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20 ILinq and TVA (TiP VIRTUAL ASSIST) User Guide

20.1 Introduction

iLinq is a GE HealthCare Service offering that is available on most diagnostic imaging equipment. iLinq brings direct, interactive communications to GE HealthCare customers via an InSite connection directly on the diagnostic imaging equipment itself.

The main focus of the iLinq release is the "Contact GE" feature. This functionality lets you request help from the experts in GE HealthCare OnLine Center directly from the equipment's console. GE HealthCare technical experts in the OnLine Center are informed of your request, and respond to your call.

The advantages of contacting GE HealthCare in this manner are:

1. You stay in front of the console, and enter your request by simply pushing a few buttons.
2. You do not need to remember any specific instructions like telephone number, systemID reference, etc.
3. All your iLinq requests are treated as top priority calls. You will receive an electronic acknowledgement within a few minutes, confirming the request. GE HealthCare OnLine center will call you shortly after to confirm job status.
4. The OnLine experts get your request for help directly via an electronic alert mechanism.
5. The OnLine experts can also communicate electronically, sending information back to you directly on the equipment.

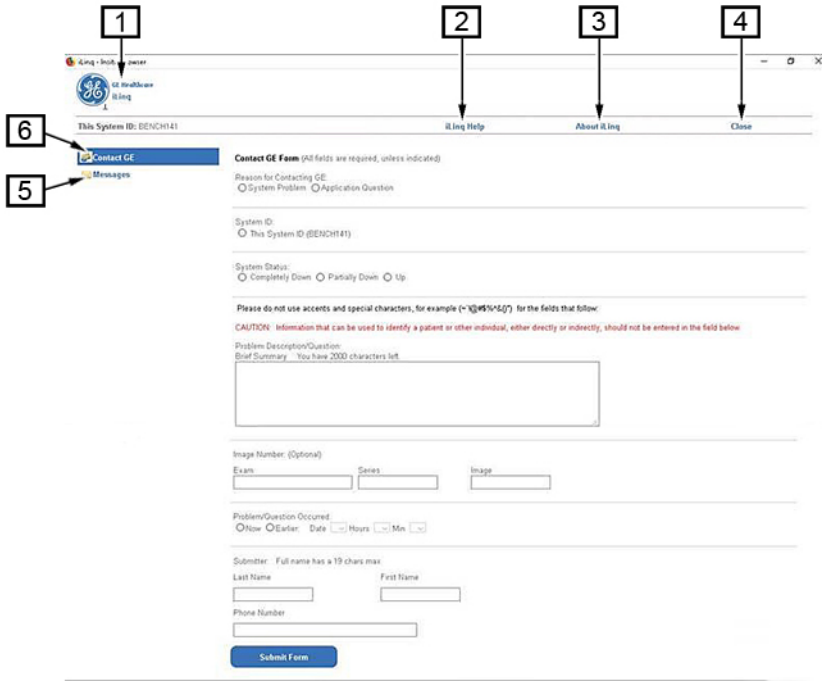
20.2 Starting ILinq

To access the iLinq features, click on the **iLinq** button on the DL Browser screen of your GE HealthCare equipment. This is located under the **Utilities** button.

The iLinq main screen will appear.

If your GE HealthCare equipment does not have the iLinq licenses installed, contact your local GE HealthCare Service representative for details on how to get it. iLinq is activated remotely, via the InSite connection, and does not require any manual step or access to the equipment.

It is from this main screen that you select which iLinq feature to use.



Item	Description
[1]	GE HealthCare
[2]	iLinq Help
[3]	About iLinq
[4]	Close
[5]	Contact GE HealthCare
[6]	Messages

20.3 ILinq Features

Contact GE HealthCare

Contact GE page is displayed as the homepage of the iLinq application.

Use this to ask questions to applications specialists or to send a problem report directly to the Online Center.

You can send requests for the same system or for some other system in the same facility using their System ID.

Messages

Clicking on the **Messages** link **[6]** opens a new page.

A list of your sent and received messages appears, the most recent messages listed first. You may need to scroll down to see all the messages.

iLinq Help

Clicking on **iLinq Help** link **[2]** opens a new page.

This page provides the user with a detailed tutorial on how to use the iLinq application and all its functionality.

About iLinq

Clicking on **About iLinq** link **[3]** opens a new page.

This page provides the version details of the iLinq application.

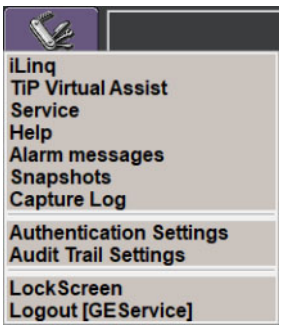
Close

Clicking on **Close** link **[4]** closes the iLinq application and returns you to the clinical browser.

20.4 TiP Virtual Assist (TVA)

TVA allows you to be remotely trained by an Application Specialist or the OnLine Center. The connection is initiated on your request.

To access TVA, click on the **Utilities Key** icon from the DL Screen.

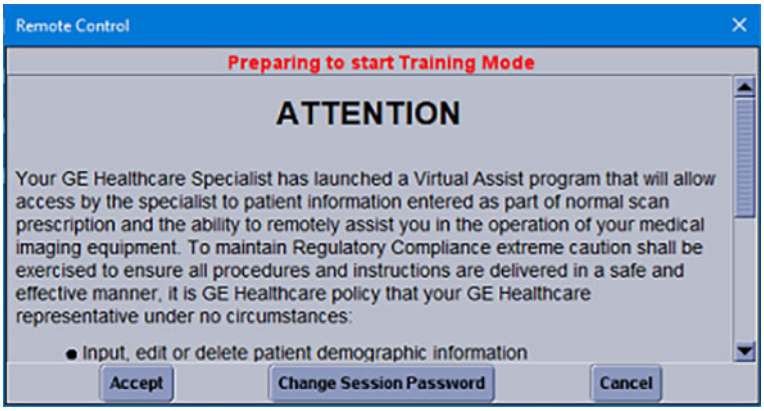


Clicking on the TVA link opens the next information page. Before starting the session, you have to read and agree with the stated conditions.

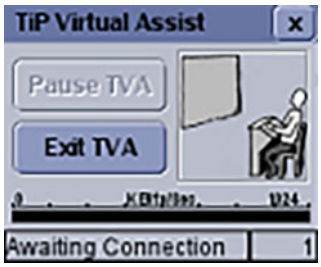
The remote GE HealthCare Specialist will connect to the system by providing a customer defined password and will be able to see and take control over the system standard inputs: the mouse and the keyboard.

Note that you may change the password that the GE HealthCare Specialist needs to enter, at any time, by pressing the **Change Session Password** button.

This new password will need to be communicated to the remote GE HealthCare specialist as to establish the connection with the system.



Press the **Accept** button if you agree with the information displayed. This will launch the virtual Assist program and the following pop up will be displayed.



Once connected, the remote user will be independent for any activity.

This feature does not impact regular clinical applications, and the you can disconnect the remote user at any time from the console.

NOTE
Depending on local regulation, patient consent might be required to authorize any GE HealthCare support to access his/her demographic information prior the launch of the TVA program.

NOTE
The performances of the system may be degraded during a TVA session. The announced performances do not apply in this mode.

21 Workstation Configuration

21.1 Advantage Workstation (AW) Configuration (Option)

21.1.1 Introduction

Helpful Information

- To start AW:
  Default login: **sdc**

  Default Password: please contact GE HealthCare Service Representative for this information.

  The Allia IGS system is compatible with the AW core version 4.7.

  The Allia IGS system is compatible with the applications Vision 2, TrackVision 2, HeartVision 2 and EVARVision from release 3.2. When used with these applications, it requires Advantage Workstation (AW) at the AW4.7 Ext.16 (Volume Share 7) level or above and AW hardware Z4G4.

  Please contact your GE HealthCare representative for information concerning the compatibility with further versions or hardware.

  NOTE
  When a new AW is installed, it is loaded with the **sdc** default login and default password. It is then the responsibility of users to ask their GE HealthCare Service Representative for any login and password change. In case of AW software upgrade, previous login and passwords are preserved. Also ask your GE HealthCare Service Representative for any change if needed.

9.1.3

- In the AW browser you will be able to know the button names by hovering the mouse over the button and waiting for the tooltip to appear.
- The Browser of AW displays the patient structure like DICOM: One STUDY contains SERIES, one SERIES contains images. The DL sequences are DICOM images, thus displayed in the IMAGE window. All the sequences coming from IGS system are contained in one SERIES. All the photos coming from IGS system are contained in a second SERIES.

Compliance with Standards

DICOM V3.0 implementation in AW is described in its Conformance Statement, refer to https://www.gehealthcare.com/products/interoperability/dicom/xray-mammography-dicom-conformance-statements. It can be used to verify compatibility with other DICOM devices.

NOTE
Please refer to the AW workstation User Guides for general and specific use of the AW workstation.

21.1.2 In-room AW mouse interface kit (option)

A wall-mounted USB connector Type A may be optionally available, offering the possibility to use a wireless mouse in the exam room to control the AW functions as in the control room.

This kit is compatible with AW version 4.6 or higher.

