

Test report No:
NIE: 57721REM.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	Wireless battery powered parking sensor
(*) Trademark	Urbíótica
(*) Model and /or type reference	U-SPOT-DUO
Other identification of the product	HW Version: SPD.HW.20.10 SW Version: SPD.FW.1.11 FCC ID: 2AYS6-U-SPOT-DUO
(*) Features	LoRa communications.
Manufacturer	Barcelona Smart Technologies S.L. C/ Joaquim Molins 5, 4o 4a Barcelona 08028. Spain.
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 EMC Consumer & RF Lab. Manager  RAFAEL LÓPEZ MARTÍN 2021.03.10 13:25:41 +01'00'
Date of issue	2021-03-10
Report template No	FDT08_23 (*) "Data provided by the client"

Index

ACRONYMS3

COMPETENCES AND GUARANTEES3

GENERAL CONDITIONS4

UNCERTAINTY4

DATA PROVIDED BY THE CLIENT4

USAGE OF SAMPLES5

TEST SAMPLE DESCRIPTION6

IDENTIFICATION OF THE CLIENT7

TESTING PERIOD AND PLACE7

DOCUMENT HISTORY7

ENVIRONMENTAL CONDITIONS8

REMARKS AND COMMENTS9

TESTING VERDICTS9

LIST OF EQUIPMENT USED DURING THE TEST9

SUMMARY10

APPENDIX A: TEST RESULTS11

Acronyms

Acronym ID	Acronym Description
Avg	Radiated Average Level
Avg	Conducted Average Level
Az	Azimuth
CPL	Zones / Coupling Cables
Code	EMC Test Code
Freq	Frequency
Freq Rng	Frequency Range
H	Height
Line	Conducted Emissions - Tested Line
MP	Measurement Point
Max	Conducted Maximum Level
MaxPeak	Radiated Maximum Peak Level
OM	Operation Mode
Pol	Polarization
QuasiPeak	Conducted Quasi Peak Level
QuasiPeak	Radiated Quasi Peak Level
S/	Sample
V	Verdict
Volt Immunity Lvl	Voltage Immunity Severity Level
Volt Immunity Type	Voltage Immunity Type

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.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA Testing and Certification S.A.U.

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 internal document PODT000.

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 12.75 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. This is a parking sensor. Use magnetic and infrared sensors for detecting occupation of parking space. It sends the information using a LoRa radio.

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 under test have been selected by: The client.

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/01	66612_013	U-SPOT-DUO	---	---	2020-11-09	Element under test

Notes referenced to samples during the project.

Id	Note
S/01	--

Test sample description

Ports..... :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾	
	N/A						
Supplementary information to the ports..... :		N/A					
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☐ AC:						
☒ DC: 3.6Vdc primary lithium battery. Saft LS33600 model.							
Rated Power	250mA at 3.6V recommended continuous current by manufacturer						
Clock frequencies.....	48Mhz for microcontroller and 32MHz for radio transceiver						
Other parameters	Not provided data						
Software version	SPD.FW.1.11						
Hardware version	SPD.HW.20.10						
Dimensions in cm (W x H x D)	12x12x71						
Mounting position	X	Other: Outdoor sensor. Embedded on the pavement.					
Modules/parts..... :	Module/parts of test item			Type		Manufacturer	
	2 x D type batteries			Battery		Saft	
	Internal patch mount ISM PCB antenna			Antenna		2J	
Accessories (not part of the test item)	Description			Type		Manufacturer	
	N/A						
Documents as provided by the applicant..... :	Description			File name		Issue date	
	N/A						

Identification of the client

Worldsensing S.L.
C/ Viriat, 47, Edificio Numancia 1, planta 10.
Barcelona 08014. Spain.

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2019-01-28
Date (finish)	2021-01-26

Document history

Report number	Date	Description
57721REM.002	2021-03-10	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. = 20 % Max. = 75 %

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

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. = 20 % Max. = 75 %

Remarks and comments

The tests have been performed by the technical personnel: Lorena Oviedo & Antonio Ruiz.

