RF TEST REPORT

Report No.:	SET2015-07656
Product Name:	Portable ECG Monitor
FCC ID:	2ABOGPM10
Model No. :	PM10
Applicant:	Contec Medical Systems Co., Ltd.
Address:	No.112 Qinhuang West Street, Economic & Technical Development Zone, Qinhuangdao, Hebei Province, PEOPLE'S REPUBLIC OF CHINA
Dates of Testing:	05/04/2015 — 05/11/2015
Issued by:	CCIC-SET
Lab Location:	Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055, P. R. China **Tel:** 86 755 26627338 **Fax:** 86 755 26627238

Test Report

Product Name ..... :	Portable ECG Monitor
Brand Name ..... :	N/A
Trade Name ..... :	CONTEC
Applicant ..... :	Contec Medical Systems Co., Ltd.
Applicant Address ..... :	No.112 Qinhuang West Street, Economic & Technical Development Zone, Qinhuangdao, Hebei Province, PEOPLE'S REPUBLIC OF CHINA
Manufacturer ..... :	Contec Medical Systems Co., Ltd.
Manufacturer Address ..... :	No.112 Qinhuang West Street, Economic & Technical Development Zone, Qinhuangdao, Hebei Province, PEOPLE'S REPUBLIC OF CHINA
Test Standards ..... :	47 CFR Part 15 Subpart C：Radio Frequency Devices ANSI C63.10-2009：American National Standard for Testing Unlicensed Wireless Devices KDB558074 D01 DTS Meas Guidance v03r02
Test Result ..... :	PASS

Tested by ..... : Haigang He 2015.05.19

Haigang He, Test Engineer

Reviewed by ..... : Zhu Qi 2015.05.19

Zhu Qi, Senior Egineer

Approved by ..... : Wu Lian 2015.05.19

Wu Li'an, Manager

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Change History		
Issue	Date	Reason for change
1.0	2015-05-19	First edition

1. General Information

1.1. EUT Description

EUT Type	Portable ECG Monitor	
Hardware Version	BT43H	
Software Version	V0.91	
EUT supports Radios application	Bluetooth V3.0+EDR / Bluetooth V4.0LE	
Frequency Range	Bluetooth LE 4.0	2402MHz~2480MHz
Channel Number	Bluetooth LE 4.0	40
Bit Rate of Transmitter	Bluetooth LE 4.0	1Mbps
Modulation Type	Bluetooth LE 4.0	GFSK
Antenna Type	PCB Antenna	
Antenna Gain	-0.5 dBi	

Note 1: The EUT is Portable ECG Monitor, it contain Bluetooth 4.0 LTE Module operating at 2.4GHz ISM band; the frequencies allocated for the Bluetooth 4.0 LTE is F(MHz)=2402+2*n (0<=n<=39). The lowest, middle, highest channel numbers of the Bluetooth Module used and tested in this report are separately 0 (2402MHz), 20(2442MHz) and 39 (2480MHz).

Note 2: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

Note 3: The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%."

1.2. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C (Bluetooth, 2.4GHz ISM band radiators) for the EUT FCC Certification:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart C 2013	Radio Frequency Devices
2	ANSI C63.10-2009	American National Standard for Testing Unlicensed Wireless Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section in CFR 47	Description	Result
1	15.203	Antenna Requirement	PASS
2	15.247(b)	Peak Output Power	PASS
3	15.247(a)	Bandwidth	PASS
4	15.247(d)	Conducted Band Edges and Spurious Emission	PASS
5	15.247(e)	Power spectral density (PSD)	PASS
6	15.207	Conducted Emission	PASS
7	15.209 15.247(d)	Radiated Band Edges and Spurious Emission	PASS
8	1.1307(b)	RF exposure evaluation	PASS

The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.10 2009.

These RF tests were performed according to the method of measurements prescribed in KDB558074 D01 V03r02 (04/09/2013).

1.3. Facilities and Accreditations

1.3.1. Facilities

CNAS-Lab Code: L1659

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659. A 12.8*6.8*6.4 (m) fully anechoic chamber was used for the radiated spurious emissions test.

FCC-Registration No.: 406086

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 406086, valid time is until October 28, 2017.

IC-Registration No.: 11185A-1

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on July. 15, 2013, valid time is until July. 15, 2016.

1.3.2. Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (℃):	15℃ - 35℃
Relative Humidity (%):	30% -60%
Atmospheric Pressure (kPa):	86KPa-106KPa

2. 47 CFR Part 15C Requirements

2.1. Antenna requirement

2.1.1. Applicable Standard

According to FCC 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

And according to FCC 47 CFR Section 15.247(c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

2.1.2. Antenna Information

Antenna Category: Internal antenna

An Internal antenna was soldered to the antenna port of EUT via an adaptor cable, can't be removed.

Antenna General Information:

No.	EUT Model	Ant. Cat.	Ant. Type	Gain(dBi)
1	PM10	Internal	PCB	-0.5

2.1.3. Result: comply

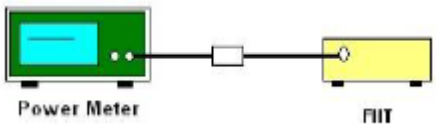
The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2. Peak Output Power

2.2.1. Limit of Peak Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

2.2.2. Test Setup



2.2.3. Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r02.

2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.

3. Set to the maximum power setting and enable the EUT transmit continuously.

4. Measure the conducted output power and record the results in the test report.

2.2.4. Test Result

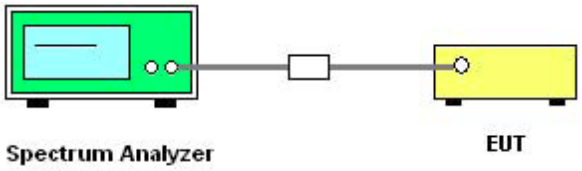
Channel	Frequency (MHz)	RF Power(dBm) GFSK/1Mbps	Limit (dBm)	Verdict
0	2402	-4.54	30	PASS
20	2442	-4.95		PASS
39	2480	-4.77		PASS

2.3. 6dB & 99%Bandwidth

2.3.1. Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

2.3.2. Test Setup



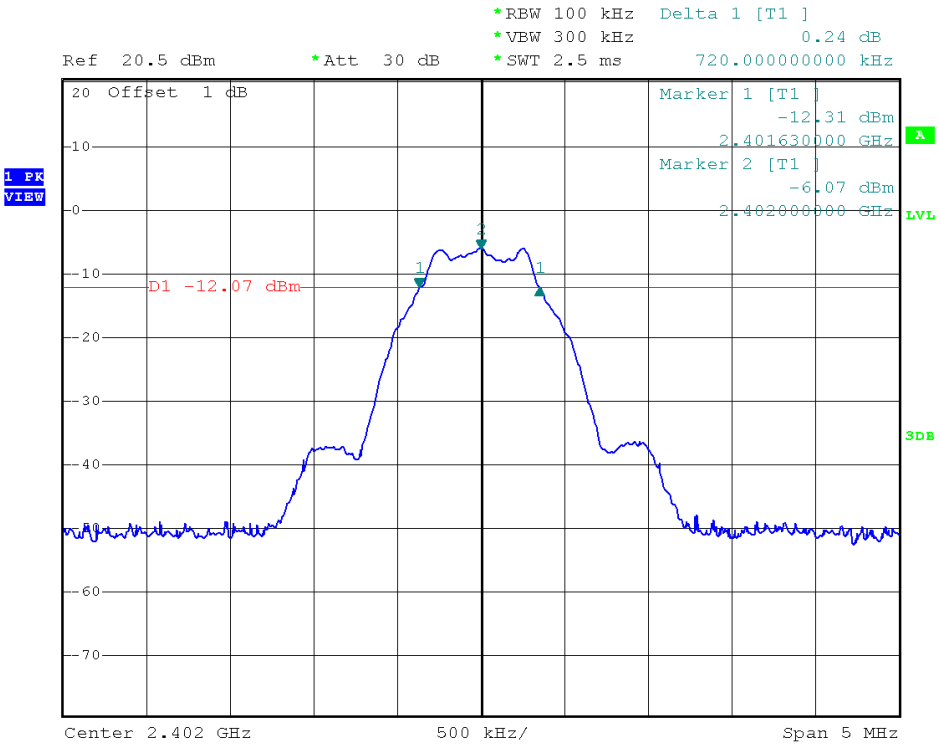
2.3.3. Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 30kHz and set the Video bandwidth (VBW) = 100kHz.
6. Measure and record the results in the test report.

