

Test report No:
NIE: 69207REM.003

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B
(10-1-19 Edition) & ICES-003 Issue 7 (October 2020)

(*) Identification of item tested	Wireless charging base for the soccer shin guard
(*) Trademark	Humanox Soccer
(*) Model and /or type reference	HUOX 50 Wireless charging base
Other identification of the product	FCC ID: 2A292-HUX5B2 IC: Not provided data HW version: v2.0 SW version: Not provided data
(*) Features	Wireless Qi
Manufacturer	Humanox Soccer, S.A. Lugar de la Oropéndola, Calle "D", 1, (Esquina con Avda. Víctimas del Terrorismo) - 11500 El Puerto de Santa María (Cádiz)
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 7 (October 2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager  2021.11.3 0 13:10:56 +01'00'
Date of issue	2021-11-30
Report template No	FDT08_23 (*) "Data provided by the client"

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<i>CE Continuous conducted emission</i>	<i>19</i>

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.

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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 $I = \pm 3,9$ dB for quasi-peak measurements, $I = \pm 3,2$ 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 $I = \pm 4,9$ dB for quasi-peak measurements, $I = \pm 4,6$ 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 17 GHz is $I = \pm 2,6$ 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 Wireless charging base for the soccer shin guard

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 N°	Date of Reception	Application
S/01	69207B_6.1	Right shin guard	---	---	2021-10-13	Auxiliary Element
S/01	69207B_7.1	Left shin guard	---	---	2021-10-13	Auxiliary Element
S/01	67113_13.1	Wireless charger	---	---	2021-01-15	Element under test

Notes referenced to samples during the project.

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⁾	
	Micro USB port		1 m	[]	[]	[]	
Supplementary information to the ports..... :							
Rated power supply :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[X]	DC: Nominal Vin 5V (3.5 - 5.25 V)					
Rated Power :	6W max						
Clock frequencies :	32.728 kHz						
Other parameters..... :							
Software version :	Not provided data						
Hardware version..... :	V2.0						
Dimensions in cm (W x H x D) :	10.5 x 27 x 10.5						
Mounting position..... :	[X]	Table top equipment					
	[]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[]	Hand-held equipment					
	[]	Other:					
Modules/parts :	Module/parts of test item			Type		Manufacturer	
	Charging base					Humanox Soccer	
Accessories (not part of the test item) :	Description			Type		Manufacturer	
	USB cable						
Documents as provided by the applicant :	Description			File name		Issue date	
							

⁽³⁾ Only for Medical Equipment

Identification of the client

Humanox Soccer, S.A.

Lugar de la Oropéndola, Calle "D", 1, (Esquina con Avda. Víctimas del Terrorismo) - 11500 El Puerto de Santa María (Cádiz)

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2021-08-11
Date (finish)	2021-11-15

Document history

Report number	Date	Description
69207REM.003	2021-11-30	First release

Environmental conditions

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

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

Remarks and comments

The tests have been performed by the technical personnel: Beatriz Cabello De Alba Bujalance and Carlos Haro López.

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
6666	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2022-02-05
8825	EMI TEST RECEIVER 9kHz-7GHz	ESR7	ROHDE AND SCHWARZ	2023-07-15
7743	HORN ANTENNA 0,75-18GHz	3115	ETS LINDGREN	2023-08-24
7746	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2023-07-23
4659	PRE-AMPLIFIER G>28dB 1-18GHz	BBV 9718	SCHWARZBECK	2022-07-09
6142	PRE-AMPLIFIER G>38dB 30MHz-6GHz	BLNA 0360-01N	BONN ELEKTRONIK	2022-03-08
6205	THREE-PHASE ARTIFICIAL NETWORK 32A	--	--	2021-12-11
5152	TRANSIENT LIMITER 10DB N CONNECTOR	VTSD 9561-F	SCHWARZBECK	2022-10-20

