Report No.: 130606030GZU-001
Issued: 2014-01-10

TEST REPORT

Applicant Name & Address	:	Gerber Products Company (BabyNes US) 12 Vreeland Rd. Florham Park, New Jersey 07928, USA
Sample Description		
Product	:	Advanced Nutrition System
FCC ID	:	2ABBQ9310B
Model No.	:	9310B
Electrical Rating	:	120 Vac, 60Hz, 940W
Date Received	:	06 June, 2013
Date Test Conducted	:	16 July, 2013 – 25 July, 2013
Test standards	:	**47 CFR PART 15 Subpart C: 2012 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:

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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	FCC PART 15 C section 15.247 (a)(2)	ANSI C63.10: Clause 6.9.1	PASS
Maximum Peak Conducted Output Power	FCC PART 15 C section 15.247(b)(3)	ANSI C63.10: Clause 6.10.2.1	PASS
Peak Power Spectral Density	FCC PART 15 C section 15.247(e)	ANSI C63.10: Clause 6.11.2.3	PASS
Out of Band Conducted Emissions	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 6.7	PASS
Out of Band Radiated Emission	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 6.4, 6.5 and 6.6	PASS
Radiated Emissions in Restricted Bands	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 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 6.9.2	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 C63.10:2009 in the whole report.

2.0 General Description

2.1 Product Description

Operating Frequency	2412 MHz to 2462 MHz for 802.11b/g/n(HT20)
Type of Modulation:	802.11b: DSSS(CCK/QPSK/BPSK) 802.11g: OFDM(BPSK/QPSK/16QAM/64QAM) 802.11n: MIMO OFDM (BPSK/QPSK/16QAM/64QAM)
Transmit Data Rate:	802.11b :1/2/5.5/11 Mbps 802.11g :6/9/12/18/24/36/48/54 Mbps 802.11n(HT20): 6.5/13/19.5/26/39/52/58.5/65 Mbps
Number of Channels	11 Channels for 802.11b/g/n(HT20)
Channel Separation:	5 MHz
Antenna Type	Integral
Antenna gain:	0.5 dBi
Function:	Advanced Nutrition System with 2.4 GHz WIFI
Power Supply:	AC 120V 60 Hz for Advanced Nutrition System DC 5.0 V for WIFI modular
Power cord:	1.1 m x 3 wires unscreened AC supply cable

EUT channels and frequencies list:

Test frequencies are lowest channel 1: 2412 MHz, middle channel 6: 2437 MHz and highest channel 11: 2462 MHz for 802.11b/g/n(HT20)

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

2.2 Related Submittal(s) Grants

This is an application for certification of:
DTS- Part 15 Digital Transmission Systems (WIFI transmitter portion)

Remaining portions are subject to the following procedures:
1. Receiver portion of WIFI: exempt from technical requirement of this Part.
2. The milk shaker function: exempt from FCC requirement.

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10:2009. 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:
Keyway Technology Co.,Ltd. located at Baishun Industrial Zone, Zhangmotou Town, Dongguan, Guangdong, China 523638. This test facility and site measurement data have been fully placed on file with the FCC, test firm registration number is 370994.

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. Care was taken to ensure proper power supply voltages during testing. During testing, AC power line was manipulated to produce worst case emissions. It was powered by AC 120V/60Hz supply.

The signal is maximized through rotation and placement in the three orthogonal axes. 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:

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

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

3.2 EUT Exercising Software

The test was performed under "RT5350 AP V1.0.0.8" 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 Gerber Products Company (BabyNes US) 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	HP	Compaq 6710b	CNU8240LF9

4.0 Measurement Results

4.1 Antenna Requirement:

Standard requirement

15.203 requirement:

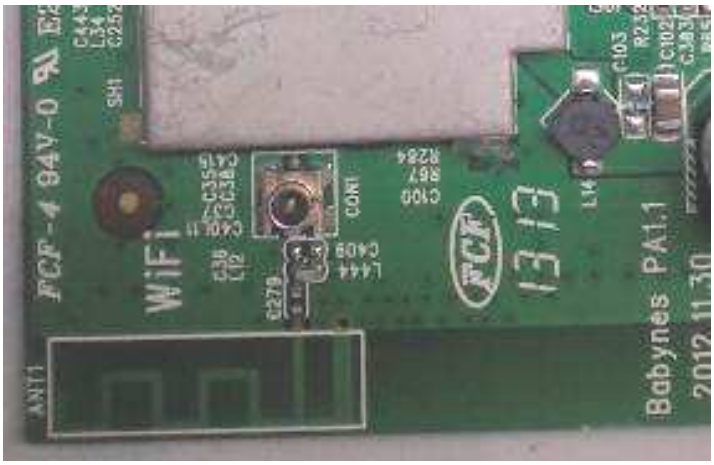
For intentional device. According to 15.203. an intentional radiator shall be designed to Ensure that no antenna other than that furnished by the responsible party shall be used with the device.

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

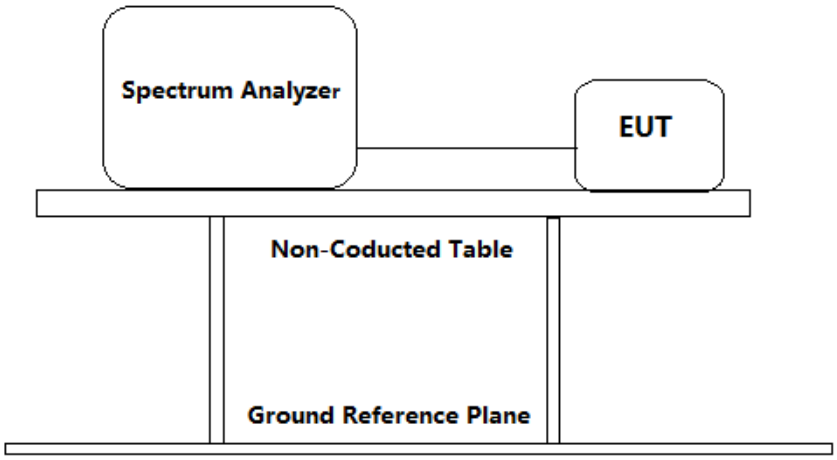
The antenna is an integral antenna and no consideration of replacement. The best case gain of the antenna is 0.5 dBi.



4.2 6 dB 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 6.9.1
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 =1.5 dB) from the antenna port to the spectrum.
2. Set the spectrum analyzer:

   Sweep = auto; Detector Function = Peak; ace = Max Hold

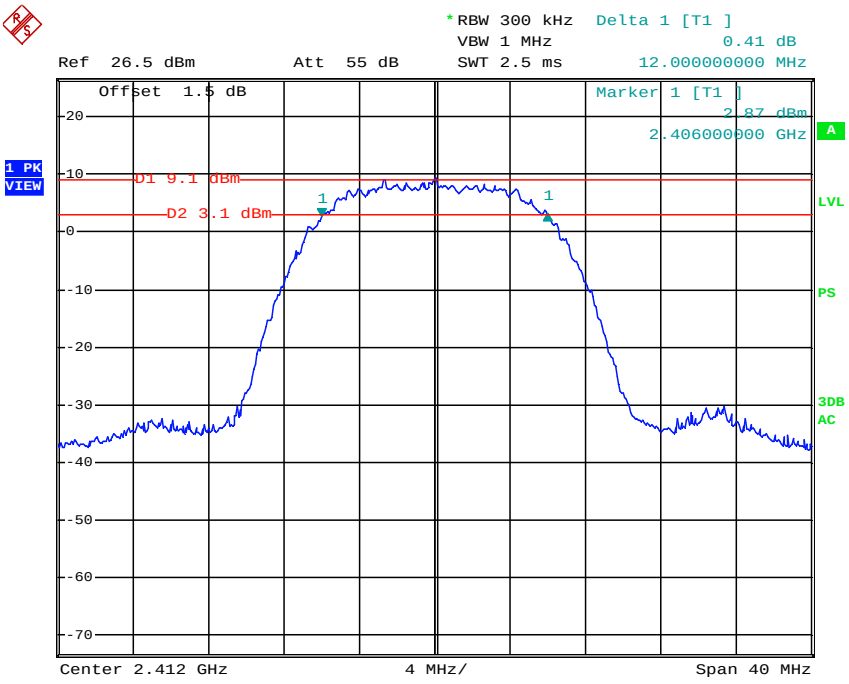
   RBW: 1%~5% OBW ; VBW: ≥3*RBW

   Span=2*OBW~5*OBW
3. Mark the peak power frequency and -6dB (upper and lower) power frequency.
4. Repeat until all the test status is investigated.
5. Report the worst case.

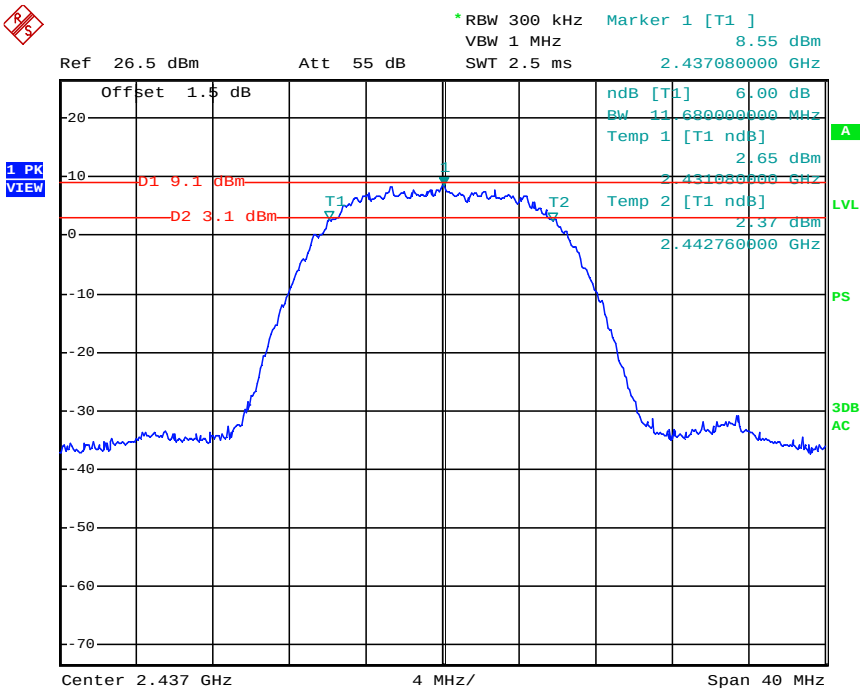
Channel No.	Frequency (MHz)	Mode	Data Rate	Measured 6dB bandwidth (MHz)	Limit	Result
1	2412	802.11b	11 Mbps	12.00	≥500KHz	Pass
6	2437		11 Mbps	11.68		Pass
11	2462		11 Mbps	11.68		Pass
1	2412	802.11g	54 Mbps	16.40	≥500KHz	Pass
6	2437		54 Mbps	16.48		Pass
11	2462		54 Mbps	16.48		Pass
1	2412	802.11n (HT20)	65 Mbps	17.30	≥500KHz	Pass
6	2437		65 Mbps	17.04		Pass
11	2462		65 Mbps	17.20		Pass

Test result: The unit does meet the FCC requirements.
Result plot as follows:

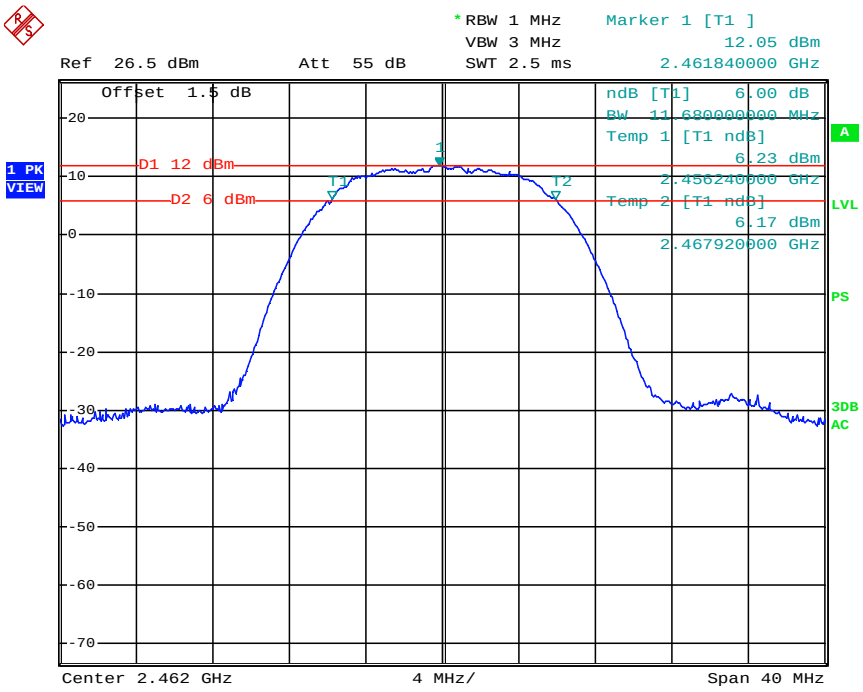
802.11b mode with 11Mbps data rate
Channel 1: 2.412GHz:



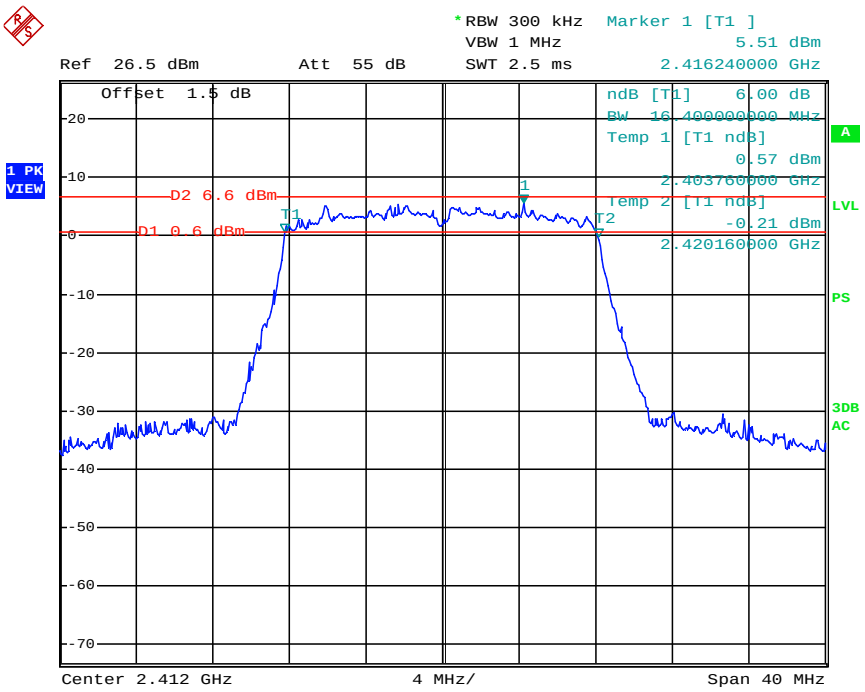
Channel 6: 2.437GHz:



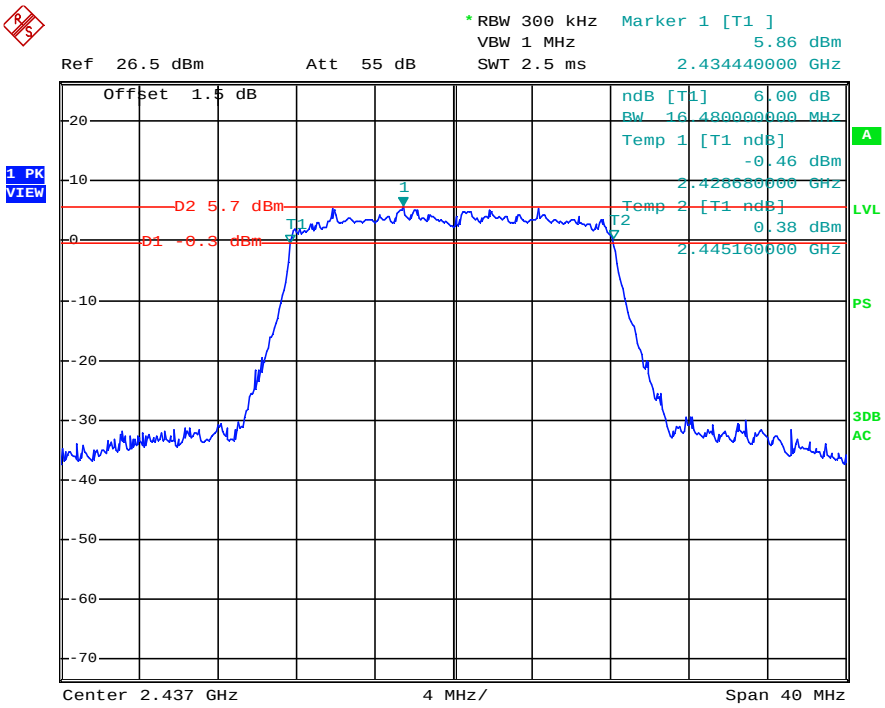
Channel 11: 2.462GHz:



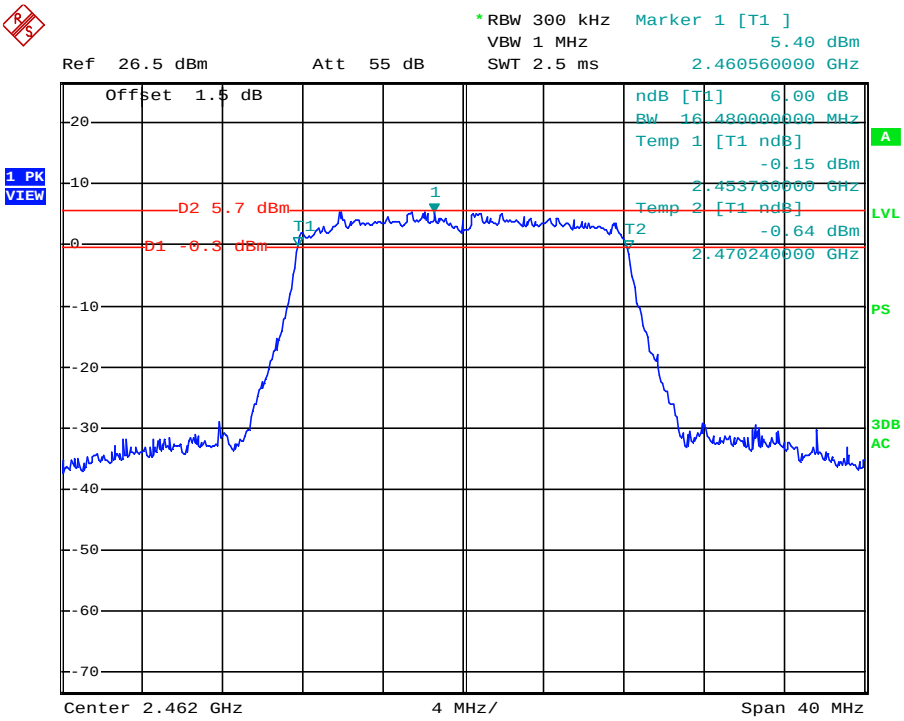
802.11g mode with 54Mbps data rate
Channel 1: 2.412GHz:



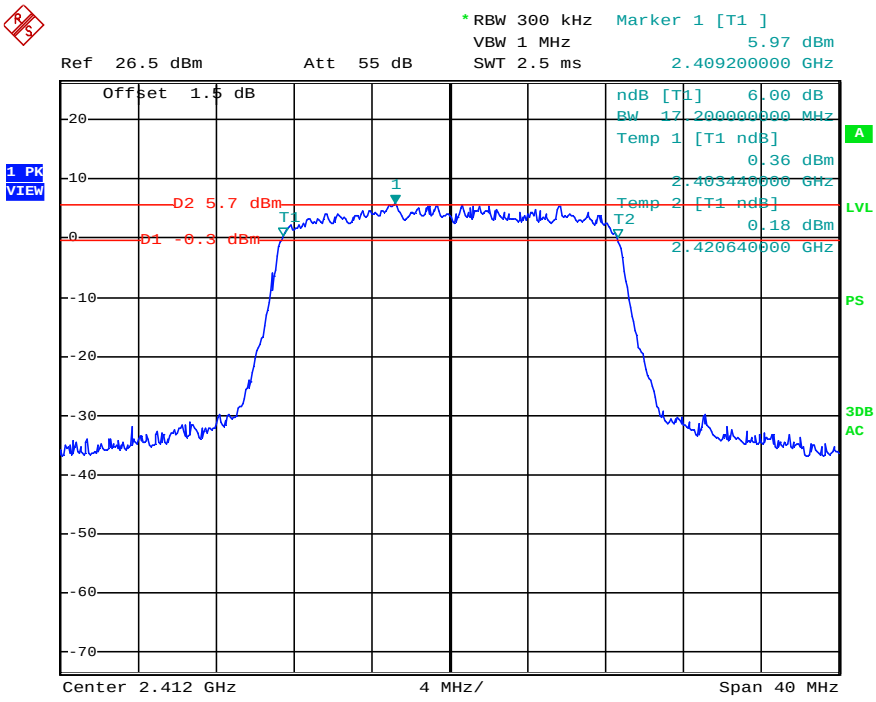
Channel 6: 2.437GHz:



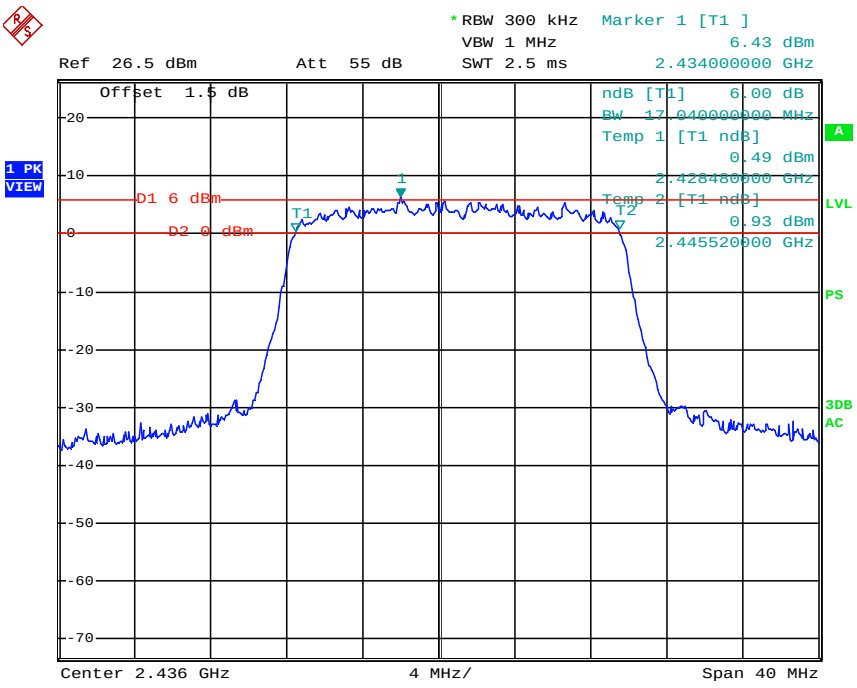
Channel 11: 2.462GHz:



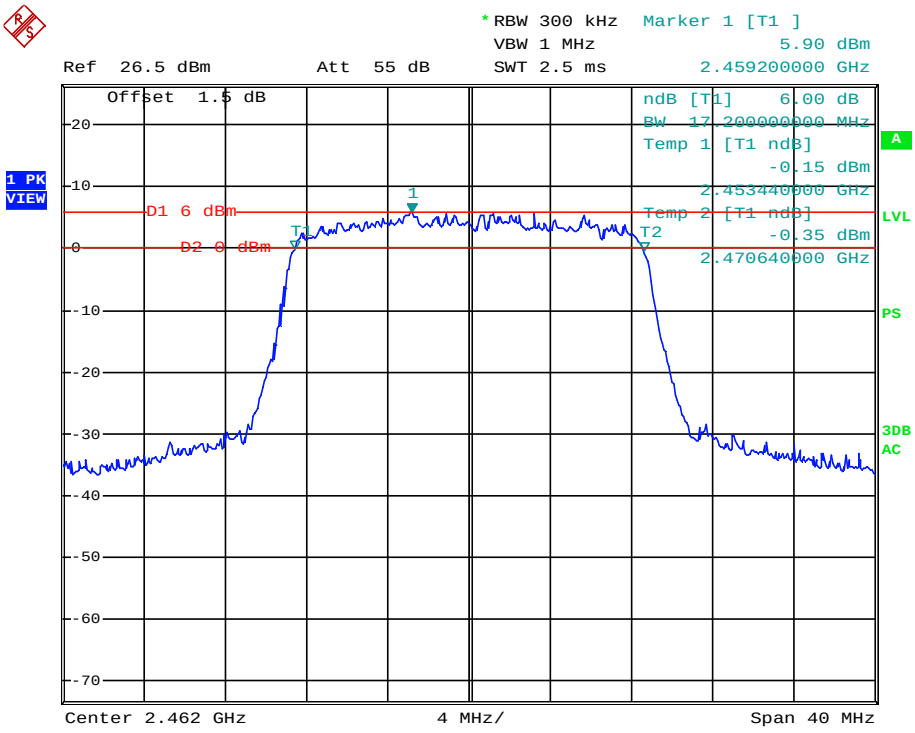
802.11n(HT20) mode with 65Mbps data rate
Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



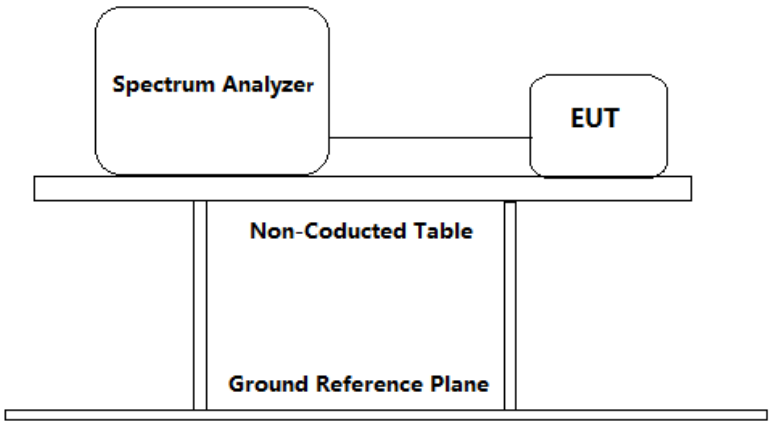
Channel 11: 2.462GHz:



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 6.10.2.1(Channel integration method)
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 =1.5dB) from the antenna port to the spectrum.
2. Set the RBW = 1 MHz
3. Set the VBW ≥ 3 x RBW
4. Set the span ≥ 1.5 x DTS bandwidth(6 dB bandwidth).
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges(6 dB bandwidth).
10. Measure the channel power of the test frequency with special test status.
11. Repeat until all the test status is investigated.
12. Report the worst case.

