RF TEST REPORT

Report No.:	SET2015-11565
Product Name:	Zigbee Module
FCC ID:	2AFGR-APS2530S
IC:	20481-APS2530S
Model No. :	APS2530S
Applicant:	Altenergy Power System Inc.
Address:	No.1, Yatai Road, Jiaxing Zhejiang 314050 P.R. China
Dates of Testing:	07/15/2015 — 07/24/2015
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 ..... :	Zigbee Module
Brand Name ..... :	APsystems
Trade Name ..... :	N/A
Applicant ..... :	Altenergy Power System Inc.
Applicant Address ..... :	No.1, Yatai Road, Jiaxing Zhejiang 314050 P.R. China
Manufacturer ..... :	Altenergy Power System Inc.
Manufacturer Address ..... :	No.1, Yatai Road, Jiaxing Zhejiang 314050 P.R. China
Test Standards ..... :	47 CFR Part 15 Subpart C：Radio Frequency Devices RSS-247 Issue 1, May 2015 Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
Test Result ..... :	PASS

Tested by ..... :

2015.07.24

Lu Lei， Test Engineer

Reviewed by..... :

2015.07.24

Zhu Qi, Senior Egineer

Approved by ..... :

2015.07.24

Wu Li'an，Manager

TABLE OF CONTENTS

Change History		
Issue	Date	Reason for change
1.0	2015.07.24	First edition

1. General Information

1.1. EUT Description

EUT Type	Zigbee
Hardware Version	APS2530 V2.1
Software Version	Inverter_V2.0.5
Power Supply	3.3V
Temperature operating range	-40~85℃
EUT supports Radios application	Zigbee
Frequency Range	2405MHz~2480MHz
Channel Number	16
Bit Rate of Transmitter	250 kbps
Modulation Type	O-QPSK
Antenna Type	whip Antenna
Antenna Gain	2dBi

Note 1: The EUT is a Zigbee Module, it contain Zigbee Module operating at 2.4GHz ISM band; the frequencies allocated for the zigbee is F(MHz)=2405+5*(n-11) (11<=n<=26). The lowest, middle, highest channel numbers of the Zigbee Module used and tested in this report are separately 11 (2405MHz), 18(2440MHz) and 26 (2480MHz).

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

1.2. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C for the EUT FCC Certification:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart C 2013	Radio Frequency Devices
2	ANSI C63.10 2013	American National Standard for Testing Unlicensed Wireless Devices
3	RSS-GEN: Issue 4,November 2014	General Requirements and Information for the Certification of Radio Apparatus
4	RSS-247 Issue 1, May 2015	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

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

No.	Standard(s) Section		Description	Result
	FCC	IC		
1	15.203	8.3	Antenna Requirement	PASS
2	15.247(b)(3)	RSS-247 Issue1 - 5.4(4)	Peak Output Power/EIRP	PASS
3	15.247(a)(2)	RSS-247 Issue1 - 5.2(1)	Bandwidth – 6dB bandwidth	PASS
4	/	RSS Gen clause - 4.6.1	99% Occupied Bandwidth	PASS
5	15.247(d)	RSS-247 Issue1 - 5.5	Conducted Spurious Emission	PASS
6	15.247(e)	RSS-247 Issue1 - 5.2(2)	Power spectral density (PSD)	PASS
7	15.205 15.247(d)	RSS-247 Issue1 - 5.5 RSS - Gen	Band Edge	PASS
8	15.209(a)	RSS-GEN	Spurious emissions radiated below 30MHz	PASS
9	15.247(d) 15.209	RSS-247 Issue1 - 5.5 RSS-Gen	Spurious emissions radiated 30 MHz to 1GHz and above 1GHz	PASS
10	15.207(a), 15.20(c)	RSS-GEN Section 8.8	Conducted Emission	PASS

The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.10 2013.

These RF tests were performed according to the method of measurements prescribed in KDB558074 D01 V03r03.

1.3. Description of test modes

15 channels are provided for Zigbee Module

Channel	Frequency(MHz)	Channel	Frequency(MHz)
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

1.4. Test environment and mode

Operating Environment	
Temperature	24℃
Humidity	57 % RH
Atmospheric Pressure	1010 mbar
Test mode：	
Continuously transmitting mode	Keeps the EUT in 100% duty cycle transmitting, duty cycle factor is not required.
ancillary equipment	AC adapter, output: 3.7V PC: Thinkpad E40

Ancillary equipment	
AC adapter	
Model	HKC0055010
Brand name	Huntkey
power specification	Input: 100~240V-50/60Hz Max Output:3.7V/0.5A
PC	
Model	Thinkpad edge E40
Brand name	Lenovo

Channel	Frequency(MHz)
L-11	2405
M-18	2440
H-26	2480

1.5. Test 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.

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

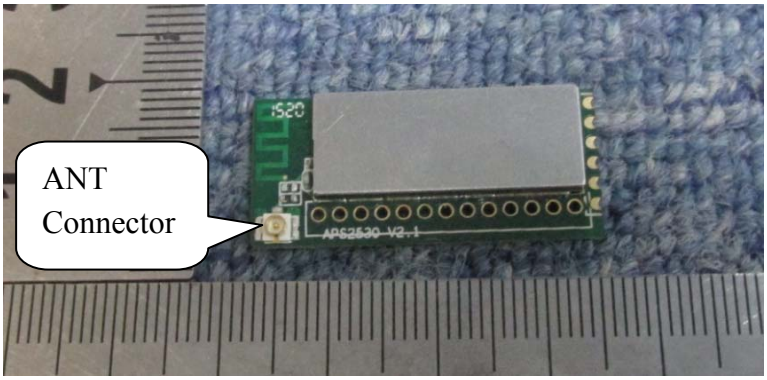
This device uses a unique antenna coupling to the device, which is designed by the responsible party based on the fillings you submitted.

Antenna General Information:

No.	EUT	Model No.	Ant. Type	Gain(dBi)
1	Zigbee Module	APS2530S	whip	2

2.1.3. Result: comply

The module contain a unique antenna connector, and be marketed and operated only with specific antenna(s).



2.2. Output Power

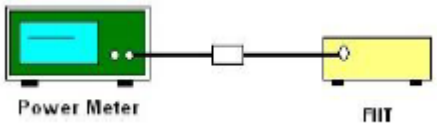
2.2.1. Requirement

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. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.2.3. Test Setup



2.2.4. Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance V03r03.

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.

5. E.I.R.P=conducted power + antenna Gain(dBi)

2.2.5. Test Result

Antenna Type	Channel	Frequency (MHz)	Conducted Power(dBm)	Gain(dBi) Calculated	E.I.R.P (dBm)	Limit (dBm)	Verdict
Whip	11	2405	6.85	2	8.85	30	PASS
	18	2440	5.24		7.24		PASS
	26	2480	4.96		6.96		PASS

2.3. Bandwidth

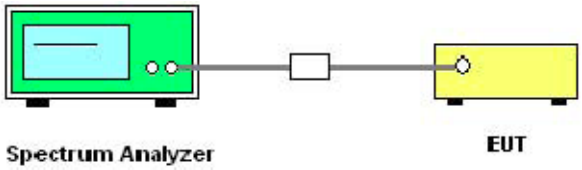
2.3.1. Limit of 6dB and 99% Bandwidth

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

2.3.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.3.3. Test Setup



2.3.4. Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance V03r03.

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 100kHz and set the Video bandwidth (VBW) = 300kHz.

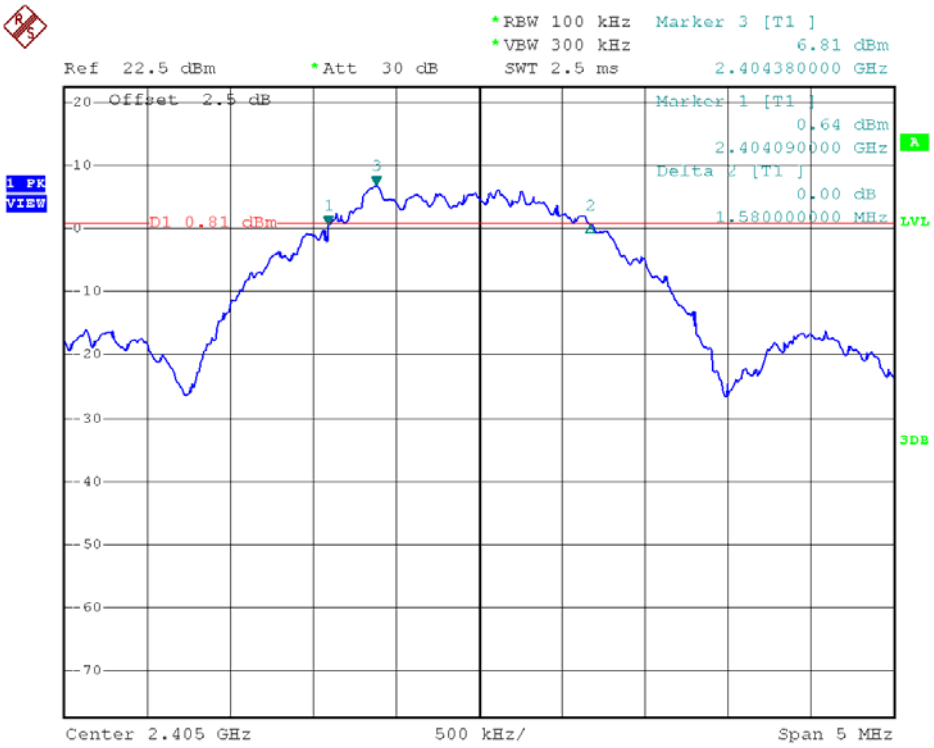
6. Measure and record the results in the test report.

