

Test report No:
NIE: 69207REM.002

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	Left soccer shin guard
(*) Trademark	Humanox Soccer
(*) Model and /or type reference	HUOX 50 Soccer shin guard (Left)
Other identification of the product	FCC ID: 2A292-HUX5L25 IC: Not provided data HW version: v2.0 SW version: v29
(*) Features	Bluetooth LE, GSM
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 13:10:27 +01'00'
Date of issue	2021-11-30
Report template No	FDT08_23 (*) "Data provided by the client"

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<i>RE Radiated emission. Electromagnetic field measure</i>	<i>15</i>

Acronyms

Acronym ID	Acronym Description
Code	EMC Test Code
Freq Rng	Frequency Range
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

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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 Soccer shin guard with IoT technology.

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 Reception	of	Application
S/01	67113_10.1	Smart shin guard	HUOX 50	862549047786242	2021-01-15		Auxiliary element
S/01	67113_9.1	Smart shin guard	HUOX 50	862549047786242	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⁾	
			[]	[]	[]	
Supplementary information to the ports..... :						
Rated power supply :	Voltage and Frequency		Reference poles			
			L1	L2	L3	N
	[X]	DC: 3.8 V				
Rated Power :						
Clock frequencies :						
Other parameters..... :						
Software version :	v29					
Hardware version..... :	v2.0					
Dimensions in cm (W x H x D) :	8 x 17 x0.8					
Mounting position..... :	[]	Table top equipment				
	[]	Wall/Ceiling mounted equipment				
	[]	Floor standing equipment				
	[]	Hand-held equipment				
	[]	Other:				
Modules/parts :	Module/parts of test item		Type		Manufacturer	
	Left soccer shin guard				Humanox Soccer	
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

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)	2021-08-11

Document history

Report number	Date	Description
69207REM.002	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.

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
7743	HORN ANTENNA 0,75-18GHz	3115	ETS LINDGREN	2023-08-24
7746	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2023-07-23
6196	PRE-AMPLIFIER G>55dB 1-18GHz	AMF-7D-01001800-22-10P	NARDA	2022-02-25
8150	SEMIANECHOIC ABSORBER LINED CHAMBER I	FACT 10	ETS LINDGREN	---
6666	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2022-02-05
3545	TEMPERATURE AND HUMIDITY PROBE	HUMIDIPROBE	PICO TECHNOLOGY	2022-04-07
3547	TEMPERATURE AND HUMIDITY PROBE	HUMIDIPROBE	PICO TECHNOLOGY	2022-04-14

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	---
<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. MS in IDLE mode. Bluetooth in RX mode. Power supply: 3.8 Vdc (Internal batteries)

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.

Test Cases Details

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

Limits

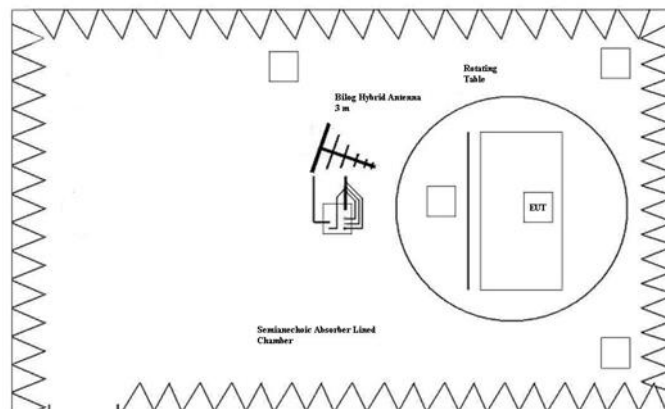
The applied limit for radiated emissions, 3 m distance, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-19 Edition), Secs. 15.109 & ICES-003 Issue 7 (October 2020)

