



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background



MIL-STD-810 TESTING FOR HP BUSINESS PCs

September 2021

COMMITMENT TO QUALITY

A product is only as great as its quality. And quality built into the overall product design requires more than just a mix of technologies, best practices, and high standards; it requires a mindset that understands that each design detail is as important as the next, each potentially a spark of quality innovation.

At HP, we make a quality commitment and stand by it. We follow through with our promises. We believe that we can always do it better—and then we do. And that belief pushes our quality standards ever higher.

Quality delivers a higher return on investment to our customers. We want them to be happy with their product throughout its lifecycle.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

WE CARE ABOUT QUALITY—IT'S IN OUR DNA

At HP, we believe quality matters. Quality is core to HP's legacy. HP's strong focus on quality design and engineering innovations dates back to its early beginnings with Bill Hewlett and Dave Packard.

Quality is foremost at every stage of HP's product development process. From the earliest design stage through product testing, manufacturing, service and support, and eventual end-of-life, we remain alert for new opportunities to improve our products, services, and customer relationships.

STRIKING A PERFECT BALANCE

Our goal is to make our products the highest possible quality with the lowest total cost of ownership. We are focused on enhancing our customers' experience with products that deliver the best price, features set, and value proposition. The HP Business PC portfolio gives customers that perfect balance of cost efficiency, reliability, durability, and innovative design.

Quality is built into every product as a design requirement. HP Business PCs are designed to meet the demands of leading businesses. Built from high-quality materials and backed by legendary HP reliability, these stylish and sturdy devices are powerful yet simple to use.

PERFORMANCE YOU CAN TRUST

As part of the design process, all HP Elite, HP Pro, Z by HP, HP Chromebooks and select HP Thin Clients undergo the HP Total Test Process (TTP)¹ — an exhaustive series of rigorous tests and validation procedures that demonstrate superior quality and reliability in a wide range of applications and operating environments. To help make our business PCs more robust and a more dependable tool for our customers' evolving business needs, our testing process is constantly reviewed and enhanced.

The HP Total Test Process is an outgrowth of the longstanding HP commitment to quality. That's why we go to extreme measures to build high reliability into every HP Business PC.

Our comprehensive and proven testing program consists of a minimum of 120,000 hours of rigorous multi-tiered testing and validation procedures per computing platform. The program, driven by rigid quality specifications and standards, includes 50,000 test steps, with 240 industry-standard hardware and software products tested for compatibility.

Pre-launch HP Business PCs are exposed to rigorous conditions including harsh drops and vibration, high temperatures, and enduring mechanical and functional tests that simulate rough handling over the life of the product. Strong reliability can mean less downtime and a lower cost of ownership.

Knowledge gained through the HP Total Test Process leads to many innovations that allow HP Business PCs to deliver an enhanced computing experience. Customers can rely on HP Business PCs to help them perform at their very best when their most demanding work is on the line.

WORLD-CLASS DESIGN

First impressions are important, as they set the expectations for the rest of the user experience. HP design engineers excel at designing that very important first experience. Clean implementation of innovative PC technologies starts with a holistic design approach to quality. Design engineers work in conjunction with the manufacturing engineers to optimize the design for production in a way that upholds extremely high quality.

Any given HP Business PC design will go through multiple small builds to fine-tune the design for optimal quality and manufacturability before the design is finalized. HP Business PCs are subject to multiple design enhancements prior to our first-production build, resulting in a final design that is as elegantly built as was originally envisioned by the design engineer.

HP's attractive enterprise-class industrial designs, which combine innovation with style, use high-quality materials and flawless finishes. HP's leading-edge chassis construction, component accessibility, electrical and air flow designs elevate the customer experience with product quality and reliability.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

GOING ABOVE AND BEYOND

After careful material selection and precision-engineered construction, HP Business PCs are put to the test. Our MIL-STD-810 testing² procedures go above and beyond what a PC may endure on a typical day in business and enterprise environments. This testing helps to demonstrate overall HP product quality and reliability.

HP BUSINESS PC MODELS TESTED

All HP Elite, HP Pro, HP Chromebooks, and Z by HP notebooks, convertibles and detachables, as well as select desktop PCs and Thin Clients, undergo multiple MIL-STD-810 test procedures as a way to help demonstrate product quality and reliability. This standard, though created specifically for the U.S. Department of Defense (DoD), is widely used as a benchmark for quality for commercial products in multiple industries. It outlines a broad range of tests that can be tailored to measure the reliability of specific pieces of equipment and includes multi-tiered climatic and environmental test methods.²

THE PRODUCTS IDENTIFIED BELOW HAVE ALL UNDERGONE MULTIPLE MIL-STD-810 TESTING PROCEDURES. **CLICK ON EACH CATEGORY TO SEE TEST RESULTS.**

HP ZBOOK DETACHABLE WORKSTATION

Tested under 810G:

- HP ZBook x2 G4

HP ZBOOK CONVERTIBLE WORKSTATION

Tested under 810G:

- HP ZBook Studio x360 G5

HP ZBOOK MOBILE WORKSTATION

Tested under 810G:

- HP ZBook 15/17 G3, G5, G6
- HP ZBook 15v G5
- HP ZBook Studio G5
- HP ZBook 14u/15u G5, G6

Tested under 810H:

- HP ZBook Create G7
- HP ZBook Studio G7, G8
- HP ZBook Firefly 14/15 G7, G8
- HP ZBook Fury 15/17 G7
- HP ZBook Power G7, G8
- HP ZBook Fury 15.6 Inch G8 Mobile Workstation PC
- HP ZBook Fury 17.3 Inch G8 Mobile Workstation PC
- HP Zhan99 Mobile Workstation G3

HP Z DESKTOP WORKSTATION

Tested under 810G:

- HP EliteDesk 800 G4/G5 Tower Workstation Edition
- HP Z1 Entry Tower G5
- HP Z2 Mini G5 Workstation
- HP Z2 Small Form Factor G5 Workstation
- HP Z2 Tower G5 Workstation

Tested under 810H:

- HP Z1 Entry Tower G6/G8
- HP Z2 Tower G8 Workstation
- HP Z2 Small Form Factor G8 Workstation

HP ELITEDESK DESKTOP PC

Tested under 810G:

- HP EliteDesk 800 G3/G4/G5 TWR/SFF/DM
- HP EliteDesk 705 G3/G4 MT/SFF/DM

HP ELITEDESK DESKTOP PC

- HP EliteDesk 705 G5 & 805 G6 SFF/DM

Tested under 810H:

- HP EliteDesk 800 G6 TWR/SFF/DM
- HP EliteDesk 800 G8 TWR/SFF/DM
- HP EliteDesk 805 G8 SFF/DM

HP ELITE SLICE DESKTOP PC

Tested under 810G:

- HP Elite Slice G1
- HP Elite Slice for Meeting Rooms G2

HP PROONE & PRODESK DESKTOP PC

Tested under 810G:

- HP ProDesk 400/600 G6 DM
- HP ProDesk 400 G7 SFF, MT; 480 MT
- HP ProDesk 405 G6 SFF & DM

Tested under 810H:

- HP ProDesk 600 G6 SFF
- HP ProDesk 600/680 G6 MT
- HP ProOne 400/600 G6 All-in-One
- HP ProOne 405 G8 SFF & DM

HP ELITEONE ALL-IN-ONE DESKTOP PC

Tested under 810G:

- HP EliteOne 1000 G1 34" All-in-One
- HP EliteOne 1000 G2 All-in-One
- HP EliteOne 800 G3 All-in-One
- HP EliteOne 800 G4/G5 All-in-One
- HP EliteOne 800 G4/G5 Healthcare All-in-One

Tested under 810H:

- HP EliteOne 800 G6/G8 All-in-One

HP ELITE X2 DETACHABLE PC

Tested under 810G:

- HP Elite x2 1012 G2
- HP Elite x2 1012 G2 Collaboration Keyboard
- HP Elite x2 1013 G3
- HP Elite x2 G4

Tested under 810H:

- HP Elite x2 G8
- HP Elite Folio 13.5 inch 2-in-1 Notebook PC



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP ELITEBOOK CONVERTIBLE NOTEBOOK PC

Tested under 810G:

- HP EliteBook x360 1030 G2/G3/G4
- HP EliteBook x360 1030 G3
- HP EliteBook x360 1030 G4
- HP EliteBook x360 1040 G5, G6
- HP EliteBook x360 830 G5, G6

Tested under 810H:

- HP Elite Dragonfly G2, Max
- HP EliteBook x360 830 G7, G8
- HP EliteBook x360 1030/1040 G7, G8

HP ELITEBOOK NOTEBOOK PC

Tested under 810G:

- HP EliteBook Folio G1
- HP EliteBook 1040 G4
- HP EliteBook 1050 G1
- HP EliteBook 820/840/850 G3
- HP EliteBook 820/840/850 G4
- HP EliteBook 830/840/850 G5
- HP EliteBook 830/840/850 G6
- HP EliteBook 840r G4
- HP EliteBook 840 G5, G6 Healthcare Edition
- HP EliteBook 725 G4
- HP EliteBook 735/745/755 G5
- HP EliteBook 735/745 G6

Tested under 810H:

- HP EliteBook 830/840/850 G7, G8
- HP EliteBook 835/845/855 G7, G8
- HP EliteBook 840 Aero G8

HP PRO X2 DETACHABLE PC

Tested under 810G:

- HP Pro x2 612 G2
- HP Pro x2 612 G2 Collaboration Keyboard

HP PROBOOK CONVERTIBLE NOTEBOOK PC

Tested under 810G:

- HP ProBook x360 440 G1
- HP ProBook x360 11 G1, G2 EE
- HP ProBook x360 11 G3, G4 EE

Tested under 810H:

- HP ProBook x360 11 G5, G6, G7 EE
- HP ProBook x360 435 G7, G8

HP PROBOOK NOTEBOOK PC

Tested under 810G:

- HP ProBook 640/650/645 G4
- HP ProBook 640/650 G5
- HP ProBook 430/440/450/470/455 G5
- HP ProBook 430/440/450 G6
- HP ProBook 445/455/445R/455R G6

Tested under 810H:

- HP ProBook 430/440/450 G7, G8

Tested under 810G:

- HP ProBook 445/455 G7, G8

HP PROBOOK NOTEBOOK PC

Tested under 810G:

- Zhan66 Pro A 14" G4
- HP ProBook 445/455 G7

HP PROBOOK NOTEBOOK PC

- HP ProBook 640/650 G7
- HP ProBook 630/640/650 G8
- HP ProBook 635 Aero G7, G8

HP NOTEBOOK PC

Tested under 810G:

- HP 340/348 G5

Tested under 810H:

- HP 340/348 G7

HP CHROMEBOOK CONVERTIBLE

Tested under 810H:

- HP Chromebook x360 11 G3 EE
- HP Chromebook x360 11MK G3 EE
- HP Chromebook Enterprise x360 11MK G3
- HP Chromebook x360 11 G4 EE
- HP Chromebook Enterprise x360 11 G4

HP CHROMEBOOK

Tested under 810G:

- HP Chromebook 14A G5

Tested under 810H:

- HP Chromebook 11 G8 EE, 11A G8 EE
- HP Chromebook 14 G6
- HP Chromebook Enterprise 14 G6
- HP Pro c640 & c640 G2 Chromebook Enterprise
- HP Pro c640 & c640 G2 Chromebook
- HP Elite c1030 Chromebook Enterprise
- HP Elite c1030 Chromebook
- HP Pro c645 Chromebook Enterprise
- HP Pro c645 Chromebook
- HP Chromebook Enterprise 11 G9
- HP Chromebook 11MK G9 EE
- HP Chromebook Enterprise 11MK G9
- HP Chromebook 14 G7
- HP Chromebook Enterprise 14 G7

HP RETAIL

Tested under 810G:

- HP Engage One All-in-One
- HP Engage Go Mobile System
- HP Engage Go Mobile Dock
- HP Engage Flex Pro Retail System
- HP Engage Flex Pro-C Retail System
- HP Engage One Pro All-in-One
- Tested under 810H:
- HP Engage Go 10 Convertible System
- HP Engage Go 10 Mobile System
- HP Engage Go 10 Multi-Charger

HP THIN CLIENT

Tested under 810G:

- HP mt43 Mobile Thin Client
- HP mt44 Mobile Thin Client
- HP mt20 Mobile Thin Client
- HP mt21 Mobile Thin Client
- HP mt45 Mobile Thin Client

Tested under 810H:

- HP mt22 Mobile Thin Client
- HP mt46 Mobile Thin Client
- HP mt32 Mobile Thin Client



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

TEST RESULTS

The following tables summarize the independent third-party MIL-STD-810 test methods² that HP products passed.

Note: A dash (-) in the Test Results tables indicates that the test was not conducted on the PC model.

