FCC RADIO TEST REPORT

FCC ID: 2APOWBW-WC01

Product:	WIRELESS CHARGER
Trade Name:	PROBWAY
Model Name:	BW-WC01
Serial Model:	BW-WC02, BW-WC03, BW-WC05, BW-WC06
Report No.:	UNIA2018040816FR-01

Prepared for

HONGKONG BWAY INDUSTRIAL CO., LTD

FLAT 13B, GOLD SHINE TOWER, NO.346-348 QUEEN'S RD CENTRAL, SHEUNG WAN, Hong Kong, China

Prepared by

Shenzhen United Testing Technology Co., Ltd.

2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

TEST RESULT CERTIFICATION

Applicant's name .....: HONGKONG BWAY INDUSTRIAL CO., LTD

Address .....: FLAT 13B, GOLD SHINE TOWER, NO.346-348 QUEEN'S RD CENTRAL, SHEUNG WAN, Hong Kong, China

Manufacture's Name.....: I-Media Technology Co.,Ltd

Address .....: 4F Building 10 Fenghuang No.1 Industrial Zone Fuyong Town Baoan District Shenzhen China

Product description

Product name .....: WIRELESS CHARGER

Model name .....: BW-WC01

Serial Model.....: BW-WC02, BW-WC03, BW-WC05, BW-WC06

Standards .....: FCC Rules and Regulations Part 15 Subpart C Section 15.209

Test procedure..... :ANSI C63.10-2013

This device described above has been tested by Shenzhen United Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....:

Date (s) of performance of tests .....: Mar. 30, 2018 ~ Apr. 08, 2018

Date of Issue.....: Apr. 08, 2018

Test Result .....: **Pass**

Prepared by: Kahn.Yang

Kahn yang/Editor

Reviewer: Sherwin Qian

Sherwin Qian/Supervisor

Approved & Authorized Signer: liuze

Liuze/Manager

Table of Contents **Page**

1 . TEST SUMMARY 4
1.1 TEST PROCEDURES AND RESULTS 4
1.2 TEST FACILITY 4
1.3 MEASUREMENT UNCERTAINTY 4
2. GENERAL INFORMATION 5
2.1 General Description of EUT 5
2.2. Carrier Frequency of Channels 6
2.3 Operation of EUT during testing 6
2.4 Description of Test Setup 6
2.5 Measurement Instruments List 7
3. CONDUCTED EMISSION TEST 8
3.1 Block Diagram of Test Setup 8
3.2 Conducted Power Line Emission Limit 8
3.3 Test Procedure 8
3.4 Test Result 8
4. Occupied Bandwidth 11
4.1 Block Diagram of Test Setup 11
4.2 Rules and specifications 11
4.3 Test Procedure 11
4.4 Test Result 11
5. RADIA TED EMISSIONS 13
5.1 Block Diagram of Test Setup 13
5.2 Rules and specifications 14
5.3 Test Procedure 15
5.4 Test Result 15
6 ANTENNA REQUIREMENT 18
7. PHOTOGRAPH OF TEST 19
7.1 Radiated Emission 19
7.2 Conducted Emission 20

1. TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

DESCRIPTION OF TEST	RESULT
CONDUCTED EMISSIONS TEST	COMPLIANT
RADIATED EMISSION TEST	COMPLIANT
BAND EDGE	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	COMPLIANT
ANTENNA REQUIREMENT	COMPLIANT

1.2 TEST FACILITY

Test Firm : Shenzhen United Testing Technology Co., Ltd.

Address : 2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.
Our test facility is recognized, certified, or accredited by the following organizations:

CNAS-LAB Code: L6494
The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

Designation Number: CN1227
Test Firm Registration Number: 674885
The 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 our files.

1.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty(9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty(30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty(Above 1GHz)	=	4.06dB, k=2

2. GENERAL INFORMATION

2.1 General Description of EUT

Equipment	:	WIRELESS CHARGER
Model No.	:	BW-WC01
Series Model	:	BW-WC02, BW-WC03, BW-WC05, BW-WC06
Model Difference	:	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: BW-WC01.
FCC ID	:	2APOWBW-WC01
Modulation Type	:	ASK
Antenna Type	:	Coil Antenna
Antenna Gain	:	1.0dBi
Operation frequency	:	125KHz
Number of Channels	:	1
Data Rate	:	/
Power Source :		DC voltage
Power Rating :		Input voltage: DC5V 2A From adapter Output voltage: DC5V
Adapter Model :		Manufacturer: AOHAI M/N: MDY-08-EF Input: 100-240V~50/60Hz 0.35A Output: DC 5V, 2000mA