Mouse recommendation

NOTICE

The USB port for wireless mouse and the patient must not be touched simultaneously. For this purpose, it is mandatory to use a wireless mouse and not a wired mouse.

The mouse is not provided with the system. You can use your own wireless mouse, provided that:

- It has 3 buttons with scroll: the right/left buttons, the up/down scrolling function and the middle scroll button.
- It has no specific driver (your mouse must use a generic HID driver).
- The range of the wireless mouse is compatible with the distance between your working position and the location of the USB connector.
- The mouse is compliant with your local regulations.
- The wireless mouse is validated by your hospital IT and/or security office to comply with cyber-security policy and requirements.
- The mouse battery is charged.

Additional recommendations:

- Choose a mouse with a shape easily usable under a sterile drape.
- Optimize the size of the text on the AW screen (to be configured on AW).

NOTE
The wireless mouse will only work on specific surfaces (non-reflecting).

Mouse installation

The wireless emitter (dongle) of your mouse must be plugged on the USB connector. Depending on the room configuration, the USB connector is positioned on a wall near the table.

1. Plug the dongle into the USB wall connector.
2. Use your wireless mouse at your working position.

NOTE
The USB port shall be used only for connecting the dongle of a wireless mouse. No other equipment shall be connected to this USB port.

Marking

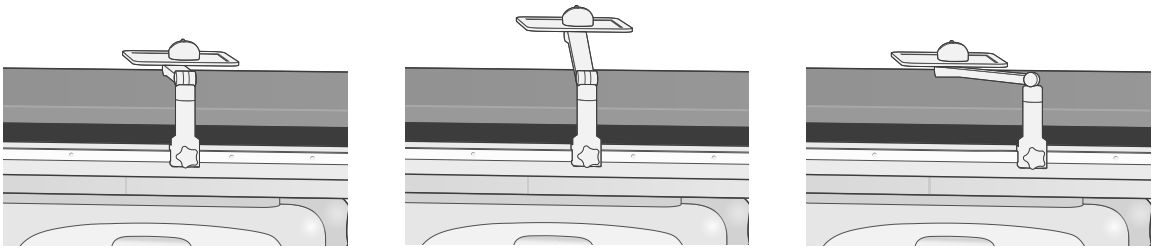
In order to easily identify the wall USB connector, a wireless mouse logo is displayed:

The standard USB mark is also displayed on the USB connector:

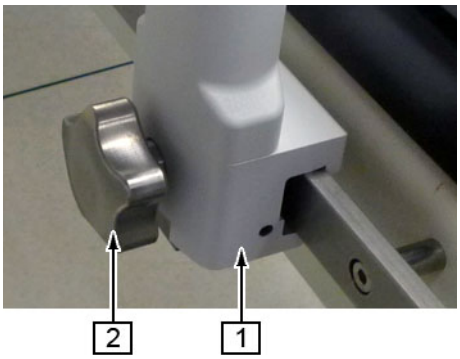
Mouse tray (Option)

As an additional option, a Mouse Tray can be attached on the table side rails.

Figure 21-1 Mouse tray



For fixation, use the clamp **[1]**, then tighten the knob **[2]**. Once the Mouse Tray is secure, use its rotary joints to position it at the desired height. The tray needs to be above the table as shown in the Figure 21-1 Mouse tray on page 501 for optimal stability.



Usage: draping and cleaning

It is recommended to drape the mouse to prevent the contamination of the patient area by the mouse.

Follow the mouse manufacturer’s recommendations to clean the mouse.

NOTE
When In-room AW mouse is connected, the AW can be controlled by the two mouse devices simultaneously (the mouse in the exam room and the mouse in the control room).

21.2 CA 1000 Workstation Configuration (Option)

NOTICE

The Allia IGS systems equipped with Innova^{IQ} Table are compatible with CA1000 V2 Spa8 or more recent versions.

Please contact your GE HealthCare representative for information concerning the compatibility with other versions or hardware.

Stenosis Analysis and Auto Calibration

Stenosis Analysis should not be used on sequences acquired with a tilted table.

Ventricular Analysis and Auto Calibration

Ventricular Analysis should not be used on sequences acquired with a tilted table.

22 Maintenance Schedule

22.1 Expected Service Life

The Expected Service Life, as defined by IEC 60601-1: 2005 and 2012, for GE Medical Systems SCS X-ray angiography equipment is 10 years from the date of first use of the equipment. GE Medical Systems SCS X-ray angiography equipment has the ability to operate for this period of time provided that the equipment is properly used, maintained and stored as per the accompanying product documentation.

22.2 Periodic Maintenance for all countries

In order to obtain continued safe performance of this X-Ray equipment, a periodic maintenance program must be established. It is the owner's responsibility to supply or arrange for this service.

Periodic Maintenance requirements detailed in the System General Service Manual are listed in the following table.

The General Service Manual is available on the Internet at: https://www.gehealthcare.com/documentationlibrary. Then follow the instructions to access the Customer Documentation Portal. On the search page of the Customer Documentation Portal, enter the part number of the General Service Manual 5914480-8EN for Allia IGS 3, Allia IGS 5 or General Service Manual 5914490-8EN for Allia IGS 7, Allia IGS 7 OR in the search field and click on Search.

In case of a third party monitor suspension, refer to the manufacturer’s maintenance instructions and periodicity.

For non GE HealthCare equipment refer to respective device manufacturers instructions & User Manuals for maintenance schedule.

Periodic Maintenance for Allia IGS 5

Sub-assembly	Check	Job Card	Periodicity					
			6M	1Y	2Y	5Y	8Y	10Y
LC Positioner	Emergency Back Out check	CHK0087	X					
	LC calibration check (starting at 1.5 years, then every year)	CHK0268		X				
	Quick Application check	CHK0095	X					
Table	Check the patient Table to ensure no cracks or cuts are present: • Patient Table Top on both sides in fully longitudinal position and mattress.	-		X				
	(For InnovaIQ Table) Check that there is no detachment initiation of hook and loop tapes from mattress cover and from table top.	-		X				

Sub-assembly	Check	Job Card	Periodicity					
			6M	1Y	2Y	5Y	8Y	10Y
	(For InnovaIQ Table) Check that hook and loop tapes insure correct fixation of mattress to the table top. In case of failure, order FRU 5309976 (standard mattress) or FRU 5398884 (mattress for wide table top) and install new mattress.	-		X				
	(For InnovaIQ Table) Check the sealant at the base of the Gantry and table for integrity, and rework/redo as necessary (starting at 1.5 years, then every 6 months)	-	X					
	(For Omega Table) Calibration check	CHK0266		X				
	(For InnovaIQ Table) Calibration check	CHK0260, see section Table Top Motion Checks		X				
	Table moving protective earth cables check (at 5 years and 8 years)	CHK0196				X	X	
	Table moving protective earth cables replacement	DR1204						X
C-FRT Cabinet	DL10/A-PC/ImBox fan cleaning	PM0114			X			
	DL10 battery replacement	PM0112				X		
	A-PC battery replacement	PM0113				X		
	Tigerpaw battery replacement	PM0100			X			
	System backup	SW0350 (Windows10), see sections DL Backup and RTAC Backup	X					
	Perform a disk optimization	PM0115		X				
	KV accuracy	PM0120		X				
	Cabinet Filters Cleaning and Fans Check (starting at 5 years, 8 years then every 2 years)	PM0033			X			
	Large Monitor Manager Fan Cleaning	PM0072			X			
LCD Monitors	Quick monitor calibrations check	CHK0096		X				
Digital Detector Conditioner	Thermocon Conditioner Flush & Fill	PM0051		X				
X-Ray Tube Cooling Unit	Tube cooling unit check	PM0121		X				
PDU	Cabinet Filters Cleaning and Fans Check (starting at 5 years, 8 years then every 2 years)	PM0033			X			
	Emergency Power Off (EPO) check	CHK0271		X				
(For 20 kVA UPS CE) Fluoro Uninterruptible	Fluoro UPS CE by GE HealthCare trained personnel or qualified UPS service provider:							
	Manual Battery functional check	CHK0279		X				

Sub-assembly	Check	Job Card	Periodicity					
			6M	1Y	2Y	5Y	8Y	10Y
Power Supply (UPS) Option	UPS cleaning: • Clean air filters • Check fans	PM0033		X				
	Fluoro UPS functional check (always after service)	CHK0231		X				
	Battery Replacement	To be performed by Eaton Service Team						X
(For 20 kVA UPS UL) Fluoro Uninterruptible Power Supply (UPS) Option	Fluoro UPS UL by GE HealthCare trained personnel or qualified UPS service provider:							
	Manual Battery functional check	CHK0128		X				
	Front Data screen and Output Voltage Functional check	CHK0132		X				
	Reset Service Check	CHK0176		X				
	Component inspection	CHK0131		X				
	Fluoro UPS functional check (always after service)	CHK0231		X				
	Battery Replacement	-				X		
Uninterruptible Power Supply (UPS)	8 kVA UPS Functional Check	CHK0232		X				
	8 kVA UPS Battery Replacement	DR1167, refer to Table 22-1 Periodic Maintenance for 8 kVA UPS Battery Replacement on page 506						
Large Display Monitor Option	Large Display Option functional check	**(For LMM0802 and LMM0802-HDM)** CHK0191 **(For LMM56800)** CHK0134	X					
	Large Display Monitor Lmax Check (starting at 2 years, then every year)	**(For LMM0802 and LMM0802-HDM)** CHK0253 **(For LMM56800)** CHK0254		X				
Suspension	Mavig Suspension check	CHK0094		X				
	Monitor Suspension Rail Cleaning	PM0069	X					
Image Quality	ABC Stabilization point check	CHK0024	X					
	Bad Pixel	Service User Interface (SUIF)		X				
	Pixel Gain	SUIF	X					
	Conversion Factor	SUIF	X					
	mR/mAs	SUIF	X					
	Fluoro Tapers	SUIF	X					

