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

Test report No:
NIE: 70435REM.004

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)

(*) Identification of item tested	Charger for Wellness ring
(*) Trademark	ŌURA
(*) Model and /or type reference	LE1 charger
Other identification of the product	FCC ID: Not Provided IC: Not Provided HW version: BCH_01 SW version: 1.1.1
(*) Features	Inductive charging
Manufacturer	Oura Health Oy Elektroniikkatie 10, 90590 Oulu, Finland
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez Industrial & Automotive EMC Lab. Manager Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456) Fecha: 2022.03.02 12:54:39 +01'00'
Date of issue	2022-03-02
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.

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"

2. The sample consists of a Charger for Wellness ring

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.

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	70435B_10.1	Charger #2	LE1	--	2022-01-19	Element Under Test
S/01	70435B_20.1	USB cable	--	--	2022-01-19	Element Under Test
S/01	70435B_3.1	Smart ring	LE1 (size 11)	--	2022-01-19	Auxiliary Element
S/02	70435B_10.1	Charger #2	LE1	--	2022-01-19	Element Under Test
S/02	70435B_20.1	USB cable	--	--	2022-01-19	Element Under Test
S/02	67518B_27.1	AC/DC adapter	EP-TA20EBE	--	2021-06-22	Auxiliary Element
S/02	70435B_4.1	Smart ring	LE1 (size 11)	--	2022-01-19	Auxiliary Element

Notes referenced to samples during the project.

Test sample description

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

<table>
<tr><td rowspan="7">Ports…… :</td><td colspan="2" rowspan="2">Port name and description</td><td colspan="4">Cable</td></tr>
<tr><td>Specified max length [m]</td><td>Attached during test</td><td>Shielded</td><td>Coupled to patient(3)</td></tr>
<tr><td colspan="2">.....</td><td>.....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td colspan="2">.....</td><td>.....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
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<tr><td colspan="2">.....</td><td>.....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>Supplementary information to the ports…… :</td><td colspan="6">.....</td></tr>
<tr><td rowspan="5">Rated power supply .....:</td><td colspan="2" rowspan="2">Voltage and Frequency</td><td colspan="5">Reference poles</td></tr>
<tr><td>L1</td><td>L2</td><td>L3</td><td>N</td><td>PE</td></tr>
<tr><td>[ ]</td><td>AC: .....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>[ ]</td><td>AC: .....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>[ ]</td><td>DC: .....</td><td colspan="5"></td></tr>
<tr><td>Rated Power .....:</td><td colspan="6">.....</td></tr>
<tr><td>Clock frequencies.....:</td><td colspan="6">.....</td></tr>
<tr><td>Other parameters .....:</td><td colspan="6">.....</td></tr>
<tr><td>Software version .....:</td><td colspan="6">1.1.1</td></tr>
<tr><td>Hardware version .....:</td><td colspan="6">BCH_01</td></tr>
<tr><td>Dimensions in cm (W x H x D) ....:</td><td colspan="6">4.6 x 4.6 x 1.5</td></tr>
<tr><td rowspan="3">Mounting position .....:</td><td>[X]</td><td colspan="5">Table top equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Wall/Ceiling mounted equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Floor standing equipment</td></tr>
</table>

	[ ]	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

Oura Health Oy
Elektroniikkatie 10, 90590 Oulu, Finland

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2022-01-24
Date (finish)	2022-02-04

Document history

Report number	Date	Description
70435REM.004	2022-03-02	First release

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: Julio Bautista Martin, Raul Alfaya Ruiz and Verónica García Capilla.