2.3.5. Test Results of 6dB Bandwidth and 99% Bandwidth

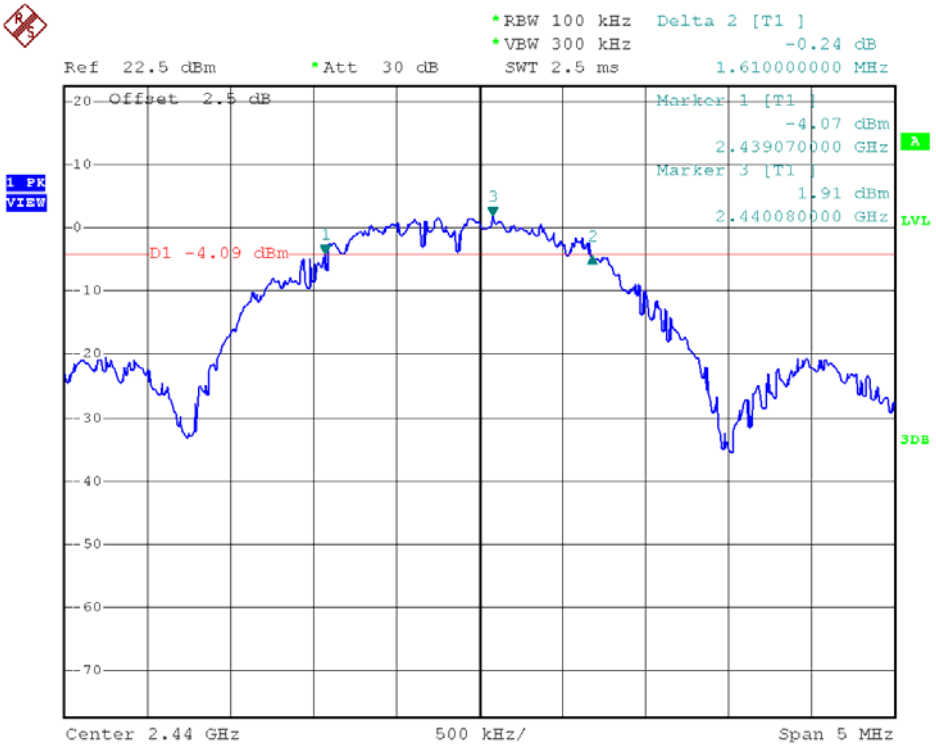
Channel	Frequency (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth (MHz)	Limits (MHz)	Result
11	2405	2.58	1.58	≥0.5	PASS
18	2440	2.58	1.61	≥0.5	PASS
26	2480	2.61	1.63	≥0.5	PASS

