FCC RADIO TEST REPORT
FCC ID: 2AL7FBT-118

Product： Mini Speaker

Trade Name： Firebox, E-3LUE

Model Name： BT-118

Addition Model： HX-168,Q2,FIREBOX-Q2,BT-218,BT-226,BT-858,BT-868, KC-808,KC-809,B-01,ESP201

Prepared for

Focus Industrial (HongKong) Development CO.,LIMITED

Room 1103,Hang Seng Mongkok Building,677 Nathan Road,Mongkok,Kowloon HK.

Prepared by

Dongguan Yaxu (AiT) technology Limited

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TEST RESULT CERTIFICATION

Manufacture's Name..... : Focus Industrial (HongKong) Development CO.,LIMITED

Address ..... : Room 1103,Hang Seng Mongkok Building,677 Nathan Road,Mongkok,Kowloon HK.

Product description

Product name ..... : Mini Speaker

Model and/or type reference : BT-118,HX-168,Q2,FIREBOX-Q2,BT-218,BT-226,BT-858,BT-868, KC-808,KC-809,B-01,ESP201

Rating(s) ..... : DC 3.7V

Standards ..... : FCC Part15.249

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

This device described above has been tested by AiT, 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 .....: May 20 2017 ~ May 26 2017

Date of Issue.....: May 26 2017

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

Reviewed by: Seal-Chen **Approved by:**

Table of Contents **Page**

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Test	Test Requirement	Standard Paragraph	Result
Field Strength of Fundamental	FCC PART 15 C section 15.249 (a)	ANSI C63.10: Clause 6.6	PASS
Field Strength of Unwanted Emissions	FCC PART 15 C section 15.249 (a) section 15.249 (d)	ANSI C63.10: Clause 6.4, 6.6 and 6.7	PASS
Band Edges	FCC PART 15 C section 15.249 (d)	ANSI C63.10: Clause 6.9.2	PASS
Occupied Bandwidth	FCC PART 15 C section 15.215(c)	ANSI C63.10: Clause 6.9.1	PASS
Conducted Emissions at Mains Terminals	FCC PART 15 C section 15.207	ANSI C63.10: Clause 6.2	PASS
Antenna Requirement	FCC PART 15 C section 15.203	FCC PART 15 C section 15.203	PASS

1.1 TEST FACILITY

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

.CNAS- Registration No: L6177

Dongguan Yaxu (AiT) technology Limited is accredited to ISO/IEC 17025:2005 general Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the competence of testing and calibration laboratories) on Apr. 18, 2013

.FCC- Registration No: 248337

The 3m Semi-Anechoic Chamber, 3m/10m Open Area Test Site and Shielding Room of Dongguan Yaxu (AiT) Technology Limited have been registered by Federal Communications Commission (FCC) on Aug.29, 2014.

.Industry Canada(IC)-Registration No: IC6819A-1

The 3m Semi-Anechoic Chamber and 3m of Dongguan Yaxu (AiT) Technology Limited have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing on Oct. 01, 2014.

.VCCI- Registration No: 2705

The 3m/10m Open Area Test Site, Shielding Room and 3m Chamber of Dongguan Yaxu (AiT) Technology Limited have been registered by Voluntary Control Council for Interference on Nov. 21, 2012. The Telecommunication Ports Conducted Disturbance Measurement of Dongguan Yaxu (AiT) Technology Limited have been registered by Voluntary Control Council for Interference on May. 13, 2013.

.TUV NORD

Dongguan Yaxu (AiT) Technology Limited has been assessed on Jun. 13, 2013 that it can carry out EMC tests by order and under supervision of TUV NORD.

.ITS- Registration No: TMPSHA031

Dongguan Yaxu (AiT) Technology Limited has been assessed and included in Intertek Shanghai TMP Program regarding Laboratory facilities and test equipment on Jul.22, 2012.

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

EUT Name:	Mini Speaker
Model No.:	BT-118
Addition Model:	HX-168,Q2,FIREBOX-Q2,BT-218,BT-226,BT-858,BT-868, KC-808,KC-809,B-01,ESP201
Model Differences:	All models are identical except model name and colors.
Operation frequency:	2402 MHz to 2480 MHz
Bluetooth Version	BT 4.1
Number of channel:	79 channels
Modulation Type and Antenna Type:	GFSK PCB antenna
H/W No.:	V3.0
S/W No.:	V4.0
Antenna Gain:	0 dBi
Brand Name:	Firebox, E-3LUE
Derivative model No.:	N/A
Power Supply Range:	DC 3.7V by battery
Power Cord:	N/A
Signal Cable:	N/A

Description of Channel:					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2402	39	2440	76	2478
02	2403	40	2441	77	2479
03	2414	41	2442	78	2480
04	…	42	…		
05	…	43	…		
06	…	44	…		

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH1
Mode 2	CH40
Mode 3	CH78
Mode 4	Link

For Conductted Emission	
Final Test Mode	Description
Mode 4	Link

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH1
Mode 2	CH40
Mode 3	CH78
Mode 4	Link

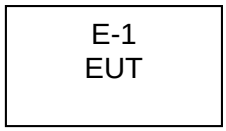
Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

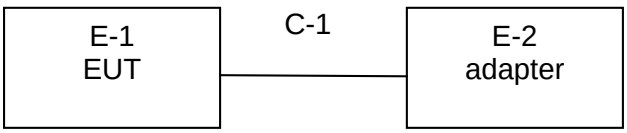
(2) The EUT use full-charge battery.

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Conducted Spurious Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Mini Speaker	N/A	BT-118	N/A	EUT
E-2	adapter	N/A	KS0501000		

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	YES	80	

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	SIGNAL Analyzer	R&S	FSV40	101470	2016.06.29	2017.06.28
2	EMI Measuring Receiver	R&S	ESR	101660	2016.06.29	2017.06.28
3	Low Noise Pre Amplifier	Tsj	MLA-10K01-B01-27	1205323	2016.06.29	2017.06.28
4	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2016.06.29	2017.06.28
5	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2016.06.29	2017.06.28
6	Broadband Horn Antenna	SCHWARZBECK	BBHA9120D	452	2016.06.29	2017.06.28
7	SHF-EHF Horn	SCHWARZBECK	BBHA9170	BBHA9170367	2016.06.29	2017.06.28
8	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2016.06.29	2017.06.28
9	Loop Antenna	ARA	PLA-1030/B	1029	2016.06.29	2017.06.28
10	Radiated Cable 1#（30MHz-1GHz）	FUJIKURA	5D-2W	01	2016.12.25	2017.12.24
11	Radiated Cable 2#（1GHz -25GHz）	FUJIKURA	10D2W	02	2016.12.25	2017.12.24
12	Conducted Cable 1#(9KHz-30MHz)	FUJIKURA	1D-2W	01	2016.12.25	2017.12.24
13	SMA Antenna connector	Dosin	Dosin-SMA	N/A	N/A	N/A
Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.						

3. ANTENNA REQUIREMENT

3.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

3.2 EUT ANTENNA

The EUT antenna is PCB Antenna. It comply with the standard requirement.

