

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT**

OF

Bluetooth Dual Alarm Clock Radio with USB Charging

Model No.: iWBT400, iWBT400X (X means A-Z, denotes as color of cabinet)

Trademark: iHome

FCC ID: EMOIWBT400

Report No.: ED170323005E2

Issue Date: April 06, 2017

Prepared for

**SDI TECHNOLOGIES INC.
1299, Main Street, Rahway, NJ 07065, U.S.A.**

Prepared by

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EMTEK(DONGGUAN) CO., LTD.**

VERIFICATION OF COMPLIANCE

Applicant:	SDI Technologies Inc. 1299, Main Street, Rahway, NJ 07065, U.S.A.
Manufacturer:	SDI Technologies Inc. 1299, Main Street, Rahway, NJ 07065, U.S.A.
Factory:	Jadestar Electronics (Shenzhen) Co. Ltd. Block 5, He Tai Industrial Zone, He Ping Community, Fu Yuan Town, Bao An District.
Product Description:	Bluetooth Dual Alarm Clock Radio with USB Charging
Trade Mark:	iHome
Model Number:	iWBT400, iWBT400X (X means A-Z, denotes as color of cabinet) (Note: The samples are the same except difference color of appearance and model number, Here iWBT400 was selected for full test.)

We hereby certify that:

The above equipment was tested by EMTEK(DONGGUAN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10-2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15C.

Date of Test : March 23, 2017 to March 30, 2017

Abby Li

Prepared by : Abby Li/Editor

Alan He

Reviewer : Alan He/Supervisor

Approved & Authorized
Signer : Sam Lv/Manager

Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	ED170323005E3

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1 General Information

1.1 Product Description

Characteristics	Description
Product Name	Bluetooth Dual Alarm Clock Radio with USB Charging
Model number	iWBT400
Power Supply	M/N:SW0752300-H04 Input rating: 100-240V~,50/60Hz, Max 500mA Output rating: 7.5V $\square$ 2.3A
Operating Frequency	326.5 KHz
Modulation Technique	Induction
Antenna Type	Induction coil
Radio Software Version	V013
Radio Hardware version	V1.2

1.2 Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended for FCC ID: EMOIWB400 filing to comply with the FCC Part 15, Subpart C Rules.

1.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Site Description
EMC Lab.

: Registered on FCC, June 18, 2014
The Certificate Number is 247565.

Registered on Industry Canada, February 19, 2014
The Certificate Number is 9444A

Name of Firm
Site Location

: EMTEK(DONGGUAN) CO., LTD.
: No.281, Guantai Road, Nancheng District, Dongguan,
Guangdong, China

2 System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

2.3.2 Radiated Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the fixed in a particular direction according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

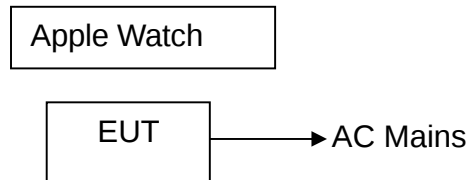


Table 2-1 Equipment Used in Tested System

Item	Equipment	Trade Mark	Model No.	FCC ID	Series No.	Note
1.	Bluetooth Dual Alarm Clock Radio with USB Charging	iHome	iWBT400	EMOIWBT400	N/A	<i>EUT</i>
2.	Adapter	N/A	SW0752300-H04	N/A	N/A	<i>Support EUT</i>
3.	Apple Watch	Apple	A1443	N/A	N/A	<i>Support Equipment</i>

Note:

- (1) Unless otherwise denoted as EUT in 『Remark』 column, device(s) used in tested system is a support equipment.