2.3.6. Test Results (plots) of Bandwidth

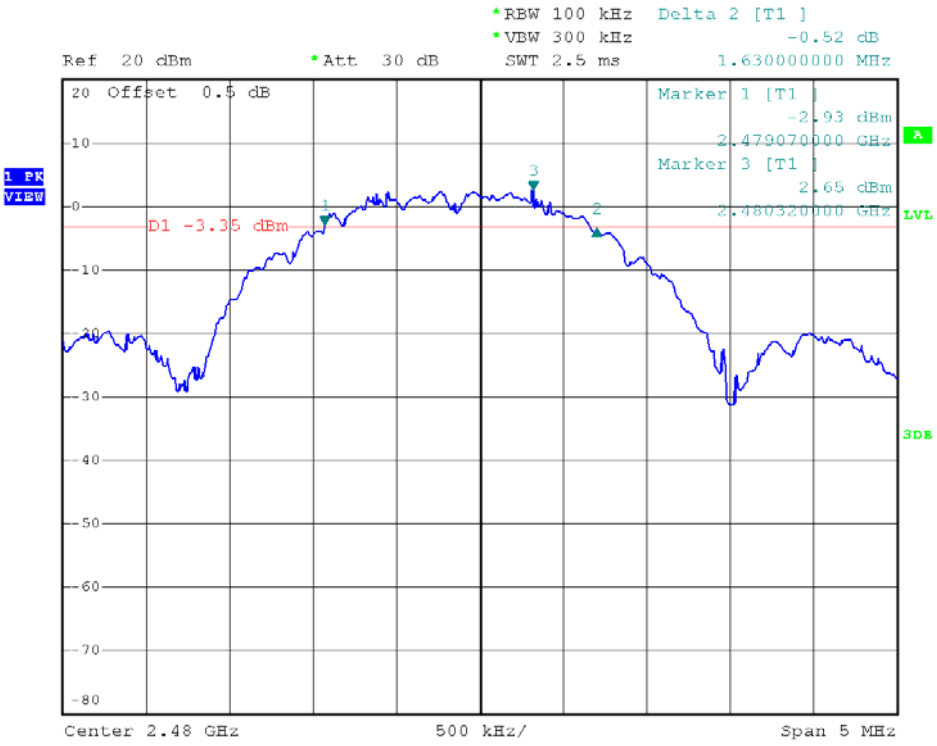
6 dB Bandwidth Plot on channel 11



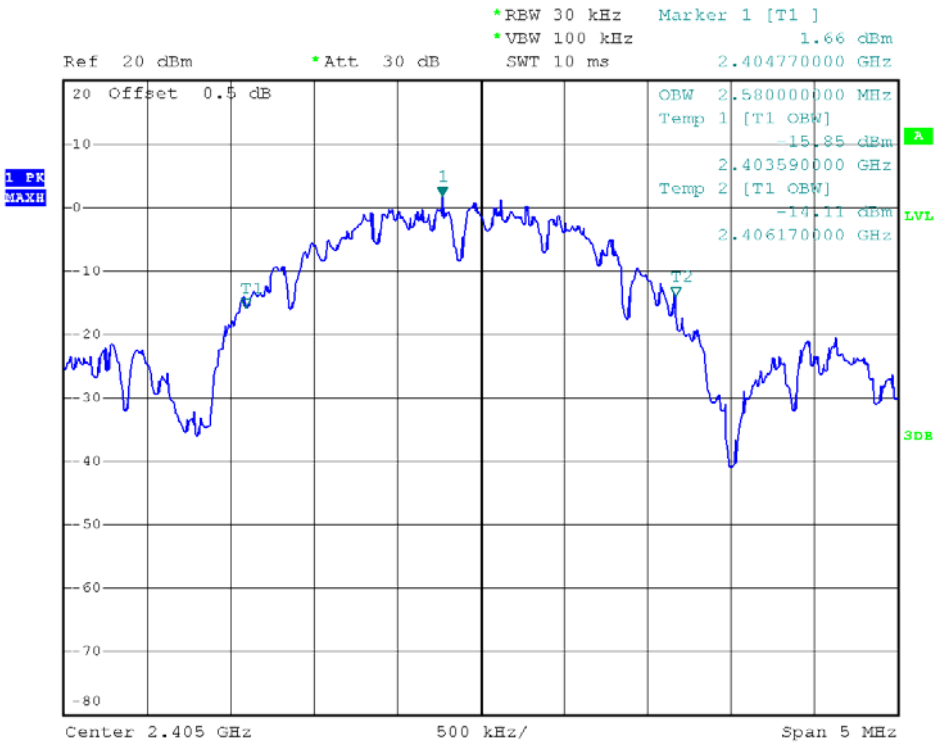
6 dB Bandwidth Plot on channel 18



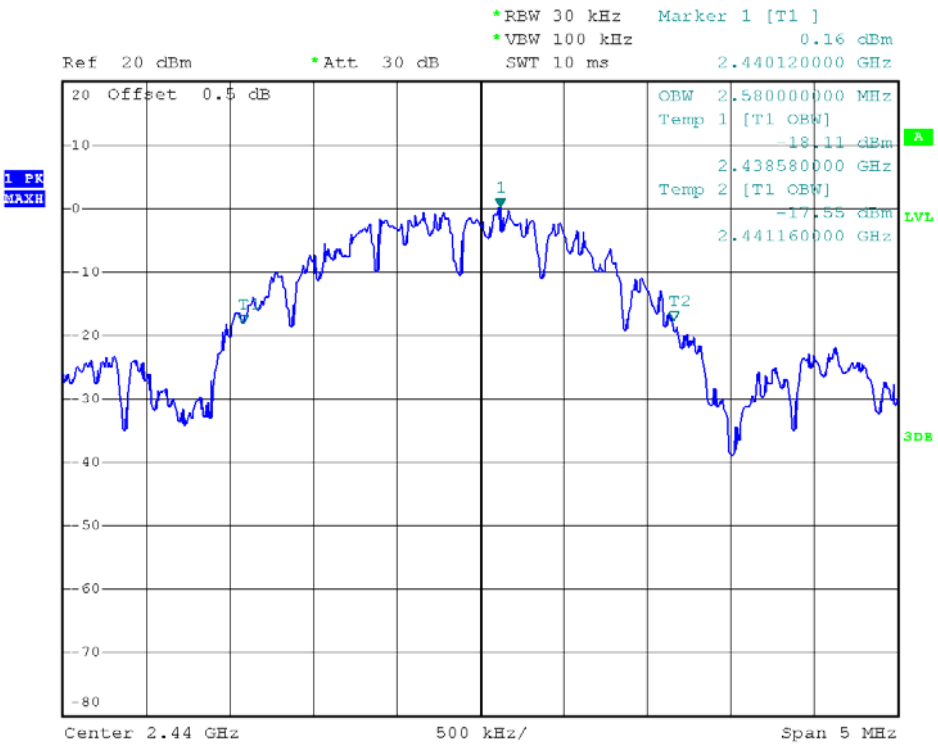
6 dB Bandwidth Plot on channel 26



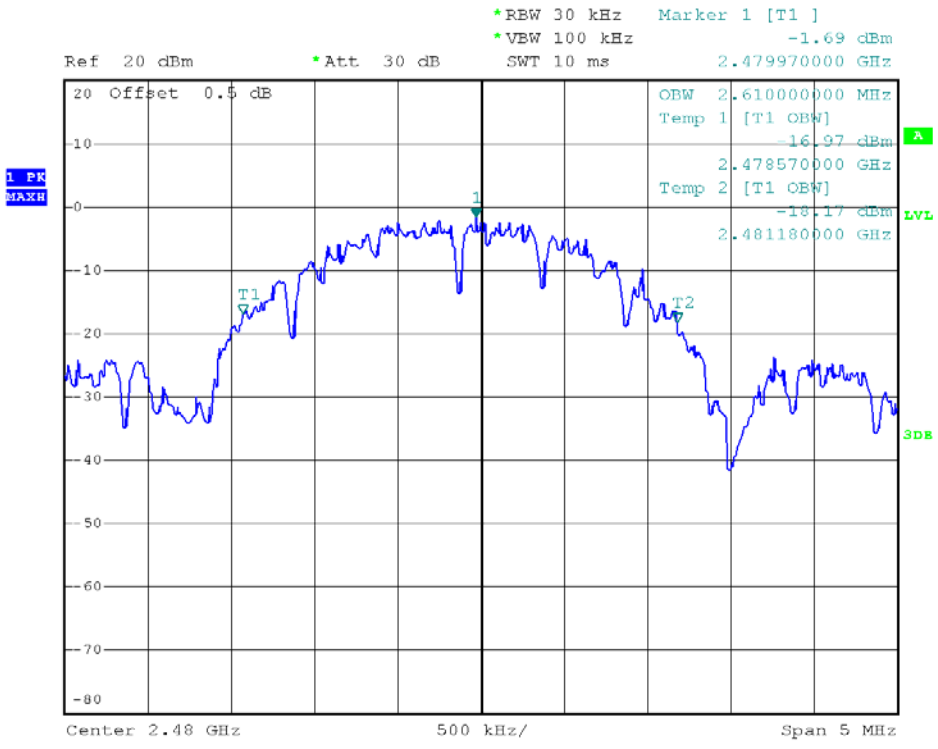
99% Bandwidth Plot on channel 11



99% Bandwidth Plot on channel 18



99% Bandwidth Plot on channel 26



2.3.7. Conducted Band Edges and Spurious Emissions

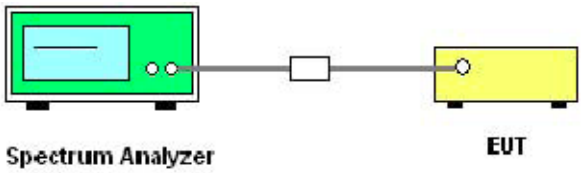
2.3.8. Limit of Conducted Band Edges and Spurious Emissions

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

2.3.9. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.3.10. Test Setup



2.3.11. Test Procedure

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance V03r03.

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.

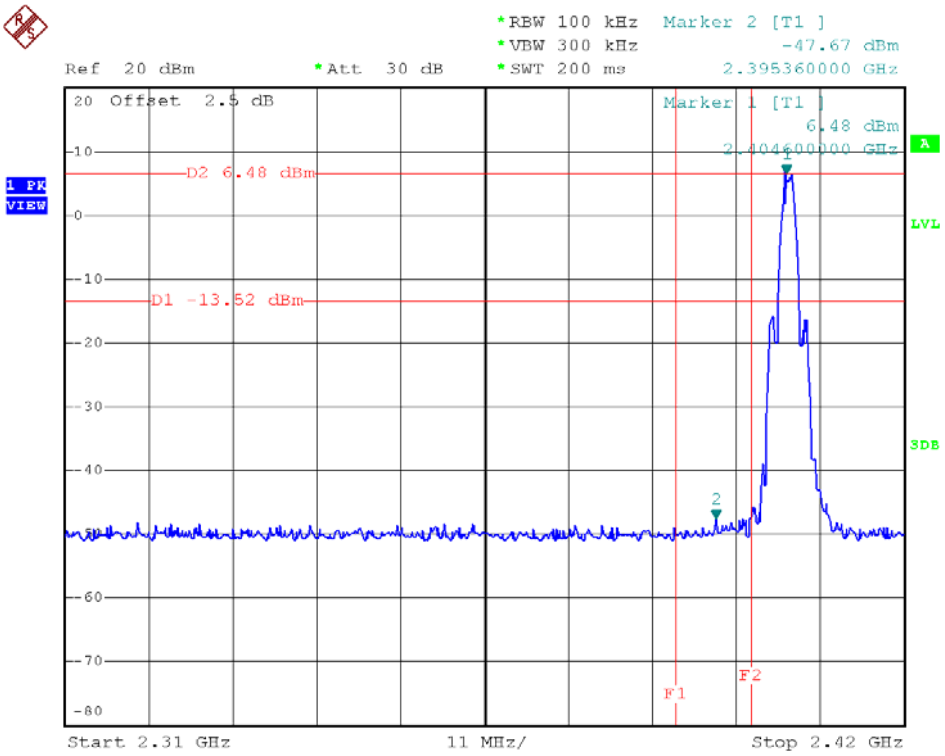
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If 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.

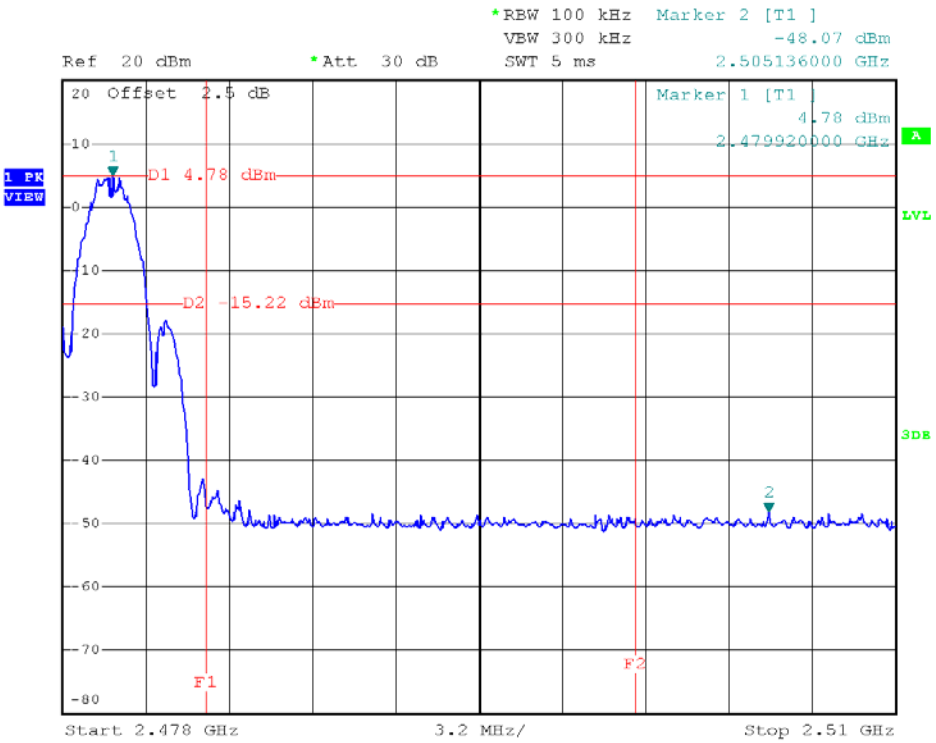
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