3.3 CONDUCTED EMISSION MEASUREMENT

3.3.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	(dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

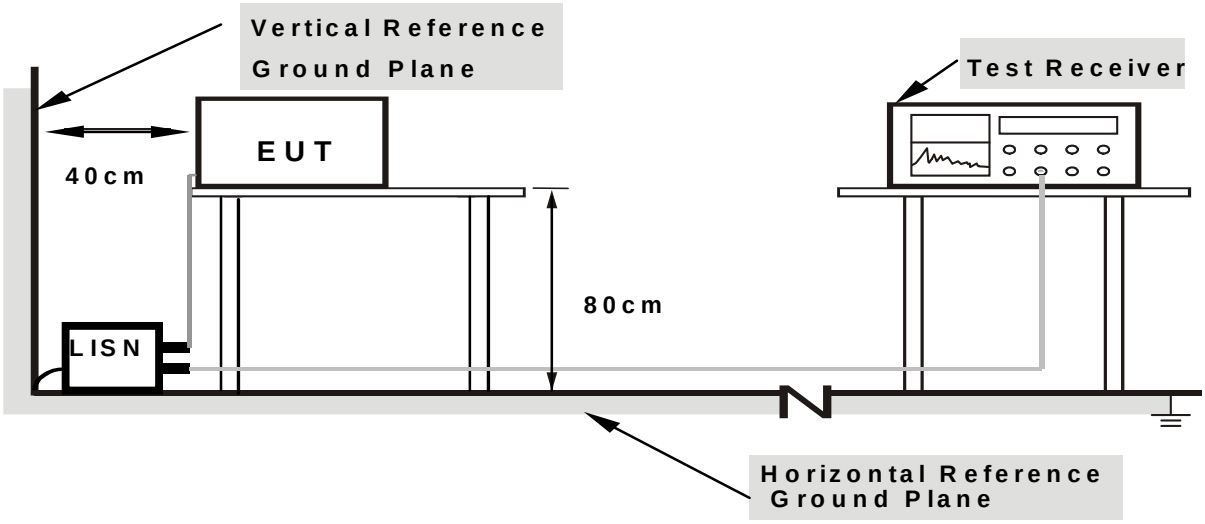
3.3.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP



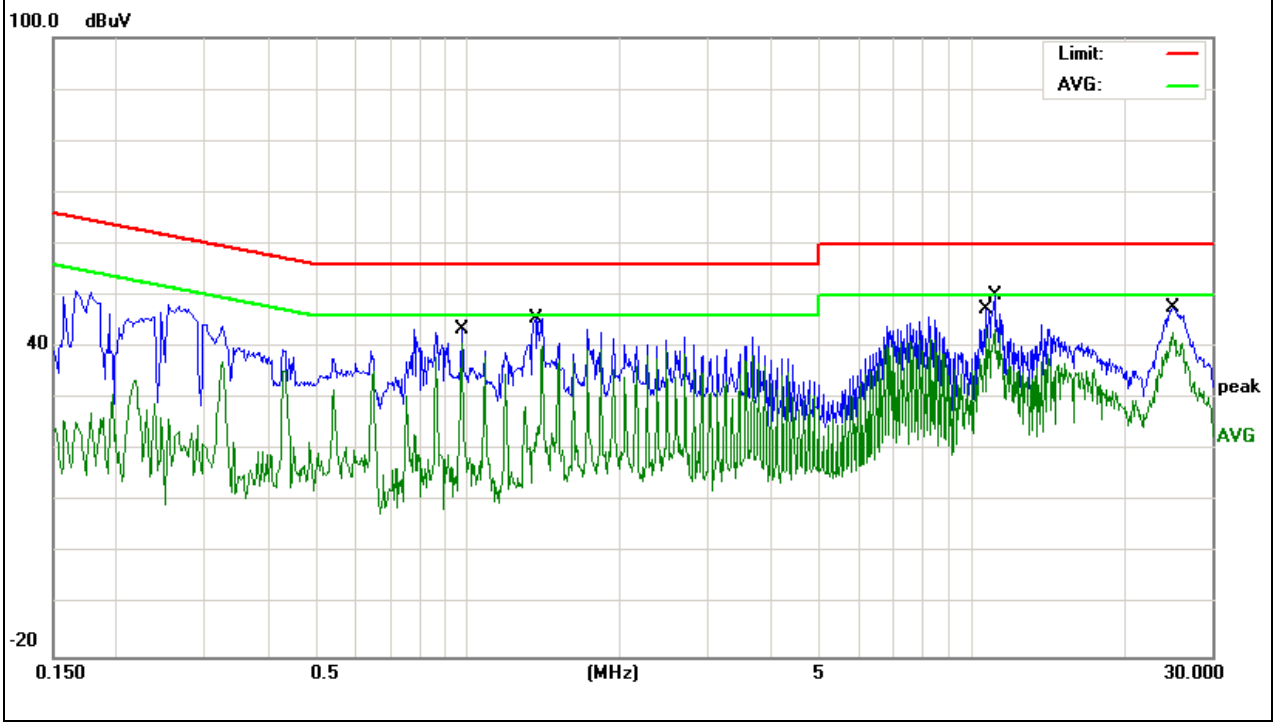
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.2.5 TEST RESULT

EUT：	Mini Speaker	Model Name. ：	BT-118
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2017-05-22
Test Mode：	Link	Phase：	L
Test Voltage ：	DC 5V from charger AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.9697	30.26	10.41	40.67	46	-5.33	AVG
1.366	35.2	10.41	45.61	56	-10.39	QP
10.6935	32.94	10.66	43.6	50	-6.4	AVG
11.1219	39.3	10.69	49.99	60	-10.01	QP
25.06	36.82	10.73	47.55	60	-12.45	QP
25.06	32.09	10.73	42.82	50	-7.18	AVG

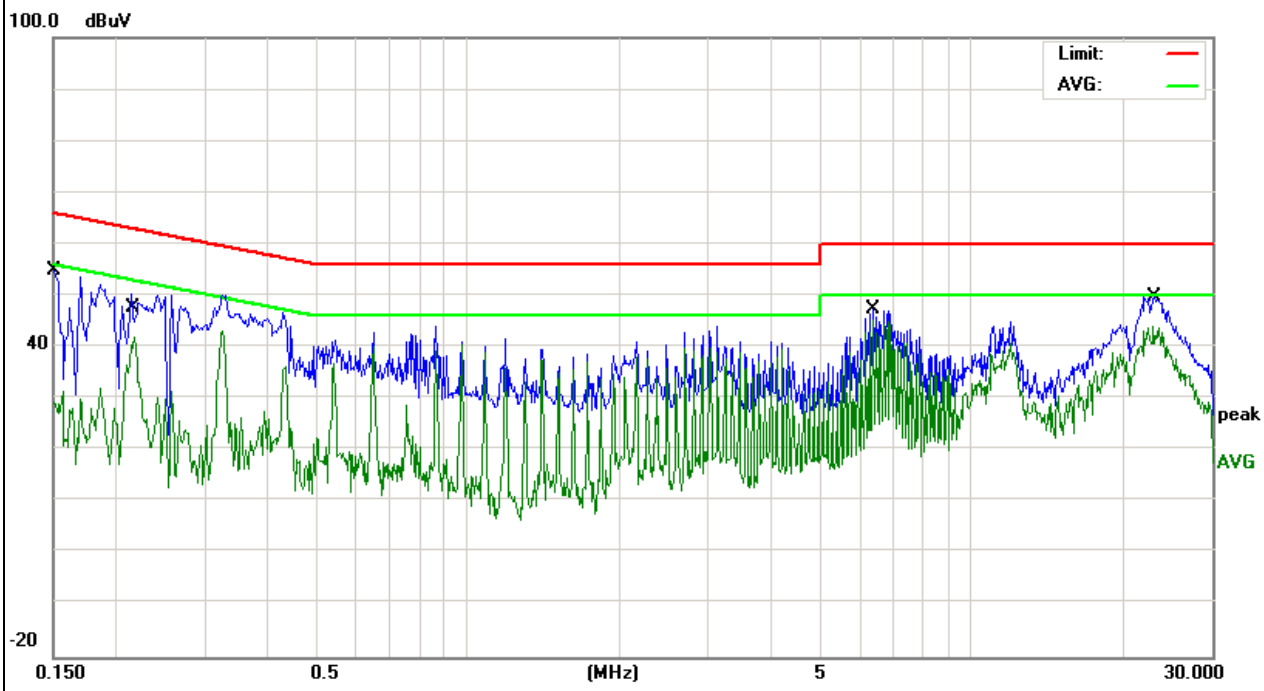
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mini Speaker	Model Name. ：	BT-118
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2017-05-22
Test Mode：	Link	Phase：	N
Test Voltage ：	DC 5V from charger AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.1499	43.41	11.5	54.91	66	-11.09	QP
0.2179	31.42	10.43	41.85	52.89	-11.04	AVG
6.3738	36.76	10.67	47.43	60	-12.57	QP
6.3738	34.61	10.67	45.28	50	-4.72	AVG
22.90	33.34	10.77	44.11	50	-5.89	AVG
23.12	38.94	10.77	49.71	60	-10.29	QP

