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RADIO TEST REPORT

For

Bottle with wireless charging

Test Model: 62143

Additional Model No.: 62140

Prepared for	:	
Address	:	
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Tel	:	(+86)755-82591330
Fax	:	(+86)755-82591332
Web	:	www.LCS-cert.com
Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	August 29, 2018
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	August 29, 2018~September 04, 2018
Date of Report	:	September 12, 2018

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RADIO TEST REPORT

ETSI EN 303 417 V1.1.1 (2017-09)

Wireless power transmission systems, using technologies other than radio frequency beam, in the 19 - 21 kHz, 59 - 61 kHz, 79 - 90 kHz, 100 - 300 kHz, 6 765 - 6 795 kHz ranges; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

Report Reference No.	:	**LCS180828032AEB**
Date Of Issue.....	:	September 12, 2018
Testing Laboratory Name.....	:	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address	:	1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Testing Location/Procedure	:	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name	:	
Address	:	
Test Specification		
Standard.....	:	ETSI EN 303 417 V1.1.1 (2017-09)
Test Report Form No.	:	LCSEMC-1.0
TRF Originator.....	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF.....	:	Dated 2017-06

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Test Item Description.....	:	**Bottle with wireless charging**
Trade Mark	:	N/A
Test Model.....	:	62143
Ratings	:	5V⎓, by Rechargeable Li-ion Battery (5000mAh) Recharge Voltage: by 5V⎓ 2.1A USB Output: 5V⎓ 2.1A Wireless Output: 5W⎓
Result	:	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Aking Jin	Calvin Weng	
Aking Jin/ Administrators	Calvin Weng/ Technique principal	Gavin Liang/ Manager

EMC -- TEST REPORT

Test Report No. : LCS180828032AEB	September 12, 2018 Date of issue

Test Model.....	: 62143
EUT.....	: Bottle with wireless charging
Applicant.....	**:**
Address.....	:
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**:**
Address.....	:
Telephone.....	: /
Fax.....	: /
Factory.....	**:**
Address.....	:
Telephone.....	: /
Fax.....	: /

Test Result	Positive

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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Revision History

Revision	Issue Date	Revisions	Revised By
000	September 12, 2018	Initial Issue	Gavin Liang

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1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

EUT	:	Bottle with wireless charging
Test Model	:	62143
Additional Model	:	62140
Model Declaration	:	PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Hardware Version	:	V1.3
Software Version	:	v1.0
Charging Station Base		
Operating Frequency	:	110.0~205.0KHz
Modulation Type	:	CW (Continuous Wave)
Antenna Type	:	Coil Antenna
Input/Output	:	5V⎓, by Rechargeable Li-ion Battery (5000mAh) Recharge Voltage: by 5V⎓ 2.1A USB Output: 5V⎓ 2.1A Wireless Output: 5W⎓

1.2. Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
LCS	Adapter (Supplied by lab)	EQ-24BEU	--	CE
Apple	Mobile Phone	iPhone X	--	CE

1.3. External I/O

I/O Port Description	Quantity	Cable
Micro USB	1	N/A
USB	1	N/A

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1.4. Objective

The following report of is prepared on behalf of the **Anhui Inno-sign International Co., Ltd.** in accordance with ETSI EN 303 417 V1.1.1 (2017-09): Wireless power transmission systems, using technologies other than radio frequency beam, in the 19 - 21 kHz, 59 - 61 kHz, 79 - 90 kHz, 100 - 300 kHz, 6 765 - 6 795 kHz ranges; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.

The objective is to determine compliance with ETSI EN 303 417 V1.1.1 (2017-09).

1.5. Test Methodology

All measurements contained in this report were conducted with ETSI EN 303 417 V1.1.1 (2017-09).

1.6. Measurement Uncertainty (95% confidence levels, k=2)

Test Item		Uncertainty
Radio Frequency	:	0.9×10^{-4}
Total RF Power, Conducted	:	1.0 dB
RF Power Density, Conducted	:	1.8 dB
Spurious Emissions, Conducted	:	1.8 dB
All Emissions, Radiated	:	3.1 dB
Temperature	:	0.5°C
Humidity	:	1 %
DC And Low Frequency Voltages	:	1 %

1.7. Description of Test Facility

FCC Registration Number. is 254912.
Industry Canada Registration Number. is 9642A-1.
ESMD Registration Number. is ARCB0108.
UL Registration Number. is 100571-492.
TUV SUD Registration Number. is SCN1081.
TUV RH Registration Number. is UA 50296516-001.
NVLAP Registration Code is 600167-0.

1.8. Description Of Test Mode

The EUT has been tested under typical operating condition. No software used to control the EUT for staying in transmitting mode for testing.

***Note: The EUT has been tested under normal condition in this report, and only recorded the worst test data in the report.

2. SYSTEM TEST CONFIGURATION

2.1. Justification

The system was configured for testing in engineering mode.