Test result:

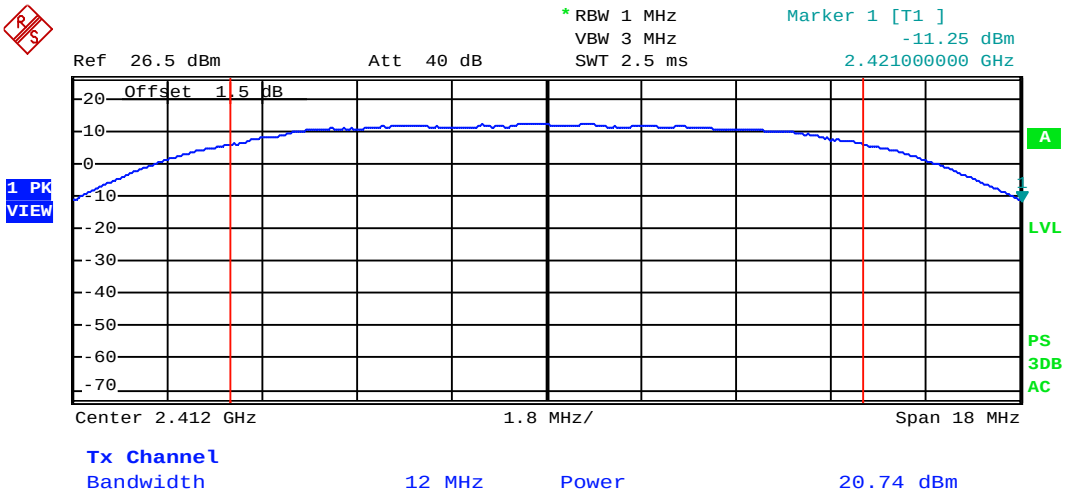
Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Channel Power (dBm)	Limit	Result
1	2412	802.11b	11 Mbps	20.74	1W (30dBm)	Pass
6	2437		11 Mbps	20.08		Pass
11	2462		11 Mbps	20.18		Pass
1	2412	802.11g	54 Mbps	21.48		Pass
6	2437		54 Mbps	21.45		Pass
11	2462		54 Mbps	21.48		Pass
1	2412	802.11n (HT20)	65 Mbps	21.20		Pass
6	2437		65 Mbps	21.18		Pass
11	2462		65 Mbps	21.21		Pass

Remark: Level = Read Level + Cable Loss.
The unit does meet the FCC requirements.

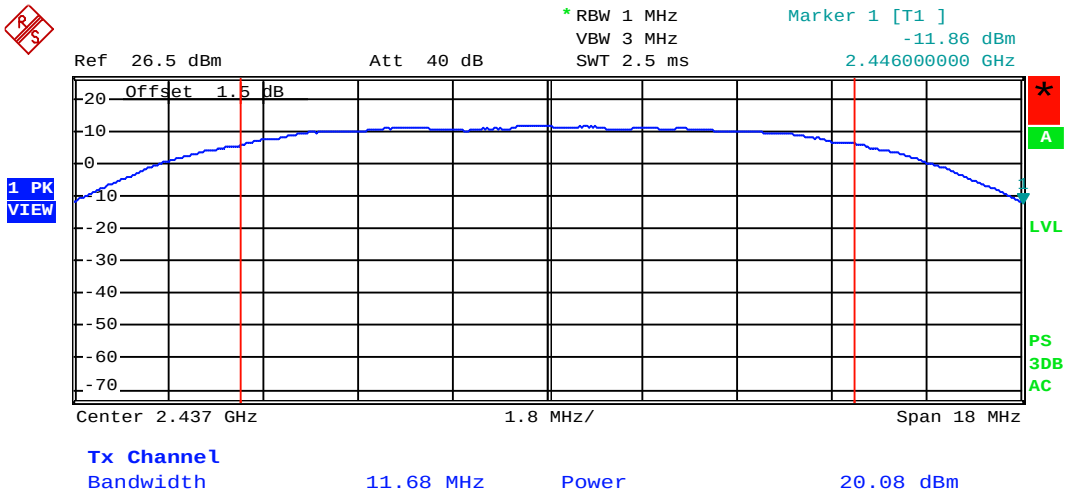
Result plot as follows:

802.11b mode with 11Mbps data rate

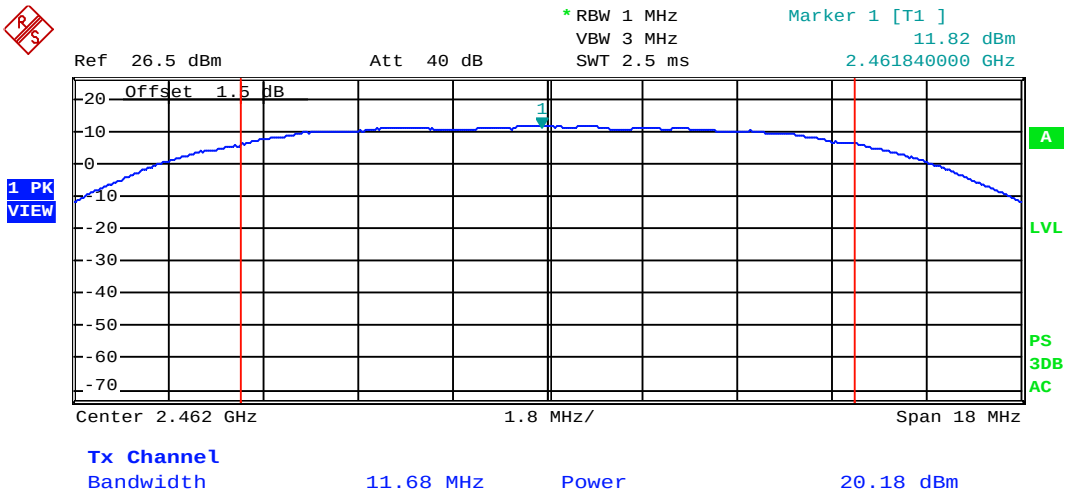
Channel 1: 2.412GHz:



Channel 6: 2.437GHz:

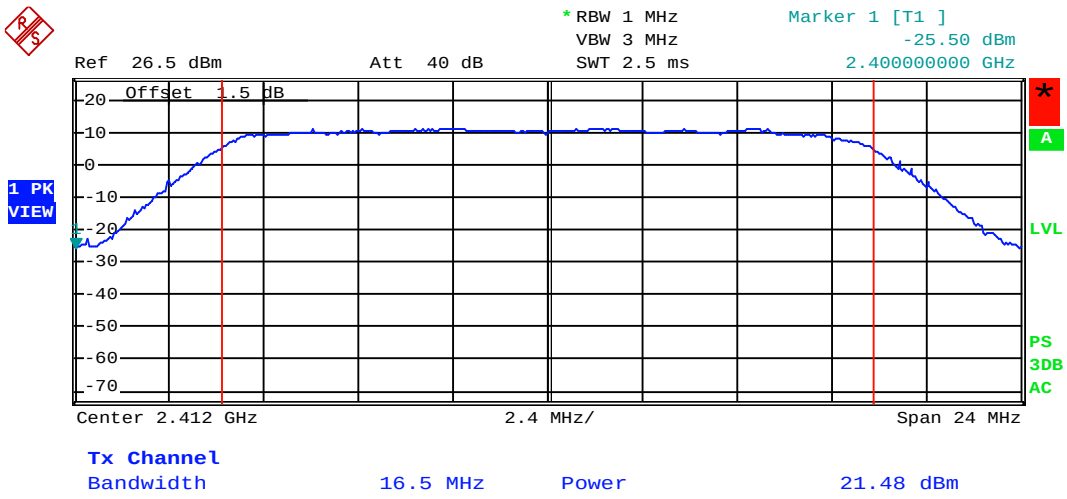


Channel 11: 2.462GHz:

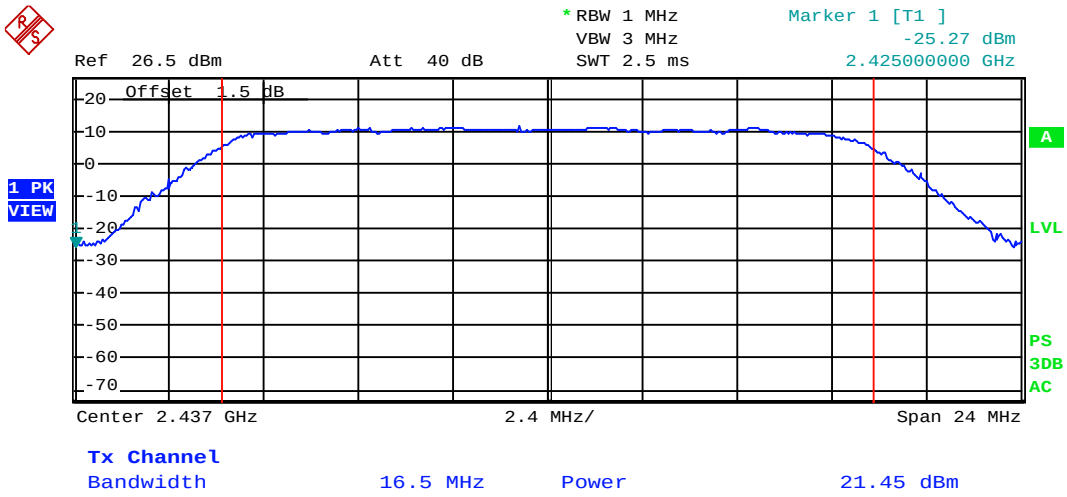


802.11g mode with 54Mbps data rate

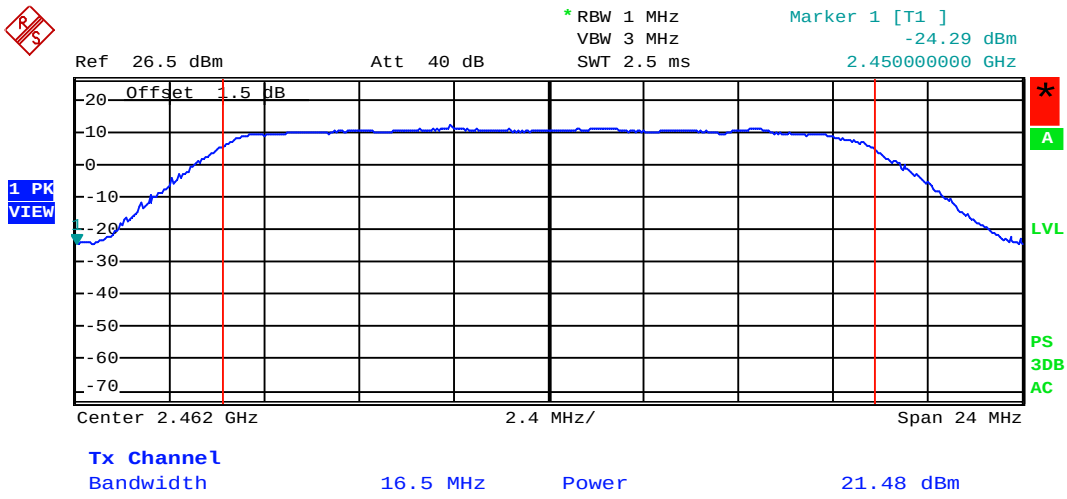
Channel 1: 2.412GHz:



Channel 6: 2.437GHz:

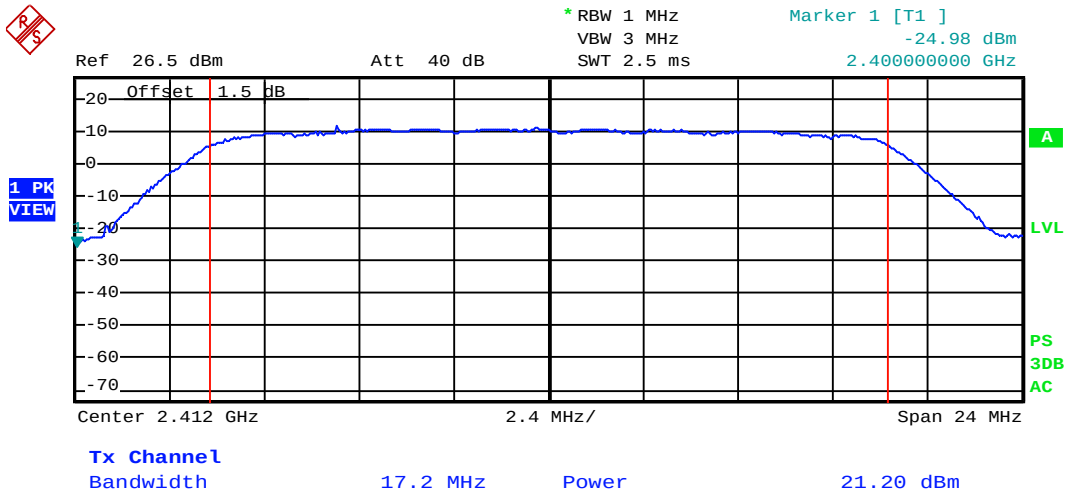


Channel 11: 2.462GHz:

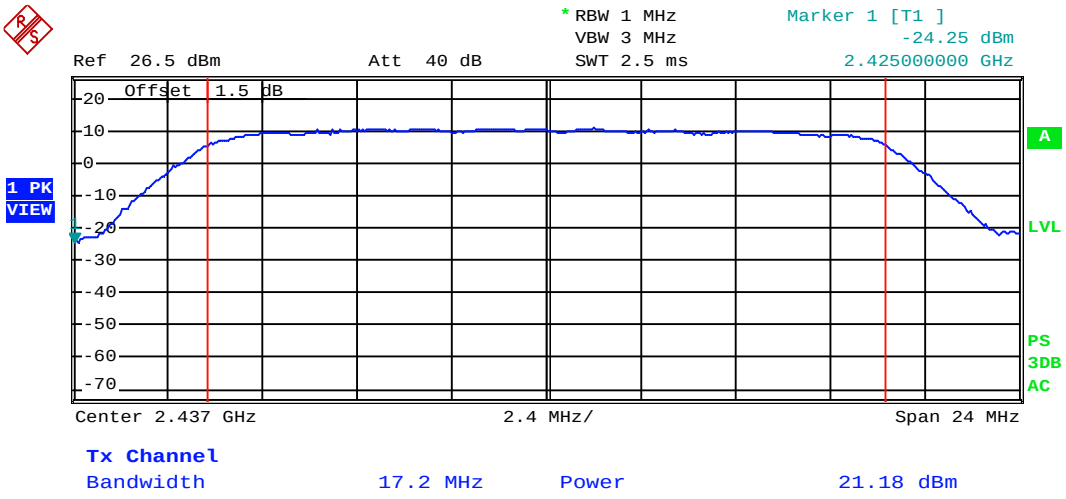


802.11n(HT20) mode with 65Mbps data rate

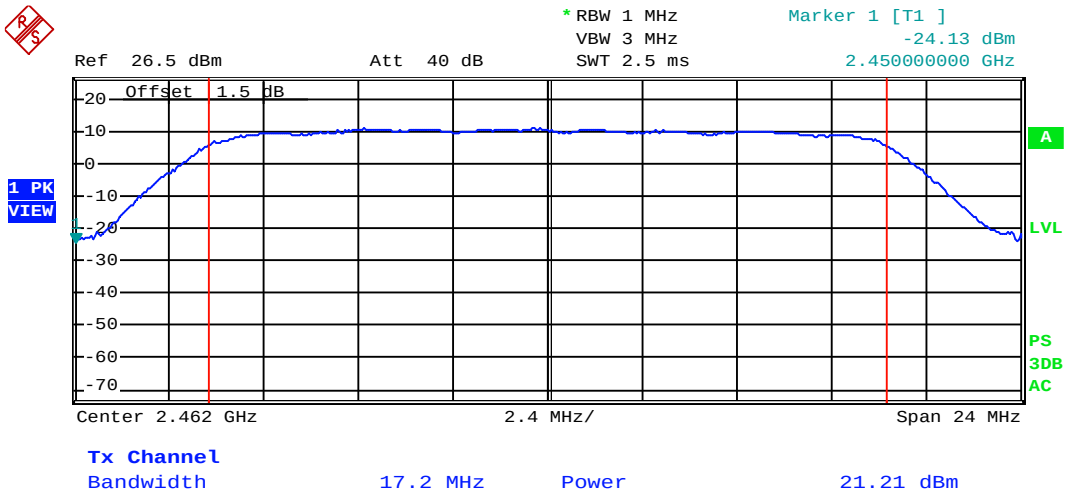
Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



Channel 11: 2.462GHz:



4.4 Peak Power Spectral Density

Test Requirement: FCC Part 15 C section 15.247

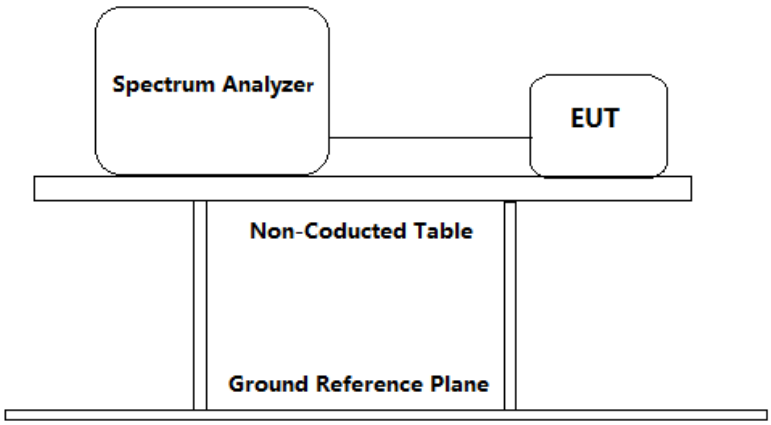
(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

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 6.11.2.3

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 =1.5dB) from the antenna port to the spectrum analyzer or power meter.
2. Set the spectrum analyzer:
   a) Set CENTER FREQUENCY = Frequency from Power Spectral Density Test Matrix
   b) Set SPAN = 20 MHz (For devices with a nominal 40 MHz BW, 50 MHz span will be needed)
   c) Set REFERENCE LEVEL = 20 dBm
   d) Set ATTENUATION = 0 dB
   e) Set SWEEP TIME = Coupled
   f) Set RBW = 3 kHz
   g) Set VBW = 10 kHz
   h) Set DETECTOR = Peak
   i) Set MKR = Center Frequency
   j) Set TRACE = CLEAR WRITE
   Place the radio in continuous transmit mode. Set the TRACE to MAX HOLD, and after the trace stabilizes, the TRACE to VIEW. Set the marker on the peak of the signal and then adjust the center frequency of the spectrum analyzer to the marker frequency.
   After viewing the EUT waveform on the spectrum analyzer, perform the following spectrum analyser functions to capture the trace:
   Set SPAN = 300 kHz
   Set SWEEP TIME = 100 s
   Set TRACE = MAX HOLD
   Set MKR = PEAK SEARCH
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.

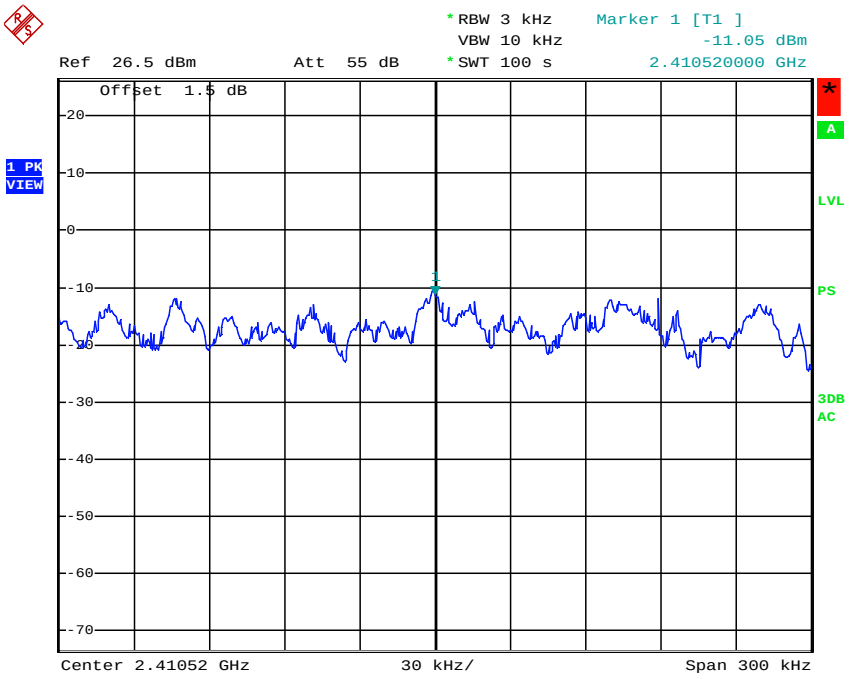
Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Peak Power Spectral Density (dBm/3KHz)	Limit	Result
1	2412	802.11b	11 Mbps	-11.05	8dBm/ 3 KHz	Pass
6	2437		11 Mbps	-3.16		Pass
11	2462		11 Mbps	-6.50		Pass
1	2412	802.11g	54 Mbps	-11.42		Pass
6	2437		54 Mbps	-12.38		Pass
11	2462		54 Mbps	-10.94		Pass
1	2412	802.11n (HT20)	65 Mbps	-12.02		Pass
6	2437		65 Mbps	-12.66		Pass
11	2462		65 Mbps	-11.54		Pass

Test result: Level = Read Level + Cable Loss.
The unit does meet the FCC requirements.

