TEST REPORT

Applicant:	GOYA IMPORTACIONES Y DISTRIBUCIONES S.L.
Address of Applicant:	Plataforma logistica de Zaragoza c/trapani 27 edificio 50197 Spain
Manufacturer:	GOYA IMPORTACIONES Y DISTRIBUCIONES S.L.
Address of Manufacturer:	Plataforma logistica de Zaragoza c/trapani 27 edificio 50197 Spain
Equipment Under Test (EUT)	
Product Name:	Wireless charger
Model:	50556
Standards:	ETSI EN 303 417 V1.1.1 (2017-09)
Date of Receipt:	August 05, 2022
Date of Test:	August 05-09, 2022
Date of Issue:	August 10, 2022
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The protection requirements with respect to electromagnetic compatibility contained in Directive 2014/53/EU are considered.

深圳市环球众一科技有限公司 Global United Technology Services Co.,Ltd. 检验检测专用章 Inspection&Testing Services

Robinson Luo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*August 10, 2022*	*Original*

Prepared By: Frank ***Date:*** *August 10, 2022*

Project Engineer

Check By: Robinson Lu ***Date:*** *August 10, 2022*

Reviewer

3 Contents

4 Test Summary

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Operating frequency range(s) (OFR)	EN 303 417 V1.1.1	EN 303 417 V1.1.1 Clause 6.2.1	EN 303 417 V1.1.1 Clause 4.3.3	Pass
H-field	EN 303 417 V1.1.1	EN 303 417 V1.1.1 Clause 6.2.1	EN 303 417 V1.1.1 Clause 4.3.4	Pass
Transmitter spurious emissions	EN 303 417 V1.1.1	EN 303 417 V1.1.1 Clause 6.2.1	EN 303 417 V1.1.1 Clause 4.3.5	Pass
Transmitter out of band (OOB) emissions	EN 303 417 V1.1.1	EN 303 417 V1.1.1 Clause 6.2.1	EN 303 417 V1.1.1 Clause 4.3.6	Pass
Receiver blocking	EN 303 417 V1.1.1	EN 303 417 V1.1.1 Clause 6.3.2	EN 303 417 V1.1.1 Clause 4.4.2	Pass

5 General Information

5.1 General Description of E.U.T.

Product Name:	Wireless charger
Model No.:	50556
Operation Frequency:	110~205kHz
Modulation type:	ASK
Antenna Type:	Inductance Coil Antenna
Antenna Gain:	0dBi
Power Supply:	Input: DC 5V, 2A Output(Wireless Charging): DC 5V, 1A Output(USB Charging): DC 5V, 1A DC 3.7V, 8000mAh, 29.6Wh for Li-ion battery

5.2 Test mode

Operating mode	Keep the EUT in operating mode
Stadby mode	Keep the EUT in idle mode.

5.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC—Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

● **IC —Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.4 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel:86- 0755-27798480

Fax: 86-0755-27798960

5.5 Description of Support Units

Manufacturer	Description	Model	Serial Number
XIAOMI	USB Charger	MDY-10-EH	N/A
YBZ	Intelligent wireless charging full function test module	001	N/A
JXD	metallic resistor	RX24-50W-5R	N/A

5.6 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

5.7 Abnormalities from Standard Conditions

None.

5.8 Other Information Requested by the Customer

None.

5.9 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25\times10^{-8}$
2	Duty cycle	± 0.37%
3	Occupied Bandwidth	±2.8 dB
4	Conduction emission	±3.44 dB (150kHz-30MHz) ±3.83dB (9kHz-150kHz)
5	RF conducted power	±0.75dB
6	RF power density	± 2.84dB
7	Conducted Spurious emissions	±2.58 dB
8	RF Radiated power	±5.02 dB
9	Radiated Spurious emission test	±3.10dB (9kHz-30MHz) ±3.8039dB (30MHz-200MHz) ±3.9679dB (200MHz-1GHz) ±4.29dB (1GHz-18GHz) ±3.30dB (18GHz-40GHz)

6 Test Instruments list

Radiated Emission:

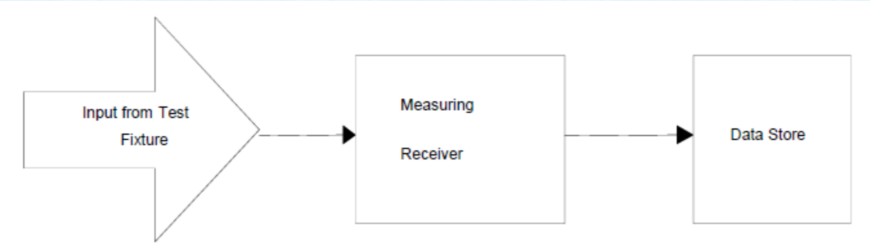
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July 02, 2020	July 01, 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 22, 2022	April 21, 2023
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 21, 2022	March 20, 2023
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June 12, 2022	June 11, 2023
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June 23, 2022	June 22, 2023
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	April 22, 2022	April 21, 2023
9	Coaxial Cable	GTS	N/A	GTS211	April 22, 2022	April 21, 2023
10	Coaxial cable	GTS	N/A	GTS210	April 22, 2022	April 21, 2023
11	Coaxial Cable	GTS	N/A	GTS212	April 22, 2022	April 21, 2023
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	April 22, 2022	April 21, 2023
13	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 23, 2022	June 22, 2023
14	Band filter	Amindeon	82346	GTS219	June 23, 2022	June 22, 2023
15	Power Meter	Anritsu	ML2495A	GTS540	June 23, 2022	June 22, 2023
16	Power Sensor	Anritsu	MA2411B	GTS541	June 23, 2022	June 22, 2023
17	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 22, 2022	April 21, 2023
18	Splitter	Agilent	11636B	GTS237	June 23, 2022	June 22, 2023
19	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 30, 2021	Nov. 29, 2022
20	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 22, 2022	April 21, 2023
21	Breitband hornantenna	SCHWARZBECK	BBHA 9170	GTS579	Oct. 17, 2021	Oct. 16, 2022
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 17, 2021	Oct. 16, 2022
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 17, 2021	Oct. 16, 2022
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June 23, 2022	June 22, 2023
25	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 22, 2022	April 21, 2023

General used equipment:

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	April 25, 2022	April 24, 2023
2	Barometer	KUMAO	SF132	GTS647	July 26, 2022	July 25, 2023

7 Radio Spectrum Matter Test Results

7.1 Oprating frequency range(s) (OFR)

Test Requirement:	ETSI EN303 417 Clause 4.3.3
Test Method:	ETSI EN303 417 Clause 6.2.1
Receiver setup:	• Start frequency: lower than the lower edge of the permitted frequency range / requested by the essential requirements in clause 4.3.3. • Stop frequency: higher than the upper edge of the permitted frequency range / requested by the essential requirements in clause 4.3.3. • Resolution Bandwidth: see ETSI EN 300 330 [1], clause 5.12, Table 11. • Video Bandwidth: > Resolution bandwidth. • Detector mode: see ETSI EN 300 330 [1], clause 5.12, Table 11. • Display mode: Max. hold. • Sweep time: the sweep time shall be chosen in such a way that the time of each sub-operational mode / operational mode (WPT system operation cycle) is taken into account.
Limit:	Operating frequency range for emissions shall be within one of the following limits: 19 - 21 kHz, 59 - 61 kHz, 79 - 90 kHz, 100 - 300 kHz, 6 765 - 6 795 kHz.
Test setup diagram:	
Test Instruments:	Refer to section 6 for details
Test mode:	Operating mode
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar

Measurement Data:

Measurement Conditions		f_L(kHz)	f_H(kHz)	Limit (kHz)	Result
Tnormal (24℃)	Vnor: 5.0V dc	110	205.0	100-300	PASS

7.2 H-field

Test Requirement:	ETSI EN303 417 Clause 4.3.4
Test Method:	ETSI EN303 417 Clause 6.2.1
Test site:	Measurement Distance: 3m
Limit:	see below

Table 3: H-field limits

Frequency range [MHz]	H-field strength limit [dBμA/m at 10 m]	Comments
0,019 ≤ f < 0,021	72	
0,059 ≤ f < 0,061	69,1 descending 10 dB/dec above 0,059 MHz	See note 1
0,079 ≤ f < 0,090	67,8 descending 10 dB/dec above 0,079 MHz	See note 2
0,100 ≤ f < 0,119	42	
0,119 ≤ f < 0,135	66 descending 10 dB/dec above 0,119 MHz	See note 1
0,135 ≤ f < 0,140	42	
0,140 ≤ f < 0,1485	37,7	
0,1485 ≤ f < 0,30	-5	
6,765 ≤ f < 6,795	42	

