



FCC TEST REPORT

Test report
On Behalf of
Qingdao Zhonghaihuizhi Power Technology Co., Ltd.
For
Wireless Charging Smart Bluetooth Speaker
Model No.:
WSS-503GB-E,WSS-503BB-E,WSS-503GB-A,WSS-503BB-A,
WSS-503GB-B,WSS-503BB-B,WSS-503GB-Au,WSS-503BB-Au

FCC ID: 2AISC-WSS503GBE

Prepared for : **Qingdao Zhonghaihuizhi Power Technology Co., Ltd.**
B2,5th floor section B, No.1, Keyuanwei 1st Road, Laoshan, Qingdao,
Shandong, China

Prepared By : **Shenzhen HUAK Testing Technology Co., Ltd.**
F1-008, Tai Yi Building, No.1, Haicheng West Road, Xixiang Street, Bao'an
District, Shenzhen City, China

Date of Test: **June. 23, 2016 ~ June. 28, 2016**
Date of Report: **June. 28, 2016**
Report Number: **HUAK160601011-E**



TEST RESULT CERTIFICATION

Applicant's name : Qingdao Zhonghaihuizhi Power Technology Co., Ltd.
Address : B2,5th floor section B, No.1, Keyuanwei 1st Road, Laoshan,
Qingdao, Shandong, China
Manufacture's Name : Qingdao Zhonghaihuizhi Power Technology Co., Ltd.
Address : B2,5th floor section B, No.1, Keyuanwei 1st Road, Laoshan,
Qingdao, Shandong, China

Product description

Trade Mark: /
Product name : Wireless Charging Smart Bluetooth Speaker
Model and/or type reference : WSS-503GB-E, WSS-503BB-E, WSS-503GB-A,
WSS-503BB-A, WSS-503GB-B, WSS-503BB-B,
WSS-503GB-Au, WSS-503BB-Au
Standards : FCC Rules and Regulations Part 15 Subpart C (Section 15.209),
ANSI C63.10: 2013

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Date of Test :
Date (s) of performance of tests : **June. 23, 2016 ~ June. 28, 2016**
Date of Issue : **June. 28, 2016**
Test Result : **Pass**

Testing Engineer :

(Eric Xie)

Technical Manager :

(Dora Qin)

Authorized Signatory :

(Kait Chen)



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1. TEST SUMMARY

1.1 Description of Test

Description of Test	Result
CONDUCTED EMISSIONS TEST	Compliant
Occupied Bandwidth	Compliant
RADIATED EMISSIONS	Compliant

1.2 Test Location

Test Firm : Shenzhen WST Testing Technology Co., Ltd.
Certificated by FCC, Registration No.: 939433
Address : 1F,No.9 Building,TGK Science & Technology Park,Yangtian Rd.,
NO.72 Bao'an Dist., Shenzhen,Guangdong,China. 518101

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 Charging Smart Bluetooth Speaker
Model No.	:	WSS-503GB-E
Series Model	:	WSS-503BB-E,WSS-503GB-A,WSS-503BB-A,WSS-503GB-B, WSS-503BB-B,WSS-503GB-Au,WSS-503BB-Au
FCC ID	:	2AISC-WSS503GBE
Model Difference	:	All the model are the same circuit, except the appearance colour, this report only test mode name: WSS-503GB-E.
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: DC9V 3A From adapter Output voltage: DC5V 1A
Adapter Model :	:	DYS624-090300W-5



