DEKRA Testing and Certification, S.A.U.
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2 · 29590 Campanillas · Málaga · España
C.I.F. A29 507 456

ISED CABid: ES1909

Test report No:
NIE: 71110REM.002A2

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-20 Edition), Subpart C sect. 15.207 & ICES-003 Issue 7 (October 2020), RSS-Gen issue 5 (8.8)

(*) Identification of item tested	Bluetooth connected shaver
(*) Trademark	Philips
(*) Model and /or type reference	Series S7800 Tested model: S7885 Similar models not tested: S7882, S7886, S7887, S9613, S9616, S9696 & S9697
Other identification of the product	FCC ID: 2AICSS77A IC: 21912-S77 HW version: 1.0 SW version: 335
(*) Features	Bluetooth Low Energy (5.1)
Manufacturer	Philips Oliemolenstraat 5, 9203 ZN Drachten, The Netherlands
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-20 Edition), Subpart C sect. 15.207 & ICES-003 Issue 7 (October 2020), RSS-Gen issue 5 (8.8)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Jose Manuel Gómez Industrial & Automotive EMC Lab. Manager Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456) Fecha: 2022.05.17 17:29:35 +02'00'
Date of issue	2022-05-13
Report template No	FDT08_23 (*) "Data provided by the client"

Index

Acronyms

Acronym ID	Acronym Description
Code	EMC Test Code
Freq Rng	Frequency Range
Line	Conducted Emissions - Tested Line
OM	Operation Mode
S/	Sample
V	Verdict

Competences and guarantees

DEKRA Testing and Certification S.A.U. is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with the appropriate scope of accreditation that covers the performed tests in this report, FCC designation number ES0004.

DEKRA Testing and Certification S.A.U. is an ISED recognized accredited testing laboratory, CABid: ES1909, with the appropriate scope of accreditation that covers the performed tests in this report.

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

DEKRA Testing and Certification S.A.U. 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 Testing and Certification S.A.U. at the time of performance of the test.

DEKRA Testing and Certification S.A.U. 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 Test 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 test.
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 Testing and Certification S.A.U.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.A.U. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

The total uncertainty of the measurement system for the measured conducted disturbance characteristics of EUT from 150 kHz to 30 MHz is I = ± 3,9 dB for quasi-peak measurements, I = ± 3,2 dB for peak measurements (k = 2).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is I = ± 4,9 dB for quasi-peak measurements, I = ± 4,6 dB for peak measurements (k= 2).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 12.75 GHz is I = ± 2,6 dB for peaks and average measurements (k = 2).

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"

The sample consists of a Bluetooth connected shaver (which can be connected to a mobile application/App)

In the following page the manufacturer states similar models not tested with minor changes where there is no impact on the EMC/RF performance to be considered.

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

DEKRA Testing and Certification, S.A.U.
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DEKRA

PHILIPS

Drachten (the Netherlands), 8th of April 2022

DECLARATION of EQUIVALENCE

Regarding the registration of the update of the shaver S7700 series in US (FCC ID **2AICSS77A**) and Canada (ISED **IC 21912-S77**) we state the following:

By means of this letter, we, Philips Consumer Lifestyle BV, declare that the following series of shavers are identical in electrical construction. These models have identical RF characteristics and specifications for Bluetooth Low Energy interface on the 2,4GHz band. Except for model name, type marking, cover edge/finishing of the outer bod and shaving system on top, which does not affect the Safety, EMC and Energy test results.

The update to S7800 series concerns a small update in the electronic design regarding the charging circuit and an update of the microcontroller communication protocol to UART. Reason for this is to enable 5 V charging (via USB) instead of 15 V charging. This variant will come as the shaver S78xx series and S96xx series.
For the rest, the design is the same as current S7000 shaver models (so hardware, electronics, dimensions, motor, Bluetooth antenna & protocols, shaving system, accessories etc.). For the new S96xx series the same applies with only other shaving system attached on the handle.

The devices with their differences are listed below:

Model	Differences
S7882	Colouring/finishing of the hardware/shaver body only
S7885	Colouring/finishing of the hardware/shaver body only
S7886	Colouring/finishing of the hardware/shaver body only
S7887	Colouring/finishing of the hardware/shaver body only
S9613	Colouring/finishing of the hardware/shaver body + shaving system only
S9616	Colouring/finishing of the hardware/shaver body + shaving system only
S9696	Colouring/finishing of the hardware/shaver body + shaving system only
S9697	Colouring/finishing of the hardware/shaver body + shaving system only

Please feel free to contact me in case you need any more information,

Yours sincerely,

Martijn Platzer
Quality Assurance Manager
Philips Consumer Lifestyle
Oliemolenstraat 5, 9203 ZN Drachten, The Netherlands
Email: Martijn.Platzer@philips.com

PHILIPS

Usage of samples

Samples under test have been selected by: The client.