Sub-assembly	Check	Job Card	Periodicity					
			6M	1Y	2Y	5Y	8Y	10Y
	IQST/QAP	SUIF		X				
	QA check	SUIF		X				
3D Spin	3D Spin Calibration	CAL0104	X					
	Augmented Calibration	CAL0228	X					
	Quick 3D check	CHK0241, section 3DCT functional check	X					
	3DStent check	CHK0277, section 3DStent functional check	X					

Table 22-1 Periodic Maintenance for 8 kVA UPS Battery Replacement

Job Card	Technical Room Temperature	Periodicity
DR1167	20 °C	4Y
	22 °C	3.5Y
	25 °C	3Y

Periodic Maintenance for Allia IGS 7 and Allia IGS 7 OR

NOTE
The following Periodic Maintenance table is applicable to all countries.

NOTE
Maintenance activities on the Magnus Maquet OR Table may affect the Allia IGS System functions and performances (e.g. Vision). A specific maintenance (Augmented Calibration – CAL0228), provided in the Service documentation supplied with the equipment, may be required to restore the system functions and performances. It is the owner's responsibility to supply or arrange for this service.

Periodic Maintenance requirements detailed in the System General Service Manual are listed in the following table.

Sub-assembly	Check	Job Card	Periodicity					
			6M	1Y	2Y	5Y	8Y	10Y
Gantry	Emergency Back Out check	CHK0087	X					
	Gantry calibration check (starting at 1.5 years, then every year)	CHK0136		X				
	Quick Application check	CHK0095	X					
	AGV wheels inspection	PM0118		X				
	(For AGV PC AMOS 820) No battery replacement							
	Check AGV Laser battery validity	PM0095			X			

Sub-assembly	Check	Job Card	Periodicity					
			6M	1Y	2Y	5Y	8Y	10Y
Table	**(For InnovaIQ Table and InnovaIQ OR Table)** Check the patient Table to ensure no cracks or cuts are present: • Patient Table Top on both sides in fully longitudinal position and mattress.	-		X				
	(For InnovaIQ Table and InnovaIQ OR Table) Check that there is no detachment initiation of hook and loop tapes from mattress cover and from table top.	-		X				
	(For InnovaIQ Table and InnovaIQ OR Table) Check that hook and loop tapes insure correct fixation of mattress to the table top. In case of failure, order FRU 5309976 (standard mattress) or FRU 5398884 (mattress for wide table top) and install new mattress.	-		X				
	(For InnovaIQ Table and InnovaIQ OR Table) Calibration check	CHK0260, see section Table Top Motion Checks		X				
	(For Magnus Maquet OR Table) Calibration check	CHK0261, see section Table Top Motion Checks		X				
	(For InnovaIQ Table and InnovaIQ OR Table) Check the sealant at the base of the table for integrity, and rework/redo as necessary (starting at 1.5 years, then every 6 months)	-	X					
	(For InnovaIQ Table and InnovaIQ OR Table) Table moving protective earth cables check (at 5 years and 8 years)	CHK0196				X	X	
	(For InnovaIQ Table and InnovaIQ OR Table) Table moving protective earth cables replacement	DR1204						X
C-FRT Cabinet	DL10/A-PC/ImBox fan cleaning	PM0114			X			
	DL10 battery replacement	PM0112				X		
	A-PC battery replacement	PM0113				X		
	System backup	SW0350 (Windows 10) see sections DL Backup and RTAC Backup	X					
	Perform a disk optimization	PM0115		X				
	KV accuracy	PM0120		X				
	Cabinet Filters Cleaning and Fans Check (starting at 5 years, 8 years, then every 2 years)	PM0033			X			

Sub-assembly	Check	Job Card	Periodicity					
			6M	1Y	2Y	5Y	8Y	10Y
	Tigerpaw battery replacement	PM0100			X			
	Large Monitor Manager Fan Cleaning	PM0072			X			
LCD Monitors	Quick monitor calibrations check	CHK0096		X				
Digital Detector Conditioner	Thermocon Conditioner Flush & Fill	PM0051		X				
X-Ray Tube Cooling Unit	Tube cooling unit check	PM0121		X				
PDU	Cabinet Filters Cleaning and Fans Check (starting at 5 years, 8 years, then every 2 years)	PM0033			X			
	Emergency Power Off (EPO) check	CHK0271		X				
(For 20 kVA UPS CE) Fluoro Uninterruptible Power Supply (UPS) Option	Fluoro UPS CE by GE HealthCare trained personnel or qualified UPS service provider:							
	Manual Battery functional check	CHK0279		X				
	UPS cleaning: • Clean air filters • Check fans	PM0033		X				
	Fluoro UPS functional check (always after service)	CHK0231		X				
	Battery Replacement	To be performed by Eaton Service Team						X
(For 20 kVA UPS UL) Fluoro Uninterruptible Power Supply (UPS) Option	Fluoro UPS UL by GE HealthCare trained personnel or qualified UPS service provider:							
	Manual Battery functional check	CHK0128		X				
	Front Data screen and Output Voltage Functional check	CHK0132		X				
	Reset Service Check	CHK0176		X				
	Component inspection	CHK0131		X				
	Fluoro UPS functional check (always after service)	CHK0231		X				
	Battery Replacement	-				X		
Uninterruptible Power Supply (UPS)	8 kVA UPS Functional Check	CHK0232		X				
	8 kVA UPS Battery Replacement	DR1167, refer to Table 22-2 Periodic Maintenance for 8 kVA UPS Battery Replacement on page 509						
Large Display Monitor Option	Large Display Option functional check	**(For LMM0802 and LMM0802-HDM)** CHK0191 **(For LMM56800)** CHK0134	X					

Sub-assembly	Check	Job Card	Periodicity					
			6M	1Y	2Y	5Y	8Y	10Y
	Large Display Monitor Lmax Check (starting at 2 years, then every year)	**(For LMM0802 and LMM0802-HDM)** CHK0253 **(For LMM56800)** CHK0254		X				
Suspension	Mavig Suspension check	CHK0094		X				
	Check monitor suspension cable height and CMS Chain sag	CHK0141		X				
	Monitor Suspension Rail Cleaning	PM0069	X					
	CMS Cleaning and AGV Laser Window Check	PM0076		X				
Image Quality	ABC Stabilization point check	CHK0024	X					
	Bad Pixel	Service User Interface (SUIF)		X				
	Pixel Gain	SUIF	X					
	Conversion Factor	SUIF	X					
	mR/mAs	SUIF	X					
	Fluoro Tapers	SUIF	X					
	IQST/QAP	SUIF		X				
	QA check	SUIF		X				
3D Spin	3D Spin Calibration	CAL0104	X					
	Augmented Calibration	CAL0228	X					
	Quick 3D check	CHK0241, section 3DCT functional check	X					
	3DStent check	CHK0277, section 3DStent functional check	X					

Table 22-2 Periodic Maintenance for 8 kVA UPS Battery Replacement

Job Card	Technical Room Temperature	Periodicity
DR1167	20 °C	4Y
	22 °C	3.5Y
	25 °C	3Y

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23 Dose and Technical Factors Description

23.1 Modes of Operation

Depending on system configuration and available options, several acquisition modes can be available.

- DSA mode: primary use for general angiography procedures.
- 3D CT mode: primary use for 3D reconstruction and display of any region of interest.
- 3DStent mode: primary use for 3D reconstruction and display of a coronary stent.
- Dynamic Record mode: primary use for general cardiac procedures.
- InnovaChase™ (Chase) mode: primary use for angiography procedures not requiring subtraction.
- InnovaBreeze™ (Bolus) mode: primary use for bolus chasing procedures.
- Non subtracted fluoroscopy primarily used to navigate inside moving vessel structures or for general anatomy visualization.
- Subtracted fluoroscopy is primarily used to navigate on still anatomy, so that only the moving devices are visible (e.g., guidewire, catheter).
- Roadmap fluoroscopy is used to navigate devices under subtracted fluoroscopy, while having the vessel anatomy visible as an overlay. It is used primarily for navigation in nonmoving vessels.
- Blended roadmap fluoroscopy, similar to roadmap fluoroscopy with the vessel anatomy being re-used from a previously acquired record image.

The following sections describe the controls which are used to select the mode of operation and how the operator can recognize which mode of operation has been selected.

23.2 Dose settings

The IGS system is provided with the IntelIQ AutoExposure Preference.

The IntelIQ levels are identified by numbers on DL screen and by a visual representation on display monitors. The lowest level is designated “LOW” level and the highest “NORMAL” level producing different reference air kerma rates, such that the value for the low mode does not exceed 50 % of the value for the normal mode (in conditions defined in IEC60601-2-43).