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



3.4 RADIATED EMISSION MEASUREMENT

3.4.1 Radiated Emission Limits (FCC 15.209)

Frequencies (MHz)	Field Strength (micorvolts/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

Note:

(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.249)

Frequency of Emission (MHz)	Field Strength of fundamental ((millivolts /meter)	Field Strength of Harmonics (microvolts/meter)
2400 - 2483.5	50	500

Notes:

(1) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.4.2 TEST PROCEDURE

1)9 kHz to 30 MHz emissions:
For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.10. The centre of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT, During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2)30 MHz to 1 GHz emissions:
For testing performed with the bi-log type antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360º, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

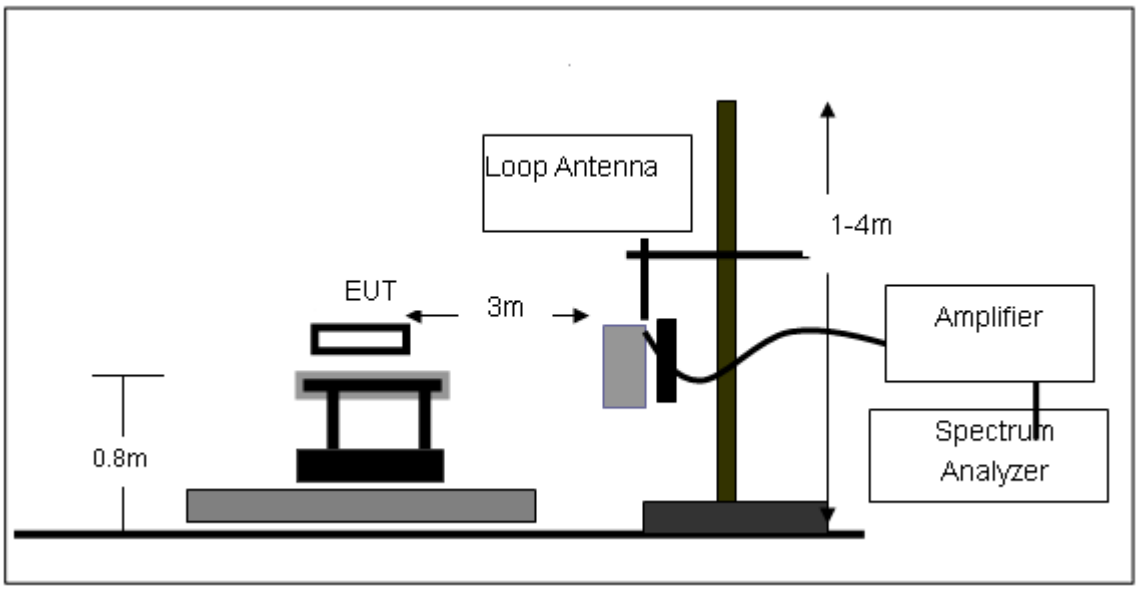
3)1 GHz to 25 GHz emissions:
Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2007 was used to perform radiated emission test above 1 GHz.
For testing performed with the horn antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360º, the antenna height scan between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.
For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

3.4.3 DEVIATION FROM TEST STANDARD

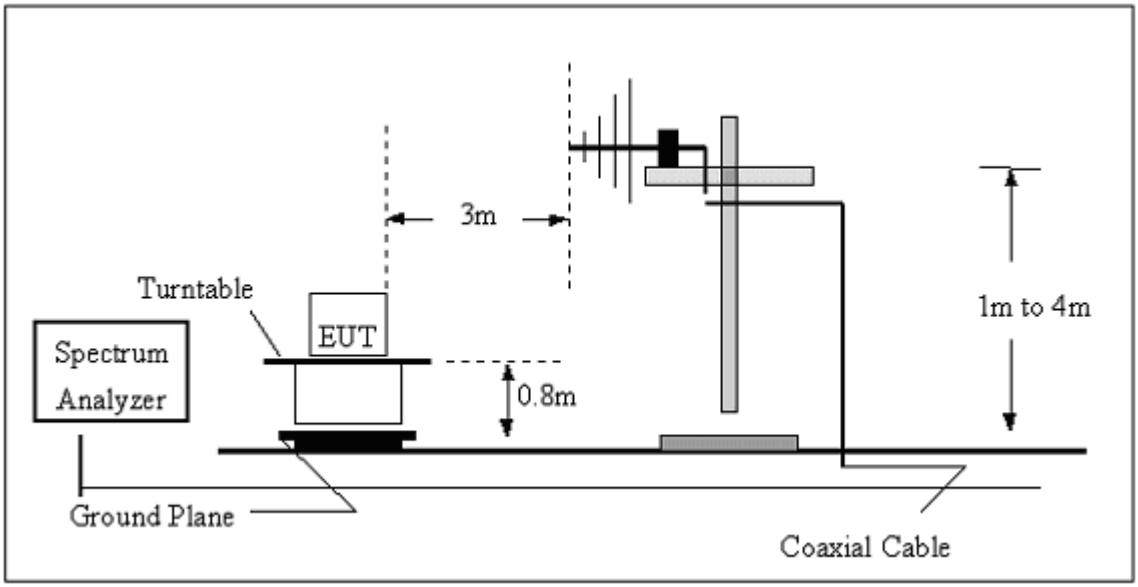
No deviation

3.4.4 TEST SETUP

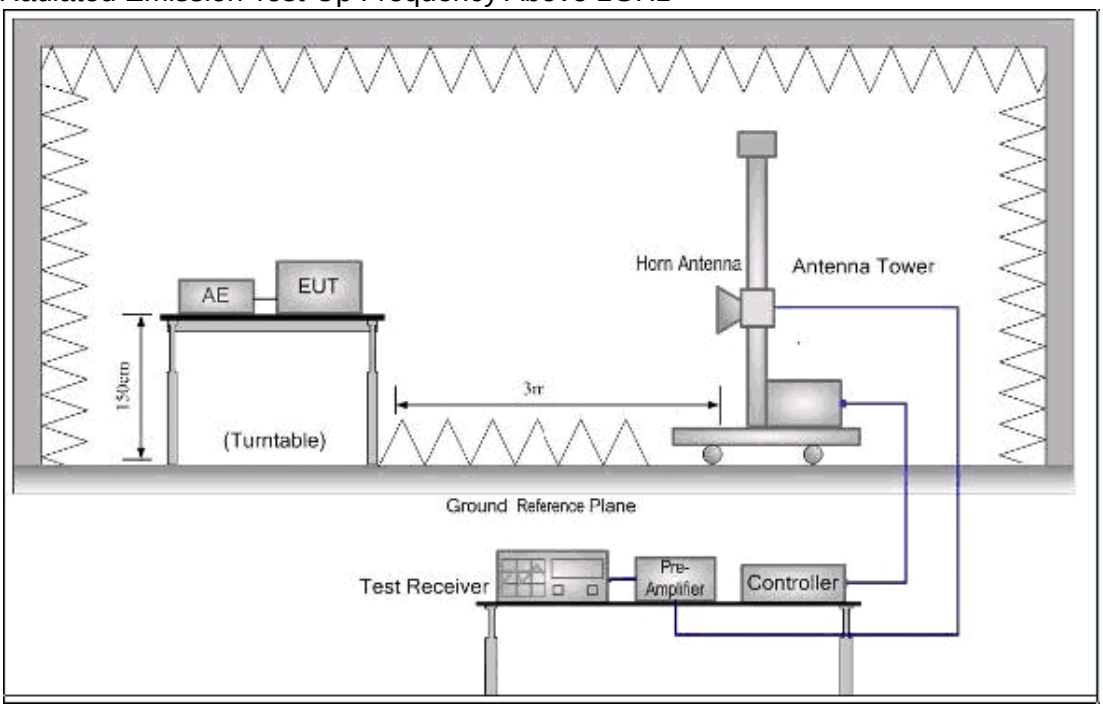
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