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	71110_5.1	Shaver	S7885	--	2022-01-31	Element Under Test
	71110_7.1	AC/DC adapter	HQ87 SSW-2805EU-BK	--	2022-01-31	Element Under Test

Test sample description

Test Sample description (compulsory information for EMC and RF testing services)

Ports..... :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)	

Supplementary information to the							
Rated power supply .....:	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	X	AC: 115V.	X			X	
		AC:					
	X	DC: 3.6V. (Internal battery)					
		DC:					
Rated Power .....:	---						
Clock frequencies.....:	---						
Other parameters .....:	---						
Software version .....:	335						
Hardware version .....:	2.0						
Dimensions in cm (W x H x D) ....:	---						
Mounting position .....:		Table top equipment					
		Wall/Ceiling mounted equipment					
		Floor standing equipment					
	X	Hand-held equipment					
		Other:					
Modules/parts.....:	Module/parts of test item			Type		Manufacturer	

Accessories (not part of the test item) .....:	Description			Type		Manufacturer	

Documents as provided by the applicant.....:	Description			File name		Issue date	
	---						

(3) Only for Medical Equipment

Identification of the client

Philips

Oliemolenstraat 5, 9203 ZN Drachten, the Netherlands

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2022-02-16
Date (finish)	2022-02-16

Document history

Report number	Date	Description
71110REM.002	2022-03-30	First release
71110REM.002A1	2022-04-12	First modification. A "Declaration of equivalence" between models provided by the manufacturer is included in the report. This report cancels and replaces the previous one: 71110REM.002.
71110REM.002A2	2022-05-13	Second modification. It is included in the report the reference to section FCC Subpart C, 15.207 and RSS-Gen issue 5 (8.8). This report cancels and replaces the previous 71110REM.002A1.

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. = 860mbar Max. = 1060mbar

In the semianechoic 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. = 860mbar Max. = 1060mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Victoria Olmedo Villalba.

Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Pass	P

List of equipment used during the test

Control No.	Equipment	Model	Manufacturer	Next Calibration
7853	EMI RECEIVER 10Hz-30MHz	PMM 9010F	NARDA	2023-12-03
7817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-12-30
7763	HORN ANTENNA 1-18GHz	BBHA 9120D	SCHWARZBECK MESS-ELEKTRONIK	2022-11-15
7769	PREAMPLIFIER 30dB 500MHz-18GHz	BBV 9718 C	SCHWARZBECK	2022-02-10
7859	THREE-PHASE ARTIFICIAL NETWORK 32A	PMM L3-32	NARDA	2024-01-14
7826	ULTRALOG ANTENNA 30MHz-6GHz	HL562E_UPG	ROHDE AND SCHWARZ	2022-10-15

Summary

Test Specification.	Requirement – Test case	Verdict	Remark
FCC 47 CFR Part 15B ICES-003 (3.2.2)	RE Radiated emission. Electromagnetic field measure	Pass	
FCC 47 CFR Part 15B, 15.107 FCC 47 CFR Part 15C, 15.207 ICES-003 (3.2.1) RSS-Gen issue 5 (8.8)	CE Continuous conducted emission	Pass	
Supplementary information and remarks: None			

Appendix A: Test results

Appendix A content

Description of the operation modes

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. Every operation mode takes a failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

The operation modes used by the samples to which the present report refers, are shown in the following table:

Id	Description
01	EUT ON. Charging battery. Bluetooth ON without communication established. Power supply: 115Vac.
02	EUT ON. Shaver working continuously. Bluetooth ON without communication established. Power supply: 3.6Vdc (internal battery).
03	EUT ON. Charging battery. Bluetooth ON with communication established. Power supply: 115Vac.

After a Radiated Emission preview, it is checked that the worst case is: operation mode 01. So this mode is selected for the Radiated Emission Test.