For 3DStent acquisition mode, only one dose level is available.

Doses ratio are measured as per IEC60601-2-43 conditions.

Depending on system configuration and available options, the unsubtracted Fluoroscopy is further optimized for dynamic situations to visualize fast moving objects with High Contrast Fluoroscopy (HCF).

The Dose Reduction Strategy allows to select between two strategies for reducing dose with the low fluoro frame rates 15 fps and 7.5 fps: either the "Balanced IQ/Dose" mode allowing ~25% (with Fluoro 15 fps) and ~45% (with Fluoro 7.5 fps) dose reduction versus Fluoro 30 fps or the "Max Dose Reduction" mode allowing up to 50% (with Fluoro 15 fps) and up to 75% (with Fluoro 7.5 fps) dose reduction versus Fluoro 30 fps.

In both strategies 3.75 fps offers 50% dose reduction compared to 7.5 fps.

The dose strategy is set by your GE HealthCare representative, and in addition, protocols can be set to use any of them.

There is a mean to set the AKR limit at a lower level compared to the country regulatory limit by using the Dose limiter button. This AKR limit is defined in a plane representative of patient skin dose, and positioned 30 cm from the entrance of the Image Receptor.

Table 23-1 Highest reference doses in fluoroscopy (radioscopy) and roadmap / blended roadmap / subtracted fluoroscopy (radioscopy)

Highest reference dose (mGy/min) at 30 cm from image receptor		Low Frame-rate Dose Reduction Strategy			
		Balanced IQ/Dose		Max Dose Reduction	
Frame Rate (fps)	Level	Dose Limiter Off	Dose Limiter On	Dose Limiter Off	Dose Limiter On
30	5	87.6	43.8	87.6	43.8
	4	87.6	43.8	87.6	43.8
	3	87.6	43.8	87.6	43.8
	2	87.6	43.8	87.6	43.8
	1	87.6	21.9	87.6	21.9
15	5	87.6	43.8	43.8	21.9
	4	87.6	43.8	43.8	21.9
	3	87.6	43.8	43.8	21.9
	2	87.6	43.8	43.8	21.9
	1	87.6	21.9	43.8	21.9
7.5	5	87.6	43.8	21.9	21.9
	4	87.6	43.8	21.9	21.9
	3	87.6	43.8	21.9	21.9
	2	87.6	21.9	21.9	21.9
	1	87.6	21.9	21.9	21.9
3.75	5	87.6	43.8	21.9	21.9
	4	87.6	43.8	21.9	21.9
	3	87.6	21.9	21.9	21.9
	2	87.6	21.9	21.9	21.9
	1	87.6	21.9	21.9	21.9

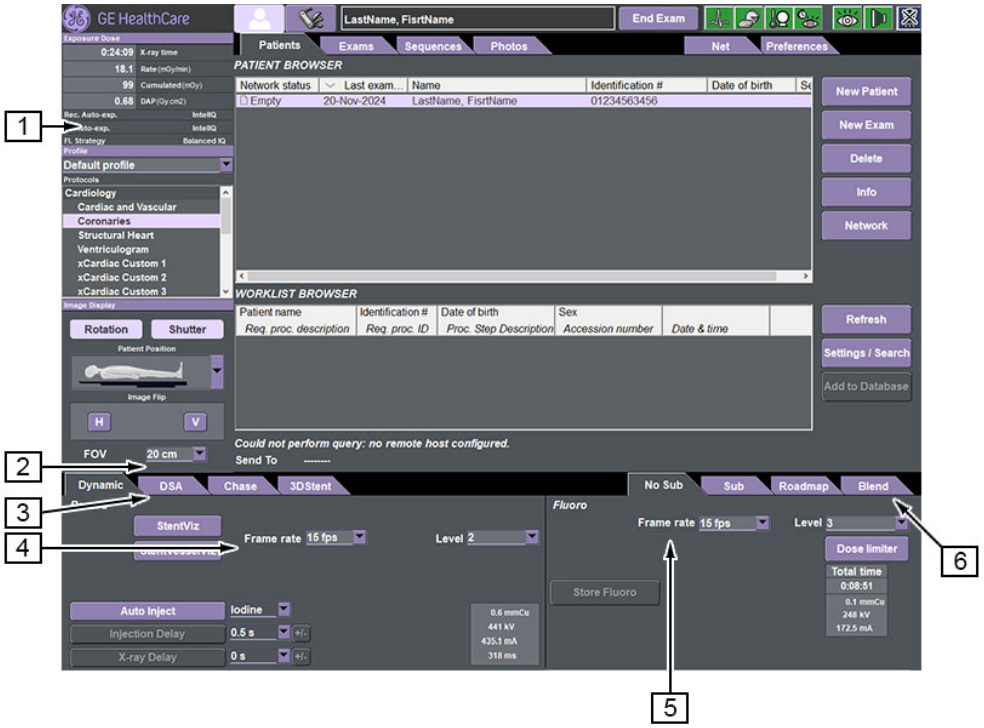
Highest reference dose at the Interventional Reference Point and maximum SID can be derived by applying a geometrical correction factor:

- Multiplying by 2.17 for Allia IGS 5 system.
- Multiplying by 1.97 for Allia IGS 7 and Allia IGS 7 OR system.

23.2.1 DL Screen

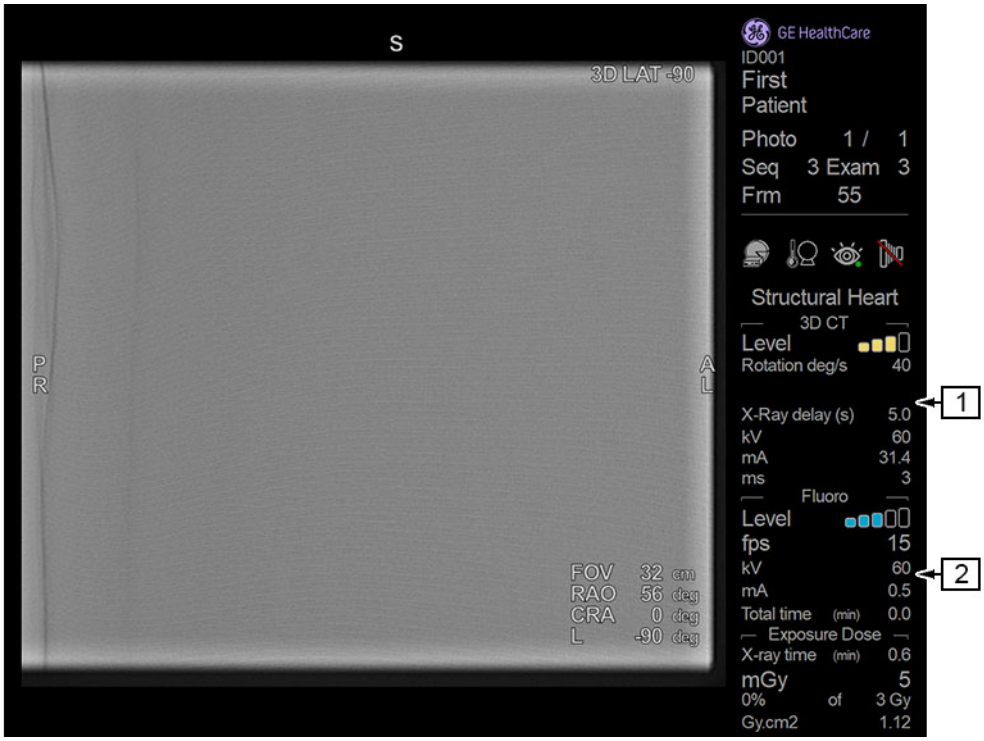
Allia IGS 5

Allia IGS 7
Allia IGS 7 OR



Item	Description
[1]	Record AutoExposure: IntelliQ Fluoro AutoExposure: IntelliQ Fluoro Dose Reduction Strategy: Balanced IQ/Dose, Max Dose Reduction
[2]	Field of View selection depending on the detector size
[3]	Record mode selection: Dynamic, DSA/Single Shot, Chase, Bolus, 3D CT, 3DStent
[4]	Record parameters selection: frame rate, level, duration, Plane selection, Subtraction on/off, auto inject on/off, injection delay value, X-Ray delay value Frontal plane record technique parameters display: Spectral Filter, kV, mA, ms
[5]	Fluoro parameters selection: frame rate, level Frontal plane fluoro technique parameters display: Spectral Filter, kV, mA Landscape value, Enable Simultaneous display, Vessel value
[6]	Fluoro mode selection: No Sub, Subtracted Fluoro, Roadmap, Blended Roadmap on Frontal Plane

23.2.2 Reference Image Monitor



Item	Description
[1]	Record parameters display: record mode, level, frame rate, acquisition duration and X-Ray/inject delay Record technique parameters display: kV, mA (peak for DSA, Chase and Bolus, otherwise: average), ms Record parameters display: frame rate and acquisition duration are replaced with Single Shot label when Single Shot is enabled.
[2]	Fluoro parameters display: fluoro mode, level and frame rate Fluoro technique parameters display: kV, mA

