DEKRA Certification, Inc.
405 Glenn Dr. Suite 12,
Sterling, VA 20164
United States of America

DEKRA

Test report No:
4507ERM.003A1

ACCREDITED
CERTIFICATE #2764.01

Assessment report RF exposure report according to

IEEE Std C95.3-2002
FCC 47 CFR Part 2.1091
FCC 47 CFR Part 1.1307
FCC 47 CFR Part 1.1310

(*) Identification of item tested	Shaver + Qi-charger + USB-adapter
(*) Trademark	Philips
(*) Model and /or type reference tested	Shaver: SP9883 Charging pad: HQ 8510 USB-adapter: HQ87
(*) Derived model not tested	Shaver: SP9890, SP 9888, SP9887, SP9886, SP9885, SP9884, SP9882, SP9881, SP9880, SP9879, SP9873, SP9872, SP9871, SP9870, SP9863, SP9862, SP9861, SP9860. Charging pad: HQ 8509
Other identification of the product	FCC ID: 2AICSHQ8510
(*) Features	Adapter: 100-240 Vac, 50/60 Hz, 11W Shaver: 3.6 Vdc, 5W Qi transmitter for wireless charging compliant with Qi standard V1.3.x. 100kHz to 148.5 kHz
Manufacturer	**Philips Consumer Lifestyle B.V.,** Oliemolenstraat 5, 9203 ZN Drachten, the Netherlands
Test method requested, standard	IEEE Std C95.3-2002: "IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields with Respect to Human Exposure to Such Fields, 100 kHz–300 GHz". FCC 47 CFR Part 2.1091 Radiofrequency radiation exposure evaluation: mobile devices. FCC 47 CFR Part 1.1307: Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared. FCC 47 CFR Part 1.1310: Radiofrequency radiation exposure limits.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager Digitally signed by Domingo Galvez DN: cn=Domingo Galvez, o=Dekra Certification Inc., ou=Regulatory Lab Manager, email=domingo.galvez@dekra.com, c=US
Date of issue	08-22-2024
Report template No	FERMUSA_199 (*) "Data provided by the client"

Index

Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01 and CAB ID US0215.

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification Inc. at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Assessment Report apply only to the particular item under test established in this document.

General conditions

1. This report is only referred to the item that has undergone the assessment.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
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Uncertainties

Uncertainty (factor k=2) was calculated according to the DEKRA Certification internal document PODT000.

Frequency (MHz)	Uncertainty (dB)	Uncertainty	Field
0.03 – 0.09	3.87	1.56	Electric (V/m)
0.03 – 0.09	2.60	1.34	Magnetic (A/m)
0.09 - 10	0.85	1.10	Electric (V/m)
0.09 - 10	0.71	1.09	Magnetic (A/m)

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").

2. The sample consists of the Qi-charging pad for shaver.

3. Applicant’s declaration letter shown below for model similarity.

PHILIPS

Identity Declaration

Ref.: AST 230S-246388
Date: 15/03/2024
By: K. Kloosterman

This is to declare that the design of following shavers:

SP9890	SP9884	SP9873	SP9862	
SP9888	SP9883	SP9872	SP9861	
SP9887	SP9882	SP9871	SP9860	
SP9886	SP9880	SP9870		
SP9885	SP9879	SP9863		3.6V⎓ / 5W

(type ref., input rating)

all are identical in electrical and mechanical aspects, except for the following:

- o Software (having washing cycle or not)
- o Outside colors
- o Shaving system click-on
- o Included accesories and Packaging

All can be charged by these wireless chargers:

HQ8510	
HQ8509	230V, 50/60Hz

(type ref., input rating)

which are identical in electrical and mechanical aspects, except for the following:

- o Outside colors

Investigator: Klaas Kloosterman Signature:

Function: Safety & Compliance Engineer Date: 15/03/2024

Philips Consumer Lifestyle Drachten

www.philips.com

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by the client

Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
4507/01	Wireless charger + Power cable	HQ8510	-	02/19/2024
4388/02	AC Adaptor	HQ87	-	12/01/2023
4388/03	Wet & Dry Electric Shaver with SkinIQ S9000 Prestige	SP9883	-	12/01/2023

1. Sample S/01 has undergone the test(s) specified in subclause “Test method requested”.

Identification of the client

Philips Consumer Lifestyle B.V.,
Oliemolenstraat 5,
9203 ZN Drachten,
the Netherlands.