2.2. EUT Exercise Software

N/A.

2.3. Special Accessories

N/A.

2.4. Block Diagram/Schematics

Please refer to the related document.

2.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

2.6. Configuration of Test Setup

Please refer to the test setup photo.

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3. SUMMARY OF TEST RESULTS

Reference Clause No.	Description Of Test Item	Result
§4.3.2	Permitted range of operating frequencies	Compliant
§4.3.3	Operating frequency range(s) (OFR)	Compliant
§4.3.4	H-field requirements	Compliant
§4.3.5	Transmitter spurious emissions	Compliant
§4.3.6	Transmitter out of band (OOB) emissions	Compliant
§4.3.7	WPT system unwanted conducted emissions	N/A
§4.4.2	Receiver blocking	Compliant

Note: N/A means not applicable

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4. PERMITTED RANGE OF OPERATING FREQUENCIES

4.1. Definition

The permitted range of operating frequencies denotes the frequency ranges set out in Table 1. It likewise denotes the respective frequency range for accommodation of the fundamental WPT frequency of the EUT within its operating frequency range (OFR).

Table 1: WPT systems within the permitted frequency bands below 30MHz

	WPT frequency range	Frequency Bands	WPT systems
Transmit and Receive	1	19 kHz to 21 kHz	WPT systems
Transmit and Receive	2	59 kHz to 61 kHz	WPT systems
Transmit and Receive	3	79 kHz to 90 kHz	WPT systems
Transmit and Receive	4	100 kHz to 119 kHz	WPT systems
Transmit and Receive		119 kHz to 140 kHz	WPT systems
Transmit and Receive		140 kHz to 148,5 kHz	WPT systems
Transmit and Receive		148.5 kHz to 300 kHz	WPT systems
Transmit and Receive	5	6765kHz to 6795 kHz	WPT systems

4.2. Limit

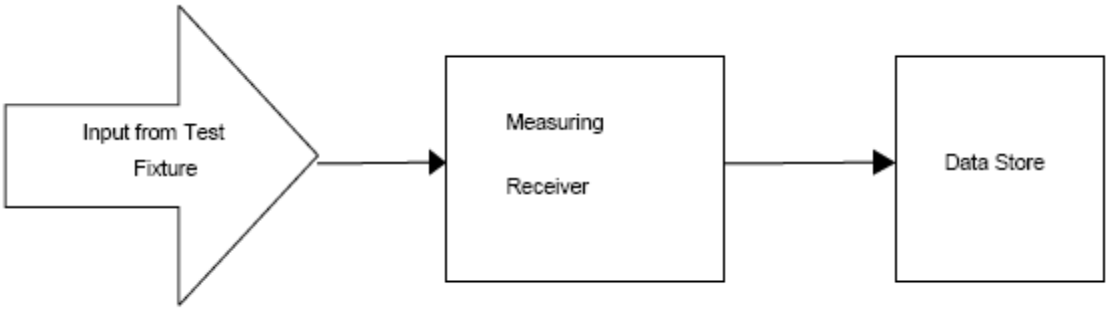
The permitted range of operating frequency range(s) for intentional emissions shall be within 19 - 21 kHz, 59 - 61 kHz, 79 - 90 kHz, 100 - 300 kHz, 6 765 - 6 795 kHz.

Table 2: Overview of operational modes within a WPT system

Operational Mode	Set-up	Function of base station	Function of mobile device	Test scenario	Conformance Requirements
Mode 1: base station in stand-by, idle mode	Single device	Transmitter	Not applicable	Single radiation test (TX) with the base station/charging pad. The test set-up as described in clause 6.1.2 shall be used.	• Operating frequency range (clause 4.3.3) • H-Field emission (clause 4.3.4) • TX spurious (clauses 4.3.5, 4.3.6 and 4.3.7) • Performance criteria test (RX test) (clause 4.4)
Mode 2: Communication before charging, adjustment charging mode / position	In combination	TX and RX	TX and RX	Specific test setup, declared by the manufacturer. Manufacturer shall declare the maximal distance between base station and mobile device the WPT system is able to communicate (distance D). The test setup- up shall be performed with the largest communication distance. The test set-up as described in clause 6.1.3 shall be used.	• Operating frequency range (clause 4.3.3) • H-Field emission (clause 4.3.4) • TX spurious (clauses 4.3.5, 4.3.6 and 4.3.7) • Performance criteria test (RX test) (clause 4.4) • Wanted performance criteria test (RX test) (clause 4.4)
Mode 3: Communication	WPT system alignment	TX and RX	TX and RX	Worst case alignment	• Operating frequency range (clause 4.3.3) • H-Field emission (clause 4.3.4) • TX spurious (clauses 4.3.5, 4.3.6 and 4.3.7) • Performance criteria test (RX test) (clause 4.4) • Wanted performance criteria test (RX test) (clause 4.4)
Mode 4: energy transmission	WPT system alignment	TX and RX	TX and RX	Both tests can be performed within one set-up, worst-case alignment. The test set-up as described in clause 6.1.4 shall be used.	

