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: 69207REM.004

Test report

FCC Rules and Regulations CFR 47, Part 18, Subpart C(10-1-17 Edition) & ISED RSS-216 Issue 2 and ICES001.

(*) 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 18, Subpart C (10-1-17 Edition) & ISED RSS-216 Issue 2 and ICES001
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager 2021.11.30 13:11:27 +01'00'
Date of issue	2021-11-30
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 26 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 Wireless charging base for the soccer shin guard HUOX50.

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	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)						
	[ ] DC:						
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)	2021-10-19
Date (finish)	2021-11-15

Document history

Report number	Date	Description
69207REM.004	2021-11-30	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. = 860 mbar Max. = 1060 mbar

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. = 860 mbar Max. = 1060 mbar

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. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: Daniel López Comitre, Jaime Barranquero Gomez.

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
7762	ACTIVE LOOP ANTENNA 9kHz-30MHz	FMZB 1519B	SCHWARZBECK	2022-11-06
7895	COMMON MODE ABSORTION DEVICE	--	--	2022-03-12
7817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2021-10-29
6129	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	--	--	2022-04-07
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
6205	THREE-PHASE ARTIFICIAL NETWORK 32A	--	--	2021-12-11
5152	TRANSIENT LIMITER 10DB N CONNECTOR	VTSD 9561-F	SCHWARZBECK	2022-10-20

Control No.	Equipment	Model	Manufacturer	Next Calibration
7826	ULTRALOG ANTENNA 30MHz-6GHz	HL562E_UPG	ROHDE AND SCHWARZ	2022-10-15
8130	SEMIANECHOIC ABSORBER LINED CHAMBER VI	P29419	ALBATROSS	---
8134	SHIELDED ROOM	P29419	ALBATROSS PROJECTS GMBH	---

Summary

Test Specification.	Requirement – Test case	Verdict	Remark
FCC 47 CFR Part 18	RE Radiated emission. Electromagnetic field measure	Pass	---
FCC 47 CFR Part 18	CE Continuous conducted emission	Pass	---

Supplementary information and remarks:
None

Appendix A: Test results

Appendix A context

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: 5Vdc (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 18, Subpart C (10-1-17 Edition), Sec. 18.307 ISED RSS-216 Issue 2 and ICES001	FCC CFR 47, Part 18, Subpart C (10-1-17 Edition), Sec. 18.307 ISED RSS-216 Issue 2 and ICES001	CE Continuous conducted emission
FCC CFR 47, Part 18, Subpart C (10-1-17 Edition), Sec. 18.305 ISED RSS-216 Issue 2 and ICES001	FCC CFR 47, Part 18, Subpart C (10-1-17 Edition), Sec. 18.305 ISED RSS-216 Issue 2 and ICES001	RE Radiated emission. Electromagnetic field measure

Test Cases Details

FCC CFR 47, Part 18, Subpart C (10-1-17 Edition), Sec. 18.305
ISED RSS-216 Issue 2 and ICES001
RE Radiated emission. Electromagnetic field measure

Limits

Limits for FCC part 18.305. Field strength limits.

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Induction cooking ranges	Below 90 kHz	Any	1,500	30[4)]
	On or above 90 kHz	Any	300	30[4)]

4) Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

Note: Testing for compliance with these limits may be made at closer distances, provided a sufficient number of measurements are taken to plot the radiation pattern, to determine the major lobes of radiation, and to determine the expected field strength level at 30, 300, or 1600 meters. Alternatively, if measurements are made at only one closer fixed distance, then the permissible field strength limits shall be adjusted using 1/d as an attenuation factor.

FCC part 18.309. Frequency range of measurements

Frequency band in which device operates (MHz)	Range of frequency measurements	
	Lowest frequency	Highest frequency
Below 1.705	Lowest frequency generated in the device, but not lower than 9 kHz	30 MHz
1.705 to 30	Lowest frequency generated in the device, but not lower than 9 kHz	400 MHz
30 to 500	Lowest frequency generated in the device or 25 MHz, whichever is lower	Tenth harmonic or 1,000 MHz, whichever is higher.
500 to 1000	Lowest frequency generated in the device or 100 MHz, whichever is lower	Tenth harmonic.
Above 1000	……do	Tenth harmonic or highest detectable emission.