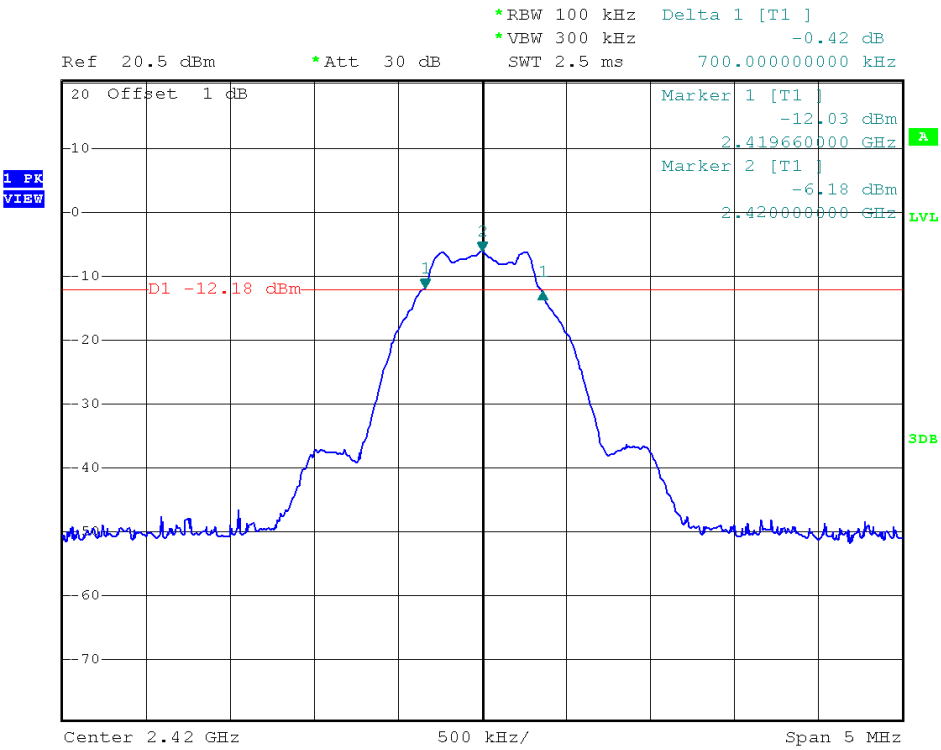
2.3.4. Test Result

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limits (MHz)	Result
0	2402	0.720	1.04	≥0.5	PASS
20	2444	0.700	1.05	≥0.5	PASS
39	2480	0.720	1.05	≥0.5	PASS