2.1.1 Carrier Frequency of Channels

Operation Frequency each of channel	
Channel	Frequency
1	125KHz

2.2 Operation of EUT during testing

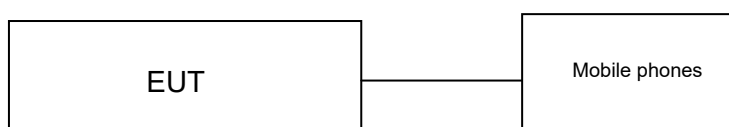
Operating Mode

The mode is used: Transmitting mode

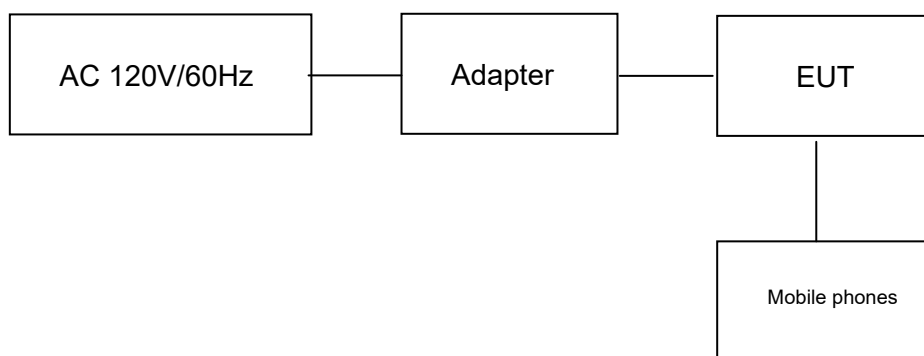
2.3 Description of Test Setup

Operation of EUT during testing

Mode 1:



Mode 2:



Setup: Transmission mode



2.4 Measurement Instruments List

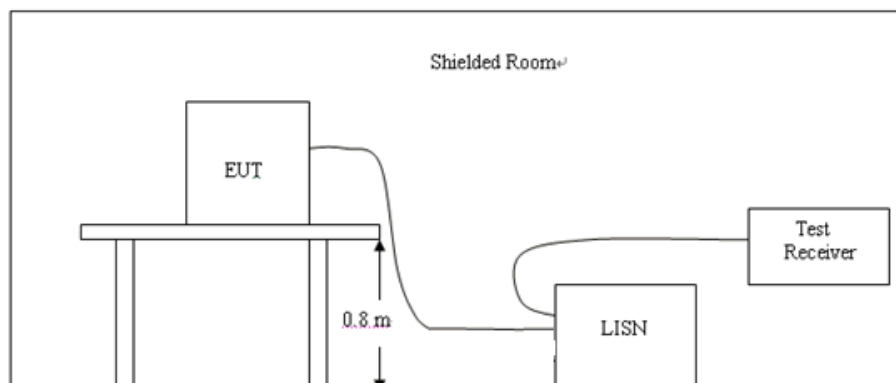
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Receiver	Rohde & Schwarz	ESCI	100627	May 19, 2016	1 Year
2.	LISN	SchwarzBeck	NSLK 8126	8126377	May 19, 2016	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 19, 2016	1 Year
4.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
5.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	April 19, 2016	1 Year
6.	Trilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	April 17, 2016	1 Year
7.	Pre-amplifier	Compliance Direction	PAP-0203	22008	April 19, 2016	1 Year
8.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
9.	EMI Receiver	Rohde & Schwarz	ESCI	100627	April 19, 2016	1 Year
10.	LISN	SchwarzBeck	NSLK 8126	8126377	April 19, 2016	1 Year
11.	RF Switching Unit	Compliance Direction	RSU-M2	38303	April 19, 2016	1 Year
12.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
13.	EMI Receiver	Rohde & Schwarz	ESCI	100627	April 19, 2016	1 Year
14.	EMI Receiver	Rohde & Schwarz	ESCI	100627	April 19, 2016	1 Year
15.	LISN	SchwarzBeck	NSLK 8126	8126377	April 19, 2016	1 Year
16.	RF Switching Unit	Compliance Direction	RSU-M2	38303	April 19, 2016	1 Year
17.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
18.	Programmable AC Power source	SOPH POWER	PAG-1050	630250	April 26, 2016	1 Year
19.	Harmonic and Flicker Analyzer	LAPLACE	AC2000A	272629	April 26, 2016	1 Year
20.	Harmonic and Flicker Test Software AC 2000A	LAPLACE	N/A	N/A	N/A	N/A
21.	ESD Simulators	KIKUSUI	KES4021	LJ003477	April 26, 2016	1 Year
22.	EFT Generator	EMPEK	EFT-4040B	0430928N	April 26, 2016	1 Year
23.	Shielding Room	ChangZhou ZhongYu	JB88	SEL0166	April 26, 2016	1 Year
24.	Signal Generator 9KHz~2.2GHz	R&S	SML02	SEL0143	April 26, 2016	1 Year
25.	Signal Generator 9KHz~1.1GHz	R&S	SML01	SEL0135	April 26, 2016	1 Year
26.	Power Meter	R&S	NRVS	SEL0144	April 26, 2016	1 Year
27.	RF Level Meter		URV35	SEL0137	April 26, 2016	1 Year
28.	Audio Analyzer	R&S	UPL	SEL0136	April 26, 2016	1 Year
29.	RF-Amplifier 150KHz~150MHz	BONN Elektronik	BSA1515-25	SEL0157	April 26, 2016	1 Year
30.	Stripline Test Cell	Erika Fiedler	VDE0872	SEL0167	April 26, 2016	N/A