NOTE 1: Limit is 42 dBμA/m for the following spot frequencies: 60 kHz ± 250 Hz and 129,1 kHz ± 500 Hz.
NOTE 2: At the time of preparation of the present document the feasibility of increased limits for high power wireless power transmission systems to charge vehicles [i.4] was prepared. New specific requirements for such systems (e.g. higher H-field emission limits in the 79 - 90 kHz band) will be reflected within a future revision of the present document.

Limit for measurement at 3m distance

The H-field limit in dBμA/m at 3 m, H_{3m}, is determined by the following equation:

$$H_{3m} = H_{10m} + C_3 \qquad \text{(H.2)}$$

where:

H_{10m} is the H-field limit in dBμA/m at 10 m distance according to the present document; and

C_3 is a conversion factor in dB determined from figure H.2.

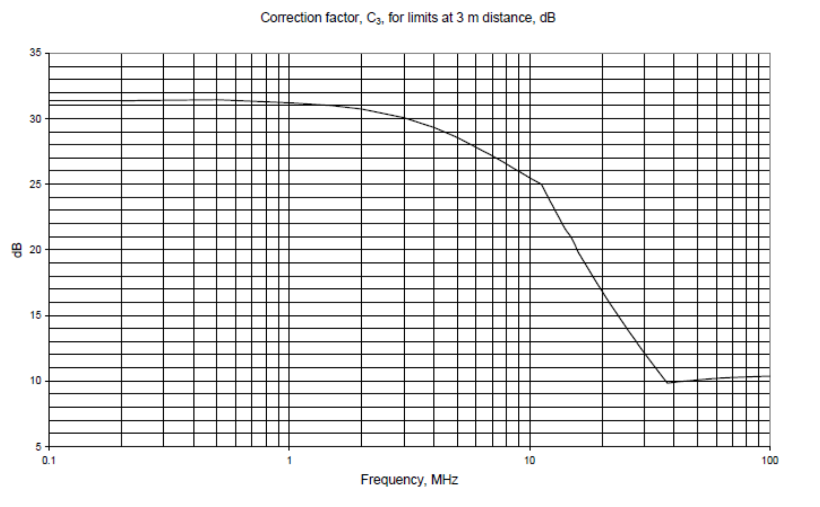
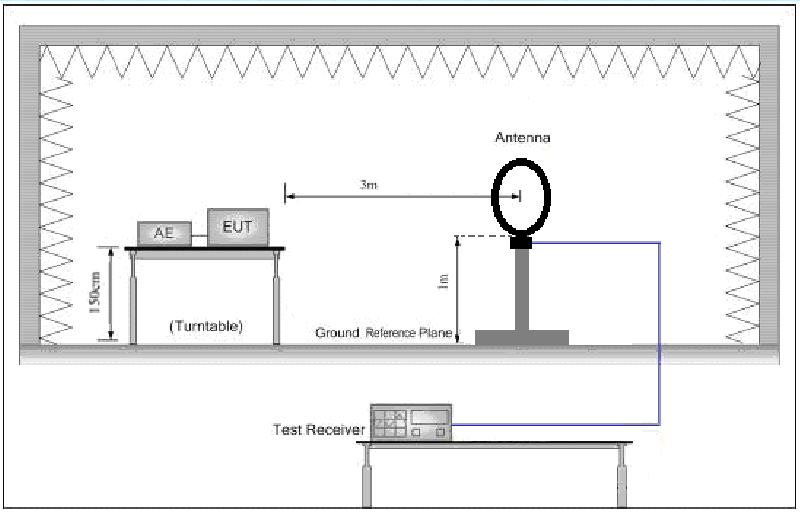