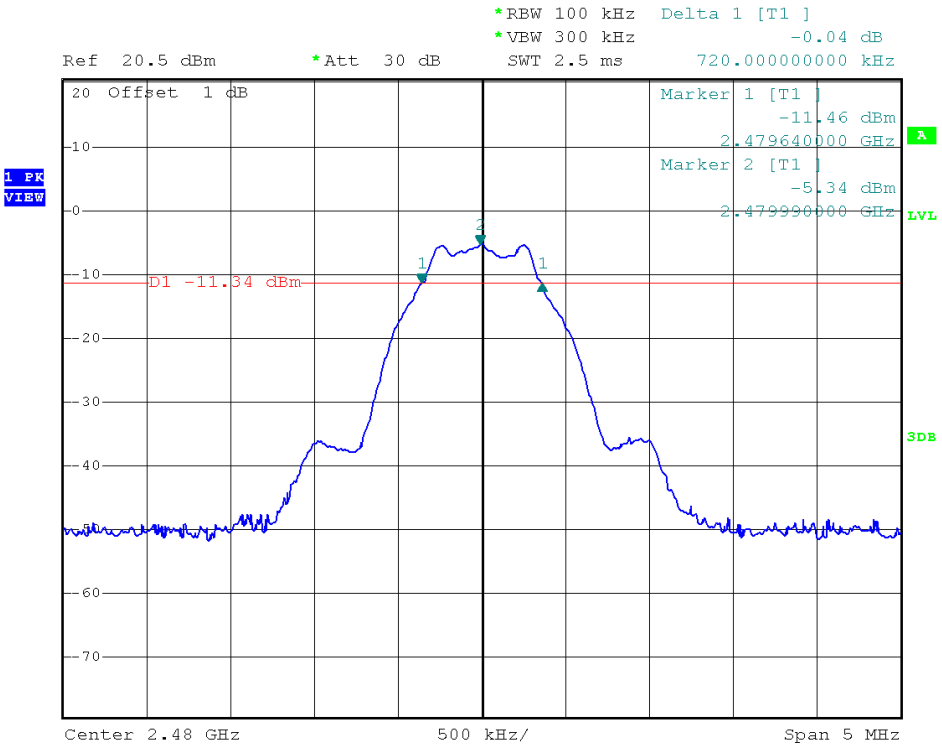
6 dB Bandwidth Plot on channel 0



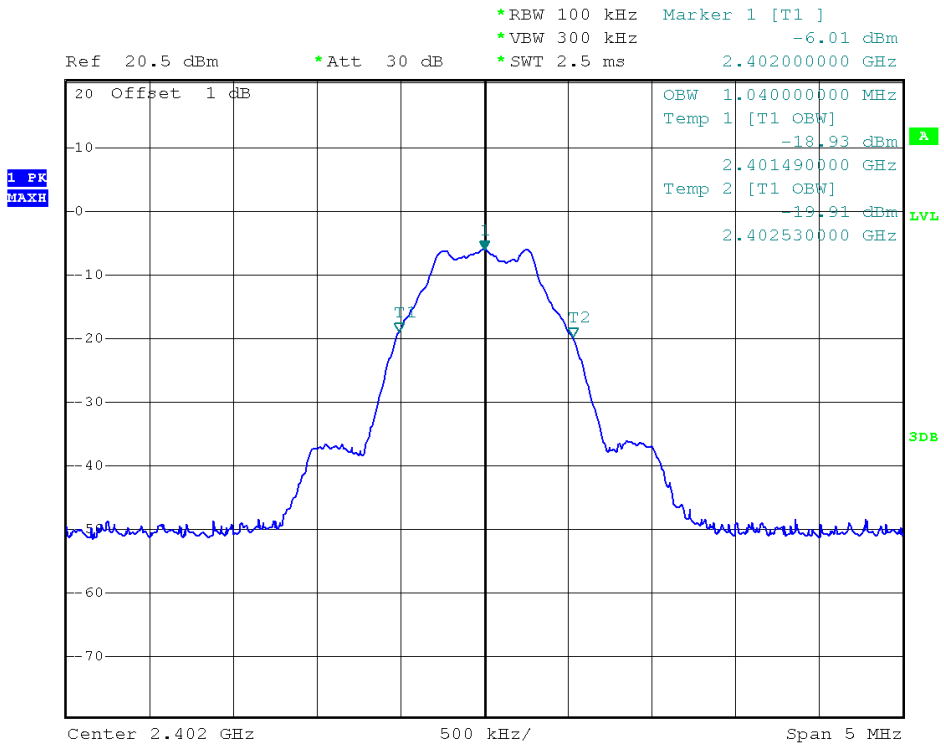
6 dB Bandwidth Plot on channel 20



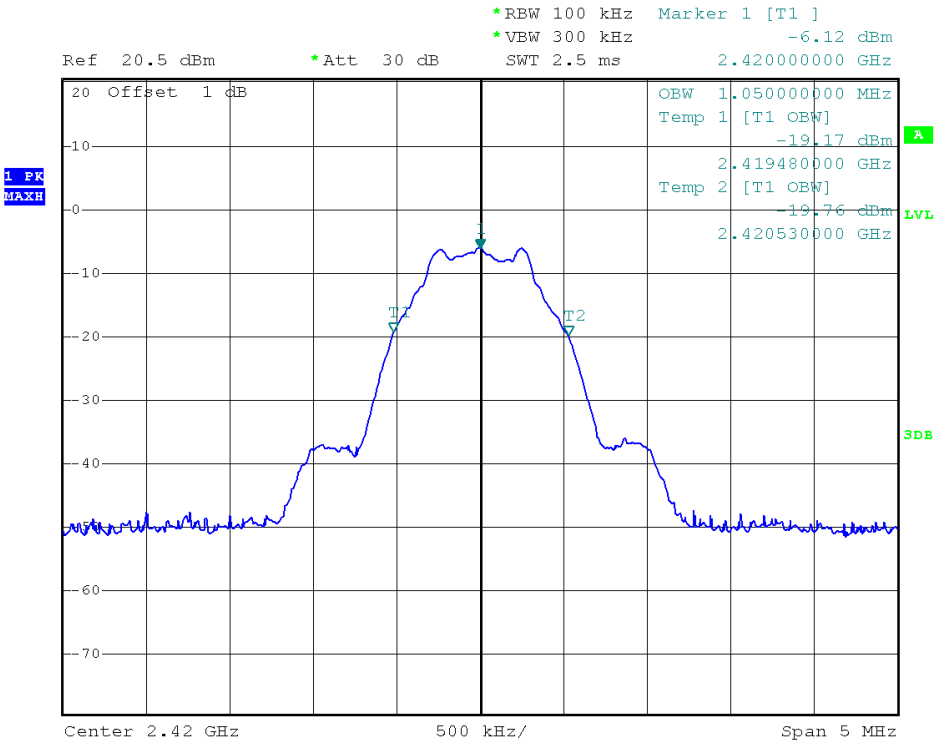
6 dB Bandwidth Plot on channel 39



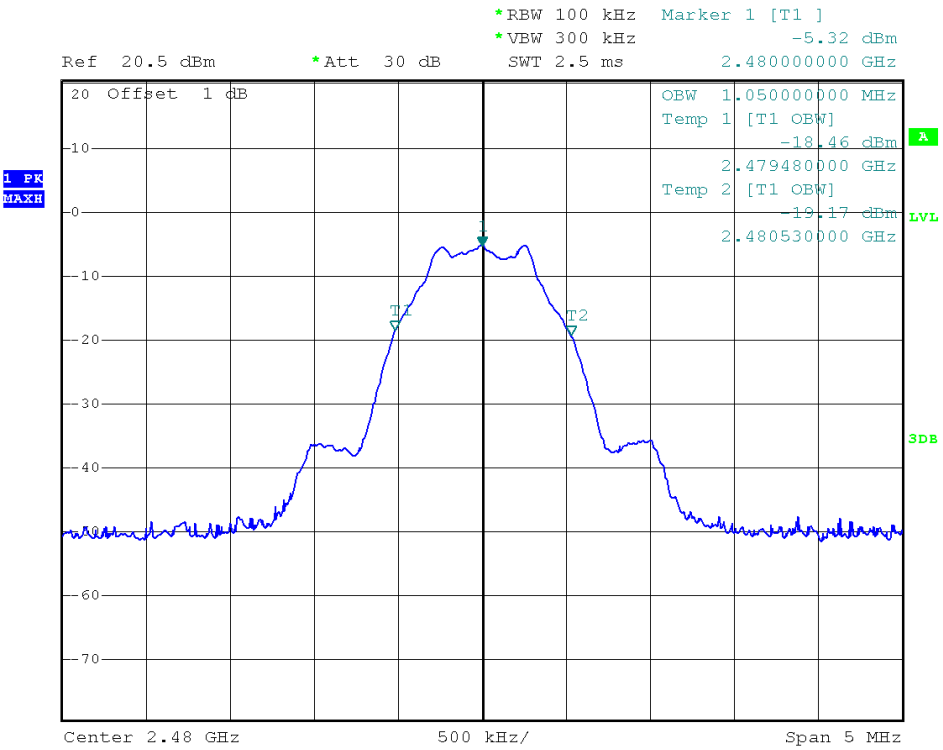
99% Bandwidth Plot on channel 0



99% Bandwidth Plot on channel 20



99% Bandwidth Plot on channel 39

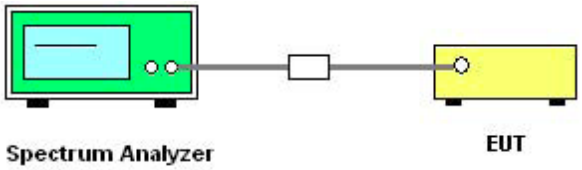


2.4. Conducted Band Edges and Spurious Emissions

2.4.1. Limit of Conducted Band Edges and Spurious Emissions

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

2.4.2. Test Setup

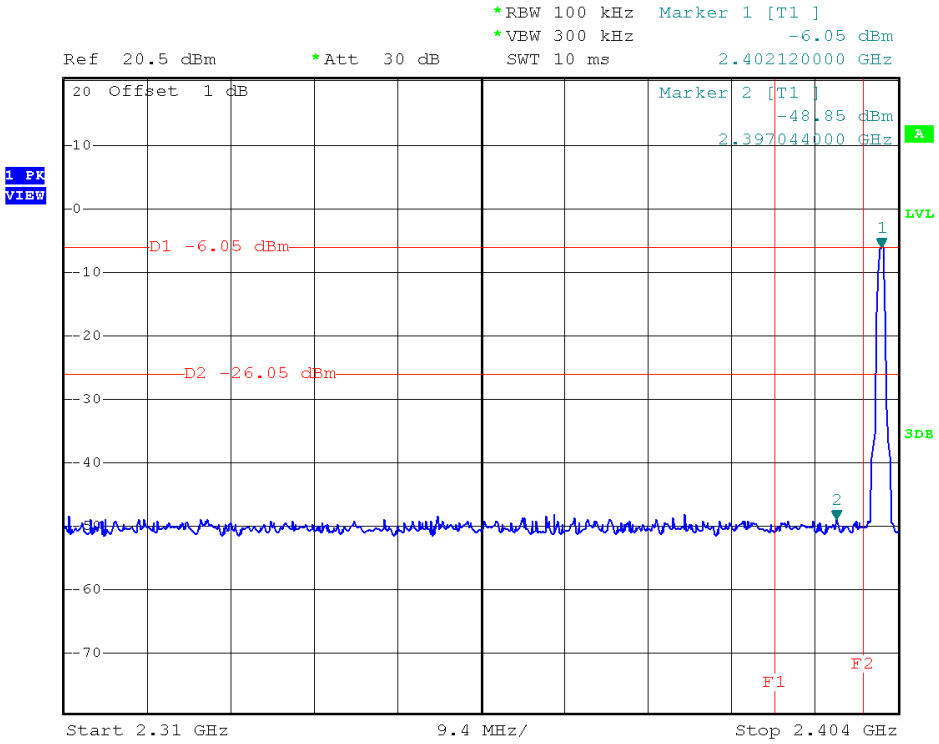


2.4.3. Test Procedure

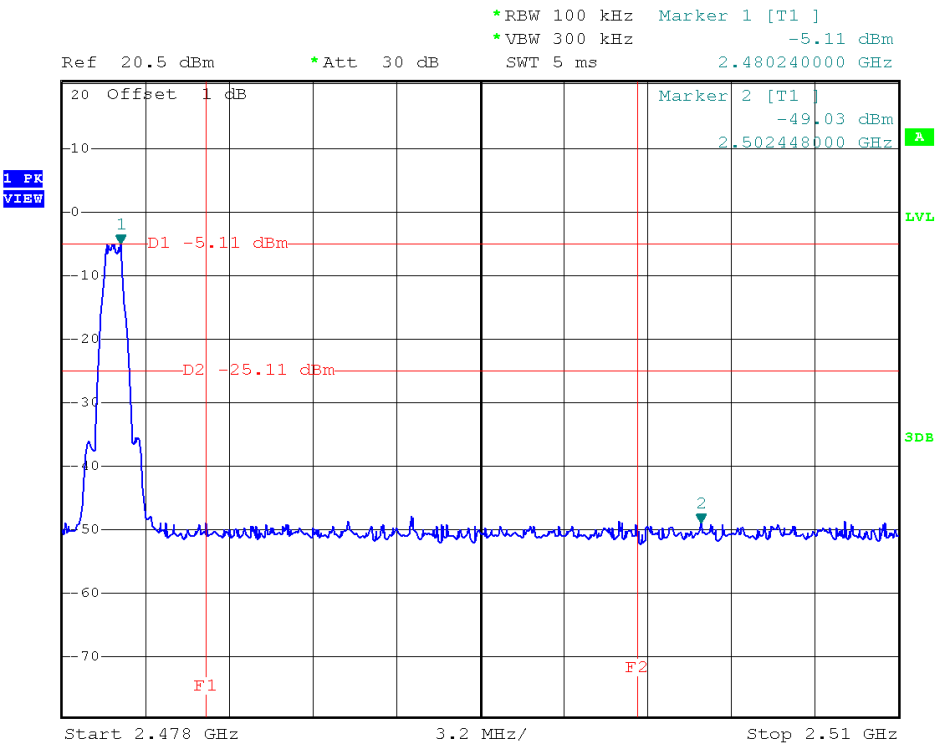
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