31.	TV Test Transmitter	R&S	SFM	SEL0159	April 26, 2016	1 Year
32.	TV Generator PAL	R&S	SGPF	SEL0138	April 26, 2016	1 Year
33.	TV Generator Ntsc	R&S	SGMF	SEL0140	April 26, 2016	1 Year
34.	TV Generator Secam	R&S	SGSF	SEL0139	April 26, 2016	1 Year
35.	TV Test Transmitter 0.3MHz~3300MHz	R&S	SFQ	SEL0142	April 26, 2016	1 Year
36.	MPEG2 Measurement Generator	R&S	DVG	SEL0141	April 26, 2016	1 Year
37.	Spectrum Analyzer	R&S	FSP	SEL0177	April 26, 2016	1 Year
38.	Matching	R&S	RAM	SEL0146	N/A	N/A
39.	Matching	R&S	RAM	SEL0148	N/A	N/A
40.	Absorbing Clamp	R&S	MDS21	SEL0158	April 26, 2016	1 Year
41.	Coupling Set	Erika Fiedler	Rco, Rci, MC, AC, LC	SEL0149	April 26, 2016	N/A
42.	Filters	Erika Fiedler	Sr, LBS	SEL0150	N/A	N/A
43.	Matching Network	Erika Fiedler	MN, T1	SEL0151	N/A	N/A
44.	Fully Anechoic Room	ChangZhou ZhongYu	854	SEL0169	April 26, 2016	1 Year
45.	Signal Generator	R&S	SML03	SEL0068	April 26, 2016	1 Year
46.	RF-Amplifier 30M~1GHz	Amplifier Reasearch	250W1000A	SEL0066	Oct. 24, 2015	1 Year
47.	RF-Amplifier 0.8~3.0GHz	Amplifier Reasearch	60S1G3	SEL0065	Oct. 24, 2015	1 Year
48.	Power Meter	R&S	NRVD	SEL0069	April 26, 2016	1 Year
49.	Power Sensor	R&S	URV5-Z2	SEL0071	April 26, 2016	1 Year
50.	Power Sensor	R&S	URV5-Z2	SEL0072	April 26, 2016	1 Year
51.	Software EMC32	R&S	EMC32-S	SEL0082	N/A	N/A
52.	Log-periodic Antenna	Amplifier Reasearch	AT1080	SEL0073	April 26, 2016	1 Year
53.	Antenna Tripod	Amplifier Reasearch	TP1000A	SEL0074	April 26, 2016	1 Year
54.	Active Loop Antenna	SCHWARZBECK	FMZB1519	1519-037	April 26, 2016	1 Year
55.	High Gain Horn Antenna(0.8-5G Hz)	Amplifier Reasearch	AT4002A	SEL0075	April 26, 2016	1 Year

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

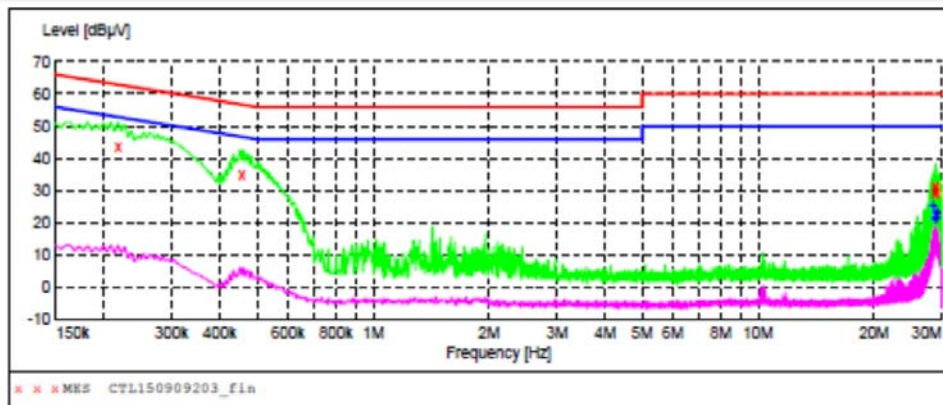
For intentional device, according to §15.207Line Conducted Emission Limit is same as above table.