Testing verdicts

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

List of equipment used during the test

Nº de Control / Control Number	Descripción / Description	Modelo / Model	Fabricante / Manufacturer	Próxima Calibración / Next Calibration
2942	EMI TEST RECEIVER 20Hz-40GHz	ESU40	ROHDE AND SCHWARZ	2021-09-17
4612	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2021-06-14
5641	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2021-07-31
6064	SEMIANECHOIC ABSORBER LINED CHAMBER III	SAC-3	Frankonia	---
6121	PRE-AMPLIFIER G>40dB 10MHz-6GHz	BLNA 0160-01N	BONN ELEKTRONIK	---
6126	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2021-04-17
6132	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2021-04-20
6195	PRE-AMPLIFIER G>55dB 1-18GHz	AMF-7D-01001800-22-10P	NARDA	2021-05-19
6329	SHIELDED ROOM		FRANKONIA	---

Summary

Test Specification.	Requirement – Test case	Verdict	Remark
FCC CFR 47, Part 15, Subpart B y C (10-1-19 Edition) Sec. 15.109 & ICES-003 Issue 7 (October 2020) & ANSI C63.4 (2014)	Radiated emission	Pass	---
FCC CFR 47, Part 15, Subpart B y C (10-1-19 Edition) Secs. 15.107 and 15.207 & ICES-003 Issue 7 (October 2020) & ANSI C63.4 (2014)	Conducted emission	N/A	(1)
(1) This test is not applicable according to standard. Equipment powered in DC.			

Appendix A: Test results

Appendix A content

DESCRIPTION OF THE OPERATION MODES	13
TEST STANDARDS VERSION APPLIED	13
TEST CASES DETAILS	14
RE RADIATED EMISSION.....	14

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. Equipment in Rx mode. Power supply: 3.6Vdc.

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 y C (10-1-19 Edition) Sec. 15.109 & ICES-003 Issue 7 (October 2020).	ANSI C63.4 (2014)	Radiated emission

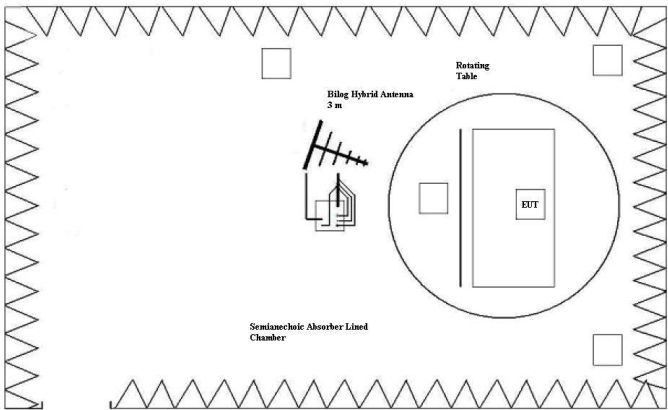
Test Cases Details

FCC CFR 47, Part 15, Subpart B (10-1-19 Edition), Sec. 15.109 &
ICES-003 Issue 7 (October 2020)
RE Radiated emission

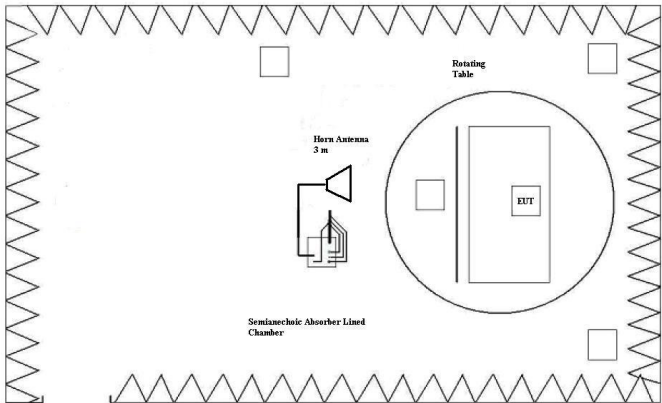
Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-19 Edition), Secs. 15.109 & ICES-003 Issue 7 (Updated 04-2020)