2.4.4. Test Result of Conducted Band Edges

Low Band Edge Plot on Channel 0

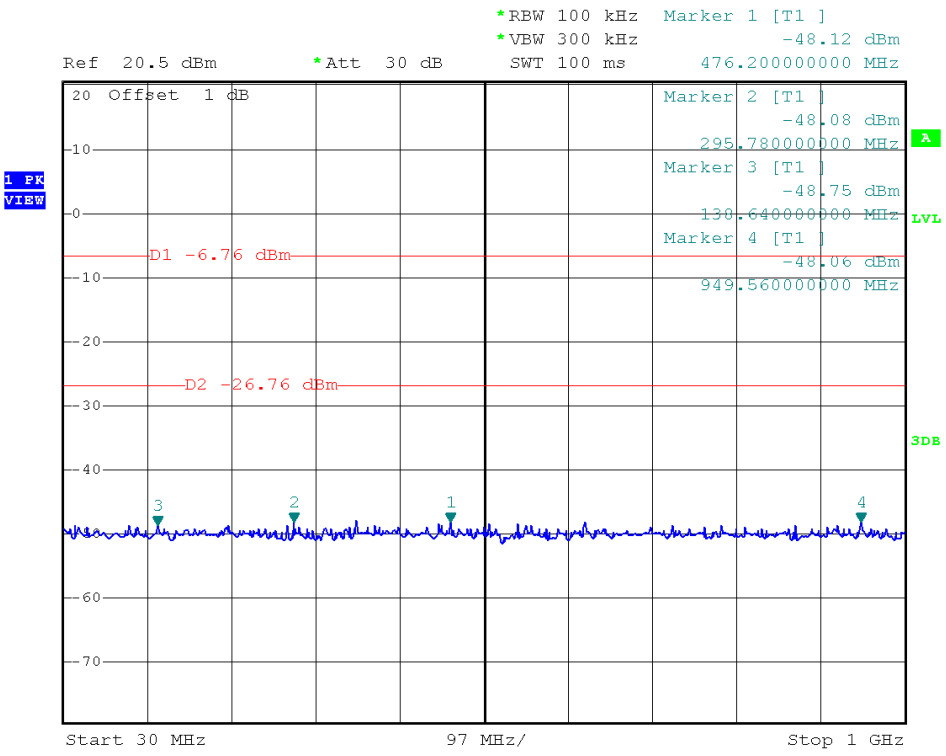


High Band Edge Plot on Channel 39

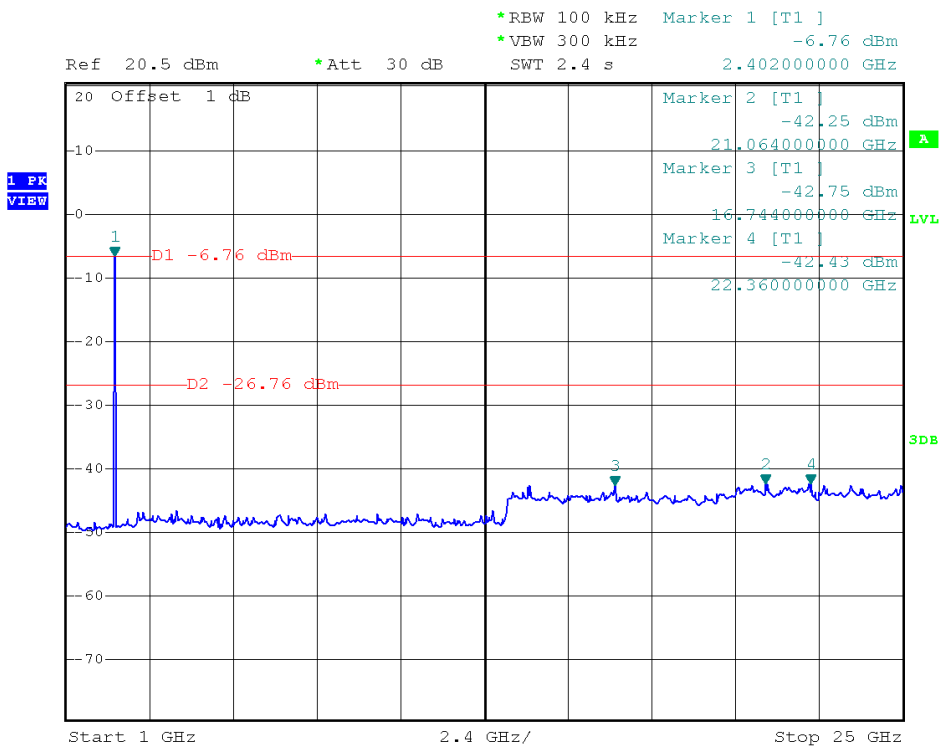


2.4.5. Test Result of Conducted Spurious Emission

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

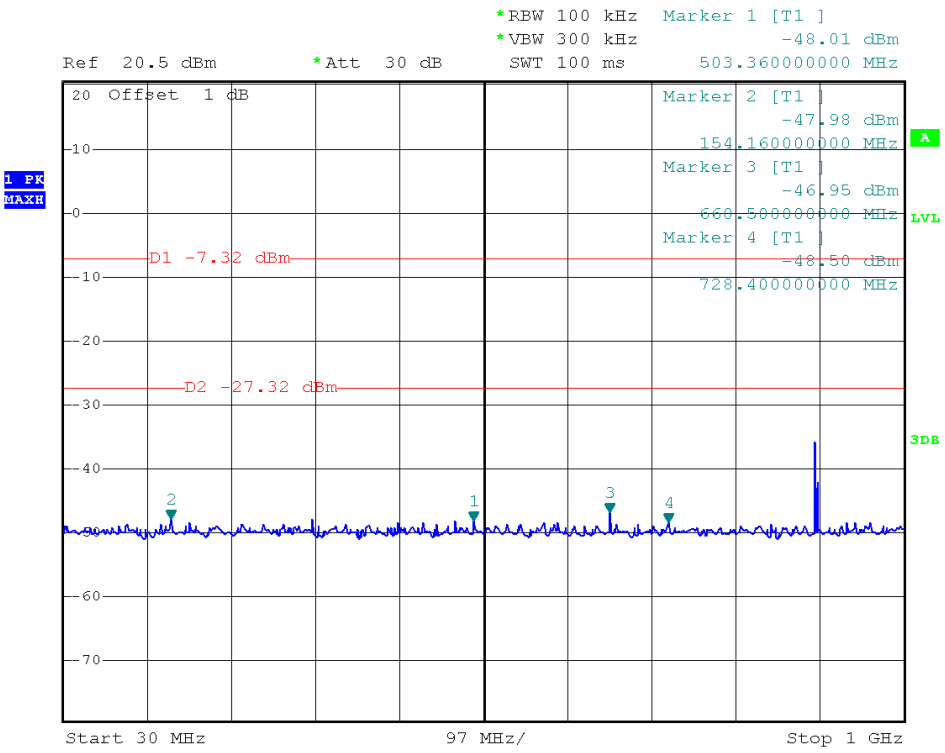


Channel = 0, 30MHz to 1GHz

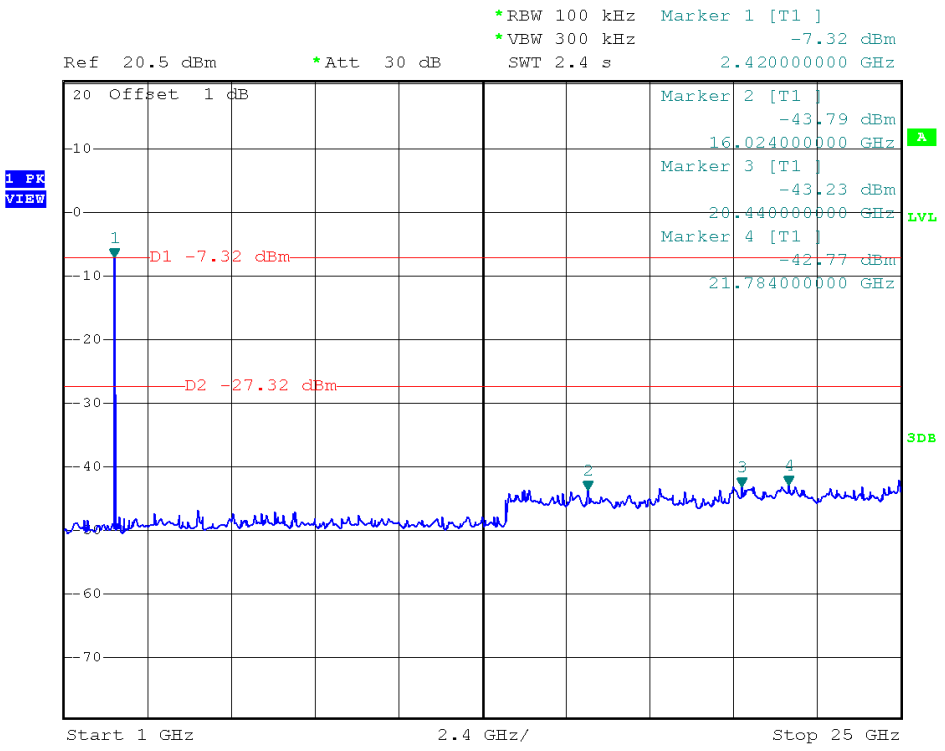


Channel = 0, 1GHz to 25GHz

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

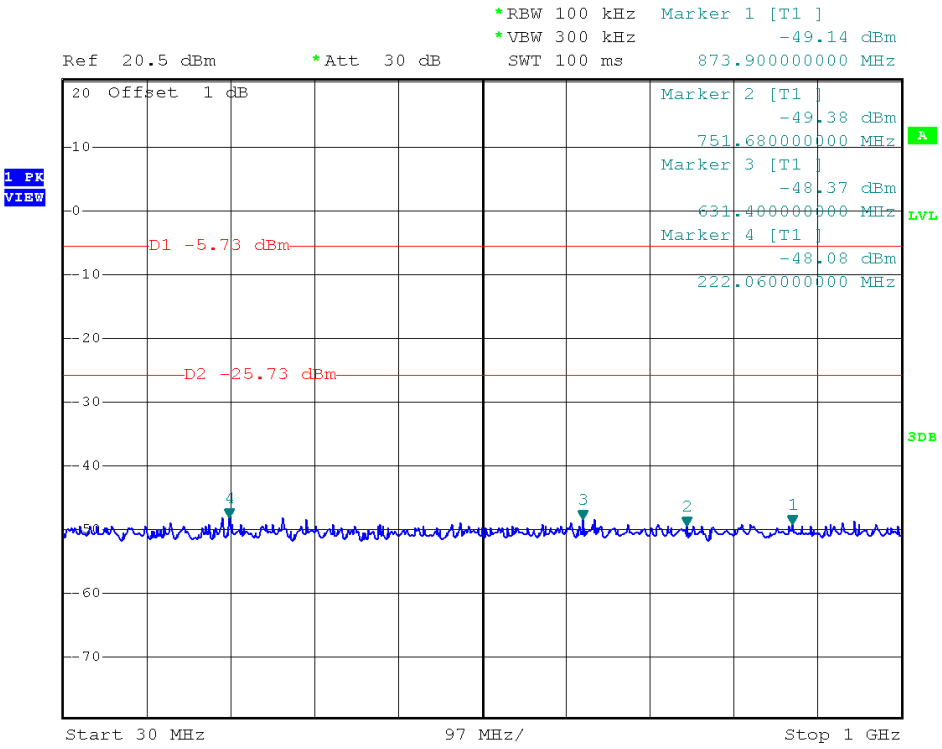


Channel = 20, 30MHz to 1GHz

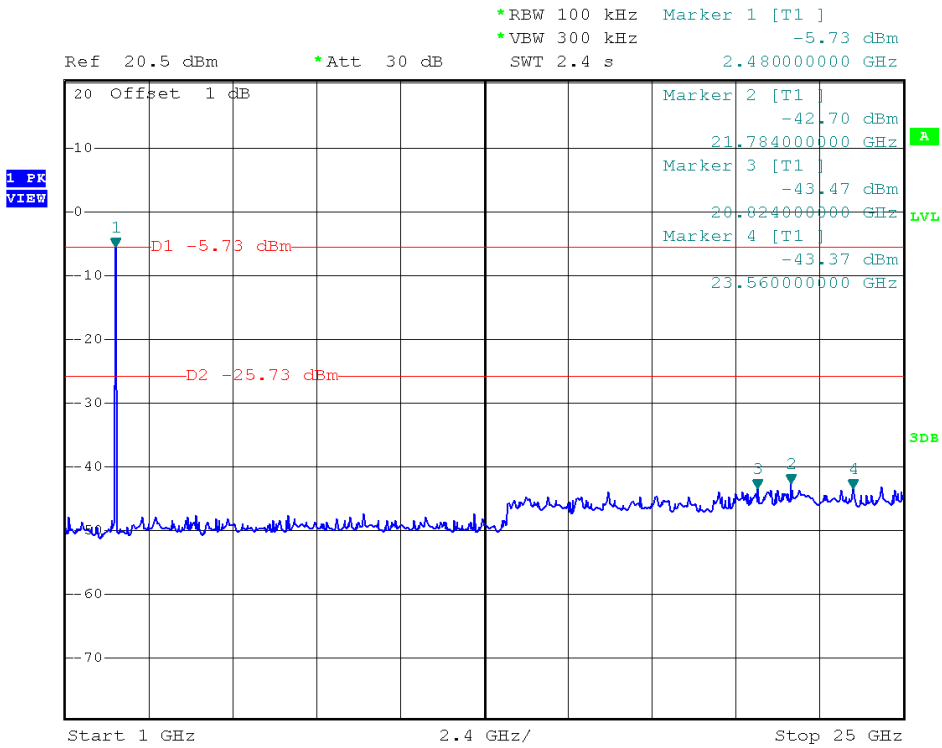


Channel = 20, 1GHz to 25GHz

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps



Channel = 39, 30MHz to 25GHz



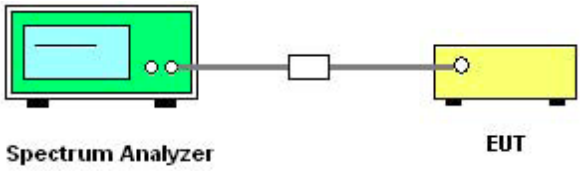
Channel = 39, 30MHz to 25GHz

2.5. Power spectral density (PSD)

2.5.1. Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

2.5.2. Test Setup



2.5.3. Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No.558074 D01 DTS Meas. Guidance v03r02

2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

3. Set to the maximum power setting and enable the EUT transmit continuously.

4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)

5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.