Results

S/	OM	Code	Freq Rng (MHz)	Comments	V
01	OM/01	RE0101LR1_X	[0.009, 30]	X axis	P
01	OM/01	RE0101LR1_Y	[0.009, 30]	Y axis	P
01	OM/01	RE0101LR1_Z	[0.009, 30]	Z axis	P

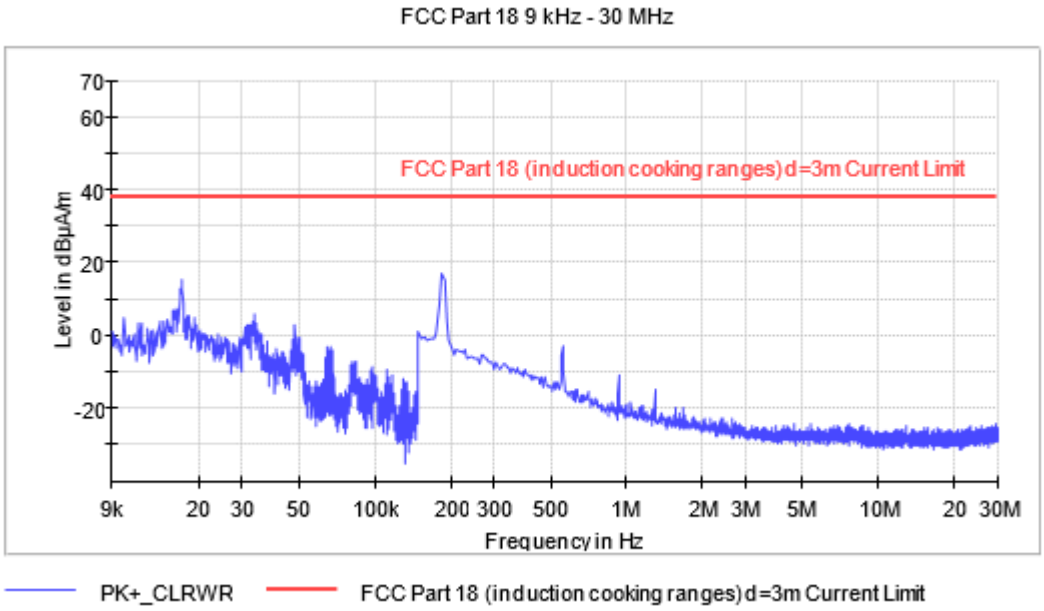
Verdict

Pass

EMC Test Code = RE0101LR1_X, Frequency Range MHz = [0.009, 30]

Sample ID: S/01

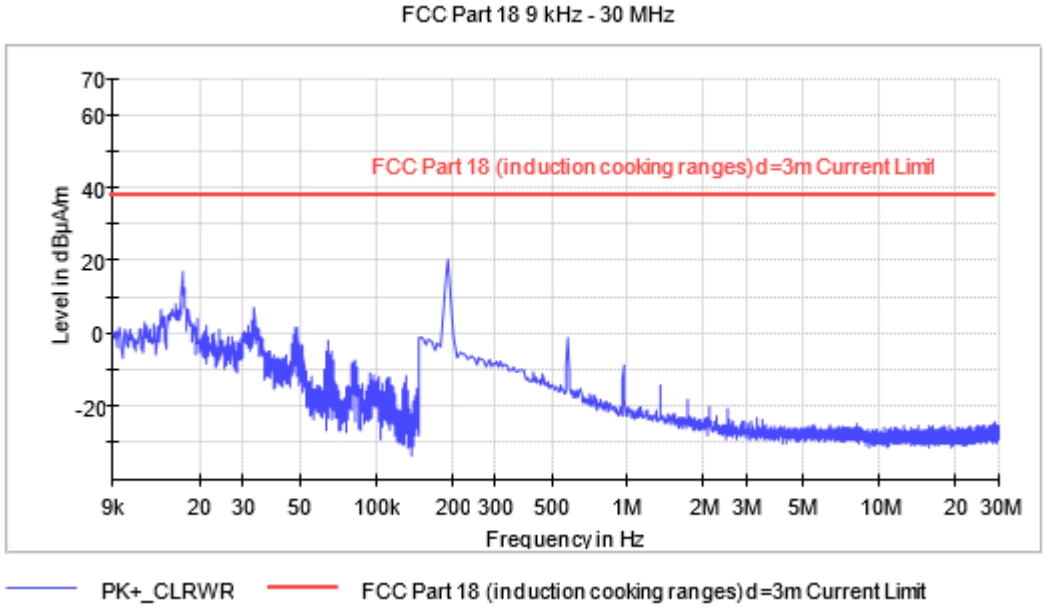
Operation Mode: OM/01. EUT ON. Charging batteries of shin guards through Qi interface. Power supply: 5Vdc (through an auxiliary AC/DC converter powered at 115 Vac). X axis.



