PRECISE TESTING

FCC RADIO TEST REPORT

FCC ID: 2AB9SM71

Product： Bluetooth Speaker
Trade Name：Jonter , ARGENTO SC, Sveon
Model Name：M71, BLK-SP201, SON34

Prepared for

Shenzhen Jonter Digital Co.,Ltd

3F/4B, Hezhou Jinfo Industrial Park, Hezhou, Xixiang Street, Baoan District, Shenzhen, Guangdong, China

Prepared by

DongGuan Precise Testing Service Co.,Ltd.

Building D, Baoding Technology Park, Guangming Road 2, Guangming Community, Dongcheng District, Dongguan, Guangdong, China

TEST RESULT CERTIFICATION

Applicant's name ..... Shenzhen Jonter Digital Co.,Ltd
Address .... 3F/4B, Hezhou Jinfo Industrial Park, Hezhou, Xixiang Street, Baoan District, Shenzhen, Guangdong, China

Manufacture's Name... Shenzhen Jonter Digital Co.,Ltd
Address ..... 3F/4B, Hezhou Jinfo Industrial Park, Hezhou, Xixiang Street, Baoan District, Shenzhen, Guangdong, China

Product description

Product name ..... Bluetooth Speaker

Model and/or type reference M71, BLK-SP201, SON34

In all, the original product and the alternative product are the same.

Standards ..... FCC Part15.249

Test procedure ..... ANSI C63.4-2014

This device described above has been tested by PTS, 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 ..... April 07, 2015 ~ April 21, 2015

Date of Issue ..... April 21, 2015

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

Tested by : Maike Huang

Maike Huang / Engineer

Authorized Signatory :

Chris Du / Manager

2 Test Summary

Test Items	Test Requirement	Result
Spurious Radiated Emissions	15.205(a) 15.209 15.249(d)	PASS
Band edge Emissions	15.249(d)	PASS
Conducted Emissions	15.207	PASS
20dB Bandwidth	15.215c 15.249	PASS

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3 General Information

3.1 General Description of E.U.T.

Product Name : Bluetooth Speaker

Model No. : M71, BLK-SP201, SON34

Brand Name : Jonter , ARGENTO SC, Sveon

Operation Frequency : 2402MHz ~ 2480MHz,79 channels in total, separated by 1MHz

Type of Modulation : GFSK, Pi/4DQPSK, 8DPSK

Antenna installation : PCB Printed Antenna

Antenna Gain : 2dBi

Bluetooth version :2.1+EDR

hardware version :JO01

software version :V2.1

Serial number :01

3.2 Details of E.U.T.

Technical Data (1)DC 3.6V from battery
(2) DC 5V from adapter

3.3 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2402	2	2403	3	2404	4	2405
5	2406	6	2407	7	2408	8	2409
9	2410	10	2411	11	2412	12	2413
13	2414	14	2415	15	2416	16	2417
17	2418	18	2419	19	2420	20	2421
21	2422	22	2423	23	2424	24	2425
25	2426	26	2427	27	2428	28	2429
29	2430	30	2431	31	2432	32	2433
33	2434	34	2435	35	2436	36	2437
37	2438	38	2439	39	2440	40	2441
41	2442	42	2443	43	2444	44	2445
45	2446	46	2447	47	2448	48	2449
49	2450	50	2451	51	2452	52	2453
53	2454	54	2455	55	2456	56	2457
57	2458	58	2459	59	2460	60	2461
61	2462	62	2463	63	2464	64	2465
65	2466	66	2467	67	2468	68	2469
69	2470	70	2471	71	2472	72	2473
73	2474	74	2475	75	2476	76	2477
77	2478	78	2479	79	2480	-	-

3.4 Description of Support Units

No.	Equipment	Manufacturer	Model No.	Serial No.
1.	Adapter	Huawei	HW-050200C3W	N/A

3.5 Test Facility

The test facility has a test site registered with the following organizations:

Dongguan Quality Supervision Testing Center
Add.: B#, Dongguan Quality Supervision Testing Center, NO.2 South Industry Road, Songshan Lake, Dongguan City, 523808, China.
FCC Registration No.: 817095

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4 Equipment Used during Test

4.1 Equipments List

Mains Terminal Disturbance Voltage (Conducted Emission)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Interval**
1.	EMI Test Receiver	R&S	ESCI	100229	Sep.17,2014	1 Year
2.	LISN	SCHWARZBECK	NSLK 8128	8127437	Sep.17,2014	1 Year
3.	Cable	LARGE	RF300	-	Sep.17,2014	1 Year
3m Semi-anechoic Chamber for Radiation						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Interval**
1	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.17,2014	1 Year
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Sep.17,2014	1 Year
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9613-248	Apr.19,2014	1 Year
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.17,2014	1 Year
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.19,2014	1 Year
6	Horn Antenna	SCHWARZBECK	BBHA 9170	335	Apr.19,2014	1 Year
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.06,2014	1 Year
8	Coaxial Cable (above 1GHz)	Top	25MHz-18GHz	EW02014-7	Apr.19,2014	1 Year
9	Horn Antenna	EM	EM-AH-10180	2011071402	Apr.19,2014	1 Year
10	Spectrum analyzer	R&S	FSU	1166.1660.26	Apr.19,2014	1 Year
11	Antenna connector	Top	PR032	032	Apr.19,2014	1 Year

4.2 Measurement Uncertainty

Parameter	**Uncertainty**
Radio Frequency	± 1 x 10^{-6}
Bandwidth	± 1.5 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Temperature	± 1 °C
DC Source	±0.05%
Radiated Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 4.74 dB (Horn antenna 1000M~25000MHz)
Conducted Emissions test	3.64dB (150kHz~30MHz)

4.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No. 110 Dongguan Zhuang RD. Guangzhou, P.R.China.