2.2. Carrier Frequency of Channels

Operation Frequency each of channel	
Channel	Frequency
1	125KHz

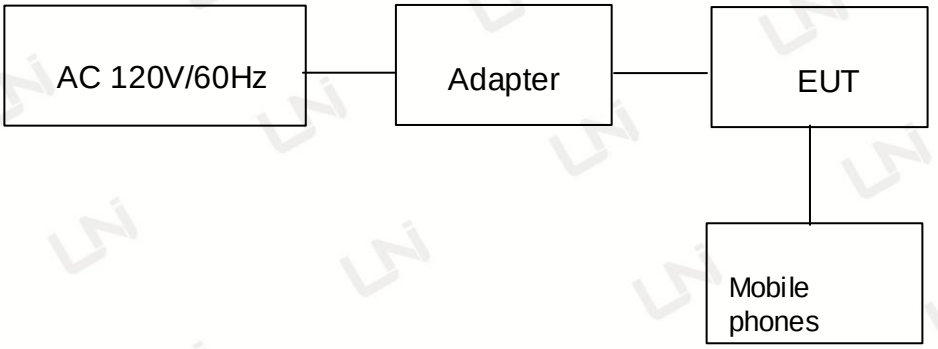
2.3 Operation of EUT during testing

Operating Mode

The mode is used: Transmitting mode

2.4 Description of Test Setup

Operation of EUT during testing



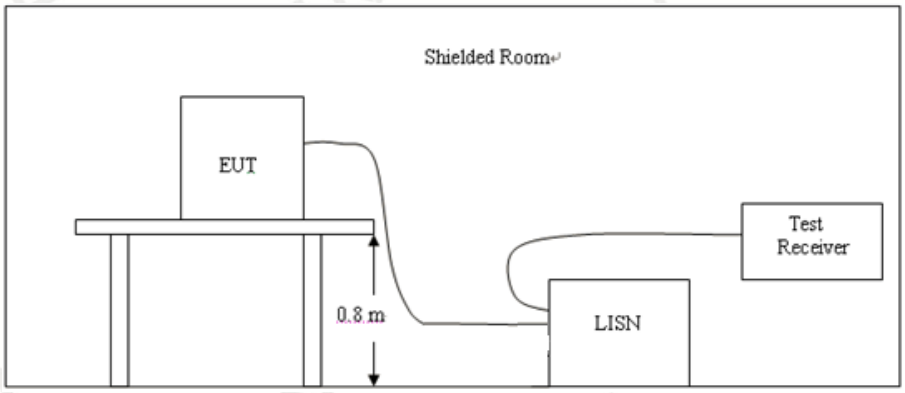
Setup:Transmission mode

2.5 Measurement Instruments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Horn Antenna	Sunol	DRH-118	A101415	2018.9.29
2	BicoNILog Antenna	Sunol	JB1 Antenna	A090215	2018.9.29
3	PREAMP	HP	8449B	3008A00160	2018.9.9
4	PREAMP	HP	8447D	2944A07999	2018.9.9
5	EMI TEST RECEIVER	Rohde&Schwarz	ESR3	101891	2018.9.9
6	VECTOR Signal Generator	Rohde&Schwarz	SMU200A	101521	2018.9.28
7	Signal Generator	Agilent	E4421B	MY4335105	2018.9.28
8	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2018.9.28
9	MXA Signal Analyzer	Agilent	N9020A	MY51110104	2018.9.9
10	ANT Tower&Turn table Controller	Champro	EM 1000	60764	2018.9.28
11	Anechoic Chamber	Taihe Maorui	9m*6m*6m	966A0001	2018.9.9
12	Shielding Room	Taihe Maorui	6.4m*4m*3m	643A0001	2018.9.9
13	RF Power sensor	DARE	RPR3006W	15I00041SNO88	2019.3.14
14	RF Power sensor	DARE	RPR3006W	15I00041SNO89	2019.3.14
15	RF power divider	Anritsu	K241B	992289	2018.9.28
16	Wideband radio communication tester	Rohde&Schwarz	CMW500	154987	2018.9.28
17	Biconical antenna	Schwarzbeck	VHA 9103	91032360	2018.9.8
18	Biconical antenna	Schwarzbeck	VHA 9103	91032361	2018.9.8
19	Broadband Hybrid Antennas	Schwarzbeck	VULB9163	VULB9163#958	2018.9.8
20	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2019.1.12
21	Active Receive Loop Antenna	Schwarzbeck	FMZB 1919B	00023	2018.11.02
22	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170651	2019.03.14
23	Microwave Broadband Preamplifier	Schwarzbeck	BBV 9721	100472	2018.10.24
24	Active Loop Antenna	Schwarzbeck	FMZB1519B	00055	2019.03.14

3. CONDUCTED EMISSION TEST

3.1 Block Diagram of Test Setup



3.2 Conducted Power Line Emission Limit

For unintentional device, according to § 15.207 Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency
For intentional device, according to §15.207Line Conducted Emission Limit is same as above table.