Test standards version applied

The product standards and test standards applied for each test cases are shown in the following table:

Product Test Standard	Test standard	Requirement – Test case
FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-20 Edition), Subpart C sect. 15.207 & ICES-003 Issue 7 (October 2020), RSS-Gen issue 5 (8.8)	ANSI C63.4 (2014)	RE Radiated emission.
	ANSI C63.4 (2014)	CE Continuous conducted emission

Test Cases Details

RE Radiated emission. Electromagnetic field measure

Limits of interference Class B

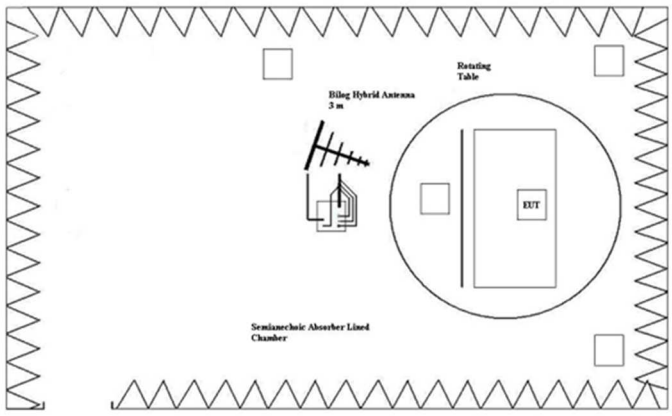
The applied limit for radiated emissions, 3 m **distance, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B, Secs. 15.109 & ICES-003 Issue 7.**

Frequency range (MHz)	FCC Part 15B		ICES-003 Issue 7		FCC Part 15B & ICES-003 Issue 7	
	QP Limit for 3 m		QP Limit for 3 m		PK Limit for 3 m	AVG Limit for 3 m
	(µV/m)	(dBµV/m)	(µV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)
30 to 88	100	40	100	40	---	---
88 to 216	150	43.5	150	43.5	---	---
216 to 230	200	46	200	46	---	---
230 to 960	200	46	224	47		
960 to 1000	500	54	500	54	---	---
Above 1000	---	---	---	---	74	54

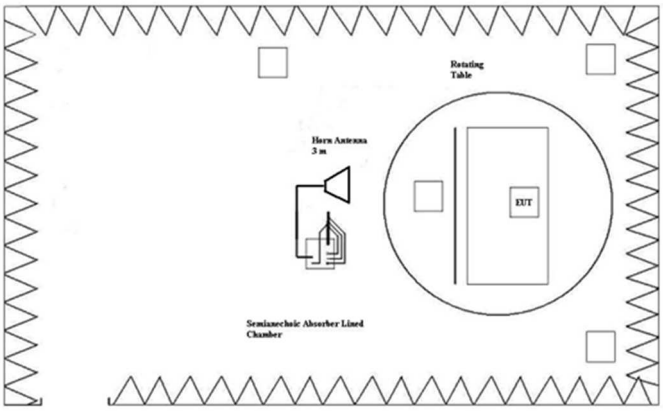
NOTE: FCC QP and AVG limits are in concordance with RSS-Gen Issue 5 (March 2019), Secs. 7.1 and 7.3.

Limits according to FCC Part 15B, are equal or more stringent than those of ICES-003 Issue 7.

Setup for measurements



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

Results

S/	OM	Code	Freq Rng (MHz)	Comments	V
01	01	RE0101LR	[30, 1000]		P
01	01	RE0101HR	[1000, 12750]		P

