Report No.: 151103034GZU-001
Issued: 2016-3-25

TEST REPORT

Applicant Name & Address	:	POMCUBE Inc. 19363 Brockton Ln Saratoga California United States 95070
Sample Description		
Product	:	iCAN
FCC ID	:	2AGZ2-PO1AAW1
Model No.	:	PO1-AAW1
Electrical Rating	:	90-130Vac/60Hz/Max.10A
Date Received	:	03 November 2015
Date Test Conducted	:	05 November 2015-22 March 2016
Test standards	:	**47 CFR PART 15 Subpart C: 2014 section 15.247**
Test Result	:	Pass
Conclusion	:	The submitted samples complied with the above rules/standards.
Remark	:	None.

**********End of Page**********

Prepared and Checked By:

Sky Zhu

Sky Zhu
Project Engineer
Intertek Guangzhou

Approved By:

Helen Ma ***Signature***

Helen Ma
Team Leader
Intertek Guangzhou
25 March 2016 ***Date***

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
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CONTENT

1.0 Summary of Test

TEST	TEST REQUIREMENT	TEST METHOD	RESULT
Antenna Requirement	FCC PART 15 C section 15.247 (c) and Section 15.203	FCC PART 15 C section 15.247 (c) and Section 15.203	PASS
6 dB Bandwidth (DTS bandwidth)	FCC PART 15 C section 15.247 (a)(2)	ANSI C63.10: Clause 11.8	PASS
Maximum Peak Conducted Output Power	FCC PART 15 C section 15.247(b)(3)	ANSI C63.10: Clause 11.9.1.2	PASS
Peak Power Spectral Density	FCC PART 15 C section 15.247(e)	ANSI C63.10: Clause 11.10.2	PASS
Out of Band Conducted Emissions	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 11.11	PASS
Out of Band Radiated Emission	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 11.11, 6.4, 6.5 and 6.6	N/A
Radiated Emissions in Restricted Bands	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 11.12.1, 6.4, 6.5 and 6.6	PASS
Band Edges Measurement	FCC PART 15 C section 15.247 (d) &15.205	ANSI C63.10: Clause 11.11 and 11.13	PASS
Conducted Emissions at Mains Terminals	FCC PART 15 C section 15.207	ANSI C63.10: Clause 6.2	PASS

Remark:

N/A: not applicable. Refer to the relative section for the details.
EUT: In this whole report EUT means Equipment Under Test.
Tx: In this whole report Tx (or tx) means Transmitter.
Rx: In this whole report Rx (or rx) means Receiver.
RF: In this whole report RF means Radio Frequency.
ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.

2.0 General Description

2.1 Product Description

Operating Frequency	2405 MHz to 2480 MHz
Type of Modulation:	O-QPSK
Number of Channels	16 Channels
Channel Separation:	5 MHz
Antenna Type	Integral
Antenna gain:	3.4 dBi
Speciality:	Zigbee: IEEE 802.15.4
Power Supply:	AC 120V,60Hz
Power cord:	1.1 m x 3 wires unscreened AC supply cable

EUT modulation and data packet during test:

The EUT has been tested on the Modulation of O-QPSK with 250K bps data rate.

EUT channels and frequencies list:

Test frequencies are lowest channel 11: 2405 MHz, middle channel 18: 2440 MHz and highest channel 26: 2480 MHz

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

2.2 Related Submittal(s) Grants

This is an application for certification of:
DTS- Part 15 Digital Transmission Systems

Remaining portions are subject to the following procedures:
1. Receiver portion exempt from technical requirement of this Part.

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans and final tests were performed in the semi-anechoic chamber to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise.

2.4 Test Facility

All of the tests are performed at:
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch. located at Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD Guangzhou, 510663, China. This test facility and site measurement data have been fully placed on file with the FCC, test firm registration number is 549654.

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. During testing, AC power line was manipulated to produce worst case emissions. It was powered by AC 120V/60Hz supply.

The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower.
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower.
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified.

Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

3.2 EUT Exercising Software

The test was performed under “MP_TEST” which was provided by manufacture.

3.3 Special Accessories

No special accessories used.

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.5 Equipment Modification

Any modifications installed previous to testing by POMCUBE Inc. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.

3.6 Support Equipment List and Description

This product was tested with corresponding accessories as below:

Supplied by Intertek:

Description	Manufacturer	Model No.	SN/Certificate NO
NoteBook	Lenovo	T430	PB-FR45R

4.0 Measurement Results

4.1 Antenna Requirement:

Standard requirement

15.203 requirement:

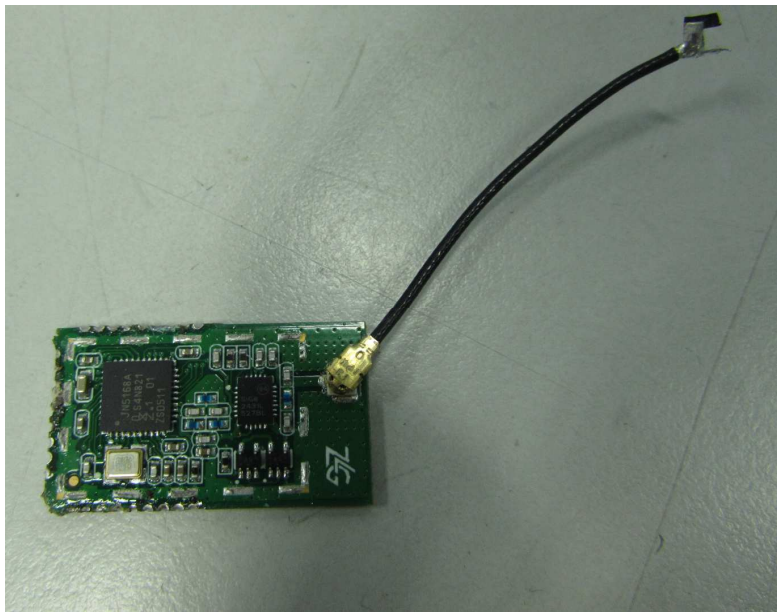
For intentional device. According to 15.203 an intentional radiator shall be designed to Ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz bands that are used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna

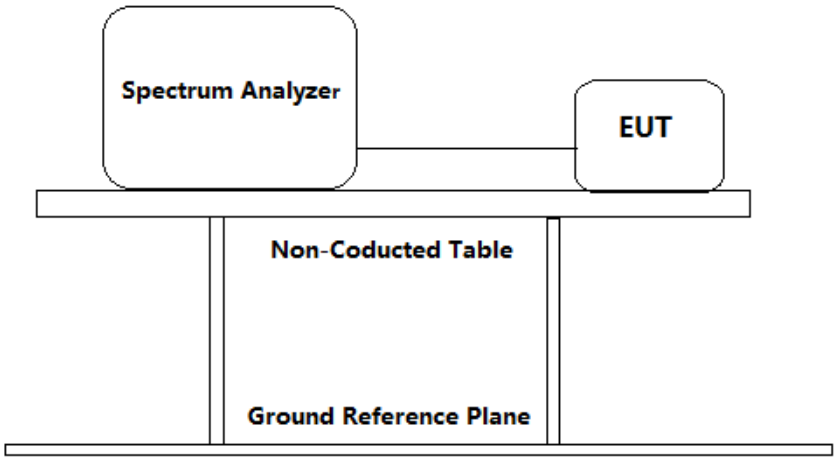
The antenna is an integral antenna and no consideration of replacement. The best case gain of the antenna is 3.4 dBi.



4.2 6 dB Bandwidth (DTS bandwidth):

Test Requirement:	FCC Part 15 C section 15.247 (a)(2)Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	ANSI C63.10: Clause 11.8
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =2 dB) from the antenna port to the spectrum.
2. Set the spectrum analyzer:
   a) Set RBW =1%-5% BW
   b) Set the VBW≥ [3 × RBW]
   c) Detector = peak.
   d) Trace mode = max hold.
   e) Sweep = auto couple
   f) Allow the trace to stabilize.
   g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
   h) Span=2*BW~5*BW

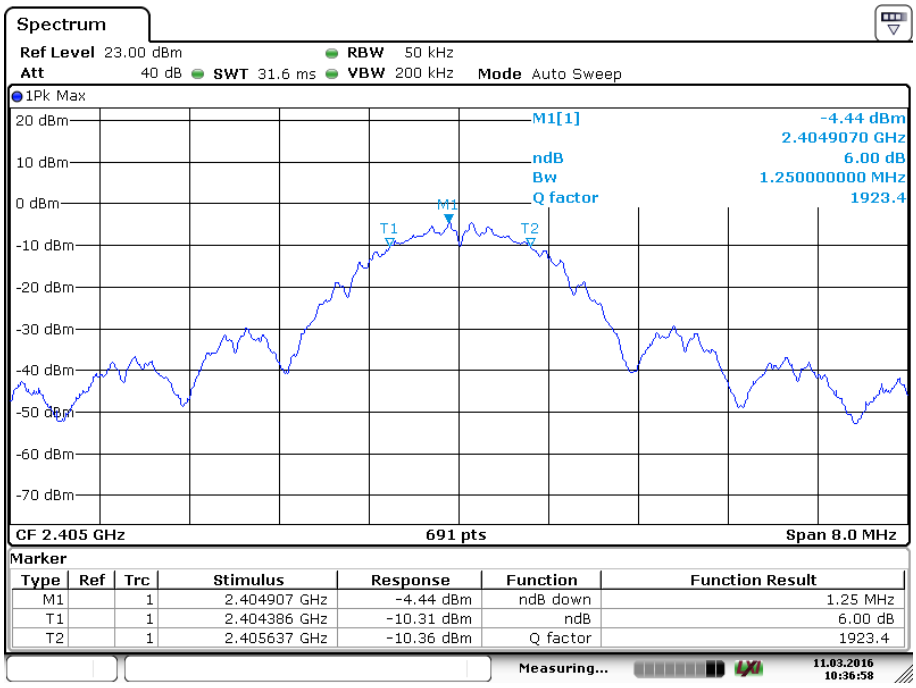
3. Repeat until all the test status is investigated.
4. Report the worst case.

Channel No.	Frequency (MHz)	Measured 6dB bandwidth (kHz)	Limit (kHz)	Result
11	2405	1250	≥500	Pass
18	2440	1378		Pass
26	2480	1575		Pass

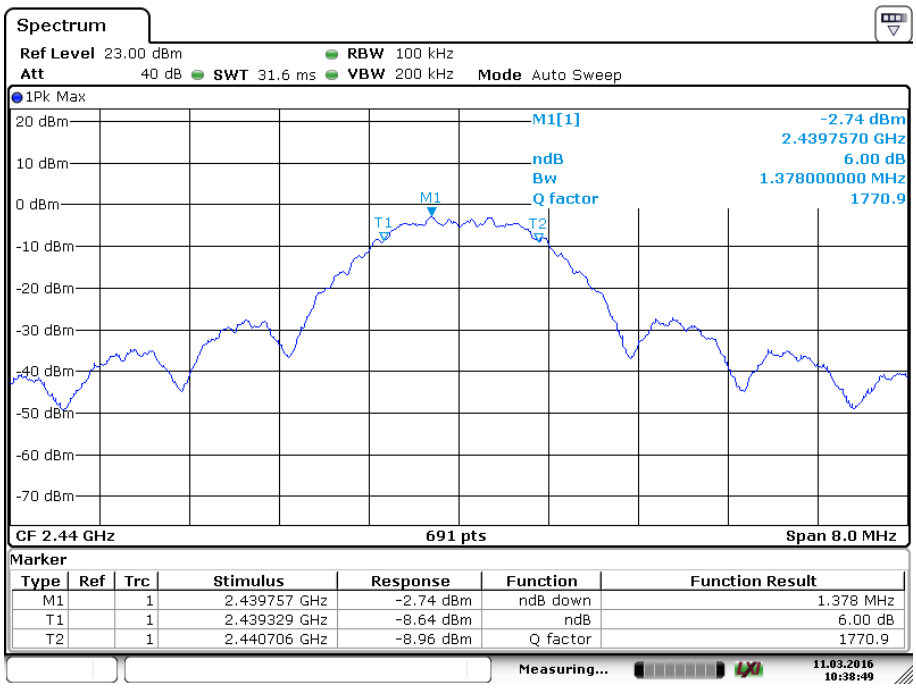
Test result: The unit does meet the FCC requirements.

Result plot as follows:

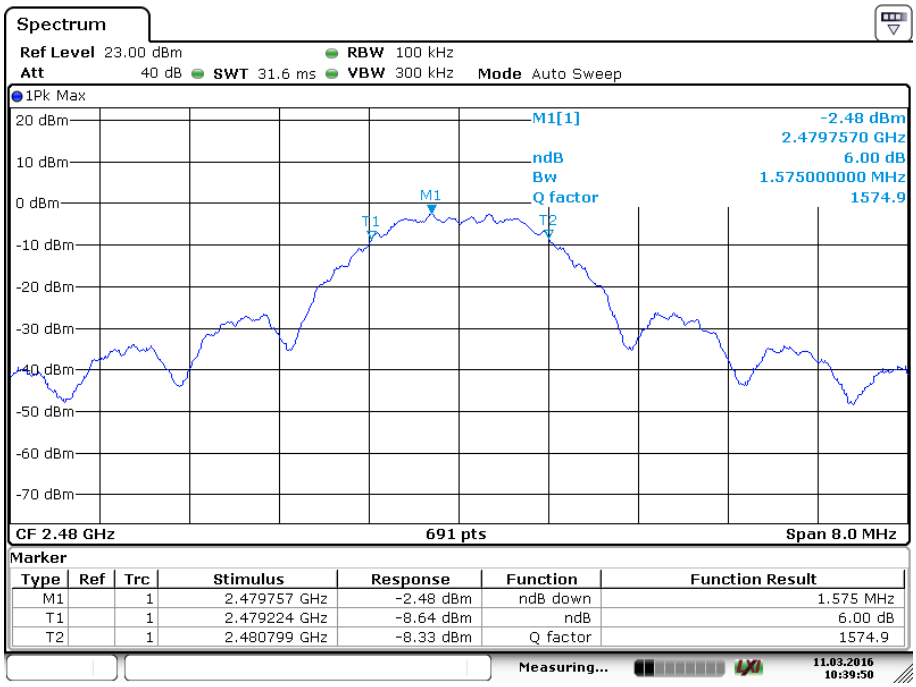
Lowest channel (2.405GHz):



Middle Channel (2.440 GHz):



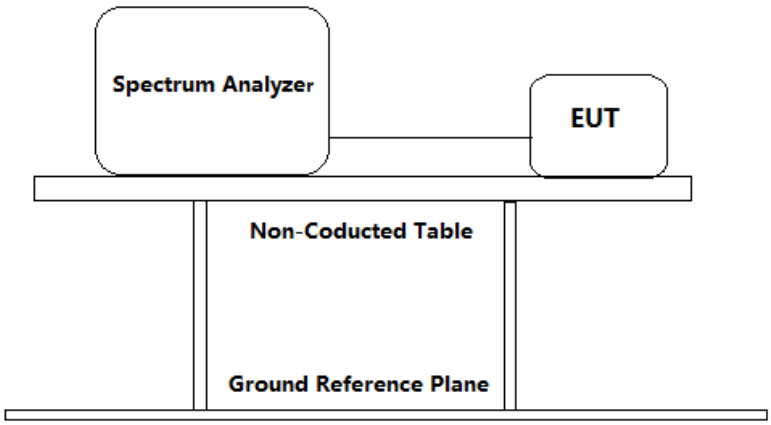
Highest Channel (2.480 GHz):



4.3 Maximum Peak Conducted Output Power

Test Requirement:	FCC Part 15 C section 15.247 (b)(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b) (1), (b) (2), and (b) (3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
Test Method:	ANSI C63.10: Clause 11.9.1.1(RBW ≥ DTS bandwidth)
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =2 dB) from the antenna port to the spectrum.
2. Set the spectrum analyzer:
   a) Set the RBW = 2 MHz（RBW≥DTS bandwidth）.
   b) Set the VBW≥[3 × RBW].
   c) Set the span≥10 MHz[3 × RBW].
   d) Detector = peak.
   e) Sweep time = auto couple.
   f) Trace mode = max hold.
   g) Allow trace to fully stabilize.
   h) Use peak marker function to determine the peak amplitude level.
3. Repeat until all the test status is investigated.
4. Report the worst case.

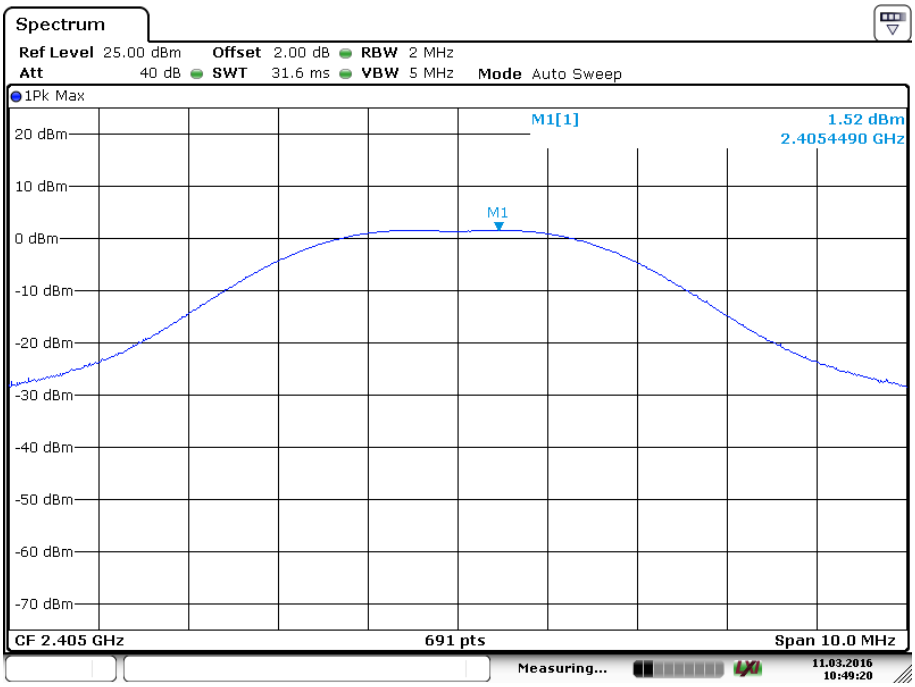
Test result:

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Result
11	2405	1.52	1W (30 dBm)	Pass
18	2440	1.95		Pass
26	2480	2.48		Pass

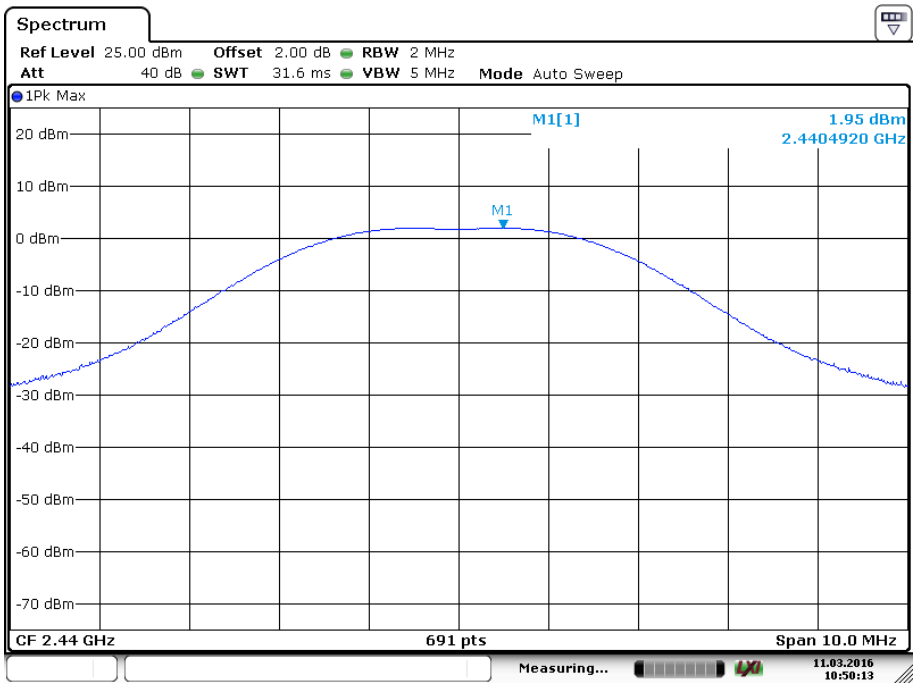
Remark: Level = Read Level + Cable Loss.

Result plot as follows:

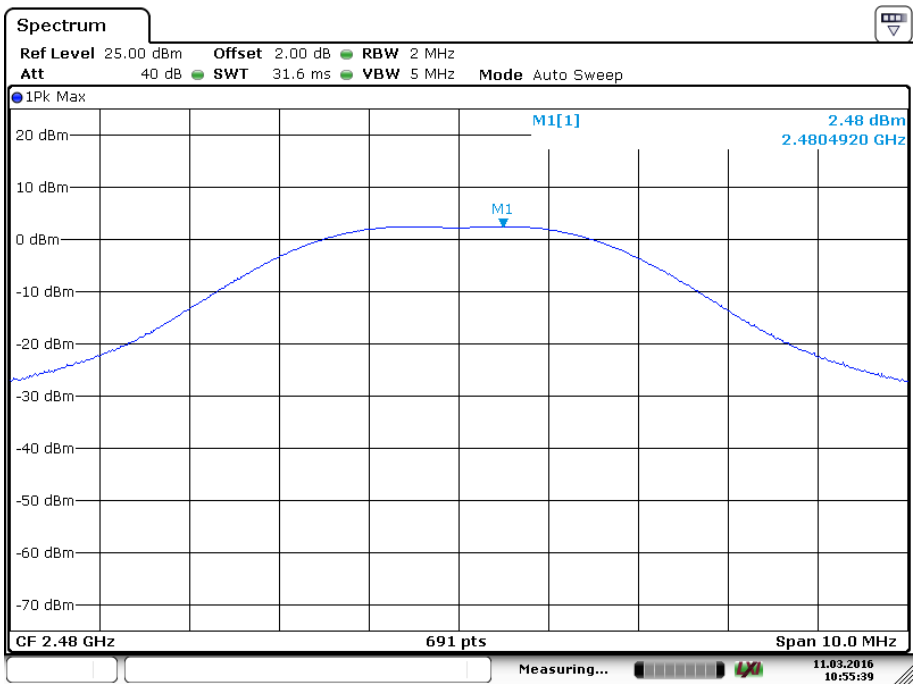
Lowest channel (2.405 GHz):



Middle Channel (2.440 GHz):



Highest Channel (2.480 GHz):



4.4 Peak Power Spectral Density

Test Requirement: FCC Part 15 C section 15.247

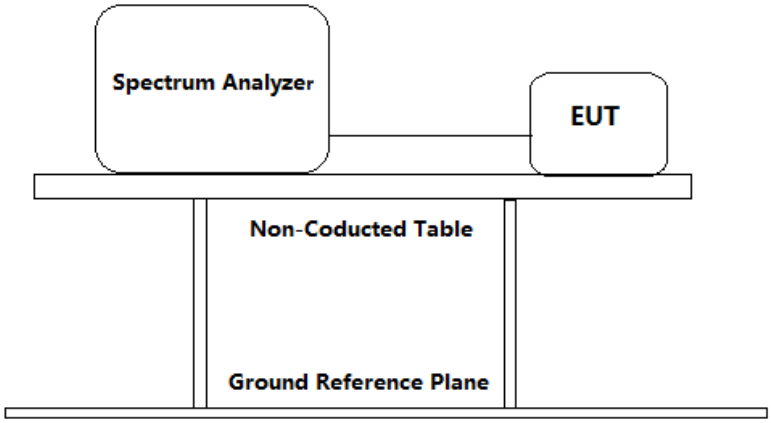
(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Method: ANSI C63.10: Clause 11.10.2

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =2 dB) from the antenna port to the spectrum analyzer or power meter.
2. Set the spectrum analyzer:
   a) Set analyzer center frequency to DTS channel center frequency.
   b) Set the span= 1.5 × DTS bandwidth.
   c) Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.
   d) Set the VBW ≥ [3 × RBW].
   e) Detector = peak.
   f) Sweep time = auto couple.
   g) Trace mode = max hold.
   h) Allow trace to fully stabilize.
   i) Use the peak marker function to determine the maximum amplitude level within the RBW.
   j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
3. Measure the Power Spectral Density of the test frequency with special test status.
4. Repeat until all the test status is investigated.
5. Report the worst case.

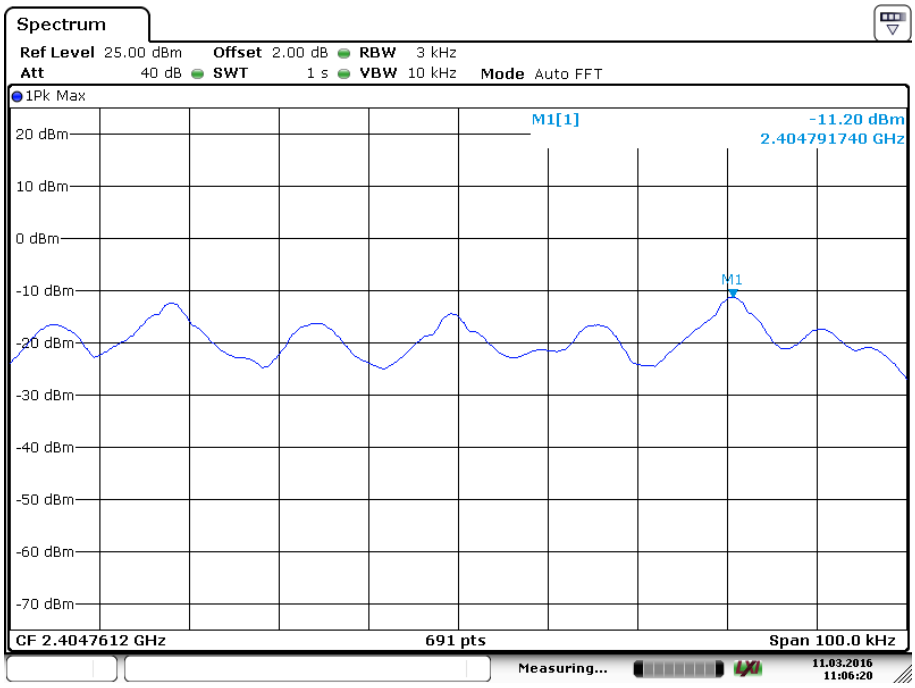
Test result:

Channel No.	Frequency (MHz)	Measured Peak Power Spectral Density (dBm/3 kHz)	Limit	Result
11	2402	-11.20	8 dBm/3 kHz	Pass
18	2440	-10.87		Pass
26	2480	-10.45		Pass

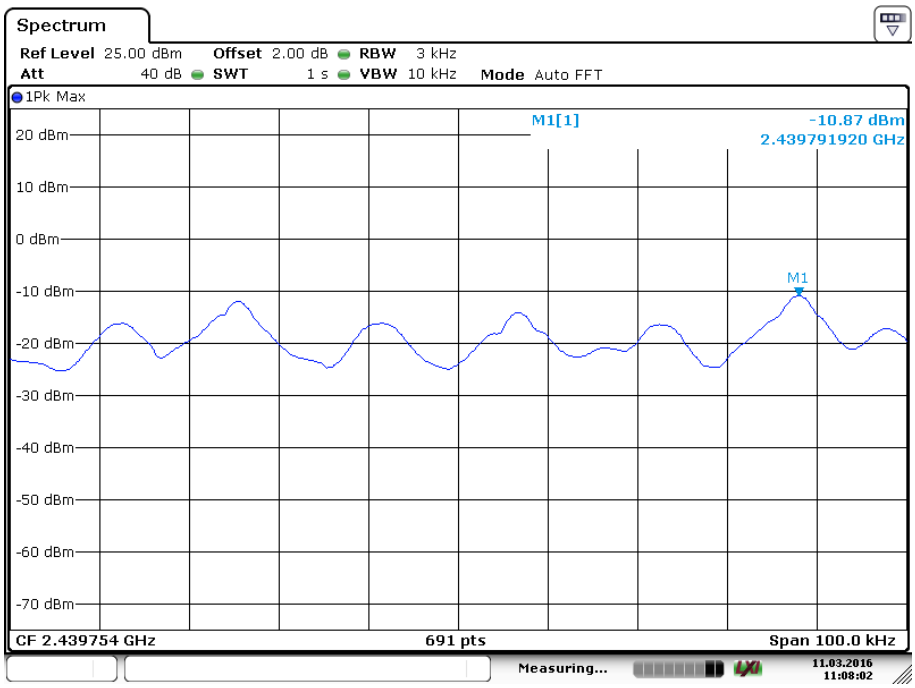
Test result: Level = Read Level + Cable Loss.

Result plot as follows:

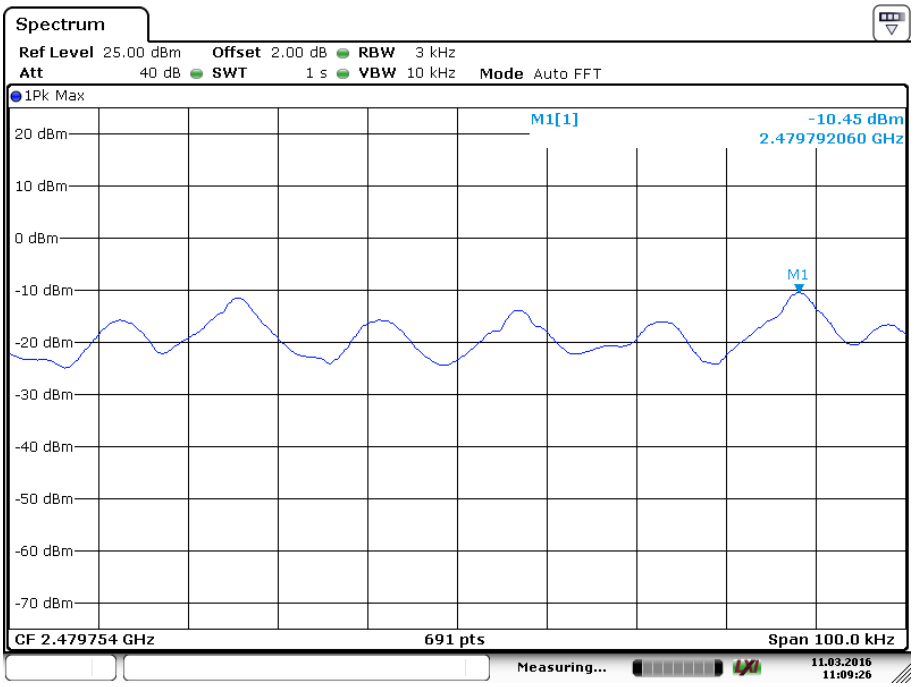
Lowest channel (2.405 GHz):



Middle Channel (2.440 GHz):



Highest Channel (2.480 GHz):



4.5 Out of Band Conducted Emissions

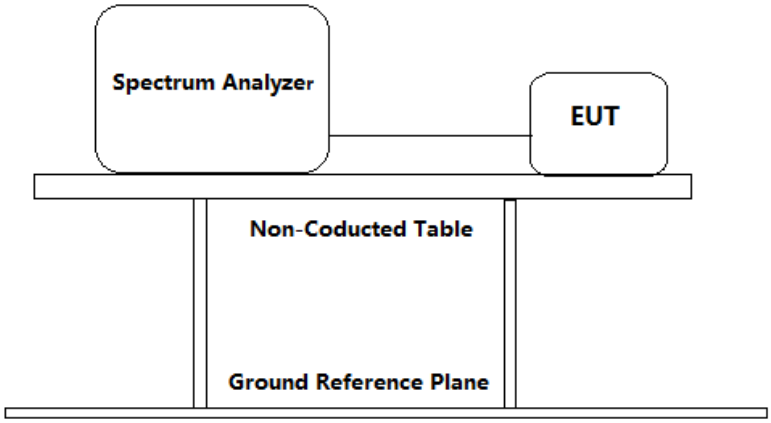
Test Requirement: FCC Part 15 C section 15.247

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. The radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Based on either an RF conducted or a radiated measurement. Provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Method: ANSI C63.10: Clause 11.11

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable (cable loss =2dB) from the antenna port to the spectrum analyzer or power meter.
2. Establish a reference level by using the following procedure:
   a) Set instrument center frequency to DTS channel center frequency.
   b) Set the span to ≥ 1.5 × DTS bandwidth.
   c) Set the RBW = 100 kHz.
   d) Set the VBW ≥ [3 × RBW].
   e) Detector = peak.
   f) Sweep time = auto couple.
   g) Trace mode = max hold.
   h) Allow trace to fully stabilize.

i) Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level

3. Emission level measurement

a) Set the center frequency and span to encompass frequency range to be measured.

b) Set the RBW = 100 kHz.

c) Set the VBW ≥ [3 × RBW].

d) Detector = peak.

e) Sweep time = auto couple.

f) Trace mode = max hold.

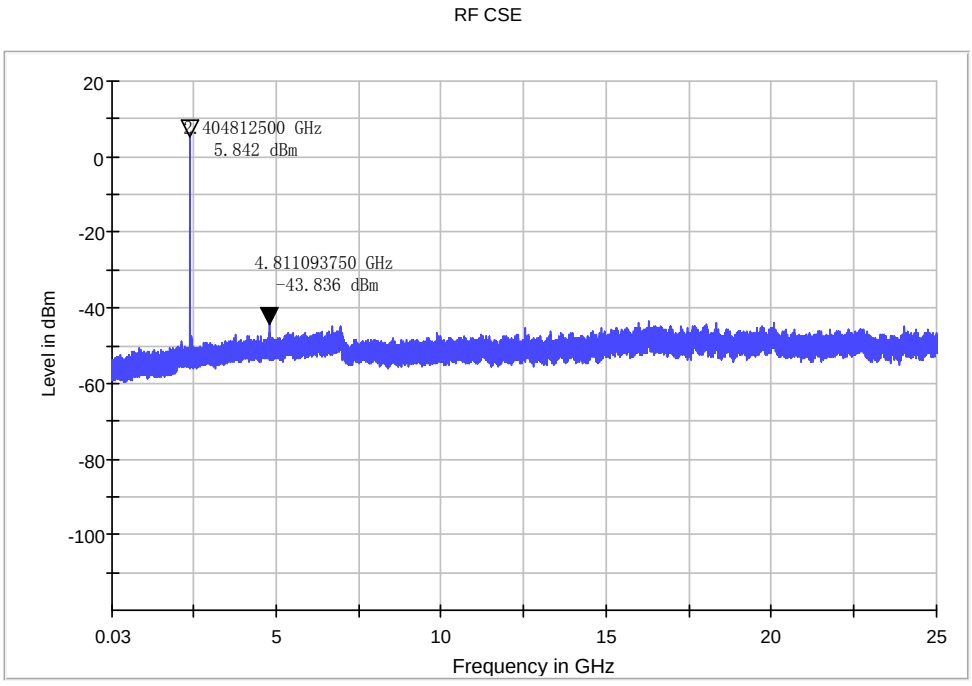
g) Allow trace to fully stabilize.

h) Use the peak marker function to determine the maximum amplitude level.

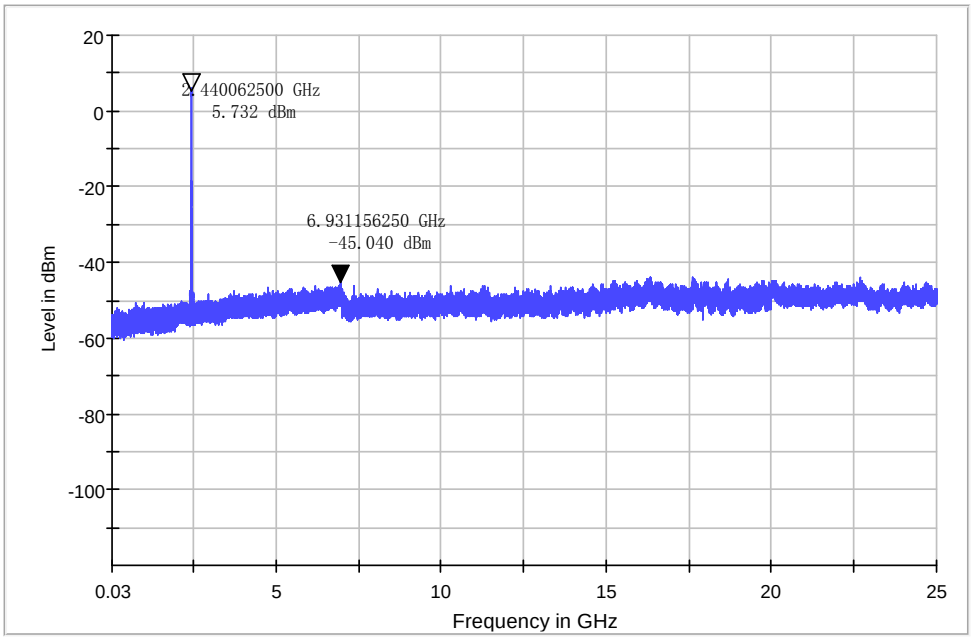
4. Measure the Conducted unwanted Emissions of the test frequency with special test status.
5. Repeat until all the test status is investigated.
6. Report the worst case.

Result plot as follows:

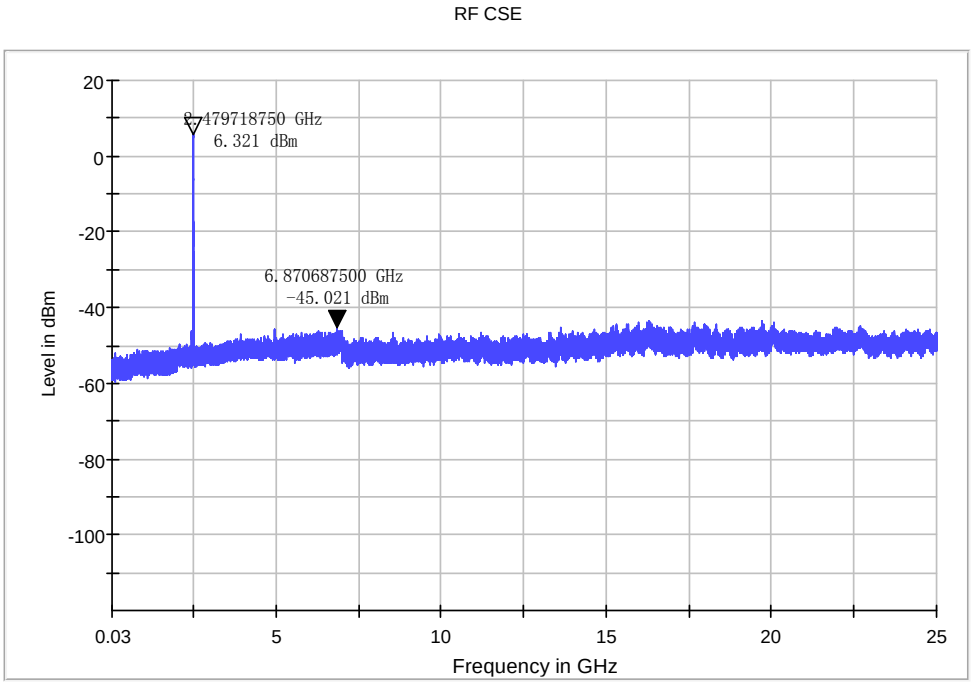
Lowest channel (2.405 GHz):



Middle Channel (2.440 GHz):



Highest Channel (2.480 GHz):



4.6 Out of Band Radiated Emissions

For out of band radiated emissions into Non-Restricted Frequency Bands were performed at a 3m separation distance to determine whether these emissions complied with the 20dB attenuation requirement.

[×] Not required, since all emissions are more than 20dB below fundamental
[ ] See attached data sheet

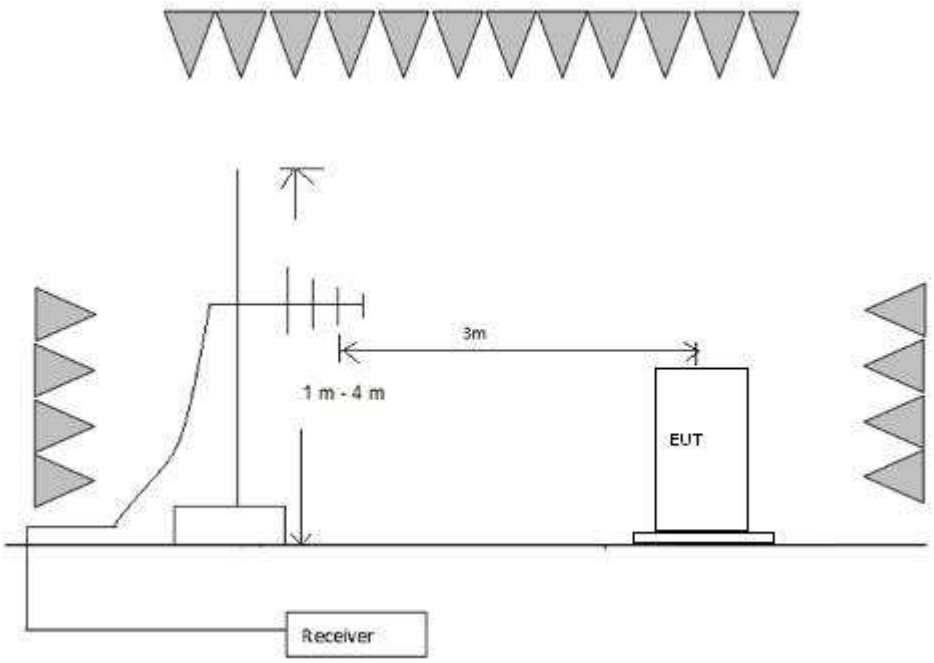
4.7 Radiated Emissions in Restricted Bands

Test Requirement:	FCC Part 15 C section 15.247 (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:	ANSI C63.10: Clause 11.12.1, 6.4, 6.5 and 6.6
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Limit:	40.0 dBμV/m between 30MHz & 88MHz; 43.5 dBμV/m between 88MHz & 216MHz; 46.0 dBμV/m between 216MHz & 960MHz; 54.0 dBμV/m above 960MHz.
Detector:	For Peak and Quasi-Peak value: RBW = 1 MHz for f ≥ 1 GHz, 200 Hz for 9 kHz to 150 kHz 9 kHz for 150 kHz to 30 MHz 120 kHz for 30 MHz to 1GHz VBW ≥ RBW Sweep = auto Detector function = peak for f ≥ 1 GHz, QP for f < 1 GHz Trace = max hold For AV value: RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz VBW=10 Hz Sweep = auto Trace = max hold

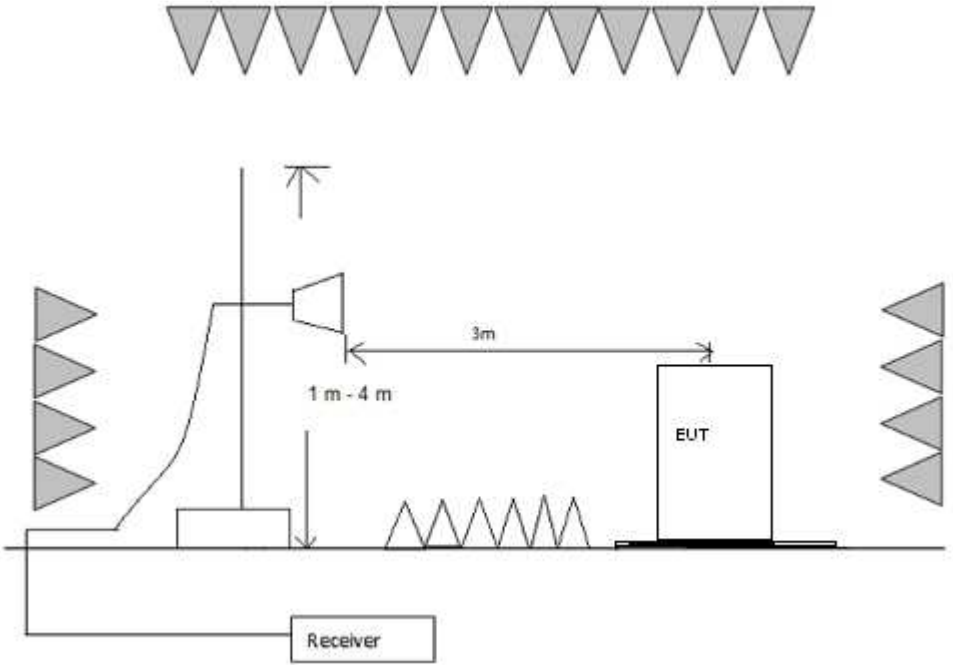
Section 15.205 Restricted bands of operation.
(a) Except as shown in paragraph (d) of this section. Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

Test Configuration:
1) 30 MHz to 1 GHz emissions:



2) 1 GHz to 40 GHz emissions:



Test Procedure:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2007 was used to perform radiated emission test above 1 GHz.

The receiver was scanned from 9 kHz to 25 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

The field strength is calculated by adding the Antenna Factor and Cable Factor,and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

→ FS = RA + Correct Factor

where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
Correct Factor = AF + CF – AG

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

FS = RA + Correct Factor

9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement
The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

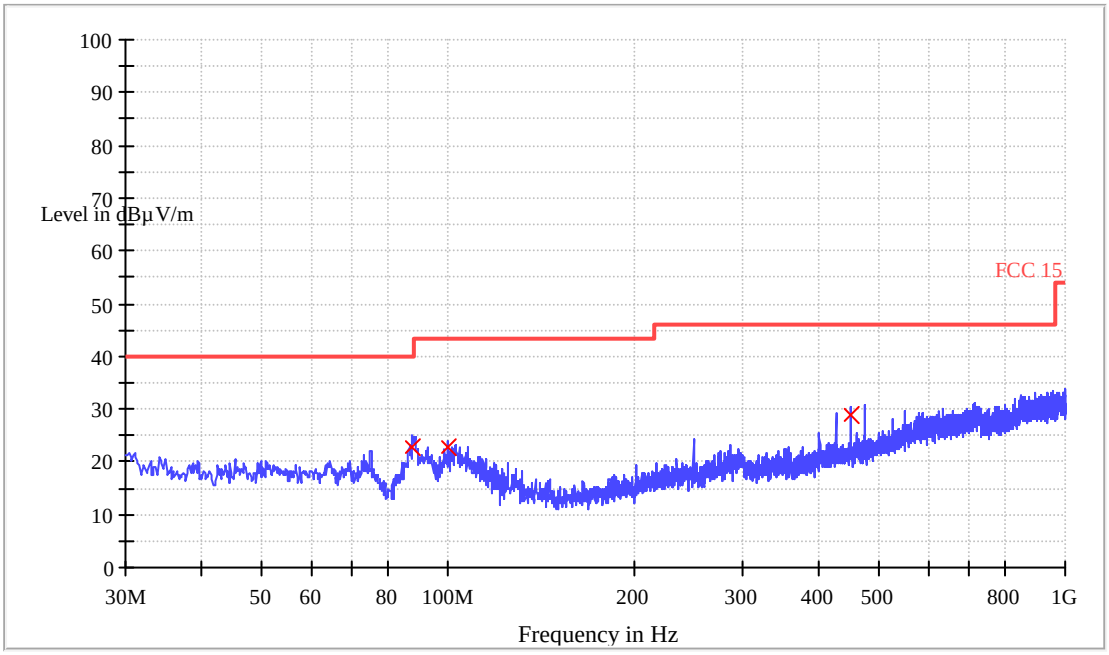
Test at Channel 0 (2.405 GHz) in transmitting status

30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement

Vertical:

Peak scan
Level (dBµV/m)

Quasi-peak measurement



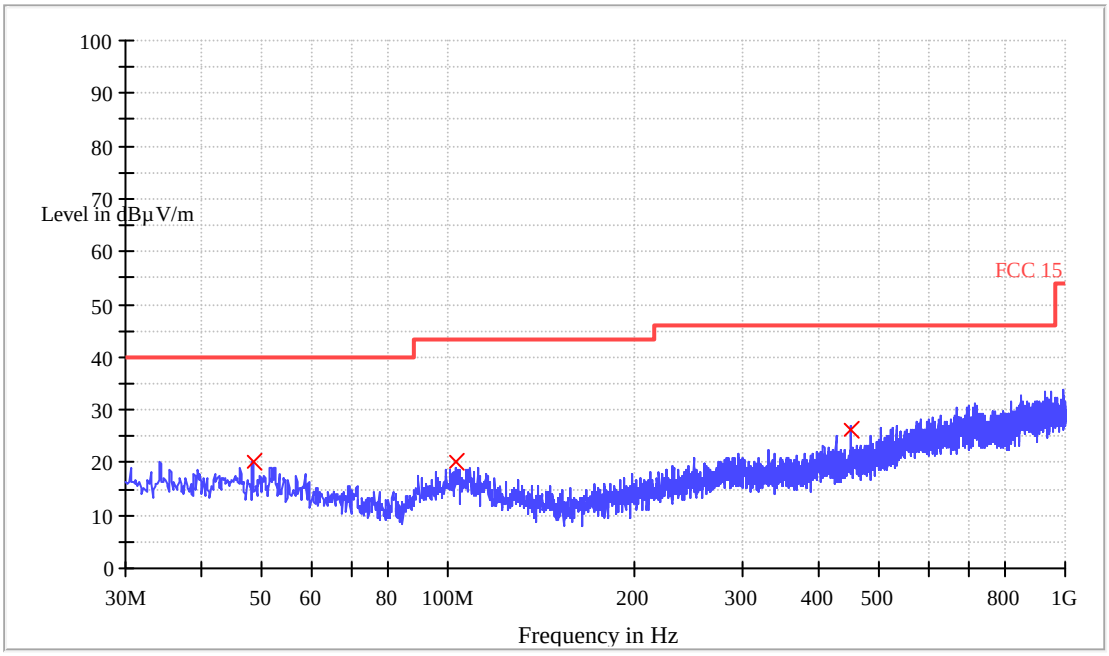
QP

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
87.600000	22.7	120.000	V	9.4	17.3	40.0
99.960000	22.9	120.000	V	12.9	20.6	43.5
450.040000	28.9	120.000	V	18.0	17.1	46.0

Horizontal:

Peak scan
Level (dBµV/m)

Quasi-peak measurement



QP

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
48.240000	20.0	120.000	H	13.3	20.0	40.0
103.200000	20.3	120.000	H	12.7	23.2	43.5
450.040000	26.1	120.000	H	18.0	19.9	46.0

1~25 GHz Radiated Emissions. Peak & Average Measurement

Polarization	Frequency (MHz)	PK Net at 3m (dBμV/m)	AV Net at 3m (dBμV/m)	Correction Factor (dB)	PK Limit at 3m (dBμV/m)	PK Margin (dB)	AV Limit at 3m (dBμV/m)	AV Margin (dB)
Horizontal	2390.000	45.2	/	-7.0	74.0	/	54.0	-8.8
Horizontal	4808.000	54.8	50.5	-8.8	74.0	-19.2	54.0	-3.5
Horizontal	9618.000	40.5	/	-4.9	74.0	/	54.0	-13.5
Vertical	2390.000	31.8	/	-7.0	74.0	/	54.0	-22.2
Vertical	4808.000	53.8	43.6	-8.8	74.0	-20.2	54.0	-10.4
Vertical	9622.000	37.8	/	-4.9	74.0	/	54.0	-16.2

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

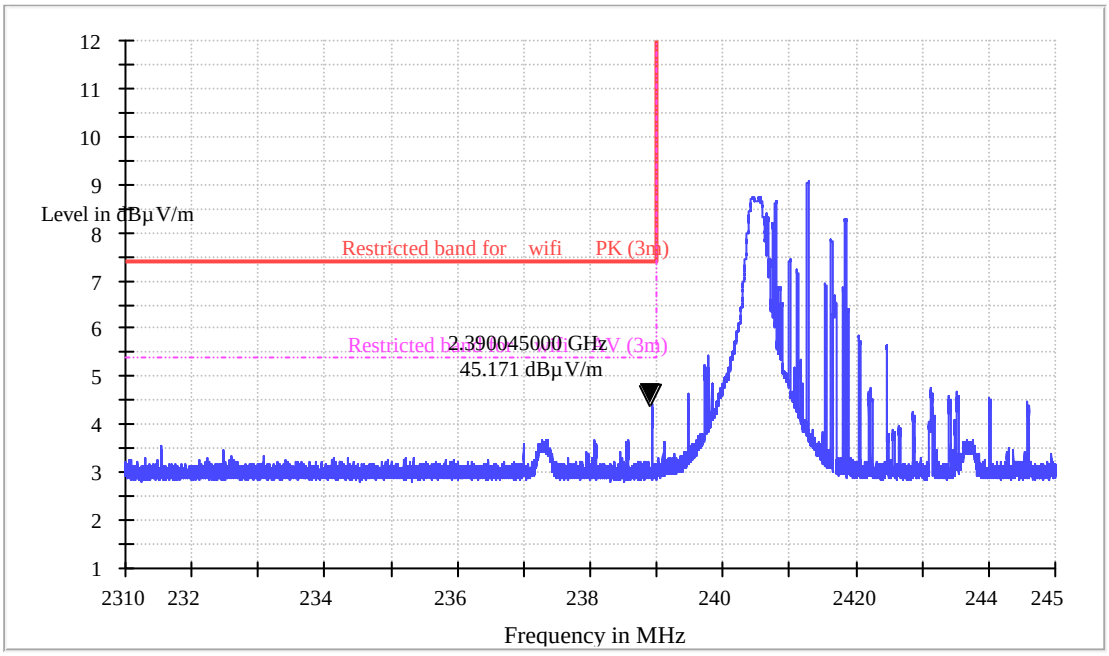
Final Test Level =Receiver Reading + Correction Factor

Correction Factor = Antenna Factor + Cable Loss –Preamplifier Factor.

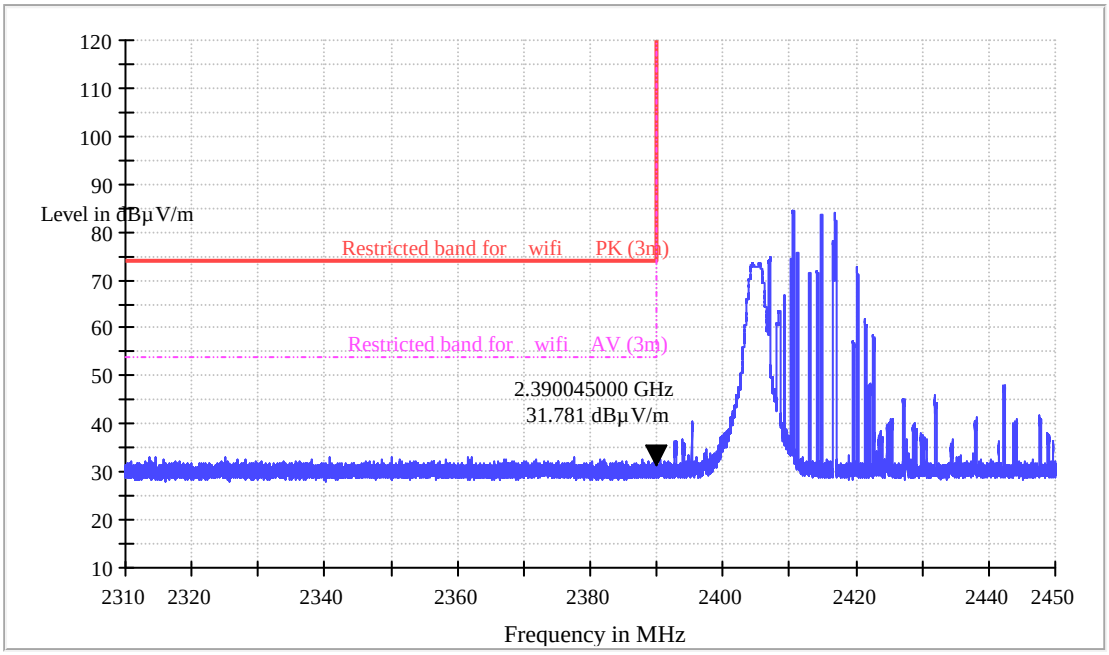
Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

Band Edge test Restricted Bands

Horizontal



Vertical



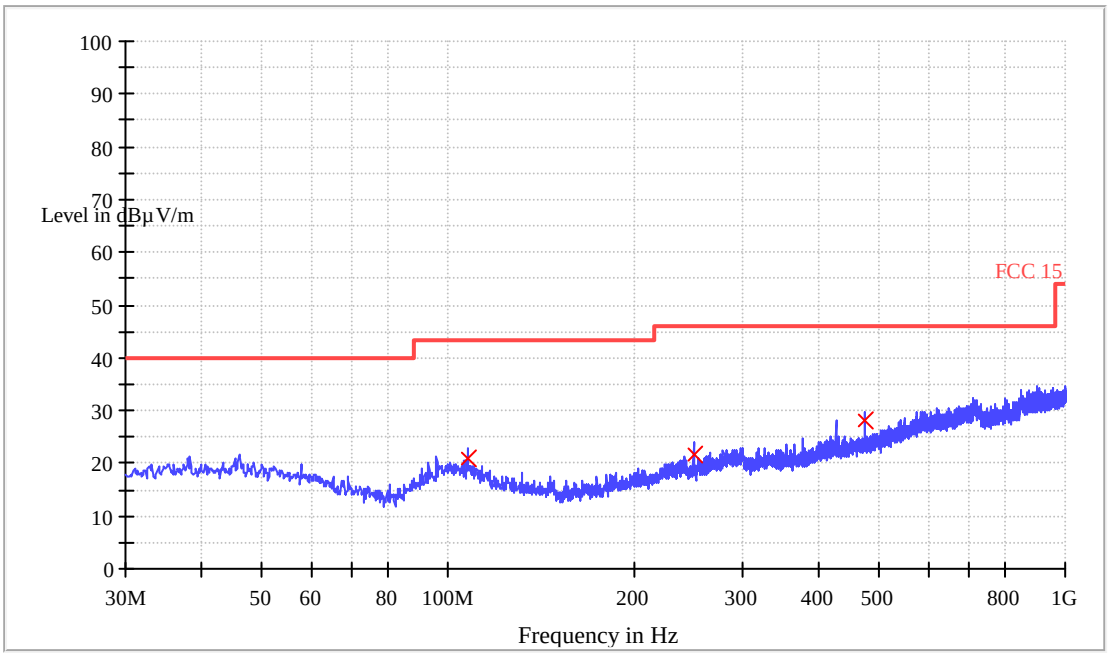
Test at Channel 19 (2.440 GHz) in transmitting status

30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical:

Peak scan
Level (dBµV/m)

Quasi-peak measurement



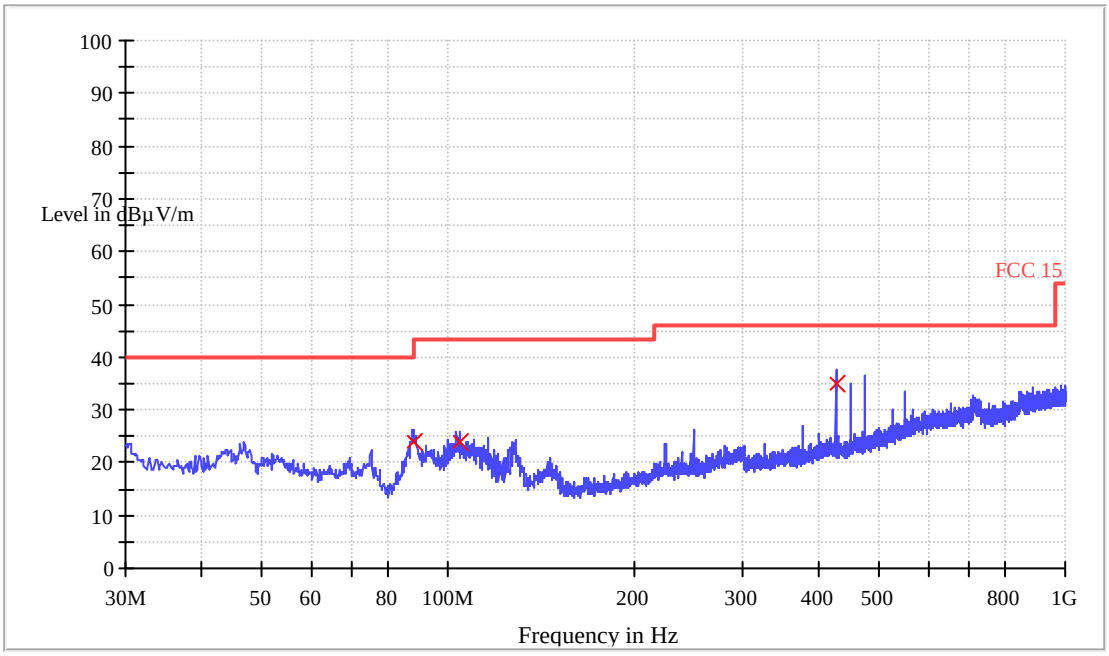
QP

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
107.760000	21.0	120.000	H	12.3	22.5	43.5
250.000000	21.9	120.000	H	12.7	24.1	46.0
475.040000	28.1	120.000	H	18.6	17.9	46.0

Horizontal:

Peak scan
Level (dBµV/m)

Quasi-peak measurement



QP

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
88.040000	23.8	120.000	V	9.5	19.7	43.5
104.360000	23.8	120.000	V	12.6	19.7	43.5
425.040000	35.0	120.000	V	17.6	11.0	46.0

1~25 GHz Radiated Emissions. Peak & Average Measurement

Polarization	Frequency (MHz)	PK Net at 3m (dBμV/m)	AV Net at 3m (dBμV/m)	Correction Factor (dB)	PK Limit at 3m (dBμV/m)	PK Margin (dB)	AV Limit at 3m (dBμV/m)	AV Margin (dB)
Horizontal	1532.000	33.2	/	-16.3	74.0	/	54.0	-20.8
Horizontal	4878.000	47.0	/	-8.8	74.0	/	54.0	-7.0
Horizontal	5335.000	39.6	/	-4.9	74.0	/	54.0	-14.4
Vertical	1992.000	32.4	/	-13.8	74.0	/	54.0	-21.6
Vertical	4878.000	44.5	/	-8.8	74.0	/	54.0	-9.5
Vertical	7318.000	36.5	/	-4.9	74.0	/	54.0	-17.5

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Correction Factor

Correction Factor = Antenna Factor + Cable Loss –Preamplifier Factor.

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

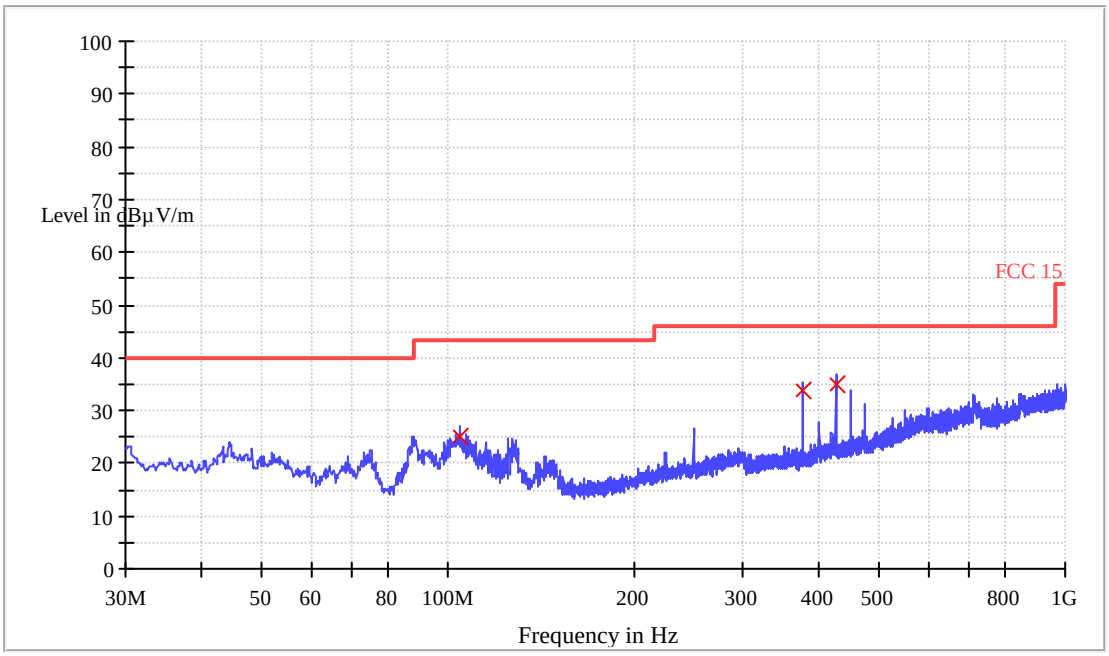
Test at Channel 39 (2.480 GHz) in transmitting status

30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical:

Peak scan
Level (dBµV/m)

Quasi-peak measurement



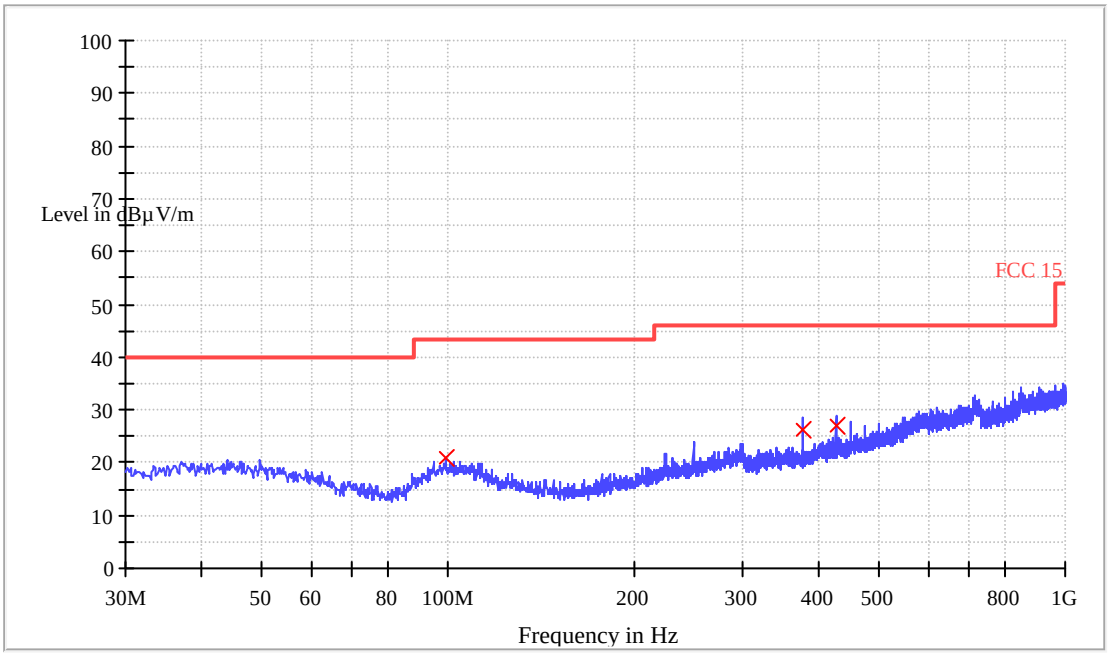
QP

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
104.360000	25.0	120.000	V	12.6	18.5	43.5
374.920000	33.8	120.000	V	16.1	12.2	46.0
424.920000	34.9	120.000	V	17.6	11.1	46.0

Horizontal:

Peak scan
Level (dBµV/m)

Quasi-peak measurement



QP

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
99.080000	20.8	120.000	H	12.7	22.7	43.5
374.920000	26.1	120.000	H	16.1	19.9	46.0
424.920000	27.2	120.000	H	17.6	18.8	46.0

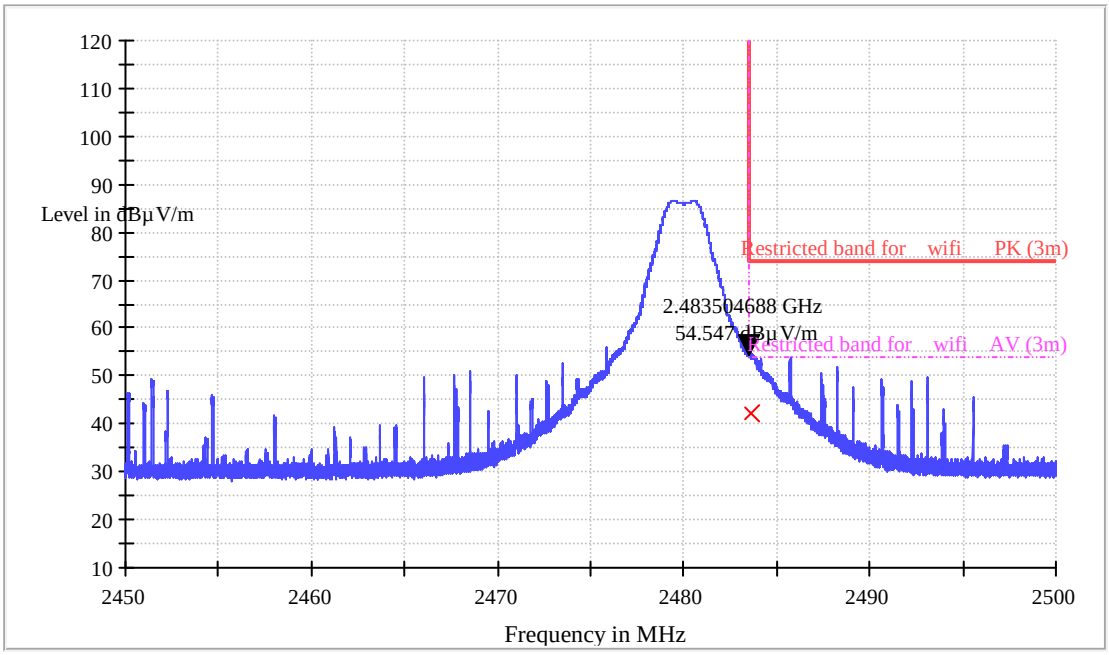
1~25 GHz Radiated Emissions. Peak & Average Measurement

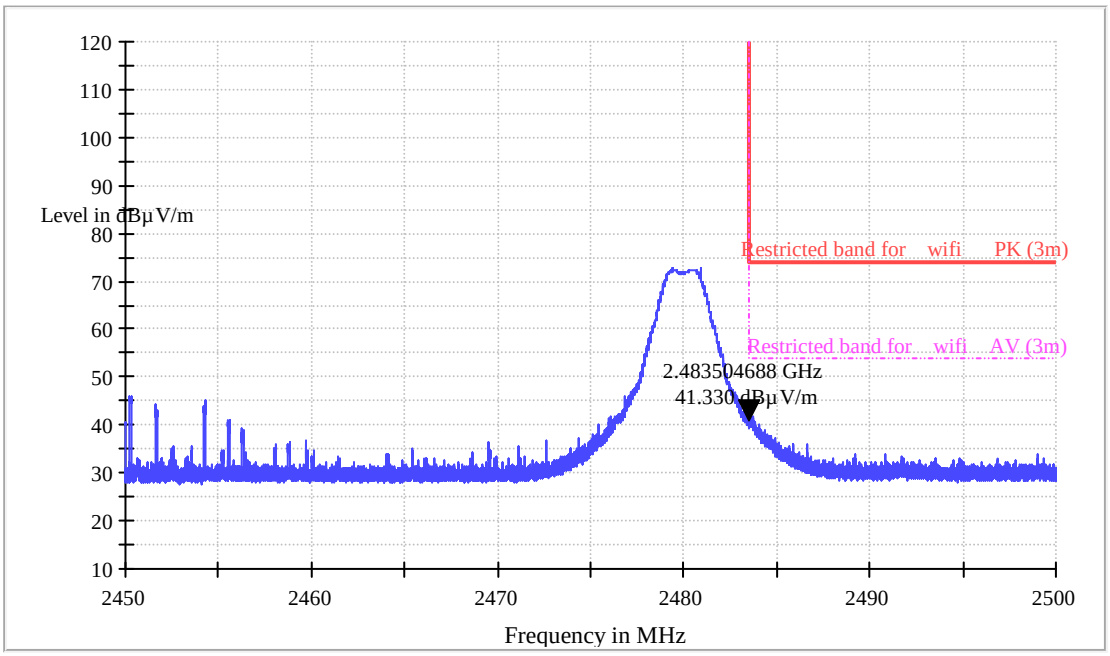
Peak Measurement:

Polarization	Frequency (MHz)	PK Net at 3m (dBµV/m)	AV Net at 3m (dBµV/m)	Correction Factor (dB)	PK Limit at 3m (dBµV/m)	PK Margin (dB)	AV Limit at 3m (dBµV/m)	AV Margin (dB)
Horizontal	2483.500	54.5	42.0	-12.6	74.0	-19.5	54.0	-12.0
Horizontal	4958.000	44.3	/	-8.8	74.0	/	54.0	-9.7
Horizontal	10636.000	44.6	/	-4.6	74.0	/	54.0	-9.4
Vertical	2483.500	41.3	/	-12.6	74.0	/	54.0	-12.7
Vertical	4961.000	40.5	/	-8.8	74.0	/	54.0	-13.5
Vertical	10629.000	47.1	/	-4.6	74.0	/	54.0	-6.9

Band Edge test Restricted Bands

Horizontal





The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Correction Factor

Correction Factor = Antenna Factor + Cable Loss –Preamplifier Factor.

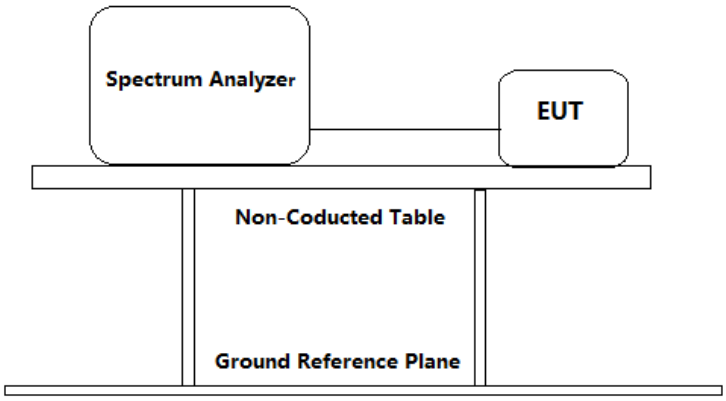
Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

No any other emissions level which are attenuated less than 20dB below the limit.

4.8 Band Edges Requirement

Test Requirement:	FCC Part 15 C section 15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. The radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Based on either an RF conducted or a radiated measurement. Provided the transmitter demonstrates compliance with the peak conducted power limits.
Frequency Band:	2400 MHz to 2483.5 MHz
Test Method:	ANSI C63.10: Clause 11.11 and 11.13
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test Configuration:	For Band Edges Emission in Radiated mode, Please refer to clause 4.7



Test Procedure: For Band Edges Emission in Radiated mode, Please refer to clause 4.7

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

   a) Set instrument center frequency to the frequency of the emission to be measured (must be within 2 MHz of the authorized band edge).
   b) Set the center frequency and span to encompass frequency range to be measured.
   c) RBW = 100 kHz.
   d) VBW ≥ [3 × RBW].
   e) Detector = peak.
   f) Sweep time = auto.
   g) Trace mode = max hold.

h) Allow sweep to continue until the trace stabilizes (required measurement time may increase for low-duty-cycle applications).

i) For radiated Band-edge emissions within a restricted band and within 2 MHz of an authorized band edge, integration method is considered.

2. Repeat until all the test status is investigated.
3. Report the worst case.

Test result with plots as follows:

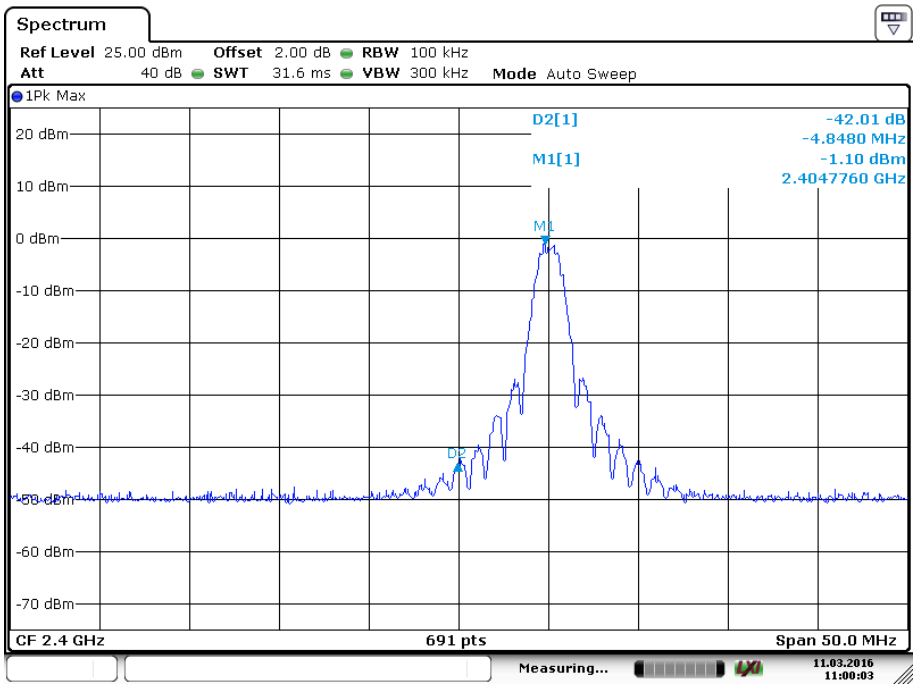
For conduct mode:

The band edges was measured and recorded Result:

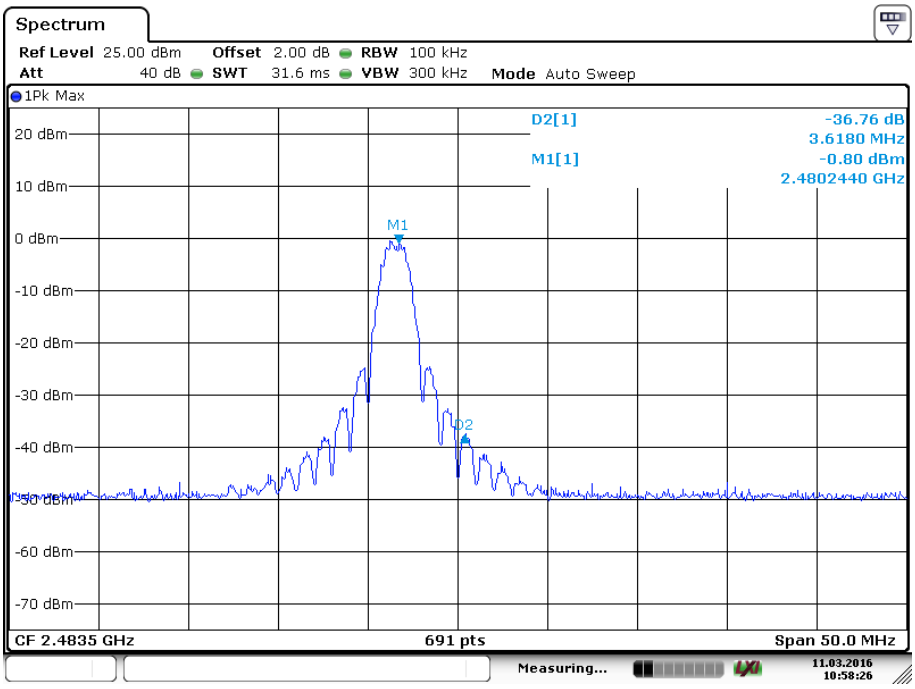
The Lower Edges attenuated more than 20dB.

The Upper Edges attenuated more than 20dB.

Channel 11: 2.405 GHz



Channel 26: 2.480 GHz

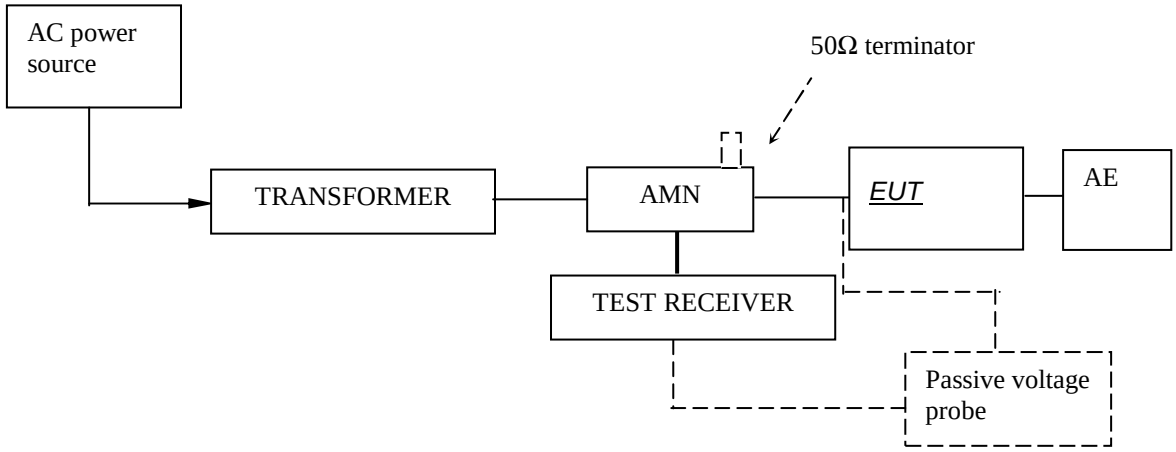


For radiated mode:

Please refer Clause 4.7 Radiated Emissions in Restricted Bands of this test report for more details. The resultant field strength in band edges meet the general radiated emission limit in section 15.209, which does not exceed 74 dBμV/m (Peak Limit) and 54 dBμV/m (Average Limit).

4.9 Conducted Emission Test

Test Configuration:



Test Setup and Procedure

Test was performed according to ANSI C63.10 Clause 6.2. The EUT was set to achieve the maximum emission level. The mains terminal disturbance voltage was measured with the EUT in a shielded room. The EUT was connected to AC power source through an Artificial Mains Network which provides a 50Ω linear impedance Artificial hand is used if appropriate (for handheld apparatus). The load/control terminal disturbance voltage was measured with passive voltage probe if appropriate.

The table-top EUT was placed on a 0.8m high non-metallic table above earthed ground plane (Ground Reference Plane).And for floor standing EUT, was placed on a 0.1m high non-metallic supported on GRP. The EUT keeps a distance of at least 0.8m from any other of the metallic surface. The Artificial Mains Network is situated at a distance of 0.8m from the EUT.

During the test, mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

The bandwidth of test receiver was set at 9 kHz. The frequency range from 150 kHz to 30MHz was checked.

Test Data

At main terminal: Pass

Tested Wire: Live Operation Mode: transmitting mode at 2440MHz

EDIT PEAK LIST (Final Measurement Results)

Trace1: FCC15QP
Trace2: FCC15AV
Trace3: ---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	150 kHz	51.97 L1	-4.02
1 Quasi Peak	150 kHz	57.93 L1	-8.06
2 Average	378 kHz	34.21 L1	-14.11
2 Average	26.182 MHz	32.18 L1	-17.81
1 Quasi Peak	466 kHz	38.30 L1	-18.27
1 Quasi Peak	26.022 MHz	37.14 L1	-22.85

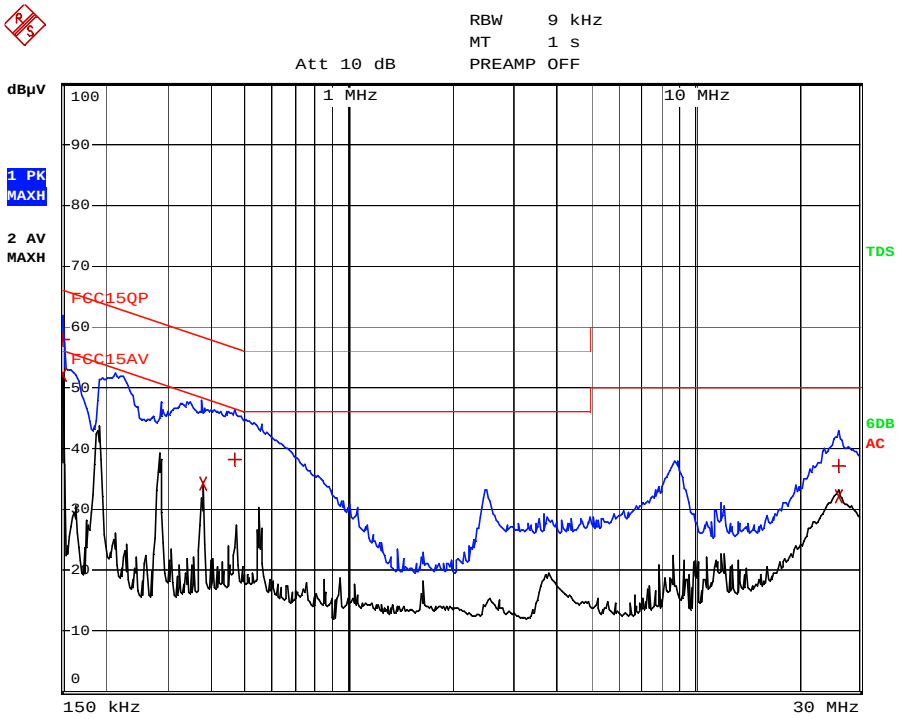
Tested Wire: Neutral Operation Mode: transmitting mode at 2440MHz

EDIT PEAK LIST (Final Measurement Results)

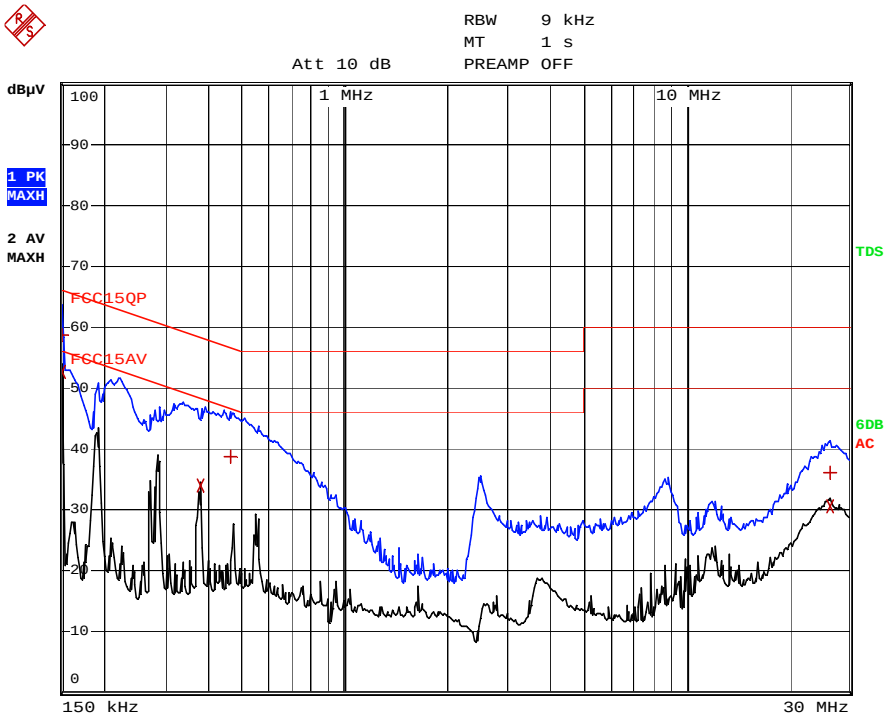
Trace1: FCC15QP
Trace2: FCC15AV
Trace3: ---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	150 kHz	52.52 L1	-3.47
1 Quasi Peak	150 kHz	58.61 L1	-7.38
2 Average	378 kHz	34.02 L1	-14.30
1 Quasi Peak	462 kHz	38.65 L1	-18.00
2 Average	26.374 MHz	30.51 L1	-19.48
1 Quasi Peak	26.35 MHz	35.96 L1	-24.03

Emission Curve
Tested Wire: Live



Tested Wire: Neutral



5.0 Test Equipment List

Radiated Emission

Equipment No.	Equipment	Model	Manufacturer	Cal. Due date (YYYY-MM-DD)	Calibration Interval
EM030-01	3m Semi-Anechoic Chamber	9×6×6 m^3	ETS·LINDGREN	2015-04-02	1Y
EM030-02	Control room for 3m Semi-Anechoic Chamber	4×4×3 m^3	ETS·LINDGREN		
EM031-02	EMI Test Receiver (9 kHz~7 GHz)	R&S ESR7	R&S	2015-06-03	1Y
EM031-03	Signal and Spectrum Analyzer (10 Hz~40 GHz)	R&S FSV40	R&S	2015-06-03	1Y
EM011-04	Loop antenna (9 kHz-30 MHz)	HFH2-Z2	R&S	2015-05-25	1Y
EM061-03	TRILOG Super Broadband test Antenna (30 MHz-1.5 GHz）	VULB 9161	SCHWARZBECK	2015-05-25	1Y
EM033-02	Bouble-Ridged Waveguide Horn Antenna (800 MHz-18 GHz)	R&S HF907	R&S	2015-05-25	1Y
EM033-03	High Frequency Antenna & preamplifier (18 GHz~26.5 GHz)	R&S SCU-26	R&S	2015-05-25	1Y
EM033-04	High Frequency Antenna & preamplifier (26 GHz-40 GHz)	R&S SCU-40	R&S	2015-05-25	1Y
EM031-02-01	Coaxial cable(9 kHz-1 GHz)	/	R&S	2015-06-03	1Y
EM033-02-02	Coaxial cable(1 GHz-18 GHz)	/	R&S	2015-06-09	
EM033-04-02	Coaxial cable（18~40）GHz	/	R&S	2015-06-09	
EM022-03	2.45 GHz Filter	BRM 50702	Micro-Tronics	2015-05-06	1Y

Conducted emission at the mains terminals test

Equipment No.	Equipment	Model	Manufacturer	Cal.Due date (YYYY-MM-DD)	Calibration Interval
EM080-05	EMI receiver	ESCI	R&S	2015-08-04	1Y
EM006-05	LISN	ENV216	R&S	2015-09-12	1Y
EM006-06	LISN	ENV216	R&S	2015-09-12	1Y
EM006-06-01	Coaxial cable	/	R&S	2015-04-12	1Y
EM004-04	EMC shield Room	8m×3m×3m	Zhongyu	2015-08-04	1Y