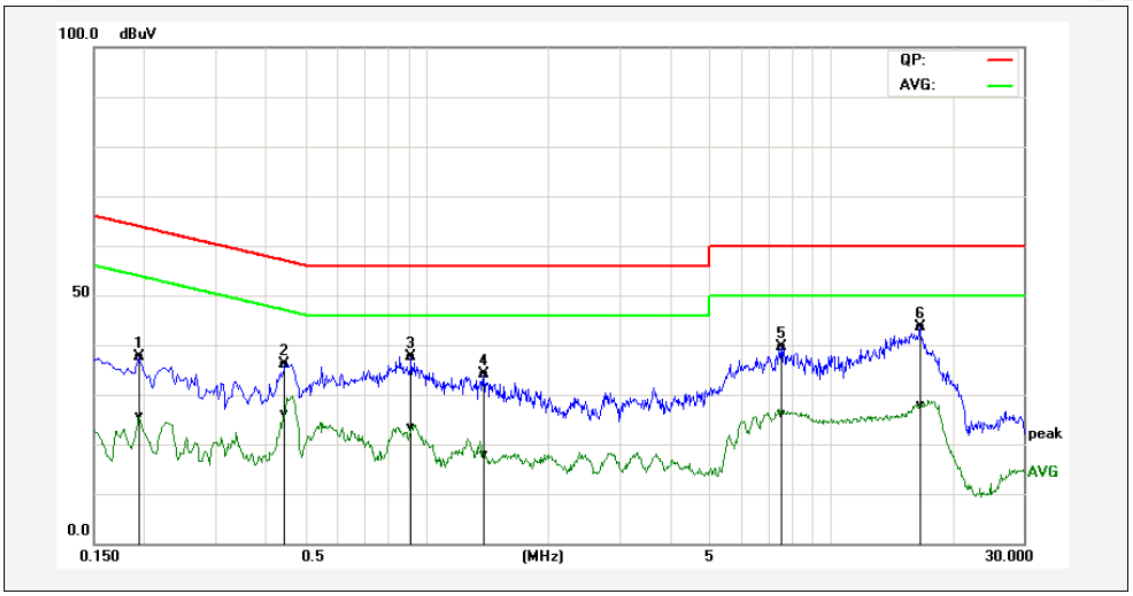
3.3 Test Procedure

1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2, Support equipment, if needed, was placed as per ANSI C63.10.
3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5, All support equipments received AC power from a second LISN, if any.
6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes

3.4 Test Result

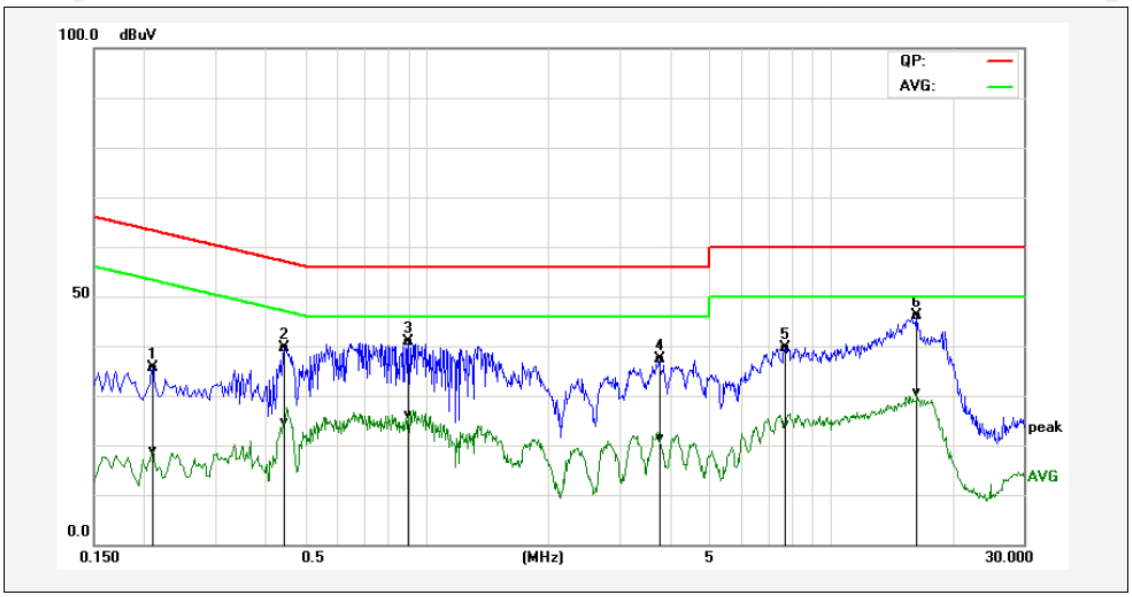
PASS

Test Specification: Line



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1P	0.1940	27.87	15.87	9.80	37.67	25.67	63.86	53.86	-26.19	-28.19	Pass
2P	0.4460	26.21	16.03	10.03	36.24	26.06	56.95	46.95	-20.71	-20.89	Pass
3P	0.9180	27.48	13.24	10.10	37.58	23.34	56.00	46.00	-18.42	-22.66	Pass
4P	1.3820	23.85	7.78	10.18	34.03	17.96	56.00	46.00	-21.97	-28.04	Pass
5P	7.5380	29.46	16.15	10.08	39.54	26.23	60.00	50.00	-20.46	-23.77	Pass
6*	16.6580	33.21	17.67	10.33	43.54	28.00	60.00	50.00	-16.46	-22.00	Pass

