FCC RADIO TEST REPORT

FCC ID: 2ADORT300B

Product： SPEAKERPHONE
Trade Name： ROYQUEEN
Model Name：T300B, ISOUND-6748, ROAD TALK

Prepared for

Shenzhen RoyQueen Audio Technology Co., Ltd.
The 2nd Floor, Shenhui Industrial Park, No.1010, Bulong Road, Longhua New District, Shenzhen, 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 RoyQueen Audio Technology Co., Ltd.
Address .... The 2nd Floor, Shenhui Industrial Park, No.1010, Bulong Road, Longhua New District, Shenzhen, China

Manufacture's Name... Shenzhen RoyQueen Audio Technology Co., Ltd.
Address ..... The 2nd Floor, Shenhui Industrial Park, No.1010, Bulong Road, Longhua New District, Shenzhen, China

Product description

Product name ..... SPEAKERPHONE

Model and/or type reference ..... T300B, ISOUND-6748, ROAD TALK

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 ..... Apr. 14, 2015 ~ Apr. 20, 2015

Date of Issue ..... Apr. 20, 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	: SPEAKERPHONE
Model No.	: T300B, ISOUND-6748, ROAD TALK
Brand Name	: ROYQUEEN
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	: 2 dBi
Bluetooth version	: 4.0
hardware version	:RQ01
software version	:1.0
Serial number	:01

3.2 Details of E.U.T.

Technical Data	: (1)DC 3.7V from battery (2)DC 5V from adapter for charger

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.	Series 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.**	**Next Due CAL Date**
1.	EMI Test Receiver	R&S	ESCI	100229	2014/10/25	2015/10/24
2	LISN	SCHWARZBECK	NSLK8127	8127437	2014/10/25	2015/10/24
3	LISN	R&S	ESH3-Z6	100690	2014/10/25	2015/10/24
4	Pulse Limiter	R&S	ESH3-Z2	101242	2014/10/25	2015/10/24
5	Cable	DTB	944 cable 1#	944001	2014/10/25	2015/10/24
3m Semi-anechoic Chamber for Radiation						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Next Due CAL Date**
1	EMI Test Receiver	R&S	ESCI	100229	2014/10/25	2015/10/24
2	Trilog-Broadband Antenna	SCHWARZBECK	VULB9163	9613-248	2014/11/01	2015/10/31
3	Horn antenna (1~18GHz)	R&S	HF906	EC348	2014/11/01	2015/10/31
4	Horn antenna (18~25GHz)	SCHWARZBECK	BBHA9170	9170517	2014/10/25	2015/10/24
5	Pre-amplifer	SCHWARZBECK	BBHA9170	9170517	2014/10/25	2015/10/24
6	Signal Conditioning Unit	R&S	SCU-08	10008	2014/10/25	2015/10/24
7	Pre-amplifer	Agilent	83006A	5241A1	2014/10/25	2015/10/24
8	Pre-amplifer	R&S	SCU-01	10049	2014/10/25	2015/10/24
9	Active Loop Antenna	DAZE	ZN30900A	DZ026	2014/11/01	2015/10/31
10	Spectrum Analyzer	Agilent	E4408B	MY44211125	2014/10/25	2015/10/24
11	Antenna connector	Top	DQT011	032	2014/10/25	2015/10/24
12	Coaxial Cable (below 1GHz)	DTB	966 cable 2#	-	2014/11/01	2015/10/31
13	Coaxial Cable (above 1GHz)	DTB	966 cable 3#	EW02014-7	2014/11/01	2015/10/31

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 :DC 5V from adapter input AC 120V/60Hz

EUT Operation:

The worst mode was performed in transmitting mode, and the data were shown as follow.