HP ZBOOK DETACHABLE WORKSTATION, HP ZBOOK CONVERTIBLE WORKSTATION

[Back to product listing](#)

Test	HP ZBook x2 G4	HP ZBook Studio x360 G5 810G
Tested Under	810G	
Drop	PASSED	PASSED
Functional Shock	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED
Dust	PASSED	PASSED
Humidity	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED

HP ZBOOK MOBILE WORKSTATION

[Back to product listing](#)

Test	HP ZBook 15/17 G3, G5, G6 810G	HP ZBook 15v G5 810G	HP ZBook Studio G5 810G	HP ZBook 14u/15u G5, G6 810G
Tested Under	810G	810G	810G	
Drop	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	-	-	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED
Sand	PASSED	-	PASSED	PASSED
Explosive Atmosphere	PASSED	-	PASSED	-
Freeze/Thaw	PASSED	-	PASSED	PASSED
Bench Handling Shock	PASSED	-	PASSED	PASSED
Crash Hazard Shock	PASSED	-	PASSED	PASSED
Transportation Shock	-	-	-	PASSED
Solar Radiation	-	-	-	-



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP ZBOOK MOBILE WORKSTATION (CONTINUED)

[Back to product listing](#)

Test	HP ZBook Create G7	HP ZBook Creative/Studio, Fury 15/17 G7, G8	HP ZBook Firefly 14/15, Power G7, G8; 810H	HP ZBook Fury 15.6 & 17.3 inch G8 Mobile Workstation PC 810H	HP Zhan99 Mobile Workstation G3 810H
Drop	PASSED	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED	PASSED	PASSED
Explosive Atmosphere	PASSED	PASSED	-	PASSED	-
Freeze/Thaw	PASSED	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Crash Hazard Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Transportation Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Solar Radiation	PASSED	PASSED	-	PASSED	-

HP Z DESKTOP WORKSTATION

[Back to product listing](#)

Test	HP Z1 Entry Tower G5	HP Z1 Entry Tower G6, G8	HP EliteDesk 800 G4, G5 Tower	HP Z2 Mini G5	HP Z2 Small Form Factor G5	HP Z2 Tower G5	HP Z2 Tower, SFF G8
Tested Under	810G	810H	810G	810G	810G	810G	810H
Drop	PASSED	PASSED	PASSED	PASSED		PASSED	PASSED
Functional Shock	PASSED		PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED*	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 24)	PASSED		PASSED	PASSED			PASSED
Dust	PASSED	PASSED*	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	-	-	-	PASSED	PASSED	PASSED	PASSED

*Tested under 810G



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP ELITEDESK DESKTOP PC

[Back to product listing](#)

Test	HP EliteDesk 800 G3 DM/SFF/TWR 810H	HP EliteDesk 800 G4/G5 DM/SFF/TWR 810H	HP EliteDesk 800 G6 TWR 810H	HP EliteDesk 800 G6 DM 810H	HP EliteDesk 800 G6 SFF 810H
Tested Under					
Drop	PASSED	PASSED	PASSED	PASSED	
Functional Shock	PASSED	PASSED		PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED*	PASSED*	PASSED*
Vibration (Category 24)	PASSED	PASSED	-	PASSED*	-
Dust	PASSED	PASSED	PASSED*	PASSED*	PASSED*
Humidity	PASSED	PASSED	PASSED		PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	-	-	-	-	PASSED

*Tested under 810G

HP ELITEDESK DESKTOP PC

[Back to product listing](#)

Test	HP EliteDesk 705 G3/G4 DM/SFF/MT 810G	HP EliteDesk 705 G5 DM 810G	HP EliteDesk 705 G5 SFF 810G	HP EliteDesk 805 G6 DM 810G	HP EliteDesk 805 G6 SFF 810G	HP EliteDesk 800 G8 SFF, TWR, DM; 805 SFF, DM 810H
Tested Under						
Drop	PASSED	PASSED	PASSED	PASSED		PASSED
Functional Shock	PASSED	PASSED		PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED		PASSED	-	PASSED
Vibration (Category 24)	PASSED	PASSED		PASSED		PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	-	PASSED	PASSED	PASSED	PASSED	PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP ELITEONE ALL-IN-ONE DESKTOP PC

[Back to product listing](#)

Test	HP EliteOne 1000 G1 34" All-in-One	HP EliteOne 1000 G2 All-in-One	HP EliteOne 800 G3 All-in-One	HP EliteOne 800 G4/G5 All-in-One, 800 G4/G5 Healthcare All-in-One	HP EliteOne 800 G6 All-in-One, DM	HP EliteOne 800 G8 All-in-One
Tested Under	810G	810G	810G	810G	810H	810H
Drop	-				-	PASSED
Functional Shock	PASSED	PASSED		PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED*	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED		PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED*	PASSED
Humidity		PASSED	PASSED	PASSED		PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	-	-	-	-	PASSED	PASSED

*Tested under 810G

HP ELITE SLICE DESKTOP PC

[Back to product listing](#)

Test	HP Elite Slice G1	HP Elite Slice for Meeting Rooms G2
Tested Under	810G	810G
Drop	PASSED	PASSED
Functional Shock	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED
Dust	PASSED	PASSED
Humidity	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED
Temperature Shock	-	-



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP PROONE ALL-IN-ONE DESKTOP PC, HP PRODESK DESKTOP PC

[Back to product listing](#)

Test	HP ProOne 600 G6 AiO, 400 G6 AiO 810H	HP ProDesk 600 G6 SFF 810H	HP ProDesk 400 G7 SFF, MT; 480 MT 810G	HP ProDesk 400 / 600 G6 DM 810G
Tested Under				
Drop	-	PASSED	PASSED	PASSED
Functional Shock	-			PASSED
Vibration (Category 4)	-	PASSED*		PASSED
Vibration (Category 24)				PASSED
Dust	PASSED*	PASSED*	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED

*Tested under 810G

HP PROONE ALL-IN-ONE DESKTOP PC, HP PRODESK DESKTOP PC

[Back to product listing](#)

Test	HP ProDesk 600 /680 G6 MT 810H	HP ProDesk 405 G6 SFF 810G	HP ProDesk 405 G6 DM 810G	HP ProDesk 405 G8 SFF, DM 810H
Tested Under				
Drop	PASSED		PASSED	PASSED
Functional Shock	PASSED	-	PASSED	PASSED
Vibration (Category 4)	PASSED*	PASSED	PASSED	PASSED
Vibration (Category 24)			PASSED	PASSED
Dust	PASSED*	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED

*Tested under 810G



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP ELITE X2 DETACHABLE PC

[Back to product listing](#)

Test	HP Elite x2 1012 G2	HP Elite x2 1012 G2 Collaboration Keyboard	HP Elite x2 1013 G3	HP Elite x2 G4	HP Elite x2 G8	HP Elite Folio 13.5" 2-in-1 Notebook PC 810H
Tested Under	810G	810G	810G	810G	810H	810H
Drop	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	-	-	PASSED	PASSED	PASSED
Vibration (Category 24)	PASSED	-	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Explosive Atmosphere	PASSED	PASSED	PASSED	-	-	-
Freeze/Thaw	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Crash Hazard Shock	PASSED	-	PASSED	PASSED	PASSED	PASSED
Transportation Shock	-	-	-	PASSED	PASSED	PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP ELITEBOOK CONVERTIBLE NOTEBOOK PC

[Back to product listing](#)

Test	HP EliteBook x360 1030 G2 810G	HP EliteBook x360 1030 G3 810G	HP EliteBook x360 1030 G4 810G	HP EliteBook x360 1040 G5, G6 810G	HP EliteBook x360 830 G5, G6 810G
Drop	PASSED	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	-	PASSED	-	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED	PASSED	PASSED
Explosive Atmosphere	-	PASSED	-	PASSED	-
Freeze/Thaw	PASSED	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	-	-	PASSED	-	PASSED
Crash Hazard Shock	-	-	PASSED	-	PASSED
Transporation Shock	-	-	PASSED	-	PASSED

HP ELITEBOOK CONVERTIBLE NOTEBOOK PC

[Back to product listing](#)

Test	HP Elite Dragonfly G2, Max 810H	HP EliteBook x360 830 G7, G8 810H	HP EliteBook x360 1030/1040 G7, G8 810H
Drop	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED
Vibration (Category 5)	PASSED	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED
Explosive Atmosphere	-	-	-
Freeze/Thaw	PASSED	PASSED	PASSED
Bench Handling Shock	PASSED	PASSED	PASSED
Crash Hazard Shock	PASSED	PASSED	PASSED
Transporation Shock	PASSED	PASSED	PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP ELITEBOOK NOTEBOOK PC

[Back to product listing](#)

Test	HP EliteBook Folio G1 810G	HP EliteBook 1040 G4 810G	HP EliteBook 1050 G1 810G
Tested Under			
Drop	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED
Vibration (Category 5)	-	-	-
Vibration (Category 24)	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED
Altitude (Procedure 1)	PASSED	PASSED	PASSED
Altitude (Procedure 2)	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED
Explosive Atmosphere	PASSED	PASSED	PASSED
Freeze/Thaw	PASSED	PASSED	PASSED
Bench Handling Shock	-	-	PASSED
Crash Hazard Shock	-	-	PASSED
Transportation Shock	-	-	-

HP ELITEBOOK NOTEBOOK PC

[Back to product listing](#)

Test	HP EliteBook 820/840/850 G3 810G	HP EliteBook 820/840/850 G4 810G	HP EliteBook 830/840/850 G5 810G	HP EliteBook 830/840/850 G6 810G	HP EliteBook 840r G4 810G
Tested Under					
Drop	PASSED	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	-	-	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure 1)	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure 2)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED	PASSED	PASSED
Explosive Atmosphere	PASSED	PASSED	PASSED	-	-
Freeze/Thaw	PASSED	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	-	-	-	PASSED	PASSED
Crash Hazard Shock	-	-	-	PASSED	PASSED
Transportation Shock	-	-	-	PASSED	PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP ELITEBOOK NOTEBOOK PC (CONTINUED)

[Back to product listing](#)

Test	HP EliteBook 840 G5 Healthcare Edition 810G	HP EliteBook 840 G6 Healthcare Edition 810G	HP EliteBook 725 G4 810G	HP EliteBook 735/745/ 755 G5 810G
Tested Under				
Drop	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	PASSED	PASSED	-	-
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure 1)	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure 2)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED	PASSED
Explosive Atmosphere	-	-	PASSED	PASSED
Freeze/Thaw	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	PASSED	PASSED	-	-
Crash Hazard Shock	PASSED	PASSED	-	-
Transportation Shock	PASSED	PASSED	-	-

HP ELITEBOOK NOTEBOOK PC

[Back to product listing](#)

Test	HP EliteBook 735/745 G6 810G	HP EliteBook 830/840/850 G7, G8 810H	HP EliteBook 835/845/855 G7, G8 810H	HP EliteBook 840 Aero G8 810H
Tested Under				
Drop	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	PASSED	PASSED	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure 1)	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure 2)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED	PASSED
Explosive Atmosphere	-	-	-	-
Freeze/Thaw	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	PASSED	PASSED	PASSED	PASSED
Crash Hazard Shock	PASSED	PASSED	PASSED	PASSED
Transportation Shock	PASSED	PASSED	PASSED	PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP PRO X2 DETACHABLE PC

[Back to product listing](#)

Test	HP Pro x2 612 G2	HP Pro x2 612 G2 Collaboration Keyboard 810G
Tested Under	810G	
Drop	PASSED	PASSED
Functional Shock	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED
Vibration (Category 5)	-	-
Vibration (Category 24)	PASSED	PASSED
Dust	PASSED	PASSED
Humidity	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED
Temperature Shock	PASSED	PASSED
Sand	PASSED	PASSED
Freeze/Thaw	PASSED	PASSED
Bench Handling Shock	PASSED	-
Crash Hazard Shock	PASSED	-
Transportation Shock	-	-

HP PROBOOK CONVERTIBLE NOTEBOOK PC

[Back to product listing](#)

Test	HP ProBook x360 440 G1	HP ProBook x360 11 G1, G2 EE 810G	HP ProBook x360 11 G3, G4 EE 810G	HP ProBook x360 11 G5, G6, G7 EE 810G	HP ProBook x360 435 G7, G8 810H
Tested Under	810G				
Drop	PASSED	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	-	-	-	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Sand	-	-	-	-	PASSED
Freeze/Thaw	-	PASSED	-	-	PASSED
Bench Handling Shock	-	-	-	-	PASSED
Crash Hazard Shock	-	-	-	-	PASSED
Transportation Shock	-	-	-	-	PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP PROBOOK NOTEBOOK PC

[Back to product listing](#)

Test	HP ProBook 640/650/ 645 G4 810G	HP ProBook 640/650 G5 810G	HP ProBook 640/650 G7, 630/640/650 G8 810H	HP ProBook 635 Aero G7, G8 810H	Zahan66 ProA 14" G4 810H
Drop	PASSED	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	PASSED	PASSED	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temp (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temp (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temp (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temp (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Sand	-	PASSED	PASSED	PASSED	PASSED
Freeze/Thaw	-	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	-	PASSED	PASSED	PASSED	PASSED
Crash Hazard Shock	-	PASSED	PASSED	PASSED	PASSED
Transportation Shock	-	PASSED	PASSED	PASSED	PASSED

HP PROBOOK NOTEBOOK PC

[Back to product listing](#)

Test	HP ProBook 430/440/450/ 455/470 G5 810G	HP ProBook 430/440/ 450 G6 810G	HP ProBook 445/455/ 445R/455R G6 810G	HP ProBook 430/440/450 G7, G8 810H	HP ProBook 445/455 G7, G8 810H
Drop	PASSED	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	PASSED	PASSED	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temp (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
High Temp (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temp (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temp (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED	PASSED
Sand	-	PASSED	PASSED	PASSED	PASSED
Freeze/Thaw	-	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	-	PASSED	PASSED	PASSED	PASSED
Crash Hazard Shock	-	PASSED	PASSED	PASSED	PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP NOTEBOOK PC