Verdict

Pass

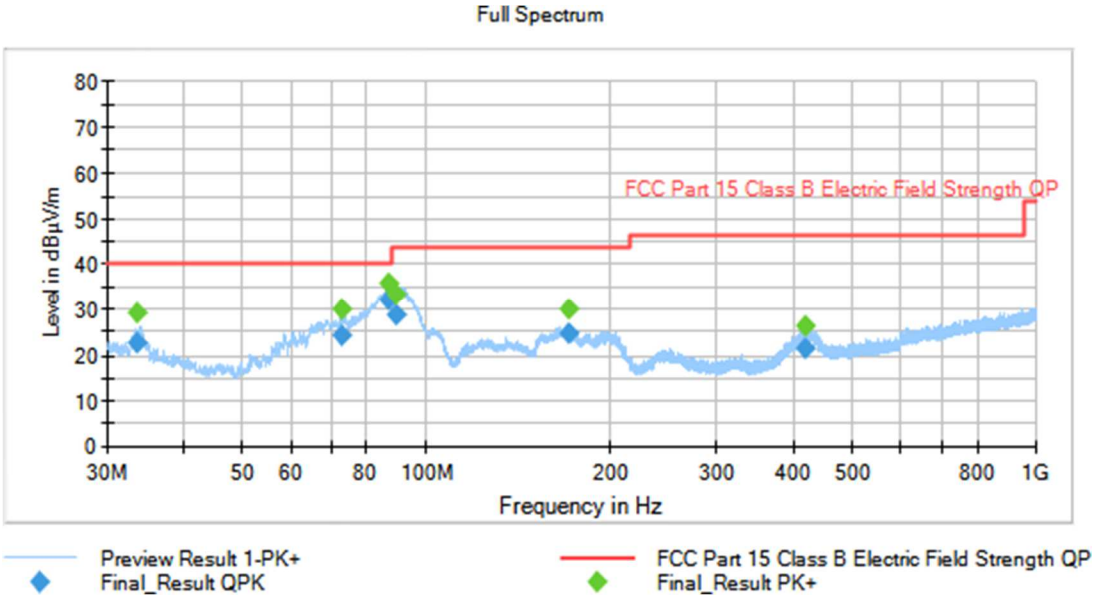
Attachments

EMC Test Code = RE0101LR, Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: 01. EUT ON. Charging battery. Bluetooth ON without communication established. Power supply: 115Vac..

Images:

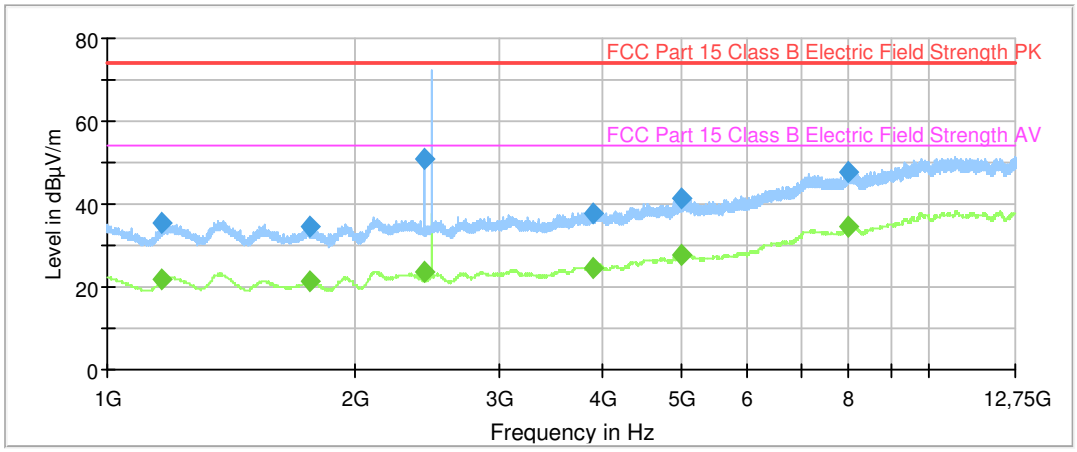


Documents:

Frequency(MHz)	QuasiPeak(dBµV/m)	MaxPeak(dBµV/m)	Limit(dBµV/m)	Margin(dB)	Height(cm)	Pol	Azimuth(deg)
33.637000	22.69	---	40.00	17.31	100.0	V	301.0
33.637000	---	29.30	---	---	100.0	V	301.0
72.610000	24.41	---	40.00	15.59	100.0	V	305.0
72.610000	---	29.96	---	---	100.0	V	305.0
86.815000	32.16	---	40.00	7.84	105.0	V	166.0
86.815000	---	36.03	---	---	105.0	V	166.0
89.495000	28.68	---	43.52	16.84	100.0	V	11.0
89.495000	---	33.28	---	---	100.0	V	11.0
171.010000	---	30.29	---	---	100.0	V	20.0
171.010000	24.91	---	43.52	18.61	100.0	V	20.0
419.119000	---	26.30	---	---	118.0	V	0.0
419.119000	21.40	---	46.00	24.60	118.0	V	0.0

Project:	71110REM.002
Company:	PHILIPS CONSUMER LIFESTYLE B.V
Sample:	S/01
Operation mode:	01
Graphical code:	RE0101HR
Description:	EUT ON. Charging battery. Bluetooth ON without communication established. Power supply: 115Vac.
Verdict:	Passed

Full Spectrum



Preview Result 2-AVG
FCC Part 15 Class B Electric Field Strength PK
Final_Result PK+
Preview Result 1-PK+
FCC Part 15 Class B Electric Field Strength AV
Final_Result AVG