6. Measure and record the results in the test report.

7. The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

2.5.4. Test Result

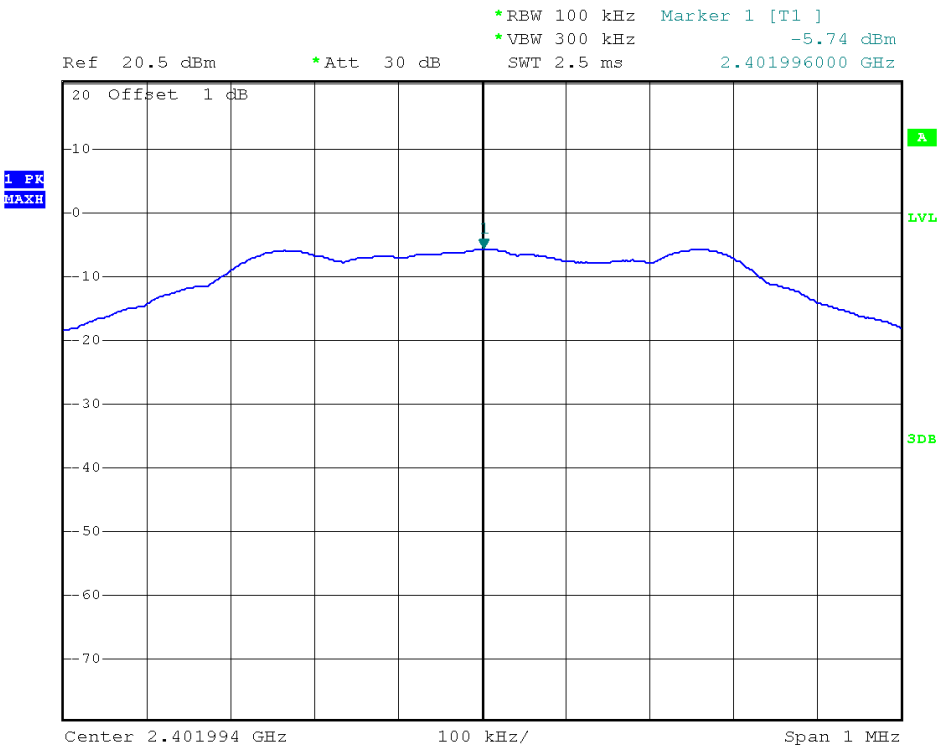
Spectral power density (dBm)					
Channel	Frequency (MHz)	PSD/100kHz (dBm)	PSD/3kHz (dBm)	Limit (dBm/3kHz)	Verdict
0	2402	-5.74	-20.94	8	PASS
20	2442	-6.06	-21.26	8	PASS
39	2480	-4.82	-20.02	8	PASS
Measurement uncertainty: ±1.3dB					

Note:

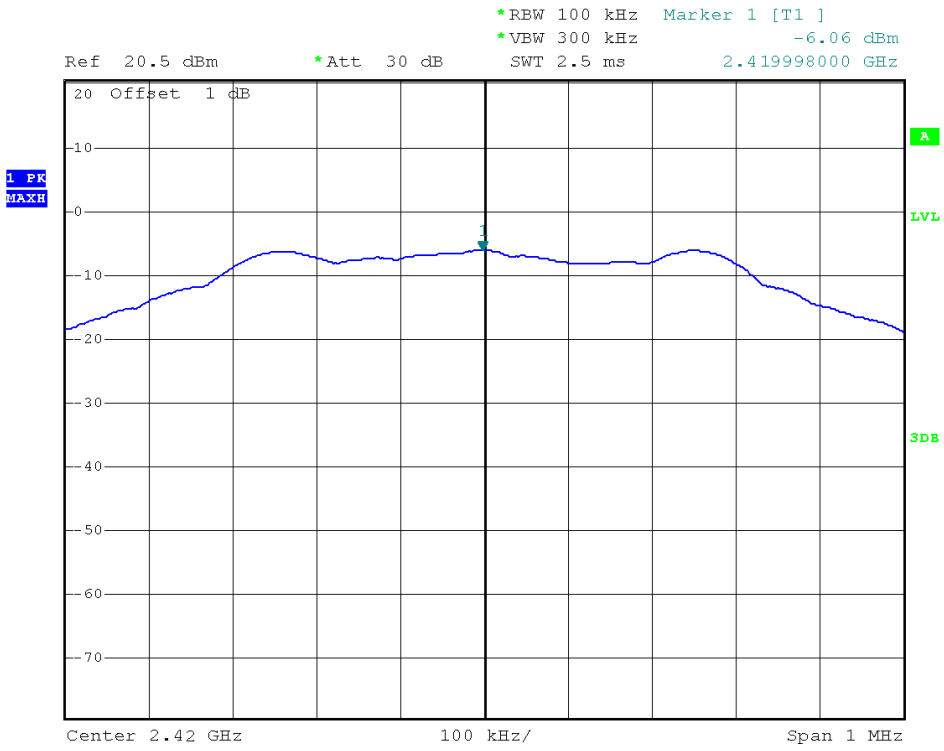
1. Measured power density (dBm) has offset with cable loss.
2. Bandwidth correction: 10log(3kHz/100kHz)=-15.2dB

Test Plots:

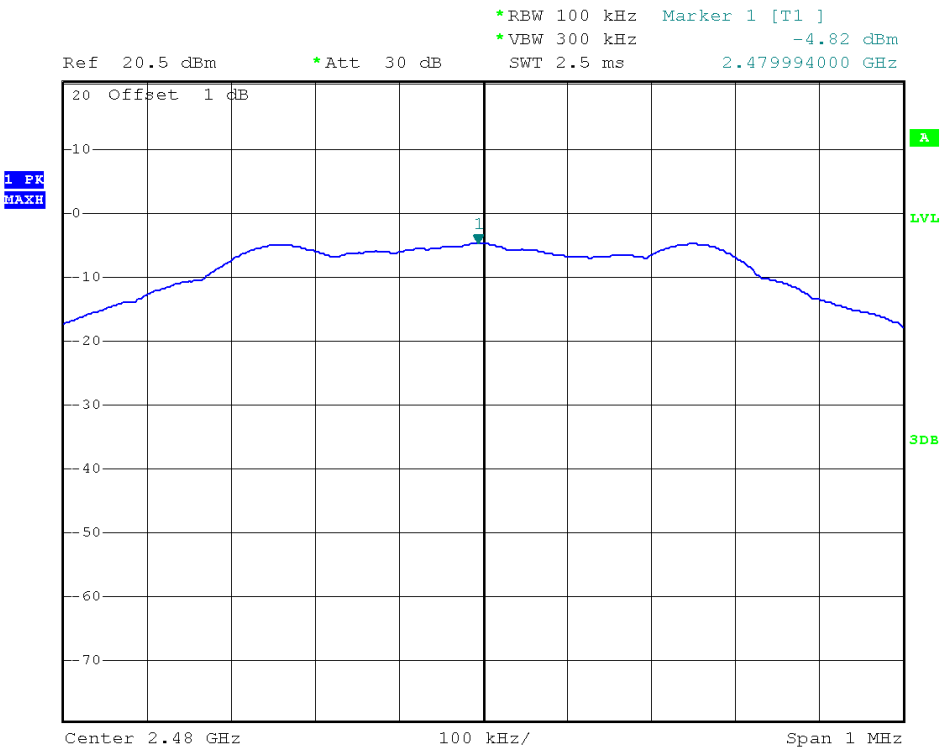
PSD Plot on Channel 0



PSD Plot on Channel 20



PSD Plot on Channel 39



2.6. Radiated Band Edge and Spurious Emission

2.6.1. Limit of Radiated Band Edges and Spurious Emission

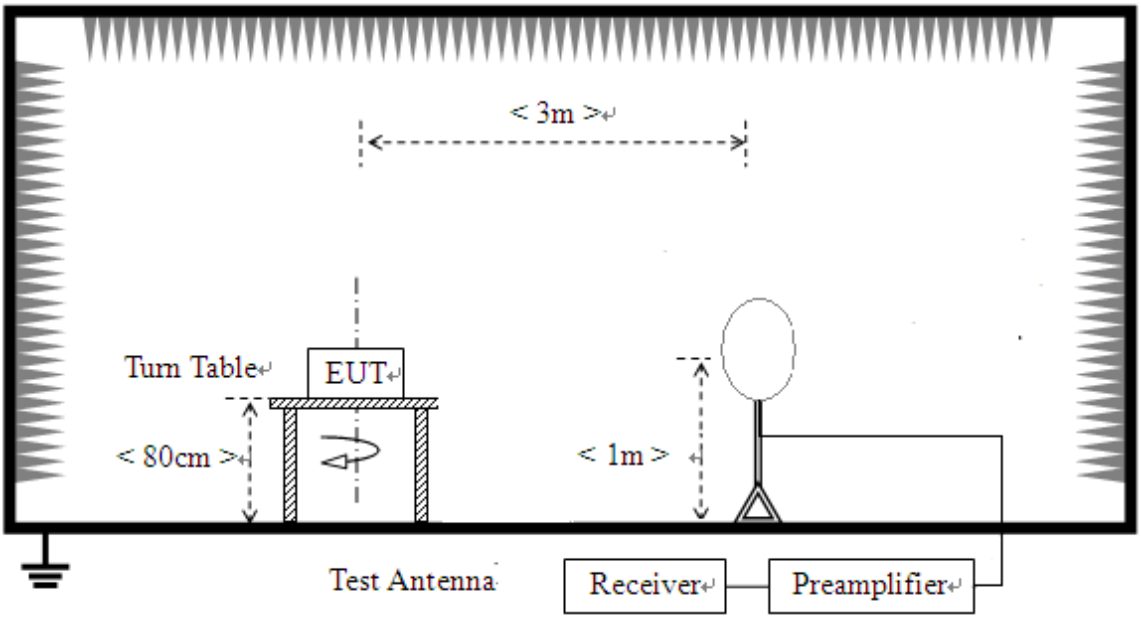
In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Note: Wireless charger configuration was evaluated.

