekėjo atitiktį nacionalinio saugumo interesams ir kilmės reikalavimams. Jeigu subtiekėjo padėtis neatitinka bet vieno iš nurodytų reikalavimų, Pirkėjas reikalauja pakeisti šį subtiekėją reikalavimus atitinkančiu subtiekėju. Pirkėjas per 5 (penkias) darbo dienas raštu informuoja Tiekėją apie leidimą pasitelkti naują subtiekėją, kurio pajėgumais Tiekėjas nesirėmė pirkimo dokumentuose numatytiems kvalifikacijos reikalavimams pagrįsti. Pirkėjui sutikus, Šalys pasirašo Susitarimą, kuris laikomas neatsiejama Sutarties dalimi.

3.2.4. Tiekėjas gali keisti Sutartyje nurodytus subtiekėjus ir (ar) specialistus šiame Sutarties poskyryje nustatytais atvejais ir tvarka gavęs Pirkėjo rašytinį sutikimą.

3.2.5. Subtiekėjus, kurių pajėgumais Tiekėjas nesirėmė pirkimo dokumentuose numatytiems kvalifikacijos reikalavimams pagrįsti, Tiekėjas gali keisti savo nuožiūra, apie tai raštu ne vėliau, kaip prieš 5 (penkias) darbo dienas informuodamas Pirkėją. Pirkėjas (jeigu buvo taikoma pirkimo dokumentuose) turi patikrinti, ar nėra subtiekėjo pašalinimo pagrindų ir subtiekėjo atitiktį nacionalinio saugumo interesams ir kilmės reikalavimams. Jeigu subtiekėjo padėtis neatitinka bet vieno iš nurodytų reikalavimų, Pirkėjas reikalauja pakeisti šį subtiekėją reikalavimus atitinkančiu subtiekėju. Pirkėjas per 5 (penkias) darbo dienas raštu informuoja Tiekėją apie leidimą pakeisti subtiekėją. Pirkėjui sutikus, Šalys pasirašo Susitarimą, kuris laikomas neatsiejama Sutarties dalimi.

3.2.6. Subtiekėjas, kurio pajėgumais Tiekėjas rėmėsi, kad atitiktų pirkimo dokumentuose nustatytus kvalifikacijos reikalavimus, gali būti keičiamas tik šiais atvejais:

3.2.6.1. kai subtiekėjui iškelta bankroto byla, pradėtas bankroto procesas ne teismo tvarka, jis tampa nemokus arba yra nemokumo tikimybė, sustabdo ūkinę veiklą ar kai įstatymuose ir kituose teisės aktuose nustatyta tvarka susidaro analogiška situacija;

3.2.6.2. kai subtiekėjas dėl objektyvių priežasčių (pavyzdžiui, subtiekėjui atsisakius dalyvauti Sutarties vykdyme, nutrūkus teisiniams santykiams su Tiekėju ir pan.) nebegali vykdyti visų ar dalies Sutartyje numatytų įsipareigojimų.

3.2.6.3. Naujas subtiekėjas, kuris keičiamas vietoje subtiekėjo, kurio pajėgumais Tiekėjas rėmėsi, kad atitiktų pirkimo dokumentuose nustatytus kvalifikacijos reikalavimus (toliau – naujas subtiekėjas), turi atitikti pirkimo dokumentuose nustatytus reikalavimus dėl pašalinimo pagrindų nebuvimo, keliamus kvalifikacijos reikalavimus, Tiekėjo pasiūlyme nurodytą keičiamo subtiekėjo kvalifikaciją pirkimo dokumentuose nustatytiems kokybiniams kriterijams pagrįsti ir nacionalinio saugumo interesus bei kilmės reikalavimus (jei taikoma).

3.2.7. Tiekėjo (ar subtiekėjų) specialistas, vykdysiantis Sutartį, gali būti pakeisti šiais atvejais:

3.2.7.1. Tiekėjo iniciatyva dėl objektyvių priežasčių (pavyzdžiui, atostogų, ligos, nutrūkus darbo santykiams ir pan.), pateikus duomenis apie numatomą naujai skirti specialistą bei jo kvalifikaciją ir atitiktį kitiems pirkimo dokumentuose keliamiems reikalavimams patvirtinančius dokumentus;

3.2.7.2. Pirkėjo iniciatyva, jei Pirkėjas turi pagrįstų įtarimų, kad Tiekėjo Sutarties vykdymui paskirtas specialistas nekompetentingas vykdyti nustatytas pareigas.

3.2.7.3. Naujas specialistas turi turėti ne žemesnę nei pirkimo dokumentuose specialistui keliamą kvalifikaciją, Tiekėjo pasiūlyme nurodytą keičiamo specialisto kvalifikaciją pirkimo dokumentuose nustatytiems kokybiniams kriterijams pagrįsti ir nacionalinio saugumo interesus bei kilmės reikalavimus, nurodytus pirkimo dokumentuose (jei taikoma).

3.2.8. Tiekėjas privalo ne vėliau nei prieš 5 (penkias) darbo dienas iki numatomo subtiekėjo, kurio pajėgumais Tiekėjas rėmėsi, kad atitiktų pirkimo dokumentuose nustatytus kvalifikacijos reikalavimus, ar specialisto keitimo pateikti Pirkėjui argumentuotą rašytinį prašymą ir šiuos dokumentus:

3.2.8.1. prašymą pakeisti subtiekėją ar specialistą, paaiškinant keitimo aplinkybę. Pirkėjas pasilieka teisę paprašyti įrodymų, pagrindžiančių keitimo aplinkybę;

3.2.8.2. naujo subtiekėjo ar specialisto kvalifikaciją, pašalinimo pagrindų nebuvimą ir atitiktį nacionalinio saugumo interesams bei kilmės reikalavimams įrodančius dokumentus pagal Sutarties reikalavimus.

3.2.9. Pirkėjas, gavęs Tiekėjo prašymą su kitais Sutartyje nurodytais dokumentais, per 5 (penkias) darbo dienas įvertina keitimo galimybes ir raštu informuoja Tiekėją apie leidimą pakeisti subtiekėją ar specialistą. Pirkėjui sutikus, Šalys pasirašo Susitarimą, kuris laikomas neatsiejama Sutarties dalimi.

3.2.10. Naujas subtiekėjas ar specialistas gali pradėti vykdyti jiems Tiekėjo pavestus įsipareigojimus pagal Sutartį ne anksčiau, nei bus pasirašytas Susitarimas.

3.2.11. Tiekėjas privalo pakeisti subtiekėją ar specialistą, jei paaiškėja, kad jis neatitinka jam pirkimo dokumentuose keliamų reikalavimų.

3.2.12. Jei Tiekėjas pakeičia esamą arba pasitelkia naują subtiekėją ar specialistą, negavęs Pirkėjo raštiško sutikimo, arba sutartinius įsipareigojimus pagal Sutartį vykdo subtiekėjai ar specialistai, neatitinkantys pirkimo dokumentuose nustatytų kvalifikacijos reikalavimų, reikalavimų dėl pašalinimo pagrindų nebuvimo, atitikties nacionalinio saugumo interesams bei kilmės reikalavimams (jei taikoma) ir Tiekėjo pasiūlyme nurodytų sąlygų pirkimo dokumentuose nustatytiems kokybiniams kriterijams pagrįsti (jei taikoma), Tiekėjui taikoma Specialiosiose sąlygose nustatyto dydžio bauda.

3.3. Jungtinės veiklos partnerių keitimas

3.3.1. Tiekėjas, vykdantis Sutartį jungtinės veiklos pagrindu, turi teisę atsisakyti jungtinės veiklos partnerio (toliau – partneris), jei dėl objektyvių ir pagrįstų aplinkybių partneris nebegali vykdyti Sutarties, įskaitant, bet neapsiribojant atvejais, kai partneris neatitinka VPĮ ar kitų teisės aktų nuostatų, kelia grėsmę nacionaliniam saugumui, partneriui pritaikytos tarptautinės sankcijos kaip jos suprantamos Lietuvos Respublikos tarptautinių sankcijų įstatyme (toliau – Sankcijų įstatymas), partnerio sunki finansinė būklė, lemianti Sutarties nevykdymą ir (ar) atsisakymą ją vykdyti ar atsirado kitos nenumatytos objektyvios priežastys, lemiančios partnerio pasitraukimą iš jungtinės veiklos sutarties.

3.3.2. Tiekėjas, vykdantis Sutartį jungtinės veiklos pagrindu, turi teisę pakeisti partnerį, jei dėl reorganizavimo, restruktūrizavimo ar bankroto procedūrų, pradinio partnerio teises ir pareigas visiškai arba iš dalies perima kitas partneris. Toks Tiekėjo pakeitimas negali lemti kitų esminių Sutarties pakeitimų ir taip negali būti siekiama išvengti VPĮ ir kitų teisės aktų taikymo.

3.3.3. Tiekėjas privalo ne vėliau nei prieš 10 (dešimt) darbo dienų iki numatomo partnerio keitimo arba atsisakymo pateikti Pirkėjui argumentuotą rašytinį prašymą ir šiuos dokumentus:

3.3.3.1. prašymą pakeisti Tiekėjo sudėtį ir įrodymus, pagrindžiančius bent vieną partnerio atsisakymo ar keitimo aplinkybę, nurodytą Sutartyje;

3.3.3.2. naujos jungtinės veiklos sutarties ar esamos jungtinės veiklos sutarties pakeitimo kopiją, kurioje, jeigu partneris pasitraukia, turi būti nurodyta, kad pasitraukiančiojo partnerio įsipareigojimus visa apimtimi perima pasiliekantis jungtinės veiklos partneris (toliau – pasiliekantysis partneris);

3.3.3.3. pasiliekančiojo ar naujai pasitelkiamo partnerio kvalifikaciją patvirtinančius dokumentus. Visais atvejais pasiliekančiojo partnerio ar naujai pasitelkto partnerio kvalifikacija turi būti ne žemesnė nei pasitraukiančiojo partnerio (atitinkanti pirkimo dokumentuose nustatytus kvalifikacijos reikalavimus, kuriuos atitiko pasitraukiantysis partneris, ir atitinkanti pasitraukiančiojo partnerio pasiūlyme nurodytą specialistų kvalifikaciją ir kitas sąlygas pirkimo dokumentuose nustatytiems kokybiniams kriterijams pagrįsti (jei taikoma). Jei pasitelkiamas naujas partneris, taip pat, vadovaujantis pirkimo dokumentuose nurodytais reikalavimais, pateikiami dokumentai, pagrindžiantys pasitelkiamo partnerio pašalinimo pagrindų nebuvimą ir atitiktį nacionalinio saugumo interesams bei kilmės reikalavimams (jei taikoma).

3.3.4. Pirkėjas, gavęs Tiekėjo prašymą su kitais Sutartyje nurodytais dokumentais, per 10 (dešimt) darbo dienų įvertina keitimo galimybes ir raštu informuoja Tiekėją apie Sutarties nutraukimą arba apie leidimą atsisakyti ar pakeisti partnerį. Pirkėjui sutikus, Šalys pasirašo Susitarimą, kuris laikomas neatsiejama Sutarties dalimi.

3.4. Susitarimai dėl tiesioginio atsiskaitymo su subtiekėjais

3.4.1. Subtiekėjams pageidaujant, Pirkėjas su jais atsiskaitys tiesiogiai. Pirkėjas numato tiesioginio atsiskaitymo galimybę su Sutartyje nurodytais subtiekėjais tokiomis sąlygomis ir tvarka:

3.4.1.1. sudarius Sutartį, Tiekėjas ne vėliau negu Sutartis pradedama vykdyti, įsipareigoja Pirkėjui raštu pateikti tuo metu žinomų subtiekėjų pavadinimus, kontaktinius duomenis ir jų atstovus. Pirkėjas taip pat

reikalauja, kad Tiekėjas informuotų apie minėtos informacijos pasikeitimus bei naujų subtiekėjų pasitelkimą visu Sutarties vykdymo metu;

3.4.1.2. Pirkėjas ne vėliau kaip per 3 (tris) darbo dienas nuo Bendrųjų sąlygų 3.4.1.1 punkte nurodytos informacijos gavimo dienos raštu informuoja subtiekėjus apie tiesioginio atsiskaitymo galimybę;

3.4.1.3. subtiekėjas, norėdamas pasinaudoti tokia galimybe, raštu pateikia prašymą Pirkėjui. Kai subtiekėjas išreiškia norą pasinaudoti tiesioginio atsiskaitymo galimybe, sudaroma trišalė sutartis tarp Pirkėjo, Tiekėjo ir šio subtiekėjo, kurioje aprašoma tiesioginio atsiskaitymo su subtiekėju tvarka, atsižvelgiant į Sutartyje ir subtiekimo sutartyje nustatytus reikalavimus;

3.4.1.4. tiesioginio atsiskaitymo su subtiekėjais galimybė nekeičia Tiekėjo atsakomybės dėl Sutarties įvykdymo.

4. ŠALIŲ BENDRADARBIAVIMAS

4.1. Šalių bendradarbiavimo pareiga

4.1.1. Vykdydamos Sutartį, Šalys privalo maksimaliai bendradarbiauti ir operatyviai keistis informacija, taip pat pateikti viena kitai rašytinius pranešimus nedelsiant apie tai, kad atsirado ar egzistuoja bet koks įvykis, sąlyga ar aplinkybė, kuri gali paveikti Sutarties vykdymą ar sąlygoti jos pažeidimą.

4.1.2. Šalys įsipareigoja užtikrinti, kad viena kitai teiks dokumentus ir (ar) kitą informaciją, kurie yra būtini Šalių tinkamam įsipareigojimų įvykdymui pagal Sutartį.

4.1.3. Jeigu Šalis susiduria su Sutarties vykdymo kliūtimi, ji turi nedelsdama, bet ne vėliau kaip per 5 (penkias) darbo dienas, įspėti kitą Šalį apie tokias kliūtis ir imtis visų nuo jos priklausančių protingų priemonių toms kliūtims pašalinti.

4.2. Kontaktiniai asmenys

4.2.1. Kiekviena iš Šalių Sutarties sudarymo metu privalo paskirti kontaktinį asmenį, atsakingą už Sutarties vykdymą (pavyzdžiui, Prekių priėmimą, užsakymų teikimą ir gavimą ir kt.), ir nurodyti jų kontaktinius duomenis Specialiosiose sąlygose.

4.2.2. Tuo atveju, kai Šalis nori atšaukti paskirtąjį kontaktinį asmenį ir paskirti kitą asmenį arba nori paskirti kitą asmenį laikinai vykdyti kontaktinio asmens funkcijas kontaktinio asmens laikino negalėjimo vykdyti savo funkcijas laikotarpiu, Šalis privalo iš anksto apie tai informuoti kitą Šalį ir pateikti kitai Šaliai tokio asmens kontaktinius duomenis: vardą, pavardę, el. paštą ir telefono numerį.

4.2.3. Tuo atveju, kai paaiškėja, kad Šalies kontaktinis asmuo laikinai negali vykdyti savo pareigų (dėl ligos, traumos ar kitų nenumatytų priežasčių), Šalis privalo nedelsdama, bet ne vėliau nei kitą darbo dieną, paskirti kitą kontaktinį asmenį laikinai vykdyti kontaktinio asmens funkcijas ir pranešti apie tai kitai Šaliai. Keičiant kontaktinių asmenų funkcijas atliekančius asmenis Susitarimas, vadovaujantis Bendrųjų sąlygų 20.5 punktu, nesudaromas.

5. SUTARTIES VYKDYMO METU PATEIKIAMI DOKUMENTAI

5.1. Jeigu Tiekėjas turi parengti ir (ar) pateikti Pirkėjui Prekių naudojimo instrukcijas, jos turi būti aiškios ir detalios, kad Pirkėjas, vadovaudamasis jomis, galėtų tinkamai naudoti patiektas Prekes.

5.2. Tuo atveju, kai pagal Sutartį turi būti vykdomi mokymai ir (arba) atliekami bandymai, Tiekėjas privalo perduoti Pirkėjui naudojimo instrukcijas prieš tokius mokymus ir (arba) bandymus, o po mokymų ir (arba) bandymų patikslinti ir papildyti naudojimo instrukcijas, atsižvelgdamas į mokymų ir (arba) bandymų eigą ir rezultatus.

5.3. Jei Prekių naudojimui būtiniems dokumentams reikalingas vertimas, su tuo susijusios išlaidos tenka Tiekėjui. Jei Tiekėjas Prekių naudojimui būtinus dokumentus verčia savarankiškai, jis atsako už šių dokumentų vertimo tikslumą.

6. PREKIŲ TIEKIMO PABAIGA IR PREKIŲ PRIĖMIMAS

6.1. Prekių tiekimo pabaiga

6.1.1. Prekių tiekimas laikomas užbaigtu, kai yra įvykdytos visos šios sąlygos:

6.1.1.1. Tiekėjas pristatė visas Prekes pagal Sutarties ir įstatymų bei kitų teisės aktų reikalavimus (ir kai suteiktos visos su Prekėmis susijusios paslaugos, jei to reikalaujama),

6.1.1.2. Tiekėjas perdavė Pirkėjui visą reikalingą dokumentaciją, įskaitant naudojimo instrukcijas ir garantijas (jei to reikalaujama),

6.1.1.3. Tiekėjas apmokė Pirkėjo personalą, kaip naudoti Prekes (jeigu to reikalaujama),

6.1.1.4. buvo įformintas Prekių perdavimo-priėmimo aktas ar Prekių perdavimo-priėmimo aktai, jei numatytas Prekių pristatymas dalimis, ar kitas Sutartyje numatytas dokumentas, nuo kurio pasirašymo laikoma, kad Prekės buvo priimtos,

6.1.1.5. Tiekėjas įvykdė kitas sąlygas, numatytas įstatymuose bei kituose teisės aktuose, Sutartyje ir pasiūlyme, kurios turi būti įvykdytos tam, kad būtų laikoma, jog Prekių tiekimas yra užbaigtas, ir pateikė Pirkėjui tai įrodančius dokumentus.

6.2. Prekių perdavimas-priėmimas

6.2.1. Tiekėjas privalo pristatyti ir perduoti Prekes Pirkėjui, o Pirkėjas privalo kokybiškas ir Sutarties bei įstatymų ir kitų teisės aktų reikalavimus atitinkančias Prekes priimti. Prekės pristatomos Specialiosiose sąlygose nurodytais terminais ir adresu, pristatymą iš anksto suderinus su Pirkėju.

6.2.2. Prekės perduodamos Šalims pasirašant Prekių perdavimo-priėmimo aktą, kuris pasirašomas 2 (dviem) vienodą teisinę galią turinčiais egzemplioriais (išskyrus atvejus, kai Prekių perdavimo-priėmimo aktas pasirašomas saugiu elektroniniu parašu), po vieną kiekvienai Šaliai. Jeigu Prekių perdavimo-priėmimo akto, kaip atskiro dokumento, reikalauti neprivaloma, Šalys susitaria, ir tai aiškiai nurodo Specialiosiose sąlygose, Prekių perdavimo-priėmimo aktu laikoma Sąskaita.

6.2.3. Tiekėjui pristačius Prekes, Pirkėjas atlieka jų patikrinimą ir privalo:

6.2.3.1. ne vėliau kaip per 5 (penkias) darbo dienas nuo faktinio Prekių perdavimo priimti Prekes, pasirašydamas Prekių perdavimo-priėmimo aktą; arba

6.2.3.2. priimti Prekes su išlygomis, pasirašydamas Prekių perdavimo-priėmimo aktą ir Prekių patikrinimo metu sudarytą defektų aktą, kuriame Pirkėjas privalo nurodyti per Prekių priėmimą pastebėtus Prekių ar pateikiamų Tiekėjo dokumentų trūkumus ir tų trūkumų pašalinimo tvarką (toliau – **Defektų aktas**); arba

6.2.3.3. atsisakyti priimti Prekes ar jų dalį ir įteikti (arba išsiųsti) Defektų aktą Tiekėjui dėl netinkamų Prekių ar jų dalies.

6.2.4. Prekių perdavimo-priėmimo akte turi būti nurodoma data, kada Tiekėjas pristatė visas Prekes (ar atitinkamą jų dalį, kai Sutartyje numatytas pristatymas dalimis) ir pateikė visus reikiamus dokumentus.

6.2.5. Prekes, neatitinkančias Sutarties, įstatymų bei kitų teisės aktų (jei taikoma) reikalavimų, Tiekėjas privalo atsiimti savo sąskaita per Pirkėjo Defektų akte nustatytą terminą, taip pat Pirkėjo reikalavimu atlyginti tokių Prekių saugojimo išlaidas.

6.2.6. Jeigu nustatoma Prekių trūkumų, kurie nereiškia neatitikimo Sutartyje nustatytiems reikalavimams, ir jų pašalinimas netrukdo Pirkėjui naudotis Prekėmis pagal paskirtį, Pirkėjas gali priimti Prekes su išlygomis, sudaryti Defektų aktą ir nustatyti protingus terminus Tiekėjui pašalinti Prekių trūkumus. Tiekėjas privalo pašalinti Prekių trūkumus per Pirkėjo nurodytus protingus terminus, vadovaudamasis Bendrųjų sąlygų 7.3 poskyriu „Prekių trūkumų šalinimas". Jeigu Tiekėjas praleidžia Prekių trūkumų pašalinimo terminus, taikomos Bendrųjų sąlygų 7.4 poskyrio „Pirkėjo teisės, Tiekėjui nepašalinus Prekių trūkumų" nuostatos.

6.2.7. Jeigu Pirkėjas per 5 (penkias) darbo dienas nepateikia (neišsiunčia) Tiekėjui Defektų akto, laikoma, kad Pirkėjas Prekes priėmė ir joms pretenzijų neturi.

6.2.8. Prekių praradimo ar sugadinimo ar atsitiktinio žuvimo rizika Pirkėjui iš Tiekėjo pereina nuo faktinio Prekių priėmimo momento.

6.2.9. Pirkėjas turi teisę naudotis Prekėmis tik po Prekių perdavimo-priėmimo akto pasirašymo.

6.2.10. Jeigu Tiekėjas Prekes pristatė per Specialiosiose sąlygose nustatytą Prekių pristatymo terminą, tačiau jos turi trūkumų ir Tiekėjas šių trūkumų neištaiso iki Specialiosiose sąlygose nurodyto Prekių

pristatymo termino pabaigos, Tiekėjui iki tinkamų Prekių pristatymo dienos taikomos Specialiosiose sąlygose nurodyto dydžio netesybos.

7. TIEKĖJO GARANTINIAI ĮSIPAREIGOJIMAI

7.1. Garantiniai terminai (jei taikoma)

7.1.1. Prekėms taikomas teisės aktuose nustatytas ir (ar) gamintojo taikomas garantinis terminas, jeigu Techninėje specifikacijoje ar Specialiosiose sąlygose nėra nurodytas kitas garantinis terminas. Jeigu garantinis terminas nėra niekur nustatytas, Prekėms taikomas 24 (dvidešimt keturių) mėnesių garantinis terminas. Garantinis terminas pradedamas skaičiuoti nuo pristatytų Prekių perdavimo-priėmimo akto pasirašymo dienos.

7.1.2. Garantiniai terminai sustabdomi tiek laiko, kiek Pirkėjas negali tinkamai naudoti Prekių dėl nustatytų Prekių trūkumų, už kuriuos atsako Tiekėjas. Jeigu Pirkėjas dėl Prekių trūkumų negali naudoti tik apibrėžtos Prekių dalies, garantiniai terminai sustabdomi tik tokios dalies atžvilgiu.

7.1.3. Tiekėjas neatsako už Prekių trūkumus, kurie atsirado dėl Prekių normalaus susidėvėjimo, jų netinkamo naudojimo ar priežiūros arba Pirkėjo, jo personalo arba trečiųjų asmenų kaltės, su sąlyga, kad nėra Tiekėjo kaltės dėl tokių Prekių trūkumų, Prekių netinkamo naudojimo ar priežiūros.

7.2. Pretenzijos dėl Prekių trūkumų

7.2.1. Pirkėjas, per garantinius terminus nustatęs Prekių trūkumų, turi nedelsdamas, bet ne vėliau nei per 30 (trisdešimt) dienų ir ne vėliau nei iki garantinio termino pabaigos, pareikšti rašytinę pretenziją Tiekėjui ir nustatyti protingus terminus, jeigu jų nėra nustatyta Specialiosiose sąlygose, Prekių trūkumams pašalinti.

7.2.2. Tiekėjas privalo neatlygintinai pašalinti visus Prekių trūkumus, už kuriuos atsako Tiekėjas, per Pirkėjo pretenzijoje nustatytus protingus terminus, jeigu konkretūs terminai nėra nustatyti Specialiosiose sąlygose, kurie skaičiuojami nuo pretenzijos gavimo dienos.

7.2.3. Jei Tiekėjas nepripažįsta Prekių trūkumų, kiekviena iš Šalių gali kreiptis dėl nepriklausomos ekspertizės atlikimo. Jei Tiekėjas ilgiau nei 10 (dešimt) dienų nuo Pirkėjo kreipimosi neatsako / nepasitelkia nepriklausomo su Pirkėju suderinto (Pirkėjas negali nepagrįstai neduoti pritarimo Tiekėjui pasitelkti siūlomą ekspertą eksperto ginčui spręsti ar (ir) jei ginčas užtruko ilgiau nei 30 (trisdešimt) dienų nuo Pirkėjo pirmojo kreipimosi), tai Pirkėjas turi teisę savarankiškai kreiptis dėl ekspertizės atlikimo prieš tai suderinęs su Tiekėju nepriklausomo eksperto kandidatūrą. Tokiu atveju ekspertizės išlaidas padengia:

7.2.3.1. jei Prekės atitinka Sutartyje nurodytus reikalavimus – Pirkėjas;

7.2.3.2. jei Prekės neatitinka Sutartyje nurodytų reikalavimų – Tiekėjas.

7.3. Prekių trūkumų šalinimas

7.3.1. Tiekėjas privalo pašalinti Prekių trūkumus, sutaisydamas Prekes ar jų dalį arba pakeisdamas Prekę nauja Preke ar jos dalimi.

7.3.2. Pirkėjas privalo suteikti prieigą Tiekėjui atlikti Prekių trūkumų pašalinimą, kad Tiekėjas galėtų atlikti tai per nustatytus terminus. Jei Prekių trūkumai šalinami Prekių naudojimo vietoje, Pirkėjas ir Tiekėjas privalo susitarti dėl Prekių trūkumų šalinimo laiko.

7.3.3. Sutaisytoje Prekių dalyje pakartotinai nustačius Prekių trūkumų, Tiekėjas privalo pakeisti Prekes naujomis kokybiškomis Prekėmis, nebent Pirkėjas raštu sutiktų Prekes dar kartą taisyti.

7.3.4. Pašalinus Prekių trūkumus, garantinis terminas sutaisytajai Prekių daliai ar naujoms Prekėms vėl pradedamas skaičiuoti nuo tinkamai sutaisytų ar pakeistų Prekių (ar jų dalių) perdavimo Pirkėjui dienos.

7.3.5. Jeigu Prekių trūkumų šalinimas gali turėti įtakos Prekių funkcionalumui, Pirkėjas gali pareikalauti Tiekėjo pakartotinai atlikti bandymus, atliktus pagal Sutartį (jei tokie buvo numatyti). Pirkėjas privalo raštu pateikti Tiekėjui tokį reikalavimą per 30 (trisdešimt) dienų po Prekių trūkumų pašalinimo. Tokie bandymai atliekami pagal anksčiau atliktų bandymų sąlygas, išskyrus tai, kad jie visais atvejais turi būti atliekami Tiekėjo rizika ir sąskaita.

7.3.6. Tiekėjas, pašalinęs visus Prekių trūkumus, privalo apie tai informuoti Pirkėją.

7.3.7. Pirkėjas per 5 (penkias) darbo dienas po Tiekėjo pranešimo apie Prekių trūkumų pašalinimą gavimo privalo patikrinti trūkumus, nurodytus Defektų akte arba Pirkėjo pretenzijoje, ir raštu patvirtinti, kurie Prekių trūkumai buvo pašalinti.

7.4. Pirkėjo teisės, Tiekėjui nepašalinus Prekių trūkumų

7.4.1. Jeigu Tiekėjas atsisako pašalinti arba nepašalina Prekių trūkumų per Pirkėjo nustatytus protingus terminus, Pirkėjas turi teisę:

7.4.1.1. pašalinti Prekių trūkumus pats arba pasamdydamas trečiuosius asmenis, iš anksto apie tai informuodamas Tiekėją, ir pareikalauti Tiekėjo atlyginti Prekių ekspertizės bei Prekių trūkumų šalinimo išlaidas ir padengti patirtus nuostolius; arba

7.4.1.2. reikalauti sumažinti Tiekėjui mokėtiną sumą ir grąžinti dėl šios sumos sumažinimo susidariusią permoką per 30 (trisdešimt) dienų nuo Tiekėjui nustatyto termino pašalinti Prekių trūkumus pabaigos; arba

7.4.1.3. grąžinti Prekes Tiekėjui ir nemokėti už tokias Prekes ar reikalauti grąžinti už Prekes sumokėtą sumą bei nutraukti Sutartį.

7.4.2. Tiekėjui pagal Sutartį mokėtina suma sumažinama tiek, kiek sumažėja Prekių vertė Pirkėjui dėl Prekių trūkumų. Į Prekių vertės sumažėjimą, be kita ko, įskaičiuojamos Pirkėjo išlaidos Prekių trūkumų įvertinimui ir šalinimui, Prekių vertės sumažėjimas, Pirkėjo esamų ar būsimų išlaidų Prekių eksploatavimui padidėjimas (jeigu tokios išlaidos buvo vertinamos pirkimo metu).

7.4.3. Tiekėjas privalo patenkinti Pirkėjo pagal Bendrųjų sąlygų 7.4.4 punktą pareikštą piniginį reikalavimą per 30 (trisdešimt) dienų arba per ilgesnį Pirkėjo reikalavime nurodytą protingą terminą.

7.4.4. Už vėlavimą pašalinti Prekių trūkumus Pirkėjas privalo reikalauti Tiekėjo sumokėti Specialiosiose sąlygose nustatyto dydžio netesybas.

8. PRISTATYMO TERMINAI

8.1. Pristatymo terminai ir Prekių tiekimo grafikas

8.1.1. Tiekėjas privalo pristatyti Prekes laikydamasis terminų, nurodytų Specialiosiose sąlygose.

8.1.2. Jei taikytina, Pirkėjas privalo ne vėliau kaip per 14 (keturiolika) darbo dienų nuo Sutarties įsigaliojimo arba per kitą pirkimo dokumentuose nurodytą terminą parengti ir pateikti Tiekėjui suderinimui Prekių tiekimo grafiką (toliau – **Grafikas**).

8.1.3. Jei aktualu, Grafike turi būti pažymėta, kurios Prekės gali būti pristatomos lygiagrečiai, o kurios gali būti pristatomos tik numatytu eiliškumu.

8.2. Netesybos už Prekių pristatymo vėlavimą

8.2.1. Jeigu Tiekėjas praleidžia Prekių pristatymo terminus, nustatytus Specialiosiose sąlygose, Tiekėjui iki Prekių pristatymo datos taikomos Specialiosiose sąlygose nurodyto dydžio netesybos.

8.2.2. Tiekėjui praleidus Prekių dalies pristatymo terminą, netesybos skaičiuojamos nuo Prekių dalies pristatymo termino pabaigos (neįskaitytinai) iki Prekių dalies pristatymo datos (įskaitytinai), nustatytos pagal Prekių perdavimo-priėmimo aktus.

8.2.3. Jei Tiekėjui pagal šią Sutartį yra priskaičiuotos netesybos, Pirkėjo už Prekes mokėtina suma mažinama priskaičiuotų netesybų suma. Taip pat Pirkėjas turi teisę priskaičiuotas netesybas vienašališkai išskaičiuoti iš bet kokių Tiekėjui atliekamų mokėjimų teisės aktų nustatyta tvarka, pranešant Tiekėjui raštu apie tokių netesybų įskaitymą.

9. PRIEVOLIŲ PAGAL SUTARTĮ ĮVYKDYMO UŽTIKRINIMO BŪDAI

Šalių prievolių pagal Sutartį įvykdymas yra užtikrinamas Specialiųjų sąlygų 8 skyriuje nurodytais prievolių pagal Sutartį įvykdymo užtikrinimo būdais, Bendrųjų sąlygų 10 skyriuje nustatyta sutartinių įsipareigojimų įvykdymo užtikrinimo tvarka, Bendrųjų sąlygų 12.1.3 punkte nurodytu avanso užtikrinimu (jeigu

Specialiosiose sąlygose yra nurodytas avanso dydis ir yra reikalaujama avanso užtikrinimo), Specialiųjų sąlygų 9 skyriuje nurodytomis netesybomis.

10. SUTARTIES ĮVYKDYMO UŽTIKRINIMAS (JEI TAIKOMA)

10.1. Šio skyriaus nuostatos taikomos tuomet, jei Specialiosiose sąlygose numatyta, kad tinkamam Sutarties įvykdymui užtikrinti Tiekėjas turi pateikti banko garantiją arba draudimo bendrovės laidavimo draudimo raštą arba kitą Specialiosiose sąlygose nurodytą sutartinių įsipareigojimų įvykdymo užtikrinimą.

Pastaba. Kai Specialiosiose sąlygose nurodoma, kad Pirkėjas reikalauja pateikti kredito unijos išduotą Sutarties įvykdymo užtikrinimą, šio skyriaus nuostatos taikomos pagal poreikį ir Pirkėjas gali nusimatyti papildomus reikalavimus Specialiosiose sąlygose tokio Sutarties įvykdymo užtikrinimo pateikimui, atitinkančius įstatymų bei kitų teisės aktų nuostatas.

10.2. Tiekėjas privalo pateikti Pirkėjui Specialiosiose sąlygose nurodytos rūšies ir dydžio Sutarties įvykdymo užtikrinimą – pirmo pareikalavimo banko garantiją arba draudimo bendrovės laidavimo draudimo raštą (kartu su draudimo bendrovės laidavimo draudimo raštu turi būti pateiktas ir pasirašytas draudimo liudijimas (polisas) bei dokumentas, įrodantis, kad draudimo įmoka už išduotą laidavimo draudimo raštą yra sumokėta), atitinkantį Bendrųjų sąlygų 10 skyriuje nurodytas sąlygas, per Specialiosiose sąlygose nustatytą terminą (toliau – **Sutarties įvykdymo užtikrinimas**).

10.3. Jei Tiekėjas nepateikia Pirkėjui Sutartyje nustatytos vertės Sutarties įvykdymo užtikrinimo per Sutartyje nustatytą terminą, laikoma, kad Tiekėjas atsisakė sudaryti Sutartį ir Pirkėjas turi teisę VPĮ nustatyta tvarka pasiūlyti sudaryti Sutartį kitam tiekėjui.

10.4. Prieš pateikdamas Sutarties įvykdymo užtikrinimą, Tiekėjas gali prašyti Pirkėjo patvirtinti, kad Pirkėjas sutinka priimti Tiekėjo siūlomą Sutarties įvykdymo užtikrinimą. Tokiu atveju, Pirkėjas privalo atsakyti Tiekėjui ne vėliau kaip per 3 (tris) darbo dienas nuo Tiekėjo prašymo gavimo dienos.

10.5. Sutarties įvykdymo užtikrinime bankas (draudimo bendrovė) privalo neatšaukiamai ir besąlygiškai įsipareigoti ne vėliau kaip per 15 (penkiolika) dienų nuo Pirkėjo raštiško pranešimo apie Tiekėjo Sutartyje nustatytų prievolių pažeidimą, dalinį ar visišką jų nevykdymą arba netinkamą vykdymą gavimo dienos, sumokėti Pirkėjui Sutarties įvykdymo užtikrinime nurodytą sumą, pinigus pervedant į Pirkėjo sąskaitą.

10.6. Sutarties įvykdymo užtikrinime negali būti nurodyta, kad bankas (draudimo bendrovė) atsako tik už tiesioginių nuostolių atlyginimą. Bankas (draudimo bendrovė) neturi teisės reikalauti, kad Pirkėjas pagrįstų savo reikalavimą. Pirkėjas pranešime bankui (draudimo bendrovei) nurodo, kad Sutarties įvykdymo užtikrinimo suma jam priklauso dėl to, kad Tiekėjas iš dalies ar visiškai neįvykdė Sutarties ir (arba) ji buvo nutraukta dėl Tiekėjo kaltės. Pirkėjas neįsipareigoja įrodyti realiai patirtų nuostolių ir Tiekėjas, pasirašydamas Sutartį ir pateikdamas Sutarties įvykdymo užtikrinimą, patvirtina, kad Sutarties įvykdymo užtikrinimo suma laikytina minimaliais neįrodinėjamais Pirkėjo nuostoliais.

10.7. Sutarties įvykdymo užtikrinimas turi įsigalioti ne vėliau negu jo pateikimo Pirkėjui dieną.

10.8. Sutarties įvykdymo užtikrinimo suma turi būti nurodoma ir išmokama eurais.

10.9. Sutarties įvykdymo užtikrinimas turi būti surašytas lietuvių arba kita kalba (esant Pirkėjo prašymui, turi būti pateiktas vertimas į lietuvių kalbą).

10.10. Sutarties įvykdymo užtikrinime nurodytas jo galiojimo terminas turi būti ne trumpesnis nei Sutarties galiojimo terminas.

10.11. Jeigu Sutarties trukmė yra ilgesnė nei 1 (vieneri) metai, Tiekėjas turi teisę pateikti 1 (vienerius) metus galiojantį Sutarties įvykdymo užtikrinimą, tačiau privalo pratęsti Sutarties įvykdymo užtikrinimo terminą arba pateikti naują Sutarties įvykdymo užtikrinimą ne vėliau kaip prieš 10 (dešimt) darbo dienų iki Sutarties įvykdymo užtikrinimo galiojimo termino pabaigos.

10.12. Jeigu Sutartyje nustatytomis sąlygomis Prekių pristatymo terminas yra pratęsiamas arba nukeliamas dėl Sutarties sustabdymo arba pristatyti Prekes arba taisyti Prekių trūkumus yra vėluojama, Tiekėjas privalo užtikrinti Sutarties įvykdymo užtikrinimo galiojimą visą Sutarties galiojimo laikotarpį ir ne vėliau kaip iki Sutarties įvykdymo užtikrinimo galiojimo termino pabaigos privalo Pirkėjui pateikti naują arba pratęstą Sutarties įvykdymo užtikrinimą.

10.13. Tiekėjui laiku nepratęsus Sutarties įvykdymo užtikrinimo galiojimo termino arba nepateikus naujo Sutarties įvykdymo užtikrinimo, Pirkėjas turi teisę reikalauti Specialiosiose sąlygose nustatyto dydžio netesybų už kiekvieną pradelstą dieną.

10.14. Pirkėjas nepriima Sutarties įvykdymo užtikrinimo ir (ar) laiko jį negaliojančiu, ir (ar) kreipiasi į Tiekėją dėl naujo Sutarties įvykdymo užtikrinimo pateikimo Pirkėjui, o Tiekėjas privalo Sutarties įvykdymo užtikrinimą pateikti per trumpiausiai įmanomą terminą, jei Sutarties įvykdymo užtikrinimas neatitinka Sutartyje keliamų reikalavimų arba Pirkėjas turi informacijos, susijusios su Sutarties įvykdymo užtikrinimą išdavusio banko (draudimo bendrovės) veiklos sustabdymu arba galimu veiklos sustabdymu (įskaitant nemokumą, likvidavimą ar teisinės apsaugos taikymo procedūras).

10.15. Jei Tiekėjas pažeidžia Sutartimi nustatytus įsipareigojimus, dalinai ar visiškai įsipareigojimų nevykdo (ar juos vykdo ne pagal Sutarties sąlygas), Pirkėjas gali pasinaudoti Sutarties įvykdymo užtikrinimu. Tiekėjas, siekdamas toliau vykdyti Sutarties įsipareigojimus, privalo per 10 (dešimt) darbo dienų nuo pranešimo apie Sutarties įvykdymo užtikrinimo sumokėjimą Pirkėjui pranešimo gavimo dienos pateikti Pirkėjui naują Specialiosiose sąlygose nurodyto dydžio Sutarties įvykdymo užtikrinimą.

10.16. Pirkėjas gali pasinaudoti Sutarties įvykdymo užtikrinimu, esant bet kuriai iš žemiau nurodytų aplinkybių:

10.16.1. Tiekėjas neįvykdė, nevykdo arba netinkamai vykdo savo įsipareigojimus pagal Sutartį;

10.16.2. Tiekėjas per protingai nustatytą laikotarpį neįvykdo Pirkėjo nurodymo ištaisyti Prekių trūkumus;

10.16.3. jei dėl bet kokių Tiekėjo veiksmų (veikimo ar neveikimo) Pirkėjas patyrė nuostolius (įskaitant, bet neapribojant, papildomas išlaidas, negautas pajamas ar kitus tiesioginius ir netiesioginius nuostolius, delspinigius ir (arba) baudas (jei tai yra numatyta Specialiosiose sutarties sąlygose);

10.16.4. Tiekėjas be pateisinamos priežasties (ne Sutartyje nustatytais atvejais) vienašališkai nutraukia Sutartį.

11. SUTARTIES KAINA IR JOS PERSKAIČIAVIMAS

11.1. Sutarties kaina, kurią Pirkėjas privalo sumokėti Tiekėjui už faktiškai pristatytas Prekes pagal Sutarties sąlygas, įskaitant visus Susitarimus, yra apskaičiuojama, taikant kainos apskaičiavimo būdą ar būdus, nurodytus Specialiosiose sąlygose.

11.2. Pradinės sutarties vertė yra nurodyta Specialiosiose sąlygose.

11.3. Laikoma, kad į Sutarties kainą yra įtrauktos visos Tiekėjo išlaidos, susijusios su visų Prekių pristatymu, taip pat su tinkamu šioje Sutartyje numatytų kitų Tiekėjo įsipareigojimų įvykdymu, įskaitant draudimus, muitus ir kitokias išlaidas, Tiekėjo patirtas vykdant Sutartyje numatytus įsipareigojimus.

11.4. Sutarties kainos peržiūra atliekama Specialiosiose sąlygose nustatyta tvarka.

12. ATSISKAITYMO TVARKA

12.1. Išankstinis mokėjimas (avansas) (jei taikoma)

12.1.1. Bendrųjų sąlygų 12.1 poskyrio sąlygos taikomos tuo atveju, jei Specialiosiose sąlygose yra nurodyta, kad Tiekėjui mokamas išankstinis mokėjimas (avansas) (toliau – avansas).

12.1.2. Pirkėjas sumoka Tiekėjui avansą – ne daugiau kaip Specialiosiose sąlygose nurodytas avanso dydis.

12.1.3. Jei Specialiosiose sąlygose to reikalaujama, Tiekėjas, norėdamas gauti avansą, kreipdamasis dėl avanso išmokėjimo, ne vėliau kaip per 10 (dešimt) darbo dienų nuo Sutarties įsigaliojimo dienos kartu su išankstinio mokėjimo sąskaita Pirkėjui turi pateikti avanso užtikrinimą – banko garantiją arba draudimo bendrovės laidavimo draudimo raštą arba kitą sutartinių įsipareigojimų įvykdymo užtikrinimą ne mažesnei kaip Specialiosiose sąlygose prašomo avanso dydžio sumai (toliau – **Avanso užtikrinimas**).

Pastaba. Kai Specialiosiose sąlygose nurodoma, kad Pirkėjas reikalauja pateikti kredito unijos išduotą Avanso užtikrinimą, šio poskyrio nuostatos taikomos pagal poreikį ir Pirkėjas gali nusimatyti papildomus reikalavimus Specialiosiose sąlygose tokio Avanso užtikrinimo pateikimui, atitinkančius įstatymų bei kitų teisės aktų nuostatas.

12.1.4. Prieš pateikdamas Avanso užtikrinimą, Tiekėjas gali prašyti Pirkėjo patvirtinti, kad Pirkėjas sutinka priimti Tiekėjo siūlomą Avanso užtikrinimą. Tokiu atveju, Pirkėjas privalo atsakyti Tiekėjui ne vėliau kaip per 5 (penkias) darbo dienas nuo Tiekėjo prašymo gavimo dienos.

12.1.5. Avanso užtikrinimu bankas (draudimo bendrovė) privalo neatšaukiamai ir besąlygiškai įsipareigoti ne vėliau kaip per 15 (penkiolika) dienų nuo Pirkėjo raštiško pranešimo apie Sutarties neįvykdymą ar

Sutarties nutraukimą dėl Tiekėjo kaltės, sumokėti Pirkėjui sumą, neviršijančią išmokėto avanso sumos ir užtikrinimo sumos, pinigus pervedant į Pirkėjo sąskaitą.

12.1.6. Bankas (draudimo bendrovė) neturi teisės reikalauti, kad Pirkėjas pagrįstų savo reikalavimą. Pirkėjas pranešime bankui (draudimo bendrovei) nurodys, kad Avanso užtikrinimo suma jam priklauso dėl to, kad Tiekėjas iš dalies ar visiškai neįvykdė Sutarties sąlygų ir (arba) ji buvo nutraukta dėl Tiekėjo kaltės ir Tiekėjas negrąžino avanso.

12.1.7. Avanso užtikrinimo suma turi būti nurodoma ir išmokama eurais.

12.1.8. Avanso užtikrinimas turi būti surašytas lietuvių arba kita kalba (esant Pirkėjo prašymui, turi būti pateiktas vertimas į lietuvių kalbą).

12.1.9. Avanso užtikrinimas, neatitinkantis šiame Sutarties poskyryje nustatytų reikalavimų, nebus priimamas.

12.1.10. Jei Sutarties vykdymo metu Avanso užtikrinimą išdavęs bankas (draudimo bendrovė) negali įvykdyti savo įsipareigojimų, Pirkėjas gali raštu pareikalauti Tiekėjo per 10 (dešimt) darbo dienų pateikti naują Avanso užtikrinimą, tokiomis pačiomis sąlygomis kaip ir ankstesnysis.

12.1.11. Pirkėjas sumoka Tiekėjui avansą per Specialiosiose sąlygose numatytą terminą nuo išankstinio mokėjimo sąskaitos ir Avanso užtikrinimo (jei taikoma) gavimo dienos. Sumokėto avanso suma išskaitoma iš mokėtinos sumos.

12.1.12. Nutraukus Sutartį, Tiekėjas privalo grąžinti Pirkėjui gautą avansą per 5 (penkias) darbo dienas (jeigu dalis Prekių pristatyta, Pirkėjas jas yra priėmęs ir jomis gali naudotis pagal paskirtį – grąžinama ta avanso dalis, kuri viršija Pirkėjo priimtų Prekių kainą). Jei Tiekėjas negrąžina gauto avanso, Pirkėjas pasinaudoja Avanso užtikrinimu (jei taikoma). Tais atvejais, jei nebuvo taikytas Bendrųjų sąlygų 12.1.3 punktas, Tiekėjas turi sumokėti Specialiosiose sąlygose nurodyto dydžio netesybas, skaičiuojamas nuo grąžintinos avanso sumos už laikotarpį nuo avanso išmokėjimo iki jo grąžinimo.

12.2. Mokėjimų tvarka

12.2.1. Tiekėjas išrašo Sąskaitą tik Šalims pasirašius Prekių perdavimo-priėmimo aktą, jeigu kitaip nenumatyta Specialiosiose sąlygose:

12.2.1.1. elektroninę sąskaitą faktūrą, atitinkančią Europos elektroninių sąskaitų faktūrų standartą, kurio nuoroda paskelbta 2017 m. spalio 16 d. Komisijos įgyvendinimo sprendime (ES) 2017/1870 dėl nuorodos į Europos elektroninių sąskaitų faktūrų standartą ir sintaksių sąrašo paskelbimo pagal Europos Parlamento ir Tarybos direktyvą 2014/55/ES (toliau – **Europos elektroninių sąskaitų faktūrų standartas**), Tiekėjas turi pateikti per informacinę sistemą „SABIS" (https://sabis.nbfc.lt/) arba per kitą savo pasirinktą informacinę sistemą;

12.2.1.2. Europos elektroninių sąskaitų faktūrų standarto neatitinkančią elektroninę sąskaitą faktūrą Tiekėjas privalo pateikti, naudodamasis informacinės sistemos „SABIS" priemonėmis (https://sabis.nbfc.lt/).

12.2.2. Pirkėjas elektronines sąskaitas faktūras priima ir apdoroja naudodamasis informacinės sistemos „SABIS" priemonėmis, išskyrus VPĮ nustatytus išimtinius atvejus.

12.2.3. Išankstinio mokėjimo sąskaitas (jeigu Specialiosiose sąlygose yra numatytas avanso mokėjimas) Tiekėjas privalo pateikti šiame Sutarties poskyryje nustatyta tvarka.

12.2.4. Pirkėjas atlieka mokėjimus už Prekes Specialiosiose sąlygose nustatytais terminais.

12.2.5. Už mokėjimų pagal Sutartį vėlavimus, Pirkėjui taikomos netesybos Specialiosiose sąlygose nustatyta tvarka.

12.2.6. Jei Prekės pristatomos dalimis, aukščiau nurodyta atsiskaitymo tvarka galioja kiekvienai tokiai daliai, jei Specialiosiose sąlygose nenustatyta kitaip.

12.2.7. Jeigu Šalys sudaro trišalį susitarimą su subtiekėju, Pirkėjas privalo pervesti subtiekėjui mokėtiną sumą į subtiekėjo banko sąskaitą, nurodytą trišaliame susitarime, o likutį pervesti į Tiekėjo banko sąskaitą po to, kai pagal Sutarties ir trišalio susitarimo reikalavimus sudaromas pristatytų Prekių perdavimo-priėmimo aktas ir Tiekėjas pateikia Sąskaitą už Prekes Pirkėjui.

12.3. Kiti atsiskaitymo klausimai

12.3.1. Pirkėjas privalo pervesti mokėjimus Tiekėjui į Tiekėjo banko sąskaitą, nurodytą Specialiosiose sąlygose.

12.3.2. Pirkėjas turi teisę sumas, gautinas iš Tiekėjo, išskaityti iš mokėjimų Tiekėjui pagal Sutartį (vienašališkai daryti įskaitymus). Dėl šios priežasties Tiekėjas neturi teisės perleisti arba įkeisti reikalavimo teisių į gautinas pagal Sutartį sumas tretiesiems asmenims arba kitaip jomis disponuoti be Pirkėjo sutikimo.

12.3.3. Visi mokėjimai pagal Sutartį atliekami eurais.

12.3.4. Už pavėluotus mokėjimus pagal Sutartį mokančioji Šalis privalo sumokėti kitai Šaliai Specialiosiose sąlygose nurodyto dydžio netesybas.

13. KONFIDENCIALI INFORMACIJA

13.1. Šalys įsipareigoja laikytis konfidencialumo ir be kitos Šalies rašytinio sutikimo neatskleisti tos Šalies informacijos, nurodytos kaip konfidencialios, jokiems Šalies darbuotojams, su Šalimi susijusiems ar kitiems tretiesiems asmenims, kuriems nėra būtina šią informaciją naudoti jų darbo tikslais, išskyrus žemiau nurodytus atvejus.

13.2. Šalis turi teisę atskleisti kitos Šalies konfidencialią informaciją šiais atvejais:

13.2.1. konfidencialios informacijos atskleidimas yra būtinas tinkamam Šalies teisių ar pareigų pagal Sutartį įgyvendinimui – tačiau tokiu atveju informaciją galima atskleisti tik ta apimtimi, kiek tai yra reikalinga sutartinių teisių ar pareigų įgyvendinimui, ir tik tokiems tretiesiems asmenims, kuriems būtina, su sąlyga, kad konfidencialią informaciją gaunantys tretieji asmenys prisiima tokius pačius konfidencialumo įsipareigojimus, kokie yra nustatyti šioje Sutartyje. Jeigu tretieji asmenys atskleidžia konfidencialią informaciją, Šalis atsako už jų veiksmus kaip už savo;

13.2.2. konfidencialią informaciją yra būtina atskleisti pagal įstatymų bei kitų teisės aktų reikalavimus, įskaitant atvejus, kai to reikalauja viešojo administravimo subjektai, taip, kai jie apibrėžti Lietuvos Respublikos viešojo administravimo įstatyme.

13.3. Prieš atskleisdama konfidencialią informaciją, Šalis privalo informuoti kitą Šalį (tiek, kiek tai nedraudžiama pagal įstatymus bei kitus teisės aktus) apie būtinybę arba gautą viešojo administravimo subjekto reikalavimą atskleisti konfidencialią informaciją ir imtis protingų priemonių, siekdama užtikrinti atskleistos informacijos konfidencialumą.

13.4. Šalis atsako:

13.4.1. už bet kokį neteisėtą, įskaitant atsitiktinį, kitos Šalies konfidencialios informacijos ar bet kurios jos dalies atskleidimą ar perdavimą arba konfidencialios informacijos neteisėtą naudojimą;

13.4.2. už tai, kad nesiėmė visų protingų veiksmų, kad išsaugotų ir apsaugotų kitos Šalies konfidencialią informaciją ar bet kurią jos dalį, užkirstų kelią tolesniam jos neteisėtam atskleidimui, perdavimui ar naudojimui.

13.5. Šalis nepagrįstai atskleidusi kitos Šalies konfidencialią informaciją privalo sumokėti kitai Šaliai Specialiosiose sąlygose nurodyto dydžio baudą.

14. ASMENS DUOMENŲ APSAUGA

14.1. Šalys įsipareigoja užtikrinti asmens duomenų saugumą bei asmens duomenų tvarkymą vykdyti teisėtai, vadovaujantis 2016 m. balandžio 27 d. priimto Europos Parlamento ir Tarybos reglamento (ES) 2016/679 dėl fizinių asmenų apsaugos tvarkant asmens duomenis ir dėl laisvo tokių duomenų judėjimo ir kuriuo panaikinama Direktyva 95/46/EB (Bendrasis duomenų apsaugos reglamentas) ir kitų teisės aktų, reglamentuojančių asmens duomenų tvarkymą, nuostatomis.

14.2. Šalys patvirtina, kad jeigu siekiant užtikrinti tinkamą Sutarties vykdymą bus tvarkomi asmens duomenys, Šalys įsipareigoja sudaryti atskirą susitarimą dėl duomenų tvarkymo, kuriuo nustato duomenų tvarkymo dalyką ir trukmę, duomenų tvarkymo pobūdį ir tikslą, asmens duomenų rūšis ir duomenų subjektų kategorijas bei duomenų valdytojo prievoles ir teises.

15. INTELEKTINĖ NUOSAVYBĖ

15.1. Visi rezultatai ir su jais susijusios teisės, įgytos vykdant Sutartį, įskaitant intelektinės nuosavybės teises, išskyrus asmenines neturtines teises į intelektinės veiklos rezultatus, yra Pirkėjo nuosavybė, pereinanti Pirkėjui nuo Prekių perdavimo-priėmimo momento be jokių apribojimų, kurią Pirkėjas gali naudoti, publikuoti, perleisti ar perduoti be atskiro Tiekėjo sutikimo tretiesiems asmenims, jei Specialiosiose sąlygose nenumatyta kitaip ar intelektinės nuosavybės teisės negali būti perduodamos nuosavybės teise dėl Prekių pobūdžio ar (ir) Prekių gamintojo išimtinių teisių, patentų ir kt.

15.2. Tiekėjas įsipareigoja atlyginti nuostolius Pirkėjui dėl bet kokių reikalavimų, kylančių dėl intelektinės nuosavybės teisių, įskaitant, bet neapsiribojant, dėl patento, prekių ženklo, pramoninio dizaino savininko (naudotojo) teisės (registruojamos arba ne), teisės, kylančios iš paraiškų bet kurioms minėtoms teisėms įregistruoti, autoriaus teisės, duomenų bazių gamintojų (sui generis) teisės, firmų, įmonių, organizacijų, verslo pavadinimų ar vardų savininkų ir kitos panašios teisės ar įsipareigojimai, nepriklausomai nuo to, ar jie registruoti Lietuvos Respublikoje, ar kitose šalyse, ar neregistruotini, kaip numatyta Sutartyje, išskyrus atvejus, kai toks pažeidimas atsiranda dėl Pirkėjo kaltės.

15.3. Tiekėjas neturi teisės be išankstinio rašytinio Pirkėjo sutikimo naudoti Pirkėjo simbolių, pavadinimo ir ženklo reklamoje, rinkodaroje, taip pat naudotis Pirkėjo sukurtais intelektiniais veiklos rezultatais. Pažeidus reikalavimą, Tiekėjui taikoma 1 (vieno) procento bauda nuo Sutarties kainos be PVM.

16. PAREIŠKIMAI IR GARANTIJOS

16.1. Kiekviena iš Šalių pareiškia ir garantuoja kitai Šaliai, kad:

16.1.1. yra teisėtai priimti ir galioja visi būtini sprendimai, gauti leidimai bei sutikimai, taip pat teisėtai atlikti ir galioja kiti teisiniai veiksmai, reikalingi Sutarties sudarymui, galiojimui ir vykdymui;

16.1.2. sudarydama Sutartį, Šalis neviršija savo kompetencijos ir nepažeidžia jai taikomų įstatymų bei kitų teisės aktų, teismo ar arbitražo teismo sprendimų, administracinių aktų, sutarčių ar kitų prievolių pagal taikomą privatinę teisę, viešąją teisę, Europos Sąjungos teisę arba tarptautinę teisę;

16.1.3. Šalies atstovas turi visus reikiamus įgaliojimus sudaryti ir įvykdyti Sutartį; Šalies atstovas, sudarydamas ir pasirašydamas Sutartį, nepažeidžia Šalies įstatų, nuostatų ir kitų vidaus dokumentų, Šalies valdymo ir kitų organų ir (ar) kreditorių teisių ir teisėtų interesų, sudarydamas Sutartį jis Šalies ir Šalies organų narių, kreditorių atžvilgiu veikia sąžiningai ir protingai;

16.1.4. Šalis įvertino visas aplinkybes, turinčias esminės reikšmės Sutarties sudarymui ir jos vykdymui; nė viena iš Sutartyje nurodytų sąlygų ir aplinkybių neturi neigiamos įtakos Šalies valiai sudaryti Sutartį tokiomis sąlygomis, kurios nurodytos Sutartyje, ir vykdyti iš Sutarties kylančius įsipareigojimus;

16.1.5. Sutartis sudaroma vadovaujantis sąžiningumo, protingumo, teisingumo ir Šalių lygiateisiškumo principais, nenaudojant apgaulės ar spaudimo. Šalys atskleidė viena kitai visą joms žinomą informaciją, turinčią esminės reikšmės Sutarties sudarymui ir jos vykdymui;

16.1.6. visi Šalies pareiškimai ir garantijos yra išsamūs ir nepalieka nutylėtų jokių aplinkybių, kurios darytų šiuos pareiškimus ar garantijas neteisingais.

16.2. Tiekėjas papildomai pareiškia ir garantuoja Pirkėjui, kad Tiekėjas, subtiekėjai, jungtinės veiklos partneriai ir specialistai turi galiojančius ir teisėtus visus įstatymuose bei kituose teisės aktuose numatytus leidimus, licencijas, atestatus, teisės pripažinimo dokumentus, reikalingus vykdant Sutartį.

16.3. Tiekėjas pareiškia, kad parduodamų Prekių disponavimo, valdymo ir naudojimosi teisės nėra apribotos ir jokie tretieji asmenys neturi pretenzijų į Sutartimi perduodamas Prekes (įkeitimai, areštai ar pan.).

17. BENDRIEJI ATSAKOMYBĖS KLAUSIMAI

17.1. Netesybų už vėlavimą ar pareigų pagal Sutartį pažeidimą sumokėjimas neatleidžia Šalies nuo Sutartyje numatytų jos pareigų vykdymo.

17.2. Netesybų sumokėjimas ir (ar) Sutarties įvykdymo užtikrinimo gavimas nepanaikina Šalies teisės reikalauti, kad kita Šalis kompensuotų jos patirtus nuostolius. Šioje Sutartyje nustatytos netesybos yra laikomos minimaliais, neįrodinėtinais Šalių nuostoliais. Kiekviena iš Šalių turi teisę gauti iš kitos Šalies nuostolių, atsiradusių dėl kitos Šalies netinkamo įsipareigojimų pagal Sutartį vykdymo ar nevykdymo, neviršijant Pradinės sutarties vertės be PVM, jei teisės aktai nenumato, kad privalo būti kompensuota

didesnė suma. Šiame punkte numatytas atsakomybės ribojimas netaikomas, jei žala atsirado dėl konfidencialumo įsipareigojimų, asmens duomenų apsaugą reglamentuojančių teisės aktų ar intelektinės nuosavybės teisių pažeidimo.

17.3. Tuo atveju, jei paaiškėja, kad kuris nors iš šioje Sutartyje pateiktų pareiškimų ar garantijų buvo iš esmės neteisingas, melagingas ar klaidinantis, Šalis pažeidėja nukentėjusiai Šaliai privalo atlyginti visus nuostolius, kuriuos nukentėjusioji Šalis patyrė dėl tokio neteisingo, melagingo ar klaidinančio pareiškimo ar garantijos.

17.4. Šioje Sutartyje numatytos teisių gynybos priemonės neapriboja Šalių teisės pasinaudoti kitomis teisėtomis teisių gynybos priemonėmis.

17.5. Atsakomybės apribojimai pagal Sutartį netaikomi, kai žala padaroma tyčia arba dėl didelio neatsargumo, padaroma neturtinė žala, sužalojama sveikata ar atimama gyvybė, taip pat kai padaroma žala (nuostoliai) tretiesiems asmenims, įskaitant atvejus, jeigu vienos Šalies padarytą žalą tretiesiems asmenims atlygina kita Šalis.

17.6. Pasibaigus Sutarties galiojimui, Šalys neatleidžiamos nuo atsakomybės už Sutarties pažeidimą. Pasibaigus Sutarties galiojimui, Šalys nepraranda teisės reikalauti atlyginti dėl Sutarties nevykdymo patirtus nuostolius bei sumokėti netesybas.

18. NENUGALIMA JĖGA (FORCE MAJEURE)

18.1. Atsakomybė pagal Sutartį netaikoma, taip pat Šalys gali būti visiškai ar iš dalies atleistos nuo civilinės atsakomybės šiais pagrindais:

18.1.1. dėl nenugalimos jėgos (force majeure) – taikomos Lietuvos Respublikos civilinio kodekso 6.212 straipsnio ir Lietuvos Respublikos Vyriausybės 1996 m. liepos 15 d. nutarimu Nr. 840 „Dėl Atleidimo nuo atsakomybės esant nenugalimos jėgos (force majeure) aplinkybėms taisyklių patvirtinimo" patvirtintų taisyklių nuostatos;

18.1.2. dėl Europos Sąjungos valstybių veiksmų – kai prievolę pagal Sutartį įvykdyti neįmanoma dėl privalomų ir nenumatytų Europos Sąjungos valstybės institucijų veiksmų (aktų), kurių Šalys neturėjo teisės ginčyti ir šie veiksmai negalėjo būti iš anksto numatyti.

18.2. Šalis, prašanti ją atleisti nuo atsakomybės, privalo pranešti kitai Šaliai apie nenugalimos jėgos aplinkybes nedelsiant, bet ne vėliau kaip per 5 (penkias) dienas nuo tokių aplinkybių atsiradimo ar paaiškėjimo, pateikdama įrodymus, kad ji ėmėsi visų pagrįstų atsargumo priemonių ir dėjo visas pastangas, kad sumažintų išlaidas ar neigiamas pasekmes, taip pat pranešti galimą įsipareigojimų įvykdymo terminą. Šalis taip pat turi pateikti kitai Šaliai atitinkamą pranešimą, kai išnyksta įsipareigojimų nevykdymo pagrindas.

18.3. Pagrindas atleisti Šalį nuo atsakomybės atsiranda nuo nenugalimos jėgos aplinkybių atsiradimo momento arba, jeigu laiku nebuvo pateiktas pranešimas, nuo pranešimo pateikimo momento. Jeigu Šalis laiku neišsiunčia pranešimo arba neinformuoja, ji privalo kompensuoti kitai Šaliai žalą, kurią ši patyrė dėl laiku nepateikto pranešimo arba dėl to, kad nebuvo jokio pranešimo.

18.4. Jeigu nenugalimos jėgos (force majeure) aplinkybės tęsiasi ilgiau negu 1 (vieną) mėnesį nuo pranešimo apie jas gavimo dienos, bet kuri Šalis gali nutraukti Sutartį apie tai pranešusi kitai šaliai prieš 5 (penkias) darbo dienas. Nenugalima jėga nelaikoma tai, kad Šalis neturi reikiamų finansinių išteklių arba skolininko kontrahentai pažeidžia savo prievoles, arba skolininkas pažeidžia savo prievoles kontrahentams.

19. SUTARTIES NUOSTATŲ NEGALIOJIMAS

19.1. Jeigu kuri nors Sutarties nuostata yra arba tampa dalinai ar pilnai negaliojanti, Šalys privalo kuo skubiau sudaryti Susitarimą, ir juo pakeisti negaliojančią nuostatą kita nuostata, kuri, kiek tai yra įmanoma, turėtų tokį patį ekonominį ir teisinį efektą, kokio buvo siekta susitariant dėl negaliojančios Sutarties nuostatos. Tokia negaliojanti nuostata nedaro negaliojančiomis kitų Sutarties nuostatų, jeigu tai nepažeidžia įstatymų bei kitų teisės aktų ir galima daryti prielaidą, kad Sutartis būtų buvusi teisėtai sudaryta ir neįtraukus nuostatos, kuri yra negaliojanti.

19.2. Jeigu Specialiosiose sąlygose numatytas Bendrųjų sąlygų nuostatos pakeitimas yra arba tampa dalinai ar pilnai negaliojantis, negali būti taikoma tos Bendrųjų sąlygų nuostatos redakcija, buvusi iki pakeitimo. Tokiu atveju Šalys privalo veikti pagal Bendrųjų sąlygų 19.1 punktą.

20. SUTARTIES PAKEITIMAI

20.1. Sutarties sąlygos Sutarties galiojimo laikotarpiu negali būti keičiamos, išskyrus tokias Sutarties sąlygas, kurių keitimas numatytas Sutartyje ir (ar) galimas vadovaujantis VPĮ nuostatomis.

20.2. Sutarties pakeitimai įforminami Šalims sudarant Susitarimą.

20.3. Šalis, inicijuojanti Susitarimą, privalo pateikti kitai Šaliai pranešimą dėl Sutarties pakeitimo bei pagrindimą dėl to, jog yra faktinis ir teisinis pagrindas sudaryti Susitarimą. Kita Šalis per 5 (penkias) darbo dienas (arba per kitą Šalių raštu sutartą terminą) privalo išanalizuoti ir įvertinti gautą informaciją, pateikti savo pastabas ir pasiūlymus, pagrįstus Sutarties arba imperatyviomis įstatymų bei kitų teisės aktų nuostatomis.

20.4. Susitarimai įsigalioja nuo jų sudarymo, jei Susitarime nenurodyta kitaip. Susitarimą Pirkėjas privalo paviešinti VPĮ 33 ir 86 straipsniuose nustatyta tvarka.

20.5. Specialiosiose sąlygose nurodytų duomenų apie kontaktinius asmenis bei rekvizitų pasikeitimas nelaikomas Sutarties pakeitimu (išskyrus Tiekėjo, jungtinės veiklos partnerio, subtiekėjo ar specialisto pakeitimą kitu asmeniu) ir Šalis turi pakeisti tuos duomenis vienašališkai, informuodama apie tai kitą Šalį. Bet kuriuo atveju Sutarties pakeitimu negali būti iš esmės keičiama Sutartis.

21. SUTARTIES SUSTABDYMAS

21.1. Nesant Tiekėjo kaltės ir esant aplinkybėms, kurių Tiekėjas negalėjo numatyti, dėl kurių Tiekėjas negali vykdyti savo sutartinių įsipareigojimų ir (arba) esant kitoms nenumatytoms aplinkybėms, Sutarties šalys turi teisę inicijuoti Prekių (jų dalies) tiekimo sustabdymą iki atitinkamų aplinkybių pasibaigimo.

21.2. Prekių (jų dalies) tiekimas gali būti stabdomas esant bent vienai iš šių aplinkybių:

21.2.1. esant Bendrųjų sąlygų 18 skyriuje numatytoms nenugalimos jėgos aplinkybėms, sutartinių įsipareigojimų vykdymo terminai stabdomi nuo kliūties atsiradimo momento arba jeigu apie ją nėra laiku pranešta, nuo pranešimo momento ir atnaujinami, kai minėtos aplinkybės nebetrukdo vykdyti Sutarties;

21.2.2. Pirkėjas Sutartyje nurodyta tvarka negali priimti Prekių (pavyzdžiui, nebaigta įrengti patalpa, kurioje turi būti įmontuojamos Prekės), o Tiekėjas dėl to negali vykdyti Sutarties;

21.2.3. dėl nenumatytų prekių, paslaugų ir (ar) darbų, susijusių su perkamu objektu, kurių poreikis paaiškėjo tik vykdant Sutartį;

21.2.4. ne dėl Pirkėjo kaltės vėluoja kitos Pirkėjo pirkimo sutarties, turinčios tiesioginės įtakos šiai Sutarčiai, vykdymas;

21.2.5. esant įrodymais pagrįstoms kliūtims ar trukdymams, sukeltiems Tiekėjui kitų trečiųjų asmenų ne dėl Tiekėjo ne laiku ar netinkamai pagal Sutarties sąlygas ir tvarką įvykdytų sutartinių įsipareigojimų;

21.2.6. pasikeitus galiojančiam teisės aktui ar įsigaliojus naujam teisės aktui, kuris turi įtakos šios Sutarties vykdymui;

21.2.7. sutartinių įsipareigojimų stabdymo būtinybė atsirado dėl sustabdyto / perskirstyto / negauto ir panašiai Pirkėjo Prekių pirkimui skirto finansavimo arba finansavimo trūkumo;

21.2.8. dėl teisminių (arbitražinių) ginčų su Pirkėju ar trečiaisiais asmenimis, kurių dalykas yra tiesiogiai susijęs su Sutarties vykdymu.

21.3. Jei Prekių (jų dalies) tiekimo stabdymas atliekamas dėl Bendrųjų sąlygų 21.2 punkte nurodytų aplinkybių ir tęsiasi ne ilgiau kaip 3 (tris) mėnesius, toks stabdymas laikomas Sutarties keitimu joje numatytomis sąlygomis.

21.4. Jei Prekių (jų dalies) stabdymas vykdomas dėl kitų aplinkybių, nenurodytų Bendrųjų sąlygų 21.2 punkte ar (ir) Bendrųjų sąlygų 21.2 punkte nurodytos aplinkybės tęsiasi ilgiau nei 3 (tris) mėnesius ir (ar) nesilaikant šiame skyriuje nustatytos tvarkos, tai laikoma Sutarties keitimu, kuris turi būti atliekamas, vadovaujantis VPĮ nuostatomis.

21.5. Sutartinių įsipareigojimų vykdymas gali būti stabdomas tik Sutarties galiojimo laikotarpiu tokia tvarka:

21.5.1. Atsiradus aplinkybėms, dėl kurių Tiekėjas negali vykdyti sutartinių įsipareigojimų, Tiekėjas apie tai nedelsdamas privalo informuoti Pirkėją. Tiekėjo rašytiniame prašyme turi būti nurodyta stabdymo aplinkybė (Bendrųjų sąlygų 21.2 punktas) ir aplinkybės atsiradimą bei galimą terminą pagrindžiantys argumentai, objektyvūs faktai ir įrodymai. Pirkėjas, įvertinęs prašymą, ne vėliau kaip per 3 (tris) darbo dienas raštu informuoja Tiekėją apie priimtą sprendimą dėl sutartinių įsipareigojimų vykdymo stabdymo. Tiekėjui nepateikus konkrečių argumentų, faktų, pagrįstų įrodymais, Pirkėjas turi teisę raštu atsisakyti patvirtinti stabdymą.

21.5.2. Pirkėjui raštu informavus Tiekėją ir pateikus jam argumentuotą paaiškinimą, dėl kokių aplinkybių ir kuriam terminui yra būtina stabdyti sutartinių įsipareigojimų vykdymo terminą, Tiekėjas ne vėliau kaip per 3 (tris) darbo dienas raštu informuoja Pirkėją ir patvirtina, kad sutinka su stabdymu. Tiekėjas turi teisę prieštarauti sutartinių įsipareigojimų vykdymo stabdymui tik tuo atveju, jei Tiekėjas savo sąskaita ir jėgomis gali pašalinti atsiradusias aplinkybes, dėl kurių kilo būtinybė stabdyti sutartinių įsipareigojimų vykdymą.

21.5.3. Tiekėjas, gavęs Pirkėjo raštišką pranešimą apie stabdymą, privalo nedelsiant, bet ne vėliau kaip per 3 (tris) darbo dienas po patvirtinimo išsiuntimo Pirkėjui dienos, sustabdyti sutartinių įsipareigojimų vykdymą. Jei Sutartis sustabdyta, Šalys negali vykdyti jokių jiems pagal Sutartį priskirtų įsipareigojimų.

21.6. Šalys sutartinių įsipareigojimų vykdymo stabdymą įformina rašytiniu susitarimu, nurodant priežastis ir sustabdymo terminą, bei pridedant dokumentus, patvirtinančius sustabdymo pagrindą, ir patvirtina Šalių įgaliotų atstovų parašais. Tokie susitarimai yra neatskiriama Sutarties dalis.

21.7. Sutartinių įsipareigojimų vykdymas stabdomas ne ilgesniam kaip konkrečios, pagrįstos aplinkybės egzistavimo laikotarpiui.

21.8. Šalys susitaria, kad sutartinių įsipareigojimų vykdymo sustabdymo terminas į Sutarties vykdymo terminą nėra įskaičiuojamas, jo metu sutartiniai įsipareigojimai nevykdomi ir už šį periodą Pirkėjas Tiekėjui nemoka jokių mokėjimų, baudų ar prastovų.

21.9. Jeigu Sutartyje numatytų prievolių įvykdymo terminai buvo sustabdyti Sutartyje nustatytais pagrindais, jie atnaujinami pasibaigus sustabdymą lėmusioms aplinkybėms arba Šalių susitarime nurodytam terminui, priklausomai nuo to, kuris įvyksta anksčiau.

21.10. Atnaujinus Sutarties vykdymą, neįvykdytų prievolių (jų dalies) įvykdymo terminai ir Sutarties galiojimas nukeliami tokiam terminui, kiek buvo likę laiko jų įvykdymui (Sutarties galiojimui) jų sustabdymo metu.

21.11. Jei sutartinių įsipareigojimų vykdymas buvo sustabdytas ilgesniam nei 3 (trijų) mėnesių laikotarpiui, praėjus šiam terminui, viena Šalis gali rašytiniu pranešimu kitos Šalies pareikalauti atnaujinti Sutarties vykdymą. Šaliai be pagrįstų aplinkybių neatnaujinus Sutarties vykdymo per 10 (dešimt) dienų nuo atitinkamo kreipimosi, kita Šalis gali nutraukti Sutartį, apie tai įspėjusi kitą Šalį prieš 10 (dešimt) dienų.

22. SUTARTIES NUTRAUKIMAS

Sutartis gali būti nutraukiama VPĮ 90 straipsnyje ir Sutartyje numatytais atvejais, įskaitant galimybę nutraukti Sutartį Šalių susitarimu.

22.1. Pretenzijos dėl Sutarties pažeidimų

22.1.1. Jeigu Šalis pažeidžia Sutartį arba įstatymus bei kitus teisės aktus, kita Šalis turi teisę pareikšti jai rašytinę pretenziją, nurodyti, kokią Sutarties ar įstatymų bei kitų teisės aktų nuostatą ir kokiu būdu priešinga Šalis pažeidė bei nustatyti protingą terminą ištaisyti pažeidimą.

22.1.2. Pretenziją gavusi Šalis privalo nedelsdama, bet ne vėliau nei per 5 (penkias) darbo dienas, atsakyti į pretenziją ir nurodyti, kokių priemonių imsis siekdama ištaisyti pažeidimą per pretenzijoje nustatytą terminą arba motyvuotai pasiūlyti kitą pagrįstą terminą. Tiekėjo teisė siūlyti kitą terminą nelaikoma Pirkėjo pareiga tą terminą priimti. Pretenziją gavusios Šalies pasiūlytasis terminas pakeičia terminą, nurodytą pretenzijoje, tik jeigu kita Šalis jį patvirtina.

22.2. Sutarties nutraukimas Pirkėjo iniciatyva

22.2.1. Pirkėjas vienašališkai nutraukia Sutartį, įspėjęs Tiekėją raštu prieš ne trumpesnį nei 5 (penkių) dienų terminą, jeigu Tiekėjas padaro esminį Sutarties pažeidimą, nurodytą Specialiosiose sąlygose. Pirkėjas taip pat turi teisę nutraukti Sutartį, jeigu Tiekėjas padaro Sutarties pažeidimą, kuris atitinka esminio Sutarties pažeidimo požymius, nurodytus Lietuvos Respublikos civiliniame kodekse, ir, gavęs Pirkėjo pretenziją, per pretenzijoje nurodytą terminą neištaiso pažeidimo.

22.2.2. Pirkėjas turi teisę vienašališkai nutraukti Sutartį ar jos dalį raštu įspėjęs Tiekėją prieš ne trumpesnį nei 10 (dešimties) dienų terminą, jeigu:

22.2.2.1. Tiekėjui yra iškelta bankroto byla, pradėtas bankroto procesas ne teismo tvarka, jis tampa nemokus arba yra nemokumo tikimybė, sustabdo ūkinę veiklą ar susidaro įstatymuose ir kituose teisės aktuose nustatyta tvarka analogiška situacija;

22.2.2.2. Tiekėjo padėtis pasikeičia ir jis atitinka pirkimo dokumentuose nustatytą pašalinimo pagrindą, kuris taikomas ir Sutarties galiojimo metu;

22.2.2.3. pasikeičia teisės aktai, susiję su Sutarties objektu, Sutarties vykdymu, ar su Pirkėjo vykdoma veikla, kuriai buvo sudaryta Sutartis, ir dėl tokių pakeitimų Pirkėjas nusprendžia nutraukti Sutartį;

22.2.2.4. Pirkėjas nusprendžia nebevykdyti veiklos, kurios vykdymui Sutartimi įsigyjamos Prekės ir Sutarties poreikis išnyksta;

22.2.2.5. Pirkėjo valdymo organas priima sprendimą, dėl kurio Sutarties poreikis išnyksta;

22.2.2.6. pasikeičia (pablogėja) Pirkėjo finansinė padėtis ar Pirkėjas negauna / netenka finansavimo ir dėl šios priežasties nusprendžia nutraukti Sutartį;

22.2.2.7. keičiasi Pirkėjo organizacinė struktūra – juridinis statusas, pobūdis ar valdymo struktūra ir tai gali turėti įtakos tinkamam Sutarties įvykdymui arba Sutarties poreikiui;

22.2.2.8. nebelieka perkamų Prekių poreikio;

22.2.2.9. Pirkėjas iš pirkimų priežiūrą atliekančių institucijų gauna nurodymą / rekomendaciją nutraukti Sutartį;

22.2.2.10. Tiekėjas vėluoja pateikti Sutarties įvykdymo užtikrinimo pratęsimą ilgiau kaip 10 (dešimt) darbo dienų nuo paskutinio Sutarties įvykdymo užtikrinimo galiojimo termino pabaigos arba atsisako jį pateikti;

22.2.2.11. Tiekėjas atsisako pašalinti arba nepašalina Prekių trūkumų per Pirkėjo nustatytus protingus terminus;

22.2.2.12. Tiekėjas pažeidžia Sutartį arba įstatymus bei kitus teisės aktus ir per Pirkėjo rašytinėje pretenzijoje nurodytą terminą neištaiso pažeidimo.

22.2.3. Sutartis laikoma niekine ir negaliojančia, jei nustatoma, kad Sutarties vykdymas prieštarauja Lietuvos Respublikoje įgyvendinamoms privalomoms tarptautinėms sankcijoms, kaip tai apibrėžta Sankcijų įstatyme ir kituose tarptautiniuose, Europos Sąjungos ir Lietuvos Respublikos teisės aktuose (bent vienai iš taikomų sankcijų). Sutarties negaliojimo momentas nustatomas vadovaujantis minėtu įstatymu.

22.2.4. Pirkėjas nedelsiant, bet ne vėliau kaip per 5 (penkias) dienas, vienašališkai nutraukia Sutartį arba sustabdo jos vykdymą privalomų tarptautinių sankcijų, kaip tai apibrėžta Sankcijų įstatyme ir kituose tarptautiniuose, Europos Sąjungos ir Lietuvos Respublikos teisės aktuose, įgyvendinimo laikotarpiui, apie tai įspėjęs Tiekėją raštu, jei Sutartis įsigaliojo iki šių tarptautinių sankcijų Lietuvos Respublikoje įgyvendinimo nustatymo. Draudžiama prisiimti naujas prievoles pagal Sutartį, kurių vykdymas prieštarautų Lietuvos Respublikoje įgyvendinamoms tarptautinėms sankcijoms.

22.2.5. Jei Sutartis nutraukiama Tiekėjui iš esmės pažeidus Sutartį ar Tiekėjui nepagrįstai nutraukus Sutarties vykdymą ne Sutartyje nustatyta tvarka, ir jeigu Specialiosiose sąlygose nėra numatyta, kad tinkamas Sutarties įvykdymas yra užtikrinamas Sutarties įvykdymo užtikrinimu, Tiekėjas įsipareigoja sumokėti Pirkėjui Specialiosiose sąlygose nurodyto dydžio baudą ir atlyginti nuostolius, susijusius su Sutarties nutraukimu. Jeigu Specialiosiose sąlygose yra numatyta, kad tinkamas Sutarties įvykdymas yra užtikrinamas Sutarties įvykdymo užtikrinimu, Tiekėjas įsipareigoja Pirkėjui sumokėti likusią dalį Specialiosiose sąlygose nurodyto dydžio baudos ir atlyginti nuostolius, susijusius su Sutarties nutraukimu, kiek jų nepadengia Sutarties įvykdymo užtikrinimas. Pirkėjui pareiškus reikalavimą atlyginti patirtus nuostolius, baudos suma įskaitoma į nuostolių atlyginimą.

22.2.6. Pirkėjas turi teisę vienašališkai nutraukti Sutartį ir kitais Specialiosiose sąlygose (jei taikoma) ir įstatymuose bei kituose teisės aktuose įtvirtintais atvejais.

22.2.7. Sutartis laikoma nutraukta kitą dieną po to, kai pasibaigia įspėjimo apie Sutarties nutraukimą terminas.

22.2.8. Tais atvejais, kai Tiekėjas pašalina pažeidimą ar išnyksta aplinkybės, dėl kurių buvo inicijuota Sutarties nutraukimo procedūra, Sutartis negali būti nutraukiama ir įspėjimas apie Sutarties nutraukimą netenka galios, jei Tiekėjas informuoja Pirkėją apie pašalintą pažeidimą ar išnykusias aplinkybes, dėl kurių buvo inicijuota Sutarties nutraukimo procedūra.

22.3. Sutarties nutraukimas Tiekėjo iniciatyva

22.3.1. Tiekėjas turi teisę vienašališkai nutraukti Sutartį, įspėjęs Pirkėją raštu prieš ne trumpesnį nei 30 (trisdešimties) dienų terminą, jeigu Pirkėjas pažeidžia atsiskaitymo su Tiekėju terminus (išskyrus atvejus, kai Pirkėjas naudojasi savo teise sulaikyti mokėjimus), ir Pirkėjo skola Tiekėjui viršija 20 (dvidešimt) proc. Pradinės sutarties vertės be PVM ir Pirkėjas, gavęs Tiekėjo pretenziją, per 30 (trisdešimt) dienų nesumoka Tiekėjui mokėtinų sumų.
22.3.2. Tiekėjas turi teisę vienašališkai nutraukti Sutartį, įspėjęs Pirkėją raštu prieš ne trumpesnį nei 10 (dešimties) dienų terminą, jeigu:
22.3.2.1. Pirkėjui yra iškelta bankroto byla, pradėtas procesas dėl bankroto ne teismo tvarka, jis tampa nemokus arba yra nemokumo tikimybė, Pirkėjas sustabdo veiklą, arba įstatymuose ir kituose teisės aktuose numatyta tvarka susidaro analogiška situacija;
22.3.2.2. Pirkėjas pažeidžia Sutartį arba įstatymus bei kitus teisės aktus ir per Tiekėjo rašytinėje pretenzijoje nurodytą terminą neištaiso pažeidimo, išskyrus Bendrųjų sąlygų 22.3.1 punkte nustatytą atvejį.
22.3.3. Jeigu Bendrųjų sąlygų 22.3.1 punkte nurodytos aplinkybės yra susijusios tik su atskira dalimi arba atskiru Susitarimu, Tiekėjas turi teisę nutraukti Sutartį tik tos dalies atžvilgiu arba nutraukti tik tokį Susitarimą.
22.3.4. Tiekėjas turi teisę vienašališkai nutraukti Sutartį ir kitais įstatymuose bei kituose teisės aktuose įtvirtintais atvejais.
22.3.5. Jei Sutartis nutraukiama Pirkėjui iš esmės pažeidus Sutartį ar Pirkėjui nepagrįstai nutraukus Sutarties vykdymą ne Sutartyje nustatyta tvarka, Pirkėjas įsipareigoja sumokėti Tiekėjui Specialiosiose sąlygose nurodyto dydžio baudą ir atlyginti nuostolius, susijusius su Sutarties nutraukimu.
22.3.6. Sutartis laikoma nutraukta kitą dieną po to, kai pasibaigia įspėjimo apie Sutarties nutraukimą terminas.
22.3.7. Tais atvejais, kai per įspėjimo apie Sutarties nutraukimą terminą Pirkėjas pašalina pažeidimą arba išnyksta aplinkybės, dėl kurių buvo inicijuota Sutarties nutraukimo procedūra, Sutartis negali būti nutraukiama ir įspėjimas apie Sutarties nutraukimą netenka galios, jei Pirkėjas informuoja apie pašalintą pažeidimą arba išnykusias aplinkybes, dėl kurių buvo inicijuota Sutarties nutraukimo procedūra, Tiekėją.

22.4. Šalių teisės ir pareigos Sutarties nutraukimo atveju

22.4.1. Sutarties nutraukimas neturi įtakos ginčų nagrinėjimo tvarką nustatančių Sutarties sąlygų ir kitų Sutarties sąlygų, kurios pagal savo esmę lieka galioti ir po Sutarties nutraukimo, galiojimui.
22.4.2. Nutraukus Sutartį, Šalys privalo:
22.4.2.1. įsitikinti, jog iki Sutarties nutraukimo dienos pristatytos Prekės ir kiti atlikti veiksmai atitinka Sutarties reikalavimus ir Šalys dėl to viena kitai nebereikš pretenzijų;
22.4.2.2. atsiskaityti už iki Sutarties nutraukimo pristatytas Prekes, atitinkančias Sutarties reikalavimus;
22.4.2.3. per 10 (dešimt) dienų nuo pranešimo apie Sutarties nutraukimą gavimo dienos ar Susitarimo dėl Sutarties nutraukimo sudarymo dienos perduoti viena kitai visus dokumentus, kuriuos buvo būtina perduoti pagal Sutarties nuostatas.

23. PREKIŲ MODELIO AR GAMINTOJO KEITIMAS

23.1. Tiekėjas turi teisę keisti Prekių modelį ar gamintoją, jei yra visos toliau nurodytos sąlygos:
23.1.1. jei Tiekėjo pasiūlyme nurodytos Prekės nebegaminamos ar iš esmės sutriko jų tiekimas ir gautas gamintojo patvirtinimas ir (ar) Prekės, jų gamintojas kelia grėsmę nacionaliniam saugumui ir (ar) Prekių tiekimas prieštarauja Lietuvos Respublikoje įgyvendinamoms privalomoms tarptautinėms sankcijoms, kaip

tai apibrėžta Sankcijų įstatyme ir (ar) Prekės, jų sudedamosios dalys ar (ir) gamintojas neatitinka VPĮ 45 straipsnio 2[1] dalies nuostatų;

23.1.2. jei keičiamos Prekės visiškai atitinka visus pirkimo dokumentų reikalavimus, yra ne prastesnės, o lygiavertės ar geresnės kokybės nei Tiekėjo pasiūlyme nurodytos Prekės ir Tiekėjas pateikia tai patvirtinančius dokumentus. Jeigu pirkimo procedūrų metu Tiekėjas buvo pateikęs Prekių pavyzdžius, pristatomos Prekės turi būti ne prastesnės kokybės nei pateikti pavyzdžiai;

23.1.3. jei Tiekėjas, ne vėliau kaip prieš 10 (dešimt) dienų iki numatomo Prekių keitimo, pateikė Pirkėjui rašytinį prašymą su keitimą pagrindžiančiais dokumentais bei gavo Pirkėjo rašytinį sutikimą. Pirkėjas turi teisę nesutikti su Prekės keitimu ir turi teisę nutraukti Sutartį, jei Tiekėjas nepateikė įrodymų ar jų pateikimas nepagrindžia keičiamos Prekės atitikimo pirkimo dokumentams ir lygiavertiškumo ar geresnės kokybės nei šiuo metu tiekiamos Prekės;

23.1.4. Šalys sudarė rašytinį susitarimą prie Sutarties dėl Prekių keitimo.

23.2. Šiame Bendrųjų sąlygų skyriuje nurodytu atveju Prekės turi būti pristatytos už ne didesnę nei pasiūlyme nurodytą kainą.

24. BENDRAVIMO TVARKA IR KALBA

24.1. Sutartis sudaroma lietuvių kalba. Jeigu Sutartis ar kuris nors ją sudarantis dokumentas sudaromas kita kalba arba išverčiamas į kitą kalbą, visais atvejais autentišku laikomas tik lietuvių kalba parengtas Sutarties tekstas (jei yra neatitikimų, pirmenybė teikiama lietuvių kalba parengtam tekstui).

24.2. Jeigu Šalis praneša kitai Šaliai apie savo naujus kontaktinius duomenis, tai po to, kai kita Šalis gauna tokį pranešimą, ji visus remiantis Sutartimi siunčiamus pranešimus ir informaciją turi siųsti pagal naujuosius kontaktinius duomenis. Jei Šalis nepraneša apie kontaktinių duomenų pasikeitimą arba kol kita Šalis negauna tokio pranešimo, pranešimo išsiuntimas pagal paskutinius Šaliai žinomus kontaktinius duomenis laikomas tinkamu.

24.3. Jeigu pranešimas yra įteikiamas asmeniškai arba siunčiamas paštu ar per kurjerį, jis turi būti įteikiamas pasirašytinai ir laikomas gautu gavimo patvirtinime nurodytą dieną.

24.4. Jeigu pranešimas siunčiamas el. paštu, laikoma, kad Šalis jį gavo kitą darbo dieną.

24.5. Jeigu pranešimas siunčiamas keliais skirtingais būdais, laikoma, kad gavėjas jį gavo tada, kai jis gavo pirmesnįjį pranešimą.

25. PRETENZIJOS IR GINČŲ SPRENDIMAS

25.1. Bet kokie ginčai, nesutarimai ar reikalavimai, kylantys iš Sutarties arba susiję su Sutartimi, jos pažeidimu, nutraukimu ar galiojimu, visų pirma privalo būti sprendžiami derybomis tarp Šalių vadovų arba jų įgaliotų asmenų.

25.2. Jeigu Šalys neišsprendžia ginčo derybų būdu tuomet toks ginčas, nesutarimas ar reikalavimas, kylantis iš šios Sutarties arba susijęs su ja ar jos pažeidimu, nutraukimu arba negaliojimu, yra galutinai sprendžiamas Lietuvos Respublikos teismuose Lietuvos Respublikos įstatymuose nustatyta tvarka.

25.3. Kilę ginčai nesudaro pagrindo Šalims atsisakyti vykdyti savo prievoles pagal Sutartį.

Įmonės kodas: 166725580, PVM kodas LT667255811

Adresas: Gamyklos g. 48, LT-89104, Mažeikiai Lietuva

AB Swedbank SWIFT HABALT22, IBAN LT77 7300 0100 0254 1137

Kavita

VšĮ Kauno miesto poliklinikai

**PASIŪLYMAS
DĖL OFTALMOLOGINIŲ PRIEMONIŲ PIRKIMO**

2025-04-18 Nr. 250418-01
Mažeikiai

1. INFORMACIJA APIE TIEKĖJĄ

Tiekėjo arba tiekėjų grupės narių pavadinimas (-ai)	UAB „Kavita"
Tiekėjo arba tiekėjo grupės narių juridinio asmens kodas (-ai) (tuo atveju, jei pasiūlymą teikia fizinis asmuo — verslo pažymėjimo Nr. ar pan.)	166725580
Tiekėjo arba tiekėjo grupės narių PVM mokėtojo kodas (-ai)	LT667255811
Tiekėjų grupės narys, atstovaujantis arba vadovaujantis tiekėjų grupei (pildoma, jei pasiūlymą teikia tiekėjų grupė)	
Tiekėjo arba atstovaujančio tiekėjų grupės nario adresas, telefono numeris, fakso numeris, el. paštas	
Tiekėjo arba atstovaujančio tiekėjų grupės nario banko pavadinimas, banko kodas, sąskaitos Nr.	LT077044060000017238 AB „SEB", B.K 70440
Už pasiūlymą atsakingo asmens vardas, pavardė, pareigos, telefono numeris, el. paštas	

2. INFORMACIJA APIE ŪKIO SUBJEKTUS, KURIŲ PAJĖGUMAIS TIEKĖJAS REMIASI, KAD ATITIKTŲ PERKANČIOSIOS ORGANIZACIJOS KELIAMUS KVALIFIKACIJOS REIKALAVIMUS (JEIGU TOKIE REIKALAVIMAI KELIAMI) *(nurodomi ir kvazisubtiekėjai - fiziniai asmenys, kuriuos ketinama įdarbinti pirkimo laimėjimo atveju)*

(pildoma, jei tiekėjas pasitelkia kitų ūkio subjektų pajėgumais pagal VPĮ 49 str.)

Eil. Nr.	Ūkio subjekto pavadinimas, juridinio asmens kodas, adresas	Nuoroda į skelbimo apie pirkimą punkto sąlygą, kuriai atitikti remiamasi ūkio subjekto pajėgumais	Sutarties objekto dalies, perduodamos vykdyti subtiekėjui, aprašymas
1.			
2.			

3. INFORMACIJA APIE ŽINOMUS SUBTIEKĖJUS IR JIEMS PERDUODAMA VYKDYTI SUTARTIES DALIS
(pildoma, jei tiekėjas pasitelkia subtiekėjus)

Eil. Nr.	Subtiekėjo pavadinimas, juridinio asmens kodas, adresas	Sutarties objekto dalies, perduodamos vykdyti subtiekėjui, aprašymas
1.		
2.		

4. PASIŪLYMO KAINA

4.1.   Pasiūlyme kaina nurodoma eurais. Jeigu pasiūlymuose kainos nurodytos užsienio valiuta, jos turės būti perskaičiuojamos į eurus pagal Europos Centrinio Banko skelbiamą orientacinį euro ir užsienio valiutų santykį, o tais atvejais, kai orientacinio euro ir užsienio valiutų santykio Europos Centrinis Bankas neskelbia, - pagal Lietuvos banko nustatomą ir skelbiamą orientacinį euro ir užsienio valiutų santykį pasiūlymų pateikimo dieną.

4.2.   Apskaičiuojant kainą, turi būti atsižvelgta į visą pirkimo dokumentuose nurodytą pirkimo objekto apimtį ir reikalavimus, kainos sudėtines dalis ir pan. Perkančioji organizacija, tiekėjui baigus vykdyti sutartį, turės galėti naudotis pirkimo objektu be papildomų išlaidų, jei pirkimo dokumentuose aiškiai nenurodyta kitaip. PVM nurodomas atskirai. Jei tiekėjas yra ne PVM mokėtojas, turi apie tai nurodyti pasiūlyme, nurodant teisinį pagrindą. Tiekėjas turi įvertinti ar sutarties vykdymo metu netaps PVM mokėtoju. Jei tiekėjas vykdymas sutartį taps PVM mokėtoju, pasiūlyme turi nurodyti kainą su PVM. Pasiūlymų kainos bus vertinamos ir lyginamos be PVM. Į pasiūlymo kainą privalo būti įskaičiuoti visi mokesčiai bei visos kitos Tiekėjo patirtos ir (ar) galimos patirti tiesioginės ir netiesioginės išlaidos ir mokesčiai, susiję su Prekių tiekimu, įskaitant, bet neapsiribojant (išskyrus tuos atvejus, kai pirkimo dokumentuose aiškiai nurodyta, kad tam tikros konkrečios išlaidos neturi būti įskaičiuotos į Sutarties kainą):

4.2.1. transportavimo išlaidas;

4.2.2. pakavimo, pakrovimo, tranzito, iškrovimo, išpakavimo, pakuočių surinkimo ir sutvarkymo, tikrinimo, draudimo ir kitas su Prekių tiekimu susijusias išlaidas;

4.2.3. visas su dokumentų, kurių reikalauja Pirkėjas, rengimu ir pateikimu susijusias išlaidas;

4.2.4. naudojimo ir priežiūros instrukcijų, numatytų Techninėje specifikacijoje, pateikimo išlaidas;

4.2.5. pristatytų Prekių surinkimo vietoje ir (arba) paleidimo, ir (arba) priežiūros išlaidas;

4.2.6. Prekių garantinės ir techninės priežiūros išlaidos;

4.2.7. išlaidos licencijoms, patentams, leidimams ir pan.

4.2.8. elektroninių sąskaitų teikimo išlaidos ir kt.;

4.3.   Jeigu pasiūlyme nurodyta kaina, išreikšta skaitmenimis, neatitinka kainos, nurodytos žodžiais, teisinga laikoma kaina, nurodyta žodžiais.

4.4.   Galutinė pasiūlymo kaina turi būti nurodoma dviejų skaičių po kablelio tikslumu. Jei trečias skaičius po kablelio yra nuo 0 iki 4, antrasis skaičius po kablelio paliekamas koks yra, jei trečias skaičius po kablelio yra nuo 5 iki 9, antrąjį skaičių po kablelio padidiname vienu vienetu, pvz., 3,14159 suapvalinus iki šimtųjų bus 3,14. Suapvalinus 3,1153 iki šimtųjų bus 3,12.

Eil. Nr.	Prekės pavadinimas	Mato vnt.	Kiekis, vnt.	Mato vnt. kaina Eur be PVM	Suma Eur be PVM (4x5)
1	2	3	4	5	6
5 PIRKIMO OBJEKTO DALIS „KOMPIUTERINIS PERIMETRAS"					
1.	Kompiuterinis perimetras (Gamintojas Optopol, Lenkija, katalogo Nr. PTS-925W)	vnt.	1	8800,00	8800,00

Bendra 5 pirkimo dalies suma Eur be PVM: | 8800,00
21 % PVM: | 1848,00
Bendra 5 pirkimo dalies suma Eur su PVM: | 10648,00

4.5. Pasiūlymo kaina EUR su PVM žodžiais: dešimt tūkstančių šeši šimtai keturiasdešimt aštuoni Eur ir 00 ct.
4.6. Jei „PVM" laukas nepildomas, nurodykite priežastis, dėl kurių PVM nemokamas: _____

5. PRIDEDAMI DOKUMENTAI IR INFORMACIJA APIE KONFIDENCIALUMĄ

Jei nenurodyta kitaip, visi dokumentai teikiami su pasiūlymu CVP IS priemonėmis:

Eil. Nr.	Dokumentas	Lapų skaičius	Ar dokumente yra konfidencialios informacijos? (Taip / Ne)	Paaiškinimas, kokia konkreti informacija dokumente yra konfidenciali ir kodėl
1	2	3	4	5
1.	Jungtinės veiklos sutarties kopija (jei pasiūlymą pateikia ūkio subjektų grupė)			
2.	Įgaliojimo ar kito dokumento, suteikiančio teisę pateikti ir (ar) pasirašyti pasiūlymą bei kitus dokumentus, kopija (jeigu pasiūlymą pateikia ir ar dokumentus pasirašo ne tiekėjo, ūkio subjektų grupės dalyvių, subtiekėjų ar ūkio subjektų, kurių pajėgumais remiasi tiekėjas remiasi, vadovas)	1	Ne	
3.	Jei tiekėjas pasitelkia ūkio subjektus – įrodymai, kad šie ištekliai bus prieinami per visą sutartinių įsipareigojimų vykdymo laikotarpį			
4.	Užpildytas EBVPD (specialiųjų Pirkimo sąlygų 5 priedas „EBVPD"). *Atskirą EBVPD pildo: 1) tiekėjas; 2) kiekvienas tiekėjų grupės narys (jeigu pasiūlymą teikia tiekėjų grupė); 3) kiekvienas ūkio subjektas, kurio pajėgumais remiasi tiekėjas pagal VPĮ 49 str. (jei yra); 4) kiekvienas subtiekėjas atskirai; kiekvienas fizinis asmuo, kurio pajėgumais remiasi tiekėjas pagal VPĮ 49 str., su kuriuo laimėjimo atveju tiekėjas ketina sudaryti darbo sutartį.			
5.	Užpildytas Pirkimo sąlygų 2 priedas „Techninė specifikacija"	5	Ne	

Nr.	Aprašymas	Kiekis	Reikalavimas
6.	Dokumentai, patvirtinantys pasiūlyme nurodytos prekės atitikimą visiems reikalavimams, nurodytiems kiekviename specialiųjų Pirkimo sąlygų 2 priedo „Techninė specifikacija" lentelės punkte	20	Ne
7.	Dokumentai nurodyti Pirkimo sąlygų 2 priede „Techninė specifikacija"	5	Ne
8.	Užpildytas specialiųjų Pirkimo sąlygų 8 priedas „Tiekėjo deklaracija dėl atitikties VPĮ 45 str. 2 ¹ d. nuostatoms"	1	Ne
9.	Užpildytas specialiųjų Pirkimo sąlygų 8 priedas „Tiekėjo deklaracija dėl atitikties Reglamento nuostatoms juridiniam asmeniui"	1	Ne
10.	Pirkimo sąlygų 4 priedas „Tiekėjų kvalifikacijos reikalavimai ir reikalaujami kokybės bei aplinkos apsaugos vadybos sistemų standartai" nurodyti dokumentai	2	Ne
11.	Naudojimosi instrukcija_5.P.d._PTS-925W_Konfidencialu	332	Taip	Komercinė (gamybinė) paslaptis.