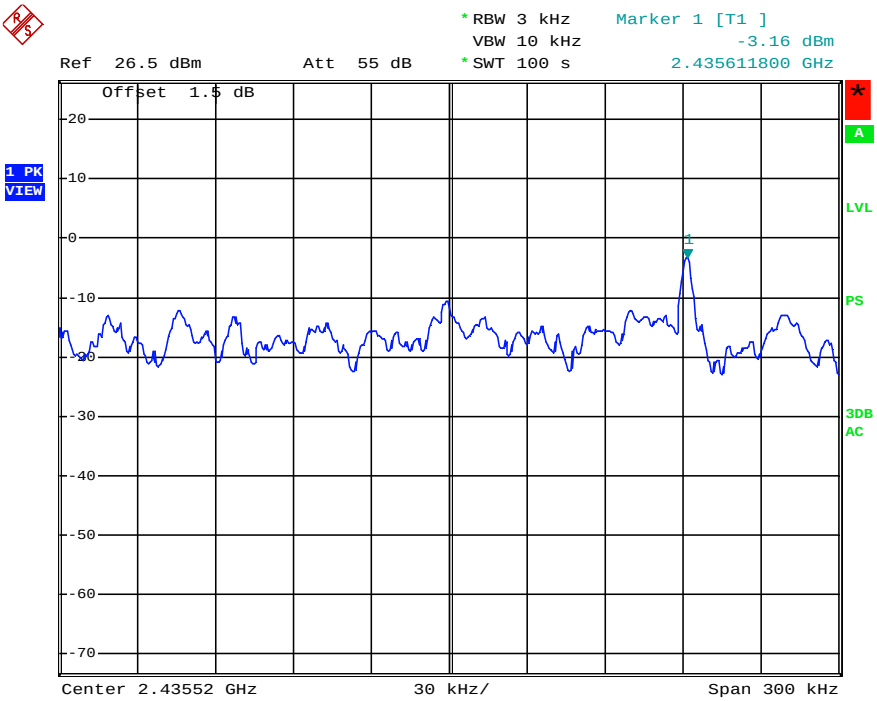
Result plot as follows:

802.11b mode with 11Mbps data rate

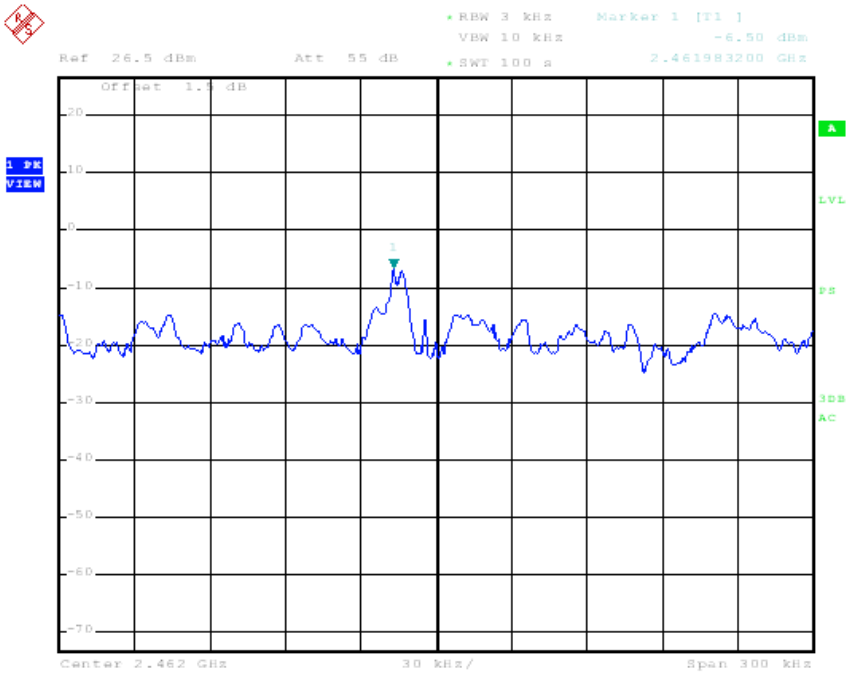
Channel 1: 2.412GHz:



Channel 6: 2.437GHz:

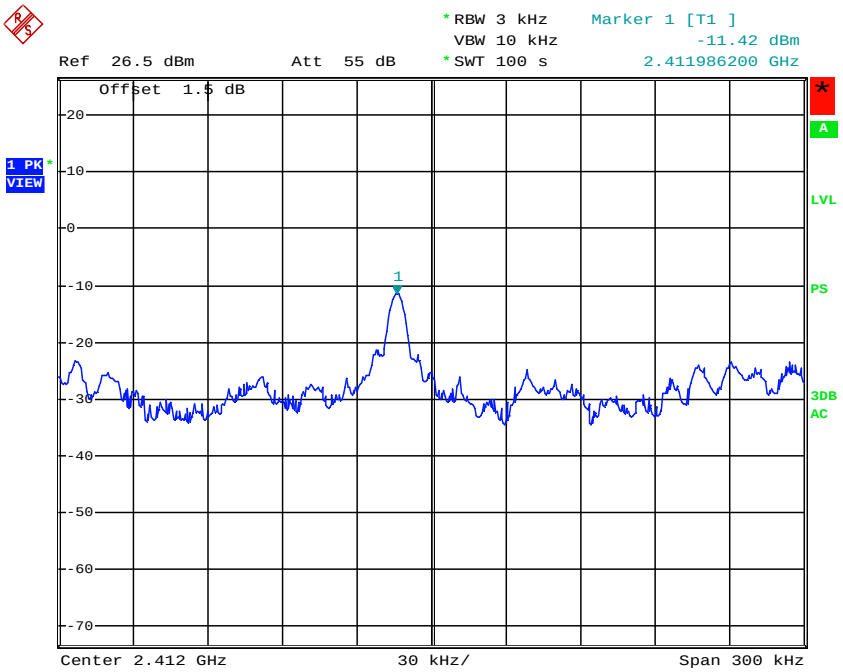


Channel 11: 2.462GHz:

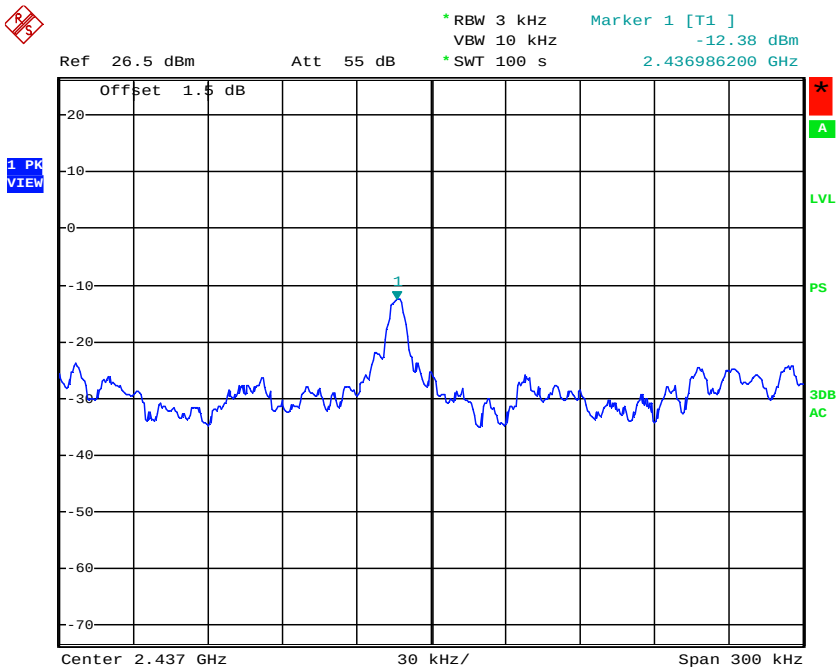


802.11g mode with 54Mbps data rate

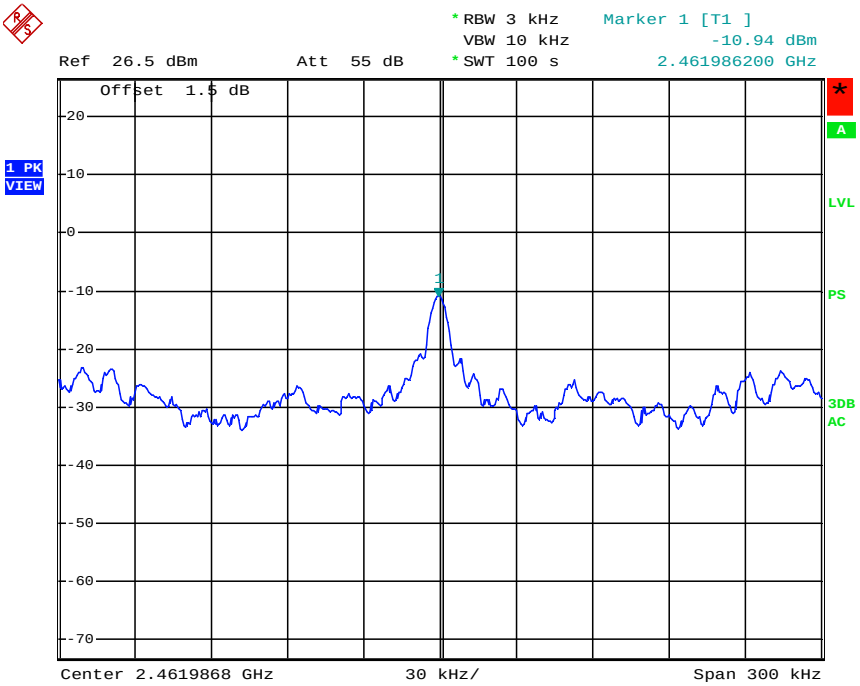
Channel 1: 2.412GHz:



Channel 6: 2.437GHz:

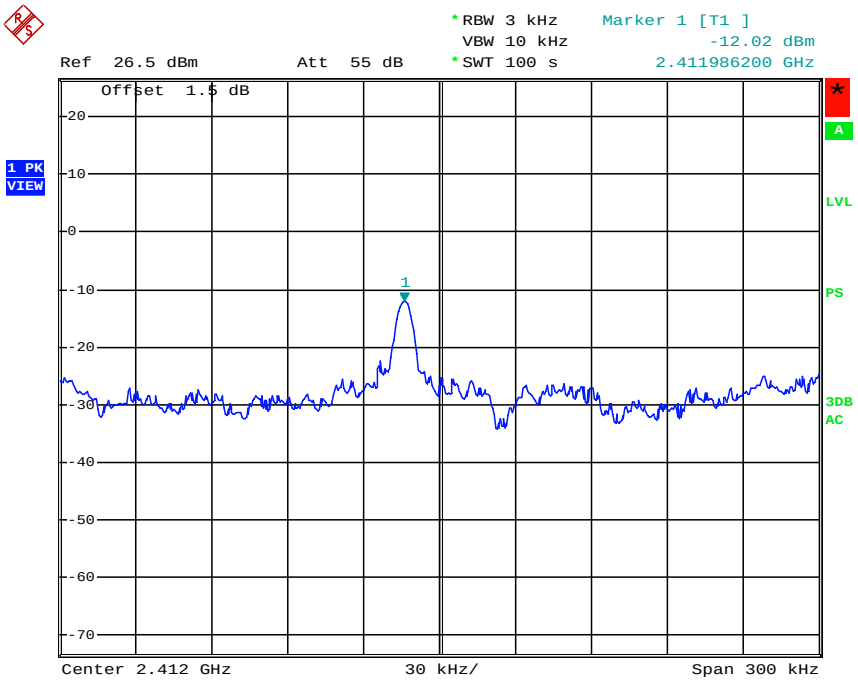


Channel 11: 2.462GHz:

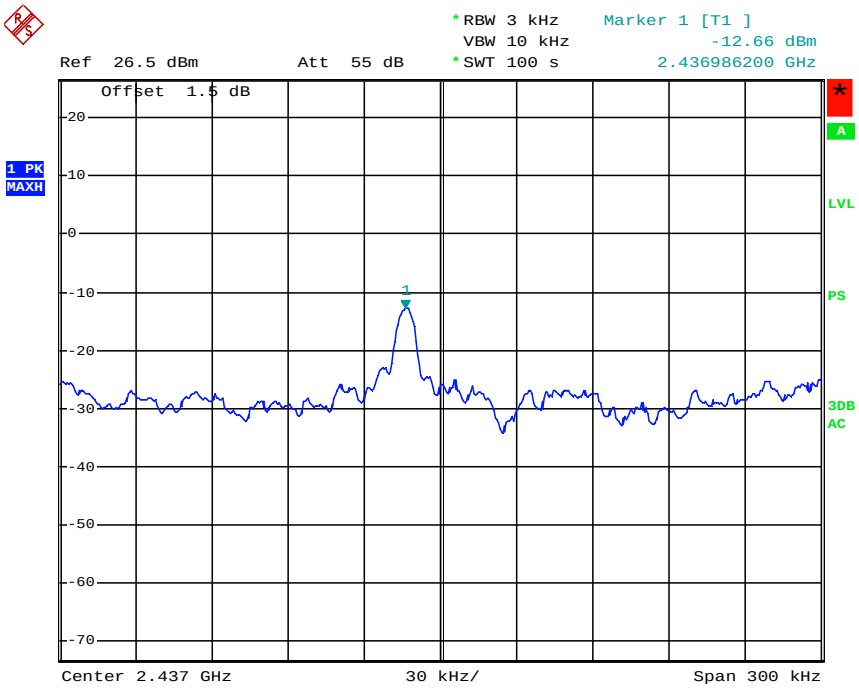


802.11n(HT20) mode with 65Mbps data rate

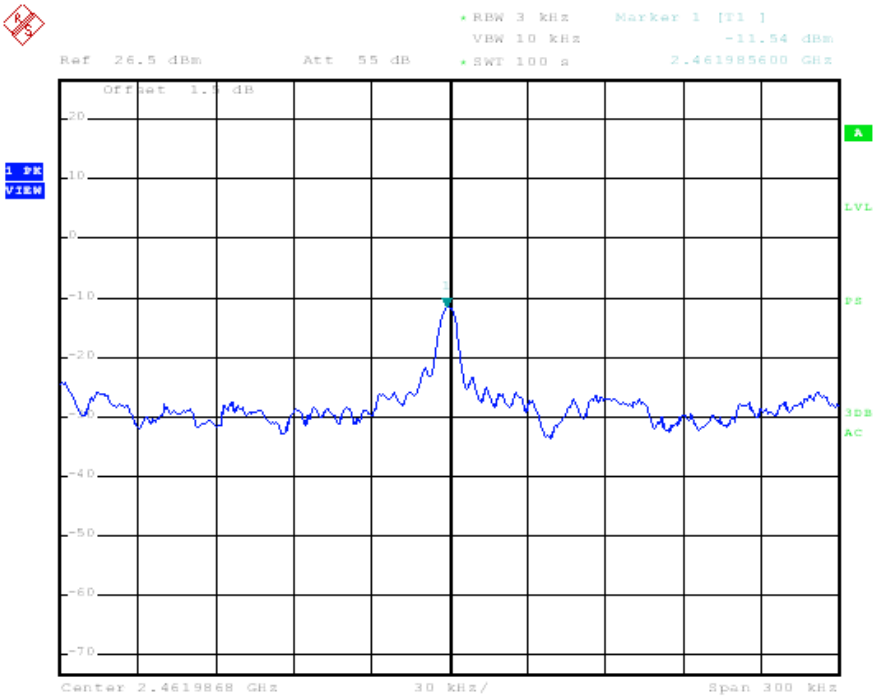
Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



Channel 11: 2.462GHz:



4.5 Out of Band Conducted Emissions

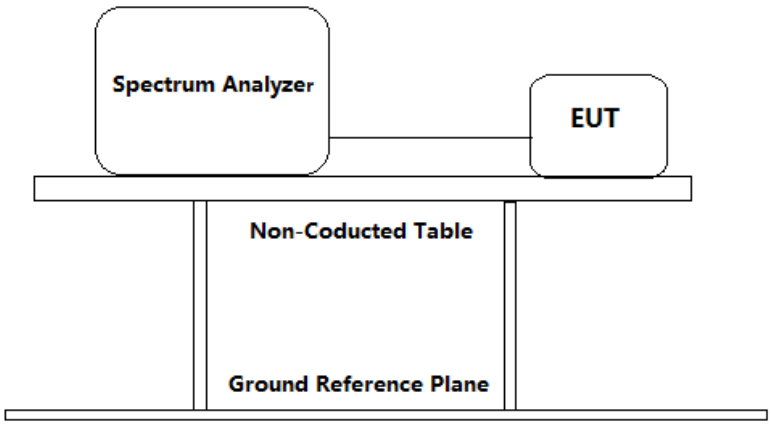
Test Requirement: FCC Part 15 C section 15.247

(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 6.7

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:



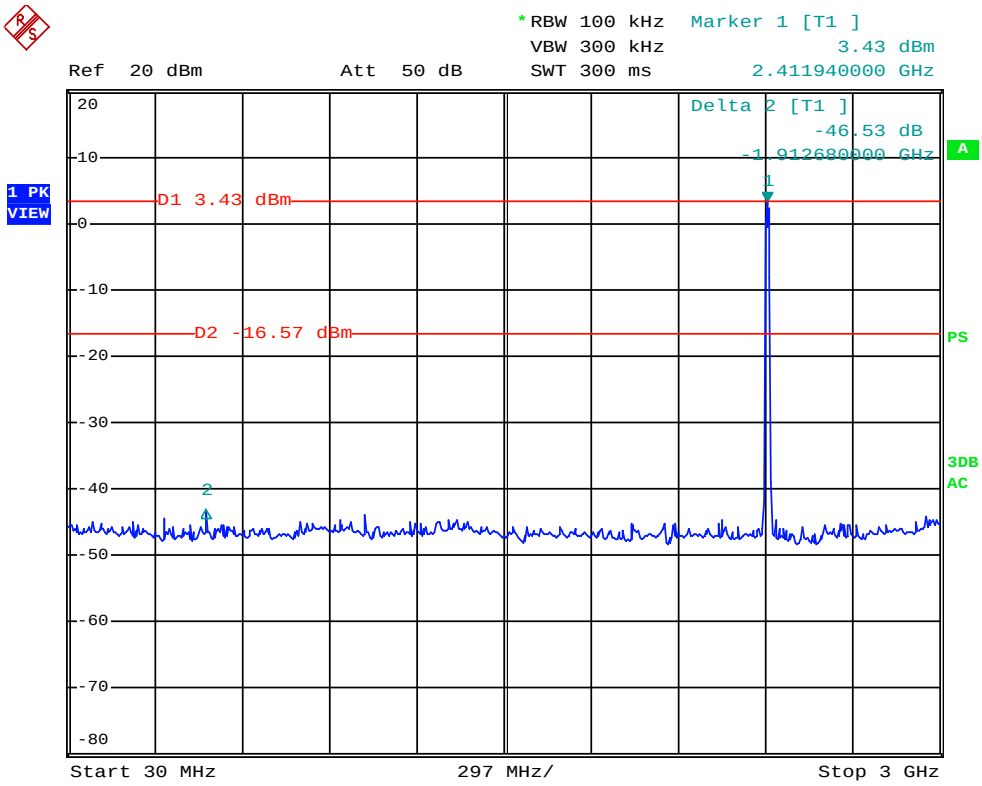
Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable (cable loss =1.5dB) from the antenna port to the spectrum analyzer or power meter.
2. Set the spectrum analyzer: RBW=100 kHz, VBW = 300 kHz. Sweep = auto; Detector Function = Peak. Trace = Max Hold, Scan up through 10th harmonic.
3. Measure the Conducted unwanted Emissions of the test frequency with special test status.
4. Repeat until all the test status is investigated.
5. Report the worst case.

Result plot as follows:

802.11b mode with 11Mbps data rate
Channel 1: 2.412GHz:

30 MHz to 3 GHz:



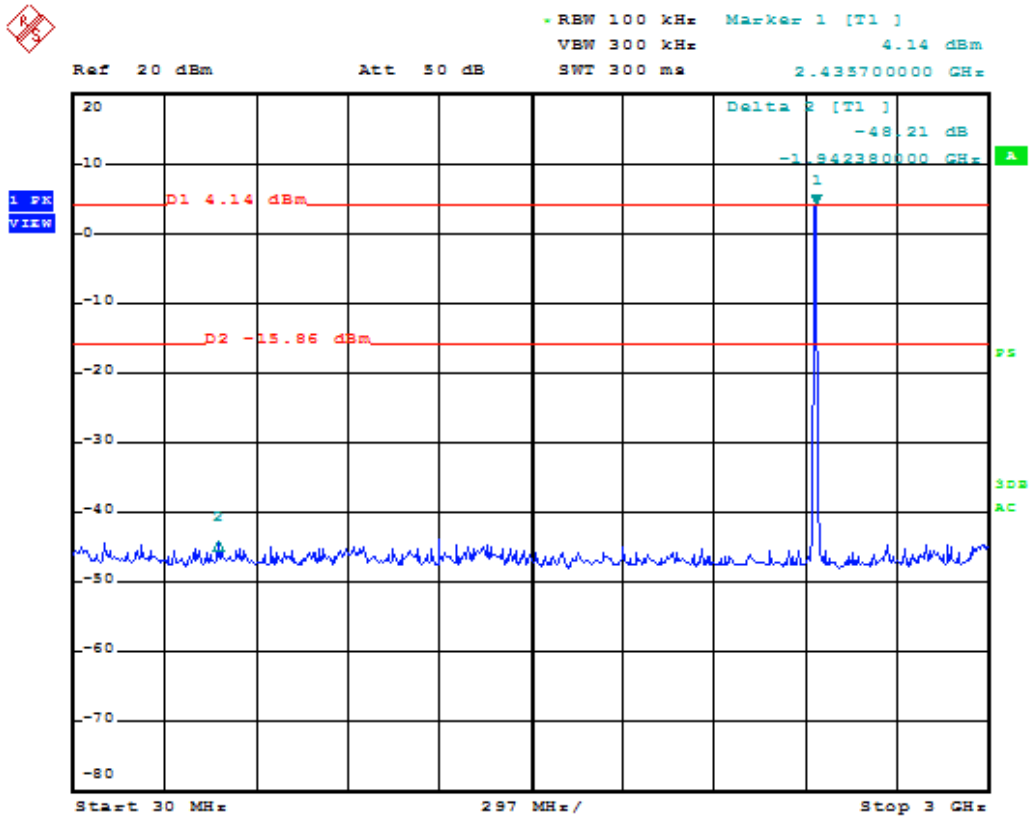
3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4824.00	<-26.57	-16.57
7236.00	<-26.57	-16.57

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 6: 2.437GHz:

30 MHz to 3 GHz:



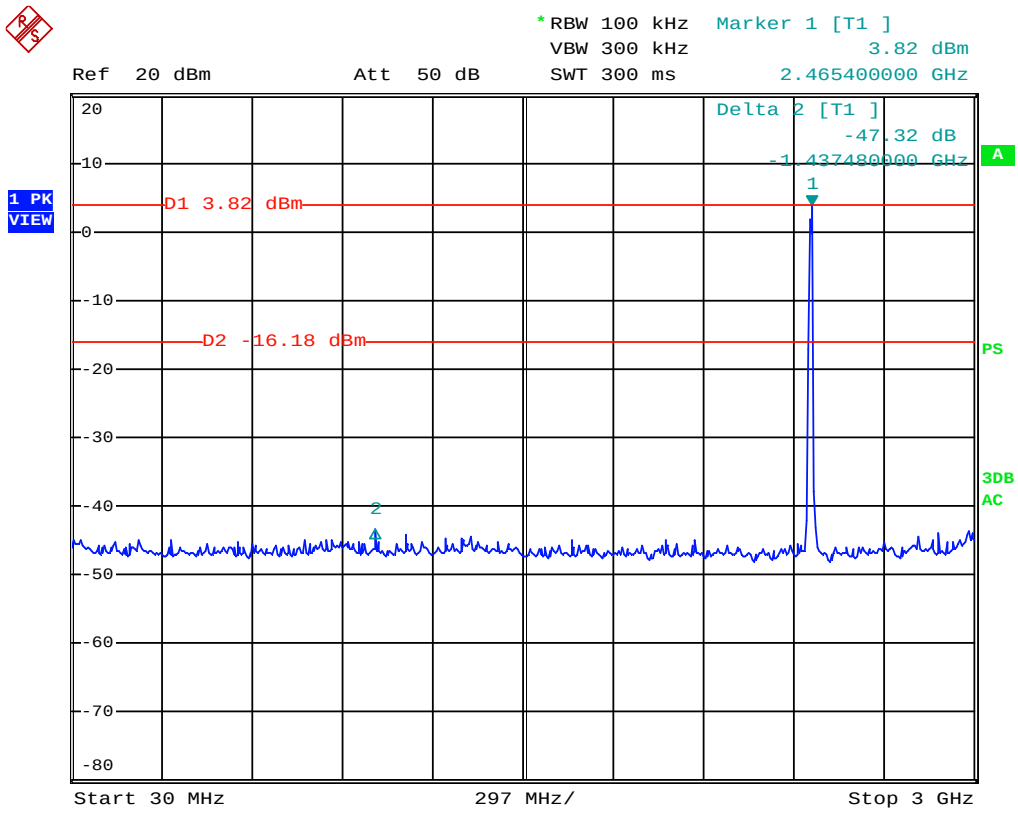
3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4874.00	<-25.86	-15.86
7311.00	<-25.86	-15.86

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 11:2.462 GHz:

30 MHz to 3 GHz:



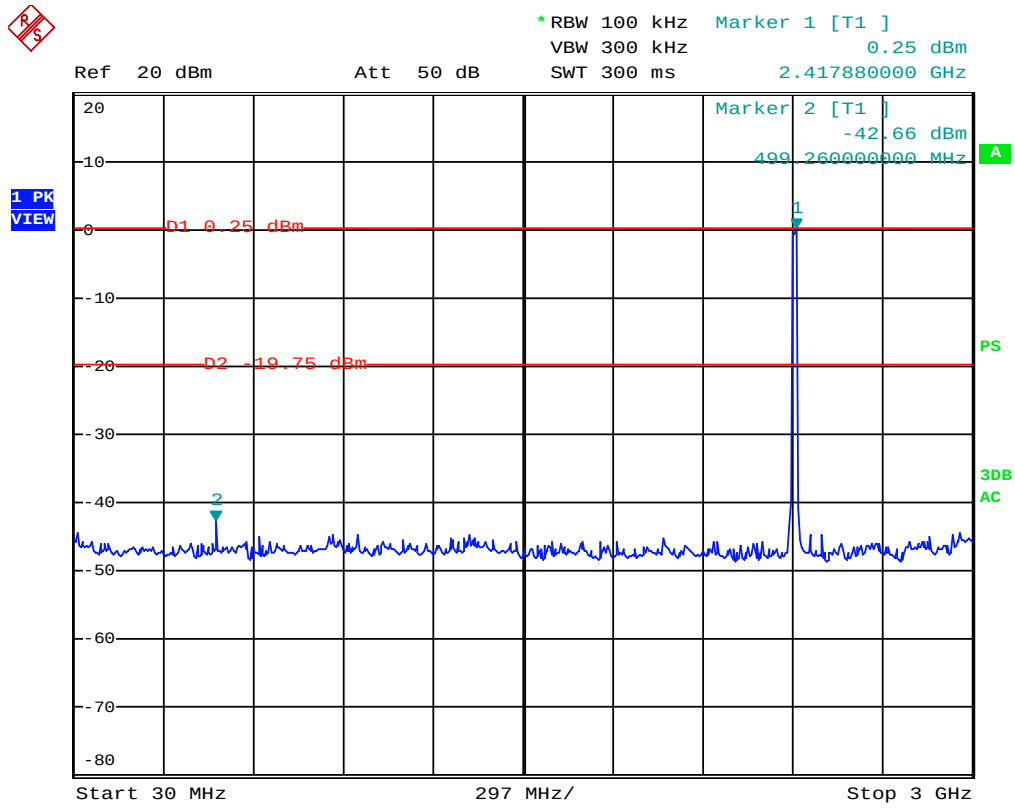
3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4924.00	<-26.18	-16.18
7386.00	<-26.18	-16.18