Summary

Test Specification.	Requirement – Test case	Verdict	Remark
FCC CFR 47, Part 15, Subpart B (10-1-19 Edition) Sec. 15.109 & ICES-003 Issue 7 (October 2020)	RE Radiated emission. Electromagnetic field measure	Pass	---
FCC CFR 47, Part 15, Subpart B and C (10-1-19 Edition) Secs. 15.107 and 15.207 & ICES-003 Issue 7 (October 2020)	CE Continuous conducted emission	Pass	---
<u>Supplementary information and remarks:</u> None			

Appendix A: Test results

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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. Charging batteries of shin guards through Qi interface. Power supply: 5 Vdc (through an auxiliary AC/DC converter powered at 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 (10-1-19 Edition) Sec. 15.109 & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	RE Radiated emission.
FCC CFR 47, Part 15, Subpart B and C (10-1-19 Edition) Secs. 15.107 and 15.207 & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	CE Continuous conducted emission

Test Cases Details

FCC CFR 47, Part 15, Subpart B and C (10-1-19 Edition) Secs. 15.107 and 15.207 & ICES-003 Issue 7 (October 2020) RE Radiated emission. Electromagnetic field measure

Limits

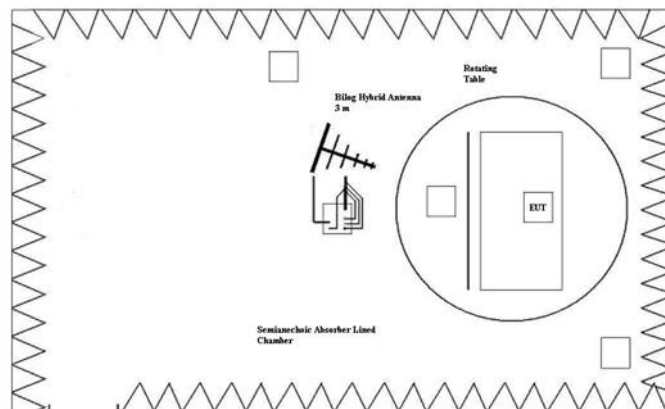
The applied limit for radiated emissions, 3 m distance, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-19 Edition), Secs. 15.109 & ICES-003 Issue 7 (October 2020)

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
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	(dB $\mu\text{V/m}$)
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

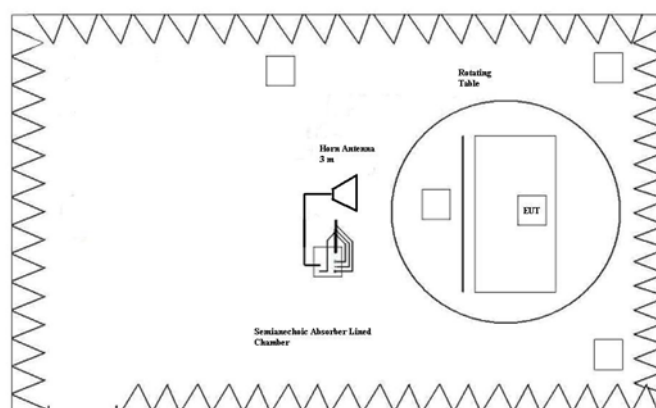
NOTE: FCC QP and AVG limits are in concordance with RSS-Gen Issue 5 (March 2019), Secs. 7.1 and 7.3.

Limits according to FCC Part 15B, equal to o 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)	V
01	OM/01	RE0101LR	[30, 1000]	P
01	OM/01	RE0101HR	[1000, 17000]	P