Pasirašydamas šį pasiūlymą, tvirtintu, kad:

• esu susipažinęs su pirkimo dokumentais, taip pat su galiojančiais Lietuvos Respublikos įstatymais, poįstatyminiais teisės aktais, kurie reguliuoja viešųjų pirkimų atlikimo tvarką bei gali turėti įtakos bet kokiems tarp perkančiosios organizacijos ir tiekėjo susiklostantiems santykiams, kylantiems iš šio pirkimo ir (ar) susijusiems su šiuo pirkimu;

• sutinku su pirkimo dokumentuose nustatytomis sąlygomis ir procedūromis,
• pasiūlymo dokumentuose pateikti duomenys ir informacija yra teisinga ir apima viską, ko reikia tinkamam sutarties įvykdymui;
• Pasiūlymas galioja iki termino, nustatyto pirkimo dokumentuose.
• suprantu, kad COVID-19, Rusijos Federacijos karinės agresijos prieš Ukrainą veiksmai bei nepaprastosios padėties Lietuvos Respublikos teritorijoje įvedimas atsižvelgiant į šį agresijos aktą savaime nėra laikomi civilinės atsakomybės netaikymo pagrindais, ir nesutrukdys tinkamai įvykdyti Sutartį.

Produktų vadovė

_____   _____   _____
(Tiekėjo arba jo įgalioto asmens pareigų pavadinimas)   (Parašas)   (Vardas ir pavardė)

TECHNINĖ SPECIFIKACIJA

1. Prekė turi būti nauja, nenaudota. Gamykliškai atnaujinti „renew", „refurbished", „remarked" komponentai neleistini. Prekės kokybė turi atitikti toms prekėms taikomus kokybės reikalavimus. Prekė turi būti pripažinta Lietuvos Respublikos teisės aktų nustatyta tvarka ir atitikti reikalavimus, patvirtintus Medicinos priemonių naudojimo tvarkos apraše, patvirtintame Lietuvos Respublikos sveikatos apsaugos ministro 2010 m. gegužės 3 d. įsakymu Nr. V-383 (su vėlesniais pakeitimais ir papildymais).

2. Kartu su pasiūlymu tiekėjas turi pateikti:

2.1. dokumentus, patvirtinančius pasiūlyme nurodytos prekės atitikimą visiems reikalavimams, nurodytiems kiekviename Pirkimo sąlygų 2 priedas „Techninė specifikacija" lenteles punkte, t. y. tiekėjas privalo pateikti siūlomų prekių gamintojo katalogus/ bukletus/ brošiūras, naudojimo instrukcijas, techninius aprašus ir/arba kitus siūlomų prekių gamintojo parengtus dokumentus, kuriuose būtų siūlomos prekės vaizdas (nuotraukos, brėžiniai ar pan., jei taikoma) su išsamiu siūlomų prekių techninių charakteristikų aprašymu – prekės pavadinimu, modeliu (jei yra), gamintoju, kilmės šalimi, techninėmis charakteristikomis pagal techninės specifikacijos reikalavimus, prekių kodais (jei taikoma) bei visa informacija, pagrindžiančia prekės atitikimą reikalavimams, nurodytiems Pirkimo sąlygų 2 priedas „Techninė specifikacija" lentelėje anglų ir/ar lietuvių kalba. **Siūlomų prekių gamintojo kataloguose/ bukletuose/ brošiūrose, techniniuose aprašuose ir/arba kituose siūlomų prekių gamintojo dokumentuose privaloma grafiškai nurodyti (t. y. pastebimai pažymėti – spalvotai paženklinti, ir/ar nurodyti rodyklėmis, ir/ar pabraukti) konkrečias teikiamų dokumentų vietas, kur aprašomos reikalaujamų techninių charakteristikų reikšmės.**

2.2. Prekė privalo turėti CE sertifikatą ir ES atitikties deklaraciją. Tiekėjas kartu su pasiūlymu privalo pateikti CE sertifikatą ir ES atitikties deklaraciją, kurių turinys ir pateikiama informacija turi atitikti Europos Parlamento ir Tarybos reglamente (ES) 2017/745 dėl medicinos priemonių (toliau - Reglamentas) nustatytus reikalavimus.

Jeigu dėl aspektų, kuriems netaikomas Reglamentas, priemonėms taikomi kiti ES teisės aktai, pagal kuriuos gamintojas taip pat turi pateikti ES atitikties deklaraciją, kad įrodytas tų teisės aktų reikalavimų laikymasis, pateikiama bendra ES atitikties deklaracija dėl visų tai priemonei taikomų ES aktų. Deklaracijoje turi būti pateikiama visa informacija, būtina norint nustatyti ES teisės aktus, su kuriais ta deklaracija yra susijusi.

3. Visoms nurodytoms konkrečioms dalims / medžiagoms ir /ar konkretiems pavadinimams, standartams, tipams ir pan. taikoma „arba lygiavertis". Tiekėjas, siūlantis lygiavertę prekę privalo savo pasiūlyme patikimomis priemonėmis įrodyti, kad siūloma prekė yra lygiavertė ir atitinka techninėje specifikacijoje keliamus reikalavimus.

4. **Prekei suteikiama ne mažesnė kaip 24 mėn. garantija.** Į garantiją turi būti įskaičiuotas nemokamai atliekamas prekės remontas, gedimų šalinimas, įskaitant remontui atlikti reikalingas detales bei medžiagas, o taip pat ir gamintojo rekomenduojamu periodiškumu nemokamai atliekama techninė patikra ir priežiūra, įskaitant techninei patikrai ir priežiūrai atlikti reikalingas detales ir medžiagas. Tiekėjo atsakomybė už kokybės garantiją užtikrinama taip, kaip numato Civilinis kodeksas, t. y. nėra nustatyti jokie kiti Tiekėjo suteikiamos kokybės garantijos užtikrinimo ar atsakomybės už kokybės garantiją apribojimai. Jei gamintojas prekei suteikia ilgesnę nei šiame punkte nurodytą minimalią reikalaujamą garantiją, taikoma gamintojo nurodyta garantija.

5 p.o.d. Kompiuterinis perimetras, Dainavos padalinys, 1 vnt. Pristatymo adresas: Pramonės pr. 31, Kaunas.

9 lentelė

Techniniai reikalavimai	Reikalaujamos parametrų reikšmės	Atitikimas kokybiniams ir techniniams reikalavimams

Eil. Nr.			Siūlomos prekės pavadinimas, techniniai parametrai	Nuoroda į pridedamus, prekės atitikimą reikalaujamoms charakteristikoms įrodančius, dokumentus (bukletų, techninių aprašų puslapių Nr.)	
				Pasiūlymo dokumentai, patvirtinantys siūlomos prekės techninius parametrus	
				dokumento pavadinimas	pasiūlymo lapo numeris
5.1.	Prietaiso paskirtis	Skirtas paciento regėjimo lauko įvertinimui statiniu metodu.	Skirtas paciento regėjimo lauko įvertinimui statiniu metodu. Kompiuterinis perimetras, modelis: PTS-925W, gamintojas Optopol, Lenkija.	Bukletas 5.P.d.	2, 6
5.2.	Perimetro ekrano diametras (Ø)	30±0,5 cm.	30 cm.	Bukletas 5.P.d.	6
5.3.	Tiriamojo lauko foninis apšvietimas	31,5±5% asb.	31,5% asb.	Bukletas 5.P.d.	6
5.4.	Stimulo spalva	Balta	Balta	Bukletas 5.P.d.	6
5.5.	Stimulo dydis (pagal Goldmann)	Ne mažiau nei 3	3	Bukletas 5.P.d.	6
5.6.	Tiriamo akipločio ribos	Horizontaliai:≥100°;	Horizontaliai:170°;	Bukletas 5.P.d.	3
5.7.	Maksimalus stimulo intensyvumas	≥10000 asb.	10000 asb.	Bukletas 5.P.d.	6
5.8.	Testų laukai	1. "10-2"; 2. "24-2"; 3. "30-2";	1. "10-2"; 2. "24-2"; 3. "30-2";	Bukletas 5.P.d.	6
5.9.	Minimalus patikros testų pasirinkimas	2-jų zonų; 3-jų zonų; Defekto gylio.	2-jų zonų; 3-jų zonų; Defekto gylio.	Bukletas 5.P.d.	6
5.10.	Minimalus slenkstinių testų pasirinkimas	1. Slenksčio matavimas; Greitas slenksčio matavimas;	1. Slenksčio matavimas; Greitas slenksčio matavimas;	Bukletas 5.P.d.	6
5.11.	Minimalus specialių testų pasirinkimas	1. Vairuotojų tyrimas; 2. Binokulinis dvejinimosi tyrimas; 3. Virpėjimo (angl. flicker) tyrimas.	1. Vairuotojų tyrimas; 2. Binokulinis dvejinimosi tyrimas; 3. Virpėjimo (angl. flicker) tyrimas.	Bukletas 5.P.d.	6
5.12.	Pakartotinai atliekamų tyrimų analizė	1. Rezultatų palyginimas; 2. Defekto progresavimo įvertinimas.	1. Rezultatų palyginimas; 2. Defekto progresavimo įvertinimas.	Bukletas 5.P.d.	6

5.13.	Paciento žvilgsnio fiksacijos sekimas	1. Žvilgsnio sekimas; 2. Mirksėjimo sekimas (tyrimas stabdomas pacientui užmerkus akį)	1. Žvilgsnio sekimas; Mirksėjimo sekimas (tyrimas t.b. stabdomas pacientui užmerkus akį)	Bukletas 5.P.d.	6
5.14.	Paciento galvos padėties (aukščio) pozicionavimas	Motorizuotos smakro atramos pagalba	Motorizuotos smakro atramos pagalba	Bukletas 5.P.d.	8
5.15.	DICOM suderinamumas	Darbų sąrašo (angl. worklist) palaikymas; Rezultatų siuntimas.	Darbų sąrašo (angl. worklist) palaikymas; Rezultatų siuntimas.	Bukletas 5.P.d.	5
5.16.	Valdymas ir duomenų saugojimas	Integruotas priemonėje arba su kompiuterio pagalba (jei kompiuterio pagalba tada turi atitikti 5.17 punktą, jei integruotas priemonėje 5.17 punkto nepildyti)	Kompiuterio pagalba (Kuris atitinka 5.17 punktą)	Bukletas 5.P.d.	9
5.17.	Komplekte su kompiuteriu	Stacionarus kompiuteris su monitoriumi, klaviatūra, pele, arba nešiojamas kompiuteris, pilnai užtikrinantis prietaiso funkcionavimą. Kompiuteryje turi būti instaliuotos programos, būtinos prietaiso valdymui bei numatytiems tyrimams atlikti, pacientų duomenų bei tyrimų išsaugojimui.	Nešiojamas kompiuteris, pilnai užtikrinantis prietaiso funkcionavimą. Kompiuteryje instaliuotos programos, būtinos prietaiso valdymui bei numatytiems tyrimams atlikti, pacientų duomenų bei tyrimų išsaugojimui.	Bukletas 5.P.d.	9
5.17.1	Procesorius	Kompiuterio procesoriaus našumas pagal viešai publikuojamus Passmark performance CPU mark procesorių įvertinimo rezultatus, pateikiamus http://www.cpubenchmark.net/cpu_list.php (ne mažiau nei 7500. Nurodyti konkretų procesoriaus modelį. Procesoriaus sparta negali būti dirbtinai padidinta.	Kompiuterio procesoriaus našumas pagal viešai publikuojamus Passmark performance CPU mark procesorių įvertinimo rezultatus, pateikiamus http://www.cpubenchmark.net/cpu_list.php (14406. Procesoriaus modelis : intel core i5-1335u. Procesoriaus sparta nėra dirbtinai padidinta). Procesoriaus sparta nėra dirbtinai padidinta.	Bukletas 5.P.d.	9, 11
5.17.2	Suderinamumas	Kompiuteris turi būti suderintas su Microsoft Windows (Windows 10 arba naujesne versiją) operacine sistema ir	Kompiuteris suderintas su Microsoft Windows (Windows 11 Pro versiją)) operacine	Bukletas 5.P.d.	9

		…įtrauktas į Windows sertifikuotų produktų sąrašą	…sistema ir įtrauktas į Windows sertifikuotų produktų sąrašą			
5.17.3	Procesoriaus architektūra	Ne mažiau nei 64 bitai	64 bitai		Bukletas 5.P.d.	9
5.17.4	Operatyviosios atminties talpa	Ne mažiau nei 8 GB	8 GB		Bukletas 5.P.d.	9
5.17.5	Kietasis diskas	SSD tipo, duomenų skaitymo/rašymo greitis ne mažiau 500/500 MB/s, talpa ne mažiau nei 250 GB	SSD tipo, duomenų skaitymo/rašymo greitis 4348/3564 MB/s, talpa 512 GB		Bukletas 5.P.d.	9, 12
5.17.6	Operacinė sistema	Operacinė sistema Microsoft Windows Professional arba lygiavertė (OEM, Windows 10 arba naujesnę versiją)	Operacinė sistema Microsoft Windows Professional (Windows 11 Pro versiją)		Bukletas 5.P.d.	9
5.17.7	Monitorius (jei kompiuteris stacionarus)	LCD arba lygiavertis monitorius, ekrano įstrižainė nuo 23" iki 24,5", ekrano kraštinių santykis ne mažiau nei 16:9, ekrano taškų skaičius ne mažiau nei 1920x1080	Nešiojamas kompiuteris		Bukletas 5.P.d.	9
5.17.8	Priedai	Kompiuteris su monitoriumi arba nešiojamas kompiuteris komplektuojamas su visais kabeliais, adapteriais ir kitomis sudedamosiomis dalimis bei medžiagomis, reikalingomis visų užsakomos sistemos vidinių ir periferinių įrenginių sujungimui, užtikrinant sistemos funkcionavimą (pvz.., maitinimo, kietojo disko kabeliai ir t.t.).	Nešiojamas kompiuteris komplektuojamas su visais kabeliais, adapteriais ir kitomis sudedamosiomis dalimis bei medžiagomis, reikalingomis visų užsakomos sistemos vidinių ir periferinių įrenginių sujungimui, užtikrinant sistemos funkcionavimą (pvz.., maitinimo, kietojo disko kabeliai ir t.t.).		Bukletas 5.P.d.	9
5.18	Duomenų spausdinimas	Gamintojo priemonėje integruotas spausdinimas (pateikiama kartu su spausdinimo popieriumi, ne mažiau nei 3 pakuotės) arba nespalvotas lazerinis arba rašalinis spausdintuvas, tyrimo rezultatų spausdinimui. Maksimalus spausdinimo lapas A4 formatas. Skiriamoji geba (raiška) ne mažiau nei 600x600 dpi. Pateikiama (-os) to paties įrangos gamintojo juodos spalvos	Nespalvotas lazerinis spausdintuvas, tyrimo rezultatų spausdinimui. Maksimalus spausdinimo lapas A4 formatas. Skiriamoji geba (raiška) 1200x1200 dpi. Pateikiama to paties įrangos gamintojo juodos spalvos dažomųjų miltelių kasetė,		Bukletas 5.P.d.	13, 14, 15

		dažomųjų miltelių kasetė (-ės), kurios (-ių) resursas ne mažiau kaip 4 000 standartinių A4 formato lapų.	kurios resursas 10 000 standartinių A4 formato lapų.	Bukletas 5.P.d.	16
		Staliukas su 4 ratukais ir stabdžiais	Staliukas su 4 ratukais ir stabdžiais	
5.19.	Komplekte su oftalmologiniu reguliuojamo aukščio elektriniu staliuku			

Kokybės kriterijai:

10 lentelė

Eil. Nr.	Kriterijaus (Q_i) parametrai	Kriterijaus lyginamasis svoris ekonominio naudingumo įvertinime		Atitikimas kokybiniams reikalavimams. Nuoroda į pridedamus, prekės atitikimą papildomoms charakteristikoms įrodančius, dokumentus (bukletų, techninių aprašų puslapių Nr.)		
				Siūlomos prekės techniniai parametrai	Pasiūlymo dokumentai, patvirtinantys siūlomos prekės techninius parametrus	
					Dokumento pavadinimas	Dokumento lapo numeris
1.	Tyrimo rezultatų pateikimo forma HFA stiliumi.	Ne / Taip	0 / 10	Taip. Tyrimo rezultatų pateikimo forma HFA stiliumi.	Bukletas 5.P.d.	7
2.	Laikiklis korekciniams lęšiams tinkamas naudoti su standartiniais korekciniais lęšiais, reguliuojamos padėties prieš akį.	Ne / Taip	0 / 5	Taip. Laikiklis korekciniams lęšiams tinkamas naudoti su standartiniais korekciniais lęšiais, reguliuojamos padėties prieš akį.	Bukletas 5.P.d.	1, 17
3.	Standartinių ne mažiau kaip 10 tyrimų ir bent vieną gali sukurti vartotojas	Ne / Taip	0 / 5	Taip. Standartinių 12 tyrimų ir bent vieną gali sukurti vartotojas	Bukletas 5.P.d.	18, 19, 20
4.	Mirksėjimo sekimas (tyrimas stabdomas pacientui užmerkus akį)	Ne / Taip	0 / 5	Taip. Mirksėjimo sekimas (tyrimas stabdomas pacientui užmerkus akį)	Bukletas 5.P.d.	5
5.	Galimybę valdyti prietaisą per išorinį planšetinį kompiuterį bevieliu sujungimu.	Ne / Taip	0 / 5	Ne	(įrašyti)	(įrašyti)

Pirkimo specialiųjų sąlygų 8 priedas
„Tiekėjo deklaracija dėl atitikties VPĮ
45 str. 2[1] d. nuostatoms"

UAB „Kavita"

VšĮ Kauno miesto poliklinika

TIEKĖJO DEKLARACIJA

2025-04-18

Patvirtinu, kad **UAB „Kavita"** ir jo siūlomos konkrečiame pirkime „OFTALMOLOGINIŲ PRIEMONIŲ" (CVP IS pirkimo Nr. 2135674), paslaugos/prekės nepatenka tarp pasiūlymo atmetimo kriterijų. Tai yra:

1) tiekėjas, jo subtiekėjas, ūkio subjektas, kurio pajėgumais remiamasi ar juos kontroliuojantys asmenys nėra juridiniai asmenys, registruoti valstybėse ar teritorijose, nurodytose Lietuvos Respublikos Vyriausybės patvirtintame valstybių ar teritorijų, su kuriomis susijusiems pasiūlymams taikomas šis pasiūlymo atmetimo pagrindas, sąraše;

2) tiekėjas, jo subtiekėjas, ūkio subjektas, kurio pajėgumais remiamasi ar juos kontroliuojantys asmenys nėra fiziniai asmenys, nuolat gyvenantys valstybėse ar teritorijose, nurodytose Lietuvos Respublikos Vyriausybės patvirtintame valstybių ar teritorijų, su kuriomis susijusiems pasiūlymams taikomas šis pasiūlymo atmetimo pagrindas, sąraše arba turintys tokių valstybių pilietybę;

3) darbų/paslaugų/prekių (įskaitant jų sudedamąsias dalis) kilmė nėra iš valstybių ar teritorijų, nurodytose Lietuvos Respublikos Vyriausybės patvirtintame valstybių ar teritorijų, su kuriomis susijusiems pasiūlymams taikomas šis pasiūlymo atmetimo pagrindas, sąraše;

4) Lietuvos Respublikos Vyriausybė, vadovaudamasi Nacionaliniam saugumui užtikrinti svarbių objektų apsaugos įstatyme įtvirtintais kriterijais, nėra priėmusi sprendimą, patvirtinantį, kad 1 ir 2 papunkčiuose nurodyti subjektai ar su jais ketinamas sudaryti (sudarytas) sandoris neatitinka nacionalinio saugumo interesų;

5) 1 ir 2 papunkčiuose nurodyti subjektai neturi interesų, galinčių kelti grėsmę nacionaliniam saugumui.

Produktų vadovė   Vardas, Pavardė

Pareigos (pvz. direktorius)   (parašas)

VšĮ Kauno miesto poliklinika

TIEKĖJO DEKLARACIJA

2025-04-18 Nr. 250418-1
Mažeikiai

Aš,

(Tiekėjo vadovo ar jo įgalioto asmens pareigų pavadinimas, vardas ir pavardė)

tvirtinu, kad mano vadovaujamas (-a) (atstovaujamas (-a)) UAB „Kavita",

(Tiekėjo pavadinimas)

Dalyvaujantis (-i) VšĮ Kauno miesto poliklinika

(perkančiosios organizacijos pavadinimas)

atliekamame „OFTALMOLOGINIŲ PRIEMONIŲ" , Nr. 2135674

(Pirkimo objekto pavadinimas, pirkimo numeris)

skelbtame 2025 m balandžio 10 d.,

(Skelbimo data)

nėra įtakojama Rusijos, kaip nurodyta **Tarybos reglamento (ES) 2022/576 2022 m. balandžio 8 d.** kuriuo iš dalies keičiamas Reglamentas (ES) Nr. 833/2014 dėl ribojamųjų priemonių atsižvelgiant į Rusijos veiksmus, kuriais destabilizuojama padėtis Ukrainoje 5k straipsnyje nustatytuose apribojimuose. Visų pirma pareiškiu, kad:

(a) mano atstovaujama įmonė (ir nė viena iš bendrovių, kurios yra mūsų konsorciumo nariais) nėra įsteigta Rusijoje;

(b) mano atstovaujama įmonė (ir nė viena iš įmonių, kurios yra mūsų konsorciumo nariais) nėra juridinis asmuo, subjektas ar įstaiga, kuriuose daugiau kaip 50 % nuosavybės teisių tiesiogiai ar netiesiogiai priklauso šios deklaracijos a) punkte nurodytam subjektui;

(c) nei aš, nei mano atstovaujama bendrovė nesame fiziniu ar juridiniu asmeniu, subjektu ar organizacija, veikiančia šios deklaracijos a) arba b) punkte nurodyto subjekto vardu ar jo nurodymu;

d) sutartis nebus paskirta vykdyti subrangovui (-ams), ar kitam (-iems) subjektui (-tams), kurių pajėgumais remiasi, kurie priskirtini šios deklaracijos a) arba b), arba c) punktuose nurodytiems subjektams.

Produktų vadovė   _____   (vardas ir
(tiekėjo arba jo įgalioto asmens   (parašas)   pavardė)
pareigų pavadinimas)**

VšĮ Kauno miesto poliklinikai

PATVIRTINIMAS
DĖL TECHNINĖS SPECIFIKACIJOS ATITIKIMO

Mažeikiai
2025-04-18 Nr. 250418_01

Atsižvelgdami į techninės specifikacijos reikalavimus patvirtiname, kad:

- Tiekiamų prekių antro lygio (grupinė) prekės pakuotė yra pagaminta taip, kad ją būtų galima pakartotinai naudoti, perdirbti ar kitaip naudoti, o pakuotė pažymėta tai patvirtinančiais tarptautiniais ekologiniais ženklais (Žr. 1 Priedas);

- Prekei suteikiama 24 mėnesių garantija;

- Prekė yra nauja, nenaudota. Nėra gamykliškai atnaujinti „renew", „refurbished", remarked" komponentai. Prekės kokybė atitinka toms Prekėms taikomus kokybės reikalavimus. Prekė yra pripažinta Lietuvos Respublikos teisės aktų nustatyta tvarka ir atitinka reikalavimus, patvirtintus Medicinos priemonių naudojimo tvarkos apraše, patvirtintame Lietuvos Respublikos sveikatos apsaugos ministro 2010 gegužės 3 d. įsakymu Nr. V-383 (su vėlesniais pakeitimais ir papildymais).

PRIDEDAMA

1 Priedas. Antrinės pakuotės atitikties deklaracija. – 1 psl.

Pardavimų vadovė

Kavita

Antrinės pakuotės atitikties deklaracija

GAMINTOJAS	UAB "Klaipėdos kartono tara"	GAVĖJAS	
MANUFACTURER	Svajonės g.32, LT-94101, Klaipėda, LT	*RECIPIENT*	**Kavita UAB**

Data **2024-02-26**

GAMINIO IŠ GOFRUOTOJO KARTONO
(PRODUCT FROM CORRUGATED CARDBOARD)
300*200*120

ATITIKTIES DEKLARACIJA   Nr   31874
(DECLARATION OF CONFORMITY)

JST 142035336-1:2007

1. Informacija apie produktą (Information about product)		
Markė (Type)	**B12R**	
Vidiniai išmatavimai (Internal dimensions) mm	**300*200*120**	
Sluoksnių skaičius (Number of layers)	**3**	
Storis (Thickness)(mm)	2,8	ISO 3034
Spalva viršt. sl. (Color(upper layer))	**RUDAS (BROWN)**	
Atsparumas gniuždymui (Edgewise crush test (ECT), kN/m) min	4,5	ISO 3037
Atsparumas praspaudimui (Bursting strength (BST), MPa) min	0,7	ISO 2759
Drėgnis (Humidity) %	6-12	ISO 287
Bandymų sąlygos (test conditions)	Santykinė oro drėgmė (Relative humidity) (50+-2) %, oro temperatūra (Air temperature) (23+-1) °C	ISO 187
2. Pakuotė atitinka ES direktyvą 94/62/EB bei pakuočių ir pakuočių atliekų tvarkymo įstatymo reikalavimus LST (EN) 13427-13432 (Packaging is satisfying requirements stated in the European Commission directive on packaging and packaging waste (94/62/EC) i. a. meeting requirements of LST (EN) 13427-13432 standards)		
Medžiaginis grąžinamasis perdirbimas (Packaging can be recycled concerning)	LST EN 13430:2007	♳ 20 PAP
3. Pavojingos medžiagos (Hazardous materials)		
Sunkieji metalai (Heavy metals)	< 100ppm	LST 1655:2002
Cheminės medžiagos, preparatai (Toxic or hazardous chemical substances or materials)	⬦	Nėra (No)
4. Maisto produktų pakavimas (Food packaging)		
Tinkamas tiesioginiam kontaktui su maistu (Suitable for direct contact with food)	HN 16:2011; EB NR.1935/2004	
5. Kokybės vadybos sistema (Management system)		
ISO 9001:2015/ LST EN ISO 9001:2015		
6. Pakuočių higienos vadyba (Packaging management of hygiene)		

•

VšĮ Kauno miesto poliklinikai

2025 m. balandžio 18 d.

ĮGALIOJIMAS Nr. 250418-01

UAB KAVITA įm. k. 166725580 įgalioja, produktų vadovę atstovauti

UAB „KAVITA" pasirašant įmonės dokumentus ir jų kopijas, bei teikiant komercinį pasiūlymą dėl „OFTALMOLOGINIŲ PRIEMONIŲ" pirkimo.

parašą tvirtinu

Direktorius

Automated Perimeter

PTS 920/PTS 925 series

Automated Projection Perimeter

PTS 2000 series

User Manual

Software ver. 3.8

User Manual rev. A

$C\,E$

Read this User Manual before you start using the device. Keep this manual in a safe place for future reference.

Symbol	Revision	Version	Description	Published on
PTS920/925/2000 series 3.8 A_EN	A	3.8	Updated contents to software version 3.8	2022.10.18

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Trademarks

Windows is a registered trademark of the Microsoft Corporation.

Intel® Core™ is a registered trademark of the Intel Corporation.

All other trademarks are the property of their respective owners.

CONTENTS

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1. *Symbols*

	Caution
	Follow operating instruction
	Warning: Electricity
	General warning sign
	Fuse used here
	ON / OFF (Power)
	Type B applied parts
	Date and country of manufacture (PL: Poland)
	Manufacturer
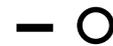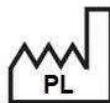
	Waste of electrical and electronic equipment. Waste of electrical and electronic equipment must not be disposed of with household waste.
	Sign of conformity with essential requirements – MDR 2017/745.
REF	Catalogue number. Indicates the manufacturer's catalogue number.
R$_X$ Only	Prescription Device. The product is a medical device as defined in 21 CFR 820.3(l) and Federal Law (USA) restricts this device to sale by or on the order of a physician.
MD	Medical Device - Indicates that the device is a medical device as defined in MDR 2017/745
UDI	Unique device identification (UDI) - Unique numeric or alphanumeric code related to a medical device. It allows for a clear and unambiguous identification of specific devices on the market and facilitates their traceability.

PTS 920/925W/2000 device nameplates:

Name and address of a manufacturer:

Device Name: Automated Perimeter

Device Type: PTS 925 W

Product designation

Product Serial Number

Date of production

Name and address of a manufacturer:

Device Name: Automated Perimeter

Device Type: PTS 920

Product designation

Product Serial Number

Date of production

Name and address of a manufacturer:

Device Name: Automated Projection Perimeter

Device Type: PTS 2000

Product designation

Product Serial Number

Date of production

2. *Introduction*

This manual contains information about the operation of PTS 920/925/2000 series Automated Perimeter. It specifically describes:

- the concept of visual field testing

- installation and maintenance of PTS 920/925/2000 series Automated Perimeter and the software

- visual field testing procedure

- PTS 920/925/2000 series perimeter and software functions used in visual field testing and in the analysis of examination results

- additional software functions

Conventions used in this manual:

"Warning"

Indicates a hazardous situation which could result in severe injury or death.

"Caution"

This is to highlight information on patient and operator safety which the user must read and understand.

"Important note"

This is to highlight important information about the operation of PTS 920/925/2000 series

"Hint"

This is to highlight important information to simplify operation of PTS 920/925/2000 series

2.1. *Intended use*

PTS 920/925/2000 series Automated Perimeter is a diagnostic instrument intended for the testing of visual field. The device is used for early detection of glaucoma, cataract, neurological defects, diplopia, and retinal diseases, including macular degeneration, retinitis pigmentosa, or scintillating scotomas.

PTS 920/925/2000 series introduces a number of advancements in perimetry:

• Digital algorithms implemented in the system for detecting any defects in the visual field.

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• The time of the stimulus exposition is automatically adjusted to the patient's reaction time. It reduces the exam duration and improves patient experience.

• PTS 920/925/2000 series Automated Perimeter has a DEMO function so that the patient can become familiar with how the instrument works.

• Software now includes voice messages to help the operator and the patient work with the instrument.

• Fixation performance is monitored by a PC, either with the Heijl-Krakau technique or by digital image analysis for continuous fixation monitoring.

• Eye preview helps better position the patient's head and monitor patient behavior during the exam.

• Electrical adjustment of the head rest.

• Automatic adjustment of the intensity of bowl illumination to the ambient lighting conditions.

• Flicker test strategy (Critical Fusion Frequency).

• Blue on Yellow test mode (Short Wave Automatic Perimetry).

• BDT strategy (Binocular Driving Test) – to determine the Esterman test results.

• Recording interim results of an exam to be continued later on.

• Software connected to MWL patient data servers of the DICOM system.

• Software connected to SCP exam data servers of the DICOM system.

• Self-testing system.

Basic operation

PTS 920/925/2000 series Automated Perimeter is essentially intended for visual field testing.

Principle of operation

Testing of the visual field is carried out using the static perimetry technique, where stimulus are presented on the bowl surface. Stimuli are generated by multiple LED (Light Emitting Diodes) mounted around the rear side of the bowl (PTS 920/925) or by the single LED and scanner module (PTS 2000). Stimuli of varying brightness are presented to the patient. During the visual field testing, the patient should look at fixation point. Once a stimulus point is spotted, the patient is asked to respond by pressing a response button. In the static perimetry technique, the stimulus is displayed at a particular spot on the bowl. The exam results are displayed on an external PC running the dedicated PTS 920/925/2000 series application. The results can be printed on a printer or in electronic format.

Patients

PTS 920/925/2000 series Automated Perimeter is intended for visual field testing in adults, in elderly patients, and in children aged 7 and older. PTS 920/925/2000 series is also suitable for patients with posture-related disorders, fixation disorders, deafness and obesity. To be eligible for the study, the patient should be able to sit on a stool or a chair, place the head on the chin rest and the forehead support, and keep a stable head position during the exam. The patient should also be able to hold a response button and press it during the test.

Contact with body parts

PTS 920/925/2000 series Automated Perimeter comes into contact with the patient's chin and forehead. The patient holds a response button and uses it in response to light points the patient sees during the test.

Application

PTS 920/925/2000 series Automated Perimeter is intended for continuous operation. It can be operated in outpatient and inpatient settings, hospitals, and training centers, at ambient temperature, in well-ventilated interiors. Refer to Section 15 *Operating Conditions*.

2.2. *Dedicated Users*

PTS 920/925/2000 series Automated Perimeter is intended for use by ophthalmologists, opticians, optometrists and other trained healthcare professionals.

Minimum level of knowledge

The operators must be able to distinguish between the left vs. the right eye, chin and forehead; they also must understand the terminology, and the principle of operation of PTS 920/925/2000 series software.

User Education

Ophthalmologist, optometrist, nurse, healthcare technician or assistant.

User Skills

The user should master the following operating skills:

- switching the perimeter on and off
- disinfecting the surfaces coming into contact with the patient's body
- introduction and modification of patient data
- preparing and positioning the patient and the device, adjusting table and chair height
- setting the device parameters, starting the examination, and saving the test results

- selecting and creating print previews
- checking the print preview for data completeness
- printing and exporting test results
- patient database backup and recovery

Professional Skills

The user should be trained to work with elderly, disabled and pediatric patients.

On-the-job requirements for the perimeter operation

Device operation training is obligatory for users authorized to operate the instrument. Users should be also trained on the analysis and management of ophthalmological diseases and other medical issues specifically related to ophthalmology. Computer literacy is also necessary to operate the perimeter.

 This manual does not contain any guidelines or interpretations referring to clinical results. Medical practitioners must be sufficiently trained to interpret the test results. Optopol Technology Sp. z o.o. cannot be made liable for any diagnostic errors.

2.3. *Disposal*

Observe the national provisions of law governing waste disposal.

 Do not use this instrument for purposes other than intended.

2.4. *Protective measures for IT systems*

Manufacturer recommends operating PTS software only on password-protected systems.

PTS must only be operated on virus-protected computers/networks. The institution operating the device is responsible for the safety of the network.

When using external storage media, the user is responsible for ensuring that the media is free from viruses. The consequences of virus attacks cannot be foreseen.

Manufacturer will not accept any liability for damage due to a computer virus.

 User must periodically backup patient data. Manufacturer will not accept any liability for lost data.

Manufacturer recommends the use of an established antivirus software and/or firewall such as e.g. Norton Security, McAfee.

The PTS is tested by the manufacturer with anti-virus protection provided with Windows "Microsoft Security Essentials".

Make sure that your operating system, your medical device software and your antivirus software are always working properly and up-to-date.

Make sure that all changes, updates and patches including operating systems are validated prior to installation.

For questions regarding cyber security contact Manufacturer.

2.5. Cybersecurity functions

The purpose of this section is to summarize the cybersecurity controls for the PTS with Windows operating system.

Cybersecurity risk management is a shared responsibility among stakeholders including the medical device manufacturer, the user, and the health care facility. Failure to maintain cybersecurity can result in compromised device functionality, loss of data availability or integrity, or expose other connected devices or networks to security threats.

2.5.1. System Overview

The PTS device has the following interfaces that are critical for cybersecurity:

- ETHERNET port /Wireless connection for DICOM interface
- USB ports for connecting to various USB devices

2.5.2. Auto-Logoff

The Windows operating system has the ability to prevent access and misuse by unauthorized users if the device is left idle for a period of time. The length of inactivity time before auto-logoff/screen lock is user/administrator configurable. The auto-logoff/screen lock can be manually invoked by the user.

For questions regarding cyber security contact the Manufacturer.

2.5.3. Ensure Trusted Content

Restrict Software of Firmware Updates to Authenticated Code. Software and firmware updates are performed by OPTOPOL representative from a protected source. All updates require a Privileged Windows operating system user account.

2.5.4. Cybersecurity event

Provide information to the end user concerning appropriate actions to take upon detection of a cybersecurity event.

- Disconnect the PTS software from any network
- Contact the IT Administrator at the user facility for on-site evaluation
- Run a scan using the anti-virus software

- Quarantine and delete any identified threats using the anti-virus software

- Restore the database

- Reconnect to the network

- Contact OPTOPOL Technology representative if additional assistance is required

2.5.5. Recover

Methods for retention and recovery of device configuration by an authenticated privileged user.

- The PTS software provides an option for a data backup on internal and externa storage

- The PTS software allows configuration to be backed up automatically at each launch or close of the PTS application

2.5.6. Other implemented mechanisms

2.5.6.1. Institutional IT Infrastructure

The PTS software uses the Windows operating system and supports integration into the IT infrastructure and domain at the institution or facility where the device is installed. Some facilities/institutions will have their own cybersecurity infrastructure, such as remote control of User Accounts, firewalls, encryption, and so forth. The PTS device will support these site-specific IT systems and this is verified during the installation process by OPTOPOL representatives.

2.5.6.2. Stand Alone Mode

The PTS software can be run completely without internet connection. There is no specific requirement to be connected to the internet for the device to operate properly.

2.5.6.3. Cybersecurity and Data Back-up Configurations

- On the Windows operating system where PTS will be installed, the "Windows Firewall" has to be enabled.

- The PTS software was validated on computers with anti-virus protection provided by "Microsoft Security Essentials"

- Data encryption can be added by a third-party tool

- The PTS software provides an option for an external data backup

- OPTOPOL Technology recommend to backup data on the drive with RAID system

2.6. User's Manual

Intended Use of this Manual

This manual is a source of information for correct operation of the device and can be used as a training aid. This manual was compiled to facilitate comprehension of the device functions. Descriptions and figures are user-friendly form of instructions. Users are recommended to read all these instructions before starting work with the instrument. It is also recommended to consult this manual before patient examination.

This manual does not contain any guidelines or interpretations referring to clinical results. Medical practitioners must be sufficiently trained to interpret the test results. Optopol Technology Sp. z o.o. cannot be made liable for any diagnostic errors.

Accessibility of this manual

The PTS 920/925/2000 series User Manual in PDF format can be found on the original installation media of PTS 920/925/2000 series Automated Perimeter. PTS 920/925/2000 series installation media are supplied with every instrument. Download and install free Adobe Reader at www.adobe.com to read this manual in PDF format.

The User Manual in paper form is available on request. To receive user manual in hardcopy please contact authorized Optopol representative to receive it.

Using this Manual

This manual specifically refers to the operation of PTS 920/925/2000 series Automated Perimeter working with the dedicated software 2.0 or later version, if available.

2.7. *Compatibility*

PTS 920/925/2000 series is compatible with Regulation (EU) MDR 2017/745.

Safety

Observe the basic safety rules when operating the device:

PTS 920/925/2000 series perimeter should be shut down when unused for long periods of time.

PTS 920/925/2000 series perimeter should be used in dry, clean and dust-free rooms, at temperatures not exceeding the temperature range stated in the product specifications.

If the instrument is switched on, do not cover it to provide free flow of air.

Place the instrument on a flat, solid and stable surface.

Do not connect or disconnect any cables when the instrument is in operation.

Avoid direct contact with fluids.

Protect the instrument against contact with hot surfaces and open flame.

All works carried out with covers removed should be conducted by the manufacturer or authorized personnel.

Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or

patient is established.

2.8. *Specifications*

Class of protection against electric shock	Class I (PTS 920/2000 series)
	Class II (PTS 925 series)
Degree of protection against electric shock	Type B
Operation mode	Continuous
High-oxygen environment	This instrument is not suitable for use in high-oxygen environments

2.9. *Safety Warnings*

Warnings indicate hazards that may result in property damage, injury, or death.

PTS 920/925/2000 series can only be used with device approved for IEC 60950-1 or 62368-1 at least any other case the patient may be subjected to electrical shock.

The instrument must be connected to a mains socket outlet with a protective earthing connection to avoid electric shock.

Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

Multiple portable socket-outlets shall not be placed on the floor.

Any Additional Multiple Socket-Outlet or extension cord shall not be connected to the ME System.

Use an isolating transformer if external devices are located within 1.5 meters from the patient (patient environment). If the external devices are connected to the medical device and located outside the patient environment, a separation device must be used in the system or there shall be no electrical connection between the external devices and the device

In the patient's environment, use devices conforming to IEC 60601-1 standard. If you use any devices not conforming to IEC 60601-1 standard, use an isolating transformer.

OPTOPOL recommends that no accessories other than those specifically called out in this user manual may be connected to the system. Any customer accessory equipment connected to the interface ports must be certified according to the respective IEC standards (for example, IEC 60950-1 or 62368-1 for data processing equipment and IEC 60601-1 for medical equipment) Also, all configurations shall comply with the system standard IEC 60601-1. Any person who connects or installs accessories to the system has the responsibility to verify the compliance. If in doubt, consult an OPTOPOL Technology representative.

Equipment is not suitable for use in the presence of a Flammable Anesthetic Mixture with Air, Oxygen, or Nitrous Oxide.

The system has no special protection against harmful ingress of water or other liquids (classified IPX0). To avoid damage to the instrument and cause a safety hazard, the cleaning solutions, including water, should not be directly applied to the device. Using a dampened cloth (without dripping) is a good method to clean the exterior surface of the enclosure. **The table can be cleaned in the same manner as the system**. Care should be taken to avoid excess fluid near any of the system components

While being examined, the patient must not touch any part of his or her body to an electrical device that is not powered by the system. In addition, while examining the patient, the system operator must not touch at the same time the patient and any electrical device that is not powered by the system. Failure to observe these warnings could result in electrical shock to the patient and/or operator.

All maintenance activities can only be made when the device is turned off and unplugged from power supply socket.

It is strictly forbidden to connect any non-medical devices which are not included with the system to the Multiple Socket-Outlet

Do not connect items that have not been specified as part of ME SYSTEM or specified as being compatible with the SYSTEM

Do not plug in any external devices into the same wall supply socket as the device.

2.10. *Cautions*

Cautions indicate hazards that, if not avoided, may result in property damage or injury.

The PTS is a medical device. The software and hardware have been designed in accordance with European, U.S. and other international medical device design and manufacturing standards. Unauthorized modification of the system software or hardware, or any addition or deletion of any application in any way, can jeopardize the safety of operators and patients, the performance of the instrument, and the integrity of patient data.

Any changes, additions or deletions to factory installed applications, the operating system, or modifications to hardware in any manner voids the warranty completely and can cause safety hazards.

Federal law restricts this device to sale by or on the order of a physician or practitioner (CFR 801.109(b) (1)).

This manual does not contain any guidelines or interpretations referring to clinical results. Medical practitioners must be sufficiently trained to interpret the test results. Optopol Technology Sp. z o.o. cannot be made liable for any diagnostic errors.

Do not use this instrument for purposes other than intended.
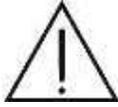
User must periodically backup patient data. Manufacturer will not accept any liability for lost data.

Do not hold or carry the perimeter bowl by the hole in it. This can cause damage to the equipment.

After unpacking, make sure you have all parts.

Check whether or not the device is mechanically damaged in a visible way. If the device is damaged, do not switch the perimeter on and contact the manufacturer without delay.

If the device has been kept at low temperature conditions, wait for at least an hour before the temperature of the device increases to the ambient temperature in the room where the device is installed. Otherwise vapor condensation may damage the equipment.

Make sure the position of the PTS 920 power supply switch on the rear panel corresponds to the mains voltage and frequency: "115V" is for 100-120V AC50/60Hz, and "230V" is for 220-240V AC 50/60Hz.

If you want to restart the PTS 920/925/2000 series perimeter, wait a few seconds after the instrument is switched off.

All maintenance works can only be carried out after the supply of power is turned off from the perimeter bowl and the mains plug is pulled out of the socket.

The chin rest can be removed for easier disinfection as shown in the figure below.
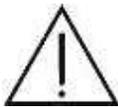
Never reach into the interior of the bowl, unless for cleaning.

Apply the dust cover onto the instrument if not in use.

There are no parts inside the instrument which qualify for repair by the user. Never remove the enclosure.

Deleting patient data from the database means that all test results associated with the patient will be deleted as well. Once deleted, no patient data can be restored, so make sure to select the appropriate patient from the list of patients, and that you will never have to use the patient data again.

"Gaze" fixation needs to be supported by a high-quality video image from the eye camera where the eye pupils can be clearly seen. Bad room illumination or incorrect camera configuration can affect the quality of the video image and render the use of video fixation impossible.

If the correction lens is not removed for visual field tests within the 30°-50° radius, the test may include artifacts, i.e. ring-shaped scotomas. This can lead to a false diagnosis.

The previous results for retested points will be lost. If the retest is discontinued prematurely, results for the non-retested points will not be available.

Due to the large number of test points within this test field, tests based on the F-50 field used in combination with threshold strategies take several minutes to complete per eye. Patients may feel tired and the test reliability may be affected. Consider whether the test should be divided into two parts or paused for a while.

Due to the large number of test points within this test field, tests based on the F50-2 field used in combination with threshold strategies take several minutes to complete per eye. Patients may feel tired and the test reliability may be affected. Consider whether the test should be divided into two parts or paused for a while.

Due to the large number of test points within this test field, tests based on the FF-120 field used in combination with Screening strategies take several minutes to complete per eye. Patients may feel tired and the test reliability may be affected. Consider whether the test should be divided into two parts or paused for a while.

Due to the large number of test points within this test field, tests based on the FF-246 field used in combination with Screening strategies take several minutes to complete per eye. Patients may feel tired and the test reliability may be affected. Consider whether the test should be divided into two parts or paused for a while.

The quality of the gaze analysis algorithm in the fixation control function largely depends on the quality of the video image from the eye camera. If the camera image is of bad quality, this option can significantly extend the duration of or permanently interrupt the test. Before a test is started with the fixation control enabled, you should first check the quality of gaze image on the eye preview camera.

The sectors and GHT analysis is based on the interpolation of original test results. The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The analysis result may be inaccurate if the original test field does not contain enough test points that lay in each sector.

The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The actual condition of the visual field can be only determined through testing procedures.

The evaluation of patients' ability to drive through the application is an automated process designed to assist in the evaluation by qualified physicians and should only be taken as a suggestion that may differ from the verdict issued by specialists in the field.

Results interpolated at unexamined field areas are based on mathematical analysis and do not constitute diagnostic data. They merely represent presumptive conditions of the field examined between the other examination points tested. The actual condition of the field at unexamined areas may only be determined by examination.

When comparing test results from devices from different manufacturers, one should be aware of the differences between them and possible differences in the obtained sensitivity values and global indexes.

After recovering backup it is obligatory to restart the application. Some of the test fields that appear in the test field lists might be invalid for the currently connected device and using them can lead to invalid examination data.

Combining the backup database and the local database can last up to several hours if the databases contain hundreds of patient records. You should plan database recovery in the combine mode in advance so that your normal work will not be disrupted.
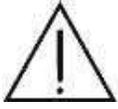
After recovering backup it is obligatory to restart the application. Some of the test fields that appear in the test field lists might be invalid for the currently connected device and using them can lead to invalid examination data.

Removing the work order will cause the related data exchange input file to be deleted permanently. It will be not possible to restore this file.

2.11. *Notes*

Application can be only activated by the administrator of the computer system which runs the software.

Selecting to hide an existing test program will hide the button for that program, making it unavailable. To restore the visibility of program buttons, use the examination list in the "Examinations" tab. More information can be found in Chapter 10.3.1 "Managing the test programs".

The patient record must by unique in the database scope. Every patient has to have at least the date of birth. If name and/or surname fields are left empty and identification number ID is not entered by operator, patient will get an automatically generated unique ID. To register two patients with exactly the same personal data (Name, Surname and DOB), they should have a unique identification number (ID) assigned.

Reference number is not obligatory. However, it must be unique if entered into the system. Do not assign two identical reference numbers to two different patients.

Some of the test parameters can be conflicting. For example, the BDT strategy can only be used for the OU (both eyes) setting.

If any conflicting settings are entered, the program will use the last change you have selected and will modify the conflicting setting accordingly. A message will be displayed that the setting has been changed. Read the message carefully and make sure the modification is acceptable.

If the pre-selected test field and the test strategy are not suitable for the selected eye, the conflicting settings will be changed to the default settings of the eye selected. "Conflicting Settings" message will be displayed.

If the connected device offers a motorized left-right chinrest movement, the chinrest will automatically move to central or left-most position depending on binocular/monocular eye selection.

In the chinrest left-most position, the right chinrest slot is located in the middle of the bowl and should be used for binocular testing.

If the pre-selected test field, eye, or stimulus color settings are not suitable for the selected test strategy, the conflicting settings will be changed to the default settings of the selected test strategy. "Conflicting Settings" message will be displayed.

If the pre-selected stimulus color is not suitable for the new test field, the conflicting settings will be changed to the default settings of the selected test field. "Conflicting Settings" message will be displayed.

The "Skip BS" option influences the Heijl-Krakau fixation monitoring which relays on a identified blind spot area. If the "Skip BS" option is set, the H-K reliability tests are switched off and set unavailable.

Blue stimuli can be found in the central part of the visual field, within the 0°-30° range. Blue stimuli can only be used in a limited number of test fields.

If the pre-selected test field, eye, or test strategy are not suitable for the new color settings, the conflicting settings will be changed to the default settings of the selected stimuli color. "Conflicting Settings" message will be displayed.

When the stimulus color changes to blue, the bowl color will be illuminated bright yellow. For the test to be successful, wait around 30 seconds until the patient's eye accommodate to the change of light. Proceed the same way when the stimulus turns green.

During the examination, the chin adjustment arrows become inactive until a pause, and the change in the chin position will be applied after the current stimulus exposure is completed.

Kinetic examination is available only for projection perimeters (i.e. PTS 2000). For static perimeters the Kinetic examination interface is not available.

Application does not allow to create two input vectors with exactly the same parameters (color, intensity, size, speed, start position, end position, movement path points).

Changing the fixation target from single point to diamond shape, changes the bowl area available for testing. It is not recommended to change the fixation target when some of vector paths has already been drawn.

To outline the isopter, only these reaction points are taken, which were registered during the stimuli movement. This rejects all static points as they usually denote the "seen" area and not the "seen" area boundary like isopter do.

Retest functionality is not available for the fields where the fixation shift occurs.

The quick field extension functionality is available for the generated PPD map (white and green stimulus). In a different situation (Screening, 2-zones, 3-zones strategies), the "Defect neighbor points" option is based on the results of the RAW map.

The quick field extension is not available for Top/Top+ strategy.

The EyeSee/EyeSee Lite functionality may be not available in some of the software distributions due to the legal limitations. Please contact your local distributor to check which EyeSee modes are available in your version of the software.

Due to the fact that the ZETA™, ZETA™ Fast, ZETA™ Faster strategy is based on spatial correlation among test locations, it's usage is limited to the 10-2, 24-2, 24-2C, 30-2, 30-2C test grids only. Hence, it may be not available on some of the devices (i.e. PTS 920 series).

If for the selected stimulus parameters the application does not provide the age normative data, then the ZETA™, ZETA™ Fast, ZETA™ Faster strategies will use the constant bracketing steps equal to the bracketing step selected in test settings. The examination in such a case can be longer than expected and it is suggested to use a Advanced strategy instead.

Due to the fact that the TOP strategy is based on spatial correlation among test locations, it's usage is limited to the 24-2 and the 30-2 test grids only. Hence, it may be not available on some of the devices (i.e. PTS 920 series).

Due to the fact that the TOP+ strategy is based on spatial correlation among test locations, it's usage is limited to the 24-2 and the 30-2 test grids only. Hence, it may be not available on some of the devices (i.e. PTS 920 series).

The Binocular Driving Test strategy can only be used in the Binocular Driving Test preview window and with the binocular test settings enabled.

The Binocular Single Vision Test strategy can only be used in symmetric field and with the binocular test settings enabled.

If for the selected stimulus parameters the application does not provide the age normative data, then the dynamic strategy will use the constant bracketing step equal to the bracketing step selected in test settings. The examination in such a case can be longer than expected and it is suggested to use a Fast Threshold strategy instead.

The range of the visual field is rather large in the nasal and superior direction, and therefore the test results may include artifacts of the nose and the brow ridge shadow. This should be taken into account so as not to confuse these artifacts with the actual eyesight impediments.

The H-K method can be unreliable in patients with extensive visual defects. If fixation is lost, a stimulus from the Blind Spot area can be shifted to a visual defect area. In this case, the patient will not react, and no fixation error will be detected.

The H-K method can only be used if at least one point has been detected in the Blind Spot area. Where the Blind Spot failed to be detected at the calibration stage, the H-K method will not be enabled. This can result in an error in the eye settings (left eye) or incorrect eye positioning against the perimeter bowl.

Alternative results display methods only apply to strategies and analysis that produce results displayed on a map of numerical values. Alternative results display options cannot be used for test strategies that deliver qualitative results, and for analysis that deliver qualitative or probability results.

The results progress analysis interface is available for tests run according to quantitative test strategies (delivering numerical values of eye sensitivity), including Threshold, Fast Threshold, Advanced, ZETA, ZETA Fast, Zeta Faster, Dynamic strategies and imported results with SITA, SITA Fast, SITA Faster, Threshold, FastPac.

All values of the calculated indexes (mean defect index, irregularities index, fluctuation index, VQi) are computed from points that belong to the set range of analysis. This means that the index values can differ from the values displayed in the single result analysis tab for the test concerned.

If the import was successful or the imported test already exists in the database, the active patient and the active test records will be changed to "Imported" in the Results tab.

To change the language settings in all areas, the application must be restarted.

The H-S setting of index calculation mode does the additional changes in results display:

The age norm deviations (Total Deviation) values are positive when the measured sensitivity is lower than age normative value and negative when sensitivity is higher than the age norm (similarly Pattern Deviation values, HoV deviation values).

The total defect symbol is always displayed as a black square ("■") instead of red "X" or "<0" symbols.

The hidden deviations are always displayed as "+" symbol regardless the sign of the numerical value

The EyeSee/EyeSee Lite functionality may be not available in some of the software distributions due to the legal limitations. Please contact your local distributor to check which EyeSee modes are available in your version of the software.

With each recovery attempt, the local data overwritten or deleted are copied to a temporary directory. If the recovery fails with any of the backup item, all modifications will be withdrawn and the data will be reinstated from the temporary directory.

If no connection with the remote database can be established when the software is started, an error message will be displayed and the system will switch over to the local database. If the connection errors keeps occurring, check the connection configuration, LAN settings, and the remote host firewall.

Patients on "Today" list cannot be edited or removed

To use the user accounts mode, at least one administrator account must be created in the system.

Do not use diacritics, only letters from basic Latin alphabet are allowed.

User names must be unique.

User password is reduced by 8 characters.

3. *Technical Data*

Table 1. Technical data of the PTS 920 series perimeter

Simulator Bowl Type	Spherical, according to Goldmann's standard, radius 30 cm
Field range (with fixation offset)	Left: 50° (80°) Rright: 50° (80°) Up: 50° Down: 50°
Stimuli	Green, Goldman III: 570nm Blue, Goldman III: 465 nm (only PTS 920 BY)
Stimuli brightness	Green: 0.03 – 1000 asb Blue: 0.02 – 650 asb (only PTS 920 BY)
Dynamic range	48 dB
Brightness resolution	1 dB
Background	White (green stimuli) – 10 asb (3.18 cd/m^2) – automatic stabilization; chromaticity (X,Y)=(0.374..0.473;0.366..0.432) Yellow (blue stimuli) – 314 asb (100 cd/m^2) – automatic stabilization (only PTS 920 BY); dominant wavelength (585..595) nm
Stimuli exposure time	Adjustable within the range of 0.1s to 9.9s or adaptable
Reaction time	Adjustable within the range of 0.1s to 9.9s or adaptable
Intervals between exposures	Adjustable within the range of 0.1s to 9.9s or adaptable
Fixations	Central, single (0°) Central, 4 points Left (30°) Right (30°)
Available test locations	Green: 168 + 20 Blind Spot Blue: 120 + 20 Blind Spot (only PTS 920 BY)

Predefined examination fields	Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points
	F-50 (Full)	50	50	50	50	163
	G-50 (Glaucoma)	50	22	22	22	103
	C-22 (Central)	30	30	22	22	99
	C-24A	30	22	22	22	58
	C-30A	30	30	30	30	69
	M-10 (Macula)	10	10	10	10	48

	C-30 (Fast)	30	30	30	30	60
	P-50 (Peripheral)	30-50	30-50	30-50	30-50	72
	E-80 (Extended)	50	80	30	30	105
	FeV G1	40	80	40	40	106
	FeV G2	60	80	40	40	113
	Esterman B (Drivers)	80 (L)	80 (R)	40	50	120
Test strategies	Threshold Dynamic Fast Threshold Advanced Screening 3-Zone 2-Zone BDT Flicker BSV					
Size of correcting lens	38 mm					
Dimensions (HxWxD)	645mm x 561mm x 385mm					
Weight	11 kg					
Power supply	100-120VAC 50/60Hz or 220-240V AC 50/60Hz, 30 VA					
Fuses	T 315mA, L 250V, 5x20mm					

Table 2. Technical data of the PTS 925 series perimeter

Simulator Bowl Type	Spherical, according to Goldmann's standard, radius 30 cm
Field range	Left: 50° (85°) Rright: 50° (85°) Up: 40° (55°)[1] Down: 40° (55°)
Stimuli	PTS 925: Green, Goldman III: 570 nm PTS 925 BY: Green, Goldman III: 570 nm + Blue, Goldman III: 465 nm PTS 925 W : White, Goldman III: chromaticity (X;Y)=(0.31±0.015;0.32±0.025)
Stimuli brightness	Green: $0.03 - 1000$ asb (tylko PTS 925 i PTS925 BY)

[1] PTS 925Wi only

	Blue: 0.02 – 650 asb (tylko PTS 925 BY) White: 0.3 - 10000 asb (tylko PTS 925 W)
Dynamic range	48 dB
Brightness resolution	1 dB
Background	White (green stimuli) – 10 asb (3.18 cd/m^2) – automatic stabilization (PTS 925 and PTS925 BY only); chromaticity (X,Y)=(0.374..0.473;0.366..0.432) Yellow (blue stimuli) – 314 asb (100 cd/m^2) – automatic stabilization (PTS 925 BY only); dominant wavelength (585..595) nm White (white stimuli) – 31.4 asb (10 cd/m^2) – automatic stabilization (PTS 925 W only); chromaticity (X,Y)=(0.374..0.473;0.366..0.432)
Stimuli exposure time	Adjustable within the range of 0.1s to 9.9s or adaptable
Reaction time	Adjustable within the range of 0.1s to 9.9s or adaptable
Intervals between exposures	Adjustable within the range of 0.1s to 9.9s or adaptable

Fixations	Central, single (0°) Central, 4 points Top (15°) Left (35°) Right (35°) Bottom (15°)[1]
Available test locations	White: 264 + 22 Blind Spot

	Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points
Predefined examination fields	F50-2 (Full)	50	50	40	40	168
	G50-2 (Glaucoma)	50	27	27	27	104
	24-2	27	21	21	21	54
	24-2C	27	21	21	21	64
	30-2	27	27	27	27	76
	30-2C	27	27	27	27	86
	5-2	3	3	3	3	16

[1] PTS 925Wi only

10-2	9	9	9	9	68
P50-2 (Peripheral)	33-50	27-40	27-40	33-50	76
Esterman M	50	75	34	55	100
Esterman B	75 (L)	75(R)	34	55	120
Gandolfo	50	50	34	42	100
G0-2	21	27	21	21	28

Sup 44[1]	40	40	55	-21	44
FeV G1	50	75	40	40	104
FeV G2	65	75	40	40	106

Test strategies	Threshold Dynamic Fast Threshold ZETA™ ZETA™Fast ZETA™Faster Advanced TOP TOP+ Screening 3-Zone 2-Zone BDT Flicker BSV
Size of correcting lens	38 mm
Dimensions (HxWxD)	410mm x 568mm x 410mm
Weight	9 kg
Power supply	12V DC, 36 VA
Fuses	T 1.6 A, L 250V, 5x20mm

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[1]PTS 925Wi only

Table 3. Technical data of the PTS 2000 series perimeter

Simulator Bowl Type	Aspherical, according to Goldmann's standard, radius 30 cm
Field range (with fixation offset)	Left: 90° Right: 90° Up: 60° (70°) Down: 70°
Stimuli	White Goldmann I to V; chromaticity (X,Y)=(0.3027..0.3221;0.3118..0.3475) Green Goldmann I to V; 528nm Blue Goldmann I to V; 470nm Red Goldmann I to V; 623nm
Stimuli brightness	Green: 0.03 − 1000 asb Blue: 0.002 − 65 asb White: 0.3 - 10000 asb Red: 0.045 - 1500 asb
Dynamic range	48dB
Brightness resolution	1dB
Background	White (green stimuli) − 10 asb (3.18 cd/m^2) − automatic stabilization; chromaticity (X,Y)=(0.374..0.473;0.366..0.432) Yellow (blue stimuli) − 314 asb (100 cd/m^2) − automatic stabilization; dominant wavelength (585..595) nm White (white stimuli, red stimuli) − 31.4 asb (10 cd/m^2) − automatic stabilization; chromaticity (X,Y)=(0.374..0.473;0.366..0.432)
Stimuli exposure time	Adjustable within the range of 0. 1s to 9.9s or adaptable
Reaction time	Adjustable within the range of 0. 1s to 9.9s or adaptable
Intervals between exposures	Adjustable within the range of 0. 1s to 9.9s or adaptable
Fixations	Central, single (0°) Central, 4 points Bottom (10°)

Predefined examination fields	Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points
	F-50 (Full)	50	50	50	50	163
	G-50 (Glaucoma)	50	22	22	22	103
	C-22 (Central)	30	30	22	22	99
	C-24A	30	22	22	22	58
	C-30A	30	30	30	30	69
	M-10 (Macula)	10	10	10	10	48
	C-30 (Fast)	30	30	30	30	60

P-50 (Peripheral)	30-50	30-50	30-50	30-50	72
F50-2 (Full)	50	50	40	40	168
G50-2 (Glaucoma)	50	27	27	27	104
24-2	27	21	21	21	54
24-2C	27	21	21	21	64
30-2	27	27	27	27	76
30-2C	27	27	27	27	86
5-2	3	3	3	3	16
10-2	9	9	9	9	68
P50-2 (Peripheral)	33-50	27-40	27-40	33-50	76
Esterman M	50	75	34	55	100
Esterman B	75 (L)	75(R)	34	55	120
Gandolfo	50	50	34	42	100
G0-2	21	27	21	21	28
FF120	50	60	40	55	120
Sup 64	40	40	52	-24	64
Sup 36	50	50	52	10	36
N1	26	26	26	26	54
N2	40	67	40	40	71
B1	-6.5	21.5	9.5	19	54
07	55	68	57	68	130
FF246	50	60	40	55	246
FF135	49	85	39	54	135
FF81	50	60	40	55	81
Armaly C	25	15	15	15	88
Armaly F	50	23	23	23	102
Nasal Step	50	23	22	22	181
BSV3	60	60	60	60	452
BSV5	60	60	60	60	260

	60-4	54	54	42	54	60
	FeV G1	40	80	40	40	106
	FeV G2	60	80	40	40	113
	C40	25	24	25	25	40
	C64	25	24	20	20	64
	C80	25	24	25	25	80
Test strategies	Threshold Dynamic Fast Threshold ZETA™ ZETA™ Fast ZETA™ Faster Advanced TOP TOP+ Screening 3-Zone 2-Zone BDT Flicker BSV Kinetic					
Size of correcting lens	38 mm					
Dimensions (HxWxD)	606mm x532mm x438mm					
Weight	17 kg					
Power supply	100-240V AC 50/60 Hz, 65-80VA					
Fuses	F 3.15A, L 250V, 5x20mm					

3.1. *Minimum hardware requirements*

Processor	2 computational cores, Intel® Core™ i3 M380 2,5GHz or equivalent
RAM	2GB (4 GB recommended)
Operating system	MS Windows 10 64 bit
Hard disk drive	10GB free space, (100GB recommended)
Display	1280x768 (1920x1080 recommended), 24-bit color depth (True color), 3D accelerator supporting OpenGL
Communication ports	1 x USB 2.0

4. *Unpacking and installation*

Depending on the perimeter version, the instrument package can include all or some of the following components:

- perimeter bowl
- single chin rest or single chinrest adapter (only for PTS 920/925)
- double chin rest (only for PTS 920)
- power cord (PTS 920/2000) or power adapter (PTS 925)
- response button
- USB cable to connect the perimeter to a PC
- Storage device with drivers and software installation package
- perimeter bowl cover

4.1. *Safety standards*

PTS 920/925/2000 series Automated Perimeter can only be connected to a mains socket outlet with a properly integrated protective earthing connection.

PTS 920/925/2000 series complies with the requirements of MDR 2017/745. PTS 920/925/2000 series has class B applied parts (chin rest, forehead support, response button) and is provided with class I protection against electric shock.

PTS 920/925/2000 series Automated Perimeter is typically a part of a larger *Medical System* (encompassing both medical and non-medical devices). The *Medical System* in its entirety, and each of its components has to comply with the standard requirements laid down in IEC 60601-1 standard. This means that compliance with this standard has to be ensured by all suppliers and manufacturers of all components contained in the *Medical System* concerned.

PTS 920/925/2000 series is connected to a PC via USB cable. The USB cable is electrically separated from the perimeter. This provides extra protection when PTS 920/925/2000 series and the connected PC are powered from different sources, through neutral conductors of non-equal potential.
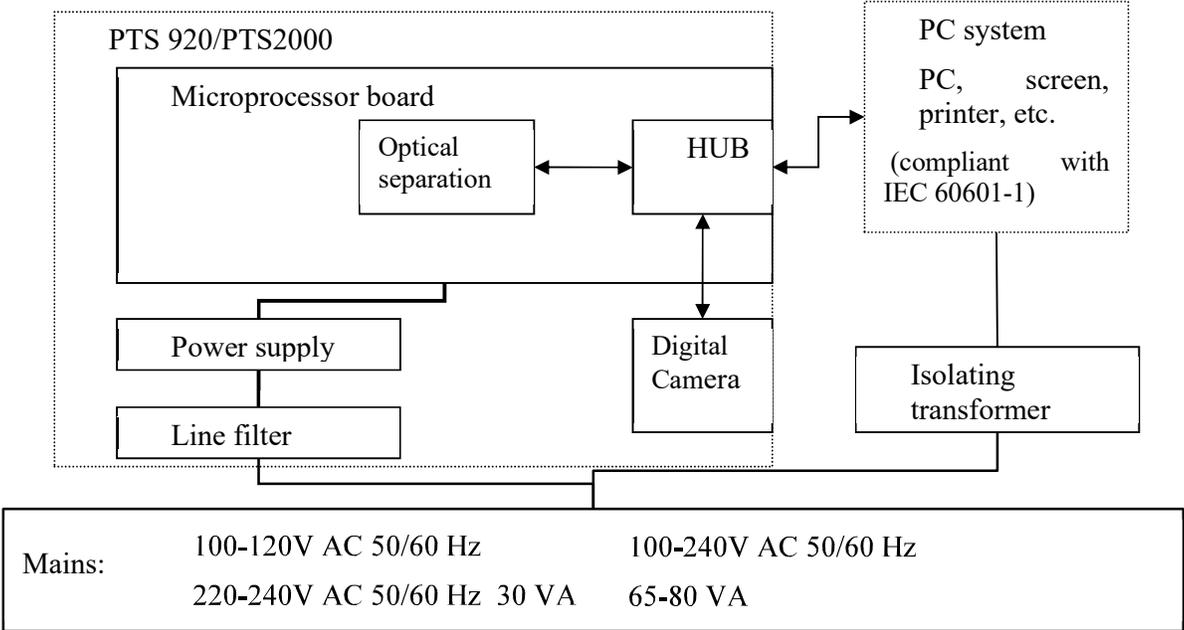
Figure 1. PTS 920/PTS 2000 series electrical connections in a Medical System
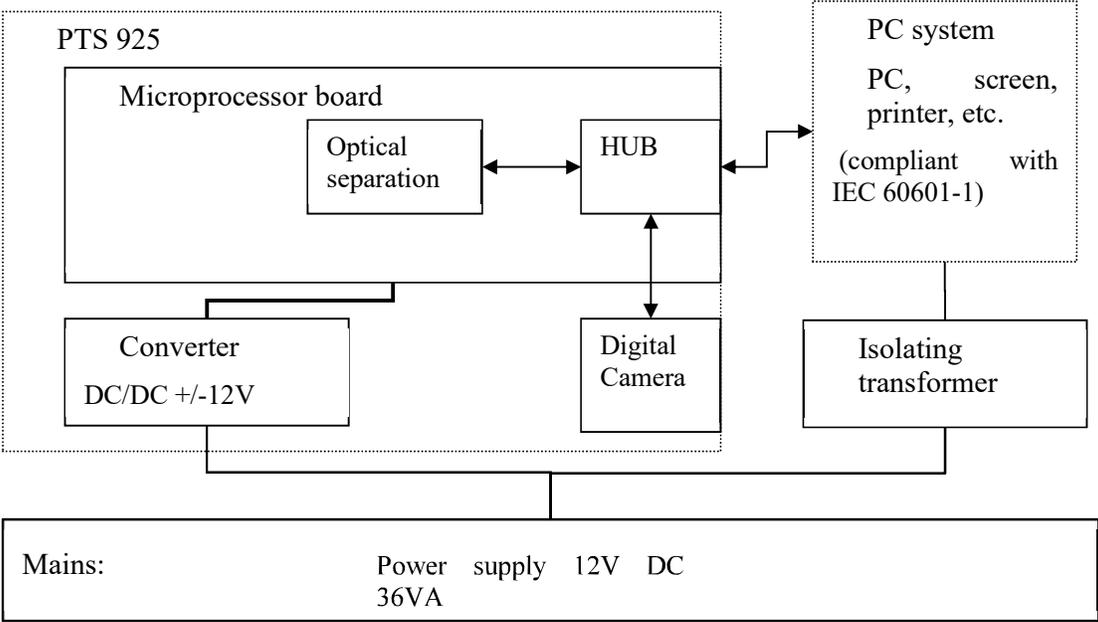
Figure 2. PTS 925 series electrical connections in a Medical System

4.2. *Installation Safety*

Before starting installation carefully read all installation instructions contained in this manual. Should you experience any problems with the installation, contact the supplier for assistance.

You should closely follow the safety rules during installation:

- Where PTS 920/925/2000 series and the Medical System have been installed by the manufacturer or authorized personnel, the manufacturer shall safeguard correct installation and compliance with the requirements of IEC 60601-1 standard..

- Connect the device to a three-wire power supply with a grounding wire to avoid an electrical shock hazard.

- Make sure the position of the PTS 920 power supply switch on the rear panel corresponds to the mains voltage and frequency: "115V" is for 100-120V AC50/60Hz, and "230V" is for 220-240V AC 50/60Hz.

- Do not use any extension cables and cable connectors incompatible with IEC 60601-1 standard to connect the device to the mains.

- Do not connect PTS 920/925/2000 series to overloaded power outlets.

- Do not connect any damaged cables or sockets. Contact the supplier for assistance.

- While installing PTS 920/925/2000 series, make sure that the fan outlet under the instrument is not covered or obstructed in any way.

- Never place the device on uneven or inclined surface.

- PTS 920/925/2000 series should be installed in low-light conditions, rear-facing the strongest source of light.

- All accessories used to operate PTS 920/925/2000 series must be approved by its manufacturer.

- All PCs and other devices connected to PTS 920/925/2000 series must comply with the requirements of IEC 60601-1 standard for the Medical System.

- Never install the device in humid environment.

- Always use fuses which correspond to the PTS 920/925/2000 series specifications.

- Always use certified Hi-Speed USB (USB 2.0) cables, no more than 3m long. Use of non-certified cables or extension cables can cause defective operation of the instrument and wrong measurements.

- Where PTS 920/925/2000 series and any peripheral devices are connected in a manner not specified in this manual or where the instrument has not been installed by PTS 920/925/2000 series manufacturer or authorized technicians, the manufacturer cannot be held liable for any infringements of the general safety instructions and the existing standards.

- PTS 920/925/2000 series can only be used with device approved for IEC 60950-1 or 62368-1 at least any other case the patient may be subjected to electrical shock.

Do not hold or carry the perimeter bowl by the hole in it. This can cause damage to the equipment.

Figure 3. Incorrect way of holding and carrying the perimeter

After unpacking, make sure you have all parts.

Check whether or not the device is mechanically damaged in a visible way. If the device is damaged, do not switch the perimeter on and contact the manufacturer without delay.

4.3. Connection
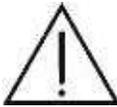
If the device has been kept at low temperature conditions, wait for at least an hour before the temperature of the device increases to the ambient temperature in the room where the device is installed. Otherwise vapor condensation may damage the equipment.

Follow this procedure to install the device:

Place the device on a solid and stable surface.

Assembly a single or double chin rest on the chin rest mechanism.

Connect the response button to the inlet socket on the rear panel.

Connect the device to a PC via USB cable.

Make sure the position of the PTS 920 power supply switch on the rear panel corresponds to the mains voltage and frequency: "115V" is for 100-120V AC50/60Hz, and "230V" is for 220-240V AC 50/60Hz.

Connect the power cable into a power socket with a properly integrated protective earthing connection.

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Switch the power on by pressing the power button over the power socket on the rear panel.

4.4. *External components*

Surge protectors

OPTOPOL TECHNOLOGY recommends using a surge protector or uninterruptible power supply (UPS) with PTS 920/925/2000 series device. The device will be protected against electricity disruptions.

PC

All devices connected to PTS 920/925/2000 series device, and particularly the computer set, should meet IEC 60601-1 safety standards for the *Medical System.*

Printers

Reports should preferably be printed on a laser printer. Some color-coded information contained in the reports will be illegible when printed on a black-and-white printer.

A printer connected to the computer set, and all other devices connected to PTS 920/925/2000 series device through the PC (mice, other USB peripherals) should meet IEC 60601-1 safety standards for the *Medical System.*

Figure 4. General view of PTS 925 series perimeter

Forehead support
(applied part)

Trial lens holder

Chin rest (applied
part)

Response   button
(applied part)

Figure 5. General view of PTS 920series perimeter

Forehead support
(applied part)

Trial lens holder

Chin rest (applied
part)

Response   button
(applied part)

Figure 6. General view of PTS 2000 series perimeter

4.5. Software installation and configuration

4.5.1. Screen resolution

Minimum screen resolution for PTS software is 1280 x 768 pixels and 24-bit color depth (True Color).

1. Right-click the Windows desktop and go to *Screen resolution*.

2. Set the parameters as appropriate.

4.5.2. Installing PTS 920/925/2000 series software and drivers in Windows 10

1. Switch the PTS perimeter bowl and the PC on. Wait until the Windows starts. Insert the memory storage to the PC. Use the USB cable to connect the PTS perimeter bowl and the PC with a USB cable. The Found New Hardware window will be displayed: USB camera and the perimeter.

2. Go to My Computer and select the disc delivered with the device to install the software, database server and drivers (it is possible to choose one of component during installation process).
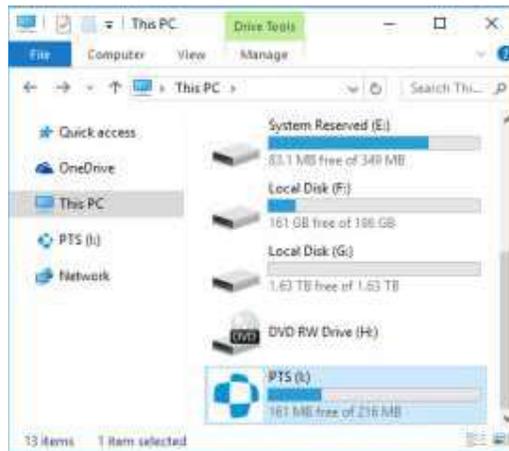
Figure 7. Selection of drive with the software and drivers of PTS 920/925/2000 series

3. Double click the *Setup* icon.
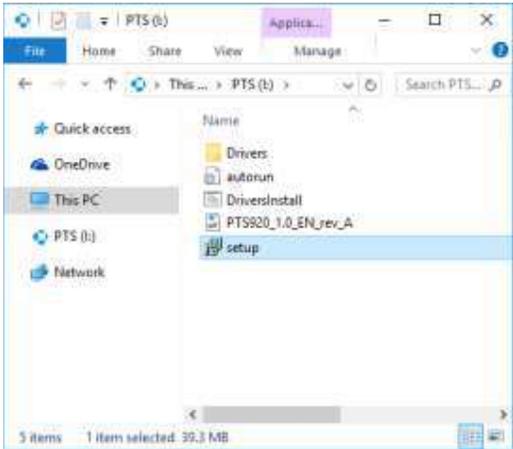
Figure 8. Selection of installer file

4. Click on " *Next > "* button to continue installation process of perimeter software

Figure 9. Welcome window of PTS software installer

5. Select "I accept the agreement" checkbox to accept the contract conditions and click the "*Next >*" button
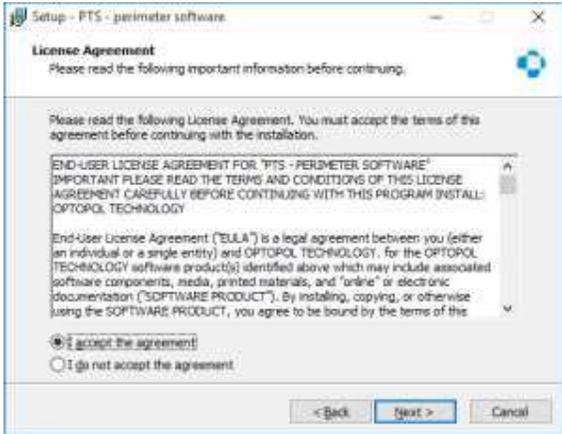
Figure 10. License agreement

6. Select destination location and click on "*Next >*" button
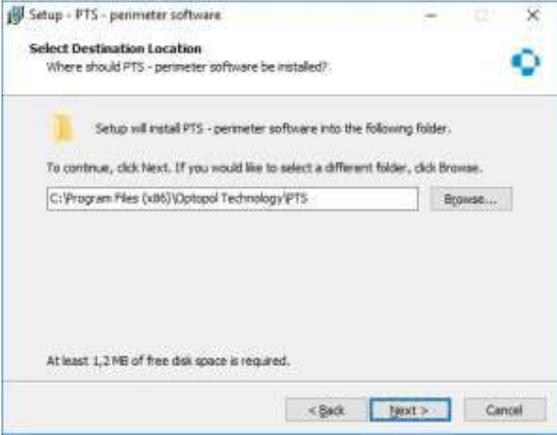
51
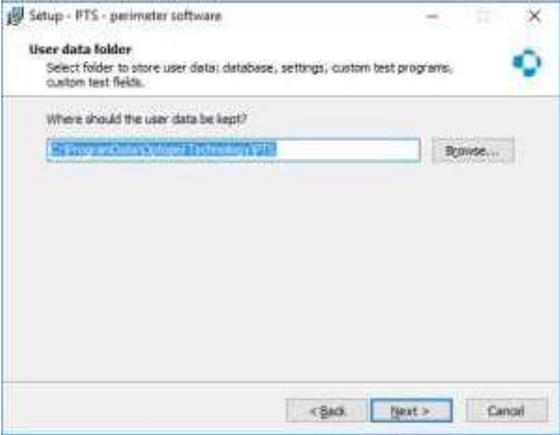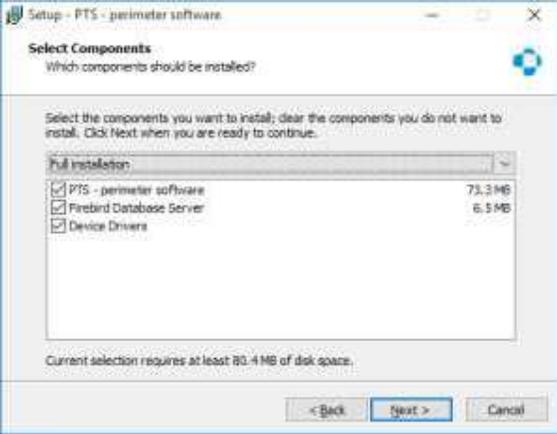
you want to change folder in the Start menu, click on "*Browse*" button and select the folder. To approve change, click on "*Next >*" button.
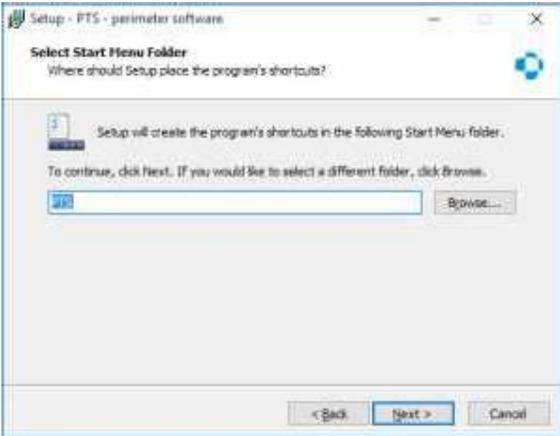
Figure 14. Selection of shortcut name and location in the Start menu

10. If you want to create PTS shortcut on the desktop, select "*Create a desktop icon*" checkbox. If you want to create PTS icon in Quick Launch bar, select "Create a Quick Launch icon" checkbox. To approve change, click on "*Next >*" button.
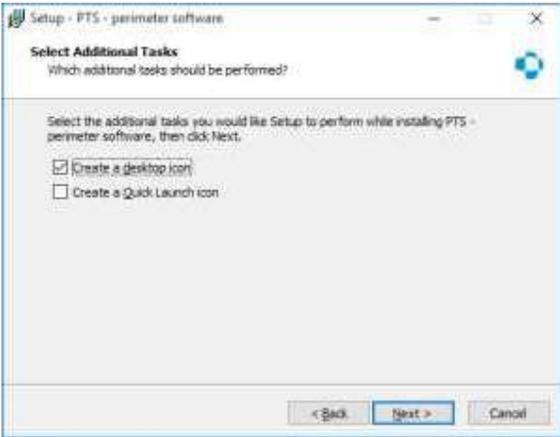
Figure 15. Selection of additional installation tasks

11. Check the setup summary and click "*Install*" to install the selected components. If you want to change installation settings, click on "*< Back*" button.
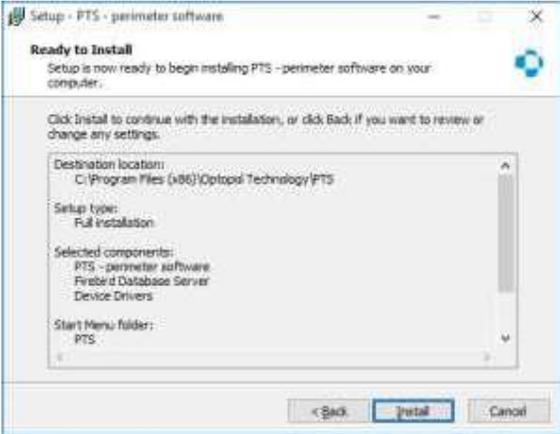
Figure 16. Summary of selected installation options

12. Installing the perimeter software. Wait until the process is completed.
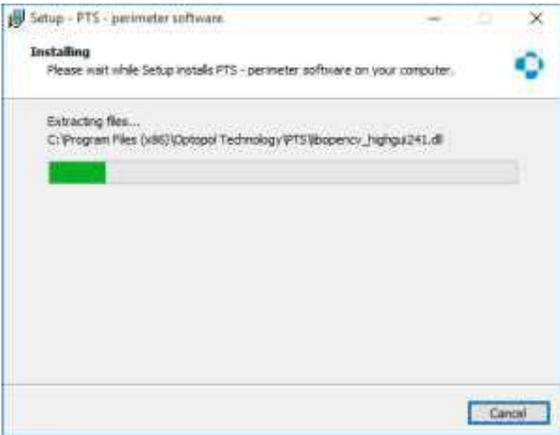
Figure 17. Installing the perimeter software

13. Click on "*Next >*" button to continue installation process of device drivers.

Figure 18. Welcome window of device drivers installer

14. Installing the device drivers. Wait for next message.
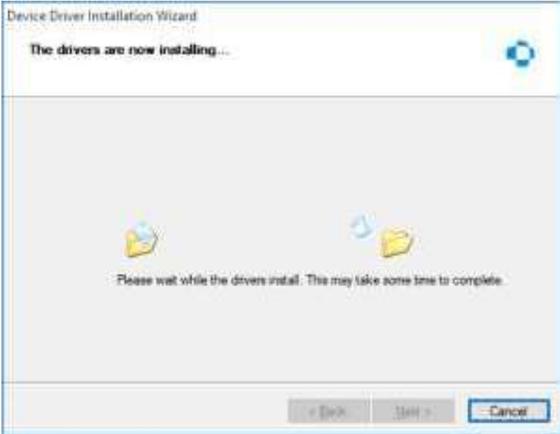
Figure 19. Installing the device drivers

15. If the message shown in Figure 20 appears on the screen, click on "*Install*" button

Figure 20. Message about the camera driver installation

16. Click on "*Finish*" button to complete the device drivers installation.

Figure 21. Summary of the device drivers installation

17. Click on "*Finish*" button to complete the software installation. At this point user can be asked to restart a computer.

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Figure 22. Completing the installation

18. Installed device drivers in Device Manager
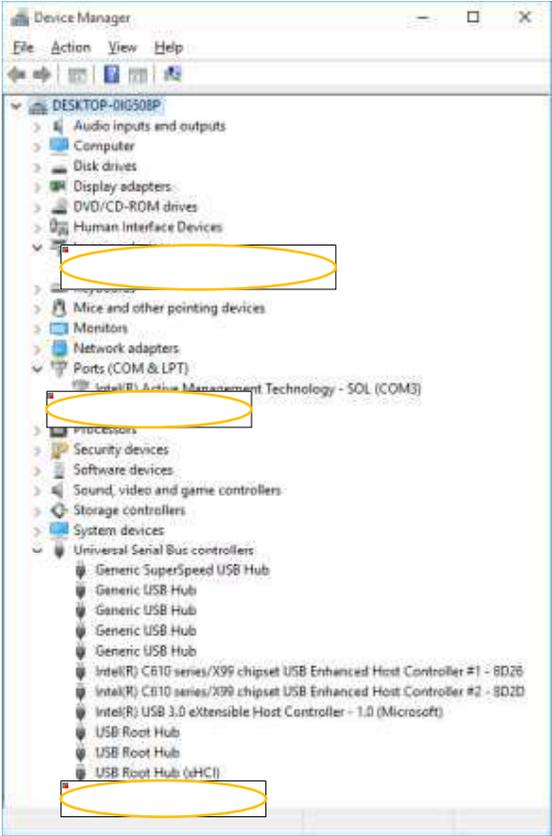
Figure 23. Installed drivers of PTS 920/925/2000 series device

4.6. *Closing PTS 920/925/2000 series*

To close the instrument, proceed as follows.

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1. Close the PTS software.

2. Switch the perimeter bowl off.

⚠️ If you want to restart the PTS 920/925/2000 series perimeter, wait a few seconds after the instrument is switched off.

5. *Maintenance of the PTS 920/925/2000 series perimeter*

All maintenance works can only be carried out after the supply of power is turned off from the perimeter bowl and the mains plug is pulled out of the socket.

The PTS 920/925/2000 series perimeter is virtually maintenance-free during the whole life cycle of the product. Keep the external surfaces and the interior of the bowl clean. Use gentle cleaning agents. Protect the bowl and the perimeter against ingress of water and other fluids. Check from time to time whether the bowl is not mechanically damaged. Check if the mains plug is not too loose.

For hygienic reasons, clean the chin rest and the forehead support with a disinfectant after each test.

5.1. *Cleaning the PTS 920/925/2000 series perimeter*

5.1.1. Cleaning the enclosure

Clean the instrument enclosure with a soft cloth. Use cleaning agents suitable for cleaning of electronic devices.

5.1.2. Cleaning the bowl

Clean the bowl with a soft and slightly damp cloth. Use cleaning agents suitable for cleaning of glass. Cleansers used for instrument cleaning should be fully transparent and colorless. Make sure no water gets into the interior of the instrument. Never spray cleaning agent inside the instrument directly onto the bowl surface.

5.1.3. Cleaning the application parts

The PTS 920/925/2000 series perimeter bowl has the following application parts:

chin rest, forehead support, and response button.

Application parts should be disinfected after each test. They should be also disinfected after an extended non-use period.

The chin rest can be removed for easier disinfection as shown in the figure below.

Never reach into the interior of the bowl, unless for cleaning.

⚠️ Apply the dust cover onto the instrument if not in use.

⚠️ There are no parts inside the instrument which qualify for repair by the user. Never remove the enclosure.

5.2. *Fuse replacement*

If you the test sequence of stimulus size and color is not displayed in the center of the perimeter bowl after you switch the instrument on, check if the fuses are working (PTS 920/2000). In PTS 925 series, the fuses replacement procedure can be performed only by a trained service personnel.

Fuses used in the instrument:

PTS 920 series   T 315mA L 250V, 5x20mm

PTS 925 series   T 1.6 A L 250V, 5x20mm

PTS 2000 series   F 3.15A L 250V, 5x20mm

Fuse

Power socket
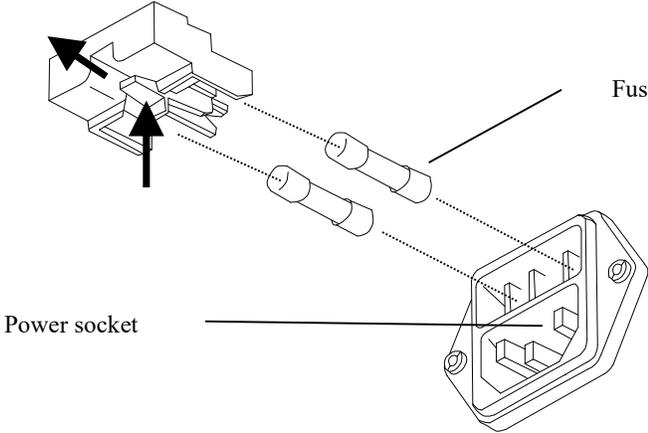
Figure 24. Fuse installation

6. *Introduction to perimetry*

6.1. *Visual field*

Visual field is the area seen by a non-moving eye. Visual acuity and visual field are two basic parameters with which the human vision is described. Visual field of a healthy human eye covers the following area:
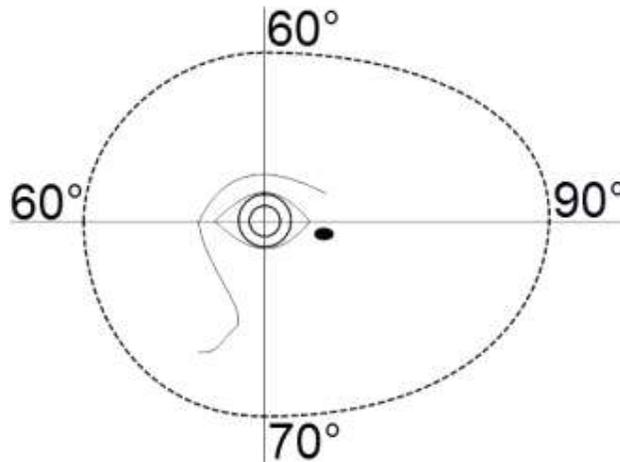
The visual field is tested to:

gather important information about eye diseases, including cataract and glaucoma

identify neurological defects

monitor the progress of visual defects and neurological disorders

Visual field testing enables early detection and treatment of eye diseases. Monitoring the disease progress is an important way to test patient's response to treatment.

6.2. *Visual field testing*

Visual field testing is where the size of the visual field and the visual sensitivity within the visual field are tested. These parameters are tested by determining the contrast sensitivity of the eye being tested. Contrast sensitivity is the ability to see brighter objects against darker backgrounds.

Contrast sensitivity of a healthy eye is the highest in the center of the retina, in the Fovea Centralis, and decreases progressively towards the visual field periphery. Areas where contrast sensitivity is low or absent are called scotomas. Absolute scotoma is an area of lost vision within the visual field, whereas relative scotomas is where visual sensitivity within the visual field is restricted. Each healthy eye has one morphological blind spot. This is the place where the optic nerve passes through the optic disc, the area where no light-detecting photoreceptor cells are present. The blind spot is located 12.5° -18.5° temporally (towards the temple). Contrast sensitivity can be illustrated on a 3-D map, displaying the Hill of Vision (HoV). The higher the HoV, the higher the contrast sensitivity at a particular point of the map.
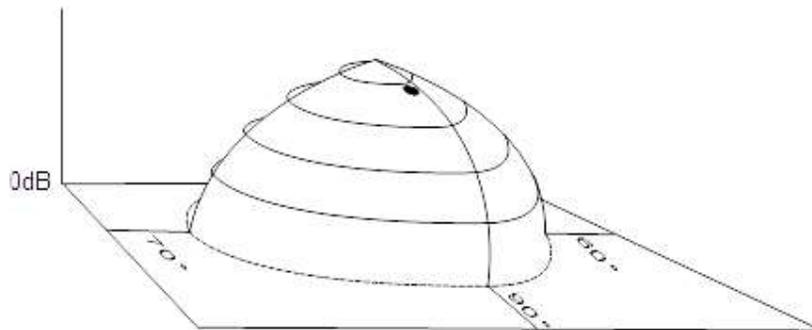
Normal contrast sensitivity depends on many different factors. These include: brightness level of the background, patient age, size of the contrast stimulus, and exposure to stimulus.

6.3. *Visual field testing methods*

Visual field testing is largely based on cooperation between the examiner, the instrument, and the patient. In all visual field testing methods, the assumption is that the patient responds to a light stimulus or, in other words, that the patient does not respond unless he/she sees a stimulus.

There are two basic types of visual field tests: kinetic perimetry and static perimetry.

Kinetic perimetry uses a moving stimulus of constant brightness (intensity). While changing its position within the visual field at a constant speed, the stimulus at some point exceeds the contrast sensitivity threshold. The point where the contrast sensitivity threshold is reached determines the contrast sensitivity of the tested eye. Once several points of this kind are detected, they are connected with a contour line. This is the so-called isopter, a line connecting points of equal retinal sensitivity to a contrast stimulus in the visual field. The hill of vision (HoV) can be reproduced from isopters drawn for several contrast sensitivities.

Static perimetry is where stimuli of different brightness (intensity) are shown at specific points throughout the visual field, one at a time. By displaying stimuli of different brightness levels at particular points, the brightness (contrast) threshold can be determined that defines the transition from not-seen to seen. This value determines the contrast sensitivity of the tested eye at the particular point and directly refers the HoV height at this particular point. The shape of the hill of vision can be reproduced by determining threshold values at several dozen points within the visual field.

Static perimetry also differs in the way the threshold value is detected within the visual field, and delivers different types of results. On the one hand, threshold perimetry is where exact sensitivity values of the eye (in dB) are determined. Rapid screening techniques, on the other hand, are designed to determine whether eye sensitivity at a particular location is either normal or defective.

6.4. *Validity of test results*

Visual field testing is based on patient's response to a light stimulus. It is the patient who signals whether a light stimulus is seen or not seen. Thus, the validity and quality of visual field test results largely depend on the patient's performance. It is very important to make patients aware of their role in safeguarding examination validity, and to introduce them to the testing procedure. To make

the test results as reliable as possible, make sure the patient feels comfortable both physically and mentally.

Also, it is extremely important to use proper correction lens to correct refractive errors, if any. A computer-based calculator can be used to select appropriate correction lens used during the test.

You can also use the Test Reliability function. Reliability of patient reactions to the stimuli can be monitored with false positive (FPOS) and false negative (FNEG) tests.

7. *Getting started*

7.1. *Starting the application*

You can start the application by clicking the icon on the desktop or by selecting the program in the Start menu. To use the application for testing (in the ONLINE mode), first connect the perimeter to a PC and switch the power on. Otherwise the application will be running in an OFFLINE mode and the testing functionalities will be disabled.

The application can work in two modes:

Standard mode – No login is required. All users who start the application obtain full administrator access rights and can fully control the application settings and the patient / examinations database.

User Accounts mode – login is required. All users who start the application have specific "roles" assigned by the administrator.

When started for the first time after installation, the application starts in the standard mode.

For more information about user accounts, refer to section Users.

7.2. *Activating the application*

The application must be activated after it is started for the first time after installation. The application will not start unless it is successfully activated.

Application can be only activated by the administrator of the computer system which runs the software.

You can activate the application by clicking the icon on the desktop or by selecting the program in the Start menu.
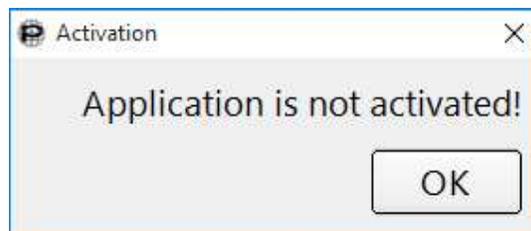
Figure 25. Inactive application

Figure 26. Activation dialog box

Plug the software key provided with the instrument into an available USB port on the computer when the activation dialog box is displayed on the screen and click Activate. Notification about successful activation will be displayed on the screen and the application will start. If the activation fails, please contact the distributor.

7.3. *Main screen*

Once you have logged into the application, the main screen will be displayed on the screen with the default tab: Start or Patient. The main window of the application is described below.

The application is arranged into tabs. Each tab is dedicated to specific functions:

 – this tab is a default application entry point. It contains the Perimetry Wizard interface. It allows realization of all actions that are performed in normal practice workflow. The Perimetry Wizard is composed of 5 wizard pages

- "Patients page" – patient management:
- Register new patient
- Review and edit patient data
- Delete patients from the database
- Search for a patient using fast search
- Manage patient data incoming form EMR systems
- "Program page" – test programs management
- Select existing test program
- Create new test program
- Edit test program
- Delete test program
- Select the EMR work order for processing
- "Test preparation page"
- Select the tested eye
- Adjust a patient eye position
- Adjust the trial lens settings
- Adjust fixation target, reliability tests, skip fovea test and blind spot test
- "Examination page"
- Perform the STATIC visual field test (start, pause, stop)
- Run the demo test
- Adjust a patient eye position
- Adjust fixation target, reliability tests

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- • "Results page"
- - Print the test results
- - Perform the other eye test
- - Perform the retest of selected points
- - Export data with "Direct export interface"
- - Store the examination result

RRR Patients – in this tab, you can access data of patients registered in the database. You can specifically:

- • select the current patient
- • register new patients
- • review and edit patient data
- • delete patients from the database
- • search for a patient using search filters
- • review list of tests associated with patients
- • transfer tests between users
- • import patient data and test results from XML files
- • export patient data and test results to XML files

Examination – in this tab, you can carry out visual field tests. You can specifically:

- • examine the current patient
- • change test settings
- • create, modify and delete test programs
- • retest the current patient

Results – in this tab, you can access the test results. You can specifically:

- • view the test results of the current patient (as maps)
- • filter test results
- • change tools used in results analysis
- • change the results display mode

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- edit remarks

- import tests from GDT and XML files

- export tests to XML files

- generate test reports

- compare tests, analyze the disease progress

 – Settings - in this tab, you can access application management tools. You can specifically:

- change user interface

- change sound settings

- change institution data

- change results display settings

- create and read database backup

- change auto-backup settings

- recover database

- configure a connection to a remote database

- create and delete user test fields

- configure data exchange mechanisms

- manage user accounts

7.4. *Closing the application*

To close the application, press "X" in the top right corner of the main window. Before you close the application, make sure all changes have been saved and confirm the closing.

Switch the power button and cover the instrument with the dust cover. It is recommended to switch off the power supply of the instrument before extended non-use period (not overnight), although the instrument is designed to work continuously. Disconnect the device from the source of power supply if the perimeter will not be in operation for a longer period of time (more than a day). This will help protect the instrument from voltage surge.

8. *Start – the Perimetry Wizard interface*

This chapter describes the Start tab with the Perimetry Wizard interface. The Perimetry Wizard offers the alternative workflow to the standard Patients>>Examination tabs. The following Perimetry Wizard pages will be reviewed:

- Patients Page

- Programs Page

- Test Preparation Page

- Examination Page

- Results Page

The wizard interface implements a guiding system which helps to start the test in the quickest possible way. Blue frame is used to highlight the buttons which need to be pressed to unlock and follow to another wizard step.

8.1. *Wizard Patients Page*

Patient fast search field

Add a new Patient

All patients / Today patients list switch

List of All/Todays patients

Patient details area

Go to next tab page
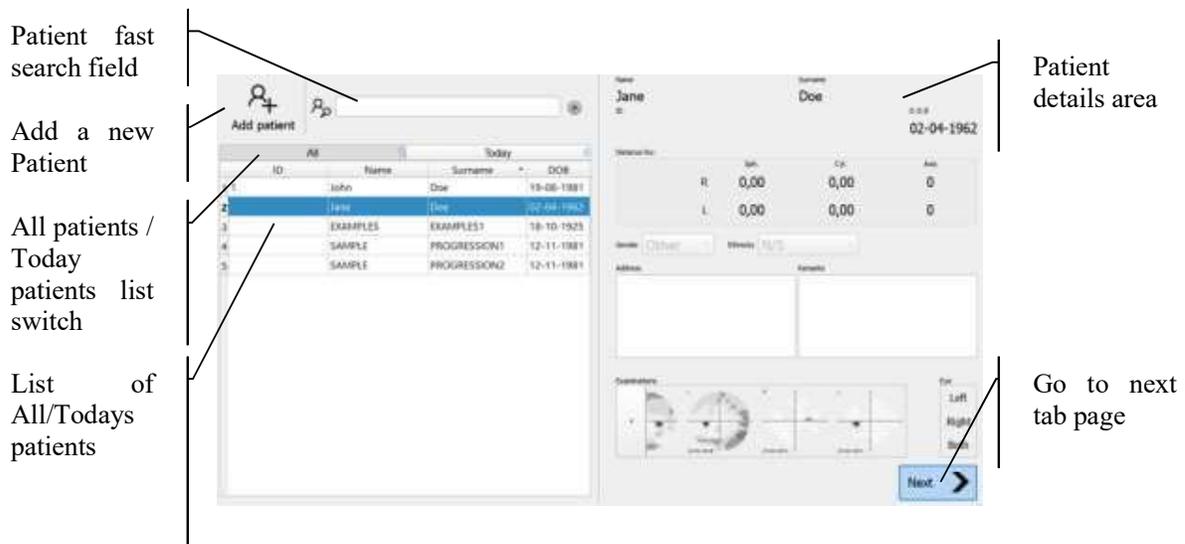
Figure 27. Perimetry Wizard Patients Page

Patients Page is the entry point of the Perimetry Wizard interface. The left part of the page shows the list of patients. The list can be switched to "All" or "Today" mode.

- The list in "All" mode simply displays all patients registered in the database.

- The "Today" mode contains all patients who had the examination results stored this day and patients incoming from the EMR/Dicom MWL interfaces.