2.3.12. Test Result (Plots) of Conducted Band Edges

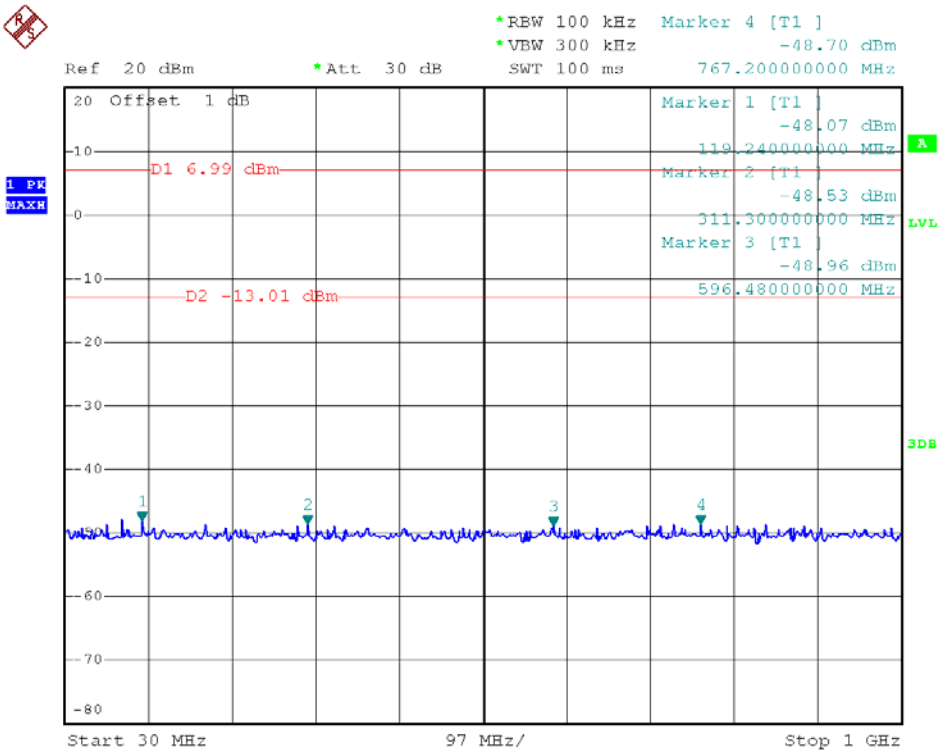
Low Band Edge Plot on Channel 11



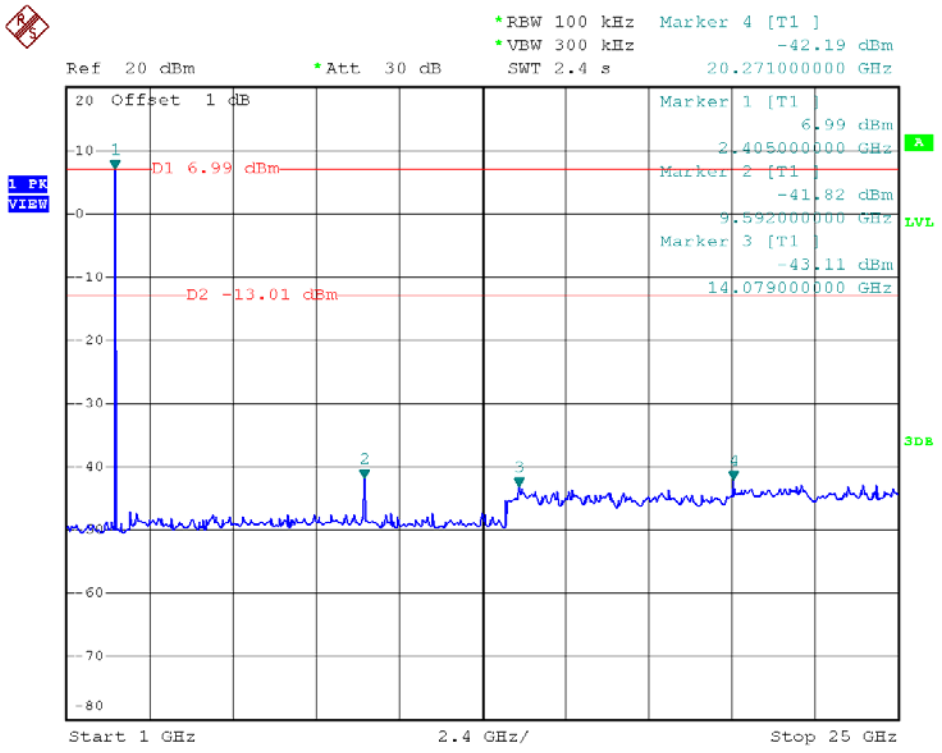
High Band Edge Plot on Channel 26



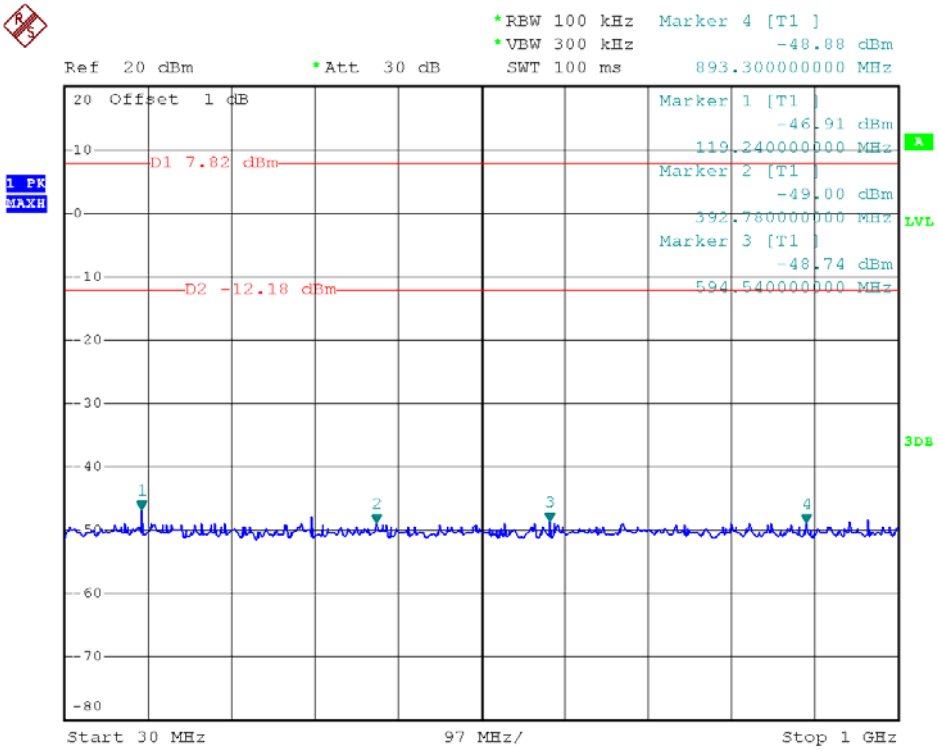
2.3.13. Test Result (Plots) of Conducted Spurious Emission