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1164.800000	---	21.99	53.97	31.98
1164.800000	35.64	---	73.97	38.33
1767.200000	---	21.17	53.97	32.80
1767.200000	34.44	---	73.97	39.53
2427.600000	---	23.56	53.97	30.41
2427.600000	50.75	---	73.97	23.22
3908.800000	37.91	---	73.97	36.06
3908.800000	---	24.58	53.97	29.39
5002.800000	41.31	---	73.97	32.66
5002.800000	---	27.69	53.97	26.28
8001.600000	---	34.53	53.97	19.44
8001.600000	47.52	---	73.97	26.45

CE Continuous conducted emission

Limits of interference Class B

The applied limit for continuous conducted emissions in power leads, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B, Secs. 15.107, Subpart C, Secs. 15.207 & ICES-003 Issue 7, in the frequency range 0,15 to 30 MHz, for Class B equipment is:

Frequency range	Limit (dBµV)	
(MHz)	Quasi-Peak	Average
0,15 to 0,5	66 - 56	56 - 46
0,5 to 5	56	46
5 to 30	60	50

Results

S/	OM	Code	Freq Rng (MHz)	Line	Comments	V
01	01	CE01010N	[0.15, 30]	N	Bluetooth signal ON.	P
01	01	CE0101L1	[0.15, 30]	L1	Bluetooth signal ON.	P

Note: It is was not possible to disable the Bluetooth signal during this test. In deed, it was checked that there was not significant differences in the conducted emissions between operation mode 01 and 03. So, the operation mode 01 is only reported as representative.

Verdict

Pass

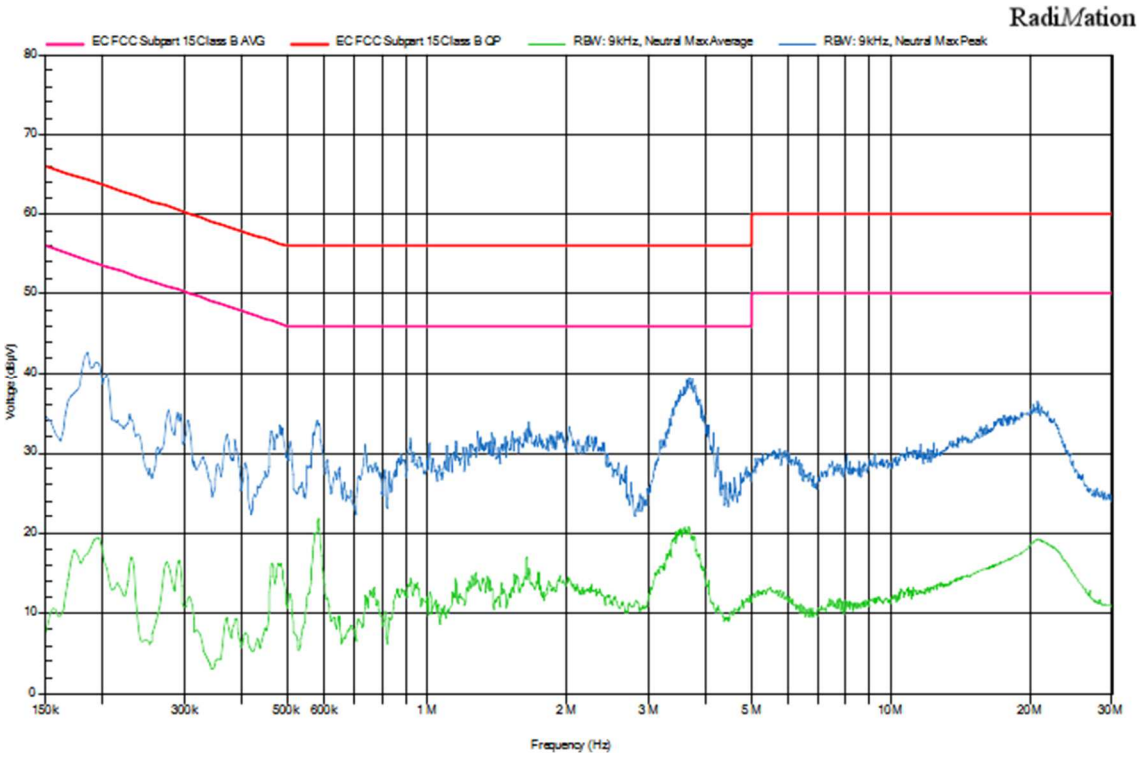
Attachments

EMC Test Code = CE01010N, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = N

Sample ID: S/01

Operation Mode: 01. EUT ON. Charging battery. Bluetooth ON without communication established. Power supply: 115Vac..