4.3. Test Procedure

Please refer to ETSI EN 303 417 V1.1.1 (2017-09) clause 6 for the measurement method.



4.4. Test Result

The manufacturer declared that the WPT system is designed to operate in the frequency ranges 110KHz~205KHz. The justification/test shall be performed for Operating frequency ranges(OFR).

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5. OPERATING FREQUENCY RANGE(S) (OFR)

5.1. Definition

The operating frequency range is the frequency range over which the WPT system is intentionally transmitting (all operational modes, see clause 4.2.3, Table 2).

The operating frequency range(s) of the WPT system are determined by the lowest (fL) and highest frequency (fH) as occupied by the power envelope.

The WPT system could have more than one operating frequency range.

For a single frequency systems the OFR is equal to the occupied bandwidth (OBW) of the WPT system.

For multi-frequency systems the OFR is described in figures 2 and 3.

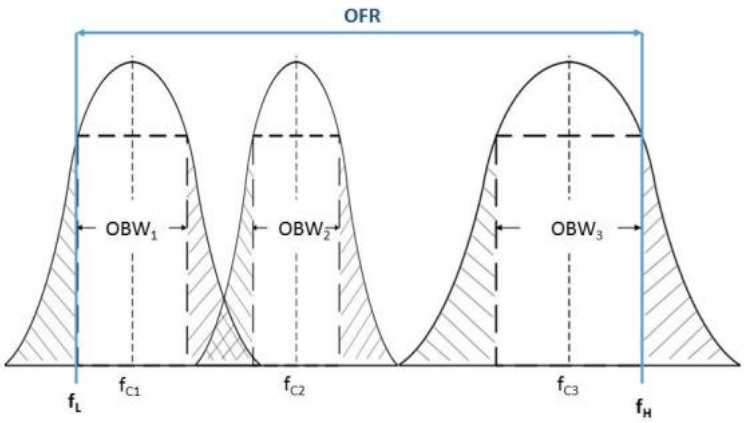

Figure 2: OFR of a multi - frequency WPT system within one frequency range of Table 2 and within one WPT system cycle time

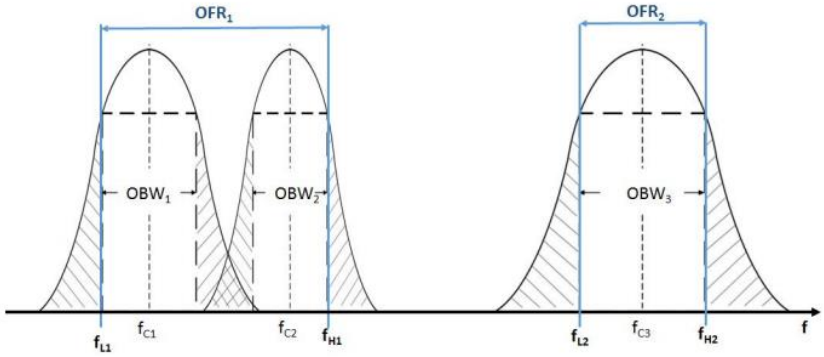

Figure 3: OFR of a multi - frequency WPT system within two frequency ranges of Table 2 and within one WPT system cycle time

5.2. Limit

The 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.

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5.3. Test Procedure

Please refer to ETSI EN 303 417 V1.1.1 (2017-09) clause 6 for the measurement method.

5.4. Test Result

Pass.

Temperature	:	24.5℃
Humidity	:	53.2%
Test Engineer	:	Wilson Hong

Test Result				
Test Temperature (℃)	Test Voltage (Vdc)	Lower Frequency (KHz)	Upper Frequency (KHz)	Limit
24.5℃	5.0	110.22	204.84	100KHz<f<300KHz

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6. H-FIELD REQUIREMENTS

6.1. Definition

The radiated H-field is defined in the direction of maximum field strength under specified conditions of measurement.

6.2. Limit

The H-field limits are provided in Table 3.

They have been specified for control of any radiated emissions within the OFR originating from the WPT system (power transmission and accompanying data communication).

The H-field limits in Table 3 are EU wide harmonised according to EC Decision 2013/752/EU [i.2]. Further information is available in ERC/REC 70-03 [i.1].