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	02-25-2024
Date (finish)	02-26-2024

Document history

Report number	Date	Description
4507ERM.003	05-15-2024	First release.
4507ERM.003A1	08-22-2024	Second release. Updated the test report with new results and the photos. This modified test report cancels and replaces the report 4507ERM.003.

General description of the device under evaluation

The test sample consist of the Qi-charging pad for shaver.

In order to perform the assessment for the Qi wireless technology a conservative evaluation distance <=10cm has been used.

According to the Manufacturer, the declared minimum distance is 50cm to the user.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: Ivy Yousuf Moutushi, Prudhvi Kothapalli and Koji Nishimoto.

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

FCC 47 CFR § 2.1093 & ISED RSS 102 ISSUE 5 AMD 1 & ISED RSS 102-SPR-002 ISSUE 2	VERDICT			
	N/A	P	F	NM
Qi Wireless Charger		P		

1: Technology not subject to testing. Verdict has been determined through RF Exposure assessment (see Appendix A).

List of equipment used during the test

CONTROL NUMBER	DESCRIPTION	MANUFACTURER	MODEL	LAST CALIBRATION	NEXT CALIBRATION
1107	ETHERNET SNMP THERMOMETER	HW GROUP	HWg-STE Plain	2022/08	2024/08
1324	Narda EHP-200A E and H Field Analyzer	NARDA	EHP-200A	2020/09	2024/09

Appendix A: FCC RF Exposure Evaluation

RF Exposure Assessment result and verdict

RF Exposure evaluation for the Qi wireless technology has been conducted through field measurements (see Qi Wireless Charger Evaluation section below).

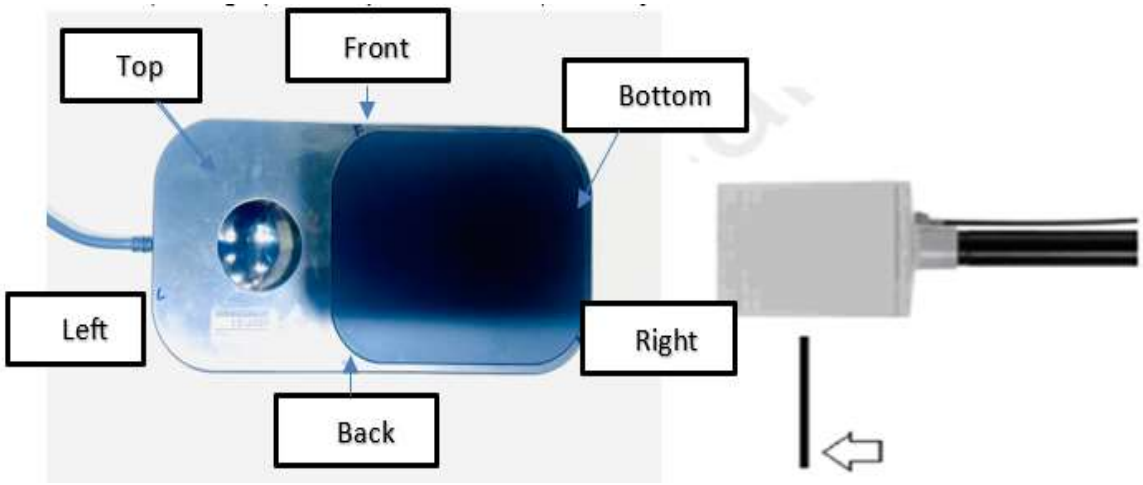
Technology	Frequency (MHz)	Max. H-field (A/m)	Max. E-field (V/m)	Maximum Conducted Power (mW)	H-Field Limit (A/m)	E-Field Limit (V/m)	§1.1307(b)(3).i.(A) Exposure Limit (mW)	Verdict
Qi Charger	0.144	1.50	4.89	-	1.63	614	-	PASS