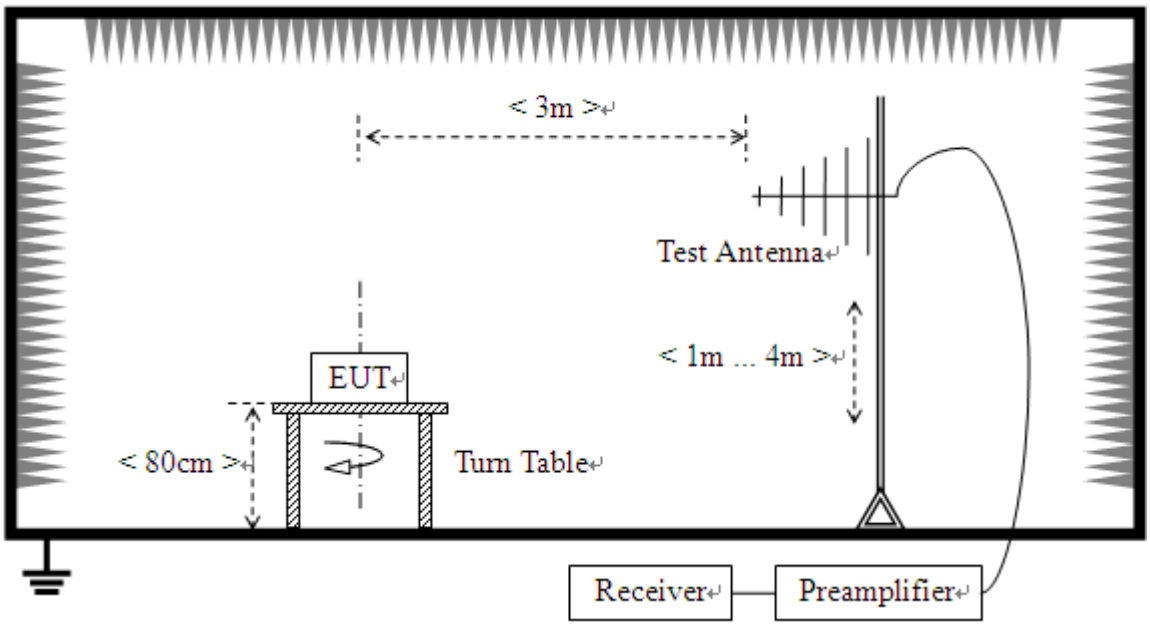
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

2.6.2. Test Setup

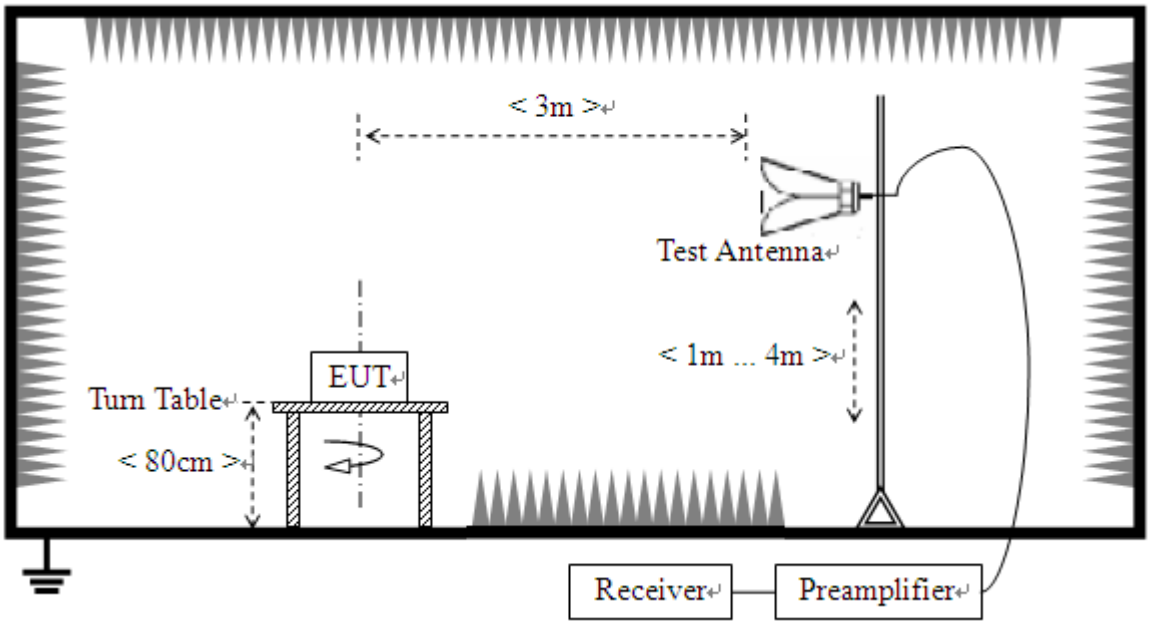
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



2.6.3. Test Procedures

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. Height of receiving antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported.
   Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

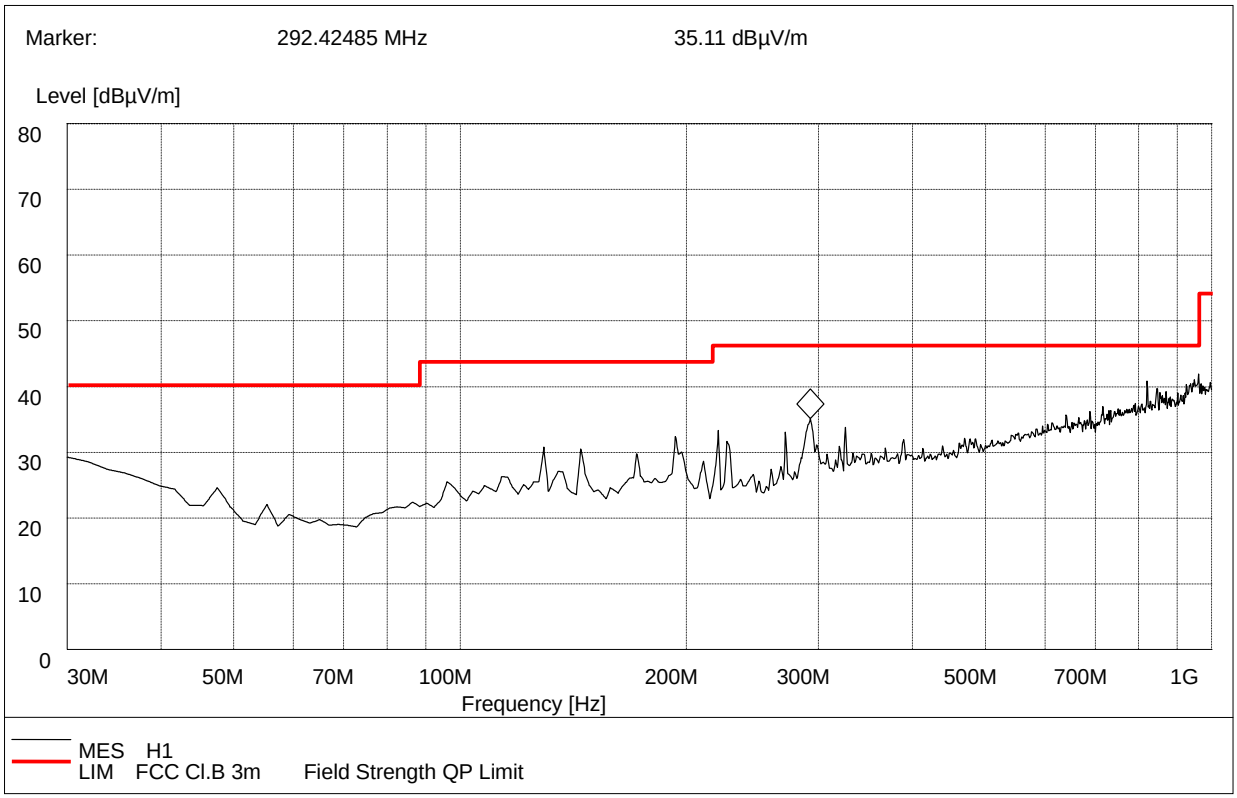
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is≥ 1/T (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.
5. All modes of operation were investigated and the worst-case emissions are reported.