[Back to product listing](#)

Test	HP 340/348 G5 810G	HP 340/348 G7 810H
Tested Under	810G	810H
Drop	PASSED	PASSED
Functional Shock	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED
Vibration (Category 5)	-	-
Vibration (Category 24)	PASSED	PASSED
Dust	PASSED	PASSED
Humidity	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED
High Temp (Procedure I)	PASSED	PASSED
High Temp (Procedure II)	PASSED	PASSED
Low Temp (Procedure I)	PASSED	PASSED
Low Temp (Procedure II)	PASSED	PASSED
Temperature Shock	PASSED	PASSED
Sand	-	-
Freeze/Thaw	-	-
Bench Handling Shock	-	-
Crash Hazard Shock	-	-
Transportation Shock	-	-

HP CHROMEBOOK

[Back to product listing](#)

Test	HP Chromebook x360 11 G3 EE	HP Chromebook x360 11 MK G3 EE & HP Chromebook Enterprise x360 11MK G3	HP Chromebook Enterprise x360 11 G4 and x360 11 G4 EE	HP Chromebook 14A G5 & HP Chromebook Enerprise 14A G5
Tested Under	810H	810H	810H	810G
Drop	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	PASSED	PASSED	-
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED
Sand	-	PASSED	PASSED	-
Explosive Atmosphere	-	PASSED	PASSED	-
Freeze/Thaw	-	PASSED	PASSED	-
Bench Handling Shock	-	PASSED	PASSED	-
Crash Hazard Shock	-	PASSED	PASSED	-
Transportation Shock	-	-	-	-



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP CHROMEBOOK

[Back to product listing](#)

Test	HP Chromebook 11 G8 EE, 11A G8 EE	HPChromebook 14 G6, HP Chromebook Enterprise 14 G6	HP Pro c640, c640 G2, & c645 Chromebook; HP Pro c640, c640 G2, & c645 Chromebook Enterprise 810H	HP Pro c1030 Chromebook, HP Pro c1030 Chromebook Enterprise 810H
Tested Under	810H	810H	810H	810H
Drop	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	-	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED
Sand	-	-	PASSED	PASSED
Freeze/Thaw	-	-	PASSED	PASSED
Bench Handling Shock	-	-	PASSED	PASSED
Crash Hazard Shock	-	-	PASSED	PASSED
Transportation Shock	-	-	PASSED	PASSED

HP CHROMEBOOK

[Back to product listing](#)

Test	HP Chromebook 14 G7 & HP Chromebook Enterprise 14 G7	HP Chromebook 11 G9 EE & HP Chromebook Enterprise 11 G9	HP Chromebook 11MK G9 EE & HP Chromebook Enterprise 11MK G9
Tested Under	810H	810H	810H
Drop	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED
Vibration (Category 5)	PASSED	PASSED	PASSED
Vibration (Category 24)	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED
Freeze/Thaw	PASSED	PASSED	PASSED
Bench Handling Shock	PASSED	PASSED	PASSED
Crash Hazard Shock	PASSED	PASSED	PASSED
Transportation Shock	PASSED	PASSED	PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP RETAIL

[Back to product listing](#)

Test	HP Engage One All-in-One	HP Engage Go Mobile System	HP Engage Go Mobile Dock	HP Engage Flex Pro Retail System 810G	HP Engage Flex Pro-C Retail System 810G	HP Engage One Pro All-in-One
Tested Under	810G	810G	810G	810G	810G	810G
Drop		PASSED	PASSED	PASSED	PASSED	
Functional Shock	PASSED	PASSED	PASSED	-	-	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Vibration (Category 24)		PASSED	PASSED	-	-	
Dust	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Humidity		PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
Temperature Shock	-	PASSED	PASSED	-	-	-
Sand	-	-	-	-	-	-
Explosive Atmosphere	-	-	-	-	-	-
Freeze/Thaw	-	-	-	-	-	-

HP RETAIL

[Back to product listing](#)

Test	HP Engage Go 10 Convertible System	HP Engage Go 10 Mobile System	HP Engage Go 10 Multi-Charger
Tested Under	810H	810H	810H
Drop	PASSED	PASSED	-
Functional Shock	-	-	-
Vibration (Category 4)	PASSED	PASSED	-
Vibration (Category 24)	-	-	-
Dust	-	-	-
Humidity	PASSED	PASSED	PASSED
Altitude (Procedure I)	-	-	-
Altitude (Procedure II)	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED
Temperature Shock	-	-	-
Sand	-	-	-
Explosive Atmosphere	-	-	-
Freeze/Thaw	-	-	-



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

HP THIN CLIENT

[Back to product listing](#)

Test	HP mt43, mt44 Mobile Thin Client 810G	HP mt45 Mobile Thin Client 810G	HP mt20, mt21 Mobile Thin Client 810G	HP mt22, mt32, mt46 Mobile Thin Client 810H
Tested Under				
Drop	PASSED	PASSED	PASSED	PASSED
Functional Shock	PASSED	PASSED	PASSED	PASSED
Vibration (Category 4)	PASSED	PASSED	PASSED	PASSED
Vibration (Category 5)	-	PASSED	-	-
Vibration (Category 24)	PASSED	PASSED	PASSED	PASSED
Dust	PASSED	PASSED	PASSED	PASSED
Humidity	PASSED	PASSED	PASSED	PASSED
Altitude	PASSED	PASSED	PASSED	PASSED
Altitude (Procedure II)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
High Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure I)	PASSED	PASSED	PASSED	PASSED
Low Temperature (Procedure II)	PASSED	PASSED	PASSED	PASSED
Temperature Shock	PASSED	PASSED	PASSED	PASSED
Sand	PASSED	PASSED	PASSED	PASSED
Explosive Atmosphere	PASSED	-	PASSED	PASSED
Freeze/Thaw	PASSED	PASSED	PASSED	PASSED
Bench Handling Shock	-	PASSED	-	PASSED
Crash Hazard Shock	-	PASSED	-	PASSED
Transportation Shock				PASSED



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

MIL-STD-810 TEST BACKGROUND

Created by the U.S. government, the MIL-STD-810 test method standard is intended to help organizations prepare environmental tests to evaluate how well a particular piece of equipment can perform in the field. The standard outlines dozens of test methods, each associated with a source of environment stress, such as vibration, moisture, dust, extreme temperatures, or humidity; for example, Method 500.5 describes Low Pressure (Altitude) testing, while Method 501.5 describes High Temperature testing. While there is not a recommended or required list of tests for device categories, most major PC vendors generally perform between 5 and 8 test methods.

Each test method outlines multiple test procedures; for example, Method 501.5 describes Procedure I (Storage) and Procedure II (Operation). Thus, Procedure I can be used to evaluate the effects of high-temperature storage on the subsequent performance of a business PC; Procedure II evaluates the effects of high temperature while the PC is running.

TEST SCENARIOS

A third-party facility tested the durability of the HP Business PC models using procedures tailored from MIL-STD-810. HP used the MIL-STD-810 test menu to select tests that most closely reflect the challenges faced by today's professionals.

NOTE

MIL-STD-810 testing is conducted on select HP products. Testing is not intended to demonstrate fitness for U.S. Department of Defense (DoD) contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Accidental damage or damage under these test conditions requires an optional HP Accidental Damage Protection Care Pack.

The following sections describe the grueling test scenarios to which these business-rugged PCs were subjected. All testing was performed by a third-party testing facility, using 810G or 810H methods and procedures.

DROP TEST²

The Drop test was performed in accordance with MIL-STD-810G, Method 516.6 or 516.7, or MIL-STD-810H, Method 516.8 Procedure IV. The objective of this test was to determine whether the unit could be safely operated after being dropped from desk height. For this test, 26 drops were performed from 30 in. onto every side, angle and edge onto 2 in. of plywood over steel over concrete. Unit is powered down and checked for operation.

FUNCTIONAL SHOCK TEST²

The Shock test was performed in accordance with MIL-STD-810G, Method 516.6 or 516.7, or MIL-STD-810H, Method 516.8 Procedure I. The objective of this test was to determine whether the unit could be safely operated after being exposed to sudden physical shock events while operational. For this test, 3 shocks were performed across each axis and direction for a total of 18 shocks.

VIBRATION TEST²

The Vibration Resistance tests were performed in accordance with MIL-STD-810G Test Method 514.6 or 514.7, or MIL-STD-810H, Method 514.8 Procedure I, Cat 24, Cat 4, and Cat 5

Non- operational test with box. Test parameters were set to simulate the following:

- Operate the unit during a 1000-mile simulation of vibrations created by a truck driving on a U.S. highway.
- Operate the unit after it has been subjected to higher levels of vibration while in storage.

Terrain, road and surface discontinuities, vehicle speed, loading, structural characteristics, and suspension system are all reflected in this simulation.

See Key Parameters below for test specifications.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

DUST TEST²

The Dust Resistance test was performed in accordance with MIL-STD-810G, Method 510.5 or 510.6, or MIL-STD-810H, Method 510.7 Procedure I (Dust). Test parameters were set so that the unit was dusted with Arizona Road Dust for six hours while being operated.

HUMIDITY TEST²

The Humidity test was performed in accordance with MIL-STD-810G, Method 507.5 or 507.6, or MIL-STD-810H, Method 507.6 Procedure II with the aggravated temperature-humidity cycle. Each cycle was one day (24 hours); ten cycles with the temperature being cycled between 30°C (86°F) and 60°C (140°F); and relative humidity was a constant 95%.

ALTITUDE TEST²

The Altitude test was performed in accordance with MIL-STD-810G, Method 500.5 or 500.6, or MIL-STD-810H, Method 500.6 Procedure I (Storage) and II (Operation). The altitude level simulated for both procedures was 15,000 feet (the highest equivalent altitude given within MIL-STD-810 for cargo pressures within military aircraft).

HIGH TEMPERATURE TEST²

The High Temperature test was performed in accordance with MIL-STD-810G, Method 501.5 or 501.6, or MIL-STD-810H, Method 501.7 Procedure I (Storage) and II (Operation). This test evaluated the unit's performance while it was being exposed to high temperature conditions: 60°C (140°F) operational and 71°C (160°F) non-operational.

LOW TEMPERATURE TEST²

The Low Temperature test was performed in accordance with MIL-STD-810G, Method 502.5 or 502.6, or MIL-STD-810H, Method 502.7 Procedure I (Storage) and II (Operation). This test evaluated the unit's performance while it was being exposed to low temperature conditions: -29°C (-20°F) operational and -51°C (-60°F) non-operational.

TEMPERATURE SHOCK TEST²

The Thermal Shock test was performed in accordance with MIL-STD-810G, Method 503.5 or 503.6, or MIL-STD-810H, Method 503.7 Procedure I. The objective of this test was to determine whether the unit's could be safely operated after being exposed to sudden changes in ambient temperature while non-operational. The high temperature was set to be 60°C (140°F) and the low temperature to be -51°C (-60°F); three high-to-low cycles were performed.

SAND TEST²

The Sand test was performed in accordance with MIL-STD-810G, Method 510.5 or 510.6, or MIL-STD-810H, Method 510.7 Procedure II. The objective of this test was to determine whether the unit could be safely operated after being exposed to blowing sand of up to 20M/S at a temperature of 60°C (140°F) for 4.5 hours (every 90 minutes, the unit is rotated 90°).

EXPLOSIVE ATMOSPHERE TEST²

The explosive atmosphere test was performed in accordance with MIL-STD-810G, Method 511.5 or 511.6, or MIL-STD-810H, Method 511.7 Procedure I. The objective of this test was to determine whether the notebook could be safely operated in fuel-air explosive atmospheres without causing ignition.

FREEZE/THAW TEST²

The Freeze/Thaw test was performed in accordance with MIL-STD-810G, Method 524.1, or MIL-STD-810H, Method 524.1 Procedure III. The objective of this test was to determine whether the unit could be safely operated after being exposed to a temperature drop of -10°C (14°F) for two hours. Unit is removed and checked for operation.

BENCH HANDLING SHOCK TEST²

The bench handling test was performed in accordance to the MIL-STD-810G, Method 516.6 or 516.7, or MIL-STD-810H, Method 516.8 Procedure VI. This test was designed to test whether the unit can withstand levels of shock resulting from bench handling, bench maintenance, and/or packaging.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

CRASH HAZARD SHOCK TEST²

The Crash Hazard test was performed in accordance to the MIL-STD-810G, Method 516.6 or 516.7, or MIL-STD-810H, Method 516.8 Procedure V. The purpose of this test was to ensure that the unit does not eject sub-elements and that its restraining devices will not fail during crash situations.

TRANSPORTATION SHOCK TEST²

The Transportation Shock test was performed in accordance with MIL-STD-810G Test Method 516.7, or MIL-STD-810H, Method 516.8 Procedure II. Simulation of this environment requires use of a package tester (Annex C, Figure 514.7C-5) that imparts a 25.4 mm (1.0 inch) peak-to-peak, circular synchronous motion to the table at a frequency of 5 Hz. This motion takes place in a vertical plane.