EMC Test Code = RE0101LR1_Y, Frequency Range MHz = [0.009, 30]

Sample ID: S/01

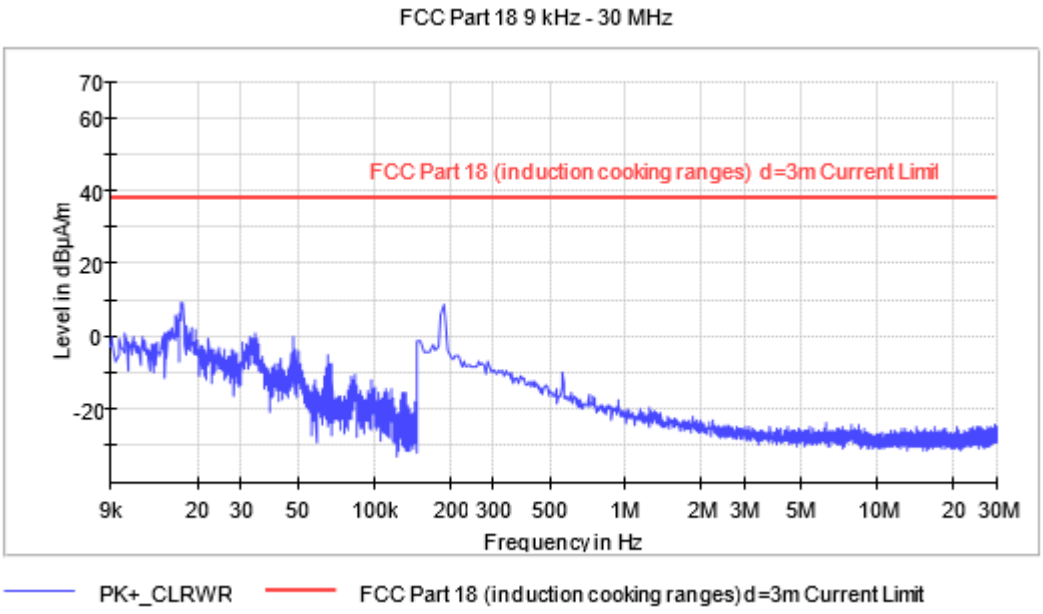
Operation Mode: OM/01. EUT ON. Charging batteries of shin guards through Qi interface. Power supply: 5Vdc (through an auxiliary AC/DC converter powered at 115 Vac). Y axis.