3.4.5 TEST RESULTS (BELOW 30MHz)

EUT：	Mini Speaker	Model Name. ：	BT-118
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

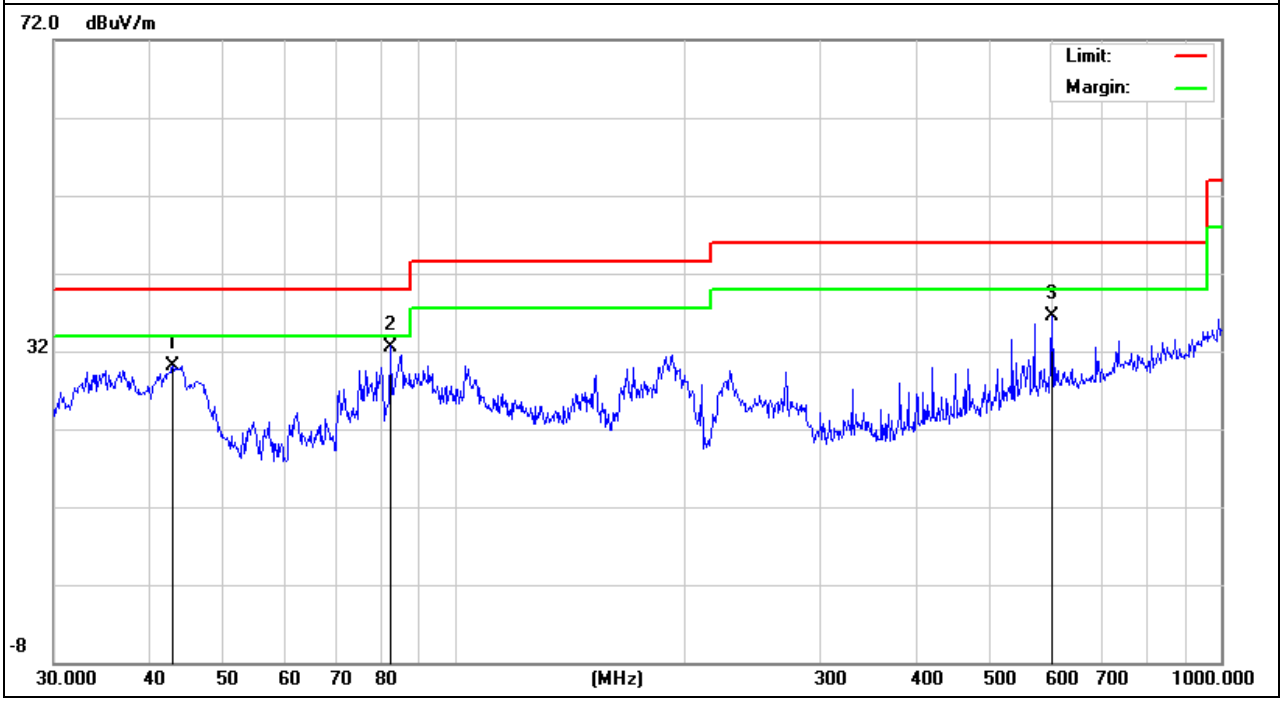
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =20 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.4.6 TEST RESULTS (BETWEEN 30 – 1000 MHZ)

EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX	Polarization：	Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		42.8997	18.36	11.75	30.11	40.00	-9.89	peak			
2	*	82.3588	24.44	8.16	32.60	40.00	-7.40	peak			
3		601.4265	15.27	21.15	36.42	46.00	-9.58	peak			

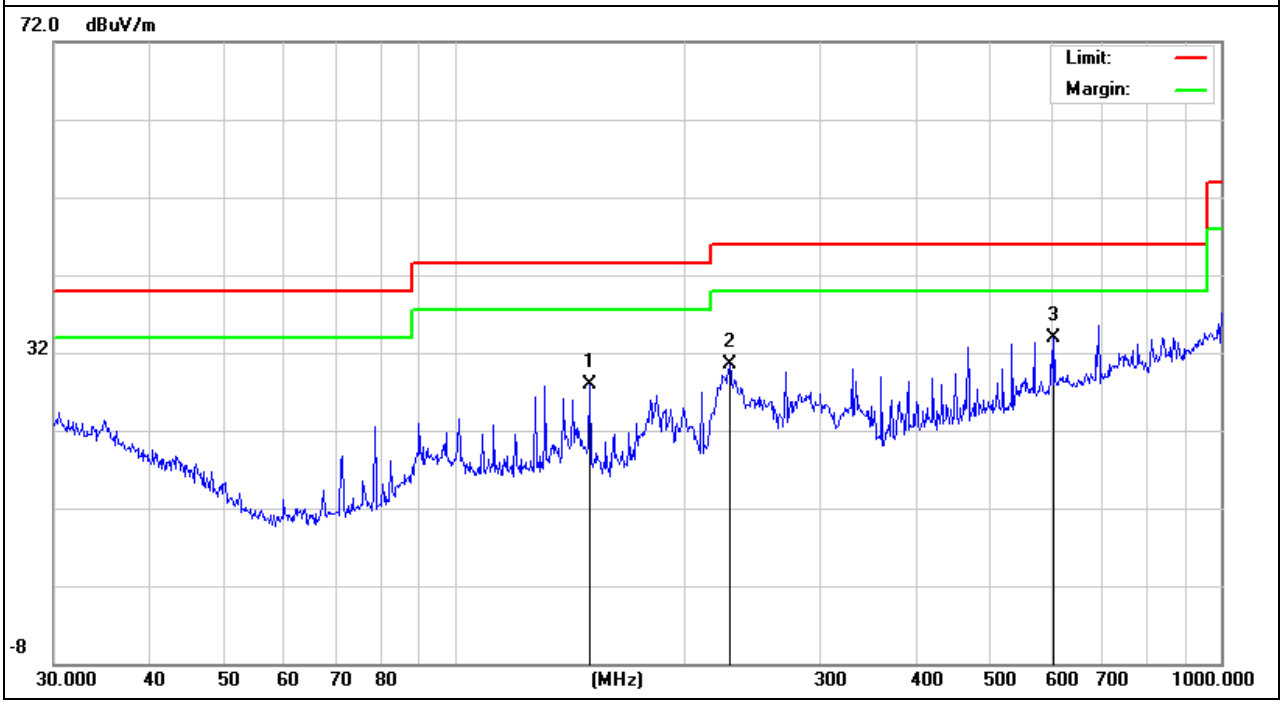
Remark:
Factor = Antenna Factor + Cable Loss.



EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX	Polarization：	Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		150.0108	16.16	11.78	27.94	43.50	-15.56	peak			
2		228.4904	20.16	10.37	30.53	46.00	-15.47	peak			
3	*	605.6592	12.40	21.42	33.82	46.00	-12.18	peak			

Remark:
Factor = Antenna Factor + Cable Loss.