5 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.4:2014
Test Result:	PASS
Frequency Range:	150 kHz to 30 MHz
Class:	Class B
Limit:	66-56 dBμV between 0.15 MHz & 0.5 MHz 56 dBμV between 0.5 MHz & 5MHz 60 dBμV between 5 MHz & 30MHz
Detector:	Peak for pre-scan (9 kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

5.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Atmospheric Pressure: 1012 mbar

Voltage: AC 120V/60Hz

EUT Operation:

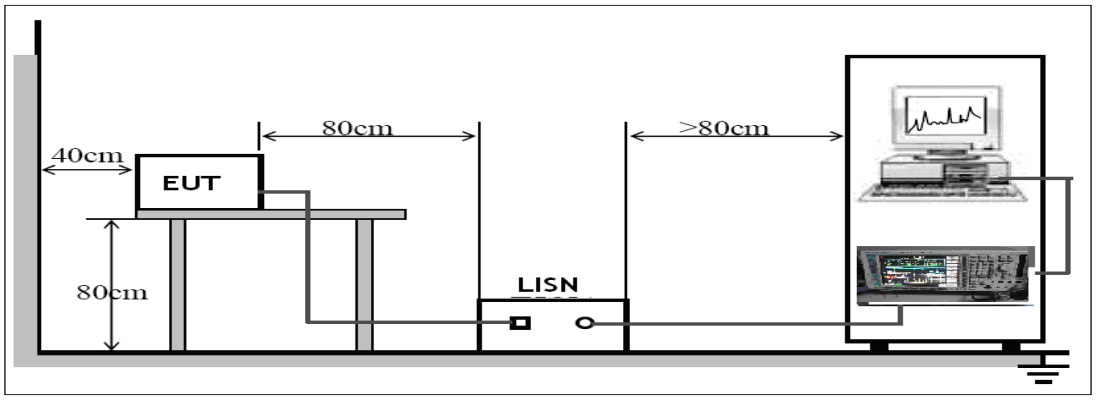
The EUT was tested according to ANSI C63.4:2014. The frequency spectrum from 150 kHz to 30MHz was investigated.

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

The EUT was in transmitting mode, The worst mode was GFSK low channel, the data was recording in the report.

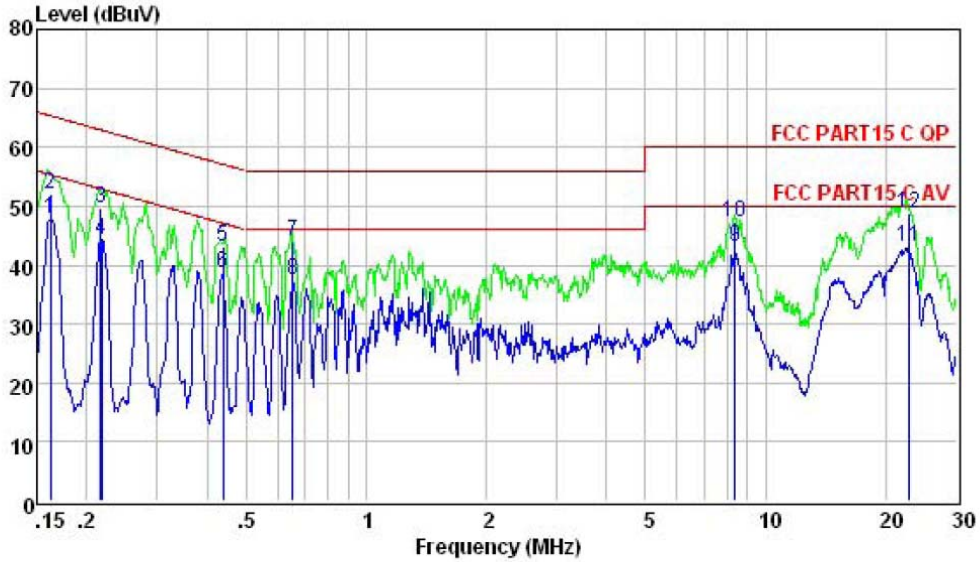
5.2 EUT Setup

The EUT was placed on the test table in shielding room.