Verdict

Pass

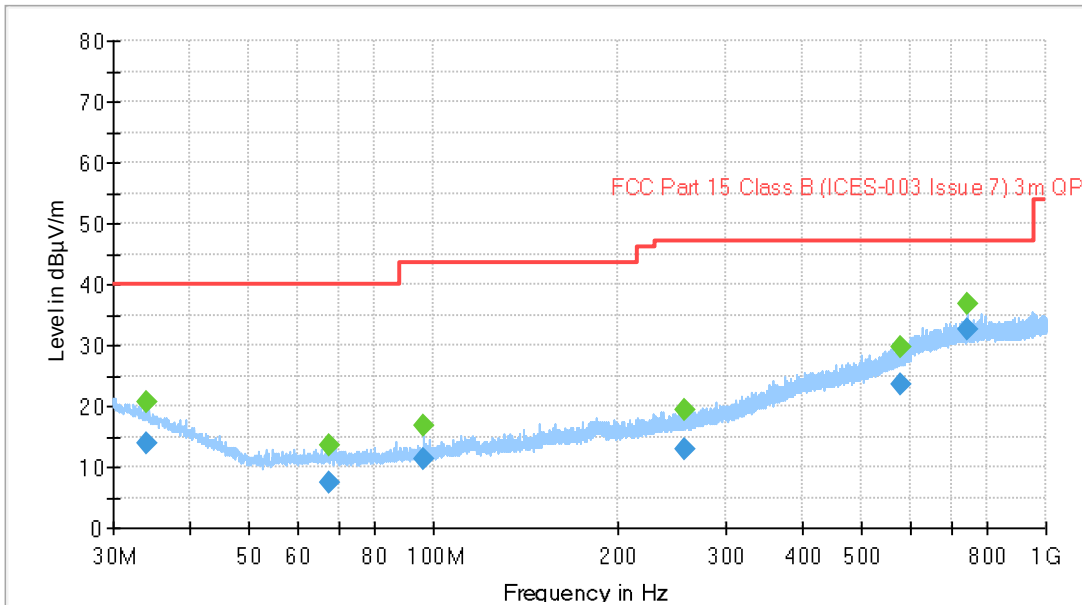
EMC Test Code = RE0101LR, Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Charging batteries of shin guards through Qi interface. Power supply: 5 Vdc (through an auxiliary AC/DC converter powered at 115 Vac).

Images:

Full Spectrum



Documents

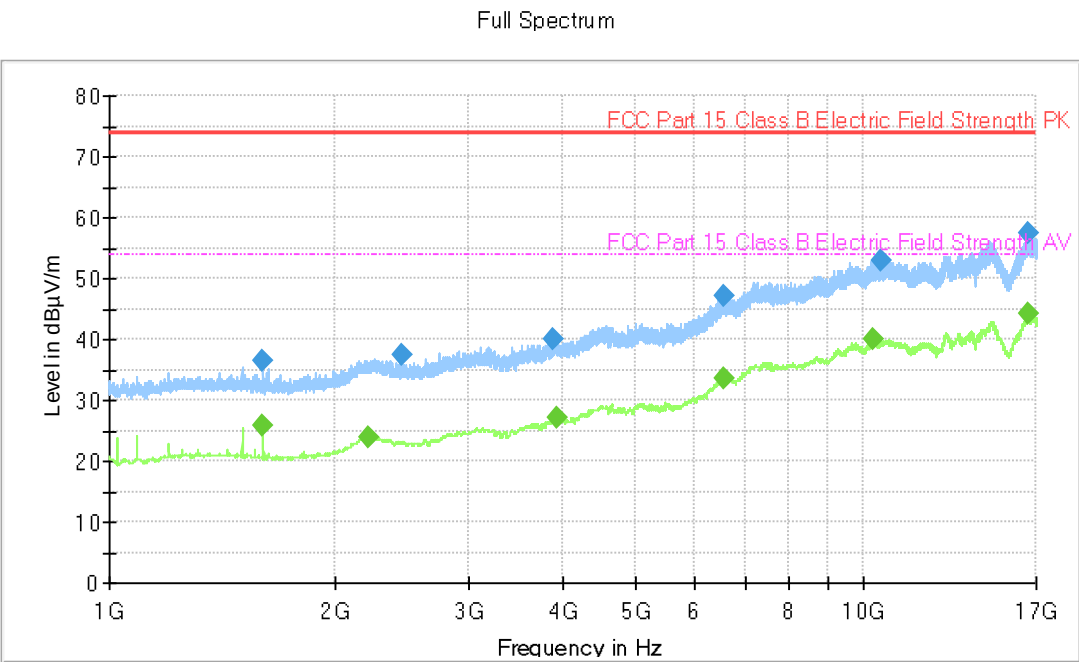
Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
33.933000	14.00	---	40.00	26.00	338.0	V	-144.0
33.933000	---	20.55	---	---	338.0	V	-144.0
67.702000	7.32	---	40.00	32.68	288.0	H	115.0
67.702000	---	13.43	---	---	288.0	H	115.0
96.019000	11.31	---	43.52	32.21	248.0	V	48.0
96.019000	---	16.65	---	---	248.0	V	48.0
257.761000	13.03	---	47.00	33.97	400.0	H	101.0
257.761000	---	19.23	---	---	400.0	H	101.0
580.058000	---	29.74	---	---	280.0	H	10.0
580.058000	23.56	---	47.00	23.44	280.0	H	10.0
742.579000	---	36.86	---	---	198.0	H	141.0
742.579000	32.70	---	47.00	14.30	198.0	H	141.0