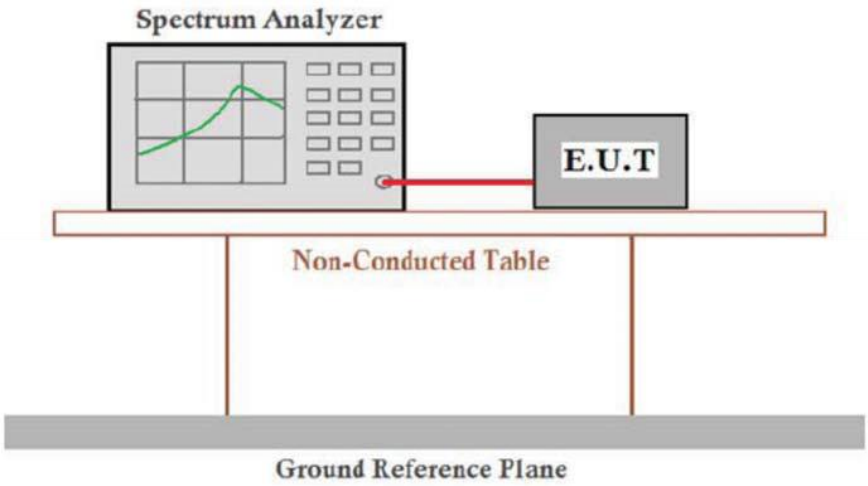
Test Specification: Neutral



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1P	0.2100	25.52	8.88	10.05	35.57	18.93	63.21	53.21	-27.64	-34.28	Pass
2P	0.4460	29.48	14.62	10.03	39.51	24.65	56.95	46.95	-17.44	-22.30	Pass
3P	0.9020	30.74	15.93	10.10	40.84	26.03	56.00	46.00	-15.16	-19.97	Pass
4P	3.7660	27.19	11.28	10.15	37.34	21.43	56.00	46.00	-18.66	-24.57	Pass
5P	7.7180	29.45	14.14	10.10	39.55	24.24	60.00	50.00	-20.45	-25.76	Pass
6*	16.3700	35.90	20.25	10.31	46.21	30.56	60.00	50.00	-13.79	-19.44	Pass

4. Occupied Bandwidth

4.1 Block Diagram of Test Setup



4.2 Rules and specifications

CFR 47 Part 15.215(c)

ANSI C63.10-2013

4.3 Test Procedure

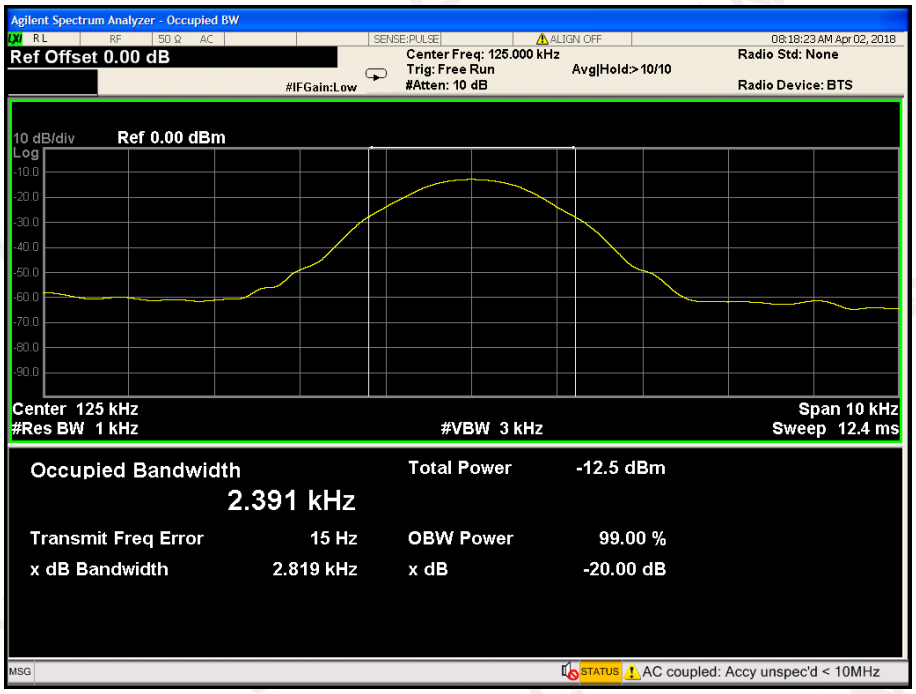
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of

the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be.deomonstrated by measuring the radiated emissions.