Table 1: Assessment result and Verdict

Qi Wireless Charger Evaluation

For Portable devices below 4MHz and down to 100 KHz the MPE limits in §1.1310 can be used for the purpose of evaluations, perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 10 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the <=10 cm and the E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit, per KDB 447498, Table 1. measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m.

Limits for Maximum Permissible Exposure (MPE) to comply with FCC 47 CFR § 2.1091 are defined in “FCC 47 CFR Part 1.1310 Radiation Exposure limits, paragraph €”:



E Field = 4.6 cm to 14.6 cm and 20cm to 24cm.

H Field = 4.6 cm to 14.6 cm and 20cm to 24cm.

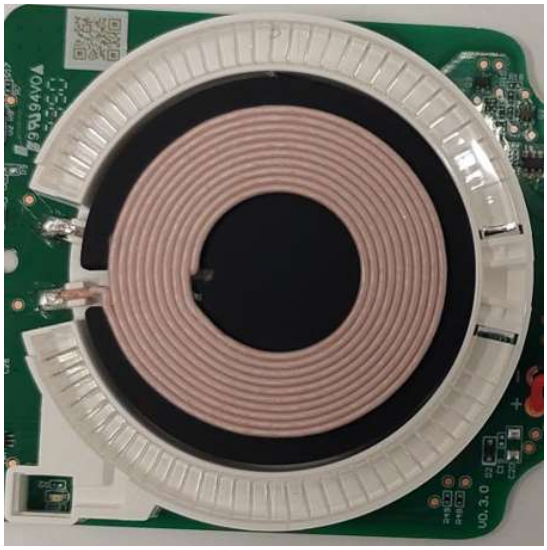


Figure 1: WPT measurement setup

The test sample consists of only one coil for the Power Transmission whenever a Power Receiver is placed on the coil.

The below testing setup has been measured in order to assess compliance for the device.

- Setup 1 – Charging setup with a Load

For the normal charging setup, measurements at every 2 cm starting from 4.6 cm to 14.6 cm and 20 cm to 24 cm distance have been performed for all device sides, at different battery charge levels. With the customer provided load, measurements were performed by placing the load on all three different coils at different charging levels.