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
7746	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2023-07-23
7816	EMI TEST RECEIVER	ESW26	ROHDE AND SCHWARZ	2023-11-04
7743	HORN ANTENNA 0,75-18GHz	3115	ETS LINDGREN	2023-08-24
8788	PREAMPLIFIER 30dB 500MHz-18GHz	BBV 9718 C	SCHWARZBECK	2022-06-07
8825	EMI TEST RECEIVER	ESR7	ROHDE AND SCHWARZ	2023-07-15
7553	SONDA DE TEMPERATURA Y HUMEDAD RELATIVA / TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2022-04-12
6204	THREE-PHASE ARTIFICIAL NETWORK 32A	PMM L3-32	NARDA	2023-09-27
5151	TRANSIENT LIMITER 10DB N CONNECTOR	VTSD 9561-F	SCHWARZBECK	2022-10-18

Summary

Test Specification.	Requirement – Test case	Verdict	Remark
FCC 47 CFR Part 15B	RE Radiated emission. Electromagnetic field measure	Pass	
FCC 47 CFR Part 15B	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
OM/01	EUT ON. Ring in charging mode, Bluetooth OFF. Power supply: 5 Vdc
OM/02	EUT ON. Ring in charging mode. Bluetooth ON without communication established. Power supply: 115 Vac.

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 CFR 47, Part 15, Subpart B (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	RE Radiated emission.
FCC CFR 47, Part 15, Subpart B (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	CE Continuous conducted emission

Test Cases Details

FCC 47 CFR Part 15B

RE Radiated emission. Electromagnetic field measure

Limits

Limits of interference Class B

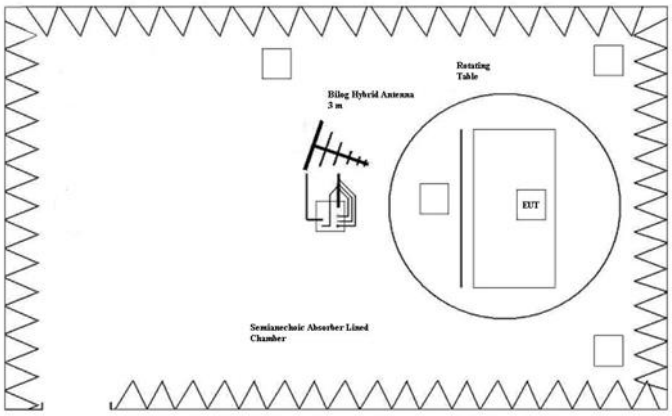
The applied limit for radiated emissions, 3 m **distance, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-19 Edition), Secs. 15.109 & ICES-003 Issue 7 (October 2020)**

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

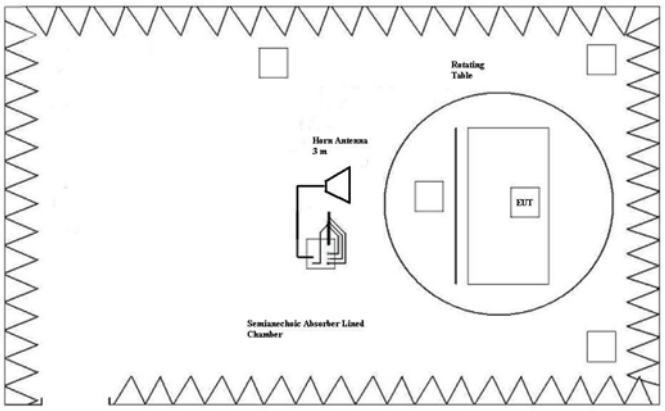
NOTE: FCC QP and AVG limits are in concordance with RSS-Gen Issue 5 (March 2019), Secs. 7.1 and 7.3.

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	OM/01	RE0101LR	[30, 1000]	---	P
01	OM/01	RE0101HR	[1000, 12750]	---	P