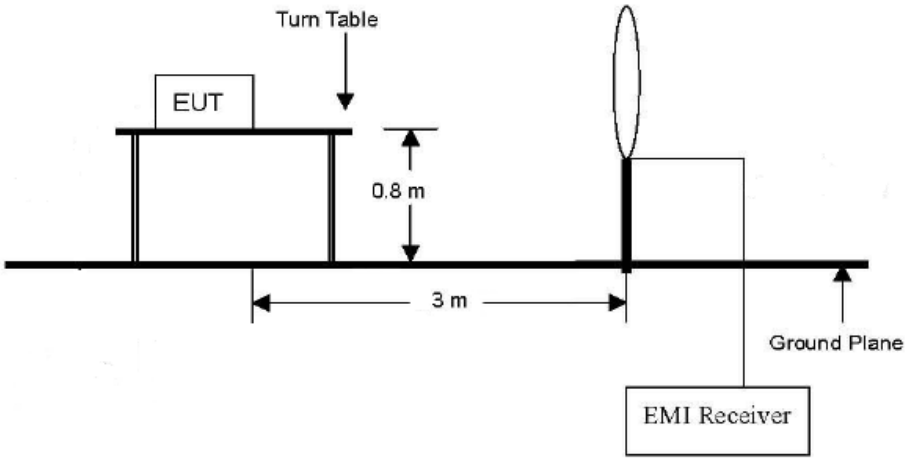
Table 3 H-field limits at 10 m

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.

6.3. Test Setup



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6.4. Test Procedure

Please refer to ETSI EN 303 417 V1.1.1 (2017-09) clause 6.1&6.2 for the measurement method.

6.5. Test Result

Pass

Temperature	:	24.5℃
Humidity	:	53.2%
Test Engineer	:	Wilson Hong

Normal Condition

Frequency (KHz)	Antenna Polarity	Measure Level At 3m (dBuA/m)	Calculated Factor (dB, $-C_3$)	Result At 10m (dBuA/m)	Limit At 10m (dBuA/m)
110.00	--	5.66	-31.40	-25.74	42.0
111.00	--	6.60	-31.40	-24.80	42.0
114.00	--	5.05	-31.40	-26.35	42.0
117.00	--	5.81	-31.40	-25.59	42.0
120.00	--	3.00	-31.40	-28.40	66 descending 3 dB/oct above 0,119 MHz
129.05	--	5.82	-31.40	-25.58	66 descending 3 dB/oct above 0,119 MHz
129.15	--	5.94	-31.40	-25.46	66 descending 3 dB/oct above 0,119 MHz
135.00	--	5.66	-31.40	-25.74	66 descending 3 dB/oct above 0,119 MHz
139.00	--	4.66	-31.40	-26.74	42.0
141.00	--	4.48	-31.40	-26.92	37.7
148.00	--	2.15	-31.40	-29.25	37.7
150.00	--	5.85	-31.40	-25.55	-5.0
157.50	--	4.94	-31.40	-26.46	-5.0
205.00	--	8.40	-31.40	-23.00	-5.0

***Note:

$H_{10m}=H_{3m}-C_3$

The correct factor C_3 is equal to or approximately equal to 31.4dB

All test modes have been tested and only record the worst result.

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Extreme Condition: Lower Temperature -20℃

Frequency (KHz)	Measure Level by Probe at 10cm (dBuA/m)	Calculated Factor (dB)	Result At 10m (dBuA/m)	Limit At 10m (dBuA/m)
110.00	30.41	-60.94	-30.53	42.0
111.00	27.25	-60.94	-33.69	42.0
114.00	31.23	-60.94	-29.71	42.0
117.00	27.13	-60.94	-33.81	42.0
120.00	31.34	-60.94	-29.60	66 descending 3 dB/oct above 0,119 MHz
129.05	33.21	-60.94	-27.73	66 descending 3 dB/oct above 0,119 MHz
129.15	31.28	-60.94	-29.66	66 descending 3 dB/oct above 0,119 MHz
135.00	27.36	-60.94	-33.58	66 descending 3 dB/oct above 0,119 MHz
139.00	27.06	-60.94	-33.88	42.0
141.00	29.47	-60.94	-31.47	37.7
148.00	33.85	-60.94	-27.09	37.7
150.00	32.94	-60.94	-28.00	-5.0
157.50	35.65	-60.94	-25.29	-5.0
205.00	33.39	-60.94	-27.55	-5.0

***Note:

The correct factor is -60.94dB which is calculated by the reference level measured by probe in normal condition.

All test modes have been tested and only record the worst result.

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Extreme Condition: Lower Temperature +45℃

Frequency (KHz)	Measure Level by Probe at 10cm (dBuA/m)	Calculated Factor (dB)	Result At 10m (dBuA/m)	Limit At 10m (dBuA/m)
110.00	32.59	-60.94	-28.35	42.0
111.00	32.08	-60.94	-28.86	42.0
114.00	28.20	-60.94	-32.74	42.0
117.00	27.62	-60.94	-33.32	42.0
120.00	27.05	-60.94	-33.89	66 descending 3 dB/oct above 0,119 MHz
129.05	26.81	-60.94	-34.13	66 descending 3 dB/oct above 0,119 MHz
129.15	29.64	-60.94	-31.30	66 descending 3 dB/oct above 0,119 MHz
135.00	33.00	-60.94	-27.94	66 descending 3 dB/oct above 0,119 MHz
139.00	31.73	-60.94	-29.21	42.0
141.00	28.48	-60.94	-32.46	37.7
148.00	29.79	-60.94	-31.15	37.7
150.00	30.17	-60.94	-30.77	-5.0
157.50	26.47	-60.94	-34.47	-5.0
205.00	24.85	-60.94	-36.09	-5.0

***Note:

The correct factor is -60.94dB which is calculated by the reference level measured by probe in normal condition.