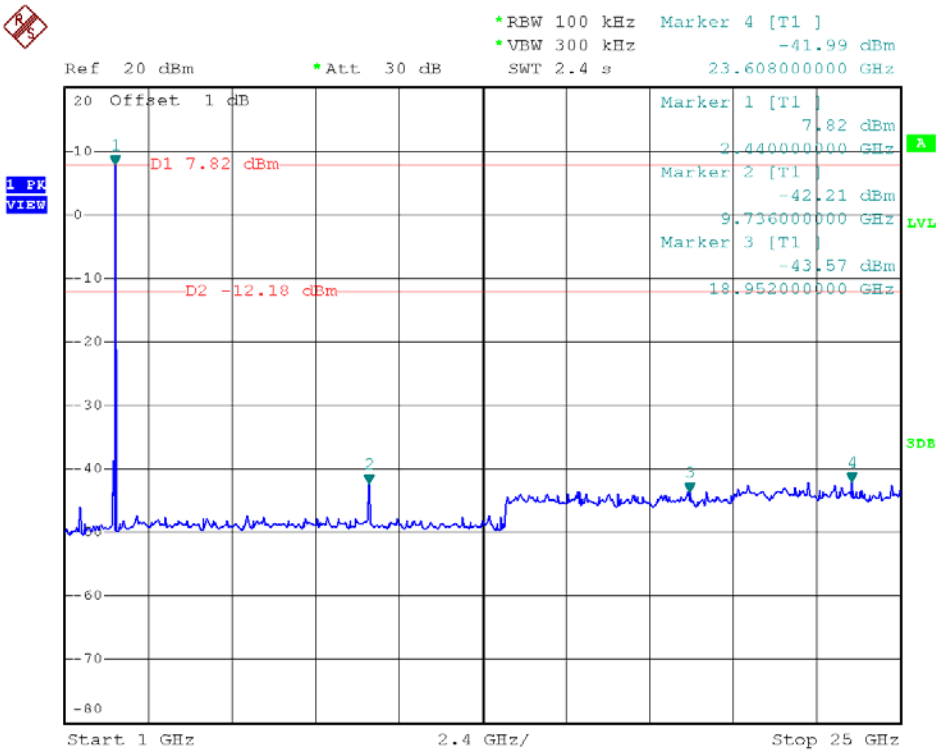
Channel = 11, 30MHz to 1GHz



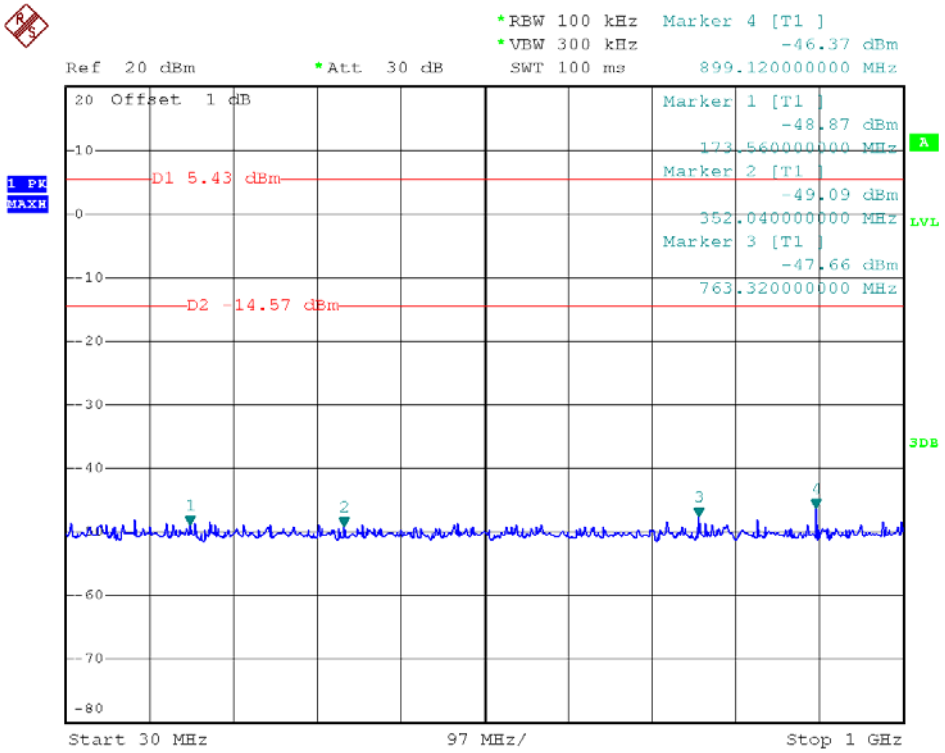
Channel = 11, 1GHz to 25GHz



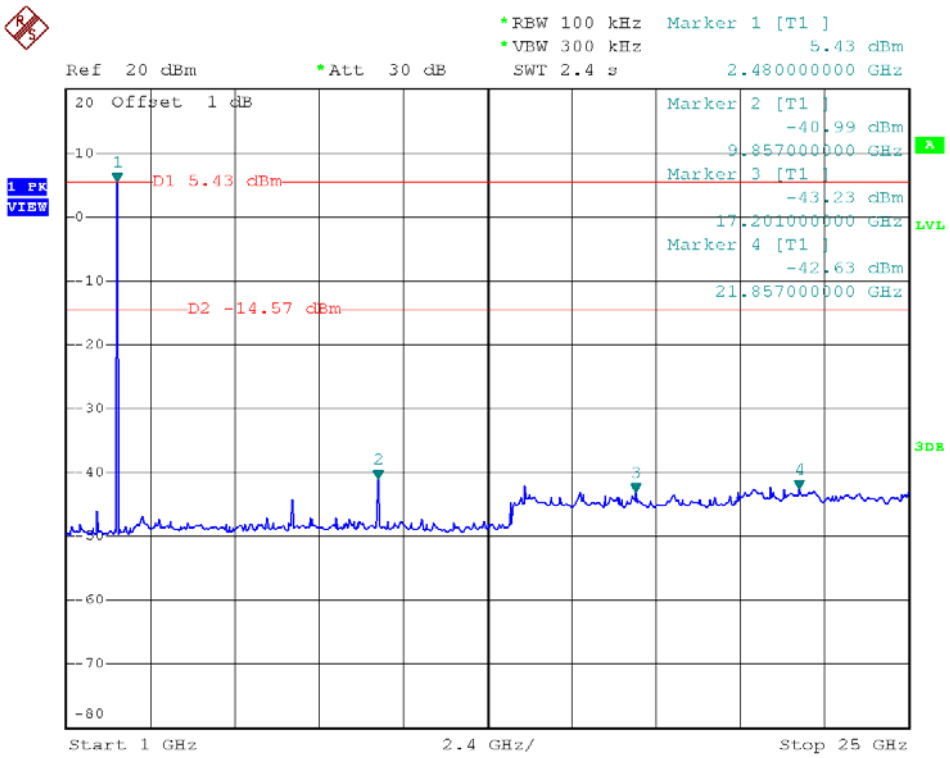
Channel = 18, 30MHz to 1GHz



Channel = 18, 1GHz to 25GHz



Channel = 26, 30MHz to 25GHz



Channel = 26, 30MHz to 25GHz

2.4. Power spectral density (PSD)

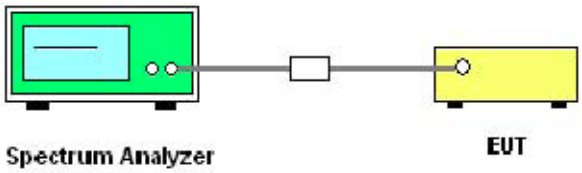
2.4.1. Limit of Power Spectral Density

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

2.4.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.4.3. Test Setup



2.4.4. Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No.558074 D01 DTS Meas. Guidance V03r03

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.

2.4.5. Test Results of Power spectral density

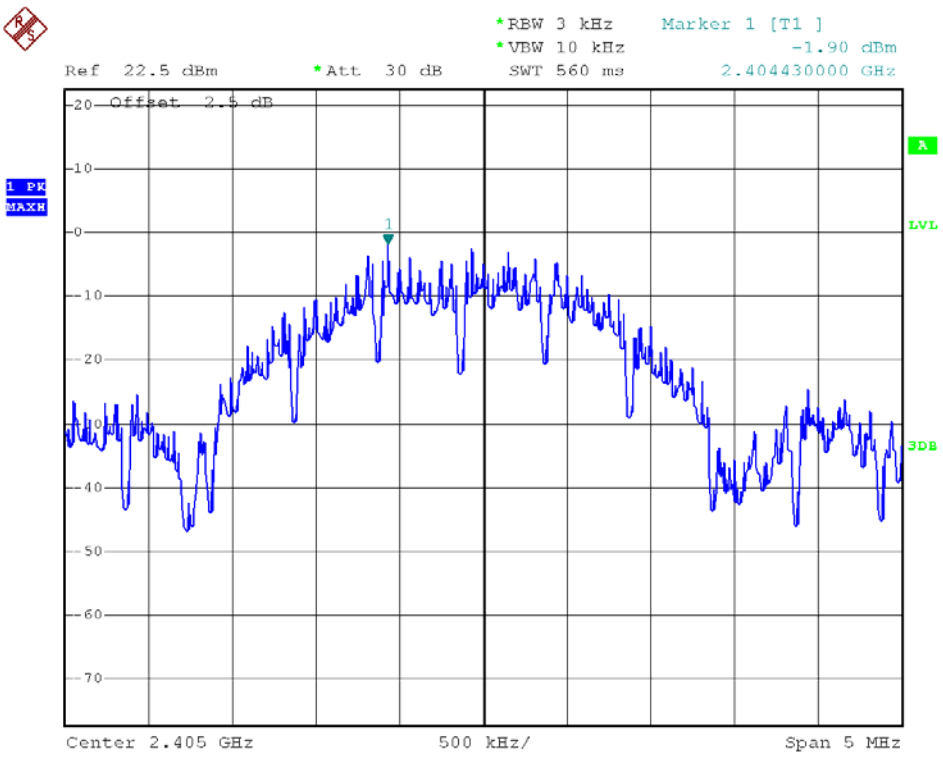
Spectral power density (dBm)				
Channel	Frequency (MHz)	PSD/3kHz (dBm)	Limit (dBm/3kHz)	Verdict
11	2405	-1.90	8	PASS
18	2440	-6.89	8	PASS
26	2480	-8.74	8	PASS
Measurement uncertainty: ±1.3dB				

Note:

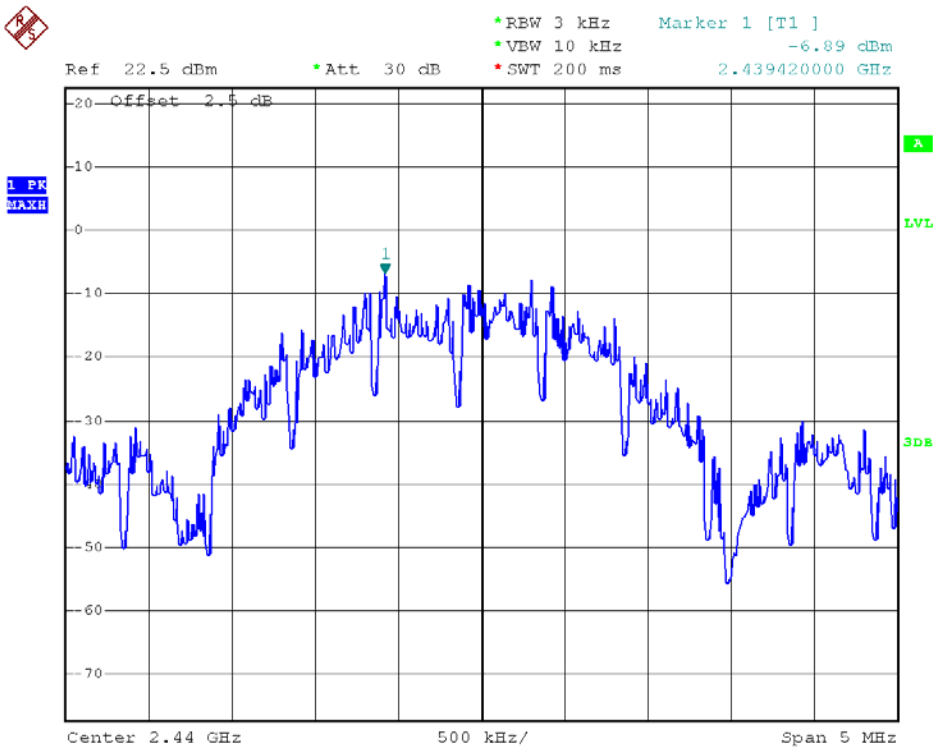
1. Measured power density (dBm) has offset with cable loss.