Verdict

Pass

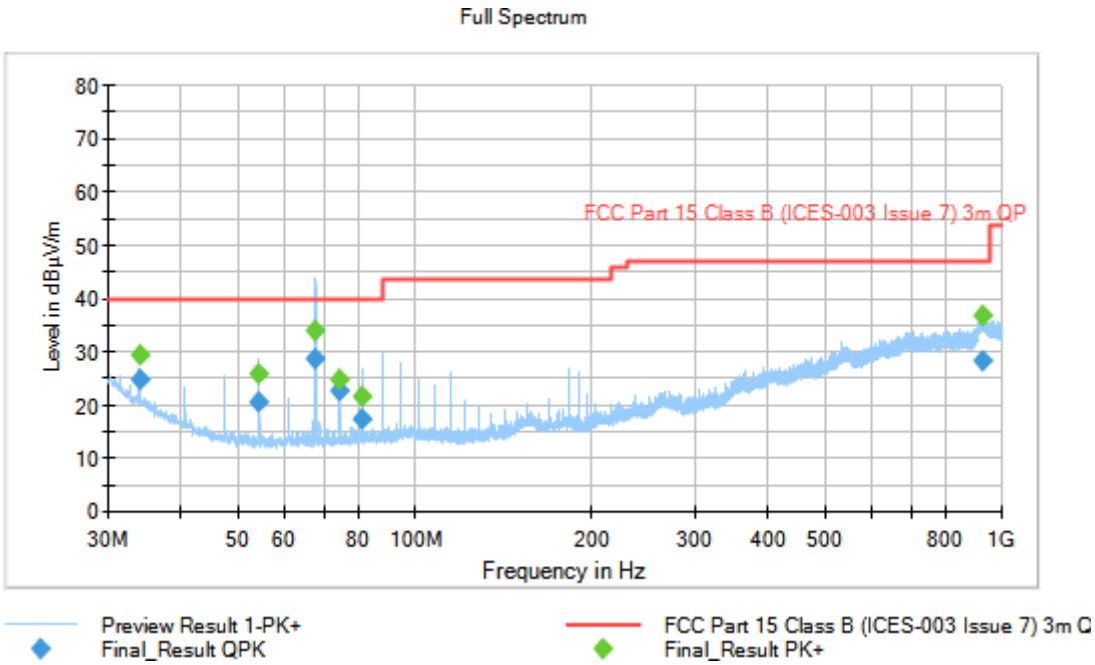
Attachments

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

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Ring in charging mode, Bluetooth OFF. Power supply: 5 Vdc.

Images:



Documents:

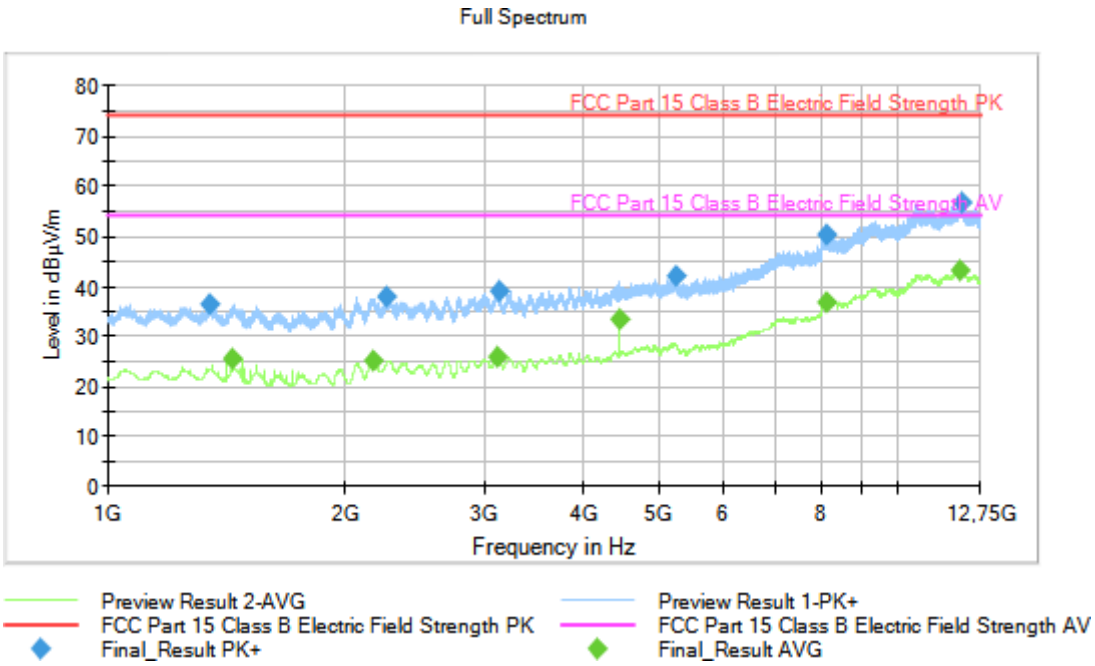
Frequency(MHz)	QuasiPeak(dBµV/m)	MaxPeak(dBµV/m)	Limit(dBµV/m)	Margin(dB)	Height(cm)	Pol	Azimuth(deg)
33.892000	24.84	---	40.00	15.16	106.0	V	160.0
33.892000	---	29.24	---	---	106.0	V	160.0
54.239000	---	25.78	---	---	122.0	V	24.0
54.239000	20.57	---	40.00	19.43	122.0	V	24.0
67.799000	---	33.92	---	---	291.0	V	243.0
67.799000	28.73	---	40.00	11.27	291.0	V	243.0
74.580000	---	24.94	---	---	100.0	V	290.0
74.580000	22.54	---	40.00	17.46	100.0	V	290.0
81.369000	17.39	---	40.00	22.61	100.0	V	345.0
81.369000	---	21.44	---	---	100.0	V	345.0
930.827000	---	36.81	---	---	227.0	H	73.0
930.827000	28.19	---	47.00	18.81	227.0	H	73.0