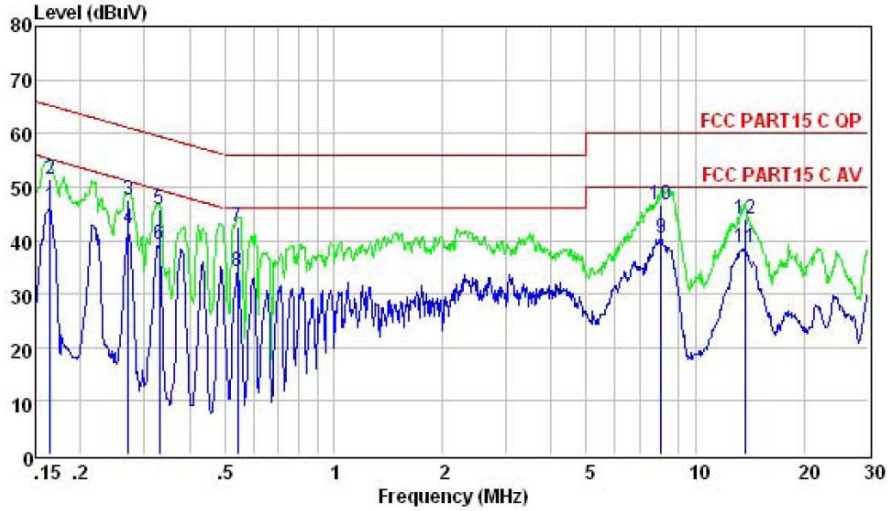
5.3 Conducted Emission Test Result

Line



	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.162	47.91	55.34	-7.43	Average
2	0.162	52.10	65.34	-13.24	QP
3	0.217	49.80	62.93	-13.13	QP
4	0.217	44.42	52.92	-8.50	Average
5	0.439	43.10	57.08	-13.98	QP
6	0.440	38.52	47.07	-8.55	Average
7	0.654	43.90	56.00	-12.10	QP
8	0.654	37.54	46.00	-8.46	Average
9	8.367	43.14	50.00	-6.86	Average
10	8.367	47.40	60.00	-12.60	QP
11	22.775	43.00	50.00	-7.00	Average
12	22.775	48.80	60.00	-11.20	QP

Neutral



	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.165	46.46	55.21	-8.75	Average
2	0.165	51.40	65.21	-13.81	QP
3	0.271	47.70	61.09	-13.39	QP
4	0.272	42.16	51.07	-8.91	Average
5	0.330	45.70	59.45	-13.75	QP
6	0.330	39.33	49.44	-10.11	Average
7	0.543	42.40	56.00	-13.60	QP
8	0.544	34.16	46.00	-11.84	Average
9	8.020	40.45	50.00	-9.55	Average
10	8.020	46.60	60.00	-13.40	QP
11	13.695	38.61	50.00	-11.39	Average
12	13.695	44.10	60.00	-15.90	QP

6 Spurious Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.249

Test Method: DA 00-705

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

6.1 EUT Operation :

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Atmospheric Pressure:1010 mbar

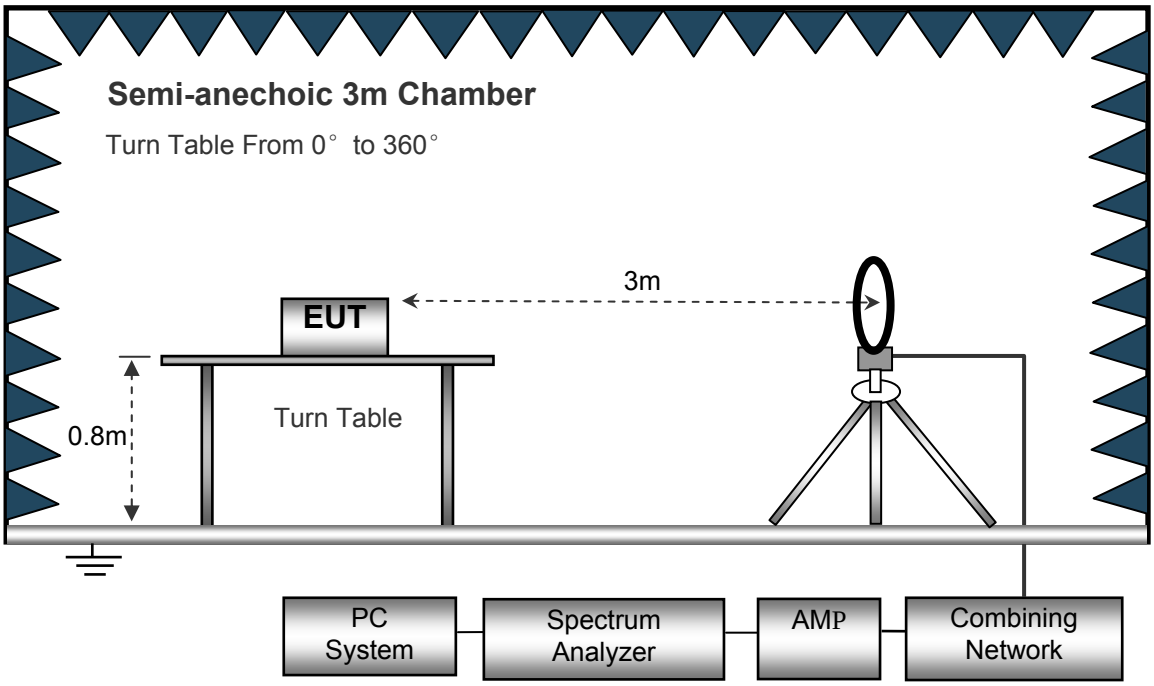
Voltage: DC 3.6V from battery

Operation Mode:

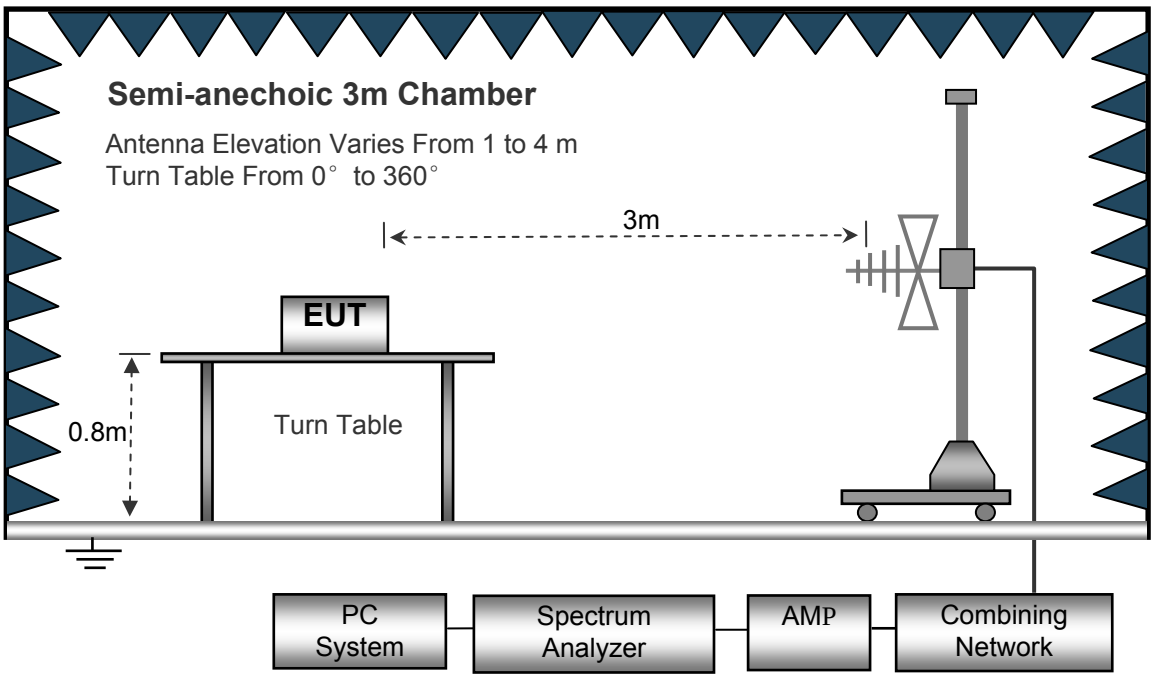
The EUT was tested in transmitting mode, and the data were shown as follow.

6.2 Test Setup

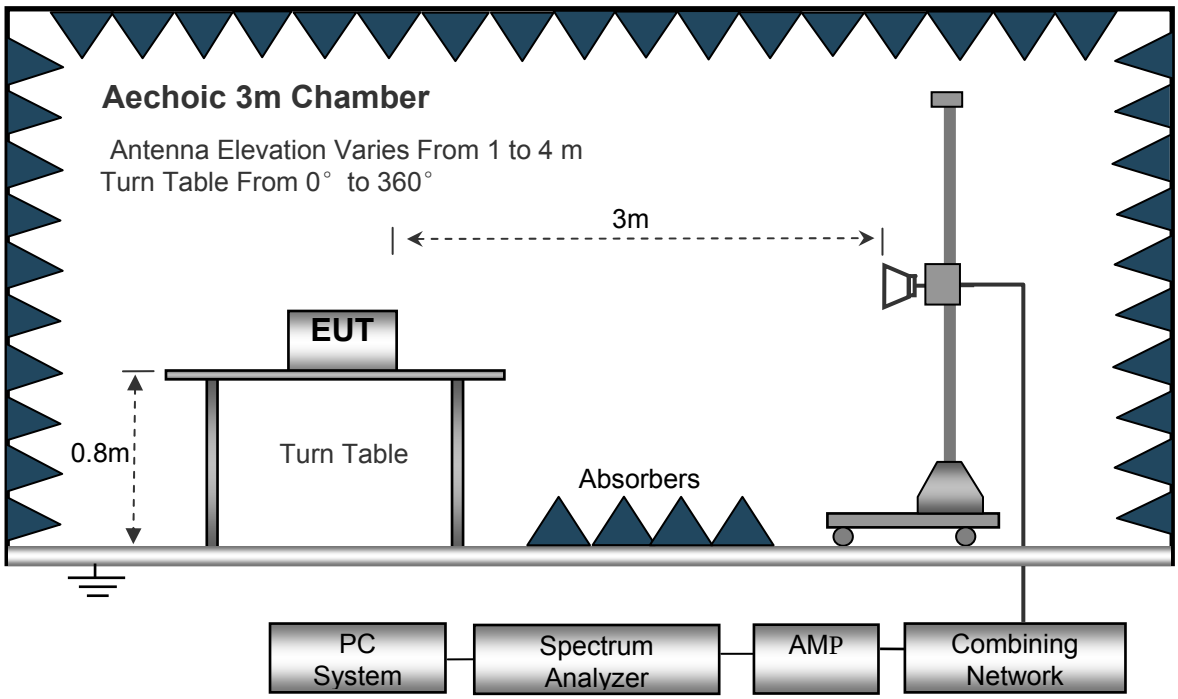
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2014.
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



6.3 Spectrum Analyzer Setup

According to FCC Part15 Rules, the system was tested 9kHz to 25000MHz.