4.4 Test Result

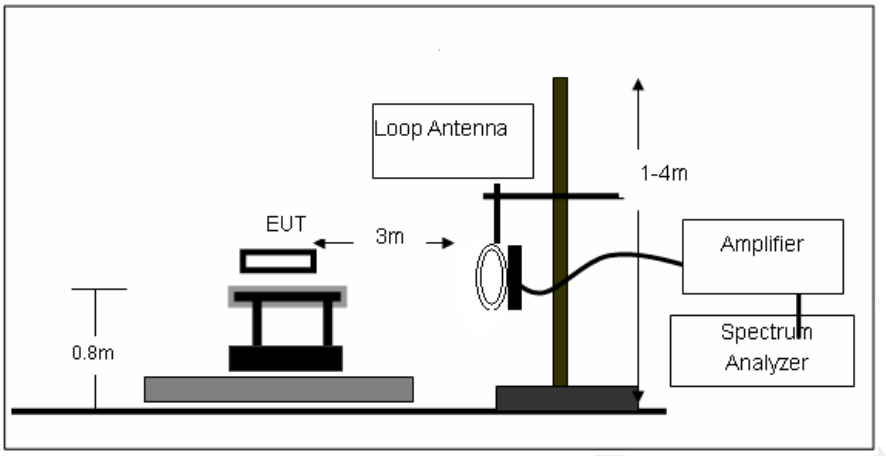
PASS

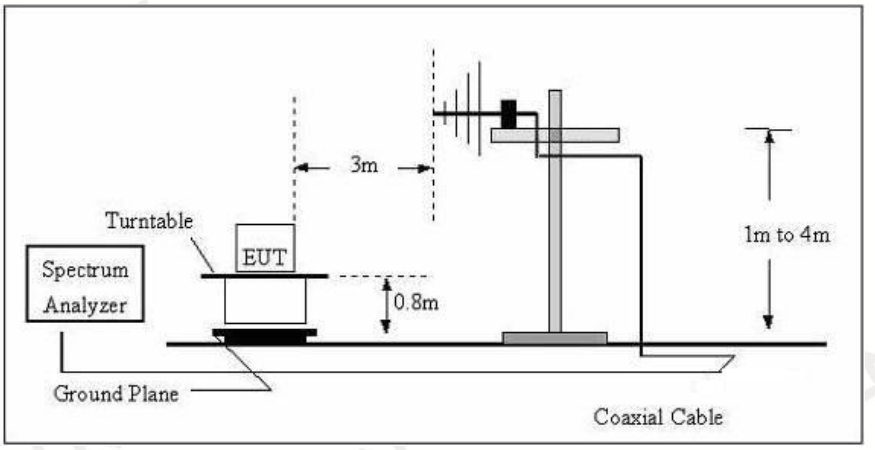
Mode	Freq (KHz)	20dB Bandwidth (KHz)	Limit (kHz)	Conclusion
TX Mode	125	2.819	/	PASS


Agilent Spectrum Analyzer - Occupied BW
Ref Offset 0.00 dB
Center Freq: 125.000 kHz
Trig: Free Run
#Atten: 10 dB
Avg|Hold:>10/10
Radio Std: None
Radio Device: BTS
08:18:23 AM Apr 02, 2018
10 dB/div
Ref 0.00 dBm
Log
Center 125 kHz
#Res BW 1 kHz
#VBW 3 kHz
Span 10 kHz
Sweep 12.4 ms
Occupied Bandwidth
2.391 kHz
Total Power -12.5 dBm
Transmit Freq Error 15 Hz
OBW Power 99.00 %
x dB Bandwidth 2.819 kHz
x dB -20.00 dB
AC coupled: Accy unspec'd < 10MHz

5. RADIA TED EMISSIONS

5.1 Block Diagram of Test Setup





5.2 Rules and specifications

CFR 47 Part 15, section 15.205

Only spurious emissions are permitted in any of the frequency bands listed the tables in these sections.

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
\1\ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293.	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(\2\)
13.36-13.41			

CFR 47 Part 15, section 15.209

The emissions from an intentional radiator shall not exceed the limits in the tables in these sections using an average detector

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100**	3
88–216	150**	3
216–960	200**	3
Above 960	500	3

Limit calculation and transfer to 3m distance as showed in the following table:

Frequency (MHz)	Limit (dBuV/m)	Distance (m)
0.009-0.490	20log(2400/F(KHz))+40log(300/3)	3
0.490-1.705	20log(2400/F(KHz))+40log(300/3)	3
1.705-30.0	69.5	3
30-88	40.0	3
88-216	43.5	3
216-960	46.0	3
Above 960	54.0	3

CFR 47 Part 15, section 15.35

When average radiated emission measurements are specified, the limit on the peak level of the radio Frequency emission is 20dB above the maximum permitted average emission limit.

Transmitter Spurious Emissions 9KHz-30MHz			
	9-150KHz	150-490KHz	490KHz-30MHz
Resolution Bandwidth	200Hz	9KHz	9KHz
Video Bandwidth	2KHz	100KHz	100KHz
Detector	Peak	Peak	Peak
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep Time	Auto	Auto	Auto

5.3 Test Procedure

Measurement distance 3m

For the measurement range up to 30MHz in the following plots the field strength result from 3m Distance measurement are extrapolated to 300m and 30m distance respectively, by 40dB/decade, According to part 15.31(f)(2), per antenna factor scaling.