SOLAR RADIATION SHOCK TEST²

The Solar Radiation Shock test was performed in accordance with MIL-STD-810G Test Method 505.6, or MIL-STD-810H, Method 505.7 Procedure II. Use Procedure II to investigate the effects on materiel of long periods of exposure to sunshine. The approach is to use an accelerated test that is designed to reduce the time to reproduce cumulative effects of long periods of exposure. The 4-hour "lights-off" period of each 24-hour cycle allows for test item conditions (physical and chemical) to return toward "normal" and provide some degree of thermal stress exercising.

ESD (ELECTROSTATIC DISCHARGE) TEST²

The ESD test was performed in accordance with IEC 61000-4-2. The objective of this test was to determine whether the unit could be safely operated after being exposed to sudden electrostatic discharge events of up to 8,000 volts. Electrostatic discharge points were performed at horizontal and vertical ground planes, chassis screw, serial port ground, screen, finger pad, power cable, power button, keyboard, speaker button, and trackball for a total of 11 discharge points.

PASS/FAIL CRITERION

The third-party verified that the tested unit was operational after each environmental exposure by booting the Microsoft® Windows® operating environment.

TEST DESCRIPTIONS

The following table includes the tests performed with specific MIL-STD-810 method references and key test parameters.

Test	MIL-STD-810G Reference	Procedures	Key Test Parameters
Vibration	MIL-STD-810G Test Method 514.6 or 514.7 or MIL-STD-810H, Method 514.8	Procedure I, Category 24 (Minimum Integrity Test)	Non-operational 0.04 g ² /Hz at 20-1000 Hz, -6 dB/octave at 1000-2000 Hz; One hour/axis duration
		Procedure I, Category 4 (Ground Vehicle)	Operational U.S. highway truck exposure 1000 mile Simulation; One hour/axis duration
		Procedure II, Category 5 (Loose Cargo)	Non-operational test with box. Simulation of this environment requires use of a package tester that imparts a 25.4 mm (1.0 inch) peak-to-peak, circular synchronous motion to the table at a frequency of 5 Hz. This motion takes place in a vertical plane.
Dust Resistance	MIL-STD-810G, Method 510.5 or 510.6 or MIL-STD-810H, Method 510.7	Procedure I (Blowing dust)	Particles of Arizona Road Dust, 10.6 +/-7 grams per cubic foot
Sand	MIL-STD-810G, Method 510.5 or 510.6 or MIL-STD-810H, Method 510.7	Procedure II (Blowing sand)	Blowing sand of up to 20M/S at a temperature of 60°C (140°F) for 4.5 hours. Every 90 minutes, the unit is rotated 90°.
Humidity	MIL-STD-810G, Method 507.5 or 507.6 or MIL-STD-810H, Method 507.6	Procedure II	Relative humidity 95%; Temperature cycled between 30°C and 60°C (86°F and 140°F); Test cycle 24 hours; test consisted of ten cycles



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

Test	MIL-STD-810G Reference	Procedures	Key Test Parameters
Altitude	MIL-STD-810G, Method 500.5 or 500.6, or MIL-STD-810H, Method 500.6	Procedure I (Storage/air transport)	Non-operational 15,000 feet at 57 kPa One hour duration
		Procedure II (Operation/air carriage)	Operational 15,000 feet at 57 kPa One hour duration
High Temperature	MIL-STD-810G, Method 501.5 or 501.6, or MIL-STD-810H, Method 501.7	Procedure I (Storage)	Non-operational Temperature cycled between 35°C and 71°C (95°F and 160°F)
		Procedure II (Operation)	Test cycle 24 hours; test consisted of seven cycles Operational 60°C (140°F) Four hours duration
Low Temperature	MIL-STD-810G, Method 502.5 or 502.6, or MIL-STD-810H, Method 502.7	Procedure I (Storage)	Non-operational -51°C (-60°F) Four hours duration
		Procedure II (Operation)	Operational -29°C (-20°F) Four hours duration
Temperature Shock	MIL-STD-810G, Method 503.5 or 503.6 or MIL-STD-810H, Method 503.7	Procedure I	Non-operational High temperature 60°C (140°F) Low temperature -51°C (-60°F); Three cycles (a cycle consists of a dwell low, low to high, dwell high, high to low) One hour dwell time
Functional Shock	MIL-STD-810G, Method 516.6 or 516.7 or MIL-STD-810H, Method 516.8	Procedure I	Operational 3 shocks/axis/direction for a total of 18 shocks; 40 Gs peak, 11 ms
Drop	MIL-STD-810G, Method 516.6 or 516.7, or MIL-STD-810H, Method 516.8	Procedure IV	26 drops from 30 in. onto every side, angle and edge onto 2 in. of plywood over steel over concrete. Unit is powered down and checked for operation.
Explosive Atmosphere	MIL-STD-810G, Method 511.5 or 511.6 or MIL-STD-810H, Method 511.7	Procedure I	Unit could be safely operated in fuel-air explosive atmospheres without causing ignition.
Freeze/Thaw	MIL-STD-810G, Method 524.1 or 524.5 or MIL-STD-810H, Method 524.1	Procedure III	Non-operational Exposed to a temperature drop of -10°C (14°F) for two hours Unit is removed and checked for operation
Crash Hazard Shock	MIL-STD-810G, Method 516.6 or 516.7 or MIL-STD-810H, Method 516.8	Procedure V	Non Operational 2 shocks in each axis/direction for
Bench Handling Shock	MIL-STD-810G, Method 516.6 or 516.7 or MIL-STD-810H, Method 516.8	Procedure VI	16 drops from 4 inches on a wooden bench top on all sides, edges and corners that could be impacted during normal handling or during maintenance.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION
PAGES

1-2-3

Commitment to Quality

3-4

HP Business PC models tested

5-6-7

8-9-10

11-12

13-14

15-16

17-18

Test results

19-20-21

22-23-24

MIL-STD-810 test background

Test	MIL-STD-810G Reference	Procedures	Key Test Parameters
Solar Radiation	Method 505.6	Procedure II Sample condition: Non-Operation Radiation source: Metal halide lamp Irradiance: Spectral irradiance of (1120+/-47 W/m ² at (300-3000) nm Chamber temperature: 49 degree Exposing duration: 20 hours irradiation and 4 hours darkness per a 24-hour cycle Test duration: 1 Cycle Two units: 1 for lid close, 1 for lid open.	The purpose is to investigate the effects on material of long periods of exposure to sunshine. The approach is to use an accelerated test that is designed to reduce the time to reproduce cumulative effects of long periods of exposure. The 4-hour "lights-off" period of each 24-hour cycle allows for test item conditions (physical and chemical) to return toward "normal" and provide some degree of thermal stress exercising.

ESD TEST DESCRIPTIONS

The following table includes the specific test parameters for the Electrostatic Discharge test.

Test	Reference	Key Test Parameter
ESD (Electrostatic Discharge)	IEC 6100-42	Temperature: 23°C (73°F) Humidity 39% Between 6 to 8,000 Volts applied to: <ul style="list-style-type: none"> • Horizontal Ground Plane • Vertical Ground Plane • Chassis Screw • Serial Port Ground • Screen • Fingerprint • Power Cable • Power Button • Keyboard • Speaker B

The MIL-STD-810 test specifications can be accessed at iest.org/Standards-RPs/MIL-STD-810.

Learn more about HP business notebooks, tablets, and desktops at hp.com or contact your local HP sales representative.

¹HP's Total Test Process is not a guarantee of future performance under these test conditions. Accidental Damage or damage under these test conditions requires an optional HP Accidental Damage Protection Care Pack.

²MIL - STD - 810 testing is conducted on select HP products. Testing is not intended to demonstrate fitness for U.S. Department of Defense (DoD) contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Accidental damage or damage under these test conditions requires an optional HP Accidental Damage Protection Care Pack.

© Copyright 2021 HP Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Microsoft and Windows are trademarks of the Microsoft group of companies. All other trademarks are the property of their respective owners.

4AA6-0823ENW, Sept 2021



THE ECO DECLARATION



Ecma/TC38-TG3/2015/026
(Rev. 1 – 15 April 2015)

Annex B2 - Product environmental attributes Computers and computer monitors

The declaration may be published only when all rows and/or fields marked with * are filled-in (n.a. for not applicable).
Additional information regarding each item may be found under P15.

Brand *	HP	
Company name *	HP	
Contact information * e-mail address	HP Sustainability and Compliance Center sustainability@hp.com	
Internet site *	http://www.hp.com/hpinfo/globalcitizenship/environment/	
Additional information		

The company declares (based on product specification or test results based obtained from sample testing), that the product conforms to the statements given in this declaration.	
Type of product *	Notebook PC
Commercial name *	HP EliteBook x360 830 G8
Model number *	X360 830 G8
Issue date *	14/12/2020
Intended market *	<input checked="" type="checkbox"/> Global <input type="checkbox"/> Europe <input type="checkbox"/> Asia, Pacific & Japan <input type="checkbox"/> Americas <input type="checkbox"/> Other
Additional information	

This is an uncontrolled copy when in printed form. Please refer to the contact information for the latest version.

About Annex B2

Annex B2 reflects Product environmental attributes relevant for Computers and Computer Monitors. The following items from the ECMA-370 Main body are not shown in the template:
P4.1 – P4.3 Consumable materials
P9.1 TEC and Print speed
P10.2 - P10.3 Chemical emissions from printing products
P11.1 - P11.3 Consumable materials for printing products.

Model number *	X360 830 G8	Logo	
Issue date *	14/12/2020		

Product environmental attributes - Legal requirements		Requirement met		
Item		Yes	No	n.a.
P1 Hazardous substances and preparations				
P1.1*	Products do comply with current European RoHS Directive. (See legal reference and NOTE B1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.2*	Products do not contain Asbestos (see legal reference). Comment: Legal reference has no maximum concentration value.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.3*	Products do not contain Ozone Depleting Substances: Chlorofluorocarbons (CFC), hydrobromofluorocarbons (HBFC), hydrochlorofluorocarbons (HCFC), Halons, carbontetrachloride, 1,1,1-trichloroethane, methyl bromide (see legal reference). Comment: Legal reference has no maximum concentration values.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.4*	Products do not contain more than; 0,005% polychlorinated biphenyl (PCB), 0,005% polychlorinated terphenyl (PCT) in preparations (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.5*	Products do not contain more than 0,1% short chain chloroparaffins (SCCP) with 10-13 carbon atoms in the chain containing at least 48% per mass of chlorine in the SCCP (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.6*	Parts with direct and prolonged skin contact do not release nickel in concentrations above 0,5 µg/cm ² /week (see legal reference). Comment: Max limit in legal reference when tested according to EN1811:2011-5.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P1.7*	REACH Article 33 information about substances in articles is available at (add URL or mail contact): http://www.hp.com/hpinfo/globalcitizenship/environment/productdata/reachdesktop-pcs.html	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2 Batteries				
P2.1*	If the product contains a battery or an accumulator, the battery/accumulator is labeled with the disposal symbol. Information on proper disposal is provided in user manual. (See legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P2.2*	Batteries or accumulators do not contain more than 0,0005% of mercury or 0,002% of cadmium. (See legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P2.3*	Batteries and accumulators are readily removable. (See legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P3 Conformity verification & Eco design (ErP)				
P3.1*	The product is CE-marked to show conformance with applicable legal requirements (see legal reference). The Declaration of Conformity can be requested at (add link or e-mail address): http://www8.hp.com/uk/en/certifications/technical/regulations-certificates.html sustainability@hp.com	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P3.2*	The product complies with the Eco design requirements for energy-related products, (see legal reference). Required information is; <input checked="" type="checkbox"/> given in item P15 or added to this document, <input type="checkbox"/> available at (add URL):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5 Product packaging				
P5.1*	Packaging and packaging components do not contain more than 0,01% lead, mercury, cadmium and hexavalent chromium by weight of these together.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P5.2*	The packaging materials are marked with abbreviations and numbers indicating the nature of the material(s) used (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5.3*	The product packaging material is free from ozone depleting substances as specified in the Montreal Protocol (see legal reference). Comment: Legal reference has no maximum concentration values.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P6 Treatment information				
P6.1*	Information for recyclers/treatment facilities is available (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE B1 Restriction applies to the homogeneous material, unless other specified and expressed in weight %. Stating "Yes" means that the product is compliant with the mandatory requirements.