EMC Test Code = RE0101HR, Frequency Range MHz = [1000, 17000]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Charging batteries of shin guards through Qi interface. Power supply: 5 Vdc (through an auxiliary AC/DC converter powered at 115 Vac).

Images:



Documents

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Corr. (dB/m)
1600.000000	---	25.71	53.97	28.26	-8.7
1600.000000	36.51	---	73.97	37.46	-8.7
2202.800000	---	24.02	53.97	29.95	-5.1
2445.600000	37.37	---	73.97	36.60	-5.7
3891.200000	39.89	---	73.97	34.08	-1.8
3918.800000	---	27.06	53.97	26.91	-1.8
6528.800000	47.04	---	73.97	26.93	5.1
6540.000000	---	33.67	53.97	20.30	5.2
10337.200000	---	39.94	53.97	14.03	12.7
10549.200000	52.95	---	73.97	21.02	12.8
16611.200000	---	44.07	53.97	9.90	16.2
16614.800000	57.39	---	73.97	16.58	16.2

FCC CFR 47, Part 15, Subpart B and C
(10-1-19 Edition) Secs. 15.107 and 15.207 & ICES-003 Issue 7 (October 2020)
CE Continuous conducted emission

Limits

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 and 15.207 & ICES-003 Issue 7 (October 2020), in the frequency range 0,15 to 30 MHz, for Class B equipment was:

Frequency range (MHz)	Limit (dB μ V)	
	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	V
01	OM/01	CE01010N	[0.15, 30]	N	P
01	OM/01	CE0101L1	[0.15, 30]	L1	P