Before the examination is carried, the patient record must be filled. User can select the patient already existing in the patients list or fill the new patient record.

The right part of the page contains the Patients details area. This area holds all the details about the patient which are stored in database.

To perform an examination of the patient it is not necessary to store his details in the database. Filling ten new patient record and using "Next" will create the temporary patient record which will not be stored in database unless the user decides to store the examination result. Therefore it is possible to generate the test reports without storing patient data.

To perform an examination of the patient it is only necessary to enter the patients Date of Birth. Therefore examination can be performed for anonymous patient.

8.1.1. Patient registration

To create a new patient, click the "Add patient" button above the patients list. The patient details area will be switched to edit mode.

Patient's name, surname, ID and DOB

Patient's distance refraction details

Patient's address and remarks fields

Save the patient record to database

Patient's gender and ethnicity selectors

Cancel the operation without changes

Navigate to the Programs Page with temporary patient record (not stored in database)

Wizard hint area
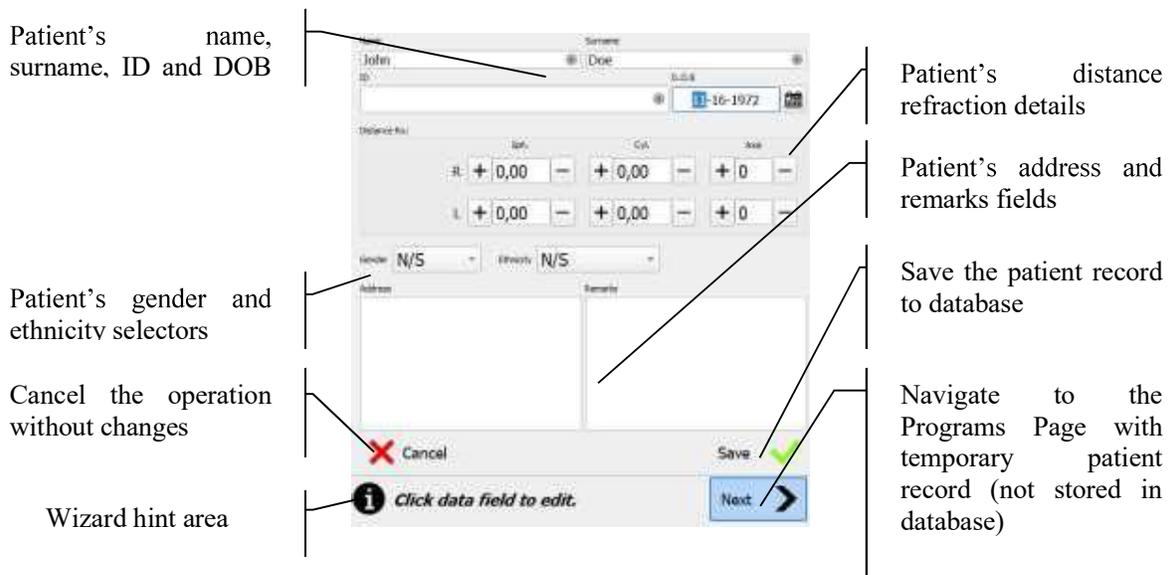
Figure 28. Patients page - patient details editor

The editing can be finished with one of three options:

Cancel – all changes done to the patient record will be canceled;

Save – the patient record will be changed and saved to database;

Next – the patient record will be kept but not stored in the database. The wizard will go to the next page.

When user inserts the patient name, surname, ID the list of patients in the left panel will be filtered and show patients matching the entered data. This can help identifying patients which are already registered and avoid duplicating the data in the database.

8.1.2. Editing patient data

The editing of the existing patient can be done in two ways:

Use a right mouse button over the patient row in the patients list to display the context menu. Select "Edit" form the context menu to switch the patient details area to edit mode.

Click any of the text labels contained in the patient details area.

The editing can be finished with one of two options:

Cancel – all changes done to the patient record will be canceled;

Save – the patient record will be changed and saved to database;

8.1.3. Deleting patient data

To remove the patient data form the database, use a right mouse button over the patient row in the patients list to display the context menu. Select "Remove" form the context menu.
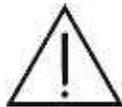
Deleting patient data from the database means that all test results associated with the patient will be deleted as well. Once deleted, no patient data can be restored, so make sure to select the appropriate patient from the list of patients, and that you will never have to use the patient data again.

8.1.4. Patient lookup

To quickly find patient records from the list of registered patients, data sorting mechanism and filter & search module are provided in the program.

8.1.4.1. Sorting patient records

The list of patients can be sorted in either of four columns in an ascending or a descending order. The sorting mode can be changed by clicking on the header of the column of choice. The arrow in the column header indicates the currently sorted column and the sorting direction.

	ID	Name	Surname	DOB
1		TEST1	TEST1	23-06-1984
2		TEST2	TEST2	23-07-1950

Figure 29. Sorting patient records

8.1.4.2. Fast search

Fast Search mechanism allows to quickly search for patient records by entering a sequence of characters. Enter a sequence of characters in the fast search field and the list displayed in one of

the columns will include patients who meet the search criteria.

To cancel the Fast Search mode, delete all characters from the edition field or click 'X' to delete the filter.

> Use Ctrl + F to quickly search a patient in the Patients tab. The cursor will move to the Fast Search edition field. You can now enter the selected string of characters.

8.1.5. Examinations list

If the current patient has got historical examination results available, then under the patient's details area there is a list of patient results (Figure 30. Examinations list).
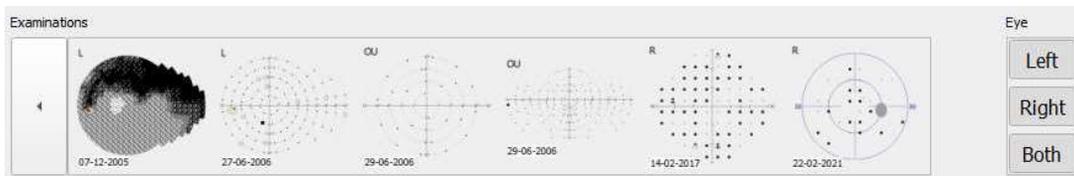
Figure 30. Examinations list

Examinations list contains a set of buttons with a miniature of the test result. Clicking with right mouse button over the selected button causes a display of the context menu with the following options:

- "Summary"- go to the Wizard Results Page of the Perimetry Wizard
- "Results" – go to the Single Field Results in the Results tab with the selected test result
- "Report" – open the Report Generator dialog with the selected test result

Clicking with left mouse button over the selected button will execute the recently selected context menu action.

The Examinations List is ordered according to the test date and time having the most recent examinations on the right. The list can be scrolled with use of the arrow buttons on both sides of the list or by clicking the list with let mouse button and then moving the mouse cursor while keeping the button pressed.

To the right of the Examinations List there is a set of buttons which can be used to filter the results displayed in the list. The default set of the filter makes all examinations to appear on the list. To show only the selected eye examinations on the list, select the respective eye button.

8.2. *Wizard Programs Page*

Patient details area

Panel with available test programs

Navigate back to the Patients Page

Wizard hint area

Test program parameters area

Add a new Program

Navigate to the Test Preparation Page
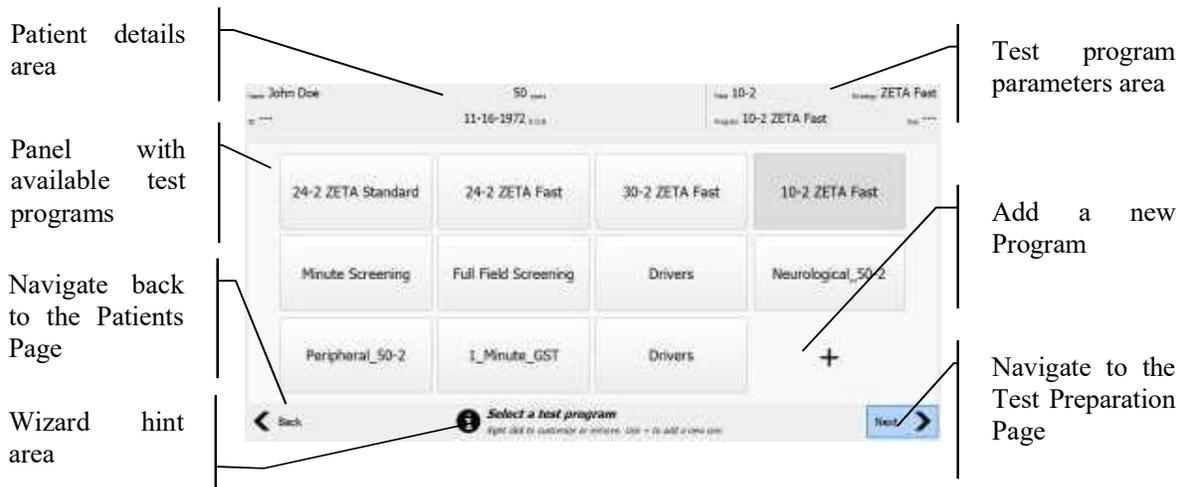
Figure 31. Perimetry Wizard Programs Page

Programs Page of the Perimetry Wizard interface is the first page which configures a perimetry examination. The central area contains a grid of buttons with test programs names. The top part contains the details of currently selected patient and parameters of the selected test program. The bottom area contains wizard navigation controls.

The Programs Page allows to:

- **Select an existing test program** – click the button with the name of a requested test program. The Perimetry Wizard will automatically navigate to the Test Preparation Page.

- **Create a new test program** – click the button with a "+" symbol at the end of the program buttons list. The Program Editing dialog will be displayed.

- **Edit an existing test program** – use a mouse to right click over the requested test program to display the context menu. Select the "Customize" option and the Program Editing dialog will be displayed.

- **Delete an existing test program**– use a mouse to right click over the requested test program to display the context menu. Select the "Remove" option and accept the confirmation message.

- **Hide an existing test program** – use a mouse to right click over the desired test program to display the context menu. Select the "Hide" option to hide the program button

> *Selecting to hide an existing test program will hide the button for that program, making it unavailable. To restore the visibility of program buttons, use the examination list in the "Examinations" tab. More information can be found in Chapter 10.3.1 "Managing the test programs".*

Clicking the particular test program button will select that test program and automatically forward

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the Wizard to the Test Preparation Page.

8.2.1.   Editing a test program

The Program Editing dialog is used for editing of an existing test program or for adjusting parameters of a new test program.

Program test field

Program stimulus color

Program reliability tests

Optional   test   field modifications

Suprathreshold offset for suprathreshold strategies

Stimulus   timing parameters

Program name

Program test strategy

Program stimulus size

Test initial stimulus level settings

Bracketing   for   threshold tests

Type of a fixation target

Save or Cancel changes

Figure 32. Editing test program

The controls in the dialog reflect the current settings in the edited or newly created test program. Meaning of particular test settings parameters is described in chapter 10.2Test settings.

8.3. *Wizard Test Preparation Page*

Patient details area

Eye camera preview and chinrest movement controls

Navigate back to the Programs Page

Wizard Hint Area Page

Test program parameters area

Select tested eye

Setup trial lens

Adjust program settings

Navigate to the Examination Page
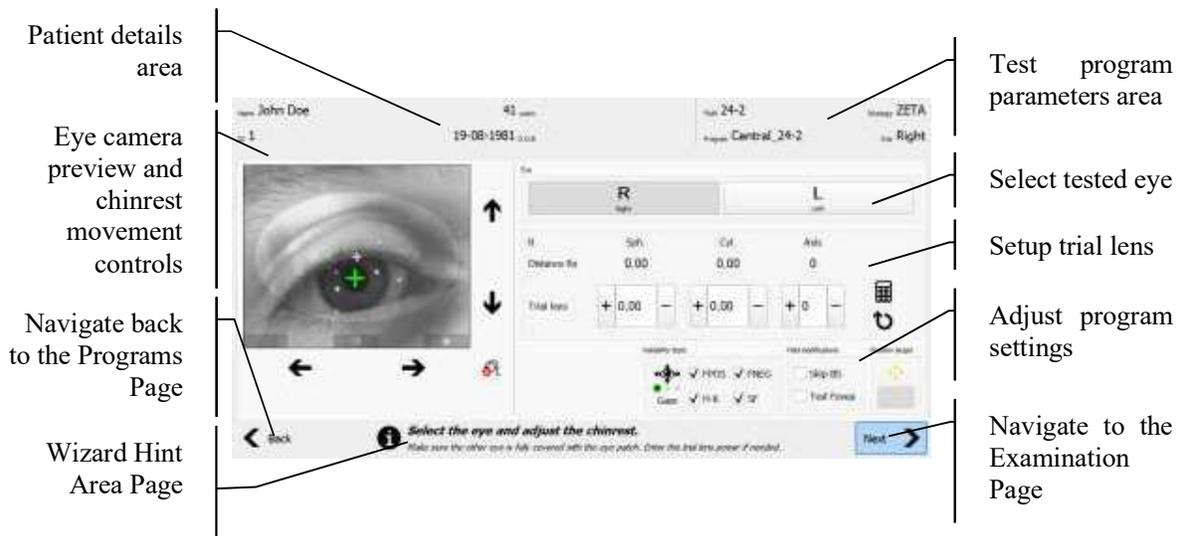
Figure 33. Perimetry Wizard Test Preparation Page

Main task of the Test Preparation Page is to allow user to adjust the test program parameters which are specific to patient.

The page allows to:

Select the tested eye – use buttons in "Eye" group to select which eye is to be tested.

Adjust the patient position – patient should be positioned so the tested eye is roughly in the middle of the eye camera preview (fits into the center ellipse). The chinrest movement buttons should be used to adjust the position in vertical and horizontal axis (if available).

Enter the trial lens parameters – use the manual controls to setup the lens parameters manually. Use the "Recall" button to get the settings used when testing the patient last time. Press the "Calculate" button to let the software propose the correction lens according to patients distance Rx value and his age.

✔ Clicking the left mouse button over the patients distance Rx values, opens the editor controls and allows to temporarily modify the distance Rx. If the test result with modified values is stored to database, user will be asked whether to update the existing patient's record with a new distance Rx values.

Adjust the program test settings ad hoc – Reliability tests, field modifiers and fixation target can be changed to adjust the defined program settings to a particular patient and his condition.

When the selection on the Test Preparation Page is done, clicking the "Next" button will forward the Wizard to the Examination Page.

8.4. *Wizard Examination Page*

"Quick" switches for Voice Guide and Gaze Tracking

Open panel with reliability tests and fixation target switches

Navigate back to the Test Preparation Page

Examination preview area

Numerical examination results

Read the instructions and run the examination demo mode

Examination Start/Pause, Stop, retest Blind Spot
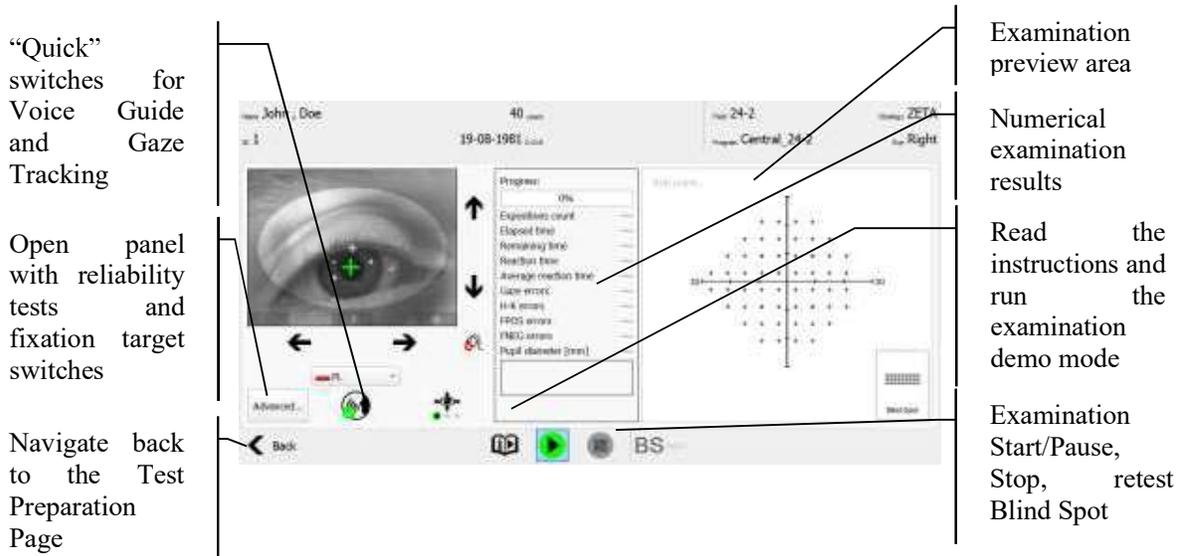
Figure 34. Perimetry Wizard Examination Page

The Examination Page is used for controlling and previewing a perimetry examination progress. The page allows to:

Adjust the chinrest position – patient should be positioned so the tested eye is roughly in the middle of the eye camera preview (fits into the center ellipse). The chinrest movement buttons should be used to adjust the position in vertical and horizontal axis (if available).

Adjust the program test settings ad hoc – Reliability tests and fixation target can be changed to adjust the defined program settings to a particular patient and his condition. Controls are normally hidden and can be opened by clicking the "Advanced.." button.

Temporarily switch off/on the Gaze Tracking – In case of problems with eye pupil detection, the examination can take a long time when the Gaze Tracking is at level 2 or 3. In such situations it is suggested to switch the Gaze Tracking to level 1 to complete the examination. This can be done with the quick "Gaze Tracking" button under the eye camera preview.

Temporarily switch off/on the Voice Guide – some operators prefer to guide their patients by themselves. The "Voice Guide" button located under the eye camera preview can be used to deactivate a built in Voice Guide functionality.

Run the Demo test – to familiarize unexperienced patients with the perimetry examination, the Demo test function can be used. The Demo test is a simple version of a regular test. The Demo test starts with the dialog containing instructions how patient should behave during the test. The instructions may be read by operator or by the software (if translations are available). After the instructions phase, the simplified version of the test is started. The test will run until it finishes or until stopped by operator. The Demo test result is not stored in database.

Start/Pause, Stop the examination – set of intuitive controls located in the middle of wizard navigation bar are used to control the progress of the examination. The Start and Pause buttons appear alternately depending on the examination state (running or paused).

When examination is stopped either by finishing the testing or by user's choice to stop unfinished

test, the Wizard forwards to the Results Page.

8.5. *Wizard Results Page*

Examination results preview

Perform the test of the Left eye with the same test program

Chose examination preview

Wizard hint area

Cancel the Wizard and discard all acquired test results and exit to the Patients Page

Save the test results to database and exit to the Patients Page

Open report generator dialog / Print the test result

Retest selected points or extend the current test field

Discard the result and go back to the Test Preparation Page

Open pupil measurement window

Export data

Figure 35. Perimetry Wizard Results Page

The Results Page contains the preview of completed examinations for the left and right eyes or for both eyes. The page allows to:

- **Open the report generator dialog** – Click the "Print" button to open the report generation dialog with the test result.

- **Print the examination report** – Click the "Flashprint" button to immediately print the report on the default printer

- **Retest the examination or choose quick field extension method (only 24-2/C)** – Click to open a panel with Retest and the quick field extension buttons. Select Retest to go back to the Examination Page and select which points should be retested. More about the quick field extension in the chapter Progress of the test – quick field extension

- **Discard the examination result** – Click the "Discard" button to discard the examination result and go back to the Test Preparation Page.

- **Test the other eye** – Click the "Test" button in the middle of the examination result area to go back to the Test Preparation Page with the other eye selected for testing. The examination result of the first eye will still be available in the Results Page.

- **Save the examination result** – Click the "Save and Exit" button to store the examination results of right/left/both eyes to database. After the test is stored, the Wizard jumps to the Patients Page and is ready for a new examination series.

- **Discard all acquired test results** – Click the "Cancel" button to discard the examination

results of right/left/both eyes. After the current series is canceled, the Wizard jumps to the Patients Page and is ready for a new examination series.

9. *Patients*

This chapter describes the Patients tab.

- patient registration
- editing patient data
- searching and sorting patients
- deletion of patients from the database

9.1. *Interface of the Patients tab*

The Patients tab is where you can select patients for testing or for test results analysis.
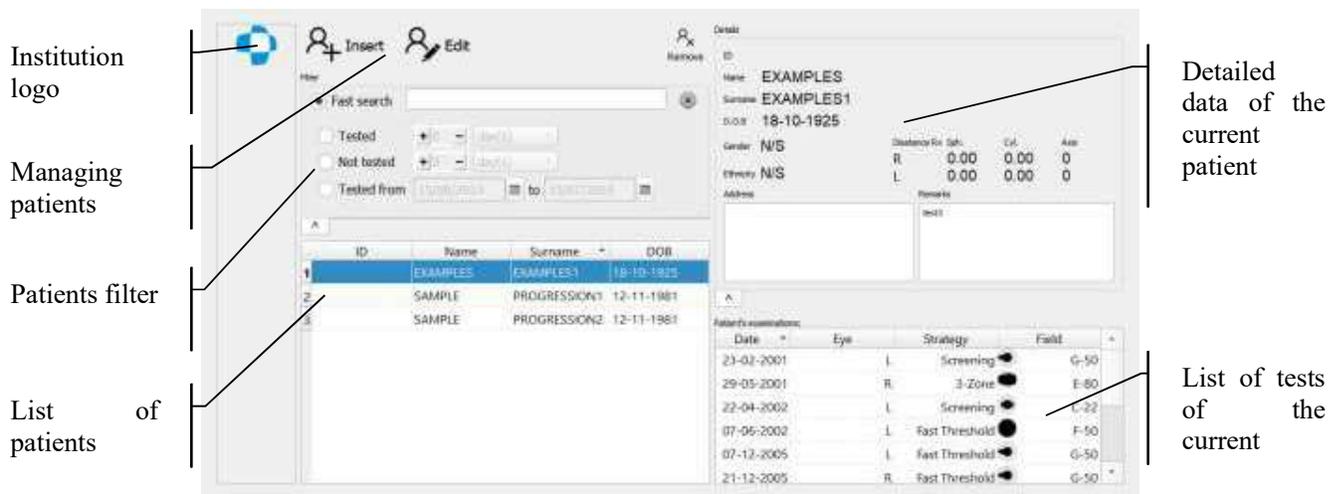
Figure 36. Patients tab

9.2. *Patient registration*

Before any examination is carried out, select a patient from the list of existing patients (registered patients) or register a new patient. To register a patient, go to the Patients tab.

To add a new patient, click the 'Insert' button on top of the list of patients. A new empty record will be added to the list of patients and a detailed patient data editing mode will be brought up. Manually enter the patient data:

- First name
- Surname
- Date of birth

Click 'Save' to confirm the data you have entered. A new patient record with the entered patient data will be added to the list of patients and will be automatically selected as the current patient. Examination can now be carried out for the new patient.

By entering a lens correction factor, if necessary, you will be able to use a calculator in the test

preview window to calculate the correction factor used in the test.

The patient record must by unique in the database scope. Every patient has to have at least the date of birth. If name and/or surname fields are left empty and identification number ID is not entered by operator, patient will get an automatically generated unique ID. To register two patients with exactly the same personal data (Name, Surname and DOB), they should have a unique identification number (ID) assigned.

9.3. *Editing patient data*

To add or update data of registered patients, go to the detailed patient data editing mode. Click 'Edit' to select this mode.

Use the Tab key to toggle between patient data fields.

With the detailed patient data editing mode on, press Enter key to save the data, or Esc key to cancel (except for the fields: address and remarks).

The database contains the following patient data:

Identification Number (ID) - an additional patient identification number (ID number, health insurance number, etc.). The reference number can consist of up to 64 alpha-numerical characters (including spaces, hyphen "-", and underscore "_"). The reference number is not case-sensitive.

Reference number is not obligatory. However, it must be unique if entered into the system. Do not assign two identical reference numbers to two different patients.

Name – patient's first name and middle name(s). It can consist of up to 64 characters.

Surname – patient's surname(s). It can consist of up to 64 characters.

Date of Birth (D.O.B) - patient's date of birth with which the patient is assigned to a particular age group. This information is used in analyzing deviations from age normative values and in calculating the refractive error correction in the examination window. The date of birth can be entered from the calendar or the keyboard. Click the button to the right of the date to access the calendar.

To enter the date of birth from the keyboard, double click the field of the first element of the date (day of month, etc.). The digits will be separated automatically.

Gender – patient's gender. This information is irrelevant for results analysis but can be useful for doctors in reviewing the test results.

Ethnicity – ethnic origin of the patient. This information is irrelevant for results analysis but can be useful for doctors in reviewing the test results.

Correction lens – left / right eye refractive error correction. Correction factors to be used during the test are calculated from this value. The range is between -18D and 18D in 0.25D intervals, and

between 0° and 180° axis in 5° intervals.

Address – patient's contact data (address of residence, telephone number, e-mail address).

Remarks – additional remarks about the patient and his/her health status.

9.4. *Deleting patient data*

Press 'Remove' to delete data of the current patient.
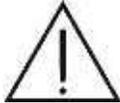
Deleting patient data from the database means that all test results associated with the patient will be deleted as well. Once deleted, no patient data can be restored, so make sure to select the appropriate patient from the list of patients, and that you will never have to use the patient data again.

9.5. *Patient lookup*

To quickly find patient records from the list of registered patients, data sorting mechanism and filter & search module are provided in the program.

9.5.1. **Sorting patient records**

The list of patients can be sorted in either of four columns in an ascending or a descending order. The sorting mode can be changed by clicking on the header of the column of choice. The arrow in the column header indicates the currently sorted column and the sorting direction.

Figure 37. Sorting patient records

9.6. *Patient data filters*

Data filters can be found in a box on top of the list of patients. Quick Search option is available in the standard view. Click '...' button to expand full list of filter options.

Figure 38. Patient data filters

Data filters can work in 4 modes.

Fast Search – quick search for patient records by entering a sequence of characters. Enter a sequence of characters in the fast search field and the list displayed in one of the columns will

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include patients who meet the search criteria.

To cancel the Fast Search mode, delete all characters from the edition field or click 'X' to delete the filter.

> ✓ Use Ctrl + F to quickly search a patient in the Patients tab. The cursor will move to the Fast Search edition field. You can now enter the selected string of characters.

Tested – the system will display only patients who have been tested within the given period. The time period counts from today to X days, months or years back. The exact time range can be set using the selection controls for number of units and type of time units. To delete this filter, click 'X'.

Not tested – the system will display only patients who have not been tested within the given period. The time period counts from today to X days, months or years back. The exact time range can be set using the selection controls for number of units and type of time units. To delete this filter, click 'X'.

Tested from to – the system will display only patients who have been examined within a given time period. The period of time shall be counted from the date specified in 'from' to the date specified in 'to'. To define a period of time, you must change the values of both date edit controls or select a date from the window displayed after pressing one of the buttons with the calendar icon on the right side of the date edit control. To delete this filter, click 'X'.

> ✓ To delete any filter type, click 'X' (to the left of the Fast Search mode).

9.7. *List of tests associated with the current patient*

The Patients tab also includes a table with all tests belonging to a patient.

Unfinished test (40% complete)

Completed test (100% complete)

Unfinished test (20% complete)

Figure 39. List of tests in the Patients tab

This is an overview of tests belonging to a particular patient. You can also select an active test result from this list. By default, the active result will be displayed in the Results tab.

Right-click the test line in the table to open a context menu with the following options:

Review results – click to select an active test and to open the Results tab.

Follow-up test – click to select an active test and to open the Tests tab in the Follow-up Test mode.

✔ The default order in which the previous test results are displayed is set according to the examination date and time. To change the sequence in which the results are displayed, click one of the column headers. The data sorting mode will be changed for the selected column.

Apart from standard test results, the list also contains information about whether the test has been completed, or whether incomplete results has been saved for an interrupted test. Unfinished tests will be presented in red font, in italics. In addition, a test completeness bar will be displayed in the background. The bigger the yellow field, the more examination points are left to test.

9.8. *Layer manager*

In addition to editing and deleting a patient, a layer manager is also available from the context menu of the patient table. It allows you to:

- Adding layers as graphic files in jpg, jpeg, tif, tiff, png and bmp formats to a given patient
- Deleting a patient's layers
- Editing layers of a given patient

These layers, properly scaled by the user, can be displayed under the perimeter test results in the Results tab (including on the test printouts) and during the examination itself in the Examinations tab. The layer manager is also available in other places in the application, such as the Patient Page, the Results tab and in the print preview window. Layers can be used as images of the fundus. To open the layer manager, from the context menu, invoked from the patient table, select the "Open layer manager…" option as in the picture below.

	ID	Name	Surname ▲	DOB
1		EXAMPLES	EXAMPLES1	18-10-1925
2		SAMPLE	PROGRESSION1	12-11-1981
3		SAMPLE	PROGRESSION2	12-11-1981
4		SAMPLE	SF	23-08-1991

✏ Edit
✏ Open exam layers manager...
✖ Remove

Figure 40. Opening layer manager

After selecting the above option, a new dialog will open:

Figure 41. Exam layer manager dialog

9.8.1. Adding layers

To add new layers, click on the button with the plus symbol at the top of the window. This will open a dialog window with the selection of one or more graphic files. After selecting the appropriate files, the layer manager window will expand with the layer editing panel, shown in the figure below.
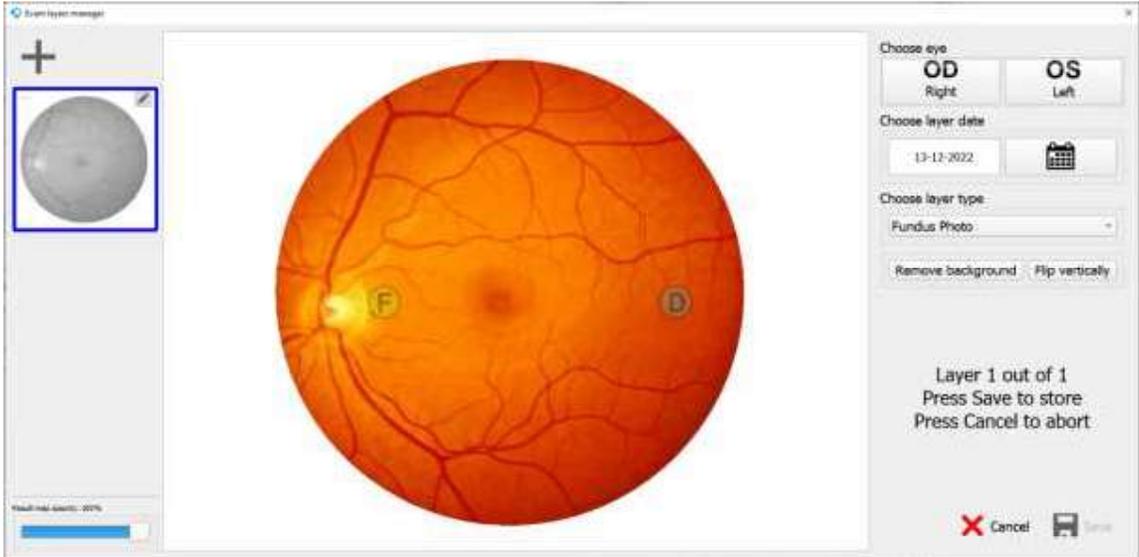
Figure 42. Layer editor

In the layer editor panel, you can set the position of the fovea and the position of the blind spot. These two data will determine how the layer will scale after placing it under the map of the examination results. To set these two positions, click and hold the left mouse button on one of the two circular symbols with letter "F" or "D" which indicate the fovea and the blind spot

respectively. Then move the mouse to move the symbols to correspond to the real positions. When moving markers, pressing the left "Ctrl" key can increase the precision of moving the symbol, which will increase its precise positioning.

On the right side of the layer editing panel, you can set additional information about the layer, such as eye (set automatically after changing the position of the fovea and blind spot), date of the layer (by default, the date is set as current, but it can be e.g. the date of the examination from which the layer was generated) and the layer type (default is "Fundus Photo"). Additionally you can modify imported image by removing it's background or by flipping it vertically. To accept the changes and add a layer to the patient, press "Save" button, or "Cancel" to stop importing new layers and finish.

9.8.2. Editing layers

You can change the settings of an already added layer at any time. The layer editor can be opened again by clicking on the pencil symbol in the upper right corner of the selected layer thumbnail in the layer list in the left part of the layer manager window. This is illustrated in the figure below:

Figure 43. Layer editing buttons

The most recently added layer will be marked with a blue highlight around it. You can change the layer simply by clicking on its thumbnail button. The last selected layer will be automatically placed under the examination results map.

At the bottom of the layer manager window, there is a slider that can be used to adjust the degree of transparency of all elements displayed on the map, except for the selected layer, if it is added. The slider determines the degree of opacity. By default, this value is set to 100%, which means that all elements of the result map, except for the layer, are visible. This value can be changed in the layer manager window or by using the mouse wheel on the result map itself if the layer is displayed. The transparency value is saved to the settings.

9.8.3. Removing layers

Layers can also be removing by right-clicking the context menu on one of the layer buttons. To remove a layer, select the "Remove" option. Removing layers is only possible in the layer manager invoked from the Patients tab or on the Patient Page in the Examination Wizard.

10. *Static examination*

This chapter describes the Static examinations tab

- setting the test parameters
- setting the instrument parameters
- managing the test programs
- preparation of follow-up tests

10.1. *Interface of the Static examinations tab*

The Static examinations tab is where you can access all tools necessary to prepare and run a test. This is where test parameters can be set. This window remains active until the test is completed.

Data of the current patient

Test paramet

Video image from the eye camera

Test run controls
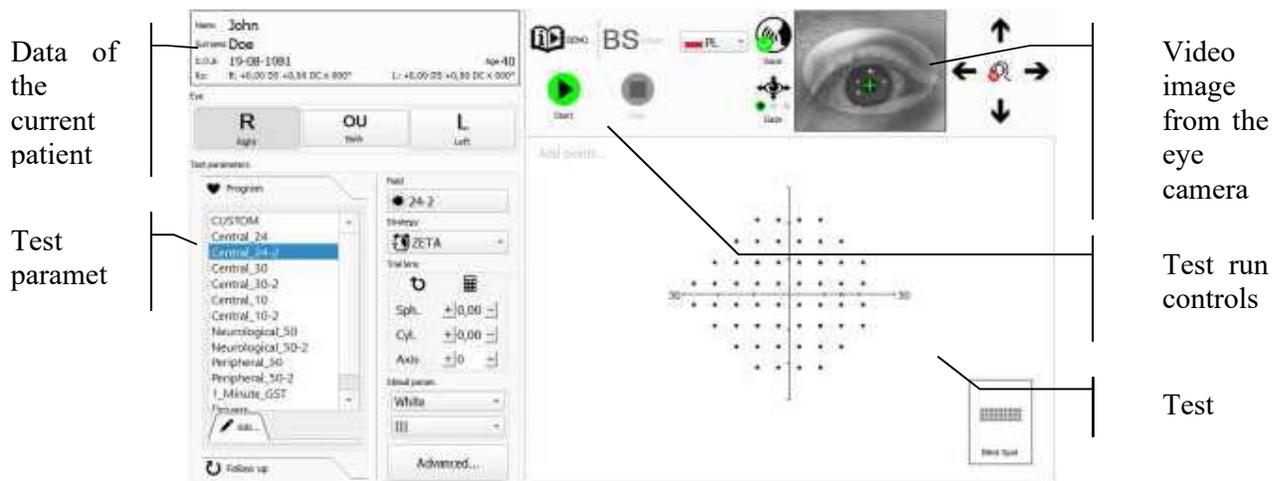
Test

Figure 44. Static examinations tab

10.2. *Test settings*

Configure the test parameters before you start the test. You can either set all parameters manually for your current patient or use pre-defined test programs.

Some of the test parameters can be conflicting. For example, the BDT strategy can only be used for the OU (both eyes) setting.

If any conflicting settings are entered, the program will use the last change you have selected and will modify the conflicting setting accordingly. A message will be displayed that the setting has been changed. Read the message carefully and make sure the modification is acceptable.

10.2.1.   Selecting the eye

The eye to test can be selected with a set of pushbuttons on the left side of the Tests tab.

Figure 45. Eye selection buttons

Click the appropriate button to change the tested eye. L, OU, and R abbreviations mean Left (left eye), oculus uterque (both eyes), and Right (right eye) respectively. The symbols are used in the interface and test reports to save space.

When the eye to test is changed, the arrangement of test points in the test preview window changes as well.

 If the pre-selected test field and the test strategy are not suitable for the selected eye, the conflicting settings will be changed to the default settings of the eye selected. "Conflicting Settings" message will be displayed.

 If the connected device offers a motorized left-right chinrest movement, the chinrest will automatically move to central or left-most position depending on binocular/monocular eye selection.

In the chinrest left-most position, the right chinrest slot is located in the middle of the bowl and should be used for binocular testing.

10.2.2. Selecting the test strategy

Test strategy is the test technique with which the selected eye will be tested. It defines the test accuracy and the type of test results delivered. These are discussed in the Test strategies section of this manual.

Test strategies can be selected from the Strategy dropdown list.

Figure 46. List of test strategies

To change the current test strategy, click the Strategy selection field and choose one of strategies listed.

If the pre-selected test field, eye, or stimulus color settings are not suitable for the selected test strategy, the conflicting settings will be changed to the default settings of the selected test strategy. "Conflicting Settings" message will be displayed.

10.2.3. Selecting the test field

Test field is the visual field area to be tested. The test field determines the size of the visual field to be tested and the arrangement of points that will be part of the test. Test fields are discussed in the Test Fields section of this manual.

To select the test field, use the "Field" button available on the programs of the test wizard and in the "Examinations" tab. After pressing the "Field" button, the field selection window will appear (Figure 47. Selected 'C-30A' field and its details - fields grouped by area). The examination fields are grouped according to:

- Area which is covered by test points
- Device type associated to the points layout.

To find out more about a particular test field, press the left mouse button on the button with the name and field thumbnail. On the selected field button, the symbol "i" will appear. To display the test field information move the mouse button over the symbol. The following information will be visible:

- number of test points
- estimated time of examination for specific examination strategies

To select a field for a test, left-click again on its button or click the accept button in the lower left corner of the window.
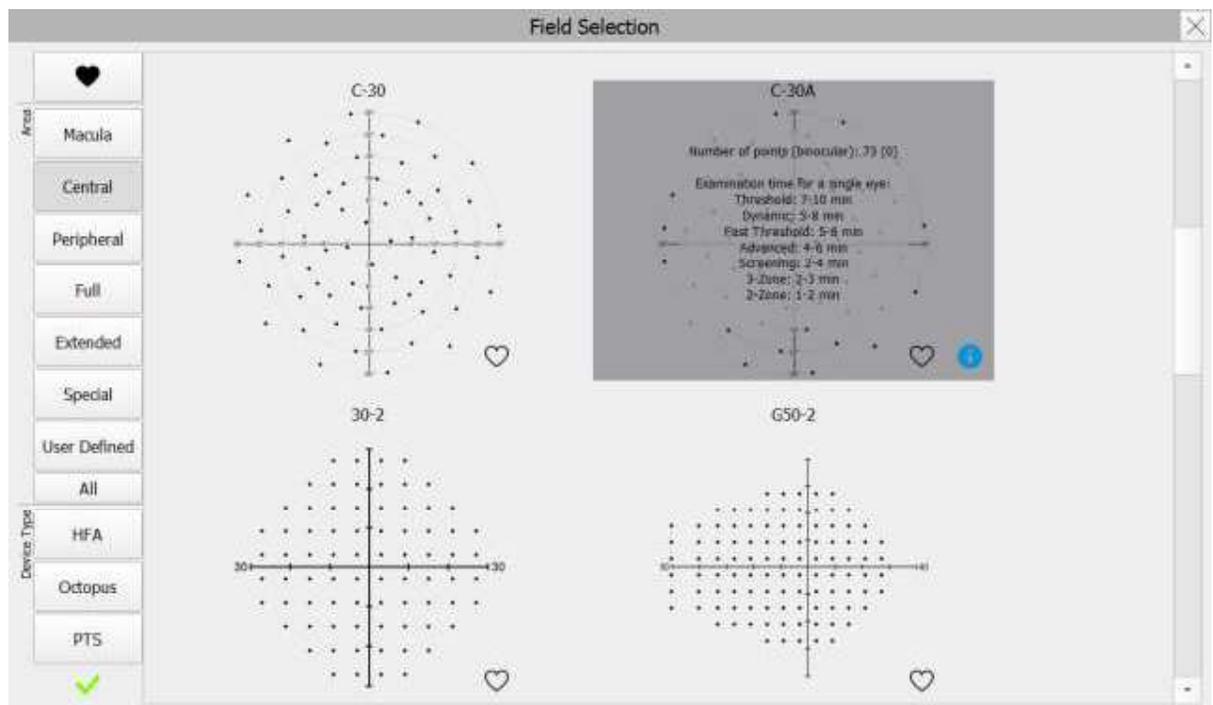
Figure 47. Selected 'C-30A' field and its details - fields grouped by area

The field selection window displays only those field that are compatible with the connected device.

> If the pre-selected stimulus color is not suitable for the new test field, the conflicting settings will be changed to the default settings of the selected test field. "Conflicting Settings" message will be displayed.

Once the test field is selected, the arrangement of test points can be seen in the test preview window:
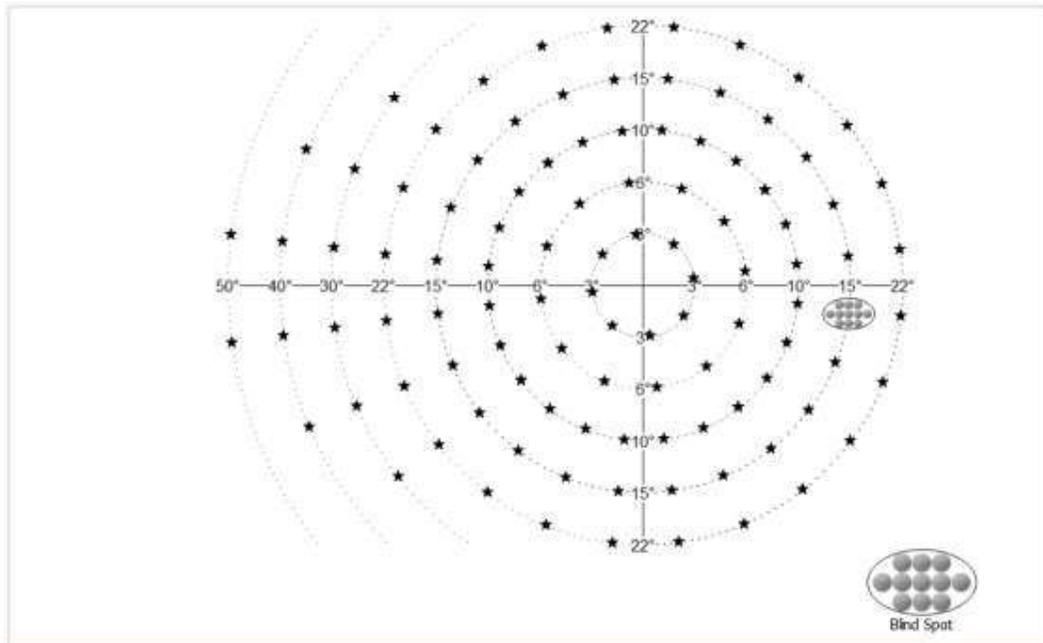
Figure 48. Test field preview

In the upper left corner of each examination field button, there is a heart symbol, which can be used to add the field to the list of favorite (most frequently used) fields. A black filled heart symbol means that the field is added to the list of favorite fields. To add the selected field to the list of favorites, just left-click on the heart symbol. To remove the selected field from the list of favorites, also click on the heart symbol.

It is possible to get to the favorites list by clicking on the "Favorites" button in the left part of the field selection window, as shown in the figure below:
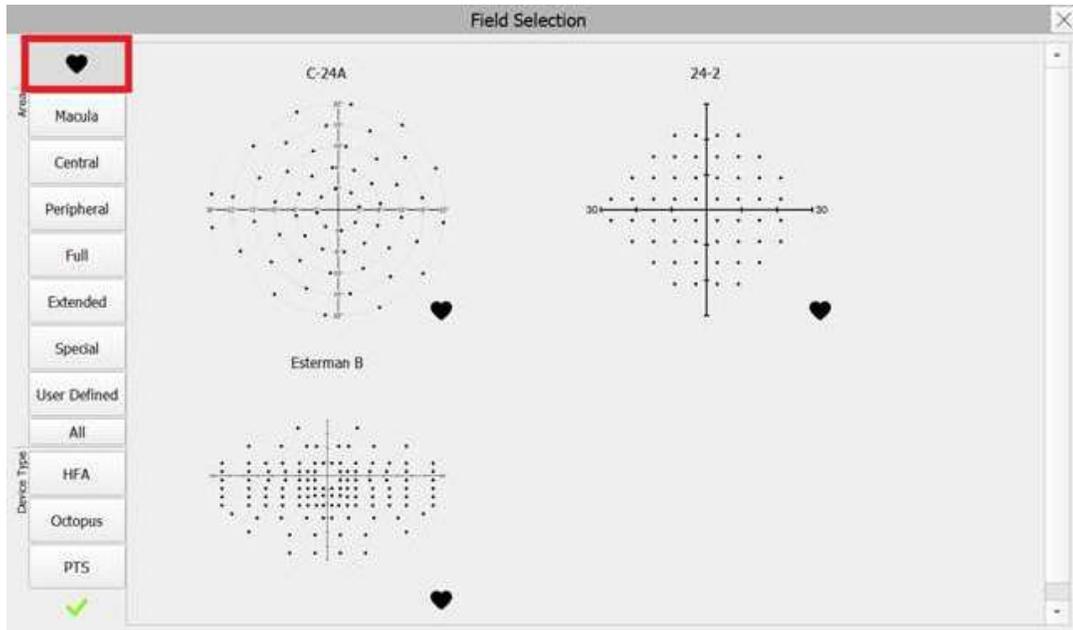
Figure 49. Favorite fields list

10.2.4. Selecting the Reliability Tests

The validity of visual field tests largely depends on patient cooperation and reliability, and the diagnosis should be based on both, test results and the test reliability score. There are special reliability testing procedures running simultaneously to the visual field test to help determine the test reliability. For more information about the reliability tests, go to the Test Reliability section of this manual.

Reliability tests running in parallel with the visual field test can be set with the Reliability switches.

Figure 50. Selecting the Reliability Test

Gaze – tracking pupil shifts on a video image from the eye camera.

H-K – Heijl–Krakau blind spot monitoring

SF – short-time fluctuation in the test results

FPOZ – monitoring false positive results (reaction in absence of stimuli) during the test

FNEG – monitoring false negative results (no reaction to stimuli) during the test

Check / uncheck the box next to the test name to enable / disable the selected type of reliability tests to be run during the visual field test. To determine the frequency of reliability tests (H-K, FPOZ, FNEG) one of the four options under the name of each test should be marked. For example, the value of 5% means that approximately five percent of all stimulus exposures will be selected to testing as a reliability test.Setting lens correction for the test

10.2.5.   Setting the trial lens for the test

It is important for the patient to clearly see all stimuli during the visual field test. Absence of reaction to stimuli should be attributed solely to eye diseases other than problems with eye refraction. Therefore correction lens is used to eliminate the possible influence of eye refraction problems on the test results.

Test lens of 38 mm in diameter are used for lens correction, placed in a holder in front of the patient. To get reliable test results, make sure that the correction lens option is enabled. The test will be divided into two phases:

- internal diameter of the visual field –within a 30° ring, tested with correction lens

- external diameter of the visual field – outside a 30° ring, tested without correction lens

This division is introduced to eliminate artifacts generated when some of the stimuli is covered by the lens holder and the correction lens frame.

To activate the correction lens option, enter a non-zero value in the correction lens settings:

Recalling the most recently used correction lens for the selected eye

Spherical correction in diopters

Cylindrical correction in diopters

Automatic calculation of lens correction for the test based on the patient's current clinical refraction

Cylindrical correction axis
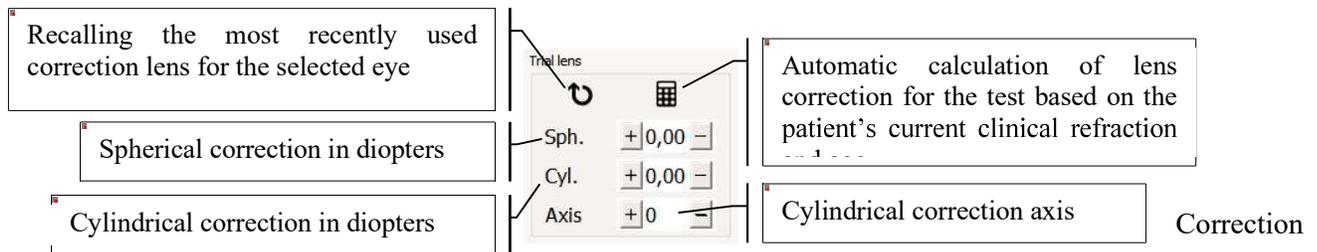
Correction

Figure 51. Settings of correction lens for the test

values can be entered manually or with one of supporting tools. The available lens correction range is between -18D and 18D in 0.25D steps. Cylinder axis can vary within the range of 0° and 180°.

Recalling the recently used correction lens for the tested eye – this function browses all previous tests belonging to current patient. If the selected eye has been already tested, the system will recall the correction lens used in the previous test.

Lens calculator – it calculates the proposed correction lens based on the patient's current clinical refraction and age. The following calculation formulas are used:

Cylindrical refractive errors ≤ ±0.25D are ignored.

Cylindrical refractive errors (±0.25D, ±1> are substituted with a spherical equivalent rounded up to 0.25D.

Spherical refractive error is adjusted for patient age:

[30 years, 40 years) +1D;

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[40 years, 45years) +1.5D;

[45 years, 50 years) +2D,

[50 years, 55 years) +2.5D,

[55 years, 60 years) +3D;

>60 +3.25D.

If the calculated spherical correction value ranges from [-3, 0), spherical correction is set to 0D.

If the calculated spherical correction value is <-3 (short-sightedness), 3.25D of spherical correction is added.

10.2.6. Setting the fixation type

There are two central fixation targets available:

- a single illuminated point in the centre of the visual field

- four illuminated points around the centre of the visual field, shaped in a diamond

Single-point central fixation is changed to four-point central fixation to test patients with an absolute defect in the central part of the visual field.

Central fixation can be switched with the Fixation Target controls.
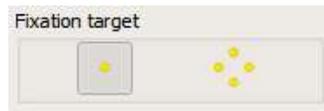
Figure 52. Selecting the fixation target

10.2.7. Setting the bracketing for threshold strategies

Threshold and Screening strategies are based on the varying brightness of stimuli used for thresholding. Stimulus brightness changes gradually. Graduation can be set to either 2-4 or 3-6 intervals. It can be set with the Bracketing controls.

Figure 53. Selecting the bracketing for threshold strategies

2-4 – change interval below the visibility threshold equals 4dB, and is changed to 2dB when the threshold is exceeded. The accuracy of the threshold value is ±1dB.

3-6 – change interval below the visibility threshold equals 6dB, and is changed to 3dB when the threshold is exceeded. The accuracy of the threshold value is ±1.5dB.

10.2.8. Setting the calibration level (initial stimuli level)

In visual field testing strategies based on stimuli of varying brightness, an initial stimuli level of brightness is used as the reference point for visibility thresholding. The closer the initial stimuli level is to the visibility threshold, the shorter it takes to determine the threshold level. To reduce the test duration, each test starts with calibration, which is designed to determine the reference

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level. It is also possible to use a predefined value as a calibration level, or to use a normative value for the patient's age group.

To set the calibration level, use the Calibration Level controls.
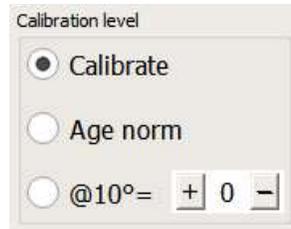
Figure 54. Setting the calibration level

Calibrate – initial brightness level of stimuli is determined through calibration. Calibration is when the threshold value is found in each of visual field quadrants at 10° distance from the centre. The 4 values obtained are filtered and a mean value is calculated. The mean value is the HoV level at 10° eccentricity. The initial stimuli levels for all field points are equivalent to the calculated HoV level at the particular point minus:

- value of the smallest step in the selected bracketing setting (2dB for 2-4 or 3dB for 3-6) for threshold strategies

- "suprathreshold offset" value (Setting the suprathreshold offset) for screening, 2- and 3-zone strategies.

To determine the HoV level, HoV slope is assumed to be 3dB / 10°.

Age Norm – initial stimuli level determined for the test on the basis of age normative values. Unlike in the calibration phase, the age normative value is set for four points of the 10° radius, and these points are not tested. HoV is determined according to the age norm, and the initial stimuli levels are equivalent to HoV minus:

- value of the smallest step in the selected bracketing setting (2dB for 2-4 or 3dB for 3-6) for threshold strategies

- "suprathreshold offset" value (Setting the suprathreshold offset) for screening, 2- and 3-zone strategies.

To determine the HoV level, HoV slope is assumed to be 3dB / 10°.

Set Value "=" - initial stimuli level determined for the test on the basis of a pre-set value The pre-set value is assigned to four calibration points of the 10° radius. HoV is determined according to the pre-set value, and the initial stimuli levels are equivalent to HoV minus:

- value of the smallest step in the selected bracketing setting (2dB for 2-4 or 3dB for 3-6) for threshold strategies

- "suprathreshold offset" value (Setting the suprathreshold offset) for screening, 2- and 3-zone strategies.

To determine the HoV level, HoV slope is assumed to be 3dB / 10°.

10.2.9.   Setting the suprathreshold offset

Each suprathreshold (screening) test uses the stimulus of a brightness that is higher than the

expected patient's threshold. Bu default the screening strategies use the stimuli 3dB brighter that the calibration level which means that the stimuli brightness is twice as bright as expected threshold. The offset of the actual stimuli brightness over the expected patients' threshold can be adjusted with use of "Suprathreshold offeset" selector.
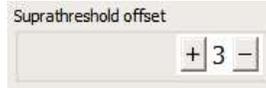
Figure 55. Setting the suprathreshold offset value

10.2.10.   Field Modifications

There is a setting in the "Field Modifications" controls with which the number of tested field points can be reduced. This helps reduce test duration by eliminating unnecessary points.
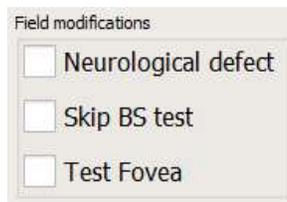
Figure 56. Setting the test field modification options

10.2.10.1.Neurological defect

By checking the Neurological Defect checkbox, the system will run a test for the presence of neurological defects in the visual field quadrants before the normal test begins. The tested patient is exposed to a maximum brightness stimulus at particular locations in each of the visual field quadrants. If the patient has reacted to the stimulus displayed in the tested visual field quadrant, the quadrant will be included in the standard test. If the patient has not reacted to the stimulus in three subsequent points within a single quadrant, the respective quadrant will be considered a neurological visual field quadrant.

After all quadrants have been tested, the user will be informed of the neurological visual field quadrants and will be asked if these quadrants are to be excluded from the test, or tested as normal.

10.2.10.2.Fovea test

By checking the Fovea checkbox, the system will run a test of the foveal sensitivity before the normal test begins. During the fovea test the fixation target is switched to four points outside of the center (so called diamond shaped). The stimulus is exposed between the fixation points and its intensity is varied with thresholding algorithm.

After the foveal sensitivity threshold is estimated, the fixation target is switched to the original one which was set in test settings and the test proceeds as normally.

10.2.10.3.Skip BS test

For some patient conditions it is not necessary to evaluate the location of the blind spot. To speed up the test, operator can set "Skip BS" option. It will make the test run without the blind spot evaluation phase.

The "Skip BS" option influences the Heijl-Krakau fixation monitoring which relays on a identified blind spot area. If the "Skip BS" option is set, the H-K reliability tests are switched off and set unavailable.

10.2.11.   Setting the stimulus size, stimulus and background color

Depending on the device model, there is ability to change the size and color of the displayed stimulus. Apart from standard tests in which green (575 nm) or white stimuli are displayed against a white background (10 asb/31asb), the selected device models can also run tests using blue (465 nm) stimuli against yellow background (100 asb). This test is intended to study isolated blue cone cells, which are fewer and whose defects are easier to identify in glaucoma. With the yellow background, red and green cone cells are "excluded" from the test.

To change the size of the stimulus, color of the test points and the background, unfold the dropdown list in the Stimuli Param. box.
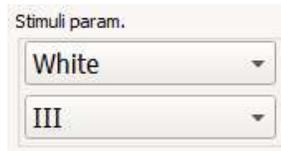
Figure 57. Setting the stimuli size, stimuli and background color

To change the current size or color, click the color or size selection box and choose one of colors/sizes listed.

Blue stimuli can be found in the central part of the visual field, within the 0°-30° range. Blue stimuli can only be used in a limited number of test fields.

If the pre-selected test field, eye, or test strategy are not suitable for the new color settings, the conflicting settings will be changed to the default settings of the selected stimuli color. "Conflicting Settings" message will be displayed.

When the stimulus color changes to blue, the bowl color will be illuminated bright yellow. For the test to be successful, wait around 30 seconds until the patient's eye accommodate to the change of light. Proceed the same way when the stimulus turns green.

10.2.12.   Combinations of strategy, field, eye and stimulus color settings

The table below lists all possible combinations of test strategies and test field settings. Information about possible eye settings for the relevant test field and test strategy settings is provided at the intersection of the Strategy row and the Field column. Blue cells indicate combinations with which blue stimuli can be used in PTS 920BY (In PTS 2000 the blue stimuli can be used in all fields).

Table 3. Combinations of strategy, field, eye and stimulus color settings

field / strategy	Threshold	Dynamic	Fast Threshold	ZETA™/ ZETA™ Fast/ ZETA™ Faster	Advanced	TOP	TOP+	Screening	3-Zone	2-Zone	BDT (Drivers)	Flicker	BSV
Radial fields													
F-50	L R	L R	L R					L R	L R OU	L R		L R	OU
G-50	L R	L R	L R					L R	L R	L R		L R	
C-22	L R	L R	L R					L R	L R OU	L R		L R	OU
C-24A	L R	L R	L R		L R			L R	L R	L R		L R	
C-30A	L R	L R	L R		L R			L R	L R	L R		L R	
M-10	L R	L R	L R					L R	L R OU	L R		L R	OU
C-30	L R	L R	L R					L R	L R OU	L R		L R	OU
P-50	L R	L R	L R					L R	L R OU	L R		L R	OU
E-80	L R	L R						L R	L R	L R		L R	
Esterman B(Drivers)											OU		
FeV G1	L R	L R						L R	L R	L R		L R	
FeV G2	L R	L R						L R	L R	L R		L R	
User	L R	L R	L R					L R	L R	L R		L R	
Orthogonal fields													
F50-2	L R	L R	L R					L R	L R OU	L R		L R	OU

field / strategy	Threshold	Dynamic	Fast Threshold	ZETA™/ ZETA™ Fast/ ZETA™ Faster	Advanced	TOP	TOP+	Screening	3-Zone	2-Zone	BDT (Drivers)	Flicker	BSV
G50-2	L R	L R	L R					L R	L R	L R		L R	
24-2	L R	L R	L R	L R	L R	L R	L R	L R	L R	L R		L R	
24-2C	L R	L R	L R	L R				L R	L R	L R		L R	
30-2	L R	L R	L R	L R	L R	L R	L R	L R	L R OU	L R		L R	OU
30-2C	L R	L R	L R	L R				L R	L R	L R		L R	
5-2	L R	L R	L R					L R	L R OU	L R		L R	OU
10-2	L R	L R	L R	L R				L R	L R OU	L R		L R	OU
P50-2	L R	L R	L R					L R	L R OU	L R		L R	OU
Esterman M	L R	L R						L R	L R	L R		L R	
Esterman B											OU		
Gandolfo									OU		OU		
G0-2	L R	L R	L R						L R	L R		L R	
Sup 44								L R	L R OU	L R		L R	
FeV G1	L R	L R						L R	L R	L R		L R	
FeV G2	L R	L R						L R	L R	L R		L R	
User	L R	L R	L R					L R	L R	L R		L R	
Projection fields													

field / strategy	Threshold	Dynamic	Fast Threshold	ZETA™/ ZETA™ Fast/ ZETA™ Faster	Advanced	TOP	TOP+	Screening	3-Zone	2-Zone	BDT (Drivers)	Flicker	BSV
FF 120								L R	L R	L R		L R	
Sup 64								L R	L R OU	L R		L R	
Sup 36								L R	L R OU	L R		L R	
G1	L R	L R	L R		L R	L R		L R	L R	L R		L R	
N1								L R	L R	L R		L R	
N2								L R	L R	L R		L R	
B1	L R	L R	L R					L R	L R	L R		L R	
07								L R	L R	L R		L R	
FF 246								L R	L R	L R		L R	
FF135								L R	L R	L R		L R	
FF 81								L R	L R	L R		L R	
Armaly C								L R	L R	L R		L R	
Armaly F								L R	L R	L R		L R	
Nasal Step	L R	L R	L R					L R	L R	L R		L R	
BSV 3													OU
BSV 5													OU
60-4	L R	L R	L R					L R	L R OU	L R		L R	OU
Central 40	L R	L R	L R					L R	L R	L R		L R	

field / strategy	Threshold	Dynamic	Fast Threshold	ZETA™/ ZETA™ Fast/ ZETA™ Faster	Advanced	TOP	TOP+	Screening	3-Zone	2-Zone	BDT (Drivers)	Flicker	BSV
Central 64	L R	L R	L R	✕	✕	✕	✕	L R	L R	L R	✕	L R	✕
Central 80	L R	L R	L R	✕	✕	✕	✕	L R	L R	L R	✕	L R	✕

10.2.13. Stimuli time parameters settings

The progress of the test can be adapted to the individual capabilities and physical condition of the patient. The test conditions should be as comfortable as possible, the test should be as short as possible, without sacrificing any accuracy of the test results.
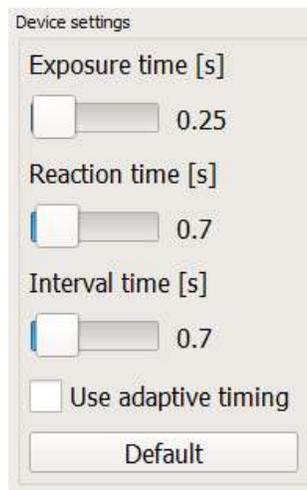
Figure 58. Test time settings

The progress of the test is determined by three parameters in the Advanced... section of the test settings (Figure 44. Static examinations tab):

Exposure Time – This is the time during which a light point is illuminated (unless the patient's reaction will dim it earlier).

The exposure time should be no longer than 0.4 s. A longer exposure time can negatively affect patient concentration on the fixation point, and therefore could reduce the test reliability.

Reaction Time – This is the time in which the patient can respond to a stimulus. It starts at the

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end of stimuli illumination. If the patient responds before the Reaction time ends, then the Reaction time is cut short and the Interval time starts immediately.

Interval Time – This is the time after the patient responds to a stimulus and before the next exposure begins. If the patient does not respond, then the Interval time equals 0.

The time relationship between the test parameters are shown below:
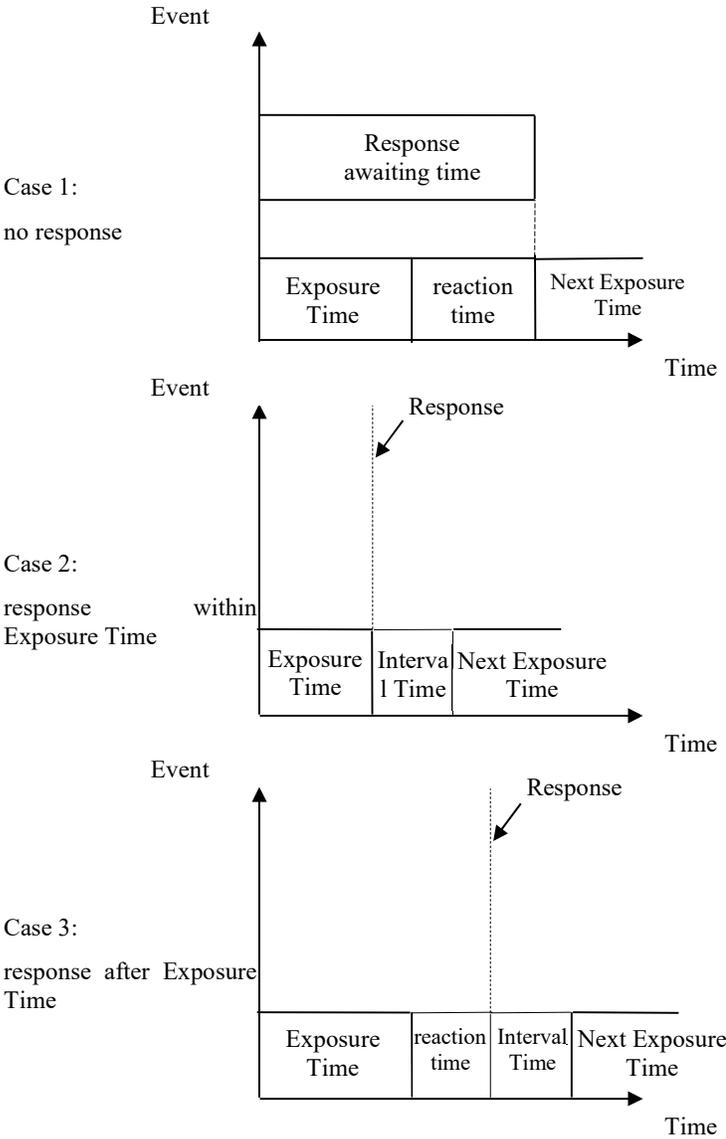
Figure 59. Time relations between light points

10.2.14. Adaptive Time Option

The system can automatically adapt time settings to the individual patient based on how quickly the patient responds to exposures. This option can be enabled by ticking the Use Adaptive Time Option checkbox in the Advanced... section of the test settings (Figure 44. Static examinations tab).

The adaptive algorithm reduces or extends the exposure time, reaction time, and interval time depending on the individual mean reaction time during the test.

Adaptive Exposure Time – This is the mean reaction time minus 0.1s, no shorter than 0.2s and no longer than the set exposure time.

Adaptive Reaction Time – This is the mean reaction time plus 0.4s.

Adaptive Interval Time – Twice the reaction time, no shorter than 0.6s and no longer than the set interval time.

If the adaptive time mechanism is enabled, it is recommended to extend the time settings by 0.2 s for reaction time and interval time as compared to the default values. The adaptive time algorithm will reduce the time settings appropriately to the tested patients.

10.2.15. Sensitivity settings for BDT

Tests for drivers are a specific type of visual field testing where the stimuli intensity is constant at any point within the visual field. As a default, the brightness level is set to according to the current standards:

Green stimuli (1000asb max, 10asb background): 5dB.

White stimuli (10000asb max, 31asb background): 10dB

10.3. Test Programs

It can be time-consuming to adjust all test settings before the test. If some of the settings are regularly used for tests of patients with suspicion of specific visual defects, it would be a nuisance to set the same parameters over and over again. To simplify working with the instrument, test templates, or test programs can be created.

Title of the Programs page

List of existing test programs

Program name input field (new or edited).

Save and Delete buttons.
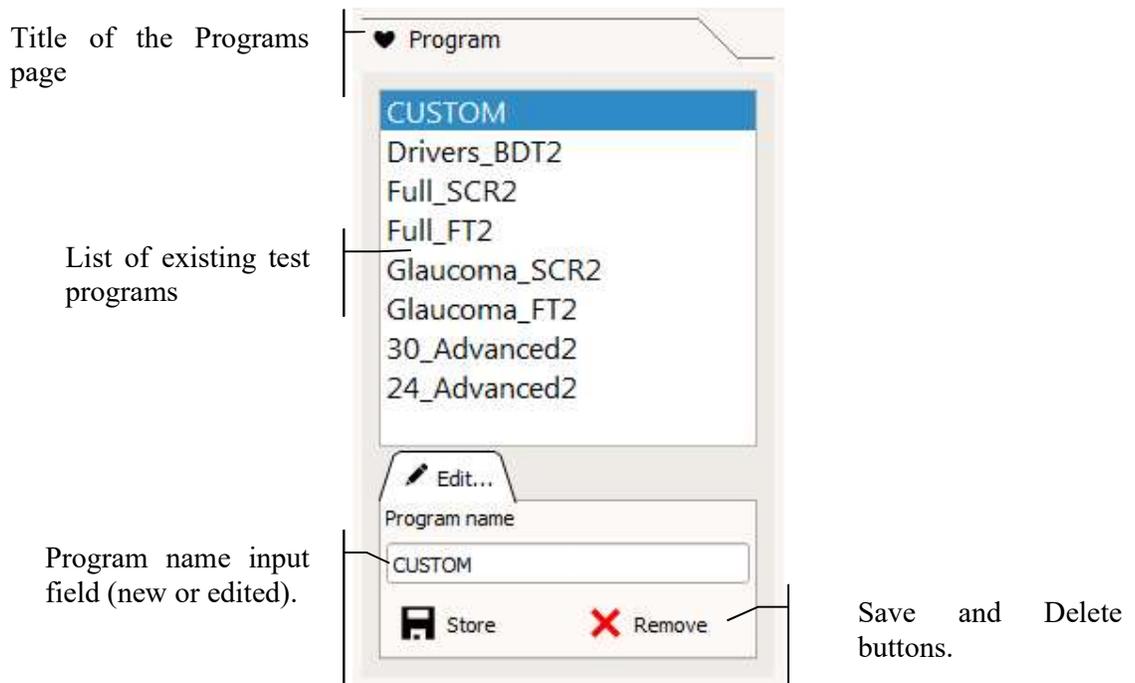
Figure 60. Test programs

Test Programs includes pre-set values of the following parameters:

- test strategy
- test field
- reliability tests
- central fixation target
- test field modification options
- bracketing of threshold strategies
- determination or pre-set value of the initial stimuli level
- stimulus color
- stimulus time parameters
- BDT sensitivity

After the test program has been loaded and before the test begins, the settings can be modified and adapted on a case-by-case basis – the settings of the stored test program will not be modified.

10.3.1. Managing the test programs

Types of test programs:

pre-defined – Can be accessed after the application has been installed

user-defined – Created by users

New program – To create a new test program, proceed as follows:

Change the test settings to the target settings to be brought up after the test is selected.

Enter the name for a new test program in the name input field.

Click the Save button below the name input field.

Modify – To modify an existing test program, proceed as follows:

Select the test program you want to edit from the list of existing test

Change the test settings to the target settings to be brought up after the test is selected.

Click the Save button below the name input field.

Confirm modification of the existing program in the warning box.

Delete – To delete a test program, proceed as follows:

1. Select the test program you want to delete from the list of existing test programs

2. Click the Delete button below the name input field.

3. Confirm deletion of the existing program in the warning box.

Create a new program from an existing one – To create a new test program from an existing one, proceed as follows:

1. From the list of existing test programs, select the one you want to use to create a new one.

2. Change the test settings to the target settings to be brought up after the test is selected.

3. Enter the name for a new test program in the name input field.

4. Click the Save button below the name input field.

Hiding a program for the Program Page of the Exam Wizard – to hide a program, select it and click on the filled heart symbol. The symbol will change to an unfilled heart symbol, which means that the program will be hidden on the Program Page. To restore the visibility of the program, click again on the symbol of an unfilled heart. The symbol fills with color again.

10.4. *Retesting – uploading settings from previous tests*

If a patient has been tested in the past, another test can be performed by relying on the test parameters used with the previous tests. This way, two test results can be compared and the disease progress can be monitored.

You can easily upload previous test settings for a selected patient who has been tested before. In addition, you can also use initial stimuli levels calculated from the previous test results to reduce the test duration.

To view and select a source test for retesting, use the list of tests to the left of the test settings box on the Follow Up page (Figure 61. List of Source Tests for Follow Up).

Figure 61. List of Source Tests for Follow Up

The List of Source Tests for Follow Up includes all previous tests of the current patient for the eye selected in the eye settings (Figure 61. List of Source Tests for Follow Up).

The following settings will be uploaded from the selected source test:

- strategy
- test field
- reliability tests
- correction lens settings
- central fixation settings
- calibration level (pre-set value from the source test)
- stimulus color

The selected source test results are shown in the test preview window.
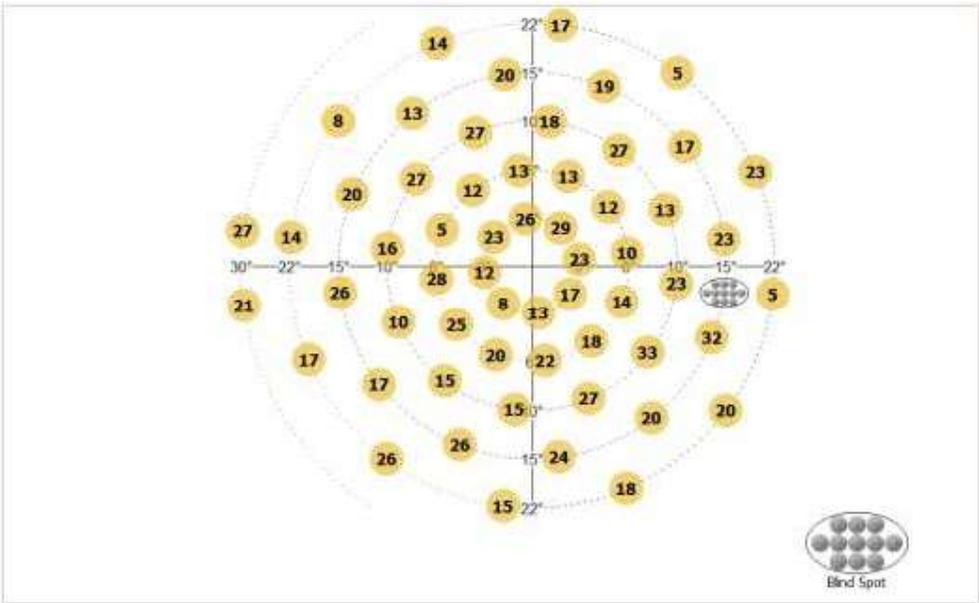
Figure 62. Source test preview for Follow Up

✓ After the settings have been uploaded from the source test, the test parameters can be modified as in any other standard test. You can change the test field value, for example, and leave other parameters unchanged.

10.5. *Adjustment of the chin rest*

The position of the tested eye should be properly adjusted. It should be placed exactly opposite the fixation point shown in the video image from the eye camera.

To correctly position the eye, adjust the height of the chin rest using the indicators displayed in the camera window or activate automatic chin positioning, more on this in Chapter 12.2.12.

Another way to change the eye position is to left mouse button click on the center of the pupil in the camera viewing area. This will move the chin so that the pupil is in the center of the camera viewing area

Buttons for adjusting the brightness of the

Adjust the chin rest up/down

Adjust the chin rest left/right (PTS

Activate/deactivate Head Tracker
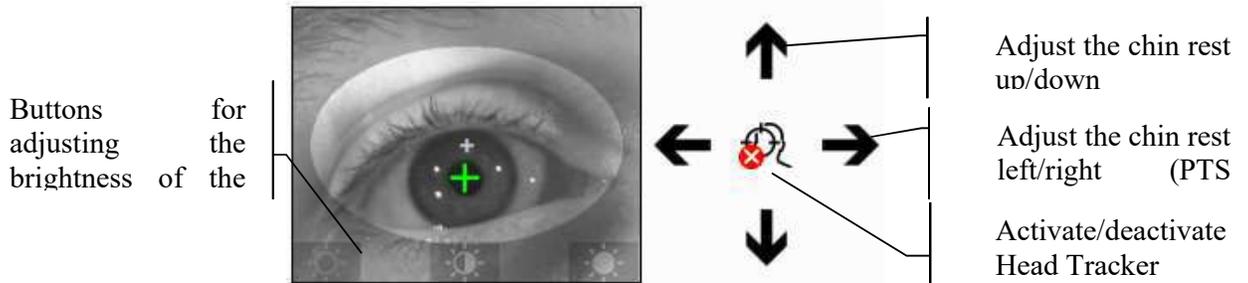
Figure 63. Indicators of the chin rest adjustment and automatic chin positioning button

The eye should be placed within the ellipse area which is drawn in camera preview. The center of the pupil should be aligned with a small crosshair in the middle of the elliptical region.

ⓘ During the examination, the chin adjustment arrows become inactive until a pause, and the change in the chin position will be applied after the current stimulus exposure is completed.

10.6. *Camera image brightness adjust*

The buttons at the bottom of the picture above (Figure 63. Indicators of the chin rest adjustment and automatic chin positioning button) adjust the brightness of the camera image. And so, clicking on the button from the left will dim the image by one step, clicking on the button from the right will lighten the image on step and clicking on the middle button will restore automatic brightness adjustment of the camera image. Manual adjustment saves a new brightness value that is assigned to the currently selected stimulus color. After restarting the application, the brightness of the camera image will be set depending on the last action taken − the brightness can be adjusted automatically or set to the last selected brightness value related to the selected stimulus color.

10.7. *Changing the language of the examination messages*

Both before and during the examination, the application provides the ability to change the language of the voice messages played during the examination. Changing the languages does not affect the language of the text messages. To change the language of the voice messages, select the appropriate language from the drop-down list marked with a red rectangle, as shown in the figure below:
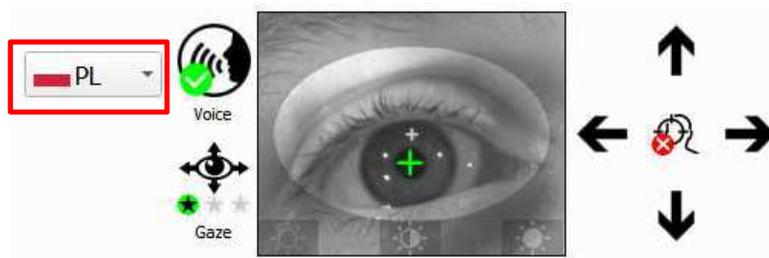
Figure 64. Drop-down list with voice prompt language selection (red rectangle)

10.8. *Controlling a test in progress*

To control a test in progress, i.e.:

Start a new test

Pause a test

Resume a paused test

Cancel / close a test in progress

Start a test in the demo mode

use the buttons located over the test preview window, as shown on the figure below.

Figure 65. Test controls when the test is stopped (left) and running (right)

Start – Use this button to start a test using the selected test settings. If the current test has been paused, press Start to resume the paused test. The Start button is replaced by the Pause button when the test is started.

Pause – Use this button to pause the current test. If the test has been paused, a flashing TEST PAUSE message will appear in the test preview window. The Pause button appears when the examination is started and is replaced by Start button when the examination is paused.

Stop – Use this button to stop the current test. The test will be abandoned and the test results will be deleted or incomplete. If at least 3 test points have been tested, the incomplete test results can be saved ("Resuming an unfinished test"). Confirm that you want to close the test in the Warning window.

Demo – Use this button to start a test in the demo mode. The test results cannot be saved in the demo mode. Click Stop to close the demo mode.

BS Retest – Use this button to call the Blind Spot reevaluation procedure - thesis useful in case of H-K errors constantly reappearing or when patient has been repositioned after the pause.

11. *Kinetic examination*

Kinetic examination is the visual field evaluation technique which uses moving stimulus to test the patient's extents of vision. This technique can be successfully used to test the large areas in acceptable time on the cost of the sensitivity.

This chapter describes the Kinetic examinations tab

- course of kinetic examination
- setting the test parameters
- managing the test programs
- adjusting the view

> Kinetic examination is available only for projection perimeters (i.e. PTS 2000). For static perimeters the Kinetic examination interface is not available.

11.1. *Interface of the Kinetic examinations tab*
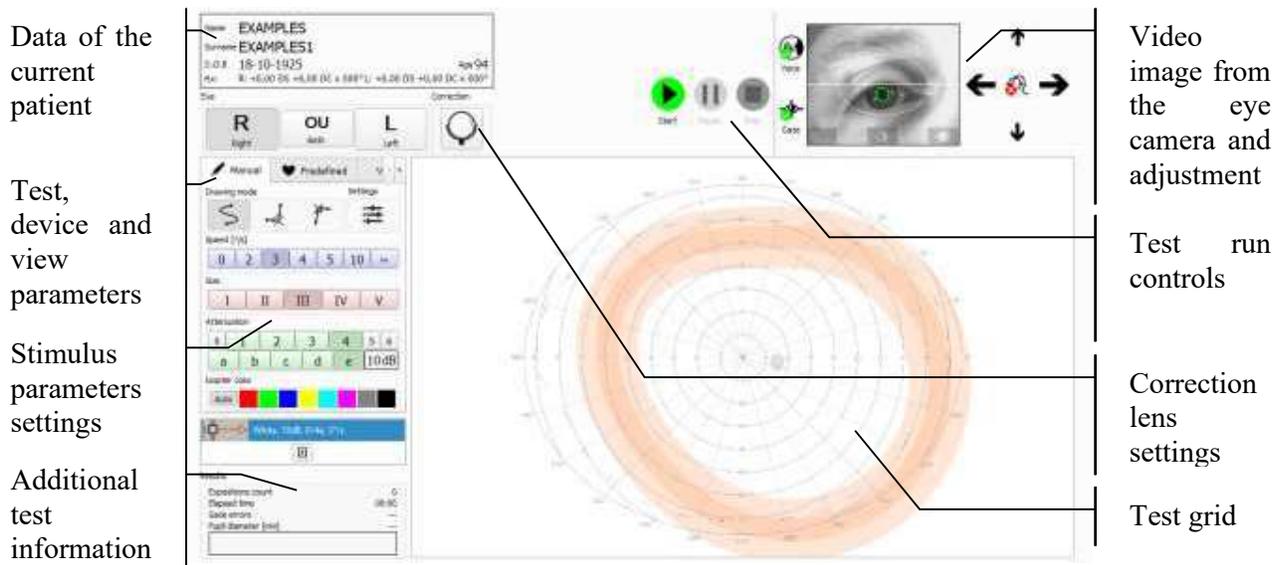
Figure 66. Kinetic examinations tab

11.2. *Course of manual kinetic examination*

The examination consists in selecting stimulus parameters, including size, brightness, color and speed. Then, the operator draws the stimulus movement trajectory using a mouse. The device connected to a computer reproduces the stimulus movement path on the bowl in a continuous manner. The task of the patient is to look at the fixation point and press the reaction button whenever the stimulus appears within his field of view (unless the operator instructs otherwise).

In a standard examination scenario, the operator begins the examination by clicking "Start" button. Then, he presets stimulus parameters. The stimulus appears on the perimeter bowl upon pressing left mouse button in the vectors editing field called "Test grid". Location of the stimulus on the bowl corresponds to position of the cursor in the "Test grid" at which the mouse button was clicked. Movement trajectory is registered whenever the mouse button is held depressed. Stimulus movement on the perimeter bowl will begin upon reaching the minimum length of the movement trajectory. At that time, any further movement of the mouse cursor on the screen will effect in the further registering of trajectory. The stimulus goes off upon the patient's reaction, or upon completing the entire movement trajectory on the bowl.

If the patient reacts to the displayed stimulus - be it static or moving - patient reaction symbol will be drawn in the trajectory area. The shape and color of the symbol depends on the stimulus parameters set, and may be verified on the "List of stimulus parameters settings used in the examination". In case of no reaction from the patient, no additional markers will be displayed in the trajectory area.

It is possible to erase/hide trajectory along with reaction markers during the examination, if they are deemed useless or erroneous. This is done with the right mouse button. To erase/hide trajectory along with marker, point the cursor to the trajectory to highlight it, and then click the right mouse button to open the context menu. Erasing will remove the trajectory permanently and cannot be undone. Hiding will only make the trajectory faded and will reject it from isopteran analysis.

The examination is completed by clicking "Stop".

11.3. Selecting the eye

The eye to test can be selected with a set of pushbuttons on the left side of the Kinetic examinations tab.

Figure 67. Eye selection buttons

Click the appropriate button to change the tested eye. L, OU, and R abbreviations mean Left (left eye), oculus uterque (both eyes), and Right (right eye) respectively. The symbols are used in the interface and test reports to save space.

When the eye to test is changed, the location of the blind spot area in the test preview window changes as well.

11.4. Test controls

Test controls are used to adjust the testing stimulus parameters in manual kinetic examination mode. The following parameters can be adjusted:

- stimulus path drawing mode
- color
- movement speed
- size
- intensity / attenuation

"Freehand" drawing mode

"To point" drawing mode

Stimulus size selectors (Goldmann

Stimulus intensity/attenuation selectors

"From point" drawing mode

Additional settings panel: stimulus color, fixation type, snap to grid

Stimulus movement speed in degrees per second

Effective attenuation of the stimuli relative to maximum intensity

Isopters colors from palette
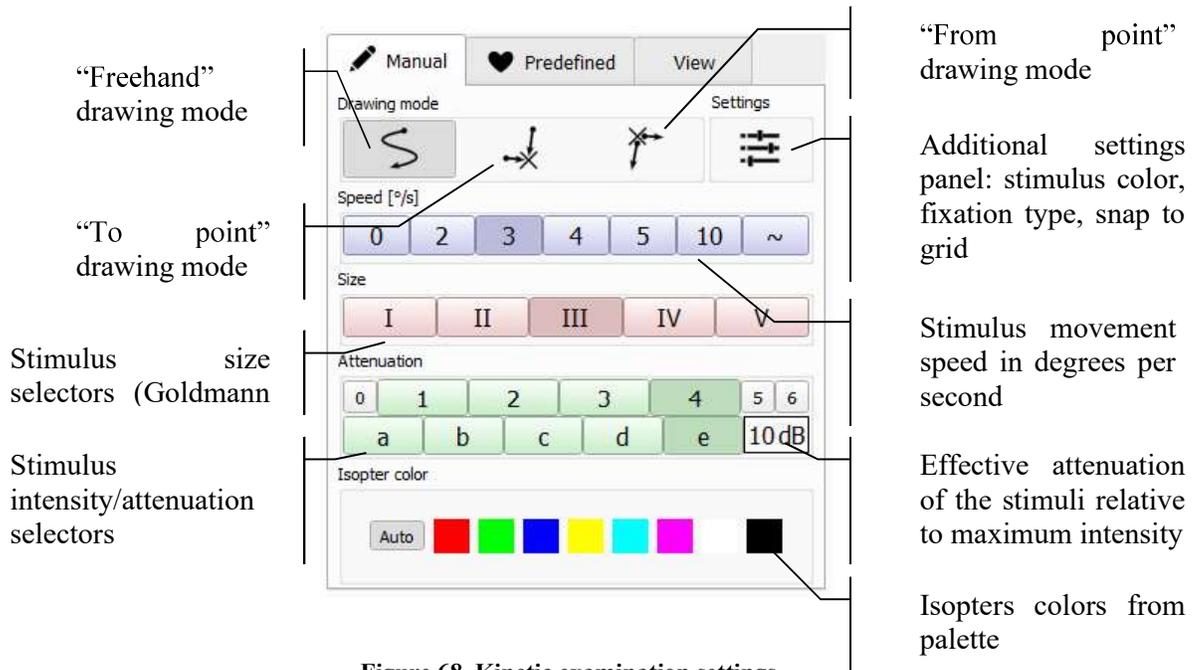
Figure 68. Kinetic examination settings

11.4.1. Stimulus path drawing mode

Movement trajectory may be drawn in three modes:

- "Freehand"
- "To point" – using the "End point" marker: **X**
- "From point" – using the "End point" marker: **X**

Application does not allow to create two input vectors with exactly the same parameters (color, intensity, size, speed, start position, end position, movement path points).

11.4.1.1. "Freehand" stimulus path drawing mode

This is the default mode of manual kinetic examination. In this mode, the operator may draw the trajectory freely in almost unrestricted way. This means that the stimulus movement path can be twisted in any way preferable, and movement speed can change at each section of the path drawn.

Clicking left mouse button at selected location in the Test grid will cause the perimeter device to set and light up the stimulus on the bowl at the respective location inside the bowl. By holding left mouse button depressed and moving the cursor, a trajectory is drawn from the cursor's starting position and it is updated along the mouse movement. Releasing the left mouse at any location will end stimulus path creation and will point a location in which the stimulus is turned off.

11.4.1.2. "To point" stimulus path drawing mode

In this mode it is possible to draw only paths consisting of linear sections with preset speed. These paths may be created by manually constructing the straight segment or by using a selected end point.

The first method allows to draw a vector with any desired end position. Clicking left mouse button at selected location in the Test grid will cause the perimeter device to set and light up the stimulus on the bowl at the respective location inside the bowl. By holding left mouse button depressed and moving the cursor, a linear vector is drawn from the cursor's starting position up to the current position. Releasing the left mouse button at the given location will end vector creation. At this point, the perimeter will begin movement of the stimulus along the vector drawn, and at preset speed.

The second method employs the vector "End point" marker **X**. Clicking left mouse button at selected location in the Test grid will cause the perimeter device to set and light up the stimulus on the bowl at the respective location inside the bowl. Releasing the left mouse button at the same starting point will cause a vector to be drawn all the way from the starting position to the vector "End point" marker **X** position. The perimeter will begin movement of the stimulus along the vector drawn, and at preset speed. "End point" marker **X** position can be changed by "drag & drop" method using the left mouse button.

11.4.1.3. "From point" stimulus path drawing mode

In this mode it is possible to draw only paths consisting of linear sections with preset speed. These paths may be created using a selected end point. Clicking left mouse button at selected location in the Test grid will cause the perimeter device to set and light up the stimulus on the bowl at the selected "End point" marker **X** and begin movement of the stimulus along the vector to the location defined by the click position. "End point" marker **X** position can be changed by "drag & drop" method using the left mouse button.

11.4.2. Selection of stimulus movement speed

The 7 buttons located in the upper part of the stimulus settings panel are used to select stimulus speed in manual kinetic mode.

Figure 69. Stimulus movement speed controls

The speed is expressed in degrees per second ([°/s]). At small stimulus speed, the impact of patient's reaction delay on the position of the reaction registered is minimized. It is recommended not to exceed 10 °/s.

Stimulus speed values have the following effect on the operation of the system:

"0 °/s" - at this setting, the stimulus appears on the perimeter bowl upon pressing left mouse button, and at the location corresponding to the location of the cursor in the vectors editing area. The stimulus disappears upon the patient's reaction, or upon releasing the left mouse button. The stimulus cannot be moved in this setting - it will merely appear and go off at the starting point, regardless of any mouse movements.

"2-10 °/s" - speed of the stimulus movement on the bowl will be limited to the selected value, even if the user has drawn the trajectory with a mouse at higher speed. Additionally, an arrow head will be added to the trajectory drawn, indicating stimulus movement direction. The length of the arrow head will increase in proportion to the speed selected.

"~" - speed of stimulus movement on the bowl will only be limited by the device capacity 50°/s). In this setting, the color of the trajectory drawn on the screen will change depending on the stimulus speed resulting from the mouse movement. For speeds ≤10°/s, the trajectory drawn will be in the default color resulting form the intensity and size of the stimulus (ranging from green to red). For speeds >10°/s, the trajectory will be drawn in magenta.

11.4.3. Selection of stimulus size

The 5 buttons located on the stimulus settings panel below the speed buttons are used to select stimulus size in Manual Kinetic. The operator may select one of 5 Goldmann sizes: I, II, III, IV, V. Remember that the smaller the stimulus, the more difficult it will be for the patient to locate it. An excessively large stimulus, on the other hand, may result in omitting smaller defects and impact sensitivity of the examination. Each stimulus size has a different reaction symbol displayed by the program:

size I - ○

size II - △

size III - □

size IV - ◇

size V - ▽

11.4.4. Selection of stimulus brightness

Stimulus brightness in Manual Kinetic is selected using two groups of buttons located on the stimulus settings panel. Group I of buttons marked from 0 to 6 is used to change stimulus brightness at 5 dB increments.
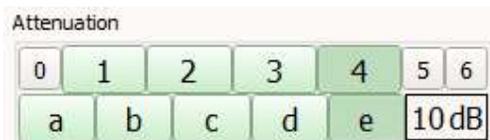
Figure 70. Stimulus intensity/attenuation controls

Group II of buttons marked from **a** to **e** is used to change stimulus brightness by at 1 dB increments. Initial brightness of the stimulus displayed on the bowl is the result of maximum stimulus brightness for the given colour, as defined in the system, and of any modifiers chosen. The resulting retinal sensitivity that may be examined using the given stimulus brightness (assuming that stimulus of Goldmann size III is used) is specified below the buttons in decibels [dB].

The values of brightness modifiers for both button groups are as follows:

Group I		
0	-30 dB	
1	-25 dB	
2	-20 dB	
3	-15 dB	
4	-10 dB	
5	-5 dB	
6	-0 dB	

Group II	
a	-4 dB
b	-3 dB
c	-2 dB
d	-1 dB
e	-0 dB

Example 1: For white stimulus and **4e** modifiers setting, the perimeter will display a stimulus of maximum brightness 10000asb, modified by -10dB. As a result, a stimulus of circa 1000 asb brightness will appear on the bowl.

Example 2: For white stimulus and **6b** modifiers setting, the perimeter will display a stimulus of maximum brightness 10000asb, modified by -3dB. As a result, a stimulus of circa 5000 asb brightness will appear on the bowl.

11.4.5.   Setting an isopter color

By default, the isopter's color is generated based on stimulus parameters such as size and color. The "Isopter color" window (Figure 71. Setting an isopter color) allows you to manually define the color of the currently selected isopter, both during examination and in the examination review in the "Results" tab.

Figure 71. Setting an isopter color

To select a different isopter color, it is possible to replace the selected color from the window above with any color available from a wide range of colors. To do this, double-clik the left mouse button on the color you want to replace. A window will be displayed with the entire range of colors to choose from (Figure 72. Color palette):
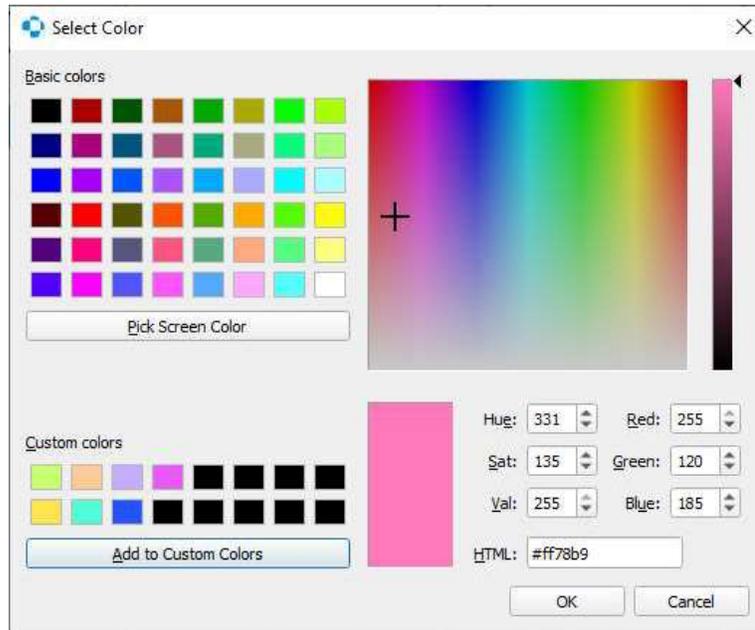
Figure 72. Color palette

Each time the color of an isopter is selected, this information is saved together with the selected stimulus settings. This means that when you select settings to which a certain isopter color was previously assigned, that color will be automatically selected.

11.4.6.   Additional kinetic settings

Panel with additional settings for kinetic examinations mode is available after pressing the "Additional settings" button.

Figure 73. Additional kinetic settings

11.4.6.1. Kinetic stimulus color

The default white color of the stimulus can be changed to green, red or blue according to operators preferences. The change in stimulus color will affect the vectors which are drawn afterwards. Information about stimulus color can be read form kinetic vectors and reaction points. The arrowhead and reaction symbols are filled with white, light green, light red or light blue colors respectively to white, green red and blue stimulus colors. If the stimulus is static, then the "no reaction" result (circle) is filled with black, dark green, dark red or dark blue colors respectively to white, green red and blue stimulus colors (Figure 74. List of kinetic parameters settings).

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11.4.6.2. Bowl fixation target

It is possible to change the bowl fixation target from the default single point fixation to the diamond shape pattern. This can be helpful in case of patients with defects in foveal area.

Changing the fixation target from single point to diamond shape, changes the bowl area available for testing. It is not recommended to change the fixation target when some of vector paths has already been drawn.

11.4.6.3. Snap to grid

To help in drawing vectors manually in repeatable way, application offers the "snap to grid" function. When "Snap to grid" is active, all vector paths, start points, end points, intermediate points are placed in the grid point which is closest to the current mouse cursor position. The size of the used grids can be changed to the following ones:

- 1° - the meridian and radius of the cursor position in polar coordinate system are rounded to the nearest integer with 1° step size

- 5° - the meridian of the cursor position in polar coordinate system is rounded to the nearest integer with 5° step size, the radius is rounded with 1° step size

- 10° - the meridian of the cursor position in polar coordinate system is rounded to the nearest integer with 10° step size, the radius is rounded with 1° step size

- 15°- the meridian of the cursor position in polar coordinate system is rounded to the nearest integer with 15° step size, the radius is rounded with 1° step size

- Off - the meridian and radius of the cursor position in polar coordinate system are not rounded

11.4.7. List of stimulus parameters settings used in the examination

While performing manual kinetic examination, each stimulus setting used in the examination is added to a list and displayed in the right section of the examination window as "Vectors list".

The vectors list allows to view and restore previously used stimulus settings in order to continue examinations with previous settings. After clicking an item on the list, all corresponding stimulus parameters (speed, size, brightness, colour) will be set in the current stimulus settings field. Additionally, all results that were generated with the use of current stimulus settings are always displayed on the examination area at full colour intensity. The results corresponding to other settings are greyed out. This allows for easier orientation as to which results on the screen come from which stimulus settings.

Figure 74. List of kinetic parameters settings

The user can clone the settings of stimulus parameters which will allow performing an examination with the same stimulus parameters multiple times during an examination. To clone the given settings, first select them from the list and then click the button with the "+" symbol located below the list of stimulus parameters (Figure 75. Clone stimulus parameters button):

Figure 75. Clone stimulus parameters button

After pressing the above button, a new position will be added to the list of stimulus parameters.

11.5. *Predefined tests*

The kinetic test can be carried out in manual way like in classic Goldmann perimeter approach, or in semi-automatic way. The semi-automatic way uses the predefined vectors path as a vectors trajectories. User can use some of built-in factory predefined paths and can also construct and store his own paths. To control the use of predefined paths use the "Predefined" tab in "Kinetic examination" window.
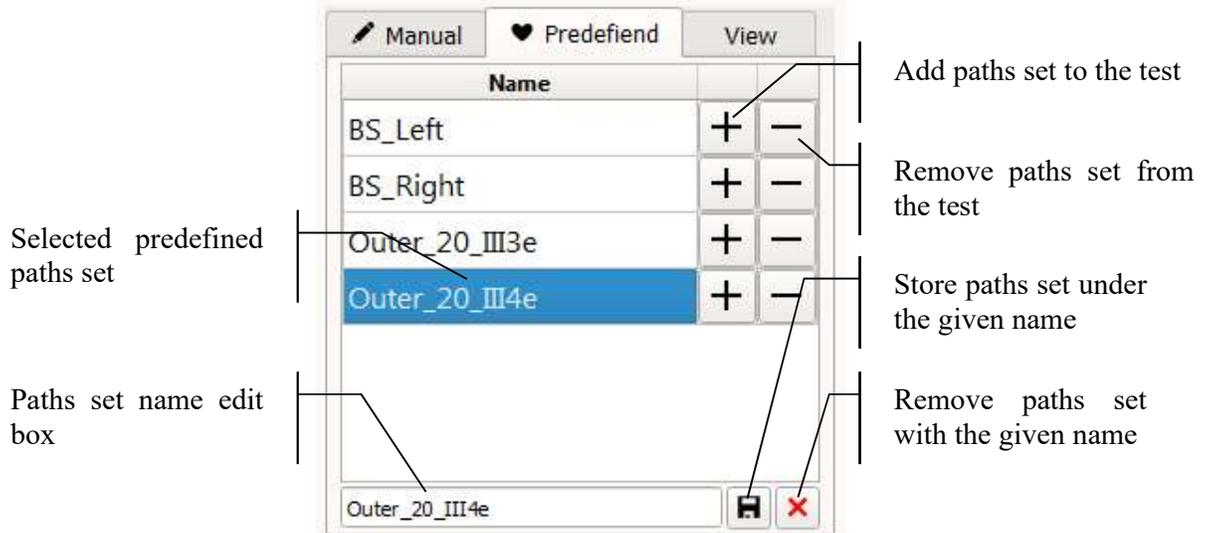
Figure 76. Controls of predefined kinetic test paths

11.5.1. Adding/Removing/Testing paths from predefined set

To add the testing paths from predefined set, open the "Predefined" tab and click the "+" button next to the chosen set's name. This will make all the paths that are stored in the set to appear in the "Test grid".

To remove the testing paths which were added and not yet tested, click the "-" button next to the chosen set's name. This will cause the removal of the paths form the "Test grid".

If the test is not actually running, then to test the added paths, press the "Start" button in "Test run controls" area.

You can add paths from several sets and all of them will be tested. This allow to construct the functional kinetic tests in a flexible way.

11.5.2. Creating/Editing/Removing predefined paths sets

User can use the built-in paths sets or can create and use self-created sets.

11.5.2.1. Creating predefined paths sets

The best way to create the paths sets is to open the "Kinetic examination" window and start drawing the preferred vectors paths in "Stopped" test mode. In case of any mistakes the paths can be removed and redrawn until the desired configuration is created. Once it is done, user can enter the new paths set name in the edit box under the paths sets list and click the "Store" button.

11.5.2.2. Editing predefined paths sets

The easiest way to modify the existing paths set is to open the "Kinetic examination" window in "Stopped" test mode. User should select the set to edit from the paths sets list and click the "+" button to add the paths to the "Test grid". Then the paths can be added and removed according to user's needs. Once it is done, user should leave the original set's name in the edit box under the

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paths sets list and click the "Store" button.

11.5.2.3. Removing predefined paths sets

To remove the predefined paths set the "Predefined" tab in kinetic test controls area should be opened. Then user should click the name of the set to be removed so its name appears in the name edit box under the list. To remove the set the "Remove" button should be clicked. This operation cannot be undone.