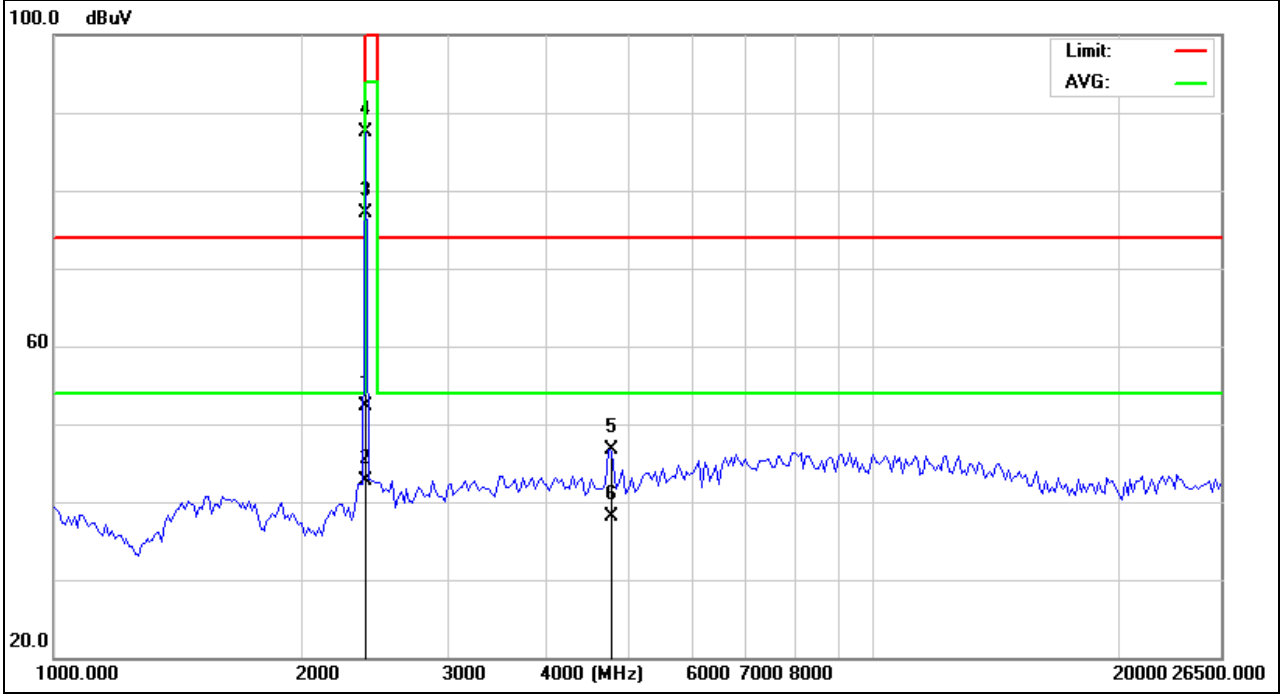
3.4.7 TEST RESULTS (ABOVE 1000 MHZ)

GFSK

EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX-CH1	Polarization：	Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2400.000	55.42	-3.04	52.38	74.00	-21.62	peak			
2	*	2400.000	45.65	-3.04	42.61	54.00	-11.39	AVG			
3		2402.000	80.14	-3.02	77.12	94.00	-16.88	AVG			
4		2402.803	90.52	-3.02	87.50	114.0	-26.50	peak			
5		4804.110	38.68	8.12	46.80	74.00	-27.20	peak			
6		4804.110	30.04	8.12	38.16	54.00	-15.84	AVG			

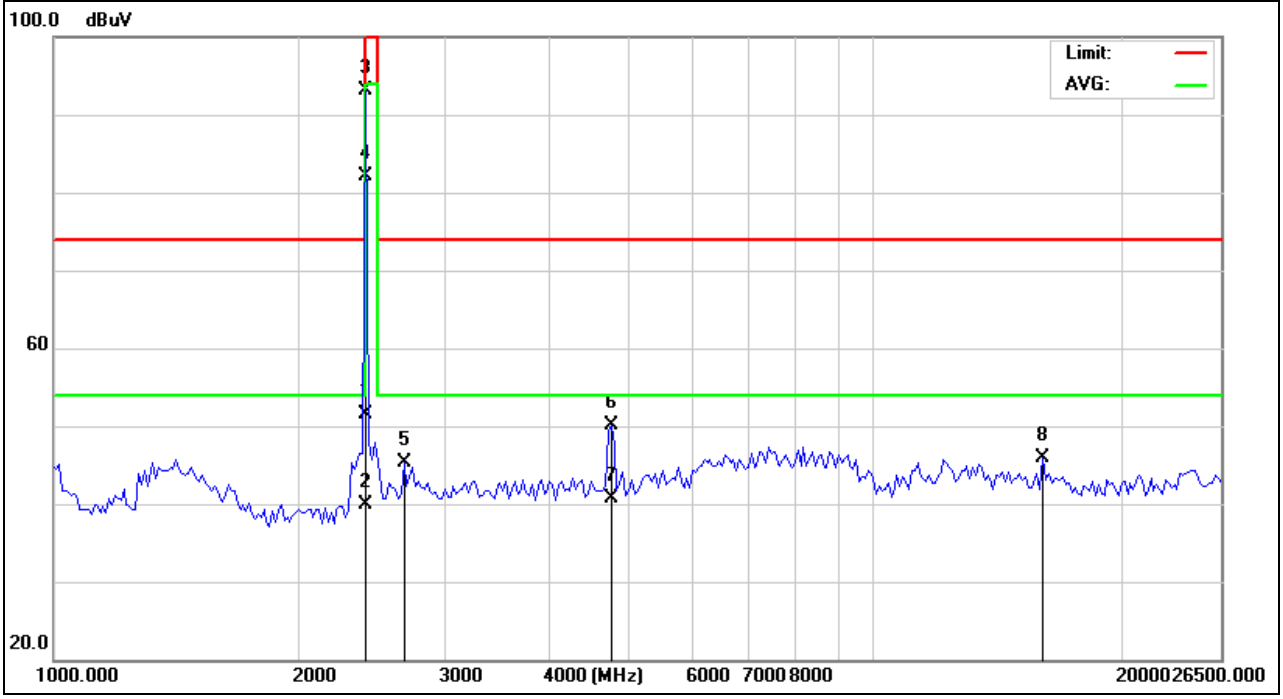
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX-CH1	Polarization :	Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2400.000	54.55	-3.04	51.51	74.00	-22.49	peak			
2		2400.000	43.04	-3.04	40.00	54.00	-14.00	AVG			
3		2402.804	96.12	-3.02	93.10	114.0	-20.90	peak			
4	*	2402.804	85.22	-3.02	82.20	94.00	-11.80	AVG			
5		2672.845	46.60	-1.20	45.40	74.00	-28.60	peak			
6		4804.210	41.98	8.12	50.10	74.00	-23.90	peak			
7		4804.210	32.67	8.12	40.79	54.00	-13.21	AVG			
8		16076.84	21.21	24.79	46.00	74.00	-28.00	peak			

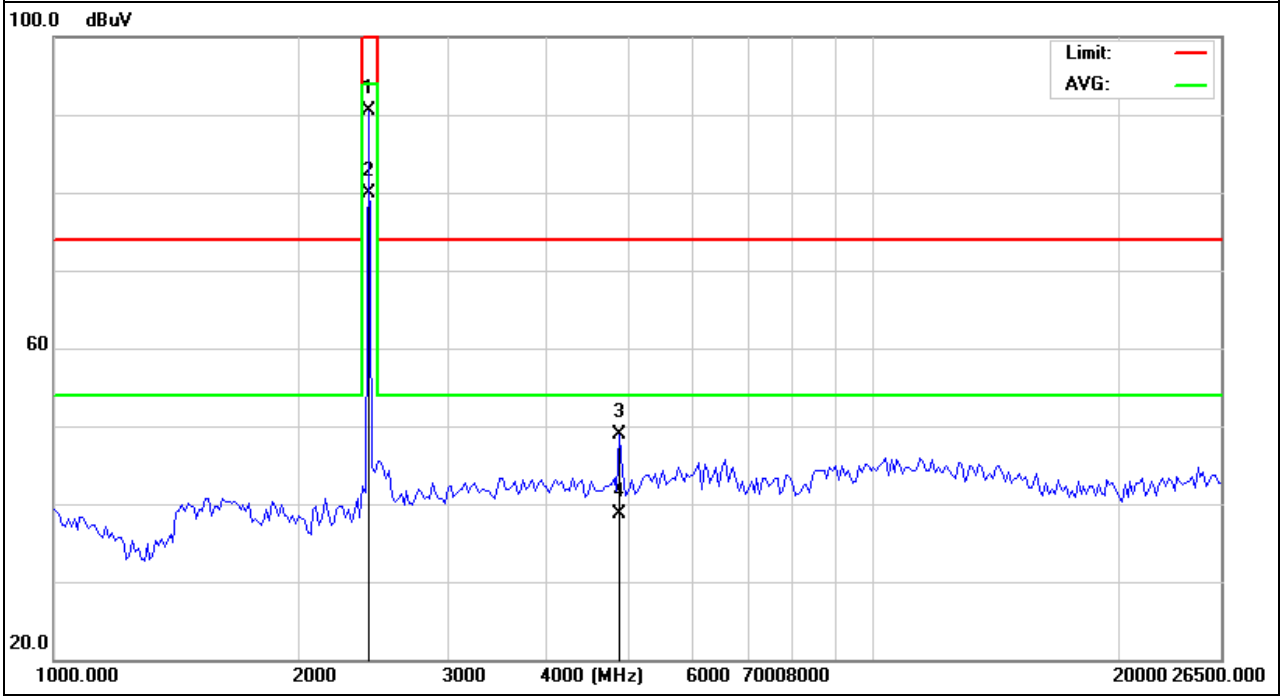
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX-CH40	Polarization：	Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2441.000	93.26	-2.76	90.50	114.0	-23.50	peak			
2	*	2441.000	82.69	-2.76	79.93	94.00	-14.07	AVG			
3		4882.100	40.83	8.17	49.00	74.00	-25.00	peak			
4		4882.100	30.51	8.17	38.68	54.00	-15.32	AVG			