EMC Test Code = RE0101LR1_Z, Frequency Range MHz = [0.009, 30]

Sample ID: S/01

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



FCC CFR 47, Part 18, Subpart C (10-1-17 Edition), Sec. 18.307
ISED RSS-216 Issue 2 and ICES001
CE Continuous conducted emission

Limits

Limits for FCC part 18.307

Frequency (MHz)	Coducted limit (dbuV)	
	Quasi-Peak	Average
0,009 - 0,05	110	--
0,05 - 0,15	90 – 80*	--
0,15 - 0,5	66 to 56*	56 to 46*
0,5 – 5	56	46
5 - 30	60	50

*Decreases with the logarithm of the frequency

Results

S/	OM	Code	Line	Freq Rng (MHz)	V
01	OM/01	CE01010N_1	N	[0.009, 0.15]	P
01	OM/01	CE01010N_2	N	[0.15, 30]	P
01	OM/01	CE0101L1_1	L1	[0.009, 0.150]	P
01	OM/01	CE0101L1_2	L1	[0.15, 30]	P

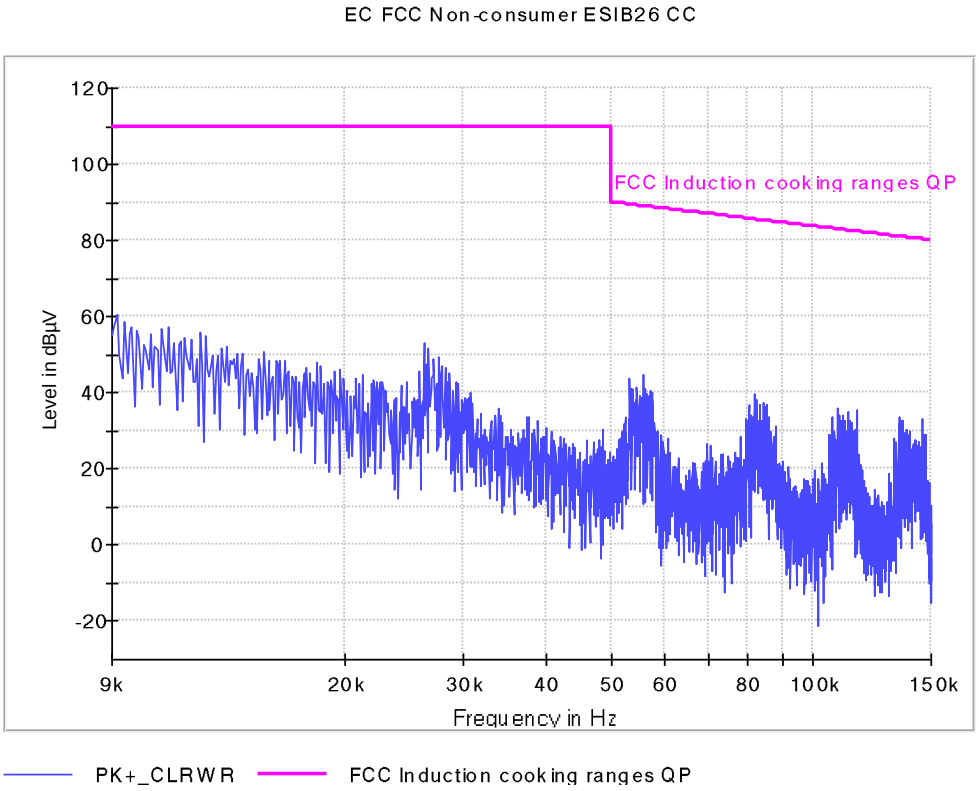
Verdict

Pass

EMC Test Code = CE01010N_1, Conducted Emissions - Tested Line = N, Frequency Range MHz = [0.009, 0.15]