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

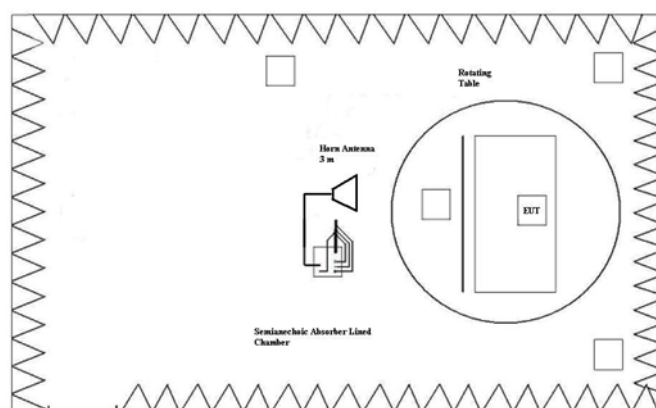
NOTE: FCC QP and AVG limits are in concordance with RSS-Gen Issue 5 (March 2019), Secs. 7.1 and 7.3.

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

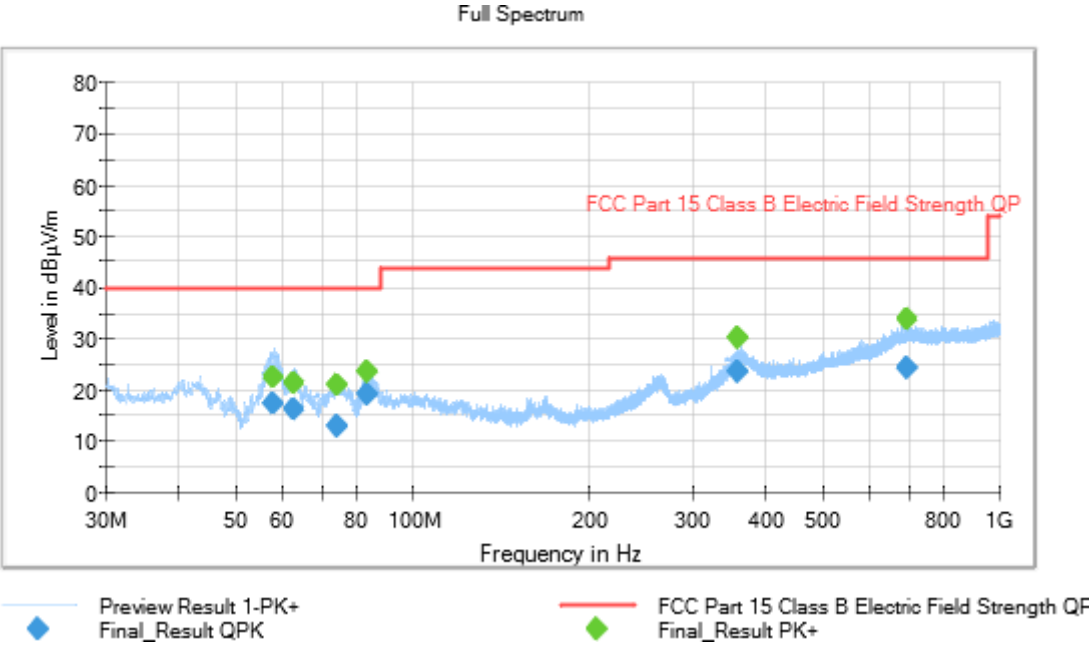
Pass

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

Sample ID: S/01

Operation Mode: OM/01. EUT ON. MS in IDLE mode. Bluetooth in RX mode. Power supply: 3.8 Vdc (Internal batteries).