Measurements below 1000MHz are performed with a peak detector and compared to average limits, Measurements with an average detector are not required.

Note:For battery operated equipment, the equipment tests shall be performed using a new battery.

5.4 Test Result

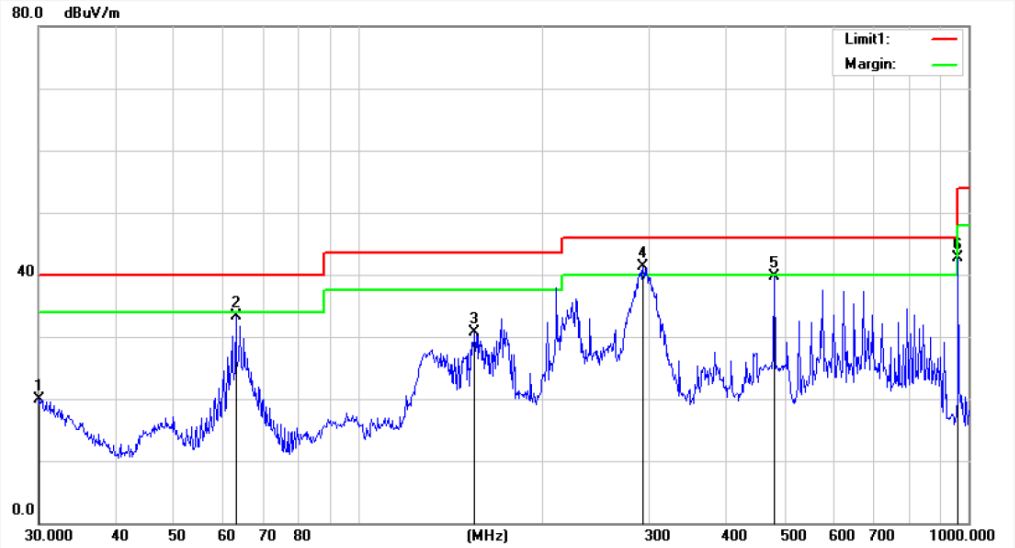
PASS

For 9KHz-30MHz

Freq. (MHz)	Position H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limits 3m (dBuV/m)	Margin (dBuV/m)
0.202	H	Peak	25.36	25.02	50.38	126.77	76.39
0.386	H	Peak	44.05	25.02	69.07	125.67	56.60
0.522	H	Peak	22.92	25.28	48.20	113.71	65.51
0.626	H	Peak	28.08	25.28	53.36	113.62	60.26
N/A							
Freq. (MHz)	**Position H/V**	**Detector Mode (PK/QP)**	**Reading (dBuV)**	**Factor (dB)**	**Actual FS (dBuV/m)**	**Limits 3m (dBuV/m)**	**Margin (dBuV/m)**
0.202	V	Peak	27.02	25.02	52.04	126.77	74.73
0.386	V	Peak	42.81	25.02	67.83	125.67	57.84
0.522	V	Peak	21.44	25.28	46.72	113.71	66.99
0.626	V	Peak	27.26	25.28	52.54	113.62	61.08
N/A							