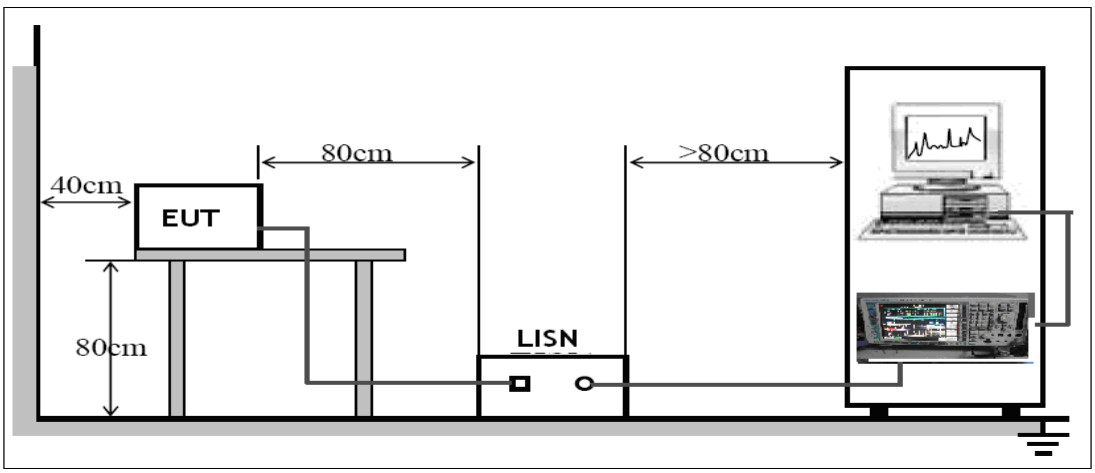
The EUT was tested according to ANSI C63.4:2014. The frequency spectrum from 150 kHz to 30MHz was investigated.

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

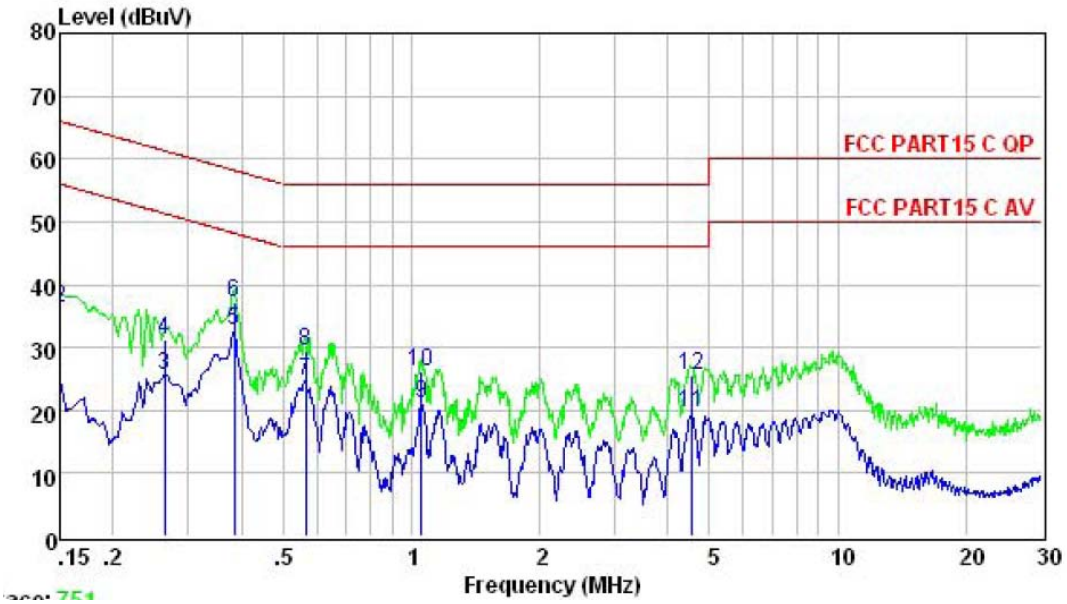
The EUT was placed on the test table in shielding room.



5.3 Conducted Emission Test Result

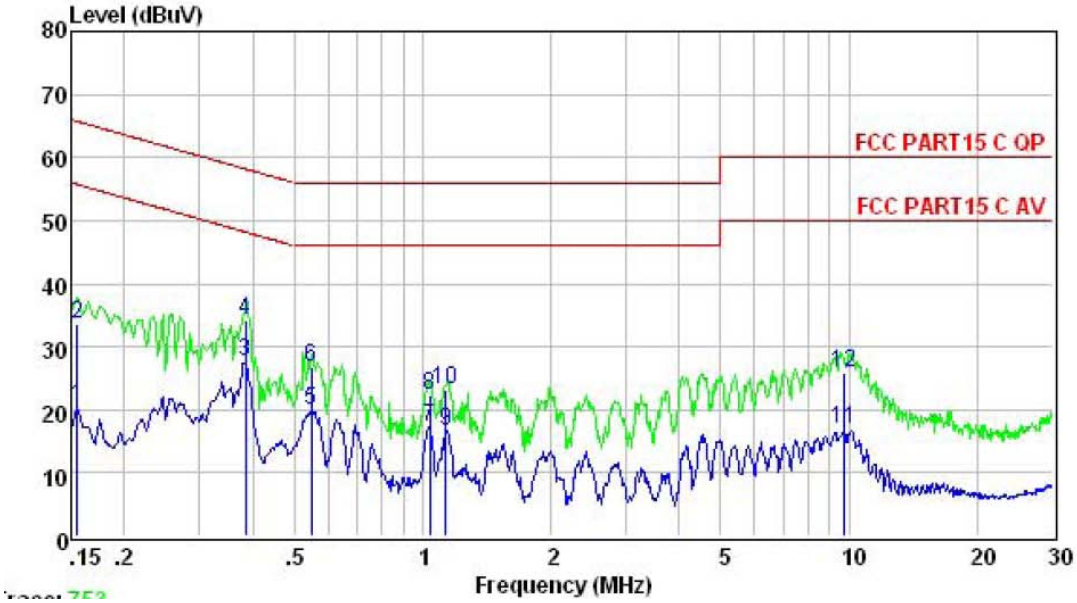
Test Mode: transmitting

Line:



	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.150	24.67	56.00	-31.33	Average
2	0.150	36.30	66.00	-29.70	QP
3	0.264	25.66	51.29	-25.63	Average
4	0.264	31.20	61.29	-30.09	QP
5	0.385	32.70	48.17	-15.47	Average
6	0.385	37.30	58.17	-20.87	QP
7	0.564	24.78	46.00	-21.22	Average
8	0.564	29.40	56.00	-26.60	QP
9	1.054	21.26	46.00	-24.74	Average
10	1.054	26.10	56.00	-29.90	QP
11	4.525	19.50	46.00	-26.50	Average
12	4.525	25.70	56.00	-30.30	QP

Neutral:



	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.155	20.55	55.74	-35.19	Average
2	0.155	33.70	65.74	-32.04	QP
3	0.385	27.55	48.17	-20.62	Average
4	0.385	34.10	58.17	-24.07	QP
5	0.549	19.84	46.00	-26.16	Average
6	0.549	26.80	56.00	-29.20	QP
7	1.037	17.23	46.00	-28.77	Average
8	1.037	22.40	56.00	-33.60	QP
9	1.135	16.64	46.00	-29.36	Average
10	1.135	23.10	56.00	-32.90	QP
11	9.757	16.81	50.00	-33.19	Average
12	9.757	25.80	60.00	-34.20	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

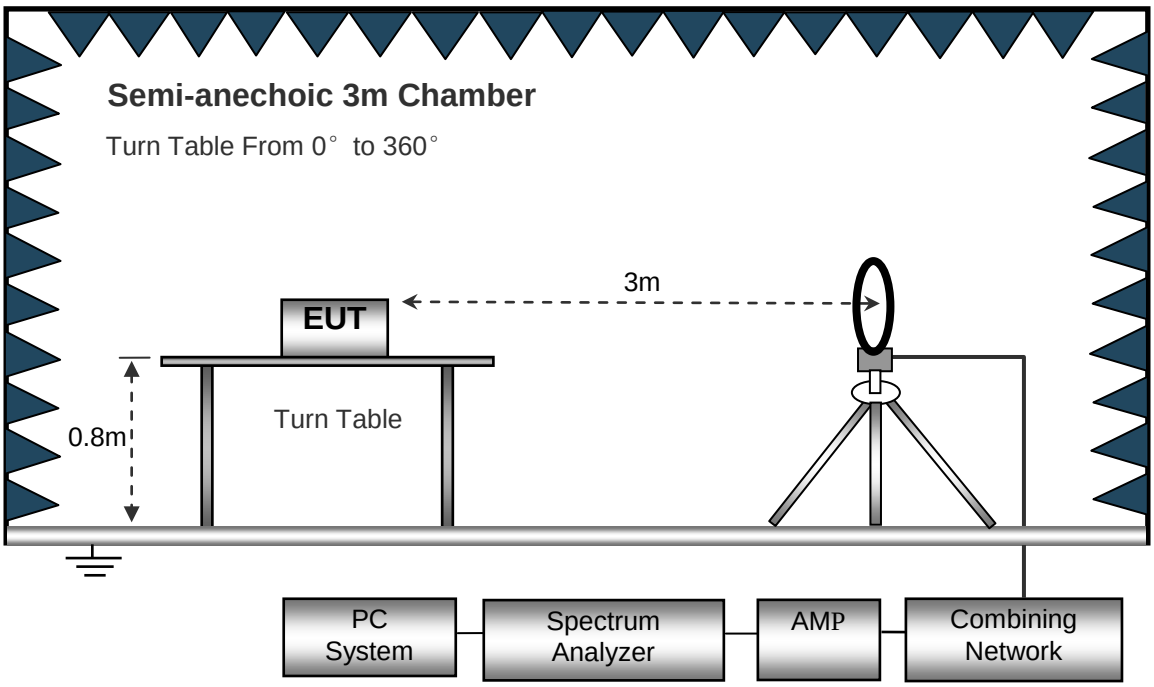
Voltage: DC 3.7V from battery

Operation Mode:

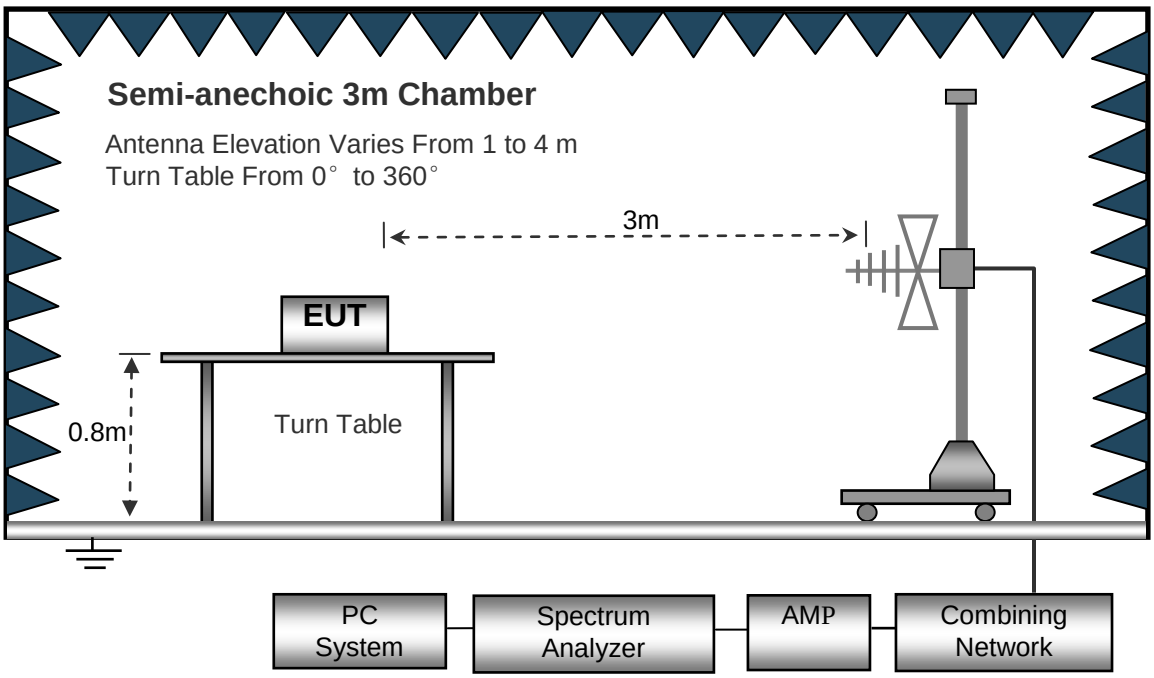
The EUT was tested in transmitting mode, and the data were shown as follow.

6.2 Test Setup

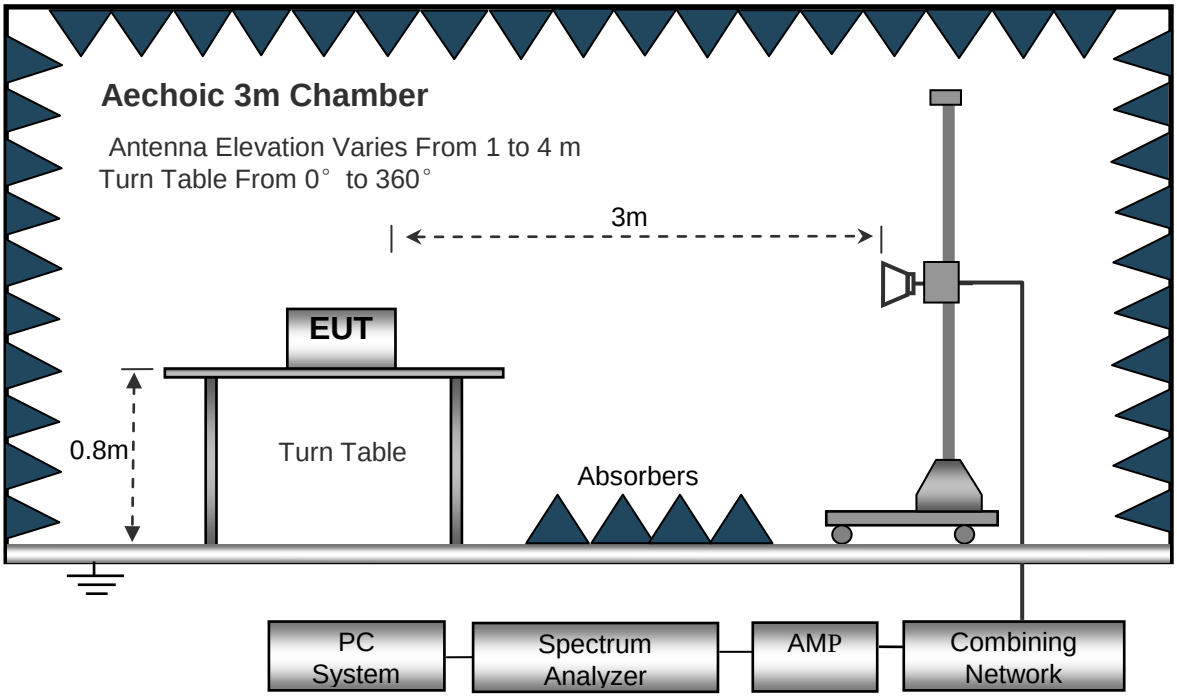
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2014.
The test setup for emission measurement below 30MHz.



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: Above 18GHz

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

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

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

	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	45.24	14.06	QP	87	2.5	H	16.24	30.30	40.00	Pass
	76.35	15.24	QP	27	3.3	H	16.76	32.00	40.00	Pass
	112.32	15.29	QP	16	1.8	H	17.02	32.31	43.50	Pass
	353.26	17.74	QP	0	2.0	H	17.34	35.08	43.50	Pass
	431.21	16.29	QP	78	1.0	H	17.62	33.91	46.00	Pass
	532.06	15.42	QP	125	1.6	H	17.68	33.10	46.00	Pass
	32.62	17.62	QP	36	1.2	V	16.45	34.07	40.00	Pass
	94.63	18.02	QP	44	1.5	V	16.38	34.40	43.50	Pass
	196.35	16.48	QP	29	1.4	V	16.74	33.22	43.50	Pass
	312.21	18.08	QP	62	1.0	V	17.08	35.16	43.50	Pass
	521.24	15.74	QP	43	1.1	V	17.33	33.07	46.00	Pass
	758.63	16.06	QP	26	1.5	V	17.26	33.32	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 Low Channel 2402MHz	2402.00	102.61	PK	35	1.3	H	1.31	103.92	114.00	Pass
	2402.00	88.57	Ave	35	1.3	H	1.31	89.88	94.00	Pass
	4804.00	56.64	PK	26	1.7	H	-1.06	55.58	74.00	Pass
	4804.00	48.62	Ave	26	1.7	H	-1.06	47.56	54.00	Pass
	2402.00	103.21	PK	75	1.3	V	1.31	104.52	114.00	Pass
	2402.00	88.29	Ave	75	1.3	V	1.31	89.60	94.00	Pass
	4804.00	57.15	PK	126	1.4	V	-1.06	56.09	74.00	Pass
	4804.00	47.94	Ave	126	1.4	V	-1.06	46.88	54.00	Pass

	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	103.25	PK	140	2.5	H	0.85	104.10	114.00	Pass
	2441.00	88.27	Ave	140	2.5	H	0.85	89.12	94.00	Pass
	4882.00	55.29	PK	342	2.2	H	-0.62	54.67	74.00	Pass
	4882.00	45.37	Ave	342	2.2	H	-0.62	44.75	54.00	Pass
	2441.00	102.97	PK	96	1.6	V	0.85	103.82	114.00	Pass
	2441.00	88.43	Ave	96	1.6	V	0.85	89.28	94.00	Pass
	4882.00	55.31	PK	140	1.4	V	-0.62	54.69	74.00	Pass
	4882.00	45.36	Ave	140	1.4	V	-0.62	44.74	54.00	Pass
GFSK Upper Channel 2480MHz	2480.00	103.41	PK	164	1.8	H	0.53	103.94	114.00	Pass
	2480.00	88.62	Ave	164	1.8	H	0.53	89.15	94.00	Pass
	4960.00	53.36	PK	48	2.7	H	-0.24	53.12	74.00	Pass
	4960.00	43.29	Ave	48	2.7	H	-0.24	43.05	54.00	Pass
	2480.00	102.47	PK	368	1.6	V	0.53	103.00	114.00	Pass
	2480.00	87.43	Ave	368	1.6	V	0.53	87.96	94.00	Pass
	4960.00	55.29	PK	85	1.4	V	-0.24	55.05	74.00	Pass
	4960.00	44.36	Ave	85	1.4	V	-0.24	44.12	54.00	Pass
PI/4 DPSK Lower Channel 2402MHz	2402.00	103.21	PK	151	1.5	H	1.31	104.52	114.00	Pass
	2402.00	88.26	Ave	151	1.5	H	1.31	89.57	94.00	Pass
	4804.00	56.62	PK	341	1.7	H	-1.06	55.56	74.00	Pass
	4804.00	46.02	Ave	341	1.7	H	-1.06	44.96	54.00	Pass
	2402.00	103.61	PK	153	1.9	V	1.31	104.92	114.00	Pass
	2402.00	88.18	Ave	153	1.9	V	1.31	89.49	94.00	Pass
	4804.00	54.62	PK	340	1.6	V	-1.06	53.56	74.00	Pass
	4804.00	43.64	Ave	340	1.6	V	-1.06	42.58	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	103.27	PK	88	2.4	H	0.85	104.12	114.00	Pass
	2441.00	88.47	Ave	88	2.4	H	0.85	89.32	94.00	Pass
	4882.00	57.62	PK	46	2.0	H	-0.62	57.00	74.00	Pass
	4882.00	44.35	Ave	46	2.0	H	-0.62	43.73	54.00	Pass
	2441.00	102.94	PK	199	2.9	V	0.85	103.79	114.00	Pass
	2441.00	88.43	Ave	199	2.9	V	0.85	89.28	94.00	Pass
	4882.00	55.02	PK	109	1.3	V	-0.62	54.40	74.00	Pass
	4882.00	46.43	Ave	109	1.3	V	-0.62	45.81	54.00	Pass
PI/4 DPSK Upper Channel 2480MHz	2480.00	103.01	PK	217	1.8	H	0.53	103.54	114.00	Pass
	2480.00	88.24	Ave	217	1.8	H	0.53	88.77	94.00	Pass
	4960.00	54.12	PK	95	2.2	H	-0.24	53.88	74.00	Pass
	4960.00	46.12	Ave	95	2.2	H	-0.24	45.88	54.00	Pass
	2480.00	103.18	PK	81	1.6	V	0.53	103.71	114.00	Pass
	2480.00	87.16	Ave	81	1.6	V	0.53	87.69	94.00	Pass
	4960.00	55.42	PK	38	1.4	V	-0.24	55.18	74.00	Pass
	4960.00	44.62	Ave	38	1.4	V	-0.24	44.38	54.00	Pass
8DPSK Low Channel 2402MHz	2402.00	102.94	PK	102	1.4	H	1.31	103.47	114.00	Pass
	2402.00	87.26	Ave	102	1.4	H	1.31	87.79	94.00	Pass
	4804.00	55.46	PK	164	2.1	H	-1.06	55.22	74.00	Pass
	4804.00	44.29	Ave	164	2.1	H	-1.06	44.05	54.00	Pass
	2402.00	103.48	PK	309	1.6	V	1.31	104.01	114.00	Pass
	2402.00	88.25	Ave	309	1.6	V	1.31	88.78	94.00	Pass
	4804.00	55.61	PK	109	1.4	V	-1.06	55.37	74.00	Pass
	4804.00	45.74	Ave	109	1.4	V	-1.06	45.50	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	103.26	PK	217	2.2	H	0.85	104.11	114.00	Pass
	2441.00	87.42	Ave	217	2.2	H	0.85	88.27	94.00	Pass
	4882.00	54.62	PK	95	2.1	H	-0.62	54.00	74.00	Pass
	4882.00	46.74	Ave	95	2.1	H	-0.62	46.12	54.00	Pass
	2441.00	102.44	PK	219	1.9	V	0.85	103.29	114.00	Pass
	2441.00	87.27	Ave	219	1.9	V	0.85	88.12	94.00	Pass
	4882.00	53.42	PK	94	1.3	V	-0.62	52.80	74.00	Pass
	4882.00	42.33	Ave	94	1.3	V	-0.62	41.71	54.00	Pass

8DPSK Upper Channel 2480MHz	2480.00	103.43	PK	342	2.5	H	0.53	103.96	114.00	Pass
	2480.00	87.16	Ave	342	2.5	H	0.53	87.69	94.00	Pass
	4960.00	53.28	PK	91	3.9	H	-0.24	53.04	74.00	Pass
	4960.00	42.19	Ave	91	3.9	H	-0.24	41.95	54.00	Pass
	2480.00	103.42	PK	30	1.8	V	0.53	103.95	114.00	Pass
	2480.00	87.29	Ave	30	1.8	V	0.53	87.82	94.00	Pass
	4960.00	52.53	PK	53	1.7	V	-0.24	52.29	74.00	Pass
	4960.00	41.47	Ave	53	1.7	V	-0.24	41.23	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	2389.35	50.47	74.00	54.00	Pass
	<2400	V	2388.42	50.62	74.00	54.00	Pass
	>2483.5	H	2486.32	50.29	74.00	54.00	Pass
	>2483.5	V	2486.18	49.74	74.00	54.00	Pass
Unhopping	<2400	H	2389.16	50.62	74.00	54.00	Pass
	<2400	V	2389.42	50.34	74.00	54.00	Pass
	>2483.5	H	2486.37	50.07	74.00	54.00	Pass
	>2483.5	V	2486.28	50.33	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	2389.27	50.26	74.00	54.00	Pass
	<2400	V	2389.16	50.34	74.00	54.00	Pass
	>2483.5	H	2486.36	49.58	74.00	54.00	Pass
	>2483.5	V	2487.12	49.64	74.00	54.00	Pass
Unhopping	<2400	H	2388.87	50.29	74.00	54.00	Pass
	<2400	V	2389.16	49.43	74.00	54.00	Pass
	>2483.5	H	2486.12	50.26	74.00	54.00	Pass
	>2483.5	V	2486.31	50.74	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	2386.28	50.26	74.00	54.00	Pass
	<2400	V	2387.62	50.34	74.00	54.00	Pass
	>2483.5	H	2485.21	50.18	74.00	54.00	Pass
	>2483.5	V	2486.57	50.37	74.00	54.00	Pass
Unhopping	<2400	H	2388.52	50.08	74.00	54.00	Pass
	<2400	V	2389.05	50.37	74.00	54.00	Pass
	>2483.5	H	2485.76	50.26	74.00	54.00	Pass
	>2483.5	V	2486.19	50.74	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:

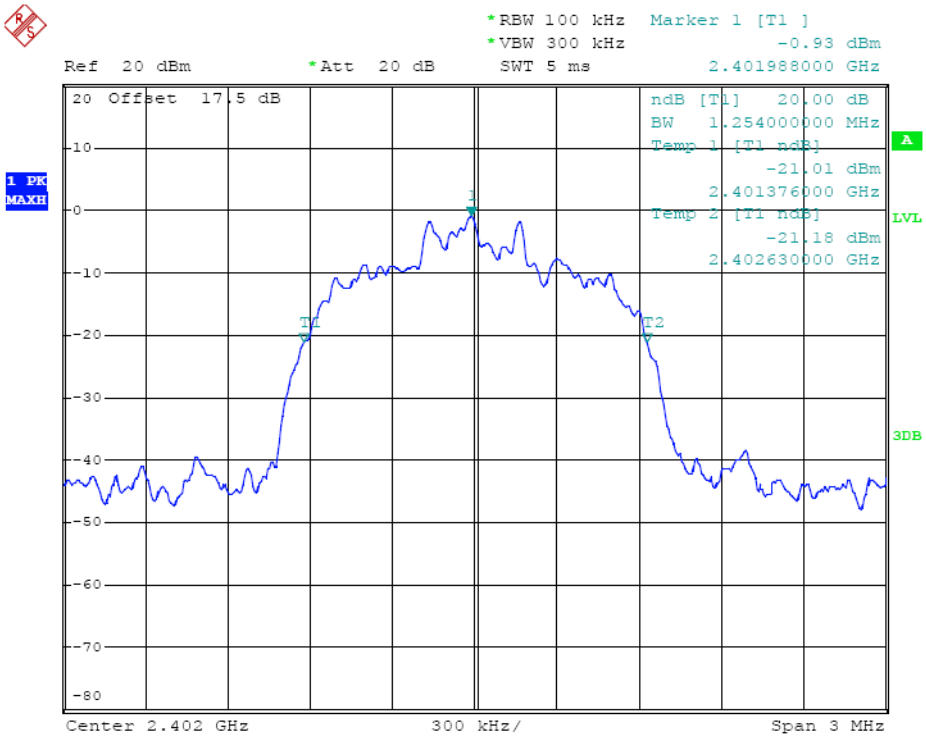
Modulation	Test Channel	Bandwidth(MHz)
GFSK	Lower	0.936
	Middle	0.936
	Upper	0.852
Pi/4DQPSK	Lower	1.166
	Middle	1.172
	Upper	1.136
8DPSK	Lower	1.254
	Middle	1.254
	Upper	1.236

Test result plot as follows:

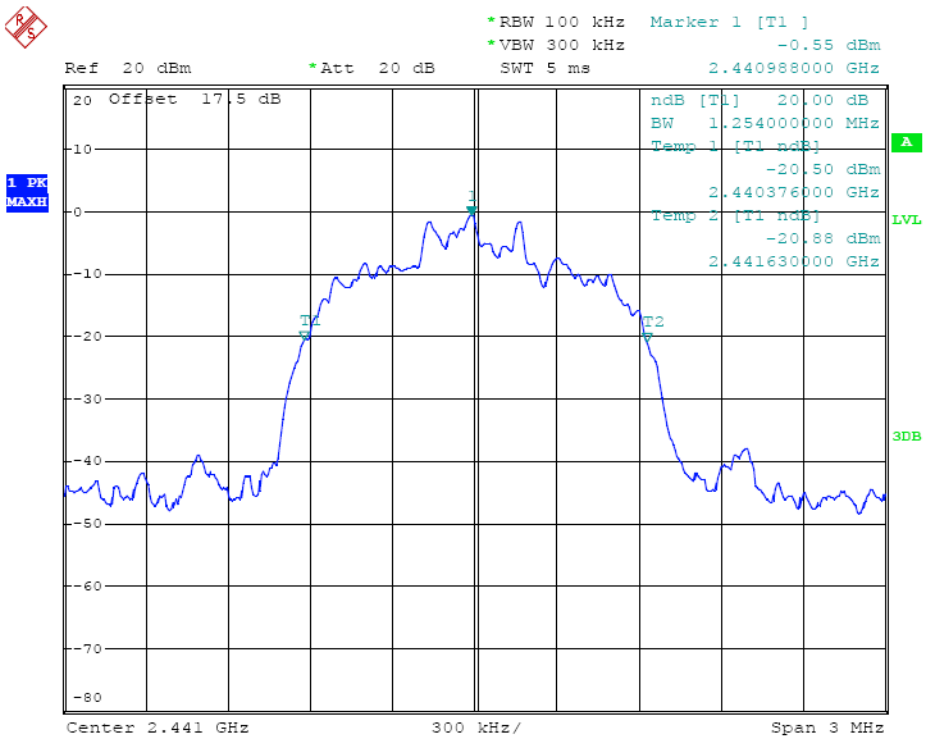
The data only show the worst plot.

Modulation: 8DPSK

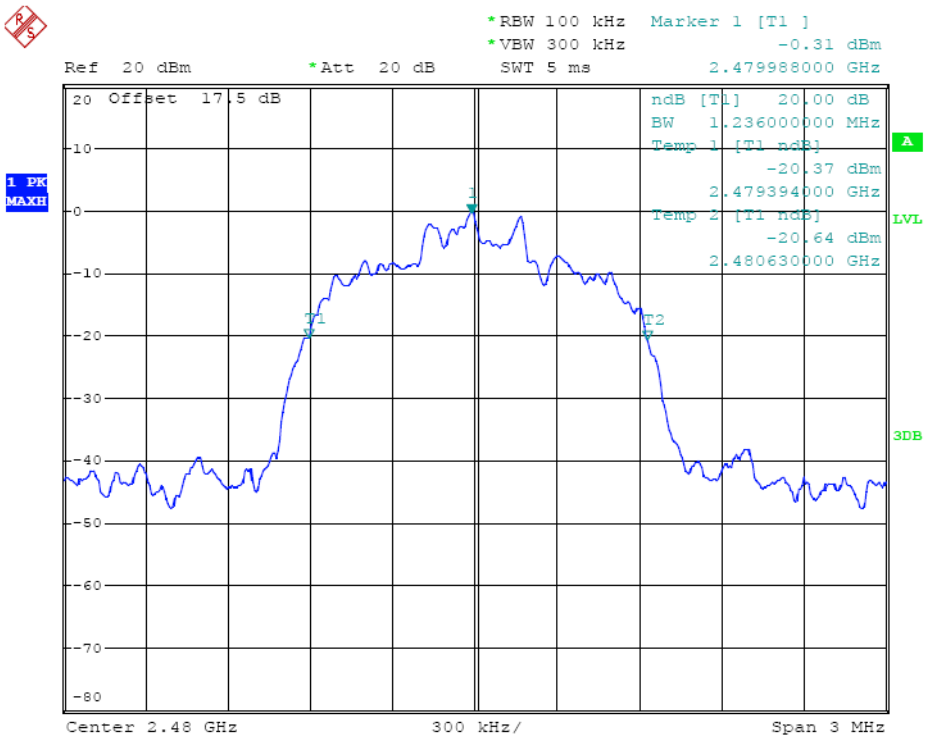
Lower Channel



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 ==========