Sample ID: S/01

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



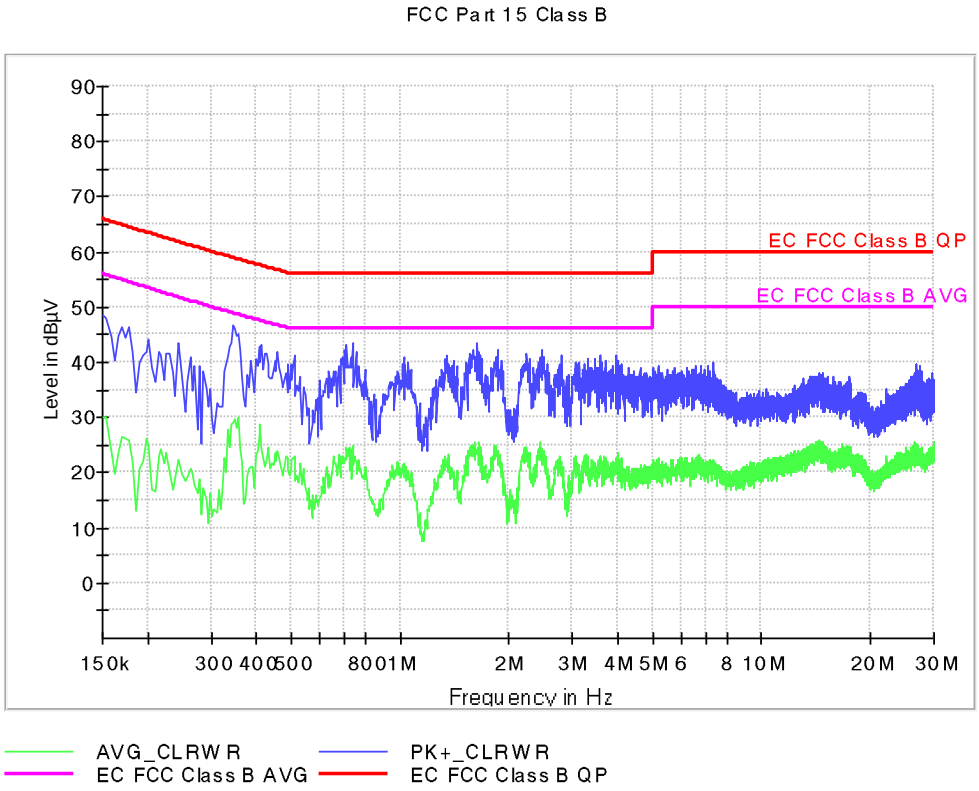
Subrange Maxima

Frequency (MHz)	PK+_CLRWR (dBµV)
0.009160	60.4
0.015160	51.0
0.026280	53.0
0.055880	44.9
0.081640	39.8
0.108840	36.0

EMC Test Code = CE01010N_2, Conducted Emissions - Tested Line = N, Frequency Range MHz = [0.15, 30]