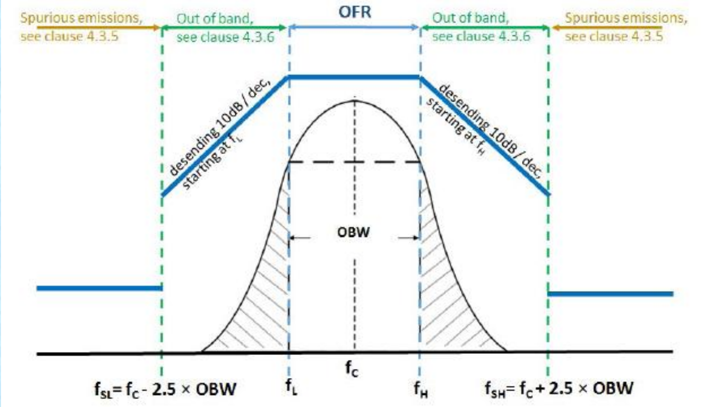
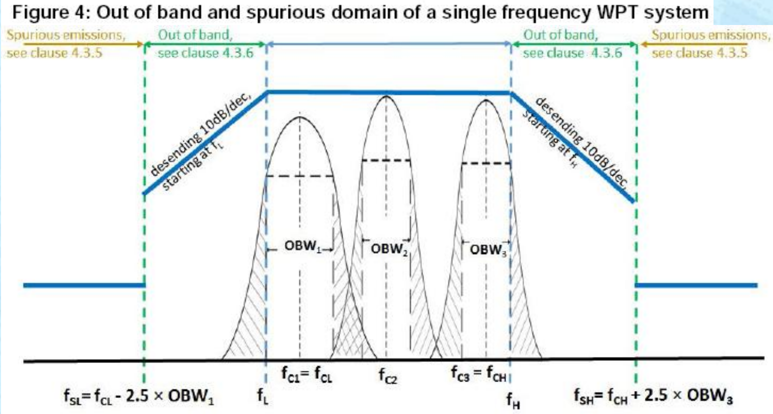
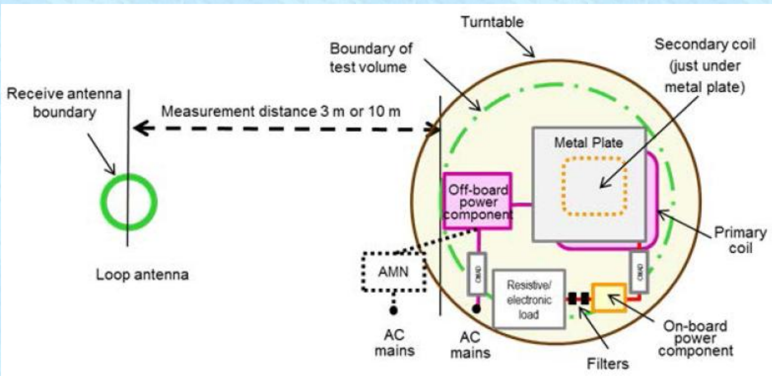
Figure H.2: Conversion factor C_3 versus frequency

Test setup diagram:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Operating mode
Test environment:	Temp.: 25 °C; Humid.: 52%; Press.: 1 012mbar

Measurement Data:

Frequency (kHz)	Measured Level (dBμA/m at 3m)	Limit (dBμA/m at 10m)	Conversion factor C3	Limit (dBμA/m at 3m)	Result
136	13.21	42	31.2	73.2	Pass

7.3 Transmitter out of band(OOB) emissions

Test Requirement:	ETSI EN303 417 Clause 4.3.6
Test Method:	ETSI EN303 417 Clause 6.2
Limit:	 Figure 4: Out of band and spurious domain of a single frequency WPT system  Figure 5: Out of band and spurious domain of a multi - frequency system (during one WPT system cycle time)
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details

Measurement Data:

For the H-Field emission is below the unwanted radiated emissions limit, the OOB test result complied with the OOB requirement.

7.4 Transmitter spurious emissions

Test Requirement:	ETSI EN303 417 Clause 4.3.5
Test Method:	ETSI EN303 417 Clause 6.2.1
Limit:	see below

Table 4

State (see note)	Frequency 9 kHz ≤ f < 10 MHz	Frequency 10 MHz ≤ f < 30 MHz
Operating	27 dBµA/m at 9 kHz descending 10 dB/dec	-3,5 dBµA/m
Standby	5,5 dBµA/m at 9 kHz descending 10 dB/dec	-25 dBµA/m
NOTE: "Operating" means mode 2, 3 and 4 according to Table 2; "standby" means mode 1 according to Table 2.		