2.6.4. Test Result

For 9KHz to 30MHz

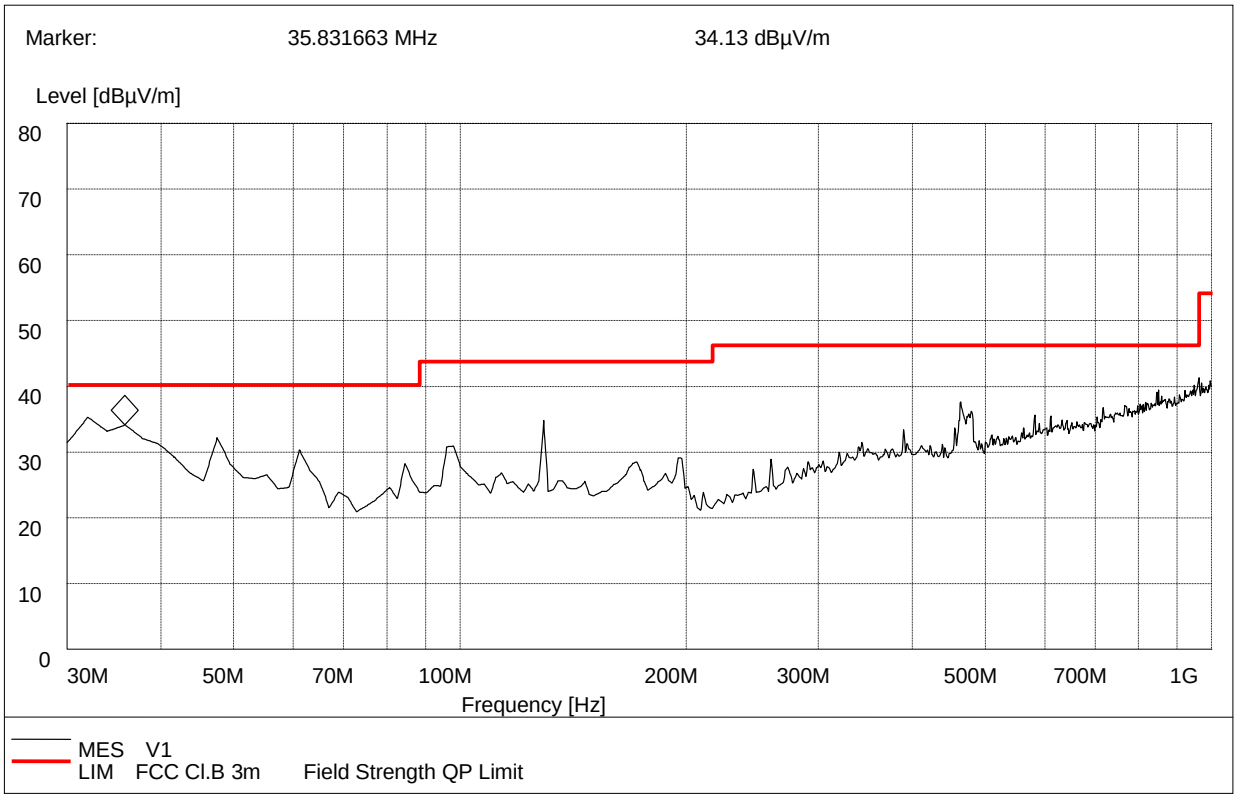
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

For 30MHz to 1000 MHz



Plot A: 30MHz to 1GHz, Antenna Horizontal

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Antenna	Verdict
275.62	33.46	120.000	100.0	46.0	Horizontal	Pass
292.42	35.11	120.000	100.0	46.0	Horizontal	Pass
323.57	33.97	120.000	100.0	46.0	Horizontal	Pass



Plot B: 30MHz to 1GHz, Antenna Vertical

Frequency (MHz)	QuasiPeak (dBµ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµ V/m)	Antenna	Verdict
35.83	34.13	120.000	100.0	40.00	Vertical	Pass
137.59	35.47	120.000	100.0	43.50	Vertical	Pass
468.67	377.64	120.000	100.0	46.00	Vertical	Pass

For 1GHz to 25GHz（10th Harmonic）

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M（0CH_2402MHz）									
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	56.7	PK	74.0	-17.3	1.01 H	228	24.50	32.20
2	2390.00	43.9	AV	54.0	-10.1	1.01 H	228	11.70	32.20
3	*2402.00	103.92	PK	/	/	1.03 H	112	69.20	32.20
4	*2402.00	97.03	AV	/	/	1.03 H	112	65.80	32.20
5	4804.00	51.8	PK	74.00	-22.2	1.00 H	254	46.50	5.30
6	4804.00	48.6	AV	54.00	-5.4	1.00 H	254	43.30	5.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M（0CH_2402MHz）									
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.0.	PK	74.0	-17.0	1.11 V	228	24.80	32.20
2	2390.00	44.2	AV	54.0	-9.8	1.11 V	228	12.00	32.20
3	*2402.00	117.1	PK	/	/	1.09 V	112	84.90	32.20
4	*2402.00	113.6	AV	/	/	1.03 V	112	81.40	32.20
5	4804.00	54.4	PK	74.00	-19.6	1.21 V	254	49.10	5.30
6	4804.00	44.3	AV	54.00	-9.7	1.21 V	254	39.00	5.30

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M（20CH_2442MHz）									
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2442.00	107.3	PK	/	/	1.01 H	210	75.10	32.20
2	*2442.00	104.1	AV	/	/	1.01 H	210	71.90	32.20
3	4884.00	53.8	PK	74.00	-20.2	1.03 H	272	48.50	5.30
4	4884.00	46.2	AV	54.00	-7.8	1.03 H	272	40.90	5.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M（20CH_2442MHz）									
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2442.00	109.0	PK	/	/	1.09 V	112	76.80	32.20
2	*2442.00	105.3	AV	/	/	1.09 V	112	73.10	32.20
3	4884.00	56.8	PK	74.00	-17.2	1.21 V	254	51.50	5.30
4	4884.00	46.5	AV	54.00	-7.5	1.21 V	254	41.20	5.30

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M（39CH_2480MHz）									
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	106.2	PK	/	/	1.05 V	215	73.90	32.30
2	*2480.00	102.3	AV	/	/	1.05 V	215	70.00	32.30
3	2483.50	57.3	PK	74.0	-16.7	1.05 V	211	24.90	32.40
4	2483.50	45.0	AV	54.0	-9.0	1.05 V	211	12.60	32.40
5	4960.00	52.4	PK	74.0	-11.6	1.45 V	320	46.90	5.50
6	4960.00	48.3	AV	54.0	-5.7	1.45 V	320	42.80	5.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M（39CH_2480MHz）									
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	120.3	PK	/	/	1.05 V	174	88.00	32.30
2	*2480.00	116.8	AV	/	/	1.05 V	174	84.50	32.30
3	2483.50	55.5	PK	74.0	-18.5	1.05 V	177	23.10	32.40
4	2483.50	45.7	AV	54.0	-8.3	1.05 V	177	13.30	32.40
5	4960.00	55.9	PK	74.0	-18.1	1.45 V	201	50.40	5.50
6	4960.00	46.9	AV	54.0	-7.1	1.45 V	201	41.40	5.50

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
   － Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level － Limit value
5. " * ": Fundamental frequency.

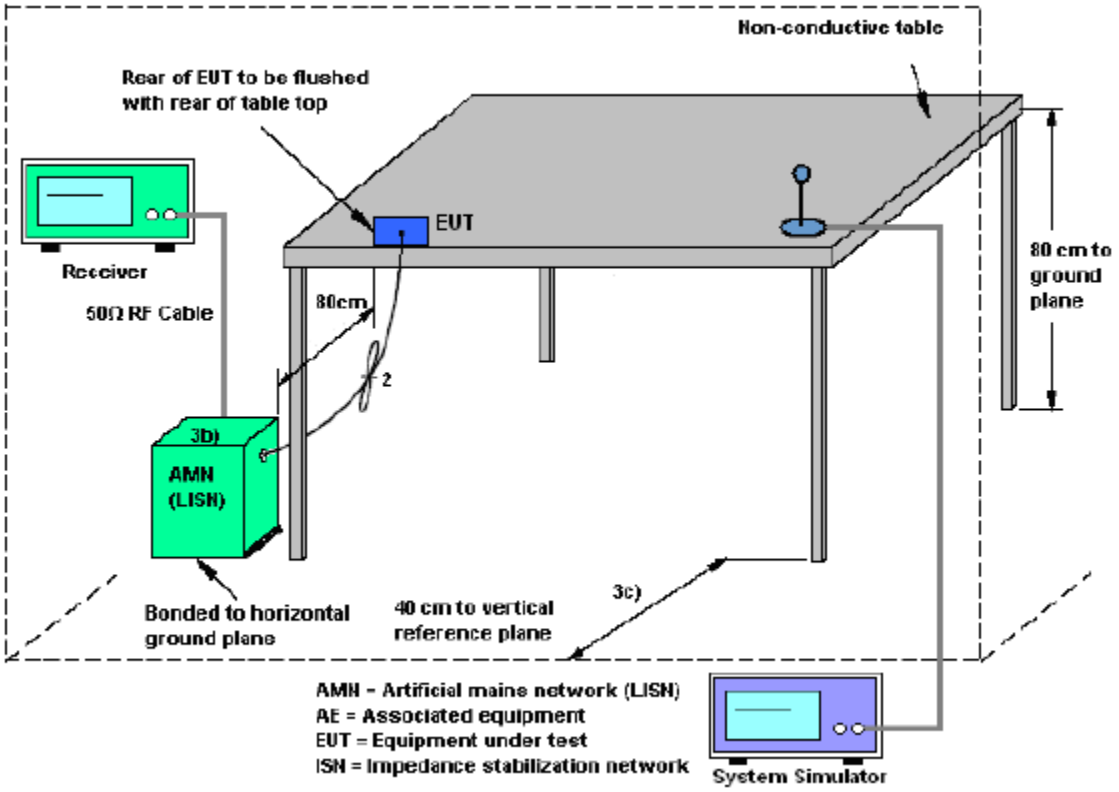
2.7. Conducted Emission

2.7.1. Limit of Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

2.7.2. Test Setup



2.7.3. Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.