Verdict

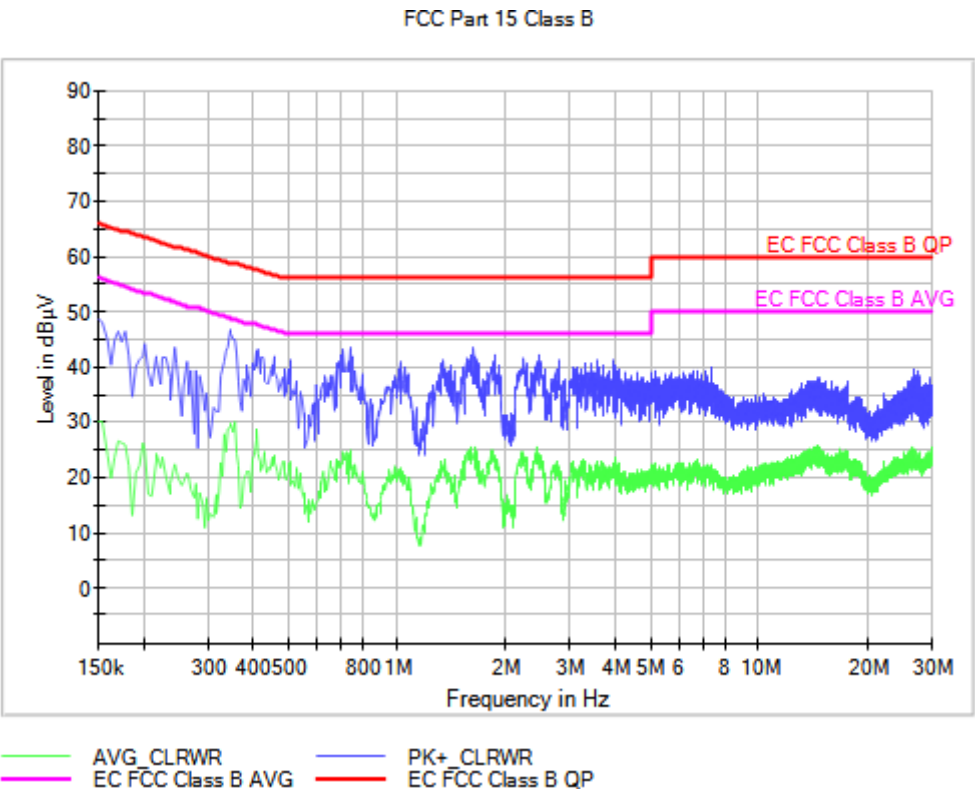
Pass

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

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Charging batteries of shin guards through Qi interface. Power supply: 5 Vdc (through an auxiliary AC/DC converter powered at 115 Vac).

Images:



Documents:

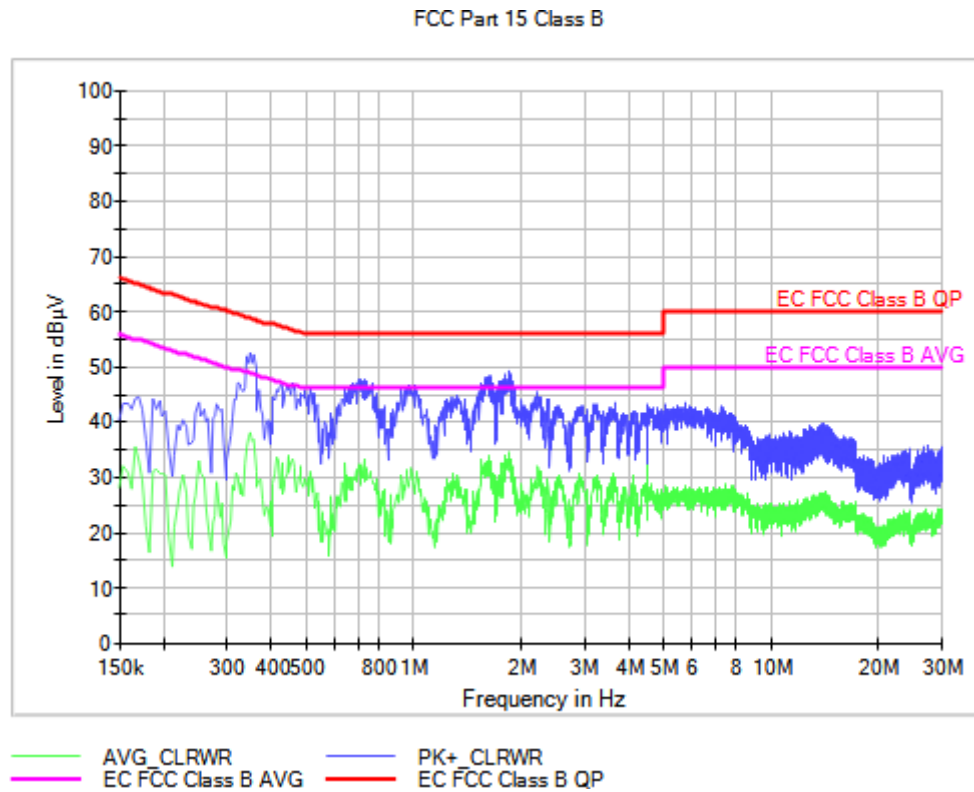
Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.150000	48.7	30.2
0.738000	43.6	25.0
1.634000	43.6	24.1
2.478000	42.1	24.0
7.346000	39.9	21.5
26.826000	39.7	24.0

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

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Charging batteries of shin guards through Qi interface. Power supply: 5 Vdc (through an auxiliary AC/DC converter powered at 115 Vac).

Images:



Documents:

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.350000	52.5	38.2
0.702000	47.9	32.4
1.834000	49.3	34.6
2.210000	45.4	28.5
5.738000	43.6	28.4
14.054000	39.6	26.2