All test modes have been tested and only record the worst result.

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7. TRANSMITTER SPURIOUS EMISSIONS

7.1. Definition

The transmitter spurious emissions for a single frequency system are to be considered in frequency ranges defined in Figure 4 (f < fSL and f > fSH).

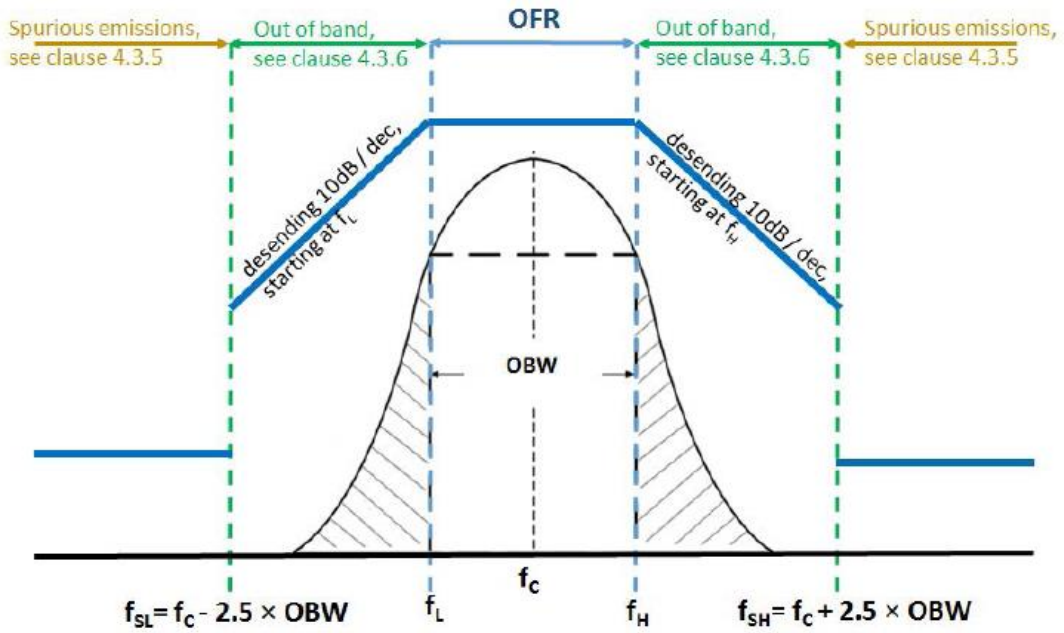

Figure 4

7.2. Limit

The radiated field strength of spurious emissions below 30 MHz shall not exceed the generated H-field given in Table 4.

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 5.

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.		

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7.3. Test Setup

Please refer to ETSI EN 303 417 V1.1.1 (2017-09) clause 6.

7.4. Test Procedure

Please refer to ETSI EN 303 417 V1.1.1 (2017-09) clause 6.1&6.2 for the measurement method.

7.5. Test Result

Temperature	:	24.5℃
Humidity	:	53.2%
Test Engineer	:	Wilson Hong

The Worst Test Result for TX mode: 9KHz~30MHz			
Frequency (MHz)	**Measure Level (dBuA/m)**	**Limit (dBuA/m)**	**Margin (dB)**
--	--	27 dBμA/m at 9 kHz descending 3 dB/oct (9KHz – 10MHz)	--
--	--		--
--	--	-3,5 dBμA/m (10MHz – 30MHz)	--
--	--		--
Test Result for Standby mode: 9KHz~30MHz			
Frequency (MHz)	**Measure Level (dBuA/m)**	**Limit (dBuA/m)**	**Margin (dB)**
--	--	5.5 dBμA/m at 9 kHz descending 3 dB/oct (9KHz – 10MHz)	--
--	--		--
--	--	-25 dBμA/m (10MHz – 30MHz)	--
--	--		--

Remark:
Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. Measured in frequency range from 9k~10th harmonic or 1GHz(which is greater).

The Worst Test Result for TX mode: Above 30MHz)					
Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Pol./Phase	Remark
171.31	-47.45	-36.00	-11.45	Horizontal	Peak
301.30	-47.34	-36.00	-11.34	Horizontal	Peak
736.92	-66.36	-54.00	-12.36	Horizontal	Peak
115.86	-69.24	-54.00	-15.24	Vertical	Peak
360.35	-51.15	-36.00	-15.15	Vertical	Peak
649.59	-70.38	-54.00	-16.38	Vertical	Peak

Note: We have tested all modes and only record the worst result.