11.6. Kinetic result view controls

The Kinetic result view controls are used to adjust the visualization of the test result in the test grid. They allow to improve the look of the result and make the analysis easier.
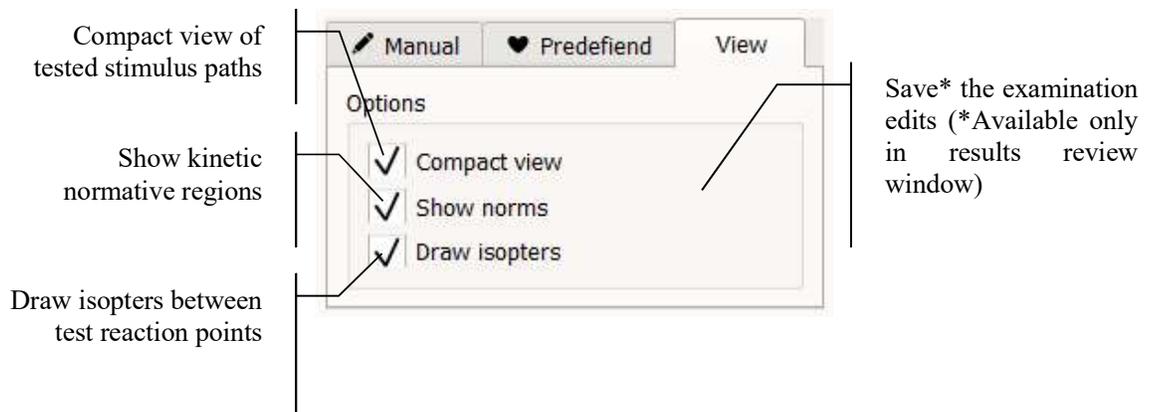
Figure 77. Controls of kinetic examination view

11.6.1. Compact view of the tested paths

When the "Test grid" contains a large numbers of tested trajectories the view of the result becomes obscured. It is hard to analyze such results set. In order to improve the quality of view, the software offers "Compact view" option.

When "Compact view" option is activated by setting the "Compact view" checkbox in the "View tab", all test paths which were ended with patient reaction are reduced to a short segment. This segment shows the direction of the movement at the moment of the reaction so the seen/not seen area can be stated.
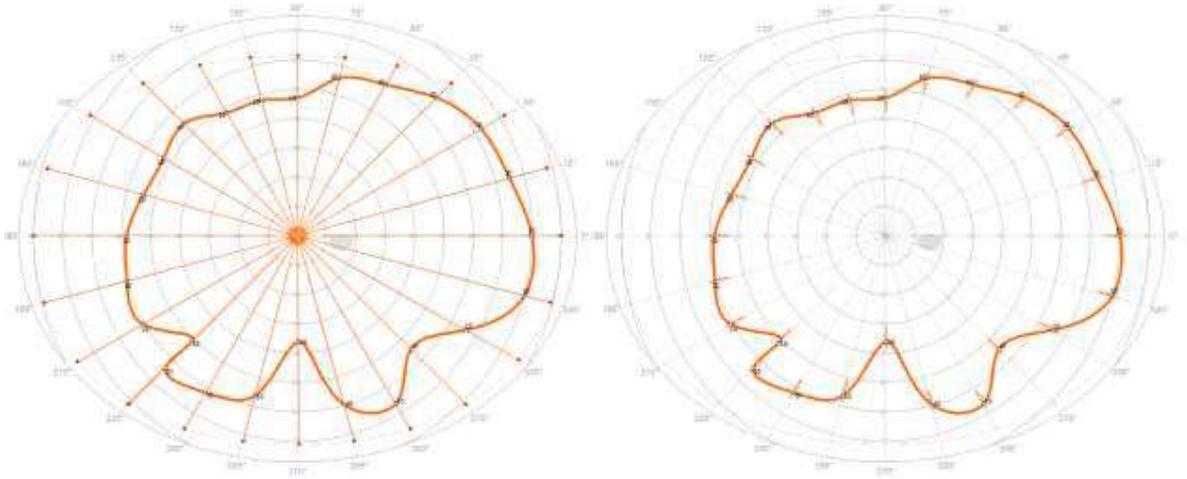
Figure 78. Kinetic paths and isopters view in normal (left) and compact (right) mode

> ✔ The compact mode does not affect paths without patient reaction. This helps to identify whole regions in which patient did not see the stimulus.

11.6.2.   Age normative regions for kinetic tests

To help the user in judging the kinetic examination result, the application offers displaying of age normative regions under the test grid. To show/hide the age normative regions use the "Show norms" checkbox in "View" tab.

Each age normative region has a form of the closed ribbon. Ribbons have got the central area colored with the intense color and peripheral area with faded color. Ideally the isopter which is constructed form kinetic result test points should lay within the central area of the normative region.

Central area of normative region

Peripheral area of normative region
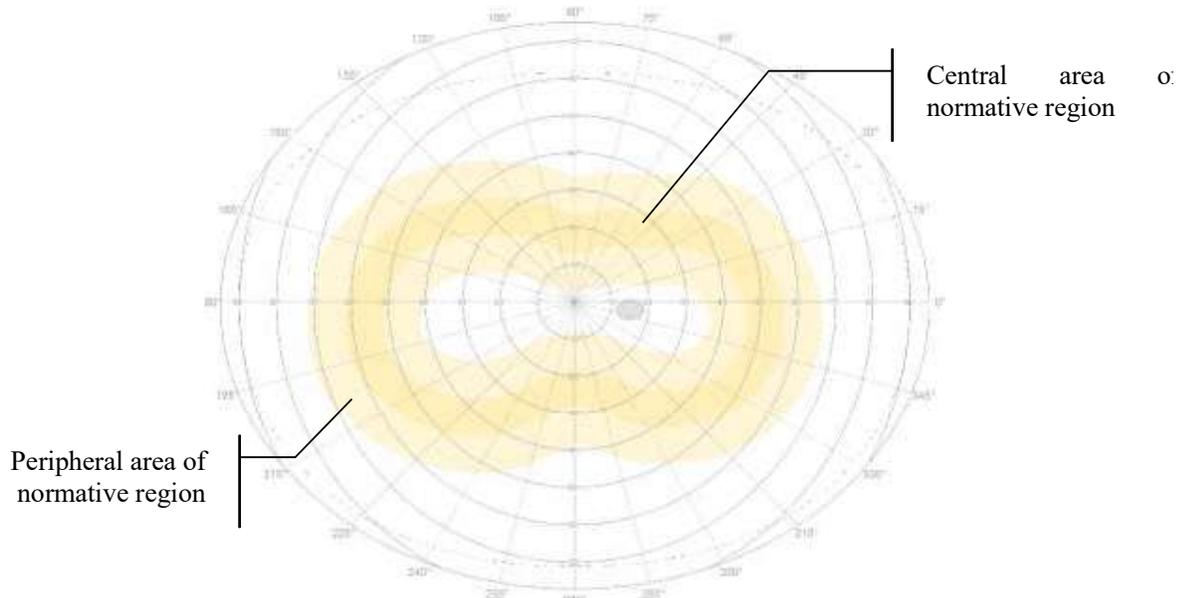
Figure 79. Normative region view in kinetic result

The color of the normative region is correlated with the color code of the stimulus parameters. It means that different stimulus parameters (size and intensity) produce the test paths and isopters of a specific color code. The same color code is used to denote the normative region valid for that stimulus parameters.

✔ When the normative regions are overlapping then the stacking order is set to show the smallest regions on top. During the test, try to use the stimulus with a significant difference between normative area sizes. Otherwise it will be difficult to compare resulting isopters to their normative sizes.

✔ To compare a particular resulting isopter to its normative region, user can select the adequate stimuli parameters from the parameters list. This will cause all other isopters and their normative regions to disappear form the "Test grid".

11.6.3. Automatic isopters outlining

Application offers the automatic isopters outlining with use of reaction points. To show/hide the automatic isopters use the "Show isopters" checkbox in "View" tab.

Automatic isopters outlining uses reaction points form the testing paths. To outline the isopter, only these reaction points are taken, which were registered during the stimuli movement. This rejects all static points (with speed set to 0°/s) as they usually denote the "seen" area and not the "seen" area boundary like isopter do.

In case that the isopter is faultily constructed because of some invalid result point, this point can be rejected from the isopter. To reject or include back the selected point form isopter, use the right mouse button click over that point. This opens the context menu with three possible options:

 Remove – to permanently remove the path and reaction point (if this option is used in the "Results review" tab, this change needs to be manually saved to database afterwards by clicking "Save edits" button).

Reject – to mark the path and its reaction point as rejected. This causes that the reaction point is not used in the automatic isopter construction and both path and its reaction point are displayed dimmed in the "Test grid". (To permanently mark the path and the reaction point as rejected, this change needs to be manually saved to database afterwards by clicking "Save edits" button).

Include – to mark the rejected path and its reaction point as normal. This causes that the reaction point is included back in the automatic isopter construction and both path and its reaction point are displayed normally in the "Test grid". (To permanently mark the path and the reaction point as normal, this change needs to be manually saved to database afterwards by clicking "Save edits" button).

Invalid reaction point manually rejected form the atomatic isopter

Invalid reactio point manuall rejected form th atomatic isopter
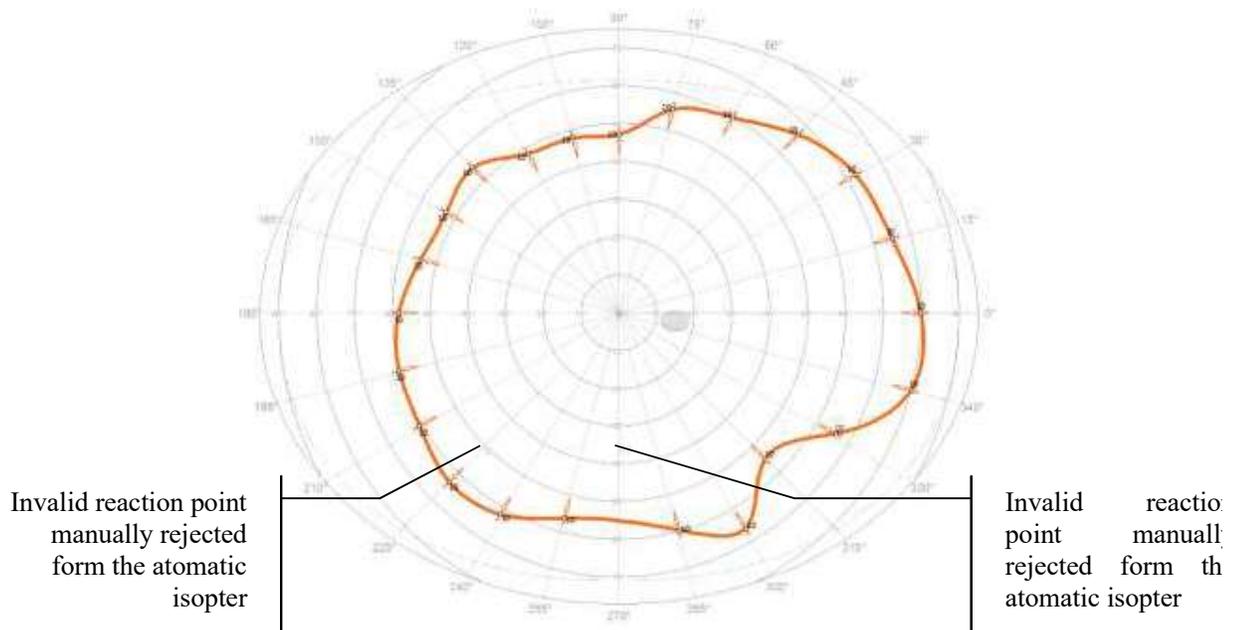
Figure 80. Autmatically outlined isopter

To outline the isopter, only these reaction points are taken, which were registered during the stimuli movement. This rejects all static points as they usually denote the "seen" area and not the "seen" area boundary like isopter do.

In case that the isopter is faultily constructed because of some invalid result point, this point can be rejected from the isopter. To reject or include back the selected point form isopter, use the right mouse button click over that point to open the context menu and select the "Reject" or "Remove" action.

11.7. *Isopters modifications*

In the review of the test results in the "Results" tab it is possible to change the way of connecting reaction points forming the isopter. This allows to correct errors resulting from the automatic generation of isopters. An example of such an error and its solution is presented in the figure below:
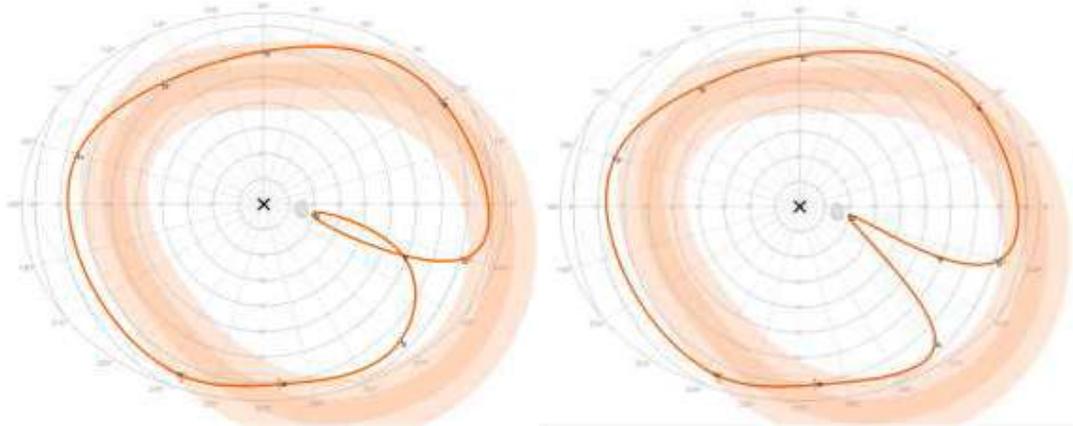
Figure 81. Incorrect field of view and its manual correction

To make corrections on an incorrectly generated field of view, select the reaction point that causes the error, and then move it to another fragment of the isopter. The isopter fragment is defined by a curve and limited by two other reaction points. If a given point is moved to such a fragment of the isopter, it will be redrawn again in such a way that it is in accordance with the new order of connecting points to that the moved point appears between the two points limiting the fragment of the isopter. Isopters can be freely transformed by changing the position of the points relative to the isopters, even in the case of two different isopters but with the same stimulus parameters. Please note that if modifying the isopter in the results review in the "Results" tab, to save changes the "Save" button must be clicked.

To change the shape of the incorrect field of view, hover the mouse over the given reaction point, whose background will be highlighted in green as in the picture below:
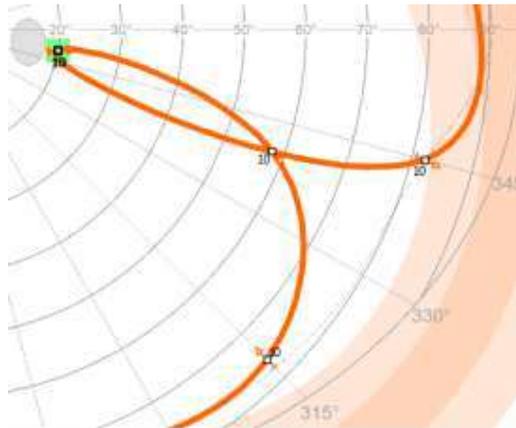
Figure 82. Reaction point chosen to field of view modification

Then, holding the left mouse button, move the selected reaction point to a fragment of the field of view bounded by two other reaction points. The sopter segment will be highlighted in green or

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red. Green means that a given poin can be moved to a given fragment () and red means that isopters are made of points with different stimulus parameters and these isopters cannot be modified in relation to each other ().
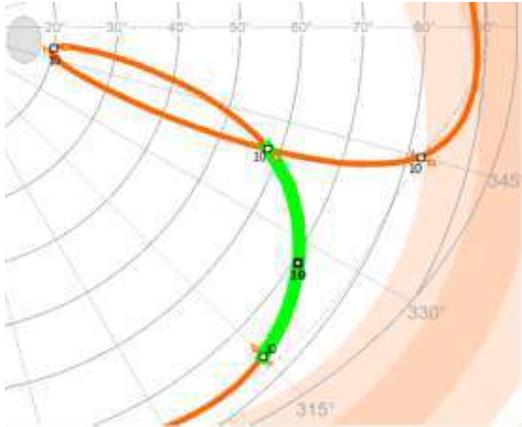
Figure 83. Field of view modification by changing the order of connected reaction points
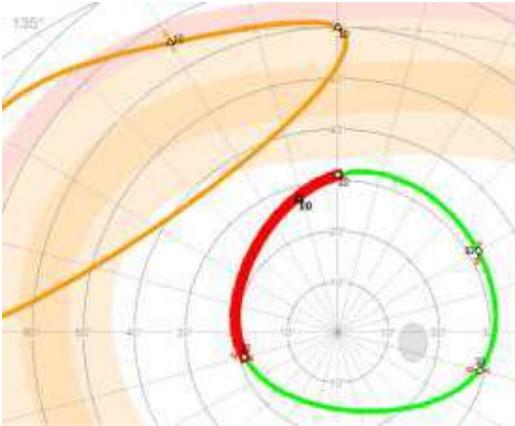
Figure 84. No possibility to change field of view because of differences between stimulus parameters

As a result of the above operations, the isopter will be redrawn. Its fragment is presented in the picture below:
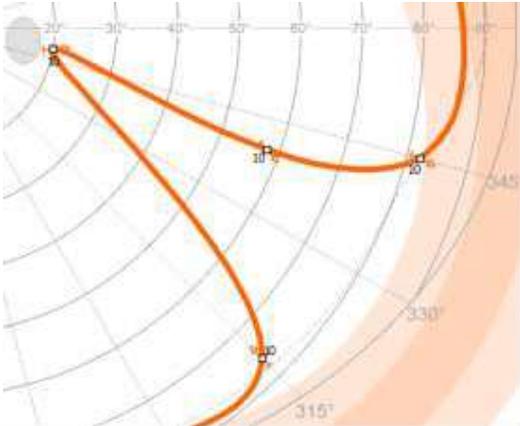
Figure 85. Fragment of the modified isopter

It is possible to disconnect a given reaction point from an isopter and to add it to a new isopter, which will be created with the same stimulus parameters. To do this, select a given reaction point by hovering over it with the mouse cursor. When the background of the reaction point is highlighted in green, right-click the "Add to new isopter" option:
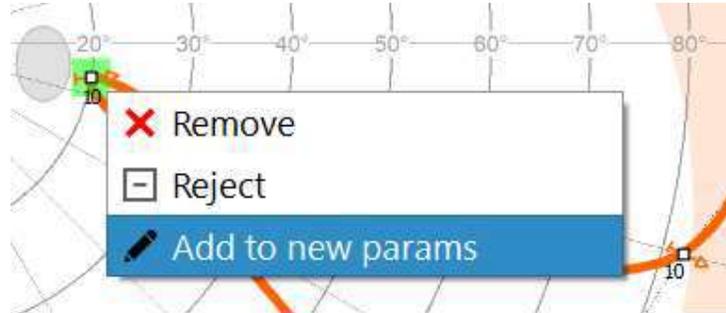
Figure 86. Disconnecting the reaction point and adding it to the new isopter

To add a different reaction point from other isopters (but with the same parameters) to a single point, select the point by clicking on it with the left mouse button, move the mouse over the given reaction point and release the left mouse button when the background of a single reaction point is highlighted in green:
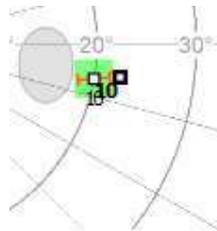
Figure 87. Adding reaction point to a single reaction point

This will create a pair of isopter's points that will create a line as in the following figure:
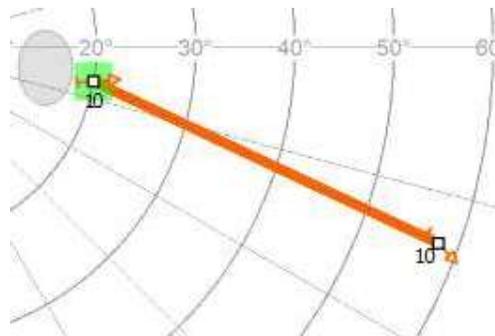
Figure 88. Two reaction points forming a line instead of an isopter

In the "Results" tab it is also possible to restore the shape of the isopter to the form of generated automatically, where the drawng direction of the isopter depends on the value of the angle on which the reaction points lie. To retest the isopter, right-click in the stimulus parameter settings selection widnow on the setting corresponding to the selected isopter:
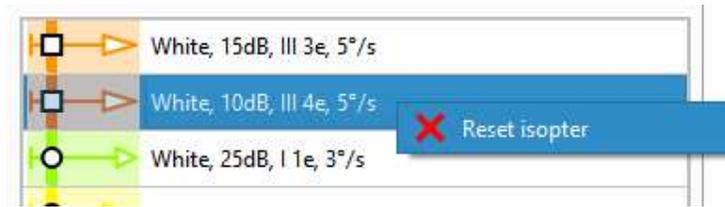
Figure 89. Resetting the isopter shape to automatically generated

After doing the above, the isopter will redraw automatically.

12. *Testing a patient*

The following chapter describes how to perform a visual field examination. The chapter describes the following activities:

- Preparing the room and the instrument
- Preparing and positioning the patient
- Starting a new exam
- Follow up testing
- Resuming an unfinished test

12.1. *Preparing the test*

For the test to be carried out correctly and to produce reliable and accurate results, you have to first prepare the instrument, the room, and the patient.

12.1.1. *Preparing the room and the instrument*

Visual field testing, due to its character and test duration, should be taking place at conditions comfortable for the patient. It will reduce fixation errors and improve the test reliability. Before starting the test, pay attention to the following:

- the room temperature should be comfortable.
- the room should be well ventilated, supplied with fresh air
- the room should be quiet and free of distractions
- avoid too much light in the room; all lights should be placed behind the instrument
- the patient should sit on a comfortable chair with adjustable height
- the table where the instrument is placed should be stable, with adjustable height
- for single-eye tests, use single chin rest, for double-eye tests — use double chin rest.

12.1.2. *Preparing the patient*

Before starting the test take some care in positioning the patient and ensuring he or she is aware of what will happen during the exam. Pay attention to the following:

- ask the patient to adjust the height of the patient chair; the operator should adjust the height of the instrument table to position the patient as comfortable as possible The patient should sit straight, without having to lean forward or stretch his / her body toward the instrument
- for monocular tests, the second eye should be obstructed with an eye cover so that the patient cannot see the perimeter bowl
- for patients with refraction of 1D or higher, use correction lens and enter the correction lens parameters in the test settings
- if correction lens must be used, make sure there is no other lens in the holder, and that the lens holder is tilted to the side

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- adjust the chin rest height so that the horizontal white line in the camera window passes through the centre of the pupil

- if the eye is significantly inclined to the left or to the right from the centre of the camera window, help the patient place the head in a correct position against the camera

- for tests other than examinations for diplopia, make sure the patient is able to see the single or quadruple fixation.

Before the test starts, instruct the patient as follows:

- the test can take from a few to up to several minutes

- tell the patient to look at the fixation point(s) in the centre of the perimeter bowl (except for diplopia tests)

- the patient should not avoid blinking

- ask the patient to press the response button:

for threshold, fast threshold, Screening, 2-zone, 3-zone, BDT strategies — when he / she sees the light point within the bowl

for CFF strategy — when the light point starts flashing

for diplopia test strategy — the response button should be pressed once if the patient sees a single light point, or twice if he / she sees two light points

- if the patient feels tired or inconvenient, he / she can pause the test by pressing and holding the response button for 3 seconds.

12.2. *Starting a new exam*

Before starting a new test:

- register a patient ("Patient registration") or activate the record of a registered patient from the list of patients

- prepare the patient for a test ("Preparing the patient")

- set the test parameters ("Test settings", "Test Programs")

- if you suspect the patient will not know how to behave during the test, run a test for several seconds in the demo mode ("Controlling a test in progress")

To start a test, press Start on the test control window ("Controlling a test in progress").

If correction lens is used in the test settings, you will be asked to insert the correct lens in the lens holder before the test begins.
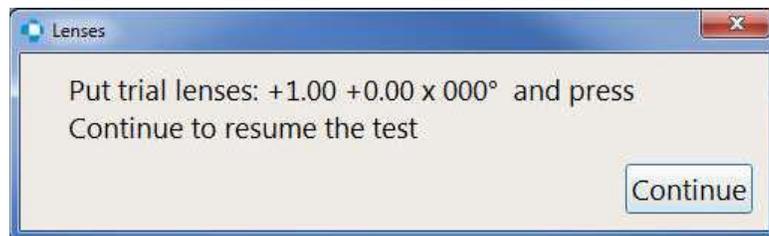
Figure 90. Insert Lens text message

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Press Continue to continue the test after the lens have been inserted in the holder.

12.2.1. Test Control window

The following information will be displayed on the Test Control window, in the Tests tab:
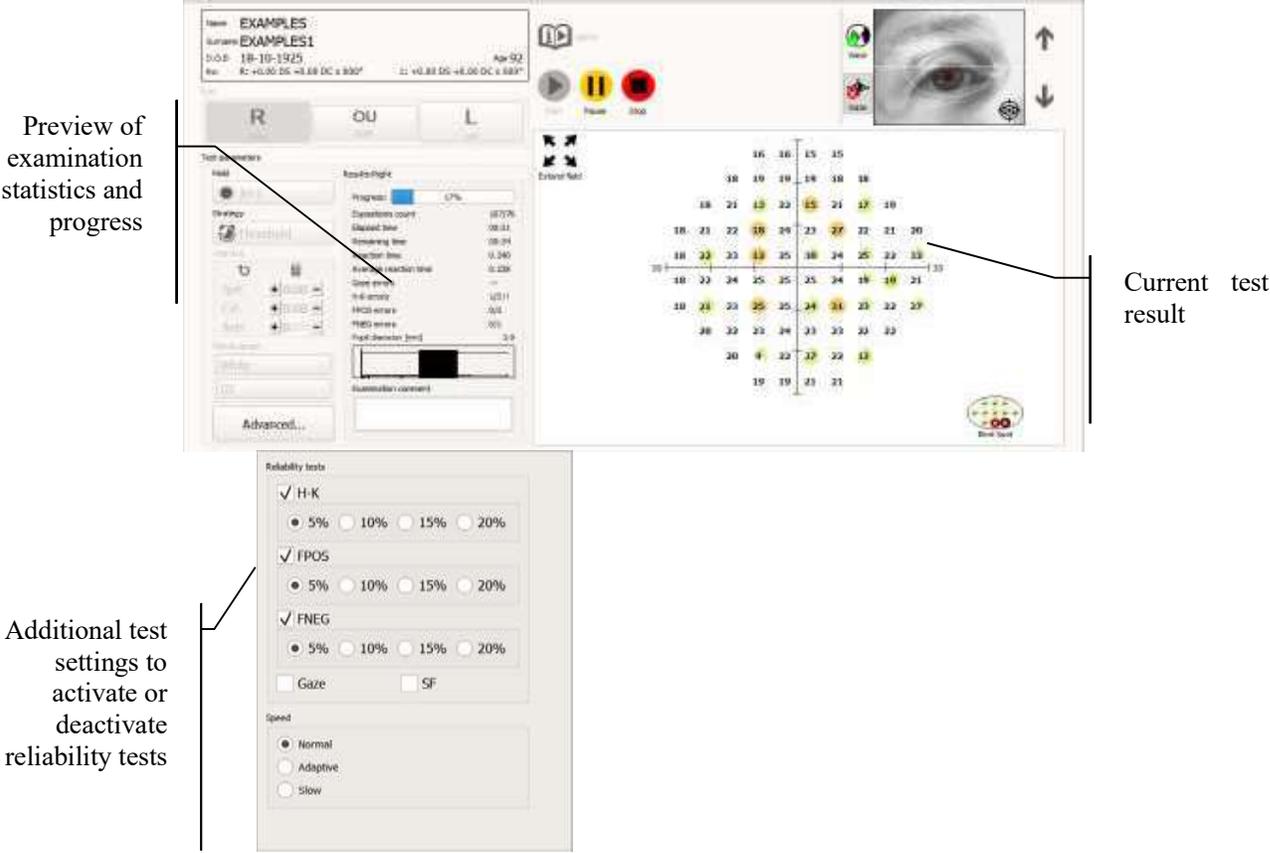
Figure 91. "Examinations" tab during the examination.

Number of exposures / number of field points

Estimated time remaining

Mean patient reaction time

Number of H-K errors / number of H-K tests

Number of FNEG errors / number of FNEG tests

Remarks

Test progress

Elapsed time

Last patient reaction time

Number of fixation errors detected

Number of FPOZ errors / number of FPOZ tests

Pupil diameter measured during the test

Diagram of pupil shifts during the test

Results:Right

Progress:

25%

Expositions count	143/76
Elapsed time	00:17
Remaining time	00:20
Reaction time	0.628
Average reaction time	0.516
Gaze errors	---
H-K errors	0/3
FPOS errors	0/4
FNEG errors	0/2
Pupil diameter [mm]	4.6

Examination comment

Figure 92. Statistics and test progress

Current statistics and the test progress are shown in the Results box.

All test points are displayed in the test preview window. Information about the current test level and the test progress is provided with each point. Test progress is illustrated with a green pie chart, which forms the background for the current point level.

Point not yet tested – initial stimuli level

Point with threshold crossed (66% progress) – next exposure = 8dB

9

2

8

6

Point after first exposure (33% progress) – next exposure = 2dB

Tested point (100% progress) – test result = 6dB
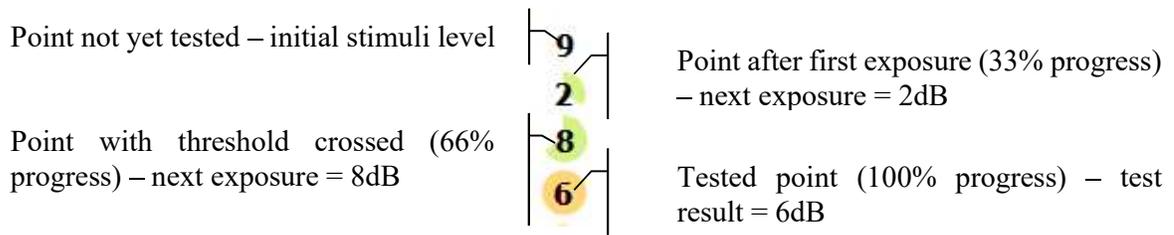
Figure 93. Test point display

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The currently tested point (i.e. currently illuminated on the perimeter bowl) starts flashing.

The test point currently used in FNEG test is framed red.

Apart from the main test points, the test preview window also shows the blind spot. The currently tested blind spot point is framed black.

Currently tested point		The point which patient cannot
Not yet tested point		The point which patient can see
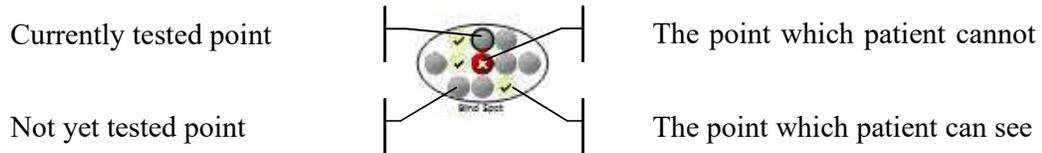
Figure 94. Blind spot test display

12.2.2.   Test progress — calibration

If the initial stimuli level calibration is enabled ("Setting the calibration level (initial stimuli level)"), four points will be tested first, one in each quarter. If the calibration level turns out to be too low for the points tested, you will see a message asking you to choose one of calibration level selection options.
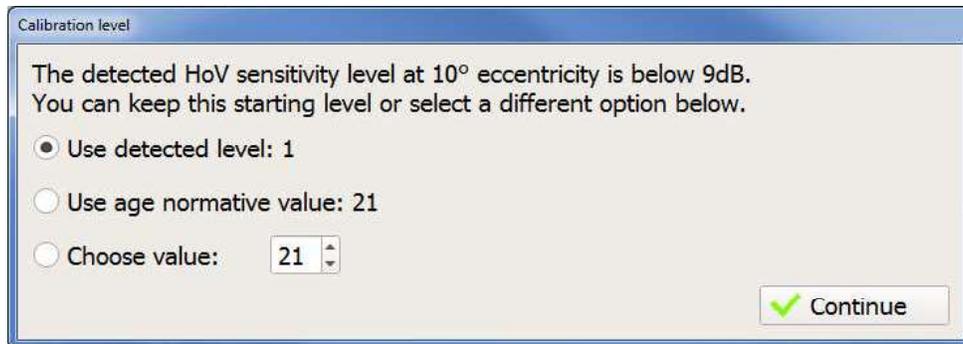
Figure 95. Calibration level selection window

Choose one of the options to continue the test.

12.2.3.   Progress of the test – blind spot detection

Blind spot is detected along with initial level detection. Depending on the blind spot type selection in Settings (15.3.4 Selection of the Blind Spot), the blind spot area is tested using:

- Default (PTS) method - 11 test points in expected blind spot location. Each point out of 11 is tested in order to check if it falls into blind spot area.

- Alternative (HFA) method – test starts with exposition in the central and most probable location of the blind spot. If the exposition in the first point is not seen for three times in a row, the point is marked as not seen and the blind spot detection is finished with the identified location. If the first point is seen, then the algorithm is searching for blind spot edges vertically and horizontally.

It is important to correctly identify the blind spot area to provide for the accuracy of the diagnosis. In addition, the blind spot is used during the test to control fixation by means of the Heijl–Krakau blind spot monitoring technique.

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Depending on the H-K fixation control settings, one of the following messages will be displayed if the blind spot is not found.
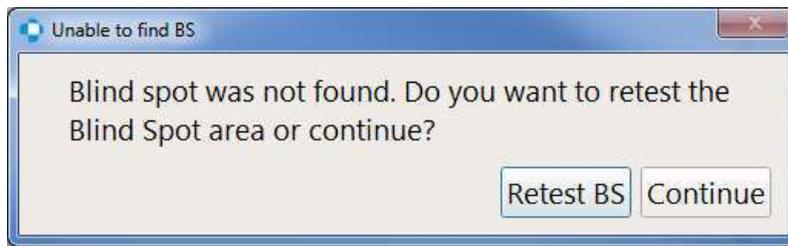
Figure 96. Blind spot detection error with disabled H-K fixation
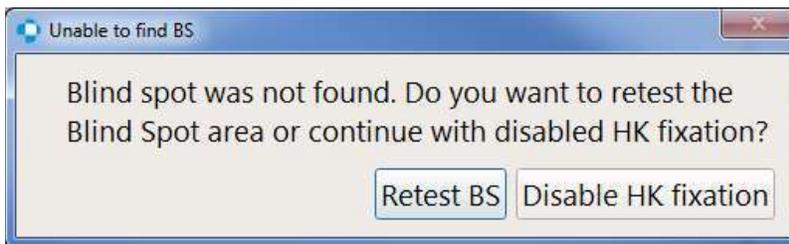
Figure 97. Blind spot detection error with enabled H-K fixation

Choose the Retest BS option to repeat the entire blind spot test. Choosing Continue or Disable HK fixation means no H-K fixation control can be used during the test.

Blind spot retest is also possible available during the examination. To perform a blind spot retest, simply click on the "BS" button next to examination control panel. The blind spot retest button is marked in the figure below:

Figure 98. Retest blind spot button

One of the most common causes for BS detection error is when the test is done for a different eye than the one selected to be tested (test settings for the right eye, and a test done for the left eye or the other way round). Before the test is continued, make sure the test settings and the actual progress of the test are coherent.

12.2.4. Progress of the test — fixation errors

FPOZ, FNEG, H-K fixation tests are run regularly during the test, along with gaze tracking (if the appropriate test options are enabled).

H-K: If an H-K fixation error is detected during a test, the test will be interrupted and the following message will be displayed:
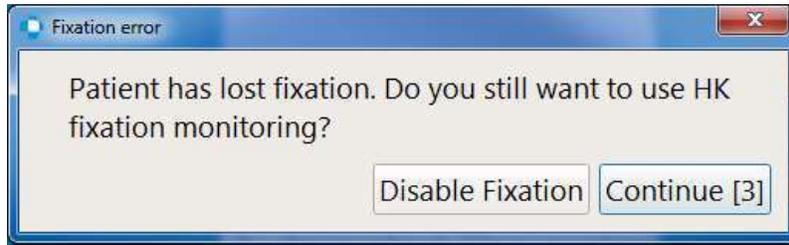
Figure 99. H-K fixation error

Tell the patient to stay focused on the fixation point(s). Press Continue to continue the test without introducing any modifications.

If the fixation error message appears frequently and the fixation control function interrupts the course of the test of a non-cooperating patient, H-K fixation can be disabled. Choose the Disable Fixation option to continue the test, and the H-K tests will be disabled.

If the H-K fixation is disabled after a fixation error, it can be enabled in the Reliability Test Settings panel on the left side of the window.

Gaze tracking - If the pupil movements exceed the allowed pupil shift, the system will detect and report a fixation error (if the "Gaze tracking" fixation option is enabled). The test will be paused and automatically resumed as soon as the pupil becomes stable.

If the fixation error message appears frequently and the fixation control interrupts the course of the test in a non-cooperating patient, the video fixation option can be disabled. Disable the "Gaze tracking" option in the Reliability Test Settings panel on the left, or press the quick fixation switch-off pushbutton on the left side of the eye camera window.

To enable the video fixation option, go to the Reliability Test Settings panel on the left, or press the quick fixation switch-off pushbutton on the left side of the eye camera window.

"Gaze" fixation needs to be supported by a high-quality video image from the eye camera where the eye pupils can be clearly seen. Bad room illumination or incorrect camera configuration can affect the quality of the video image and render the use of video fixation impossible.

12.2.5. Progress of the test — change of trial lenses

When the trial lenses are used correctly, the central area of the visual field can be tested within up to 30° radius. The field extending beyond the 30° radius will be covered by the trial lens frame. Therefore, where the test area extends beyond the 30° radius, the test is divided into parts: a test with the trial lenses, and a test without the trial lenses.

The test will be paused when the trial lens must be inserted or removed, and the appropriate message will be displayed.
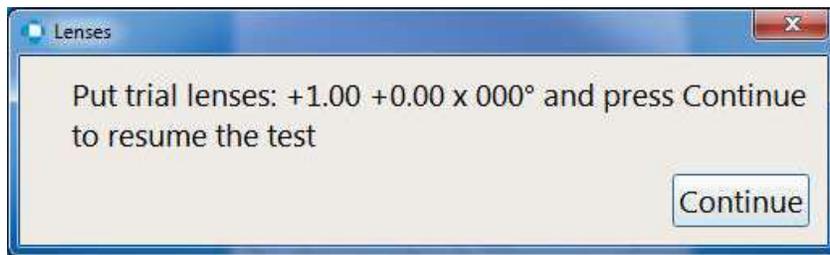
Figure 100. Insert Trial Lens text message
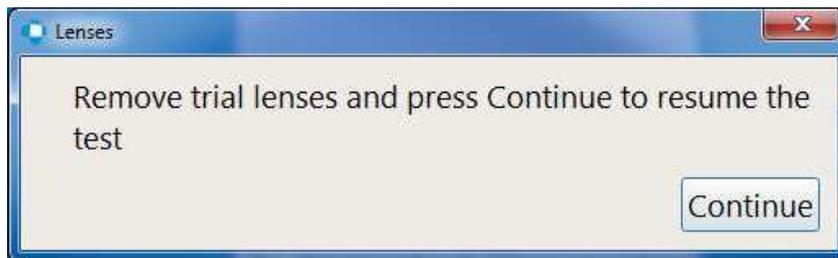
Figure 101. Remove Trial Lens text message

> If the correction lens is not removed for visual field tests within the 30°-50° radius, the test may include artifacts, i.e. ring-shaped scotomas. This can lead to a false diagnosis.

12.2.6. Progress of the test – fixation offset

If the tested fields extend beyond the physical range of the bowl, fixation offset to the left/right/top/bottom of the central fixation is used. The visual test field extends beyond physical capabilities of the perimeter bowl. If the fixation offset is applied, the test is paused and the message appears, asking you to prepare the patient for a fixation change.
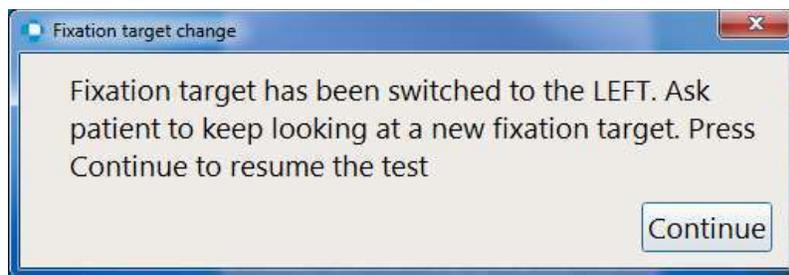
Figure 102. Fixation offset during a test

12.2.7. Progress of the test – retesting selected points

During the test it is possible to order a retest of a single point or group of points.

The retest is carried out after completing the examination of all the original points of the field. During the retest it is possible to select further points for retesting. The next points will then be

added to the list of currently examined points. The exception is when a part of selected to retest points belong to the part of field which was originally tested with lens on or the opposite. In this case these points are going to be tested only after examination of other points. The retest can be carried out repeatedly for the points already examined.

Retest functionality is not available for the fields where the fixation shift occurs.

12.2.7.1. Retest order

To order a retest for a single point during examination, select point and right-click to select "Retest selected" from the context menu. The condition is that the selected point has already been examined.

To order a retest for a group of points during examination, hold left mouse button and drag it to select points and then release the left mouse button. Points that can be tested again (points already tested) will be highlighted. The next step is to right-click on the test field and select "Retest selected" from the context menu.

In order to do a retest of all tested points during examination, make sure that no point is selected and then right-click to select "Retest all" from the context menu.

Before the retest starts, the sensitivity values of the selected points will be restored to their initial values – depending on the selected calibration level method.

12.2.7.2. Retest cancelling

It is also possible to cancel the retest for a single point or group of points, provided that these points do not belong to the group that is currently being retested. Cancelling can be made in a similar way to a retest order, by selecting points and choosing "Cancel retest selected" or "Cancel retest all" option from the context menu.

The sensitivity values of the points to be retested after cancellation of the retest will be restored to the final result values of the examined points.

12.2.8.   Progress of the test – adding/removing layers

Before the examination it is possible to add a properly scaled image to the examination area, which is an additional layer (e.g. fundus photo). This layer, when added to the examination area, is displayed under all graphical elements, which are field axes, test points, blond spot, etc. The topic is comprehensively described in 14.3.6 Exam layers. The principle of operation is the same as in the Results tab / Test Page of the Exam Wizard.

12.2.9.   Progress of the test – extending test field

During the test it is possible to extend the field with additional points provided for a given field. If a field is extendable there is a "Add points…" button in the upper left corner of the test field. Before starting the test, the button is inactive. The field extending is only possible during the

normal test phase (after the possible calibration process).
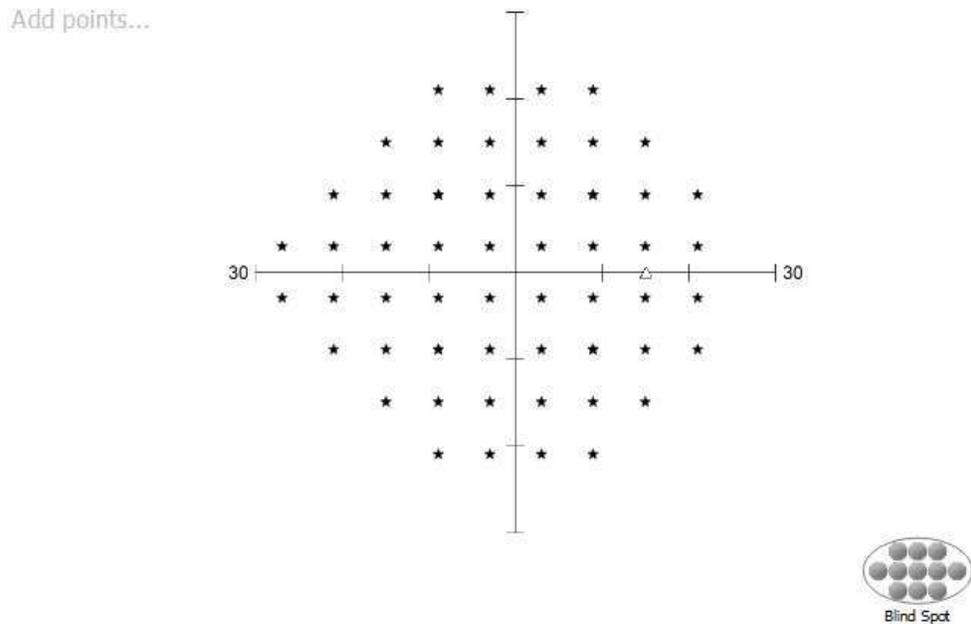
Figure 103. Examination test field extension button

After starting the test and completing the eventual calibration process, the extend field button will be unlocked. After pressing the button, addition button will appear, after pressing which the points located on the external or internal side of the field will be added to the test (Figure 104. Controls of the automatic including additional points to the field). After hovering over one of the available buttons, it will highlight additional points on the field in blue. Pressing the button again will remove additional points from the field, also if they are already examined or are currently being tested. It is also possible to manually add additional points by selecting them with the mouse and selecting the appropriate option from the context menu. The initial values of the added points depend on the chosen calibration method and they are calculated along with the basic points.
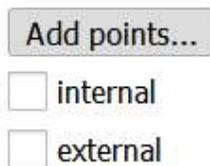
Figure 104. Controls of the automatic including additional points to the field

The examination field after its completion takes the form of an expanded field. It is possible to start the test of the repeated test in the extended field with results of additional points. In a situation where the field has been extended but no additional point has been added, the examination field will be saved to the database as a primary field.

During the examination it is possible to return to the original field by disconnecting all additional points.
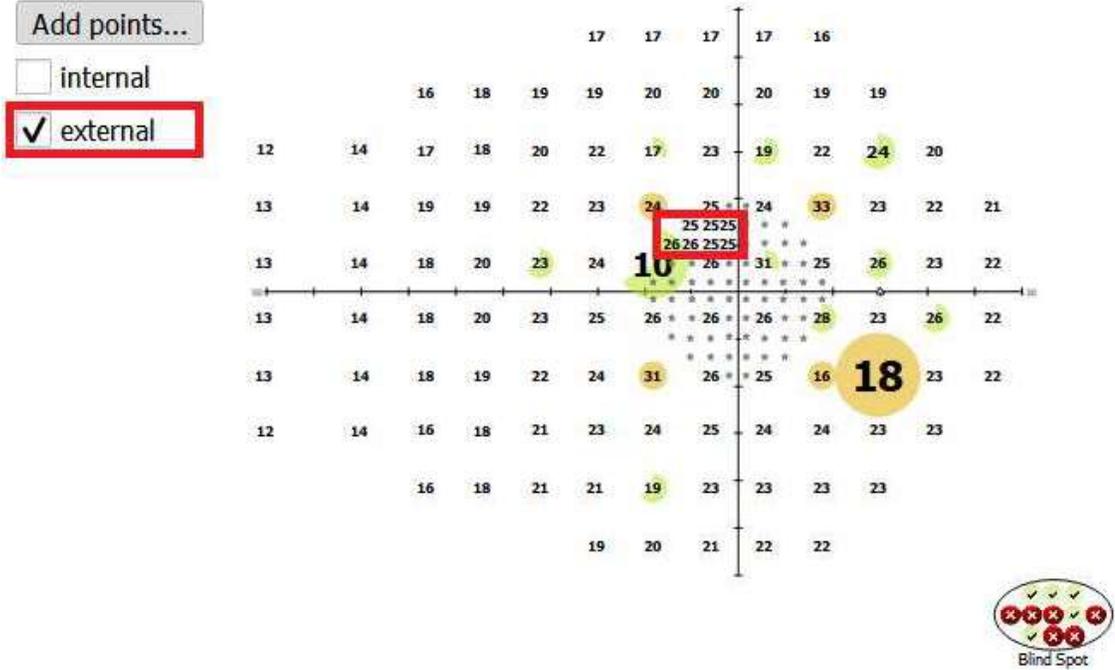
Figure 105. Adding additional external points to "24-2" field and a few external points manually

12.2.10. *Progress of the test – quick field extension*

After all points have been examined and before the test summary is displayed, it is possible to quickly add additional points to the field currently being examined and continue the test. This only applies to field 24-2 and 24-2C, which may be updated with points from field 30-2 and 10-2. To be able to use the quick extension of the examined field, make sure that it is turned on in the "General" tab in the settings:
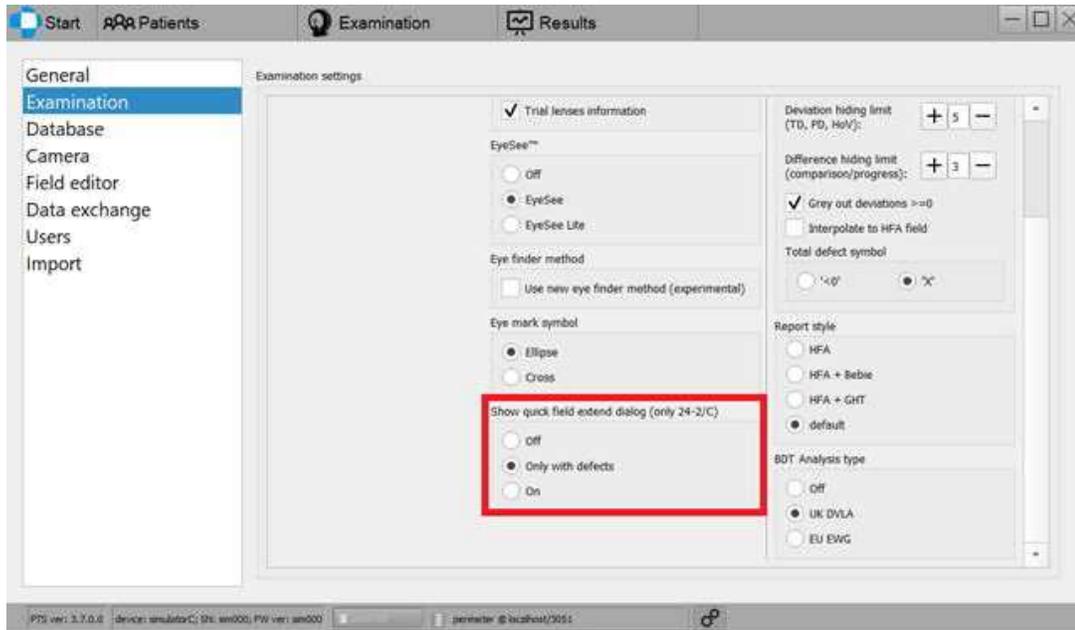
Figure 106. Quick field extension window display settings

The appearance of the dialog box with the possibility to quickly extending the field depends on the selected option:

- Off – the dialog will never appear

- Only with defects – the dialog box will only appear when defects are present

- On – a dialog will appear every time

Quick field extension is selecting one of three options for adding additional points to the field:

- Peripheral points – after selecting this option, points from 30-2 field will be added to the examination field, this at the same time do not belong to 24-2 field

- Macula points – after selecting this option, points from 10-2 field will be added to the examination field, which at the same time do not belong to 24-2 field

- Defect neighbor points – after selecting this option, points from 30-2 field and 10-2 will be added to the examined field, which do not belong to 24-2 field and are directly adjacent to defects.

In the case of selecting the last option ("Defect neighbor points"), the dots (points from field 10-2) will be examined recursively. It means that if a point with a defect occurs, all its neighboring points will be examined and then all neighboring points of previously examined points with defects, etc. The dialog box with the selection of the option of quick extension of points is presented in the figure below:
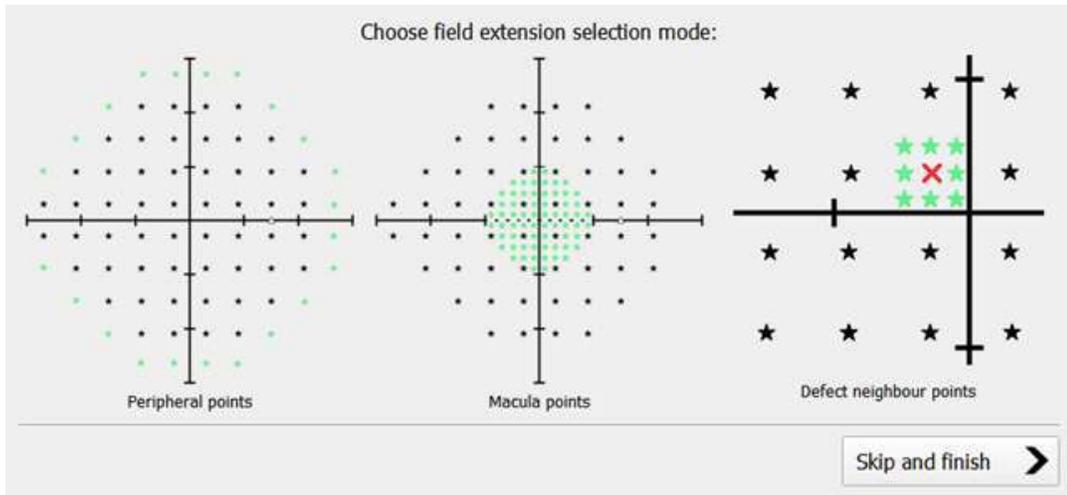
Figure 107. Selection of the field extension mode

To select one of the above options, simply left-click on one of the three buttons describing the options for quickly expanding the examined field. After selecting this option, the examination will be automatically resumed. To quit the option of quickly extending the examination field, press the "Skip and finish" button, which will display the test summary.

The quick field extension functionality is available for the generated PPD map (white and green stimulus). In a different situation (Screening, 2-zones, 3-zones strategies), the "Defect neighbor points" option is based on the results of the RAW map.

The quick field extension is not available for Top/Top+ strategy.

12.2.11.   Progress of the test – eyeSee eye image registration

The EyeSee module is responsible for providing the eye fixation information gathered during the stimulus exposure. Depending on the EyeSee mode (Figure 108. Activated EyeSee module) this involves capturing images of the eye from the device's camera or only the numerical eye tracking data, and storing them together with the patient's test data. EyeSee images can be viewed during any examination, before follow up examination and in the "Results" tab. To use the EyeSee functionality, make sure that it is enabled (default). Activation of an EyeSee module is described in chapter 15.3.7 EyeSee module.

The EyeSee/EyeSee Lite functionality may be not available in some of the software distributions due to the legal limitations. Please contact your local distributor to check which EyeSee modes are available in your version of the software.
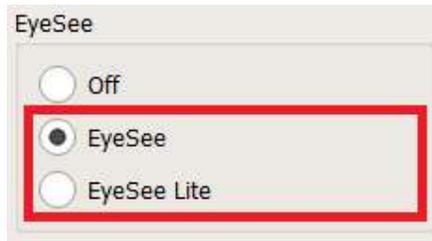
Figure 108. Activated EyeSee module

To display a list of EyeSee images of the examination, place the mouse cursor on any of the test points in the field window. On the left side of the window in the place of the examination details, a list of EyeSee images will appear in the order from the most recent to the oldest picture (Figure 109. EyeSee images registered at a moment of stimulus exposure). When the images do not fit in the displayed area, you can scroll the list with the mouse wheel up and down. To display the test details again, move the mouse cursor away from the test point.
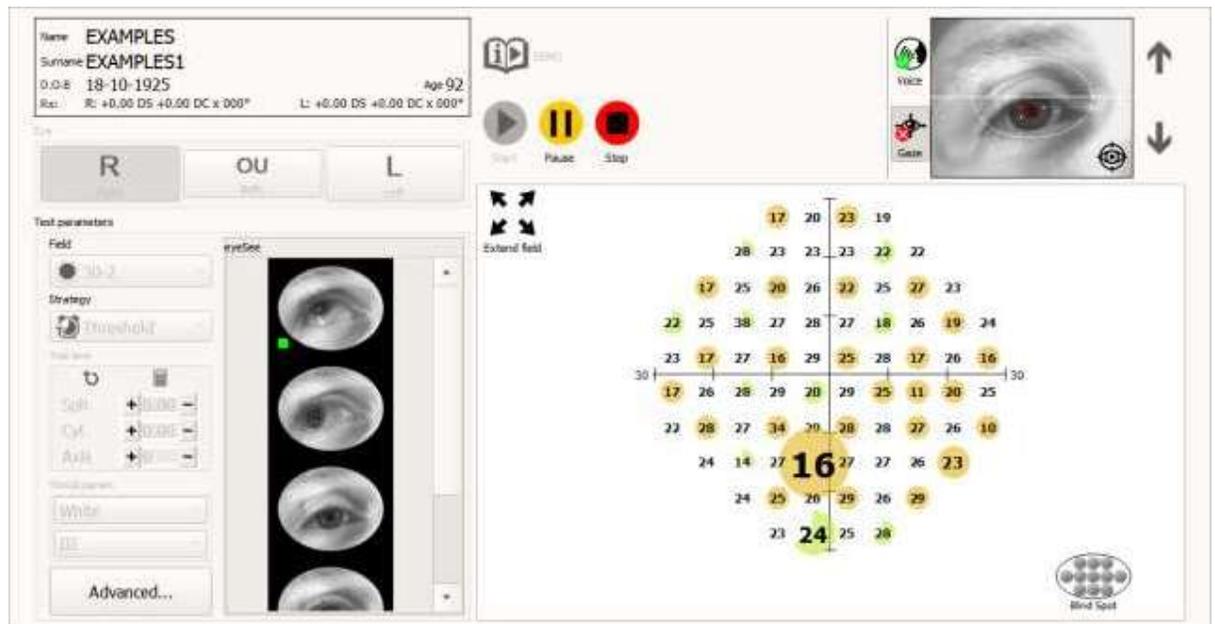
Figure 109. EyeSee images registered at a moment of stimulus exposure

In the lower left corner of a single eye image you can see the symbol in the form of a small square filled with green color (Figure 110. Image of patient's eye registered when patient reacted to stimulus). This symbol means that the patient reacted to the stimulus.
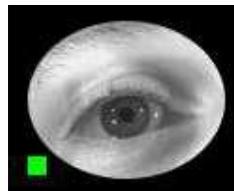
Figure 110. Image of patient's eye registered when patient reacted to stimulus

Along with eye images of regular test points, the images are also registered as a part of a short-term fluctuation test (SF). Eye images in this case are posted separately (Figure 111. EyeSee

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images registered as a part of SF test).
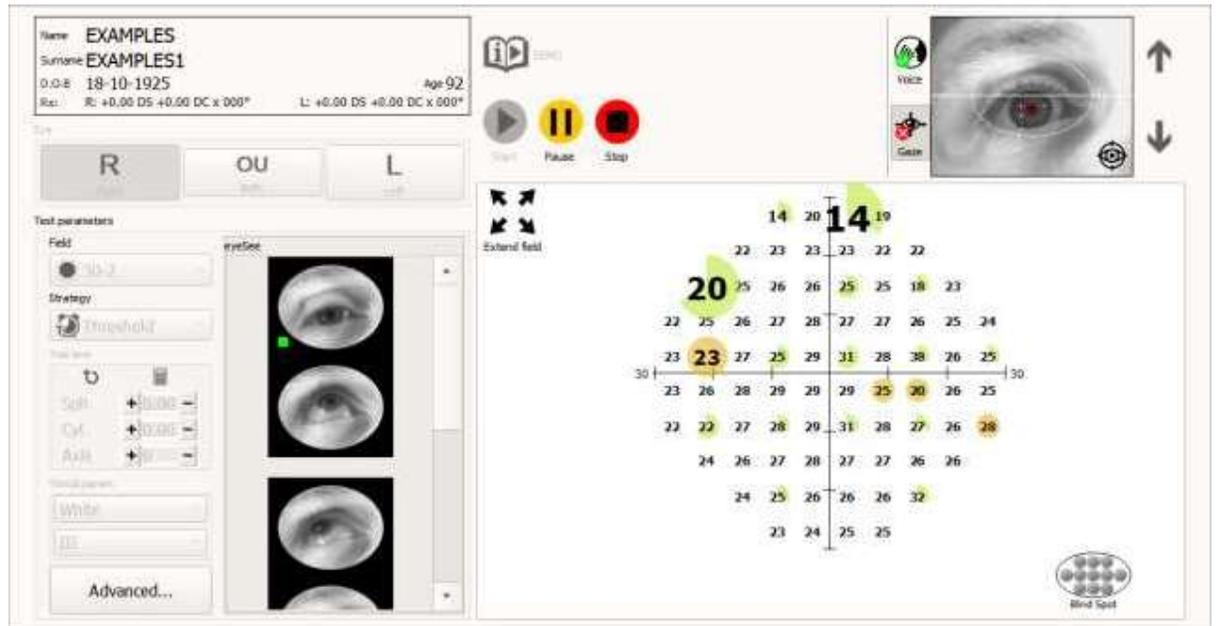
Figure 111. EyeSee images registered as a part of SF test

12.2.12. Head Tracker - Automatic positioning of the chin

The application allows automatic positioning of the chin before and during the examination. The condition of proper working of this function is correct detection of the pupil of the eye. The automatic positioning of the chin controls the chin motors so that the center of the pupil is in the middle of the camera view. Correction of the chin is performed when there is no stimulus and the pupil is correctly detected. To enabled the automatic positioning of the chin, left-click on the transparent button located in in between chinrest arrow buttons in the upper right part of the window in "Examinations" tab and on the left side of the window in "Start" tab (Figure 112). For perimeters without horizontal chinrest adjustments, the Left and Right arrow is not visible. After activating the Head Tracker function, manual chin button will be locked. Disabling the function will unblock the arrow buttons – as far as the examination is paused or not started.

When the chin movement is triggered by indicating the center of the pupil on the camera preview, then turning on the automatic chin positioning function will cancel the current movement. However, when there is a click in the eye preview during automatic positioning, the automatic positioning function will be turned off.
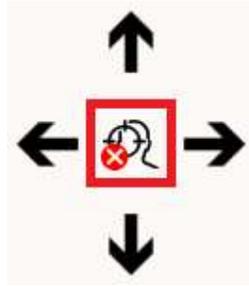
Figure 112. Head Tracker - automatic chin positioning button (PTS 2000)

12.2.13.   The speed of the test

During the test, you can easily change the test speed by selecting one of the three available test speed modes available under the "Advanced" button (Figure 113. Test speed modes):

- **Normal** – time parameters such as in the currently selected program or taken from the time parameter controls if their values have been changed

- **Adaptive** – time parameters increased twice but subject to changes depending on the behavior of the patient during the test

- **Slow** – time parameters increased twice
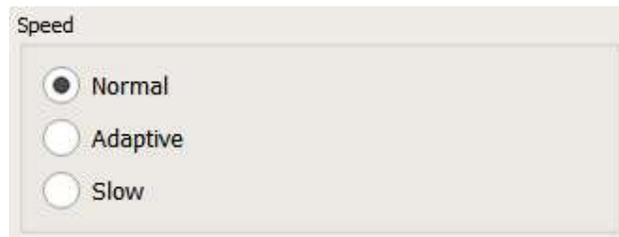
Figure 113. Test speed modes

12.2.14.   Completing the test

As a rule, the test is finished when the final test results are obtained for all field points. The test can be completed earlier, once at least 3 field points have been tested.

A test summary is displayed after the test has finished.

Comments to the test

Examination preview images

Do not save the test results and do not leave the Examination tab

Save the results and do not leave the Examination tab

Choose field extension method

Save the results and go to the Results tab to view the results

Print a test report on the default printer

Open the report generator dialog

Measure the pupil manually

Export examination

Figure 114. Test summary dialog

12.2.14.1. Manual pupil measurement

After the test is finished, it is possible to perform manual eye pupil measurement. To open the manual pupil measurement window (Figure 115. Manual pupil measurement window), select the "Measure the pupil" option in the examination summary window. To measure the pupil, chose on of up to five available images of the patient's eye made during the examination and then use the mouse to set two vertical blue lines in such a way that a pupil of the eye is between them. To move a vertical line, move the mouse cursor over it and, holding down the left mouse button, move the mouse line to one edge of the pupil. By moving the vertical lines, the value of the pupil diameter will be updated in the lower right corner of the window. To save the new value of the pupil diameter, click on the "Save" button. To return to the examination summary window, clock on the "Cancel" button or by clicking on the "X" button in the upper right corner of the window. It is also possible to restore the original value of the pupil diameter calculated during the examination. To restore the original value, click on the button of the curved arrow above the "Save" button. If you click on the "Save" button, the examination summary window will be displayed. To save the new value of the pupil diameter, save the test by selecting the "Save" option in the examination summary window.
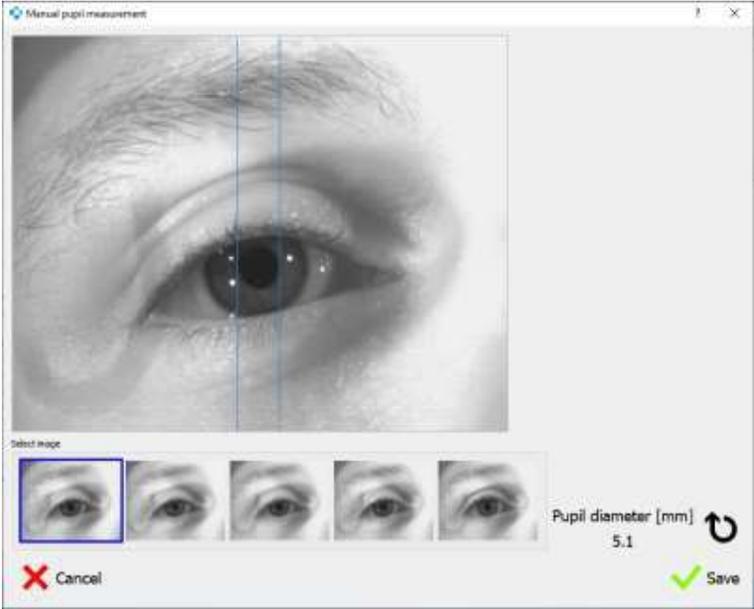
Figure 115. Manual pupil measurement window

12.2.14.2.Retest mode for selected field points

Selected field points can be retested after the test is finished. Choose the Retest option in the Test Summary window to start the retest mode. The Test Summary window will be closed and the test result will be displayed from which the points to be retested can be selected.

The points to retest has gray background.
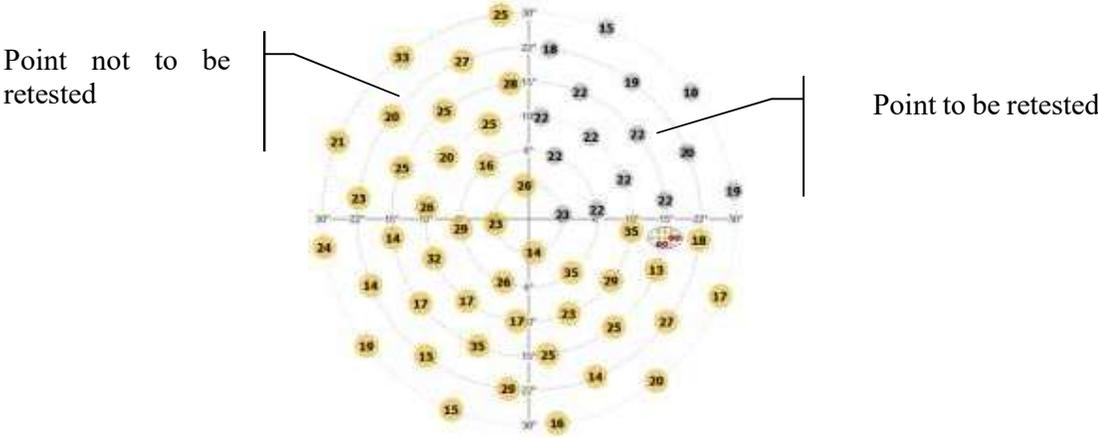
Figure 116. Selecting the field points for retesting

Select or unselect all points to be retested. You can right-click the field to bring up a context menu. The menu includes Retest All and Cancel Retest All options.

To make the selection of retested points faster, hold the left mouse button down to select a group of points. Next right-click one of the selected points to bring up a context menu. The menu includes

Retest Selected and Cancel Retest Selected options.

After you choose all points to be retested, click Start to begin the retesting phase.

> ⚠ The previous results for retested points will be lost. If the retest is discontinued prematurely, results for the non-retested points will not be available.

12.3. *Follow-up test*

To run a follow-up test, select the source test ("Retesting – uploading settings from previous tests") and click Start without leaving the "Follow-up action" page.

Before the follow-up test starts, choose the way the source test will be used.
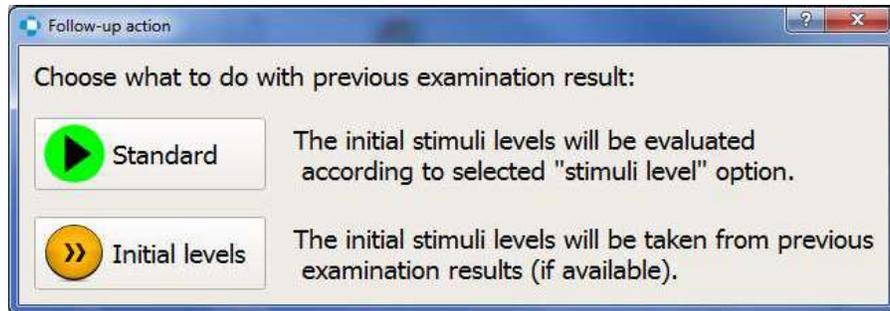
Figure 117. How to use a source test for a Follow Up test

Standard – results from the source test will not be used. As a default, only the calibration level from the source test will be set as the calibration level in the follow-up test. The test will respect the initial level settings. ("Setting the calibration level (initial stimuli level)").

Initial Levels – The source test results will be used as the initial stimuli levels for the corresponding visual field points in the follow-up test. The results for calibration points will be copied from the source test. If any test results are missing, the field points are marked with an asterisk, and the initial stimuli level will be calculated from the calibration points.

Field points with results from the source test

Field points that do not belong to the source test

Figure 118. Continuing previous unfinished test

12.4. *Resuming an unfinished test*

If the test is discontinued before it ends, the result of an unfinished test can be saved. An unfinished test can be continued with the results obtained from the already tested points.

To continue an unfinished test, select a test from the list in the "Follow-up action" page and click Start.

Before the follow-up test starts, choose the way the source test will be used.

Figure 119. How to use an unfinished test for a Follow Up test

Standard – results from the unfinished test will not be used. As a default, only the calibration level from the source test will be set as the calibration level in the follow-up test. The test will respect the initial level settings. ("Setting the calibration level (initial stimuli level)").

Initial Levels – The source test results will be used as the initial stimuli levels for the corresponding visual field points in the follow-up test. All points will be retested. The results for calibration points will be taken from the source test. If any test results are missing, the field points are marked with an asterisk, and the initial stimuli level will be calculated from the calibration points.

Retest selected points – the incomplete examination will not be continued. Only points previously marked for retest will be tested. This option will not appear in the dialog window if no point for retest is selected.

Continue – A previous unfinished test will be continued. Points tested during the source test will not be retested. The remaining points will have the initial level calculated from the calibration points.

A field point that does not belong to the source field

An unfinished field point that belongs to the source field

A finished field point that belongs to the source
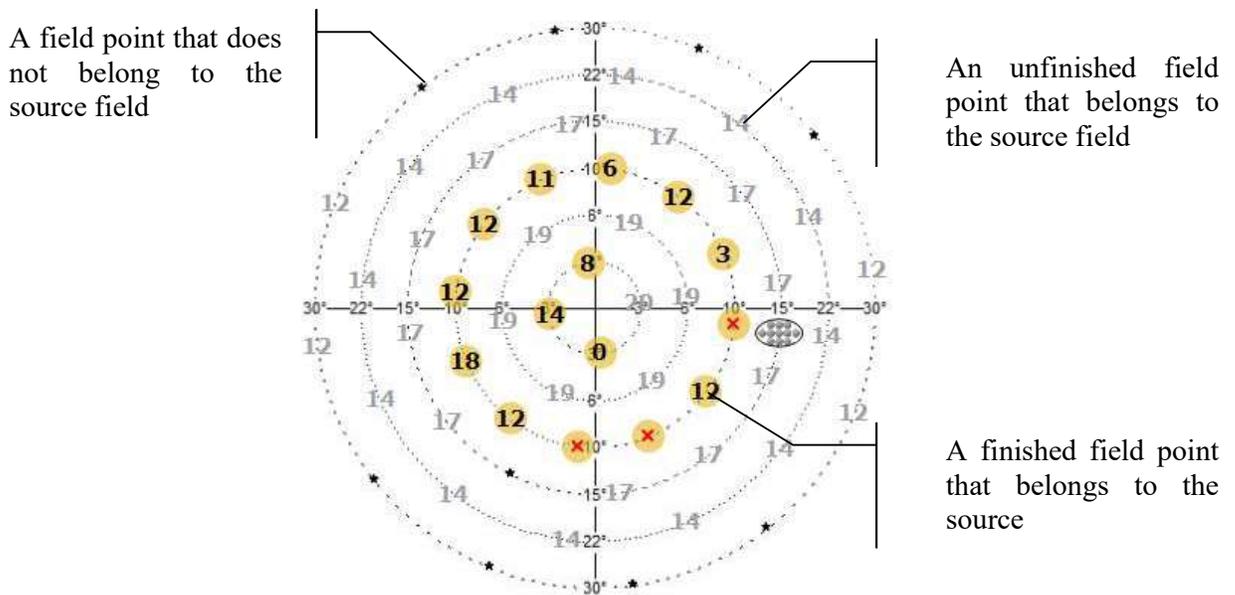
Figure 120. Test Control Window in the unfinished test continuation mode

12.5. *Selection of examination preview image*

Every examination result has got assigned one image form the preview camera. This image helps diagnosing diseases and evaluation of possible artifacts. It helps to identify situations such as dropping eyelid, trial lens holder shadows and many others which may influence the result of visual field evaluation.

After the test is finished, operator can select one from preview camera images to represent the examination. Available images are collected throughout the test in equal time segments to

represent the whole test. Selected image is displayed in the results review next to the Eye Movement graph like pictured below.
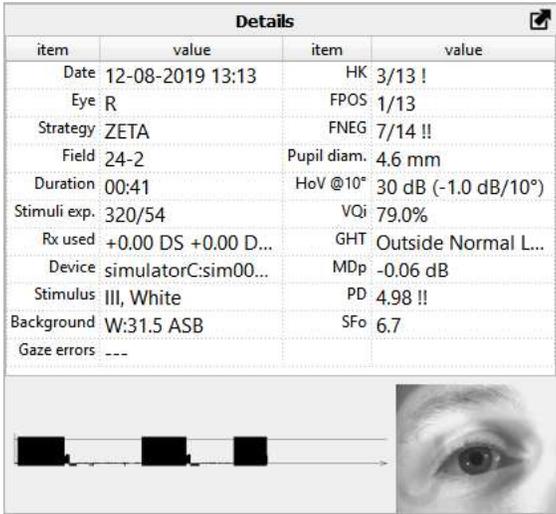
Figure 121. Examination details with examination preview image

13. *Test parameters*

This section describes the test parameters. It specifically addresses the following issues:

- test strategies
- test field
- reliability tests

13.1. *Test strategies*

Test strategy means visual field testing methodology with which information about visual quality within the tested visual field can be obtained. There are different test strategies designed for different purposes. With some test strategies, more detailed visual sensitivity data can be obtained, at the expense of a longer test duration. Other test strategies are much faster, however, they do not measure the exact visual sensitivity, instead looking for local defects of the visual field.

The test strategy should be selected not only in terms of the required diagnostic information, but also in terms of the condition and cooperation of the patient.

13.1.1. Threshold strategy

Threshold strategy provides the most accurate visual sensitivity data. In this strategy, stimuli of varying intensity are used. The patient is asked to respond to a particular stimulus. Each particular light point is tested until the visibility threshold is located with the accuracy equal to the minimum bracketing step size. The threshold strategy accurately determines the sensitivity level which is better than expected, and exactly identifies the depth of defects within the visual field.

Calibration level is first determined using 4 calibration points (one per each quadrant at 10°). Sensitivity values at these points are determined by means of the threshold strategy, unless other stimuli level settings have been enabled ("Setting the calibration level (initial stimuli level)"). Once the calibration level is known at 10°, the calibration level is determined for each point included in the test. This value is based on the correlation between retinal sensitivity and the eccentricity of the point within the visual field. Retinal sensitivity is assumed to be linearly decreasing by 3 dB per 10° eccentricity intervals.

The first light point intensity corresponds to the initial level of stimulus intensity, which is equal to the calibration level increased by the smaller bracketing step value (2dB or 3dB). The first light point is brighter than the expected minimum at the particular point within the visual field. Initial levels are updated progressively during the progress of the test.

Figure 122. Threshold strategy algorithm – initial stimulus not seen

If the patient does not respond to the initial stimulus, another exposure corresponds to the previous level of stimulus intensity increased by the higher bracketing step value (4dB or 6dB). The light point intensity is increased until the patient responds to the stimulus or until the maximum light point intensity is reached (0 dB). Patient response to the stimulus means the patient's visibility threshold has been reached. Next, another exposure takes place, whose intensity is reduced by the smaller bracketing step value (2dB or 3dB). The bracketing with smaller step is repeated until the threshold is crossed for the second time and there is again no reaction from the patient. This approach can correct some invalid responses from the patient at the expense of duration. The threshold of visibility is determined to the accuracy of the smaller bracketing step size (2dB or 3dB).
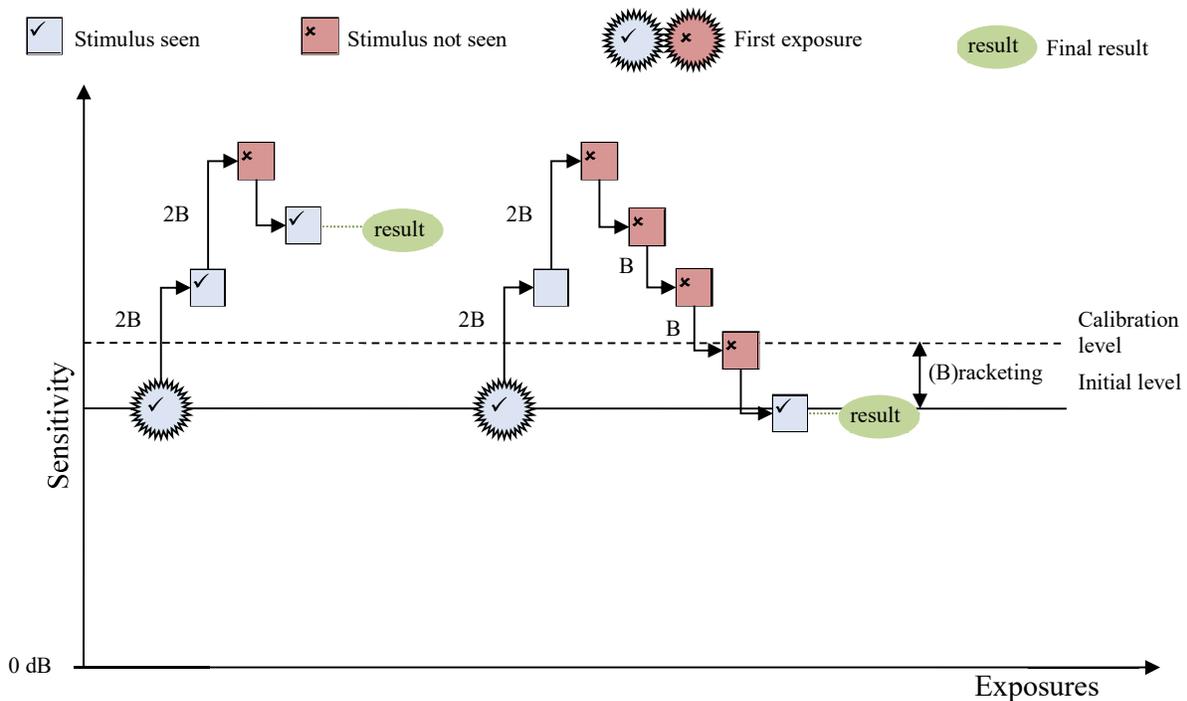
Figure 123. Threshold strategy algorithm – initial stimulus seen

If the patient responds to the initial stimulus, another exposure corresponds to the previous level of stimuli intensity reduced by the higher bracketing step value (4dB or 6dB). The light point intensity is reduced until the patient fails to respond to the stimulus or until the minimum light point intensity is reached (45 dB). Patient's lack of response to the stimulus means the patient's visibility threshold has been reached. Next, another exposure takes place, whose intensity is increased by the smaller bracketing step size (2dB or 3dB). The reversed bracketing with the smaller step is repeated until the threshold is crossed for the second time and patient reacts for the stimulus. This approach can correct some invalid responses from the patient at the expense of duration. The threshold of visibility is determined to the accuracy of the smaller step size (2dB or 3dB).

13.1.2. Screening strategy

Screening strategy is designed to quickly check the visual field and to measure the depth of defects within the visual field. In this strategy, stimuli of varying intensity are used. The patient is asked to respond to a particular stimulus. Each light point is tested once, unless the visual sensitivity deviates from the expected initial level. Otherwise the depth of the defect is measured to an accuracy of the smaller bracketing step value.

First, the calibration level is determined using 4 calibration points (one per each quadrant at 10°). Sensitivity values at these points are determined by means of the threshold strategy, unless other stimuli level settings have been enabled ("Setting the calibration level (initial stimuli level)"). Once the calibration level is known at 10°, the calibration level is determined for each point included in the test. This value is based on the correlation between retinal sensitivity and the eccentricity of the point within the visual field. Retinal sensitivity is assumed to be linearly decreasing by 3 dB per 10° eccentricity intervals.

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The first light point intensity corresponds to the initial level of stimulus intensity, which is equal to the calibration level increased by the smaller bracketing step value (2dB or 3dB). The first light point is brighter than the expected minimum at the particular point within the visual field.

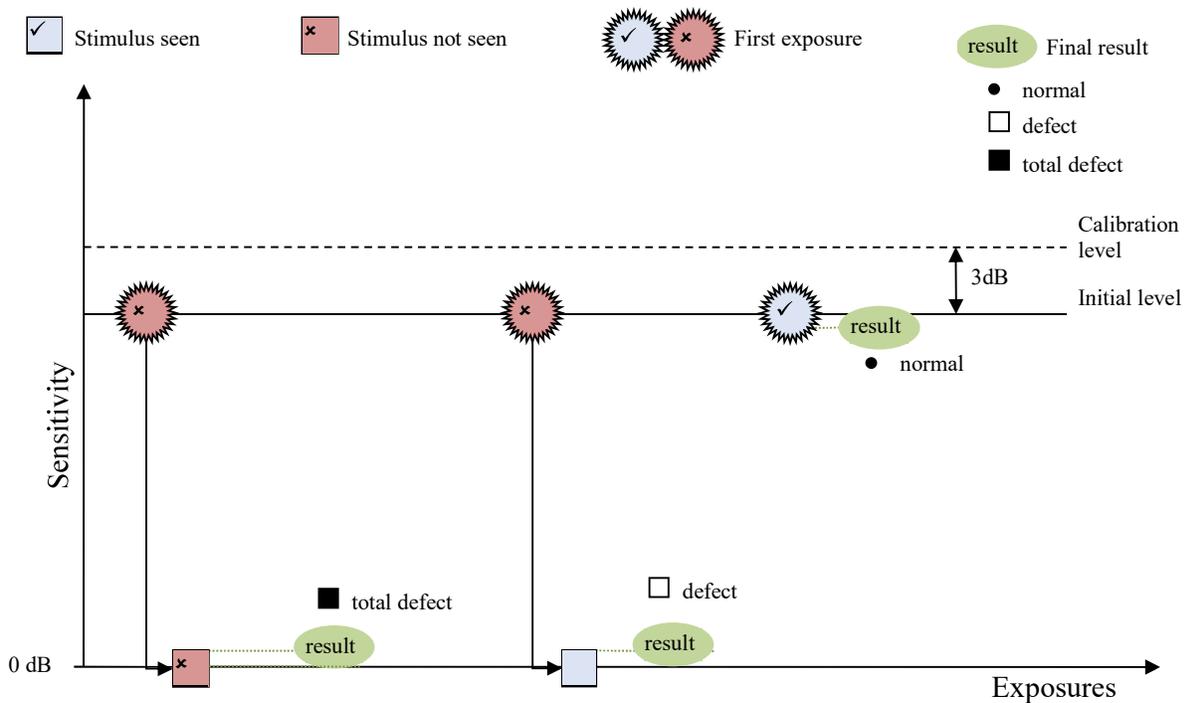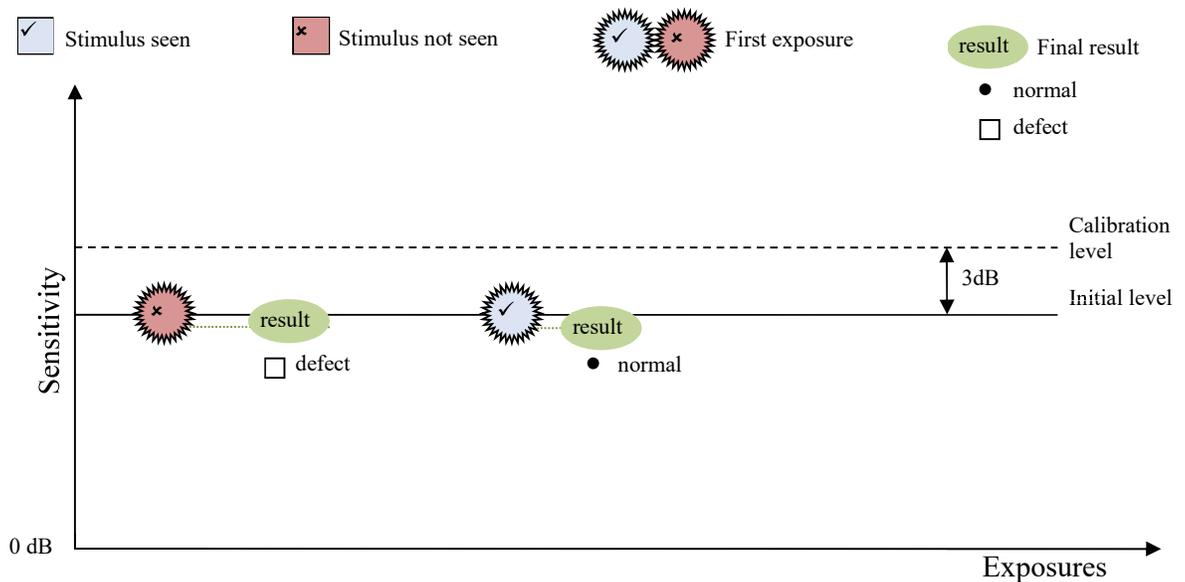**Figure 124. Screening strategy algorithm**

If the patient responds to the initial stimulus, the light point assumes the final value equal to the initial level and is no longer tested.

If the patient does not respond to the initial stimulus, another exposure corresponds to the previous level of stimulus intensity increased by the higher bracketing step value (4dB or 6dB). The light point intensity is increased until the patient responds to the stimulus or until the maximum light point intensity is reached (0 dB). Patient's response to the stimulus means the patient's visibility threshold has been reached. Next, another exposure takes place, whose intensity is reduced by the smaller bracketing step value (2dB or 3dB). The depth of the defect is determined to the accuracy of the minimum step size (2dB or 3dB).

13.1.3. Fast threshold strategy

Fast threshold strategy is a compromise between the exact threshold strategy and the fast screening strategies. In this strategy, stimuli of varying intensity are used. The patient is asked to respond to a particular stimulus. The points within the visual field are divided into two groups. Light points in each group are arranged regularly to cover the entire visual field.

First, the calibration level is determined using 4 calibration points (one per each quadrant at 10°). Sensitivity values at these points are determined by means of the threshold strategy, unless other stimuli level settings have been enabled ("Setting the calibration level (initial stimuli level)"). Once the calibration level is known at 10°, the calibration level is determined for each point included in the test. This value is based on the correlation between retinal sensitivity and the

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eccentricity of the point within the visual field. Retinal sensitivity is assumed to be linearly decreasing by 3 dB per 10° eccentricity intervals.

Each particular light point from the first group is tested until the visibility threshold is found to the accuracy of the smaller bracketing step size, similarly to the threshold strategy. The testing algorithm of light points from the first group is described in Figure 125. Fast Threshold strategy algorithm – initial stimulus not seen and Figure 126. Fast Threshold strategy algorithm – initial stimulus seen.
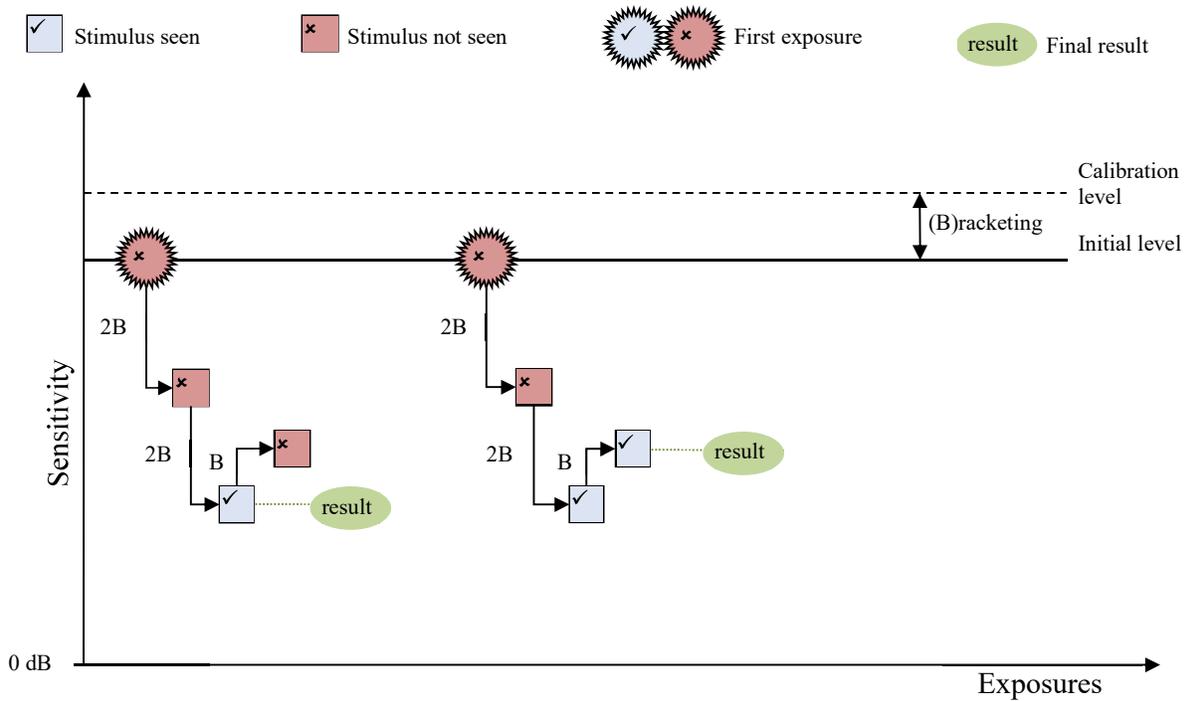
Figure 125. Fast Threshold strategy algorithm – initial stimulus not seen
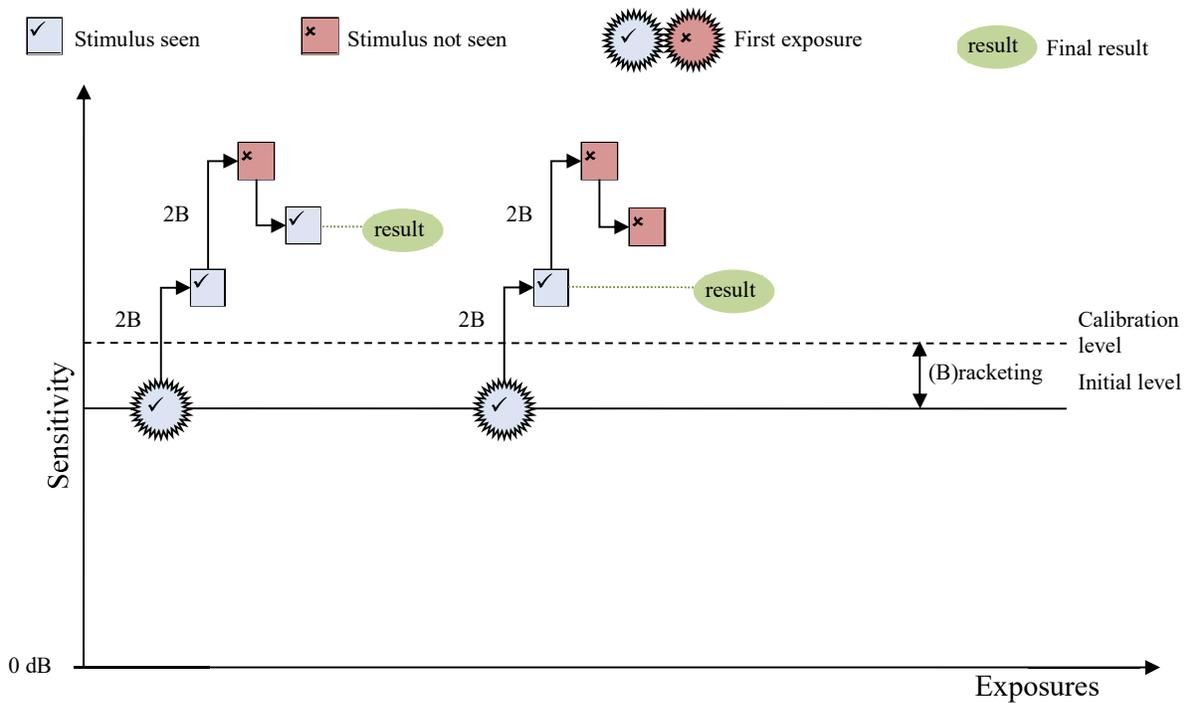
Figure 126. Fast Threshold strategy algorithm – initial stimulus seen

progress of the test. Each light point in the second group is tested only to measure the depth of defect. This means that, if the visual sensitivity at a particular point will be better than the initial level, the initial level value will be assigned to this particular point, which will be excluded from exact measurements. The testing algorithm of light points from the second group is described in Figure 124. Screening strategy algorithm.

13.1.4. ZETA™, ZETA™ Fast, ZETA™ Faster strategy

ZETA™ (Zippy Estimation Thresholding Algorithm) is a modern testing strategy allowing fast and precise estimation of sensitivity thresholds. The procedure uses statistical data and probability functions to determine the bracketing sequence and final threshold estimate. During the test procedure, with every next exposition the threshold estimates are continuously updated and the uncertainty of the estimation is reduced. When the estimation error for a given location is smaller than the predefined acceptance level, then the procedure is finished at that location. The final threshold is found as the most probable value read from probability function for a given location. In ZETA™, the bracketing procedure can be finished when the estimation error is acceptable, but only after at least one threshold crossing was detected.

ZETA™ Fast is a variant of ZETA™ procedure. It aims to reduce the time duration while keeping an acceptable precision. In ZETA™ Fast the accepted estimation error is greater than for ZETA™. To further reduce the time, the bracketing can be finished when estimation error is acceptable and at least one positive patient response is detected.

ZETA™ Faster is another variant of ZETA™ procedure which shortens the test duration further. It reduces the test time of healthy regions without compromise in precision of estimating the defects. The bracketing can be finished when estimation error is acceptable and at least one positive patient response is detected.

Due to the fact that the ZETA™, ZETA™ Fast, ZETA™ Faster strategy is based on spatial correlation among test locations, it's usage is limited to the 10-2, 24-2, 24-2C, 30-2, 30-2C test grids only. Hence, it may be not available on some of the devices (i.e. PTS 920 series).

If for the selected stimulus parameters the application does not provide the age normative data, then the ZETA™, ZETA™ Fast, ZETA™ Faster strategies will use the constant bracketing steps equal to the bracketing step selected in test settings. The examination in such a case can be longer than expected and it is suggested to use a Advanced strategy instead.

13.1.5. Advanced strategy

"Advanced" strategy is a fast threshold strategy of a new type. This strategy gives a clinically valuable results while making examination time shorter. In this strategy, stimuli of varying intensity are used. The patient is asked to response to a particular stimulus.

The methodology of "Advanced" strategy is based on "Fast Threshold" strategy. This strategy can be used only on specially designed test fields (10.2.12Combinations of strategy, field, eye and stimulus color settings).The strategy utilizes information about the relative position of points already tested and awaiting to be tested. Additionally the test points are positioned in the way, to cover clinically important areas of retina.

13.1.6. TOP strategy

The "TOP" strategy is a widely used fast procedure based on thresholding concept. It's characteristic feature is that each test location is tested only once. This assures extremely short test duration which is especially valuable for patients unable to maintain concentration for longer periods.

The "TOP" strategy utilizes the fact that that sensitivity thresholds at adjacent locations are correlated with each other. Result of testing one location with a given intensity influences the surrounding points. If the point was seen, the testing/resulting sensitivity of neighbors is increased with a defined fraction of the age normative value at this location. By dividing the testing grid into groups of equally spaced test locations and adjusting the influence of test points onto its neighbors, the strategy assures that resulting sensitivity map gives a good and valuable approximation of a real sensitivity in a fraction of regular Threshold test duration.

Due to the fact that the TOP strategy is based on spatial correlation among test locations, it's usage is limited to the 24-2 and the 30-2 test grids only. Hence, it may be not available on some of the devices (i.e. PTS 920 series).

13.1.7.   TOP+ strategy

The "TOP+" strategy is a modified variant of a standard "TOP" strategy. As in "TOP", it's characteristic feature is that each test location is tested only once. This assures extremely short test duration which is especially valuable for patients unable to maintain concentration for longer periods. The difference is in the selection of correlated points and the rate of influence between them.

In the "TOP+" strategy, the relations between points are not created based on distance only like in "TOP", but on the information about nerve fiber bundles related to these points.
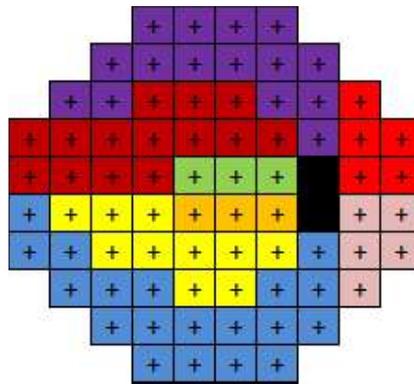
Figure 127. The 30-2 field points grouped by nerve bundles affiliation

Two points can be adjacent but belong to different nerve bundles. In such situation correlation of their sensitivity values is weak. On the other hand they have strong correlations with some other points which may lay not in a closest neighborhood. Thanks to this, the "TOP+" allows better approximation of glaucomatous visual fields with sharper edges of visual defects.

Due to the fact that the TOP+ strategy is based on spatial correlation among test locations, it's usage is limited to the 24-2 and the 30-2 test grids only. Hence, it may be not available on some of the devices (i.e. PTS 920 series).

13.1.8.   3-Zone Strategy

The 3-Zone strategy is a quick qualitative visual field testing method. The test result can be either "complete defect", "defect", or "normal" instead of visual sensitivity values in dB. In this strategy, stimuli of varying intensity are used. The patient is asked to respond to a particular stimulus. Each particular point within the visual field is tested no more than 2 times, which significantly reduces the test duration.

First, the calibration level is determined using 4 calibration points (one per each quadrant at 10°). Sensitivity values at these points are determined by means of the threshold strategy, unless other stimuli level settings have been enabled ("Setting the calibration level (initial stimuli level)"). Once the calibration level is known at 10°, the calibration level is determined for each point included in the test. This value is based on the correlation between retinal sensitivity and the eccentricity of the point within the visual field. Retinal sensitivity is assumed to be linearly decreasing by 3 dB per 10° eccentricity intervals.

The first light point intensity corresponds to the initial level of stimulus intensity, which is equal to the calibration level increased by "suprathreshold offset" (Setting the suprathreshold offset). The first light point is two times brighter than the expected minimum at the particular point within the visual field.

Figure 128. 3-Zone Strategy Algorithm

If the patient responds to the initial stimulus, the particular light point assumes the final "Normal" value and is no longer tested.

If the patient fails to respond to the initial stimulus, another exposure has the maximum intensity (0 dB). If the patient responds, this means that the particular point within the visual field has a defect, but not a complete defect). This particular point is marked as a "defect". If the patient fails to respond to the brightest stimulus, this particular point will be a "complete defect". In both cases

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the point will no longer be tested.

13.1.9.   2-Zone Strategy

The 2-Zone strategy is the quickest qualitative visual field testing method. The test results can be either "defect" or "normal" instead of visual sensitivity values in dB. In this strategy, stimuli of varying intensity are used. The patient is asked to respond to a particular stimulus. Each particular point within the visual field is tested only once, which significantly reduces the test duration.

First, the calibration level is determined using 4 calibration points (one per each quadrant at 10°). Sensitivity values at these points are determined by means of the threshold strategy, unless other stimuli level settings have been enabled ("Setting the calibration level (initial stimuli level)"). Once the calibration level is known at 10°, the calibration level is determined for each point included in the test. This value is based on the correlation between retinal sensitivity and the eccentricity of the point within the visual field. Retinal sensitivity is assumed to be linearly decreasing by 3 dB per 10° eccentricity intervals.

The first light point intensity corresponds to the initial level of stimulus intensity, which is equal to the calibration level increased by "suprathreshold offset" (Setting the suprathreshold offset). The first light point is two times brighter than the expected minimum at the particular point within the visual field.

Figure 129. 2-Zone Strategy Algorithm

If the patient responds to the initial stimulus, the particular light point assumes the final "Normal" value and is no longer tested.

If the patient does not respond to the initial stimulus, the particular light point is a "Defect" and is no longer tested.

13.1.10.   Binocular Driving Test

The Binocular Driving Test strategy is a type of 2-Zone strategy. Driver's Test analyses the driver's ability to see other vehicles. The patient is tested with both eyes open and light points covering the visual field within 160° radius horizontally. In this strategy, stimuli of constant

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intensity are used. The patient is asked to respond to a particular stimulus.

> The Binocular Driving Test strategy can only be used in the Binocular Driving Test preview window and with the binocular test settings enabled.

Each particular point within the visual field is tested only once. Unlike the 3-Zone strategy, the calibration level is not determined for the Binocular Driving Test. Constant intensity of stimuli is set according to the BDT sensitivity setting ("Sensitivity settings for BDT").The test results can be either "no response" or "normal" instead of visual sensitivity in dB.