99% Battery Charge level

Test Side	Distance to DUT (cm)	Frequency (kHz)	H- Field (A/m)	Limit (A/m)	% Limit	Verdict
Front	4.6	144	0.63	1.63	38.50	Pass
	6.6		0.39		24.18	Pass
	8.6		0.24		14.57	Pass
	10.6		0.17		10.47	Pass
	12.6		0.11		6.90	Pass
	14.6		0.08		4.89	Pass
	20		0.05		3.28	Pass
	22		0.05		3.25	Pass
	24		0.05		3.20	Pass
Rear	4.6		1.40		85.72	Pass
	6.6		0.61		37.45	Pass
	8.6		0.34		20.96	Pass
	10.6		0.22		13.44	Pass
	12.6		0.13		7.79	Pass
	14.6		0.09		5.55	Pass
	20		0.05		3.37	Pass
	22		0.05		3.34	Pass
	24		0.05		3.31	Pass
Left	4.6		0.24		14.84	Pass
	6.6		0.17		10.21	Pass
	8.6		0.09		5.75	Pass
	10.6		0.07		4.23	Pass
	12.6		0.05		3.21	Pass
	14.6		0.05		3.10	Pass
	20		0.05		3.24	Pass
	22		0.05		3.21	Pass
	24		0.05		3.18	Pass
Right	4.6		0.42		25.50	Pass
	6.6		0.79		48.34	Pass
	8.6		0.17		10.58	Pass
	10.6		0.11		6.85	Pass
	12.6		0.09		5.78	Pass
	14.6		0.07		4.06	Pass
	20		0.05		3.20	Pass
	22		0.05		3.13	Pass
	24		0.05		3.12	Pass
Bottom	4.6		1.14		69.94	Pass
	6.6		1.01		61.96	Pass
	8.6		0.91		55.83	Pass
	10.6		0.74		45.40	Pass
	12.6		0.52		31.90	Pass
	14.6		0.15		9.20	Pass
	20		0.09		5.79	Pass
	22		0.09		5.23	Pass
	24		0.07		4.55	Pass
Top	4.6		1.41		86.25	Pass
	6.6		0.41		24.87	Pass
	8.6		1.27		77.91	Pass
	10.6		0.31		18.83	Pass
	12.6		0.22		13.58	Pass
	14.6		0.61		37.24	Pass
	20		0.20		12.18	Pass
	22		0.19		11.56	Pass
	24		0.17		10.73	Pass

Table 2: H-field measurement values

Test Side	Distance to DUT (cm)	Frequency (kHz)	E- Field (V/m)	Limit (V/m)	% Limit	Verdict
Front	4.6	144	2.06	614	0.33	Pass
	6.6		1.69		0.28	Pass
	8.6		0.82		0.13	Pass
	10.6		0.45		0.07	Pass
	12.6		0.44		0.07	Pass
	14.6		0.41		0.07	Pass
	20		0.40		0.06	Pass
	22		0.39		0.06	Pass
	24		0.39		0.06	Pass
Rear	4.6		1.73		0.28	Pass
	6.6		1.04		0.17	Pass
	8.6		0.65		0.11	Pass
	10.6		0.55		0.09	Pass
	12.6		0.42		0.07	Pass
	14.6		0.39		0.06	Pass
	20		0.40		0.06	Pass
	22		0.40		0.06	Pass
	24		0.39		0.06	Pass
Left	4.6		1.05		0.17	Pass
	6.6		0.63		0.10	Pass
	8.6		0.51		0.08	Pass
	10.6		0.40		0.06	Pass
	12.6		0.40		0.06	Pass
	14.6		0.39		0.06	Pass
	20		0.40		0.06	Pass
	22		0.39		0.06	Pass
	24		0.39		0.06	Pass
Right	4.6		1.85		0.30	Pass
	6.6		1.08		0.18	Pass
	8.6		0.72		0.12	Pass
	10.6		0.62		0.10	Pass
	12.6		0.54		0.09	Pass
	14.6		0.41		0.07	Pass
	20		0.40		0.07	Pass
	22		0.40		0.06	Pass
	24		0.39		0.06	Pass
Bottom	4.6		2.55		0.42	Pass
	6.6		1.24		0.20	Pass
	8.6		1.11		0.18	Pass
	10.6		0.94		0.15	Pass
	12.6		0.84		0.14	Pass
	14.6		0.52		0.08	Pass
	20		0.49		0.08	Pass
	22		0.47		0.08	Pass
	24		0.42		0.07	Pass
Top	4.6		4.89		0.80	Pass
	6.6		2.59		0.42	Pass
	8.6		4.72		0.77	Pass
	10.6		1.36		0.22	Pass
	12.6		0.95		0.15	Pass
	14.6		0.70		0.11	Pass
	20		0.50		0.08	Pass
	22		0.50		0.08	Pass
	24		0.49		0.08	Pass