23.2.3 Live Image Monitor

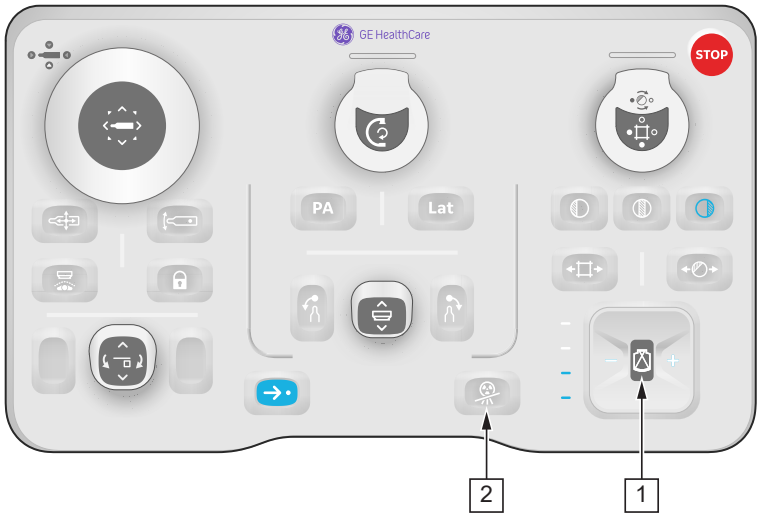
Allia IGS 5

Allia IGS 7
Allia IGS 7 OR

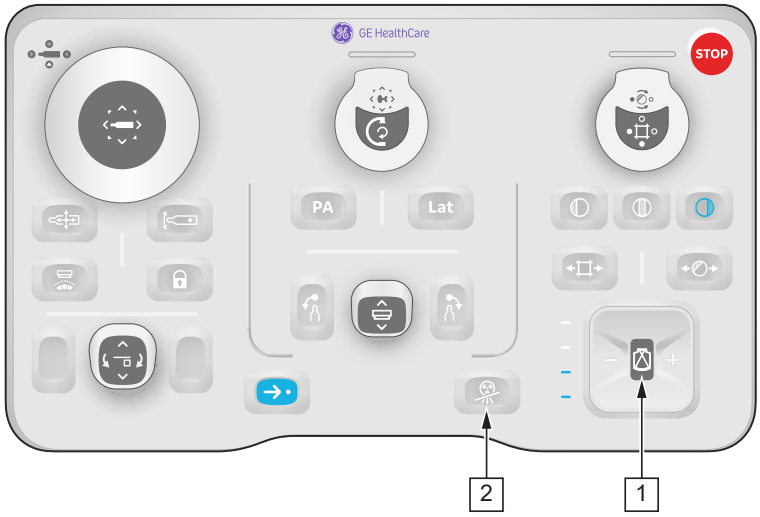
Item	Description
[1]	Selected FOV display
[2]	Source to Image Distance (SID)
[3]	Table Height displays the distance (above or below isocenter of the system)

23.2.4 Control Panel

Allia IGS 5



Allia IGS 7
Allia IGS 7 OR



Item	Description
[1]	Field of View Control
[2]	X-Ray Disable

23.2.5 Touch Panel

The mode of operation is selected using the following controls from the X-ray settings application

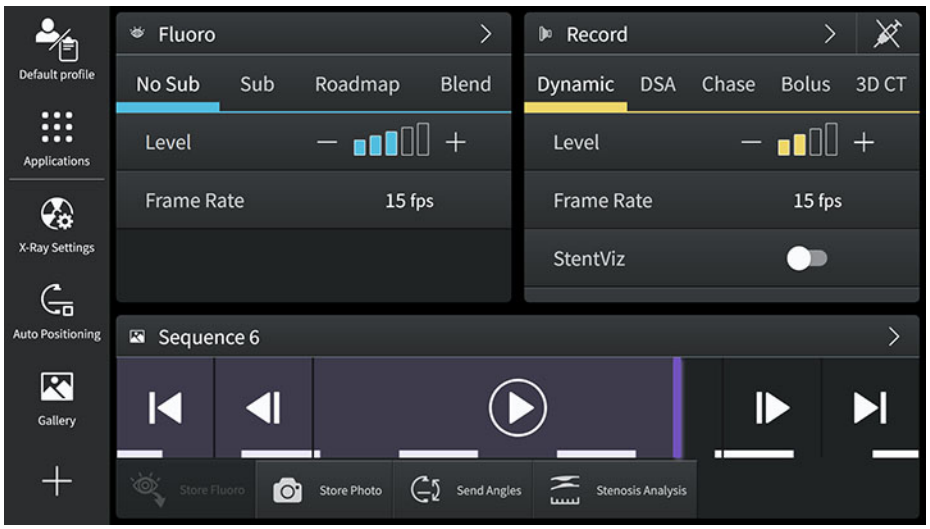
Fluoro parameters:

Item	Description
Acquisition Mode (No Sub / Sub / Roadmap / Blend)	Select the fluoro acquisition mode.
Level	Adjust the image quality/dose compromise.
Adjust the image quality level	The bar graph represents the selected level within the available levels.
Frame Rate	Select among the available Fluoro frame rates.

Record parameters:

Item	Description
Acquisition Mode (Dynamic / DSA / Chase / Bolus / 3D CT / 3DStent)	Select the record acquisition mode.
Level	Adjust the image quality/dose compromise.
Adjust the image quality level	The bar graph represents the selected level within the available levels.
Frame Rate/Duration	Set Record acquisition frame rate and duration.

A subset of these parameters may also be visible on the customizable home page.



23.3 Dose to Patient

NOTE
Fluoroscopy doses in Adult and Pediatric modes are the same at identical frame rate and level, thus no separate dose tables are provided for these modes. Primary dose reduction in case of pediatrics exams is achieved by setting the default level to lower value in Pediatric protocols. For more detail on pediatric dose reduction please refer to Dose settings for pediatrics in IGS systems on page 132.

NOTE
3D CT acquisition can be used in unsubtracted and subtracted modes. In these cases the same loading factors are used, that result in identical dose/ frame values. For this reason detailed data are provided only for unsubtracted 3D CT modes. Since subtracted 3D CT requires 2 consecutive spins, the integrated dose in subtracted 3D CT modes is the double of the unsubtracted acquisition.

NOTE
For Single Shot refer to DSA doses.

23.3.1 Dose Measurement Configuration

2D imaging Set-up

For all data in this section, measurements are done in 2-steps:

- 1st step technique factors acquisition in automatic mode with 20 cm thickness of PMMA (phantom representative of an average patient, as described in IEC 60601-2-43) with side of 30 x 30 cm^2 in the table.

- 2nd step - Dose measurement in manual mode, repeating the technique factors without PMMA and table.

Orientation of the X-Ray beam:	Vertical
Patient support:	In for 1st step, out for 2nd step
Anti-scatter grid:	In
Positioning of Phantom:	17 cm between PMMA top and detector cover (airgap)
For Allia IGS 5 systems:	
Source to image distance:	102.5 cm
Focal spot to measuring device distance:	67.5 cm
The dose values correspond to dose rates at US regulation conditions (21 Code Of Federal Regulation). IEC60601 conditions for all dose data can be derived by applying a geometrical correction factor using the inverse square law: multiplying by 1.40.	
For Allia IGS 7 and Allia IGS 7 OR systems:	
Source to image distance:	112.5 cm
Focal spot to measuring device distance:	77.5 cm
The dose values correspond to dose rates at US regulation conditions (21 Code Of Federal Regulation). IEC60601 conditions for all dose data can be derived by applying a geometrical correction factor using the inverse square law: multiplying by 1.34.	

3D CT and 3DStent Set-up

In 3D CT and 3DStent, the second step of the measurement method is different from other (2D) modes. The first step (technique factors acquisition) is done at maximum SID (or short SID when applicable), during a 3D spin, when the gantry is in PA position. The second step (dose measurement) is done with the dosemeter probe in isocenter on the table.

Orientation of the X-Ray beam:	Spin
Patient support:	In for 1st step, out for 2nd step
Anti-scatter grid:	In
Positioning of Phantom:	Isocenter
For Allia IGS 5 systems:	
Source to image distance:	119 cm (max SID), 108 cm (short SID) For 3DStent, the acquisition is done at max SID only.
Focal spot to measuring device distance:	72 cm
Dose Values needed to be multiplied by a Factor of 0.73 (max SID) or 0.97 (short SID) for 21CFR 1020.32 conditions.	
Dose Values needed to be multiplied by a Factor of 1.6 for IEC60601 conditions.	
For Allia IGS 7 and Allia IGS 7 OR systems:	
Source to image distance:	129 cm (max SID), 118 cm (short SID) For 3DStent, the acquisition is done at max SID only.
Focal spot to measuring device distance:	82 cm
Dose Values needed to be multiplied by a Factor of 0.76 (max SID) or 0.98 (short SID) for 21CFR 1020.32 conditions	
Dose Values needed to be multiplied by a Factor of 1.5 for IEC60601 conditions.	