Frequency range (MHz)	FCC Part 15B Class B (3 m) Quasi-Peak (dBµV/m)	ICES-003 Issue 7 Limit for 3 m Quasi-Peak (dBµV/m)	FCC Part 15B & ICES-003 Issue 7	
			PK Limit for 3m (dBµV/m)	AVG Limit for 3m (dBµV/m)
30-88	40.0	40.0	---	---
88-216	43.5	43.5	---	---
216-230	46.0	46.0	---	---
230-960	46.0	47.0	---	---
960-1000	54.0	54.0	---	---
1 GHz – F _M	---	---	74	54



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

RESULTS

REmmnnRR	Description	Result
RE0101LR	Range: 30 MHz - 1000 MHz.	P
RE0101HR	Range: 1 GHz - 12.75 GHz.	P

mm: Sample number; nn: Operation mode; RR: Measurement range.

*According to FCC 47 CFR Part 15B / ICES-003 Issue 6, this measurement is only needed up to the fifth harmonic of the internal working frequency.

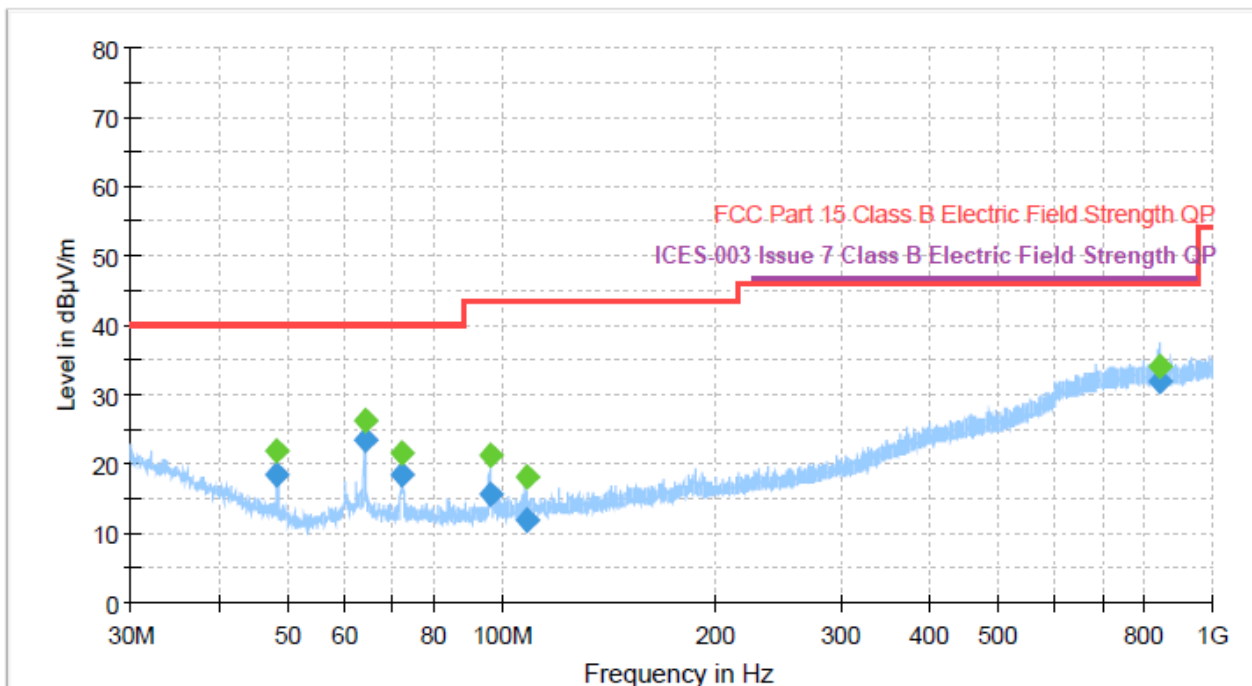
VERDICT

Pass

Images:

Project: 57721REM.002
Company: WOLDSENSING S.L.
Sample: S/01
Operation mode: OM#01
Graphical code: RE0101LR
Description: EUT ON. Equipment in RX mode. Power supply: 3.6Vdc