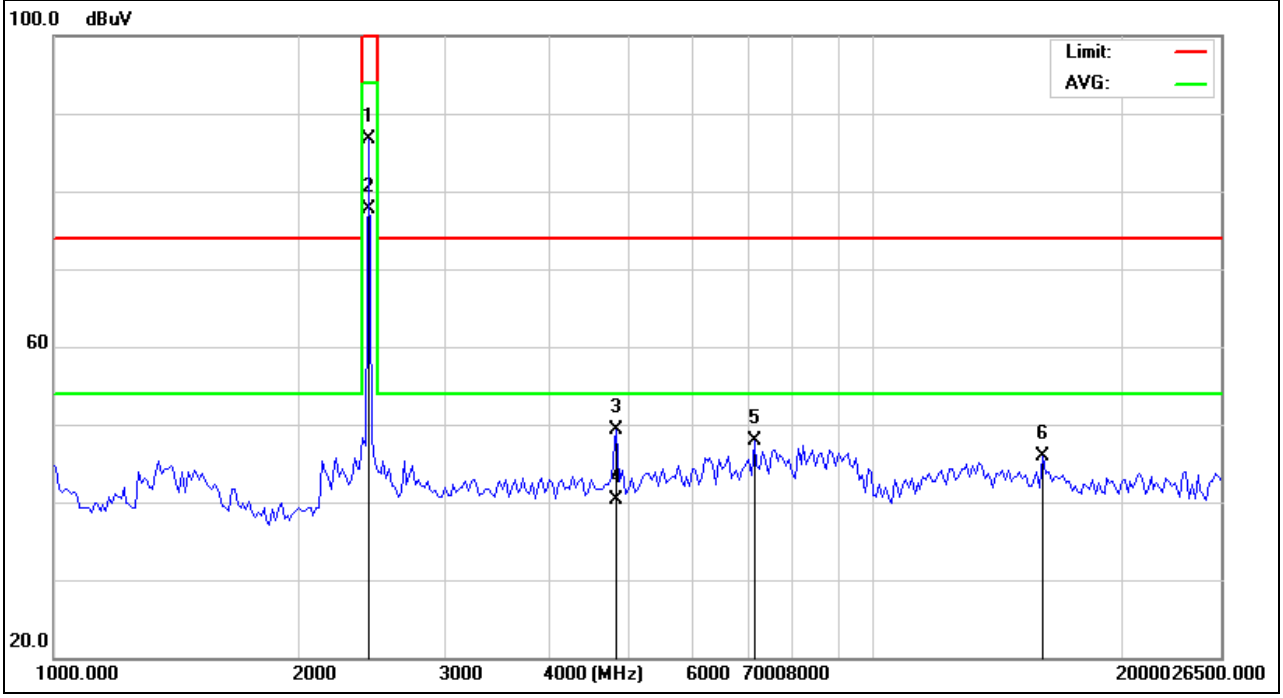
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX-CH40	Polarization :	Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2441.000	89.56	-2.76	86.80	114.0	-27.20	peak			
2		2441.000	80.49	-2.76	77.73	94.00	-16.27	AVG			
3		4882.000	41.23	8.17	49.40	74.00	-24.60	peak			
4	*	4882.000	32.18	8.17	40.35	54.00	-13.65	AVG			
5		7144.100	36.59	11.31	47.90	74.00	-26.10	peak			
6		16076.84	21.21	24.79	46.00	74.00	-28.00	peak			

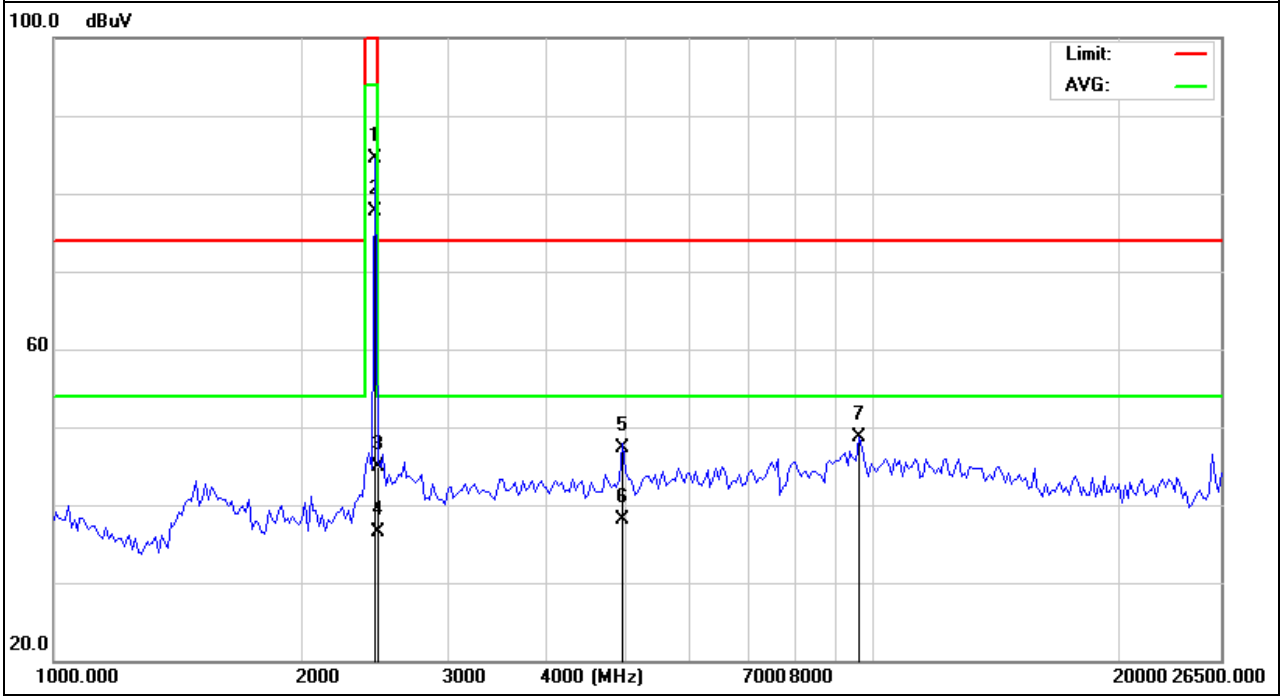
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX-CH78	Polarization :	Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2480.000	87.08	-2.48	84.60	114.0	-29.40	peak			
2		2480.000	80.15	-2.48	77.67	94.00	-16.33	AVG			
3		2483.500	47.45	-2.45	45.00	74.00	-29.00	peak			
4		2483.500	38.95	-2.45	36.50	54.00	-17.50	AVG			
5		4960.000	39.19	8.21	47.40	74.00	-26.60	peak			
6	*	4960.000	29.82	8.21	38.03	54.00	-15.97	AVG			
7		9594.882	31.39	17.41	48.80	74.00	-25.20	peak			