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

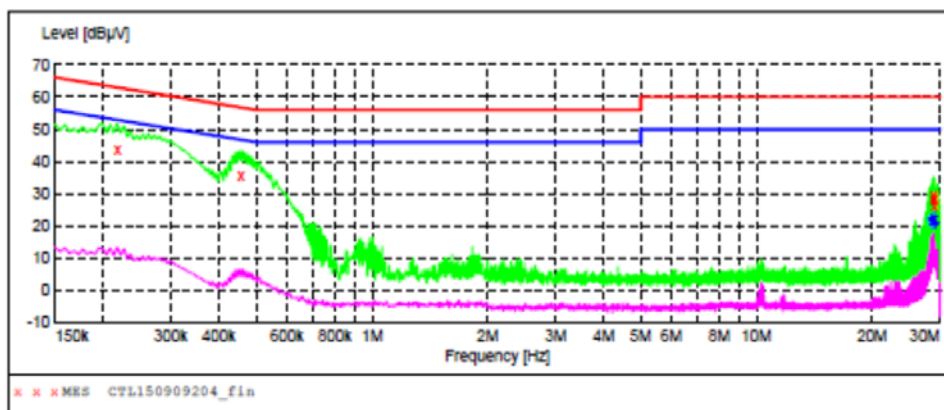
PASS

**MEASUREMENT RESULT:**

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.217501	42.30	10.2	62	19.6	QP	L1	GND
0.456001	34.60	10.2	57	22.2	QP	L1	GND
28.756501	31.00	11.2	60	29.0	QP	L1	GND
28.819501	29.00	11.2	60	31.0	QP	L1	GND
28.941001	30.80	11.2	60	29.2	QP	L1	GND
29.058001	29.20	11.2	60	30.8	QP	L1	GND

MEASUREMENT RESULT:

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
28.459501	25.70	11.2	50	24.3	AV	L1	GND
28.761001	21.40	11.2	50	28.6	AV	L1	GND
28.941001	22.00	11.2	50	28.0	AV	L1	GND
29.058001	23.70	11.2	50	26.3	AV	L1	GND
29.121001	23.00	11.2	50	27.0	AV	L1	GND
29.179501	21.80	11.2	50	28.2	AV	L1	GND

**MEASUREMENT RESULT:**

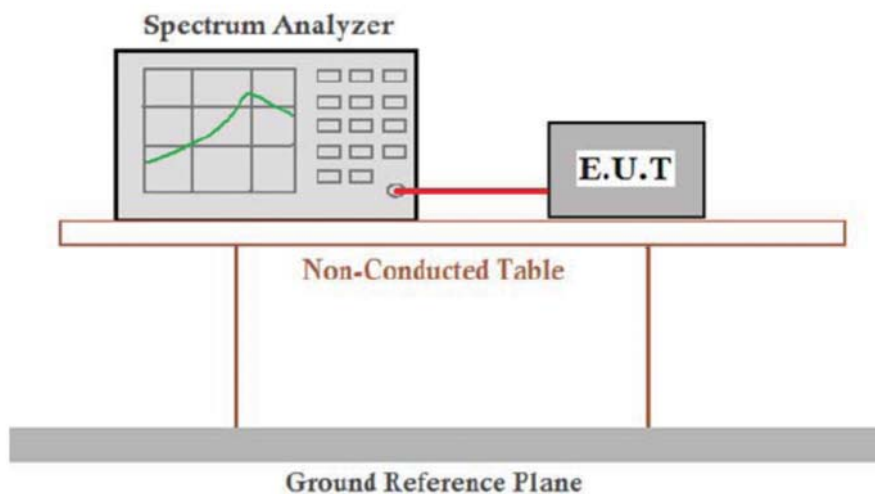
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.217501	43.90	10.2	63	19.0	QP	N	GND
0.456001	35.80	10.2	57	21.3	QP	N	GND
28.878001	27.90	11.2	60	32.1	QP	N	GND
28.941001	29.40	11.2	60	30.6	QP	N	GND
28.999501	27.80	11.2	60	32.2	QP	N	GND
29.062501	26.10	11.2	60	33.9	QP	N	GND