Full Spectrum

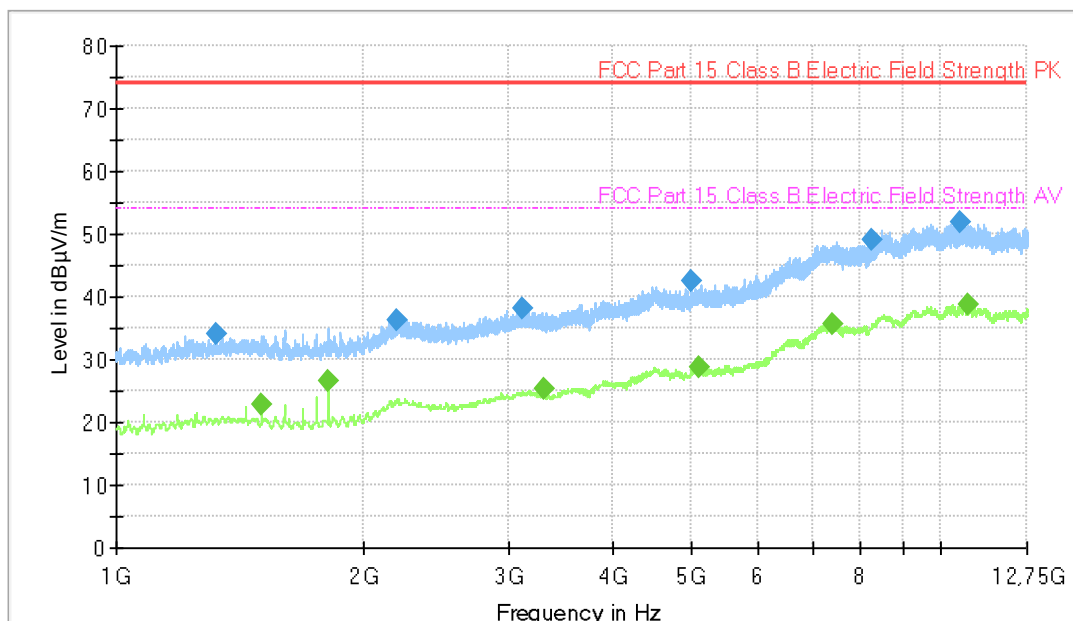


Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
48.267000	18.42	---	40.00	21.58	244.0	V	-14.0
48.267000	---	21.72	---	---	244.0	V	-14.0
64.019000	23.53	---	40.00	16.47	122.0	V	176.0
64.019000	---	26.18	---	---	122.0	V	176.0
72.385000	---	21.45	---	---	137.0	V	-18.0
72.385000	18.41	---	40.00	21.59	137.0	V	-18.0
95.958000	15.73	---	43.52	27.79	137.0	V	-152.0
95.958000	---	21.25	---	---	137.0	V	-152.0
107.988000	11.77	---	43.52	31.75	158.0	V	166.0
107.988000	---	18.00	---	---	158.0	V	166.0
841.412000	---	34.14	---	---	388.0	V	172.0
841.412000	31.81	---	46.00	18.19	388.0	V	172.0

Project: 57721REM.002
Company: WOLDSENSING S.L.
Sample: S/01
Operation mode: OM#01
Graphical code: RE0101HR
Description: EUT ON. Equipment in RX mode. Power supply: 3.6Vdc.

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1325.600000	33.95	---	73.97	40.02
1500.000000	---	22.83	53.97	31.14
1812.400000	---	26.55	53.97	27.42
2192.400000	36.30	---	73.97	37.67
3121.200000	38.05	---	73.97	35.92
3307.200000	---	25.21	53.97	28.76
4991.600000	42.54	---	73.97	31.43
5094.800000	---	28.90	53.97	25.07
7408.400000	---	35.77	53.97	18.20
8255.200000	49.11	---	73.97	24.86
10604.800000	51.94	---	73.97	22.03
10829.200000	---	38.72	53.97	15.25