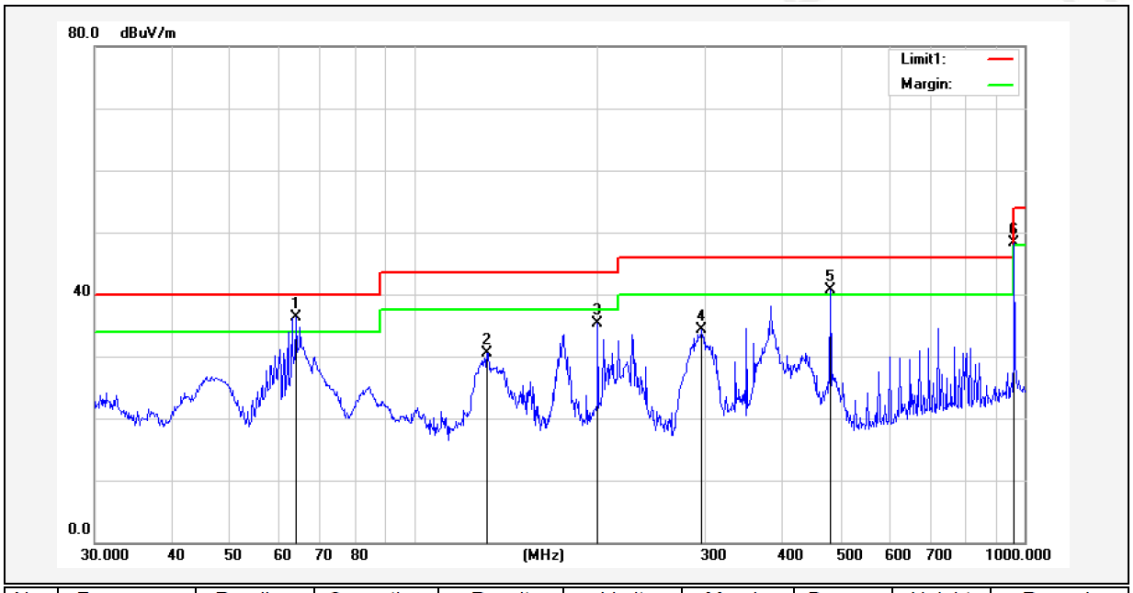
For 30MHz-1GHz

Antenna polarity: H



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	30.0000	26.48	-6.52	19.96	40.00	-20.04			peak
2	63.0915	54.28	-21.02	33.26	40.00	-6.74			peak
3	155.3643	45.23	-14.52	30.71	43.50	-12.79			peak
4*	293.0842	53.61	-12.35	41.26	46.00	-4.74			peak
5	480.5276	49.40	-9.73	39.67	46.00	-6.33			peak
6	962.1622	44.79	-2.09	42.70	54.00	-11.30			peak

Antenna polarity: V



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1*	64.2074	57.35	-21.08	36.27	40.00	-3.73			peak
2	131.7577	44.63	-14.06	30.57	43.50	-12.93			peak
3	199.9856	48.94	-13.73	35.21	43.50	-8.29			peak
4	296.1836	46.49	-12.10	34.39	46.00	-11.61			peak
5!	480.5276	50.48	-9.73	40.75	46.00	-5.25			peak
6!	962.1623	50.48	-2.09	48.39	54.00	-5.61			peak

6 ANTENNA REQUIREMENT

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

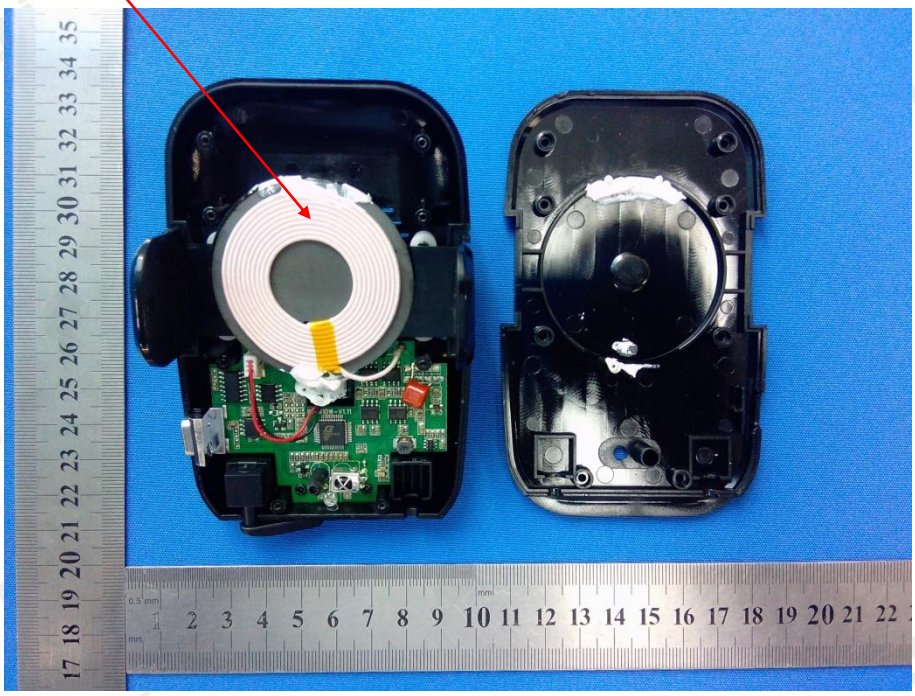
Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

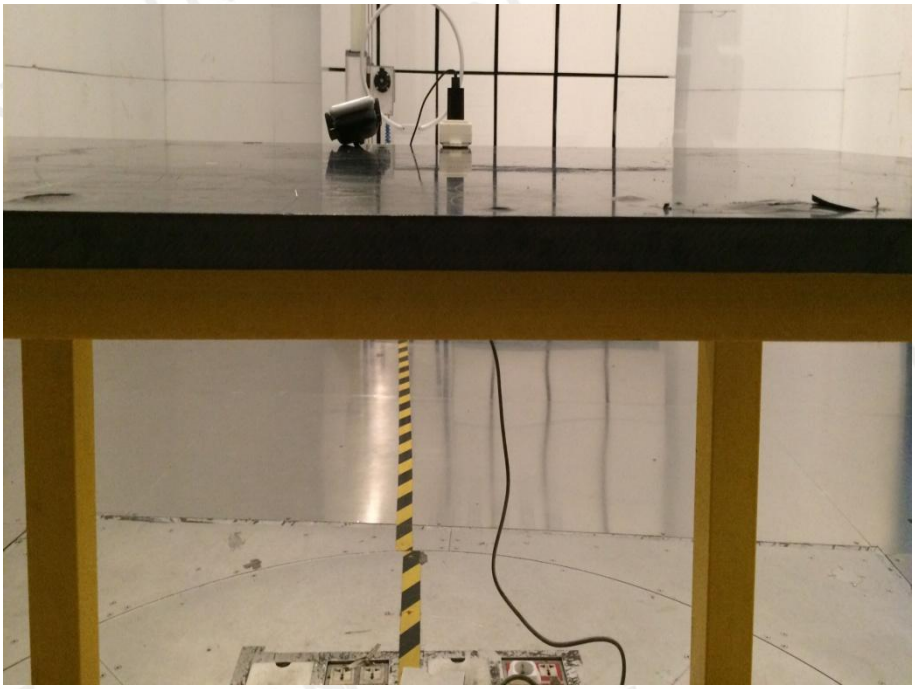
The antenna used in this product is a Coil Antenna, The directional gains of antenna used for transmitting is 1dBi.