23.3.2 Operating setting and dose measurement for IGS 520

Operating settings for IGS 520

	Selectable Frame rate (fps)	Selectable added filters automatically applied (mm Cu)	Focal Spot	kVp range after selection of the mode	mA range after selection of the mode	Highest reference dose
Fluoroscopy	30, 15, 7.5, 3.75	0.1, 0.2, 0.3, 0.6, 0.9	0.3, 0.5 (HCF disabled), or 0.3, 0.5, 0.8 (HCF enabled)	60 - 120	Min: 0.0075 mA average for 3.75 fps, 2 ms Max: 37.6 mA average for 30 fps, 7 ms (HCF disabled), or 32 mA average for 30 fps, 4 ms (HCF enabled)	See Table 23-1.
Roadmap / Blended Roadmap / Subtracted Fluoroscopy	30, 15, 7.5	0.3, 0.6, 0.9	0.3, 0.5	60 - 120	Min: 0.015 mA average for 7.5 fps, 2 ms Max: 37.6 mA average for 30 fps, 7 ms	See Table 23-1.
DSA	7.5, 3.75, 1.875, 1.0, 0.5	0, 0.1, 0.2, 0.3, 0.6	0.3, 0.5, 0.8	50 - 125	mAp: 42 – 1000	No dose limits
Dynamic Record	30, 15, 10, 7.5	0, 0.1, 0.2, 0.3, 0.6, 0.9	0.3, 0.5, 0.8	60 - 120	mAp: 1 - 937.5	No dose limits
InnovaChase	5	0, 0.1, 0.2, 0.3	0.8	60 - 120	mAp: 100 – 867	No dose limits
3D CT / 3D CT Sub 50 fps	50	0.3	0.5, 0.8	60 - 120	mAp: 1 - 800	No dose limits
3DStent	30	0.3	0.5, 0.8	60 - 120	mAp: 1 – 786	No dose limits

Radioscopy dose rates for IGS 520

Dose Rate in Fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
30	5	32.7	39.6	45.6	55.6
	4	17.7	21.4	24.4	30.5
	3	10.5	13.2	14.1	17.5
	2	6.2	7.3	8.5	10.9
	1	3.9	4.4	5.0	6.0
15	5	25.1	29.0	35.9	41.1
	4	13.8	15.7	18.8	22.8
	3	7.7	9.0	10.8	13.0
	2	5.0	5.9	6.3	8.1

Dose Rate in Fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
	1	2.7	3.1	3.7	4.5
7.5	5	16.4	19.2	21.5	26.2
	4	9.4	11.1	12.3	15.3
	3	5.1	6.0	6.9	8.6
	2	3.1	3.6	4.1	4.9
	1	1.8	2.1	2.5	3.0
3.75	5	8.2	9.6	10.8	13.1
	4	4.7	5.6	6.2	7.7
	3	2.5	3.0	3.5	4.3
	2	1.5	1.8	2.1	2.5
	1	0.9	1.0	1.2	1.5

Dose Rate in Fluoroscopy (mGy/min) with Max Dose Reduction					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
30	5	32.7	39.6	45.6	55.6
	4	17.7	21.4	24.4	30.5
	3	10.5	13.2	14.1	17.5
	2	6.2	7.3	8.5	10.9
	1	3.9	4.4	5.0	6.0
15	5	16.4	19.8	22.8	27.8
	4	8.9	10.7	12.2	15.3
	3	5.3	6.6	7.1	8.8
	2	3.1	3.6	4.2	5.5
	1	1.9	2.2	2.5	3.0
7.5	5	8.2	9.9	11.4	13.9
	4	4.4	5.3	6.1	7.6
	3	2.6	3.3	3.5	4.4
	2	1.6	1.8	2.1	2.7
	1	1.0	1.1	1.2	1.5
3.75	5	4.1	4.9	5.7	6.9
	4	2.2	2.7	3.1	3.8
	3	1.3	1.7	1.8	2.2
	2	0.8	0.9	1.1	1.4
	1	0.5	0.6	0.6	0.8

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
30	5	32.1	36.7	41.3	50.6

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
	4	18.9	21.5	23.9	30.6
	3	10.3	12.8	14.3	18.1
	2	6.4	7.5	8.8	10.6
	1	4.0	4.5	5.1	6.2
15	5	24.0	27.6	30.7	37.9
	4	14.0	16.1	18.6	22.0
	3	8.3	9.5	11.0	13.5
	2	4.8	5.6	6.5	7.9
	1	2.9	3.2	3.8	4.6
7.5	5	15.8	17.6	20.9	25.1
	4	9.7	10.0	12.1	14.5
	3	5.4	6.0	7.3	9.0
	2	3.1	3.7	4.3	5.1
	1	1.9	2.2	2.5	3.1

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Max Dose Reduction					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
30	5	32.1	36.7	41.3	50.6
	4	18.9	21.5	23.9	30.6
	3	10.3	12.8	14.3	18.1
	2	6.4	7.5	8.8	10.6
	1	4.0	4.5	5.1	6.2
15	5	16.0	18.4	20.6	25.3
	4	9.5	10.8	11.9	15.3
	3	5.2	6.4	7.2	9.0
	2	3.2	3.7	4.4	5.3
	1	2.0	2.2	2.6	3.1
7.5	5	8.0	9.2	10.3	12.7
	4	4.7	5.4	6.0	7.6
	3	2.6	3.2	3.6	4.5
	2	1.6	1.9	2.2	2.7
	1	1.0	1.1	1.3	1.5

Radiography doses for IGS 520

Dose Rate in Dynamic Record (µGy/frame)					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
30, 15, 10, 7.5	4	149	177	215	251

Dose Rate in Dynamic Record (µGy/frame)					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
	3	85	99	116	139
	2	47	55	66	80
	1	26	30	36	43

Dose Rate in DSA (µGy/frame)						
Focal Spot	**Frame Rate (fps)**	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
0.3	7.5	3	953	946	952	947
		2	790	784	810	819
		1	547	548	566	580
	4, 2, 1, 0.5	3	1589	1564	1632	1652
		2	1048	981	1013	1012
		1	470	580	595	595
Auto	7.5	3	1640	1708	1715	1730
		2	976	999	1018	1032
		1	553	535	540	590
	4, 2, 1, 0.5	3	1839	1872	1861	1777
		2	1088	1012	999	990
		1	446	606	602	598

Dose Rate in Innova Chase (µGy/frame)					
Frame Rate (fps)	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
5	2	302	366	440	511
	1	145	183	226	304

DoseRate in 3D CT (µGy/frame)						
Rotation Speed (deg/sec)	**Frame Rate (fps)**	**Level**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
40, 28, 16	50	4	179	183	184	187
		3	128	125	123	130
		2	38	40	40	43
		1	18	22	21	22

Dose Rate in 3DStent (µGy/frame)					
Rotation Speed (deg/sec)	**Frame Rate (fps)**	**FOV 0 20 cm**	**FOV 1 17 cm**	**FOV 2 15 cm**	**FOV 3 12 cm**
10	30	131	135	134	142
20		132	135	135	143

23.3.3 Operating setting and dose measurement for IGS 530

Operating settings for IGS 530

	Selectable Frame rate (fps)	Selectable added filters automatically applied (mm Cu)	Focal Spot	kVp range after selection of the mode	mA range after selection of the mode	Highest reference dose
Fluoroscopy	30, 15, 7.5, 3.75	0.1, 0.2, 0.3, 0.6, 0.9	0.3, 0.5 (HCF disabled), or 0.3, 0.5, 0.8 (HCF enabled)	60 - 120	Min: 0.0075 mA average for 3.75 fps, 2 ms Max:37.6 mA average for 30 fps, 7 ms (HCF disabled), or 32 mA average for 30 fps, 4 ms (HCF enabled)	See Table 23-1.
Roadmap / Blended Roadmap / Subtracted Fluoroscopy	30, 15, 7.5	0.3, 0.6, 0.9	0.3, 0.5	60 - 120	Min: 0.015 mA average for 7.5 fps, 2 ms Max: 37.6 mA average for 30 fps, 7 ms	See Table 23-1.
DSA	7.5, 3.75, 1.875, 1.0, 0.5	0, 0.1, 0.2, 0.3, 0.6	0.3, 0.5, 0.8	50 - 125	mAp: 42 - 1000	No dose limits
Dynamic Record	30, 15, 10, 7.5	0, 0.1, 0.2, 0.3, 0.6, 0.9	0.3, 0.5, 0.8	60 - 120	mAp: 1 - 937.5	No dose limits
InnovaChase	5	0, 0.1, 0.2, 0.3	0.8	60 - 120	mAp: 100 - 867	No dose limits
Bolus	2, 1	0.1	0.8	50 - 125	mAp: 100 - 867	No dose limits
3D CT/ 3D CT Sub 50 fps	50	0.3	0.5, 0.8	60 - 120	mAp: 1- 800	No dose limits
3DStent	30	0.3	0.5, 0.8	60 - 120	mAp: 1 – 786	No dose limits

Radioscopy dose rates for IGS 530

Dose Rate in Fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
30	5	18.5	29.2	36.1	46.5
	4	10.5	16.7	21.1	27.8
	3	6.5	10.1	12.1	16.2
	2	4.0	5.8	7.5	9.5
	1	2.4	3.4	4.3	5.6
15	5	13.5	20.6	26.3	34.3
	4	7.6	12.1	15.1	20.6
	3	4.5	7.4	9.2	12.0
	2	2.8	4.3	5.3	7.0