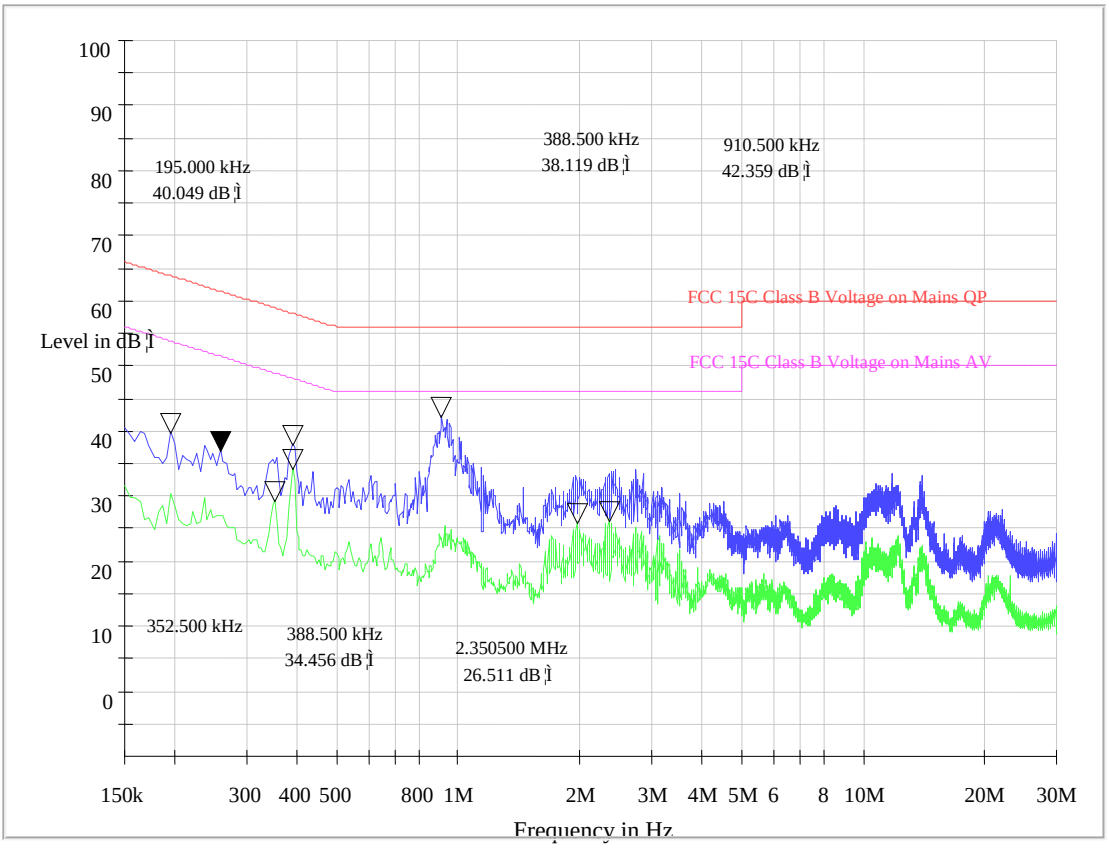
5. The FCC states that a 50 ohm, 50 micrometry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

2.7.4. Test Result

The EUT configuration of the emission tests is Bluetooth Link + USB Cable (Charging from Adapter).

Adapter	
Model	CMS105
Input	AC 100~240V 50/60Hz 0.15A
Output	DC 5V 1A

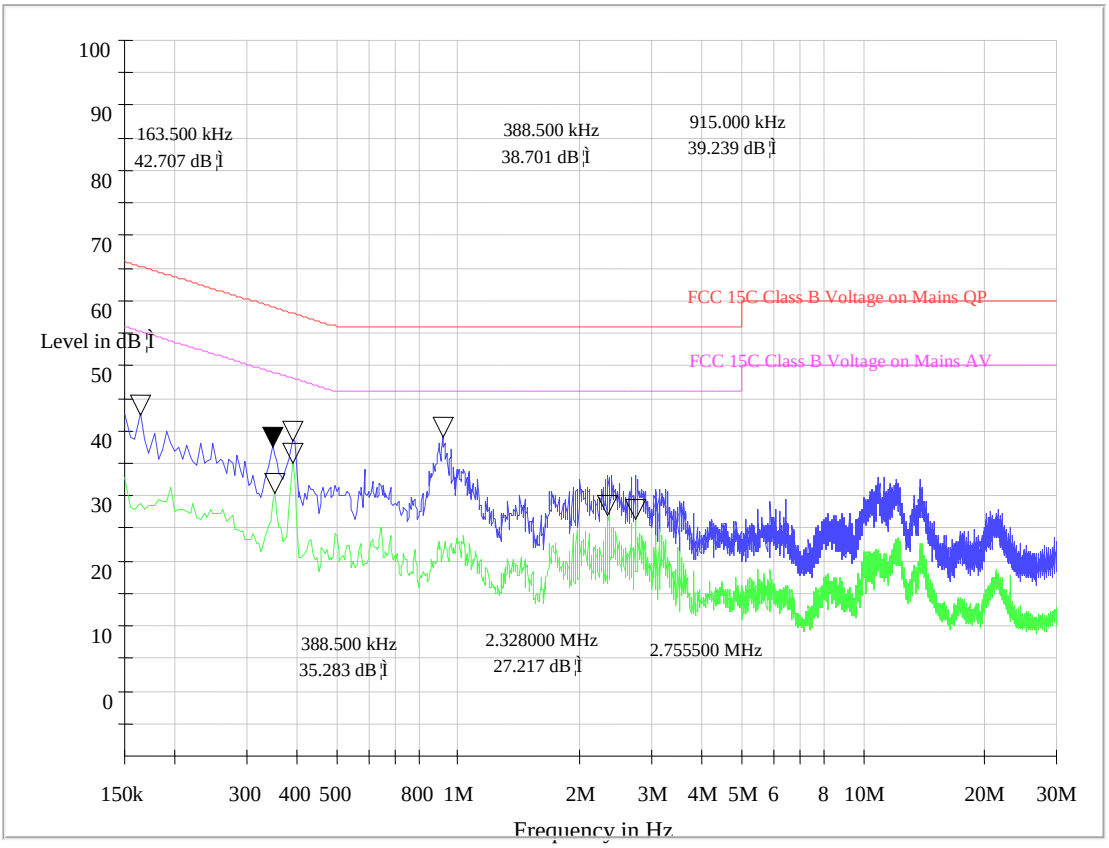
Voltage Test



(Plot A: L Phase)

Conducted Disturbance at Mains Terminals					
L Test Data					
QP			AV		
Frequency (MHz)	Limits (dBµV)	Measurement Value (dBµV)	Frequency (MHz)	Limits (dBµV)	Measurement Value (dBµV)
0.195	63.8	40.05	0.353	48.9	29.51
0.258	61.5	37.18	0.389	48.1	34.46
0.389	58.1	38.12	1.959	48.9	26.05
0.911	56.0	42.36	2.351	46.00	26.51

Voltage Test



(Plot B: N Phase)

Conducted Disturbance at Mains Terminals					
N Test Data					
QP			AV		
Frequency (MHz)	Limits (dBµV)	Measurement Value (dBµV)	Frequency (MHz)	Limits (dBµV)	Measurement Value (dBµV)
0.164	65.3	42.71	0.353	48.9	30.74
0.348	59.0	37.64	0.389	48.1	35.28
0.389	58.1	38.70	2.328	46.0	27.22
0.915	56.0	39.24	2.756	46.0	26.81

2.8. RF exposure evaluation

According to § 1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy lever in excess of Commission's guideline.

According to 447498 D01 General RF Exposure Guidance v05, exclusion threshold values at selected frequencies and distances table as following.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

MHz	30	35	40	45	50	mm
150	232	271	310	349	387	SAR Test Exclusion Threshold (mW)
300	164	192	219	246	274	
450	134	157	179	201	224	
835	98	115	131	148	164	
900	95	111	126	142	158	
1500	73	86	98	110	122	
1900	65	76	87	98	109	
2450	57	67	77	86	96	
3600	47	55	63	71	79	
5200	39	46	53	59	66	
5400	39	45	52	58	65	
5800	37	44	50	56	62	

Routine SAR evaluation refers to the specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evolution is not required, the portable transmitters with output power greater than the applicable low threshold SAR evolution to qualify for TCB approval.

Result:

This is portable device and the Max conducted peak output power is -4.54dBm, the maximum gain of antenna is -0.5dBi, the maximum output power is -5.04dBm (0.313mW), which is lower than the exclusion threshold 10mW, at frequency 2450MHz, and distance is 5mm.

The SAR measurement is not required.

3. List of measuring equipment

Description	Manufacturer	Model	Serial No.	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESIB26	A0304218	2014.06.11	2015.06.10	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2014.06.11	2015.06.10	Radiation
Bilog Antenna	Schwarzbeck	VULB 9163	9163-274	2014.06.10	2015.06.09	Radiation
Double ridge horn antenna	R&S	HF960	100150	2014.06.11	2015.06.10	Radiation
Ultra-wideband antenna	R&S	HL562	100089	2014.06.10	2015.06.09	Radiation
Test Antenna – Horn (18-25GHz)	ETS	UG-596A/U	A0902607	2014.06.11	2015.06.10	Radiation
Amplifier 20M~3GHz	R&S	PAP-0203H	22018	2014.06.10	2015.06.09	Radiation
Ampilier 1G~18GHz	R&S	MITEQ AFS42-00101800	25-S-42	2014.06.05	2015.06.04	Radiation
Ampilier 18G~40GHz	R&S	JS42-18002600-28-5A	12111.0980.00	2014.06.05	2015.06.04	Radiation
Full-Anechoic Chamber	Albatross	12.8m*6.8m*6.4m	A0412372	2014.06.11	2015.06.10	Radiation
Spectrum Analyzer	R&S	FSP40	1164.4391.40	2014.06.11	2015.06.10	Conducted
Power Meter	R&S	NRVS	1020.1809.02	2014.06.08	2015.06.07	Conducted
Power Sensor	R&S	NRV-Z4	823.3618.03	2014.06.08	2015.06.07	Conducted
Test Receiver	R&S	ESCS30	A0304260	2014.06.11	2015.06.10	Conducted
LISN	ROHDE&SCHWARZ	ESH2-Z5	A0304221	2014.06.11	2015.06.10	Conducted
Cable	SUNHNER	SUCOFLEX 100	/	2014.06.05	2015.06.04	Radiation
Cable	SUNHNER	SUCOFLEX 104	/	2014.06.05	2015.06.04	Radiation

** END OF REPORT **