Table 3: E-field measurement values

50% Battery Charge level

Test Side	Distance to DUT (cm)	Frequency (kHz)	H- Field (A/m)	Limit (A/m)	% Limit	Verdict
Front	4.6	144	1.08	1.63	66.01	Pass
	6.6		0.42		25.77	Pass
	8.6		0.49		29.80	Pass
	10.6		0.32		19.41	Pass
	12.6		0.20		12.23	Pass
	14.6		0.15		9.09	Pass
	20		0.06		3.57	Pass
	22		0.06		3.54	Pass
	24		0.05		3.37	Pass
Rear	4.6		0.93		57.04	Pass
	6.6		0.76		46.48	Pass
	8.6		0.41		25.00	Pass
	10.6		0.23		14.25	Pass
	12.6		0.17		10.17	Pass
	14.6		0.11		6.63	Pass
	20		0.05		3.28	Pass
	22		0.05		3.25	Pass
	24		0.05		3.17	Pass
Left	4.6		0.20		12.40	Pass
	6.6		0.16		9.85	Pass
	8.6		0.11		6.68	Pass
	10.6		0.07		4.23	Pass
	12.6		0.06		3.67	Pass
	14.6		0.05		3.20	Pass
	20		0.05		3.25	Pass
	22		0.05		3.17	Pass
	24		0.05		3.10	Pass
Right	4.6		1.49		91.13	Pass
	6.6		0.59		36.34	Pass
	8.6		0.20		12.42	Pass
	10.6		0.11		6.90	Pass
	12.6		0.08		5.09	Pass
	14.6		0.07		4.29	Pass
	20		0.05		3.21	Pass
	22		0.05		3.17	Pass
	24		0.05		3.13	Pass
Bottom	4.6		1.30		79.75	Pass
	6.6		1.15		70.55	Pass
	8.6		0.94		57.67	Pass
	10.6		0.85		52.15	Pass
	12.6		0.74		45.40	Pass
	14.6		0.52		31.90	Pass
	20		0.09		5.25	Pass
	22		0.08		4.61	Pass
	24		0.06		3.98	Pass
Top	4.6		1.42		87.20	Pass
	6.6		1.12		68.70	Pass
	8.6		0.99		60.55	Pass
	10.6		0.90		54.94	Pass
	12.6		0.46		28.39	Pass
	14.6		0.27		16.38	Pass
	20		0.20		12.26	Pass
	22		0.18		10.94	Pass
	24		0.16		9.80	Pass

Table 4: H-field measurement values

Test Side	Distance to DUT (cm)	Frequency (kHz)	E- Field (V/m)	Limit (V/m)	% Limit	Verdict
Front	4.6	144	1.42	614	0.23	Pass
	6.6		1.12		0.18	Pass
	8.6		0.80		0.13	Pass
	10.6		0.59		0.10	Pass
	12.6		0.49		0.08	Pass
	14.6		0.40		0.07	Pass
	20		0.41		0.07	Pass
	22		0.41		0.07	Pass
	24		0.40		0.07	Pass
Rear	4.6		1.69		0.28	Pass
	6.6		1.30		0.21	Pass
	8.6		0.87		0.14	Pass
	10.6		0.76		0.12	Pass
	12.6		0.55		0.09	Pass
	14.6		0.44		0.07	Pass
	20		0.39		0.06	Pass
	22		0.39		0.06	Pass
	24		0.39		0.06	Pass
Left	4.6		0.59		0.10	Pass
	6.6		0.58		0.09	Pass
	8.6		0.45		0.07	Pass
	10.6		0.39		0.06	Pass
	12.6		0.43		0.07	Pass
	14.6		0.38		0.06	Pass
	20		0.40		0.07	Pass
	22		0.40		0.07	Pass
	24		0.39		0.06	Pass
Right	4.6		1.36		0.22	Pass
	6.6		1.19		0.19	Pass
	8.6		0.77		0.12	Pass
	10.6		0.73		0.12	Pass
	12.6		0.54		0.09	Pass
	14.6		0.47		0.08	Pass
	20		0.40		0.06	Pass
	22		0.40		0.06	Pass
	24		0.40		0.06	Pass
Bottom	4.6		2.21		0.36	Pass
	6.6		1.94		0.32	Pass
	8.6		1.55		0.25	Pass
	10.6		1.23		0.20	Pass
	12.6		0.95		0.15	Pass
	14.6		0.78		0.13	Pass
	20		0.57		0.09	Pass
	22		0.50		0.08	Pass
	24		0.49		0.08	Pass
Top	4.6		4.87		0.79	Pass
	6.6		4.05		0.66	Pass
	8.6		3.25		0.53	Pass
	10.6		3.52		0.57	Pass
	12.6		3.09		0.50	Pass
	14.6		1.97		0.32	Pass
	20		0.61		0.10	Pass
	22		0.56		0.09	Pass
	24		0.53		0.09	Pass