13.1.11.   Flicker Test Strategy

The Critical Flicker Frequency strategy tests the ability to distinguish a flickering stimulus from a normal static stimulus. Specific deficits of flicker sensitivity were found to develop in glaucoma.

In the Flicker Test, the patient is asked to press the response button on seeing a flickering stimulus. The frequency of a flickering stimulus is progressively reduced from the level at which the patient sees to a static stimulus, until the patient is able to see a flickering stimulus.

First, the calibration level is determined using 4 calibration points (one per each quarter at 10°). Sensitivity values at these points are determined by means of the Flicker strategy, unless other stimuli level settings have been enabled ("Setting the calibration level (initial stimuli level)"). The initial stimuli level at all points within the visual field depends on the calibration level. It is constant and equals the value of the calibration level increased by 8Hz. The initial stimulus level is higher than the expected level.
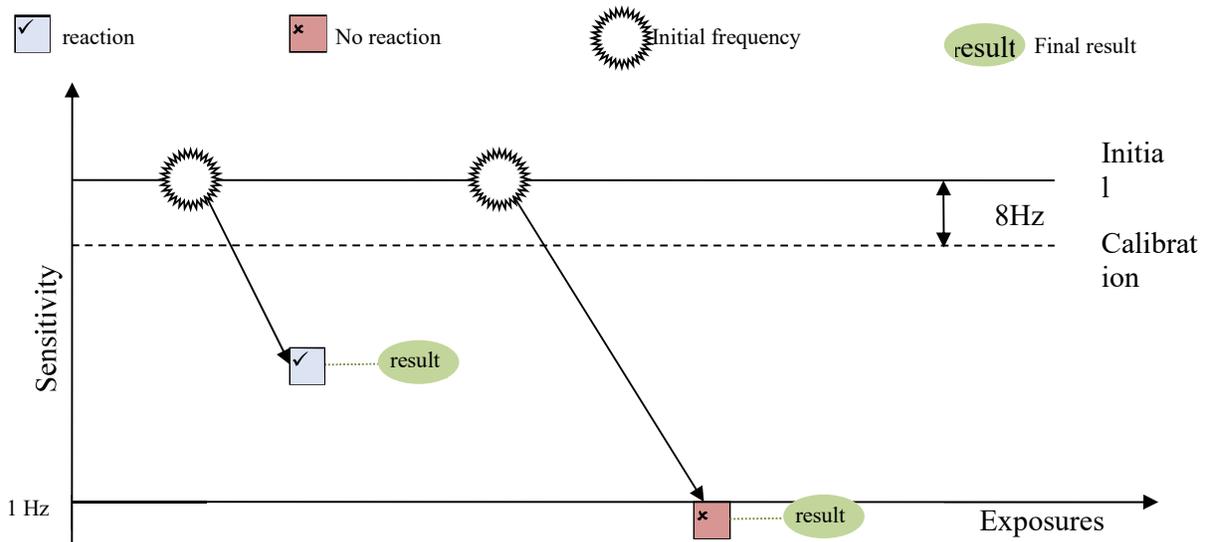
Figure 130. Flicker Strategy Algorithm

60 Hz is the maximum frequency of a flickering stimulus. This frequency is progressively reduced from the initial level to 1Hz or until the patient responds to the stimulus. The test determines the

threshold frequency (patient's response) or absence of response for each tested point. Each point is tested once.

13.1.12. BSV Test Strategy

Binocular Single Vision (BSV) test is designed to detect diplopia. Diplopia may be a sign of neurological or motor disorders of the eye.

In this test, the stimulus appears as a single or doubled dot. If the light point appears as a single dot, the patient presses the response button once; if it appears doubled, the patient presses the button twice. The result can either be "normal" where the patient has pressed the response button once for single stimuli, "doubled" where the patient has pressed the response button twice but only single stimuli was presented, or "no response" where the patient has not responded to the stimulus.

> The Binocular Single Vision Test strategy can only be used in symmetric field and with the binocular test settings enabled.

13.1.13. Dynamic Strategy

Dynamic strategy is a modification of the Full Threshold strategy. The difference lies in the size of the bracketing step. In case of regular Threshold the step size takes one of two values. The bigger step is used up to the first threshold crossing and then the step is reduced by half.

In the Dynamic strategy the bracketing step changes with the difference between the actual stimulus intensity and age normative data. If the stimulus brightness checks the sensitivity close to the age normative level ($<\pm6$dB) then the step size is small (2dB). The step size is increased as the tested sensitivity falls out of the normal range and can be as big as 10 dB. The threshold is crossed only once. The final sensitivity is set at a level in the middle between last intensity with reaction and with no reaction from the patient.
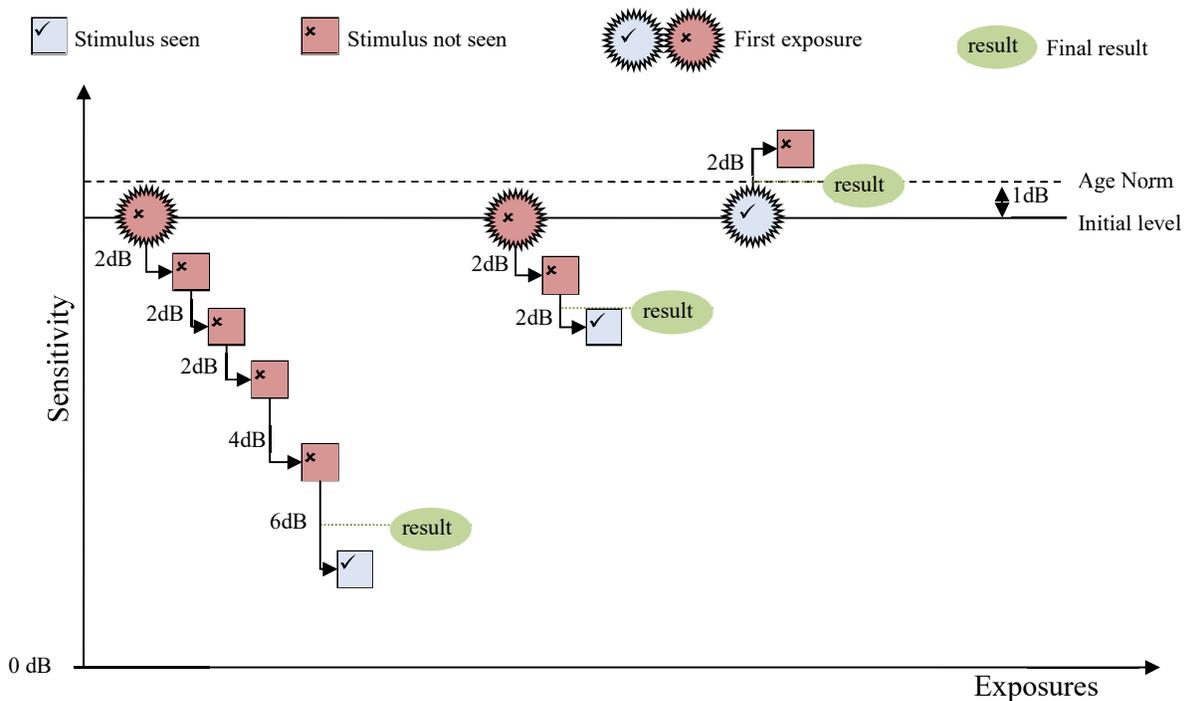
Figure 131. Dynamic Strategy Algorithm

This approach can reduce the test duration to about 60% of Full Threshold duration without a significant change in results. The visual field areas with high sensitivity drops usually show high result variability, therefore the precise evaluation with the small bracketing step is excessive.

The first light point intensity corresponds to the initial level of stimulus intensity, which is equal to age norm increased by 1dB or to the calibration level increased by 1dB if age norm is not available. The first light point is brighter than the expected minimum at the particular point within the visual field. Initial levels are updated progressively during the progress of the test.

> If for the selected stimulus parameters the application does not provide the age normative data, then the dynamic strategy will use the constant bracketing step equal to the bracketing step selected in test settings. The examination in such a case can be longer than expected and it is suggested to use a Fast Threshold strategy instead.

13.2. *Test Fields*

Test fields are a set of points within the entire visual field where the light stimulus is shown during the test. Test fields differ by range, or coverage of the visual field. In addition, the test fields can have a different arrangement of the test points.

The duration of a visual field test highly depends on the type of the test field used. The more points can be found within a test field, the longer the test will take to complete. Therefore the test strategy should be selected not only in terms of the required diagnostic information, but also in terms of the condition and cooperation of the patient.

13.2.1. Radial Fields

13.2.1.1. F-50 Field (Full Field)

F-50 field is a full symmetric test field of 50°. It is used for testing neurological deficiencies, and to detect peripheral defects while testing the center of the visual field as well. It includes other test field ranges (except for the extended test field). In terms of the number of test points, is most suitable for screening test strategies.
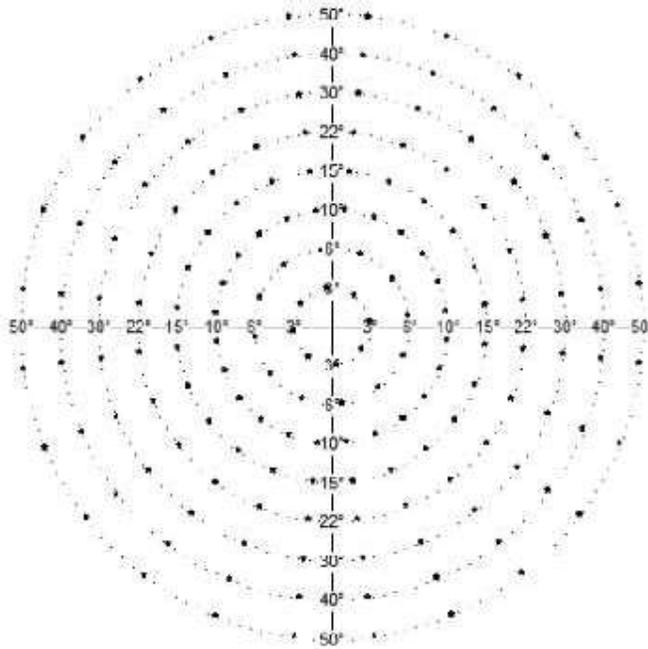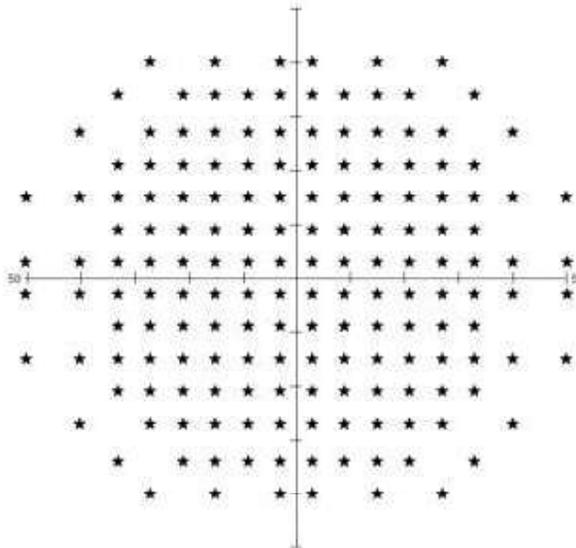

Figure 132. F-50 (Full)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
F-50 (Full)	3-50	3-50	3-50	3-50	163 (164)	Threshold: 13-18 min Fast Threshold: 10-14 min Screening: 9-15 min 3-Zone: 4-6 min

⚠️ Due to the large number of test points within this test field, tests based on the F-50 field used in combination with threshold strategies take several minutes to complete per eye. Patients may feel tired and the test reliability may be affected. Consider whether the test should be divided into two parts or paused for a while.

The range of the visual field is rather large in the nasal and superior direction, and therefore the test results may include artifacts of the nose and the brow ridge shadow. This should be taken into account so as not to confuse these artifacts with the actual eyesight impediments.

13.2.1.2. G-50 (Glaucoma)

G-50 covers the visual field area where early glaucoma can be detected. G-50 field is an asymmetric test field extending up to 50°. In terms of the number of test points, it is most suitable for fast threshold and screening test strategies. It is not suitable for use in binocular tests.
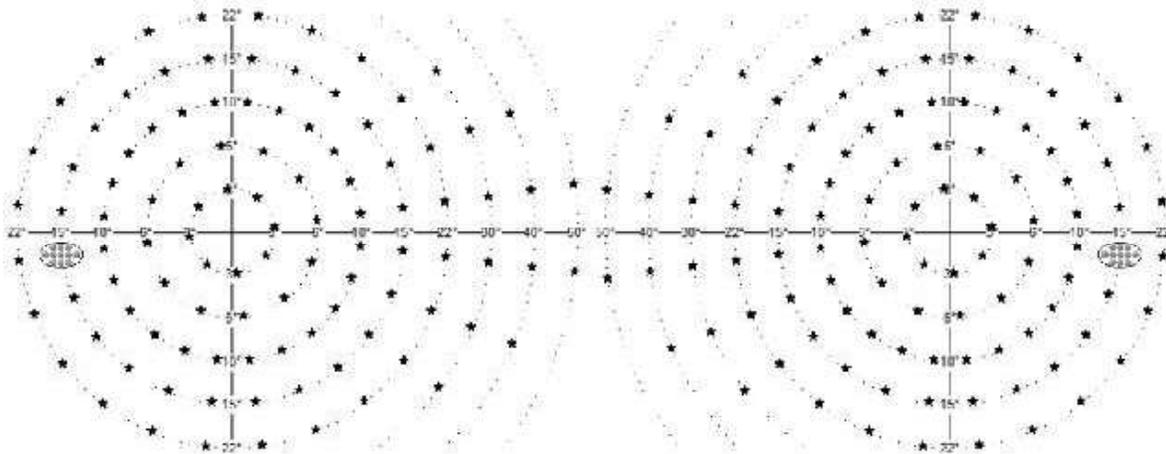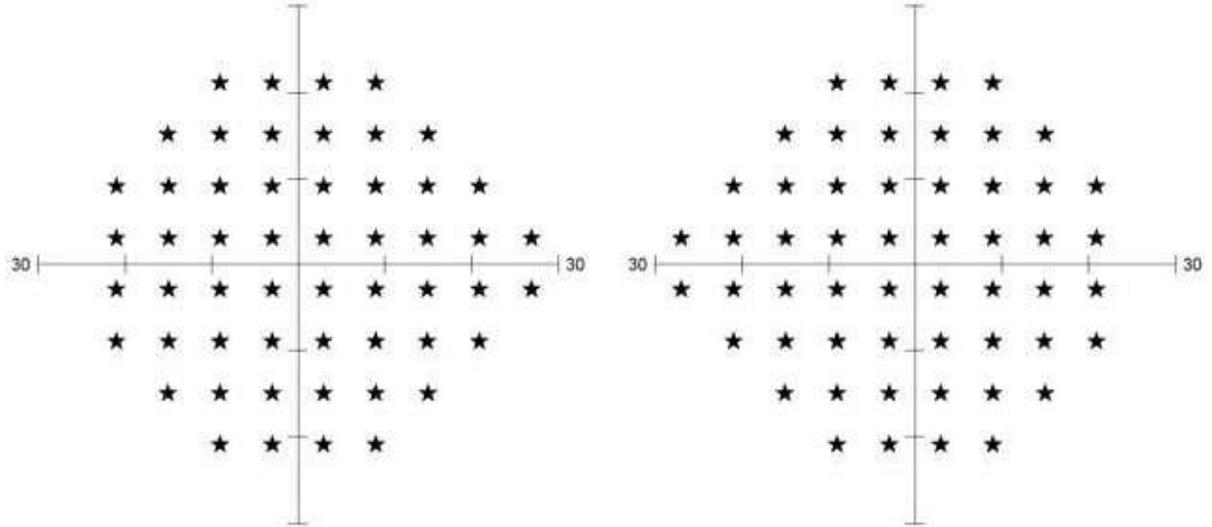

Figure 133. G-50 (Glaucoma) field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
G-50 (Glaucoma)	3-50	3-22	3-22	3-22	103 (-)	Threshold: 7-12 min Fast Threshold: 6-10 min Screening: 4-8 min 3-Zone: 3-5 min

13.2.1.3. C-22 (Central)

C-22 field is a symmetric horizontal test field of 30°. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used to diagnose glaucoma following the glaucoma field test. In terms of the number of test points, C-22 field is most suitable for fast threshold and screening test strategies.
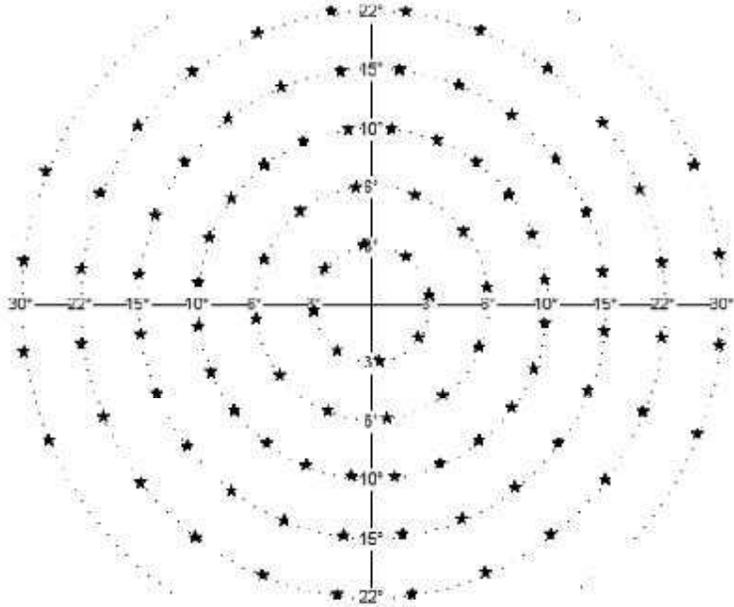
Figure 134. C-22 (Central)
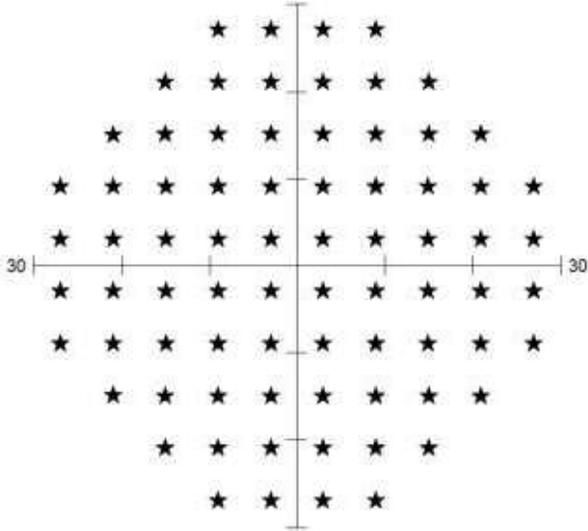
Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]]
C-22 (Central)	3-30	3-30	3-22	3-22	99 (100)	Threshold: 6-10 min Fast Threshold: 3-6 min Screening: 3-5 min 3-Zone: 2-4 min

13.2.1.4. C-24 A

C-24A field is an asymmetric test field extending up to 30° nasally – resembling popular test fields used in other devices. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. This field was specially designed to work with Advanced strategy, but can be used with others as well. In terms of the number of test points, C-24A field is most suitable for precise threshold strategies.
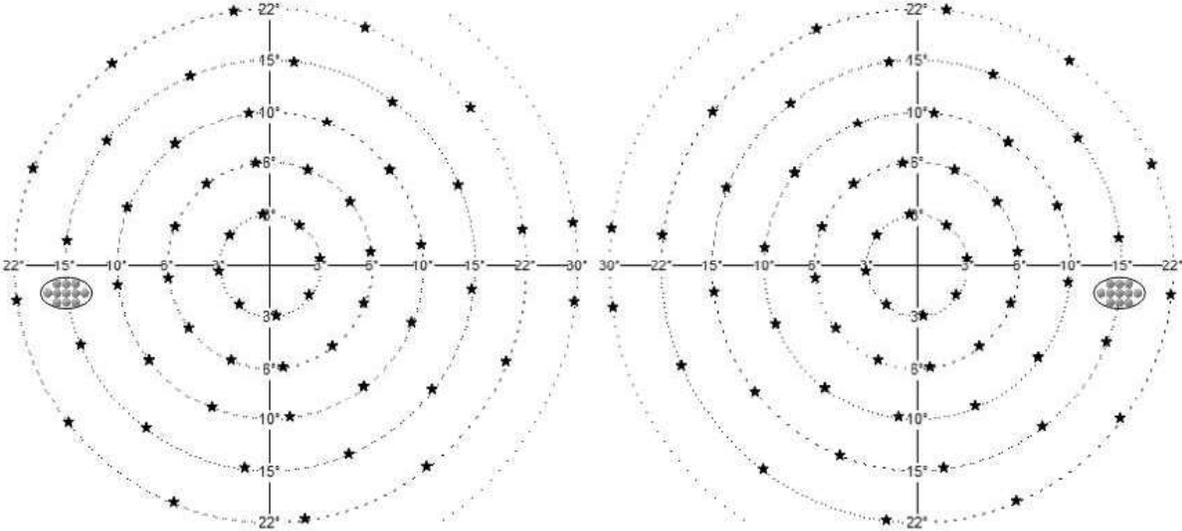
Figure 135. C-24A field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
C-24A	3-30	3-22	3-22	3-22	58	Threshold: 4-8 min Fast threshold: 3-4 min Advanced :3-4 min Screening: 2-3 min 3 – zone 2-3 min

13.2.1.5. C-30A field

C-30A field is an asymmetric test field extending up to 30° − resembling popular test fields used in other devices. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. This field was specially designed to work with Advanced strategy, but can be used with others as well. In terms of the number of test points, C-30A field is most suitable for precise threshold strategies.
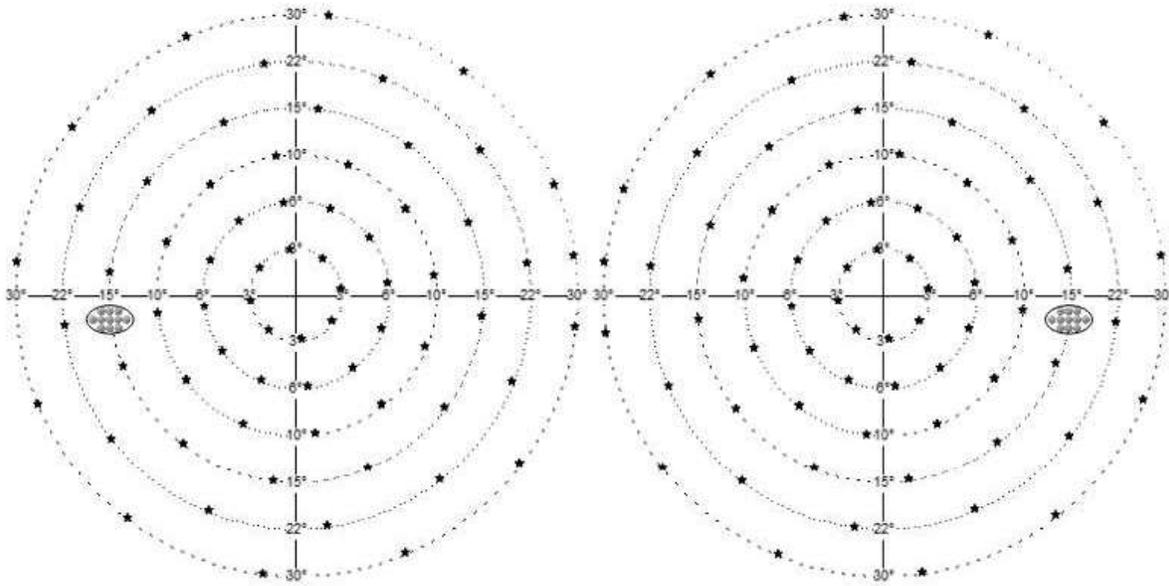
Figure 136. C-30A field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
C-30A	3-30	3-30	3-30	3-30	69	Threshold: 4-8 min Fast threshold: 3-4 min Advanced :3-4 min Screening: 2-3 min 3 − zone: 2-3 min

13.2.1.6. M-10 (Macula)

M-10 field covers the macula area. It is a symmetric test field extending up to 10°. M-10 is used in macular diseases, to detect visual defects of n. II , and to monitor the condition of a visual field of less than 10°. In terms of the number of test points, it is most suitable for macula tests using threshold test strategies.
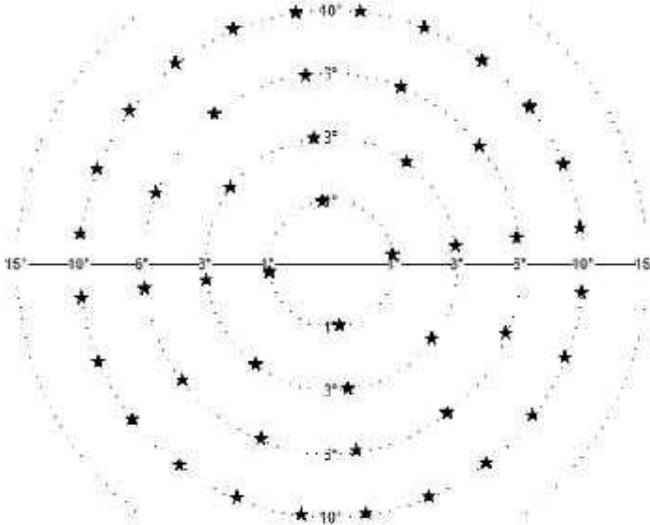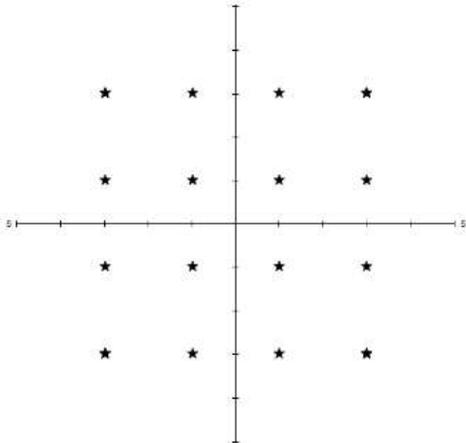

Figure 137. M-10 (Macula)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
M-10 (Macula)	1-10	1-10	1-10	1-10	48 (48)	Threshold: 3-5 min Fast Threshold: 2-4 min Screening: 3-4 min 3-Zone: 2-3 min

13.2.1.7. C-30 (Fast)

C-30 covers the central part of the visual field and has a reduced number of test points. It is a pseudo-symmetric test field of 30° (symmetric rage with asymmetric distribution of test points). It is most commonly used to test a new patient to screen him/her for visual defects. In terms of the number of test points, it is most suitable for testing the central part of the visual field using threshold test strategies.
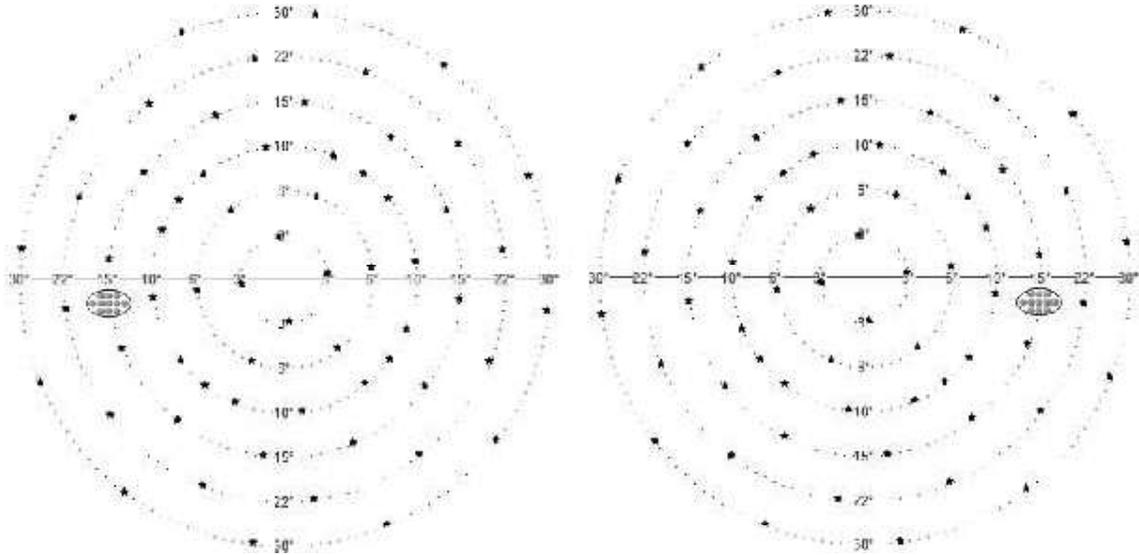
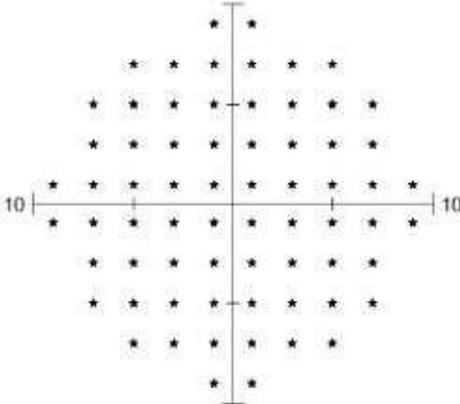
Figure 138. C-30 (Central) field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
C-30 (Fast)	3-30	3-30	3-30	3-30	60 (60)	Threshold: 3-6 min Fast Threshold: 3-6 min Screening: 2-3 min 3-Zone: 1-2 min

13.2.1.8. P-50 Field (Peripheral)

P-50 covers the visual field peripheral. It is a symmetric test field of 50°, excluding the central area of the visual field. It is used to detect peripheral changes and can be used as a supplementary test aimed to follow up field loss above 22 degrees. In terms of the number of test points, it is most suitable for testing the peripheral part of the visual field using threshold test strategies.
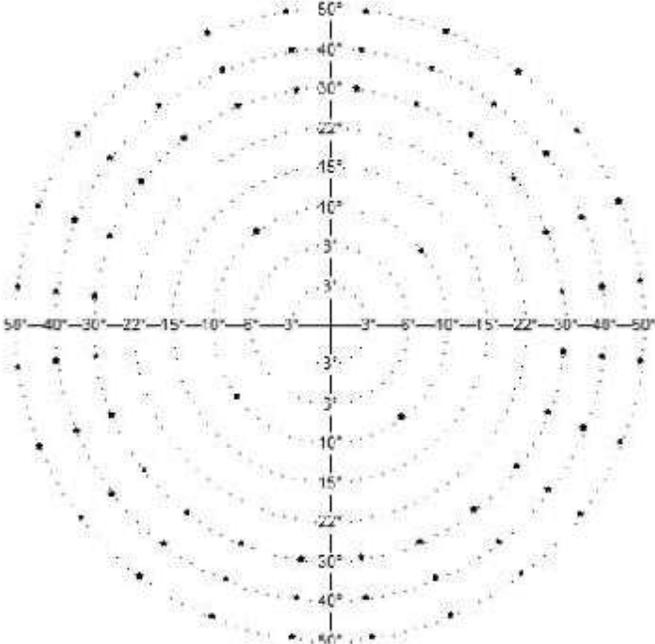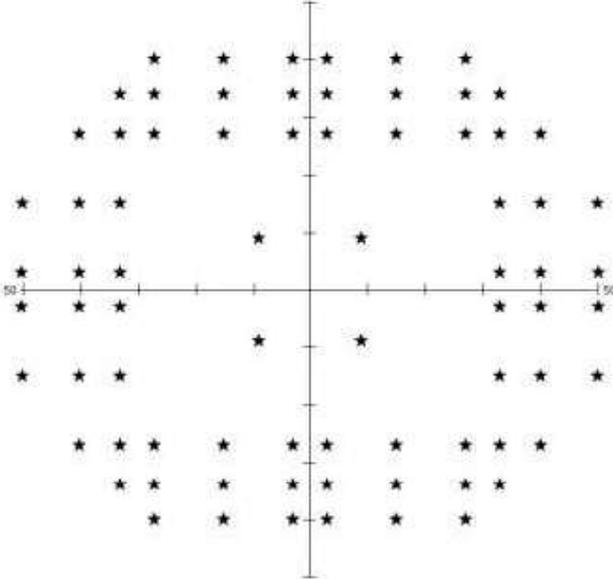

Figure 139. P-50 (Peripheral)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
P-50 (Peripheral)	30-50	30-50	30-50	30-50	72 (72)	Threshold: 3-11 min Fast Threshold: 4-7 min Screening: 5-6 min 3-Zone: 3-4 min

13.2.1.9. E-80 (Extended)

E-80 covers almost all of the visual field. It is an asymmetric test field of 80° temporal range used for driving tests. In terms of the number of test points, it is most suitable for screening test strategies and Threshold.
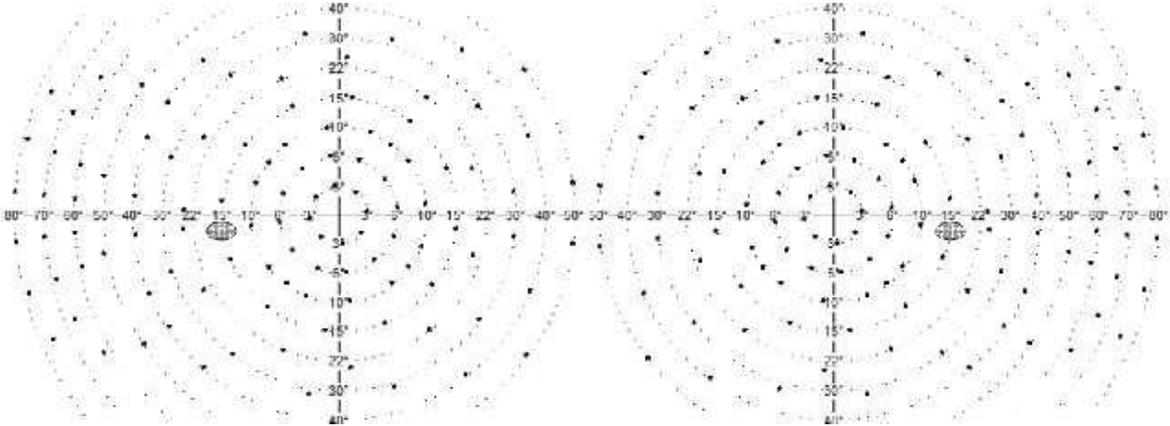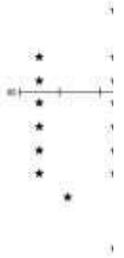

Figure 140. E-80 (Extended) field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
E-80 (Extended)	3-50	3-80	3-30	3-30	106 (-)	Threshold: 7-12 min Screening: 4-8 min 3-Zone: 3-6 min

13.2.1.10. Esterman B (Driving Test) Field

Esterman B (binocular) field is used for Binocular Driving Tests. It covers drivers field range. Includes 120 points in 80 degrees horizontal and 50 degrees vertical ranges.
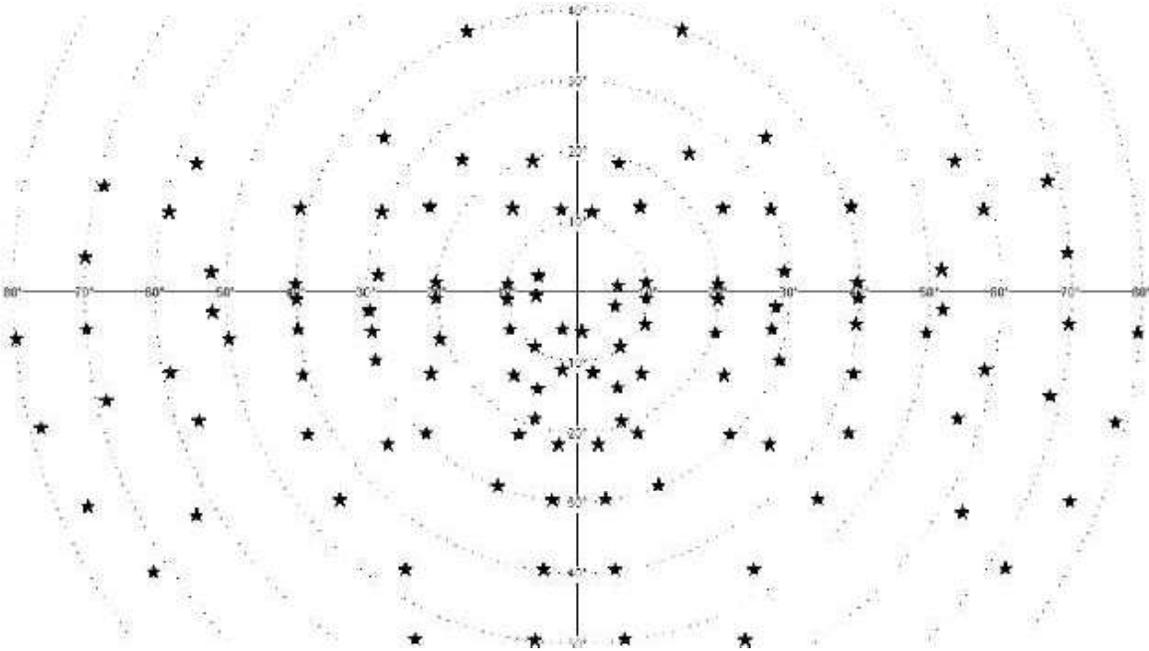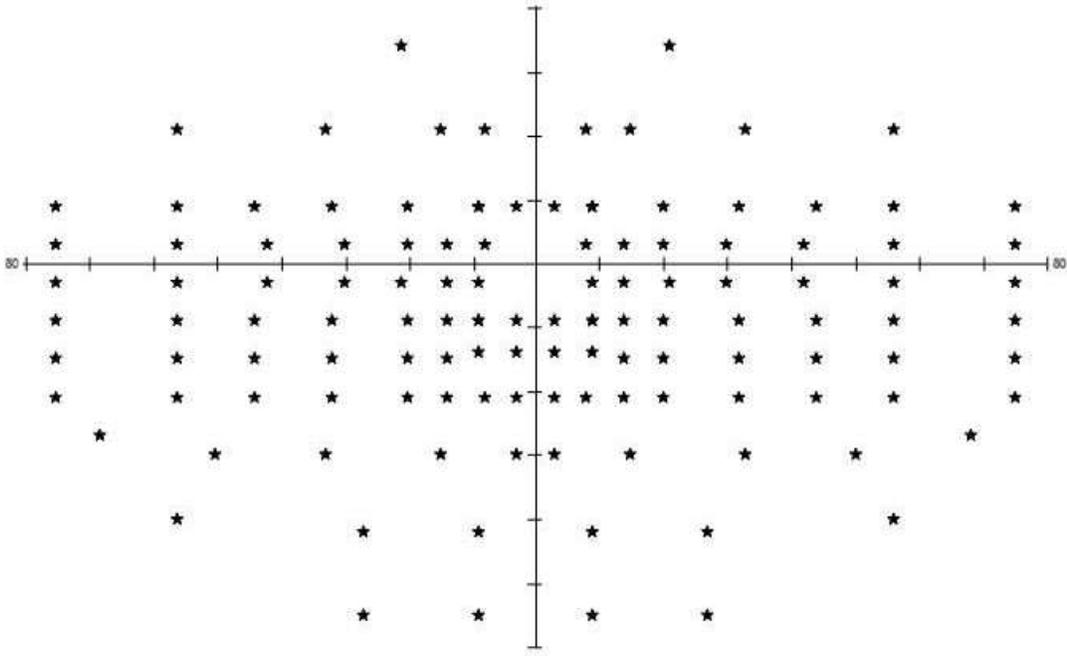

Figure 141. Esterman B (Driving Test) Field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration [minutes]
Esterman B (Drivers)	80	80	40	50	-(120)	Driving Test: 2-3 min

13.2.1.11. FeV G1

This is a special test field for driver's license Group 1 testing (European B-license classification), where the required horizontal extend of the test field is 120°. It is an asymmetric test field used for Driving Tests. In terms of the number of test points, it is most suitable for screening test strategies however thresholding is also possible.
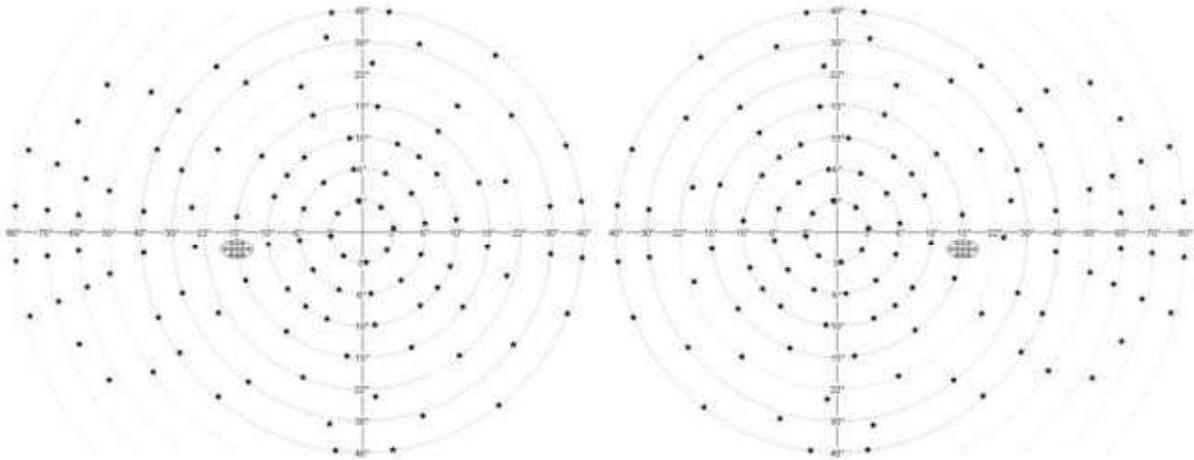
Figure 142. FeV G1 field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
FeV G1	3-40	3-80	3-40	3-40	106 (-)	Threshold: 7-12 min Screening: 4-8 min 3-Zone: 3-6 min

13.2.1.12. FeV G2

This is a special test field for driver's license Group 2 testing (European C and D-license classification), where the required horizontal extend of the test field is 140°. It is an asymmetric test field used for Driving Tests. In terms of the number of test points, it is most suitable for screening test strategies and Threshold.
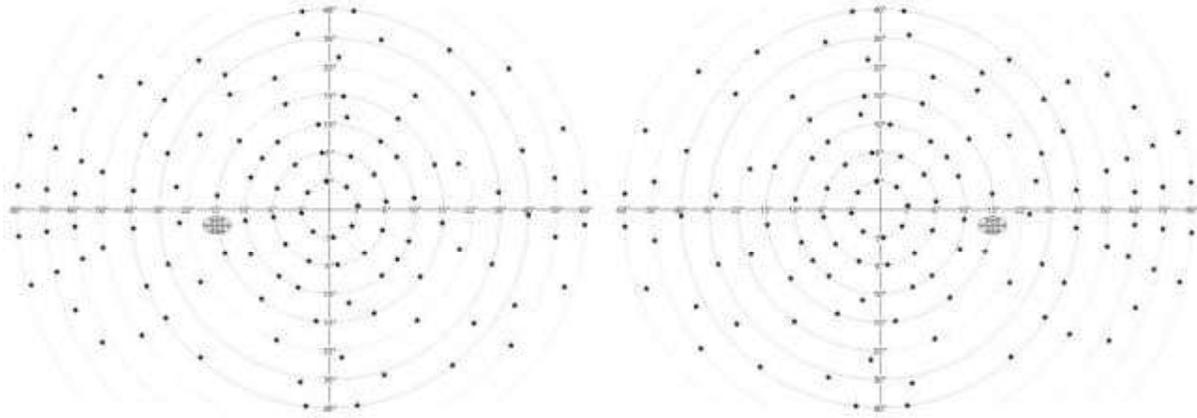
Figure 143. FeV G2 field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
FeV G2	3-60	3-80	3-40	3-40	113 (-)	Threshold: 7-12 min Screening: 4-8 min 3-Zone: 3-6 min

13.2.2. Orthogonal Fields

13.2.2.1. F50-2 field (Full)

F50-2 field is a full, symmetric test field of 50° horizontally and 40° vertically. It is used for testing neurological deficiencies, and to detect peripheral defects while testing the center of the visual field as well. It includes other test field ranges (except for the extended test field). In terms of the number of test points, is most suitable for screening test strategies.
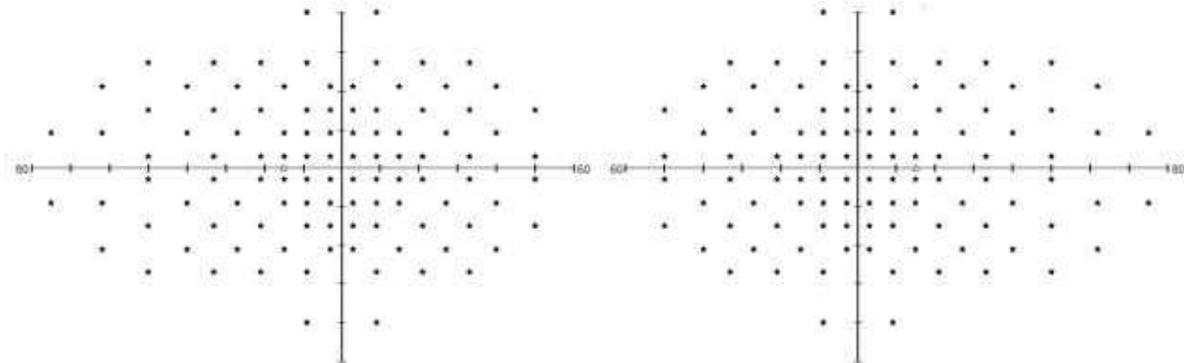

Figure 144. F50-2 (Full)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
F50-2 (Full)	3-50	3-50	3-40	3-40	168 (168)	Threshold: 13-18 min Fast Threshold: 10-14 min Screening: 9-15 min 3-Zone: 4-6 min

Due to the large number of test points within this test field, tests based on the F50-2 field used in combination with threshold strategies take several minutes to complete per eye. Patients may feel tired and the test reliability may be affected. Consider whether the test should be divided into two parts or paused for a while.

The range of the visual field is rather large in the nasal and superior direction, and therefore the test results may include artifacts of the nose and the brow ridge shadow. This should be taken into account so as not to confuse these artifacts with the actual eyesight impediments.

13.2.2.2. G50-2 (Glaucoma) field

G50-2 covers the visual field area where early glaucoma can be detected. G50-2 field is an asymmetric test field extending up to 50°. In terms of the number of test points, it is most suitable for fast threshold and screening test strategies. It is not suitable for use in binocular tests.
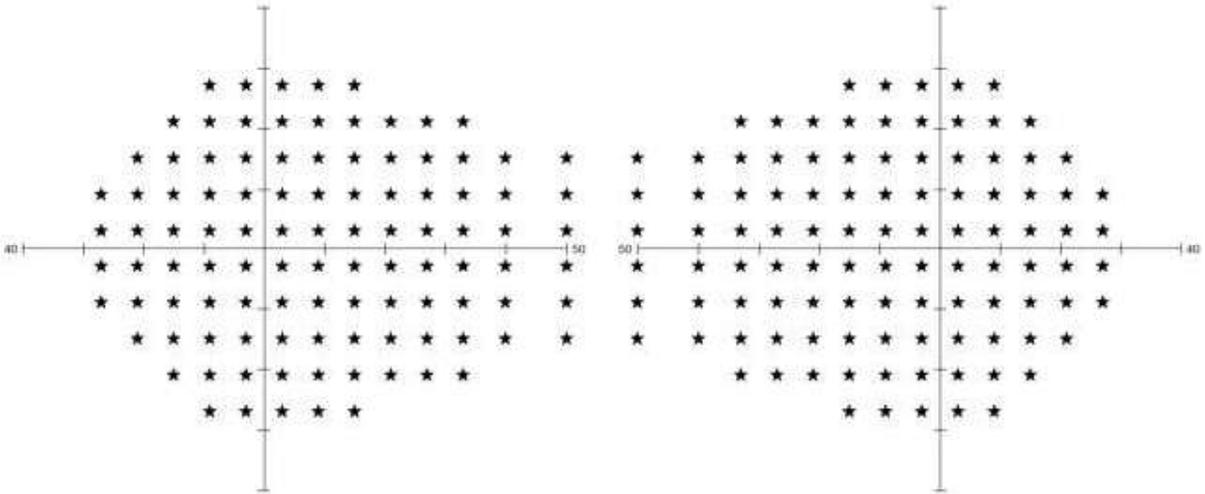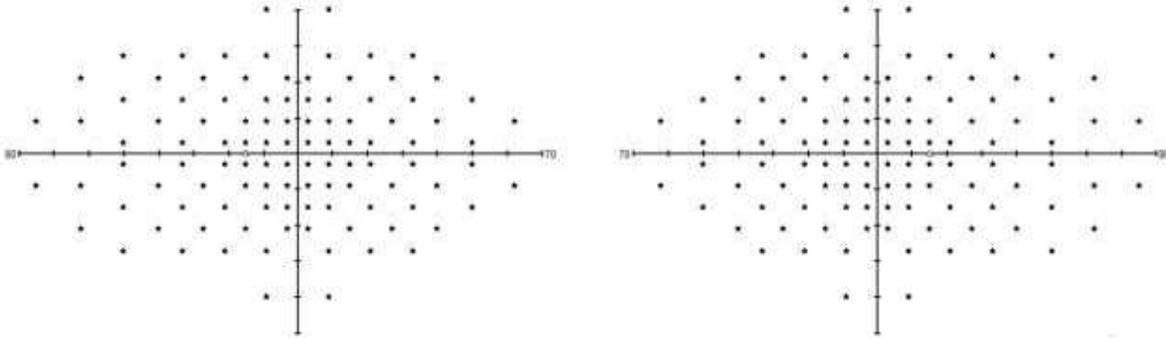

Figure 145. G50-2 (glaucoma) field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
G-50 (Glaucoma)	3-50	3-27	3-27	3-27	104 (-)	Threshold: 7-12 min Fast Threshold: 6-10 min Screening: 4-8 min 3-Zone: 3-5 min

13.2.2.3. 24-2 field

The 24-2 field is an asymmetric test field extending up to 27° in nasal direction. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. In terms of the number of test points, the 24-2 field is most suitable for precise threshold strategies.
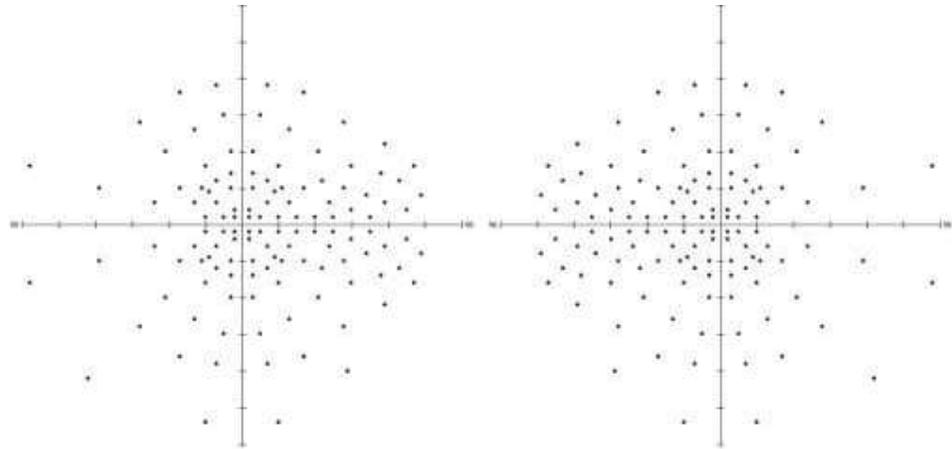
Figure 146. 24-2 field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
24-2	3-27	3-21	3-21	3-21	54	Threshold: 4-8 min Fast threshold: 3-4 min ZETA: 4-6 min ZETA Fast: 3-4 min ZETA Faster: 2-4 min Advanced :2-3 min TOP/TOP+: 1,5 min Screening: 2-3 min 3 – zone: 2-3 min

13.2.2.4. 30-2 field

The 30-2 field is a symmetric test field extending up to 27°. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. In terms of the number of test points, the 30-2 field is most suitable for precise threshold strategies.

Figure 147. 30-2 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
30-2	3-27	3-37	3-37	3-37	76	Threshold: 4-8 min Fast threshold: 4-5 min ZETA: 5-7 min ZETA Fast: 4-5 min ZETA Faster: 3-5 min Advanced :3-4 min TOP/TOP+: 2 min Screening: 2-3 min 3 − zone: 2-3 min

13.2.2.5. 24-2C field

The 24-2C field is an asymmetric test field extending up to 27° in nasal direction. It is the 24-2 test field with additional test points in macular area to increase its diagnostic value. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. In terms of the number of test points, 24-2C field is most suitable for precise threshold strategies.
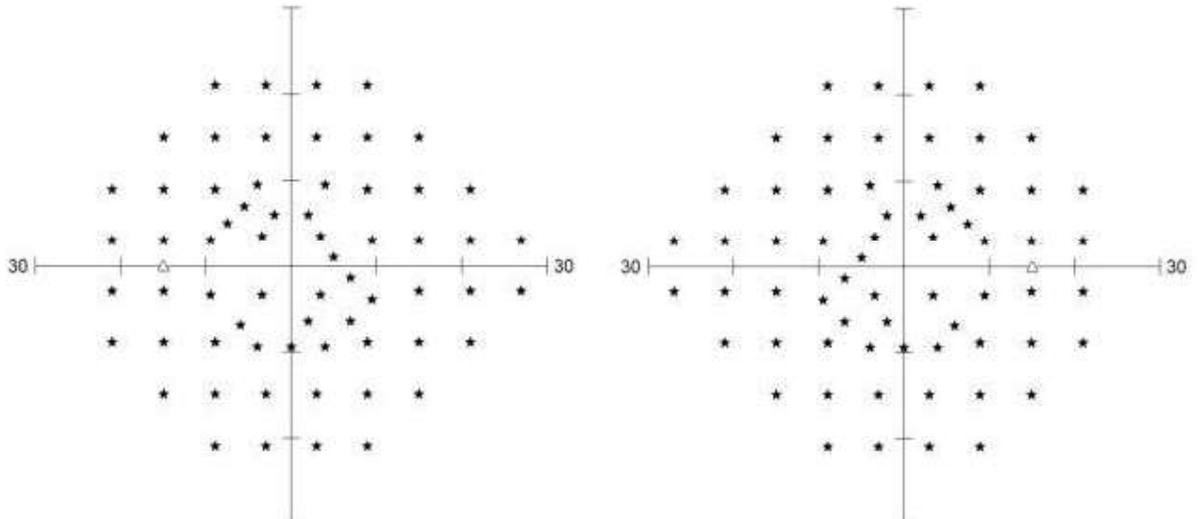
Figure 148. 24-2C field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
24-2C	3-27	3-21	3-21	3-21	64	Threshold: 4-8 min Fast threshold: 3-4 min ZETA: 4-6 min ZETA Fast: 3-4 min ZETA Faster: 2-4 min Screening: 2-3 min 3 – zone 2-3 min

13.2.2.6. 30-2C field

The 30-2C field is an asymmetric test field extending up to 27° in nasal direction. It is the 30-2 test field with additional test points in macular area to increase its diagnostic value. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. In terms of the number of test points, 30-2C field is most suitable for precise threshold strategies.
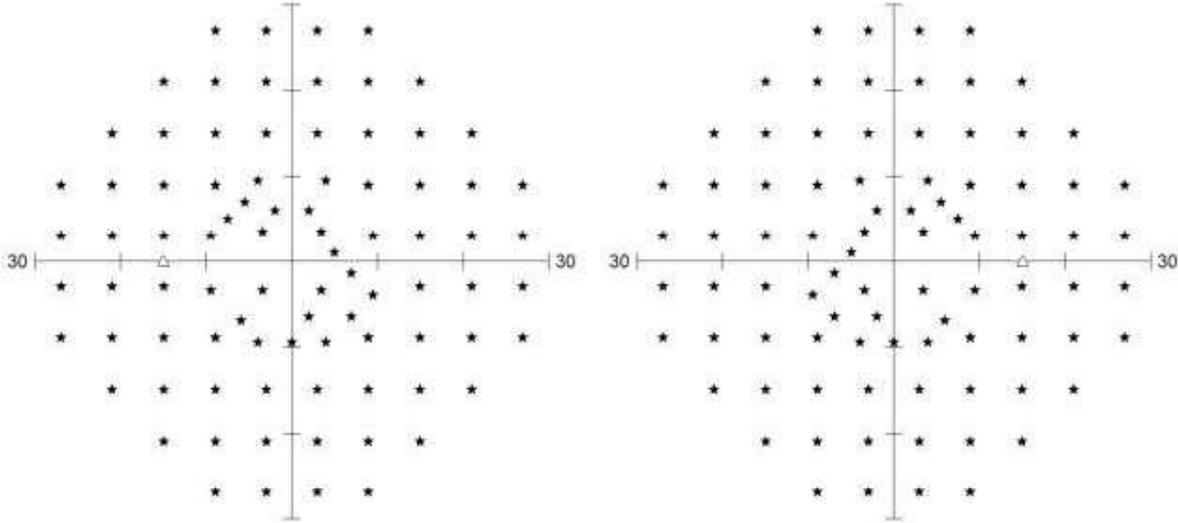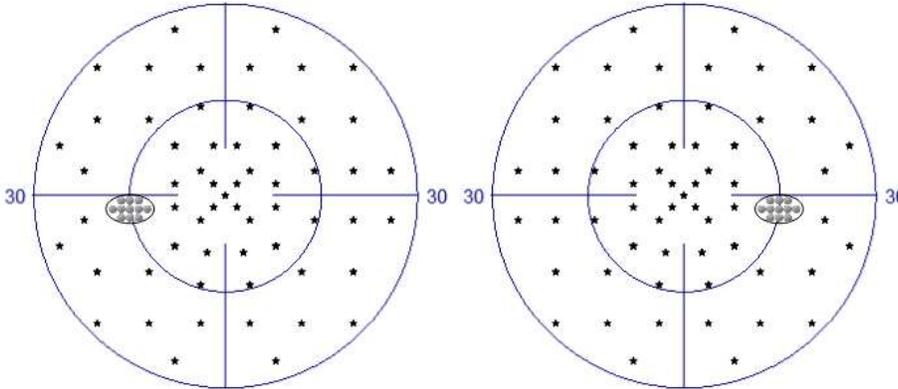

Figure 149. 30-2C field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
30-2C	3-27	3-27	3-27	3-27	86	Threshold: 4-8 min Fast threshold: 4-5 min ZETA: 5-7 min ZETA Fast: 4-5 min ZETA Faster: 3-5 min Screening: 2-3 min 3 – zone: 2-3 min

13.2.2.7. 5-2 field (Macula)

5-2 is a symmetric test field extending up to 3°. It is used for fovea test.
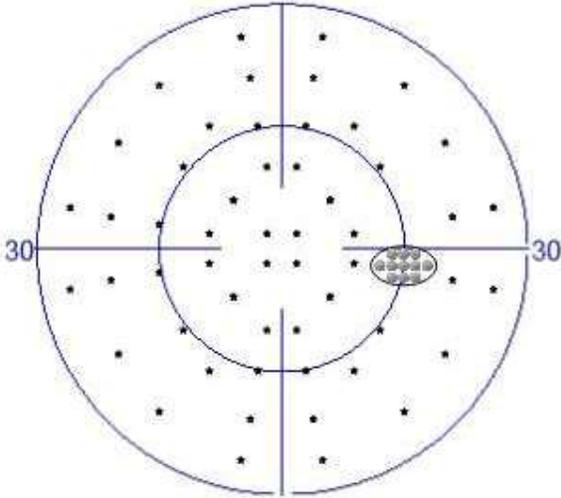

Figure 150. 5-2 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
M10-2 (Macula)	1-3	1-3	1-3	1-3	16 (16)	Threshold: 1-2 min Fast Threshold: 1-2 min Screening: 1 min 3-Zone: 1 min

13.2.2.8. 10-2 field (Macula)

10-2 field covers the macula area. It is a symmetric test field extending up to 9°. 10-2 is used in macular diseases, to detect visual defects of n. II , and to monitor the condition of a visual field of less than 10°. In terms of the number of test points, it is most suitable for macula tests using threshold test strategies.

Figure 151. 10-2 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
M10-2 (Macula)	1-9	1-9	1-9	1-9	68 (68)	Threshold: 4-5 min Fast Threshold: 4-5 min Screening: 3-4 min 3-Zone: 2-3 min

13.2.2.9. P50-2 field (Peripheral)

P50-2 covers the visual field peripheral. It is a symmetric test field of 50°, excluding the central area of the visual field. It is used to detect peripheral changes and can be used as a supplementary test aimed to follow up field loss above 27 degrees. In terms of the number of test points, it is most suitable for testing the peripheral part of the visual field using threshold test strategies.
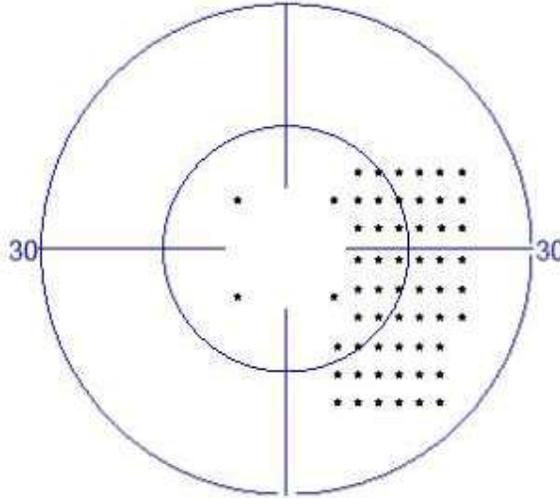

Figure 152. P50-2 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
P50-2 (Peripheral)	33-50	33-50	27-40	27-40	76 (76)	Threshold: 3-11 min Fast Threshold: 4-7 min Screening: 5-6 min 3-Zone: 3-4 min

13.2.2.10. Esterman M field (Extended)

Esterman M covers almost all of the visual field. It is an asymmetric test field of 75° (may use fixation shift). Used for Driving Tests. In terms of the number of test points, it is most suitable for fast screening test strategies.
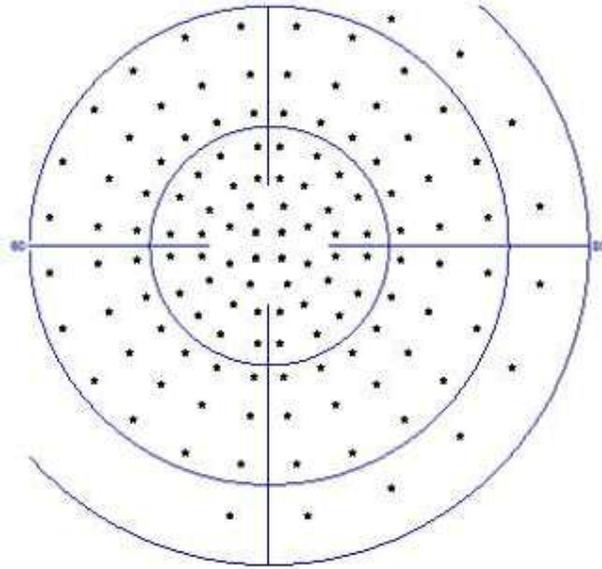

Figure 153. Esterman M (Extended) field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
E-80 (Extended)	9-50	9-75	9-34	9-55	100(-)	Threshold: 7-12 min Screening: 4-8 min 3-Zone: 3-6 min

13.2.2.11. Esterman B field (Driving Test)

Esterman B field is used for Binocular Driving Tests. It covers drivers field range. Includes 120 points in 75 degrees horizontal and 55 degrees vertical ranges.

Figure 154. Esterman B field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration [minutes]
BDT (Drivers)	75	75	34	55	-(120)	Driving Test: 2-3 min

13.2.2.12. Gandolfo field

Gandolfo field is a binocular field used for evaluation of visual disability of patients. It covers the most important part of visual field in terms of every day's functional vision. It is used only with BDT or 3-zone strategy. Includes 100 points in 50 degrees horizontal and 42 degrees vertical ranges. The examination taken on the Gandolfo test field is accompanied by the BVFR index ("Details" analysis – test parameters and indexes).
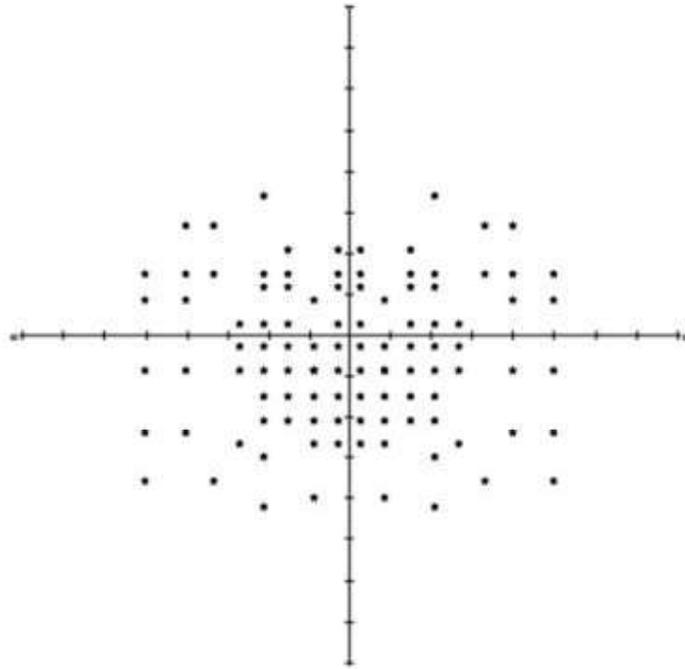
Figure 155. Gandolfo field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points binocular	Test duration [minutes]
Gandolfo	50	50	34	42	100	Driving Test: 2-3 min 3-zone: 3-4 min

13.2.2.13. G0-2 field

The G0-2 field is an asymmetric test field extending up to 27°. In this visual field, the central part of the visual field is monitored for possible visual defects. The layout of points reflects the layout of optic nerve fibers. This field was specially designed to allow very fast testing of locations crucial in glaucoma screening.
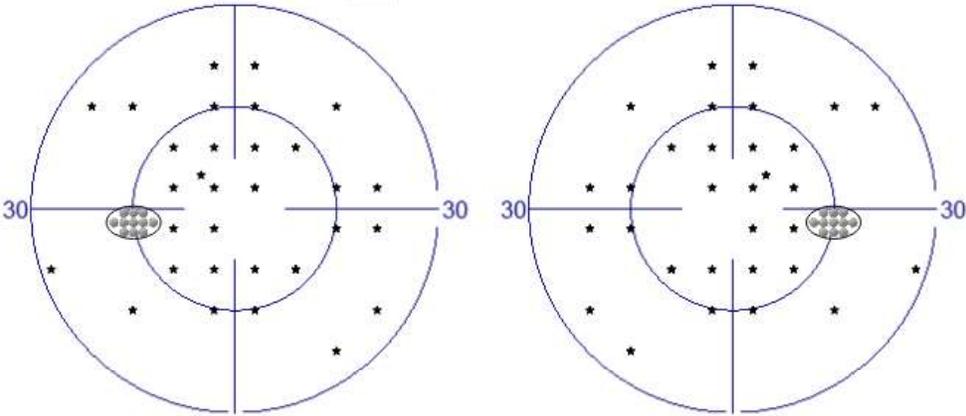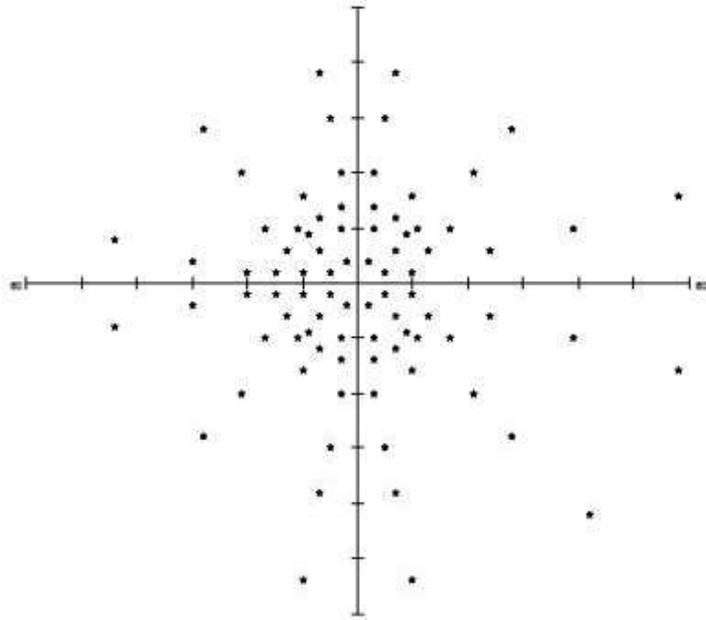

Figure 156. G0-2 test field for left and right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (Binocular)	Test duration [minutes]
G0-2	21	27	21	21	28(-)	Screening – 1-3 min 3-zone: 1-2 min 2-zone: 1 min

13.2.2.14. Sup 44 (Superior 44) *

Sup 44 field is a special asymmetrical field for testing the upper field of view only. This field can be used to assess ptosis. In terms of its intended use it is limited to be used only with screening strategies.
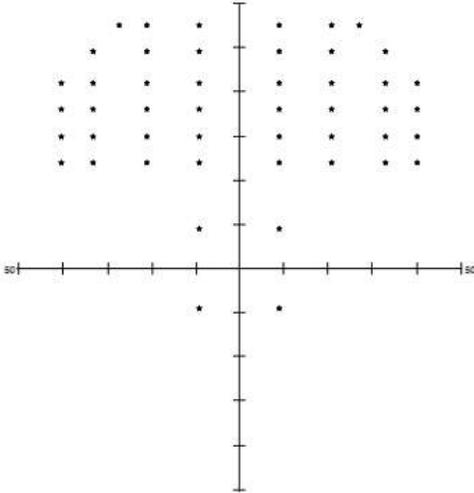
Figure 157. Sup 44 (superior 44) field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
Sup 44	40	40	55	-21	44 (44)	Screening: 1-2 min 3– zone: 1-2 min

*field is available for PTS 925Wi, not for PTS 925W

13.2.2.15. FeV G1

This is a special test field for driver's license Group 1 testing (European B-license classification), where the required horizontal extend of the test field is 120°. It is an asymmetric test field used for Driving Tests. In terms of the number of test points, it is most suitable for screening test strategies however thresholding is also possible.
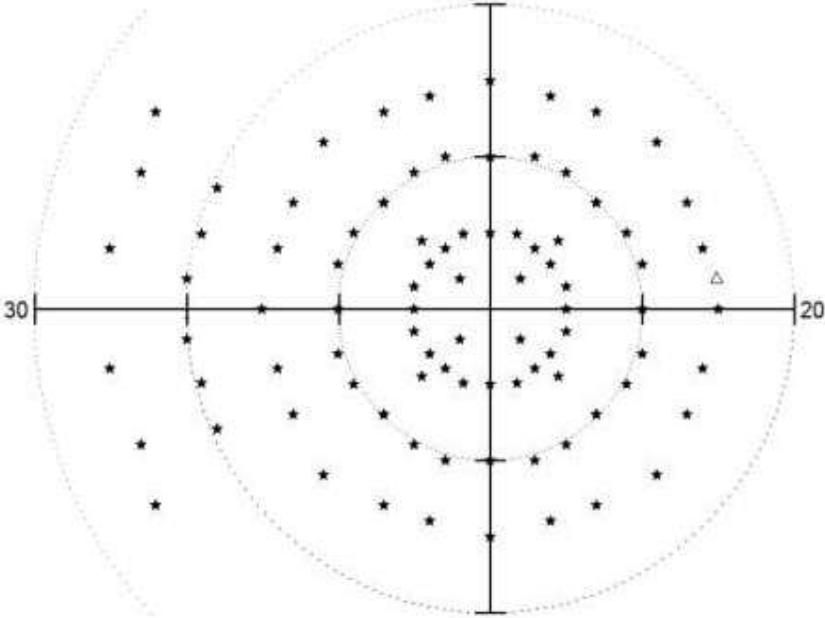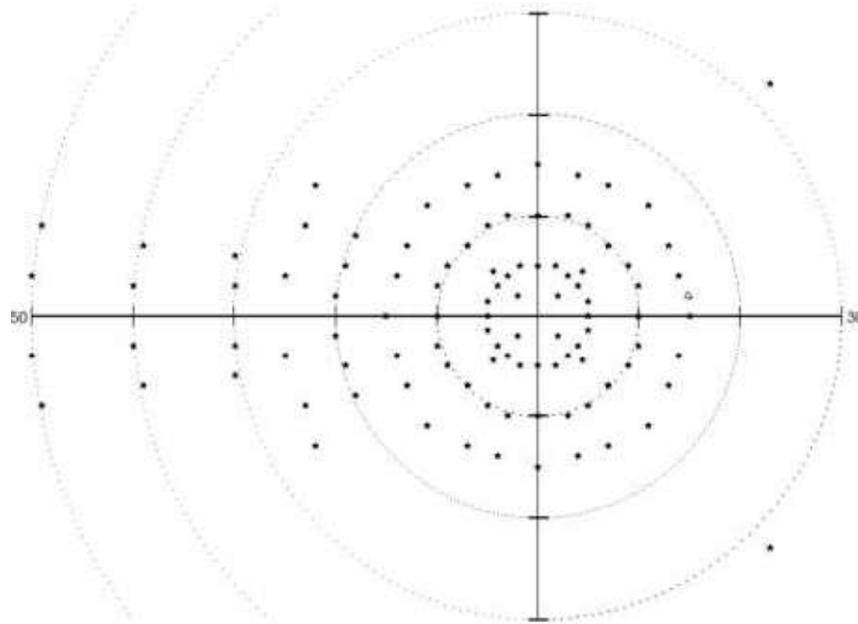

Figure 158. FeV G1 field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
FeV G1	3-50	3-75	3-40	3-40	104 (-)	Threshold: 7-12 min Screening: 4-8 min 3-Zone: 3-6 min

13.2.2.16. FeV G2

This is a special test field for driver's license Group 2 testing (European C and D-license classification), where the required horizontal extend of the test field is 140°. It is an asymmetric test field used for Driving Tests. In terms of the number of test points, it is most suitable for screening test strategies and Threshold.
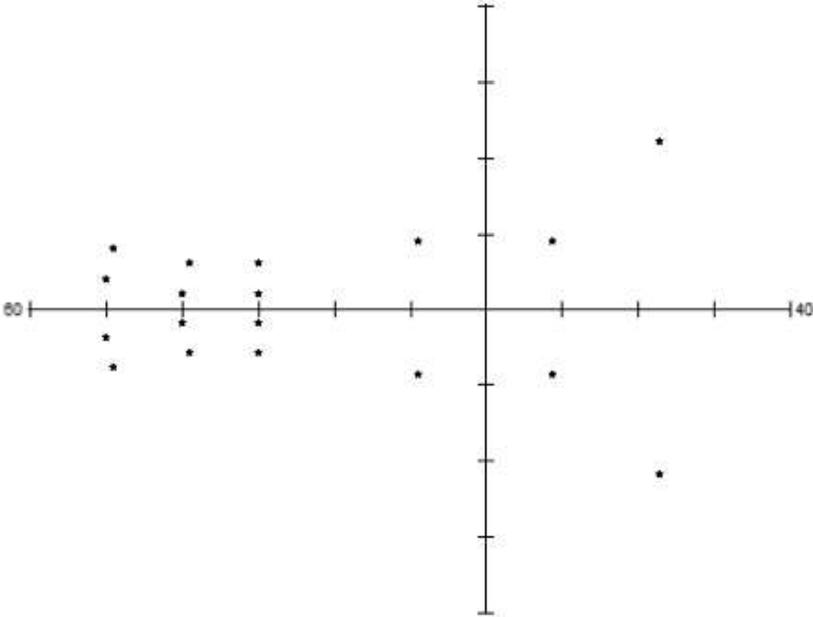

Figure 159. FeV G2 field of the left and the right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
FeV G2	3-65	3-75	3-40	3-40	106 (-)	Threshold: 7-12 min Screening: 4-8 min 3-Zone: 3-6 min

13.2.3. Projection Fields

13.2.3.1. FF120 field (Full Field 120)

FF 120 field is a full, asymmetric test field with range extended up to 60 degrees temporally. It is used for testing neurological deficiencies, and to detect peripheral defects while testing the center of the visual field as well. In terms of the number of test points, is most suitable for screening test strategies.

Figure 160. FF120 (Full Field) field of the left and the right eye
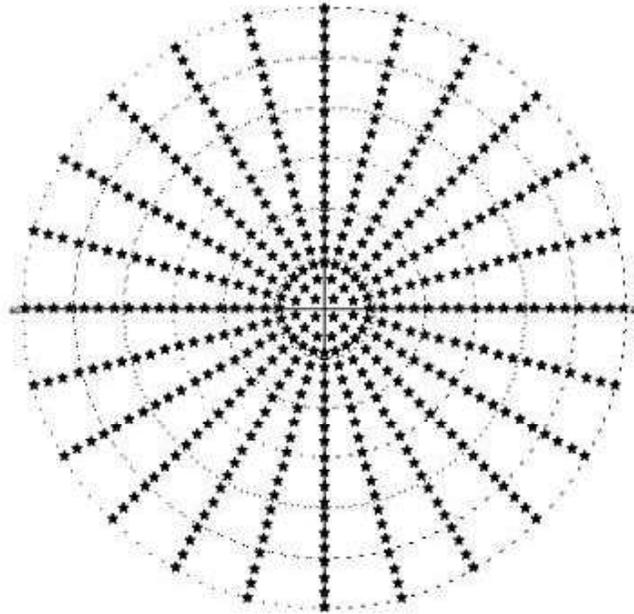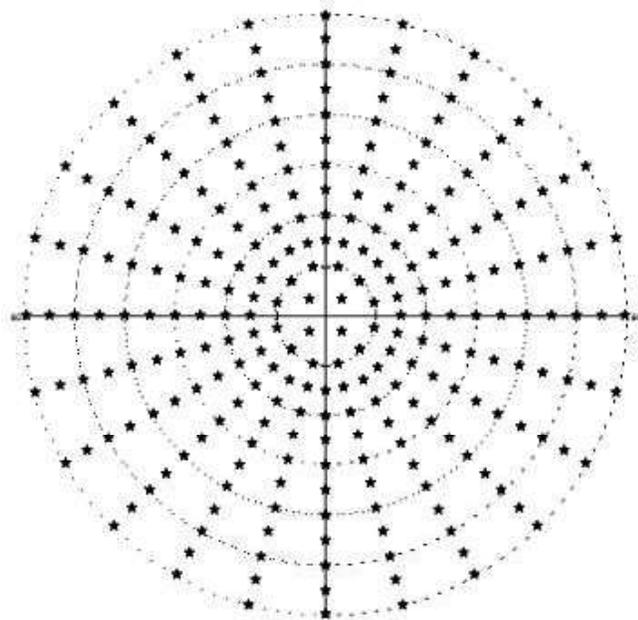
Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
FF120(Full Field)	2-50	2-60	2-40	2-55	120	Screening: 5-9 min 3-Zone: 4-6 min

Due to the large number of test points within this test field, tests based on the FF-120 field used in combination with Screening strategies take several minutes to complete per eye. Patients may feel tired and the test reliability may be affected. Consider whether the test should be divided into two parts or paused for a while.

The range of the visual field is rather large in the nasal and superior direction, and therefore the test results may include artifacts of the nose and the brow ridge shadow. This should be taken into account so as not to confuse these artifacts with the actual eyesight impediments.

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13.2.3.2. Sup 64 field (Superior 64)

Sup 64 field is a special asymmetric field for testing only the extend of the superior part of a visual field. This field can be used for evaluating the ptosis. In terms of its intended use it is limited to be used only with screening strategies.
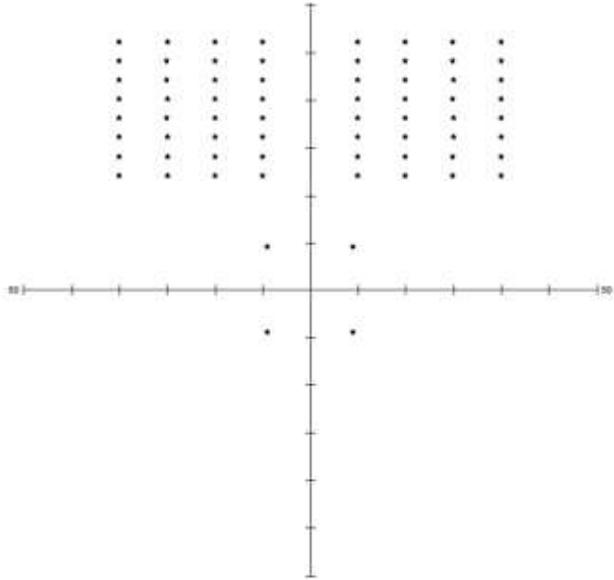
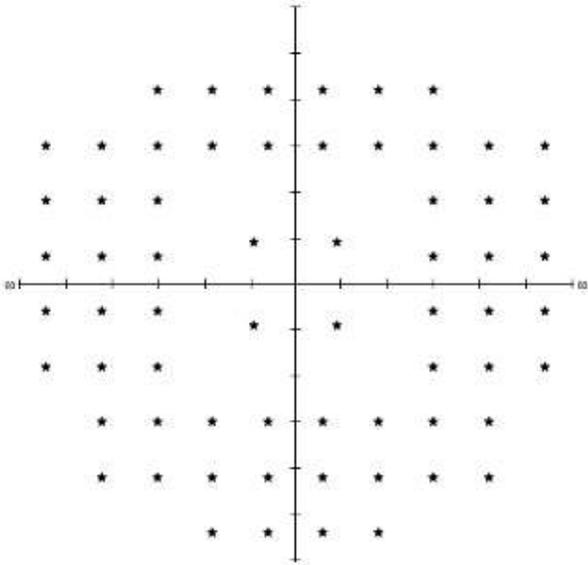
Figure 161. Sup 64 (Superior 64) field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
Sup 64 (Superior 64)	10-40	10-40	24-52	0	64 (64)	Screening: 2-3 min 3 – zone 2-3 min

13.2.3.3. Sup 36 field (Superior 36)

Sup 36 field is a special asymmetric field for testing only the extend of the superior part of a visual field. This field can be used for evaluating the ptosis. In terms of its intended use it is limited to be used only with screening strategies.
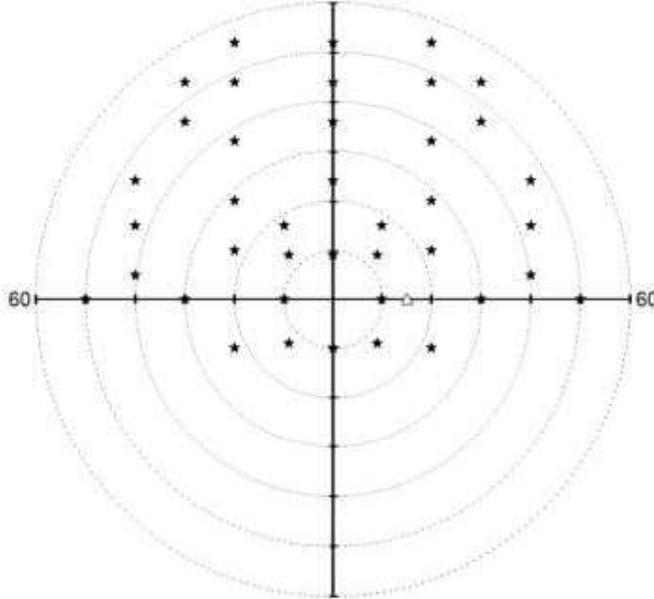
Figure 162. Sup 36 (Superior 36) field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
Sup 36 (Superior 36)	50	50	52	10	36 (36)	Screening: 1-2 min 3 – zone 1-2 min

13.2.3.4. G1 field

The G1 field is an asymmetric test field extending up to 28°. In this visual field, the central part of the visual field is monitored for possible visual defects. The layout of points reflects the layout of optic nerve fibers. It can be used for rapid detection of glaucoma related defects. This field was specially designed to work with thresholding strategies.

Figure 163. G1 field of the left and the right eye
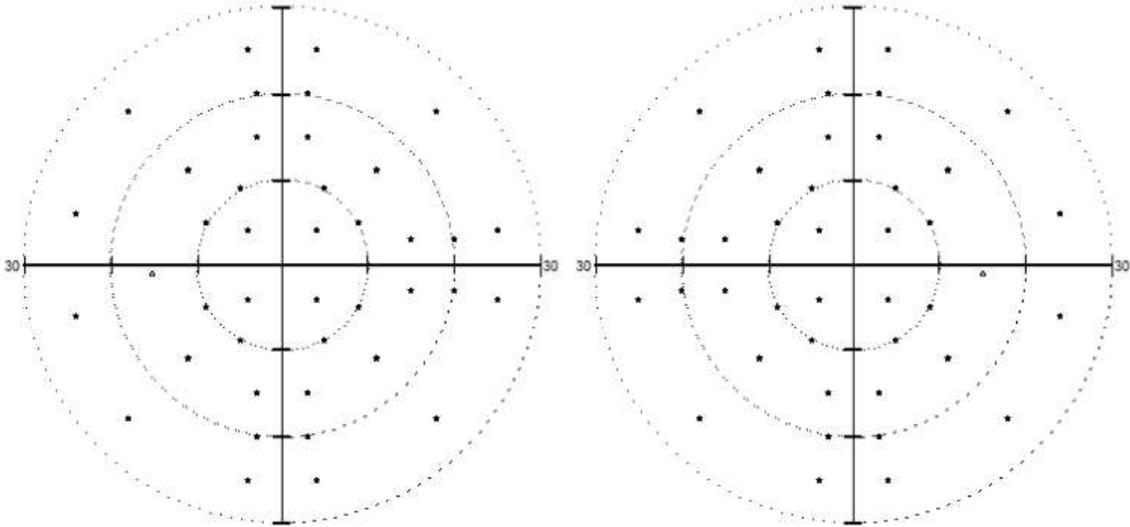
Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
G1	26	26	26	26	69 (-)	Threshold: 4-8 min Fast threshold: 4-5 min Advanced :3-4 min TOP/TOP+: 2 min Screening: 2-3 min 3 – zone: 2-3 min

13.2.3.5. N1 field

The N1 field is a specialist asymmetric field whose area reaches 26 degrees. It is used to identify neurological defects.
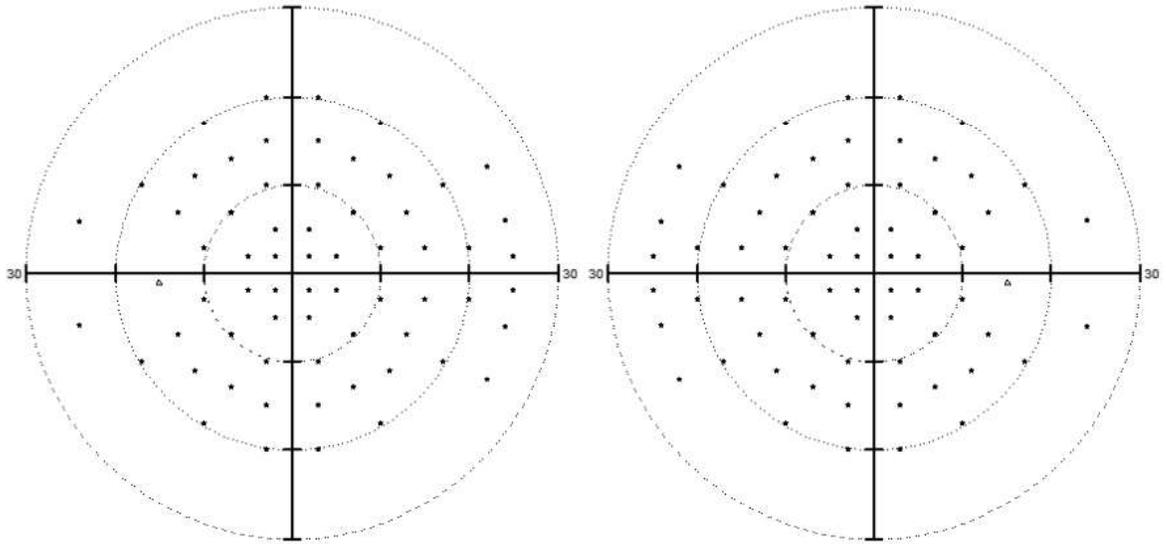

Figure 164. N1 field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
N1	26	26	26	26	54 (-)	Screening: 2-3 min 3 – zone: 2-3 min 2 – zone: 2 min

13.2.3.6. N2 field

The N2 field is an extended test field built upon the N1 field. It's area reaches 40 degrees nasally and 67 degrees temporally. It is used to identify neurological defects both in central and peripheral visual field.
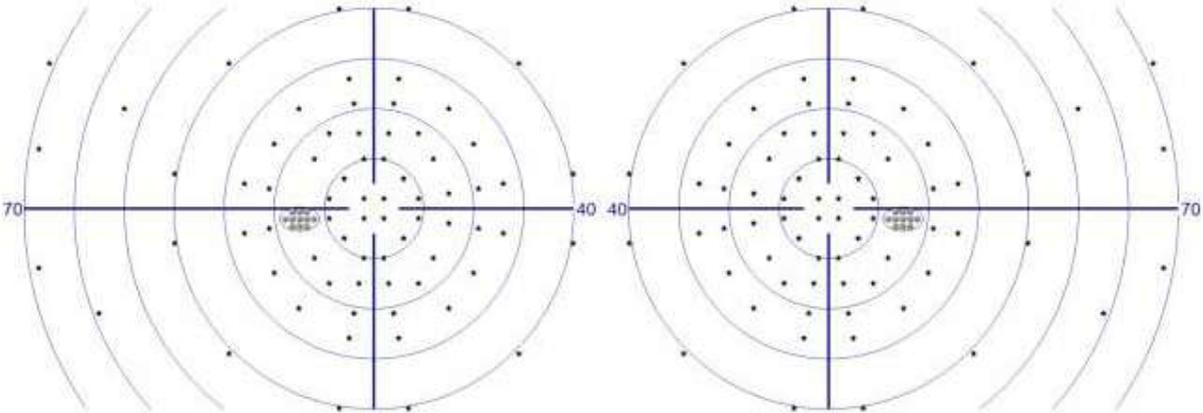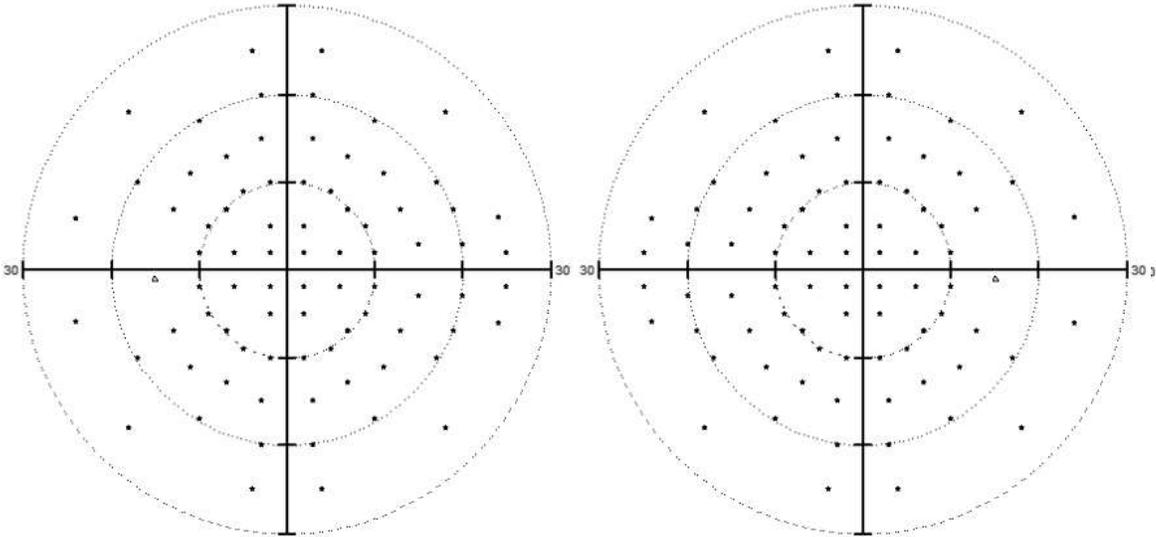

Figure 165. N2 field of the left and right eye

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
N2	40	67	40	40	71(-)	Screening: 2-3 min 3 − zone: 2-3 min 2 − zone: 2 min

13.2.3.7. B1 field

The B1 field is a specialist asymmetric field. It is used to test the area of the blind spot. Due to the number of points examined, this field is suitable for testing with threshold strategies.

Figure 166. B1 field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
B1	-6.5	21.5	9.5	54	54 (-)	Threshold: 3-6 min Fast threshold: 3-4 min Screening: 1-2 min 3 – zone: 1-2 min

13.2.3.8. 07 field

Field 07 is an asymmetrical full field whose area reaches 70 degrees temporally. It is used to assess neurological deficits and peripheral deficits while testing the central field. Due to the number of points examined, this field is best suited for screening strategies.

Figure 167. 07 field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
07	55	68	57	68	130 (-)	Screening: 4-8 min 3 – zone: 4-6 min

13.2.3.9. FF246 field

FF 246 field is a full, asymmetric test field with range extended up to 60 degrees temporally. It is used for testing neurological deficiencies, and to detect peripheral defects while testing the center of the visual field as well. In terms of the number of test points, is most suitable for screening test strategies.
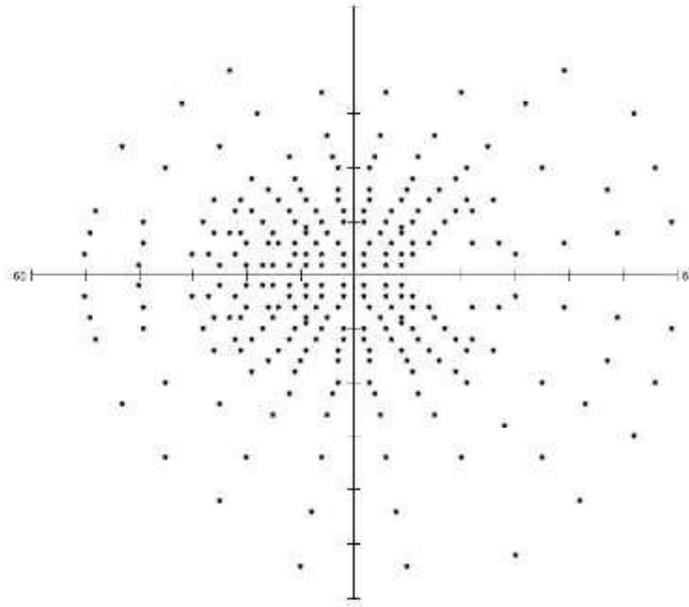
Figure 168. FF 246 field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
FF246	50	60	40	55	246	Screening: 12-15 min 3-Zone: 8-10 min

Due to the large number of test points within this test field, tests based on the FF-246 field used in combination with Screening strategies take several minutes to complete per eye. Patients may feel tired and the test reliability may be affected. Consider whether the test should be divided into two parts or paused for a while.

The range of the visual field is rather large in the nasal and superior direction, and therefore the test results may include artifacts of the nose and the brow ridge shadow. This should be taken into account so as not to confuse these artifacts with the actual eyesight impediments.

13.2.3.10.FF81 field

FF 81 field is a full, asymmetric test field with range extended up to 60 degrees temporally. It is used for testing neurological deficiencies, and to detect peripheral defects while testing the center of the visual field as well.

Figure 169. FF 81 field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
FF81	50	60	40	55	81	Screening: 3-6 min 3-Zone: 2-4 min

13.2.3.11.FF135 field

FF 135 field is a full, asymmetric test field with range extended up to 85 degrees temporally. It is used for testing neurological deficiencies, and to detect peripheral defects while testing the center of the visual field as well.
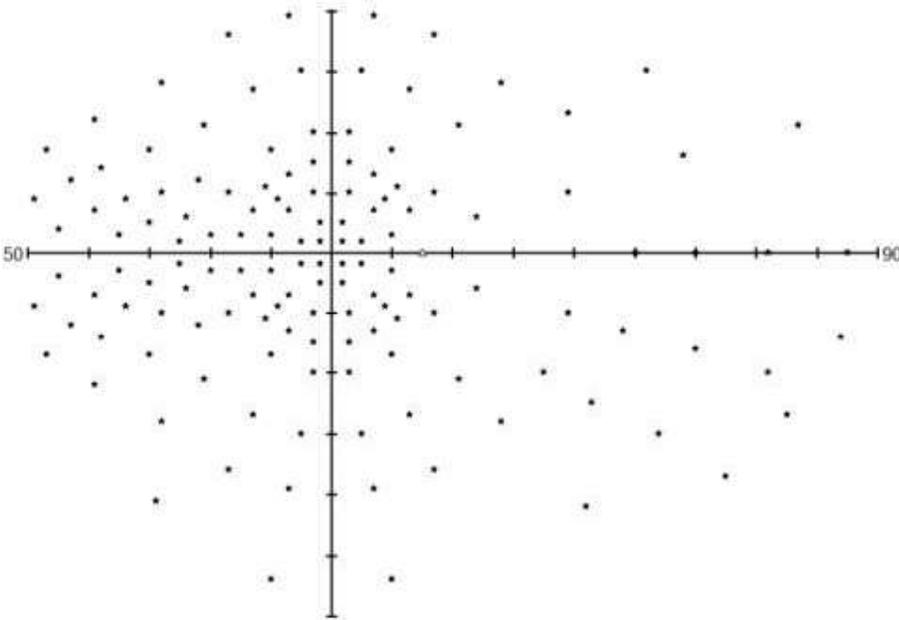
Figure 170. FF 135 field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
FF135	49	85	39	54	135	Screening: 5-10 min 3-Zone: 3-6 min

13.2.3.12. Armaly C (Central)

Armaly Central field is an asymmetric test field extending up to 25° nasally. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects.

Figure 171. Armaly C field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
Armaly C	25	15	15	15	88	Screening: 3-6 min 3-Zone: 2-4 min

13.2.3.13. Armaly F (Full)

Armaly Full field is an asymmetric test field extending up to 50° nasally. In this visual field, the central part of the visual field is monitored for possible visual defects. Thanks to extension in nasal direction it is suitable for detection of glaucoma related defects.

Figure 172. Armaly C field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
Armaly F	50	23	23	23	102	Screening: 4-8 min 3-Zone: 3-5 min

13.2.3.14. Nasal Step field

Nasal Step field is a special asymmetric test field. It is designed for measurement of sensitivity asymmetry in Nasal Step area. Thus it extends up to 50 degrees nasally and has a reduced test locations to cover only the area of interest. It can be used with Thresholding and screening techniques.

Figure 173. Nasal Step field (right eye)

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
Nasal Step	50	23	22	22	18	Screening: 2-3 min 3-Zone: 2-3 min Threshold: 2-4 min Dynamic:2-3 min Fast threshold: 2-3 min

13.2.3.15. BSV3 field

BSV3 is a special test field designed especially for BSV strategy. It allows to identify the VF regions with diplopy symptoms. The test field covers central 60 degrees. Test locations are laid along 24 meridians and spaced 3° apart.

Figure 174. BSV 3 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
BSV3	60	60	60	60	452(452)	BSV: 20-25 min

13.2.3.16. BSV5 field

BSV3 is a special test field designed especially for BSV strategy. It allows to identify the VF regions with diplopy symptoms. The test field covers central 60 degrees. Test locations are laid along 24 meridians and spaced 5° apart.

Figure 175. BSV 5 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
BSV5	60	60	60	60	260(260)	BSV: 10-15

13.2.3.17. 60-4 field

60-4 covers the visual field peripheral. It is a symmetric test field of 60°, excluding the central area of the visual field. It is used to detect peripheral changes and can be used as a supplementary test aimed to follow up field loss above 27 degrees. In terms of the number of test points, it is most suitable for testing the peripheral part of the visual field using threshold test strategies.

Figure 176. 60-4 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
60-4	54	54	42	54	60(60)	Threshold: 4-8 min Fast threshold: 4-5 min Advanced :3-4 min Screening: 2-3 min 3 − zone: 2-3 min 2 − zone: 1-2 min

13.2.3.18. Central 40 (C40) field

The Central 40 field is an asymmetric test field extending up to 25° in nasal direction. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. In terms of the number of test points, the C40 field is most suitable for precise threshold strategies.

Figure 177. C40 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
C40	3-25	3-24	3-25	3-25	40 (-)	Threshold: 4-8 min Fast threshold: 3-4 min Screening: 2-3 min 3 – zone: 2-3 min

13.2.3.19. Central 64 (C64) field

The Central 64 field is an asymmetric test field extending up to 25° in nasal direction. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. In terms of the number of test points, the C64 field is most suitable for precise threshold strategies.

Figure 178. C64 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
C64	2-25	2-24	2-20	2-20	64 (-)	Threshold: 4-8 min Fast threshold: 3-4 min Screening: 2-3 min 3 – zone: 2-3 min

13.2.3.20. Central 80 (C80) field

The Central 80 field is an asymmetric test field extending up to 25° in nasal direction. In this visual field, the central part of the visual field is monitored for possible visual defects. It can be used for rapid detection of glaucoma related defects. In terms of the number of test points, the C80 field is most suitable for precise threshold strategies.

Figure 179. C80 field

Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points (binocular)	Test duration per eye [minutes]
C80	2-25	2-24	2-25	2-25	80 (-)	Threshold: 4-8 min Fast threshold: 3-4 min Screening: 2-3 min 3 – zone: 2-3 min

13.3. *Test Reliability*

Reliable visual field testing largely depends on patient cooperation. By pressing the response button, the patient delivers information about the condition of his or her visual field. It is therefore very important to assess whether the patient can reliably respond to the light stimuli to deliver valid test results. Test results can be also validated by means of Test Reliability score, which can be integrated with the underlying visual field test.

13.3.1.   Gaze Tracking

One of the main assumptions of visual field testing is that the patient's vision is fixed at the fixation target. This is the condition precedent to be able to reliably test different areas of the visual field and the retina. However, if the patient's vision is distracted from the fixation point and is focused on light stimuli, the test results will be invalid.