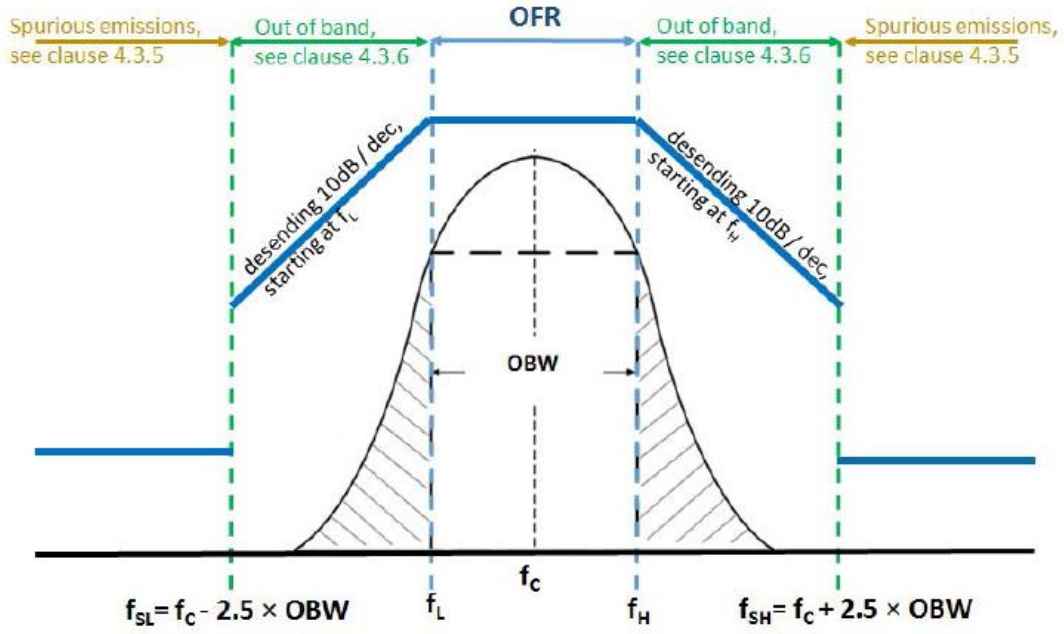
8. TRANSMITTER OUT OF BAND (OOB) EMISSIONS

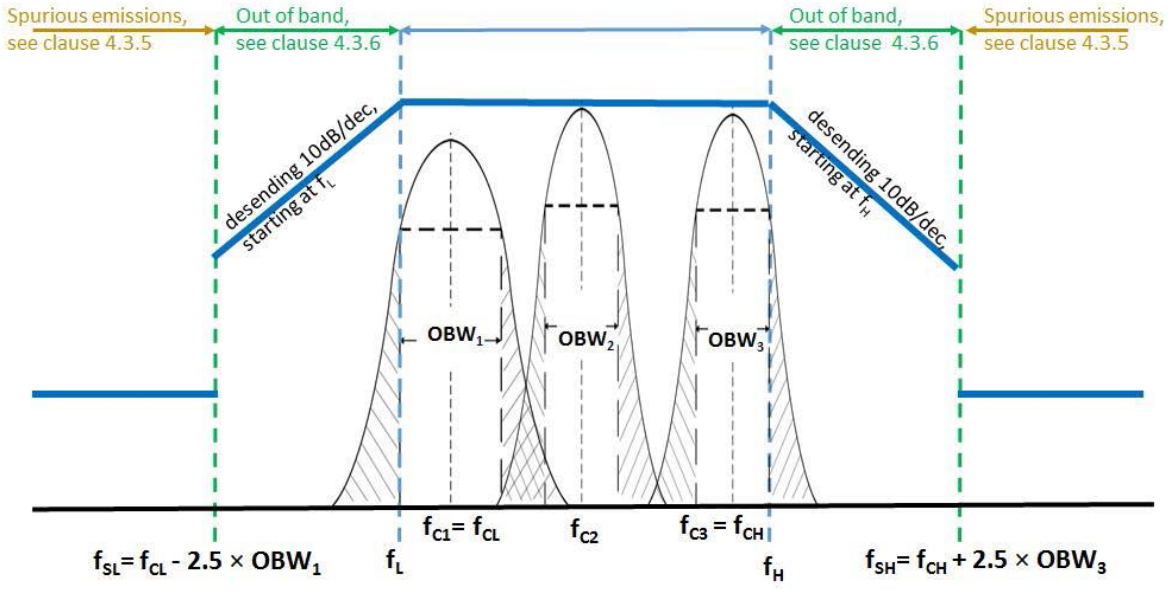
8.1. Definition

The WPT system out of band emissions are to be considered in frequency ranges defined in Figure 4 and Figure 5 (between fSL and fL and between fH and fSH).