MEASUREMENT RESULT:

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
28.455001	22.70	11.2	50	27.3	AV	N	GND
28.576501	21.70	11.2	50	28.3	AV	N	GND
28.639501	20.80	11.2	50	29.2	AV	N	GND
29.058001	22.90	11.2	50	27.1	AV	N	GND
29.121001	20.80	11.2	50	29.2	AV	N	GND
29.301001	21.40	11.3	50	28.6	AV	N	GND

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

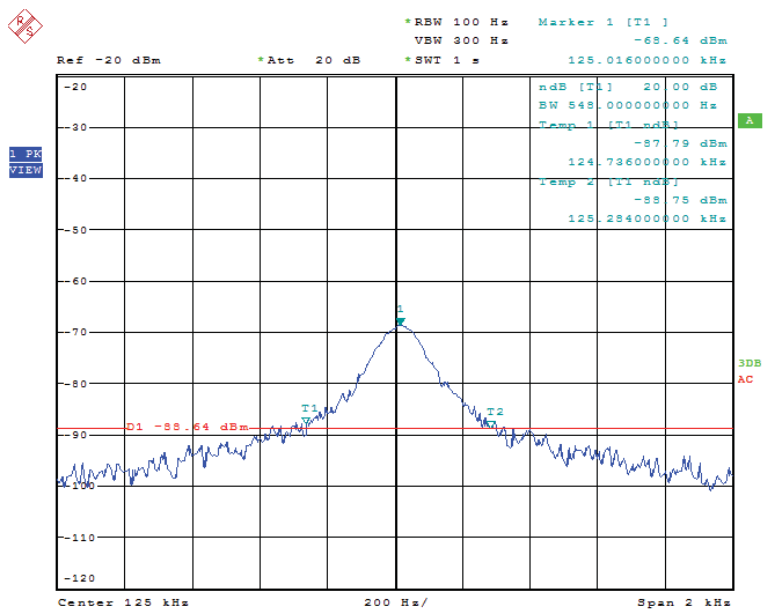
4.3 Test Procedure

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 demonstrated by measuring the radiated emissions.

4.4 Test Result

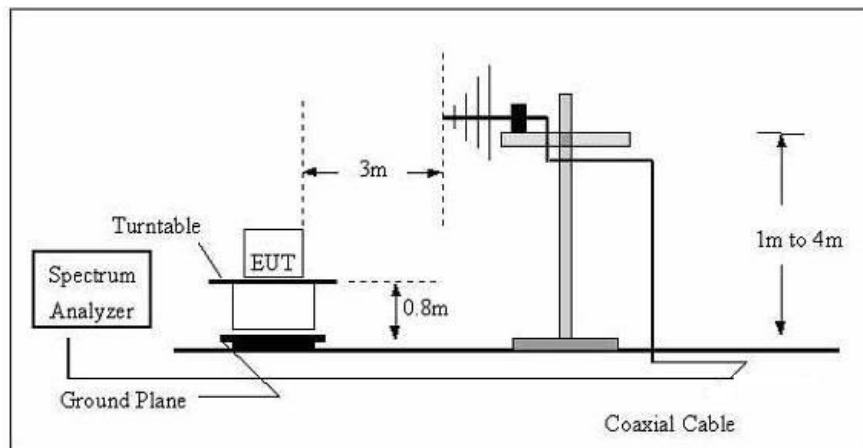
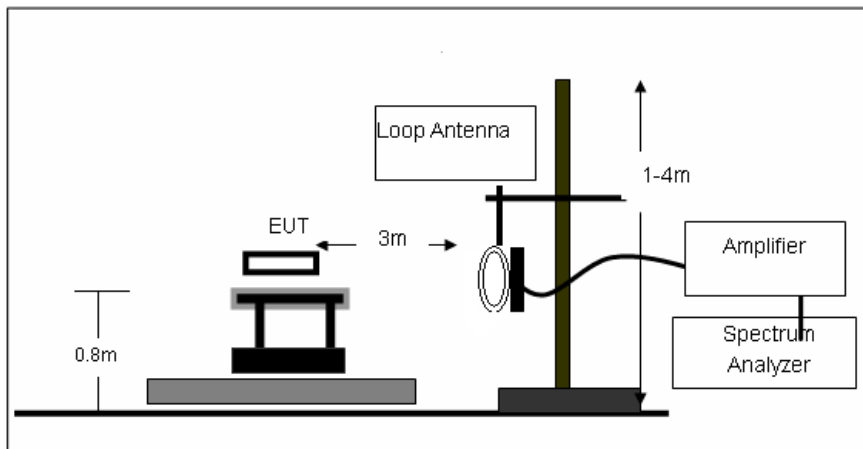
PASS