Below 30MHz

Sweep Speed ..... Auto
IF Bandwidth..... 10kHz
Video Bandwidth..... 10kHz

Resolution Bandwidth..... 10kHz

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 100kHz
Video Bandwidth..... 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 3MHz
Detector ..... Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 10Hz

6.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

6.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Limit

6.6 Summary of Test Results

Test Frequency: Below 30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency: 30MHz ~ 18GHz

Test mode: transmitting

Test Frequency: 18~25GHz

The measurements were more than 20 dB below the limit and not reported.

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

All the modulation modes were tested, the data of the worst mode were recorded in the following pages.

	Freq.	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249/209/205	
					Height	Polar			Limit	Result
	(MHz)	(dBμV)	(PK/QP/ Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	
GFSK Lower Channel 2402MHz	45.26	14.12	QP	53	3.5	H	16.36	30.48	40.00	Pass
	84.18	14.98	QP	53	1.1	H	16.61	31.59	40.00	Pass
	112.31	15.16	QP	88	1.5	H	17.24	32.40	43.50	Pass
	345.21	14.24	QP	88	4.0	H	17.63	31.87	43.50	Pass
	420.16	15.11	QP	49	2.5	H	17.52	32.63	46.00	Pass
	615.53	15.34	QP	128	1.3	H	17.67	33.01	46.00	Pass
	55.63	15.42	QP	147	1.5	V	16.74	32.16	40.00	Pass
	112.33	14.27	QP	187	1.0	V	16.21	30.48	43.50	Pass
	188.54	15.06	QP	102	1.0	V	16.63	31.69	43.50	Pass
	292.63	16.33	QP	97	1.4	V	17.42	33.75	43.50	Pass
	528.52	14.87	QP	78	1.3	V	18.03	32.90	46.00	Pass
	811.36	15.59	QP	102	1.0	V	18.11	33.70	46.00	Pass

	Freq.	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249/209/205	
					Height	Polar			Limit	Result
	(MHz)	(dBμV)	(PK/QP/ Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	
GFSK Lower Channel 2402MHz	2402.00	102.65	PK	43	1.2	H	1.31	103.96	114.00	Pass
	2402.00	88.50	Ave	43	1.2	H	1.31	89.81	94.00	Pass
	4804.00	57.43	PK	52	1.5	H	-1.06	56.37	74.00	Pass
	4804.00	48.49	Ave	52	1.5	H	-1.06	47.43	54.00	Pass
	2402.00	101.58	PK	25	2.3	V	1.31	102.89	114.00	Pass
	2402.00	87.78	Ave	25	2.3	V	1.31	89.09	94.00	Pass
	4804.00	58.44	PK	48	3.0	V	-1.06	57.38	74.00	Pass
	4804.00	47.01	Ave	48	3.0	V	-1.06	45.95	54.00	Pass

Note: Other harmonics emissions are lower than 20dB below the allowable limit.

	Freq.	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249/209/205	
					Height	Polar			Limit	Margin
	(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
GFSK Middle Channel 2441MHz	2441.00	102.51	PK	123	2.3	H	0.85	103.36	114.00	Pass
	2441.00	88.03	Ave	123	2.3	H	0.85	88.88	94.00	Pass
	4882.00	54.28	PK	87	1.5	H	-0.62	53.66	74.00	Pass
	4882.00	43.49	Ave	87	1.5	H	-0.62	42.87	54.00	Pass
	2441.00	102.42	PK	158	2.2	V	0.85	103.27	114.00	Pass
	2441.00	87.41	Ave	158	2.2	V	0.85	88.26	94.00	Pass
	4882.00	55.19	PK	36	1.5	V	-0.62	54.57	74.00	Pass
	4882.00	44.56	Ave	36	1.5	V	-0.62	43.94	54.00	Pass
GFSK Upper Channel 2480MHz	2480.00	102.72	PK	47	2.0	H	0.53	103.25	114.00	Pass
	2480.00	88.11	Ave	47	2.0	H	0.53	88.64	94.00	Pass
	4960.00	52.41	PK	126	1.6	H	-0.24	52.17	74.00	Pass
	4960.00	43.39	Ave	126	1.6	H	-0.24	43.15	54.00	Pass
	2480.00	101.87	PK	247	2.2	V	0.53	102.40	114.00	Pass
	2480.00	87.38	Ave	247	2.2	V	0.53	87.91	94.00	Pass
	4960.00	54.58	PK	63	1.0	V	-0.24	54.34	74.00	Pass
	4960.00	43.60	Ave	63	1.0	V	-0.24	43.36	54.00	Pass
PI/4 DPSK Lower Channel 2402MHz	2402.00	102.72	PK	42	2.2	H	1.31	104.03	114.00	Pass
	2402.00	87.78	Ave	42	2.2	H	1.31	89.09	94.00	Pass
	4804.00	55.28	PK	156	1.1	H	-1.06	54.22	74.00	Pass
	4804.00	44.38	Ave	156	1.1	H	-1.06	43.32	54.00	Pass
	2402.00	101.82	PK	87	1.8	V	1.31	103.13	114.00	Pass
	2402.00	87.63	Ave	87	1.8	V	1.31	88.94	94.00	Pass
	4804.00	54.58	PK	149	1.0	V	-1.06	53.52	74.00	Pass
	4804.00	44.19	Ave	149	1.0	V	-1.06	43.13	54.00	Pass

Note: Other harmonics emissions are lower than 20dB below the allowable limit.

	Freq.	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249/209/205	
					Height	Polar			Limit	Margin
	(MHz)	(dBμV)	(PK/QP/ Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
PI/4 DPSK Middle Channel 2441MHz	2441.00	102.46	PK	74	2.0	H	0.85	103.31	114.00	Pass
	2441.00	87.51	Ave	74	2.0	H	0.85	88.36	94.00	Pass
	4882.00	54.69	PK	157	1.7	H	-0.62	54.07	74.00	Pass
	4882.00	44.34	Ave	157	1.7	H	-0.62	43.72	54.00	Pass
	2441.00	102.36	PK	97	1.4	V	0.85	103.21	114.00	Pass
	2441.00	87.67	Ave	97	1.4	V	0.85	88.52	94.00	Pass
	4882.00	53.38	PK	153	1.6	V	-0.62	52.76	74.00	Pass
	4882.00	44.40	Ave	153	1.6	V	-0.62	43.78	54.00	Pass
PI/4 DPSK Upper Channel 2480MHz	2480.00	101.72	PK	22	1.6	H	0.53	102.25	114.00	Pass
	2480.00	84.50	Ave	22	1.6	H	0.53	85.03	94.00	Pass
	4960.00	54.19	PK	19	1.2	H	-0.24	53.95	74.00	Pass
	4960.00	44.40	Ave	19	1.2	H	-0.24	44.16	54.00	Pass
	2480.00	102.56	PK	124	1.5	V	0.53	103.09	114.00	Pass
	2480.00	88.27	Ave	124	1.5	V	0.53	88.80	94.00	Pass
	4960.00	54.42	PK	72	1.8	V	-0.24	54.18	74.00	Pass
	4960.00	44.46	Ave	72	1.8	V	-0.24	44.22	54.00	Pass
8DPSK Lower Channel 2402MHz	2402.00	101.53	PK	16	1.8	H	1.31	102.84	114.00	Pass
	2402.00	87.54	Ave	16	1.8	H	1.31	88.85	94.00	Pass
	4804.00	53.70	PK	22	2.3	H	-1.06	52.64	74.00	Pass
	4804.00	44.34	Ave	22	2.3	H	-1.06	43.28	54.00	Pass
	2402.00	102.51	PK	67	1.5	V	1.31	103.82	114.00	Pass
	2402.00	88.69	Ave	67	1.5	V	1.31	90.00	94.00	Pass
	4804.00	55.22	PK	51	1.3	V	-1.06	54.16	74.00	Pass
	4804.00	45.56	Ave	51	1.3	V	-1.06	44.50	54.00	Pass

Note: Other harmonics emissions are lower than 20dB below the allowable limit.

	Freq.	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249/209/205	
					Height	Polar			Limit	Margin
	(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
8DPSK Middle Channel 2441MHz	2441.00	102.72	PK	26	2.1	H	0.85	103.57	114.00	Pass
	2441.00	87.72	Ave	26	2.1	H	0.85	88.57	94.00	Pass
	4882.00	54.78	PK	178	1.7	H	-0.62	54.16	74.00	Pass
	4882.00	46.44	Ave	178	1.7	H	-0.62	45.82	54.00	Pass
	2441.00	102.58	PK	22	1.2	V	0.85	103.43	114.00	Pass
	2441.00	87.36	Ave	22	1.2	V	0.85	88.21	94.00	Pass
	4882.00	53.39	PK	63	1.1	V	-0.62	52.77	74.00	Pass
	4882.00	42.86	Ave	63	1.1	V	-0.62	42.24	54.00	Pass

8DPSK Upper Channel 2480MHz	2480.00	102.83	PK	38	2.5	H	0.53	103.36	114.00	Pass
	2480.00	87.67	Ave	38	2.5	H	0.53	88.20	94.00	Pass
	4960.00	54.37	PK	174	3.1	H	-0.24	54.13	74.00	Pass
	4960.00	43.75	Ave	174	3.1	H	-0.24	43.51	54.00	Pass
	2480.00	102.72	PK	112	1.2	V	0.53	103.25	114.00	Pass
	2480.00	87.51	Ave	112	1.2	V	0.53	88.04	94.00	Pass
	4960.00	53.40	PK	137	1.1	V	-0.24	53.16	74.00	Pass
	4960.00	42.69	Ave	137	1.1	V	-0.24	42.45	54.00	Pass

Note: Other harmonics emissions are lower than 20dB below the allowable limit.

7 Band Edge Measurement

Test Requirement:	Section 15.249(d) In addition, radiated emissions which fall in the restricted bands. as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
Test Method:	DA 00-705
Limit:	40.0 dBuV/m between 30MHz & 88MHz; 43.5 dBuV/m between 88MHz & 216MHz; 46.0 dBuV/m between 216MHz & 960MHz; 54.0 dBuV/m above 960MHz. 74.0 dBuV/m for peak above 1GHz 54.0 dBuV/m for AVG above 1GHz

7.1 Test Procedure

1. The EUT was placed on a turntable which is 0.8m above ground plane

2. Measurement Distance is 3m

3. Detector: For Peak value:
RBW = 1 MHz for f ≥ 1 GHz
VBW ≥ RBW; Sweep = auto
Detector function = peak
Trace = max hold
For AVG value:
RBW = 1 MHz for f ≥ 1 GHz
VBW = 10Hz; Sweep = auto
Detector function = AVG
Trace = max hold

4. Continuous transmitting

7.2 Test Result:

Test result shown as follows:

GFSK

	Frequency (MHz)	Antenna polarization (H/V)	Test Frequency (MHz)	Emission (dBuV/m)	Band edge Limit (dBuV/m)		Result
				PK	PK	AV	Pass
Hopping	<2400	H	2392.35	49.72	74.00	54.00	Pass
	<2400	V	2393.53	49.66	74.00	54.00	Pass
	>2483.5	H	2486.36	50.18	74.00	54.00	Pass
	>2483.5	V	2485.19	50.83	74.00	54.00	Pass
Unhopping	<2400	H	2392.27	50.11	74.00	54.00	Pass
	<2400	V	2393.29	50.18	74.00	54.00	Pass
	>2483.5	H	2485.87	51.09	74.00	54.00	Pass
	>2483.5	V	2486.06	50.54	74.00	54.00	Pass

PI/4 DPSK

	Frequency (MHz)	Antenna polarization (H/V)	Test Frequency (MHz)	Emission (dBuV/m)	Band edge Limit (dBuV/m)		Result
				PK	PK	AV	Pass
Hopping	<2400	H	2392.48	50.62	74.00	54.00	Pass
	<2400	V	2393.06	50.77	74.00	54.00	Pass
	>2483.5	H	2484.48	50.21	74.00	54.00	Pass
	>2483.5	V	2485.31	50.46	74.00	54.00	Pass
Unhopping	<2400	H	2392.08	50.01	74.00	54.00	Pass
	<2400	V	2393.16	49.53	74.00	54.00	Pass
	>2483.5	H	2487.62	50.21	74.00	54.00	Pass
	>2483.5	V	2487.16	50.26	74.00	54.00	Pass

8-DPSK

	Frequency (MHz)	Antenna polarization (H/V)	Test Frequency (MHz)	Emission (dBuV/m)	Band edge Limit (dBuV/m)		Result
				PK	PK	AV	Pass
Hopping	<2400	H	2392.29	50.77	74.00	54.00	Pass
	<2400	V	2392.42	50.49	74.00	54.00	Pass
	>2483.5	H	2485.58	50.09	74.00	54.00	Pass
	>2483.5	V	2486.19	50.18	74.00	54.00	Pass
Unhopping	<2400	H	2391.67	50.38	74.00	54.00	Pass
	<2400	V	2392.33	50.52	74.00	54.00	Pass
	>2483.5	H	2487.03	50.01	74.00	54.00	Pass
	>2483.5	V	2486.24	49.99	74.00	54.00	Pass

8 20 dB Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.249

Test Method: DA 00-705

Test Mode: Test in fixing operating frequency at low, Middle, high channel.

8.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

8.2 Test Result:

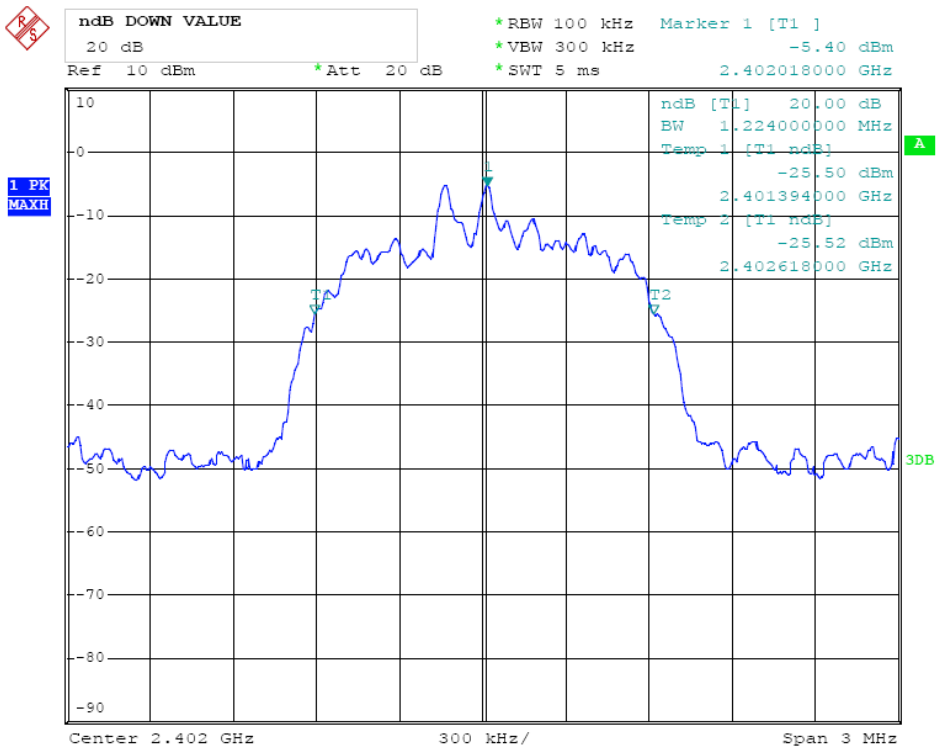
Modulation	Test Channel	Bandwidth(MHz)
GFSK	Lower	0.838
	Middle	0.842
	Upper	0.838
Pi/4DQPSK	Lower	1.106
	Middle	1.106
	Upper	1.112
8DPSK	Lower	1.224
	Middle	1.224
	Upper	1.218

For pretest, the worst mode was 8DPSK, the data only show the 8DPSK mode.

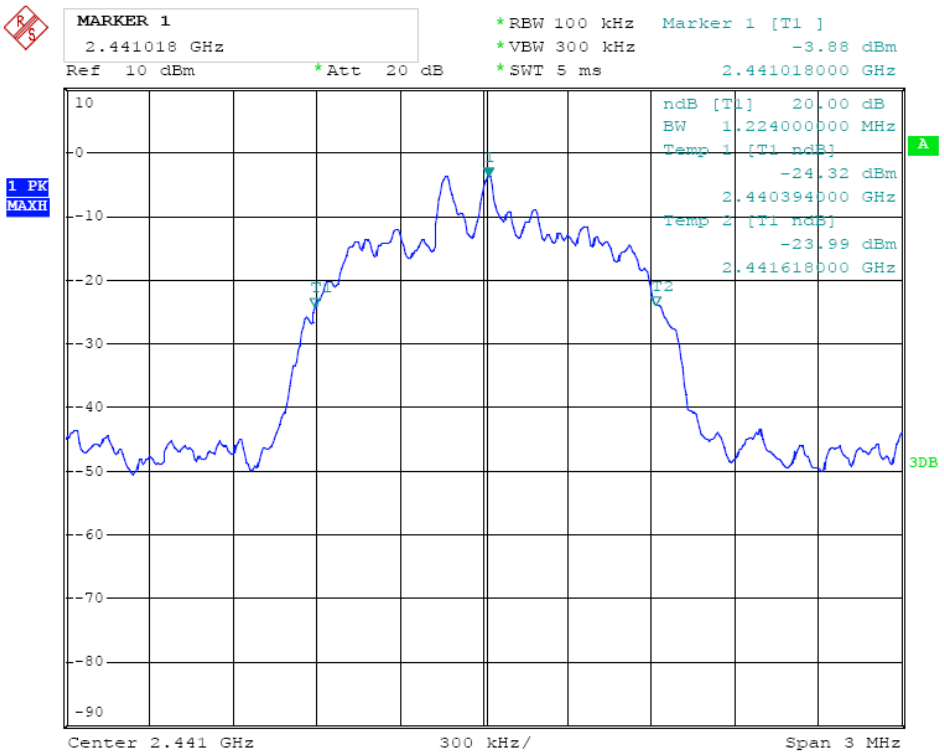
Test result plot as follows:

Modulation: 8DPSK

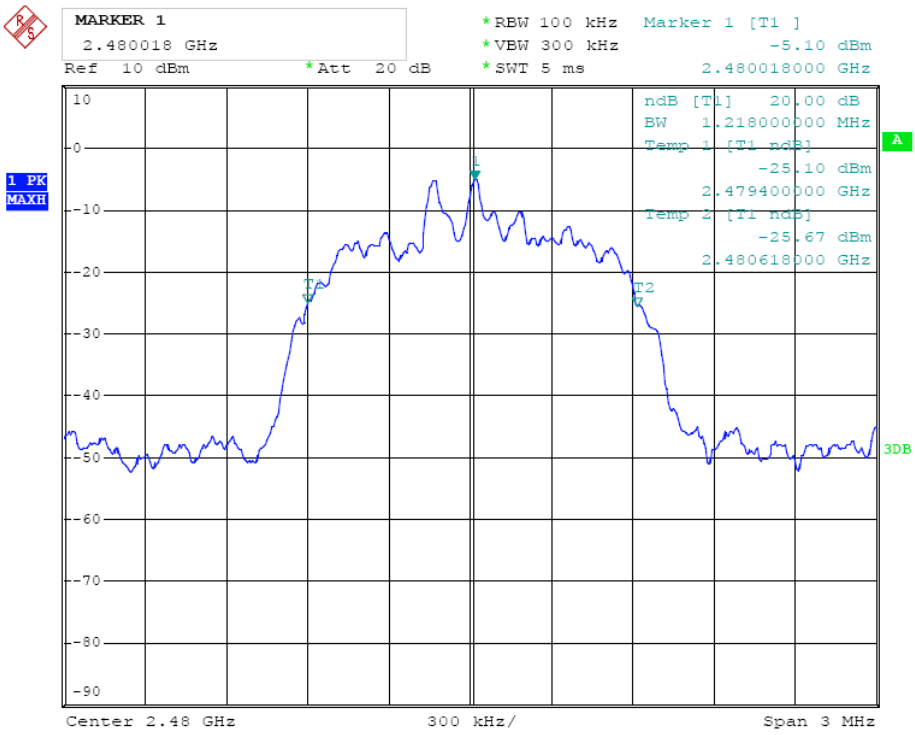
Lower Channel



Middle Channel



Upper Channel



9 Antenna Requirement

According to the FCC Part 15 Paragraph 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. This product has a PCB printed antenna, fulfill the requirement of this section.

========== End of Test Report ==========