Table 5: E-field measurement values

1% Battery Charge level

Test Side	Distance to DUT (cm)	Frequency (kHz)	H- Field (A/m)	Limit (A/m)	% Limit	Verdict
Front	4.6	144	0.44	1.63	26.71	Pass
	6.6		0.37		22.87	Pass
	8.6		0.62		37.83	Pass
	10.6		0.38		23.20	Pass
	12.6		0.22		13.80	Pass
	14.6		0.15		8.94	Pass
	20		0.06		3.67	Pass
	22		0.06		3.63	Pass
	24		0.06		3.51	Pass
Rear	4.6		1.14		70.07	Pass
	6.6		0.78		47.99	Pass
	8.6		0.42		25.91	Pass
	10.6		0.25		15.52	Pass
	12.6		0.16		10.11	Pass
	14.6		0.11		7.01	Pass
	20		0.06		3.43	Pass
	22		0.05		3.32	Pass
	24		0.05		3.25	Pass
Left	4.6		0.24		14.79	Pass
	6.6		0.20		12.02	Pass
	8.6		0.13		8.11	Pass
	10.6		0.10		6.29	Pass
	12.6		0.07		4.01	Pass
	14.6		0.05		3.33	Pass
	20		0.05		3.10	Pass
	22		0.05		3.06	Pass
	24		0.05		2.95	Pass
Right	4.6		0.72		44.43	Pass
	6.6		0.34		21.09	Pass
	8.6		0.24		14.53	Pass
	10.6		0.12		7.24	Pass
	12.6		0.08		5.18	Pass
	14.6		0.07		4.11	Pass
	20		0.05		3.25	Pass
	22		0.05		3.20	Pass
	24		0.05		3.17	Pass
Bottom	4.6		1.15		70.55	Pass
	6.6		1.01		61.96	Pass
	8.6		0.94		57.67	Pass
	10.6		0.55		33.74	Pass
	12.6		0.41		25.15	Pass
	14.6		0.22		13.50	Pass
	20		0.10		6.00	Pass
	22		0.09		5.59	Pass
	24		0.09		5.39	Pass
Top	4.6		1.50		91.89	Pass
	6.6		1.30		79.79	Pass
	8.6		1.17		71.78	Pass
	10.6		0.71		43.54	Pass
	12.6		0.50		30.52	Pass
	14.6		0.23		14.04	Pass
	20		0.11		6.47	Pass
	22		0.09		5.61	Pass
	24		0.09		5.52	Pass

Table 6: H-field measurement values

Test Side	Distance to DUT (cm)	Frequency (kHz)	E- Field (V/m)	Limit (V/m)	% Limit	Verdict
Front	4.6	144	1.37	614	0.22	Pass
	6.6		1.06		0.17	Pass
	8.6		0.81		0.13	Pass
	10.6		0.71		0.12	Pass
	12.6		0.54		0.09	Pass
	14.6		0.49		0.08	Pass
	20		0.40		0.06	Pass
	22		0.39		0.06	Pass
	24		0.39		0.06	Pass
Rear	4.6		1.80		0.29	Pass
	6.6		1.49		0.24	Pass
	8.6		1.05		0.17	Pass
	10.6		0.82		0.13	Pass
	12.6		0.74		0.12	Pass
	14.6		0.57		0.09	Pass
	20		0.40		0.07	Pass
	22		0.40		0.07	Pass
	24		0.40		0.06	Pass
Left	4.6		2.19		0.36	Pass
	6.6		0.86		0.14	Pass
	8.6		0.59		0.10	Pass
	10.6		0.41		0.07	Pass
	12.6		0.39		0.06	Pass
	14.6		0.40		0.07	Pass
	20		0.40		0.07	Pass
	22		0.40		0.06	Pass
	24		0.40		0.06	Pass
Right	4.6		1.67		0.27	Pass
	6.6		1.33		0.22	Pass
	8.6		0.83		0.14	Pass
	10.6		0.64		0.10	Pass
	12.6		0.43		0.07	Pass
	14.6		0.41		0.07	Pass
	20		0.40		0.07	Pass
	22		0.40		0.07	Pass
	24		0.39		0.06	Pass
Bottom	4.6		2.95		0.48	Pass
	6.6		2.75		0.45	Pass
	8.6		1.95		0.32	Pass
	10.6		1.72		0.28	Pass
	12.6		1.52		0.25	Pass
	14.6		1.10		0.18	Pass
	20		0.62		0.10	Pass
	22		0.54		0.09	Pass
	24		0.51		0.08	Pass
Top	4.6		4.67		0.76	Pass
	6.6		3.63		0.59	Pass
	8.6		3.11		0.51	Pass
	10.6		3.18		0.52	Pass
	12.6		2.84		0.46	Pass
	14.6		1.73		0.28	Pass
	20		0.61		0.10	Pass
	22		0.58		0.09	Pass
	24		0.51		0.08	Pass

Table 7: E-field measurement values

All E-Field and H-Field values are in compliance to values shown into “Table 1: Limits for Maximum Permissible Exposure (MPE)” for the frequency range used by the device.

Appendix B: **FCC RF Exposure information**

FCC RF Exposure evaluation

When a device qualifies for the categorical exclusion provision of § 2.1091(c), the minimum test separation distance may be estimated, when applicable, by simple calculations according to plane-wave equivalent conditions, to ensure the transmitter and its antenna(s) can operate in manners that meet or exceed the estimated distance. The source-based time-averaged maximum radiated power, according to the maximum antenna gain, must be applied to calculate the field strength and power density required to establish the minimum test separation distance. When the estimated test separation distance becomes overly conservative and does not support compliance, MPE measurement or computational modeling may be used to determine the required minimum separation distance.

According to §1.1310 Radiofrequency radiation exposure limits, paragraph (e), the limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields are:

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	*100	6
3.0–30	1842/f	4.89/f	$*900/f^2$	6
30–300	61.4	0.163	1.0	6
300–1,500			f/300	6
1,500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*100	30
1.34–30	824/f	2.19/f	$*180/f^2$	30
30–300	27.5	0.073	0.2	30
300–1,500			f/1500	30
1,500–100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

FCC MPE Evaluation

Limits for Maximum Permissible Exposure (MPE) for RF sources are defined in FCC 47 CFR "§1.1310 Radiation Exposure limits, paragraph (e)":

TABLE 1 TO §1.1310(E)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*($900/f^2$)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*($180/f^2$)	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

Each supported transmission technology will be evaluated to determine if it is in compliance with limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields.