The power of any radiated spurious emission between 30 MHz and 1 GHz shall not exceed the values given in Table

Table 5

State (see note)	47 MHz to 74 MHz 87,5 MHz to 118 MHz 174 MHz to 230 MHz 470 MHz to 790 MHz	Other frequencies between 30 MHz to 1 000 MHz
Operating	4 nW	250 nW
Standby	2 nW	2 nW
NOTE: "Operating" means mode 2, 3 and 4 according to Table 2; "standby" means mode 1 according to Table 2.		

Limit for measurement at 3m distance

The H-field limit in dBµA/m at 3 m, H_{3m}, is determined by the following equation:

$$H_{3m} = H_{10m} + C_3 \quad \text{(H.2)}$$

where:

H_{10m} is the H-field limit in dBµA/m at 10 m distance according to the present document; and

C_3 is a conversion factor in dB determined from figure H.2.

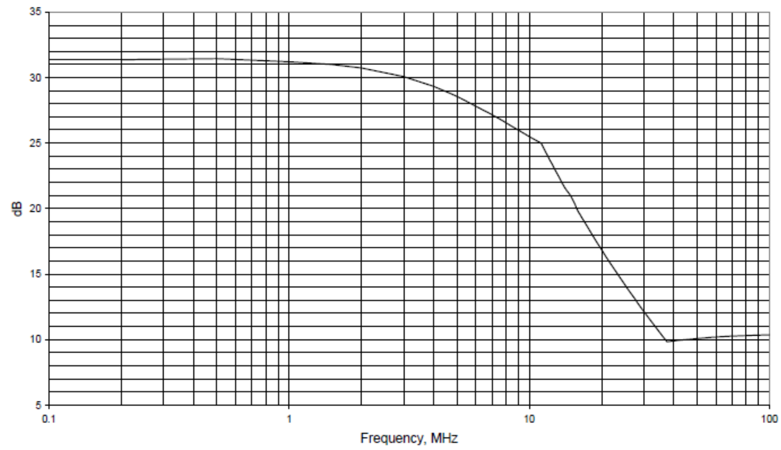
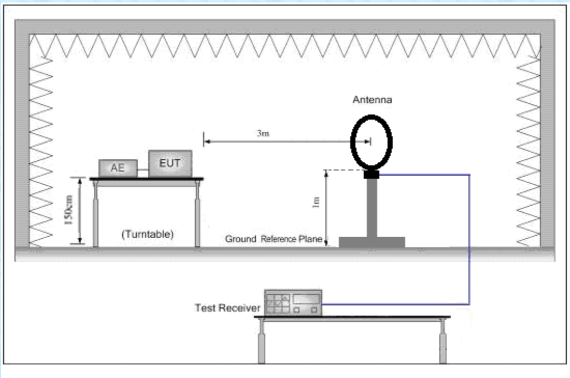
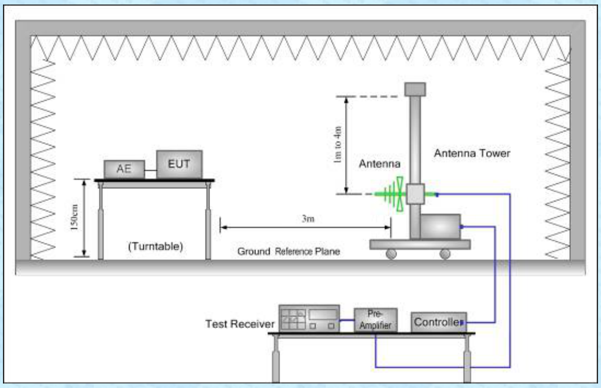