3 Summary of Test Results

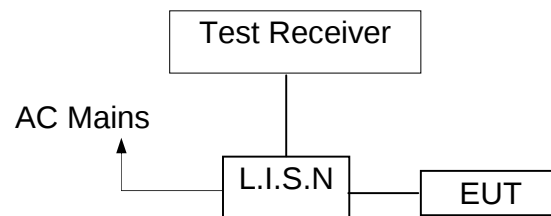
FCC Rules	Description Of Test	Result
§15.207	AC Power Conducted Emission	Compliant
§15.209	Radiated Emission	Compliant
§2.1049	20dB Bandwidth	Compliant
§15.203	Antenna Requirement	Compliant

4 Conducted Emissions Test

4.1 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

4.2 Test SET-UP (Block Diagram of Configuration)



4.3 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	Last Cal.	Due date
Test Receiver	Rohde & Schwarz	ESCS30	100018	06/24/2016	06/23/2017
L.I.S.N	Rohde & Schwarz	ENV216	100017	06/24/2016	06/23/2017
RF Switching Unit	CDS	RSU-M2	38401	06/24/2016	06/23/2017
Coaxial Cable	CDS	79254	46107086	06/24/2016	06/23/2017

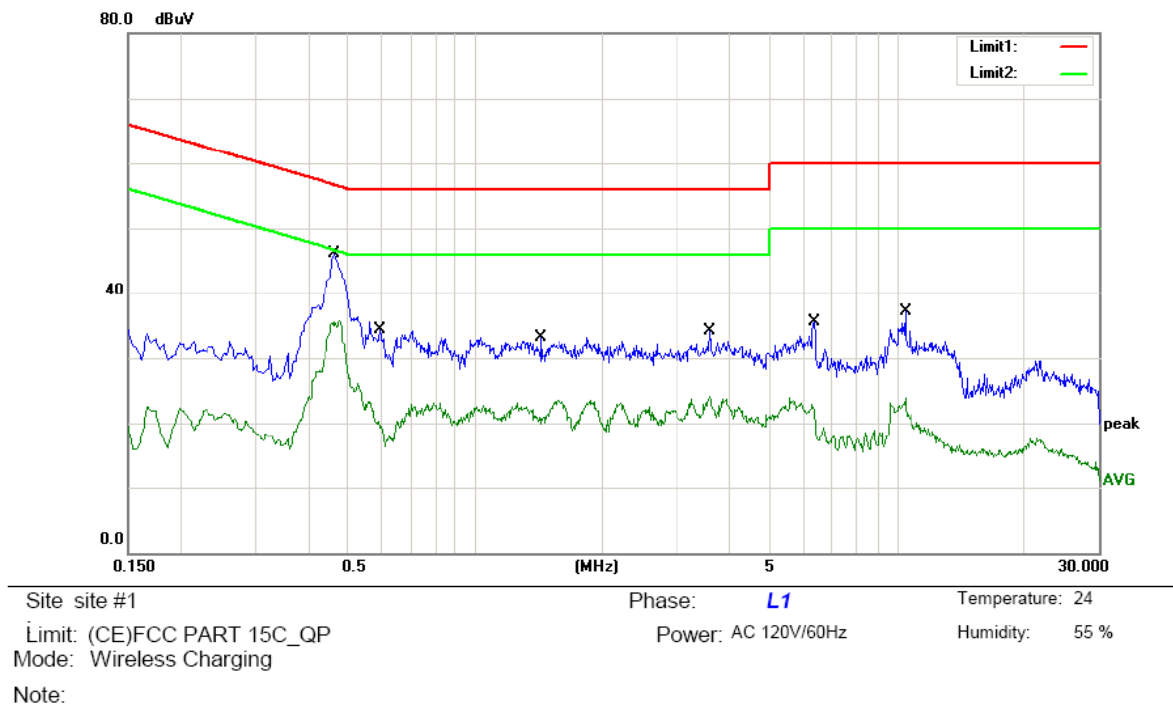
4.4 Conducted Emission Limit

Conducted Emission Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

- Note:** 1. The lower limit shall apply at the transition frequencies
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

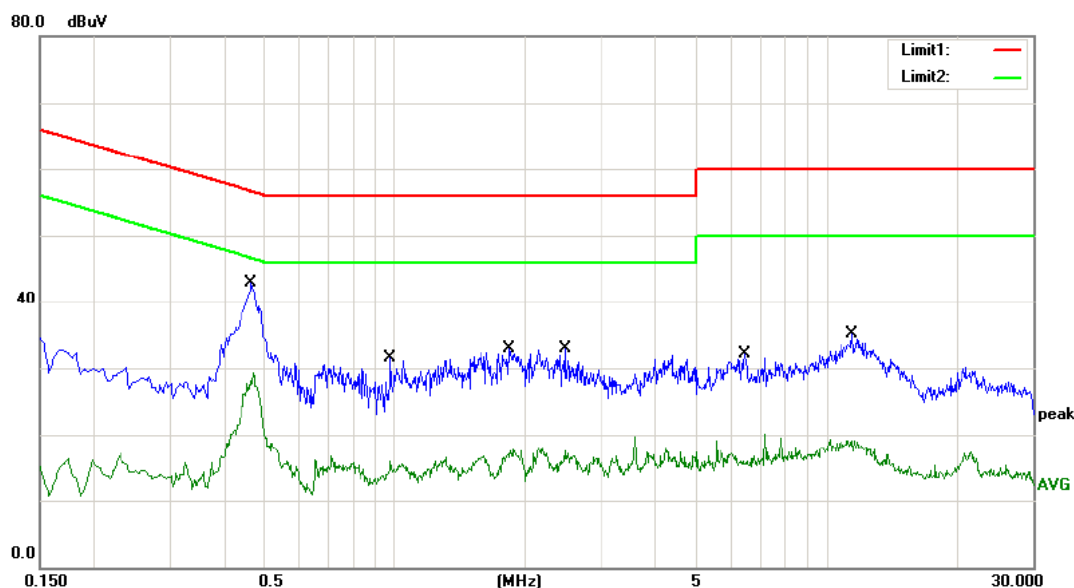
4.5 Measurement Result

We pretested the mid load for EUT. The test data see follow the table.
Please refer to the following data.



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.4660	35.87	10.16	46.03	56.58	-10.55	QP	
2		0.4660	25.45	10.16	35.61	46.58	-10.97	AVG	
3		0.5940	24.05	10.18	34.23	56.00	-21.77	QP	
4		0.5940	12.83	10.18	23.01	46.00	-22.99	AVG	
5		1.4260	22.91	10.18	33.09	56.00	-22.91	QP	
6		1.4260	13.37	10.18	23.55	46.00	-22.45	AVG	
7		3.5940	24.01	10.18	34.19	56.00	-21.81	QP	
8		3.5940	13.86	10.18	24.04	46.00	-21.96	AVG	
9		6.3540	25.25	10.19	35.44	60.00	-24.56	QP	
10		6.3540	13.12	10.19	23.31	50.00	-26.69	AVG	
11		10.4500	26.89	10.21	37.10	60.00	-22.90	QP	
12		10.4500	13.61	10.21	23.82	50.00	-26.18	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: YE



Site site #1 Phase: **N** Temperature: 24
 Limit: (CE)FCC PART 15C_QP Power: AC 120V/60Hz Humidity: 55 %
 Mode: Wireless Charging
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.4660	32.72	10.16	42.88	56.58	-13.70	QP	
2		0.4660	19.13	10.16	29.29	46.58	-17.29	AVG	
3		0.9780	21.31	10.18	31.49	56.00	-24.51	QP	
4		0.9780	5.79	10.18	15.97	46.00	-30.03	AVG	
5		1.8340	22.63	10.18	32.81	56.00	-23.19	QP	
6		1.8340	7.74	10.18	17.92	46.00	-28.08	AVG	
7		2.4660	22.64	10.18	32.82	56.00	-23.18	QP	
8		2.4660	7.24	10.18	17.42	46.00	-28.58	AVG	
9		6.4700	21.81	10.19	32.00	60.00	-28.00	QP	
10		6.4700	9.98	10.19	20.17	50.00	-29.83	AVG	
11		11.4900	24.84	10.22	35.06	60.00	-24.94	QP	
12		11.4900	9.00	10.22	19.22	50.00	-30.78	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: YE

4.6 Conducted Measurement Photo



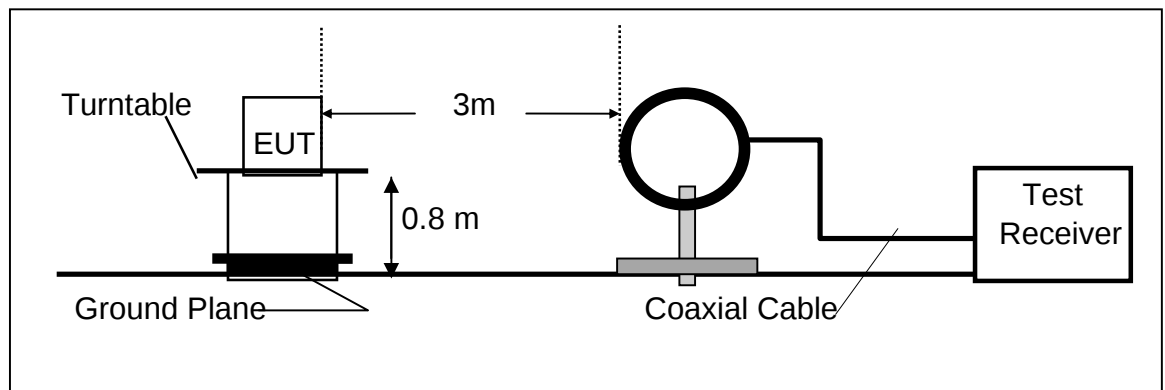
5 Radiated Emission Test

5.1 Measurement Procedure

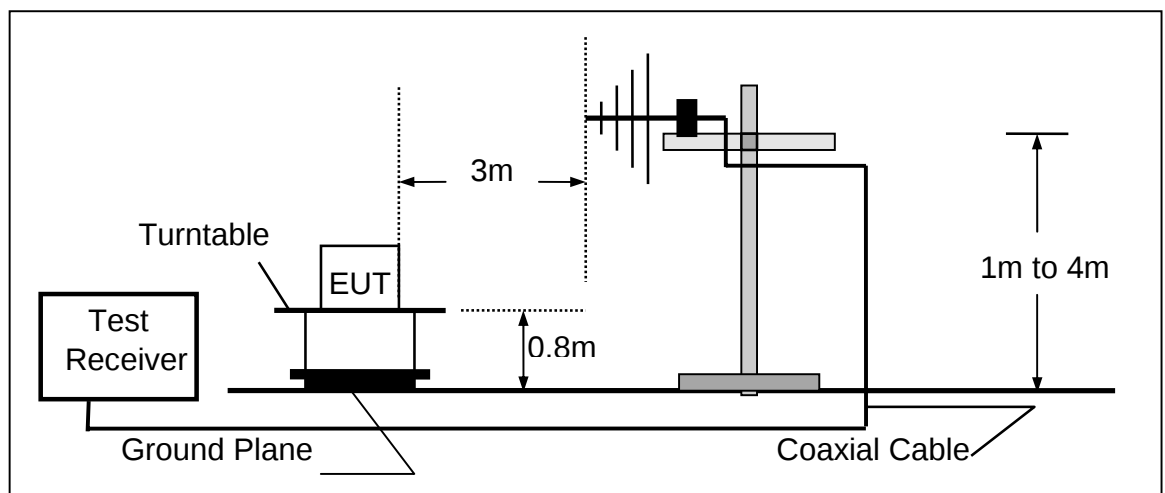
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



5.3 Measurement Equipment Used

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due date
Test Receiver	Rohde & Schwarz	ESCI	1166.5950.03	06/24/2016	06/23/2017
Signal Analyzer	Rohde & Schwarz	FSV30	103040	06/24/2016	06/23/2017
Loop Antenna	Schwarzbeck	FMZB 1519	012	06/24/2016	06/23/2017
Bilog Antenna	Schwarzbeck	VULB9163	000141	06/24/2016	06/23/2017
Power Amplifier	CDS	RSU-M352	818	06/24/2016	06/23/2017
Power Amplifier	HP	8447F	OPT H64	06/24/2016	06/23/2017
Color Monitor	SUNSPO	SP-140A	N/A	06/24/2016	06/23/2017
Single Line Filter	JIANLI	XL-3	N/A	06/24/2016	06/23/2017
Single Phase Power Line Filter	JIANLI	DL-2X100B	N/A	06/24/2016	06/23/2017
3 Phase Power Line Filter	JIANLI	DL-4X100B	N/A	06/24/2016	06/23/2017
DC Power Filter	JIANLI	DL-2X50B	N/A	06/24/2016	06/23/2017
Cable	Schwarzbeck	PLF-100	549489	06/24/2016	06/23/2017
Cable	Rosenberger	CIL02	A0783566	06/24/2016	06/23/2017
Cable	Rosenberger	RG 233/U	525178	06/24/2016	06/23/2017

5.4 Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency tion at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

15.205 Restricted bands of operation

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)

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
 3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

5.5 Measurement Result

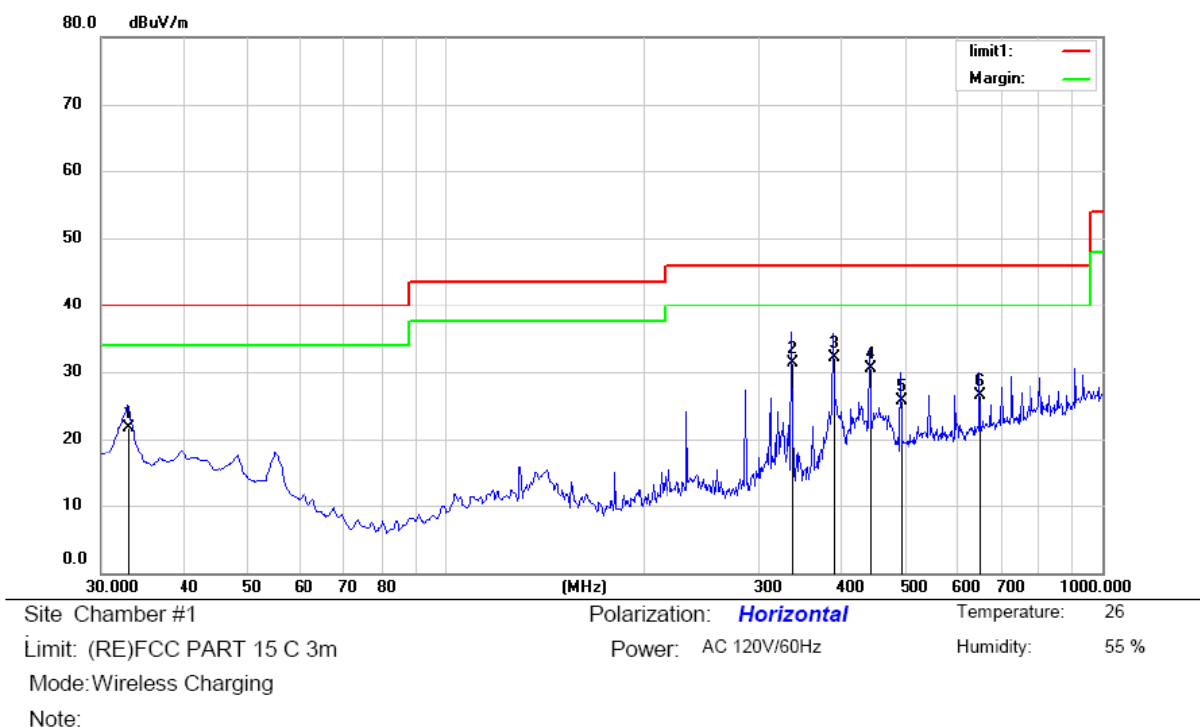
We pretested the mid load for EUT. The test data see follow the table.
Please refer to the following data.

Operation Mode:	Low frequency	Test Date :	March 25, 2017
Frequency Range:	9KHz~30MHz	Temperature :	20℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	KYO

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)	Note
0.3265(F)	H	62.06	97.33	-35.33	PK
0.466	H	53.24	94.24	-41.00	PK
0.653	H	42.15	71.31	-29.16	PK
2.185	H	41.26	69.54	-28.28	PK
6.237	H	39.88	69.54	-29.66	PK
0.3265(F)	V	62.63	97.33	-34.7	PK
0.518	V	42.06	73.32	-31.26	PK
0.653	V	38.42	71.31	-32.89	PK
2.185	V	34.16	69.54	35.38	PK
4.276	V	36.28	69.54	-33.26	PK

Note:

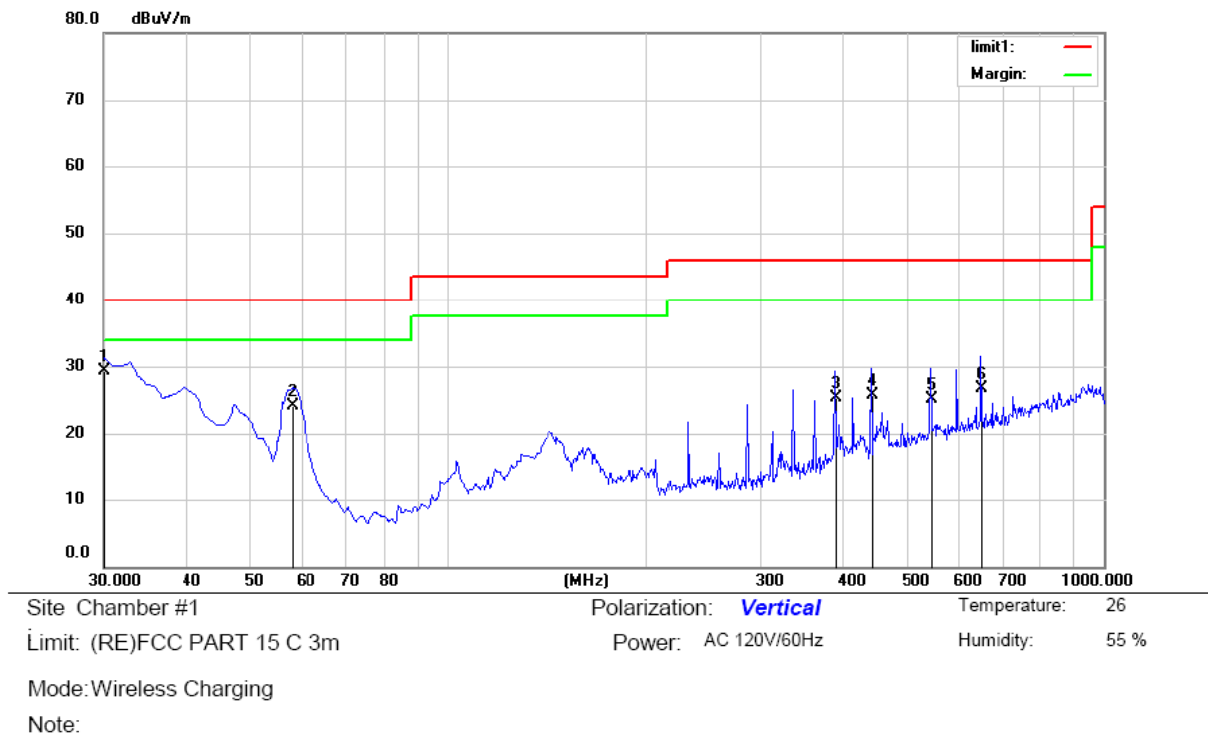
- (1) All Readings are Peak Value.
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) The average measurement was not performed when the peak measured data under the limit of average detection.
- (4) EUT lying on the table position is the worst case result in the report.



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		32.9100	35.98	-14.30	21.68	40.00	-18.32	QP		
2		337.4900	45.36	-14.06	31.30	46.00	-14.70	QP		
3	*	389.8700	44.35	-12.29	32.06	46.00	-13.94	QP		
4		442.2500	42.18	-11.61	30.57	46.00	-15.43	QP		
5		493.6600	36.30	-10.57	25.73	46.00	-20.27	QP		
6		650.8000	34.26	-7.77	26.49	46.00	-19.51	QP		

*:Maximum data x:Over limit l:over margin

Operator: W

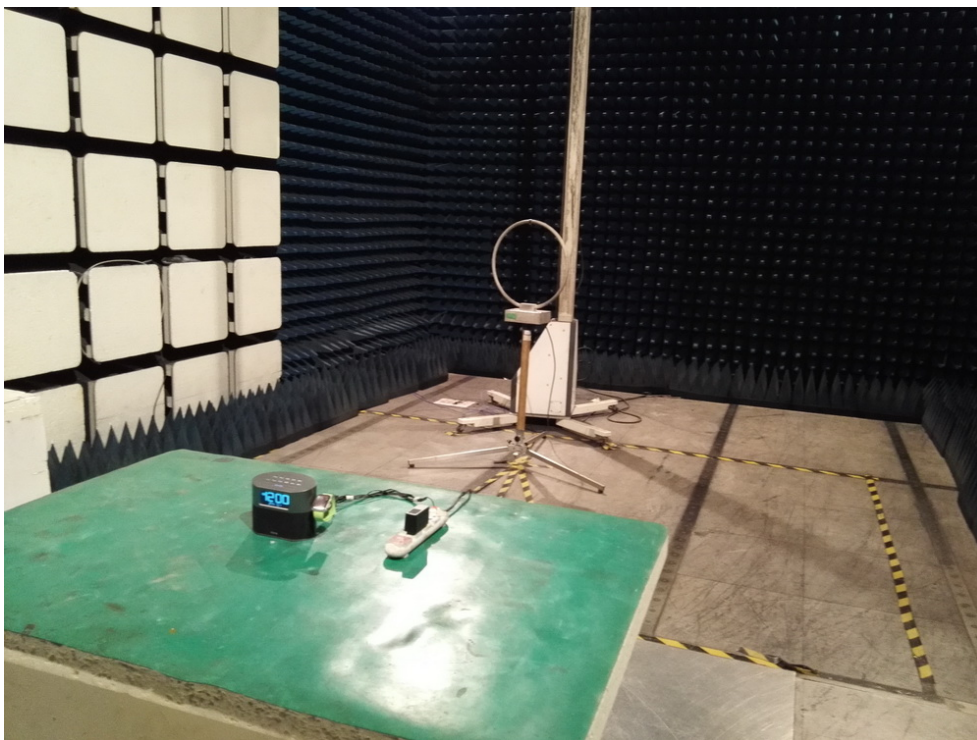
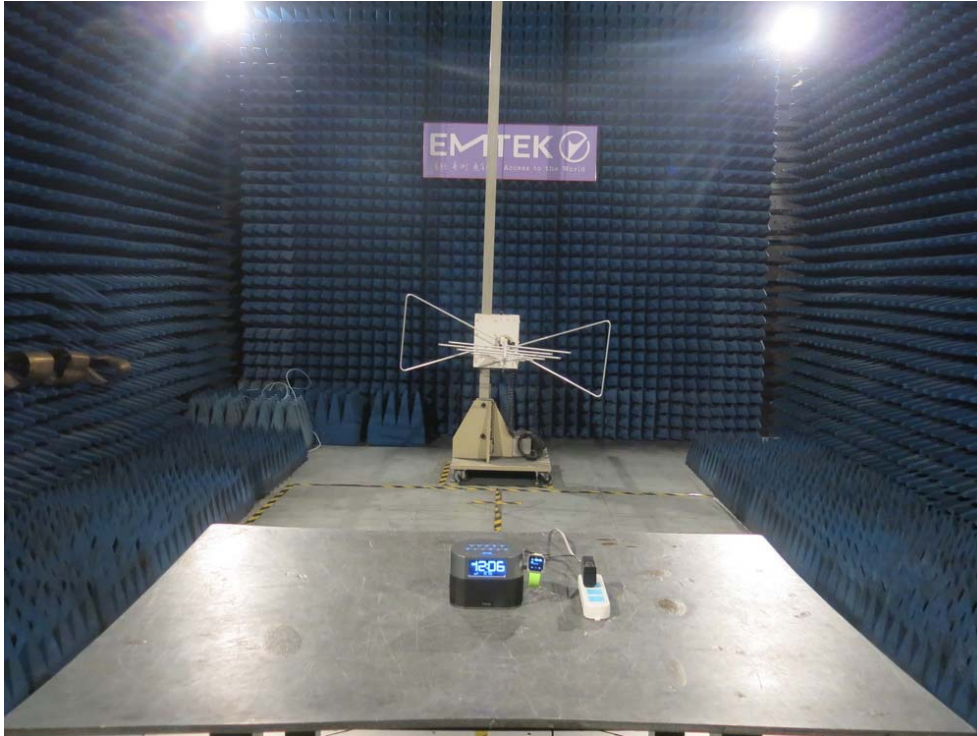


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	30.0000	44.20	-14.83	29.37	40.00	-10.63	QP		
2		58.1300	42.65	-18.55	24.10	40.00	-15.90	QP		
3		389.8700	37.60	-12.29	25.31	46.00	-20.69	QP		
4		442.2500	37.25	-11.61	25.64	46.00	-20.36	QP		
5		546.0400	34.29	-9.10	25.19	46.00	-20.81	QP		
6		650.8000	34.53	-7.77	26.76	46.00	-19.24	QP		

*:Maximum data x:Over limit l:over margin

Operator: W

5.6 Radiated Measurement Photos



6 20db Bandwidth

6.1 20dB Bandwidth Limit

None: for reporting purposed only.

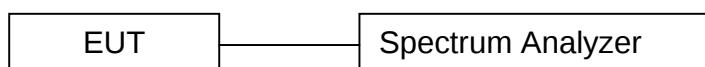
6.2 Test Instruments

Refer a test equipment and calibration data table in this test report.

6.3 Test Procedure

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30Hz RBW and 30Hz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

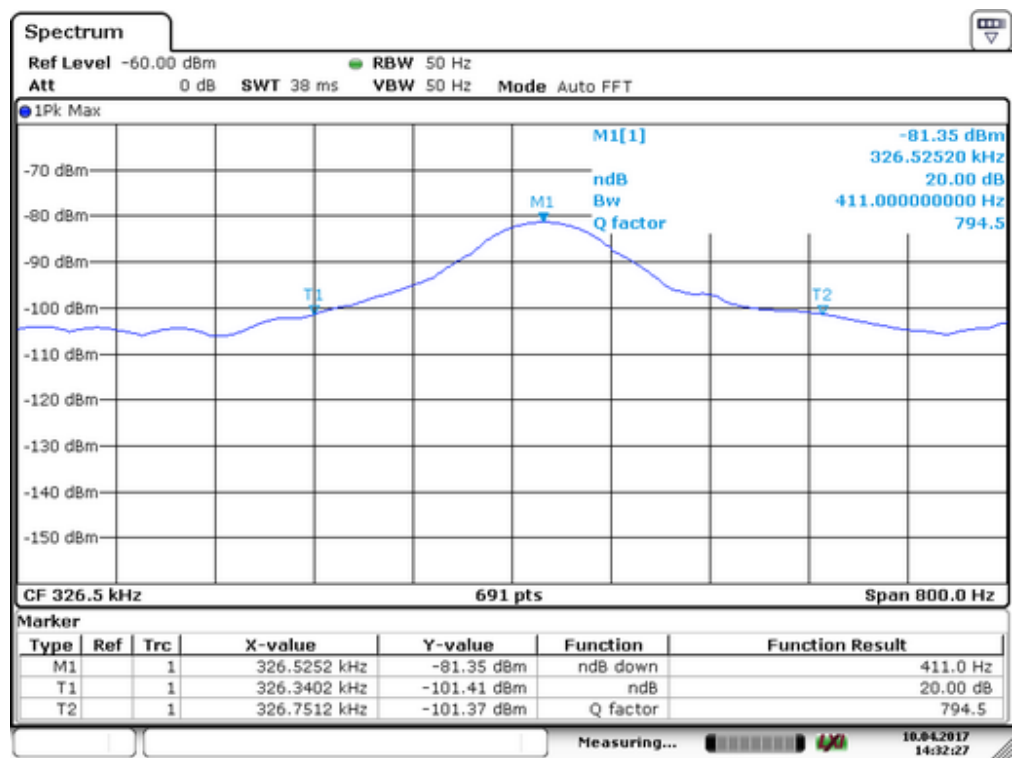
6.4 Test Setup



6.5 Test Result

Frequency (KHz)	20dB Bandwidth (Hz)	Results
326.5	411	PASS

20 dB Bandwidth Test plot



7 Antenna Application

7.1 Antenna requirement

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.

7.2 Result

The EUT's antenna, used an Induction coil and specially-designed pin connector connected on PCB, The antenna's gain meets the requirement.

8 Photos of EUT

Please refer to external photos and internal photos.