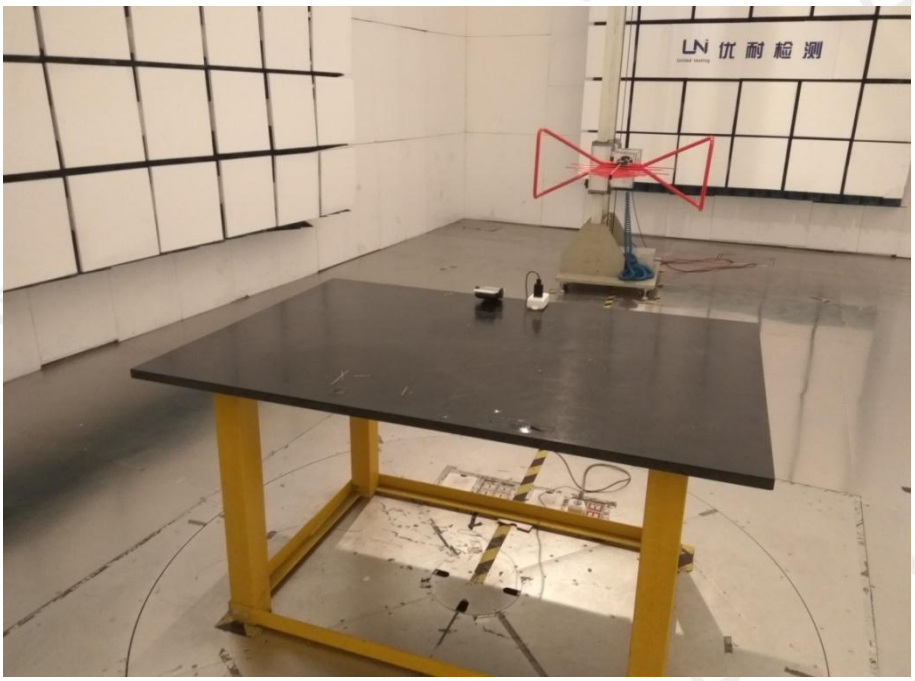
ANTENNA



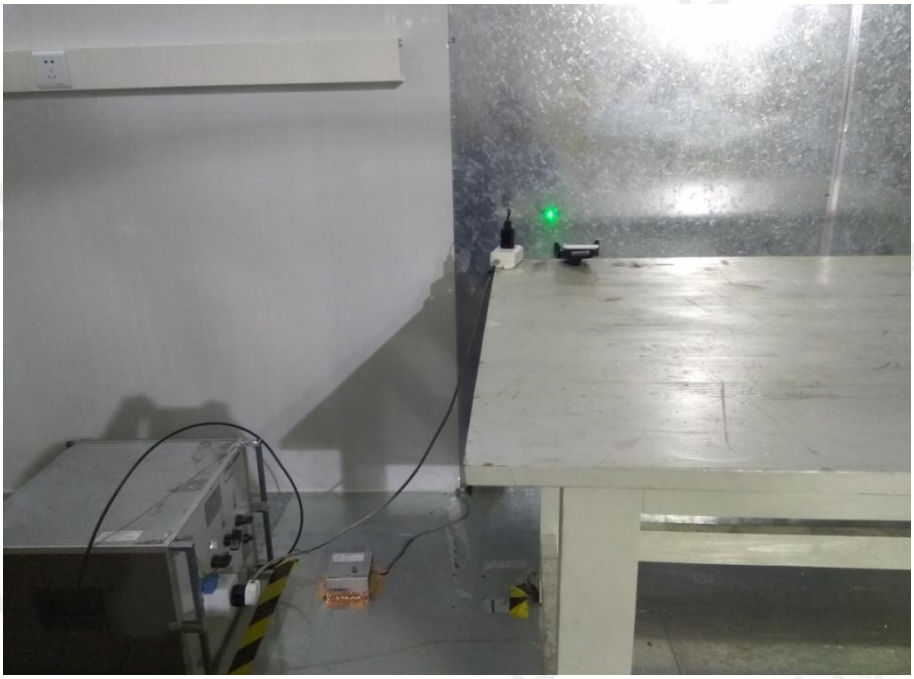
7. PHOTOGRAPH OF TEST

7.1 Radiated Emission





7.2 Conducted Emission



End of Report