EMC Test Code = RE0101HR, Frequency Range MHz = [1000, 12750]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Ring in charging mode, Bluetooth OFF. Power supply: 5 Vdc.

Images:



Documents:

Frequency(MHz)	MaxPeak(dBµV/m)	Average(dBµV/m)	Limit(dBµV/m)	Margin(dB)
1348.400000	36.50	---	73.97	37.47
1437.200000	---	25.71	53.97	28.26
2169.600000	---	25.10	53.97	28.87
2247.200000	38.00	---	73.97	35.97
3105.200000	---	25.80	53.97	28.17
3130.000000	39.07	---	73.97	34.90
4454.800000	---	33.24	53.97	20.73
5235.200000	41.94	---	73.97	32.03
8130.000000	---	36.87	53.97	17.10
8138.800000	50.29	---	73.97	23.68
12001.600000	---	43.21	53.97	10.76
12060.000000	56.54	---	73.97	17.43

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 (10-1-19 Edition), Secs. 15.107 & ICES-003 Issue 6 (April 2019), in the frequency range 0,15 to 30 MHz, for Class B equipment was:

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
02	OM/02	CE02020N	[0.15, 30]	N	---	P
02	OM/02	CE0202L1	[0.15, 30]	L1	---	P

Verdict

Pass

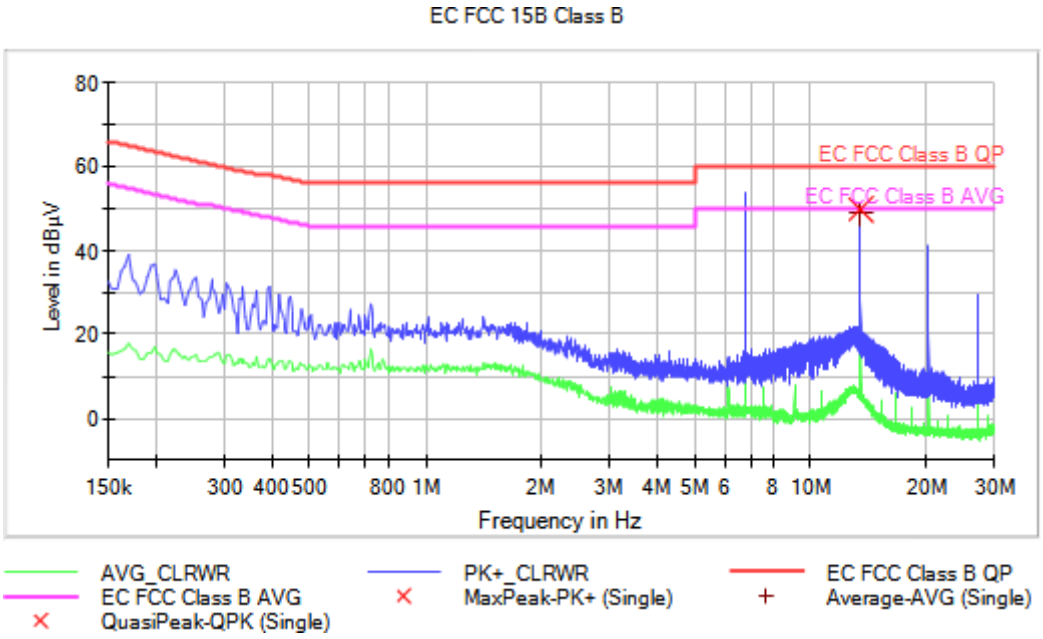
Attachments