Images:



Documents:

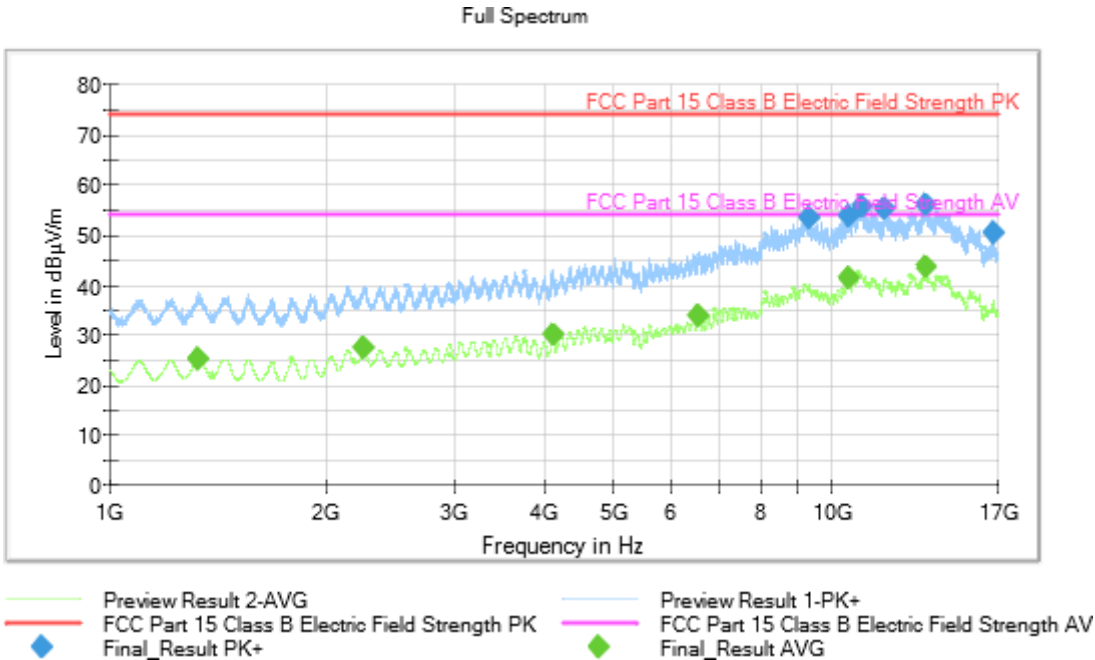
Frequency(MHz)	QuasiPeak(dBµV/m)	MaxPeak(dBµV/m)	Limit(dBµV/m)	Margin(dB)	Height(cm)	PoI	Azimuth(deg)
57.966000	17.29	---	40.00	22.71	152.0	V	22.0
57.966000	---	22.27	---	---	152.0	V	22.0
62.659000	---	21.24	---	---	100.0	V	127.0
62.659000	16.33	---	40.00	23.67	100.0	V	127.0
74.471000	---	20.79	---	---	112.0	V	276.0
74.471000	12.84	---	40.00	27.16	112.0	V	276.0
83.638000	19.12	---	40.00	20.88	105.0	V	101.0
83.638000	---	23.63	---	---	105.0	V	101.0
359.012000	---	30.01	---	---	148.0	H	106.0
359.012000	23.63	---	46.00	22.37	148.0	H	106.0
696.573000	---	33.71	---	---	156.0	H	71.0
696.573000	24.37	---	46.00	21.63	156.0	H	71.0

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

Sample ID: S/01

Operation Mode: OM/01. EUT ON. MS in IDLE mode. Bluetooth in RX mode. Power supply: 3.8 Vdc (Internal batteries).

Images:



Documents:

Frequency(MHz)	MaxPeak(dBµV/m)	Average(dBµV/m)	Limit(dBµV/m)	Margin(dB)
1326.000000	---	25.35	53.97	28.62
2253.600000	---	27.50	53.97	26.47
4110.800000	---	30.12	53.97	23.85
6541.200000	---	33.87	53.97	20.10
9318.400000	53.48	---	73.97	20.49
10583.600000	53.88	---	73.97	20.09
10588.400000	---	41.35	53.97	12.62
11040.000000	55.44	---	73.97	18.53
11874.800000	55.22	---	73.97	18.75
13498.800000	56.00	---	73.97	17.97
13500.400000	---	43.41	53.97	10.56
16783.200000	50.28	---	73.97	23.69