Measurement Conditions		Peak Frequency	Lowest Frequency	Highest Frequency
T _{normal} 24 °C	V _{normal} 120V	125.284	124.736	125.016



5. RADIATED 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	$20\log(2400/F(KHz))+40\log(300/3)$	3
0.490-1.705	$20\log(2400/F(KHz))+40\log(300/3)$	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

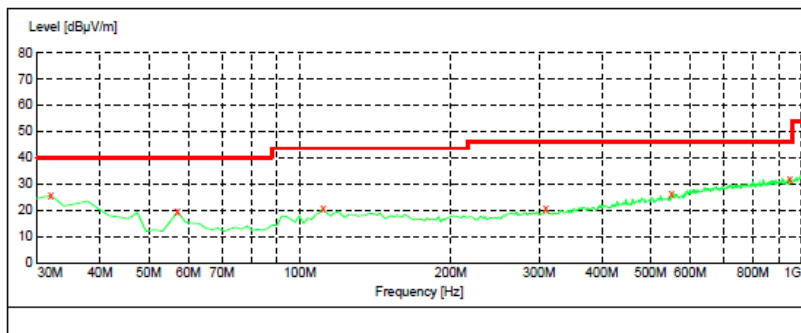
For 9KHz-30MHz

Frequency	Receiver		Factor (dB(1/m))	Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude @ 3m (dBμV/m)	Limit @ 3m (dBμV/m)	Margin (dB)
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)						
0.125	21	QP	64.75	0.02	0.00	85.77	105.7	19.93
0.669	15.7	QP	49.80	0.05	0.00	65.55	71.1	5.55
1.961	18.1	QP	41.01	0.13	0.00	59.24	69.5	10.26
3.128	20.3	QP	38.32	0.16	0.00	58.78	69.5	10.72

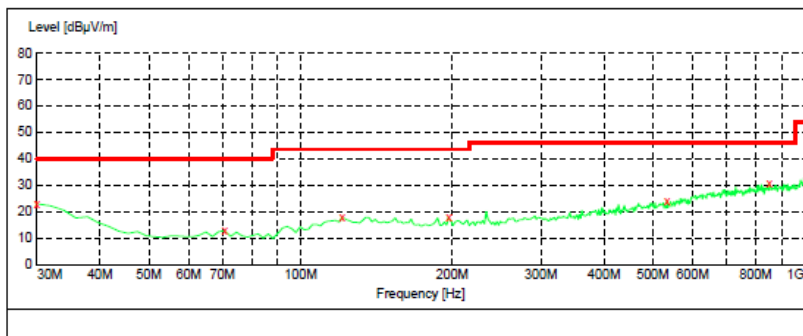


Mode 1:

For 30MHz-1GHz

**MEASUREMENT RESULT:**

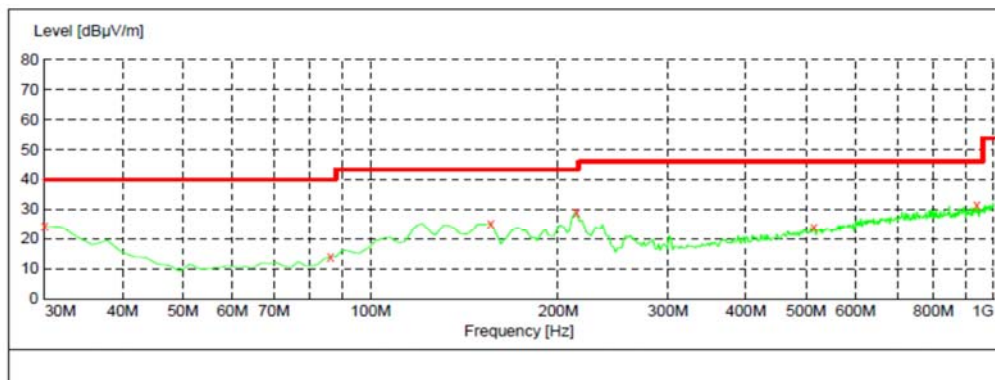
Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Asimuth deg	Polarization
31.940000	25.60	19.2	40.0	14.4	---	0.0	0.00	VERTICAL
57.160000	19.40	8.0	40.0	20.6	---	0.0	0.00	VERTICAL
111.480000	20.60	13.7	43.5	22.9	---	0.0	0.00	VERTICAL
309.360000	20.90	15.5	46.0	25.1	---	0.0	0.00	VERTICAL
551.860000	26.50	21.0	46.0	19.5	---	0.0	0.00	VERTICAL
949.560000	32.10	26.5	46.0	13.9	---	0.0	0.00	VERTICAL

**MEASUREMENT RESULT:**

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Asimuth deg	Polarization
30.000000	22.90	20.8	40.0	17.1	---	0.0	0.00	HORIZONTAL
70.740000	12.70	8.2	40.0	27.3	---	0.0	0.00	HORIZONTAL
121.180000	17.80	14.7	43.5	25.7	---	0.0	0.00	HORIZONTAL
196.840000	17.70	13.6	43.5	25.8	---	0.0	0.00	HORIZONTAL
534.400000	23.80	20.5	46.0	22.2	---	0.0	0.00	HORIZONTAL
852.560000	30.60	25.2	46.0	15.4	---	0.0	0.00	HORIZONTAL

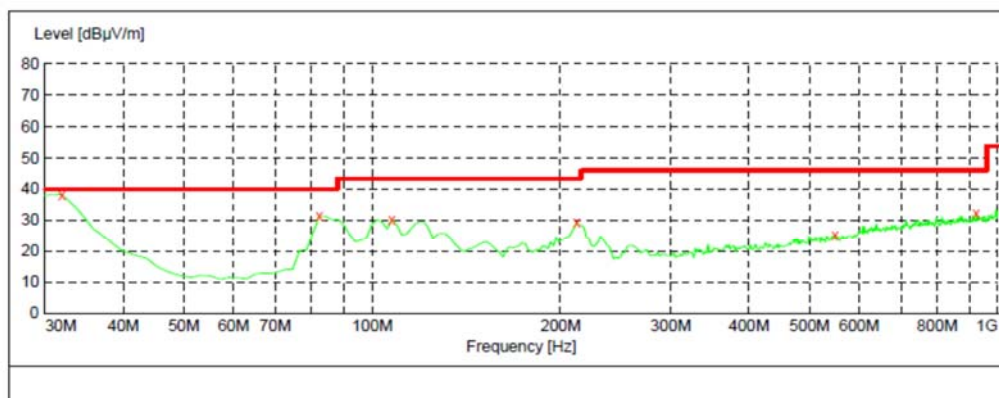


Mode 2:
For 30MHz-1GHz



MEASUREMENT RESULT:

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	24.20	20.8	40.0	15.8	---	0.0	0.00	HORIZONTAL
86.260000	13.80	9.0	40.0	26.2	---	0.0	0.00	HORIZONTAL
156.100000	25.30	13.7	43.5	18.2	---	0.0	0.00	HORIZONTAL
214.300000	28.80	14.0	43.5	14.7	---	0.0	0.00	HORIZONTAL
515.000000	23.90	20.3	46.0	22.1	---	0.0	0.00	HORIZONTAL
939.860000	31.50	26.4	46.0	14.5	---	0.0	0.00	HORIZONTAL



MEASUREMENT RESULT:

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
31.940000	38.30	19.2	40.0	1.7	---	0.0	0.00	VERTICAL
82.380000	31.30	8.7	40.0	8.7	---	0.0	0.00	VERTICAL
107.600000	30.20	12.9	43.5	13.3	---	0.0	0.00	VERTICAL
212.360000	29.30	14.0	43.5	14.2	---	0.0	0.00	VERTICAL
549.920000	25.00	21.0	46.0	21.0	---	0.0	0.00	VERTICAL
924.340000	32.30	26.2	46.0	13.7	---	0.0	0.00	VERTICAL

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.