Sample ID: S/01

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



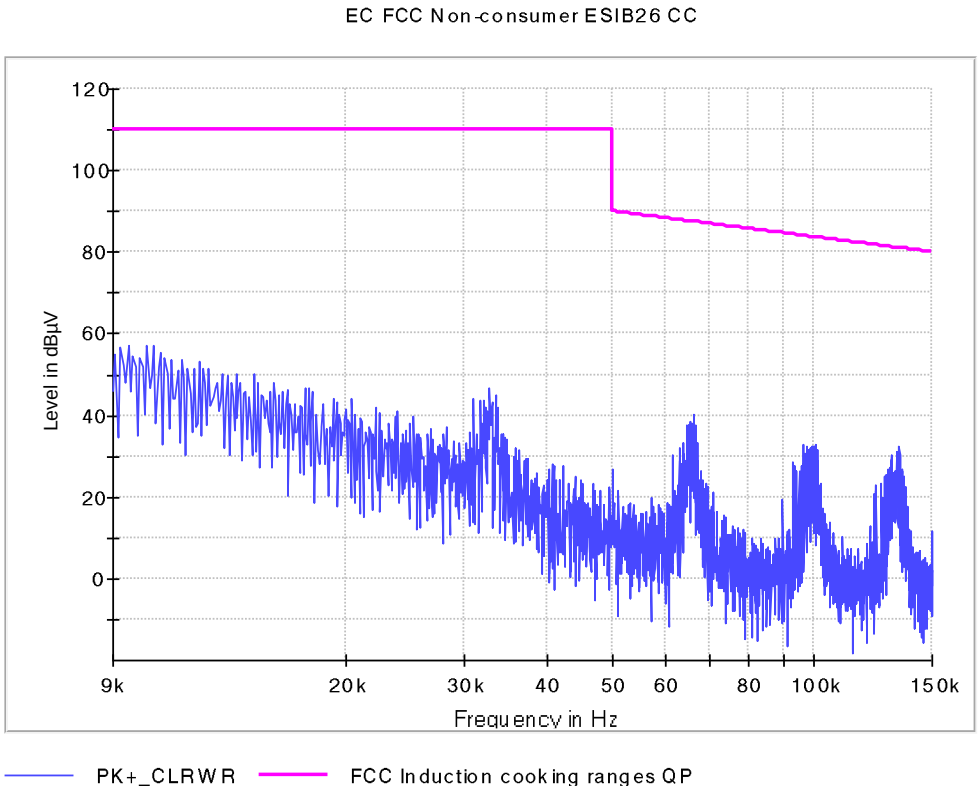
Subrange Maxima

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_1, Conducted Emissions - Tested Line = L1, Frequency Range MHz = [0.009, 0.15]

Sample ID: S/01

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



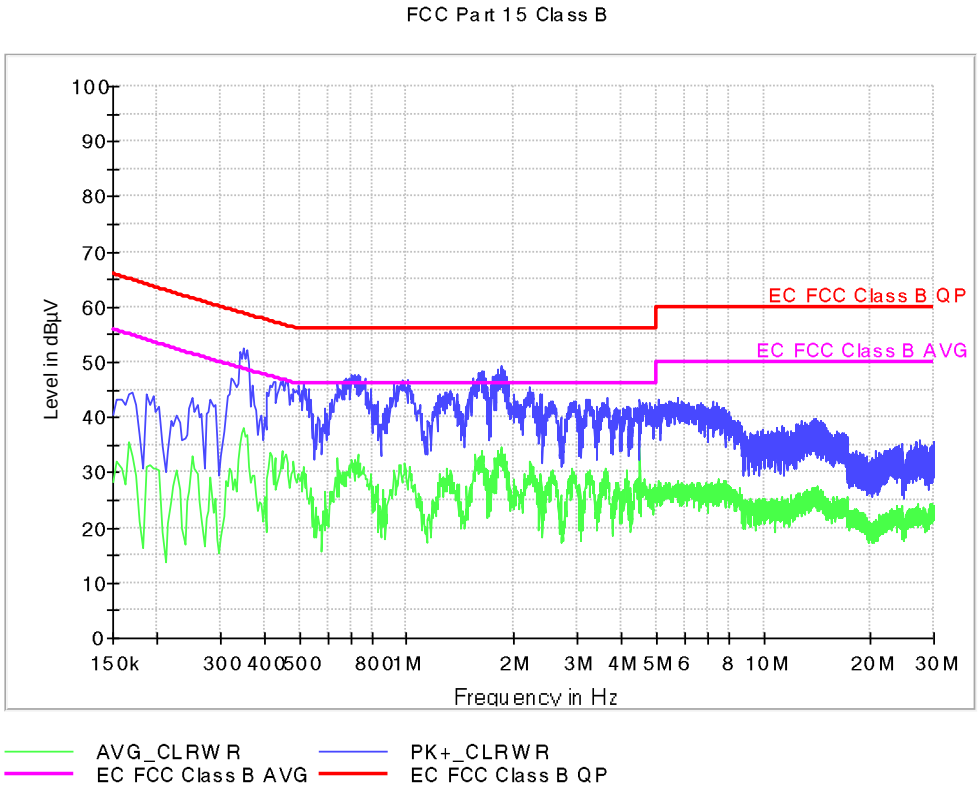
Subrange Maxima

Frequency (MHz)	PK+_CLRWR (dBµV)
0.009480	57.3
0.014600	50.2
0.032840	47.0
0.037160	29.6
0.066280	40.4
0.096440	33.0

EMC Test Code = CE0101L1_2, Conducted Emissions - Tested Line = L1, Frequency Range MHz = [0.15, 30]

Sample ID: S/01

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



Subrange Maxima

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