The operator is able to detect pupil shift during the test where the patient fails to focus on the fixation point by monitoring the video image from the eye camera. If any shift occurs, the patient can be reminded to look at the fixation point.
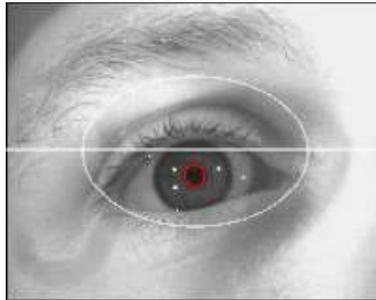
Figure 180. Eye camera - correct fixation

The system includes an automatic fixation control function. System analyses the video image from the eye camera and locates the position of pupil. Eye pupil is detected only within the ellipse area which is drawn in camera preview. The Gaze Tracking function uses the camera image analysis to improve the reliability of the test. The Gaze Tracker can be activated in one of two three of operation.

Table 4. Gaze Tracker functions on different levels

Gaze Tracker function	Level 1	Level 2	Level 3
Record pupil movement	✓	✓	✓
Stop when there is no eye in the preview		✓	✓
Record fixation losses		✓	✓

Hold the test when eye is closed/blink		✓	✓
Hold the test when there is no fixation state		✓	✓
Repeat the test when blink occurred and there was no reaction (potential miss due to blink)			✓
Repeat the test when the fixation was lost during exposition (potential invalid response due to no-fixation)			✓

13.3.1.1. Gaze Tracker – level 1

Level 1 of the gaze Tracker is the most basic level, in which the software analyzes the camera image and identifies the pupil. The pupil movement is recorder in the examination data and displayed in form of the Pupil Movement Graph. This grpah provides information about patient fixation and can provide the information essential for evaluation of the test's reliability.

13.3.1.2. Gaze Tracker – level 2

In the Gaze Tracker level 2, when the pupil shift exceeds the allowed shift margin, a fixation error is reported and the test is discontinued. The fixation error is recorded in the test reliability score and a voice message reminds the patient to look at the fixation point (if the voice messages function is enabled). The test will be automatically resumed when the pupil position becomes steady.
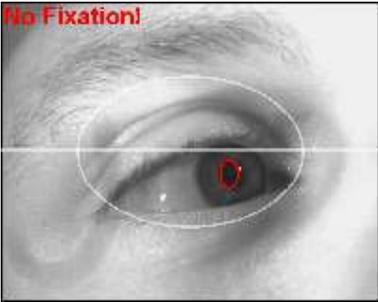
Figure 181. Eye camera - fixation error

In the Gaze Tracker level 2 , the test will be discontinued when the eye image is lost or if the patient blinks. This way continuation of the test stopped in case when the eye is badly positioned, if the patient has removed his head or closed the tested eye.
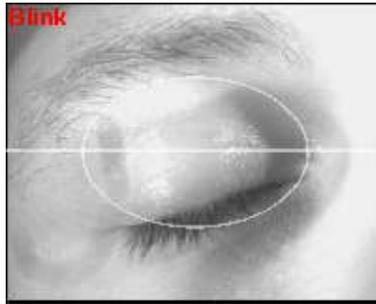
Figure 182. Eye camera - blink
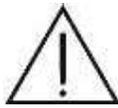
The quality of the gaze analysis algorithm in the fixation control function largely depends on the quality of the video image from the eye camera. If the camera image is of bad quality, this option can significantly extend the duration of or permanently interrupt the test. Before a test is started with the fixation control enabled, you should first check the quality of gaze image on the eye preview camera.

13.3.1.3. Gaze Tracker – level 3

The Gaze Tracker level 3 mode extends the level 2 mode and further improves reliability. When the pupil tracking module allows the exposure of the stimulus, but during the exposure a blink has occurred and the patient has not responded, this stimulus exposure is ignored. The value of the point sensitivity does not change as if the point test did not take place. Similarly, if patient has lost the fixation during the stimulus exposure, the point test is ignored and repeated again later, regardless the patient response. This way, patient response or its absence is taken into consideration only when the proper fixation of the patient is assured.

13.3.2. H-K Fixation Control

Correct fixation is one of the cornerstones of visual field testing. Apart from direct gaze tracking, fixation can be controlled directly. The Heijl-Krakau technique is used for direct fixation monitoring.

H-K method relies on the Blind Spot (BS) area where the optic nerve leaves the eye. There are no photoreceptors on the optic disc in this area. If the BS is identified at proper fixation state, it can be used for gaze tracking.

In the H-K method, the BS is identified with several points. The BS is where the patient does not respond to a stimulus displayed at a particular point of the visual field. Therefore the system regularly displays stimuli within the BS area during the test. If the patient fails to respond to the BS stimuli, the fixation is assumed to be preserved. If the patient responds to the stimuli within the BS area, the fixation point must have changed and the stimuli was shown outside the blind spot.

The H-K method can be unreliable in patients with extensive visual defects. If fixation is lost, a stimulus from the Blind Spot area can be shifted to a visual defect area. In this case, the patient will not react, and no fixation error will be detected.

The H-K method can only be used if at least one point has been detected in the Blind Spot area. Where the Blind Spot failed to be detected at the calibration stage, the H-K method will not be enabled. This can result in an error in the eye settings (left eye) or incorrect eye positioning against the perimeter bowl.

For the H-K test, application initially chooses the point closest to the geometrical center of the identified BS area. If patient responds to the initial point, then the next closest point is chosen for the consecutive test.

13.3.3.   Short-term Fluctuation Measurement (SF)

Perimetry measures visual thresholds, or the boundaries between seeing and non-seeing. However, the exact threshold value cannot be determined. By definition, the visual threshold is based on statistical values and is determined as the 50% probability of responding to a stimulus and 50% probability of not responding to a stimulus. The boundary between seeing and not seeing also depends on the patient condition and other factors that may influence the progress of the test.

With the existing testing strategies, the visual threshold value can be estimated with reduced number of exposures at a particular point within the visual field. Short-term fluctuation measurements can be performed to add a further level of confidence.

Short-term fluctuation can be measured by re-testing selected points. In ideal circumstances, you should get two identical results. If the results are different, this indicates that the visual threshold has changed. This may be caused by:

- patient fatigue
- loss of fixation
- external distractions
- visual field defects manifested by high short-term fluctuation levels

If the SF option is enabled, four points within the visual field (one per each quadrant) will be retested. SF index will be calculated from the results obtained.

13.3.4.   False Positive (FPOS) and False Negative (FNEG) tests

In perimetry, all diagnostic information comes from the patient. By pressing the response button, the patient signals whether a stimulus has been noticed or not. However, this method carries the risk of low patient reliability. The patient can press the response button even when he / she saw no light point, or vice versa.

There are two tests that monitor patient reliability. Both can be integrated with the basic test.

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False Positives (FPOS) – There is a pseudo exposure during the normal course of the test, i.e. no stimuli are presented to the patient to see if the patient responds correctly. If the patient behaves reliably, he / she will not press the response button without seeing any stimulus. False positives is where the patient presses the button without actually seeing a stimulus.

False Negatives (FNEG) – An additional exposure is added at a location with a known threshold value. In this test, the FNEG stimulus is at least two times more intensive than the threshold value determined earlier on. The patient should press the response button if he / she sees a light point brighter than his / her visibility threshold. False negatives is where the patient fails to respond to a stimulus which should be easier to notice than the previous stimuli that the patient did not miss.

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14. *Results tab*

This chapter describes the Results tab and the ways to analyze the test results. It specifically addresses the following issues:

- results display interface
- tools used in results analysis
- results display modes
- results comparison / disease progress analysis interface
- results overview
- reports generator

14.1. *Results display interface*

The Results tab is where the test results can be displayed. It offers results review and analysis tools to facilitate diagnostic evaluation of the pa

Data of the current patient

Analysis tools/ Display modes

List of tests of the

Test filters/

Import / export / deletion

Maximize / open the analysis

Active test results display

Inactive test results display

Changing the current layout of the results

Adding comments

Figure 183. Results tab - analyzing a single test result

14.1.1. **Results windows**

The Results tab has 4 windows where the test results can be displayed. The results displayed in each window refer to the currently selected result from the list of test results. The windows are configured independently. Each window can display a different analysis and a different presentation.

14.1.1.1. Selection of the active window and change of analysis

To change the analysis parameters in any of the four windows, you have to first activate the window of choice. The active window is framed in black against a darker background (Figure 183. Results tab - analyzing a single test result). Click on the window to activate it. When the window is active, the window settings will be displayed in the analysis tools panel and the display type panel. Click the buttons in both configuration panels to change the analysis results in the active window.

14.1.1.2. Maximizing the Results window

You can maximize the active window to make the analysis results more legible. When the window is maximized, it occupies the entire Results tab, and the remaining windows are minimized.
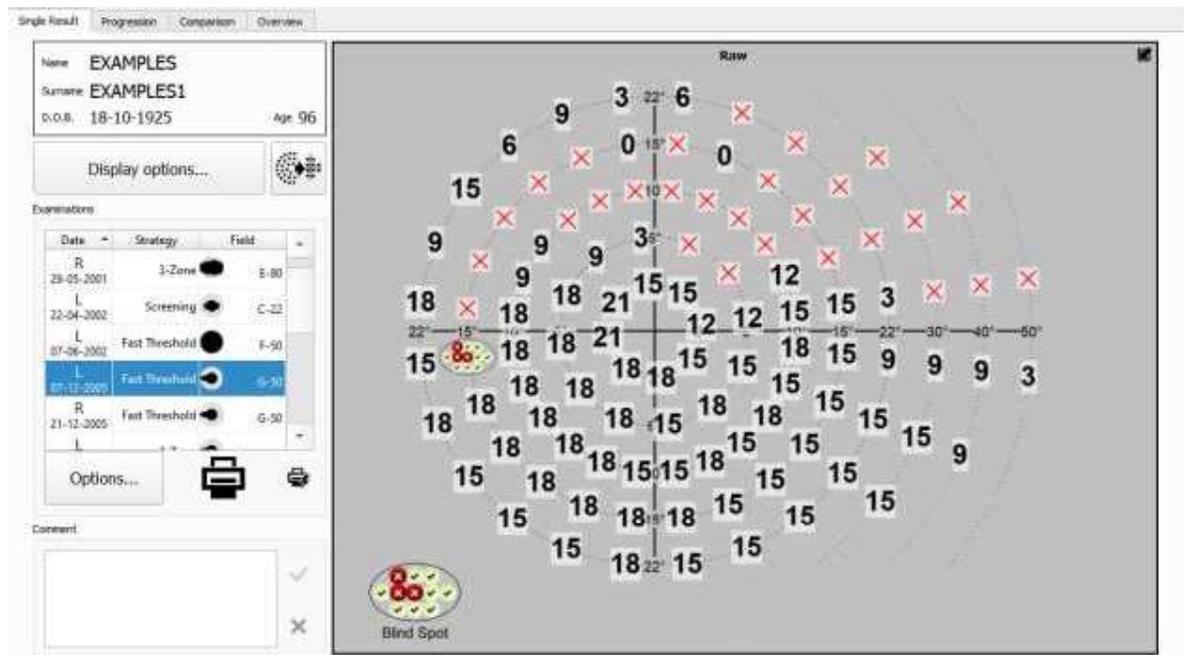
Figure 184. Maximized results window

To maximize the active window, click the Maximize button in the right top corner of the window (Figure 183. Results tab - analyzing a single test result) or double-click on the window area. To revert to normal window size, click the Maximize button or double-click on the window area.

14.1.1.3. Customizing the size of the windows in the Results tab

To make one of the results windows more legible, it can be enlarged while the other windows will become smaller. To customize the size of the windows, use the separation line between the windows (Figure 183. Results tab - analyzing a single test result).
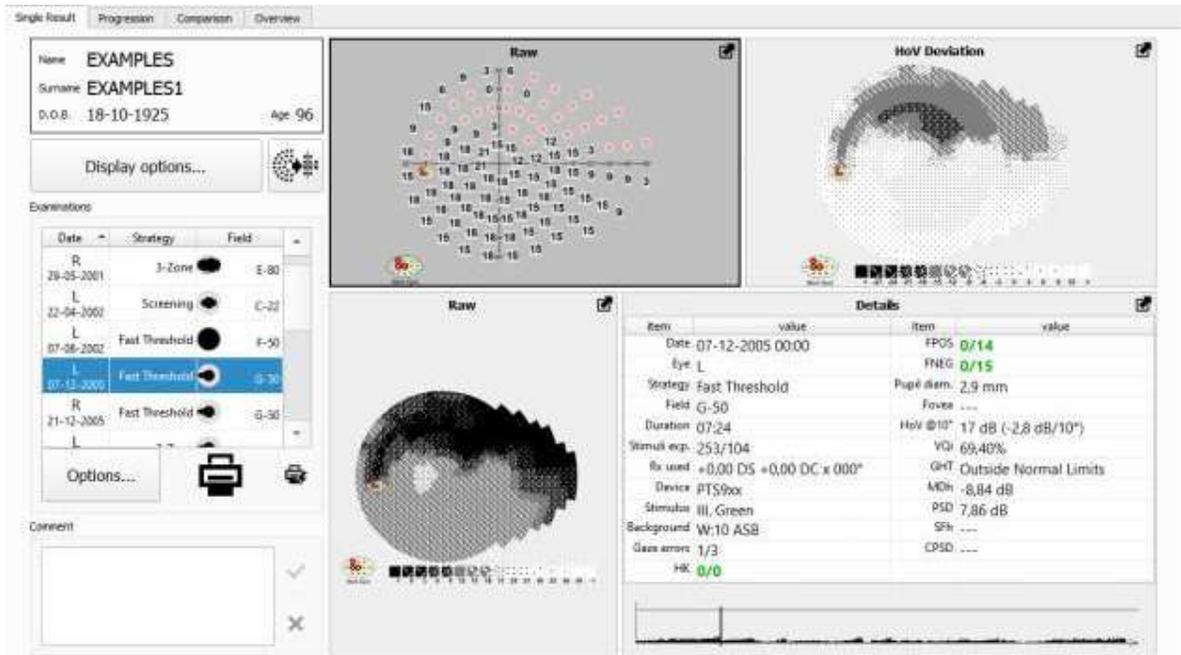
Figure 185. Rearranging the windows in the Results tab

To rearrange the windows, press the left mouse button over the move cursor, when the cursor changes to the move cursor. Keep the left mouse button pressed and drag the move cursor to the place of choice (Figure 185. Rearranging the windows in the Results tab).

14.1.2. *List of results associated with the current patient*

A list of all results assigned to the current patient can be found on the left side of the Results tab. If a test is selected from the list, the test results will be analyzed and displayed in the results display area.

Sorting order by column

Unfinished test (20% complete)

Unfinished test (40% complete)

Completed test (100% complete)

Filter settings according to the test

Filter settings according to the test

Filter settings according to the eye

Test import from XML or GDT file

Test export to XML file

Deleting a test

Figure 186. List of tests in the Results tab - analyzing individual test results

The list of tests has the following columns:

Date – the tested eye and the test date. Apart from standard test results, the list also includes information about whether the test has been completed, or whether an partial result has been saved for an unfinished examination. In addition, a test completeness bar will be displayed in the background. The bigger the yellow field, the more examination points are left to test.

Strategy – the currently used test strategy.

Field– the tested field.

> The default order in which the previous test results are displayed is set according to the examination date and time To change the sequence in which the results are displayed, click one of the column headers. The data sorting mode will be changed for the selected column.

14.1.2.1. Filtering the list of tests

If the current patient has undergone an extensive number of tests, it may be difficult to find the test you are looking for. In a situation like this, you can use the test filter option.

Use the controls below the list of tests to enter the filter settings (Figure 186. List of tests in the Results tab - analyzing individual test results). With the filter settings, you can choose to display test that matches the strategy, field and / or tested eye criteria.

To display the tests run with, for example, a threshold strategy, select the "threshold" item in the "strategy" filter box. The list of tests will include only tests performed according to the threshold strategy. To disable the filter and display all tests from the lists, set 'any' in the "strategy" filter setting. Use the "field" and "eye" filter settings accordingly. All three filters overlap and only the tests that meet all the criteria are displayed.

14.1.2.2. Comments

User comments can be assigned to all tests. The comments field includes information displayed automatically, as well as remarks added by the user after the test or during results analysis. Information is added automatically if the test results are transferred between patients or if the test is discontinued prematurely.
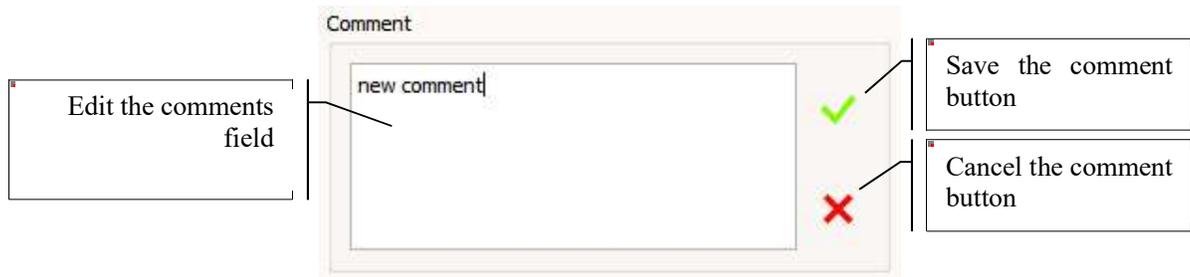
Figure 187. Editing comments

save a modified annotation in the database, click the Save button. To abandon changes and restore the previously saved version of the comment, click the Cancel button.

14.2. Tools used in results analysis

Perimetry tests deliver a vast array of useful diagnostic data. All information collected during a test can be used to diagnose the eye functions. To make it easier to analyze the test results, there are many raw data processing algorithms used to filter out and expose the most valuable diagnostic data.

There is a number of data processing tools available with the system to simplify the diagnosis. The data processing tools generate maps of results in the results display windows. The tools cannot be applied universally to all tests. A tool-test mismatch is indicated by the "Result not available" message displayed.

14.2.1. RAW analysis – basic result

In the RAW analysis, the basic data collected during a test is displayed unprocessed. The displayed data corresponds to the data seen in the test preview window.

Depending on the test strategy used, the RAW results can refer to:

retinal sensitivity threshold in dB – Threshold / Fast Threshold / Screening strategy (Figure 188. Results of the RAW analysis (dB) - simple display)

qualitative score symbols of retinal sensitivity – 3-Zone, 2-Zone, and Driving Strategies (Figure 189. Results of the RAW analysis (symbols))

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qualitative score symbols of diplopia tests – Diplopia Strategy (Figure 190)

retinal sensitivity threshold to flicker stimuli in Hz – CF Strategy

Figure 188. Results of the RAW analysis (dB) - simple display

RAW results only include data of completely tested points. If the test has been interrupted prematurely, partial results, i.e. the results of points which have not been completed, will be hidden (Figure 188. Results of the RAW analysis (dB) - simple display)

Figure 189. Results of the RAW analysis (symbols)
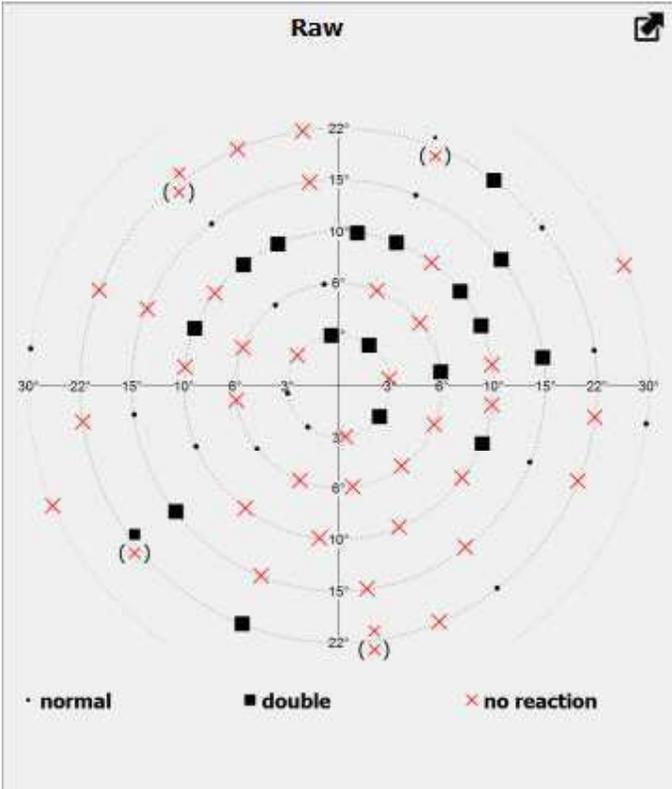
Figure 190. Results of the RAW analysis (BSV symbols)

14.2.2.   HoV analysis – deviations from the HoV model

HoV analysis highlights local changes in the retinal sensitivity and omits global deviations from normal. This helps detecting local defects indicative of glaucoma in patients whose visual sensitivity has been reduced by other visual defects, such as refraction defects or cataract.

In HoV analysis, a "perfect" hill of vision profile is created from numerical results of the tested field points. The "perfect" profile has a regular shape without any local defects. The height and slope of the hill of vision are determined from lineal regression of field points with the best score (i.e. the most sensitive ones). The ideal HoV reflects the eye sensitivity without taking into account of any local glaucomatous visual field defects.
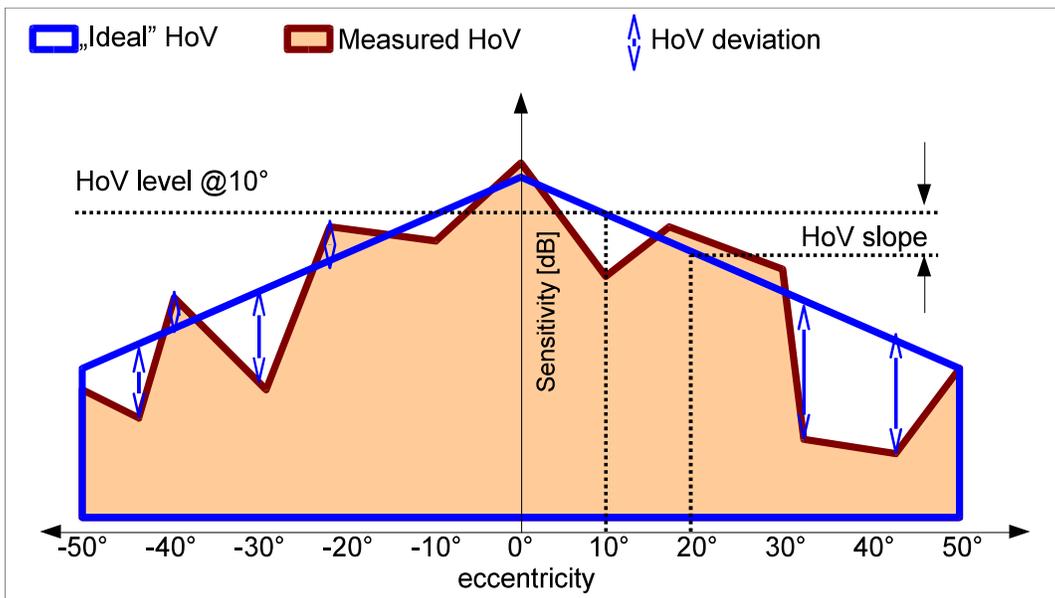
Figure 191. HoV analysis

HoV analysis delivers a set of deviations in the measured eye sensitivity from the "perfect" HoV profile. Points which are found to be defective, i.e. whose sensitivity value is below the value calculated from the "ideal" HoV will be assigned a negative deviation value. The points where the sensitivity values are higher than expected are assigned a positive value. The points where the deviation is lower than the "deviation hiding limit" defined in the application settings ("Figure 265. Changing the display options") are marked with a dot. Absolute defect points (no response to the brightest stimulus) are marked with a red X.
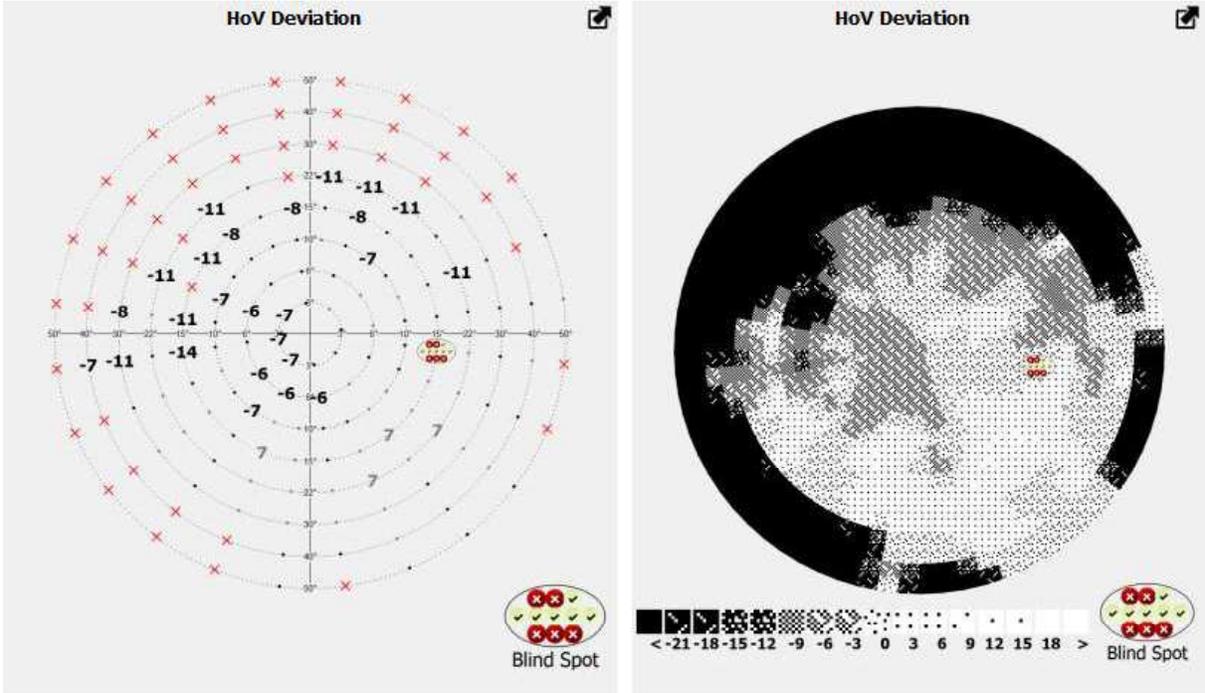
Figure 192. Results of the HoV analysis (in decibels and a dot scale)

Apart from the value of deviations from the ideal HoV, the diagnosis also relies on the HoV@10° parameter, which describes the "ideal" HoV profile. HoV@10° shows the height of the HoV profile at 10° eccentricity and the HoV slope angle in decibels at 10° eccentricity intervals.

14.2.3. TD Analysis – Age Normal Deviation

TD analysis is a very valuable diagnostic tool. It detects both local and diffuse defects from normal. It can facilitate diagnosis of both glaucoma and cataract.

TD analysis calculates sensitivity deviations from normal at tested points within the visual field. Age normal refers to healthy patients at a particular age. TD analysis displays the difference between the patient's tested visual sensitivity and the age normal Hill of Vision for a person in this age group.
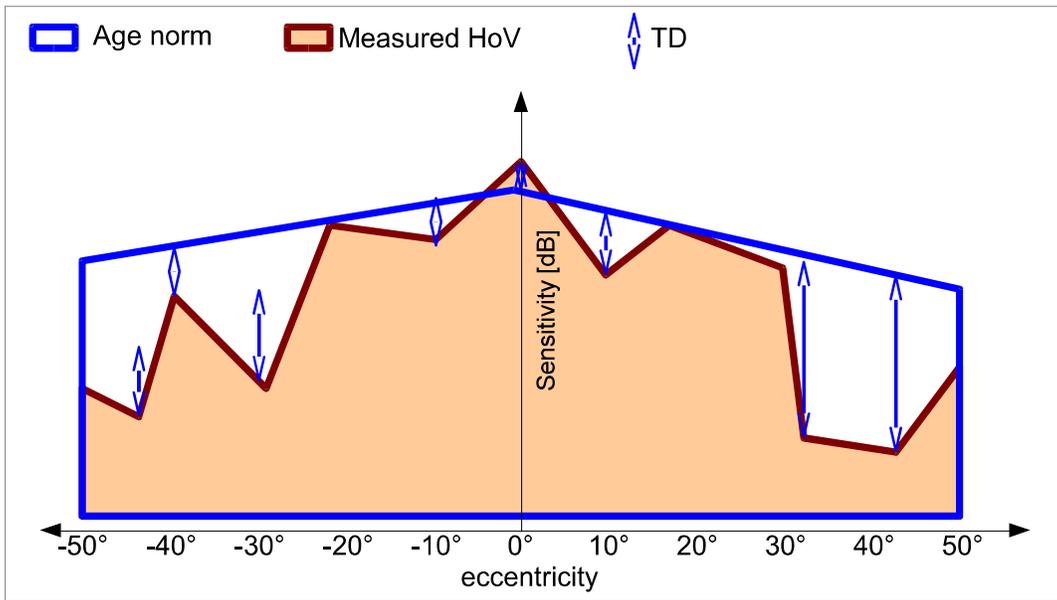
Figure 193. TD Analysis

TD analysis delivers a set of deviations between the measured sensitivity and the age normal Hill of Vision. Points which are found to be defective, i.e. whose sensitivity value is below the age normal, will be assigned a negative deviation value. The points where the sensitivity values are higher than expected are assigned a positive value. The points where the deviation is lower than the "deviation hiding limit" defined in the application settings (Figure 265. Changing the display options) will be marked with a dot. Absolute defect points (no response to the brightest stimulus) are marked with a red X.
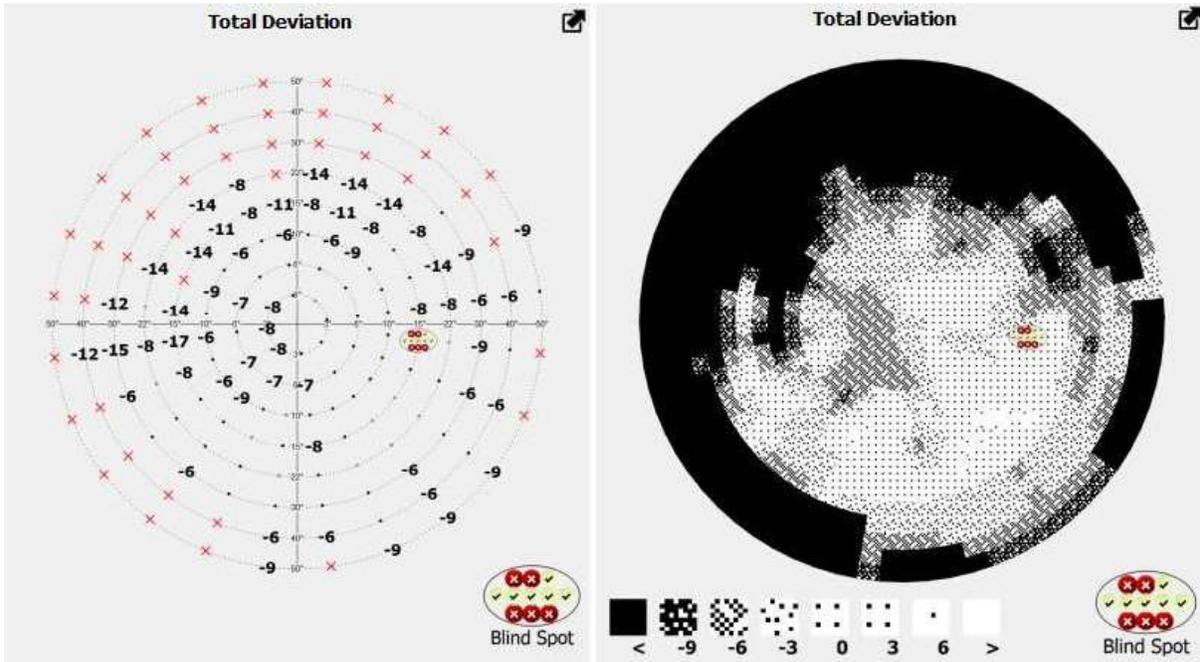
Figure 194. Results of the TD analysis (in decibels and a dot scale)

✔ TD analysis is only available for tests performed using the Threshold, Fast Threshold and Advanced strategy.

14.2.4. *PTD analysis – probability of deviations from age normal*

TD analysis displays the exact deviation between the measured sensitivity and the mean age normal. The results within a particular age group are always divergent, and the test results should be referenced not only to a mean value, but also to the distribution of normative values. You may find out that the deviation from normal detected at a particular point within the patient's visual field indicates a broad distribution of normative values at the particular point rather than a disease.

PTD analysis is based on a normal mean and standard deviation of age normal sensitivity at the tested points within the visual field. It delivers information about the probability that the tested value is normal and is not a sign of a disease. The results are displayed as graphical symbols.
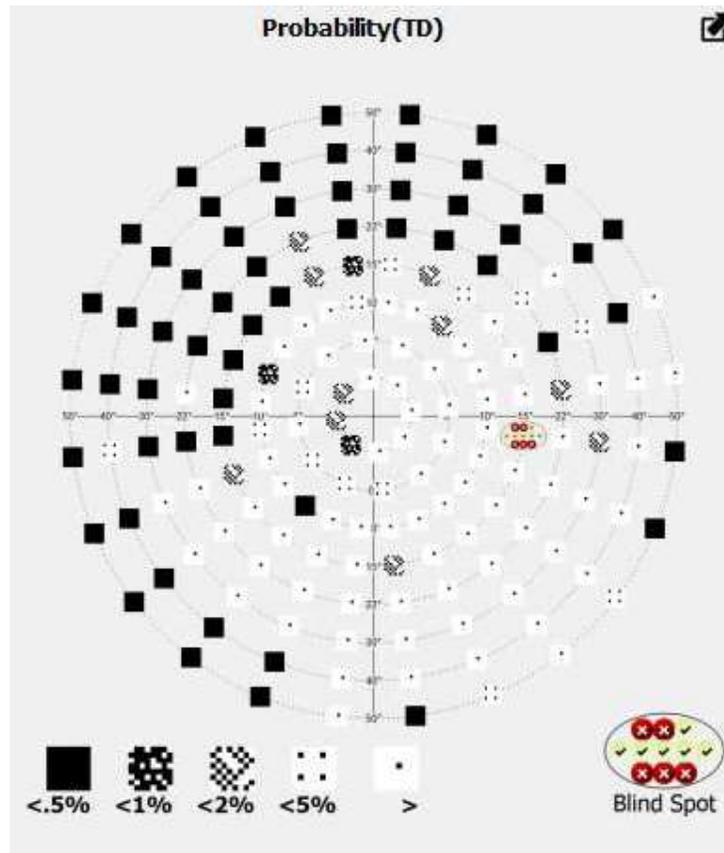
Figure 195. Results of the PTD analysis

PTD analysis is based on the results of the TD analysis. Each value is assigned a graphic symbol after the value is compared with the distribution of age normative values at a particular point within the visual field. If the value is lower than in 95% healthy patients, the point carries a <5% symbol. This means that the probability that the value is normal at a particular point and is not a manifestation of any disease is lower than 5%. Other symbols correspond to the probability score

of <2%, <1%, and <0.5%.

✔ PTD analysis is only available for tests performed using the Threshold, Fast Threshold and Advanced strategy.

14.2.5.   PD Analysis – age normal deviation adjustment

TD analysis displays deviations from age normal without any additional data processing. The results of TD analysis can shed some light on both, diffuse reduction in visual sensitivity (caused by cataract), and local defects (attributed to glaucoma). It may be difficult to detect local defects of the sensitivity if the patient's sensitivity is found to be reduced diffusely. On the TD map, all results will be negative and it will be difficult to detect groups of values lower than the mean value.
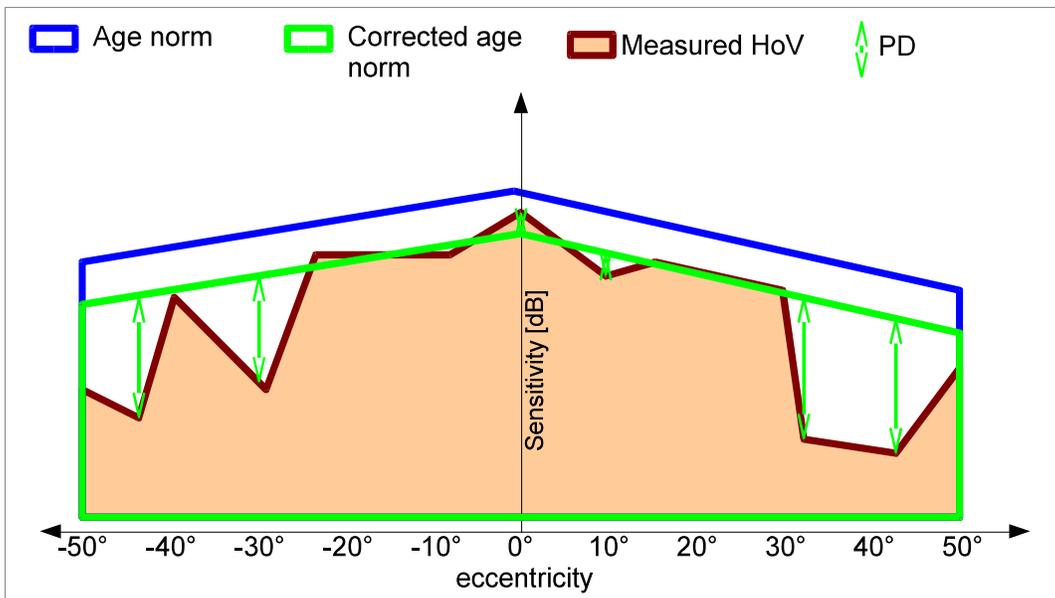
Figure 196. PD analysis

PD analysis solves this problem. It corrects the results of TD analysis to reject the diffuse reduction in patient's sensitivity in favor of local defects. This algorithm is designed to detect the values of diffuse sensitivity reduction and to adjust all results shown on the TD map by this value. This means that the points where the sensitivity was found to be reduced only by the value of the diffuse sensitivity reduction will equal 0, and the points where local reduction was detected will be assigned negative values.
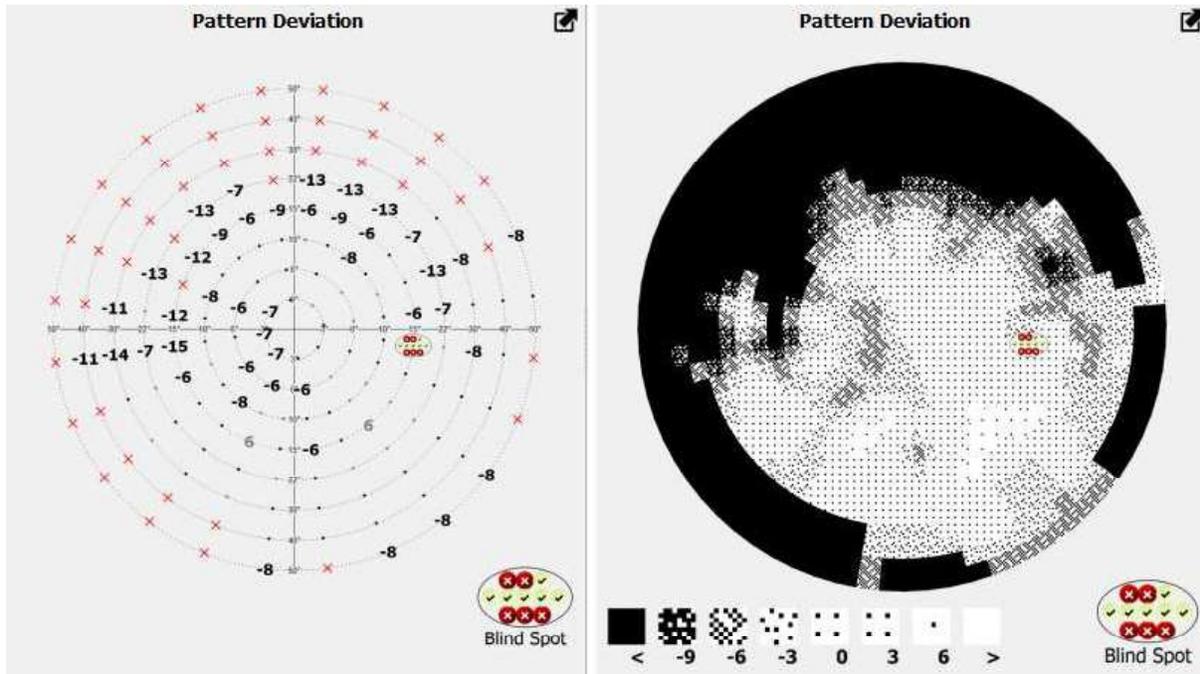
Figure 197. Results of the PD analysis (in decibels and a dot scale)

✓ PD analysis is only available for tests performed using the Threshold, Fast Threshold and Advanced strategy.

14.2.6. PPD analysis – probability of adjusted deviations from age normal

The PTD analysis is intended to categorize deviations detected in TD analysis in terms of their probability among the normative group of patients (PTD analysis – probability of deviations from age normal), and PPD analysis uses the same mechanism to categorize deviations in the PD analysis. PPD analysis evaluates local defects even in patients with reduced visual sensitivity extending over a large area of the visual field (e.g. cataract).
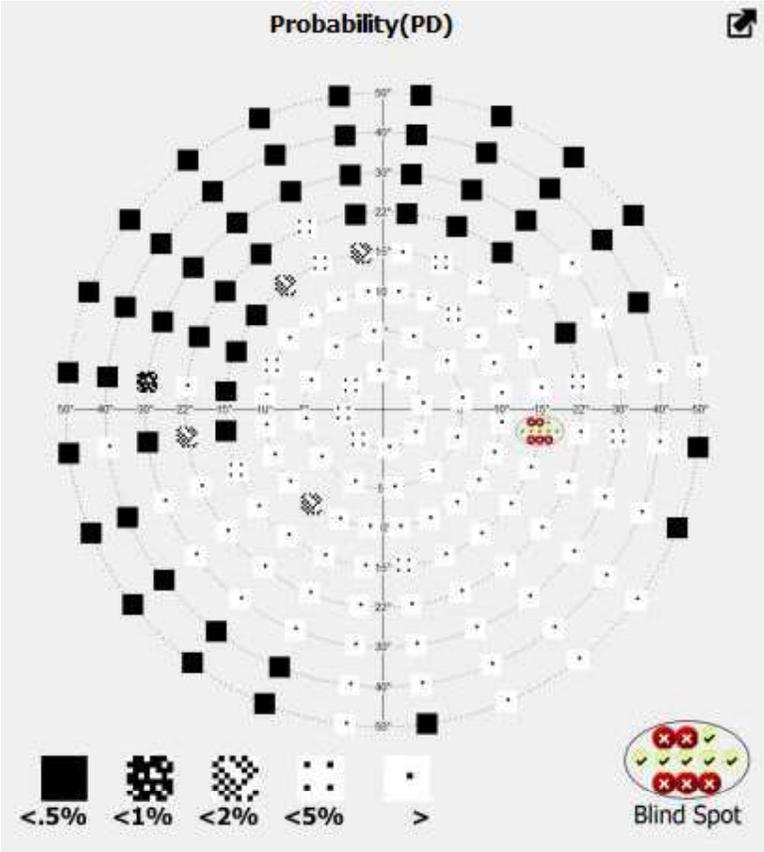
Figure 198. Results of the PPD analysis

PPD analysis is based on the results of the PD analysis. Each value is assigned a graphic symbol after the value is compared with the distribution of age normative values at a particular point within the visual field. If the value is lower than in 95% healthy patients, the point carries a <5% symbol. This means that the probability that the value is normal at a particular point and is not a manifestation of any disease is lower than 5%. Other symbols correspond to the probability score of <2%, <1%, and <0.5%.

14.2.7. *Bebie analysis – the Bebie curve*

The Bebie curve is a cumulative defect curve. It differentiates local and diffuse visual field defects.
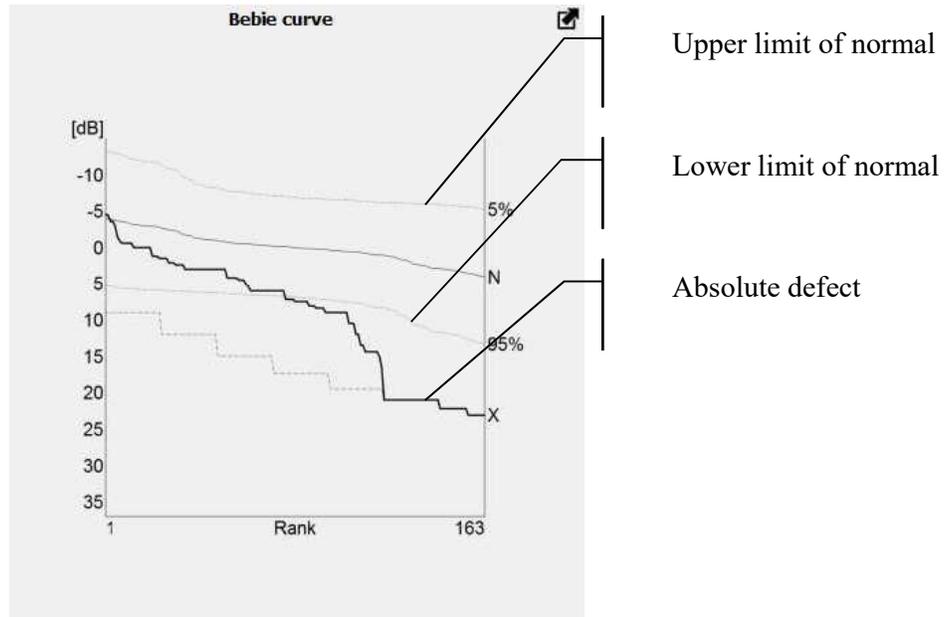
Figure 199. Bebie analysis – cumulative defect curve

The diagram includes deviations from age normal obtained from the TD analysis, arranged in a descending order (i.e. down to the deepest defect). The points are interconnected with a line to create a curve with a negative slope. The diagram also shows 5% and 95% thresholds of the normative area. Points below the 95% line are defects that are detected in less than 5% of normal population. Points above the 5% line are points of extremely high sensitivity present in less than 5% of the normal population.

An additional absolute defect line is marked with an X. It forms a diagram where all points of the analyzed visual field denote an absolute defect. Points of the analyzed field where no response was detected to the brightest stimuli extend to the absolute defect line. This way, the part of the visual field with zero-sensitivity can be determined.

14.2.8. Sectors and GHT analysis

Glaucoma Hemifield Test is the visual field analysis tool which is based on the statistical data and results of corrected age norm deviation probability maps (PPD). In this test the central part of VF is divided into 10 sectors: 5 in lower hemifield and 5 in upper one. Results of deviation probabilities of points contained in a particular sector are judged and summed as a whole sector result. Next, the sector results from upper hemisphere are compared to results of mirrored sectors from the lower hemisphere. The statistical data is then used to judge the test result:

- **Within Normal Limits** – all sectors from both hemispheres does not show any significant deviations.

- **Borderline** – at least one pair of sectors is showing a difference which exceeds that found in 3% of a healthy population.

- **Outside Normal Limits** - at least one pair of sectors is showing a difference which exceeds that found in 1% of a healthy population, or sum of probability scores in both sectors in any mirror image pair individually reaches the 0.5% limit of a healthy population.

- **General Reduction of Sensitivity** – the sensitivity offset which is used for PD analysis, displays the VF sensitivity drop that is found in less than 0.5% of a healthy population.

- **Abnormally High Sensitivity**- the sensitivity offset which is used for PD analysis, displays the VF sensitivity rise that is found in less than 0.5% of a healthy population.

The GHT test is displayed with the map which shows the probabilities of the results in each sector.
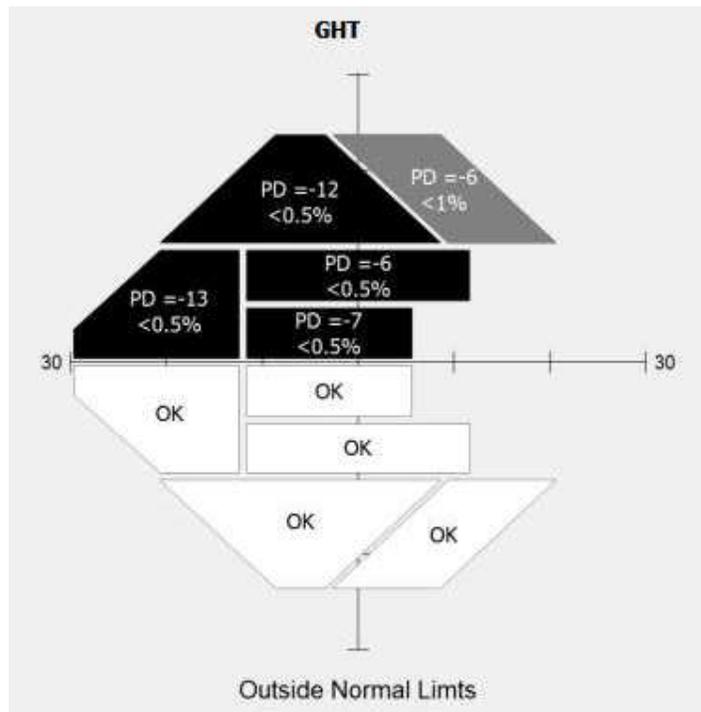
Figure 200. GHT test and sectors analysis result

If a particular sector has the PD probability result within 95% of a healthy population norm, then it is marked with OK. If the sector scores below the 5%, 2%, 1%, 0.5% limit of the healthy population then it is marked with the probability value and the numerical value of mean PD for points within this sector.

> The sectors and GHT analysis is based on the interpolation of original test results. The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The analysis result may be inaccurate if the original test field does not contain enough test points that lay in each sector.

14.2.9.   3D analysis

3D analysis is an additional representation of numerical RAW-type results. 3D analysis displays an area of the tested hill of vision (HoV) in 3D. The surface depicts the map of retinal sensitivity and visualizes the HoV concept. The higher the area on the surface, the higher the sensitivity at the corresponding point of the visual field. A map of colors is also used to present the distribution

of sensitivity.

The map is interpolated to present the eye sensitivity in 3D. The space between the tested points is shaped according to estimated values, calculated from the linear interpolation of the tested points. This is to make the perimetry testing more understandable to patients and to illustrate the identified defects of the visual field.
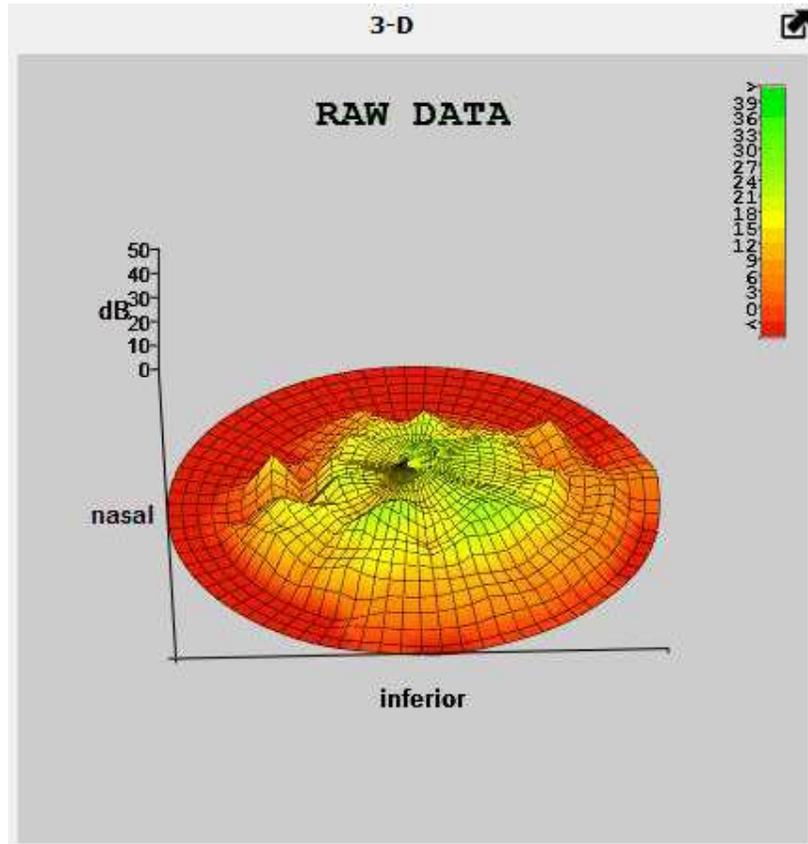
Figure 201. Results of the 3D analysis

The 3D analysis field can be rotated and enlarged. It can be enlarged using the scroll wheel. To rotate the map, left-click the 3D map and move the mouse left, right, up and down while keeping the button pressed. If the button is released, the image will rotate until it stops.

The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The actual condition of the visual field can be only determined through testing procedures.

14.2.10. Brusini Glaucoma Staging System 2 analysis

The purpose of the Brusini GSS2 analysis is to classify visual field defects on the basis of the averaged value of deviations from the MDh and PSD index. There is a red point on the graph in the figure (Figure 202. Glaucoma Staging System 2 analysis), relating to the values of the MDh and PSD indices. The graph shows the stages of defects, from S0 (stage 0) to S5 (stage 5), and the
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types of defects: general, localization-related and mixed.
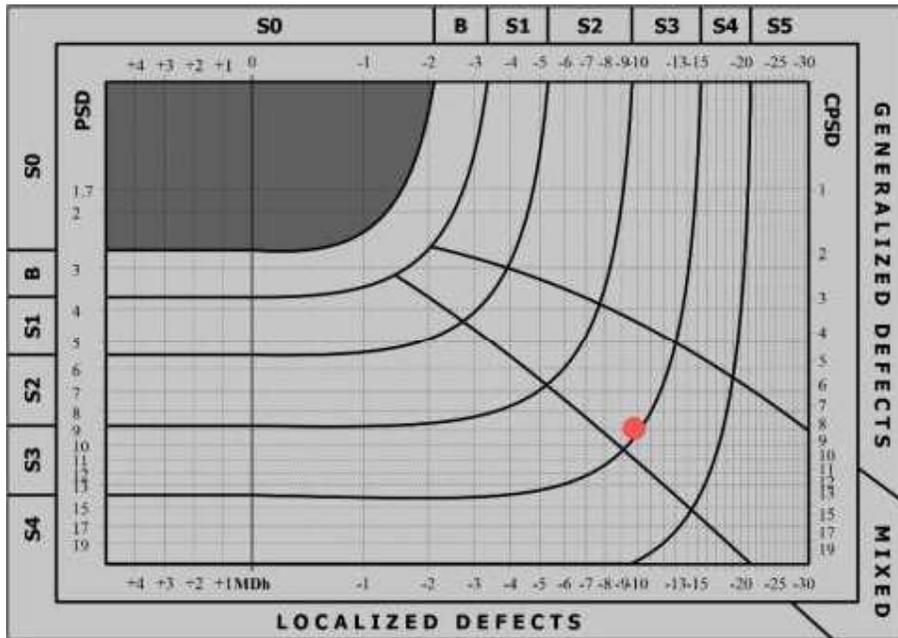
Figure 202. Glaucoma Staging System 2 analysis

14.2.11. Assessment of fitness to drive

The application enables the us of preliminary assessment of patients' ability to drive vehicles based on the results of a perimetric test. The tool is therefore closely related to the driver strategy and is compatible with test field such as the BDT (driver field) Esterman B and Esterman BP. To be able to use the assessment of driving ability, make sure that this tool is turned on by going to the "Examination" tab in the settings. This tool can be turned on or off in two modes (BDT analysis type):

- UK DVLA – UK Driving Vehicle Licensing Agency rules

- EU – recommendations for European Commission Directive 2009/113/EC
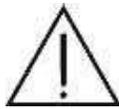
> ⚠️ The evaluation of patients' ability to drive through the application is an automated process designed to assist in the evaluation by qualified physicians and should only be taken as a suggestion that may differ from the verdict issued by specialists in the field.

There are two groups of people driving vehicles. The first group includes drivers of vehicles and motorcycles. The second group consists of bus and lorry drivers. The conditions to be met by both groups may differ depending on the chosen assessment method.

The requirements for the first group must also be met for the second group. This means that in the event of a negative assessment for the first group, the second group is automatically given a negative assessment. For each group, the central part of the visual field and the peripheral part are assessed separately, however, the positive overall score is made up of the sum of the above and the corresponding false positive error test value, which in all cases must not be greater than 20%.

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14.2.11.1. DVLA UK – Driver and Vehicle Licensing Agency UK

The following conditions must be met for both group 1 and group 2:

- Properly wide field of view, reaching a minimum of 120 degrees horizontally, measured with a white stimulus size Goldmann III4e

- The field of view must cover at least a 50 degree area to both the left and right side of the field of view and 20 degrees to the top and bottom of the field of view

- No significant defects (4 field points or more adjacent to each other) which are wholly or partially in the central part limited to 20 degrees

- No defects of 3 points in the central field, limited to 20 degrees, as long as there are additional individual defects in this area

The exception to the above is the occurrence of a defect in the peripheral region area, which defect may consists of lots of points but is a zero-width vertical defect and is not part of another defect area that touches or intersects the horizontal meridian of the field of view. This case is considered acceptable.

The following conditions must be met for group 2:

- Properly wide field of view, reaching a minimum of 160 degrees horizontally, measured with a white stimulus size Goldmann III4e

- The field of view must cover at least a 70 degree area to both the left and right side of the field of view and 30 degrees to the top and bottom of the field of view

- No significant defects (4 points or more adjacent to each other) wholly or partially within the area bounded by 70 degrees to the left, 70 degrees to the right, 30 degrees up and 30 degrees down

- No single defects in the central part limited to 30 degrees

- The sum of the individual defects not greater than 3 in the area of the field bounded by 70 degrees to the left, 70 degrees to the right, 30 degrees up and 30 degrees down

14.2.11.2. EU – European Commission Directive 2009/113/EC

The following must be met for both group 1 and group 2:

- Properly wide fields of view, reaching a minimum of 120 degrees horizontally, measured with a white stimulus size Goldmann III4e

- The sum of single defects not greater than 2 in the area of the central field, up to 20 degrees

- The sum of the individual defects not greater than 7 in the area of the field limited by the width of 120 degrees and the height of 40 degrees

The following conditions must be met for group 2:

- Properly wide field of view, reaching a minimum of 160 degrees horizontally, measured with a white stimulus size Goldmann III4e

- The field of view must cover at least a 70 degree area to both left and right side of the field of view and 30 degrees to the top and bottom of the field of view

The assessment for individual groups and areas of the field is shown in the table presented on the result of the examination performed in the driver's field. This is shown in the figures below:
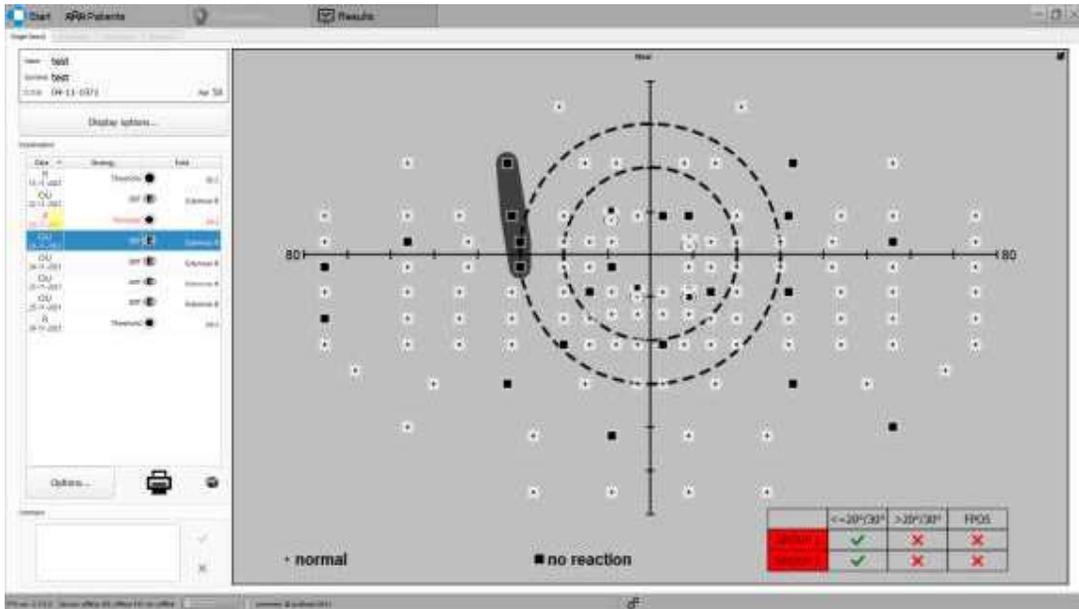
Figure 203. DVLA UK assessment example
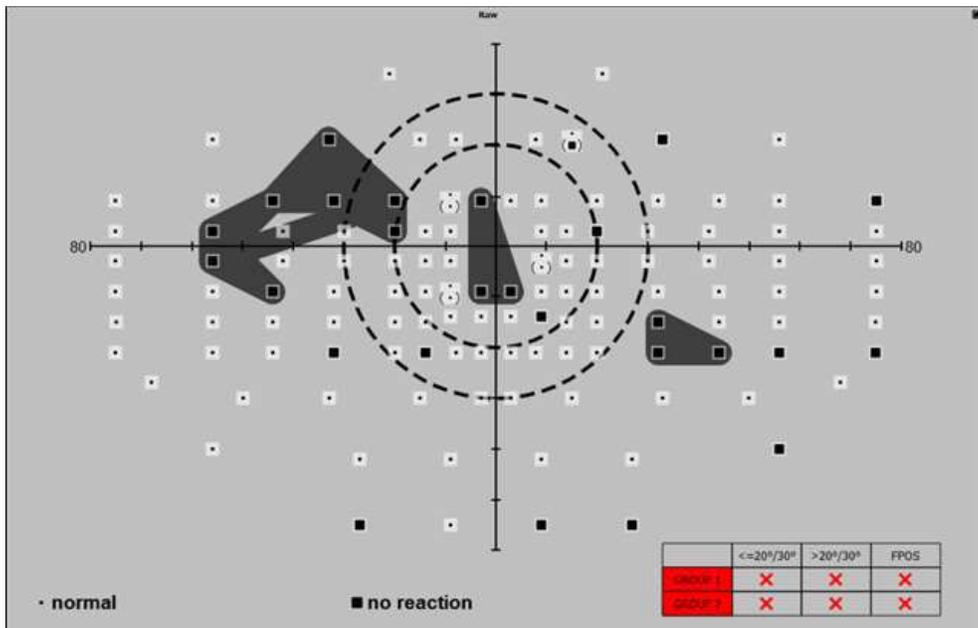
Figure 204. DVLA UK assessment example

14.2.12. "Details" analysis – test parameters and indexes

"Details" analysis is a table listing all important test data and the results of calculated indexes that describe the tested visual field.

Figure 205. Results of the "Details" analysis

This table presents the following information:

Date – the exact date and time when the test was completed

Eye – the tested eye

Strategy – the test strategy used

Field- test field used during the test

Duration – the test duration

Stimuli exp. – number of exposed stimuli / number of tested points (number of field points)

Rx used – correction lens used during the test

Device – data of the device used in the test

Stimulus – size and color of the tested stimulus

Background – color and brightness of the background used in the test (W – white, Y-yellow)

Gaze – number of fixation errors detected on the eye camera

H-K – number of fixation errors detected / number of fixation tests using the Heijl-Krakau method. Depending on the value, H-K may be displayed in green when the error value is low compared to the trials made, or on a red background when the error value is high. This also applies to the examination printout.

FPOZ – number of false positive errors detected / number of false positive tests. Depending on the value, FPOZ may be displayed in green when the error value is low compared to the trials made, or on a red background when the error value is high. This also applies to the examination printout.

FNEG – number of false negative errors detected / number of false negative tests. Depending on the value, FNEG may be displayed in green when the error value is low compared to the trials made, or on a red background when the error value is high. This also applies to the examination printout.

Pupil diam. – pupil diameter measured on the eye camera during the test

Fovea – (optional) retinal sensitivity result within Fovea area, together with percentage probability measure of whether the sensitivity can be treated as normative (if the normative reference is

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available for the stimulus used in examination)

HoV@10° - mean sensitivity of the tested hill of vision on a 10° ring in dB and the detected HoV slope in dB per every 10° (Screening, Threshold, and Fast-Threshold strategies). In strategies delivering a qualitative result (Two-Zones, Three-Zones), HoV@10° describes the brightness level of the stimulus used for tests at 10° and a reduction in the brightness level at 10° eccentricity intervals.

Stim. offset – difference between the calibration level and actual stimuli brightness displayed to patient. For example, -3dB stimuli offset in 2-zone strategy means that each exposition of stimulus was made with the intensity which was 3dB brighter than theoretically expected form calibration phase (or from other initial level selected in test settings)

Brightness – brightness level of the stimulus used for tests in dB. It applies to test strategies where stimuli of the same brightness are used (Driving Test, BSV).

VQi – quality index of the visual field accounting for glaucoma defects. VQi values are partial results calculated for each tested point within the visual field. They are weighted according to eccentricity and are included in VQi for the entire field. Defect-free visual field VQi equals 100%. VQi of a completely blind field equals 0%.

GHT – Glaucoma Hemifield Test result. Uses upper-lower hemifield differences in the probability maps to detect localized visual field loss. It also can detect abnormal sensitivity or general depression of the VF.

BVFR score – Binocular Visual Field Residual score – numerical score available for Gandolfo tests. It is calculated as a result of the following equation:

$$\text{BVFR} = (\text{SeenPoints} + 0.5*\text{RelativeDefects})/\text{AllPoints}$$

Mean defect – a group of indexes that denote deviation of the tested points from normal. Indexes are calculated according to different formulas depending on the settings introduced in "":

"HFA" - MDh – weighted mean value of deviations from age normal on the TD map

"H-S" - MDh – mean value of deviations from age normal on the TD map

"Default" – MDp – mean value of deviations of the tested averaged hill of vision from age normal

Irregularity – indexes that describe irregularity of the tested visual field excluding diffusely reduced visual field sensitivity. As a rule, the value of irregularity indexes rises with the increase of local defects of vision. Indexes are calculated according to different formulas depending on the settings introduced in "Changing index types in the analyses":

"HFA" - PSD – the level of deviations in the shape of the measured hill of vision from the normal field

"H-S" – LV(sLV) – irregularity of the field of vision (sLV – square root of LV).

"Default" – PD – mean value of deviations of the tested points from the tested averaged hill of vision

Short-term Fluctuation – indexes that describe the discrepancy between the results obtained at the same point during a test. Indexes are calculated according to different formulas depending on the settings introduced in "Changing index types in the analyses":

"HFA" - SFh – weighted mean short-term fluctuation of points

"H-S" and "default" – SFo – mean short-term fluctuation of points

Gaze shift diagram during a test

14.2.13.   Gaze shift diagram

Gaze shift diagram is a bar chart that illustrates the patient's eye movements during a test. It helps to determine whether gaze fixation is correct and if the test results are reliable. An example of an gaze shift diagram is shown below (Figure 206. Gaze shift diagram).

Blinking / no eye

Loss   of fixation

Figure 206. Gaze shift diagram

The diagram includes a horizontal time axis with bars of different heights. The following types of bars are used:

Bars above the horizontal axis – pupil shift. The higher the bar, the higher the pupil shift.

Bars below the horizontal axis – blinking. If the bars are longer, the eye has not been detected.

Bars extending over the whole height of the diagram (above and below the horizontal axis) are the detected fixation errors, i.e. pupil shift exceeding the allowed limit value of pupil shift (Setting the pupil shift limit).

14.3. Results display modes

Test result is judged from maps that display the results of various analysis. As a rule, the maps display exact numerical values at particular tested points of the visual field. The system uses alternative results display methods to make it easier to read the map and to identify areas of the visual field where visual defects are manifested.

> Alternative results display methods only apply to strategies and analysis that produce results displayed on a map of numerical values. Alternative results display options cannot be used for test strategies that deliver qualitative results, and for analysis that deliver qualitative or probability results.

14.3.1.   Basic display

Basic display is the simplest way the test results can be presented. The test results are displayed in the default mode. Depending on the test strategy, the results can be presented either as numerical values with sensitivity results in dB or Hz, graphical symbols representing a qualitative result (normal vision, defect, complete defect, double vision, no response), or symbols that denote the probability of a visual defect (TDP, PDP analysis).
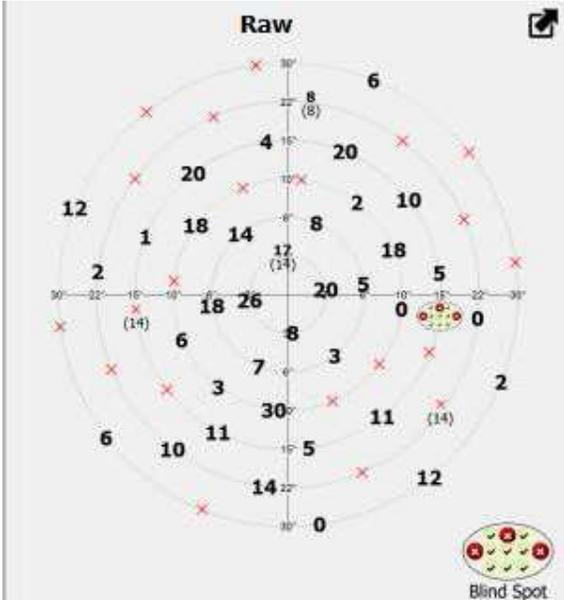
Figure 207. Basic visualization of the RAW analysis (in dB)
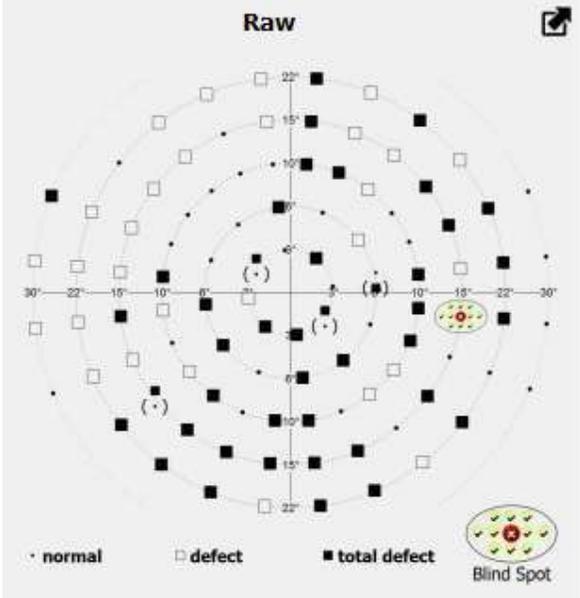
Figure 208. Basic visualization of the RAW analysis (qualitative symbols)

14.3.2.   Dots

The dots are an alternative way to present a map of numerical values. For each tested point, there is a graphical symbol displayed. It is a white area covered with black dots. The number and density of black dots in the symbol depends on the results obtained at the particular points of the visual field. Symbols are explained next to the dot map.

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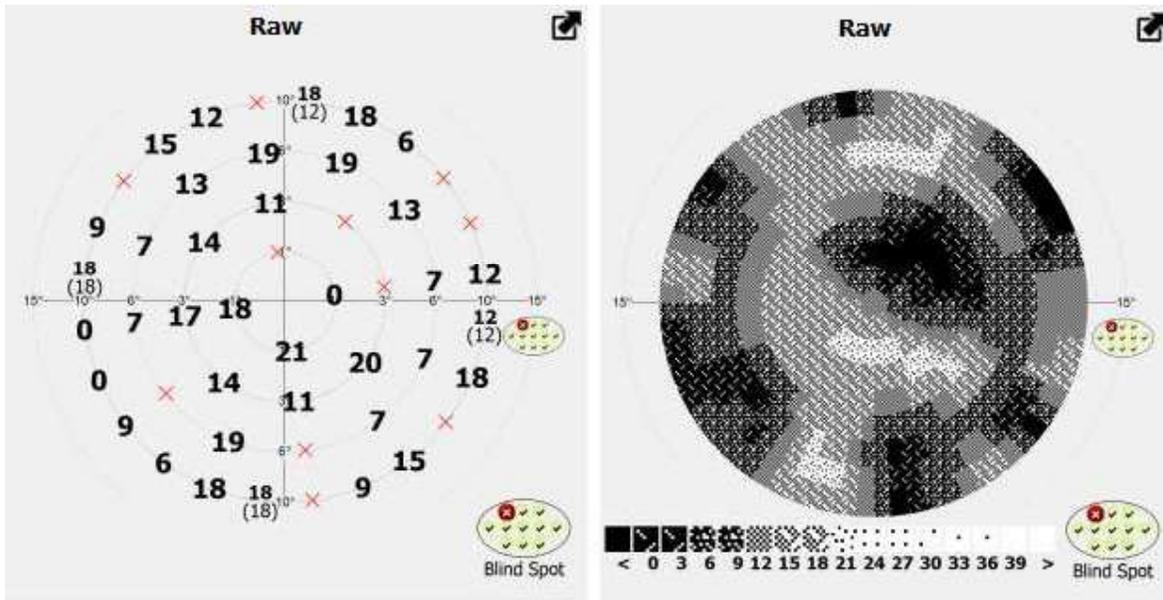
Figure 209. Basic display and the dot map of the RAW analysis

The dot map is interpolated. The space between the tested points is filled with symbols representing values estimated from the linear interpolation of the tested points. This way it is easier to read the map and to estimate the areas of visual defects.

> ⚠ The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The actual condition of the visual field can be only determined through testing procedures.

14.3.3. Grey scale

The scale of grey map is an alternative way to present a map of numerical values. The results from each tested point shown on the map are grey-coded. The shade of the map that corresponds to the point of the tested visual field depends on the sensitivity value obtained at this particular point. The color code is explained next to the map.
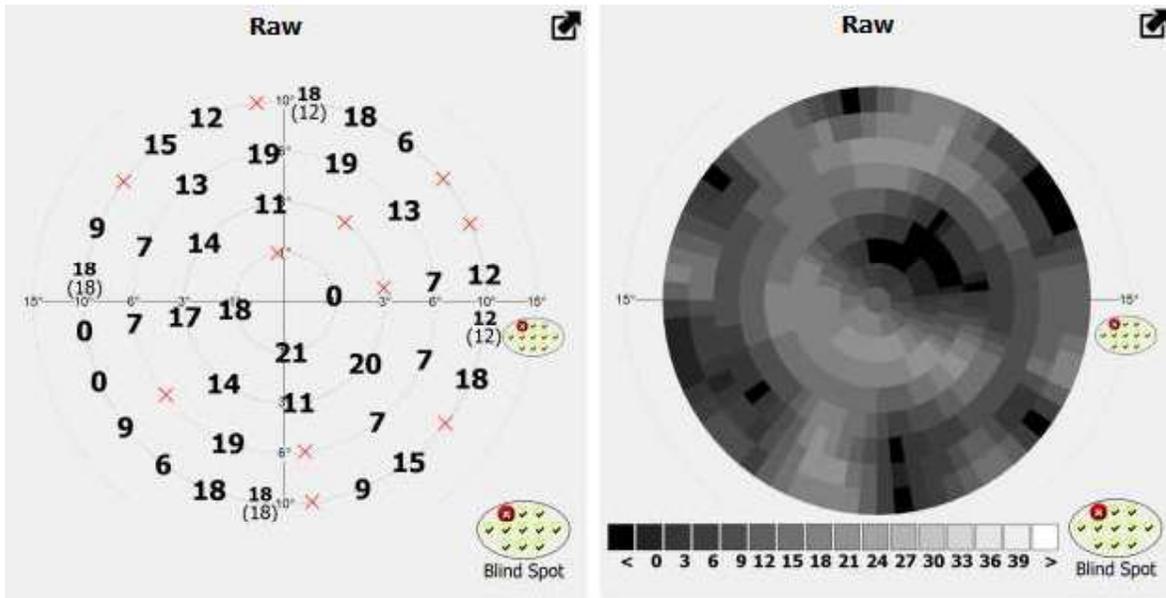
Figure 210. Basic display and the grey-coded map of the RAW analysis

The scale of grey map is interpolated. The space between the tested points is filled with symbols representing values estimated from the linear interpolation of the tested points. This way it is easier to read the map and to estimate the areas of visual defects.
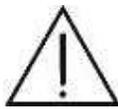
The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The actual condition of the visual field can be only determined through testing procedures.

14.3.4. Colors

The map of colors is an alternative way to present a map of numerical values. The results from each tested point shown on the map are color-coded. The color of the map that corresponds to the point of the tested visual field depends on the sensitivity value obtained at this particular point. The color code is explained next to the map.
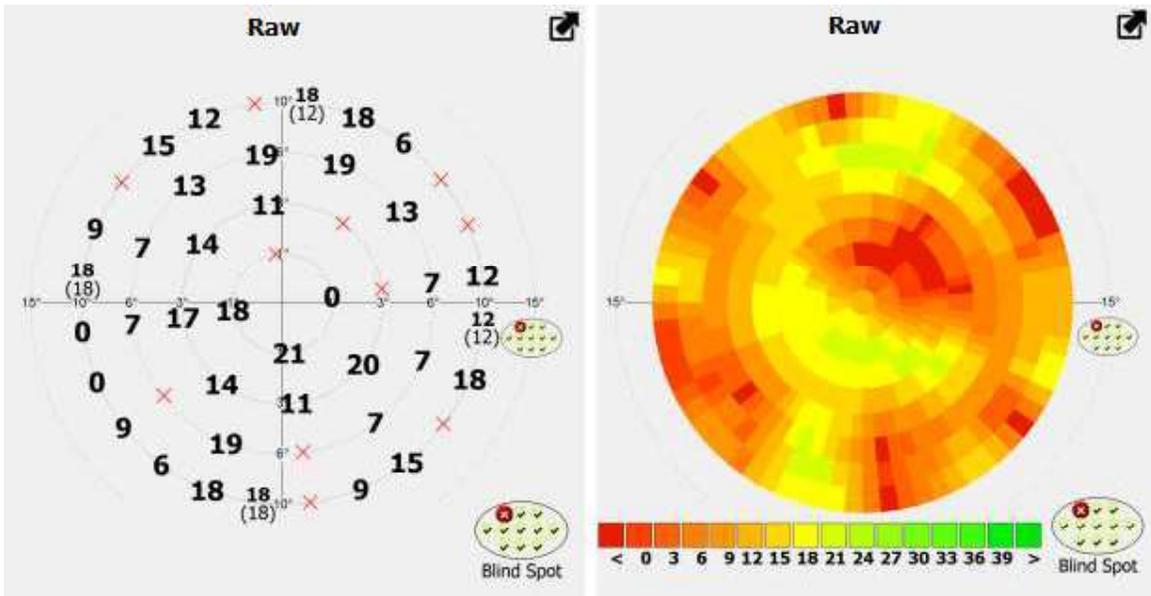
Figure 211. Basic display and the color-coded map of the RAW analysis

The color-coded map is interpolated. The space between the tested points is filled with symbols representing values estimated from the linear interpolation of the tested points. This way it is easier to read the map and to estimate the areas of visual defects.
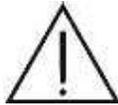
> The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The actual condition of the visual field can be only determined through testing procedures.

14.3.5.   Interpolation of results to maps 30-2, 24-2 and 10-2

The software allows to present the results of selected examinations in HFA-device style on maps 30-2, 24-2 and 10-2. The function is enabled by using "HFA Interpolation" button (Figure 212. "HFA Interpolation" button).

After enabling, the original examination result will be interpolated. As a result, a continuous retinal sensitivity map is generated, from which the presumptive sensitivity values at points that were not physically tested can be read. Locations belonging to commonly used test areas are used for displaying: 10-2, 24-2 and 30-2; these are popular for HFA devices. Whether the original result of examination is interpolated to map 10-2, 24-2 or 30-2 is dependent on the field range from the original result.

The results interpolation function is only available for tests in which numerical levels of retinal sensitivity may be determined. These include examinations performed with different threshold strategies (Threshold, Fast Threshold, Screening and Advanced). For interpolation to be possible with the selected examination strategy, it must be completed in at least 75%, and the examination must be performed on a sufficiently large field of vision.

HFA
interpolatio
n active
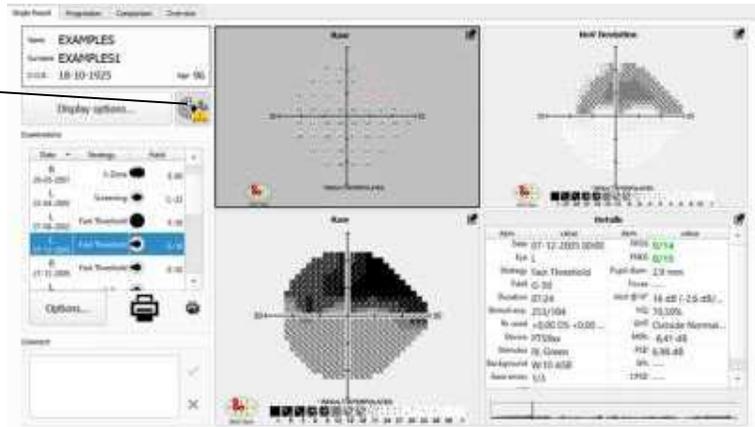
Figure 212. "HFA Interpolation" button

Remember that interpolated results have a high error. The values displayed on interpolated maps are not a measurement result, but merely a result of approximation based on measurements at different locations.

⚠️ Results interpolated at unexamined field areas are based on mathematical analysis and do not constitute diagnostic data. They merely represent presumptive conditions of the field examined between the other examination points tested. The actual condition of the field at unexamined areas may only be determined by examination.

Default state of the "HFA Interpolation" button is dependent on the "Interpolation to HFA maps" setting on "General" page, "Settings" tab.

14.3.6.   *Exam layers*

The software provides the ability to add different layers (e.g. fundus photo), assign them to patients and display them on the examination result map. The result map can be displayed on such a layer. This is illustrated in the picture below. You can learn more about the layer manager in chapter 9.8 Layer manager.
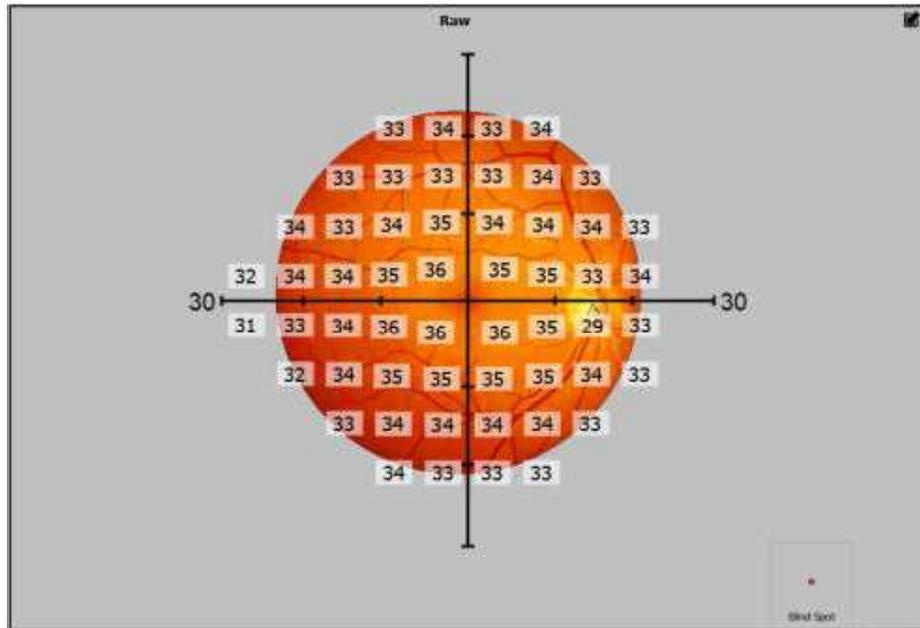
Figure 213. An example result map with fundus photo

The layer above has been scaled taking into account the position of the fovea and the blind spot in such a way that it coincides with the result map. In the Results tab, you can always edit the layers in case of positions not well defined. To do this, open the layer manager. In the Results tab, similarly to the Patient Page, hover the mouse cursor over the button with the "F" (Fundus) symbol next to the "Display options…" button or the interpolate button. The layer activation button is marked in the figure below.
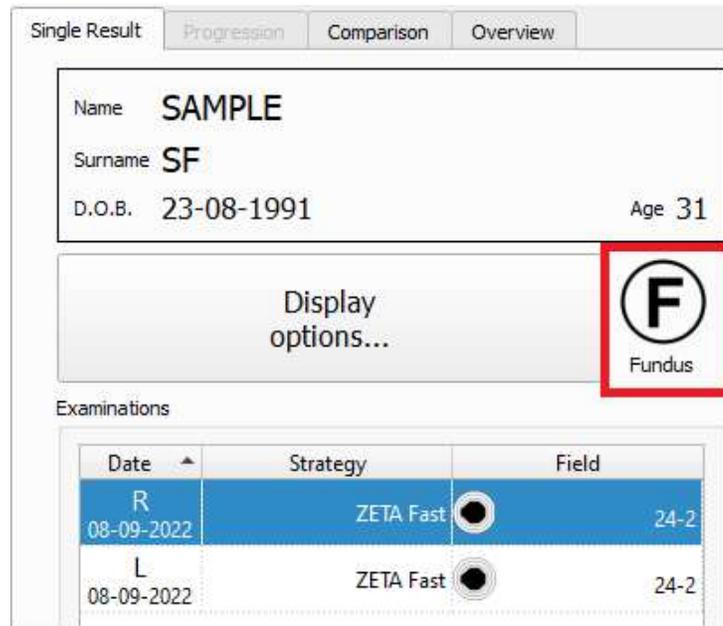
Figure 214. Layer activation button

Just clicking on the button will add or remove a layer from the result map. As soon as the mouse cursor is on the button, an additional button with a thumbnail of the specific layer will appear. This

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is illustrated in the figure below.
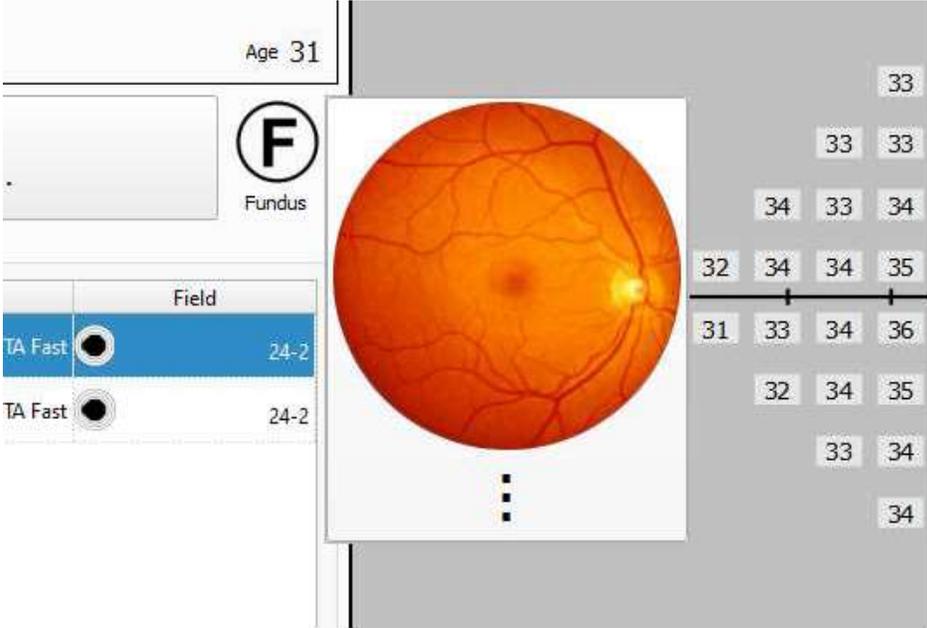
Figure 215. Exam layer manager open button with last selected layer

If a given patient has no layers assigned, a button with a plus symbol will appear (Figure 216. Exam layer manager open button. No existing layers), after clicking which the layer manager will open, where you can not only edit the existing layers, but also add new ones.
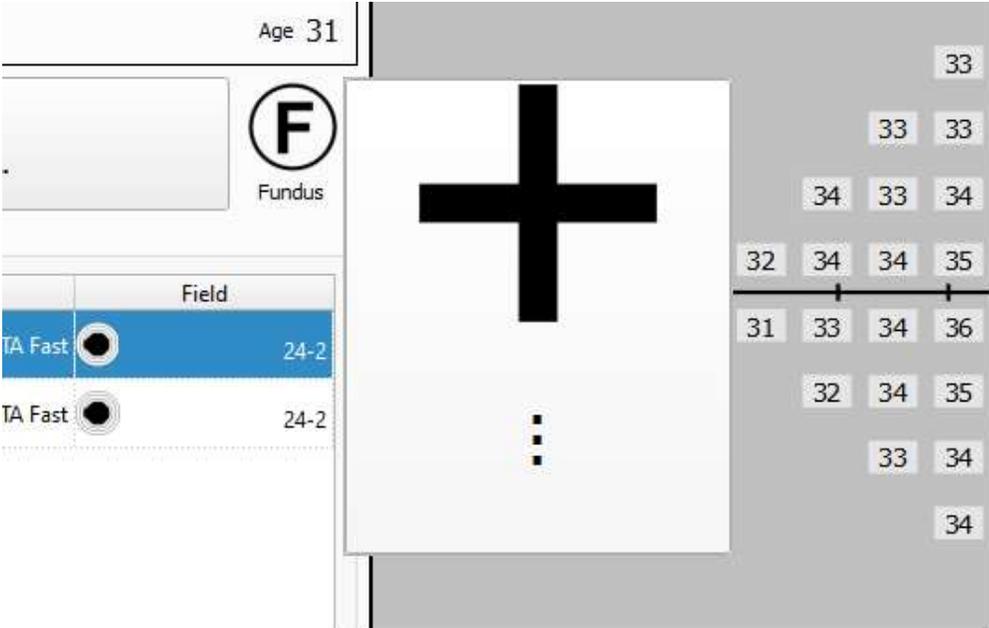
Figure 216. Exam layer manager open button. No existing layers

14.4. *Test report generator*

The test results can be summarized in a one-page report. The report can be printed or saved as PDF

or JPG file in the selected directory. It can be also saved as DCM (Dicom) image format or sent to a configured DCM file server.

To generate a report on the single test analysis page, click the printer icon at the bottom left hand side of the window. After clicking this button, a Report Generator dialog window will be displayed with a print preview. From here, you can change the printer settings or choose how to save the report (paper, PDF, JPG, or DCM). If you wish to quickly print the report on the default system printer without opening the dialog, press the "Quick" print button with a flash symbol.

Figure 217. Report generator dialog and "Quick" print buttons

Printer selection and settings

Saving printout to Dicom DCM

Saving printout to JPG file

Hard copy printout

Printout template selection

Saving printout to PDF file

Temporary enabling/disabling of HFA interpolation

Switch view: Single, Side by side, 2on1

Examinations list

Examinations filter
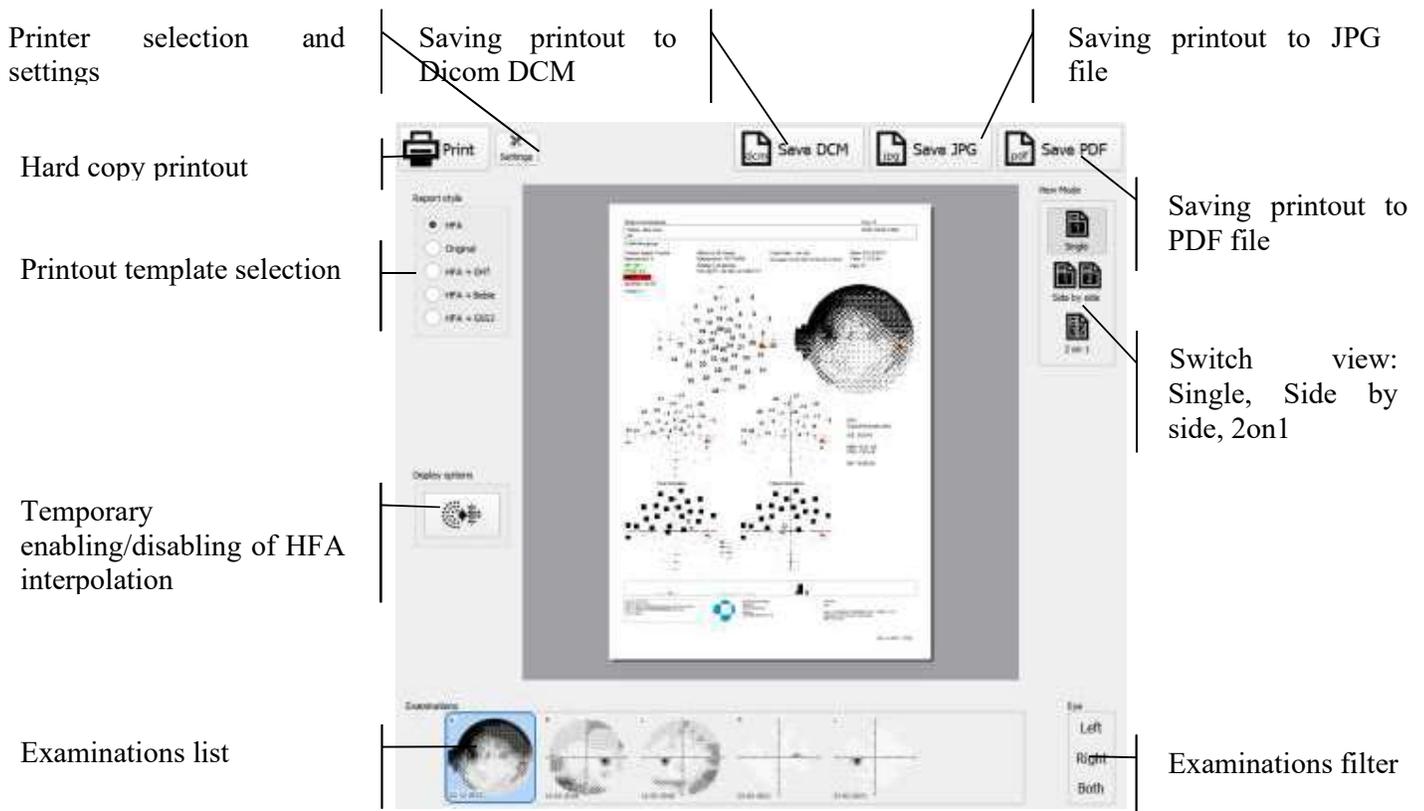
HFA interpolation may also be enabled or disabled (Interpolation of results to maps 30-2, 24-2 and 10-2). The state of the button after opening the print preview window depends on the setting chosen at the "Settings" and "Results" tabs.

If the Report Generator Dialog is opened from results review with more than one examination result, then there will be list of available examination results displayed under the preview area.

Figure 218. Print preview window

When the list contains results of both left and right eye examinations, then the group of "View modes" buttons is displayed on the right to switch to the one of binocular views:

- Side by side - After pressing this button, the dialog is split into two parts. Left one is displaying the Left eye result and left eye list (if more exams available), the right one is displaying Right eye examination and right eye examinations list (if more exams available).
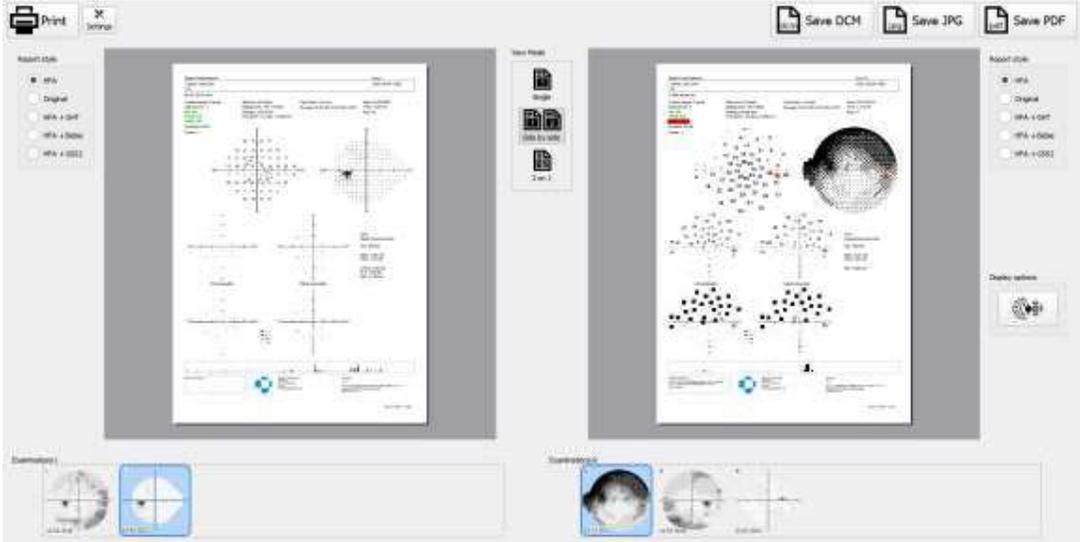
Figure 219. Print preview window - Side by side mode

- 2 on 1- After pressing this button, the report page will contain results of both Left and Right examinations. The selection of examinations can be done with use of examinations list under the preview area (if more exams available).
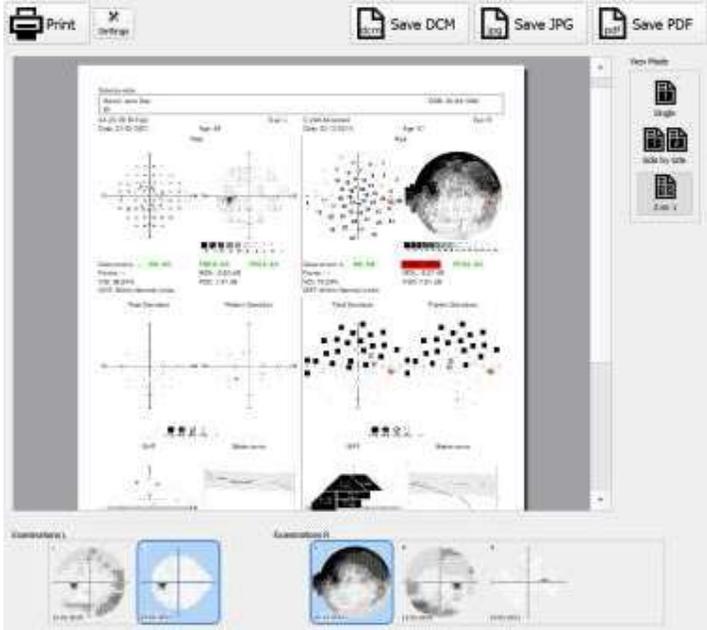
Figure 220. Print preview window - 2 on 1 mode

The layout and content of the report depends on the style selected ("Changing the style of reports printed and rendered to a file") and the test strategy used. If the test strategy includes many analyses, the report will feature more information than other reports generated from the RAW analysis.
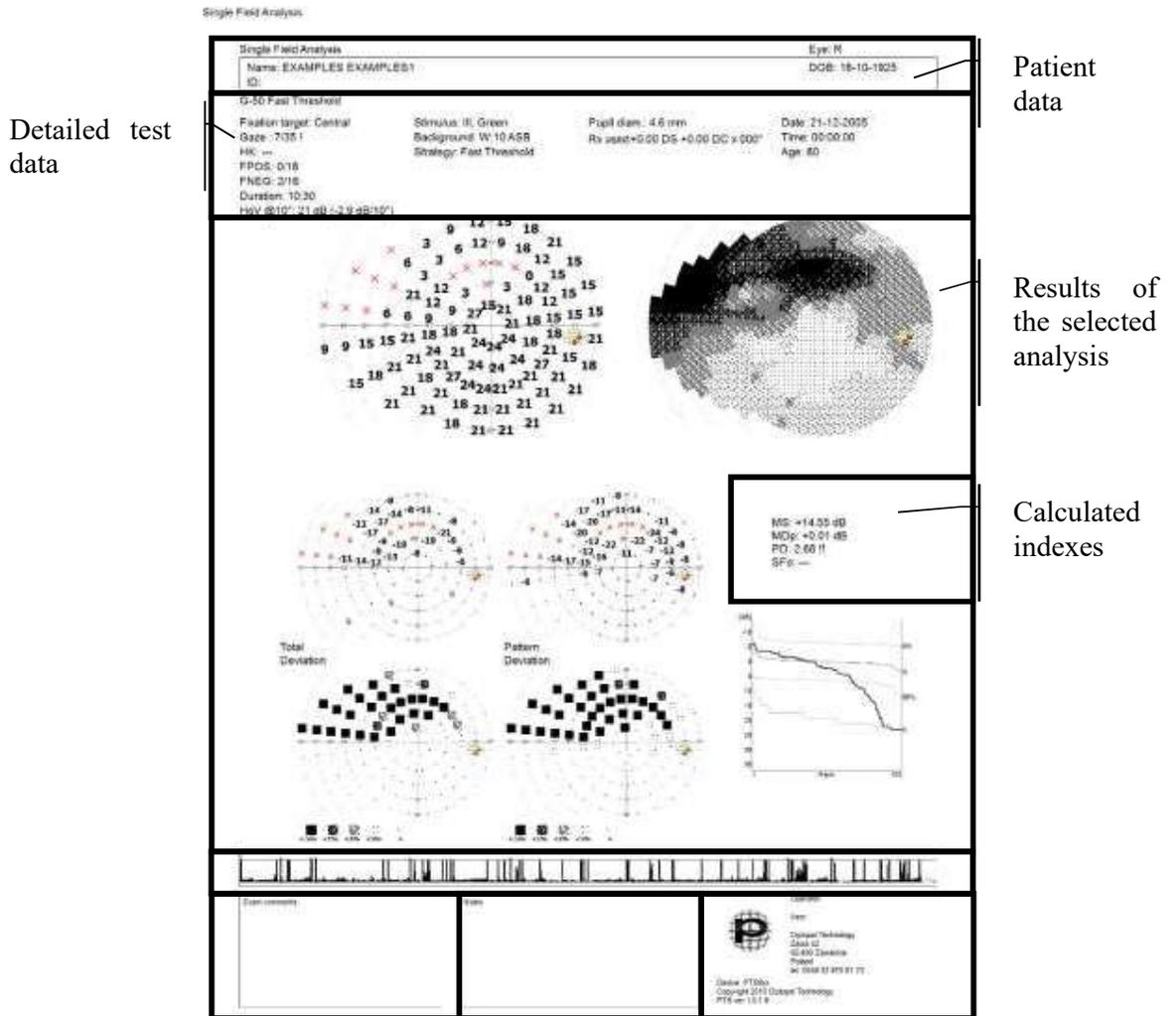
Figure 221. Single field analysis report (HFA+Bebie)

Information contained in HFA reports based on tests run according to different test strategies:

Fast Threshold / Threshold and Advanced:

- RAW numerical diagram of sensitivity
- RAW dot diagram of sensitivity

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- numerical diagram of TD deviations (Age)
- probability diagram of TD deviations – PTD
- numerical diagram of PD deviations (model)
- probability diagram of PD deviations – PPD
- Bebie curve (HFA+Bebie) or GHT map (HFA+GHT)

Screening / Flicker:

- RAW numerical diagram of sensitivity
- dot diagram of RAW sensitivity
- numerical diagram of HoV deviations
- dot diagram of HoV deviations

Three-Zone, Two-Zone, and Driving Test:

- RAW diagram of qualitative symbols of sensitivity

BSV:

- RAW diagram of symbols for diplopia test
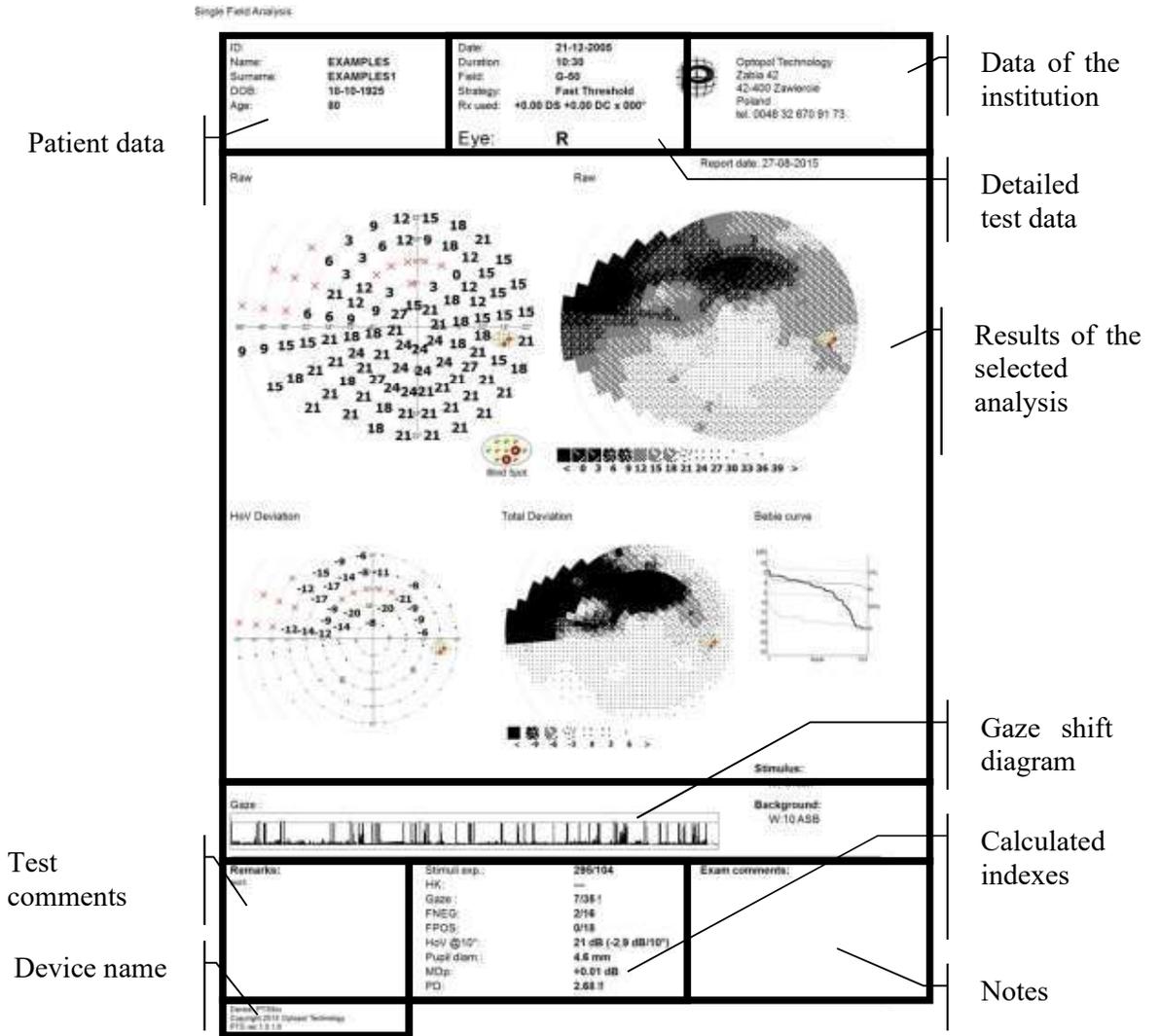
Figure 222. Single field analysis report (default)

Information contained in default-style reports based on tests run according to different test strategies:

- Fast Threshold / Threshold and Advanced strategy:
  - RAW numerical diagram of sensitivity
  - RAW dot diagram of sensitivity
  - numerical diagram of HoV deviations
  - dot diagram of TD deviations (age)
  - Bebie curve

- Screening / Flicker:
  - RAW numerical diagram of sensitivity

- o RAW dot diagram of sensitivity

- o numerical diagram of HoV deviations

- o dot diagram of HoV deviations

- Three-Zone, Two-Zone, and Driving Test:

  - o RAW diagram of qualitative symbols of sensitivity

- BSV:

  - o RAW diagram of symbols for diplopia test

✔ The reports generator can be brought up on the Summary window and Summary page in wizard interface, directly after the test has been completed. In such a case, the list of other-eye examinations contains only results taken on the same date.

14.5. *Results progress analysis interface*

The result of a perimetry exam is characterized by a high degree of uncertainty. It is the patient who signals whether a light stimulus is visible or not, and the patient responsiveness is decisive for the final test reliability. It is risky to base your diagnosis on a single test result only. Visual defects can be detected correctly based on consistent results obtained through a series of tests. To confirm test reliability, you should first compare the results of subsequent tests, determine repeatability of the test results, and identify the common elements. To aid this process, you can use a results comparison module with which the differences in the results of tests taken at two different points of time can be compared.

Also, it is very important to monitor the progress of disease in patients with visual field defects. Another important issue is to control patient's response to therapy. In both cases patient's visual field is tested at specific time intervals and the obtained results compared with each other. The results comparison module offers tools with which the results can be confronted with results of a baseline exam or averaged result for the selected two tests. With analysis type tools, you can trace and

Data of the current patient

List of tests compatible with the main exam

Input data switch for progress analysis tools

Highlighted test

Change analysis mode

Options to change analyzed field range

Baseline exam results #1

Baseline exam results #2

Highlighted test result maps

Current exam result

VQI index

Progress analysis results

CSS2 plot

Figure 223. Results tab - comparison/progress analysis

forecast the progress of the disease.

> The results progress analysis interface is available for tests run according to quantitative test strategies (delivering numerical values of eye sensitivity), including Threshold, Fast Threshold, Advanced, ZETA, ZETA Fast, Zeta Faster, Dynamic strategies and imported results with SITA, SITA Fast, SITA Faster, Threshold, FastPac.

14.5.1. List of tests

List of tests compatible with the current exam can be found on the left side of the Progress tab. The current exam is the test to which other tests are compared. Compatible tests are tests that can be compared with the main exams. Compatible tests are defined as tests in which the same eye was tested, using the same stimulus parameters, according to one of quantitative test strategies (delivering numerical values of eye sensitivity), and those which have been completed.

The list of tests includes test date, eye tested, test strategy, and the visual field area tested. By default, the tests are sorted by date. The sorting can be changed to another column by clicking the header of the column of choice.

From the list, you can choose the baseline exams to compare the results and analyze the disease progress. You can use the drag function - click a row in the table and keep the mouse button down while you drag the test. Drag the test into the baseline exam #1, #2 or the current exam results area.

14.5.2. Selecting the current exam

The current exam is the test which is a subject of comparison. When you compare two tests, the current exam will be the most recent one. When you analyze disease progress, the current exam will be the most recent test, which will be compared to baseline exam.

By default, when you open the Progress tab, the current exam will be the test currently displayed in the Single Result Analysis tab. The results of the current exam and the differential result are displayed in the middle row on the right side of the tab (Figure 223. Results tab - comparison/progress analysis)

The current exam can be changed to any other test from the list of compatible tests. To change the current exam, drag the test of choice from the list of tests into the current exam area. To drag the test, right-click the row in the test table and move the cursor into the selected area, keeping the mouse button down. Release the mouse button over the area of choice.

14.5.3. Selecting the baseline exam

The baseline exam is the test compared with a test performed more recently. To compare the results of two tests, there can be only one baseline test. To analyze the progress of a disease, you should preferably use two test as the baseline. You will use the mean values of two tests, which at least in part eliminates the influence of short-term fluctuation.

By default, after entering the Progress tab, the oldest test from the list of compatible tests will be set as the baseline. If more than one older test is listed, two oldest compatible tests will be added as the baseline tests. The results of baseline exams #1 and #2 are displayed in the first row on the

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right side of the tab (Figure 223. Results tab - comparison/progress analysis).

The baseline exams can be changed to any other test from the list of compatible tests. To change the baseline exam, drag the test of choice from the list of tests into the baseline exam #1 or #2 area. To drag the test, right-click the row in the test table and move the cursor into the selected area, keeping the mouse button down. Release the mouse button over the area of choice.

Click X to delete baseline exam #1 or #2, leaving a single baseline exam. The X button can be found in the right corner of the baseline exam area #1 and #2.

14.5.4.   Setting the range of analysis

The range of the analyzed test area can be reduced for comparison or progress analysis. This way in some cases, the calculated indexes describing the condition of the visual field will be less exposed to bias from peripheral areas of the visual field.

In the comparison / progress analysis, all results displayed are taken from the interpolation of the original test results. When the range of the analysis is changed, the interpolation will cover new field points. Thus, a different result will be displayed if the new points are within the interpolation area of the original test results. Points outside the original test area will have no values assigned.
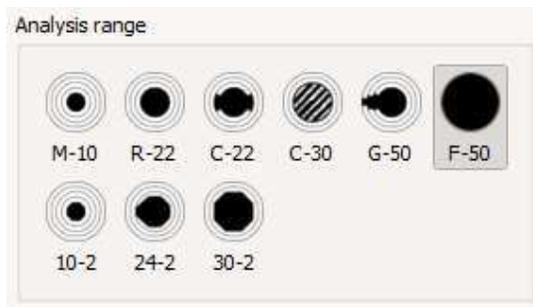
Figure 224. Setting the range of analysis

The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The actual condition of the visual field can be only determined through testing procedures.

All values of the calculated indexes (mean defect index, irregularities index, fluctuation index, VQi) are computed from points that belong to the set range of analysis. This means that the index values can differ from the values displayed in the single result analysis tab for the test concerned.

By default, the range of analysis set in the progress tab will be the area common for the current exam and the baseline exams.

14.5.5.   Selecting the analysis mode

By selecting different modes of analysis, you can change the type of results displayed for the baseline exams, the current exam, and the progress diagram. You can choose the following modes

14.5.5.2. Progression – TD mode

TD – analysis of deviations from age normal. Deviations of the tested visual sensitivity in dB from age normal are displayed for the baseline exams. The current exam will include, apart from the test-based deviations in dB, also the dot map of these deviations, and the difference between the eye sensitivity deviations in the main exam and the mean deviations in the baseline exams. If the difference is lower than the pre-set "difference display limit" ("Changing the results display options"), dots will be used instead of numerical values.

Map of TD deviations in dot scale and dB from the baseline exam #1

Details of the baseline exam #1 incl. indexes from the analyzed area

Map of TD deviations in dB, dot scale and a Probability PD map for the current exam

VQi index for the selected field range in compatible tests

Details of the current exam incl. Indexes from the analyzed area

Map of differences in TD deviations in dB between the current and the baseline exam

Box plots of TD deviations within the selected field range for compatible tests

GSS2 plot for selected tests
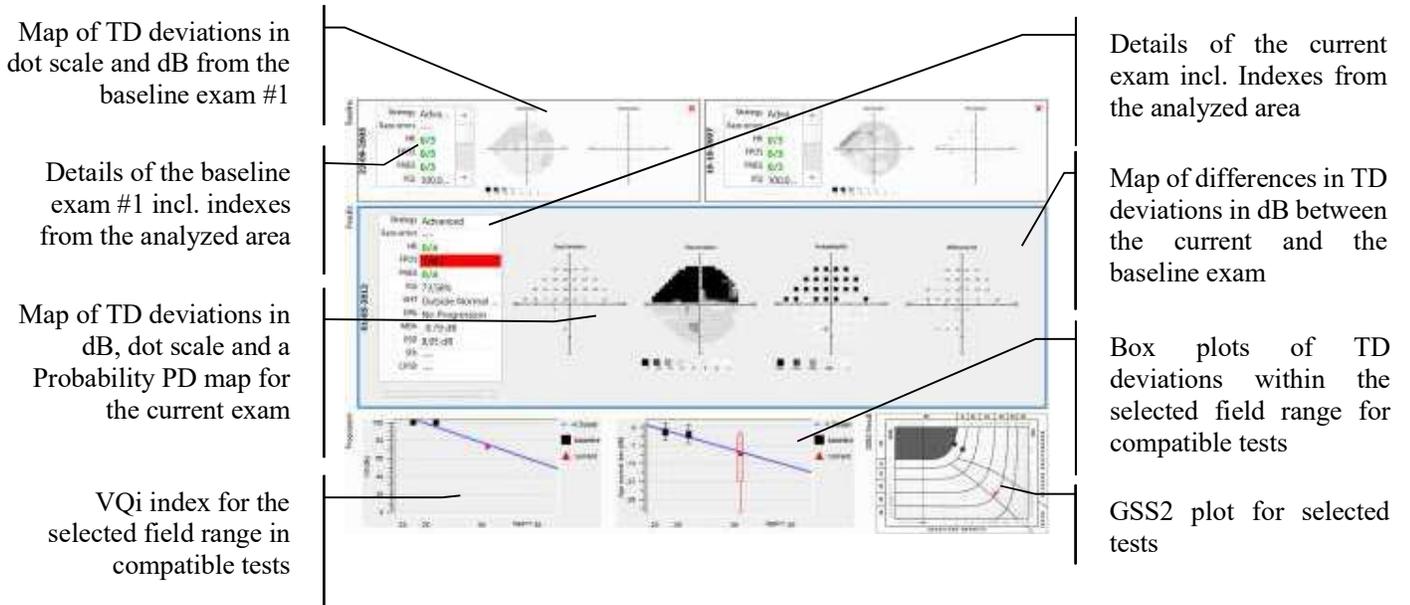
Figure 226. Comparison/progress analysis in the TD mode

The first diagram of the progress analysis presents VQi values calculated for the selected field range from all compatible tests. The second diagram of the progress analysis presents box graphs of deviations of visual sensitivity from age normal calculated from the selected field range for all compatible tests. Symbols denote indexes of field deviations from age normal (MDh, MDo, MDp).

14.5.5.3. Progression – PD mode

PD - analysis of adjusted deviations from age normal. Deviations of the tested visual sensitivity in dB from age normal adjusted for identified diffuse reduction / increase of the sensitivity level are displayed for the baseline exams. The current exam will include, apart from the test-based deviations in dB, also the dot map of these deviations, and the difference between the eye sensitivity deviations in the current exam and the mean deviations in the baseline exams. If the difference is lower than the pre-set "difference display limit" ("Changing the results display options"), dots will be used instead of numerical values.

Map of PD deviations in dot scale, dB from the baseline exam #1

Details of the baseline exam #1 incl. indexes from the analyzed area

Map of PD deviations in dB, dot scalem and a Probability PD map for the current exam

VQi index for the selected field range in compatible tests

Details of the current e incl. indexes from analyzed area

Map of PD deviat between the current the baseline exam

Box plots of deviations within selected field range compatible tests

GSS2 plot for sele tests
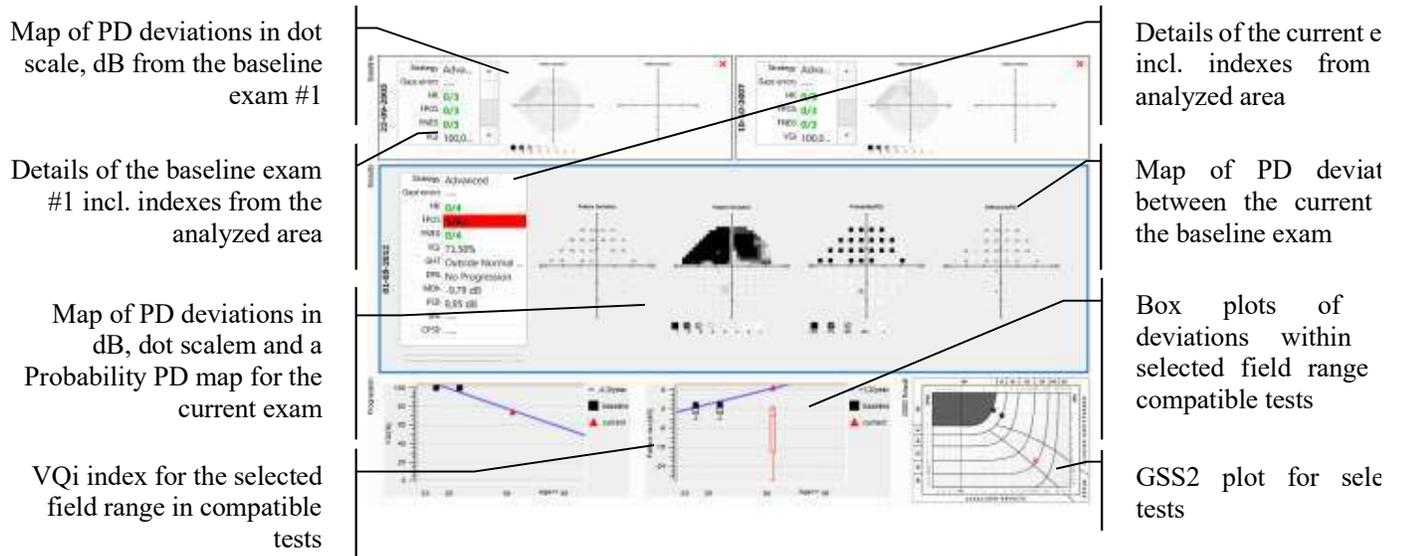
Figure 227. Comparison/progress analysis in the PD mode

The first diagram of the progress analysis presents VQi values calculated for the selected field range from all compatible tests. The second diagram of the progress analysis presents box graphs of adjusted deviations of visual sensitivity from age normal calculated for the selected field range from all compatible tests. Symbols denote field irregularity indexes (PSD, sLV, PD).

14.5.5.4. Progression – HoV mode

HoV - analysis of deviations from the perfect HoV model. Deviations of the tested visual sensitivity in dB from the perfect HoV model are displayed for the baseline exams. The current exam will include, apart from the test-based deviations in dB, also the dot map of these deviations, and the difference between the eye sensitivity deviations in the current exam and the mean deviations in the baseline exams. If the difference is lower than the pre-set "difference display limit" ("Changing the results display options"), dots will be used instead of numerical values.

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Map of HoV deviations in dot scale and dB for the baseline exam #1

Details of the baseline exam #1 incl. indexes from the analyzed area

Map of HoV deviations in dB and dot scale, Probability PD map for the current exam

VQi index for the selected field range in compatible tests

Details of the curren exam incl. indexe from the analyze area

Map of HoV deviations [dB between the curren and the baseline exam

Box plots of H deviations within selected field range compatible tests

GSS2 plot for selecte tests
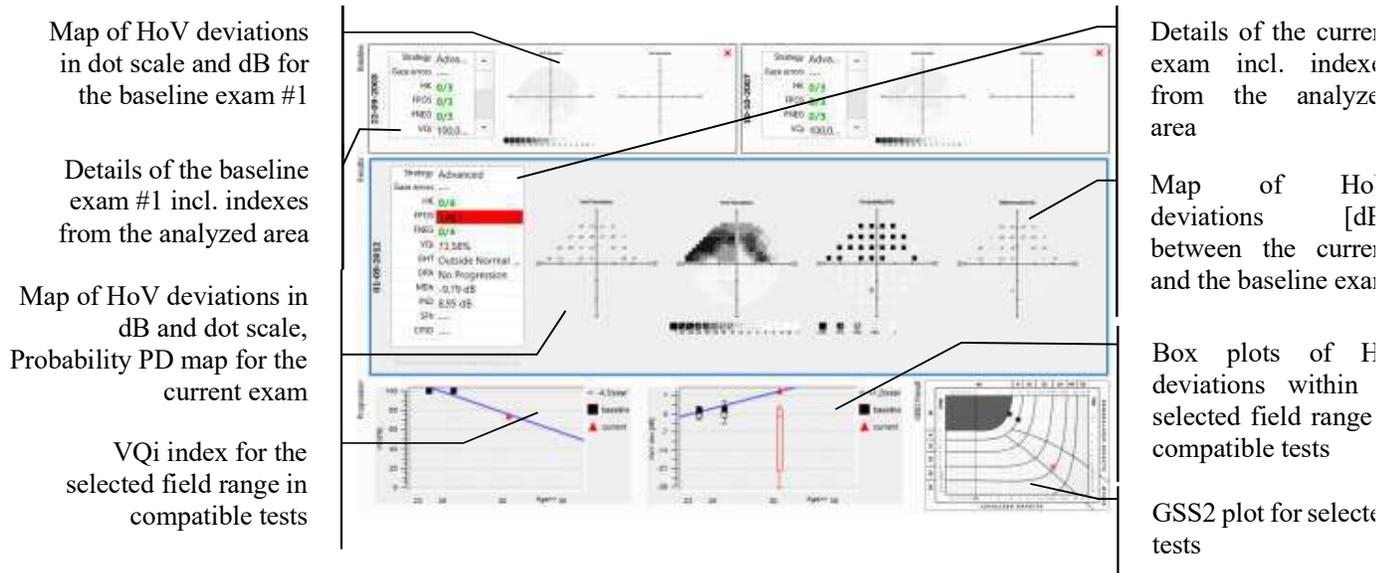
Figure 228. Comparison/progress analysis in the HoV mode

The first diagram of the progress analysis presents VQi values calculated for the selected field range from all compatible tests. The second diagram of the progress analysis presents box graphs of deviations from HoV calculated for the selected field range from all compatible tests. Symbols denote field irregularity indexes (PSD, sLV, PD).

14.5.5.5. Progression – DPA™ mode

DPA™ - (Defect Progression Analysis) it is an analysis of visual field defects in a long term scale. It helps to separate short term fluctuations from real VF defects. DPA uses comparison of several examinations to a baseline.

Map of sensitivity in dot scale and pattern deviations in dB for the baseline exam #1

Details of the baseline exam #1 incl. indexes from the analyzed area

Map of sensitivity in dB, Probability PD map, Difference PD map for the current exam

VQi index for the selected field range in compatible tests

Details of the curre exam incl. indexes from the analyzed area

Map of DPA point results for the selected examinati

Box plots of sensit within the selected field range for compatible tests

GSS2 plot for sele tests

Figure 229. Comparison/progress analysis in the DPA mode

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In compared examination, each test point location is assigned the Defect Progression result according to its Pattern Deviation difference from the baseline and to history of Defect Progression result at this location.

If in the first examination after the baseline, the Pattern Deviation difference form the baseline at a particular test location is statistically significant, then that location is marked as "Deterioration in this test". If in the consecutive examination, the same location has again significant Pattern Deviation difference, then it is marked as "Deterioration in 2 consecutive tests". If the situation repeats in third examination, than the location is marked as "Deterioration in 3 consecutive tests". If the location has non-significant Pattern Deviation difference form the baseline in any of consecutive tests, then the "deterioration" counter is reset.
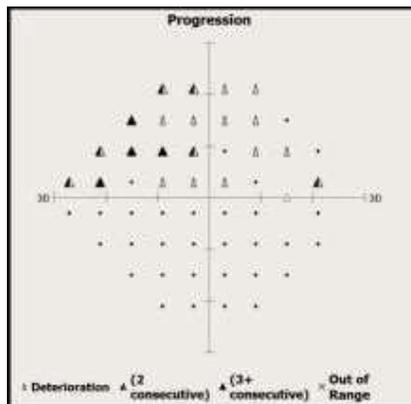
Figure 230. Single result DPA map

Possible results of comparison of a single test location to a baseline point:

- Normal (no deterioration)
- Deterioration in this test
- Deterioration in 2 consecutive tests
- Deterioration in 3 and more consecutive tests
- Out of range (baseline is already deteriorated)

Taking into consideration the DPA point results in consecutive tests, the tested field has assigned the progression likelihood, the DPA result:

- No progression
- Possible Progression - if there are 3 or more test locations with significant deterioration in 2+ consecutive tests.
- Likely Progression if there are 3 or more test locations with significant deterioration in 3+ consecutive tests.

14.5.6.   Box plot

Box plot presents the distribution of values within a group of values. One plot captures information about layout, dispersion and shape of the value range.
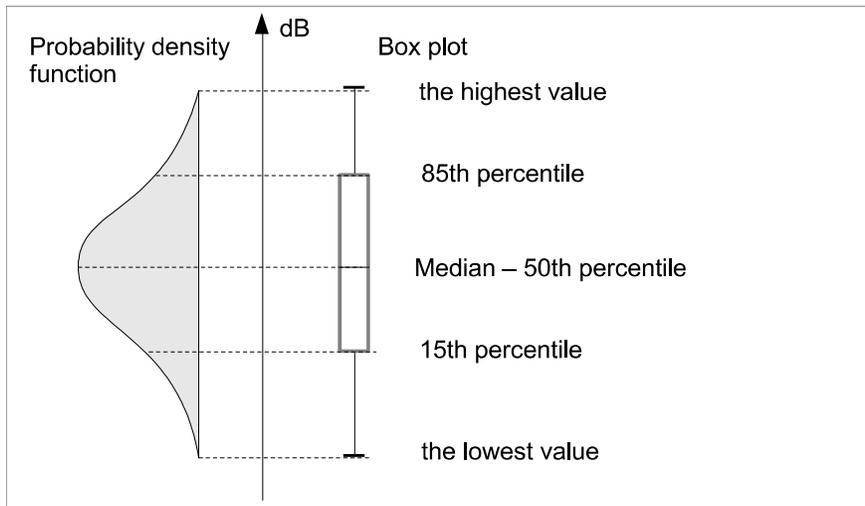
Figure 231. Box plot

A box plot is made up of a box and two margin lines extending from the box. The plot describes 5 values derived from selected range parameters. The top border line is equivalent to the highest value within the range. The bottom border line is equivalent to the lowest value within the range. The top and bottom side of the box denotes 85% and 15% of the value range. The line in the middle of the box is the range median, equivalent to 50% value range.

The box plot presents changes in the visual field in the course of comparison / progress analysis. Depending on the type of analysis, the box plot includes the following values:

RAW – eye sensitivity in dB

TD – deviation of the tested sensitivity values from age normal at the analyzed points

PD – deviation of the adjusted sensitivity values from age normal at the analyzed points

HoV – deviations of the tested sensitivity from the perfect HoV model created for a test field based on the test results.
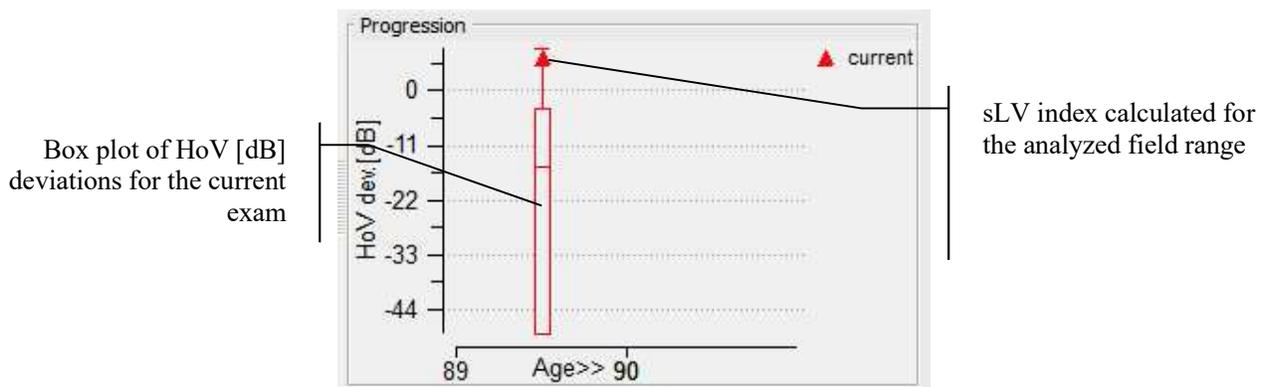
Figure 232. Box plot of HoV [dB] deviations in the main exam

Apart from a standard box plot, the diagram also includes a symbol of one of the indexes. The type of index depends on the type of analysis:

RAW – MS index – mean sensitivity in the analyzed area

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TD – MDh, MDo or MDp index, according to the settings ("Changing the type of indexes used in analyses")

PD – PSD, sLV or PD index, according to the settings ("Changing the type of indexes used in analyses")

HoV – PSD, sLV or PD index, according to the settings ("Changing the type of indexes used in analyses")

The box plot with the blue circle symbol, presented in the figure below, means that the examination with which the box plot is associated was imported from devices from other manufacturers.
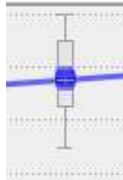
Figure 233. The box plot of the examination from third-party devices

When comparing test results from devices from different manufacturers, one should be aware of the differences between them and possible differences in the obtained sensitivity values and global indexes.

14.5.7.   *Progress analysis diagram*

Progress analysis diagrams illustrate changes in the patient's visual field over time, in a long-term perspective. The diagrams include box plots placed on the patient's age axis. The diagram also contains a trend line drawn using linear regression analysis based on the values of indexes shown on the box graphs.

Typically, the progress analysis includes box plots for baseline exams #1 and #2 (if set) and the current exam. By default, these box graphs are the basis for the trend line. You can also include additional box graphs on the progress diagram, based on other compatible tests from the list. To select a test to display, check the box in the first column in the list of tests.

Checkbox for the baseline and current exams is locked – these examinations are always visible in progression plot

Checkbox for an optional examination which may be included in progression plot

Checkbox changes the way the trend line is established – either form all examinations visible in the progression plot or just form baseline and current exams
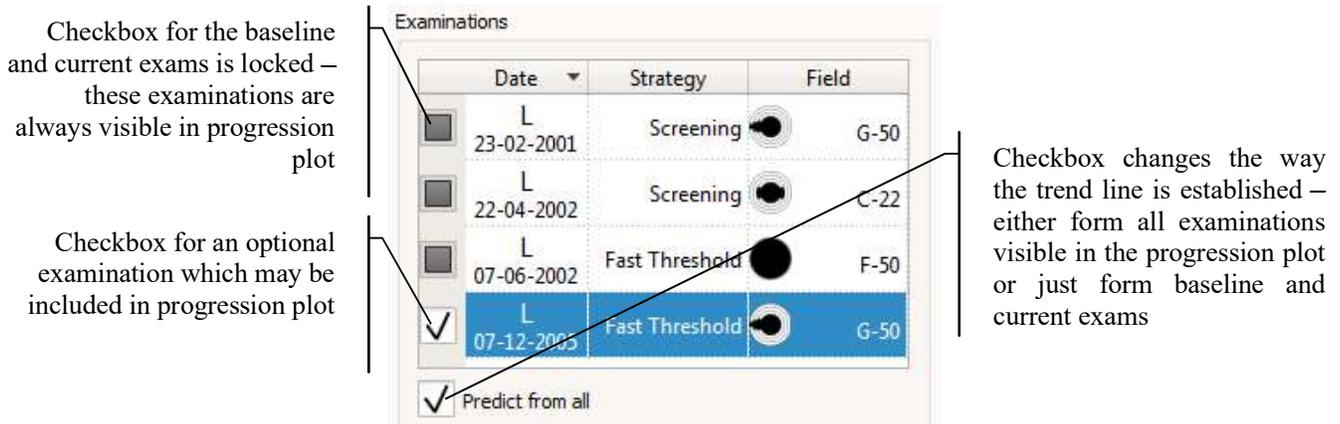
Figure 234. List of additional tests and the progress forecast option

VQi calculated from baseline exam #1 and #2 (patient aged around 43 and 46 years)

VQi calculated from an additional test (patient aged around 47 years)

VQi change trend and a 5-year forecast (change by -3,7% annually)

VQi calculated from the current exam (patient aged around 50 years)

Mean sensitivity and a box graph of sensitivity calculated from baseline exam #1 and #2 (patient aged around 43 and 46 years)

Mean sensitivity and a box graph of sensitivity from an additional test (patient aged around 49 years)

Sensitivity change trend and a 5-year forecast (change by -1,4dB annually)

Mean sensitivity and box graph of sensitivity from the current exam (patient aged around 50 years)

Confidence interval

Figure 235. Analysis of VQi index progress and mean sensitivity

As an alternative, the trend line can be drawn not only from baseline exams and the current exam, but also from all the tests displayed in the progress diagram. To change the display mode of the trend line, check the "Predict from all" box below the list of compatible tests.

It is also possible to add an additional trend line to the progress analysis graph. An example of the use of an additional line may be the use of medical therapy. A new trend line can represent progress

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in the treatment process with respect to the original trend ine, but the use of an additional trend line can be anything. An example of a chart with an additional trend line, marked in green, is shown in the figure below:
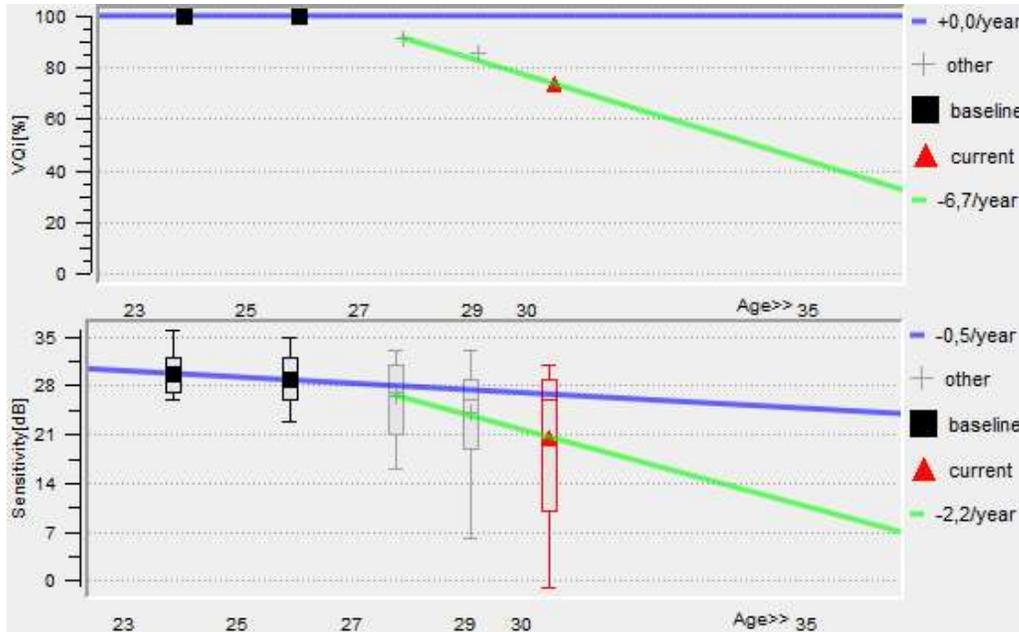
Figure 236. Progression charts with an additional trend line

In the figure above, the additional trend line starts at the point where the third test was examined. In order to indicate from which examination the additional trend line is to be drawn, right-click on the given examination on the examination list. This will bring up the context menu from which there is a possibility to select the "Split from here" option, as shown in the figure below:
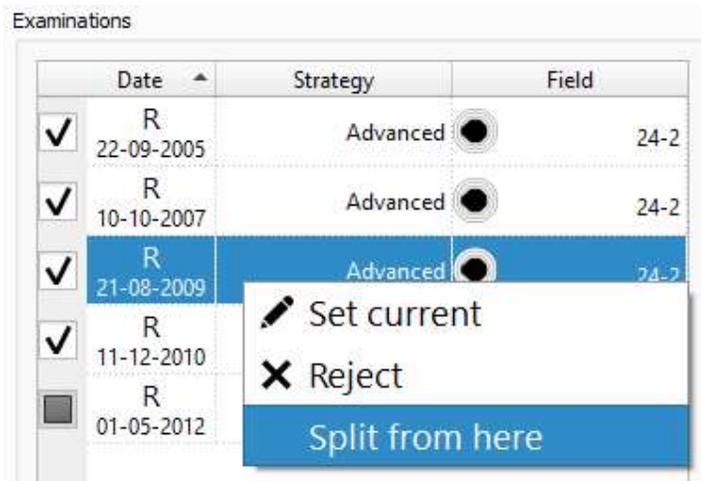
Figure 237. Adding additional trend line starting from the third examinations

After selecting the above option, examinations that include the new trend line will be marked with

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a green background in the list of examinations. The original blue trend line will be related to the rest of examinations. There is a possibility to change the starting point of a new trend `line by using the "Cancel split" option from the context menu. This is shown in the figure below:
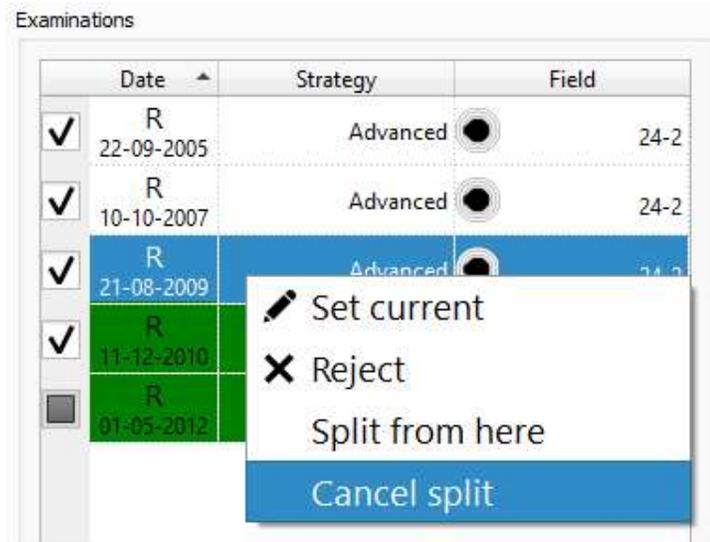
Figure 238. Disconnecting an additional trend line

An additional trend line can also be set using the progression diagram's context menu. The menu can be brought up by right-clicking on the place on the diagram where you want the new trend line to start and selecting "Split here". This place can be a specific examination or the space between two tests. In the second case, the starting point will be the first test to the right of where the context menu was called up. To remove an additional trend line using the context menu of the progress chart, right-click anywhere on the chart and select "Cancel split."
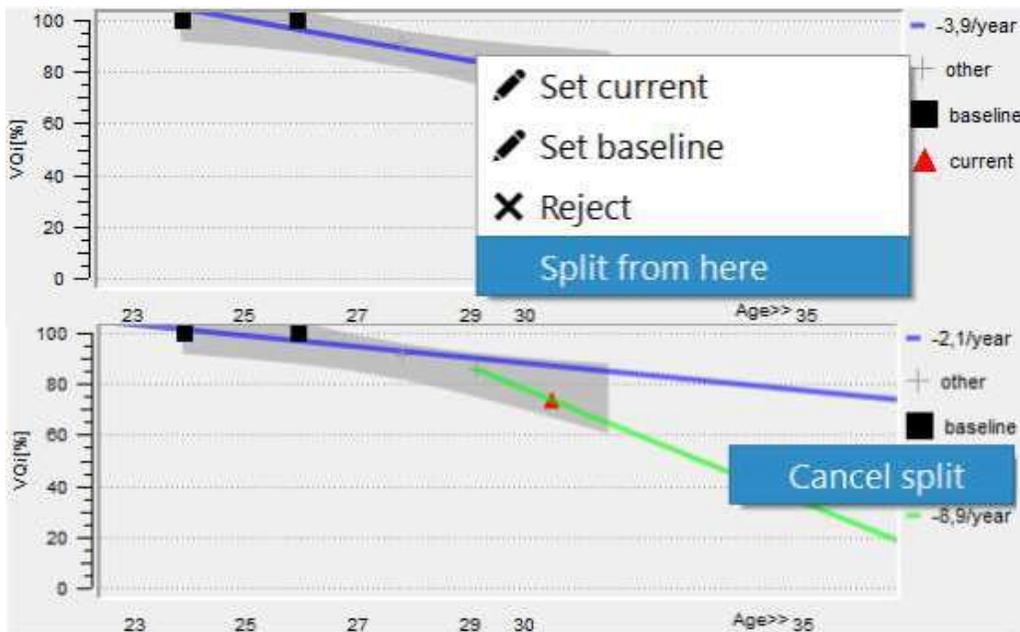
Figure 239. Adding and disconnecting an additional trend line in diagram's context menu

There's a possibility to enlarge diagrams. To enlarge the diagram, click on it with the left mouse

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button, this will launch an additional window with the chart which can then be rescaled and moved as desired. Close the window by left-clicking on the chart again, or by clicking the "Esc" button.

The progression chart also shows so called confidence interval. The slope of the trend line in the progression plot is always identified with some uncertainty. The more examination points are used to estimate the progression and the more inline are the points on the plot, the higher is the confidence of the slope estimation and the narrower is the confidence interval. The confidence interval is the range of trend lines that are expected as a result with a particular probability from the input points.

The 95% confidence interval of progression trend line is plotted as the grey area under the progression plot point. Sometimes the number of exams is not enough. Even though the trend line has negative slope, the confidence interval is so big that it can fit both positive and negative slopes inside due to the uncertainty. In such a case the trend line estimation should be used with caution.

14.5.8. Animation of examination results

Changes in the test results over time can also be observed with the help of a simple animation, the task of which is to present the subsequent test results of the selected analysis and visualization. To start such an animation, left-click on the selected examination result of the given analysis and visualization. An additional window will appear with the enlarged examination result. This is shown in the figure below:
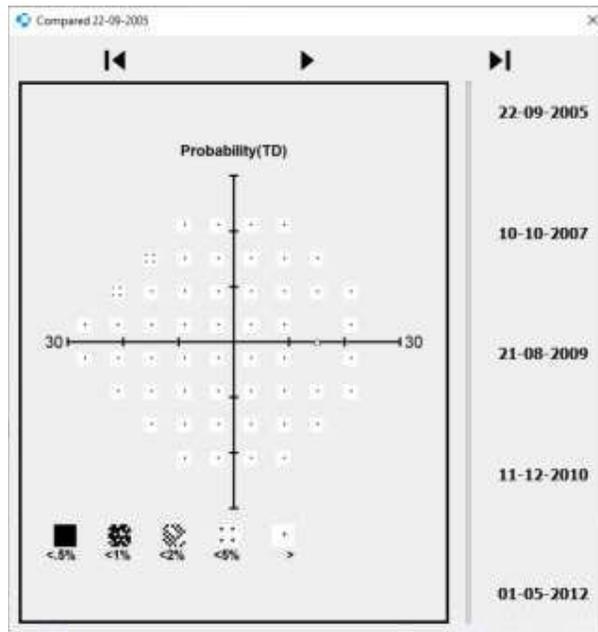
Figure 240. Preview of a stopped animation

In the upper part of the window, there are three buttons responsible for (respectively from the left) displaying the previous examination result, starting the animation, i.e. the sequence of changing the results every second, and displaying the next examination result. In the right part of the window there are button with dates of performed examinations, which allow to immediately display any result of the selected analysis and visualization, stopping the animation if it is running. An example of a running animation is shown in the figure below:
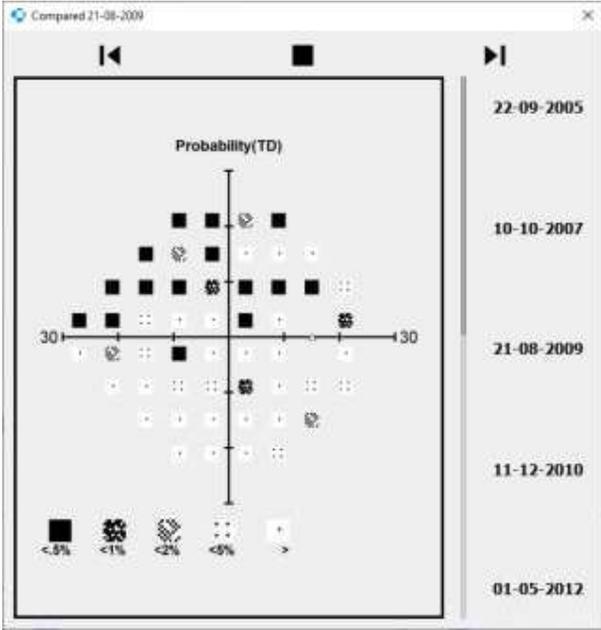
Figure 241. Preview of a running simulation

In the case of an animation running, the animation start button changes to the stop button. There is also an animation progress bar visible between the presented examination result and the buttons with the dates of the examination. The animation is looping endlessly and continues even then the windows is closed.

The animation can be started for each examination result of a given analysis and visualization, and it is possible to start many animations simultaneously opening new windows of the examination result presentation. The functionality is available for the results presented in the "Progression and "Overview" tabs.

14.5.9. Generating reports for comparison and progress analysis

The results of comparative analysis and progress analysis can be summarized into a one-page report. The report can be printed or saved as PDF or JPG file in the selected directory.
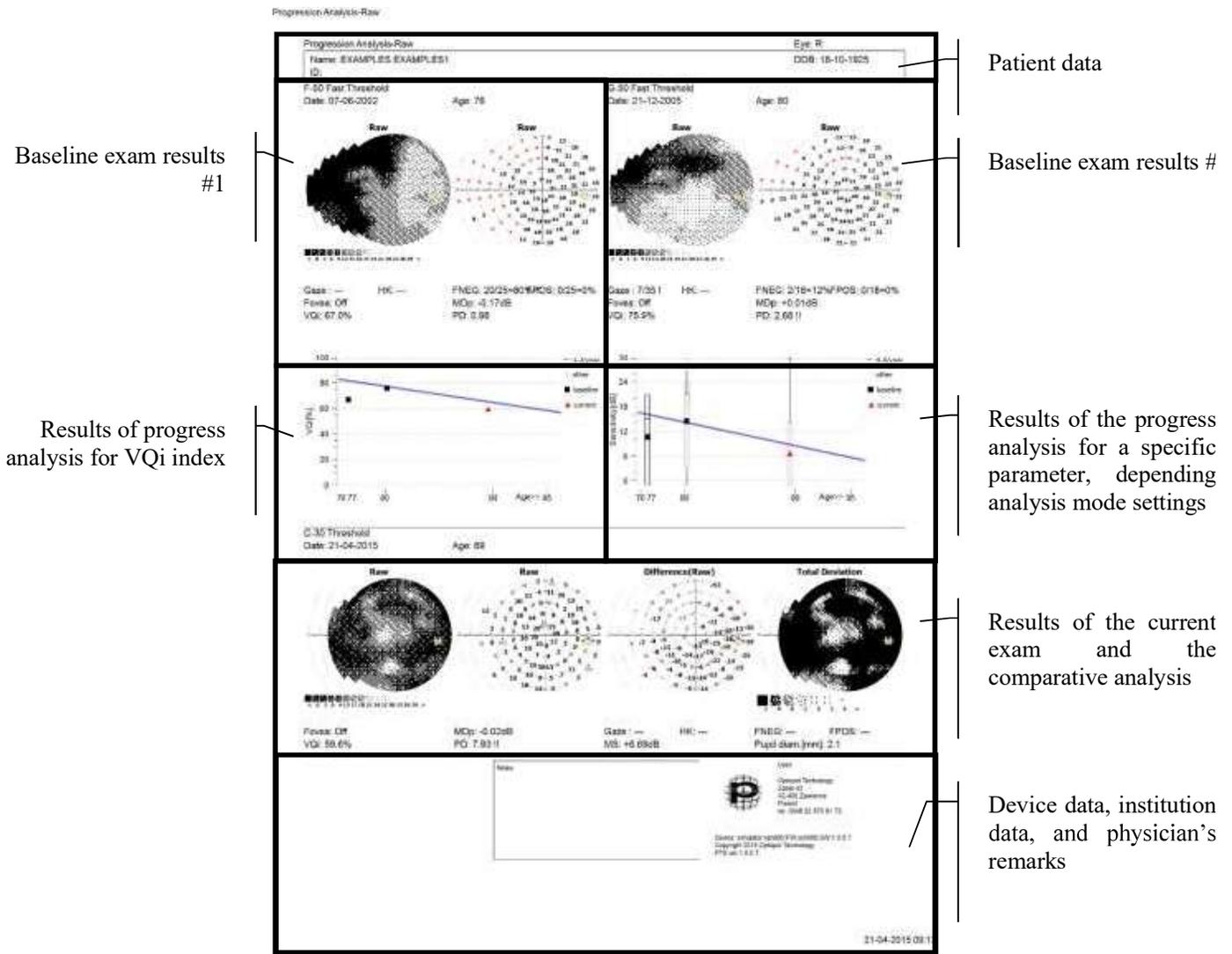
Figure 242. Comparison / progress analysis report - RAW mode

The report can be also saved as DCM (Dicom) image format or sent to a configured DCM file server.

To generate a report on the comparison / progress analysis page, click the printer icon on the bottom left hand side of the window. After clicking this button, a print preview window will be displayed. From here, you can change the printer settings or choose how to save the report (paper, PDF, JPG, or DCM).

The contents of the comparison / progress analysis report depend on the current analysis mode settings:

RAW:

- baseline exam – RAW dot map and map of numerical values
- current exam – RAW dot map and map of numerical values, numerical map of RAW differences, dot map of TD deviations

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- Progress diagram: #1 – VQi index, #2 – sensitivity value and mean sensitivity index

TD:

- baseline exam – RAW dot map, PTD probability map

- current exam – RAW dot map, PTD probability map, numerical map of TD differences, dot map of TD deviations

- Progress diagram: #1 – VQi index, #2 – TD deviations and MD index (MDh, MDo, MDp)

PD:

- baseline exam – RAW dot map, PPD probability map

- current exam – RAW dot map, PPD probability map, numerical map of PD differences, dot map of TD deviations

- Progress diagram: #1 – VQi index, #2 – PD deviations and deviations from normal index (PSD, sLV, PD)

HoV:

- baseline exam – RAW dot map, numerical map of HoV deviations

- current exam – RAW dot map, numerical map of HoV deviations, numerical map of differences in HoV deviations, dot map of TD deviations

- Progress diagram: #1 – VQi index, #2 – HoV deviations and deviations from normal index (PSD, sLV, PD)

DPA™:

- baseline exams – RAW dot map, numerical map, Probability TD, Probability PD

- current exam – RAW dot map, Probability PD map, PD deviations from the baseline, DPA results for the current exam

- other exams – RAW dot map, Probability PD map, PD deviations from the baseline, DPA results for the other exams

- Progress diagram: #1 – VQi index

- GSS2 plot

Result of Baseline
#1 and #2 (if used)

Area with
current result and
other results
included in the
DPA analysis,
together with the
DPA analysis
maps

Progression plot
for VQi index

GSS2 plot
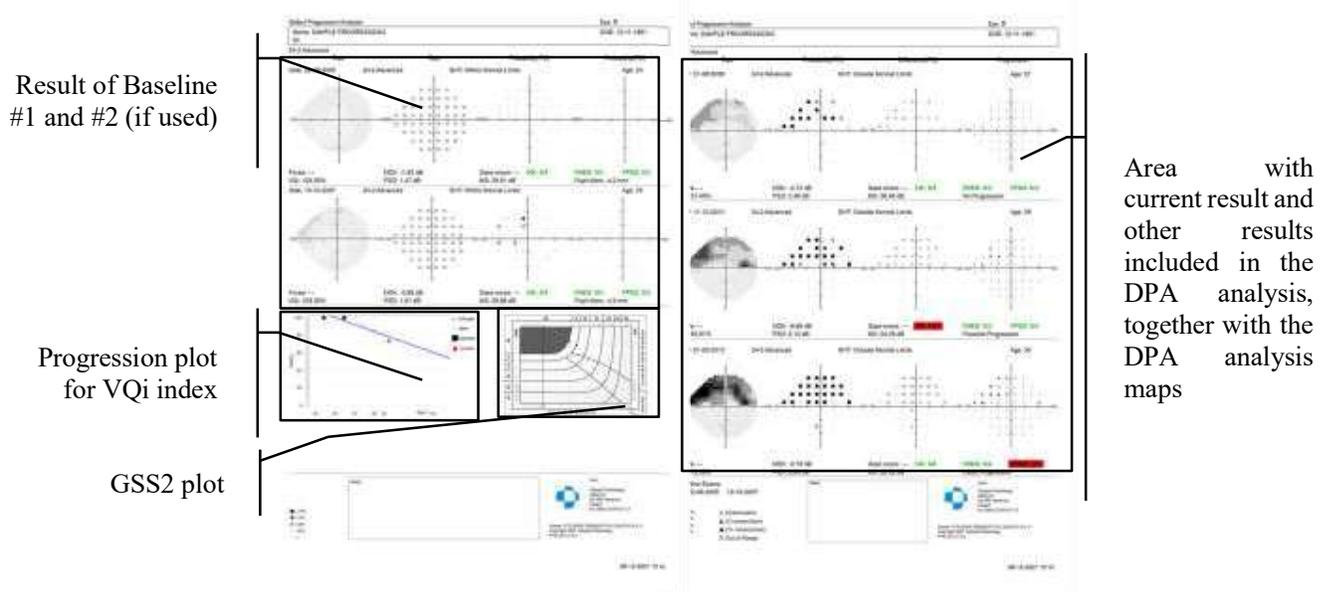
Figure 243. Multipage report of DPA™ analysis

14.6. *Comparison analysis interface*

The "Comparison" tab allows to compare any two examinations of a given patient and display a comparative map in any of the four analysis modes – RAW, HoV, TD and PD (Figure 244. Comparison analysis interface). In the left part of the window there is a list of tests of the selected patient, sorted by examination date – from the oldest examination to the newest one. After opening the "Comparison" tab, the current examination is set as "Examination #2" and it is a main result. The results in differential map are calculated as a difference "Examination #2" – "Examination #1". In the case of symmetry analysis (comparison of left and right eye), result of "Examination #1" is mirrored. The result map presents results located as in "Examination #2".

Labels on figure:
- Patient details
- List of available patient examinations
- Selection of the examination analysis
- Print report button
- Base examination #1
- Base examination #2
- Switch examinations button
- Comparative analysis results
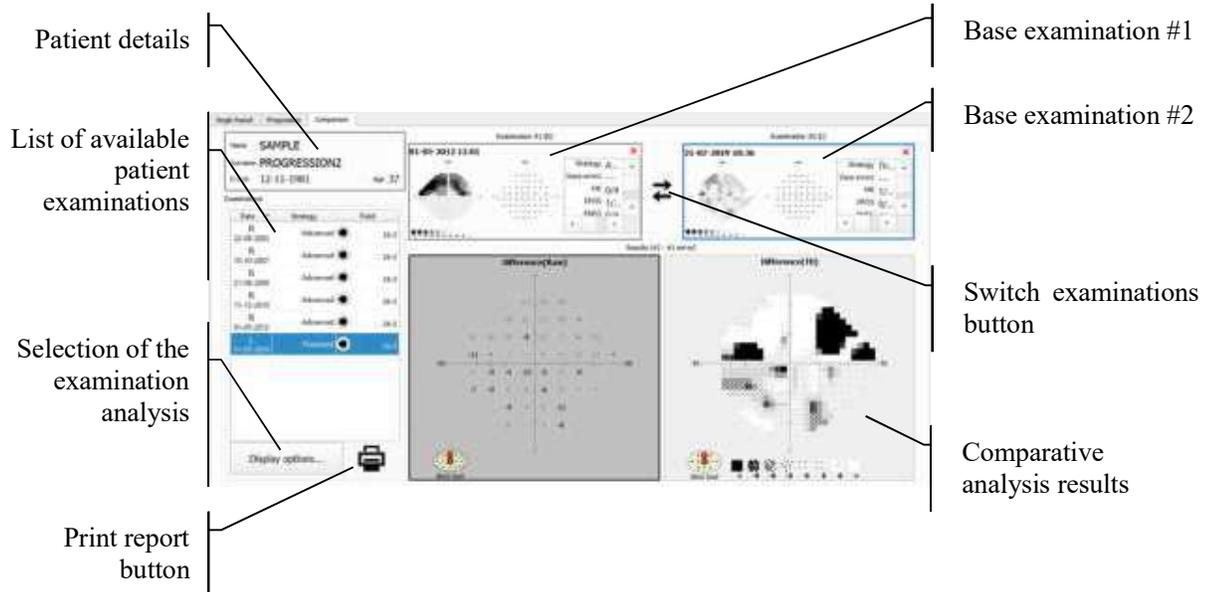
Figure 244. Comparison analysis interface

The blue frame surrounding the Examination #1/#2 window marks the examination selected in the examination list on the left.

The other compared examination should be dragged form the examinations list and dropped in "Examination #1" area. To do it select the examination on the list by clicking on it with the left mouse button. Then without releasing the mouse button, move the examination over one of the result frames named "Examination #1" and release the left mouse button. Comparative analysis will be performed automatically after this step. The main examination can be changed by dragging particular result from the examinations list and dropping it in "Examination #2" area.

To reverse the result of the comparative analysis, click on the arrows button located between the base examination frames.

14.6.1.   Generating reports for comparison analysis

The results of comparative analysis can be summarized into a one-page report. The report can be printed or saved as PDF or JPG file in the selected directory. The report can be also saved as DCM (Dicom) image format or sent to a configured DCM file server.

To generate a report on the comparison analysis page, click the printer icon on the bottom left hand side of the window. After clicking this button, a print preview window will be displayed. From here, you can change the printer settings or choose how to save the report (paper, PDF, JPG, or DCM).

The contents of the comparison analysis report depend on the analysis mode settings of currently higligheted result in the display window:

RAW:

- exam 1– RAW dot map and map of numerical values
- exam 2 – RAW dot map and map of numerical values

- numerical map of RAW differences, dot map of RAW differences

TD:

- exam 1– RAW dot map, PTD probability map

- exam 2– RAW dot map, PTD probability map

- numerical map of TD differences, dot map of TD differences

PD:

- exam 1– RAW dot map, PPD probability map

- exam 2– RAW dot map, PPD probability map

- numerical map of PD differences, dot map of TD deviations

HoV:

- exam 1– RAW dot map, numerical map of HoV deviations

- exam 2– RAW dot map, numerical map of HoV deviations

- numerical map of differences in HoV deviations, dot map of TD differences

14.7. *Overview analysis interface*

This mode displays result maps of selected analysis. There is no baseline and no calculation of differences between examinations and baseline. It is possible to change the analysis and presentation in result map columns number 2-5, First column is locked and always displays the result details table.

Column with result details of displayed examinations

Columns present results according to selected analysis and presentation mode in each column

Details of the current exam incl. indexes from the analyzed area

Box plots of sensitivity within the selected field range for compatible tests

VQi index for the selected field range in compatible tests

GSS2 plot

Figure 245. Overview analysis interface

To change the analysis mode or presentation mode in a particular column, click over it with right

mouse button. Analysis and presentation selection panel appears, and allows to change contents displayed in results within the selected column. The selected configuration is stored and used next time the OV analysis is used.

Figure 246. Analysis and presentation selection panel in Overview analysis

The first diagram of the progress analysis presents VQi values calculated for the selected field range from all compatible tests. The second diagram of the progress analysis presents box graphs of visual sensitivity calculated for the selected field range from all compatible tests. Symbols denote the mean sensitivity (MS) index.

14.7.1. Generating reports for Overview analysis

The results of Overview analysis can be summarized into multi-page report. The report can be printed or saved as PDF or JPG file in the selected directory. The report can be also saved as DCM (Dicom) image format or sent to a configured DCM file server.

To generate a report on the Overview analysis page, click the printer icon on the bottom left hand side of the window. After clicking this button, a print preview window will be displayed. From here, you can change the printer settings or choose how to save the report (paper, PDF, JPG, or DCM).

The contents of the Overview analysis report:

- Selected exams – all printed maps are set according to selection and display in comparison and progression GUI
- Progress diagram: #1 – VQi index
- GSS2 plot

Area with results
of tests included in
overview analysis

VQi index
progression plot

GSS2 plot
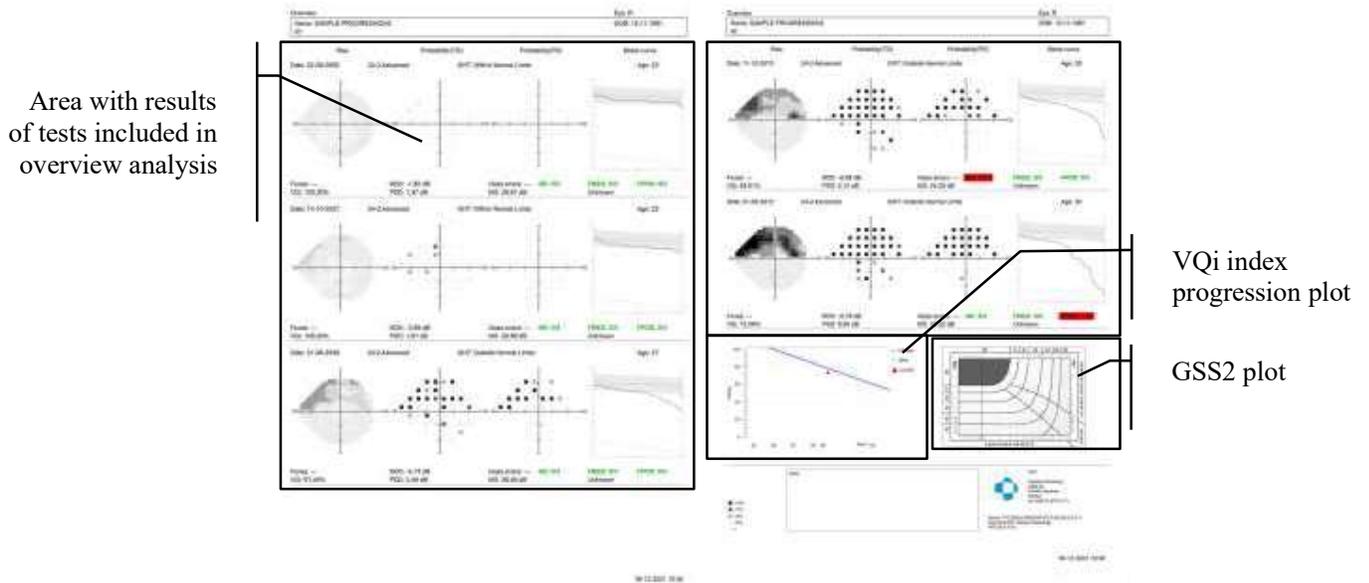
Figure 247. Multipage report of Overview analysis

14.8. *Importing / exporting / deleting the results of individual tests*

As a rule, test results and patient data are stored in the database and can only be accessed through the application. Results of individual tests and the data of the patient concerned can be saved into an XML file. This option is particularly helpful when the test results must be accessed from another PC.

Test import from XML or GDT file

Test export to XML file

Test deletion from the hard drive
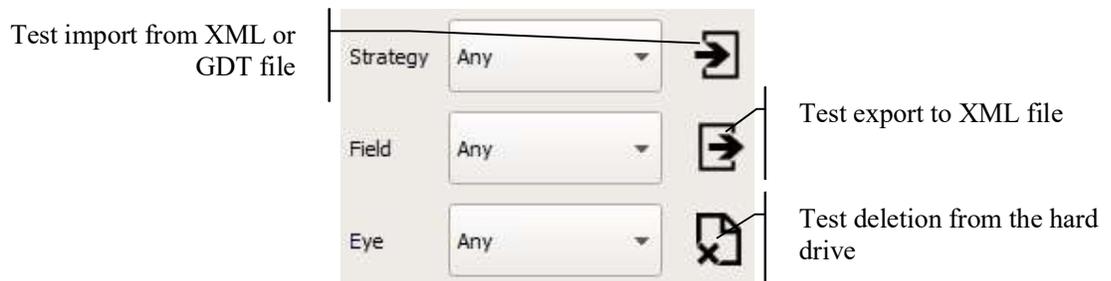
Figure 248. Import/export/deletion test controls

An XML file can be imported from one PC to another. Through the import option, the imported test result and patient record, if any, will be added to a local database. If the patient has been registered before, the patient data will be compared and you will be asked to update patient data, if necessary.

14.8.1.   *Exporting a test*

To export a test result into an XML file, select the test of choice from the list of patient's tests in the single analysis window in the Results tab. The test results will be displayed in the analysis

windows. Then click the Export button below the list of tests, to the right of the test filter (Figure 248. Import/export/deletion test controls). A window with the saving options will be displayed, where you can choose the export options (Figure 249. Examination export options dialogFigure 249. Examination export options dialog). Click "Disk" icon to select export folder and to confirm.
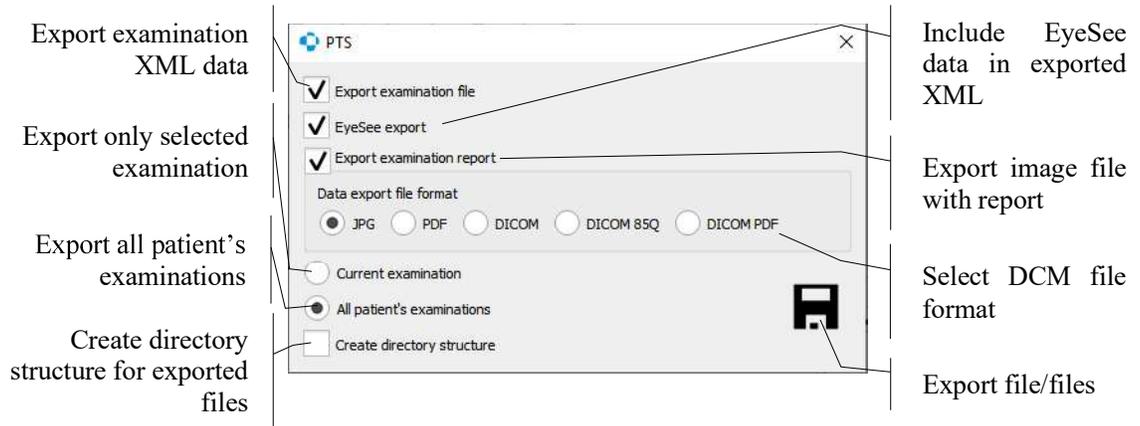
Figure 249. Examination export options dialog

14.8.2.   *Exporting multiple tests*

Multiple tests of a single selected patient can be exported to an XML file using the drag & drop option. In this case, it is not necessary to enter the Results tab.

To export one or multiple tests, open the Patients tab. Then select one or more tests from the list of patient's tests. To select more than one test, click a line from the list and keep Ctrl or Shift buttons pressed. Then drag and drop the selected line to the desktop or to a chosen directory (keeping the left mouse button pressed, move the selected file to the directory until the "+" symbol appears next to the cursor). Release the button to start exporting the tests to XML files.

14.8.3.   *Importing a test*

To import tests results from an XML file, click the Import button below the list of tests, to the right of the test filter (Figure 248. Import/export/deletion test controls). A window with input options will be displayed. From the window, choose the XML file you want to import. Click Open to confirm. If you choose the correct XML file to import, test data will be uploaded to the correct patient record. If a particular test already exists in the database, a message appears indicating that the import has been abandoned. If the test refers to a patient who has not been registered in the database, a new patient record will be created and the imported test will be assigned to it.

If the import was successful or the imported test already exists in the database, the active patient and the active test records will be changed to "Imported" in the Results tab.

To import test reports of a patient, you do not have to create patient record in advance. The record will be created automatically. You can import a test while displaying other patient's tests in the Results tab.

To import a test of a non-registered patient or a patient with an empty list of tests (which means you cannot enter the Results tab), you can import the test directly to the Patients tab using drag & drop option (Importing multiple tests).

14.8.4.   Importing multiple tests

You can import multiple XML files with test and patient data using drag & drop option. In this case, it is not necessary to enter the Results tab, which cannot be accessed if the patient has no tests assigned yet.

To import one or multiple tests, open the Patients tab. Then find and select the files you want to import. Then drag and drop the selected files to the Patients tab (keeping the left mouse button pressed, move the selected files to the Patients tab until the "+" symbol appears next to the cursor). Release the button to start importing the chosen XML files. A message will be displayed after the import has finished, indicating the number of added files and errors, of any.

14.8.5.   Importing test from a graphic file

In addition to importing patient data and examinations from xml files, it is also possible to import from graphic files with extensions such as: jpg/jpeg, pdf, tif/tiff, png or bmp. An attempt to import such a file will result in the appearance of an additional dialog window, used to describe the basic data of the patient and examination, such as: id, first name, surname and date of birth of the patient, as well as the date of the and the examined eye. Patient data can be entered manually or selected from the list of existing patients to which the examination will be assigned.

The above patient and examination data can be manually completed in the panel on the right side of the dialog. This is shown in the figure below:
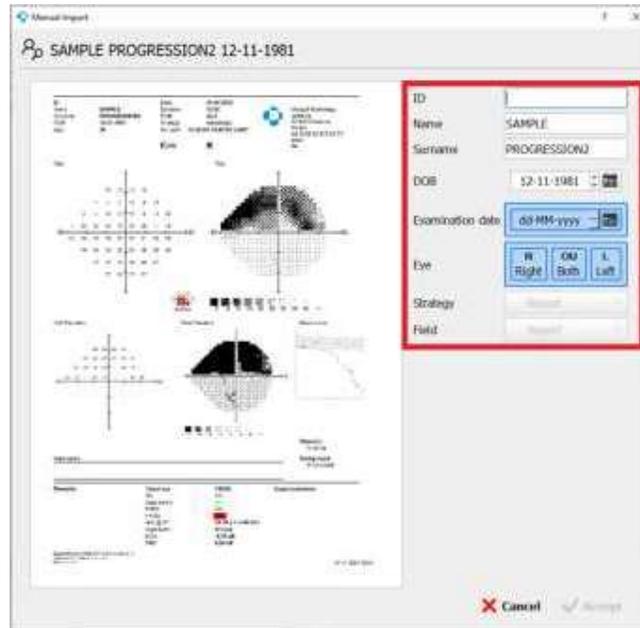
Figure 250. Patient and examination editing panel

The fields with the date of the examination and the examined eye must be filled in order to import

the examination. After filling in these fields, the "Accept" button will be unblocked.

To select an existing patient to which the examination will be assigned, left-click the button in the upper part of the dialog box, which describes the patient's data: his/her ID, first name, surname and date of birth, as shown in the figure below:
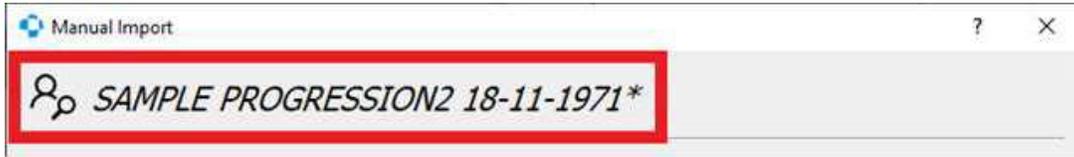
Figure 251. Existing patient selection button

After pressing the button, the content of the dialog box will change to the list of existing patients:
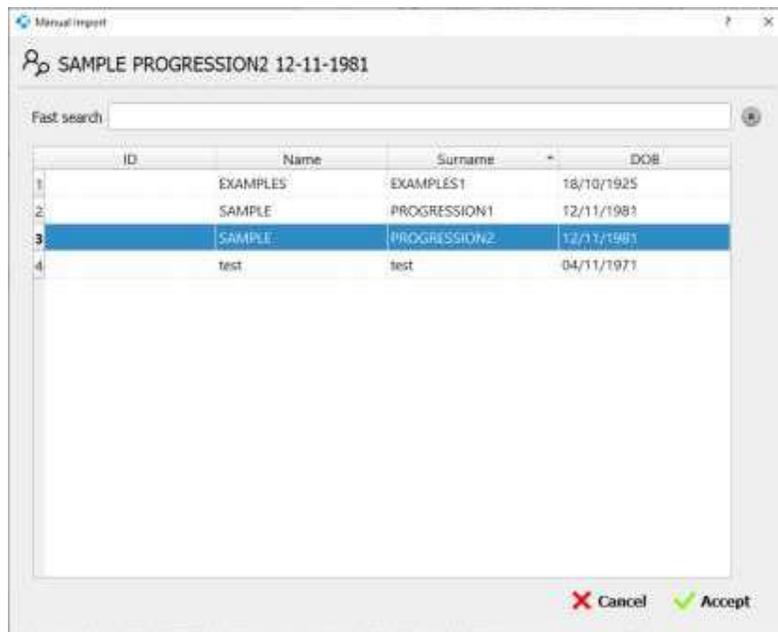
Figure 252. List of existing patients to which the imported examination can be assigned

After selecting a patient from the list and confirming with the "Accept" button, the data concerning the patient will be completed with the data of the selected patient.

There is an alternative method of completing both the patient's and examination's data. The content of the graphic file presented in the left part of the dialog window Is used for this purpose:
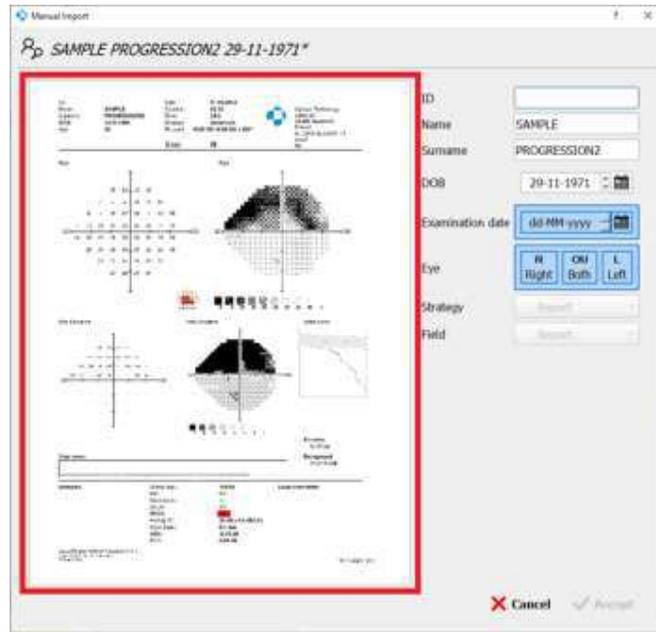
Figure 253. Content of an imported examination graphic file

The graphic can be moved by moving the mouse with the right mouse button pressed, and zoomed out and zoomed in using the mouse wheel. The same effect can be achieved with analogous gestures performed on the touch display.

By selecting a text fragment with the left mouse button, the application is able to change the selected image fragment into text that can be used to fill in one of the fields describing the patient's data or the examination data. The figure below shows an example of filling the field describing the patient's date of birth. Context menu with field selection is displayed automatically after selecting a fragment of an image with text. After selecting the "DOB" option from the context menu, the "DOB" field in the data editing panel will be updated. In this way, it is possible to fill in all data on the patient and the imported examination.
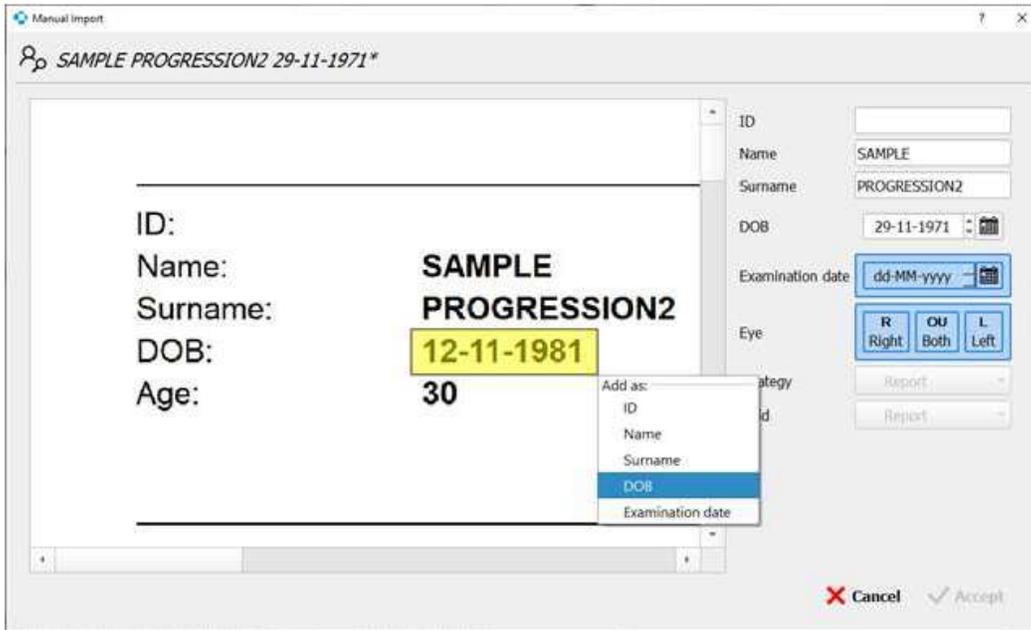
Figure 254. Editing data using the OCR (Optical Character Recognition) technique

Importing examination data from a graphic file will save the examination as a report.

14.8.6.   Follow up test

From the Results tab, it is possible to immediately switch to the Examinations tab in follow up mode. To do this, right-click the context menu on the examination list and select the "Follow up test" option, as in the figure below.

Figure 255. Follow up mode option in Results tab

The follow up option may be blocked (grayed out) in the event of, for example, inconsistency of the examination field or the stimulus color with the connected device.

14.8.7.   Deleting a test

To delete a test from the database, select the test of choice from the list of patient's tests in the individual analysis window in the Results tab. The test results will be displayed in the analysis windows. Then click the Delete button below the list of tests, to the right of the test filters (Figure 248. Import/export/deletion test controls) or right-click on a test to bring up a context menu and select Delete. A window will be displayed, asking you to confirm. To delete the test, click Delete to complete.

15. *Settings tab*

This chapter describes the Settings tab and the ways to manage the system with the functionalities included in this tab. It specifically addresses the following issues:

- general settings of the application appearance
- examination related settings
- remote database configuration
- creating and reading database backup
- eye camera settings
- creating user test fields
- configuration of data exchange with external programs
- managing user accounts

15.1. *Settings interface*

The Settings tab is a collection of pages, each of which is dedicated to a different group of settings.
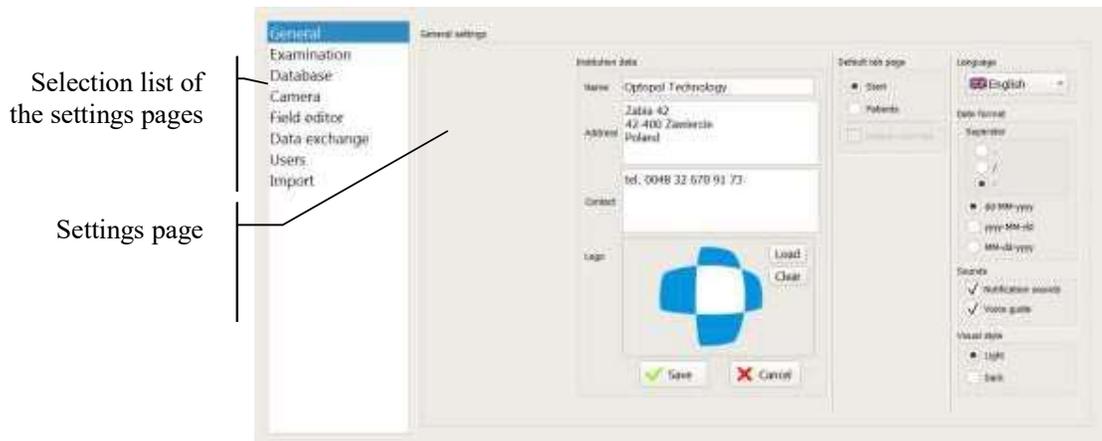
Figure 256. Settings tab

To change settings, click the selected page from the list of pages on the left side of the tab.

15.2. *General settings*

General settings are used to:

- change the language
- change sound settings
- change institution data
- change the date format
- change the visual style
- change a default tab

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15.2.1. Language settings

You can change the language used in audio-visual communication with the user. Change of language will apply to all contents used in the system and the test reports.
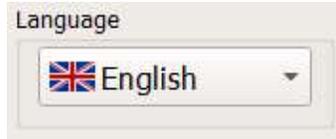
Figure 257. Language button

To change the language, use the drop-down list in the Language box (Figure 257. Language button). Click the Language button to change language settings. The list includes all languages to choose from. Select the chosen language from the list and restart the application.

> To change the language settings in all areas, the application must be restarted.

15.2.2. Sound settings

In order to simplify operation of the device, the system uses short sound signals and audio messages to convey important information. Messages displayed on the screen are also accompanied by sound signals, and the type of sound signal depend on the type of message displayed (question, successful or failed operation, etc.) Sound messages are used mainly during a test and are addressed to the operator and the patient.

Figure 258. Sound settings

You can choose the sound signals used in the system. To change the settings, use the check boxes in the Sounds group of controls (Figure 258. Sound settings). To enable a specific group of sounds, select the check box next to the name of sounds.

15.2.3. Changing institution data

Institution data is included in all test reports and comparison / progress reports. Institution data include the following:

Name

Address

Contact data (telephone, fax)

Institution logo

Institution name

Institution address

Institution contact data

Select the logo button

Logo preview

Delete the logo button

Save changes in the institution data

Cancel changes in the institution data
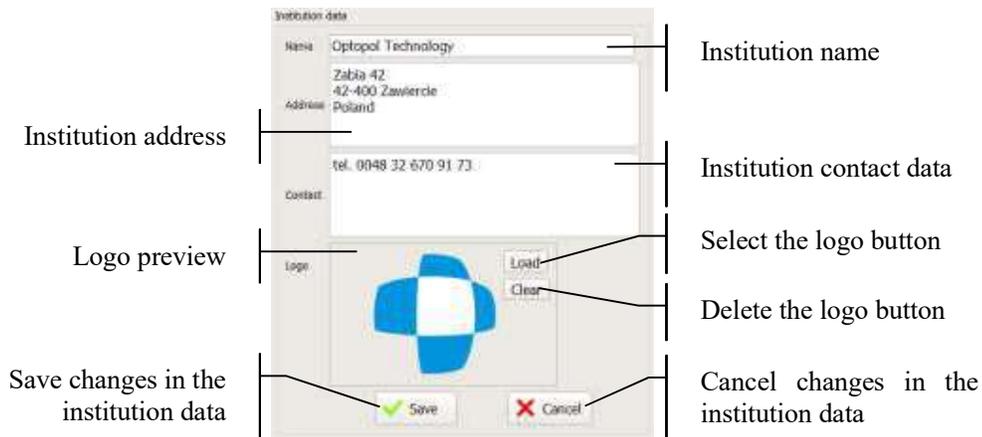
Figure 259. Editing institution data

To edit institution data, use the "Institution Data" box). Changes in the edition fields are not saved automatically. To save the changed data, click Save. To abandon changes and to restore the previous record, click Cancel.

The institution logo is a PNG, JPG or BMP file. To change the logo, press Load and select the chosen file. The file will be automatically scaled to fit in place. If the institution has no logo, press Clear. After you change or remove a logo, press Save to save changes.

 After you enter new institution data, pay attention to the number of characters. If the data string is too long, it will not be printed in full in the test reports. After the institution data is changed, you should print a sample report.

15.2.4.   *Changing the date format*

You can choose the date format displayed in the system windows and in the test reports. There are 3 different date formats available:

- dd-MM-yyyy – day / month/ year
- yyyy-MM-dd – year / month / day
- MM-dd-yyyy – month / day / year

and one of 3 date separators:

- .
- /
- _

To change the date format, use the "Date Format" box (Figure 260. Changing the date format).

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Figure 260. Changing the date format

15.2.5.   Changing the visual style

You can change the visual style of application to Light or Dark mode. To change the style of the application, use the "Visual style" check boxes .

Figure 261. Changing application visual style

15.2.6.   Changing a default tab

Starting from PTS version 3.2 the application contains the Start tab with the Perimetry Wizard interface. It serves as a default entry point for normal workflow. Some users may be accustomed to a previous workflow based on Patients>Examination tabs and do not want to change this scheme. These users can set the default tab to "Patients" in the "Default tab page" groupbox.

Figure 262. Changing a default tab page

If they do not intend to use the "Start" tab, it can be disabled and do not appear in the main window.

15.2.7.   BluGlow™ lighting on/off

BluGlow™ lighting can be turn on/off when using the PTS925W model. The following control is used for this:

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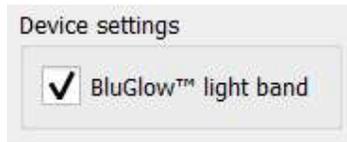
Figure 263. BluGlow™ lighting on/off

The lighting is turned off by the application, i.e. the lighting of the device will be turned off immediately after starting the application, because the lighting of the device turns on after each start.

15.3. *Examination related settings*

General settings are used to:

- change the selected results display parameters
- change correction lens area

15.3.1. Changing index types in the analyses

To help users read the test results, especially those experienced with perimeters, there are 3 index types to choose from:
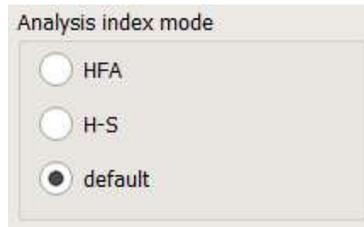
Figure 264. Selecting the index calculation method

Default:

- Mean defect – MDp – mean value of deviations of the tested mean hill of vision from age normal
- Irregularity – PD – mean value of deviations at the tested points from the tested mean hill of vision
- Short-term Fluctuation – SFo – mean short-term fluctuation at the test points

HFA:

- Mean Defect - MDh – weighted mean value of deviations from age normal on the TD map
- Irregularity - PSD – the level of deviations in the shape of the measured hill of vision from the normal field
- Short-term Fluctuation - SFh – weighted mean short-term fluctuation at the test points

H-S:

- Mean Defect - MDo – mean value of deviations from age normal on the TD map

- Irregularity – LV(sLV) – irregularity in the field of vision (sLV – square root of LV).

- Short-term Fluctuation – SFo – mean short-term fluctuation at the test points

The H-S setting of index calculation mode does the additional changes in results display:

The age norm deviations (Total Deviation) values are positive when the measured sensitivity is lower than age normative value and negative when sensitivity is higher than the age norm (similarly Pattern Deviation values, HoV deviation values).

The total defect symbol is always displayed as a black square ("■") instead of red "X" or "<0" symbols.

The hidden deviations are always displayed as "+" symbol regardless the sign of the numerical value

15.3.2. Changing the results display options

To improve readability of the maps illustrating the results of analyses, several display parameters can be changed. By changing these parameters, you can customize the maps and the information displayed.
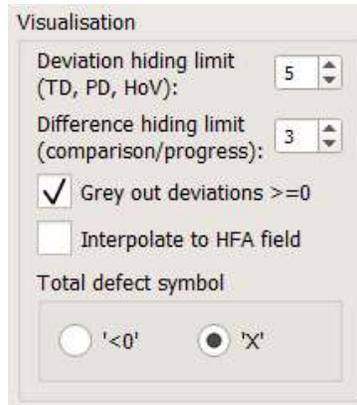
Figure 265. Changing the display options

15.3.2.1. Deviation hiding limit (TD, PD, HoV)

Numerical maps of TD, PD and HoV analyses include numerical values of deviations from normal and standards. If the maps are large, it is difficult to differentiate important deviations from negligible deviations ones. To make it easier to review numerical deviations, deviations whose absolute value is below the set limit value can be hidden. As a result, you will be able to quickly identify areas of the visual field where significant deviations from normal can be found.
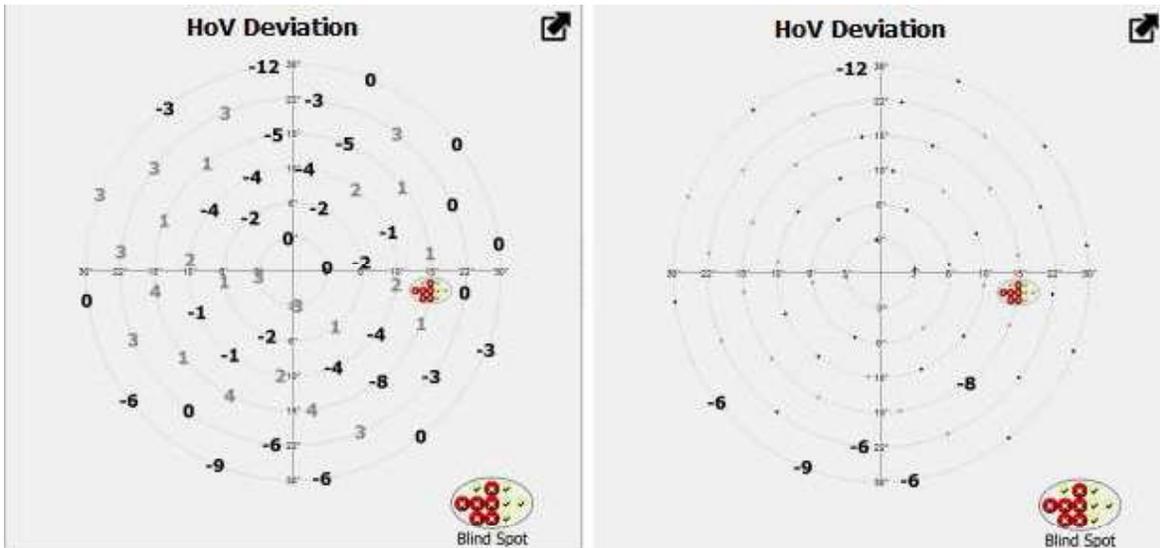
Figure 266. HoV map without and with deviation of less than 5 hiding option enabled

To change the deviation hiding limit for map of numerical values, use the "Deviation hiding limit (TD, PD, HoV)" box (Figure 266. HoV map without and with deviation of less than 5 hiding option enabled). The limit can be set within the range of 0 to 6. For example, if the limit is set to 5, deviations of -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5 will be displayed as a dot (Figure 266. HoV map without and with deviation of less than 5 hiding option enabled). To disable this setting and to display all deviations as numbers, set to the limit to -1.

15.3.2.2. Differences hiding limit (comparison / progress)

Numerical maps of comparison / progress analysis display numerical values of differences between tests in RAW, TD, PD and HoV modes. If the maps are large, it is difficult to differentiate important deviations from negligible deviations ones. To make it easier to analyze map of numerical values, differences whose absolute value is below the set limit value can be hidden. As a result, you will be able to quickly identify areas of the visual field where significant differences can be found.

Figure 267. Map of RAW differences without and with deviation of less than 5 hiding option enabled

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To change the differences hiding limit for map of numerical values, use the "Differences hiding limit (comparison / progress)" box (Figure 267. Map of RAW differences without and with deviation of less than 5 hiding option enabled). The limit can be set within the range of 0 to 6. For example, if the limit is set to 5, deviations of -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5 will be displayed as a dot (Figure 267. Map of RAW differences without and with deviation of less than 5 hiding option enabled). To disable this setting and to display all differences as numbers, set to the limit to -1.

15.3.2.3. Graying out deviations >=0

To increase legibility of defect maps, positive deviations may be grayed out. Positive deviations are areas where retinal sensitivity was higher than expected. After selecting this option, all deviations on the numerical maps, whose value indicates an above-expected sensitivity will change their color to gray. All negative deviations remain black, making them more visible.

15.3.2.4. Interpolation to HFA maps

The software allows to enable default interpolation of results to HFA-like maps. This option may prove helpful for comparing examination results from a PTS device with results from a HFA device. After marking the "Interpolation to HFA maps" selection field in the results overview and the report generator, HFA Interpolation function will be enabled by default. Details of the appearance and use of the HFA interpolation function are described in chapter „ Interpolation of results to maps 30-2, 24-2 and 10-2".

15.3.2.5. Absolute defect symbol

The application allows to adapt the marking of absolute defect on numerical maps according to the user preferences. One of the two available options can be selected on the selection field of the "Absolute defect symbol" group.

Absolute defect is a retinal sensitivity examination result where the patient has not reacted to even the brightest stimuli possible. In this case, sensitivity cannot be determined due to impossibility of further intensification of the stimulus. Since the brightest stimulus is marked as 0 dB, no reaction after its displaying can be marked with "<0" symbol. This means that the exact retinal sensitivity has not been measured, but it is evident that it is smaller than 0 dB.

Another method of marking an absolute defect is using the "X" symbol. This symbol does not have any numerical value that could be read as retinal sensitivity. It is very clear, however, and clearly identifies the area at which no reaction to highest-brightness stimulus was obtained.

15.3.3. Changing the style of reports printed and rendered to a file

You can change the style of test reports. The styles have different layouts, analysis results, and test data, relevant to the test analysis.

To change the style of the reports, use the "Report Style" box (Figure 268. Changing the report style).
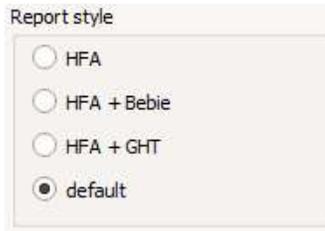
Figure 268. Changing the report style

15.3.4. Selection of the Blind Spot detection method

When working with the PTS 2000 model, the "Blind Spot detection method" button group appears in the "Examination" settings page, which contains two types of the blind spot detections:

- Default (PTS) – the classic blind spot detection type – 11 points located in the expected blind spot area

- Alternative (HFA)– an alternative method allowing faster and broader determination of the blind spot location

Due to characteristic distribution of blind spot points for the Alternative type, this type is only available for the PTS 2000 device.

Figure 269. Selection of Blind Spot detection method

15.3.5. Changing correction lens area

Correction lens area defines the maximum stimulus radius that is tested with a correction lens mounted in a trial lens holder. All stimuli that have radius bigger than selected lens area will be tested after the correction lens is removed. The area can be adjusted to reduce the risk of a correction lens rim artifact in the visual field result. You can select the correction lens area from the following ranges:

- 15º

- 22º

- 30º

To change correction lens area, use "Correction lens area" box (Figure 270. Changing correction lens area).
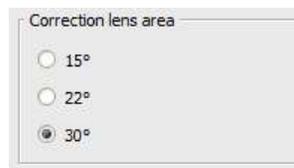
Figure 270. Changing correction lens area

15.3.6.   Other examination settings
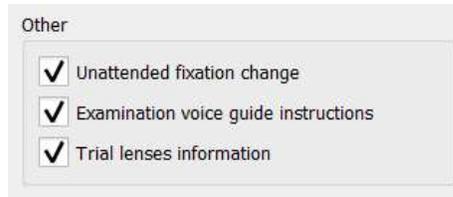
Figure 271. Other examination settings

15.3.6.1. Examination voice guide instructions

To familiarize unexperienced patients with the examination procedure it is advised to use the Demo mode examination prior to normal test. Before the test is started, operator should pass the most important instructions to the patient.

If the "Examination voice guide instructions" box is checked in the "Other" examination settings groupbox, the application will read the predefined instructions to the patient at the beginning of the Demo mode test:

> *"This is the check of your visual field.*
>
> *Look straight ahead at the red light / look straight ahead between four red lights.*
>
> *There will be lights flashing with different brightness around.*
>
> *Some light flashes will be too dim to see.*
>
> *Press the button whenever you see a light flashing.*
>
> *You can blink normally during the test."*

15.3.6.2. Unattended Fixation Change

During some tests it is necessary to change the fixation target. Normally the examination is paused at the moment when fixation is switched and only operator can continue the procedure. This behavior can be changed with use of "Unattended fixation change" switch in the "Other" examination settings groupbox.

The "Unattended fixation change" setting is used in two scenarios:

- First one is when the test field uses the fixation shift method to expand the testing field. The change of fixation is signaled with blinking state of new fixation and needs to be confirmed either by operator or by patient. When the "Unattended fixation change" is activated, application will read use the voice guide instructions asking patient to confirm the changed fixation target by pressing the reaction stick button. Examination will then continue without intervention from operator.

- The second scenario is when the foveal threshold is tested. During the test the fixation is changed to four points outside of the center. When the test is finished, the fixation target is returned to the originally set in settings. If the "Unattended fixation change" is active, the

fixation target is returned without the operator's attention.

15.3.6.3. Trial lenses information

Unchecking the option "Trial lenses information" (Figure 271. Other examination settings) no messages will be displayed regarding the putting and removing trial lenses at the start and end of the examination. The exceptions are messages appearing during the examination, which are important for the final results of the examination.

15.3.7. EyeSee module

To use the EyeSee functionality, go to the Settings page and select the "Examination" from the list on the left. In the "Examination settings" window in the "EyeSee" group, one of the two available EyeSee presentation options should be selected (Figure 272. Setting the EyeSee method):

- EyeSee Lite – the lightweight mode of storing and presenting the eye fixation information from each stimulus exposition. In this method, eye fixation data is presented in the form of generated eye symbols (Figure 273. Typical EyeSee (Left) and EyeSee Lite (Right) data set). The eye images are generated form the numerical eye and pupil tracking data (eye position, gaze direction, pupil diameter). There is no recording of eye images to the database. This mode allows to keep the examination data small while providing the essential information about eye fixation throughout the test.

- EyeSee – this mode stores the eye fixation data as eye images captured from the device's camera. In case of start of the test with this option, it is possible to present EyeSee data for such a test (or performing a follow-up test) also in the form presented by the EyeSee Lite function depending on which method is selected in application settings (Figure 272. Setting the EyeSee method).

The EyeSee/EyeSee Lite functionality may be not available in some of the software distributions due to the legal limitations. Please contact your local distributor to check which EyeSee modes are available in your version of the software.
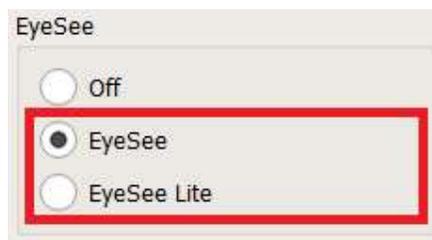
Figure 272. Setting the EyeSee method
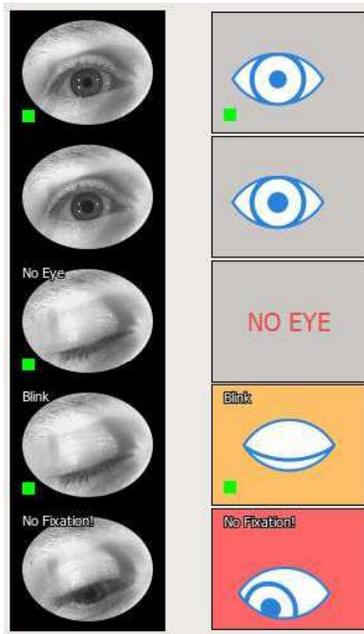
Figure 273. Typical EyeSee (Left) and EyeSee Lite (Right) data set

15.3.8.   Symbol of the detected pupil

The application provides two methods of marking the detected pupil in the camera preview image:
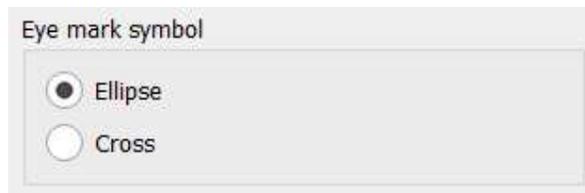
Figure 274. Methods of marking the detected eye pupil

15.3.9.   BDT analysis type

The application enables the use of preliminary assessment of patients' ability to drive vehicles based on the results of a perimetry. This tool can be turned on or off in two modes:

- Off – the fitness to drive will not be assessed. Only the raw result from examination will be shown

- UK DVLA – There will be additional analysis and results presented with judgement according to UK Driving Vehicle Licensing Agency rules

- EU – There will be additional analysis and results presented with judgement according to recommendations for European Commission Directive 2009/113/EC

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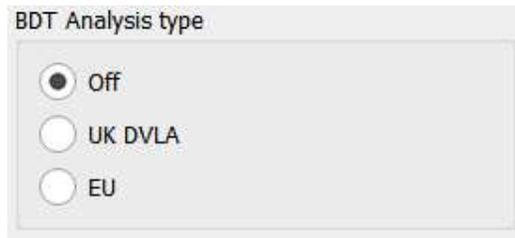
Figure 275. Changing BDT analysis type

15.3.10. *Reliability indices format*

It is possible to use one of two formats of displaying reliability results of examinations taken with PTS perimeter (examinations imported from the other devices may not support this feature). Reliability test such as False Negative Errors (FNEG), False Positive Errors (FPOS), Heijl-Krakau blind spot monitoring (H-K) will be presented on the appliaction screen and in reports with one of the following:

- a/b – results are displayed as a ratio of number of errors to the number of trials
- c% - results are displayed as a percentage ratio of number of errors to the number of trials
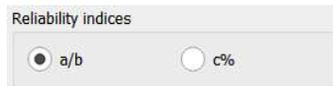
Figure 276. Changing a format of the reliability results

15.4. *Database management*

You can manage the database and other data mentioned in this chapter using the following functions:

- autobackup
- manual backup
- recovering database and settings from a backup file
- recover database
- configuring connection to a remote database

Figure 277. Database settings and management

15.4.1.   *Autobackup of the database and the settings*

The database is exposed to a variety of different factors, including human errors, hardware and software failures, and computer viruses. To minimize or prevent the risk of data loss, you can use an autobackup function of the database and the settings with which the backup progress runs fully automatically.

Database and settings backup contains the following data:

- database
- application settings
- user test programs
- user test fields

Figure 278. Autobackup options

Backup copies are saved automatically into the users-specified directory. To select the target directory, press the Folder button and navigate to the selected storage location. Unless the autobackup directory is configured, the user directory will be used as a default.

Because the time needed to perform a backup of a big database is significant, the PTS application implements technique of incremental backups. Once the database is backed up for the first time in so called full backup, next, the small incremental backup can be performed which covers only the changes that happened after the full backup. When the size of the incremental backup become significant, then the full backup can be performed and incremental backup size is reset.

Automatic backup can take one of three forms:

- PTS – autobackup folder contains a simple zip file with the image of the user data folder, including the database file. This method is depreciated, the PTS 3.7 and newer versions do not create automatic backup in this form. It is however possible to open this type of backups.

- Full – autobackup folder contains subfolder named with the date and time of full autobackup. The subfolder contains a zip file and the .nbk file named with the date and time of the backup. The zip file contains the image of the user data folder excluding the database file. The .nbk file contains the backup of the full database file.

- Incremental – incremental backup is created inside of the full backup subfolder. This subfolder, beside the full backup files, contains a zip file and the .nbk file named with the date and time of the incremental backup. The new zip file contains the image of the user data folder excluding the database file. The new .nbk file contains the backup of all changes that has happened after full backup contained in this subfolder. The backup subfolder must contain one full backup and can have zero, one or more incremental backups.

All backup files in the selected autobackup directory will be listed in the "Available Autobackups" box (Figure 278. Autobackup options). The list includes type, size, date and time of the autobackup.

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15.4.1.1. Limiting autobackup disk usage

You can limit the number of full autobackups and the maximum size of incremental autobackups.

To set the limit of full autobackups, use the "Number of full autobackups" option (Figure 278. Autobackup options). If the number of autobackups is higher than the limit value, the oldest backups will be deleted. "Number of full autobackups" value can be set within the range of -1 to 99. -1 means no limitations, i.e. the number of backups will be unlimited and the oldest backups will not be deleted.

To set the maximum size of incremental autobackup, use the "Maximum size of incremental autobackup" option (Figure 278. Autobackup options). When the expected autobackup size reaches the defined limit, then the full backup will be performed instead. Incremental autobackup size is then reduced to minimum. The maximum size of the incremental autobackup can be set in the range of 0 to 999 mb. When 0 is set, then only full backups will be created.

15.4.1.2. Autobackup triggers

Autobackups can be created after each test is completed and saved in the database and/or before the application is closed. These options can be configured in the "Autobackup triggers" box (Figure 278. Autobackup options).

To reduce the number of autobackups, you can limit autobackups to one per day. Enable this option by selecting the "Overwrite same day backups" check box (Figure 278. Autobackup options). If this option is active, each autobackup will overwrite other backups created on the same day.

To help create backups regularly, user can activate "Backup reminder" and set the minimum period from the last backup which will cause the reminder to appear.

You can manually trigger a backup in the autobackup directory by clicking "Create Backup" button in the "Available autobackups" box (Figure 278. Autobackup options). When you trigger a backup manually, the daily limit and the general limit will not apply.

15.4.2. Recovering database and settings from a backup file

If any patient and / or test data is lost, or if you want to recover database as of a particular point in time, you can use the autobackup recovery function. To recover an autobackup, click the backup file of choice from the list of all backups in the autobackup directory. Then click the "Recover database only" button.

Only the database will be recovered from the autobackup file. Other elements contained in the backup (test programs, test fields, application settings) will remain unchanged. To recover all backup elements, use the Recovery from file option, having selected the chosen file from the autobackup directory.

After recovering backup it is obligatory to restart the application. Some of the test fields that appear in the test field lists might be invalid for the currently connected device and using them can lead to invalid examination data.

15.4.3. Manual backup of the database and settings

You can also manually create backups of the database and application settings to a location of

choice. The backup will include the following data:

- database
- application settings
- user test programs
- user test fields
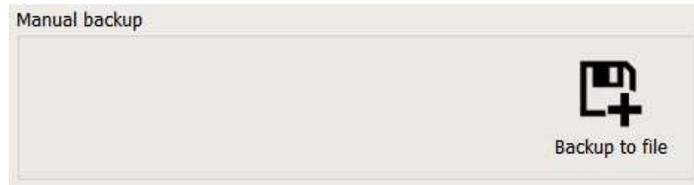
Figure 279. Manual backup of application data

To create a backup of application data, click the "Backup to file" option in the "Manual backup" box (Figure 279. Manual backup of application data). Then use the navigation window to select where you want the backup to be saved, and then confirm or modify the name of the backup.

15.4.4. Manual recovery

When you recover the backup manually, you can change the recovery mode and the recovered items from an autobackup or a manual backup. You can decide which of the items will be recovered, and whether the recovered data should overwrite or merge with the locally saved data.
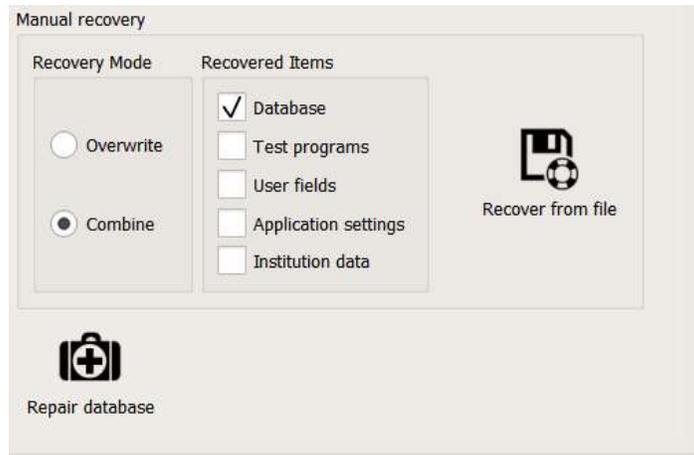
Figure 280. Manual recovery of application backup

There are 2 different modes of manual backup recovery:

- **Overwrite** – all recovered data will replace locally saved data. The existing local data from selected items will be first deleted and then the recovered items will be saved in their place. The local database will be replaced with a backup database.

- **Combine** – all recovered data will be added to the existing data. If the recovered files are saved locally, the files will be omitted. The local database will be merged with the backup database - only new patients and tests will be added to the local database.
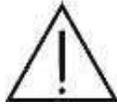
Combining the backup database and the local database can last up to several hours if the databases contain hundreds of patient records. You should plan database recovery in the combine mode in advance so that your normal work will not be disrupted.

To choose a recovery mode, choose the proper option in the "Recovery Mode" check box in the "Manual recovery" box (Figure 280. Manual recovery of application backup).

In manual recovery, you can choose which items will be recovered from the backup, and which remain unchanged. To change the settings, use the check boxes in the "Recovered Items" box (Figure 280. Manual recovery of application backup). The following items can be recovered or left unchanged:

Database – records of registered patients and patient tests

Test programs – all test programs created by the user, other than standard tests.

User fields – all test fields designed by the user, other than standard fields

Application settings – all application settings configured in the Settings tab.

Institution Data – address and logo of the institution

To recover backup file, click "Recover from file". Next, find the directory and the backup file of choice in the navigation window. If you recover backup in the Combine mode, a recovery progress window will be displayed in which you can cancel the recovery.

After recovering backup it is obligatory to restart the application. Some of the test fields that appear in the test field lists might be invalid for the currently connected device and using them can lead to invalid examination data.

With each recovery attempt, the local data overwritten or deleted are copied to a temporary directory. If the recovery fails with any of the backup item, all modifications will be withdrawn and the data will be reinstated from the temporary directory.

15.4.5.   Cleaning up database

In order to keep the size of the database small - especially when the results are kept in another main storage – it is possible to perform two actions:

- remove old examinations
- clean the database form empty patient records.

Below figure pictures controls which allow to clean up the database.
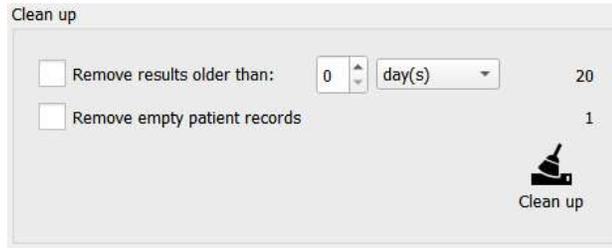
Figure 281. Cleaning up database

The clean up procedure is executed by pressing the "Clean up" button. It can do one or both of the two cleaning actions.

To remove examination results older than a specified amount of time, check the first checkbox and select the requested time period. The numerical value in the last column shows how many examinations are going to be removed from the specified time period.

To remove empty patients' records, check the second check box. The numerical value in the last column shows how many empty patient records are currently in the database. Mind that after removing the old results, the final number of empty patient records may be larger, as some patients may get all their results removed and become empty after the first action.

15.4.6.   Repairing database

Apart from patient data and test results, the backup file also includes many additional information with which the database can operate. After a system crash, errors and loss of data integrity can occur in the database. To prevent these serious problems, which can cause irrecoverable loss of data, you can check and repair the database file. If you delete information from a database, the space left is not released and can only be used is new data is introduced. The database repair process releases free space in the database file, and the file occupies the minimum space required.

To repair the database, click the "Repair database" button in the lower right corner of the database tools window (Figure 277. Database settings and management). To finish the repair, a message will be displayed with a list of detected and repaired problems.

15.4.7.   Remote database

Database can be shared among several users within a computer network. Each instance of the application is a client and a database host. You can configure the application to connect as a client with a database shared by another host within a local network instead of connecting to the database on the local PC. Local instance can also share its own database as a host with other clients within the local network.

Figure 282. Remote database settings

To configure your local application to work as a client of a database host on another PC, go to the Remote Database box (Figure 282. Remote database settings). All changes introduced in this box will be introduced only after clicking the Save button and restarting the application. Press Cancel to return to the current settings from the configuration file.

To enable the configuration buttons, select the "Use remote database" check box. To successfully connect to a remote database, you should configure the following parameters:

- **Host name** – name or IP address of a remote host which shared the remote database within a computer network.

- **Port** – TCP where the remote host shares connection to the database. By default, the database host port is 3051. Make sure that the remote host does not block traffic on TCP 3051 port in the firewall software running on this PC. If necessary, add an exception to TCP 3051 and TCP 8100 ports in the firewall.

- **Use one account** – it is possible to enter the login details for all connections, if the connection to the remote database is to be setup always with the same account. When this option is used, the login details are stored and there is no need to enter them every time. When starting the application, the login dialog is displayed for 3 seconds. If no action form the user is taken, then the dialog automatically closes and application logs in with the specified user credentials.

  o **User** – name of user registered in the remote database server used for connecting to the database. The user account can be created on the remote host locally using the options available in the Users tab.

  o **Password** – password to the user account registered in the remote database server used for connecting to the database. The user account can be created on the remote host locally using the options available in the Users tab.

- **Database name** – access path to the database file shared by a remote host.

- **Parameters** – additional parameters used when connecting to a remote database.

When the connection configuration is ready, you should check if the connection is correct. To do this, click the "Test Connection" button. If the connection fails, you will see a message indicating the error.

If the connection works, click Save to save the changes and restart the computer. When the computer is restarted, the software will automatically connect to the remote database.

If no connection with the remote database can be established when the software is started, an error message will be displayed and the system will switch over to the local database. If the connection errors keeps occurring, check the connection configuration, LAN settings, and the remote host firewall.

15.4.8.   Data status from the remote / shared database

When you work with the application, you can see connection parameters with the local and remote database. It includes information about the user account used in the connection, and the remote

host address.

Figure 283. Connection status bar

In the network mode, data from one database can be shared among many users. However, other users may replace data in the database and the data shown in the application need to be refreshed to actual data stored in database.

Changes in data by other users are indicated by an audio signal and the synchronization button. If the data shown may be outdated, the synchronization button changes from the green "Remote OK" to the red "Synchronize". Press this button to synchronize the displayed data with the database, upon which the button will return to its normal status. The same applies when the local database - host is made accessible to remote PC - clients.

15.5. *Eye camera settings*

Eye camera settings are discussed in this chapter. These are:

- adjusting camera view parameters
- settings of the allowed pupil shift
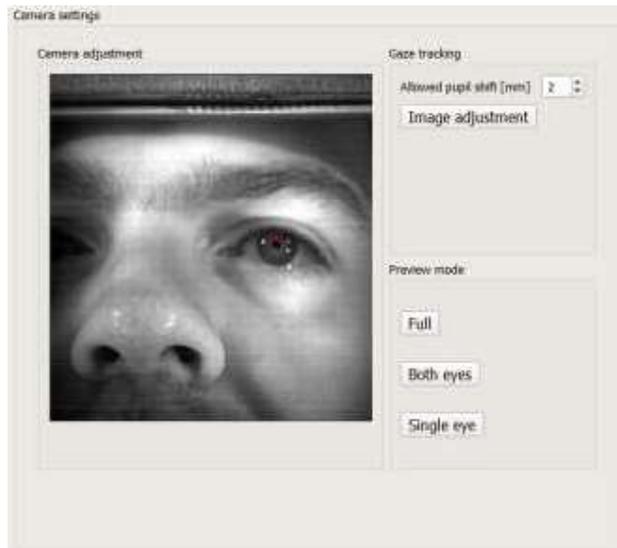
Figure 284. Eye camera settings

Changing the eye camera mode

You can monitor both eyes with the camera lens provided with the perimeter. You can also monitor

gaze fixation in binocular tests. For monocular tests, the camera view and the analysis range are limited to the tested eye only. To check the quality of camera image in monocular and binocular tests, you can toggle between the image mode in the camera settings window. The "Preview mode" box is described below (Figure 284. Eye camera settings).

Full – the preview window shows full camera view without downsizing the field of vision.

Both eyes – the preview window shows the area analyzed in monocular tests

Single eyes – the preview window shows the area analyzed in binocular tests

15.5.1. Adjusting camera view parameters

To correctly monitor the gaze, you need a clear view of the eye from the eye camera. The video image quality largely depends on the surrounding environment. Some parameters of the camera, including shutter speed and input gain are adjusted automatically and need not be adjusted manually. Other parameters, such as the mirror reflection vertically and horizontally can be set in the configuration window of the camera parameters.
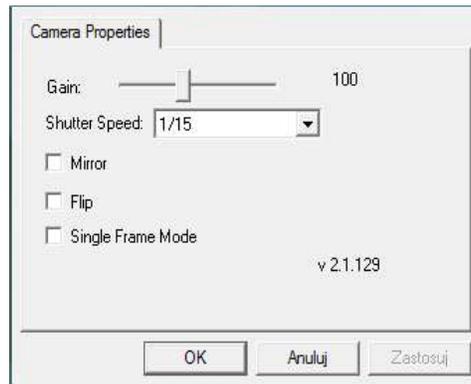
Figure 285. Configuration window of the camera parameters

Camera view parameters can be adjusted in the camera configuration window (Figure 285. Configuration window of the camera parameters). Click the "Image adjustment" button in the "Gaze tracking" box (Figure 284. Eye camera settings). This window can differ from figure, depending on the camera driver.

To adjust the settings, manipulate the parameters shown in the window and watch the video image of the eye displayed (Figure 284. Eye camera settings). The image of the eye is analyzed on a continuous basis, and you can watch how the modified parameters affect the quality of pupil detection. The following camera parameters can be manipulated manually:

- Mirror – horizontal reflection of the image – preferably unchecked
- Flip – horizontal reflection of the image – preferably unchecked

Once you find the optimum parameters, click OK to save the settings.

15.5.2. Setting the allowed pupil shift

Detecting fixation errors through gaze tracking essentially consists in tracking changes in the position of the pupil on the video image from the eye camera. Small shifts are typically acceptable as negligible image fluctuations and are neglected by the algorithm. If more significant changes recognized as gaze shifts that disqualify the test results occur, the test is interrupted. Negligible

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shifts are differentiated from significant shifts by comparing the pupil shift with the one determined from the limit of fixation error detection.

You can change the limit of fixation error detection using the "Allowed pupil shift [mm]" button in the "Gaze tracking" box (Figure 284. Eye camera settings). The limit value is defined within the range of 0 to 20 mm. 2 mm is the default value.

15.6. *Editing user fields*

To run a visual field test, you can choose one of the predefined test fields. Predefined test fields have been designed to cover areas of the visual field typically used in standard diagnostic scenarios. In special cases you can also use customized test fields, or user fields. In the user fields, you select the number and arrangement of points from all existing points. To create, delete and modify user fields, go to "Field editor" section in the Settings tab.
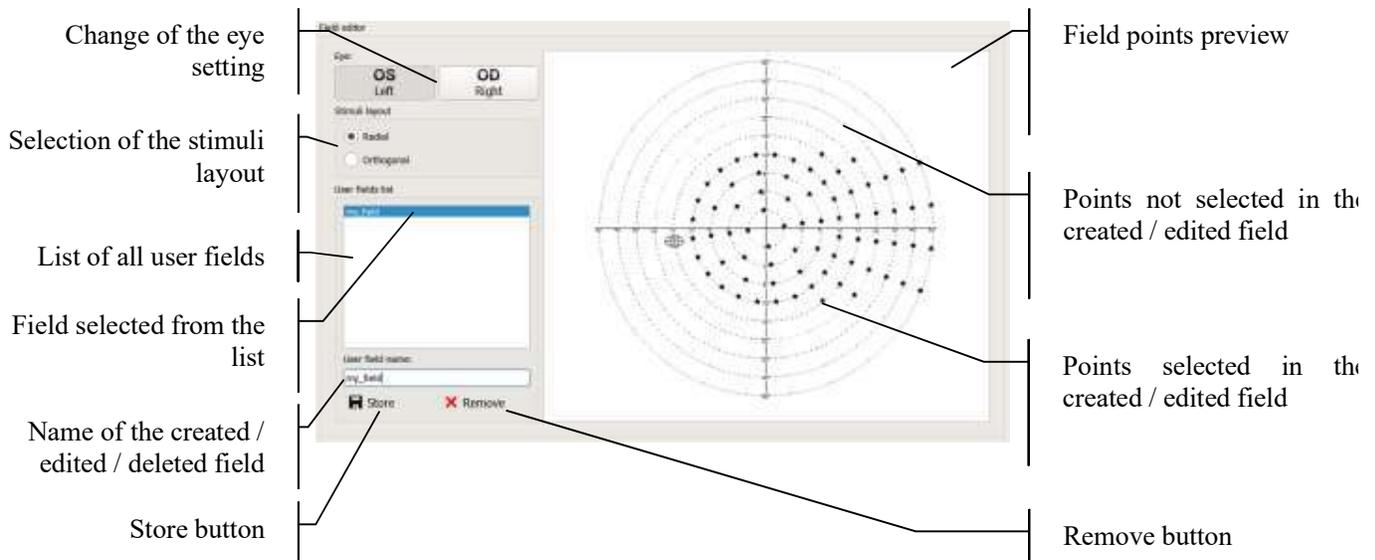
Figure 286. Field editor

15.6.1. *Editing user fields*

PTS software supports various device types with different stimuli layouts. Depending on the device type for which the user field is being designed, user should select appropriate "Stimuli layout":

"Radial" - supported by PTS 920/ PTS 920BY/ PTS 2000 devices

"Orthogonal" - supported by PTS 925W/ PTS 2000 devices

All selectable points are displayed in the field points preview window. Each point can be rendered in either of the following modes:

- **set (enabled)** – the point is displayed as a black star – the point will be included in the user field – it will be tested

- **unset (disabled)** – the point is displayed as a fuzzy star – the point will not be included in

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the user field – it will not be tested

The change the point status:

To enable or disable individual points from the user field, left click over the point of choice. If the point is disabled, it will be enabled when clicked. If the point was enabled, it will be disabled when clicked.

To enable or disable all points within the field, right click over an empty area of the preview window. A context menu will be displayed with two options: Set all or Unset all.
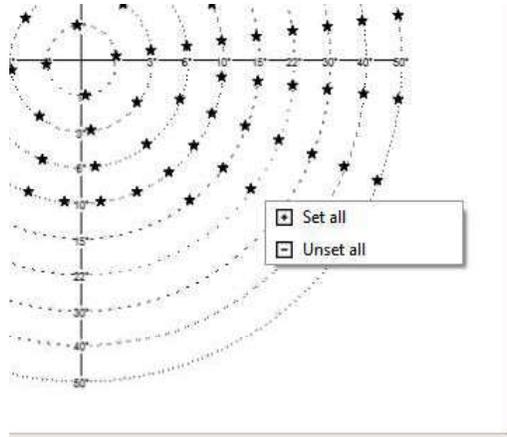
Figure 287. Changing the status of all points within the user fields

Use the "Set all" option to enable all points within the user field. Use the "Unset all" option to disable all points within the user field.

The third option is to select and then to set or unset selected points. Right click to select individual points within the user field. When you click the selected points, keep the Ctrl key pressed while making your selections. You can also select a group of points with a marquee. Left click over an empty area of the field and then create a marquee by moving the mouse with the left button pressed down.
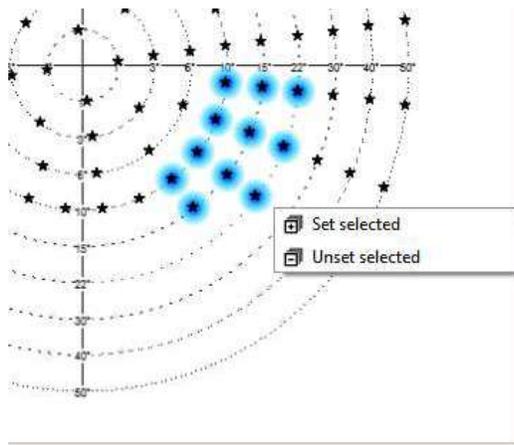
Figure 288. Changing the status of selected points within the edited user field

Click one of the selected points. A context menu will be displayed with two options: Set selected or Unset selected. Use the "Set selected" option to enable selected points within the user field. Use

the "Unset selected" option to disable selected points within the user field.

15.6.2.   Creating a new user field

To create a new user field, enter a new name (it must be unique) in the User field name box (Figure 286. Field editor), and click Save. The new user field will be created and the name of the new user field will be added to the list of existing user fields.

15.6.3.   Editing existing user fields

To edit a user field, select one of the fields from the list of user fields. The selected user field will be displayed in the field preview window. Once you finish editing the points, click Save and confirm you want to overwrite the existing field. You can also overwrite one field while editing another one. Once you finish editing the points, enter the name of the user field you want to overwrite in the User field name field (Figure 286. Field editor), and click Save.

15.6.4.   Deleting existing user fields

To delete a user field, select the user field of choice from the list of all user fields. Click Delete and confirm you want to delete the field selected.

15.7. Data exchange interface

This application was designed as an independent system to operate the device and to manage test and patient data. It also features data exchange interfaces with external applications and the EMR systems.

The application can ordered to run various orders (tasks) by external EMR systems. All tasks are queued in the list of Work Manager when the application operates. The following tasks can be performed, based on data collected from the data exchange interface:

registering patients in a local database

displaying the results of tests belonging to a patient

running tests according to the patient settings

generating a test report file to a predefined directory for a new or existing test

generating printed report for a new or existing test

There are 5 data exchange interfaces:

- Command-line interface
- Text File Interface
- GDT File Interface
- DICOM Interface
- Direct Export Interface

Interfaces are independent and can be used in parallel.

The pause time between scans of data exchange files is 5 seconds.

Data exchange interfaces can be set and activated from the Data Exchange page of the Settings tab

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(Figure 289. Data exchange interface settings)

DICOM gateway settings

Use Command Line Interface from different application instances

Access path to a directory for exchange of Text File Interface data

Use the Text File Interface

Selecting the directory for exchange of Text File Interface data

Activating GDT File Interface

Access path to a directory for exchange of GDT File Interface data

Selecting the directory for exchange of GDT File Interface data

GDT Id for this application and for an external EMR system

Selecting the directory for Direct Export Interface

Figure 289. Data exchange interface settings

15.7.1. Command Line Interface

Command Line Interface is the easiest way to transfer information from external sources. Each time the program is started, it checks the command line parameters used to start the program. If any correct commands are identified, a new order is created and processed after the program is started. An order created from the command line arguments is always of the highest priority. This means that, if any other orders are delivered from other interfaces, the command line order will be the first to perform, right after the program is started.

Only one instance of the program can run on one PC. Any attempt to start another instance will be blocked, and the command line parameters from this instance can be lost. To prevent it, the running instance can capture the command line arguments from the attempts to run other instances of the program, and a queue of orders will be created in the Work Manager. Enable this function with the "Command Line Interface from different application instances" key (Figure 289. Data exchange interface settings). If this option is enabled, the program will capture arguments from other instances, and the data captured will be added to the Work Manager list in the Patients tab (Work Manager).

15.7.2. Text File interface

Text File Interface is based on data exchange with an external program or EMR system using *.txt files from a defined directory. In the Text File Interface, the external program or EMR system creates a patient.txt file featuring all order-relevant parameters. The programs reads this file and creates an order accordingly, which is later added to the Work Manager list. If the order is completed correctly, the patient.txt is deleted.

To enable the Text File Interface, select the "Text File Interface" check box (Figure 289. Data exchange interface settings). If the Text File Interface is enabled, the program monitors for patient.txt files in the data exchange directory of the Text File Interface.

To set the data exchange directory for the Text File Interface, click the Data Exchange Directory (Figure 289. Data exchange interface settings) and choose a location shared with an external program or EMR system which the user can read and save.

15.7.3. GDT File interface

GDT File Interface is based on data exchange with an external program or EMR system using GDT 2.1 („Gerätedaten-Träger" or "Device Data Carrier") files from a defined directory. Communication direction is defined with the name of the file, consisting of addressee's GDT ID and the sender's GDT ID.

As a rule, GDT Id = PERI denotes the local program that controls the device. This ID can be modified to avoid conflict with other devices. To change the ID, use the "Application GDT ID" option (Figure 289. Data exchange interface settings).

GDT Id = EMR1 is the standard identifier of an external application or the EMR system. To change this identifier and adapt it to the actual identifier used by the external EMR system, use the "EMR system GDT Id" option (Figure 289. Data exchange interface settings).

According to the principle of the GDT Interface, the EMR system creates a GDT file with the order parameters ("PERIEMR1.GDT"). The programs reads this file and creates an order accordingly, which is later added to the Work Manager list. If the order is completed successfully, the order file will be deleted, and the application will generate a return file(s) in the GDT format ("EMR1PERI.GDT"). If multiple orders exist, the exchange file extensions are numbered („PERIEMR1.000" ↔ „EMR1PERI.000", „PERIEMR1.001" ↔ „EMR1PERI.001", etc).

To enable the GDT File Interface, select the "GDT File Interface" check box (Figure 289. Data exchange interface settings). If the GDT File Interface is enabled, the program monitors if any GDT files with orders reside in the data exchange directory of the GDT File Interface.

To set the data exchange directory for the GDT File Interface, click the Data Exchange Directory (Figure 289. Data exchange interface settings) and choose a location shared with an external program or EMR system which the user can read and save.

15.8. DICOM Interface

DICOM Interface consists of two client modules (SCU):

- Test Report Storage

- Modality Work List

DICOM client modules are based on communication with service providers (SCP hosts) within LAN TCP/IP. DICOM identifies the application based on unique ID (AE Title) and TCP/ID address. AE Title and TCP/ID address should be saved in the application settings and in all SCP hosts that cooperate with the application in the DICOM system.

AE Title, Station name, Location, Deaprtment, Institution of this application in the DICOM network

IP address of this application in LAN

Selection of DCM file format for test reports automatically exported after the examination

Automatic report export option to Test Report Storage SCP host

TCP port of Test Report Storage SCP host in LAN

AE Title of Test Report Storage SCP host

Testing communication and configuration with the Test Report Storage SCP host

IP of Test Report Storage SCP host in LAN

Testing communication and configuration with the Worklist SCP host

Automatic downloading of orders from the Worklist SCP host in LAN

TCP port of the Worklist SCP host in LAN

AE Title of the Worklist SCP host

Worklist filtering options

IP of the Worklist SCP host in LAN

The pause time between reading the task list from the server

Figure 290. DICOM interface settings

15.8.1. Test Report Storage client

Test Report Storage client module creates DCM images featuring perimetry test reports. DCM images can be saved locally on the hard drive (refer to the Single Test Report Generator, Comparison / Progress Analysis Report Generator sections) or sent via LAN to a configured Test Report Storage SCP host.

The module communicates with the Test Report Storage SCP host whose ID (AE Title) and TCP/IP address can be configured in the "Use Test Report Storage SCP" section (Figure 290. DICOM interface settings)

When the check box "Use Test Report Storage SCP" is selected (Figure 290. DICOM interface settings), a report will be generated after each test is finished, in the default format, and will be sent as a DCM file to the Test Report Storage SCP host.

The report can be exported to several DCM file formats (Figure 290. DICOM interface settings):

JPG with 85% lossy compression (JPEGProcess1TransferSyntax) – files will be compressed with

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a small loss of quality, and will occupy less space (around 0.8mb per file).

JPG with lossless compression (JPEGProcess14SV1TransferSyntax) - the files will be compressed without any loss of quality, but they will occupy more space (around 3mb per file).

PDF in a DCM file - the PDF file will contain text (lossless compression) and compressed images of maps (around 0.6mb per file).

BMP – non-compressed images occupying large amount of space (around 18mb per file).

OPV – DCM file format for storing perimeter data (around 13kb per file)

The SCP host where the test reports will reside as DCM files must support the selected DCM file format. Otherwise the DCM files will not be saved. Press Test to check communication and compatibility of the SCP host with selected DICOM Interface settings (Figure 290. DICOM interface settings). After you check the communication and compatibility of the settings, you will see a message indicating successful completion of the order, or a list of errors.

15.8.2.   Modality Work List client

The Modality Work List client module collects demographic data of patients registered for tests from an external Modality Work List. Orders are created from the patient data which, together with orders from other data exchange systems, are added to the Work Manager list.

The module communicates with the Modality Work List whose ID (AE Title) and TCP/IP address can be configured in the "Use Modality Work List SCP" section (Figure 290. DICOM interface settings).

When the check box "Use Modality Work List SCP" is selected (Figure 290. DICOM interface settings), the application will monitor the work list on the configured host on a continuous basis. Order records are created from the identified patient data, and are added to the Work Manager list.

Make sure that the SCP host delivering patients' demographic data for tests is correctly configured and active. Otherwise data collecting will fail. Press Test to check communication with the server (Figure 290. DICOM interface settings). After you check the communication and compatibility of the settings, you will see a message indicating successful completion of the order, or a list of errors.

15.9. Direct Export Interface

Direct Export Interface is an unidirectional interface which can be used only to export the examination reports from the application. It allows to export the default test report right after examination into the specified network storage or local storage location before any data is stored onto the disk. This allows to get the report without need to keep the patient data in the local storage. The Direct Export Interface report is stored in form of JPG, PDF or DICOM file with the name formed form patient data, the unique time stamp sequence, type of the device and analysis type.

Direct Export button

Figure 291. Examination summary dialog with direct export button

To enable the Direct Export Interface, select the "Direct Export Interface" check box (Figure 289. Data exchange interface settings). If the Direct Export Interface is enabled, the program will show the additional button in the Test Summary dialog "Export Data". Clicking this button will export the default report form the completed examination into the configured Direct Export folder.

Selecting the "Create directory structure" check box in the "Direct Export Interface" group creates a directory to which the exported tests of a given patient will be sent. The name of such a folder consists of the patient's data such as the reference number, surname, first name and data of birth separated by an underscore symbol.

If export directory is not set or doesn't exist, the tests will be exported to the directory set in the interface settings window.

The "Disable local storage" checkbox in the "Direct Export Interface" group box configures the application to disable possibility to keep the test data in the local database. This allows the test results to be exported only via Direct Export Interface. In this scenario the regular "Save" button in the Test Summary dialog disappears and is replaced by "Export Data" button.

15.10. *Work Manager*

Work Manager is designed to manage tasks (orders) from the data exchange interface. If the Text File Interface, GDT File Interface or DICOM MWL interface is enabled, the Work Manager can be found in the Patients tab (Figure 292. Patients tab with the Work Manager).
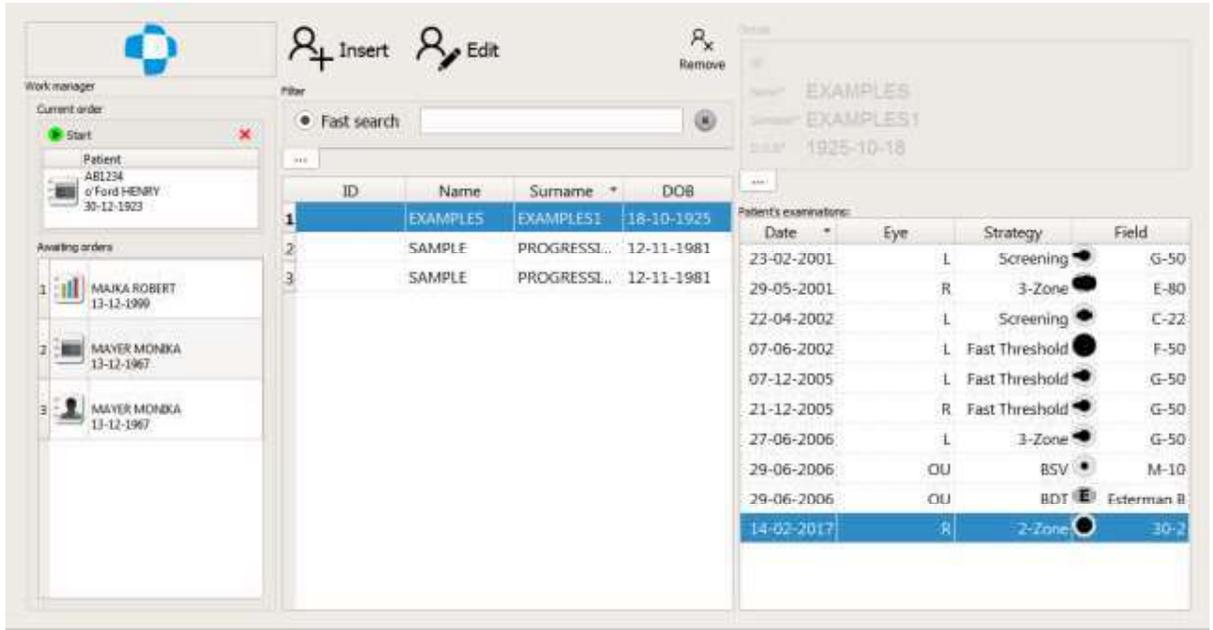
Figure 292. Patients tab with the Work Manager

In the Work Manager section, you can display the orders, change the order priority, select and change the current order, start or abandon an order, and delete the current order.
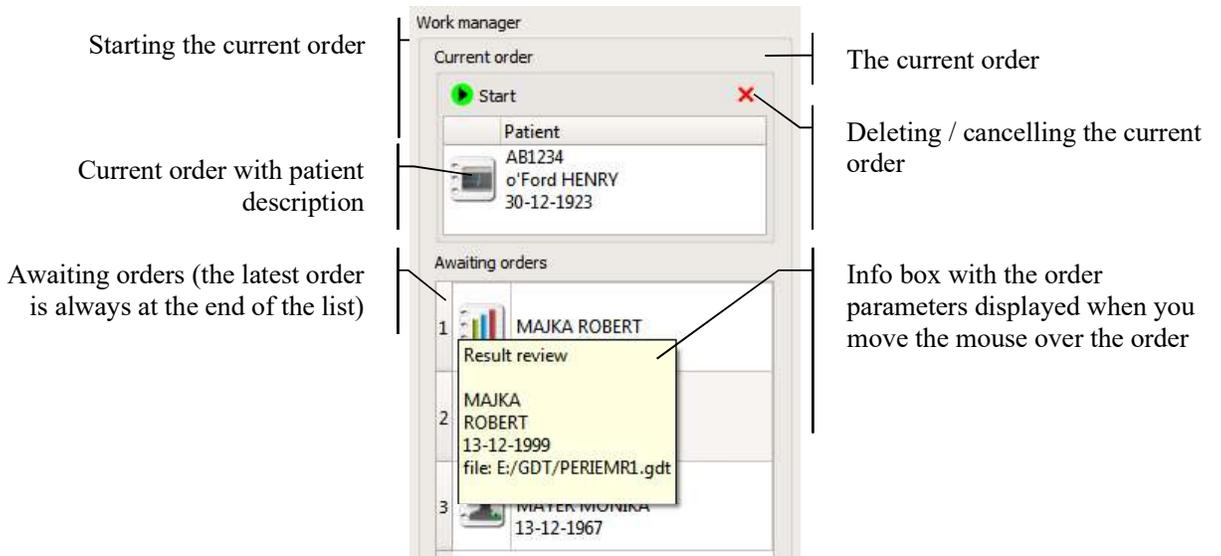
Figure 293. Work Manager items

The orders are arranged into four types:

 Enter / select patient – this order is completed after the given patient is registered and selected as the current patient.

 Test the patient – this order is completed after the given patient is tested and, as an option, after the summary file and the test report are generated.

 Review the test results for the given patient – this task is finished after the overall test results or a selected test result are displayed for the given patient.

 Generate test report – this order is completed after a test report is printed or saved for the given test.

A different symbol is used to represent different types of orders, with which you can easily recognize the nature of awaiting orders.

Move the mouse over the current test or a test from the list, and a prompt will be displayed with information about the relevant patient and the data exchange file from which the order was created (Figure 293. Work Manager items).

15.10.1. Performing orders

To start the currently selected order, click "Start" in the field of the current order (Figure 293. Work Manager items).
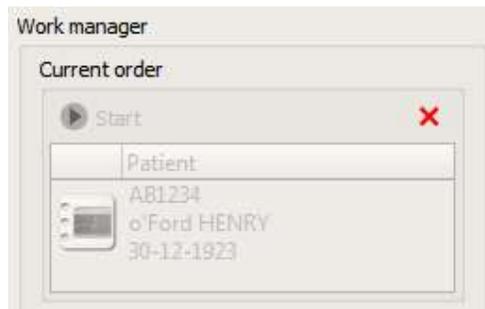
Figure 294. Initiated order

After the order is started, the current order is locked until it is finished or cancelled / deleted (Figure 294. Initiated order). After the order is successfully completed or fails, a summary window will be displayed with information about the operations completed or the problems identified.

15.10.2. Cancelling / deleting orders

The current order can be deleted from the list or cancelled and moved to the end of the work list (to be completed later). To delete or postpone an order, press X in the field of the current order (Figure 294. Initiated order).

Figure 295. Confirmation window of order deletion/cancellation

A window will be displayed, asking you to confirm you want to delete / cancel the current order (Figure 295. Confirmation window of order deletion/cancellation). Select the option of choice or cancel.

15.10.3. Selecting the current order and changing the order priority

In standard settings, the orders are executed in the order in which they are submitted. All orders are added to the end of the list, and when the current order is finished, the next listed order from the list of awaiting orders is selected as the new current order. You can change the order priority using the drag & drop method.

Left-click the selected order and move the cursor to the place of choice in the list or the field of the current order, keeping the mouse button pressed. Then release the left mouse button in the place of choice.

To change the current order and replace it with a different order from the list of awaiting orders, select the order of choice from the list and drop it on the current order. To change the priority of orders, drag the selected order and drop it elsewhere on the list.

15.11. Data exchange in the Perimetry Wizard interface

Work orders can be processed within the Perimetry Wizard interface. Patients incoming form the data exchange interfaces are added to "Today" list. This list can be opened by clicking the "Today" header (Figure 296. Perimetry Wizard - list of patients from data exchange interfaces). Patient's list will be updated with patients form data exchange and patients who have been already tested this day.
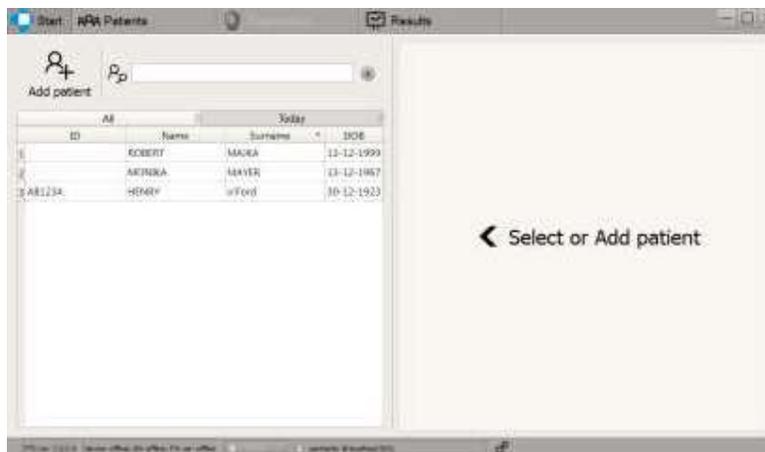
Figure 296. Perimetry Wizard - list of patients from data exchange interfaces

Patients on "Today" list cannot be edited or removed

After selecting a patient and clicking "Next", the "Programs" page will be displayed. If the selected patient has got awaiting work orders, then on the left of the programs panel there will be additional "Awaiting orders" list displayed (Figure 297. Perimetry Wizard - work order selection). To appear on the list, a work order should contain a strategy and field settings or a location for the exam report output file.
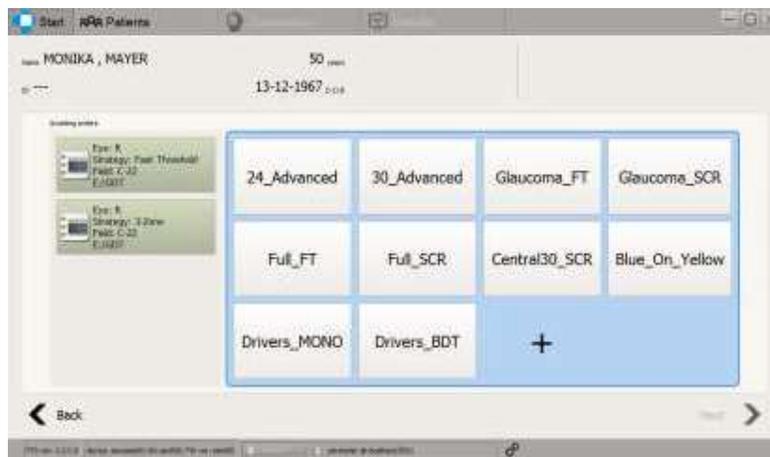
Figure 297. Perimetry Wizard - work order selection

Dark green buttons on the "Awaiting orders" list, represent the work orders from the data exchange interfaces related to currently selected patients. To select the work order for a current patient, click one of the green buttons. If the work order contain the test strategy and test field, then one additional button will appear in the Test Programs panel (Figure 298. Perimetry Wizard – EMR test program selection). This button will be named according to test settings form the selected work order and can be used to set these settings for the upcoming test. If the test strategy or test field is not defined in work order, then one of the predefined test programs should be selected to proceed to the test preparation page. After the test with the selected work order is completed, the work order is automatically deleted together with the work order input file.
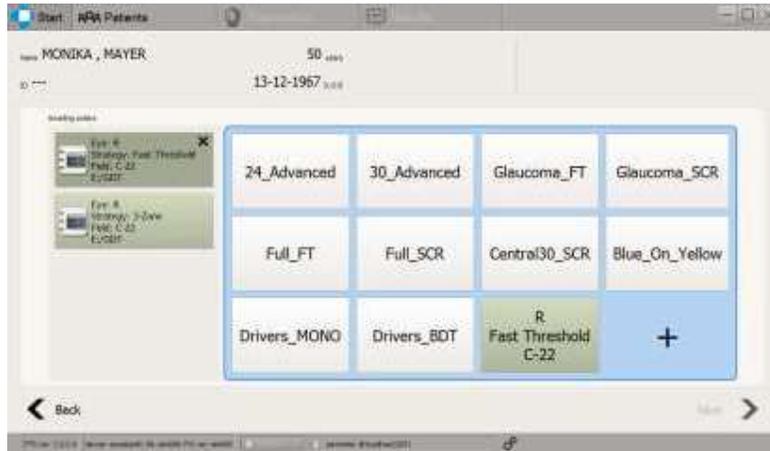
Figure 298. Perimetry Wizard – EMR test program selection

There is also possibility to perform the examination on the patient from Today list "outside" of the data exchange mechanism. When none of the work orders is selected in the "Awaiting orders" list, the examination will be performed in a regular way. None of the work orders will be automatically deleted after the examination is completed.

To manually delete the work order, click the "X" symbol in the upper-right corner of the selected work order button.

Removing the work order will cause the related data exchange input file to be deleted permanently. It will be not possible to restore this file.

15.12. *Users*

The application can work in two modes:

anonymous (default)

In the anonymous mode, you do not have to enter any password after the program is started. Every user can operate the application as an admin and can execute all tasks, including data management operations. This mode is recommended when you use the application in a closed user environment, where no unauthorized data tampering is likely to take place.

user accounts

In the user accounts mode, every user must log into the system to be able to operate the program. Choose the name of the user registered in the system and enter the password. Every registered user has one of defined user roles assigned, together with specific user rights.

The user roles and the assigned user rights are listed in the table below.

Table 1. User rights assigned to user roles

	Guest	Standard	Admin
Reviewing test results	V	V	V
Generating test reports	V	V	V
Executing orders	X	V	V
Editing test comments	X	V	V
Patient registration	X	V	V
Modifying application settings	X	V	V
Importing tests to the database	X	V	V
Transferring tests between patients	X	V	V
Modifying own user account	X	V	V
Adding / deleting / modifying user accounts	X	X	V

A separate set of settings and test programs is created for each newly registered user. This means that when you log in as a different user, the settings and programs assigned to that user will be applied. When creating a new one, the directory of the currently logged in user is copied. However, if no user is currently logged in, general directory USER will be copied. The name of the user's directory is "USER_<username>".

15.12.1. User logging

In the user accounts mode, a login screen will be displayed when the system is started. You must enter your user name and password to start the program. User accounts are created by the administrator.

User name selection field

Confirmation of entered data - logging

User password
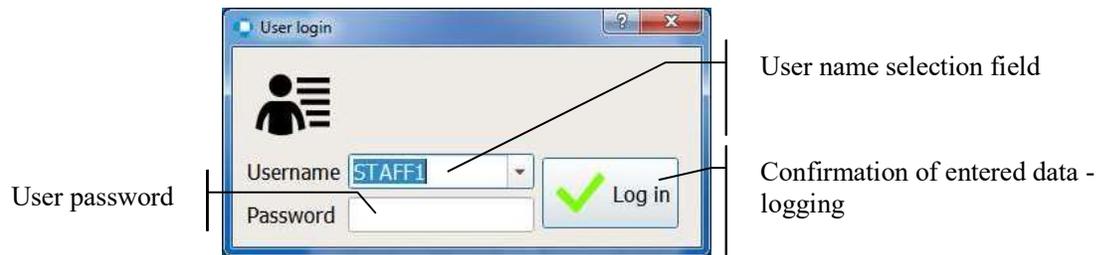
Figure 299. Login window to a local database

In the user name selection field, enter the user name or select the name of the user created in the local database from a drop-down list (Figure 299. Login window to a local database).

Enter the correct user password in the password input field (Figure 299. Login window to a local database). The password can consist of up to 8 alpha-numerical characters and will be automatically cut short when it is too long.

Click Login to confirm the entered data (Figure 299. Login window to a local database).

If the entered user name and password are validated, the program will be started, and the currently logged in user name will be displayed in the status bar on the main screen (Figure 299. Login window to a local database). If the data is incorrect, the login screen will be displayed.

15.12.2. Remote login

If the program is configured to operate with a remote database, the login screen will have keys to select a remote or a local database and a key with which connection to a local database can be checked.

Selecting a local or a remote database

Canceling application startup

User name selection field

Status and a key with which the remote database status can be checked

User password

Confirmation of entered data - logging

Figure 300. Login window to a remote database

To log in to a remote database, select the address of the remote database server configured in the application settings (Remote database) from the local vs. remote database selection window (Figure 300. Login window to a remote database) .

You can read the status of connection with the remote database server on the remote database status button (Figure 300. Login window to a remote database). To connect to the remote database, this button should be green with the "Remote OK" status. If the button is red, this means connection with the remote server failed. To check accessibility of the remote database and to refresh the list of registered users, click the remote database status button (Figure 300. Login

window to a remote database).

If the remote database cannot be accessed or if you want to change the application settings, start the application in the local mode. To log in to a local database, select the "Local database" option from the local vs. remote database selection window (Figure 300. Login window to a remote database) and enter the user login and password to access the local database.

15.12.3. Managing user accounts

To manage user accounts, use the leys on the Users section of the Settings tab (Figure 301. Managing user accounts).
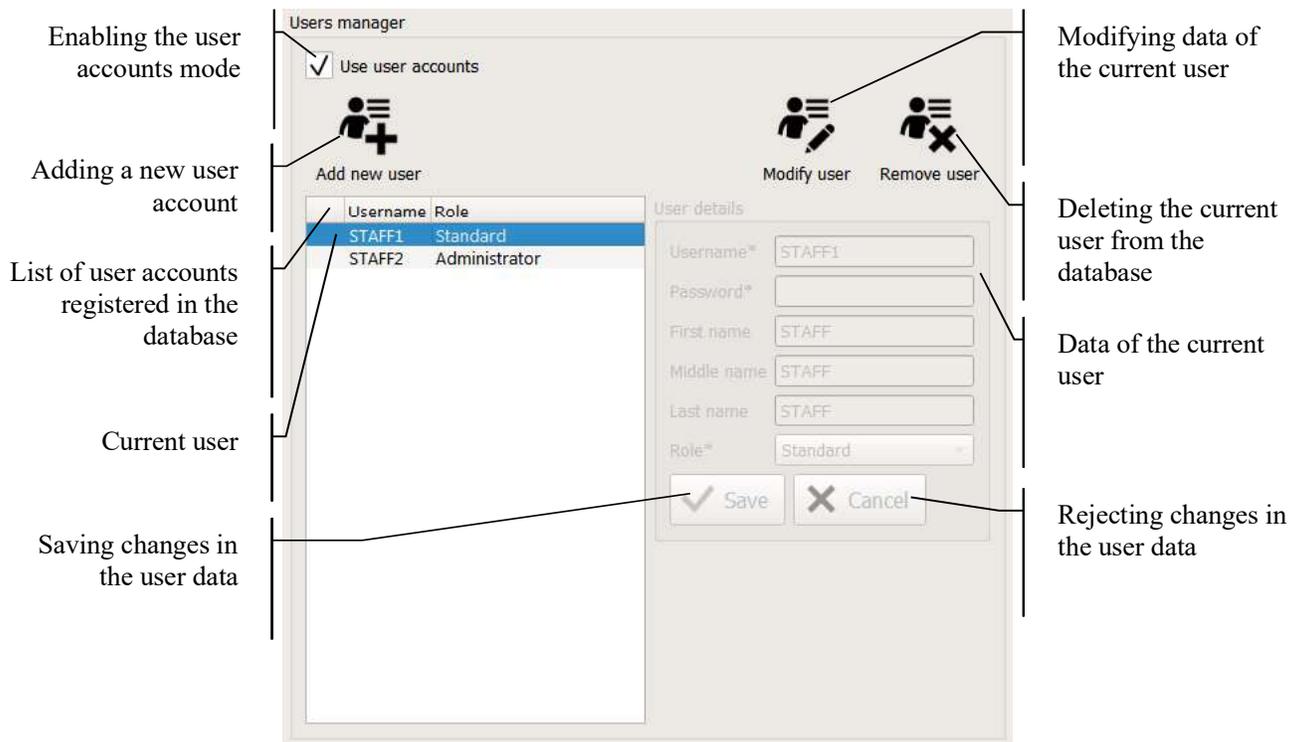
Figure 301. Managing user accounts

Only administrator role users are able to manage user accounts. Otherwise users can only modify their own data: password, first name, middle name, or surname.

15.12.4. Activating the user accounts system

To activate the login system, check the "Use user accounts" option (Figure 301. Managing user accounts) and restart the application.

To use the user accounts mode, at least one administrator account must be created in the system.

account of choice from the list of all user accounts and click the "Delete User" button on top of the user data field (Figure 301. Managing user accounts).

A warning message will be displayed and you will be asked to confirm you want to delete the user account from the database. After the user account is deleted, the deleted user login and password will no longer be available.

15.13. *Import*

The import tab allows to import examinations from other devices, such as HFA and Medmont, to the application. To perform the import just click on open folder/files button located next to the start import button and select path/files to import to. Next click on the start import button to start actual import. This is illustrated in the figure below.

Figure 302. Setting path and import buttons

16. *Troubleshooting*

Should you experience any problems with the operation of the PTS 920/925/2000 series Automated   Perimeter, follow the instructions given in the table below.

Table 2. Troubleshooting

Problem	*Cause*	*How to solve*
"Cannot communicate with the device. (…)"	No communication between PC and perimeter	Make sure the power cord of the perimeter bowl is inserted into a power outlet. Make sure the bowl is switched on (the central fixation in the bowl is glowing).
The central fixation is not glowing after switching the device on.	No power supply to the bowl.	Make sure the bowl is connected to correct supply voltage and switch the bowl on with the main switch. If the device does not start in position 'I', check the fuses. The fuses are in the power outlet of the perimeter, over the plug.
After switching the device on, the right fixation is glowing	The reaction button was pressed during the device startup	Make sure that the reaction stick is not pressed during the device startup
	The reaction button is damaged (always short circuit)	Contact the distributor or an authorized service provider.

Problem	Cause	How to solve
The regular sound signal is heard after the device startup	The bowl is damaged.	Contact the distributor or an authorized service provider.
After startup the the central fixation is blinking and the software cannot communicate with the device (PTS 2000)	The device did not finished auto-calibration procedure successfully.	Check if there is no excessive light falling into the perimeter bowl which could influence auto-calibration procedure.

List of wear parts:

Fuse type: T 315mA L 250V, 5x20mm (PTS 920 series) - 2 pcs.

Fuse type: T 1.6A L 250V, 5x20mm (PTS 925 series) - 2 pcs.

Fuse type: F 3.15A L 250V, 5x20mm (PTS 2000 series) - 2 pcs.

(other types of fuses are permitted, but only of the same electrical parameters and the following characteristics: F– fast or M-medium or T-time lag according to IEC).

17. *Working conditions*

17.1. *Storage*

Temperature:	5 ÷ 40 °C
Relative humidity:	10 ÷ 90 %
Atmospheric pressure:	740 ÷ 1060 hPa

17.2. *Transportation*

Temperature:	-30 ÷ 40 °C
Relative humidity:	10 ÷ 90 %
Atmospheric pressure:	740 ÷ 1060 hPa

17.3. *Operation*

Temperature:	10 ÷ 35 °C
Relative humidity:	30 ÷ 75 %
Atmospheric pressure:	740 ÷ 1060 hPa

18. *Servicing*

Technical problems should be reported to a local distributor.

19. *Disposal*

The maximum life cycle of the device is 10 years from the date of production stated on the rating plate. After this period you should return the device to the distributor to agree the most convenient disposal method for the device parts (plastics, epoxy resins, polyurethane foam, metal, etc.)
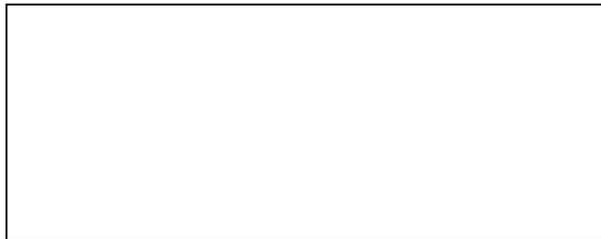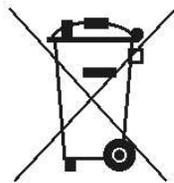
APPENDIX A – Conversion of Goldmann units to decibels and apostilbs

Intensity		Actual Goldmann stimulus size				
dB	Asb	I	II	III	IV	V
0	10,000	III 4e	IV 4e	V 4e	---	---
l	7,943	III 4d	IV 4d	V 4d	---	---
2	6.310	III 4c	IV 4c	V 4c	---	---
3	5.012	III 4b	IV 4b	V 4b	---	---
4	3,981	III 4a	IV 4a	V 4a	---	---
5	3,162	II 4e	III 4e	IV 4e	V 4e	---
6	2,512	II 4d	III 4d	IV 4d	V 4d	---
7	1.995	II 4c	III 4e	IV 4c	V 4c	---
8	1,585	II 4b	III 4b	IV 4b	V 4b	---
9	1,259	II 4a	III 4a	IV 4a	V 4a	---
10	1,000	I 4e	II 4e	III 4e	IV 4e	V 4e
11	794	I 4d	II 4d	III 4d	IV 4d	V 4d
12	631	I 4c	II 4c	III 4c	IV 4c	V 4c
13	501	I 4b	II 4b	III 4b	IV 4b	V 4b
14	398	I 4a	II 4a	III 4a	IV 4a	V 4a
15	316	I 3e	II 3e	III 3e	IV 3e	V 3e
16	251	I 3d	II 3d	III 3d	IV 3d	V 3d
17	200	I 3c	II 3c	III 3c	IV 3c	V 3c
18	159	I 3b	II 3b	III 3b	IV 3b	V 3b
19	126	I 3a	II 3a	III 3a	IV 3a	V 3a
20	100	I 2e	II 2e	III 2e	IV 2e	V 2e
21	79	I 2d	II 2d	III 2d	IV 2d	V 2d
22	63	I 2c	II 2c	III 2c	IV 2c	V 2c
23	50	I 2b	II 2b	III 2b	IV 2b	V 2b
24	40	I 2a	II 2a	III 2a	IV 2a	V 2a
25	32	I 1e	II 1e	III 1e	IV 1e	V 1e
26	25	I 1d	II 1d	III 1d	IV 1d	V 1d
27	20	I 1c	II 1c	III 1c	IV 1c	V 1c

28	16	I 1b	II 1b	III 1b	IV 1b	V 1b
29	13	I 1a	II 1a	III 1a	IV 1a	V 1a
30	10	$I^{\underline{4e}}$	I 1e	II 1e	III 1e	IV 1e
31	8	$I^{\underline{4d}}$	I 1d	II 1d	III 1d	IV 1d
32	6	$I^{\underline{4c}}$	I 1c	II 1c	III 1c	IV 1c
33	5	$I^{\underline{4b}}$	I 1b	II 1b	III 1b	IV 1b
34	4	$I^{\underline{4a}}$	I 1a	II 1a	III 1a	IV 1a
35	3.2	$I^{\underline{3e}}$	$I^{\underline{4e}}$	I 1e	II 1e	III 1e
36	2.5	$I^{\underline{3d}}$	$I^{\underline{4d}}$	I 1d	II 1d	III 1d
37	2.0	$I^{\underline{3c}}$	$I^{\underline{4c}}$	I 1c	II 1c	III 1c
38	1.6	$I^{\underline{3b}}$	$I^{\underline{4b}}$	I 1b	II 1b	III 1b
39	1.3	$I^{\underline{3a}}$	$I^{\underline{4a}}$	I 1a	II 1a	III 1a
40	1.0	$I^{\underline{2e}}$	$I^{\underline{3e}}$	$I^{\underline{4e}}$	I 1e	II 1e
41	0.8	$I^{\underline{2d}}$	$I^{\underline{3d}}$	$I^{\underline{4d}}$	I 1d	II 1d
42	0.6	$I^{\underline{2c}}$	$I^{\underline{3c}}$	$I^{\underline{4c}}$	I 1c	II 1c
43	0.5	$I^{\underline{2b}}$	$I^{\underline{3b}}$	$I^{\underline{4b}}$	I 1b	II 1b
44	0.4	$I^{\underline{2a}}$	$I^{\underline{3a}}$	$I^{\underline{4a}}$	I 1a	II 1a
45	0.32	$I^{\underline{1e}}$	$I^{\underline{2e}}$	$I^{\underline{3e}}$	$I^{\underline{4e}}$	I 1e

APPENDIX B – EMC

Guidance and manufacturer's declaration – electromagnetic emissions		
PTS 920/925/2000 series Automated Perimeter is intended for use in the electromagnetic environment specified below. The customer or the user of the PTS 920/925/2000 series Automated Perimeter should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	PTS 920/925/2000 series uses RF energy only for its internal function. Therefore its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	PTS 920/925/2000 series is suitable for use in all establishments other than domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purpose. ⚠ The emissions characteristic of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If the PTS 920/925/2000 series is used in a residential environment (for which CISPR 11 class B is normally used) this equipment might not offer adequate protection to radio-frequency communication service. The user might need to take mitigation measures such relocating or re-orienting equipment.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Compliant	

Guidance and manufacturer's declaration – electromagnetic immunity			
PTS 920/925/2000 series Automated Perimeter is intended for use in the electromagnetic environment specified below. The customer or the user of the PTS 920/925/2000 series Automated Perimeter should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical Fast Transient / Burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and	<5% U_T (>95% dip in	<5% U_T (>95% dip in	Mains power quality should be that of a typical commercial or hospital environment.

voltage variations on power supply input lines IEC 61000-4-11	U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5s	U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5s	If the use of the PTS 920/925/2000 series Automated Perimeter requires continued operation during power mains interruptions, it is recommended that the equipment be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity			
PTS 920/925/2000 series Automated Perimeter is intended for use in the electromagnetic environment specified below. The customer or the user of the PTS 920/925/2000 series Automated Perimeter should assure that it is used in such an environment.			
Immunity test	Level test IEC 60601	Compliance level	Electromagnetic environment – guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the PTS 920/925/2000 series Automated Perimeter, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	$d = [1{,}17]\sqrt{P}$

Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = [1{,}17]\sqrt{P}$ 80 MHz to 800 MHz $d = [2{,}33]\sqrt{P}$ 800 MHz to 2.5 MHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy.
To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the PTS 920/925/2000 series Automated Perimeter is used exceeds the applicable RF compliance level above, the PTS 920/925/2000 series Automated Perimeter should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the perimeter.
[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than $[V_1]$ V/m.

Recommended separation distances between portable and mobile RF communications equipment and the PTS 920/925/2000 series Automated Perimeter
PTS 920/925/2000 series Automated Perimeter is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the PTS 920/925/2000 series Automated Perimeter can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the PTS 920/925/2000 series Automated Perimeter as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter		
	150 kHz to 80 MHz $d = [1{,}17]\sqrt{P}$	80 MHz to 800 MHz $d = [1{,}17]\sqrt{P}$	800 MHz to 2.5 MHz $d = 2{,}3\sqrt{P}$
0.01	0.17	0.17	0.23
0.1	0.37	0.37	0.73
1	1.17	1.17	2.3
10	3.7	3.7	7.4
100	11,7	11,7	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

APPENDIX C – List of figures

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NEW AUTOMATED PERIMETERS

Fast and precise perimetry at your fingertips

5 p.d. Kokybės kriterijus Nr.2. Laikiklis korekciniams lęšiams tinkamas naudoti su standartiniais korekciniais lęšiais, reguliuojamos padėties prieš akį.

5.14 p. Paciento galvos padėties (aukščio) pozicionavimas Motorizuotos smakro atramos pagalba

OPTOPOL
technology

OPTOPOL
technology
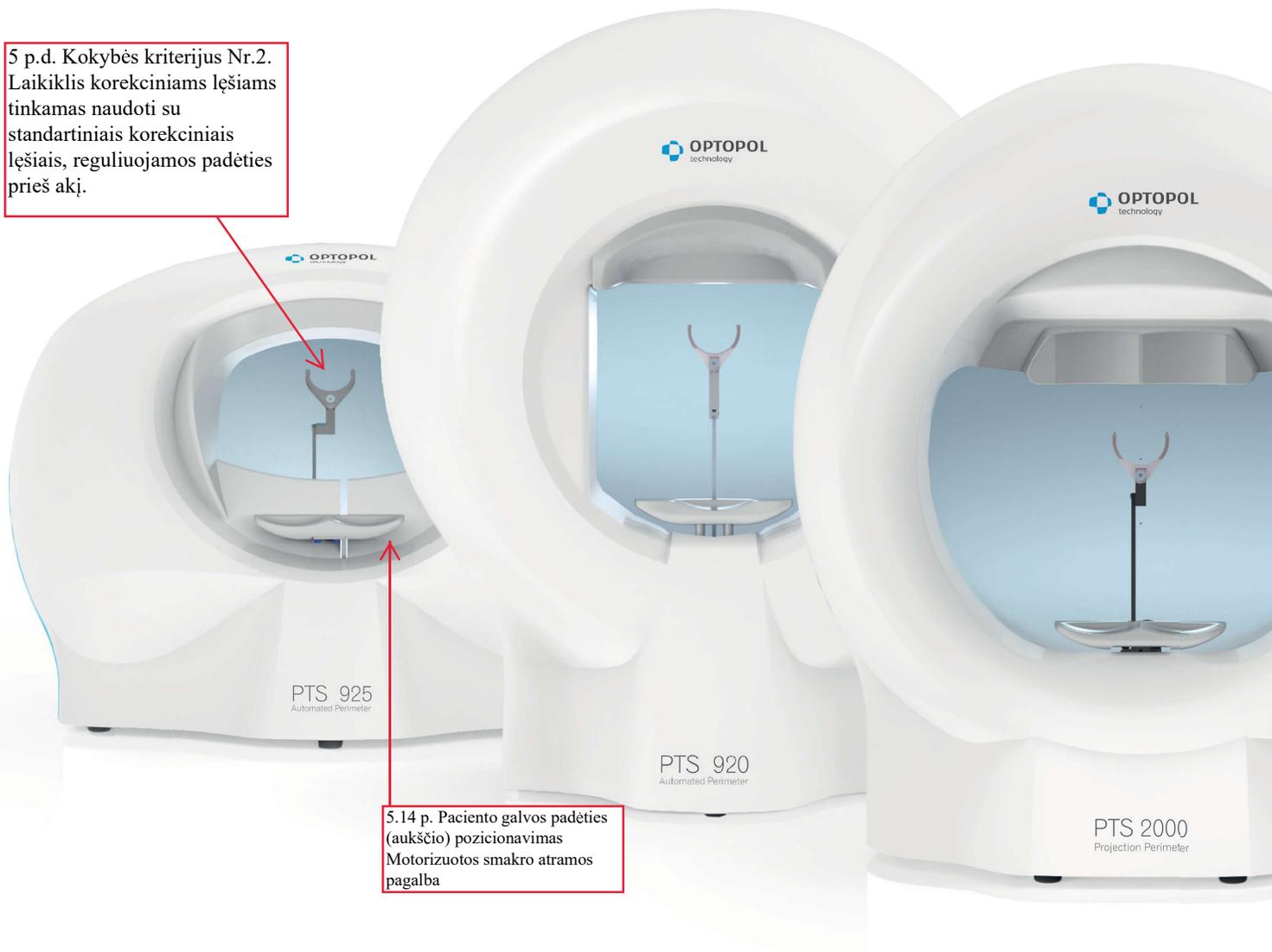
PTS 925
Automated Perimeter

PTS 920
Automated Perimeter

PTS 2000
Projection Perimeter

PTS 920 | PTS 925W | PTS 2000

OPTOPOL
technology

FAST AND PRECISE PERIMETRY
AT YOUR FINGERTIPS

5.1. p. Skirtas paciento regėjimo lauko įvertinimui statiniu metodu.

The PTS automated perimeter series are modern diagnostic instruments for precise and fast testing of visual fields. Beside standard perimetry testing techniques they implement all of the latest visual field testing approaches saving time and deliver cutting edge precision and reliability. Intuitive software with powerful networking and EMR integration, combined with maintenance free and reliable hardware creates the best tools for visual field testing.

EYE TRACKING
Analyses pupil movement and assures supreme reliability of test results.

BLINK CONTROL
No stimuli are omitted due to normal blinking, test is put on hold until the eye is opened again.

VOICE GUIDE
Voice messages assist operator and patient during the examination.

THRESHOLD IN
3 MINUTES WITH ZETA™ **
ZETA™ and ZETA™ Fast strategies - fast and reliable examination with precise threshold estimates.

EYESEE™ EYE RECORDING
EyeSee™ module records eye preview images during stimuli exposures and displays them when reviewing the test result.

DPA™ ANALYSIS
DPA™ Defect Progression Analysis - inter-test analysis and judgement on defect progression.

HEAD TRACKING
Monitoring and adjusting patient's head position throughout the test.

2
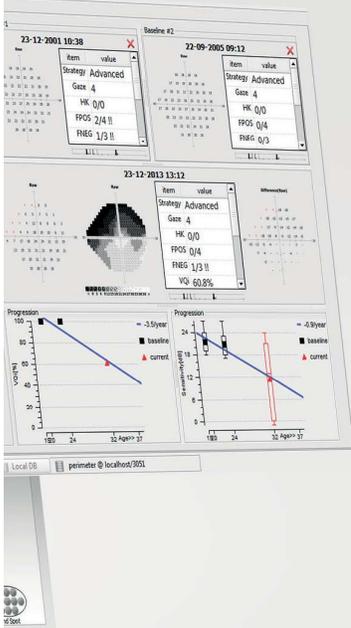
ALL THAT YOU NEED

✔ Complete set of standard perimetry tests.

✔ Variety of threshold algorithms and screening techniques.

✔ Binocular Driver's Test, Flicker perimetry and Blue on Yellow*.

✔ Complete palette of analysis tools for quick and thorough assessment of visual fields.

✔ Evaluation of peripheral field loss.

✔ Standard test reports and global indices.

✔ GHT and sectors analysis.

PTS 925W

Automated Perimeter PTS 925W brings the world's most popular orthogonal fields 30-2 and 24-2 into the compact sized device.

Despite its compact size, the 925W offers cutting-edge design and software capabilities. With the 170° horizontal and 110° vertical testing range (with fixation shifts), there is no scenario in which the PTS 925W could not play a role in glaucoma and other disease management. From precise macula thresholding to the binocular Esterman driving test – everything is within reach.

5.6.p. Tiriamo akipločio ribos: horizontaliai 170 laipsnių

- Compact and robust design
- White on white testing
- Goldmann standard bowl and stimulus
- 170° horizontal and 110° vertical testing range
- 30-2, 24-2 and 10-2 testing fields.
- Ptosis testing capabilities (Sup 44 test field)
- Thresholding on 24-2 and 30-2 in 3-4 minutes**
- Standard style printouts

3

PTS 920/BY

PTS 2000

Automated Perimeter PTS 920/BY is designed to fulfill all requirements of contemporary perimetry.

Being a continuation of a successful PTS 900 perimeter series, it offers the same ease of use and affordability. With ergonomic design and modern testing and analysis software, the 920 makes a leap forward from the original PTS 900 series. Full sized testing bowl and user-oriented software guarantee the perfect results with no effort.

- 160° horizontal and 100° vertical testing range
- Goldmann standard bowl and stimulus
- Thresholding on 24A and 30A in 3-4 minutes**
- Full featured software in standard
- Statistical package and Dicom interface
- Optional Blue on Yellow testing
- Standard style printouts
- Maintenance free operation

Automated Perimeter PTS 2000 sets a new standard for full-featured projection perimeters.

This is where the ergonomic design meets the requirements of modern visual field evaluation. Performing everything from a quick screening test to manually controlled kinetic perimetry is simpler than ever before. PTS 2000 brings to you one of the world's largest field testing ranges and options, together with all Goldmann stimuli sizes and stimuli colors used in perimetry. With the modern and intuitive software, all that is available at your fingertips.

- Complete set of static perimetry strategies
- Automatic and manual kinetic perimetry
- 180° horizontal and 130° vertical testing range for peripheral screening
- Aspherical bowl for compact dimensions
- All Goldmann stimuli sizes and colors used in perimetry
- 30-2, 24-2 and 10-2 testing fields
- Ptosis testing capabilities (Sup 64 test field)
- Standard style printouts

PTS – AUTOMATED PERIMETER SERIES

THRESHOLD IN 3 MINUTES**

- ZETA™ and ZETA™ Fast strategies - testing based on statistical data for high reliability and precise threshold estimation.
- Advanced Threshold strategy - quicker examination without loss in result resolution.
- 24-2/24A field tested in less than 3 minutes (30-2/30A in less than 4 minutes).**
- Provides more detailed information than screening strategies in comparable duration.

STANDARD TEST REPORTS AND GLOBAL INDICES

SUPREME RELIABILITY

5.P. Kokybės kriterijus 4.p. Mirksėjimo sekimas (tyrimas stabdomas pacientui užmerkus akį)

- High resolution camera for precise monitoring of patients' compliance.
- Blink control - no stimuli are omitted due to normal blinking, test is put on hold until the eye is opened again.
- Eye tracking - analyses pupil movement and assures supreme reliability of test results.
- Voice messages assist operator and patient during the examination.
- EyeSee eye recording for even better evaluation of test reliability.
- Head Tracking mechanism to assure appropriate eye position and avoid test artifacts.

FLEXIBILITY FOR TIME

- Rich library of predefined test fields and programs.
- Custom test settings can be stored and accessed with one mouse click.
- Follow-up tests can be performed by simple selection of base examination.
- Partial test results of not completed test can be continued at a later date.

DICOM, GDT, EMR, NETWORK INTEGRATION

- Built-in networking features - data can be accessed from anywhere within your network.
- Out of the box DICOM support.
- Storing visual field reports on the DICOM image server.
- DICOM Modality Worklist support.
- GDT interface and custom EMR's based on text file interface.

5.15.p. DICOM suderinamumas:
1.Darbų sąrašo palaikymas;
2.Rezultatų siuntimas.

STRUCTURE & FUNCTION ANALYSIS

- Export of visual field data to Optopol SOCT software.
- Invaluable combination of information about the functional quality of vision with comprehensive data on retinal structures.
- S+F provides a comprehensive single page report for glaucoma management.

Device		PTS 920, *PTS 920BY	PTS 925W	PTS 2000
Examination bowl		closed type, ventilated	300 mm radius, spherical, closed type, ventilated	300 mm radius, aspherical, closed type, ventilated
Test field range	Superior	50°	40° (55° with fixation shift)	60° (70 with fixation shift)
	Inferior	50°	40° (55° with fixation shift)	70°
	Left to right	100° (160° with fixation shift)	100° (170° with fixation shift)	180°
Testing techniques	Static perimetry		•	•
	Kinetic perimetry			•
Stimulus sizes (Goldmann)	III		•	•
	I to V			•
Stimulus colors	White		•	•
	Green	•		•
	Blue	•*		•
	Red			•
Background illumination	White 3,2 cd/m² (10 asb)	•		•
	White 10 cd/m² (31,5 asb)		•	•
	Yellow 100 cd/m² (315 asb)*	•*		•
Maximum stimulus intensity			10000 asb	10000 asb
Fixation control	Gaze tracking		•	•
	Blink monitoring		•	•
	Heijl/Krakau		•	•
	EyeSee™	•	•	•
Chinrest control	Electrical up-down	•	•	•
	Electrical left-right			•
Patient response time	Set manually 0,1 to 9,9 s	•	•	•
	Adaptive to patient speed	•	•	•
Test fields	Radial test field patterns			•
	Orthogonal test field patterns	•		•
	5-2, 10-2, 24-2, 30-2, Step 44/64		•	•
	G1, G0-2, N1, N2, 07, 60-4, FF81, FF120, FF246, BSV, B1, Nasal Step			•
Test strategies	Screening (Quantify defect, 3-zone, 2-zone)		•	•
	Threshold (Threshold, Fast Threshold, Advanced Threshold, Dynamic)		•	•
	ZETA™, ZETA™ Fast		•	•
	Special (BSV, Flicker)		•	•
	Esterman Monocular Test Esterman Binocular Test		•	•
	Kinetic (Manual, Automated, Mixed)			•
Analysis	Single field analysis	•	•	•
	Result comparison		•	•
	DPA™ Defect Progression Analysis		•	•
	Statistical package	•	•	•
Connectivity	DICOM Storage SCU	•	•	•
	DICOM MWL SCU	•	•	•
	GDT, TXT, CMDL	•	•	•
	Networking	•	•	•
	REVO Structure & Function Interface	•	•	•
Device interface		USB 2.0	USB 2.0	USB 2.0
Dimensions mm (HxWxD)		645 x 561 x 385, 11 kg	410 x 568 x 410, 9kg	606 x 532 x 438, 17kg
Operating Voltage		100-120V AC 50-60Hz or 220-240V AC 50-60Hz	100-120V AC 50-60Hz or 220-240V AC 50-60Hz	100-120V AC 50-60Hz or 220-240V AC 50-60Hz
Power consumption		30W	30W	100W

Annotations (red boxes):

- 5.2.p. Perimetro ekrano diametras (Ø) 30 cm
- 5.1.p. Statiniu metodu.
- 5.5.p. Stimulo dydis III pagal Goldmann 3
- 5.4.p. Stimulo spalva balta
- 5.3.p. Tiriamojo lauko foninis apšvietimas 31.5 asb
- 5.7.p. Maksimalus stimulo intensyvumas 10000 asb
- 5.13.p. Paciento žvilgsnio fiksacijos sekimas: 1.Žvilgsnio sekimas; 2.Mirksėjimo sekimas (tyrimas stabdomas pacientui užmerkus akį)
- 5.8.p. Testų laukai: 1."10-2"; 2."24-2"; 3."30-2";
- 5.9.p. Minimalus patikros testų pasirinkimas: 2-jų zonų; 3-jų zonų; defekto gylio.
- 5.10.p.Minimalus slenkstinių testų pasirinkimas: 5.10.1. Slenksčio matavimas; Greitas slenksčio matavimas;
- 5.11.p. Minimalus specialių testų pasirinkimas: 1. Vairuotojų tyrimas pgl. Esterman; 2. Binokulinis dvejinimosi tyrimas; 3. Virpėjimo (angl. *flicker*) tyrimas.
- 5.12.p. Pakartotinai atliekamų tyrimų analizė: 1.Rezultatų palyginimas; 2.Defekto progresavimo įvertinimas.

Figure 190. Basic display and the color-coded map of the RAW analysis

The color-coded map is interpolated. The space between the tested points is filled with symbols representing values estimated from the linear interpolation of the tested points. This way it is easier to read the map and to estimate the areas of visual defects.
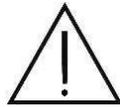
⚠️ *The interpolated results in the tested field areas are based on mathematical analysis and are not a diagnosis. They represent a probable condition of the test field between the tested points. The actual condition of the visual field can be only determined through testing procedures.*

5 p.d. Kokybės kriterijus: 1. p. Tyrimo rezultatų pateikimo forma HFA stiliumi.

14.3.5. *Interpolation of results to maps 30-2, 24-2 and 10-2*

The software allows to present the results of selected examinations in HFA-device style on maps 30-2, 24-2 and 10-2. The function is enabled by using "HFA Interpolation" button (Figure 188. "HFA Interpolation" button).

After enabling, the original examination result will be interpolated. As a result, a continuous retinal sensitivity map is generated, from which the presumptive sensitivity values at points that were not physically tested can be read. Locations belonging to commonly used test areas are used for displaying: 10-2, 24-2 and 30-2; these are popular for HFA devices. Whether the original result of examination is interpolated to map 10-2, 24-2 or 30-2 is dependent on the field range from the original result.

The results interpolation function is only available for tests in which numerical levels of retinal sensitivity may be determined. These include examinations performed with different threshold strategies (Threshold, Fast Threshold, Screening and Advanced). For interpolation to be possible with the selected examination strategy, it must be completed in at least 75%, and the examination must be performed on a sufficiently large field of vision.

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Figure 50. Source test preview for follow up

✓ *After the settings have been uploaded from the source test, the test parameters can be modified as in any other standard test. You can change the test field value, for example, and leave other parameters unchanged.*

5.14 p. Paciento galvos padėties (aukščio) pozicionavimas Motorizuotos smakro atramos pagalba

9.5. Adjustment of the chin rest

The position of the tested eye should be properly adjusted. It should be placed exactly opposite the fixation point shown in the video image from the eye camera.

To correctly position the eye, adjust the height of the chin rest using the indicators displayed in the camera window.

Product Type	Notebook
Operating System	Windows 11 Pro
CPU	Intel Core i5 (13th Gen) 1335U
Max Turbo Speed	4.6 GHz
Number of Cores	10-core
Cache	12 MB
Features	12 Threads
RAM	8 GB (1 x 8 GB)
Max RAM Supported	64 GB
Technology	DDR5 SDRAM
Speed	2600 MHz
Rated Speed	2800 MHz
Form Factor	SO-DIMM 262-pin
Slots Qty	2
Empty Slots	1
Main Storage	512 GB SSD M.2 2230 PCIe 4.0 - NVM Express (NVMe)
Type	14" - IPS
Resolution	1920 x 1080 (Full HD)
V-Sync Rate at Max Res.	60 Hz
Widescreen	Yes
Pixel Density (ppi)	157
Image Brightness	250 cd/m²
Horizontal Viewing Angle	+85 / -85
Vertical Viewing Angle	+85 / -85
Colour Gamut	45% NTSC
Features	Anti-glare, 35 ms response rate, 0.161 mm pixel pitch, 6-bit Colour Depth
Graphics Processor	Intel Iris Xe Graphics
Video System Features	Functions as Intel UHD graphics (for single-channel memory)
Camera	Yes - 1920 x 1080 (standard), 640 x 360 (infrared)
Resolution	2.07 Megapixel (standard), 0.23 Megapixel (infrared)
Image Sensor Type	CMOS
Video Resolutions	1920 x 1080, 640 x 360
Frame Rate	30 frames per second

Camera Features	Privacy shutter, IR/RGB camera, 86.6 degrees (IR camera), 80.2 degrees
Sound	Stereo speakers, 2 array microphones
Codec	Realtek ALC3204
Compliant Standards	High Definition Audio, Wave MAXXAudio Pro
Type	Keyboard, touchpad
Keyboard Backlight	Yes
Wireless	Bluetooth, 802.11a/b/g/n/ac/ax (Wi-Fi 6E)
Wireless Controller	Intel Wi-Fi 6E AX 211 - M.2 2230
Network Interface	Gigabit Ethernet
Ethernet Controller	Realtek RTL8111H-CG
Features	Dual stream (2x2)
Technology	3-cell
Input	AC 100-240 V (50/60 Hz)
Output	65 Watt
Interfaces Details	HDMI ¦ USB4/DisplayPort (Power Delivery) ¦ USB 3.2 Gen 1 (PowerShare) ¦ 2 x USB 3.2 Gen 1 ¦ LAN ¦ Headphone/microphone combo jack
Software Included	Microsoft Office (Trial), McAfee Business Protection (1-year)
Colour	Grey
Security	Trusted Platform Module (TPM) Security Chip, fingerprint reader
Features	Chassis intrusion detection, ExpressCharge, single pointing, ExpressChargeBoost
Theft/Intrusion Protection	Security lock slot (cable lock sold separately)
Security Slot Type	Wedge-shaped security slot
Included Accessories	Power adapter
Compliant Standards	FIPS 140-2, TCG Certified
Dimensions (WxDxH)	32.217 cm x 21.943 cm x 1.934 cm
Weight	1.5 kg
TCO Certified	-
EPEAT Compliant	EPEAT Gold
EPEAT Climate+	Yes
ENERGY STAR Certified	Yes
Carbon Footprint	111 kg carbon emissions
Manufacturing (kg CO2e)	82
Logistics (kg CO2e)	4
Use (kg CO2e)	23
EOL (kg CO2e)	2
Total Carbon w/o Use Phase (kg CO2e)	88
PAIA Version	GaBi version 1
Bundled Services	3 Years ProSupport
Min Operating Temperature	0 °C
Max Operating Temperature	40 °C
Humidity Range Operating	Up to 90% (non-condensing)
Shock Tolerance (operating)	140 g @ 2 ms half-sine pulse
Vibration Tolerance (operating)	0.66 g @ RMS (random)

PASSMARK SOFTWARE

| CPU Benchmarks | Video Card Benchmarks | Hard Drive Benchmarks | Memory Benchmarks | PC Benchmarks | Software Marketshare | Database Benchmarks | Android Benchmarks | iOS Benchmarks |

Over 1,000,000 CPUs Benchmarked

CPU List

Below is an alphabetical list of all CPU types that appear in the charts. Clicking on a specific processor name will take you to the chart it appears in and will highlight it for you. Results below are for Single CPU Systems only. For Multiple CPU Systems, results can be found on the CPU Mega List page.

Intel Core i5-1335U   [Find CPU]

🏠 CPUS
High End
High Mid Range
Low Mid Range
Low End

[Column]

Single CPU Systems
Last updated on the 17th of April 2025

CPU Name	CPU Mark (higher is better)	Rank (lower is better)	CPU Value (higher is better)	Price (USD)
Intel Core i5-1335U	14,406	1026	42.37	$340.00*

5.17.1 p. Kompiuterio procesoriaus našumas pagal viešai publikuojamus Passmark performance CPU mark procesorių įvertinimo rezultatus, pateikiamus http://www.cpubenchmark.net/cpu_list.php yra 14406 Procesoriaus modelis: intel core i5-1335u. Procesoriaus sparta nėra dirbtinai padidinta.

DELL MEMORY

DELL M.2 PCIe NVMe GEN 4 CLASS 35 2230 SOLID STATE DRIVE

256GB, 512GB, 1TB PCIe 4 NVMe

A storage solution designed to be quiet, fast and reliable.

DELLTechnologies

DELL MEMORY

30MM NVMe PCIe 4 SSD 2230

Dell 30mm NVMe PCIe 4 SSD delivers powerful performance in a small package, using the latest 3D Triple Level Cell (TLC) NAND. With read/write speeds of up to 4348/3564 MB/s[1], Dell Class 35 SSD delivers performance and speed in notebook and ultrathin systems. The compact M.2 design gives greater flexibility, increasing storage while saving space.

5.17.5.P. Kietojo disko duomenų skaitymo/rašymo greitis 4348/3564 MB/s

5.18 p. Nespalvotas lazerinis spausdintuvas, tyrimo rezultatų spausdinimui.

Product specifications

HP Data Sheet	HP LaserJet Pro M404 Series printer
Functions	Print
Print speed	Up to 40 ppm (default) ; Up to 42 ppm (HP High Speed)
First page out (ready) black	As fast as 6.1 sec
Resolution (black)	Fine Lines (1200 x 1200 dpi)
Resolution technology	HP FastRes1200, HP ProRes1200, Economode
Monthly duty cycle	Up to 80,000 pages[10]
Recommended monthly page volume	750 to 4000[11]
Print Technology	Laser
Display	2-line backlit LCD graphic display
Processor speed	1200 MHz
Number of print cartridges	1 (black)

5.18 p. Skiriamoji geba (raiška) 1200x1200 dpi

5.18 p. Nespalvotas

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PRODUKTAS IŠSAMIAU

5.18 p. Pateikiama to paties spausdintuvo gamintojo juodos spalvos dažomųjų miltelių kasetė, kurios resursas 10 000 standartinių A4 formato lapų.

Kodas #CF259X

Resursas (Kopijos)	10000
Kopijos Savikaina	0.022 €
Spalva	Juoda

Tinka šiems Hewlett Packard (HP) spausdintuvams

| Laserjet Pro M404dn | Laserjet Pro M404dw | Laserjet Pro M428dw | Laserjet Pro M428fdn | Laserjet Pro M428fdw |

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Electrical table

Technical information

Height	Min 630 mm
	Max 810 mm
Table top size	560 mm x 480 mm
Elevating speed on full load	15 mm/s
Lifting capacity	55 kg
Weight	21 kg
Height adjustment mechanism	Electrical
Height adjustment control	UP/Down swiches
Castors with lock	4 unit
Power supply	AC 200 V - 240 V ~50 Hz

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H-K – Heijl–Krakau blind spot monitoring

SF – short-time fluctuation in the test results

FPOZ – monitoring false positive results (reaction in absence of stimuli) during the test

FNEG – monitoring false negative results (no reaction to stimuli) during the test

Check / uncheck the box next to the test name to enable / disable the selected type of reliability tests to be run during the visual field test.

9.2.5. Setting lens correction for the test

It is important for the patient to clearly see all stimuli during the visual field test. Absence of reaction to stimuli should be attributed solely to eye diseases other than problems with eye refraction. Therefore correction le— ... ... problems on the test results.

> 5 p.d. Kokybės kriterijus 2 p. Laikiklis korekciniams lęšiams tinkamas naudoti su standartiniais korekciniais lęšiais, reguliuojamos padėties prieš akį.

Test lens of 38 mm in diameter are used for lens correction, placed in a holder in front of the patient. To get reliable test results, make sure that the correction lens option is enabled. The test will be divided into two phases:

- internal diameter of the visual field –within a 30° ring, tested with correction lens

- external diameter of the visual field – outside a 30° ring, tested without correction lens

This division is introduced to eliminate artifacts generated when some of the stimuli is covered by the lens holder and the correction lens frame.

To activate the correction lens option, enter a non-zero value in the correction lens settings:

Recalling the most recently used correction lens for the selected eye

Spherical correction in diopters

Cylindrical correction in diopters

Automatic calculation of lens correction for the test based on the patient's current clinical

Cylindrical correction axis
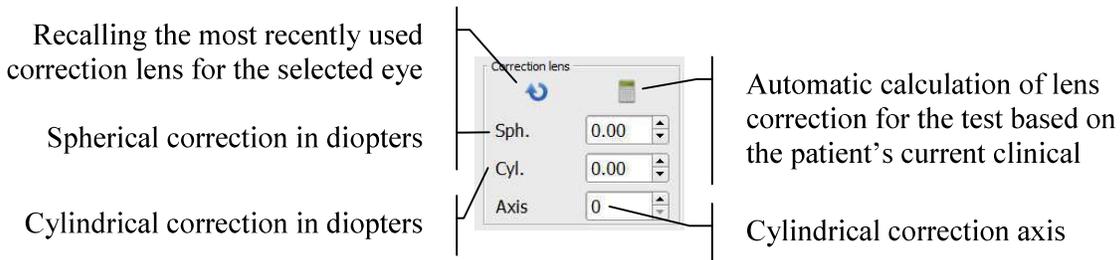
Figure 40. Settings of correction lens for the test

Correction values can be entered manually or with one of supporting tools. The available lens correction range is between -18D and 18D in 0.25D steps. Cylinder axis can vary within the range of 0° and 180°.

Recalling the recently used correction lens for the tested eye – this function browses all previous tests belonging to current patient. If the selected eye has been already tested, the system will recall the correction lens used in the previous test.

Lens calculator – it calculates the proposed correction lens based on the patient's current clinical refraction and age. The following calculation formulas are used:

- Cylindrical refractive errors ≤ ±0.25D are ignored.

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Background	White (green stimuli) − 10 asb (3.18 cd/m^2) − automatic stabilization (PTS 925 and PTS925 BY only); chromacity (X,Y)=(0.374..0.473;0.366..0.432) Yellow (blue stimuli) − 314 asb (100 cd/m^2) − automatic stabilization (PTS 925 BY only); dominant wavelength (585..595) nm White (white stimuli) − 31.4 asb (10 cd/m^2) − automatic stabilization (PTS 925 W only); chromacity (X,Y)=(0.374..0.473;0.366..0.432)
Stimuli exposure time	Adjustable within the range of 0.1s to 9.9s or adaptable
Reaction time	Adjustable within the range of 0.1s to 9.9s or adaptable
Intervals between exposures	Adjustable within the range of 0.1s to 9.9s or adaptable
Fixations	Central, single (0°) Central, 4 points Top (15°) Left (35°) Right (35°) Bottom (15°)[1]

	Designation	Nasal range [°]	Temple range [°]	Top range [°]	Bottom range [°]	Number of points
5 p.d. Kokybės kriterijus Nr. 3. Standartinių 12 tyrimų Redefined examination fields	F50-2 (Full)	50	50	40	40	168
	G50-2 (Glaucoma)	50	27	27	27	104
	24-2	27	21	21	21	54
	30-2	27	27	27	27	76
	5-2	3	3	3	3	16
	10-2	9	9	9	9	68
	P50-2 (Peripheral)	33-50	27-40	27-40	33-50	76
	Esterman M	50	75	34	55	100

---

[1] PTS 925Wi only

5 p.d. Kokybės kriterijus Nr. 3. Standartinių 12 tyrimų	Esterman B	75 (L)	75(R)	34	55	120
	Gandolfo	50	50	34	42	100
	G0-2	21	27	21	21	28
	Sup 44^2	40	40	55	-21	44
Test strategies	Threshold Dynamic Fast Threshold ZETA™ ZETA ™Fast Advanced TOP TOP+ Screening 3-Zone 2-Zone BDT Flicker BSV					
Size of correcting lens	38 mm					
Dimensions (HxWxD)	410mm x 568mm x 410mm					
Weight	9 kg					
Power supply	12V DC, 36 VA					
Fuses	T 1.6 A, L 250V, 5x20mm					

Table 3. Technical data of the PTS 2000 series perimeter

Simulator Bowl Type	Aspherical, according to Goldmann's standard, radius 30 cm
Field range with fixation offset	Left-right: 180° Up 70° Down 70°

---

^{2}PTS925 Wi only

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Title of the Programs page

5 p.d. Kokybės kriterijus Nr. 3. Daugiau nei vieną gali sukurti vartotojas.

List of existing test programs

Program name input field (new or edited).

Save and Delete buttons.
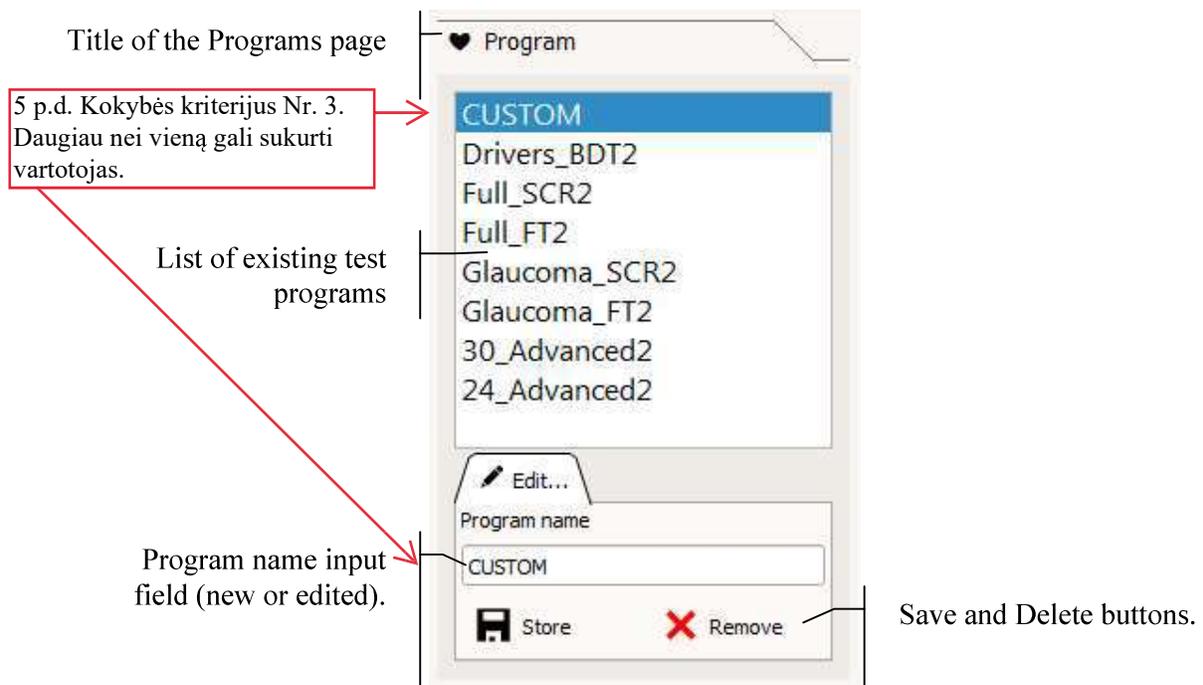
Figure 53. Test programs

Test Programs includes pre-set values of the following parameters:

test strategy

test field

reliability tests

central fixation target

test field modification options

bracketing of threshold strategies

determination or pre-set value of the initial stimuli level

stimulus color

stimulus time parameters

BDT sensitivity

✓ *After the test program has been loaded and before the test begins, the settings can be modified and adapted on a case-by-case basis – the settings of the stored test program will not be modified.*

10.3.1. Managing the test programs

Types of test programs:

OPTOPOL technology

DEKLARACJA ZGODNOŚCI
DECLARATION OF CONFORMITY

CE

Wytwórca/*Manufacturer.*
OPTOPOL Technology Sp. z o.o.
ul. Żabia 42
42-400 Zawiercie, Poland
Telefon: +48 32 6709173
Telefax: +48 32 6700048
e-mail: info@optopol.com.pl

Niniejszym dokumentem deklarujemy na własną odpowiedzialność, że
We herewith declare under our sole responsibility that

PERYMETR AUTOMATYCZNY/AUTOMATED PERIMETER

wyrób medyczny	**klasy I, reguła 13**
medical device	**class I, rule 13**
produkowany przez	**OPTOPOL Technology Sp. z o.o.**
produced by	
Niepowtarzalny Numer Rejestracyjny	**PL-MF-000004770**
SRN (Single Registration Number)	
typ	**PTS 925 W**
type	
numer REF	**765-001**
REF Number	
numer seryjny	**765XXXX/Y**
serial number	
kod Basic UDI-DI	**5903293141765000E4**
Basic UDI-DI code	

jest zgodny z:
complies with:

wymaganiami **ROZPORZĄDZENIA PARLAMENTU EUROPEJSKIEGO I RADY (UE) 2017/745 z dnia 5 kwietnia 2017 r. w sprawie wyrobów medycznych, zmiany dyrektywy 2001/83/WE, rozporządzenia (WE) nr 178/2002 i rozporządzenia (WE) nr 1223/2009 oraz uchylenia dyrektyw Rady 90/385/EWG i 93/42/EWG**
REGULATION (EU) 2017/745 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 5 April 2017 on medical devices, amending Directive 2001/83/EC, Regulation (EC) No 178/2002 and Regulation (EC) No 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC
Ocena zgodności wyrobu przeprowadzona została zgodnie z załącznikiem nr II i III Rozporządzenia (UE) 2017/745.
Conformity assessment of the device was conducted in accordance with Annex II and III of Regulation (EU) 2017/745.

wymaganiami **DYREKTYWY PARLAMENTU EUROPEJSKIEGO I RADY 2011/65/UE z dnia 8 czerwca 2011 r. w sprawie ograniczenia stosowania niektórych niebezpiecznych substancji w sprzęcie elektrycznym i elektronicznym**
the DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Zawiercie, 2021-09-09
Miejsce i data wydania
Place, date of issue

Marcin Bogdani
Prezes OPTOPOL Technology Sp. z o.o.
President of OPTOPOL Technology Sp. z o.o.

rev.3/2021

ATITIKTIES DEKLARACIJA
OPTOPOL Technology S.A.
Ul. Żabia 42
42-400 Zawiercie
Telefon/fax: +48 32 6709173
e-mail: info@optopol.com.pl

Mes, išskirtinai savo atsakomybe tvirtiname, kad

AUTOMATINIS PERIMETRAS

Medicinos priemonė	**klasė I , taisyklė 13.**
Pagaminta	**OPTOPOL Technology SP. Z O.O**
Gamintojo registracijos Nr. (SRN)	**PL-MF-000004770**
Tipas	**PTS 925W**
REF numeris	**765-001**
Serijos numeris	**765XXXX/Y**
Bazinis UDI-DI	**5903293141765000E4**

Atitinka:

Europos Parlamento ir Tarybos reglamento (ES) 2017/745 dėl medicinos priemonių, kuriuo iš dalies keičiama Direktyva 2001/83/EB, Reglamentas (EB) Nr. 178/2002 ir Reglamentas (EB) Nr. 1223/2009, ir kuriuo panaikinamos Tarybos direktyvos 90/385/EEB ir 93/42/EEB reikalavimus. Įrenginio atitikties vertinimas buvo atliktas pagal reglamento (ES) 2017/745 dėl medicinos priemonių II ir III priedų reikalavimus.

Direktyvos 2011/65/EU Europos Parlamento ir 2011 birželio 08 Tarybos direktyvos dėl tam tikrų pavojingų medžiagų naudojimo elektros ir elektroninėje įrangoje apribojimo.

Zawiercie, 2021-09-09
Vieta, data

Marcin Bogdani /PARAŠAS/
prezidentas
Optopol Technology SP. Z O.O

ĮGALIOJIMAS

2025 m. balandžio 25 d.
Mažeikiai

Aš, _____, įmonės UAB „Kavita", juridinio asmens kodas _____ buveinės adresas: Gamyklos g. 48, Mažeikiai, direktorius, įgalioju _____, asmens _____, einantį Technologijų direktoriaus pareigas, atstovauti įmonę ir pasirašyti visus su įmonės veikla susijusius dokumentus, įskaitant, bet neapsiribojant, sutartis, įsakymus, oficialius raštus, finansinius dokumentus ir kt., taip pat veikti įmonės vardu trečiųjų šalių, institucijų bei organizacijų atžvilgiu.

Įgaliojimas galioja nuo 2025 m. balandžio 26 d. iki 2025 m. gruodžio 31 d., tačiau gali būti atšauktas raštišku pranešimu anksčiau nurodytu laikotarpiu.

Direktorius

Elektroninis parašas
Šis dokumentas pasirašytas elektroniniu parašu, kuris atitinka visus teisės aktų reikalavimus ir patvirtina dokumento galiojimą.

DETALŪS METADUOMENYS	
Dokumento sudarytojas (-ai)	Kauno miesto poliklinika VšĮ
Dokumento sudarytojas (-ai)	UAB "Kavita"
Dokumento pavadinimas (antraštė)	Kompiuterinis perimetras
Dokumento registracijos data ir numeris	2025-05-05 Nr. ST-25-167
Dokumento gavimo data ir dokumento gavimo registracijos numeris	-
Dokumento specifikacijos identifikavimo žymuo	ADOC-V1.0
Parašo paskirtis	Pasirašymas
Parašą sukūrusio asmens vardas, pavardė ir pareigos	
Parašo sukūrimo data ir laikas	2025-05-05 12:53
Parašo formatas	Einamojo galiojimo (XAdES-EPES)
Laiko žymoje nurodytas laikas	
Informacija apie sertifikavimo paslaugų teikėją	EID-SK 2016
Sertifikato galiojimo laikas	2023-10-03 11:03 - 2026-10-03 11:03
Parašo paskirtis	Pasirašymas
Parašą sukūrusio asmens vardas, pavardė ir pareigos	
Parašo sukūrimo data ir laikas	2025-05-05 14:40
Parašo formatas	Trumpalaikio galiojimo (XAdES-T)
Laiko žymoje nurodytas laikas	2025-05-05 14:40
Informacija apie sertifikavimo paslaugų teikėją	EID-SK 2016
Sertifikato galiojimo laikas	2023-10-07 21:40 - 2026-10-07 21:40
Informacija apie būdus, naudotus metaduomenų vientisumui užtikrinti	-
Pagrindinio dokumento priedų skaičius	2
Pagrindinio dokumento pridedamų dokumentų skaičius	0
Pridedamo dokumento sudarytojas (-ai)	-
Pridedamo dokumento pavadinimas (antraštė)	Sutarties priedas Nr.3_Kavita pasiūlymas perimetras.pdf
Pridedamo dokumento registracijos data ir numeris	-
Pridedamo dokumento sudarytojas (-ai)	-
Pridedamo dokumento pavadinimas (antraštė)	Įgaliojimas Vytautui Vasiliauskui.pdf
Pridedamo dokumento registracijos data ir numeris	-
Programinės įrangos, kuria naudojantis sudarytas elektroninis dokumentas, pavadinimas	Elpako v.20250429.1
Informacija apie elektroninio dokumento ir elektroninio (-ių) parašo (-ų) tikrinimą (tikrinimo data)	Tikrinant dokumentą nenustatyta jokių klaidų (2025-05-06)
Elektroninio dokumento nuorašo atspausdinimo data ir ją atspausdinęs darbuotojas	2025-05-06 nuorašą suformavo
Paieškos nuoroda	-
Papildomi metaduomenys	-