Dose Rate in Fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
	1	1.7	2.6	3.1	4.3
7.5	5	8.8	14.1	16.7	23.6
	4	5.1	8.1	10.0	13.2
	3	3.0	4.9	6.0	8.0
	2	1.9	2.9	3.5	4.7
	1	1.1	1.7	2.1	2.8
3.75	5	4.4	7.0	8.4	11.8
	4	2.6	4.0	5.0	6.6
	3	1.5	2.4	3.0	4.0
	2	1.0	1.5	1.8	2.3
	1	0.6	0.9	1.0	1.4

Dose Rate in Fluoroscopy (mGy/min) with Max Dose Reduction					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
30	5	18.5	29.2	36.1	46.5
	4	10.5	16.7	21.1	27.8
	3	6.5	10.1	12.1	16.2
	2	4.0	5.8	7.5	9.5
	1	2.4	3.4	4.3	5.6
15	5	9.3	14.6	18.1	23.2
	4	5.2	8.4	10.5	13.9
	3	3.3	5.0	6.0	8.1
	2	2.0	2.9	3.7	4.8
	1	1.2	1.7	2.2	2.8
7.5	5	4.6	7.3	9.0	11.6
	4	2.6	4.2	5.3	6.9
	3	1.6	2.5	3.0	4.1
	2	1.0	1.5	1.9	2.4
	1	0.6	0.9	1.1	1.4
3.75	5	2.3	3.6	4.5	5.8
	4	1.3	2.1	2.6	3.5
	3	0.8	1.3	1.5	2.0
	2	0.5	0.7	0.9	1.2
	1	0.3	0.4	0.5	0.7

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
30	5	19.4	30.0	38.5	50.0

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
	4	11.5	18.0	22.0	30.0
	3	6.8	10.4	12.8	17.6
	2	4.1	6.0	7.6	10.4
	1	2.4	3.7	4.5	6.0
15	5	15.1	23.6	28.6	36.8
	4	8.7	13.3	16.8	21.8
	3	5.2	8.2	10.0	13.1
	2	3.1	4.9	5.9	7.8
	1	1.8	2.8	3.4	4.5
7.5	5	9.8	15.1	18.7	24.9
	4	5.5	8.7	10.6	14.8
	3	3.4	5.1	6.6	8.6
	2	2.0	3.1	3.9	5.0
	1	1.2	1.8	2.2	2.8

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Max Dose Reduction					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
30	5	19.4	30.0	38.5	50.0
	4	11.5	18.0	22.0	30.0
	3	6.8	10.4	12.8	17.6
	2	4.1	6.0	7.6	10.4
	1	2.4	3.7	4.5	6.0
15	5	9.7	15.0	19.3	25.0
	4	5.8	9.0	11.0	15.0
	3	3.4	5.2	6.4	8.8
	2	2.0	3.0	3.8	5.2
	1	1.2	1.9	2.3	3.0
7.5	5	4.9	7.5	9.6	12.5
	4	2.9	4.5	5.5	7.5
	3	1.7	2.6	3.2	4.4
	2	1.0	1.5	1.9	2.6
	1	0.6	0.9	1.1	1.5

Radiography doses for IGS 530

Dose in Dynamic Record (µGy/frame)					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
30, 15, 10, 7.5	4	91	159	213	268

Dose in Dynamic Record (µGy/frame)					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
	3	60	89	108	136
	2	32	48	61	76
	1	19	27	35	45

Dose in DSA (µGy/frame)						
Focal Spot	**Frame Rate (fps)**	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
0.3	7.5	3	964	1045	1028	1004
		2	549	836	843	872
		1	283	517	560	613
	4, 2, 1, 0.5	3	1014	1600	1624	1728
		2	558	913	948	948
		1	264	533	536	552
Auto	7.5	3	1036	1610	1650	1683
		2	537	1006	1011	1070
		1	277	488	549	622
	4, 2, 1, 0.5	3	1019	1759	1687	1575
		2	551	964	944	988
		1	260	564	530	551

Dose in Innova Chase (µGy/frame)					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
5	2	216	326	403	509
	1	85	163	217	270

Dose in Bolus (µGy/frame)	
Level	**FOV 0 30 cm**
3	713
2	542
1	319

Dose in 3D CT (µGy/frame)							
SID	**Rotation Speed (deg/sec)**	**Frame Rate (fps)**	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
MAX	40, 28, 16	50	4	134	142	145	147
			3	94	103	104	111
			2	29	29	31	31
			1	12	12	18	19

Dose in 3D CT (µGy/frame)							
SID	**Rotation Speed (deg/sec)**	**Frame Rate (fps)**	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
SHORT	16	50	4	109	121	124	127
			3	73	81	83	89
			2	23	23	24	25
			1	9	10	14	15

Dose in 3DStent (µGy/frame)						
SID	**Rotation Speed (deg/sec)**	**Frame Rate (fps)**	**IGS 530**			
			FOV 0 30 cm	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
Max	10	30	NA*	142	148	154
	20		NA*	144	149	156

* 3DStent is not available for FOV 0 (30 cm) on IGS 530.

23.3.4 Operating setting and dose measurement for IGS 730 and IGS 730 OR

Operating settings for IGS 730 and IGS 730 OR

	Selectable Frame rate (fps)	**Selectable added filters automatically applied (mm Cu)**	**Focal Spot**	**kVp range after selection of the mode**	**mA range after selection of the mode**	**Highest reference dose**
Fluoroscopy	30, 15, 7.5, 3.75	0.1, 0.2, 0.3, 0.6, 0.9	0.3, 0.5 (HCF disabled), or 0.3, 0.5, 0.8 (HCF enabled)	60 - 120	Min: 0.0075 mA average for 3.75 fps, 2 ms Max: 37.6 mA average for 30 fps, 7 ms (HCF disabled), or 32 mA average for 30 fps, 4 ms (HCF enabled)	See Table 23-1.
Roadmap / Blended Roadmap / Subtracted Fluoroscopy	30, 15, 7.5	0.3, 0.6, 0.9	0.3, 0.5	60 - 120	Min: 0.015 mA average for 7.5 fps, 2 ms Max: 37.6 mA average for 30 fps, 7 ms	See Table 23-1.
DSA	7.5, 3.75, 1.875, 1.0, 0.5	0, 0.1, 0.2, 0.3, 0.6	0.3, 0.5, 0.8	50 - 125	mAp: 42 – 1000	No dose limits
Dynamic Record	30, 15, 10, 7.5	0, 0.1, 0.2, 0.3, 0.6, 0.9	0.3, 0.5, 0.8	60 - 120	mAp: 1 – 937.5	No dose limits
InnovaChase	5	0, 0.1, 0.2, 0.3	0.8	60 - 120	mAp: 100 – 867	No dose limits

	Selectable Frame rate (fps)	Selectable added filters automatically applied (mm Cu)	Focal Spot	kVp range after selection of the mode	mA range after selection of the mode	Highest reference dose
Bolus	2, 1	0.1	0.8	50 - 125	mAp: 100 – 867	No dose limits
3D CT / 3D CT Sub 50 fps	50	0.3	0.5, 0.8	60 - 120	mAp: 1 – 800	No dose limits
3DStent	30	0.3	0.5, 0.8	60 - 120	mAp: 1 – 786	No dose limits

Radioscopy dose rates for IGS 730 and IGS 730 OR

Dose Rate in Fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	Level	FOV 0 30 cm	FOV 1 20 cm	FOV 2 16 cm	FOV 3 12 cm
30	5	17.3	25.6	31.5	40.5
	4	9.7	14.5	18.2	24.1
	3	5.7	8.4	10.6	14.5
	2	3.3	5.4	6.4	8.6
	1	2.1	3.2	3.9	5.1
15	5	11.9	18.7	23.0	30.7
	4	7.4	11.1	13.7	17.9
	3	4.3	6.6	8.2	10.4
	2	2.5	3.9	4.8	6.3
	1	1.5	2.3	2.9	3.7
7.5	5	8.0	12.3	15.2	19.5
	4	4.6	7.2	8.9	11.8
	3	2.7	4.4	5.3	7.1
	2	1.6	2.6	3.2	4.0
	1	1.0	1.6	1.9	2.5
3.75	5	4.0	6.1	7.6	9.7
	4	2.3	3.6	4.5	5.9
	3	1.3	2.2	2.7	3.5
	2	0.8	1.3	1.6	2.0
	1	0.5	0.8	1.0	1.2

Dose Rate in Fluoroscopy (mGy/min) with Max Dose Reduction					
Frame Rate (fps)	Level	FOV 0 30 cm	FOV 1 20 cm	FOV 2 16 cm	FOV 3 12 cm
30	5	17.3	25.6	31.5	40.5
	4	9.7	14.5	18.2	24.1
	3	5.7	8.4	10.6	14.5
	2	3.3	5.4	6.4	8.6
	1	2.1	3.2	3.9	5.1