8.2. Limit

The OOB limits are visualized in figures 4 and 5; they are descending from the intentional limits from Table 3 at fH/fL with 10 dB/decade.





8.3. Test Procedure

Please refer to ETSI EN 303 417 V1.1.1 (2017-09) clause 6.1&6.2 for the measurement method.

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8.4. Test Result

PASS

Temperature	:	24.5℃
Humidity	:	53.2%
Test Engineer	:	Wilson Hong

Test Mode: TX

f_C (KHz)	f_L (KHz)	f_H (KHz)	OBW (KHz)
110KHz(f_{CL})	109.968	110.031	0.063
205KHz(f_{CH})	204.965	205.032	0.067

Frequency (KHz)	Max measured Values At 3m (dBuA/m)	Calculated Factor (dB, -C_3)	Max measured Values At 10m (dBuA/m)	Limit (dBuA/m)
109.8375KHz ~ 110.0000KHz	-5.20	-31.40	-36.60	42.0
205KHz ~ 205.1700KHz	-8.29	-31.40	-39.69	-5.0

***Note:

$H_{10m}=H_{3m}-C_3$

The correct factor C_3 is equal to or approximately equal to 31.4dB

All test modes have been tested and only record the worst result.

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9. WPT SYSTEM UNWANTED CONDUCTED EMISSIONS

9.1. Applicability

This applies to all WPT systems where the cable to the primary coil exceeds a length of 3 m and where the cable is not installed in the ground or any metallic structures.

9.2. Definition

WPT system unwanted conducted emissions are based on the emissions of the unwanted common mode current on the cable between the off board power supply and the primary coil seen as a monopole radiator driven against the power supply.

9.3. Limit

The common mode current (ICM) between 1 MHz and 30 MHz shall not exceed the following limit:

$$ICM = 47 - 8 \times \log(f)\ dB\mu A$$

NOTE: f is the frequency in MHz.

9.4. Test Procedure

Please refer to ETSI EN 303 417 V1.1.1 (2017-09) clause 6.2.4 for the measurement method.

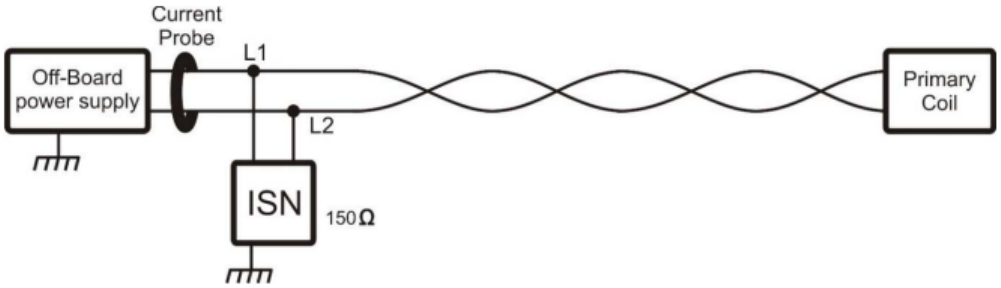

Figure 9: Measurement setup for unwanted conducted emissions

9.4. Test Result

NOT Applicable.

Note: The EUT cable to the primary coil is less than a length of 3 m.

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10. RECEIVER BLOCKING

10.1. Definition

Blocking is a measure of the capability of the receiver to receive a wanted signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the receiver spurious responses.

The test shall be performed in the relevant operational modes (see clause 4.2.3).

The wanted performance criteria from clause 4.2.2 shall be used as criterion for the receiver blocking tests.

10.2. Limit

Table 6: Receiver blocking limits

	In-band signal	OOB signal	Remote-band signal
Frequency	Centre frequency (fc) of the WPT system (see clause 4.3.3)	f = fc ± F (see note)	f = fc ± 10 × F (see note)
Signal level field strength at the EUT	72 dBµA/m	72 dBµA/m	82 dBµA/m
NOTE: F = OFR see clause 4.3.3.			