Model number *	X360 830 G8	Logo	
Issue date *	14/12/2020		

Product environmental attributes - Market requirements (See General NOTE GN below)				
- Environmental conscious design			Requirement met	
Item	*=mandatory to fill in. Additional information regarding each item may be found under P14.	Yes	No	n.a.
P7 Design				
Disassembly, recycling				
P7.1*	Parts that have to be treated separately are easily separable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.2*	Plastic materials in covers/housing have no surface coating.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.3*	Plastic parts > 100 g consist of one material or of easily separable materials.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P7.4*	Plastic parts > 25 g have material codes according to ISO 11469 referring ISO 1043-4.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.5	Plastic parts are free from metal inlays or have inlays that can be removed with commonly available tools.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.6*	Labels are easily separable. (This requirement does not apply to safety/regulatory labels).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product lifetime				
P7.7*	Upgrading can be done e.g. with processor, memory, cards or drives	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.8*	Upgrading can be done using commonly available tools	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.9	Spare parts are available after end of production for: 5years			<input type="checkbox"/>
P7.10	Service is available after end of production for: 5years			<input type="checkbox"/>
Material and substance requirements				
P7.11*	Product cover/housing material type (e.g. plastics, metal, aluminum): Material type: >PC+ABS- TD15FR(40)<	Material type:	Material type:	
P7.12	Insulation materials of external electrical cables are PVC free.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.13	Insulation materials of internal electrical cables are PVC free.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.14	External plastic casing/cover parts > 25 g contain no more than 0,1% weight (1000 ppm) bromine and 0,1% weight (1000 ppm) chlorine attributable to brominated flame retardants, chlorinated flame retardants, and polyvinyl chloride or 0,3% weight (3000 ppm) bromine and 0,3% weight (3000 ppm) chlorine in parts containing more than 25% post-consumer recycled content.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.15	Printed circuit boards, PCBs (without components) are low halogen: all <input type="checkbox"/> PCBs > 25 g <input checked="" type="checkbox"/> are low halogen as defined in IEC 61249-2-21. (See 1NOTE B2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.16	Flame retarded plastic parts > 25 g in covers / housings are marked according ISO 1043-4: Marking: FR(40)<	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.17	Alt. 1: Chemical specifications of flame retardants in printed circuit boards > 25 g (without components): TBBPA (additive) <input type="checkbox"/> , TBBPA (reactive) <input type="checkbox"/> (See NOTE B3), Other; chemical name: , CAS #: , CAS #: Alt. 2: Chemical specifications of flame retardants in printed circuit boards (without components) > 25 g according ISO 1043-4: FR(40)<	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.18	Alt. 1: Flame retarded plastic parts > 25 g contain the following flame retardant substances/preparations in concentrations above 0,1%: 1. Chemical name: , CAS #: (See NOTE B4) 2. Chemical name: , CAS #: " 3. Chemical name: , CAS #: " Alt. 2: Chemical specifications of flame retardants in plastic parts > 25 g according ISO 1043-4: FR(40)<	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.19	In plastic parts > 25 g, flame retardant substances/preparations above 0,1% are used which have been assigned the following Risk phrases; R53 and Hazard statements: H413 May cause long lasting harmful effects to aquatic life The source(s) for these classifications is/are found at (add URL(s)): http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database (See note B5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.20*	Postconsumer recycled plastic material content is used in the product (See Note B6): If YES; at least one of the two alternatives below shall be answered; a) Of total plastic parts' weight > 25 g, the postconsumer recycled plastic material content (calculated as a percentage of total plastic by weight) is 38%.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GENERAL NOTE Standard references should direct to the latest version of a standard. If an older version of a standard is used, section P15 shall be used for explanation.

NOTE B2 IEC 61249-2-21 defines maximum limits of 900 ppm for each of the substances chlorine and bromine and a maximum limit of 1500ppm of these substances combined. The standard does not address fluorine, iodine and astatine which are included in the group of halogens.

NOTE B3 and B4 A Guidance document on Chemical substances is available; see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>

NOTE B5: If a certain substance has been assigned a certain risk phrases / hazard statement in the referenced source, this does not necessarily mean the substance has been tested for all of the hazards referred to by a certain customer.

NOTE B6 Applies to a product containing plastic parts whose combined weight exceeds 100 g with the exception of printed circuit boards, cables, connectors and electronic components and bio-based plastic material.

NOTE B7: Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard, criterion 4.2.1.1.

or
b) The weight of recycled material is _____ g.

Model number *	X360 830 G8	Logo	
Issue date *	14/12/2020		

Product environmental attributes - Market requirements (continued)		Requirement met		
Item		Yes	No	n.a.

Material and substance requirements (continued)				
--	--	--	--	--

P7.21*	Biobased plastic material content is used in the product (See NOTE B7): If YES; at least one of the two alternatives below shall be answered; a) Of total plastic parts' weight > 25 g, the biobased plastic material content (calculated as a percentage of total plastic by weight) is _____ %. or b) The weight of the biobased plastic material is _____ g.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.22*	Light sources are free from mercury, i.e. less than 0,1 mg/lamp. If mercury is used specify: Number of lamps: _____ and maximum mercury content per lamp: _____ mg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

P8 Batteries				
---------------------	--	--	--	--

P8.1*	Battery chemical composition: <i>lithium ion</i> ,	<input type="checkbox"/>		
-------	--	--------------------------	--	--

P9 Energy consumption (See NOTE B8)				
--	--	--	--	--

P9.1 For the product the following power levels or energy consumptions are reported:					
Energy mode *	Power level at 100 V AC	Power level at 115 V AC	Power level at 230 V AC	Reference/Standard for energy modes and test method *	<input type="checkbox"/>
EPS No-load (External power supply / charger plugged in the wall outlet but disconnected from the product.)	0.03 W	0.03 W	0.06 W	EPS Energy Report Data	<input type="checkbox"/>
PTEC * Typical Energy Consumption	N/A	N/A	N/A	ENERGY STAR® Program Requirements for Computers	<input checked="" type="checkbox"/>
ETEC * Annual Energy Consumption	17.64 kWh/year	17.65 kWh/year	17.98 kWh/year	ENERGY STAR® Program Requirements for Computers	<input type="checkbox"/>
External Power Supply Efficiency Level (International Efficiency Marking Protocol) * : VI				ENERGY STAR® Program Requirements for Computers	<input type="checkbox"/>
Display resolution * : 1920*1080 megapixels				ENERGY STAR® Program Requirements for Computers	<input type="checkbox"/>
Default time to enter energy save mode: _____ minutes				ENERGY STAR® Program Requirements for Computers	<input checked="" type="checkbox"/>
P9.2*	Information about the energy save function is provided with the product.				<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
P9.3	Energy efficiency class (monitors only):				<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>

P10 Emissions				
----------------------	--	--	--	--

Noise emission – Declared according to ISO 9296 (See NOTE B9)				
P10.1	Mode	Mode description	Statistical upper limit A-weighted sound power level, L _{WA,C} (B)	
	Idle	* Fans on, HDD spinning (if applicable)	* 2.5	<input type="checkbox"/>
	Operation	* Fans on, HDD spinning	* 3.5	<input type="checkbox"/>
	Other mode			
Measured according to: <input checked="" type="checkbox"/> ISO 7779 <input checked="" type="checkbox"/> ECMA-74 <input type="checkbox"/> Other (only if not covered by ECMA-74)				

NOTE B7 The following is to be excluded from the calculation of percentage: printed circuit boards, labels, cables, connectors and electronic components and postconsumer recycled plastic

NOTE B8 A Guidance document on Energy Efficiency is available; see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>

NOTE B9 A Guidance document on Acoustic Noise is available; see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>

Model number *	X360 830 G8	Logo	
Issue date *	14/12/2020		

Product environmental attributes - Market requirements (continued)		Requirement met		
Item		Yes	No	n.a.
P10 Electromagnetic emissions				
P10.4	Computer display meets the requirement for low frequency electromagnetic fields of the following voluntary program(s):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P12 Ergonomics for computing products				
P12.1*	The display meets the ergonomic requirements of ISO 9241-307 for visual display technologies.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P12.2*	The physical input device meets the requirements of ISO 9995 and ISO 9241-410.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P13 Packaging and documentation				
P13.1*	Product packaging material type(s): PAPER/Corrugated weight (kg): 0.22 Product packaging material type(s): PAPER/Corrugated weight (kg): 0.041 Product packaging material type(s): PAPER/Molded pulp weight (kg): 0.177 Product packaging material type(s): PLASTIC/polypropylene weight (kg): 0.003 Product packaging material type(s): PLASTIC/polyethylene low density-LDPE weight (kg): 0.014			
P13.2*	Product plastic primary packaging is free from PVC.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P13.3*	For product primary corrugated fiberboard packaging, specify the contained percentage of minimum post-consumer recovered fiber content: 54%			<input type="checkbox"/>
P13.4*	Specify media for user and product documentation (tick box): Electronic <input type="checkbox"/> , Paper <input type="checkbox"/> , Other <input checked="" type="checkbox"/> available on hp.com			<input type="checkbox"/>
P13.5	(Please only complete this item if paper documentation used) User and product documentation on paper media is chlorine-free: If Yes, please specify: Totally chlorine-free Elemental chlorine-free Processed chlorine-free	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		<input checked="" type="checkbox"/>		
		<input type="checkbox"/>		
		<input type="checkbox"/>		
P14 Voluntary programs				
P14.1	The product meets the requirements of the following voluntary program(s):			
	ENERGY STAR® Criteria version: 8.0 Date: 14/12/2020 Product category: Commercial notebook			
	Eco-label: EPEAT Criteria version: IEEE1690.1 Date: 14/12/2020 Product category: Commercial notebook			
	Eco-label: TCO Criteria version: 8 Date: 14/12/2020 Product category: Commercial notebook			
P15 Additional information (See NOTE B10)				
All Sections	1. Product environmental information contained in this declaration is valid as of the date the declaration is published. Changes to external standards referenced in the IT Eco-Declaration may invalidate some information contained in this declaration over			
P1	1. This product does not include DEHP, BBP, DIBP, or DBP.			

NOTE B10 Additional lines may be inserted to declare further items, by positioning the cursor at the far right of the row and hitting the <Enter> key.

P7 Product Upgradability and Reparability

The following table is provided in accordance with IEEE 1680.1-2018⁶ criterion 4.4.2.5.

feature	Available [1]	Repairable [2]	Replaceable [3]	Upgradeable [4]
processor	Y	Y	Y*	N
main memory	Y	Y	Y*	N
mass storage (internal)	Y	Y	Y	Y
wireless networking	Y	Y	Y	N
integrated graphics	Y	Y	Y*	N
discrete graphics	N	N/A	N/A	N/A
display panel	Y	Y	Y	N
integrated keyboard	Y	Y	Y	N
batteries	Y	Y	Y	N
power supply	Y	Y	Y	N
fan assemblies	Y	Y	Y	N
speaker(s) (internal)	Y	Y	Y	N
camera	Y*	Y	Y	N
touchpad	Y	Y	Y	N
I/O connectors and external power connector	Y	Y	Y	N
readers [5]	Y	Y	Y	N

Table notes:

[1] Y* = feature is available, but may not be included in every configuration

[2] Product can be repaired (returned to fully functional state) if feature fails.

[3] Feature can be replaced using only commonly available tools without soldering or de-soldering. Y* = replacement may require replacing an assembly to which the feature is attached.

[4] Base feature may be upgraded by replacing it with a higher performance module or by expanding capacity through use of expansion slots. NOTE: This evaluation does not account for situations in which the initial configuration purchased is already maximized. Contact HP Sales or an HP authorized reseller to determine the availability of upgrade parts and method to obtain them in your geography.

[5] This feature category includes readers such as fingerprint readers, smart card readers, and other read-only devices, but excludes read/write devices.

P9 Energy consumption of computer products; description of the tested product configuration:

P9 1. European Union Commission Regulation 1275/2008- Energy Efficiency Information:

Mode / Condition	Power Consumption in Watts at 230 VAC Input Voltage	Default Time to Mode / Condition (if applicable)
Off Mode (if applicable)	0.40 W	Not Applicable
Standby Mode (if applicable)	Not Applicable	Not Applicable
Network Standby / Sleep / Long Idle Mode if all wired network ports are connected and all wireless network ports are activated (if applicable)	1.14 W	30 min
Network Standby / Sleep / Long Idle Mode (if applicable)	N/A	N/A

2. European Union Commission Regulation 1275/2008- Wireless Network Instructions:

Where applicable, activate and deactivate a wireless network using the instructions provided in the product user guide or the operating system. Information is also available at www.hp.com/support.

P10 Sound Pressure Level

Noise emission – Declared according to ISO 9296 (See NOTE B9)

Mode	Mode description	Statistical upper limit A-weighted sound pressure level, $L_{pA,m}$ (dB)
Idle	* Fans on, HDD spinning (if applicable)	* 23.6 <input type="checkbox"/>
Operation	* Fans on, HDD spinning	* 27.5 <input type="checkbox"/>
Other mode		
Measured according to: <input checked="" type="checkbox"/> ISO 7779 <input checked="" type="checkbox"/> ECMA-74		
<input type="checkbox"/> Other (only if not covered by ECMA-74)		

6 IEEE Standard for Environmental and Social Responsibility Assessment of Computers and Displays

Legal references Europe Annex B2

Reference	Declaration item
Directive 2011/65/EU (RoHS Directive) * * Specific exemptions apply for certain products and applications.	P1.1
Regulation (EC) 1907/2006(REACH, Annex XVII)	P1.2, P1.4, P1.6, P1.7
Regulation (EC) 2037/2000, 2038/2000, 2039/2000 (Marketing and use of Ozone layer depleting substances)	P1.3, P5.3
Norwegian regulation relating to restrictions on the use of certain dangerous chemicals 20.12.2002	P1.5
Directive 2013/56/EC (Battery and accumulators Directive) * * These provisions shall not apply where, for safety, performance, medical or data integrity reasons, continuity of power supply is necessary and requires a permanent connection between the appliance and the battery or accumulator.	P2.1, P2.2, P2,3, P8.1
Directive 2006/95/EC (Low Voltage Directive)	P3.1
Directive 2004/108/EC (EMC Directive)	P3.1
Directive 1999/5/EC (R&TTE Directive)	P3.1
Regulation (EC) 801/2013 amending Regulation (EC) No 1275/2008 with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment, and amending Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions	P3.1, P3.2
Regulation (EC) No 1272/2008 (CLP Regulation)	P7.19
Directive 2004/12/EC (Packaging Directive)	P5.1
Decision 97/129/EC (Secondary packaging legislation)	P5.2
Directive 2012/19/EU (WEEE directive)	P6.1

Company environmental profile - THE ECO DECLARATION

Brand	HP	
Company name *	HP	
Contact information *	HP Sustainability and Compliance Center (SCC) sustainability@hp.com	
Internet site *	www.hp.com/hpinfo/globalcitizenship/environment/index.html	
Issue date *	2014-06-01	
Intended market *	<input checked="" type="checkbox"/> Global <input type="checkbox"/> Europe <input type="checkbox"/> Asia, Pacific & Japan <input type="checkbox"/> Americas <input type="checkbox"/> Other	
Additional information		

This is an uncontrolled copy when in printed form. Please refer to the contact information for the latest version.

The declaration may be published only when all rows and/or fields marked with an * are filled-in (n.a. for not applicable). Additional information regarding each item may be found under C7.

Company environmental profile - Legal requirements		Requirement met		
Item		Yes	No	n.a.
C1	Product recycling			
C1.1*	The company participates in a system or has its own system for collection and recycling of end of life products in countries where the company puts them on the market and where required (see legal reference)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C2	Battery recycling			
C2.1*	The company participates in a system or has its own system for collection and recycling of batteries in countries where the company puts products on the market (see legal reference) or pays eco tax / fee where required.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C3	Packaging recycling			
C3.1*	The company participates in a system or has its own system for collection and recycling of packaging material in countries where the company puts products on the market and where required (see legal reference)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Company environmental profile - Market requirements		Requirement met		
Item		Yes	No	n.a.
C4	Environmental policy and environmental management			
C4.1*	The company has a documented environmental policy approved by the management.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C4.2*	The company has an environmental management system covering: Product development Manufacturing If so certified according to: <input checked="" type="checkbox"/> ISO 14001 <input checked="" type="checkbox"/> Other as specified in C7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C4.3	The company regularly publishes an environmental report. If so, it meets the recommendations of <input checked="" type="checkbox"/> The Global Reporting Initiative <input type="checkbox"/> Other as specified in C7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C5	Recycling			
C5.1*	Information about the product, battery & packaging take back system (C1, C2 and C3) is available in printed or electronic format.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C6	Voluntary programs			
C6.1	The company meets the requirements of the following voluntary program/s: Voluntary Agreement: Criteria version: Date: Product category: Voluntary Agreement: Criteria version: Date: Product category:			
C7	Additional information			
	<p><i>HP has received ISO 14001 certification for its manufacturing operations (Worldwide Manufacturing of Computing and Imaging Products and Related Operations) and for product design for its Personal Systems Products and LaserJet and Enterprise Printing Products. The product design certifications include HP-wide product environmental design processes (such as HP's General Specification for the Environment) that cover all HP products.</i></p> <p><i>HP is committed to responsible business practices and transparency in its global citizenship policies and performance. We have a long history of working with suppliers to monitor and improve their social and environmental responsibility (SER) performance when required, as well as improving standards in the industry. HP endorses the EICC Code of Conduct in its entirety, and we have supplemented it with additional requirements specific to freedom of association as well as HP's Student and Dispatch Worker Guidance Standard for Supplier Facilities in the People's Republic of China (PRC). HP also has a strong Global Human Rights Policy in place. HP expects its suppliers to establish policies and processes regarding conflict minerals. HP conducts due diligence on its supply chain annually including requesting information about our suppliers' own due diligence and the smelters and refiners used. HP was the first IT company to publish its supply chain smelter list. HP follows the Global Reporting Initiative (GRI) guidelines as a basis for reporting. The GRI index provides easy reference to HP's Living Progress Report (LPR) content. HP offers take back services of products and printing suppliers in some 70 countries. Please refer to HP's Living Progress Report for more details on our global efforts.</i></p>			

Legal references Europe Annex A

Reference	Declaration item
Directive 2012/19/EU (WEEE directive)	C1.1
Directive 2006/66/EC (Battery and accumulators Directive) * * These provisions shall not apply where, for safety, performance, medical or data integrity reasons, continuity of power supply is necessary and requires a permanent connection between the appliance and the battery or accumulator.	C2.1
Directive 2004/12/EC (Packaging Directive)	C3.1
Decision 97/129/EC (Secondary packaging legislation)	C3.1

THE ECO DECLARATION



Ecma/TC38-TG3/2015/026
(Rev. 1 – 15 April 2015)

Annex B2 - Product environmental attributes Computers and computer monitors

The declaration may be published only when all rows and/or fields marked with * are filled-in (n.a. for not applicable).
Additional information regarding each item may be found under P15.

Brand *	HP	
Company name *	HP	
Contact information * e-mail address	HP Sustainability and Compliance Center sustainability@hp.com	
Internet site *	http://www.hp.com/hpinfo/globalcitizenship/environment/	
Additional information		

The company declares (based on product specification or test results based obtained from sample testing), that the product conforms to the statements given in this declaration.	
Type of product *	Display
Commercial name *	HP E27d G4 QHD Advanced Docking Monitor
Model number *	E274d G4
Issue date *	2/1/2020
Intended market *	<input checked="" type="checkbox"/> Global <input type="checkbox"/> Europe <input type="checkbox"/> Asia, Pacific & Japan <input type="checkbox"/> Americas <input type="checkbox"/> Other
Additional information	

This is an uncontrolled copy when in printed form. Please refer to the contact information for the latest version.

About Annex B2

Annex B2 reflects Product environmental attributes relevant for Computers and Computer Monitors. The following items from the ECMA-370 Main body are not shown in the template:
P4.1 – P4.3 Consumable materials
P9.1 TEC and Print speed
P10.2 - P10.3 Chemical emissions from printing products
P11.1 - P11.3 Consumable materials for printing products.

Model number *	E274d G4	Logo	
Issue date *	2/1/2020		

Product environmental attributes - Legal requirements		Requirement met		
Item		Yes	No	n.a.
P1 Hazardous substances and preparations				
P1.1*	Products do comply with current European RoHS Directive. (See legal reference and NOTE B1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.2*	Products do not contain Asbestos (see legal reference). Comment: Legal reference has no maximum concentration value.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.3*	Products do not contain Ozone Depleting Substances: Chlorofluorocarbons (CFC), hydrobromofluorocarbons (HBFC), hydrochlorofluorocarbons (HCFC), Halons, carbontetrachloride, 1,1,1-trichloroethane, methyl bromide (see legal reference). Comment: Legal reference has no maximum concentration values.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.4*	Products do not contain more than; 0,005% polychlorinated biphenyl (PCB), 0,005% polychlorinated terphenyl (PCT) in preparations (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.5*	Products do not contain more than 0,1% short chain chloroparaffins (SCCP) with 10-13 carbon atoms in the chain containing at least 48% per mass of chlorine in the SCCP (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.6*	Parts with direct and prolonged skin contact do not release nickel in concentrations above 0,5 µg/cm ² /week (see legal reference). Comment: Max limit in legal reference when tested according to EN1811:2011-5.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P1.7*	REACH Article 33 information about substances in articles is available at (add URL or mail contact): http://www.hp.com/hpinfo/globalcitizenship/environment/productdata/reachdesktop-pcs.html	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2 Batteries				
P2.1*	If the product contains a battery or an accumulator, the battery/accumulator is labeled with the disposal symbol. Information on proper disposal is provided in user manual. (See legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P2.2*	Batteries or accumulators do not contain more than 0,0005% of mercury or 0,002% of cadmium. (See legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P2.3*	Batteries and accumulators are readily removable. (See legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P3 Conformity verification & Eco design (ErP)				
P3.1*	The product is CE-marked to show conformance with applicable legal requirements (see legal reference). The Declaration of Conformity can be requested at (add link or e-mail address): http://www8.hp.com/uk/en/certifications/technical/regulations-certificates.html sustainability@hp.com	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P3.2*	The product complies with the Eco design requirements for energy-related products, (see legal reference). Required information is; <input checked="" type="checkbox"/> given in item P15 or added to this document, <input type="checkbox"/> available at (add URL):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5 Product packaging				
P5.1*	Packaging and packaging components do not contain more than 0,01% lead, mercury, cadmium and hexavalent chromium by weight of these together.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P5.2*	The packaging materials are marked with abbreviations and numbers indicating the nature of the material(s) used (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5.3*	The product packaging material is free from ozone depleting substances as specified in the Montreal Protocol (see legal reference). Comment: Legal reference has no maximum concentration values.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P6 Treatment information				
P6.1*	Information for recyclers/treatment facilities is available (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE B1 Restriction applies to the homogeneous material, unless other specified and expressed in weight %. Stating "Yes" means that the product is compliant with the mandatory requirements.

Model number *	E274d G4	Logo	
Issue date *	2/1/2020		

Product environmental attributes - Market requirements (See General NOTE GN below)			
- Environmental conscious design			Requirement met
Item	*=mandatory to fill in. Additional information regarding each item may be found under P14.	Yes	No n.a.
P7 Design			
Disassembly, recycling			
P7.1*	Parts that have to be treated separately are easily separable	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.2*	Plastic materials in covers/housing have no surface coating.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.3*	Plastic parts > 100 g consist of one material or of easily separable materials.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.4*	Plastic parts > 25 g have material codes according to ISO 11469 referring ISO 1043-4.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.5	Plastic parts are free from metal inlays or have inlays that can be removed with commonly available tools.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.6*	Labels are easily separable. (This requirement does not apply to safety/regulatory labels).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product lifetime			
P7.7*	Upgrading can be done e.g. with processor, memory, cards or drives	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P7.8*	Upgrading can be done using commonly available tools	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P7.9	Spare parts are available after end of production for: 5 years		<input type="checkbox"/>
P7.10	Service is available after end of production for: 5 years		<input type="checkbox"/>
Material and substance requirements			
P7.11*	Product cover/housing material type (e.g. plastics, metal, aluminum): Material type: ABS Material type: Material type:		
P7.12	Insulation materials of external electrical cables are PVC free.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P7.13	Insulation materials of internal electrical cables are PVC free.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.14	External plastic casing/cover parts > 25 g contain no more than 0,1% weight (1000 ppm) bromine and 0,1% weight (1000 ppm) chlorine attributable to brominated flame retardants, chlorinated flame retardants, and polyvinyl chloride or 0,3% weight (3000 ppm) bromine and 0,3% weight (3000 ppm) chlorine in parts containing more than 25% post-consumer recycled content.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.15	Printed circuit boards, PCBs (without components) are low halogen: all <input type="checkbox"/> PCBs > 25 g <input checked="" type="checkbox"/> are low halogen as defined in IEC 61249-2-21. (See 1NOTE B2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.16	Flame retarded plastic parts > 25 g in covers / housings are marked according ISO 1043-4: Marking:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P7.17	<u>Alt. 1:</u> Chemical specifications of flame retardants in printed circuit boards > 25 g (without components): TBBPA (additive) <input type="checkbox"/> , TBBPA (reactive) <input type="checkbox"/> (See NOTE B3), Other; chemical name: , CAS #: , CAS #: <u>Alt. 2:</u> Chemical specifications of flame retardants in printed circuit boards (without components) > 25 g according ISO 1043-4:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P7.18	<u>Alt. 1:</u> Flame retarded plastic parts > 25 g contain the following flame retardant substances/preparations in concentrations above 0,1%: 1. Chemical name: , CAS #: (See NOTE B4) 2. Chemical name: , CAS #: " 3. Chemical name: , CAS #: " <u>Alt. 2:</u> Chemical specifications of flame retardants in plastic parts > 25 g according ISO 1043-4:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P7.19	In plastic parts > 25 g, flame retardant substances/preparations above 0,1% are used which have been assigned the following Risk phrases; and Hazard statements: The source(s) for these classifications is/are found at (add URL(s)): http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database (See note B5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P7.20*	Postconsumer recycled plastic material content is used in the product (See Note B6): If YES; at least one of the two alternatives below shall be answered; a) Of total plastic parts' weight > 25 g, the postconsumer recycled plastic material content (calculated as a percentage of total plastic by weight) is 57.36% . Or b) The weight of recycled material is g.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

GENERAL NOTE Standard references should direct to the latest version of a standard. If an older version of a standard is used, section P15 shall be used for explanation.

NOTE B2: IEC 61249-2-21 defines maximum limits of 900 ppm for each of the substances chlorine and bromine and a maximum limit of 1500ppm of these substances combined. The standard does not address fluorine, iodine and astatine which are included in the group of halogens.

NOTE B3 and B4 A Guidance document on Chemical substances is available; see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>

NOTE B5: If a certain substance has been assigned a certain risk phrases / hazard statement in the referenced source, this does not necessarily mean the substance has been tested for all of the hazards referred to by a certain customer.

NOTE B6: Applies to a product containing plastic parts whose combined weight exceeds 100 g with the exception of printed circuit boards, cables, connectors and electronic components and bio-based plastic material.

NOTE B7: Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard, criterion 4.2.1.1.

Model number *	E274d G4	Logo	
Issue date *	2/1/2020		

Product environmental attributes - Market requirements (continued)		Requirement met		
Item		Yes	No	n.a.

Material and substance requirements (continued)						
P7.21*	Biobased plastic material content is used in the product (See NOTE B7): If YES; at least one of the two alternatives below shall be answered; a) Of total plastic parts' weight > 25 g, the biobased plastic material content (calculated as a percentage of total plastic by weight) is %. or b) The weight of the biobased plastic material is g.			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.22*	Light sources are free from mercury, i.e. less than 0,1 mg/lamp. If mercury is used specify: Number of lamps: and maximum mercury content per lamp: mg			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P8 Batteries						
P8.1*	Battery chemical composition:			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P9 Energy consumption (See NOTE B8)						
P9.1 For the product the following power levels or energy consumptions are reported:						
Energy mode *	Power level at 100 V AC	Power level at 115 V AC	Power level at 230 V AC	Reference/Standard for energy modes and test method *	<input type="checkbox"/>	
EPS No-load (External power supply / charger plugged in the wall outlet but disconnected from the product.)	W	W	W	<i>EPS Energy Report Data</i>	<input type="checkbox"/>	
PTEC * Typical Energy Consumption	W	W	W	<i>ENERGY STAR® Program Requirements for Computer Monitor: Ver. 8.0</i>	<input checked="" type="checkbox"/>	
ETEC * Annual Energy Consumption	kWh/year	kWh/year	kWh/year	<i>ENERGY STAR® Program Requirements for Computer Monitor: Ver. 8.0</i>	<input type="checkbox"/>	
External Power Supply Efficiency Level (International Efficiency Marking Protocol) * :				<i>ENERGY STAR® Program Requirements for Computer Monitor: Ver. 8.0</i>	<input type="checkbox"/>	
Display resolution * : megapixels				<i>ENERGY STAR® Program Requirements for Computer Monitor: Ver. 8.0</i>	<input type="checkbox"/>	
Default time to enter energy save mode: minutes				<i>ENERGY STAR® Program Requirements for Computer Monitor: Ver. 8.0</i>	<input checked="" type="checkbox"/>	
P9.2*	Information about the energy save function is provided with the product.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P9.3	Energy efficiency class (monitors only):			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P10 Emissions						
Noise emission – Declared according to ISO 9296 (See NOTE B9)						
P10.1	Mode	Mode description	Statistical upper limit A-weighted sound power level, $L_{WA,c}$ (B)			
	Idle	*	*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Operation	*	*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Other mode			<input type="checkbox"/>	<input type="checkbox"/>	
Measured according to: <input type="checkbox"/> ISO 7779 <input type="checkbox"/> ECMA-74 <input type="checkbox"/> Other (only if not covered by ECMA-74)						

NOTE B7 The following is to be excluded from the calculation of percentage: printed circuit boards, labels, cables, connectors and electronic components and postconsumer recycled plastic

NOTE B8 A Guidance document on Energy Efficiency is available;
see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>

NOTE B9 A Guidance document on Acoustic Noise is available;
see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>

Model number *	E274d G4	Logo	
Issue date *	2/1/2020		

Product environmental attributes - Market requirements (continued)		Requirement met		
Item		Yes	No	n.a.
P10 Electromagnetic emissions				
P10.4	Computer display meets the requirement for low frequency electromagnetic fields of the following voluntary program(s):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P12 Ergonomics for computing products				
P12.1*	The display meets the ergonomic requirements of ISO 9241-307 for visual display technologies.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P12.2*	The physical input device meets the requirements of ISO 9995 and ISO 9241-410.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P13 Packaging and documentation				
P13.1*	Product packaging material type(s): PAPER/Corrugated weight (kg): 3.5 Product packaging material type(s): PLASTIC/Polyethylene Expanded - EPE weight (kg): 0.017 Product packaging material type(s): _____ weight (kg): _____			
P13.2*	Product plastic primary packaging is free from PVC.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P13.3*	For product primary corrugated fiberboard packaging, specify the contained percentage of minimum post-consumer recovered fiber content: 100 %			<input type="checkbox"/>
P13.4*	Specify media for user and product documentation (tick box): Electronic <input type="checkbox"/> , Paper <input type="checkbox"/> , Other <input checked="" type="checkbox"/> available on hp.com			<input type="checkbox"/>
P13.5	(Please only complete this item if paper documentation used) User and product documentation on paper media is chlorine-free: If Yes, please specify: Totally chlorine-free Elemental chlorine-free Processed chlorine-free	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P14 Voluntary programs				
P14.1	The product meets the requirements of the following voluntary program(s): ENERGY STAR® Criteria version: _____ Date: _____ Product category: _____ Eco-label: Criteria version: _____ Date: _____ Product category: _____ Eco-label: Criteria version: _____ Date: _____ Product category: _____			
P15 Additional information (See NOTE B10)				
All Sections	1. Product environmental information contained in this declaration is valid as of the date the declaration is published. Changes to external standards referenced in the IT Eco-Declaration may invalidate some information contained in this declaration over			
P1	1. This product does not include DEHP, BBP, DIBP, or DBP.			

NOTE B10 Additional lines may be inserted to declare further items, by positioning the cursor at the far right of the row and hitting the <Enter> key.

P7

Product Upgradability and Reparability

The following table is provided in accordance with IEEE 1680.1-2018⁶ criterion 4.4.2.5.

feature	Available [1]	Repairable [2]	Replaceable [3]	Upgradeable [4]
processor				
main memory				
mass storage (internal)				
wireless networking				
integrated graphics				
discrete graphics				
display panel				
integrated keyboard				
batteries				
power supply				
fan assemblies				
speaker(s) (internal)				
camera				
touchpad				
I/O connectors and external power connector				
readers [5]				

Table notes:

[1] Y* = feature is available, but may not be included in every configuration

[2] Product can be repaired (returned to fully functional state) if feature fails.

[3] Feature can be replaced using only commonly available tools without soldering or de-soldering. Y* = replacement may require replacing an assembly to which the feature is attached.

[4] Base feature may be upgraded by replacing it with a higher performance module or by expanding capacity through use of expansion slots. NOTE: This evaluation does not account for situations in which the initial configuration purchased is already maximized. Contact HP Sales or an HP authorized reseller to determine the availability of upgrade parts and method to obtain them in your geography.

[5] This feature category includes readers such as fingerprint readers, smart card readers, and other read-only devices, but excludes read/write devices.

P9

Energy consumption of computer products; description of the tested product configuration:

P9

1. European Union Commission Regulation 1275/2008- Energy Efficiency Information:

Mode / Condition	Power Consumption in Watts at 230 VAC Input Voltage	Default Time to Mode / Condition (if applicable)
Off Mode (if applicable)	0.29 W	Not Applicable
Standby Mode (if applicable)	Not Applicable	Not Applicable
Network Standby / Sleep / Long Idle Mode if all wired network ports are connected and all wireless network ports are activated (if applicable)	0.35 W	N/A
Network Standby / Sleep / Long Idle Mode (if applicable)	0.85 W	N/A

2. European Union Commission Regulation 1275/2008- Wireless Network Instructions:

Where applicable, activate and deactivate a wireless network using the instructions provided in the product user guide or the operating system. Information is also available at www.hp.com/support.

Legal references Europe Annex B2

Reference	Declaration item
Directive 2011/65/EU (RoHS Directive) * * Specific exemptions apply for certain products and applications.	P1.1
Regulation (EC) 1907/2006(REACH, Annex XVII)	P1.2, P1.4, P1.6, P1.7
Regulation (EC) 2037/2000, 2038/2000, 2039/2000 (Marketing and use of Ozone layer depleting substances)	P1.3, P5.3
Norwegian regulation relating to restrictions on the use of certain dangerous chemicals 20.12.2002	P1.5
Directive 2013/56/EC (Battery and accumulators Directive) * * These provisions shall not apply where, for safety, performance, medical or data integrity reasons, continuity of power supply is necessary and requires a permanent connection between the appliance and the battery or accumulator.	P2.1, P2.2, P2,3, P8.1
Directive 2006/95/EC (Low Voltage Directive)	P3.1
Directive 2004/108/EC (EMC Directive)	P3.1
Directive 1999/5/EC (R&TTE Directive)	P3.1
Regulation (EC) 801/2013 amending Regulation (EC) No 1275/2008 with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment, and amending Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions	P3.1, P3.2
Regulation (EC) No 1272/2008 (CLP Regulation)	P7.19
Directive 2004/12/EC (Packaging Directive)	P5.1
Decision 97/129/EC (Secondary packaging legislation)	P5.2
Directive 2012/19/EU (WEEE directive)	P6.1

Company environmental profile - THE ECO DECLARATION

Brand	HP	Logo 
Company name *	HP	
Contact information *	HP Sustainability and Compliance Center (SCC) sustainability@hp.com	
Internet site *	www.hp.com/hpinfo/globalcitizenship/environment/index.html	
Issue date *	2014-06-01	
Intended market *	<input checked="" type="checkbox"/> Global <input type="checkbox"/> Europe <input type="checkbox"/> Asia, Pacific & Japan <input type="checkbox"/> Americas <input type="checkbox"/> Other	
Additional information		

This is an uncontrolled copy when in printed form. Please refer to the contact information for the latest version.

The declaration may be published only when all rows and/or fields marked with an * are filled-in (n.a. for not applicable). Additional information regarding each item may be found under C7.

Company environmental profile - Legal requirements		Requirement met		
Item		Yes	No	n.a.
C1	Product recycling			
C1.1*	The company participates in a system or has its own system for collection and recycling of end of life products in countries where the company puts them on the market and where required (see legal reference)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C2	Battery recycling			
C2.1*	The company participates in a system or has its own system for collection and recycling of batteries in countries where the company puts products on the market (see legal reference) or pays eco tax / fee where required.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C3	Packaging recycling			
C3.1*	The company participates in a system or has its own system for collection and recycling of packaging material in countries where the company puts products on the market and where required (see legal reference)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Company environmental profile - Market requirements		Requirement met		
Item		Yes	No	n.a.
C4	Environmental policy and environmental management			
C4.1*	The company has a documented environmental policy approved by the management.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C4.2*	The company has an environmental management system covering: Product development Manufacturing If so certified according to: <input checked="" type="checkbox"/> ISO 14001 <input checked="" type="checkbox"/> Other as specified in C7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C4.3	The company regularly publishes an environmental report. If so, it meets the recommendations of <input checked="" type="checkbox"/> The Global Reporting Initiative <input type="checkbox"/> Other as specified in C7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C5	Recycling			
C5.1*	Information about the product, battery & packaging take back system (C1, C2 and C3) is available in printed or electronic format.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C6	Voluntary programs			
C6.1	The company meets the requirements of the following voluntary program/s: Voluntary Agreement: Criteria version: Date: Product category: Voluntary Agreement: Criteria version: Date: Product category:			
C7	Additional information			
<p><i>HP has received ISO 14001 certification for its manufacturing operations (Worldwide Manufacturing of Computing and Imaging Products and Related Operations) and for product design for its Personal Systems Products and LaserJet and Enterprise Printing Products. The product design certifications include HP-wide product environmental design processes (such as HP's General Specification for the Environment) that cover all HP products.</i></p> <p><i>HP is committed to responsible business practices and transparency in its global citizenship policies and performance. We have a long history of working with suppliers to monitor and improve their social and environmental responsibility (SER) performance when required, as well as improving standards in the industry. HP endorses the EICC Code of Conduct in its entirety, and we have supplemented it with additional requirements specific to freedom of association as well as HP's Student and Dispatch Worker Guidance Standard for Supplier Facilities in the People's Republic of China (PRC). HP also has a strong Global Human Rights Policy in place. HP expects its suppliers to establish policies and processes regarding conflict minerals. HP conducts due diligence on its supply chain annually including requesting information about our suppliers' own due diligence and the smelters and refiners used. HP was the first IT company to publish its supply chain smelter list. HP follows the Global Reporting Initiative (GRI) guidelines as a basis for reporting. The GRI index provides easy reference to HP's Living Progress Report (LPR) content. HP offers take back services of products and printing suppliers in some 70 countries. Please refer to HP's Living Progress Report for more details on our global efforts.</i></p>				

Legal references Europe Annex A

Reference	Declaration item
Directive 2012/19/EU (WEEE directive)	C1.1
Directive 2006/66/EC (Battery and accumulators Directive) * * These provisions shall not apply where, for safety, performance, medical or data integrity reasons, continuity of power supply is necessary and requires a permanent connection between the appliance and the battery or accumulator.	C2.1
Directive 2004/12/EC (Packaging Directive)	C3.1
Decision 97/129/EC (Secondary packaging legislation)	C3.1

THE ECO DECLARATION



Annex B2 - Product environmental attributes Computers and computer monitors

The declaration may be published only when all rows and/or fields marked with * are filled-in (n.a. for not applicable). Additional information regarding each item may be found under P15.

Brand *	HP	Logo 
Company name *	HP	
Contact information * e-mail address	HP Sustainability and Compliance Center sustainability@hp.com	
Internet site *	https://www8.hp.com/us/en/hp-information/sustainable-impact/planet-product-solutions.html	
Additional information		

The company declares (based on product specification or test results based obtained from sample testing), that the product conforms to the statements given in this declaration.

Type of product *	Display
Commercial name *	HP E27 G4 FHD monitor
Model number *	E27 G4
Issue date *	12/01/2020
Intended market *	<input checked="" type="checkbox"/> Global <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Asia, Pacific & Japan <input type="checkbox"/> Americas <input type="checkbox"/> Other
Additional information	

This is an uncontrolled copy when in printed form. Please refer to the contact information for the latest version.

About Annex B2
Annex B2 reflects Product environmental attributes relevant for Computers and Computer Monitors. The following items from the ECMA-370 Main body are not shown in the template:
P4.1 – P4.3 Consumable materials
P9.1 TEC and Print speed
P10.2 - P10.3 Chemical emissions from printing products
P11.1 - P11.3 Consumable materials for printing products.

Model number *	<i>E27 G4</i>	Logo	
Issue date *	<i>12/01/2020</i>		

Product environmental attributes - Legal requirements met		Requirement		
Item		Yes	No	n.a.
P1 Hazardous substances and preparations				
P1.1*	Products do comply with current European RoHS Directive. (See legal reference and NOTE B1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.2*	Products do not contain Asbestos (see legal reference). Comment: Legal reference has no maximum concentration value.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.3*	Products do not contain Ozone Depleting Substances: Chlorofluorocarbons (CFC), hydrobromofluorocarbons (HBFC), hydrochlorofluorocarbons (HCFC), Halons, carbontetrachloride, 1,1,1-trichloroethane, methyl bromide (see legal reference). Comment: Legal reference has no maximum concentration values.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.4*	Products do not contain more than; 0,005% polychlorinated biphenyl (PCB), 0,005% polychlorinated terphenyl (PCT) in preparations (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.5*	Products do not contain more than 0,1% short chain chloroparaffins (SCCP) with 10-13 carbon atoms in the chain containing at least 48% per mass of chlorine in the SCCP (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.6*	Parts with direct and prolonged skin contact do not release nickel in concentrations above 0,5 $\mu\text{g}/\text{cm}^2/\text{week}$ (see legal reference). Comment: Max limit in legal reference when tested according to EN1811:2011-5.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P1.7*	REACH Article 33 information about substances in articles is available at (add URL or mail contact): sustainability@hp.com	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2 Batteries				
P2.1*	If the product contains a battery or an accumulator, the battery/accumulator is labeled with the disposal symbol. Information on proper disposal is provided in user manual. (See legal reference)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2.2*	Batteries or accumulators do not contain more than 0,0005% of mercury or 0,002% of cadmium. (See legal reference)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2.3*	Batteries and accumulators are readily removable. (See legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P2.4*	Documentation includes the number of cycles the (secondary) battery can withstand. (See legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P2.5*	When internal batteries of a notebook computer cannot be "accessed and replaced by a nonprofessional user", the related text is present and legible on the external packaging (see legal reference)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P3 Conformity verification & Eco design (ErP)				
P3.1*	The product is CE-marked to show conformance with applicable legal requirements (see legal reference). The Declaration of Conformity can be requested at (add link or e-mail address):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P3.2*	The product complies with the applicable Eco design requirements for energy-related products, (see legal reference). Required information is; <input checked="" type="checkbox"/> given in item P15 or added to this document, <input type="checkbox"/> available at (add URL):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5 Product packaging				
P5.1*	Packaging and packaging components do not contain more than 0,01% lead, mercury, cadmium and hexavalent chromium by weight of these together.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P5.2*	The packaging materials are marked with abbreviations and numbers indicating the nature of the material(s) used (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5.3*	The product packaging material is free from ozone depleting substances as specified in the Montreal Protocol (see legal reference). Comment: Legal reference has no maximum concentration values.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P6 Treatment information				
P6.1*	Information for recyclers/treatment facilities is available (see legal reference).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE B1 Restriction applies to the homogeneous material, unless other specified and expressed in weight %. Stating "Yes" means that the product is compliant with the mandatory requirements.

Model number *	<i>E27 G4</i>	Logo	
Issue date *	<i>12/01/2020</i>		

Product environmental attributes - Market requirements (continued)				Requirement		
met				Yes	No	n.a.
Material and substance requirements (continued)						
P7.20*	Postconsumer recycled plastic material content is used in the product (See NOTE B6): If YES; at least one of the two alternatives below shall be answered; a) Of total plastic parts' weight > 25 g, the postconsumer recycled plastic material content (calculated as a percentage of total plastic by weight) is 83.44% %. or b) The weight of recycled material is _____ g.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.21*	Biobased plastic material content is used in the product (See NOTE B7): If YES; at least one of the two alternatives below shall be answered; a) Of total plastic parts' weight > 25 g, the biobased plastic material content (calculated as a percentage of total plastic by weight) is _____ %. or b) The weight of the biobased plastic material is _____ g.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.22*	Light sources are free from mercury, i.e. less than 0,1 mg/lamp. If mercury is used specify: Number of lamps: _____ and maximum mercury content per lamp: _____ mg			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.23*	If product includes an integral display, the total mercury content in the integrated display: 0 mg			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P8 Batteries						
P8.1*	Battery chemical composition:					<input checked="" type="checkbox"/>
P9 Energy consumption (See NOTE B8)						
P9.1 For the product the following power levels or energy consumptions are reported:						
Energy mode *	Power level at 100 V AC	Power level at 115 V AC	Power level at 230 V AC	Reference/Standard for energy modes and test method *	<input type="checkbox"/>	
EPS No-load (External power supply / charger plugged in the wall outlet but disconnected from the product.)	N/A	N/A	N/A	<i>EPS Energy Report Data</i>		
PTEC * Typical Energy Consumption	<i>N/A</i> W	<i>N/A</i> W	<i>N/A</i> W	<i>N/A</i>	<input checked="" type="checkbox"/>	
ETEC * Annual Energy Consumption	36.6 kWh/year	36.5 kWh/year	37.2 kWh/year	<i>ENERGY STAR® Program Requirements for Computer Monitor</i>	<input type="checkbox"/>	
External Power Supply Efficiency Level (International Efficiency Marking Protocol) * : VI				<i>ENERGY STAR® Program Requirements for Computer Monitor</i>	<input type="checkbox"/>	
Display resolution * : 1920*1080 megapixels				<i>ENERGY STAR® Program Requirements for Computer Monitor</i>	<input type="checkbox"/>	
Default time to enter energy save mode: _____ minutes				<i>ENERGY STAR® Program Requirements for Computer Monitor</i>	<input type="checkbox"/>	
P9.2*	Information about the energy save function is provided with the product.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P9.3	Energy efficiency class (monitors only):					<input checked="" type="checkbox"/>

NOTE B6 Applies to a product containing plastic parts whose combined weight exceeds 100 g with the exception of printed circuit boards, cables, connectors and electronic components and bio-based plastic material.

NOTE B7 The following is to be excluded from the calculation of percentage: printed circuit boards, labels, cables, connectors and electronic components and postconsumer recycled plastic

NOTE B8 A Guidance document on Energy Efficiency is available;
see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>.

Model number *	E27 G4	Logo	
Issue date *	12/01/2020		

Product environmental attributes - Market requirements (continued)			Requirement		
Item			Yes	No	n.a.
P10 Emissions					
Noise emission – Declared according to ISO 9296 (See NOTE B9)					
P10.1	Mode	Mode description	Statistical upper limit A-weighted sound power level, $L_{WA,c}$ (B)		
	Idle	*	*	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Operation	*	*	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Other mode				
	Measured according to: <input type="checkbox"/> ISO 7779 <input type="checkbox"/> ECMA-74 <input type="checkbox"/> Other (only if not covered by ECMA-74)				
Electromagnetic emissions					
P10.4	Computer display meets the requirement for low frequency electromagnetic fields of the following voluntary program(s):		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P12 Ergonomics for computing products					
P12.1*	The display meets the ergonomic requirements of ISO 9241-307 for visual display technologies.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P12.2*	The physical input device meets the requirements of ISO 9995 and ISO 9241-410.		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P13 Packaging and documentation					
P13.1*	Product packaging material type(s): <i>PAPER/Corrugated</i> weight (kg): <i>3.212</i> Product packaging material type(s): <i>PLASTIC/Polyethylene Expanded - EPE</i> weight (kg): <i>0.065</i>				
P13.2*	Product plastic primary packaging is free from PVC.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P13.3*	For product primary corrugated fiberboard packaging, specify the contained percentage of minimum post-consumer recovered fiber content: <i>94</i> %				<input type="checkbox"/>
P13.4*	Specify media for user and product documentation (tick box): Electronic <input checked="" type="checkbox"/> , Paper <input type="checkbox"/> , Other <input type="checkbox"/>				<input type="checkbox"/>
P13.5	(Please only complete this item if paper documentation used) User and product documentation on paper media is chlorine-free: If Yes, please specify: Totally chlorine-free Elemental chlorine-free Processed chlorine-free		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P14 Voluntary programs					
P14.1	The product meets the requirements of the following voluntary program(s):				
	ENERGY STAR®	Criteria version: <i>IEEE 1680.1</i>	Date: <i>12/01/2020</i>	Product category: <i>Commercial Displays</i>	
	Eco-label: <i>TCO/TCO Edge</i>	Criteria version: <i>EDGE</i>	Date: <i>12/01/2020</i>	Product category: <i>Commercial Displays</i>	
	Eco-label:	Criteria version:	Date:	Product category:	
P15 Additional information (See NOTE B10)					
All Sections	<i>1. Product environmental information contained in this declaration is valid as of the date the declaration is published. Changes to external standards referenced in the IT Eco-Declaration may invalidate some information contained in this declaration over</i>				
P1	<i>1. This product does not include DEHP, BBP, DIBP, or DBP.</i>				

NOTE B9 A Guidance document on Acoustic Noise is available;
see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>.

NOTE B10 Additional lines may be inserted to declare further items, by positioning the cursor at the far right of the row and hitting the <Enter> key.

Product Upgradability and Reparability

The following table is provided in accordance with IEEE 1680.1-2018⁶ criterion 4.4.2.5.

feature	Available [1]	Repairable [2]	Replaceable [3]	Upgradeable [4]
processor	Y	Y	N	N
main memory	Y	Y	N	N
mass storage (internal)	Y	Y	N	N
wireless networking	N	N/A	N/A	N/A
integrated graphics	N	N/A	N/A	N/A
discrete graphics	N	N/A	N/A	N/A
display panel	Y	Y	Y	N
integrated keyboard	N	N/A	N/A	N/A
batteries	Y	Y	N	N
power supply	Y	Y	Y	N
fan assemblies	N	N/A	N/A	N/A
speaker(s) (internal)	N	N/A	N/A	N/A
camera	N	N/A	N/A	N/A
touchpad	N	N/A	N/A	N/A
I/O connectors and external power connector	Y	Y	N	N
readers [5]	N	N/A	N/A	N/A

Table notes:

[1] Y* = feature is available, but may not be included in every configuration

[2] Product can be repaired (returned to fully functional state) if feature fails.

[3] Feature can be replaced using only commonly available tools without soldering or de-soldering. Y* = replacement may require replacing an assembly to which the feature is attached.

[4] Base feature may be upgraded by replacing it with a higher performance module or by expanding capacity through use of expansion slots.

NOTE: This evaluation does not

account for situations in which the initial configuration purchased is already maximized. Contact HP Sales or an HP authorized reseller to determine the availability of upgrade parts and method to obtain them in your geography.

[5] This feature category includes readers such as fingerprint readers, smart card readers, and other read-only devices, but excludes read/write devices.

P9 **Energy consumption of computer products; description of the tested product configuration:**

The product complies with the applicable Eco design requirements for energy-related products, see P3.2.

Legal references Europe Annex B2

Reference	Declaration item
Directive 2011/65/EU (RoHS Directive)* * Specific exemptions apply for certain products and applications.	P1.1, P3.1
Regulation (EC) 1907/2006 (REACH Regulation), annex XVII	P1.2, P1.4, P1.6, P1.7
Regulation (EC) 2037/2000, 2038/2000, 2039/2000 (Marketing and use of Ozone layer depleting substances)	P1.3, P5.3
Norwegian regulation relating to restrictions on the use of certain dangerous chemicals 20.12.2002	P1.5
Directive 2006/66/EC (Battery and accumulators Directive), as amended.* * These provisions shall not apply where, for safety, performance, medical or data integrity reasons, continuity of power supply is necessary and requires a permanent connection between the appliance and the battery or accumulator.	P2.1, P2.2, P2,3, P8.1
Directive 2014/35/EU (Low Voltage Directive)	P3.1
Directive 2014/30/EU (EMC Directive)	P3.1
Directive 2014/53/EU (RE Directive)	P3.1
Regulation (EC) 801/2013 amending Regulation (EC) No 1275/2008 with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment, and amending Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions	P3.1, P3.2
Commission Regulation (EC) No 278/2009 of 6 April 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for no-load condition electric power demand and average active efficiency of external power supplies	P3.1, P3.2, P9.1
COMMISSION REGULATION (EU) No 617/2013 of 26 June 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for computers and computer servers	P2.4, P2.5, P3.1, P3.2, P7.23, P9.1
Regulation (EC) No 1272/2008 (CLP Regulation)	P7.19
Directive 2004/12/EC (Packaging Directive)	P5.1
Decision 97/129/EC (Secondary packaging legislation)	P5.2
Directive 2012/19/EU (WEEE directive) Implementing Regulation (EU) 2019/290 establishing the format for registration and reporting of producers of electrical and electronic equipment to the register. Commission Implementing Regulation 2017/699 establishing a common methodology for the calculation of the weight of electrical and electronic equipment (EEE) placed on the national market in each Member State and a common methodology for the calculation of the quantity of waste electrical and electronic equipment (WEEE) generated by weight in each Member State.	P6.1