Images:



Documents:

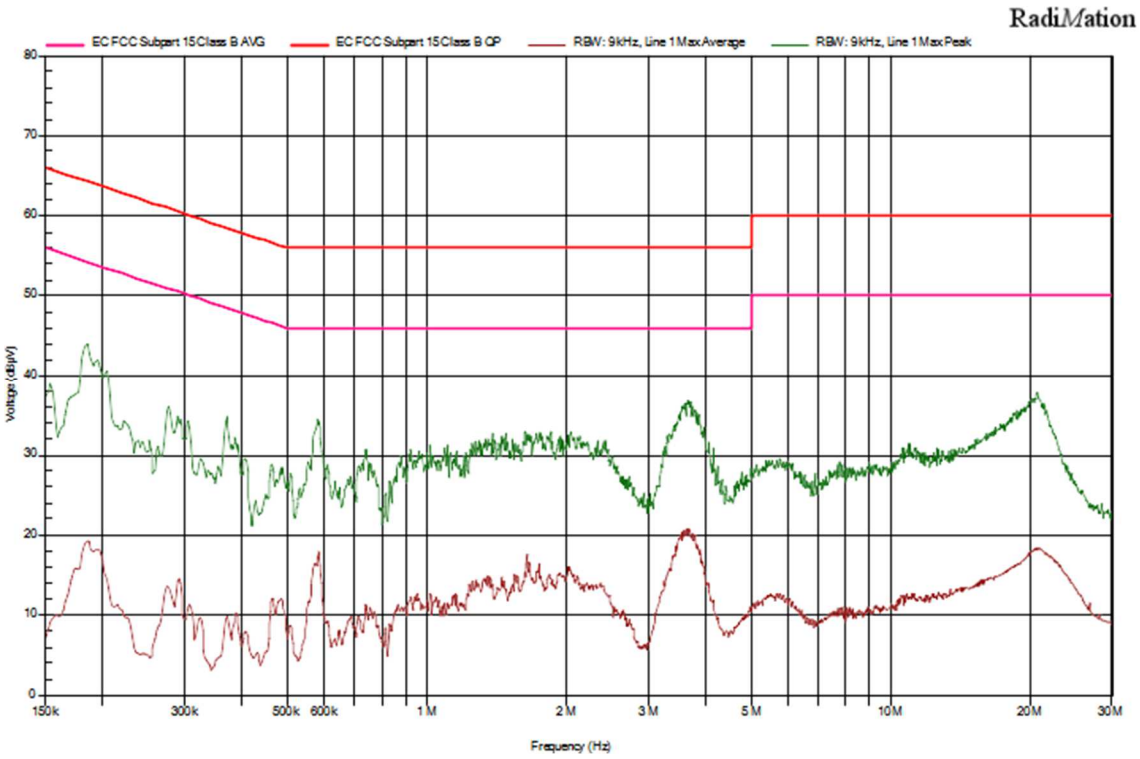
Frequency(MHz)	Average(dBµV)	Peak(dBµV)	Line
0,193 MHz	19,2 dBµV	41,4 dBµV	N
0,481 MHz	16,1 dBµV	33,4 dBµV	N
0,579 MHz	21,3 dBµV	33,8 dBµV	N
1,657 MHz	15,7 dBµV	33,6 dBµV	N
3,675 MHz	20,6 dBµV	39 dBµV	N
4,137 MHz	11,1 dBµV	32,6 dBµV	N

EMC Test Code = CE0101L1, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = L1

Sample ID: S/01

Operation Mode: 01. EUT ON. Charging battery. Bluetooth ON without communication established. Power supply: 115Vac..

Images:



Documents:

Frequency(MHz)	Average(dBµV)	Peak(dBµV)	Line
0,187 MHz	19,2 dBµV	42,8 dBµV	L1
0,579 MHz	16,9 dBµV	34,5 dBµV	L1
1,751 MHz	14,5 dBµV	32,8 dBµV	L1
2,037 MHz	15 dBµV	32,6 dBµV	L1
3,675 MHz	20,1 dBµV	36,7 dBµV	L1
20,679 MHz	17,8 dBµV	37,3 dBµV	L1