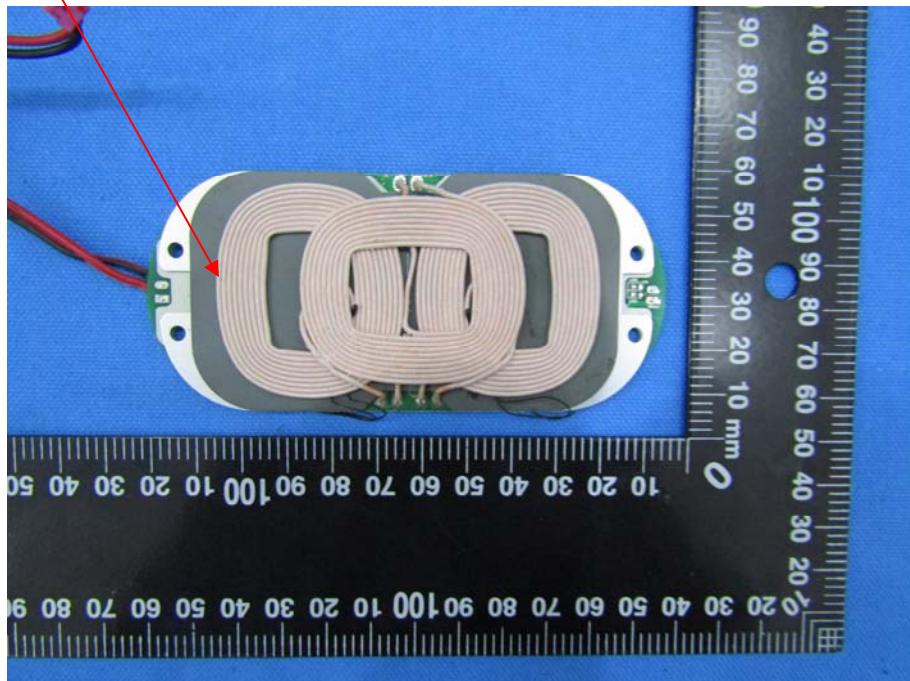
Refer to statement below for compliance.

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

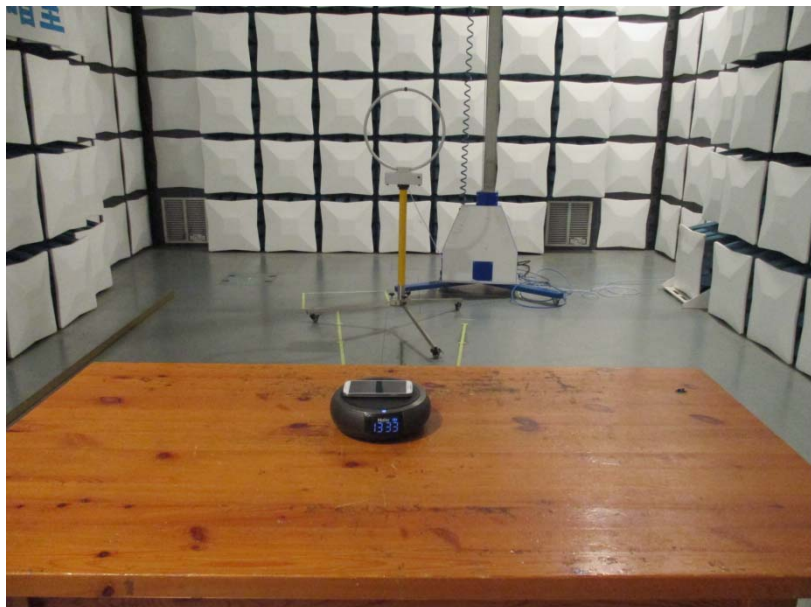
The antenna used in this product is a Coil Antenna, The directional gains of antenna used for transmitting is 1dBi.

ANTENNA



7. PHOTOGRAPH OF TEST

7.1 Radiated Emission



7.2 Conducted Emission