EMC Test Code = CE02020N, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = N

Sample ID: S/02

Operation Mode: OM/02. EUT ON. Ring in charging mode. Bluetooth ON without communication established. Power supply: 115 Vac..

Images:



Documents:

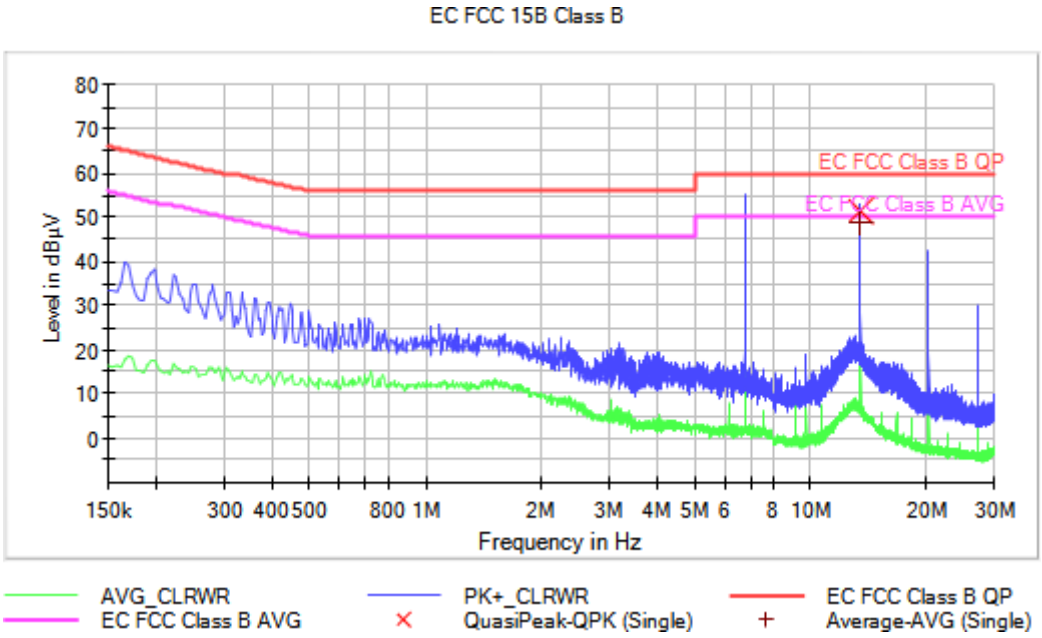
Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)	Line
0.170000	39.0	17.8	N
0.278000	33.4	14.7	N
0.446000	29.0	13.4	N
1.022000	24.0	12.1	N
1.414000	24.3	13.1	N
2.338000	19.8	9.0	N
4.266000	16.0	4.0	N
6.782000	53.9	51.8	N
13.562000	51.3	49.6	N
20.342000	41.1	38.2	N

EMC Test Code = CE0202L1, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = L1

Sample ID: S/02

Operation Mode: OM/02. EUT ON. Ring in charging mode. Bluetooth ON without communication established. Power supply: 115 Vac..

Images:



Documents:

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)	Line
0.166000	39.8	17.8	L1
0.282000	34.8	15.9	L1
0.446000	30.7	13.8	L1
1.090000	25.9	12.7	L1
1.610000	23.5	12.6	L1
2.250000	23.0	9.3	L1
3.766000	19.5	4.1	L1
6.782000	55.4	51.4	L1
13.562000	53.0	49.2	L1
20.342000	42.4	37.7	L1