In order to perform the assessment, the following equations have been used for the calculations; these equations are accurate in the far-field of an antenna and will over-predict power density in the near field, where they could be used for making a "worst-case" or conservative prediction:

Power density: $S[mW/cm^2] = \frac{P_{E.I.R.P.}[mW]}{4\Pi R[cm]^2}$

Where:

S = power density

$P_{E.I.R.P.}$ = Equivalent isotropically radiated power

R = distance to the center of radiation of the antenna (evaluation distance)

$P_{EI.RP.}$ = $P_T + G_T - L_C$

Where:

P_T = transmitter time-averaged output power (including Duty Cycle and tune-up tolerance, if applicable)

G_T = gain of the transmitting antenna

L_C = signal attenuation in the connecting cable between the transmitter and the antenna if applicable

Appendix C: Photographs

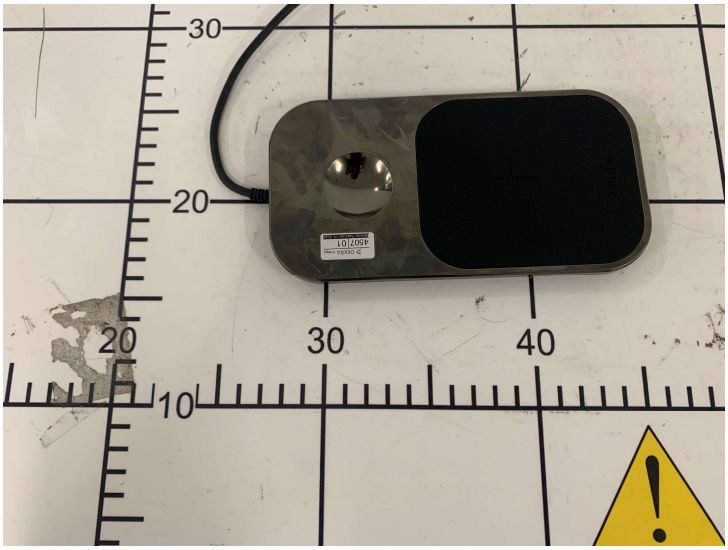


Figure C1. DUT Top view

Figure C2. DUT rear view

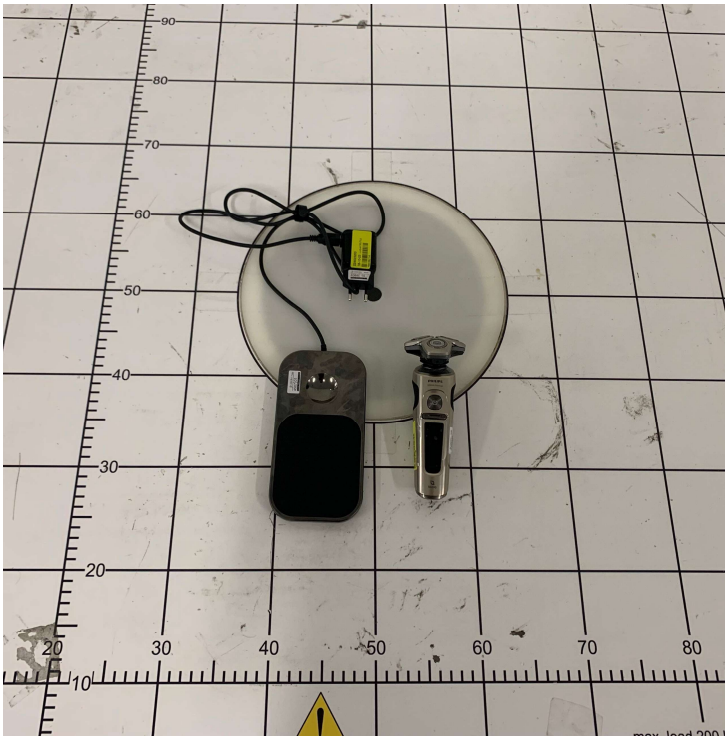


Figure C3. DUT with Accessories

Figure C4. DUT Test setup 1

Figure C5. DUT Test setup 2

Figure C6. DUT Test setup 3

Figure C7. DUT Test setup 4

Figure C8. DUT Test setup 5