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

802.11g mode with 54Mbps data rate
Channel 1: 2.412GHz:

30 MHz to 3 GHz:



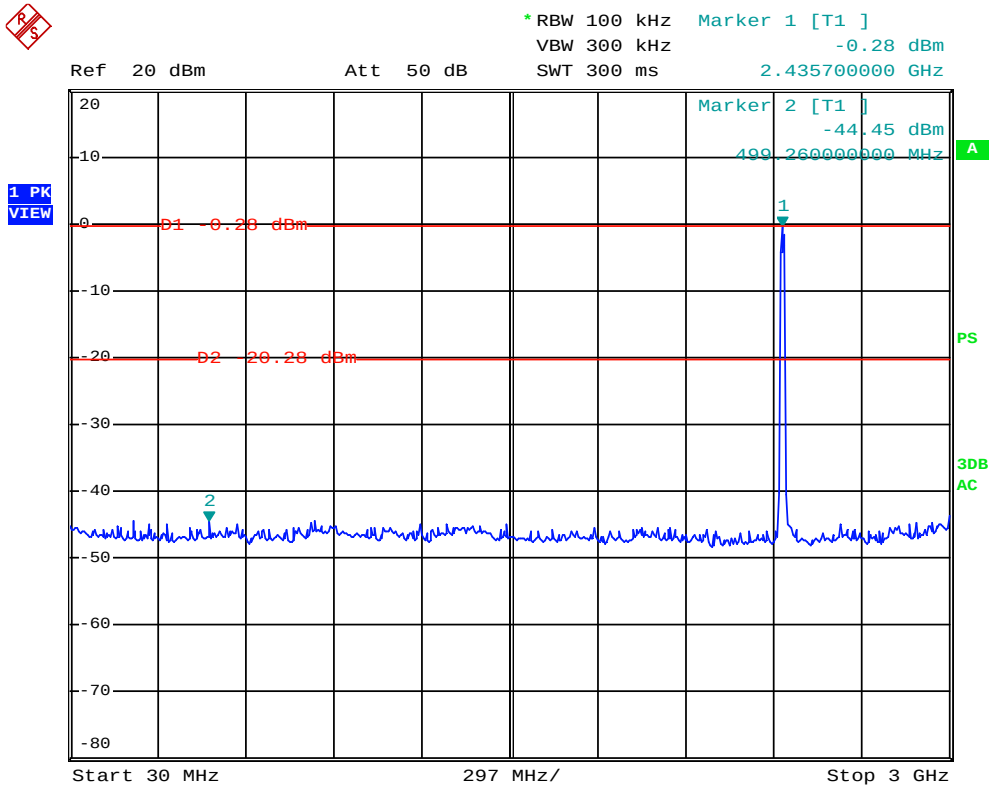
3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4824.00	<-29.71	-19.71
7236.00	<-29.71	-19.71

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 6: 2.437GHz:

30 MHz to 3 GHz:



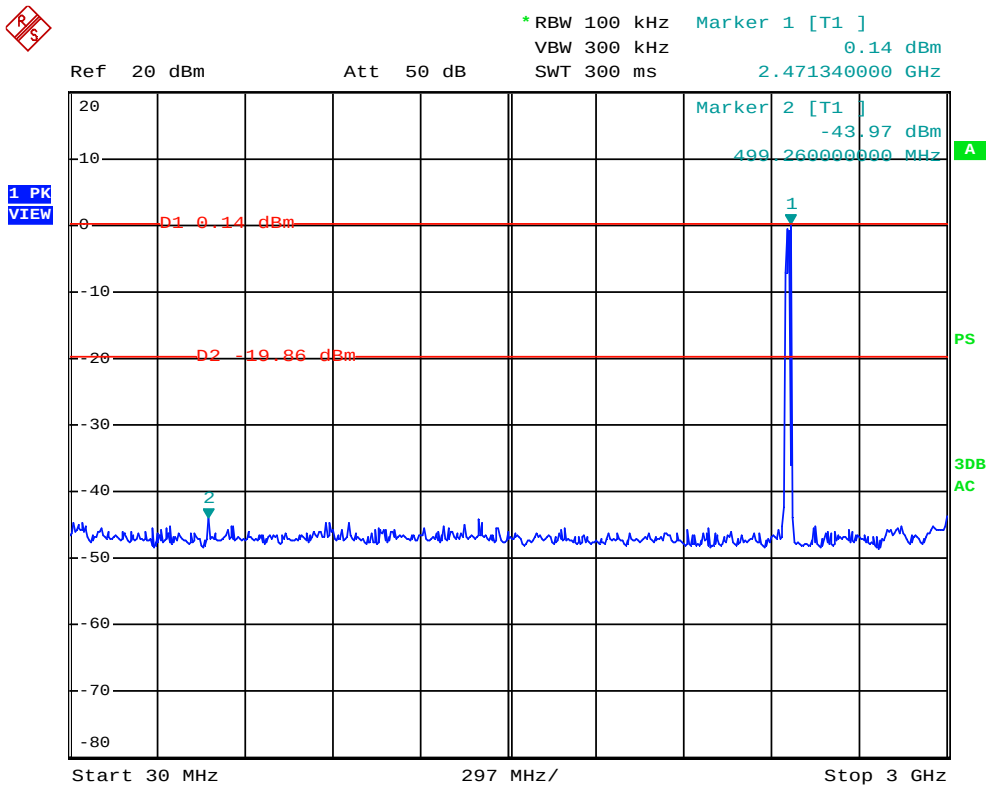
3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4874.00	<-30.28	-20.28
7311.00	<-30.28	-20.28

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 11:2.462 GHz:

30 MHz to 3 GHz:



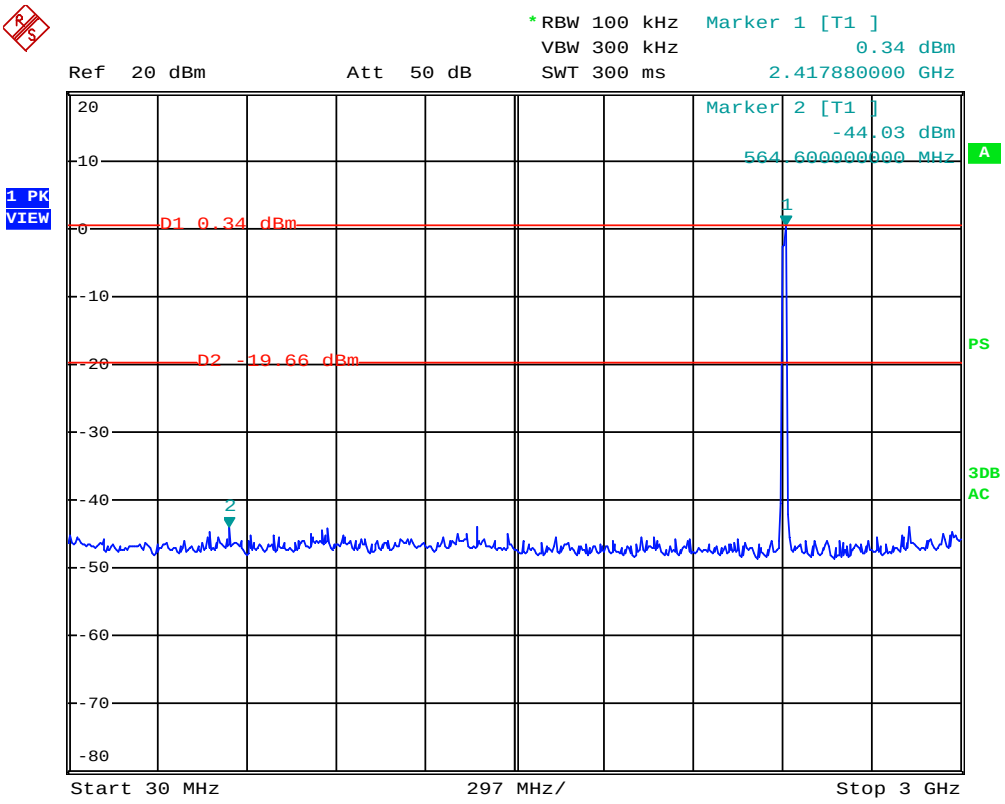
3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4924.00	<-29.86	-19.86
7386.00	<-29.86	-19.86

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

802.11n(HT20) mode with 65Mbps data rate
Channel 1: 2.412GHz:

30 MHz to 3 GHz:



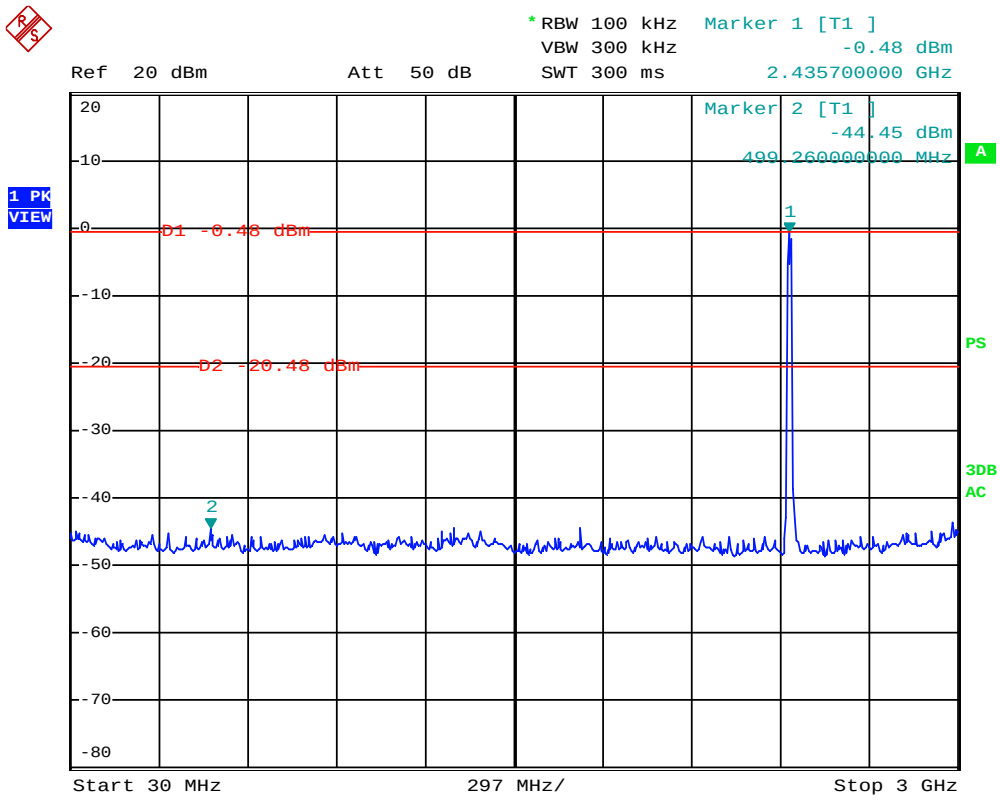
3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4824.00	<-29.66	-19.66
7236.00	<-29.66	-19.66

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 6: 2.437GHz:

30 MHz to 3 GHz:



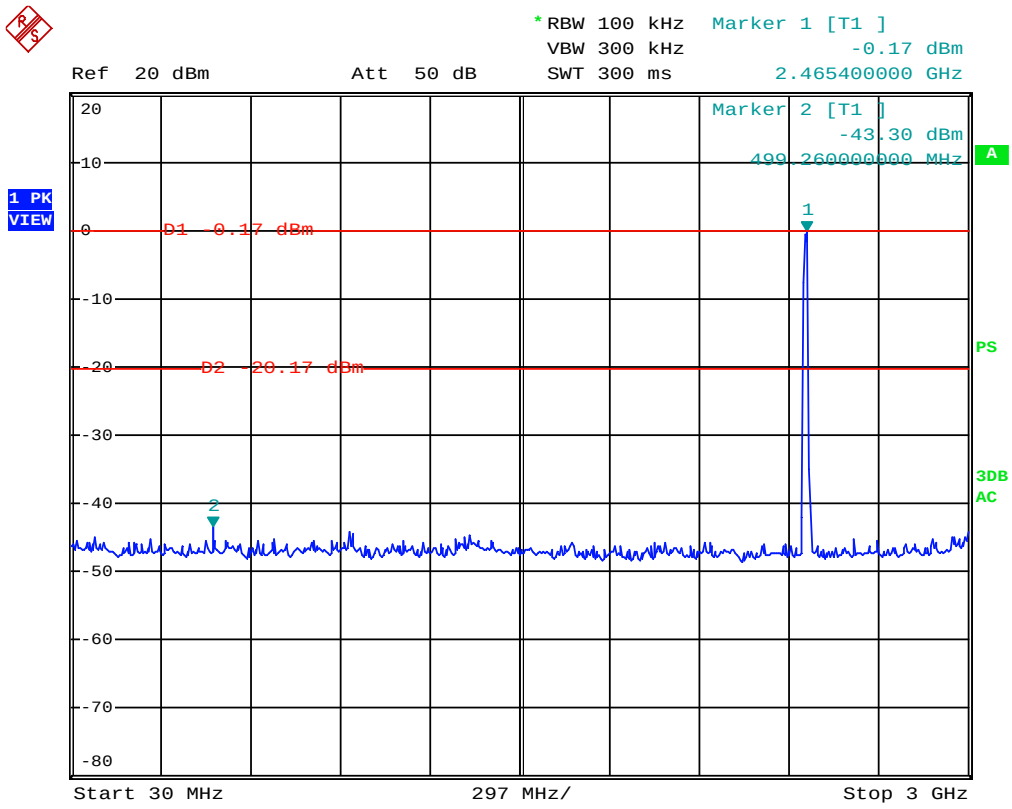
3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4874.00	<-30.48	-20.48
7311.00	<-30.48	-20.48

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 11:2.462 GHz:

30 MHz to 3 GHz:



3 GHz to 25 GHz:

Frequency (MHz)	Conducted Emission Level (dBm)	Limit (dBm)
4924.00	<-30.17	-20.17
7386.00	<-30.17	-20.17

The Conducted Spurious Emissions from 3 GHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

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

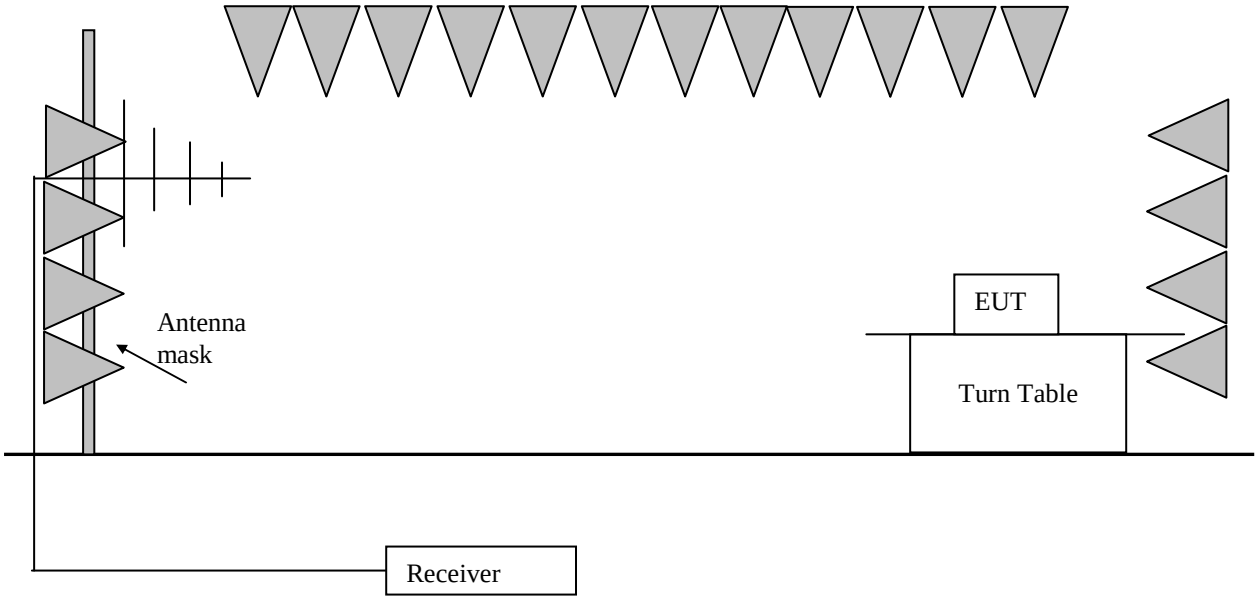
4.7 Radiated Emissions in Restricted Bands

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 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

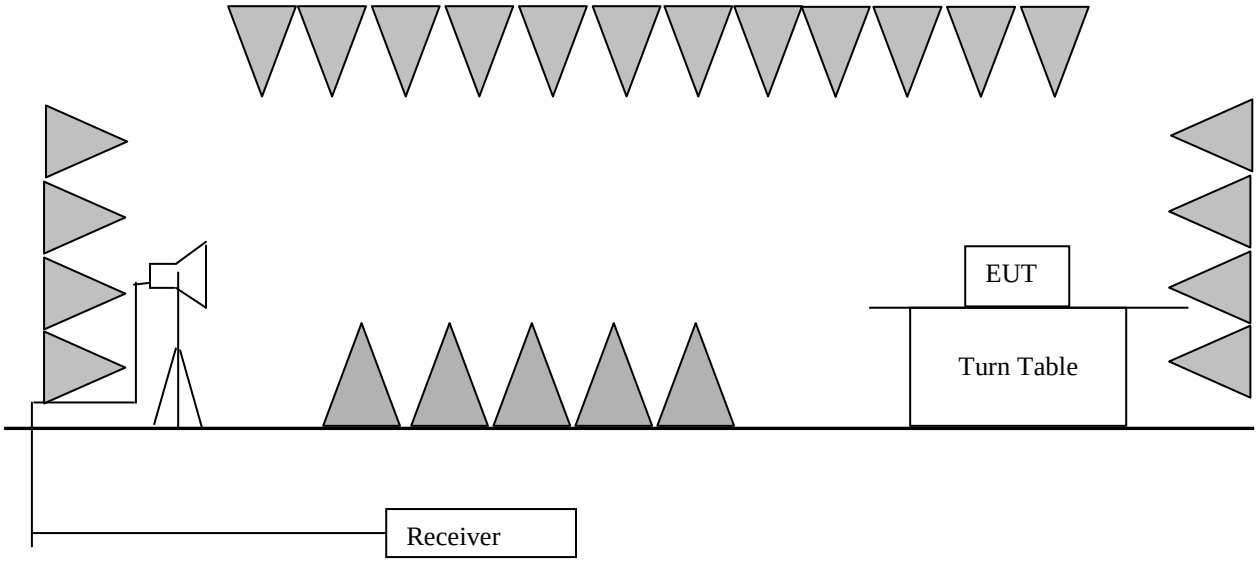
Section 15.205 Restricted bands of operation.
(a) Except as shown in paragraph (d) of this section. only spurious emissions are permitted in any of the frequency bands listed below:

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.

802.11b mode with 11Mbps data rate

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.

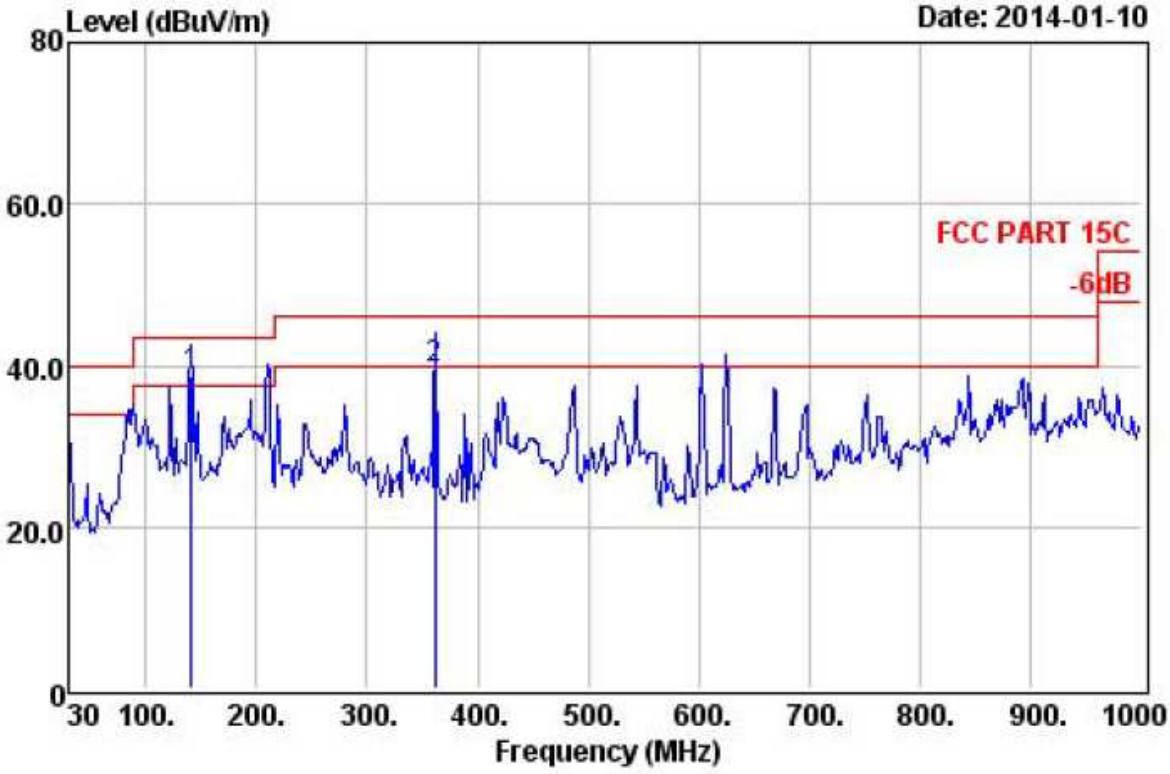
Test at Channel 1 (2.412 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBμV/m)



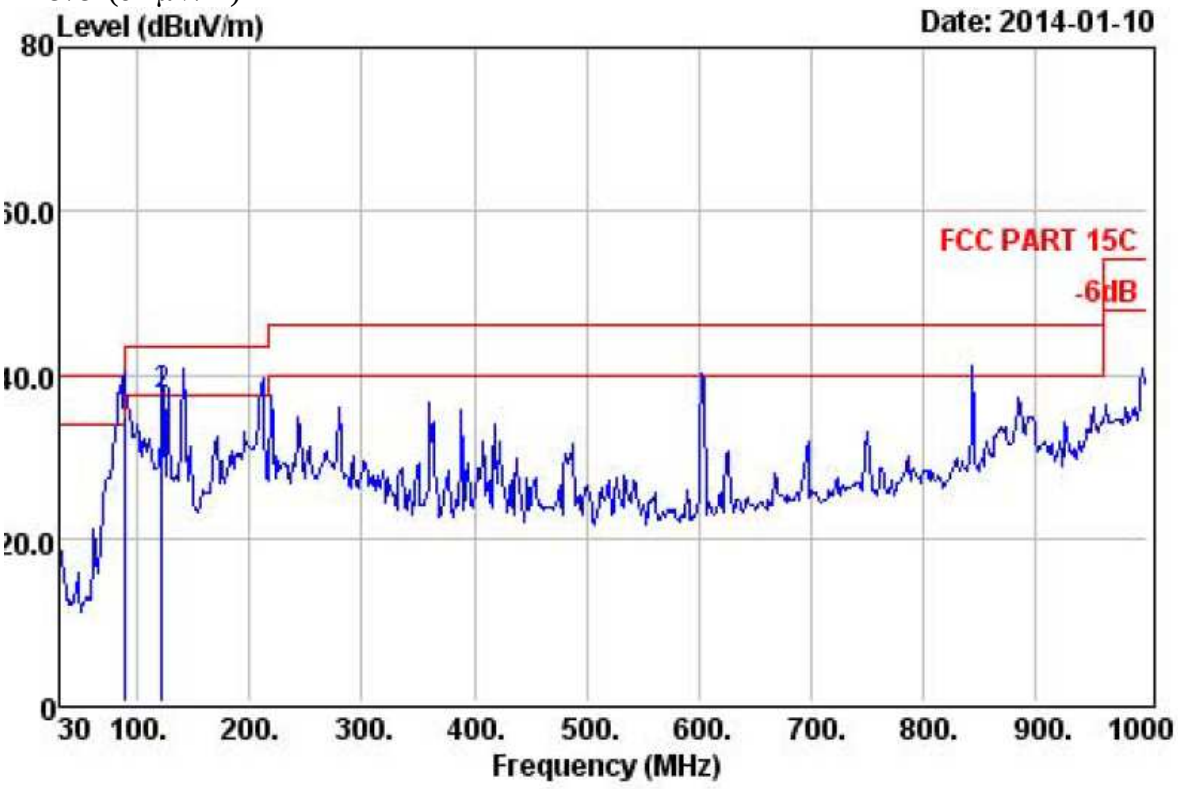
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	60.31	1.22	8.49	38.80	43.50	-4.70	QP
361.74	30.61	52.01	2.18	16.12	39.70	46.00	-6.30	QP

Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
88.20	31.35	56.30	0.94	8.90	34.79	43.50	-8.71	QP
122.15	31.23	59.00	1.12	8.46	37.35	43.50	-6.15	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	31.82	7.34	28.72	41.65	74	V
2400	26.32	33.92	7.34	28.72	43.66	74	V
2483.5	26.34	32.56	7.57	28.79	42.58	74	V
4824	27.5	32.76	12.01	32.99	50.26	74	V
7236	27.95	37.21	16.61	37.3	63.17	74	V
2390	26.23	35.09	7.34	28.72	44.92	74	H
2400	26.32	37.15	7.34	28.72	46.89	74	H
2483.5	26.34	32.63	7.57	28.79	42.65	74	H
4824	27.5	32.78	12.01	32.99	50.28	74	H
7236	27.95	36.58	16.61	37.3	62.54	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4824	27.5	/	12.01	32.99	/	54	V
7236	27.95	26.21	16.61	37.3	52.17	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4824	27.5	/	12.01	32.99	/	54	H
7236	27.95	25.45	16.61	37.3	51.41	54	H

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

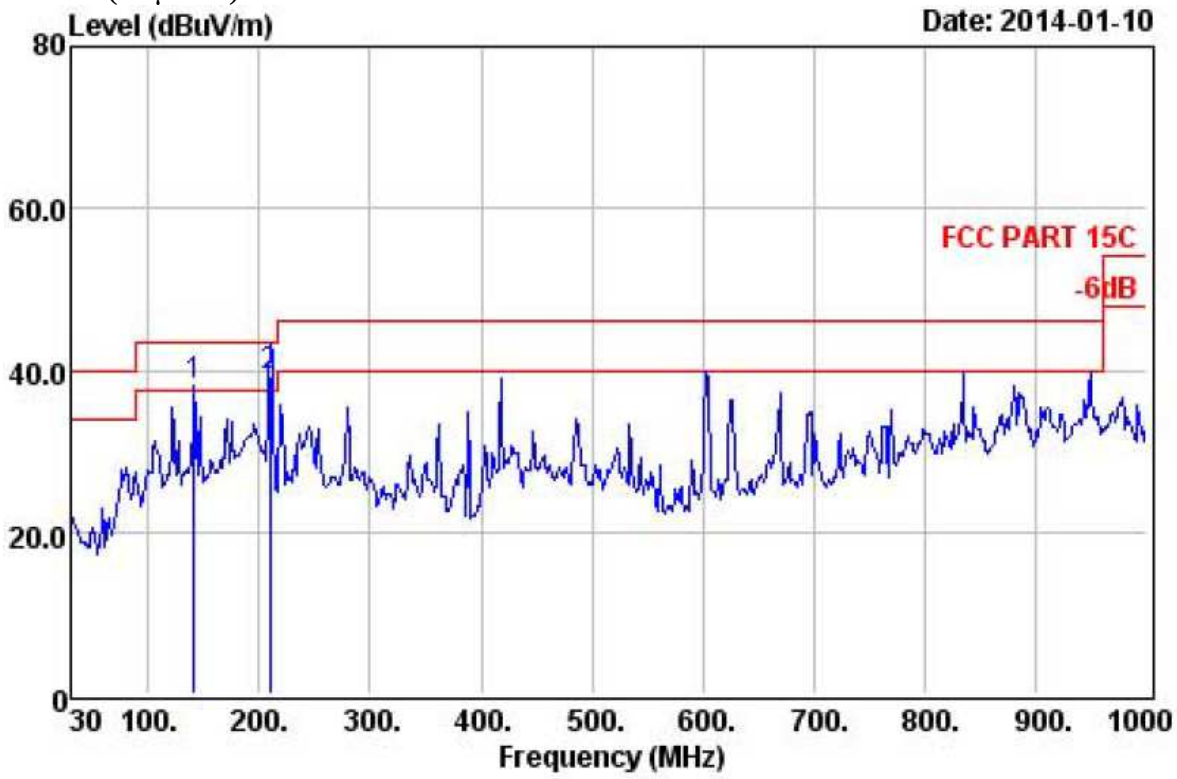
Test at Channel 6 (2.437 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBμV/m)



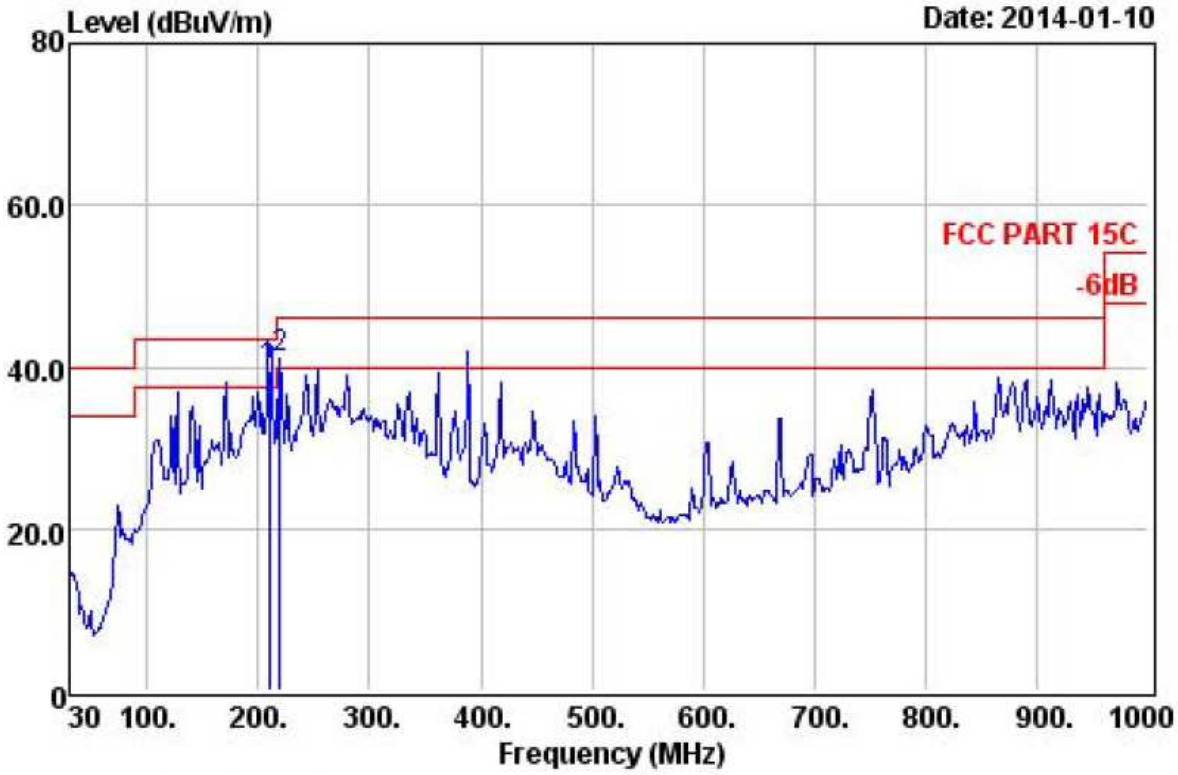
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	59.71	1.22	8.49	38.20	43.50	-5.30	QP
209.45	31.08	57.31	1.53	11.45	39.21	43.50	-4.29	QP

Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
209.45	31.08	57.61	1.53	11.45	39.51	43.50	-3.99	QP
219.15	30.99	58.58	1.53	11.92	41.04	46.00	-4.96	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	31.74	7.34	28.72	41.57	74	V
2400	26.32	33.98	7.34	28.72	43.72	74	V
2483.5	26.34	32.78	7.57	28.79	42.8	74	V
4874	27.53	32.12	12.14	33.11	49.84	74	V
7311	27.96	36.73	16.62	37.32	62.71	74	V
2390	26.23	35.34	7.34	28.72	45.17	74	H
2400	26.32	37.43	7.34	28.72	47.17	74	H
2483.5	26.34	32.63	7.57	28.79	42.65	74	H
4874	27.53	33.54	12.14	33.11	51.26	74	H
7311	27.96	36.48	16.62	37.32	62.46	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4874	27.53	/	12.14	33.11	/	54	V
7311	27.96	25.73	16.62	37.32	51.71	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4874	27.53	/	12.14	33.11	/	54	H
7311	27.96	26.48	16.62	37.32	52.46	54	H

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

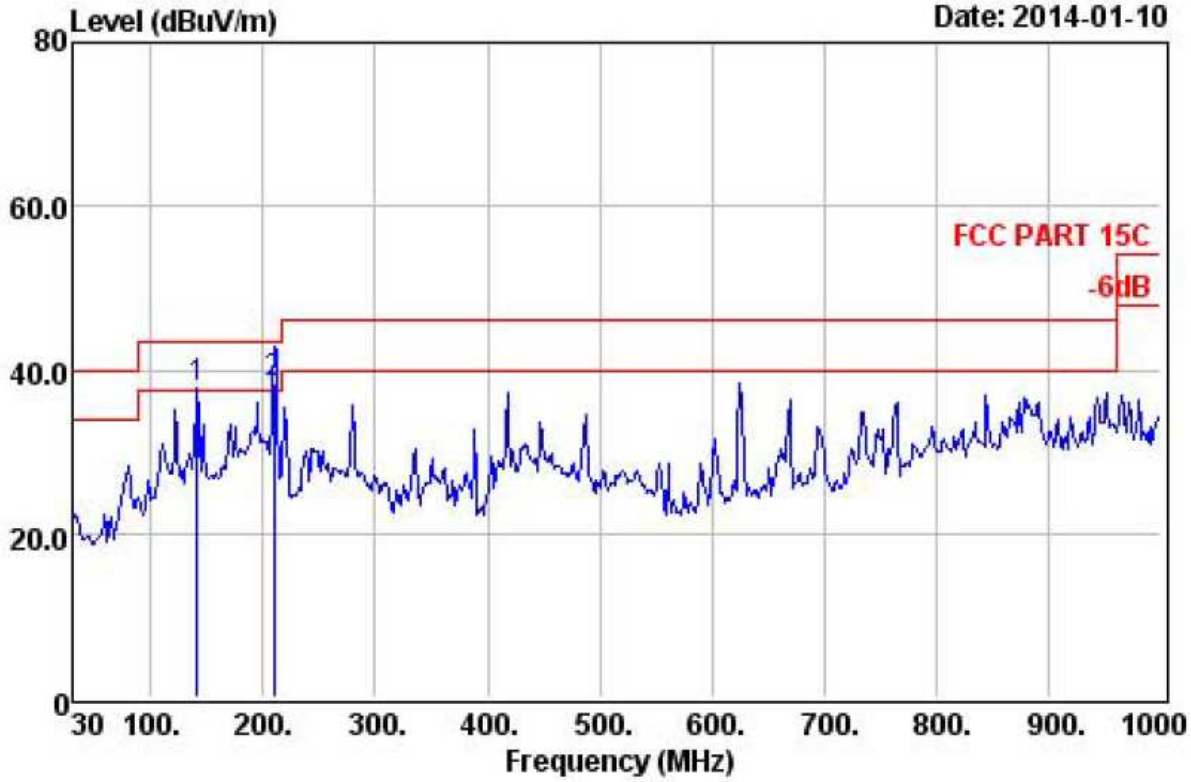
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBμV/m)



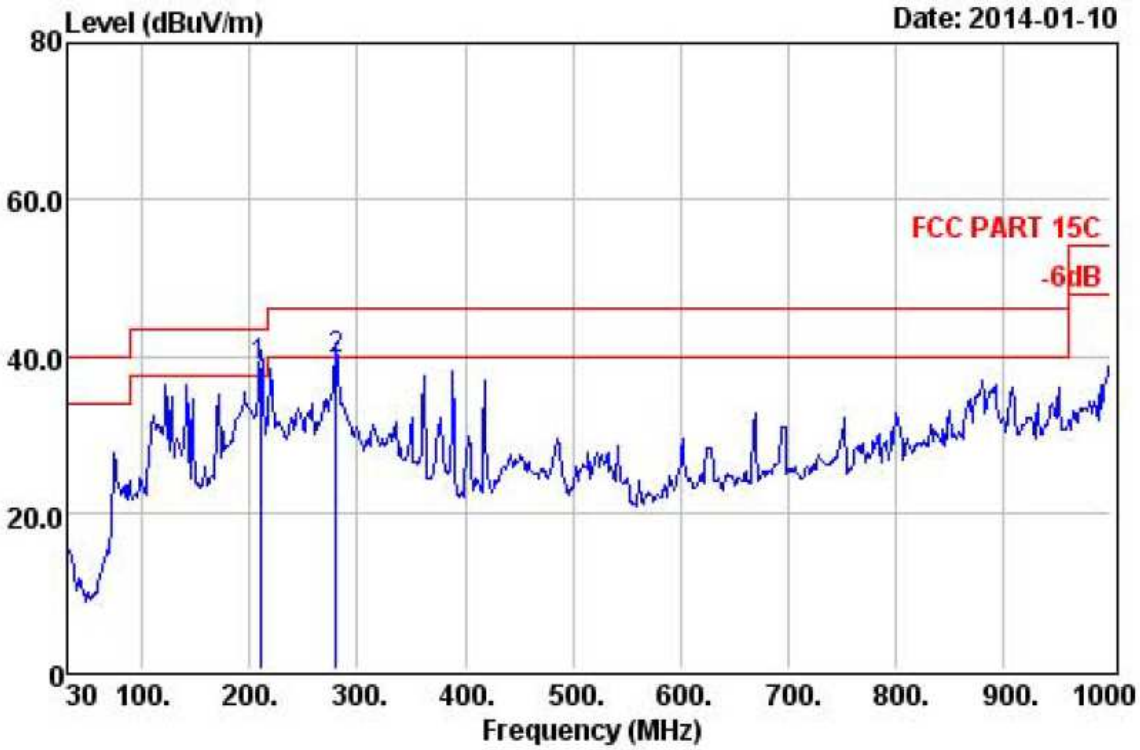
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	59.27	1.22	8.49	37.76	43.50	-5.74	QP
209.45	31.08	56.41	1.53	11.45	38.31	43.50	-5.19	QP

Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
209.45	31.08	56.75	1.53	11.45	38.65	43.50	-4.85	QP
280.26	30.94	55.57	1.78	13.17	39.58	46.00	-6.42	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	31.74	7.34	28.72	41.57	74	V
2400	26.32	33.98	7.34	28.72	43.72	74	V
2483.5	26.34	32.01	7.57	28.79	42.03	74	V
4924	27.56	32.12	12.28	33.23	50.07	74	V
7386	27.98	37.1	16.62	37.36	63.1	74	V
2390	26.23	35.34	7.34	28.72	45.17	74	H
2400	26.32	37.43	7.34	28.72	47.17	74	H
2483.5	26.34	32.6	7.57	28.79	42.62	74	H
4924	27.56	32.23	12.28	33.23	50.18	74	H
7386	27.98	37.24	16.62	37.36	63.24	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4924	27.56	/	12.28	33.23	/	54	V
7386	27.98	26.23	16.62	37.36	52.23	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4924	27.56	/	12.28	33.23	/	54	H
7386	27.98	25.89	16.62	37.36	51.89	54	H

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

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 + Antenna Factor + Cable Loss –Preamplifier Factor.

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.

802.11g mode with 54Mbps data rate

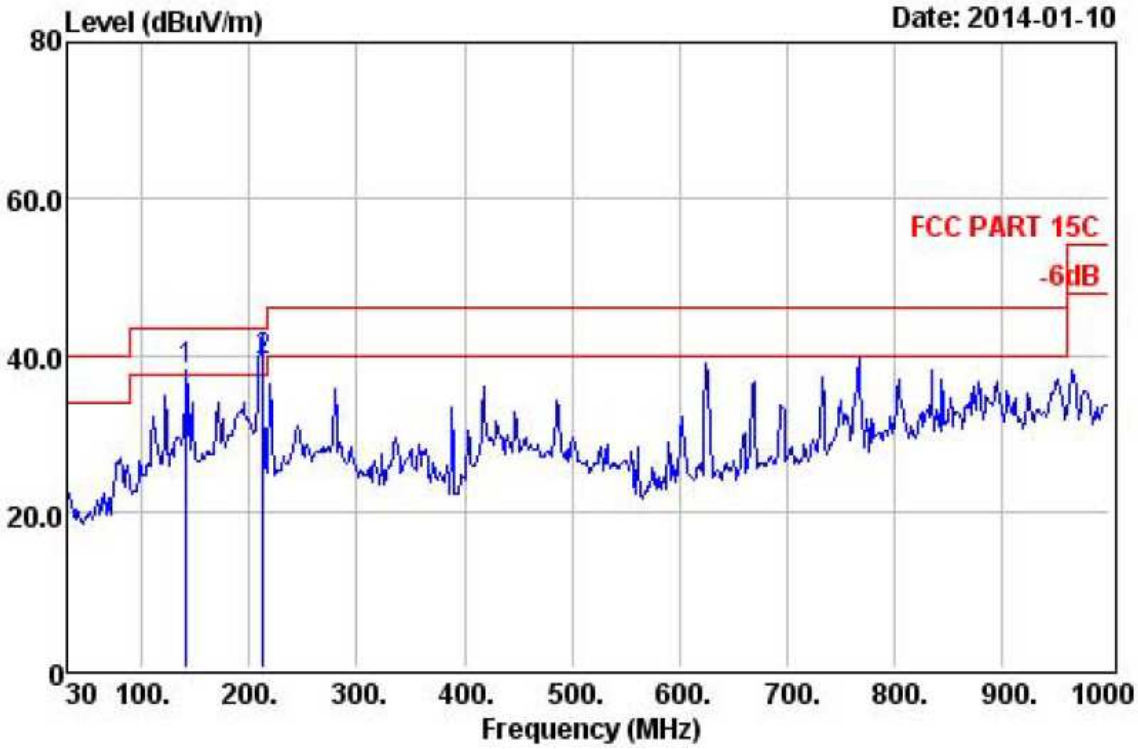
9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement
The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

Test at Channel 1 (2.412 GHz) in transmitting status

30 MHz~1 Radiated Emissions .Quasi-Peak Measurement

Vertical:

Peak scan
Level (dBµV/m)



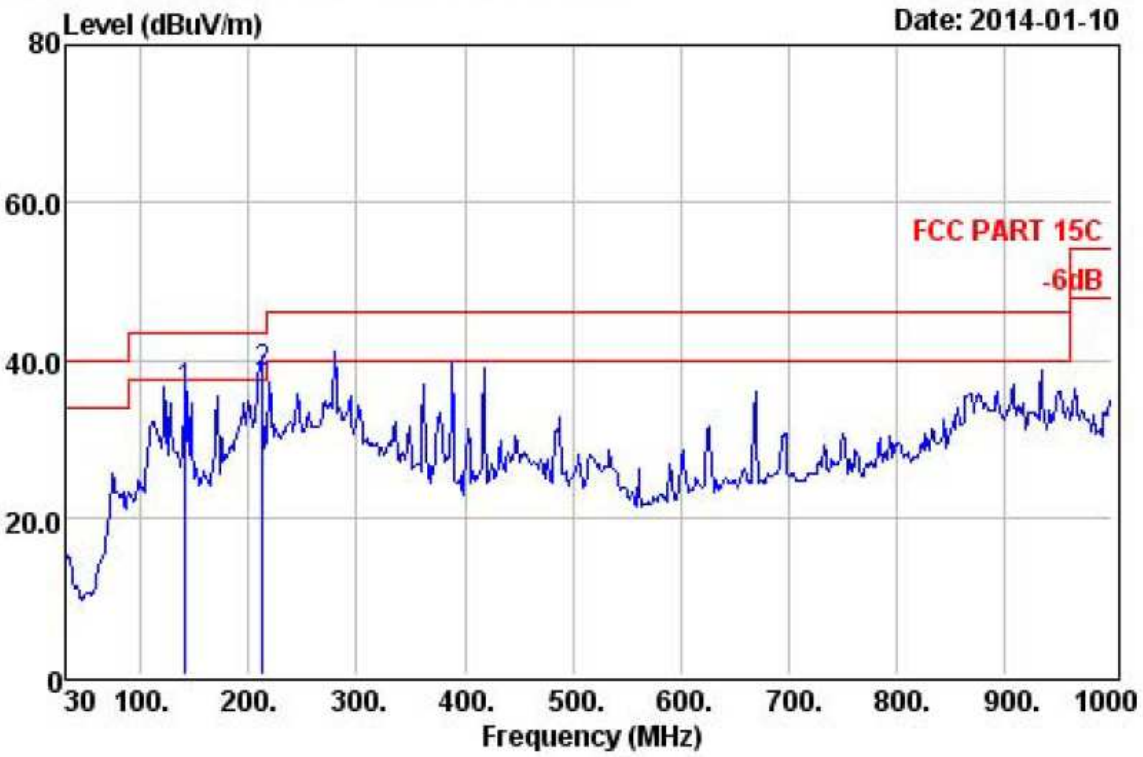
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	59.62	1.22	8.49	38.11	43.50	-5.39	QP
212.36	31.06	57.10	1.53	11.59	39.16	43.50	-4.34	QP

Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	57.48	1.22	8.49	35.97	43.50	-7.53	QP
212.36	31.06	56.24	1.53	11.59	38.30	43.50	-5.20	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	32.25	7.34	28.72	42.08	74	V
2400	26.32	36.05	7.34	28.72	45.79	74	V
2483.5	26.34	31.18	7.57	28.79	41.2	74	V
4824	27.5	34.76	12.01	32.99	52.26	74	V
7236	27.95	36.21	16.61	37.3	62.17	74	V
2390	26.23	35.09	7.34	28.72	44.92	74	H
2400	26.32	39.72	7.34	28.72	49.46	74	H
2483.5	26.34	31.87	7.57	28.79	41.89	74	H
4824	27.5	32.78	12.01	32.99	50.28	74	H
7236	27.95	35.58	16.61	37.3	61.54	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4824	27.5	/	12.01	32.99	/	54	V
7236	27.95	26.21	16.61	37.3	52.17	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4824	27.5	/	12.01	32.99	/	54	H
7236	27.95	25.87	16.61	37.3	51.83	54	H

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

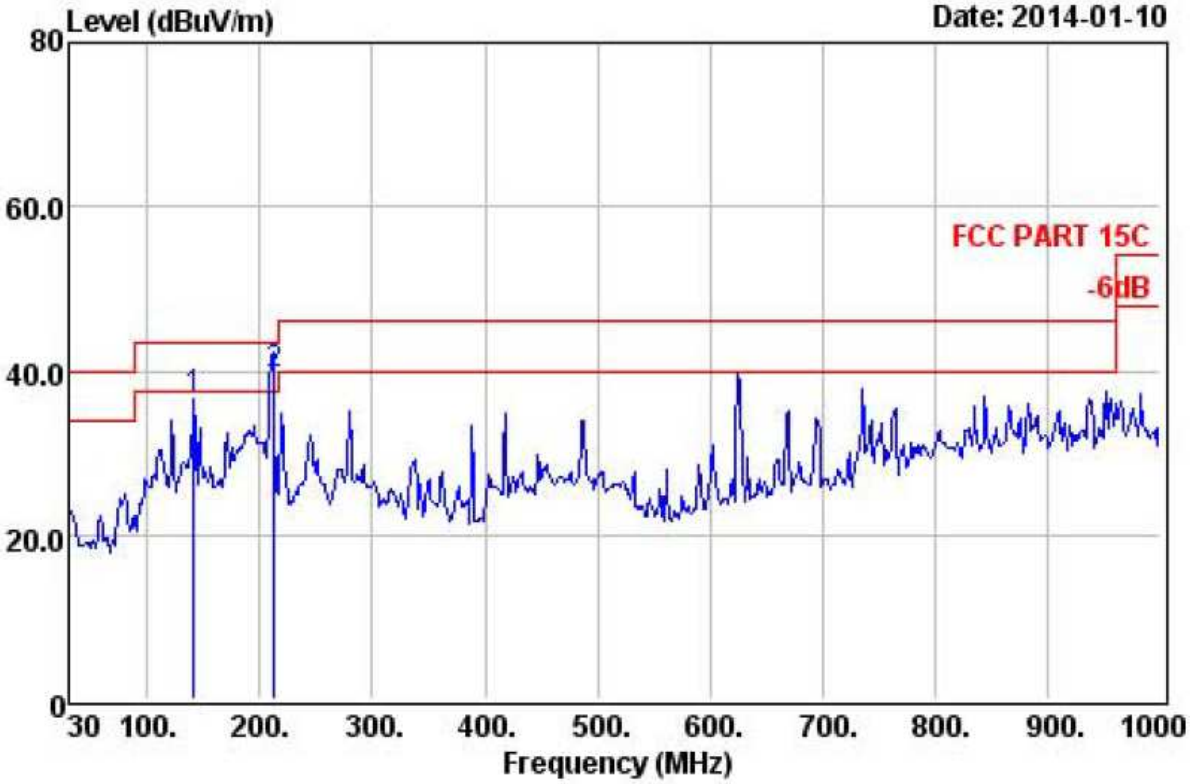
Test at Channel 6 (2.437GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBμV/m)



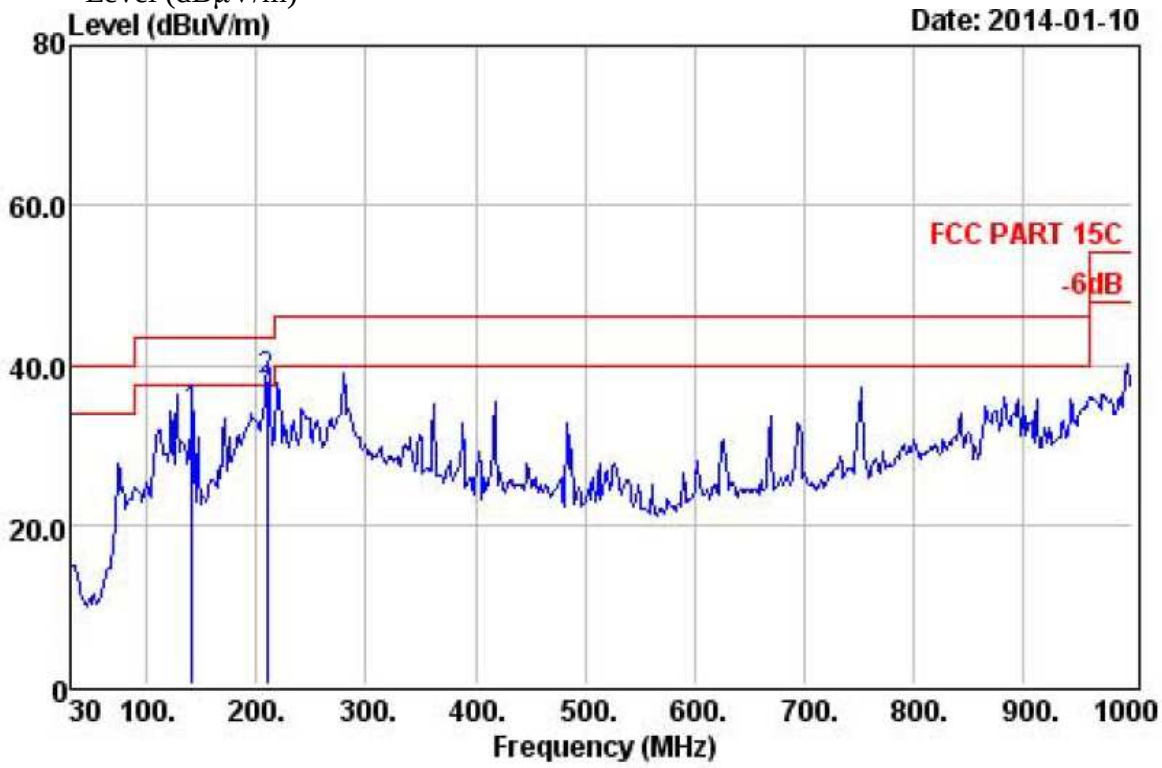
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	57.95	1.22	8.49	36.44	43.50	-7.06	QP
212.36	31.06	57.60	1.53	11.59	39.66	43.50	-3.84	QP

Horizontal:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	55.28	1.22	8.49	33.77	43.50	-9.73	QP
209.45	31.08	56.09	1.53	11.45	37.99	43.50	-5.51	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	31.45	7.34	28.72	41.28	74	V
2400	26.32	33.65	7.34	28.72	43.39	74	V
2483.5	26.34	32.76	7.57	28.79	42.78	74	V
4874	27.53	32.56	12.14	33.11	50.28	74	V
7311	27.96	35.76	16.62	37.32	61.74	74	V
2390	26.23	35.65	7.34	28.72	45.48	74	H
2400	26.32	36.98	7.34	28.72	46.72	74	H
2483.5	26.34	32.78	7.57	28.79	42.8	74	H
4874	27.53	33.89	12.14	33.11	51.61	74	H
7311	27.96	35.32	16.62	37.32	61.3	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4874	27.53	/	12.14	33.11	/	54	V
7311	27.96	25.45	16.62	37.32	51.43	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4874	27.53	/	12.14	33.11	/	54	H
7311	27.96	26.32	16.62	37.32	52.3	54	H

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

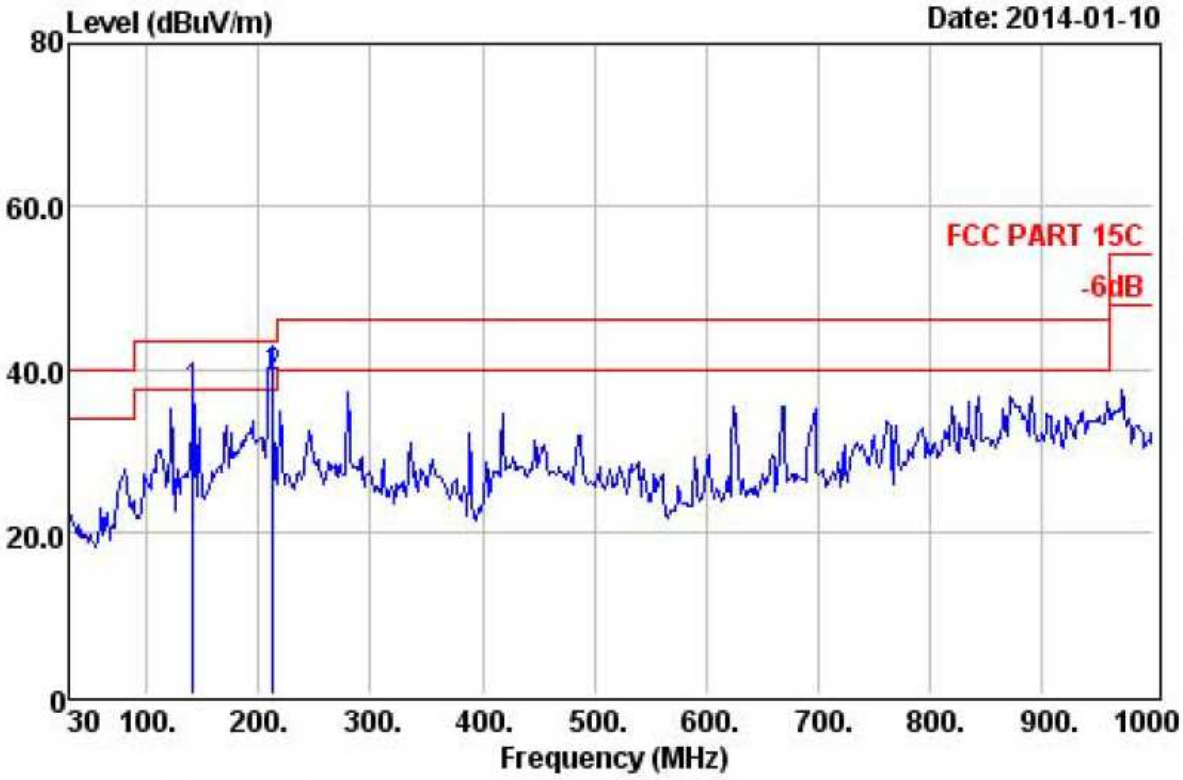
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBμV/m)



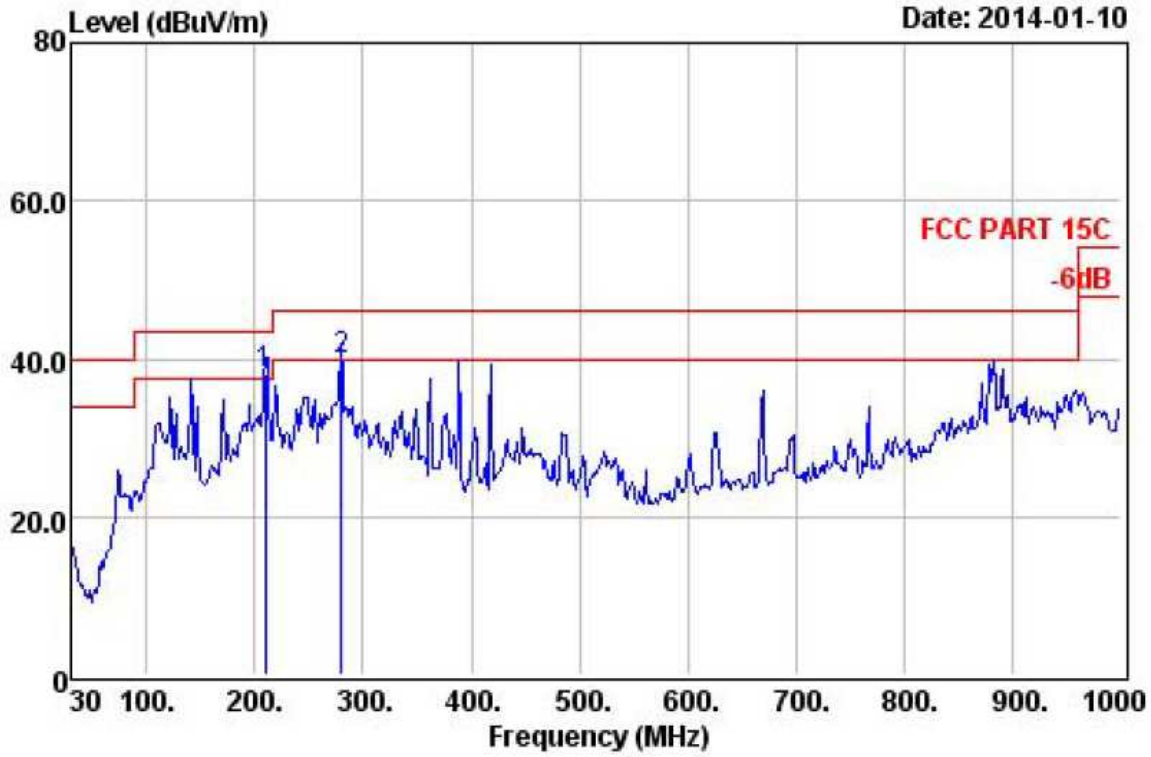
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	58.79	1.22	8.49	37.28	43.50	-6.22	QP
212.36	31.06	57.00	1.53	11.59	39.06	43.50	-4.44	QP

Horizontal:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
209.45	31.08	56.28	1.53	11.45	38.18	43.50	-5.32	QP
280.26	30.94	55.85	1.78	13.17	39.86	46.00	-6.14	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	31.43	7.34	28.72	41.26	74	V
2400	26.32	34.02	7.34	28.72	43.76	74	V
2483.5	26.34	31.18	7.57	28.79	41.2	74	V
4924	27.56	30.45	12.28	33.23	48.4	74	V
7386	27.98	35.23	16.62	37.36	61.23	74	V
2390	26.23	35.34	7.34	28.72	45.17	74	H
2400	26.32	37.43	7.34	28.72	47.17	74	H
2483.5	26.34	31.87	7.57	28.79	41.89	74	H
4924	27.56	30.26	12.28	33.23	48.21	74	H
7386	27.98	37.56	16.62	37.36	63.56	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4924	27.56	/	12.28	33.23	/	54	V
7386	27.98	25.23	16.62	37.36	51.23	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4924	27.56	/	12.28	33.23	/	54	H
7386	27.98	25.98	16.62	37.36	51.98	54	H

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

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 + Antenna Factor + Cable Factor –Preamplifier Factor.

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

802.11n (HT20) mode with 65Mbps data rate

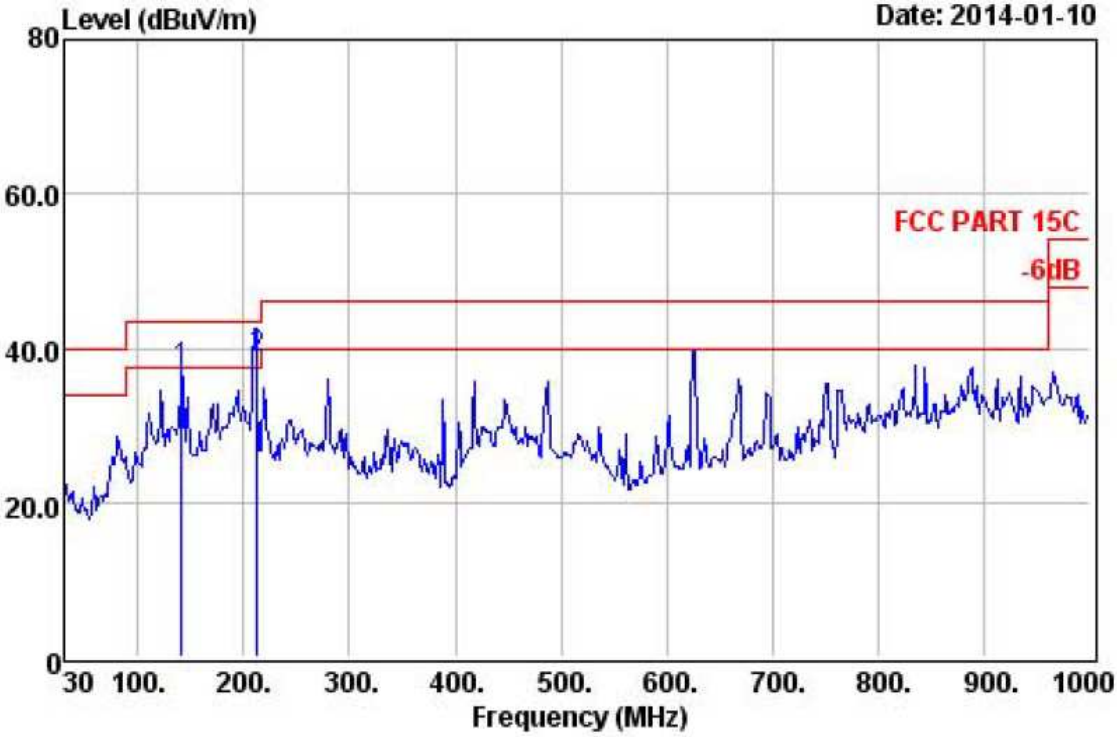
9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement
The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

Test at Channel 1 (2.412 GHz) in transmitting status

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

Vertical:

Peak scan
Level (dBµV/m)



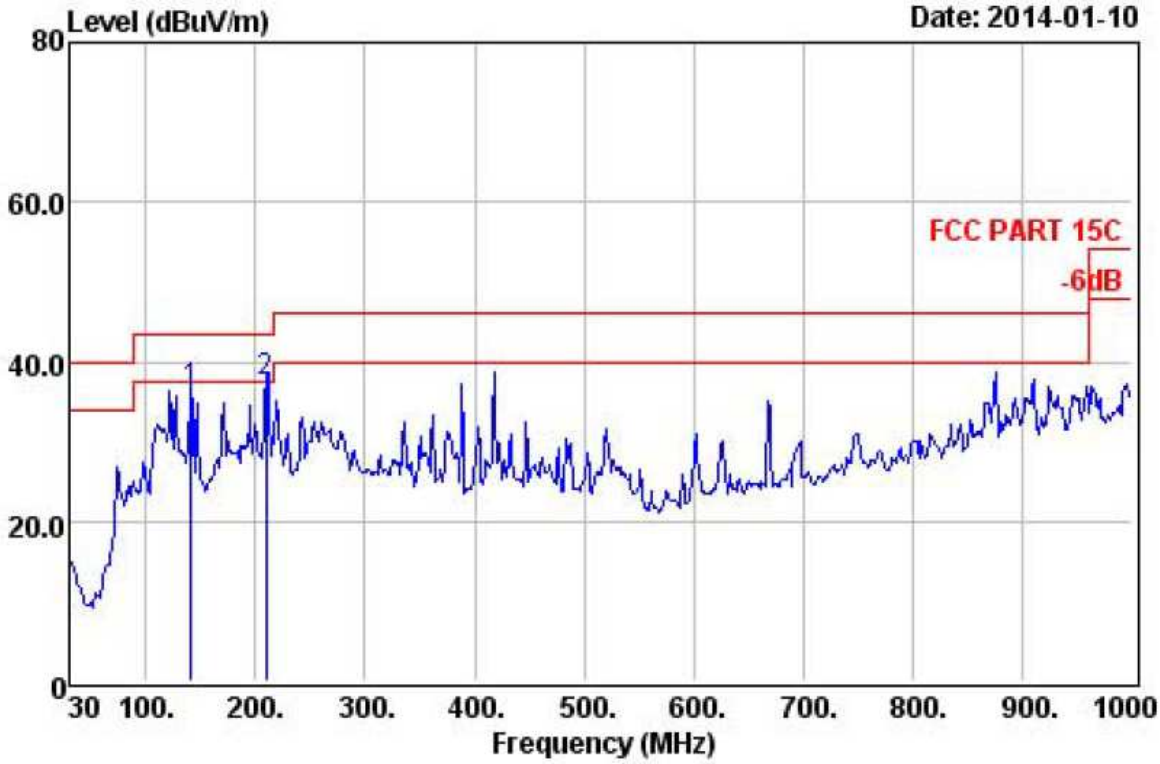
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	58.57	1.22	8.49	37.06	43.50	-6.44	QP
212.36	31.06	56.70	1.53	11.59	38.76	43.50	-4.74	QP

Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	57.84	1.22	8.49	36.33	43.50	-7.17	QP
209.45	31.08	55.47	1.53	11.45	37.37	43.50	-6.13	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	32.23	7.34	28.72	42.06	74	V
2400	26.32	36.02	7.34	28.72	45.76	74	V
2483.5	26.34	32.35	7.57	28.79	42.37	74	V
4824	27.5	32.98	12.01	32.99	50.48	74	V
7236	27.95	36.21	16.61	37.3	62.17	74	V
2390	26.23	35.09	7.34	28.72	44.92	74	H
2400	26.32	33.54	7.34	28.72	43.28	74	H
2483.5	26.34	32.34	7.57	28.79	42.36	74	H
4824	27.5	32.98	12.01	32.99	50.48	74	H
7236	27.95	36.42	16.61	37.3	62.38	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4824	27.5	/	12.01	32.99	/	54	V
7236	27.95	25.21	16.61	37.3	51.17	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4824	27.5	/	12.01	32.99	/	54	H
7236	27.95	25.87	16.61	37.3	51.83	54	H

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

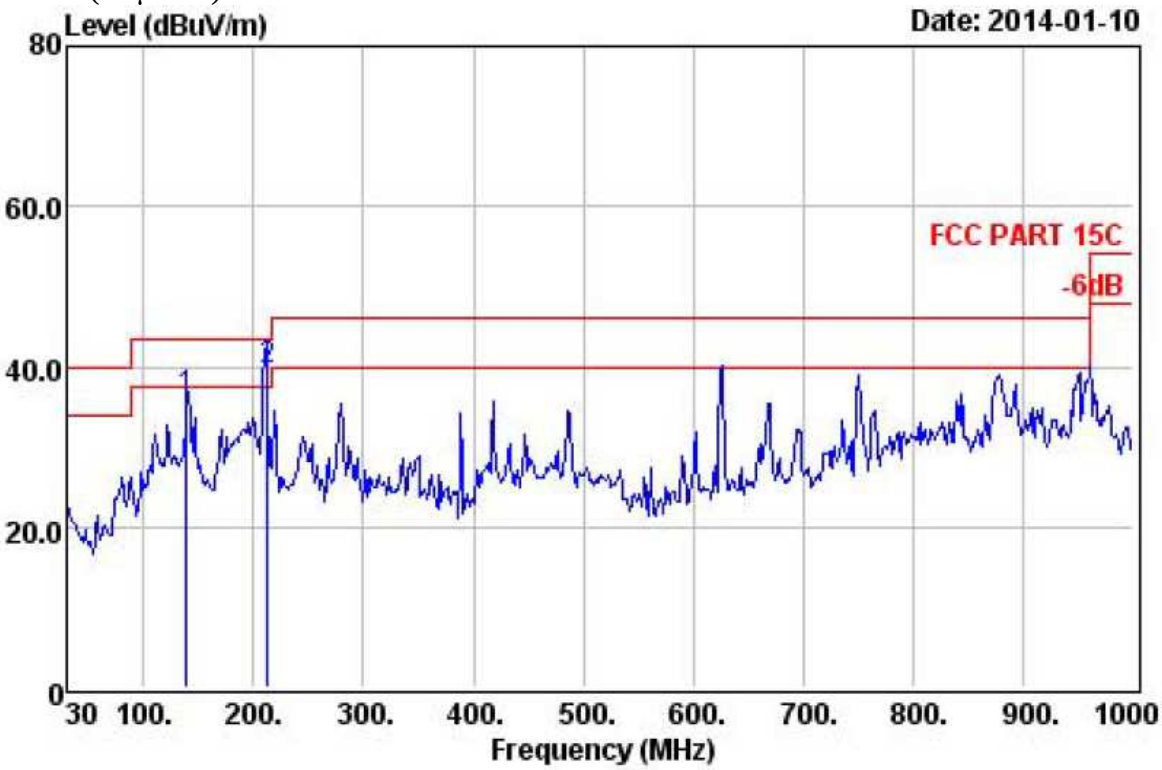
Test at Channel 6 (2.437 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBμV/m)



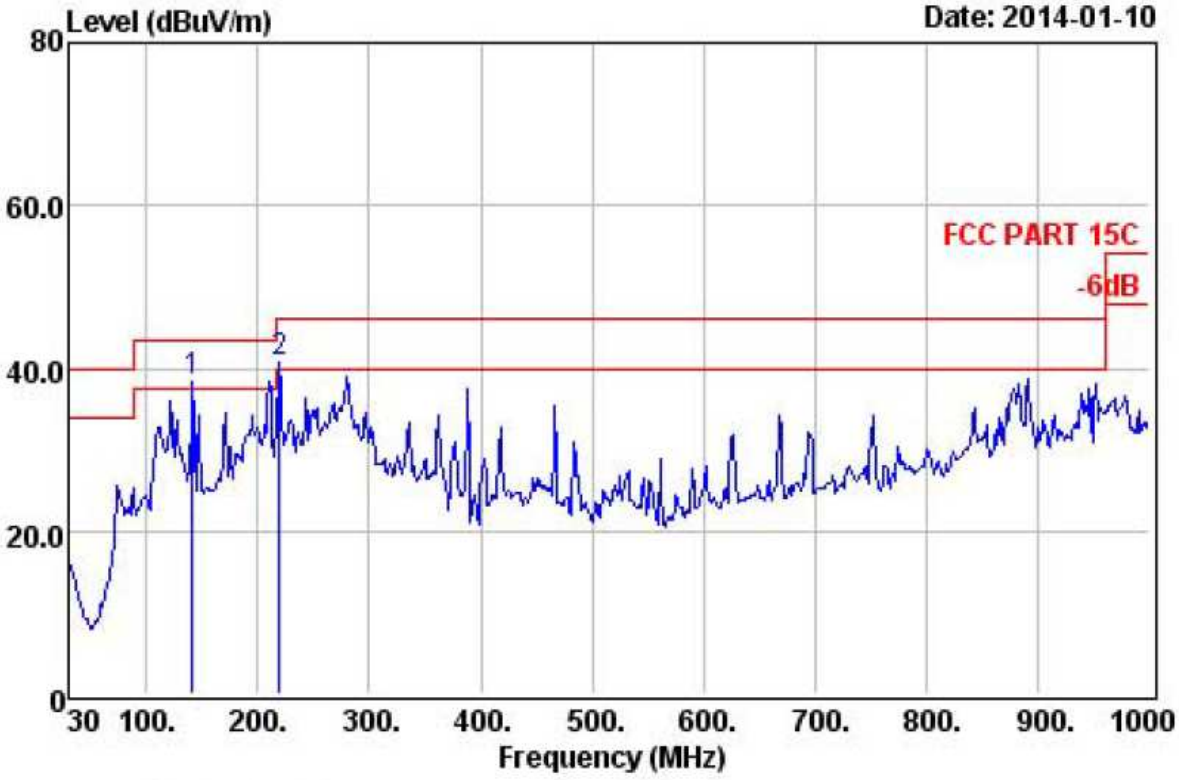
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
138.64	31.21	57.55	1.22	8.39	35.95	43.50	-7.55	QP
212.36	31.06	57.40	1.53	11.59	39.46	43.50	-4.04	QP

Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	59.81	1.22	8.49	38.30	43.50	-5.20	QP
219.15	30.99	58.28	1.53	11.92	40.74	46.00	-5.26	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	31.45	7.34	28.72	41.28	74	V
2400	26.32	32.56	7.34	28.72	42.3	74	V
2483.5	26.34	31.96	7.57	28.79	41.98	74	V
4874	27.53	32.14	12.14	33.11	49.86	74	V
7311	27.96	36.9	16.62	37.32	62.88	74	V
2390	26.23	35.24	7.34	28.72	45.07	74	H
2400	26.32	36.78	7.34	28.72	46.52	74	H
2483.5	26.34	32.78	7.57	28.79	42.8	74	H
4874	27.53	33.34	12.14	33.11	51.06	74	H
7311	27.96	36.32	16.62	37.32	62.3	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4874	27.53	/	12.14	33.11	/	54	V
7311	27.96	25.43	16.62	37.32	51.41	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4874	27.53	/	12.14	33.11	/	54	H
7311	27.96	26.34	16.62	37.32	52.32	54	H

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

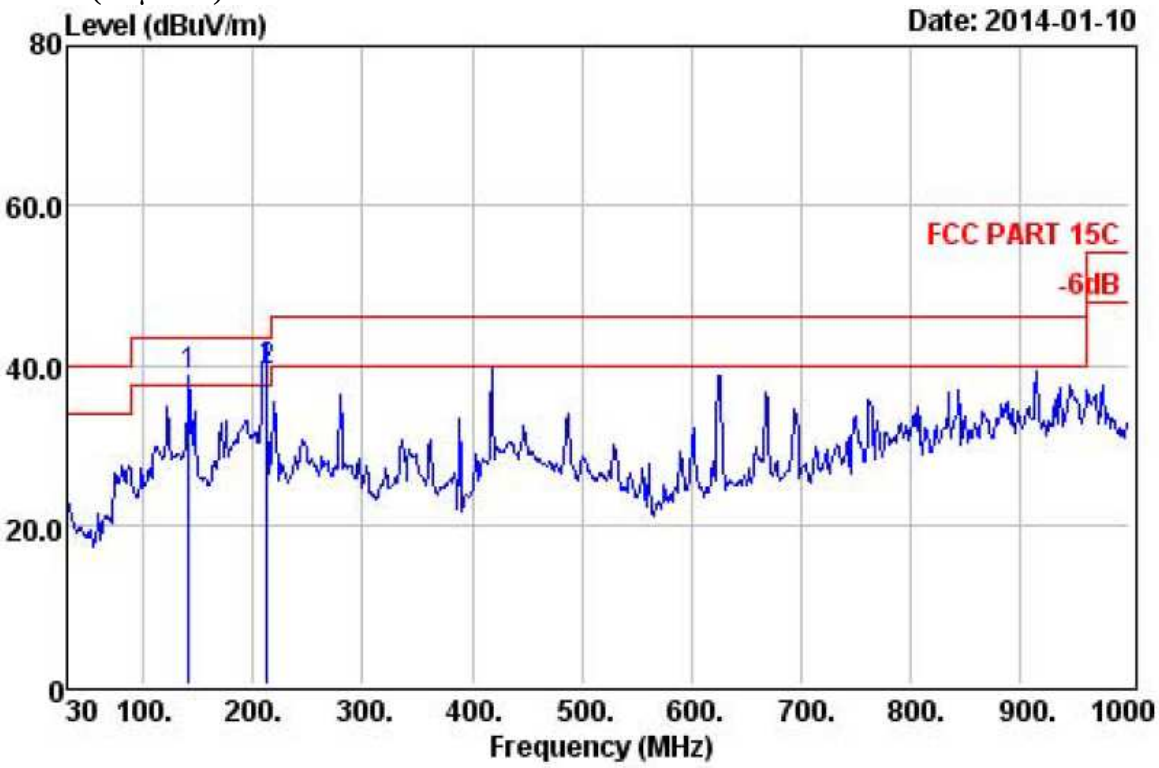
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBμV/m)



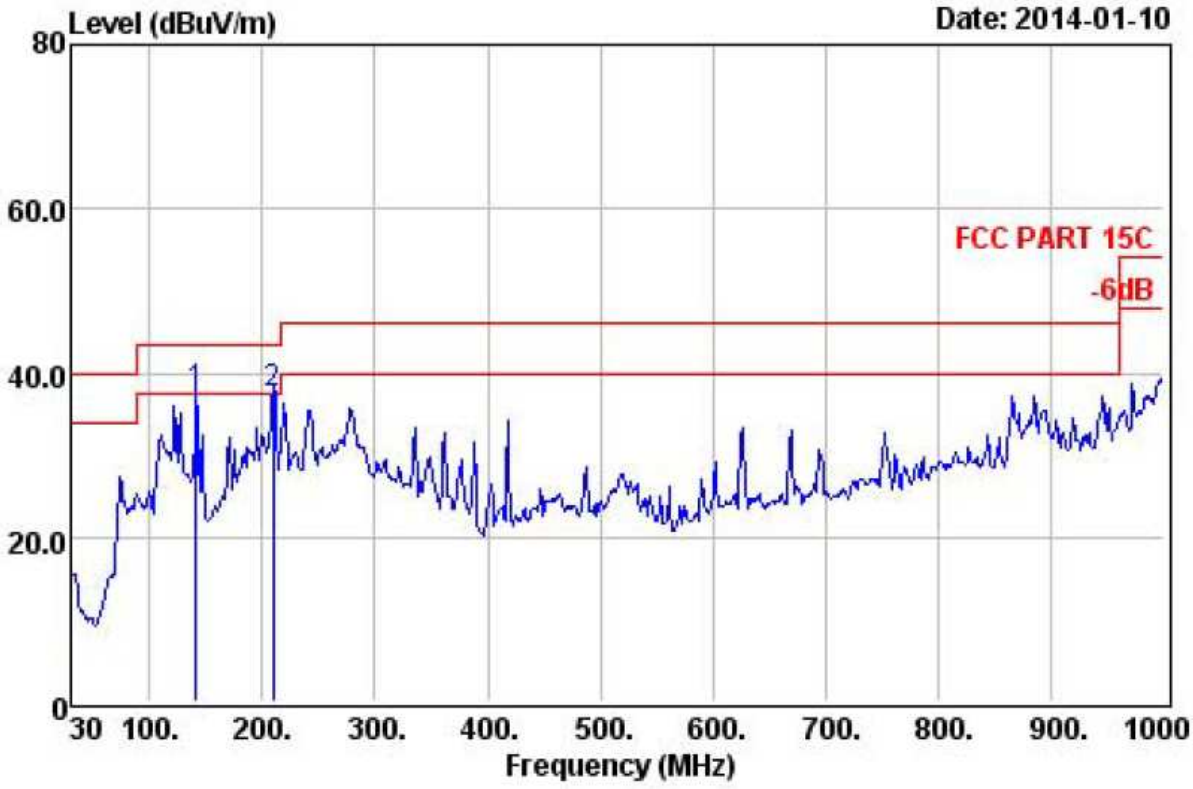
Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	60.04	1.22	8.49	38.53	43.50	-4.97	QP
212.36	31.06	57.20	1.53	11.59	39.26	43.50	-4.24	QP

Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
141.55	31.22	58.88	1.22	8.49	37.37	43.50	-6.13	QP
209.45	31.08	55.51	1.53	11.45	37.41	43.50	-6.09	QP

1~25 GHz Radiated Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	31.56	7.34	28.72	41.39	74	V
2400	26.32	33.45	7.34	28.72	43.19	74	V
2483.5	26.34	31.53	7.57	28.79	41.55	74	V
4924	27.56	31.43	12.28	33.23	49.38	74	V
7386	27.98	36.45	16.62	37.36	62.45	74	V
2390	26.23	35.34	7.34	28.72	45.17	74	H
2400	26.32	37.43	7.34	28.72	47.17	74	H
2483.5	26.34	31.99	7.57	28.79	42.01	74	H
4924	27.56	31.54	12.28	33.23	49.49	74	H
7386	27.98	35.67	16.62	37.36	61.67	74	H

Average Measurement:

Frequency (MHz)	Preamp factor (dB)	Reading Level (dBμV)	Cable loss (dB)	Antenna factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2390	26.23	/	7.34	28.72	/	54	V
2400	26.32	/	7.34	28.72	/	54	V
2483.5	26.34	/	7.57	28.79	/	54	V
4924	27.56	/	12.28	33.23	/	54	V
7386	27.98	26.01	16.62	37.36	52.01	54	V
2390	26.23	/	7.34	28.72	/	54	H
2400	26.32	/	7.34	28.72	/	54	H
2483.5	26.34	/	7.57	28.79	/	54	H
4924	27.56	/	12.28	33.23	/	54	H
7386	27.98	26.02	16.62	37.36	52.02	54	H

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

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

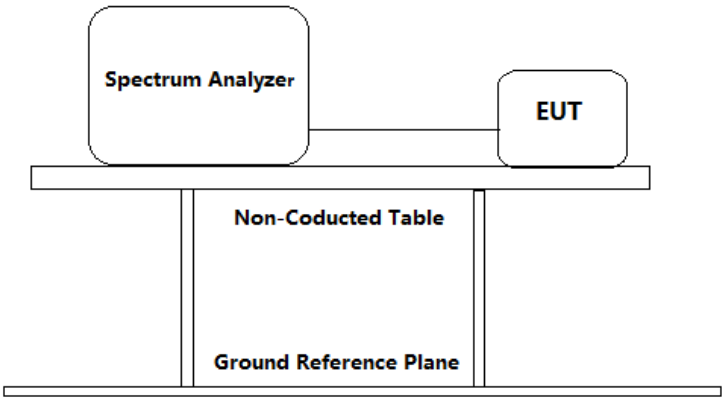
Final Test Level =Receiver Reading + Antenna Factor + Cable Loss –Preamplifier Factor.

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 6.9.2
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:	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 or power meter.
2. Set RBW of spectrum analyzer to 100 kHz and VBW of spectrum analyzer to 300 kHz with suitable frequency span including 100 kHz bandwidth from band edge (minimum 50 MHz).
3. Repeat until all the test status is investigated.
4. Report the worst case.

Test result with plots as follows:

For conduct mode:

The band edges was measured and recorded Result:

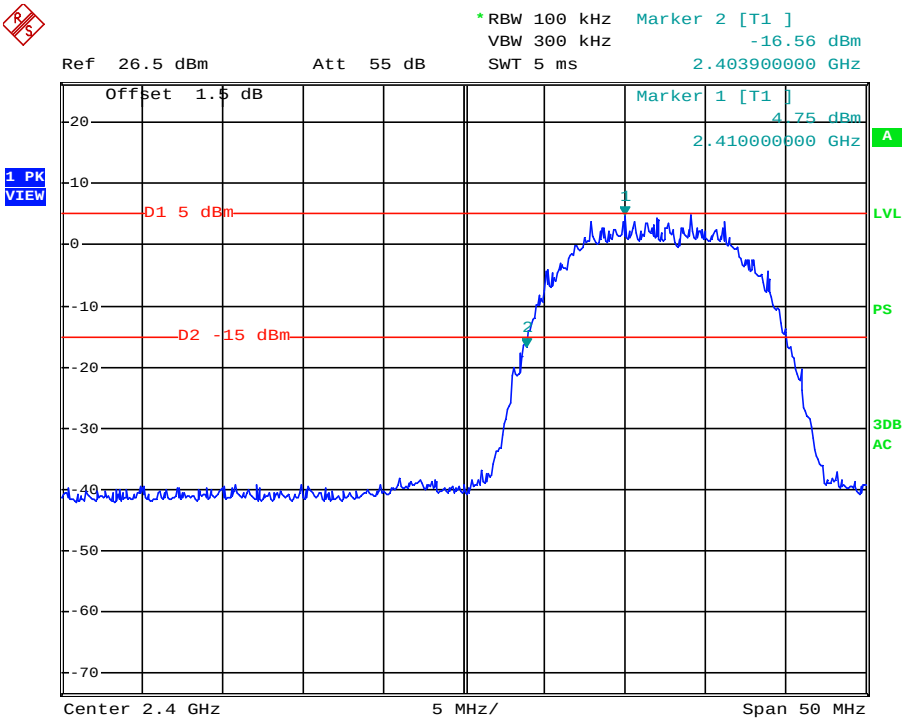
The Lower Edges attenuated more than 20dB.

The Upper Edges attenuated more than 20dB.

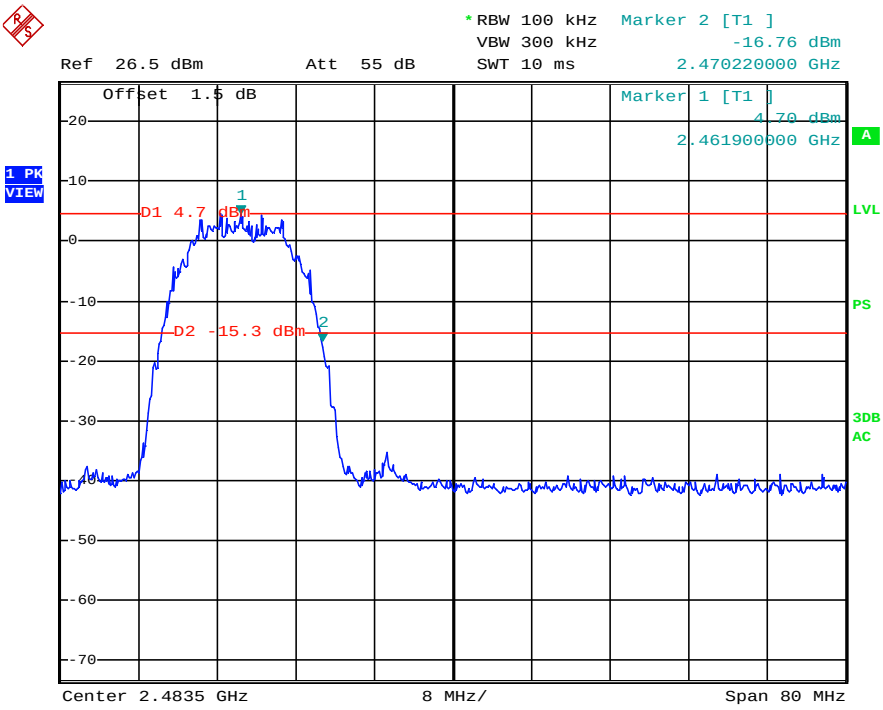
Result plot as follows:

802.11b mode with 11 Mbps data rate

Channel1: 2.412 GHz

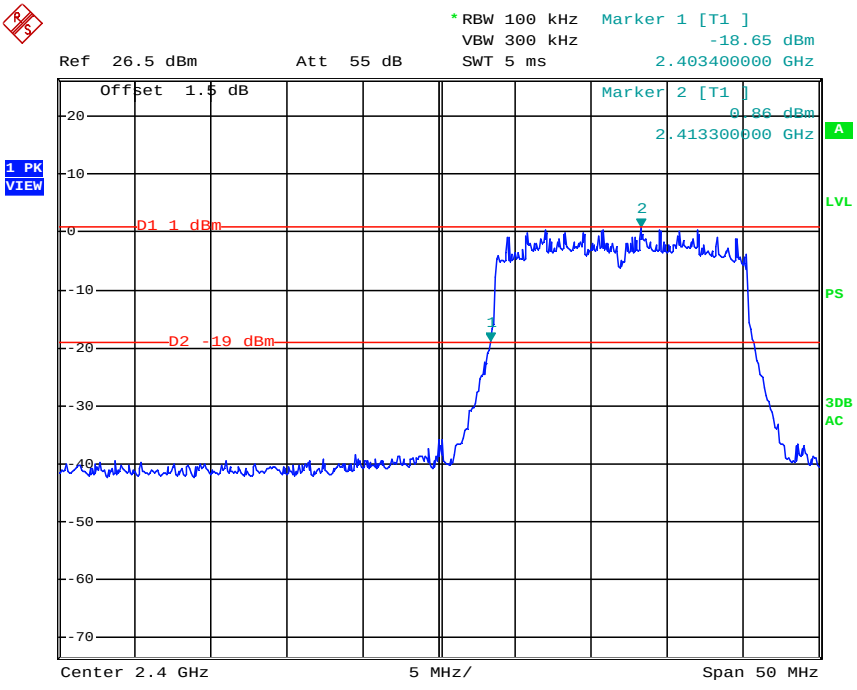


Channel 11: 2.462 GHz

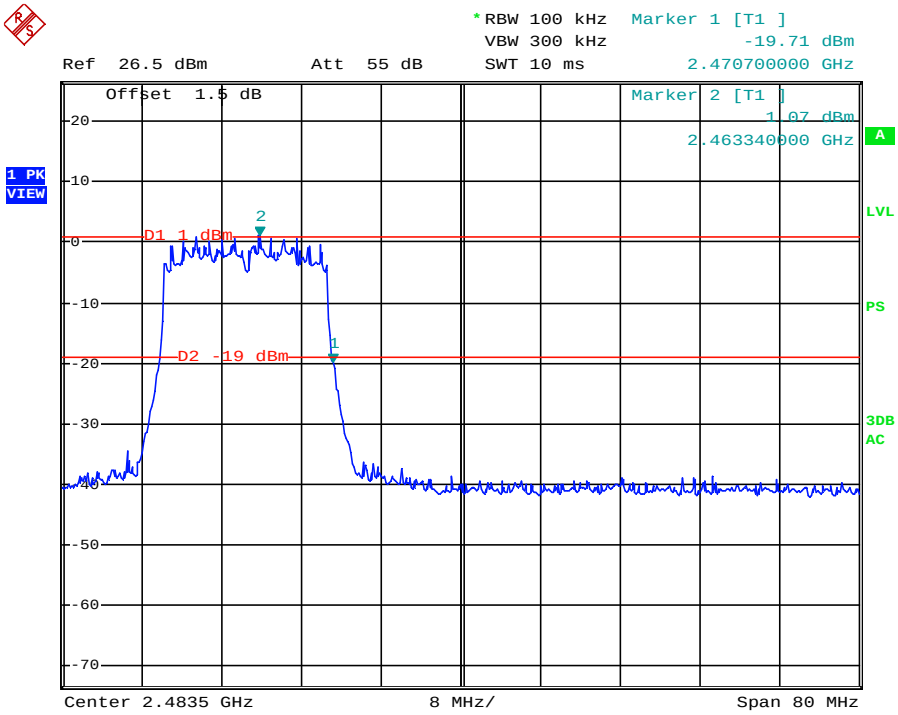


802.11g mode with 54 Mbps data rate

Channel1: 2.412 GHz

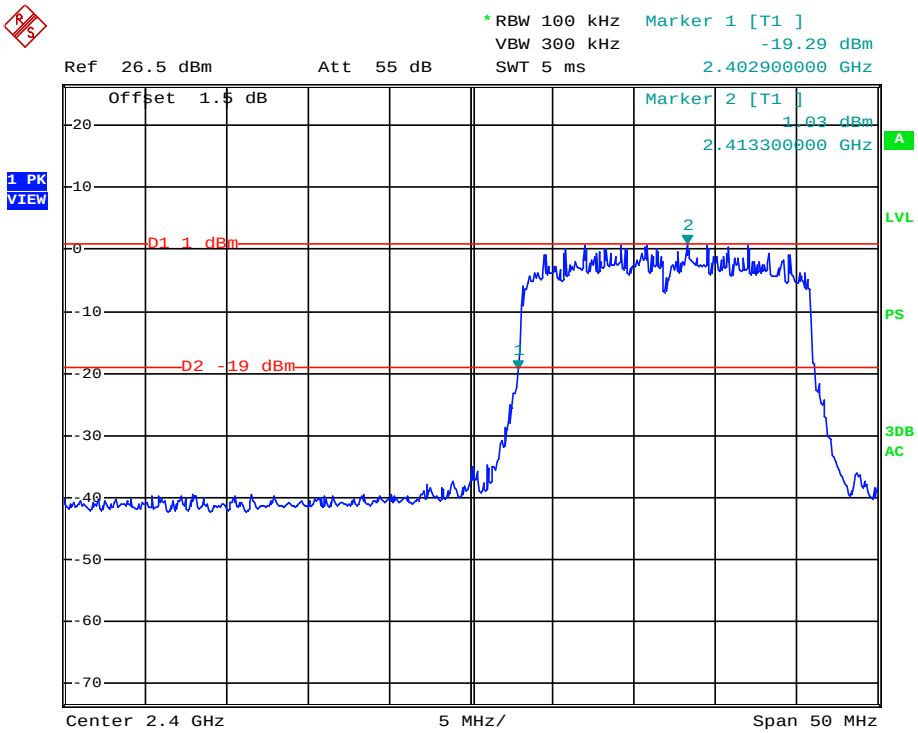


Channel 11: 2.462 GHz

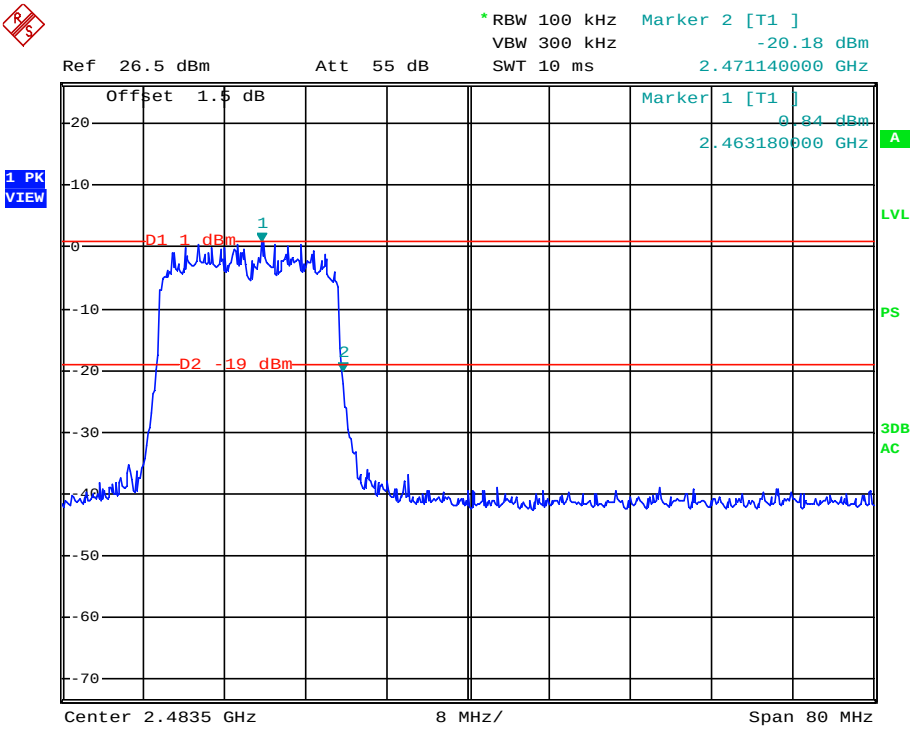


802.11n(HT20) mode with 65Mbps data rate

Channel1: 2.412 GHz



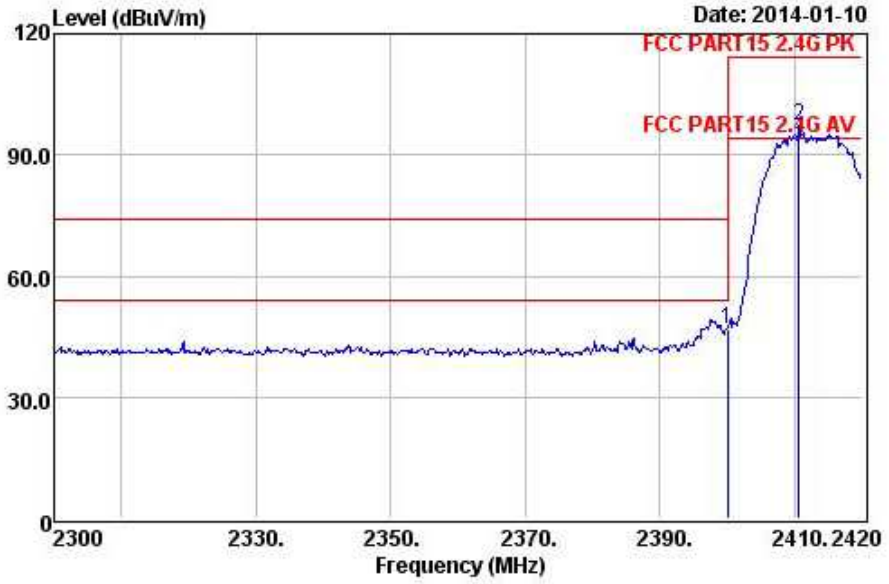
Channel 11: 2.462 GHz



For radiated mode:

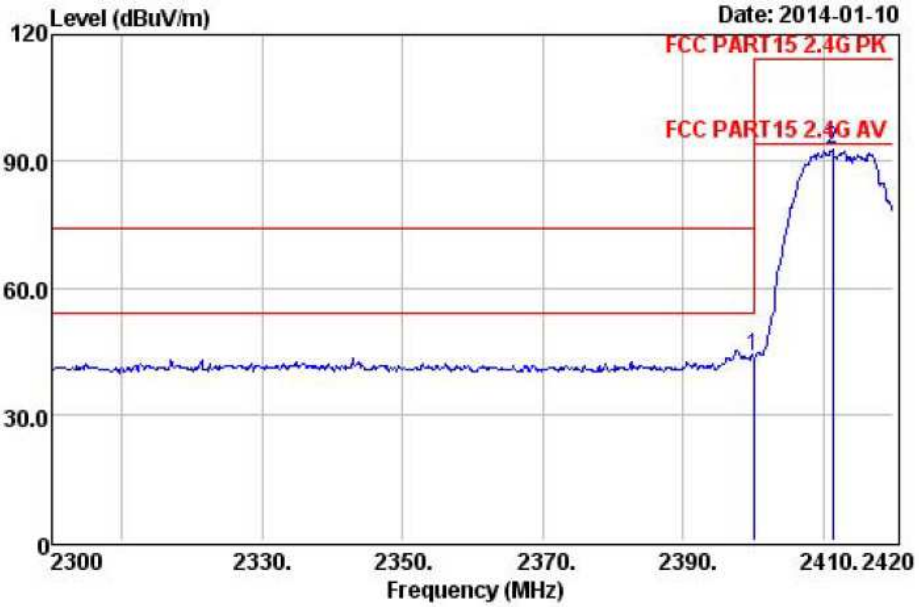
Result plot as follows:

802.11b mode with 11 Mbps data rate
Channel1: 2.412 GHz
in Horizontal polarization:



Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2400.00	26.32	37.15	7.34	28.72	46.89	74.00	-27.11	Peak

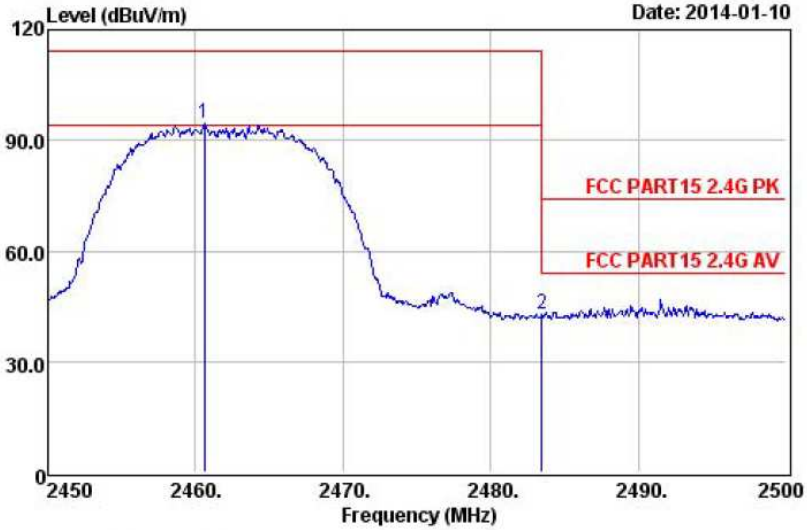
in Vertical polarization:



Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2400.00	26.32	33.92	7.34	28.72	43.66	74.00	-30.34	Peak

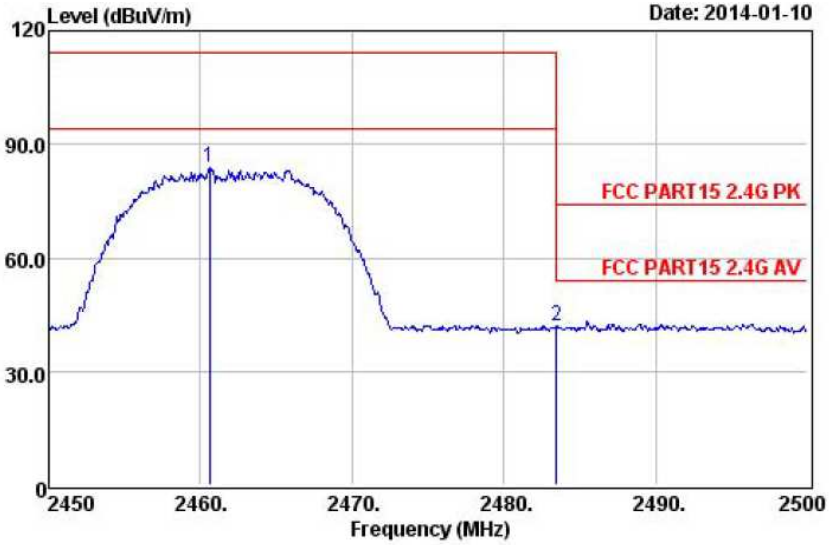
Channel 11: 2.462 GHz

in Horizontal polarization:



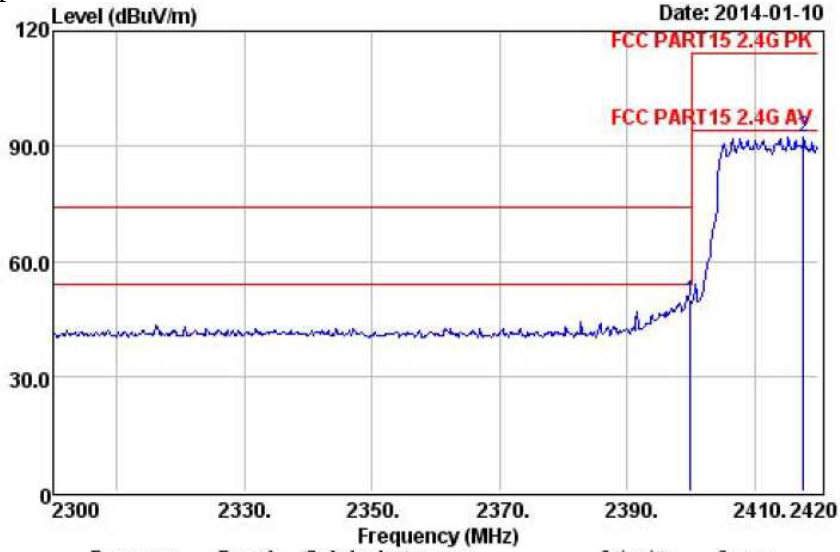
Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2483.50	26.34	32.60	7.57	28.79	42.62	74.00	-31.38	Peak

in Vertical polarization:



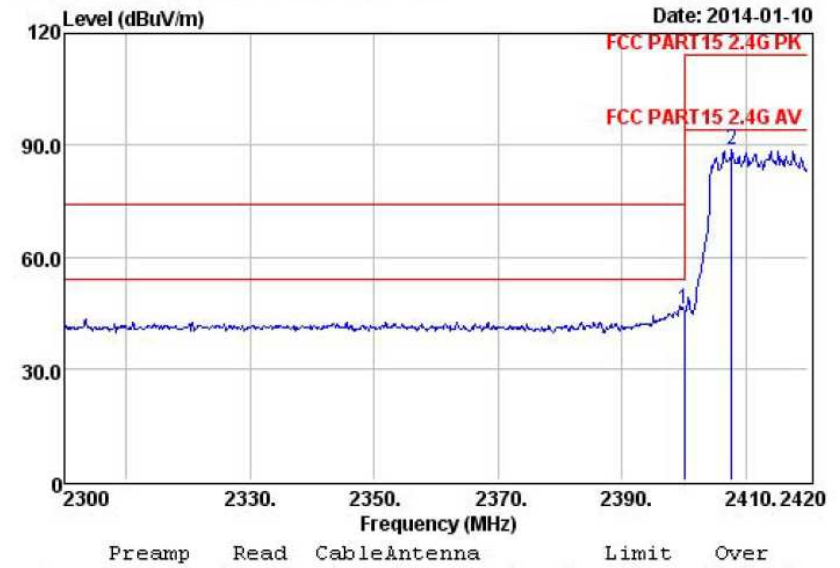
Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2483.50	26.34	32.01	7.57	28.79	42.03	74.00	-31.97	Peak

802.11g mode with 54 Mbps data rate
Channel1: 2.412 GHz
in Horizontal polarization:



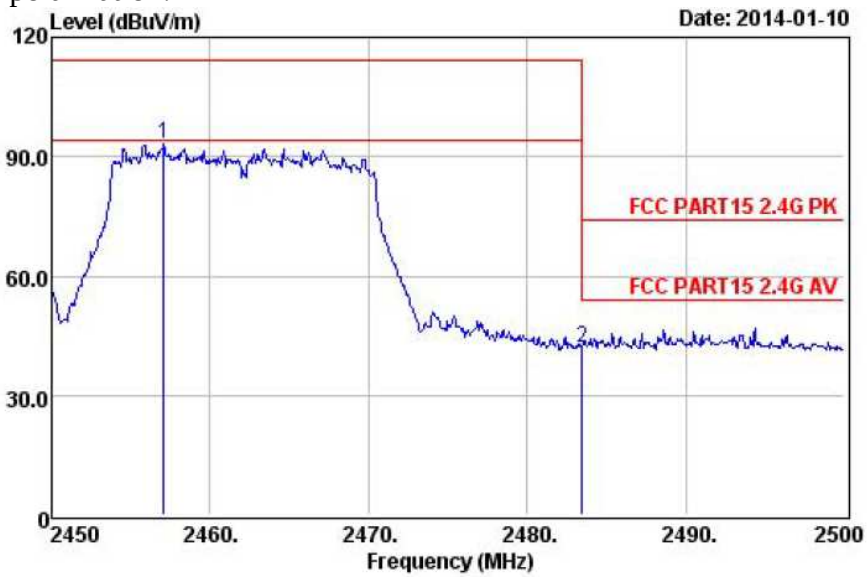
Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2399.96	26.32	39.72	7.34	28.72	49.46	74.00	-24.54	Peak

in Vertical polarization:



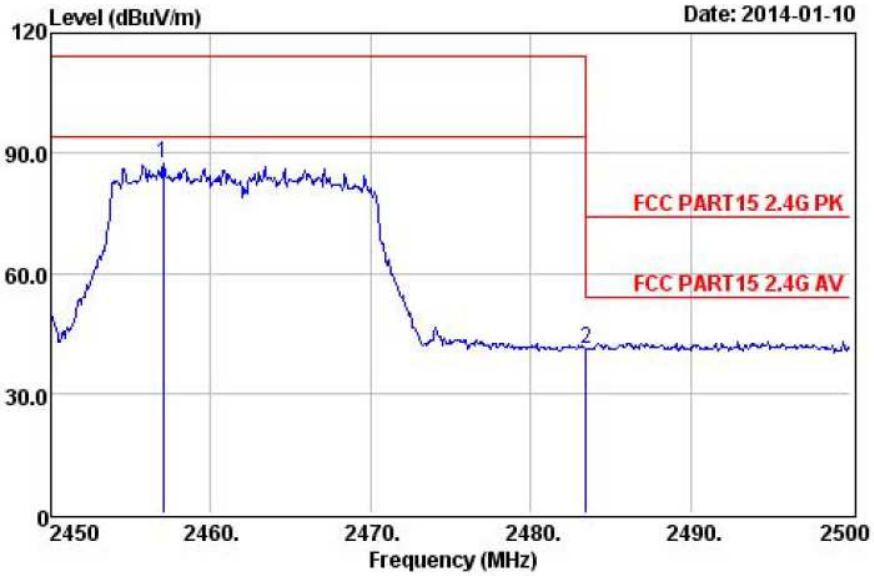
Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2400.00	26.32	36.05	7.34	28.72	45.79	74.00	-28.21	Peak

Channel 11: 2.462 GHz
in Horizontal polarization:



Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2483.50	26.34	31.87	7.57	28.79	41.89	74.00	-32.11	Peak

in Vertical polarization:

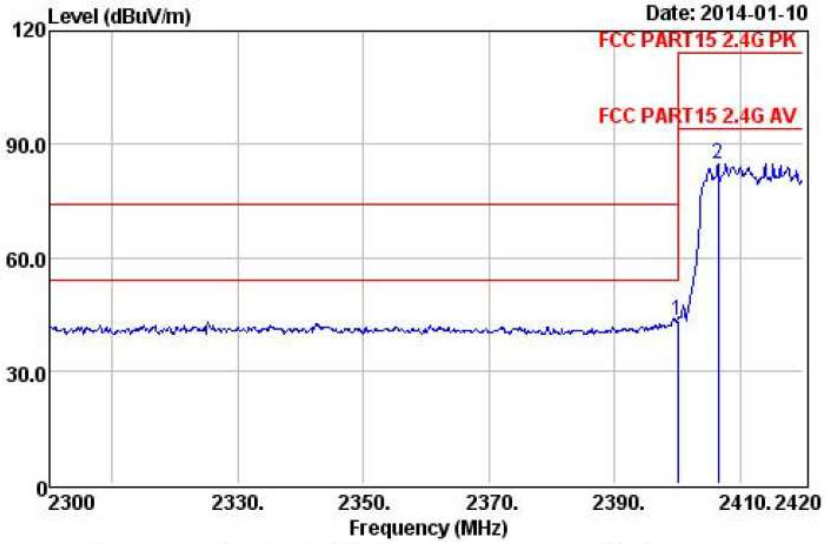


Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2483.50	26.34	31.18	7.57	28.79	41.20	74.00	-32.80	Peak

802.11n(HT20) mode with 65Mbps data rate

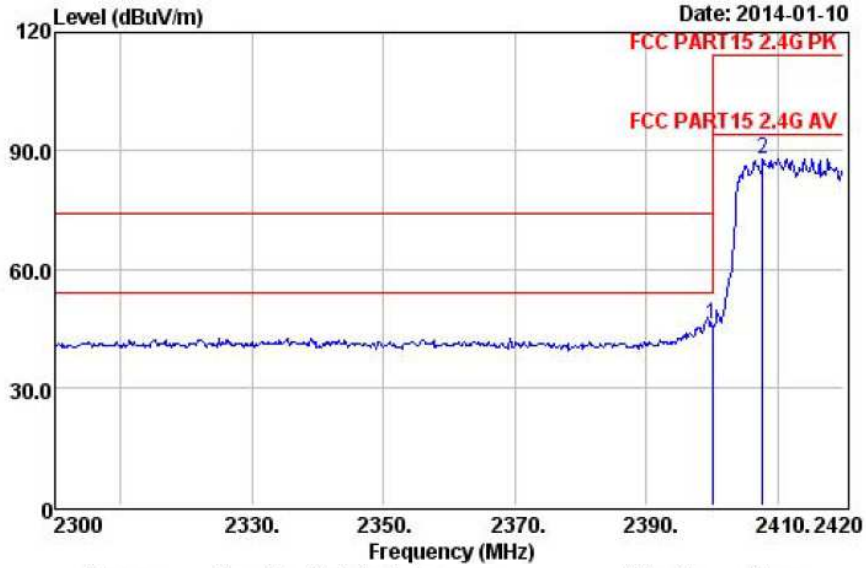
Channel1: 2.412 GHz

in Horizontal polarization:



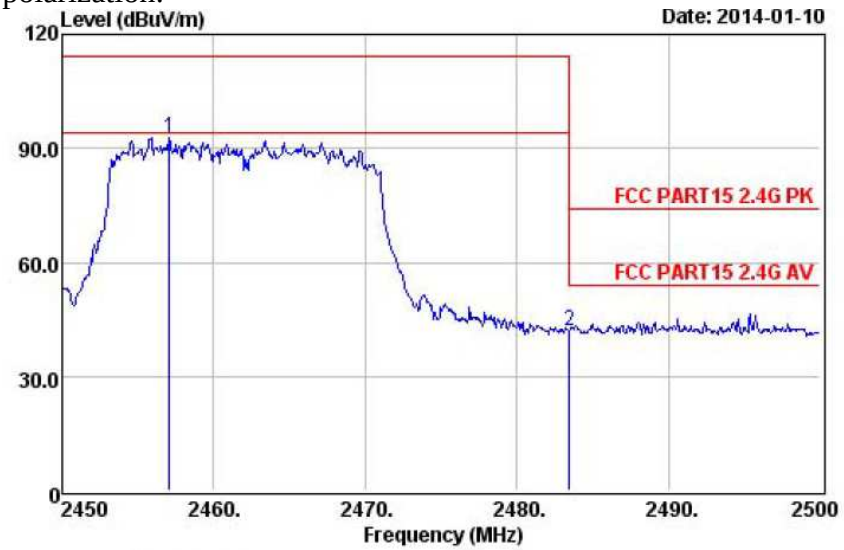
Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2400.00	26.32	33.54	7.34	28.72	43.28	74.00	-30.72	Peak

in Vertical polarization:



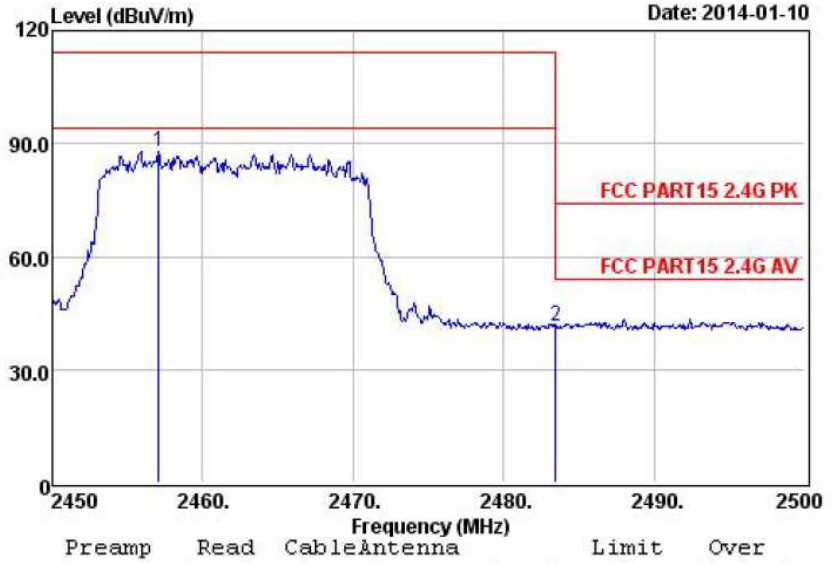
Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2400.00	26.32	36.02	7.34	28.72	45.76	74.00	-28.24	Peak

Channel 11: 2.462 GHz
in Horizontal polarization:



Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2483.50	26.34	31.99	7.57	28.79	42.01	74.00	-31.99	Peak

in Vertical polarization:

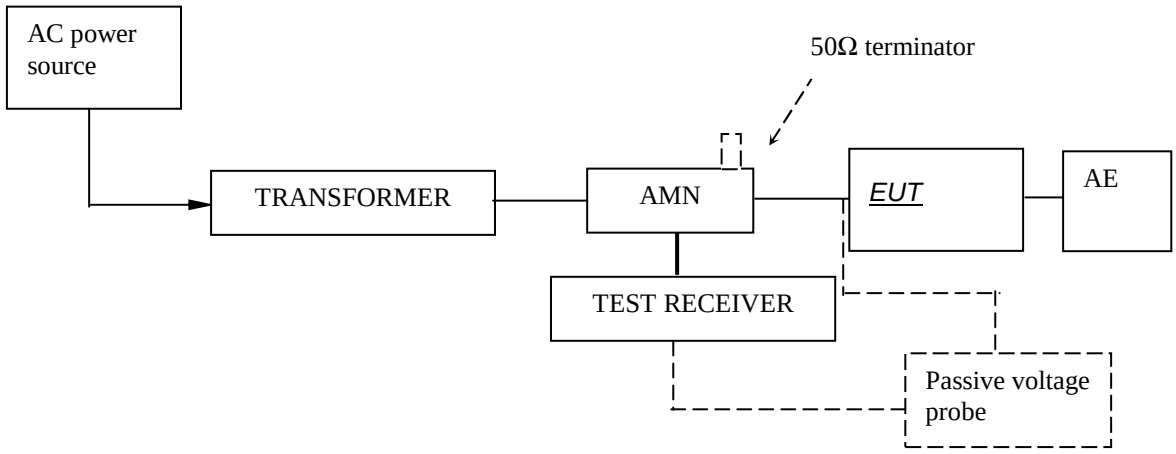


Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
2483.50	26.34	31.53	7.57	28.79	41.55	74.00	-32.45	Peak

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

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: On mode

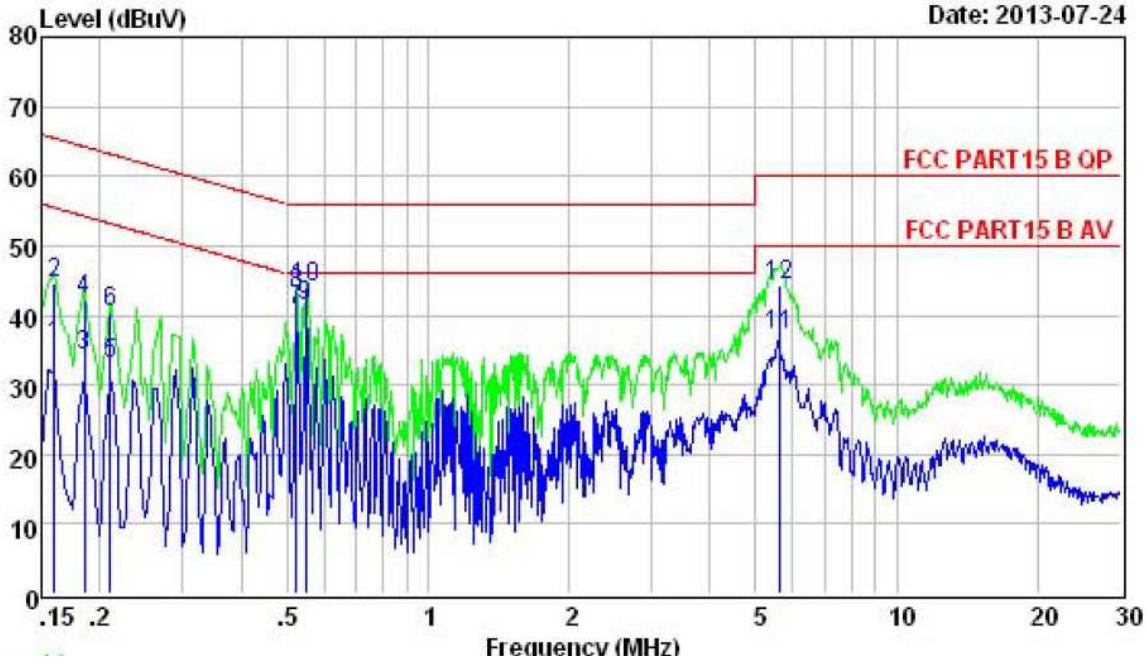
Freq	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dBuV	dB	
0.160	35.70	55.46	-19.76	Average
0.160	44.60	65.46	-20.86	QP
0.185	34.10	54.26	-20.16	Average
0.185	42.20	64.26	-22.06	QP
0.210	33.00	53.21	-20.21	Average
0.210	40.30	63.21	-22.91	QP
0.525	40.70	46.00	-5.30	Average
0.525	43.00	56.00	-13.00	QP
0.549	41.33	46.00	-4.67	Average
0.549	43.90	56.00	-12.10	QP
5.640	37.10	50.00	-12.90	Average
5.640	44.40	60.00	-15.60	QP

Tested Wire: Neutral Operation Mode: On mode

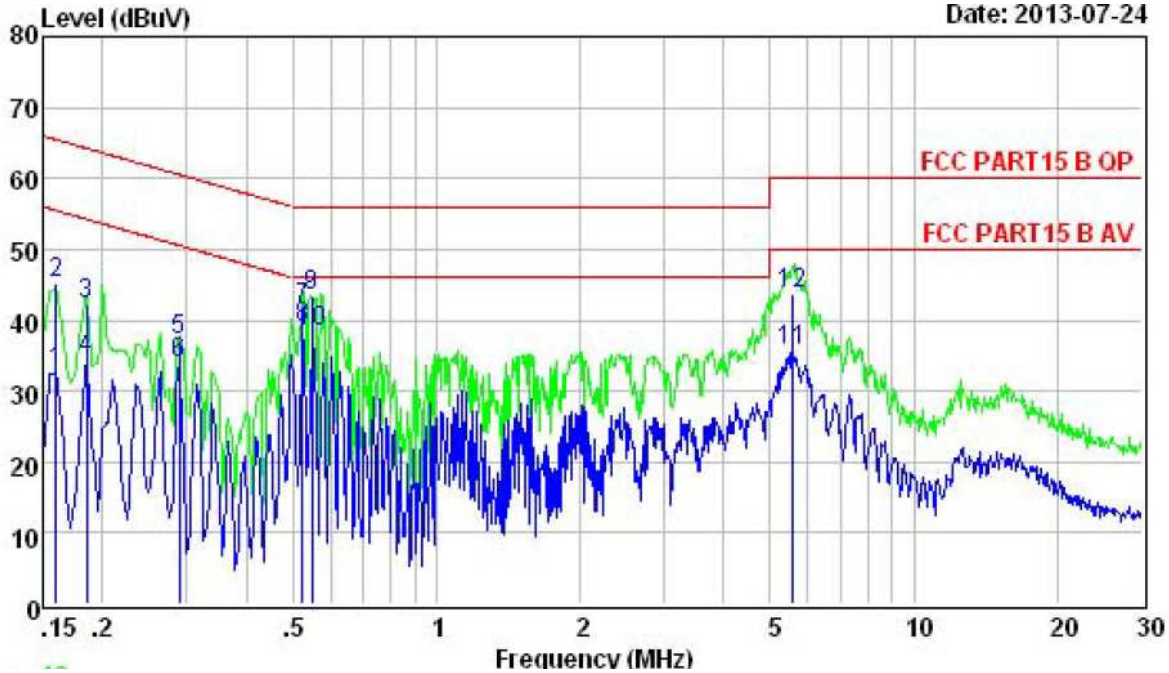
Freq	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dBuV	dB	
0.160	32.63	55.47	-22.84	Average
0.160	45.30	65.47	-20.17	QP
0.185	42.30	64.26	-21.96	QP
0.185	34.62	54.24	-19.62	Average
0.289	37.20	60.55	-23.35	QP
0.289	33.82	50.54	-16.72	Average
0.523	41.60	56.00	-14.40	QP
0.524	38.82	46.00	-7.18	Average
0.549	43.30	56.00	-12.70	QP
0.549	38.28	46.00	-7.72	Average
5.564	35.62	50.00	-14.38	Average
5.564	43.80	60.00	-16.20	QP

Emission Curve

Tested Wire: Live



Tested Wire: Neutral



10.0 Test Equipment List

Radiated Emission Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
101156	EMI Test Receiver	Rohde&Schwarz	ESCI	07 Jul. 2013	07 Jul. 2014
00135452	Bilog Antenna	ETS-LINDGREN	3142D	28 Jun. 2013	28 Jun. 2014
3911A04271	Spectrum Analyzer	Agilent	8593E	28 Nov. 2013	28 Nov. 2014
KW01	3m Semi-anechoic Chamber	ETS-LINDGREN	966	07 Jul. 2013	07 Jul. 2014
187303	Signal Amplifier	SONOMA	310	07 Jul. 2013	07 Jul. 2014
966 Cable 1#	RF Cable	IMRO	IMRO-400	07 Jul. 2013	07 Jul. 2014
11003	Horn Antenna	DAZE	ZN30701	11 Jul. 2013	11 Jul. 2014
11001	Signal Amplifier	DAZE	ZN3380C	07 Jul. 2013	07 Jul. 2014
966 Cable 1#	RF Cable	IMRO	IMRO-400	07 Jul. 2013	07 Jul. 2014

Conducted emission at the mains terminals test

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
101156	EMI Test Receiver	Rohde&Schwarz	ESCI	07 Jul 2013	07 Jul 2014
101315	Artificial Mains Network	Rohde&Schwarz	ENV216	02 Jul 2013	02 Jul 2014
101314	Artificial Mains Network (AUX)	Rohde&Schwarz	ENV216	02 Jul 2013	02 Jul 2014
944 Cable	RF Cable	FUJIKURA	3D-2W	02 Jul 2013	02 Jul 2014