10.3. Test Setup

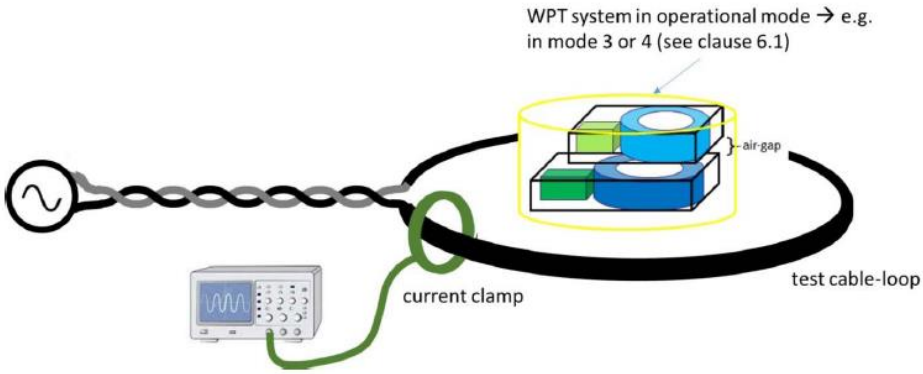

Figure 11: Schematic test set-up for the RX-blocking test

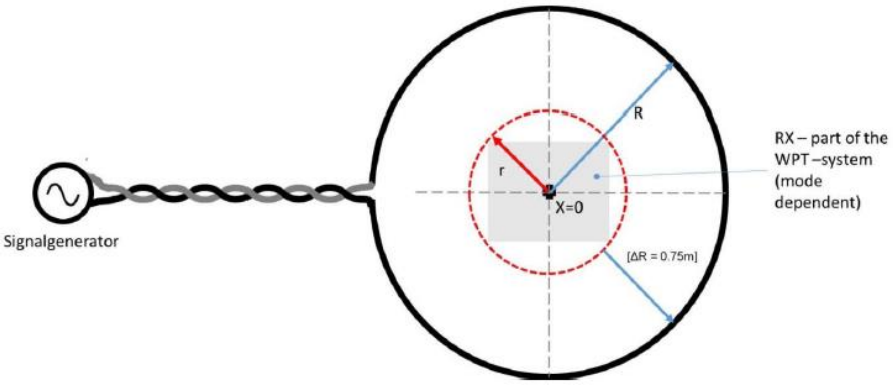

Figure 12: Schematic test set-up for the RX-blocking test

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10.4. Test Procedure

a) The fulfilment of the WPT system performance criterion in all possible operational modes (see clause 4.2.3) shall be tested in presence of the inference signals according to Table 6.

b) The manufacturer shall declare in which device orientation(s) (worst case) the test shall be performed.

c) The WPT system shall initially operate without interference according to its specified sensitivity (detecting an specific object in the maximum depth as declared by the manufacturer (see clause 4.2.2 on wanted performance criteria)).

d) The test setup is visualized in the following Figures 11 and 12.

e) The tool shall be operated as intended (e.g. some tools might require to be moved across the object, some tool can be used stationary).

f) The test shall be carried out inside a test chamber according to clauses C.1.1 and C.1.2 in ETSI EN 300 330 [1].

g) A test loop with a radius r shall be used to create the magnetic field; the test loop shall lie on a non-metallic ground and the minimum distance to metallic objects (e.g. ground plane) shall be 0,75 m.

h) The EUT shall be placed to the centre of the test-loop (e.g. see Figures 11 and 12).

i) The test loop shall be sufficiently large so that the test loop itself does not influence the WPT system; The radius R of the test-loop shall be in minimum ΔR = 0,75 m larger than the maximum dimension r of the EUT.

j) (See Figure 12): R >= r + ΔR.

k) The maximum H-Field can be calculated from the loop current I (into the test-loop) with the following formula:

l) The required output current to achieve the required magnetic field from Table 12 at the WPT system shall be generated with a signal generator (unmodulated signal) at the test frequencies from Table 6.

m) For each test frequency the "reaction" of the device shall be recorded and checked against the performance criterion from clause 4.2.2.

n)

10.5. Test Result

PASS.

Temperature	:	24.5℃
Humidity	:	53.2%
Test Engineer	:	Wilson Hong

EUT Operational Mode	Interference			Conclusion
	Unwanted Input Signal Type	Test Frequency (KHz)	Unwanted Input Signal Level (dBμA/m)	
Mode 3 (worst case)	In-band signal	f_c=157.5KHz	70	PASS
	OOB signal	f_c - OFR	70	PASS
		f_c + OFR	70	PASS
	Remote-band signal	f_c - 10*OFR	81	PASS
		f_c + 10*OFR	81	PASS
Note: F = OFR				

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11. LIST OF MEASURING EQUIPMENT

Manufacturer	Description	Model	Serial Number	Cal. Date	Due Date
SIDT FRANKONIA	3m Semi Anechoic Chamber	SAC-3M	03CH03-HY	2018/06/17	2019/06/16
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2018/06/17	2019/06/16
Agilent	MXA Signal Analyzer	N9020A	MY50510140	2017/10/27	2018/10/26
SCHWARZBECK	Loop Antenna	FMZB 1519	/	2017/10/31	2018/10/30
SCHWARZBECK	By-log Antenna	VULB9163	9163-470	2018/06/09	2019/06/08
EMCO	Horn Antenna	3115	6741	2018/06/09	2019/06/08
Jye Bao	RF Cable-R03m	RG142	CB021	2018/06/17	2019/06/16
SUHNER	RF Cable-HIGH	SUCOFLEX 106	03CH03-HY	2018/06/17	2019/06/16

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12. TEST SETUP PHOTOGRAPHS

Emission Below 30MHz

Emission above 30MHz

----------THE END OF REPORT----------

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