Figure H.2: Conversion factor C_3 versus frequency

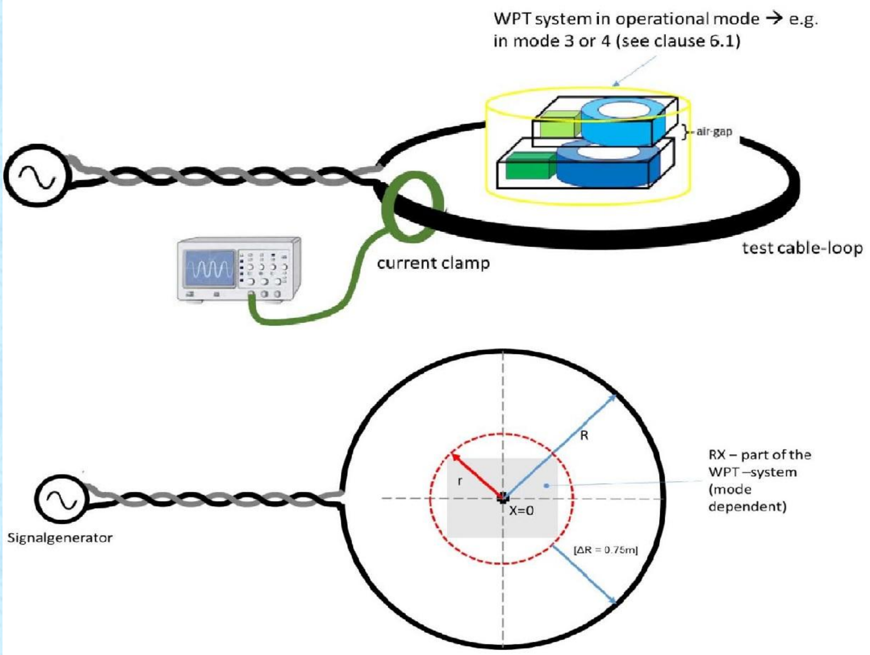
Test setup diagram:	 
Test Instruments:	Refer to section 6.0 for details
Test mode:	Operating mode
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar

Measurement Data:

Freq (MHz)	Spurious Emission Level@3m(dBuA/m)	Limit(dBuA/m) @3m	Conversion factor C3	Limit(dBuA/m) @10m	Over Limit
0.10	22.96	47.83	31.2	16.63	-24.87
0.12	14.73	46.81	31.2	15.61	-32.08
0.18	13.40	45.24	31.2	14.04	-31.84
0.27	18.10	43.46	31.2	12.26	-25.36
0.57	26.95	40.18	31.2	8.98	-13.23
0.87	21.20	38.36	31.2	7.16	-17.16

Freq (MHz)	Spurious Emission Level(dBm/m)	Limit Line (dBm/m)	Over Limit (dB)	Polarity
36.11	-70.04	-36	-34.04	V
49.52	-66.30	-54	-12.30	V
78.98	-61.49	-36	-25.49	V
176.89	-66.30	-54	-12.30	V
229.13	-67.50	-54	-13.50	V
318.76	-57.67	-36	-21.67	V
35.65	-71.03	-36	-35.03	H
187.56	-68.66	-54	-14.66	H
322.56	-62.40	-36	-26.40	H
359.76	-55.75	-36	-19.75	H
568.29	-65.85	-54	-11.85	H
884.98	-53.64	-36	-17.64	H

7.5 Receiver blocking

<table>
<tr><td>Test Requirement:</td><td>ETSI EN303 417 Clause 4.4.2</td></tr>
<tr><td>Test Method:</td><td>ETSI EN303 417 Clause 6.3.2</td></tr>
<tr><td>Limit:</td><td>
Table 6: Receiver blocking limits
<table>
<tr><th></th><th>In-band signal</th><th>OOB signal</th><th>Remote-band signal</th></tr>
<tr><td>Frequency</td><td>Centre frequency (f_c) of the WPT system (see clause 4.3.3)</td><td>$f = f_c \pm F$ (see note)</td><td>$f = f_c \pm 10 \times F$ (see note)</td></tr>
<tr><td>Signal level field strength at the EUT</td><td>72 dBμA/m</td><td>72 dBμA/m</td><td>82 dBμA/m</td></tr>
<tr><td colspan="4">NOTE: F = OFR see clause 4.3.3.</td></tr>
</table>
</td></tr>
<tr><td>Test setup diagram:</td><td>
</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td>Operating mode</td></tr>
<tr><td>Test environment:</td><td>Temp.: 25 °C Humid.: 52% Press.: 1 012mbar</td></tr>
</table>

Measurement Data:

For each test frequency the "reaction" of the device be recorded and checked against the performance criterion. The WPT system meets the wanted performance criterion at all times, So the test is passed.

8 Test setup photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

------End------