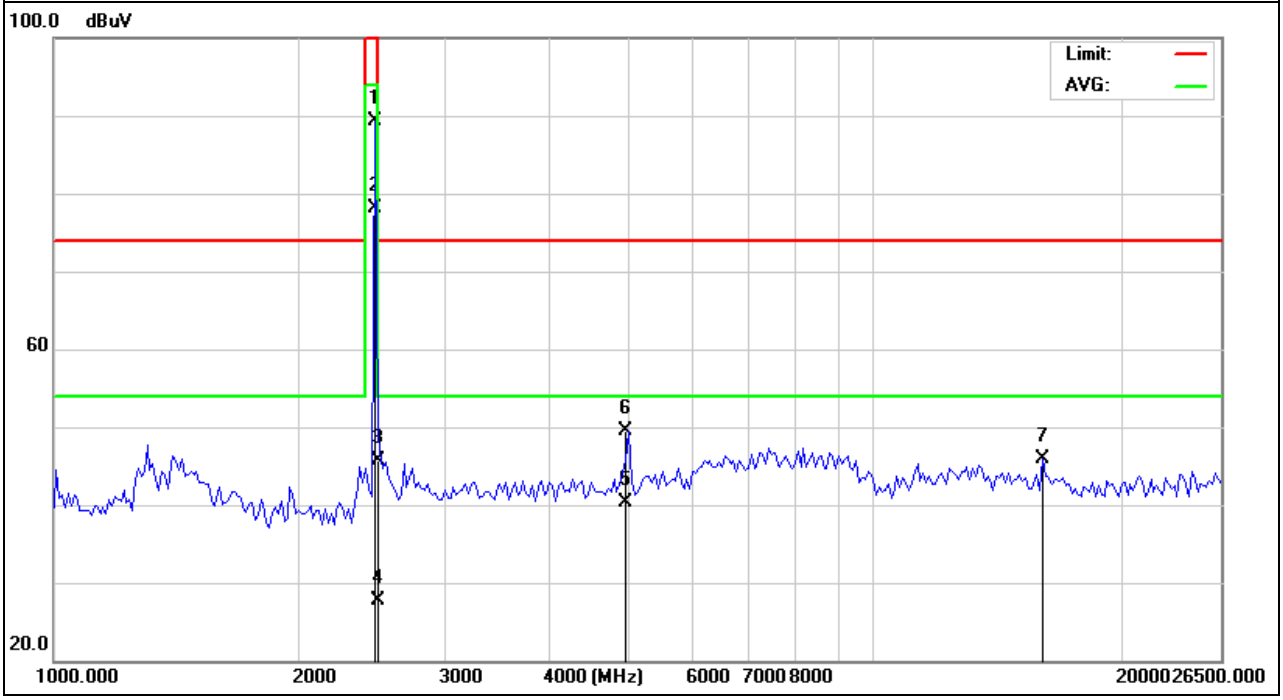
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX-CH78	Polarization :	Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2480.000	91.88	-2.48	89.40	114.0	-24.60	peak			
2		2480.000	80.57	-2.48	78.09	94.00	-15.91	AVG			
3		2483.500	48.15	-2.45	45.70	74.00	-28.30	peak			
4		2483.500	30.18	-2.45	27.73	54.00	-26.27	AVG			
5	*	4960.000	32.05	8.21	40.26	54.00	-13.74	AVG			
6		4960.100	41.29	8.21	49.50	74.00	-24.50	peak			
7		16076.84	21.21	24.79	46.00	74.00	-28.00	peak			

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



4. BANDWIDTH TEST

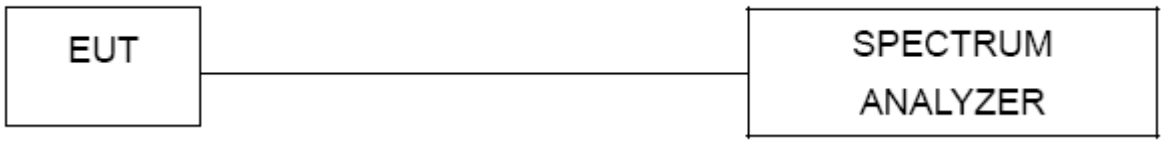
4.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW≧RBW, Sweep time = Auto.

4.2 DEVIATION FROM STANDARD

No deviation.

4.3 TEST SETUP

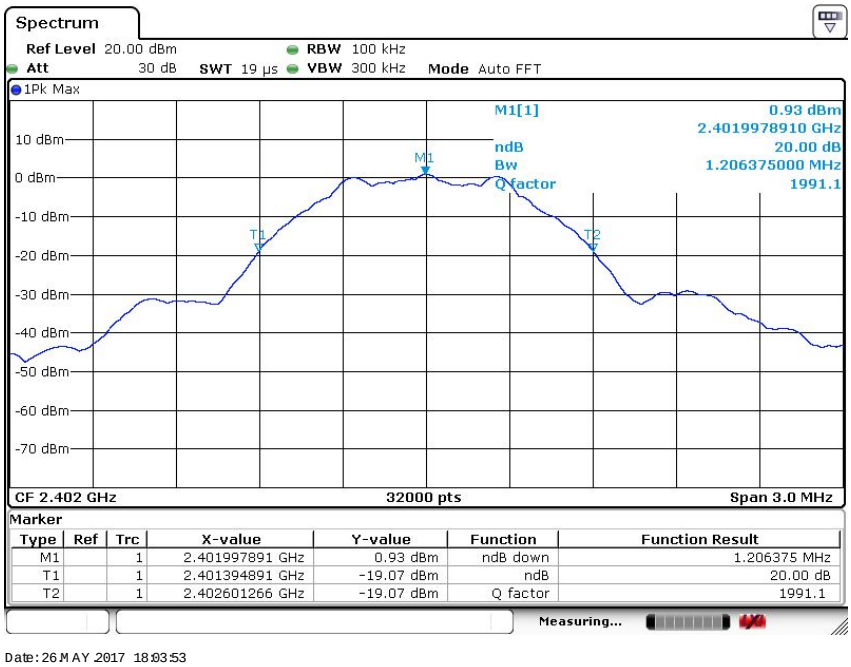


4.4 TEST RESULTS

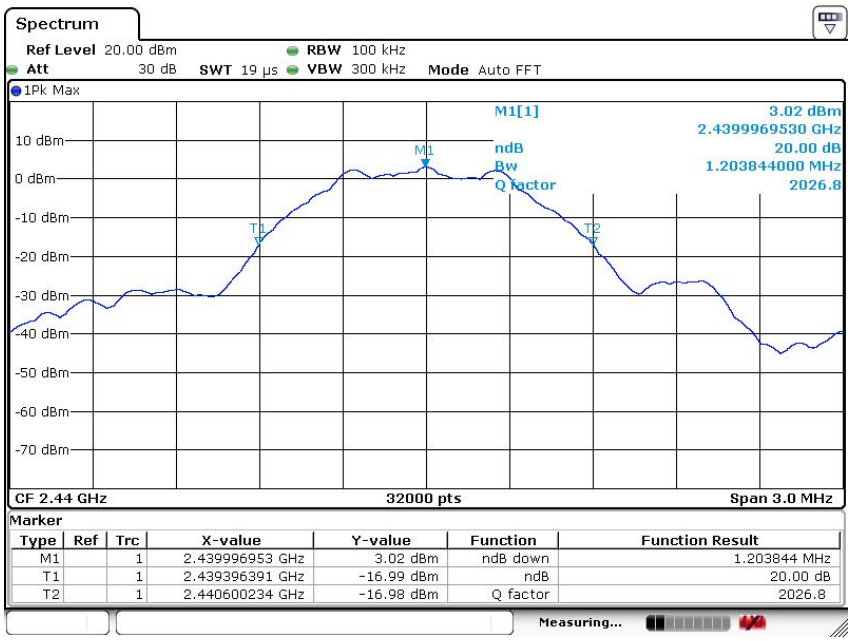
EUT：	Mini Speaker	Model Name ：	BT-118
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	CH01 / CH39 /CH78		

Frequency	20dB Bandwidth (kHz)	Result
2402 MHz	1.2064	**PASS**
2440 MHz	1.2038	**PASS**
2480 MHz	1.2015	**PASS**