Dose Rate in Fluoroscopy (mGy/min) with Max Dose Reduction					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
15	5	8.6	12.8	15.7	20.2
	4	4.8	7.3	9.1	12.1
	3	2.9	4.2	5.3	7.2
	2	1.6	2.7	3.2	4.3
	1	1.0	1.6	2.0	2.6
7.5	5	4.3	6.4	7.9	10.1
	4	2.4	3.6	4.6	6.0
	3	1.4	2.1	2.7	3.6
	2	0.8	1.3	1.6	2.2
	1	0.5	0.8	1.0	1.3
3.75	5	2.2	3.2	3.9	5.1
	4	1.2	1.8	2.3	3.0
	3	0.7	1.0	1.3	1.8
	2	0.4	0.7	0.8	1.1
	1	0.3	0.4	0.5	0.6

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Balanced IQ/Dose					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
30	5	16.1	25.5	31.2	41.0
	4	9.9	15.3	18.9	24.4
	3	5.9	9.0	11.1	14.6
	2	3.5	5.4	6.6	8.7
	1	2.1	3.2	3.9	5.1
15	5	12.2	18.8	23.0	31.5
	4	7.1	11.2	13.7	17.9
	3	4.3	6.7	8.3	10.7
	2	2.5	4.0	4.9	6.4
	1	1.5	2.4	2.9	3.8
7.5	5	8.0	12.1	15.0	21.3
	4	4.7	7.3	9.0	11.8
	3	2.8	4.5	5.4	7.0
	2	1.7	2.6	3.2	4.3
	1	1.0	1.6	1.9	2.5

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Max Dose Reduction					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
30	5	16.1	25.5	31.2	41.0
	4	9.9	15.3	18.9	24.4

Dose Rate in Roadmap, Blended Roadmap, Subtracted fluoroscopy (mGy/min) with Max Dose Reduction					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
	3	5.9	9.0	11.1	14.6
	2	3.5	5.4	6.6	8.7
	1	2.1	3.2	3.9	5.1
15	5	8.1	12.8	15.6	20.5
	4	5.0	7.6	9.4	12.2
	3	3.0	4.5	5.6	7.3
	2	1.7	2.7	3.3	4.4
	1	1.0	1.6	2.0	2.6
7.5	5	4.0	6.4	7.8	10.2
	4	2.5	3.8	4.7	6.1
	3	1.5	2.2	2.8	3.6
	2	0.9	1.4	1.7	2.2
	1	0.5	0.8	1.0	1.3

Radiography doses for IGS 730 and IGS 730 OR

Dose in Dynamic Record (µGy/frame)					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
30, 15, 10, 7.5	4	82	146	195	246
	3	56	81	101	127
	2	32	46	57	72
	1	18	26	33	42

Dose in DSA (µGy/frame)						
Focal Spot	**Frame Rate (fps)**	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
0.3	7.5	3	882	909	917	924
		2	522	756	786	801
		1	271	475	558	582
	4, 2, 1, 0.5	3	976	1492	1570	1592
		2	548	904	995	903
		1	262	523	544	538
Auto	7.5	3	983	1509	1558	1593
		2	510	883	930	950
		1	265	437	530	569
	4, 2, 1, 0.5	3	995	1602	1673	1606
		2	535	888	935	932
		1	255	513	513	510

Dose in Innova Chase (µGy/frame)					
Frame Rate (fps)	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
5	2	189	273	344	443
	1	78	152	203	253

Dose in Bolus (µGy/frame)	
Level	**FOV 0 30 cm**
3	641
2	481
1	281

Dose in 3D CT (µGy/frame) @ 50 fps							
SID	**Rotation Speed (deg/sec)**	**Frame Rate (fps)**	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
MAX	40, 28, 16	50	4	135	145	149	153
			3	103	113	115	122
			2	32	32	34	34
			1	14	14	19	21

Dose in 3D CT (µGy/frame) @ 50 fps							
SID	**Rotation Speed (deg/sec)**	**Frame Rate (fps)**	**Level**	**FOV 0 30 cm**	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
SHORT	16	50	4	115	122	126	130
			3	81	89	92	98
			2	25	25	27	27
			1	11	11	15	17

Dose in 3DStent (µGy/frame) @ 30 fps						
SID	**Rotation Speed (deg/sec)**	**Frame Rate (fps)**	**IGS 730***			
			FOV 0 30 cm	**FOV 1 20 cm**	**FOV 2 16 cm**	**FOV 3 12 cm**
MAX	10	30	NA**	99	103	105
	20		NA**	99	103	106

* 3DStent is not available with Maquet table.

** 3DStent is not available for FOV 0 (30 cm) on IGS 730.

23.3.5 Dose to Patient in Luxembourg, New Zealand

The followings are different from the general case:

For Fluoroscopy, Roadmap / Blended Roadmap / Subtracted Fluoroscopy, all frame rates:

- IntelIQ is limited to levels 1, 2 and 3

Table 23-2 Highest reference doses in fluoroscopy (radioscopy) and roadmap / blended roadmap / subtracted fluoroscopy (radioscopy)

Highest reference dose (mGy/min) at 30 cm from image receptor		Low Frame-rate Dose Reduction Strategy			
		Balanced IQ/Dose		Max Dose Reduction	
Frame Rate (fps)	Level	Dose Limiter Off	Dose Limiter On	Dose Limiter Off	Dose Limiter On
30	3	43.8	43.8	43.8	43.8
	2	43.8	43.8	43.8	43.8
	1	43.8	21.9	43.8	21.9
15	3	43.8	43.8	43.8	21.9
	2	43.8	43.8	43.8	21.9
	1	43.8	21.9	43.8	21.9
7.5	3	43.8	43.8	21.9	21.9
	2	43.8	21.9	21.9	21.9
	1	43.8	21.9	21.9	21.9
3.75	3	43.8	21.9	21.9	21.9
	2	43.8	21.9	21.9	21.9
	1	43.8	21.9	21.9	21.9

When the limit from activation of dose limiter is equivalent to the maximum dose limit, only the dose limiter icon is displayed.

For New Zealand, Dynamic Record, all frame rates:

- IntelIQ is limited to levels 1, 2 and 3.

For New Zealand, DSA Record, all frame rates:

- IntelIQ is limited to levels 1, and 2.

23.3.6 Dose to Patient in Austria, Germany, Switzerland

The followings are different from the general case:

For Fluoroscopy, Roadmap / Blended Roadmap / Subtracted Fluoroscopy, all frame rates,

- IntelIQ is limited to levels 1, 2 and 3.

For Dynamic Record, all frame rates,

- IntelIQ is limited to levels 1, 2 and 3.

For DSA Record, all frame rates,

- IntelIQ is limited to levels 1 and 2.

For Switzerland, Bolus Record, all frame rates:

- IntelIQ is limited to levels 1 and 2.

23.3.7 Dose to Patient in Denmark

The followings are different from the general case:

For Fluoroscopy, Roadmap / Blended Roadmap / Subtracted Fluoroscopy, all frame rates,

- IntelIQ is limited to levels 1, 2 and 3.

23.3.8 Fluoroscopy Dose to Patient in Japan

The followings are different from the general case:

When a setup with a highest reference dose of 87.6 mGy/min is selected, it constitutes a special high level Fluoroscopy mode with specific Audio/Visual indications, as described in Audio/Visual Indications on page 101 in the specific notes for Japan.

23.3.9 Fluoroscopy Dose to Patient in Australia/WA, Australia/ACT, Australia/QLD and Australia/VIC

The followings are different from the general case:

In Australia/WA and Australia/ACT the highest reference dose rates in fluoroscopy (radioscopy) at 30 cm from image receptor are limited to 43.8 mGy/min.

(For Allia IGS 5) The dose data are applicable to Australia/WA and Australia/ACT, whenever the provided dose rate is lower than the limit of 43.8 x 1.40 mGy/min (IEC60601-2-43 conditions), while in other cases the dose rate is reduced by the system to this limiting level (in Fluoro, Roadmap, Blended Roadmap and Subtracted Fluoroscopy modes only.)

(For Allia IGS 7 and Allia IGS 7 OR) The dose data are applicable to Australia/WA and Australia/ACT, whenever the provided dose rate is lower than the limit of 43.8 x 1.34 mGy/min (IEC60601-2-43 conditions), while in other cases the dose rate is reduced by the system to this limiting level (in Fluoro, Roadmap, Blended Roadmap and Subtracted Fluoroscopy modes only.)

In Australia/WA, Australia/ACT, Australia/QLD, and Australia/VIC, for Fluoroscopy, Roadmap / Blended Roadmap / Subtracted Fluoroscopy, all frame rates:

- IntelIQ is limited to levels 1, 2, 3 and 4.

23.3.10 Dose to patient in Belgium, Italy, Spain and Portugal

The followings are different from the general case:

Dose in Dynamic Record (µGy/frame) in IntelIQ AutoExposure preference					
Frame Rate (fps)	Level	IGS 520			
		FOV 0 20 cm	FOV 1 17 cm	FOV 2 15 cm	FOV 3 12 cm
30, 15, 10, 7.5	4	85	177	215	251
	3	85	99	116	139
	2	47	55	66	80
	1	26	30	36	43

Dose in Dynamic Record (µGy/frame) in IntelIQ AutoExposure preference					
Frame Rate (fps)	Level	IGS 530			
		FOV 0 30 cm	FOV 1 20 cm	FOV 2 16 cm	FOV 3 12 cm
30, 15, 10, 7.5	4	60	89	213	268
	3	60	89	108	136
	2	32	48	61	76
	1	19	27	35	45