2.4.6. Test Results (plots) of Power spectral density

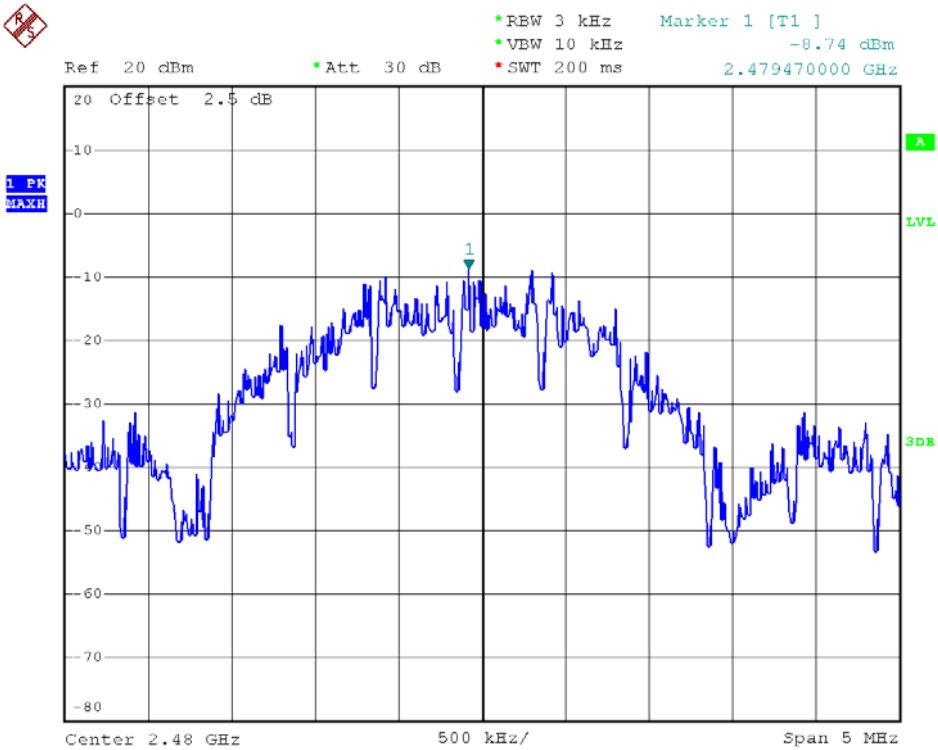
PSD Plot on Channel 11



PSD Plot on Channel 18



PSD Plot on Channel 25



2.5. Conducted Emission

2.5.1. Limit of Conducted Emission

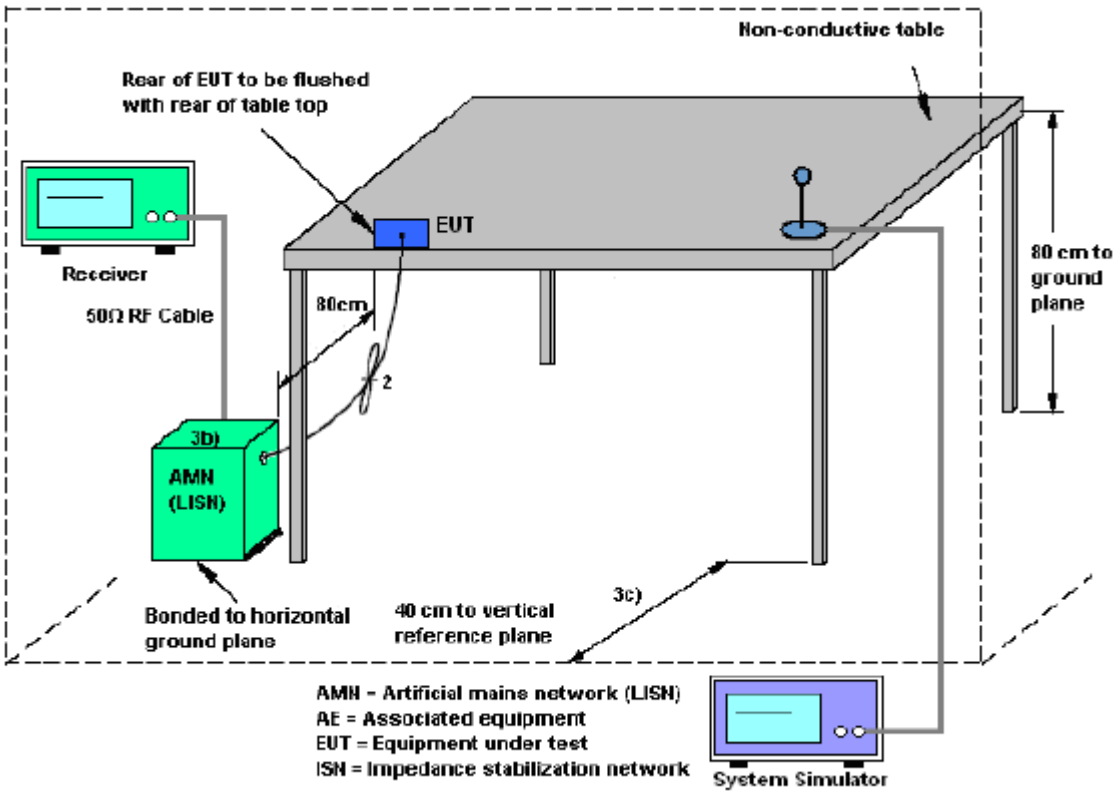
For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

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

2.5.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.5.3. Test Setup



2.5.4. 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 microhenry LISN should be used.

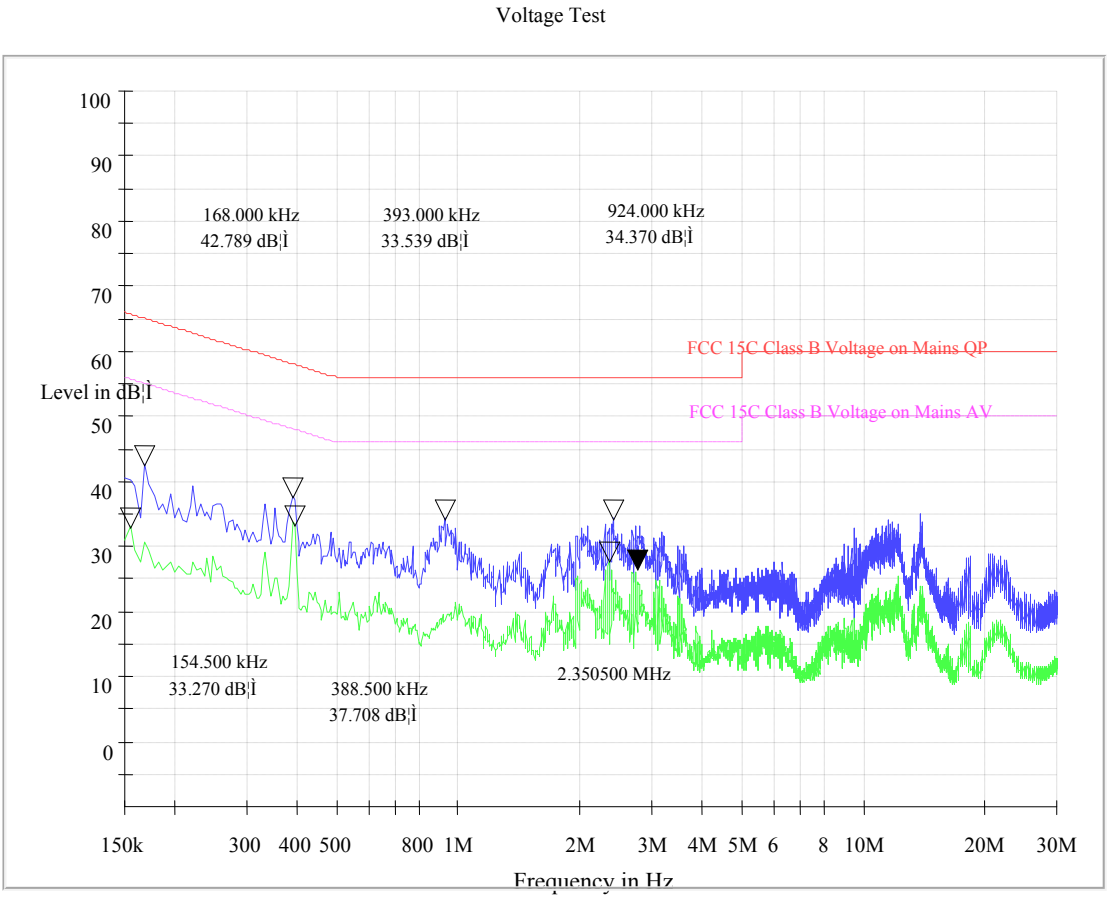
6. Both sides of AC line were checked for maximum conducted interference.

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.

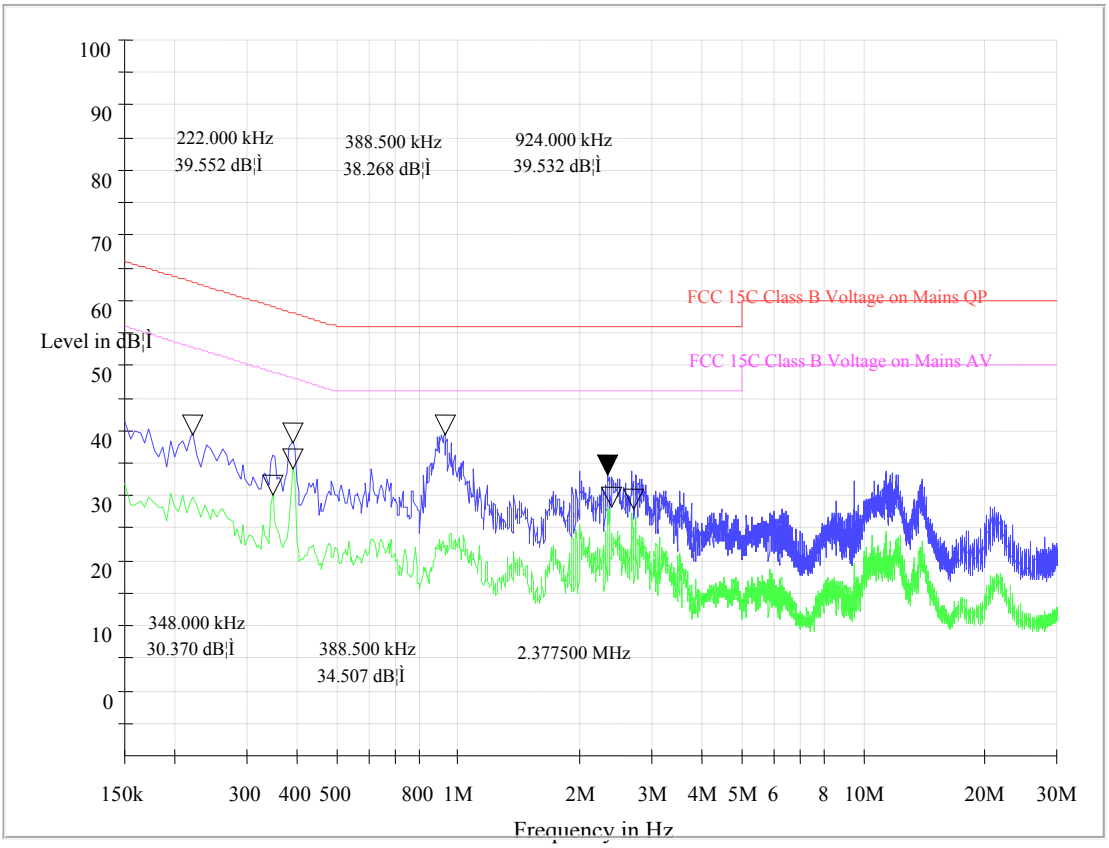
9. Conducted voltage: 110V/60Hz

2.5.5. Test Result



Conducted Disturbance at Mains Terminals					
L Test Data					
QP			AV		
Frequency (MHz)	Limits (dBµV)	Measurement Value (dBµV)	Frequency (MHz)	Limits (dBµV)	Measurement Value (dBµV)
0.168	65.1	42.79	0.155	55.7	33.27
0.389	58.0	37.71	0.393	48.1	33.54
0.924	56.0	34.37	2.351	46.0	27.92
2.409	56.0	34.45	2.769	46.0	26.80

Voltage Test



Conducted Disturbance at Mains Terminals					
N Test Data					
QP			**AV**		
Frequency (MHz)	**Limits (dBµV)**	**Measurement Value (dBµV)**	**Frequency (MHz)**	**Limits (dBµV)**	**Measurement Value (dBµV)**
0.222	62.7	39.55	0.348	49.0	30.37
0.389	58.1	38.27	0.389	48.1	34.51
0.924	56.0	39.53	2.378	46.0	28.62
2.342	56.0	33.56	2.720	46.0	28.11

Test Result: PASS

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.

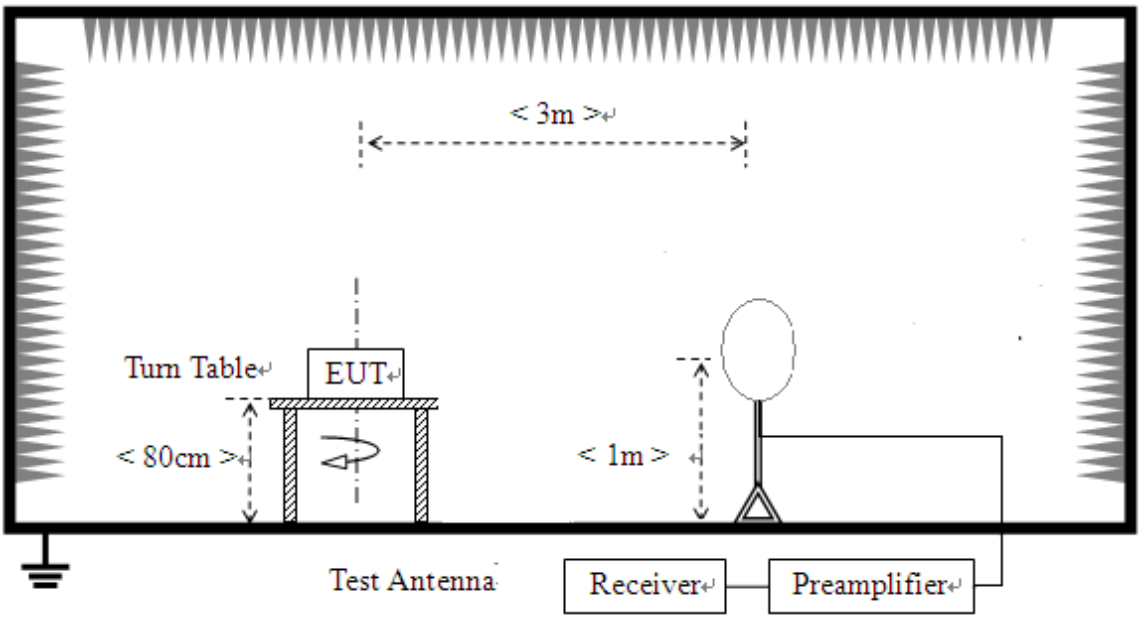
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

2.6.2. Measuring Instruments

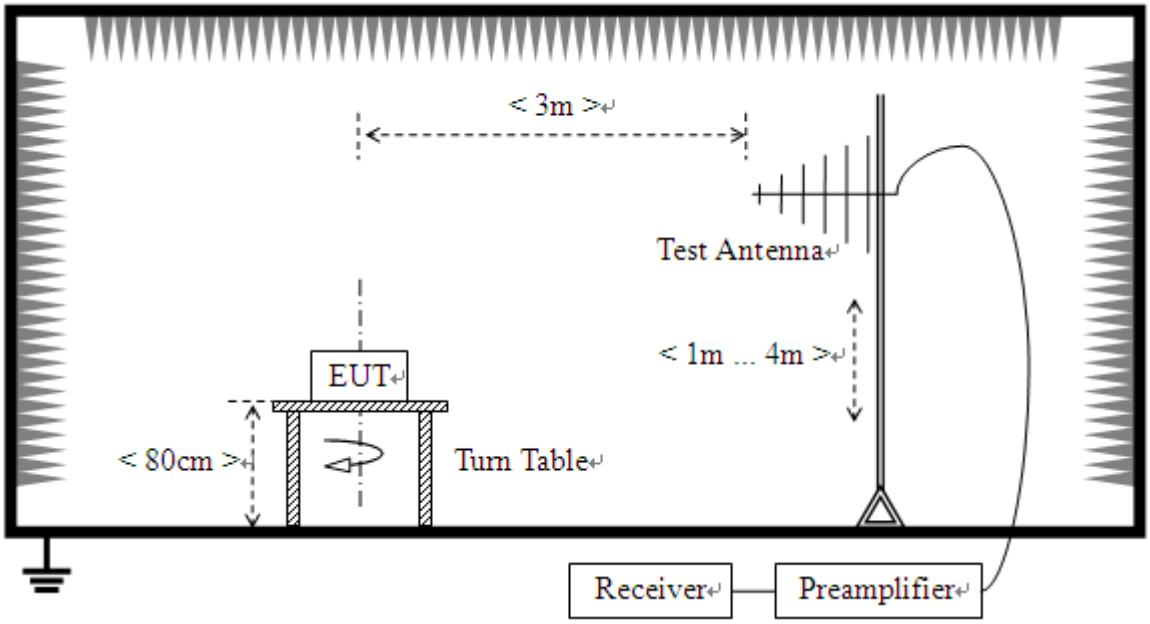
The measuring equipment is listed in the section 3 of this test report.

2.6.3. Test Setup

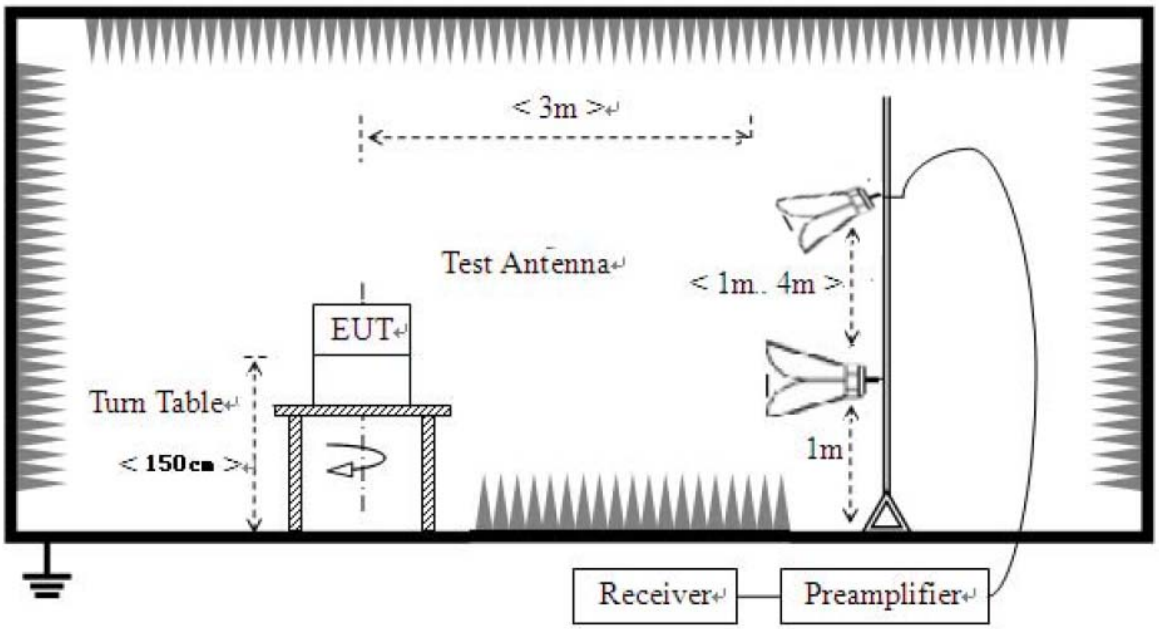
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



3) For radiated emissions above 1GHz



2.6.4. Test Procedures

1.For below 1GHz, 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. For above 1GHz, The EUT was placed on the top of a rotating table 1.5 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.

3. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

4. 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.

5. 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.

6. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

7. 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.

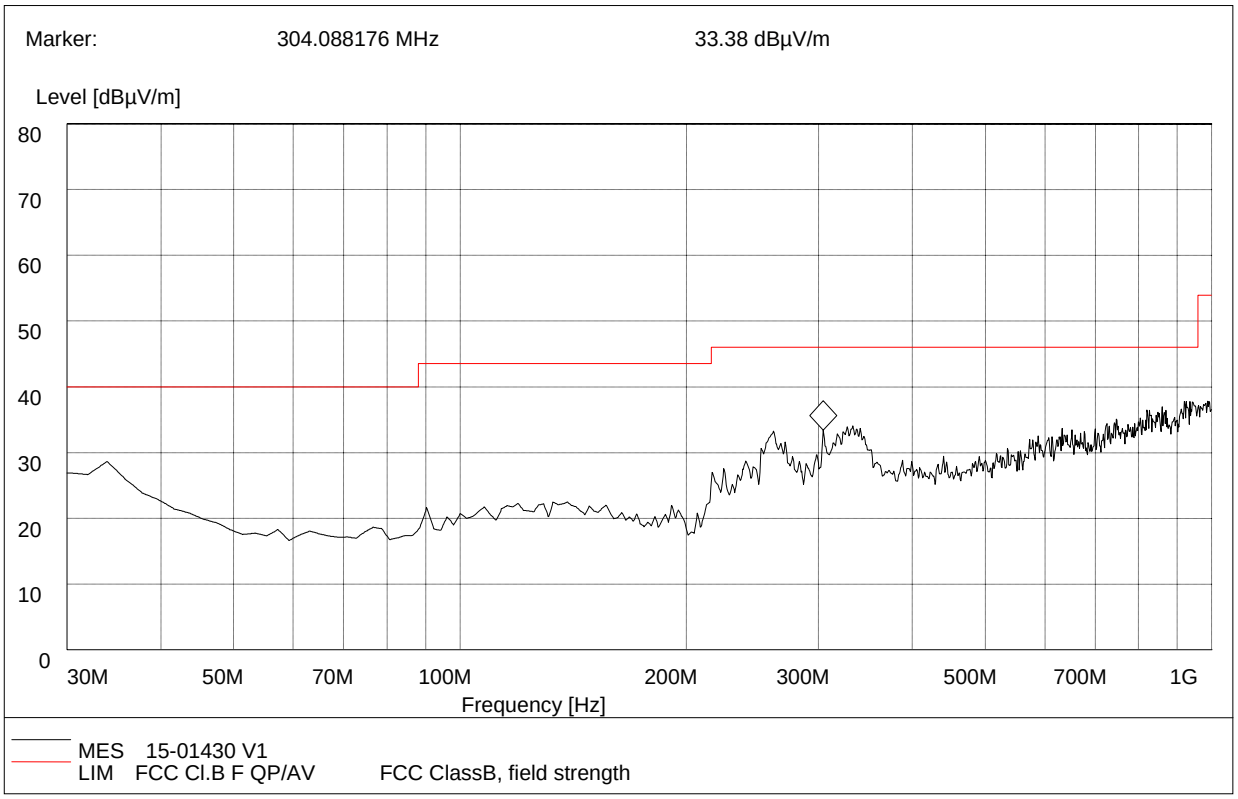
4. All modes of operation were investigated and the worst-case emissions are reported.

2.6.5. Test Results of Radiated Band Edge and Spurious Emission

For 9KHz to 30MHz

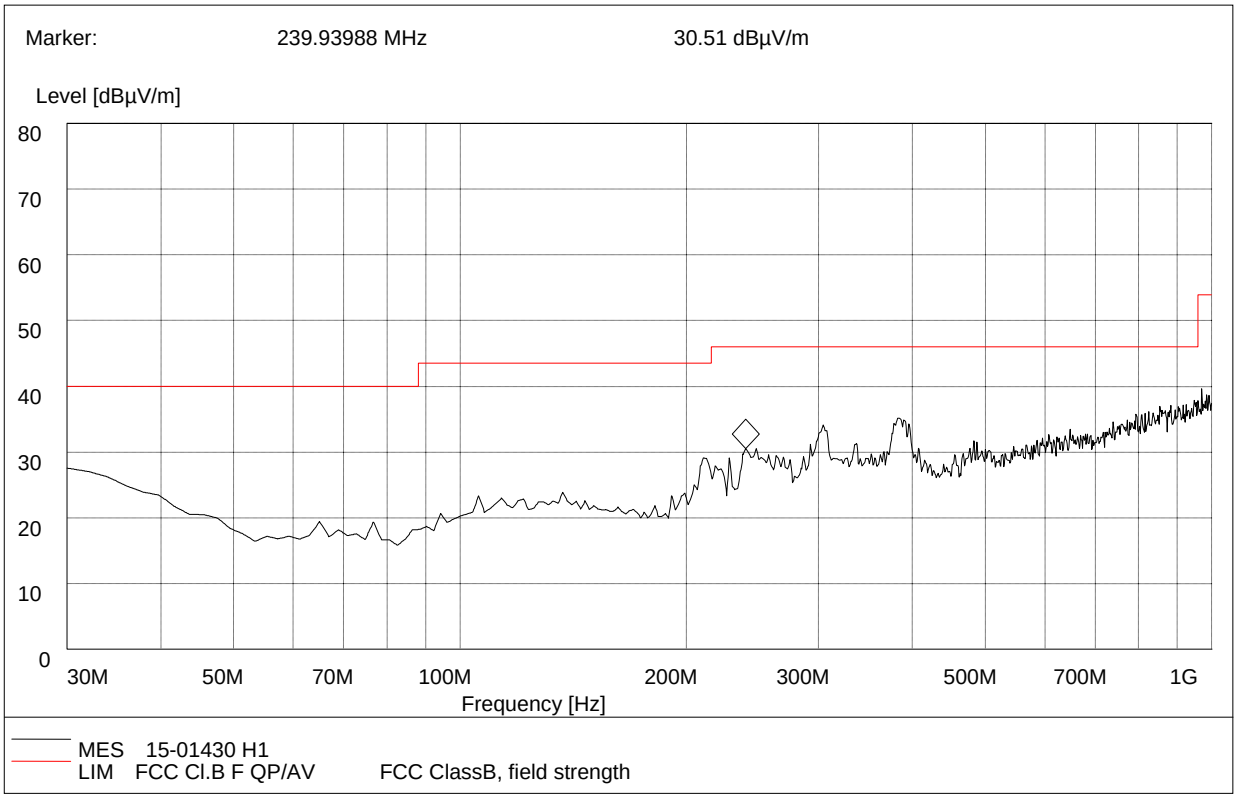
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

For 30MHz to 1000 MHz



Plot A: 30MHz to 1GHz, Antenna Vertical

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Antenna	Verdict
33.160	37.49	120.000	100.0	40.00	Vertical	Pass
261.340	31.56	120.000	100.0	46.00	Vertical	Pass
304.088	33.38	120.000	100.0	46.00	Vertical	Pass



Plot B: 30MHz to 1GHz, Antenna Horizontal

Frequency (MHz)	QuasiPeak (dB µ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB µ V/m)	Antenna	Verdict
30.000	28.22	120.000	100.0	40.00	Horizontal	Pass
239.940	30.51	120.000	100.0	46.0	Horizontal	Pass
304.150	33.16	120.000	100.0	46.0	Horizontal	Pass
383.260	33.67	120.000	100.0	46.0	Horizontal	Pass

For 1GHz to 25GHz

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	56.10	PK	74.0	-17.90	1.01 H	228	23.90	32.20
2	2390.00	43.00	AV	54.0	-11.00	1.01 H	228	10.80	32.20
3	*2405.00	107.80	PK	/	/	1.03 H	112	75.60	32.20
4	*2405.00	105.10	AV	/	/	1.03 H	112	72.90	32.20
5	4810.00	53.40	PK	74.00	-20.60	1.00 H	254	48.10	5.30
6	4810.00	44.70	AV	54.00	-9.30	1.00 H	254	39.40	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	56.30	PK	74.0	-17.70	1.11 V	228	24.10	32.20
2	2390.00	43.50	AV	54.0	-10.50	1.11 V	228	11.30	32.20
3	*2405.00	108.60	PK	/	/	1.09 V	112	76.40	32.20
4	*2405.00	103.60	AV	/	/	1.03 V	112	71.40	32.20
5	4810.00	53.00	PK	74.00	-21.00	1.21 V	254	47.70	5.30
6	4810.00	44.20	AV	54.00	-9.80	1.21 V	254	38.90	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	*2440.00	107.90	PK	/	/	1.01 H	210	75.70	32.20
2	*2440.00	104.60	AV	/	/	1.01 H	210	72.40	32.20
3	4880.00	54.00	PK	74.00	-20.00	1.03 H	272	48.70	5.30
4	4880.00	44.90	AV	54.00	-9.10	1.03 H	272	39.60	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	*2440.00	108.40	PK	/	/	1.09 V	112	76.20	32.20
2	*2440.00	105.20	AV	/	/	1.09 V	112	73.00	32.20
3	4880.00	54.40	PK	74.00	-19.60	1.21 V	254	49.10	5.30
4	4880.00	45.50	AV	54.00	-8.50	1.21 V	254	40.20	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	108.20	PK	/	/	1.05 V	215	75.90	32.30
2	*2480.00	104.00	AV	/	/	1.05 V	215	71.70	32.30
3	2483.50	57.30	PK	74.0	-16.70	1.05 V	211	24.90	32.40
4	2483.50	44.60	AV	54.0	-9.40	1.05 V	211	12.50	32.40
5	4960.00	53.90	PK	74.0	-20.10	1.45 V	320	48.40	5.50
6	4960.00	45.90	AV	54.0	-8.10	1.45 V	320	40.40	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	108.10	PK	/	/	1.05 V	174	75.80	32.30
2	*2480.00	104.60	AV	/	/	1.05 V	174	72.30	32.30
3	2483.50	57.60	PK	74.0	-16.40	1.05 V	177	25.20	32.40
4	2483.50	45.20	AV	54.0	-8.80	1.05 V	177	12.80	32.40
5	4960.00	54.70	PK	74.0	-19.30	1.45 V	201	49.20	5.50
6	4960.00	45.60	AV	54.0	-8.40	1.45 V	201	40.10	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.

3. List of measuring equipment

Description	Manufacturer	Model	Serial No.	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESIB26	A0304218	2015.06.02	2016.06.01	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2015.06.02	2016.06.01	Radiation
Bilog Antenna	Schwarzbeck	VULB 9163	9163-274	2015.06.02	2016.06.01	Radiation
Double ridge horn antenna	R&S	HF960	100150	2015.06.02	2016.06.01	Radiation
Ultra-wideband antenna	R&S	HL562	100089	2015.06.02	2016.06.01	Radiation
Test Antenna – Horn (18-25GHz)	ETS	UG-596A/U	A0902607	2015.06.02	2016.06.01	Radiation
Amplifier 20M~3GHz	R&S	PAP-0203H	22018	2015.06.02	2016.06.01	Radiation
Ampilier 1G~18GHz	R&S	MITEQ AFS42-00101800	25-S-42	2015.06.02	2016.06.01	Radiation
Ampilier 18G~40GHz	R&S	JS42-18002600-28-5A	12111.0980.00	2015.06.02	2016.06.01	Radiation
Full-Anechoic Chamber	Albatross	12.8m*6.8m*6.4m	A0412372	2015.01.05	2016.01.04	Radiation
Spectrum Analyzer	R&S	FSP40	1164.4391.40	2015.07.07	2016.07.06	Conducted
Power Meter	R&S	NRVS	1020.1809.02	2015.06.02	2016.06.01	Conducted
Power Sensor	R&S	NRV-Z4	823.3618.03	2015.06.02	2016.06.01	Conducted
Test Receiver	R&S	ESCS30	A0304260	2015.06.02	2016.06.01	Conducted
LISN	ROHDE&SCHWARZ	ESH2-Z5	A0304221	2015.06.02	2016.06.01	Conducted
Cable	SUNHNER	SUCOFLEX 100	/	2015.06.02	2016.06.01	Radiation
Cable	SUNHNER	SUCOFLEX 104	/	2015.06.02	2016.06.01	Radiation
Bore Sight Antenna mast	NA	SETEMC-MAST	/	NA	NA	Radiation

** END OF REPORT **