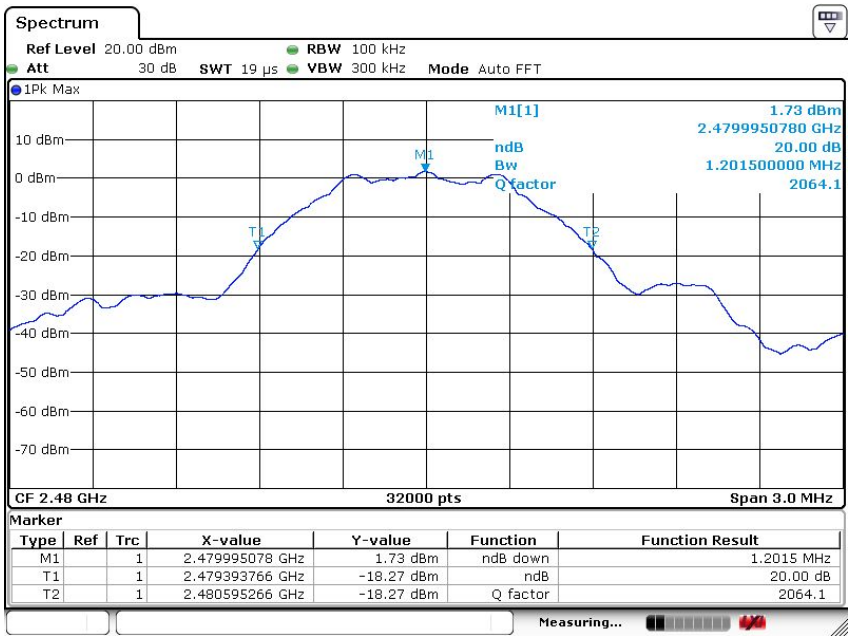
CH01



CH39


Spectrum
Ref Level 20.00 dBm
RBW 100 kHz
Att 30 dB
SWT 19 µs
VBW 300 kHz
Mode Auto FFT
1Pk Max
M1[1]
3.02 dBm
2.4399969530 GHz
ndB 20.00 dB
Bw 1.203844000 MHz
Q factor 2026.8
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 2.44 GHz
32000 pts
Span 3.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.439996953 GHz 3.02 dBm ndB down 1.203844 MHz
T1 1 2.439396391 GHz -16.99 dBm ndB 20.00 dB
T2 1 2.440600234 GHz -16.98 dBm Q factor 2026.8
Measuring...
Date: 26.MAY.2017 18:04:19

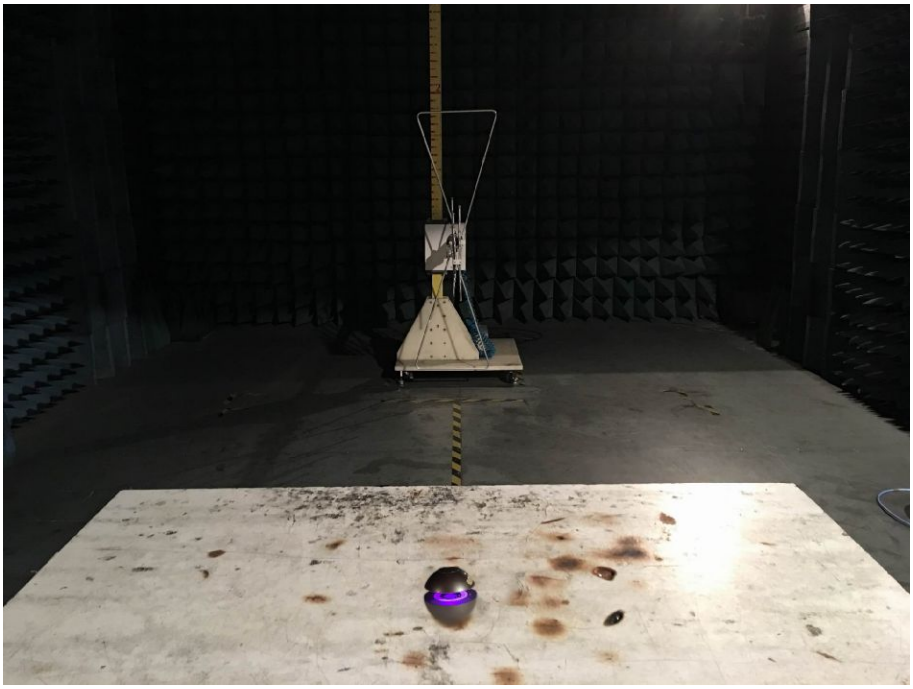
CH78


Spectrum
Ref Level 20.00 dBm
RBW 100 kHz
Att 30 dB
SWT 19 µs
VBW 300 kHz
Mode Auto FFT
1Pk Max
M1[1]
1.73 dBm
2.4799950780 GHz
ndB 20.00 dB
Bw 1.201500000 MHz
Q factor 2064.1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 2.48 GHz
32000 pts
Span 3.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.479995078 GHz 1.73 dBm ndB down 1.2015 MHz
T1 1 2.479393766 GHz -18.27 dBm ndB 20.00 dB
T2 1 2.480595266 GHz -18.27 dBm Q factor 2064.1
Measuring...
Date: 26.MAY.2017 18:07:09

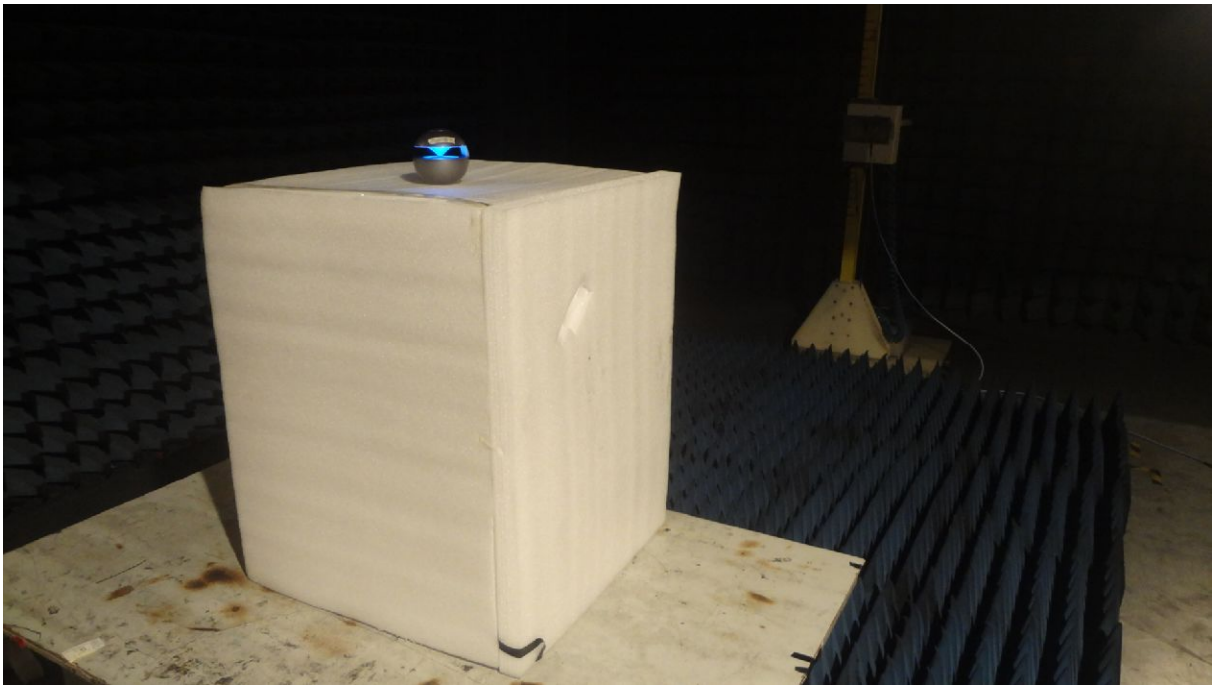
5. EUT TEST PHOTO

Radiated Measurement Photos

30-1000MHz



Above 1GHz



Conducted Measurement Photos

0.15-30MHz

APPENDIX A-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS