CFR 47 FCC PART 15 SUBPART C
ISED RSS-247 ISSUE 2

TEST REPORT

For

Wifi Smart Plug

MODEL NUMBER: 7C-PL-W-A1

FCC ID: 2AB2Q7HPLWA1

IC: 10256A-7HPLWA1

REPORT NUMBER: 4788894536-3

ISSUE DATE: February 22, 2019

Prepared for

LEEDARSON LIGHTING CO., LTD.
Xingtai Industrial Zone, Economic Development Zone, Changtai County, Zhangzhou City, Fujian Province, P.R.China

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch
Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, People's Republic of China
Tel: +86 769 22038881
Fax: +86 769 33244054
Website: www.ul.com

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	2/22/2019	Initial Issue	

Summary of Test Results			
Clause	**Test Items**	**FCC/IC Rules**	**Test Results**
1	6dB Bandwidth and 99% Occupied Bandwidth	FCC Part 15.247 (a) (2) RSS-247 Clause 5.2 (a) ISED RSS-Gen Clause 6.7	Pass
2	Peak Conducted Output Power	FCC Part 15.247 (b) (3) RSS-247 Clause 5.4 (e)	Pass
3	Power Spectral Density	FCC Part 15.247 (e) RSS-247 Clause 5.2 (b)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d) RSS-247 Clause 5.5	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	Pass
6	Conducted Emission Test For AC Power Port	FCC Part 15.207 RSS-GEN Clause 8.8	Pass
7	Antenna Requirement	FCC Part 15.203 RSS-GEN Clause 8.3	Pass

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	LEEDARSON LIGHTING CO., LTD.
Address:	Xingtai Industrial Zone, Economic Development Zone, Changtai County, Zhangzhou City, Fujian Province, P.R.China

Manufacturer Information

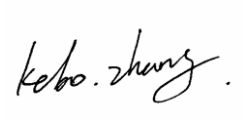
Company Name:	LEEDARSON LIGHTING CO., LTD.
Address:	Xingtai Industrial Zone, Economic Development Zone, Changtai County, Zhangzhou City, Fujian Province, P.R.China

EUT Description

EUT Name:	Wifi Smart Plug
Model:	7C-PL-W-A1
Series Model:	7HPLWA1
Model Difference:	All the same except for the model name.
Brand Name:	LEEDARSON
Sample Status:	Normal
Sample Received Date:	January 23, 2019
Date of Tested:	January 24 ~ February 22, 2019

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART C	PASS
ISED RSS-247 Issue 2	PASS
ISED RSS-GEN Issue 5	PASS

Prepared By:



Kebo Zhang
Engineer Project Associate

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo
Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r01, KDB 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 2 and ISED RSS-GEN Issue 5.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules **IC(Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OFS.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognize national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.62dB
Radiation Emission test(include Fundamental emission) (9kHz-30MHz)	2.2dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.00dB
Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	5.78dB (1GHz-18Gz)
	5.23dB (18GHz-26Gz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Wifi Smart Plug		
Model	7C-PL-W-A1		
Series Model	7HPLWA1		
Model Difference	All the same except for the model name.		
Radio Technology	IEEE802.11b/g/n HT20		
Operation frequency	IEEE 802.11b: 2412MHz—2462MHz IEEE 802.11g: 2412MHz—2462MHz IEEE 802.11n HT20: 2412MHz—2462MHz		
Modulation	IEEE 802.11b: DSSS(CCK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK)		
Rated Input	AC 120V, 60Hz		
Power Supply	Power Adapter	Input	/
		Output	/
	Battery	/	

5.2. MAXIMUM OUTPUT POWER

Number of Transmit Chains (NTX)	IEE Std. 802.11	Frequency (MHz)	Channel Number	Max PK Conducted Power (dBm)
1	IEEE 802.11b	2412-2462	1-11[11]	19.7
1	IEEE 802.11g	2412-2462	1-11[11]	20.34
1	IEEE 802.11nHT20	2412-2462	1-11[11]	19.08

5.3. CHANNEL LIST

Channel List for 802.11b/g/n (20 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	4	2427	7	2442	10	2457
2	2417	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452	/	/

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
WiFi TX(802.11b)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11g)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11n HT20)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz

5.5. THE WORSE CASE CONFIGURATIONS

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band				
Test Software		UI_mptool		
Modulation Mode	Transmit Antenna Number	Test Channel		
		NCB: 20MHz		
		CH 1	CH 6	CH 11
802.11b	1	41	42	42
802.11g	1	47	47	47
802.11n HT20	1	45	45	45

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2412-2462	Integral Antenna	0.71

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.
IEEE 802.11g	☒1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	☒1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	Laptop	ThinkPad	T460S	SL10K24796 JS
2	USB TO UART	/	/	/

I/O CABLES

Item	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	NA	NA	1	/

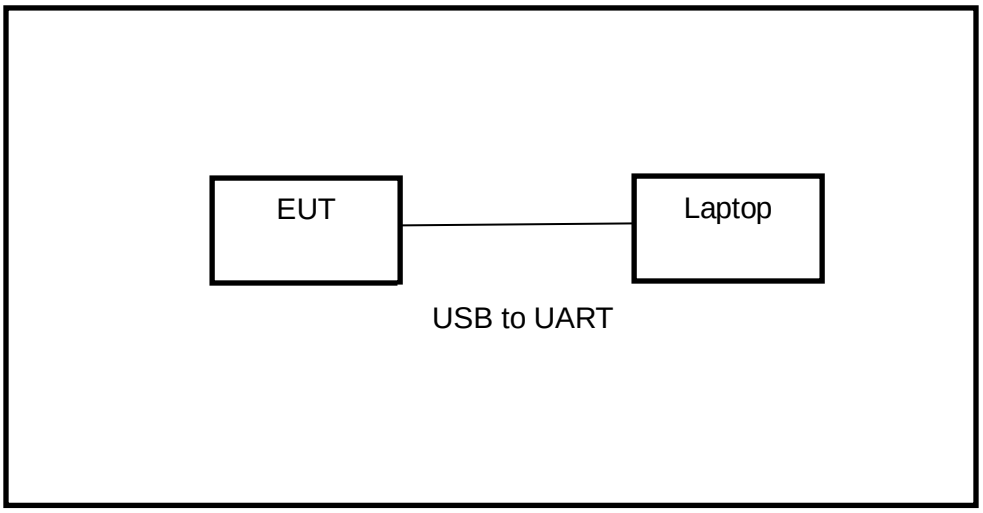
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

TEST SETUP

The EUT can work in engineering mode with a software through a Laptop.

SETUP DIAGRAM FOR TESTS



6. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	EMI Test Receiver	R&S	ESR3	101961	Dec.10,2018	Dec.10,2019
☑	Two-Line V-Network	R&S	ENV216	101983	Dec.10,2018	Dec.10,2019
☑	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Dec.10,2018	Dec.10,2019
Software						
Used	Description		Manufacturer	Name	Version	
☑	Test Software for Conducted disturbance		Farad	EZ-EMC	Ver. UL-3A1	
Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.10,2018	Dec.10,2019
☑	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Sep.17, 2018	Sep.17, 2021
☑	Preamplifier	HP	8447D	2944A09099	Dec.10,2018	Dec.10,2019
☑	EMI Measurement Receiver	R&S	ESR26	101377	Dec.10,2018	Dec.10,2019
☑	Horn Antenna	TDK	HRN-0118	130939	Sep.17, 2018	Sep.17, 2021
☑	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Aug.11, 2018	Aug.11, 2021
☑	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Dec.10,2018	Dec.10,2019
☑	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec.10,2018	Dec.10,2019
☑	Loop antenna	Schwarzbeck	1519B	00008	Mar.26,2016	Mar.25, 2019
☑	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Dec.10,2018	Dec.10,2019
☑	High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Dec.10,2018	Dec.10,2019
Software						
Used	Description		Manufacturer	Name	Version	
☑	Test Software for Radiated disturbance		Farad	EZ-EMC	Ver. UL-3A1	
Other instruments						

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec.10,2018	Dec.10,2019
☑	Power Meter	Keysight	N1911A	MY55416024	Dec.10,2018	Dec.10,2019
☑	Power Sensor	Keysight	U2021XA	MY5100022	Dec.10,2018	Dec.10,2019

7. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth	KDB 558074 D01 15.247 Meas Guidance v05r01	8.2
2	Peak Output Power	KDB 558074 D01 15.247 Meas Guidance v05r01	8.3.1.3/8.3.2.3
3	Power Spectral Density	KDB 558074 D01 15.247 Meas Guidance v05r01	8.4
4	Out-of-band emissions in non-restricted bands	KDB 558074 D01 15.247 Meas Guidance v05r01	8.5
5	Out-of-band emissions in restricted bands	KDB 558074 D01 15.247 Meas Guidance v05r01	8.6
6	Band-edge	KDB 558074 D01 15.247 Meas Guidance v05r01	8.7
7	Conducted Emission Test For AC Power Port	ANSI C63.10-2013	6.2
8	99% Bandwidth	ANSI C63.10-2013	6.9.3

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

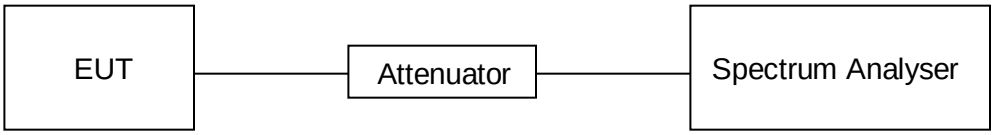
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



TEST ENVIRONMENT

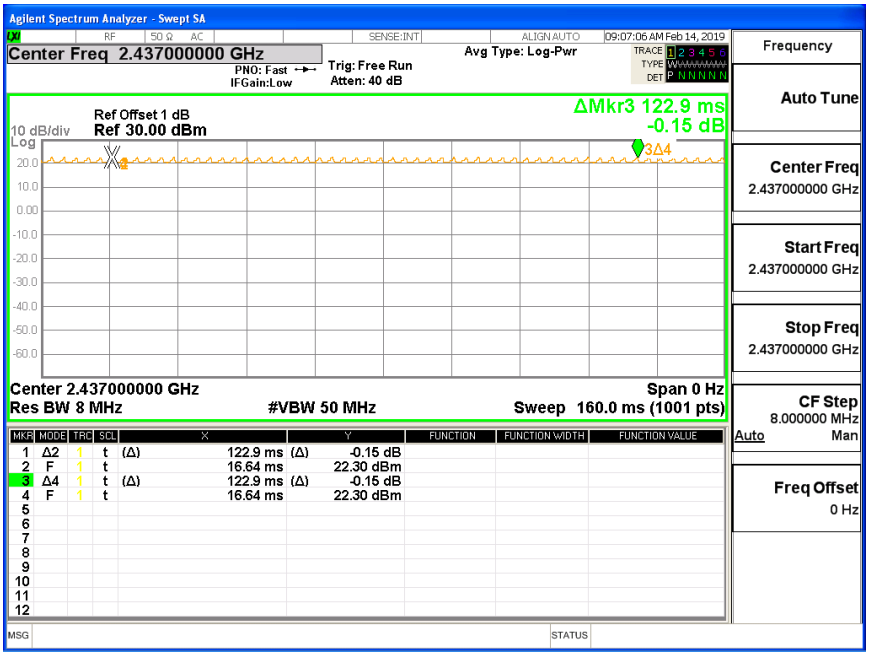
Temperature	22.3°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V,60Hz

RESULTS

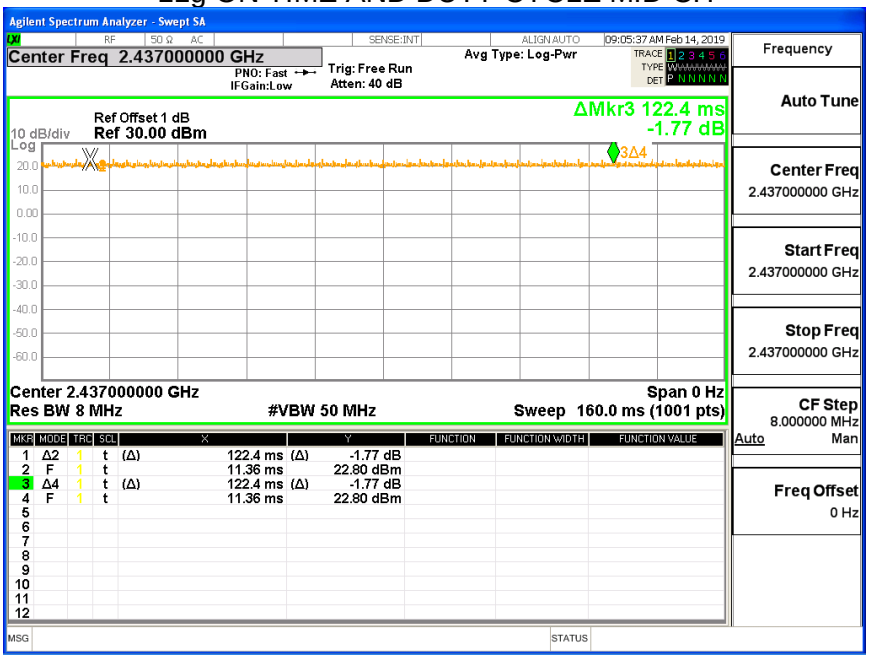
Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (KHz)	Final setting For VBW (KHz)
11b	122.9	122.9	1	100	0	0.008	0.01
11g	122.4	122.4	1	100	0	0.008	0.01
11n20	121.9	121.9	1	100	0	0.008	0.01

Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
If that calculated VBW is not available on the analyzer then the next higher value should be used.

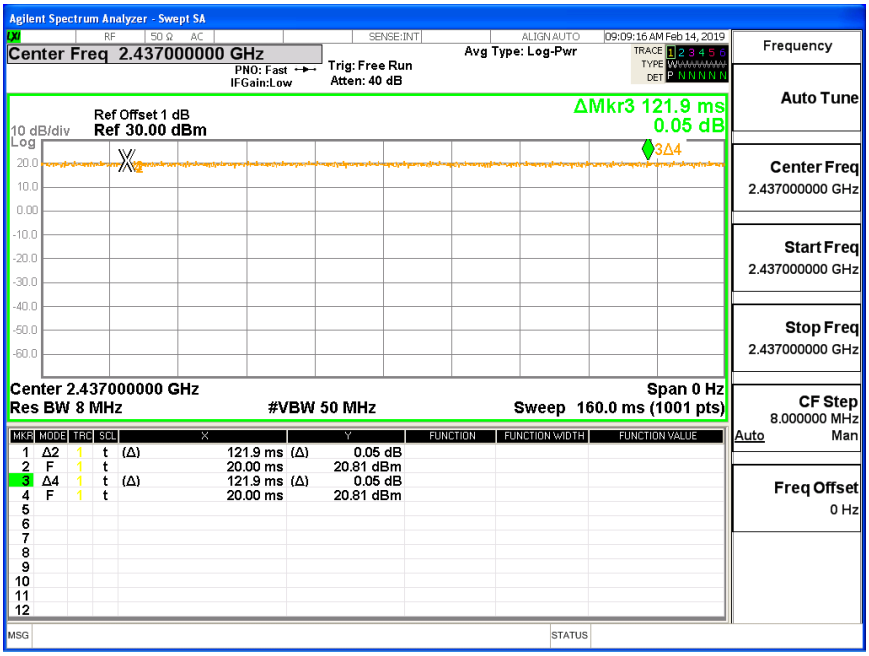
11b ON TIME AND DUTY CYCLE MID CH



11g ON TIME AND DUTY CYCLE MID CH



11n HT20 ON TIME AND DUTY CYCLE MID CH



8.2. 6 dB DTS BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(a)(2) ISED RSS-247 5.2 (a)	6 dB Bandwidth	⩾ 500KHz	2400-2483.5
ISED RSS-Gen Clause 6.7	99% Occupied Bandwidth	For reporting purposes only.	2400-2483.5

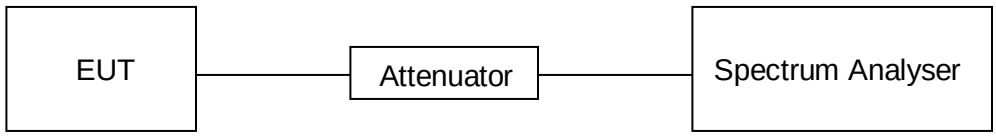
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6dB Bandwidth :100K For 99% Occupied Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : ≥3 × RBW For 99% Occupied Bandwidth : approximately 3×RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and 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 and 99% relative to the maximum level measured in the fundamental emission.

TEST SETUP



TEST ENVIRONMENT

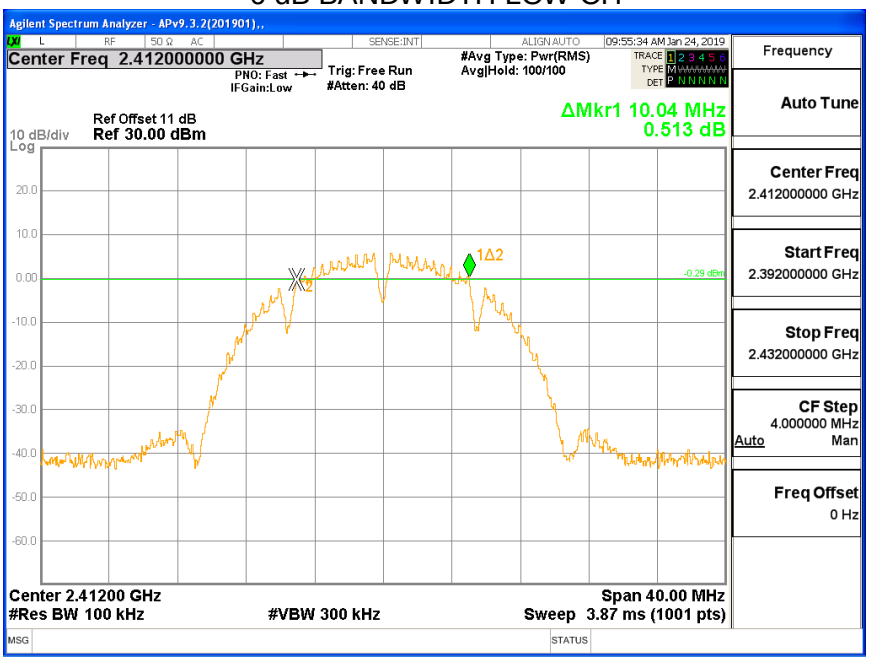
Temperature	22.3°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V,60Hz

RESULTS

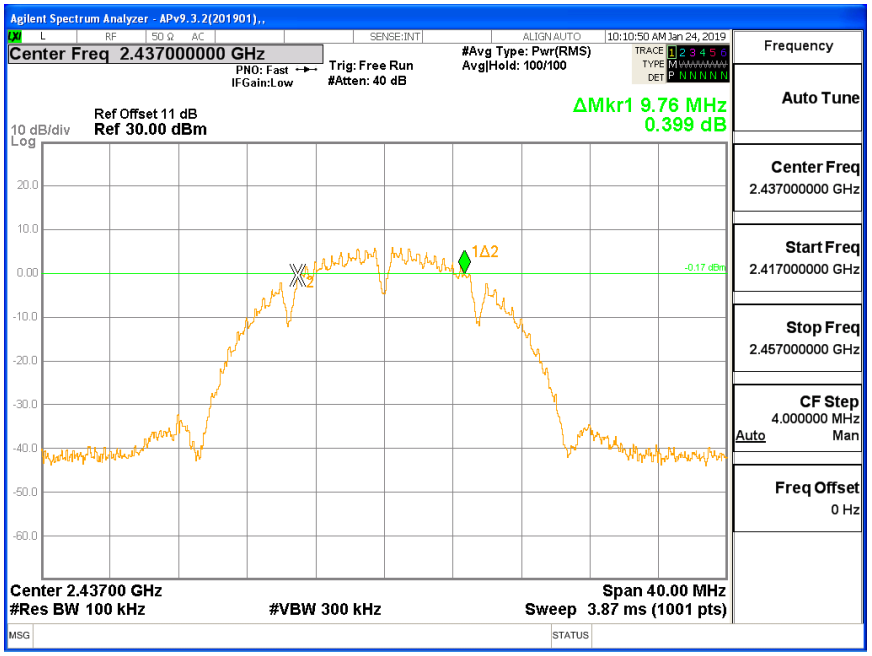
8.2.1. 802.11b MODE

Channel	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (kHz)	Result
Low	10.04	14.752	≥500	Pass
Middle	9.76	14.759	≥500	Pass
High	10.12	14.756	≥500	Pass

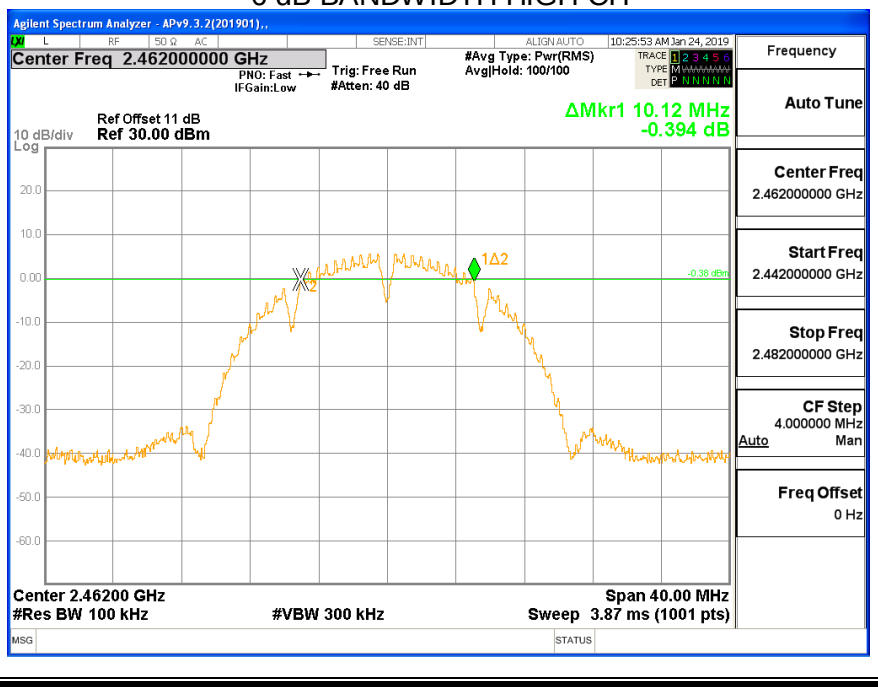
6 dB BANDWIDTH LOW CH



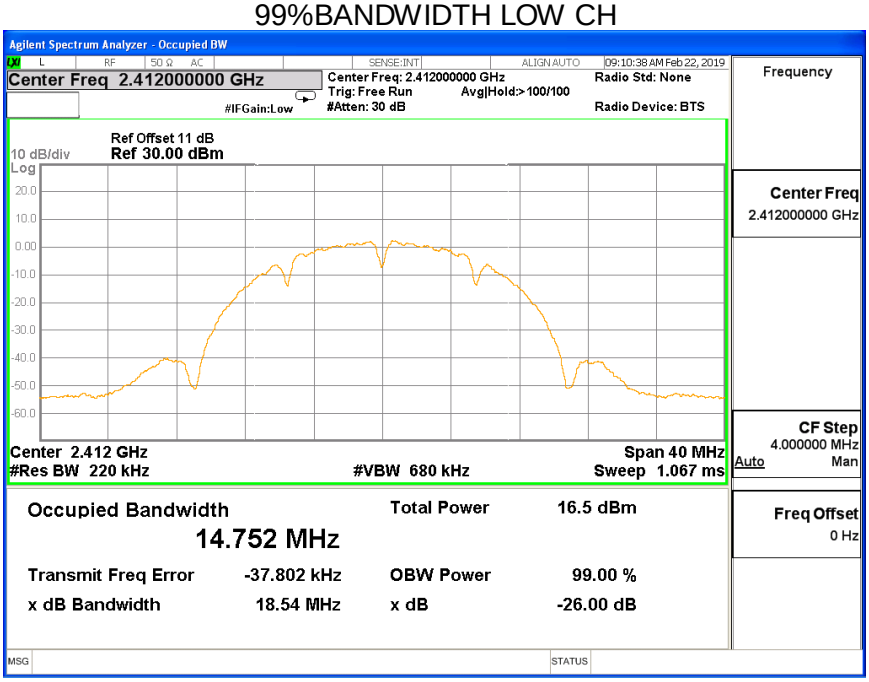
6 dB BANDWIDTH MID CH



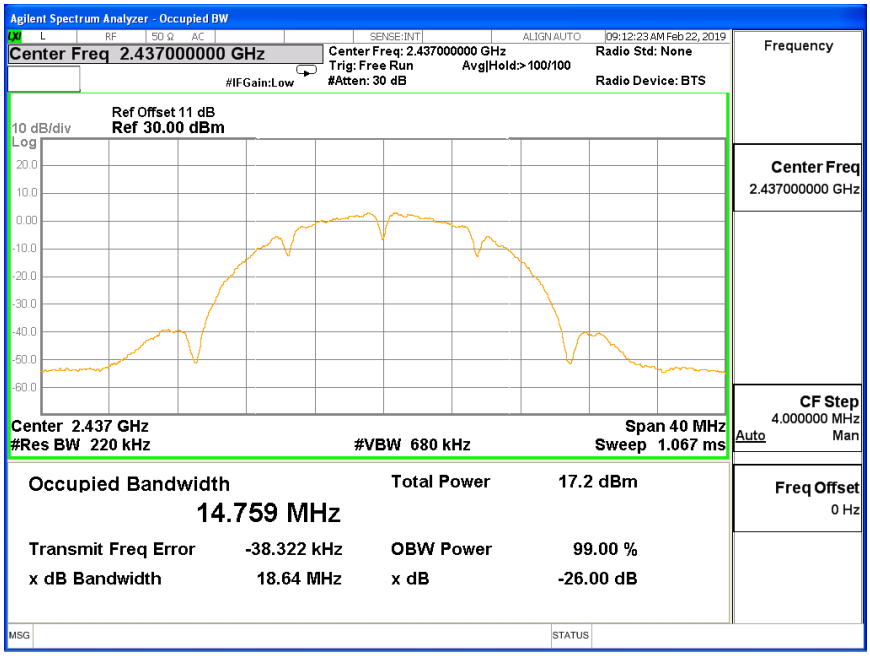
6 dB BANDWIDTH HIGH CH



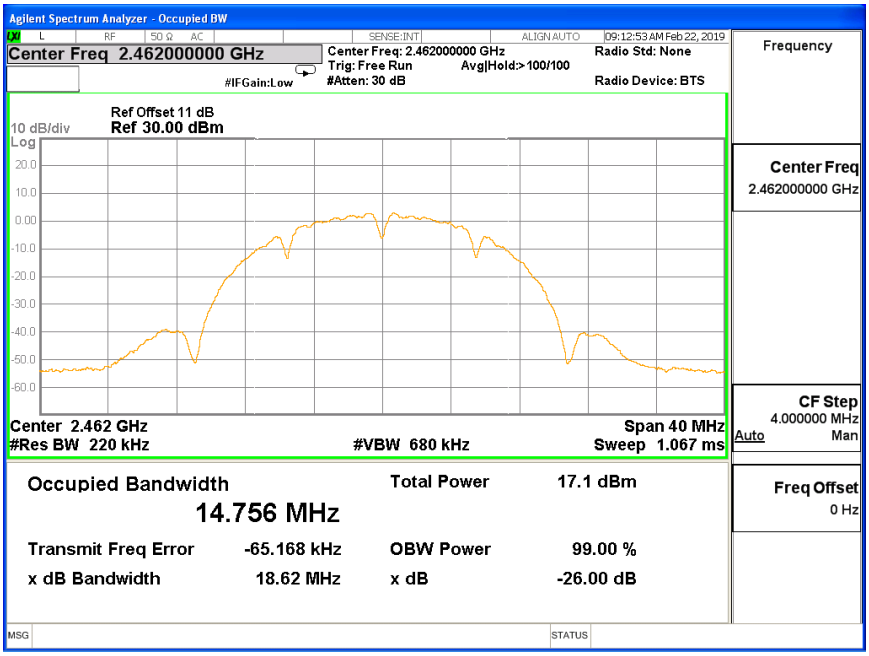
99%BANDWIDTH LOW CH



99% BANDWIDTH MID CH



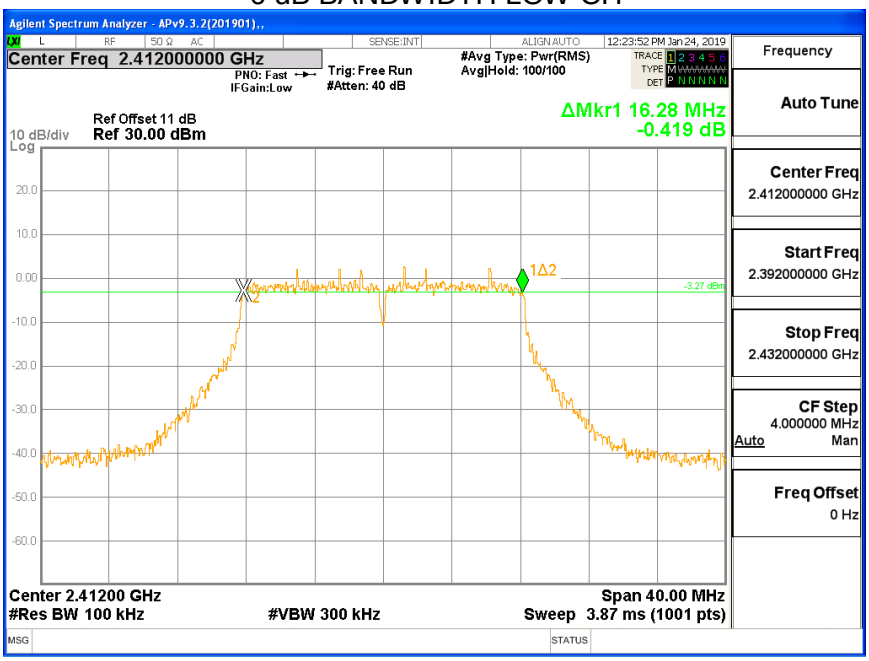
99% BANDWIDTH HIGH CH



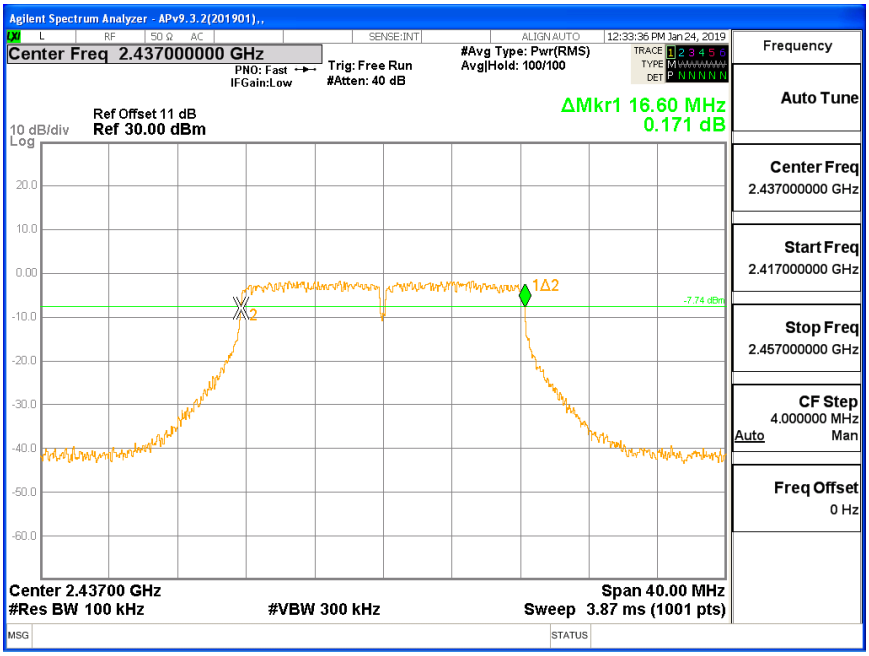
8.2.2. 802.11g MODE

Channel	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (kHz)	Result
Low	16.28	16.472	≥500	Pass
Middle	16.60	16.464	≥500	Pass
High	16.52	16.472	≥500	Pass

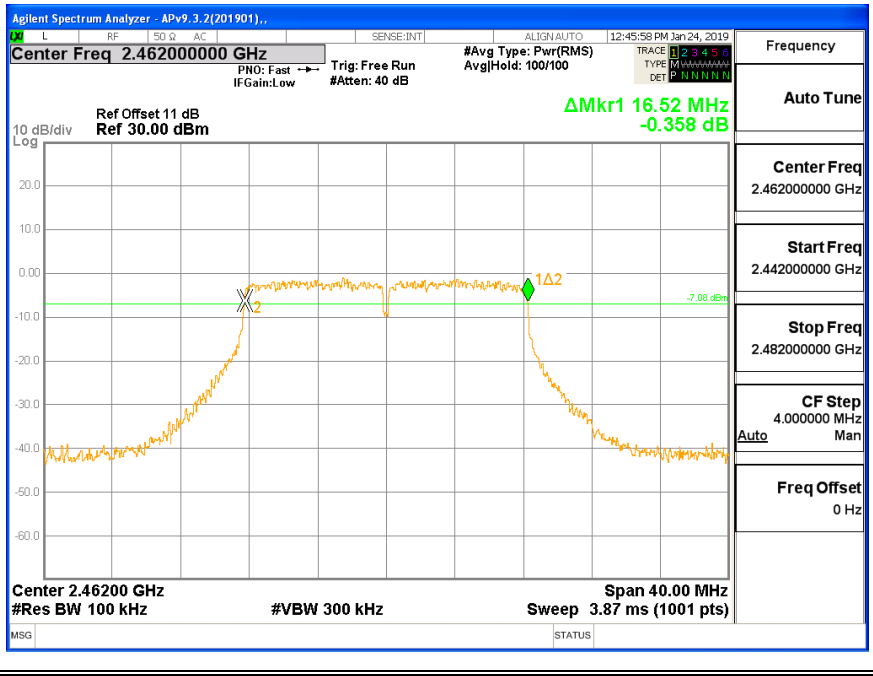
6 dB BANDWIDTH LOW CH



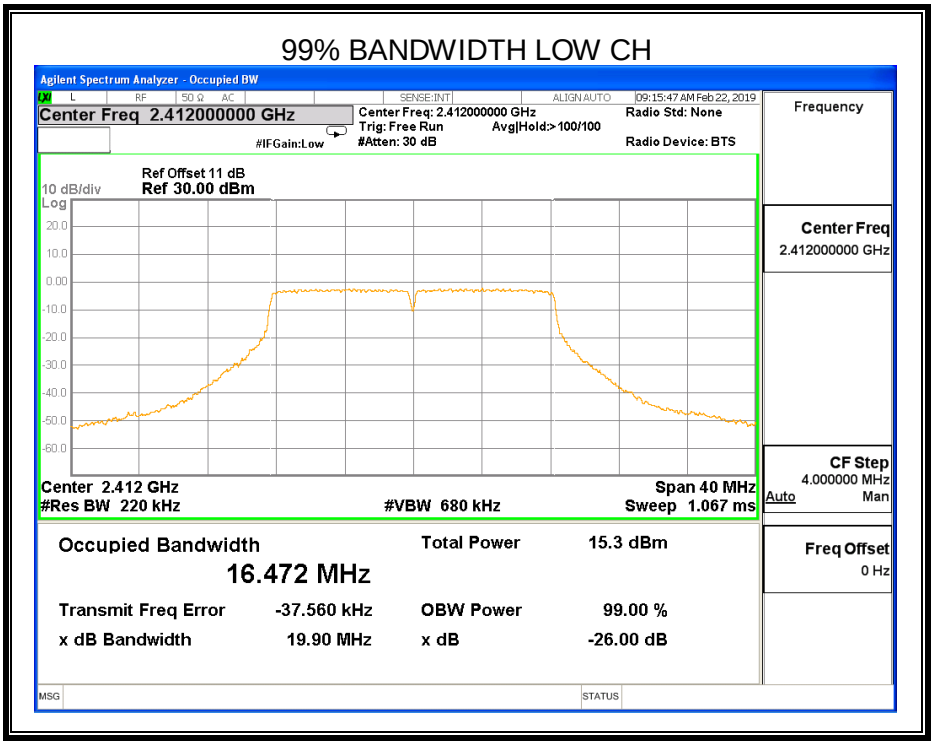
6 dB BANDWIDTH MID CH



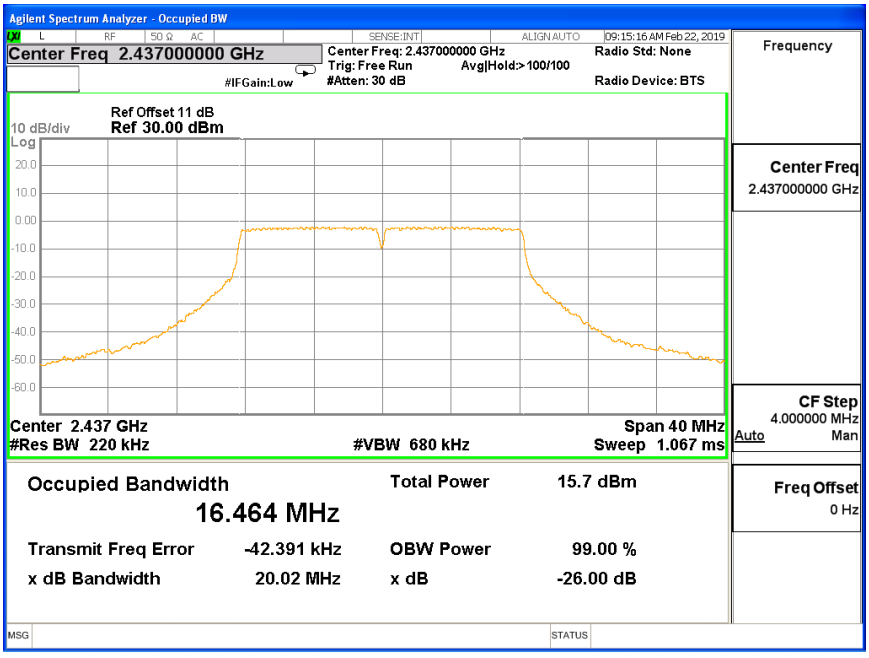
6 dB BANDWIDTH HIGH CH



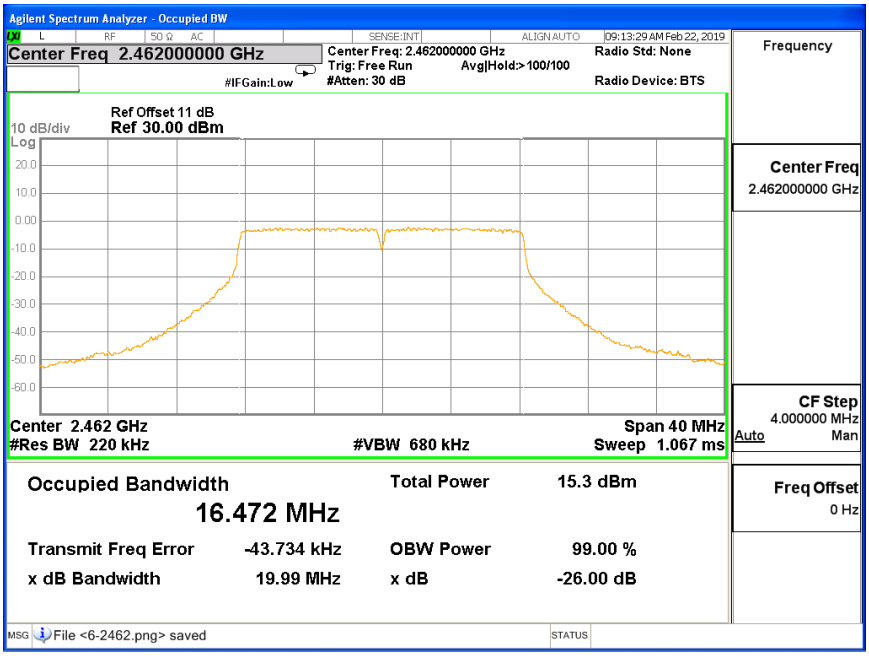
99% BANDWIDTH LOW CH



99%BANDWIDTH MID CH



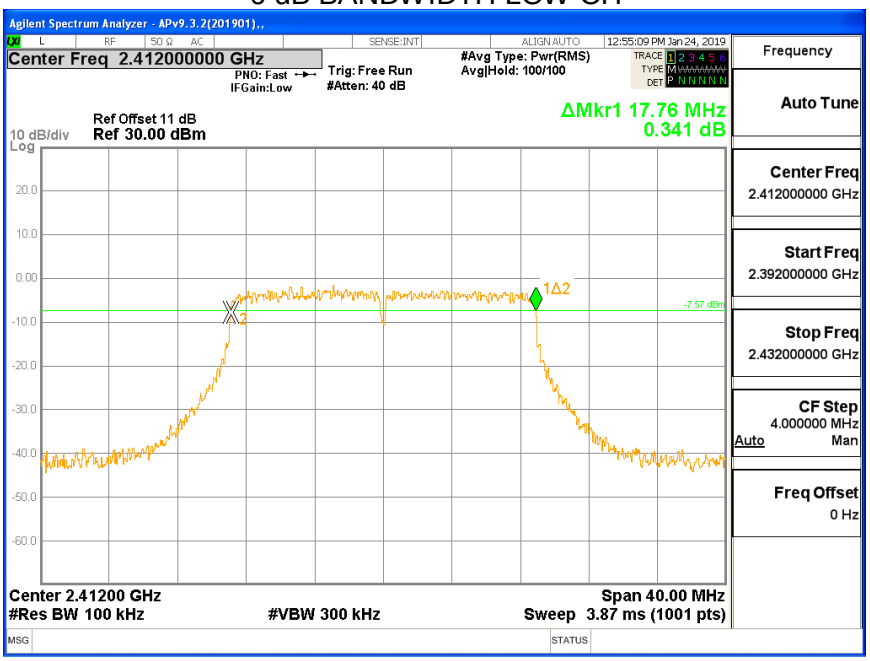
99% BANDWIDTH HIGH CH



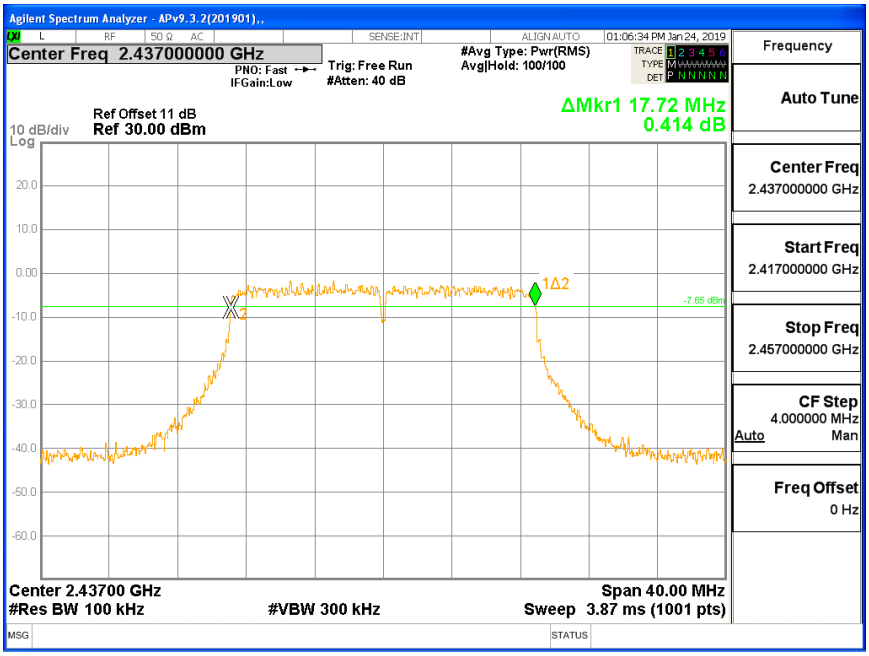
8.2.3. 802.11n HT20 MODE

Channel	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (kHz)	Result
Low	17.76	17.654	≥500	Pass
Middle	17.72	17.652	≥500	Pass
High	17.80	17.649	≥500	Pass

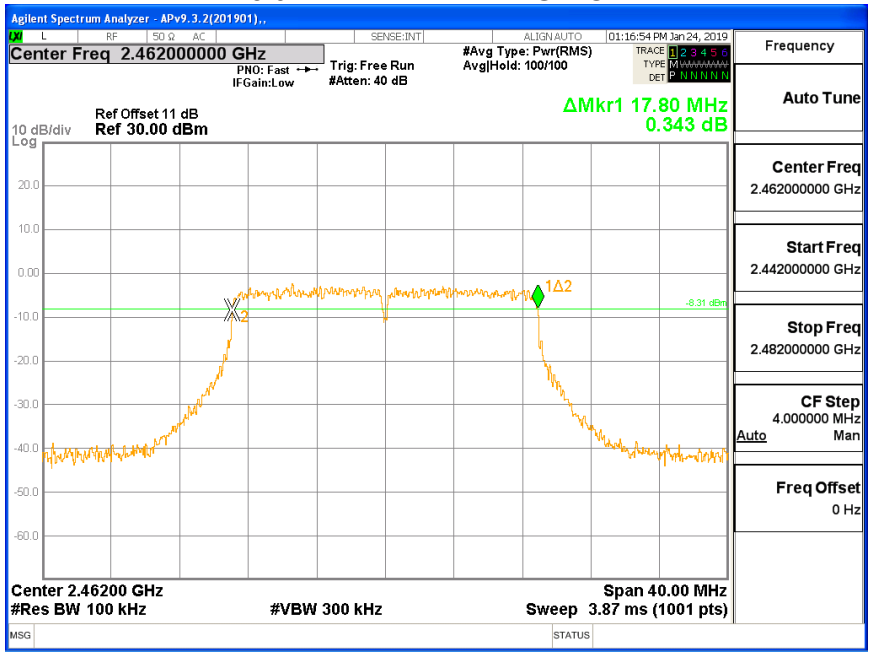
6 dB BANDWIDTH LOW CH



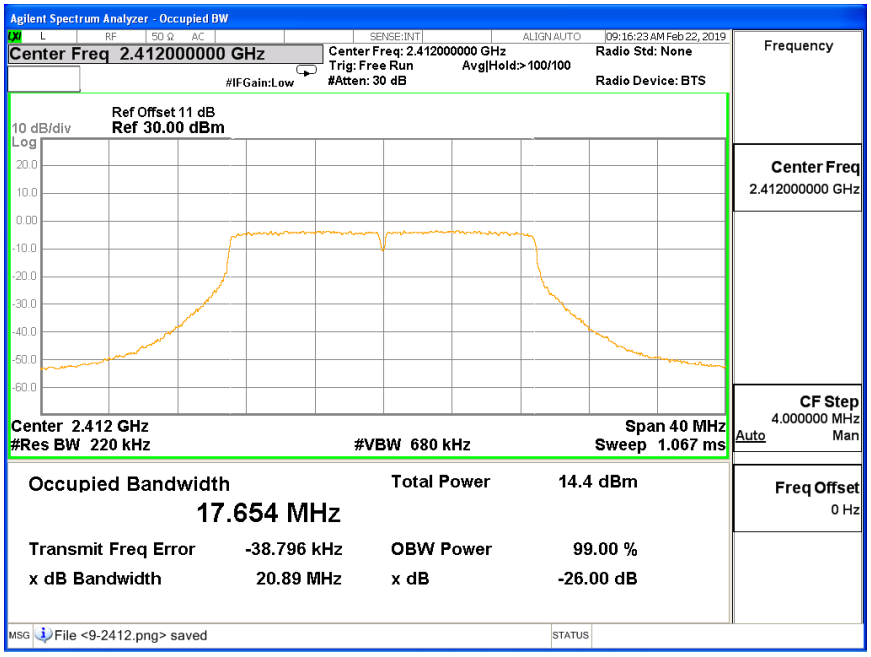
6 dB BANDWIDTH MID CH



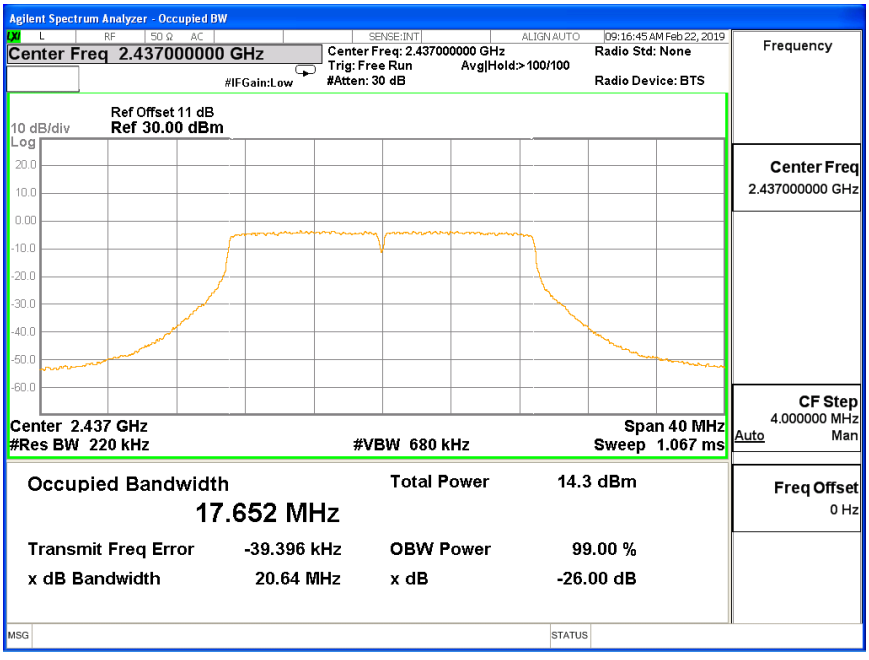
6 dB BANDWIDTH HIGH CH



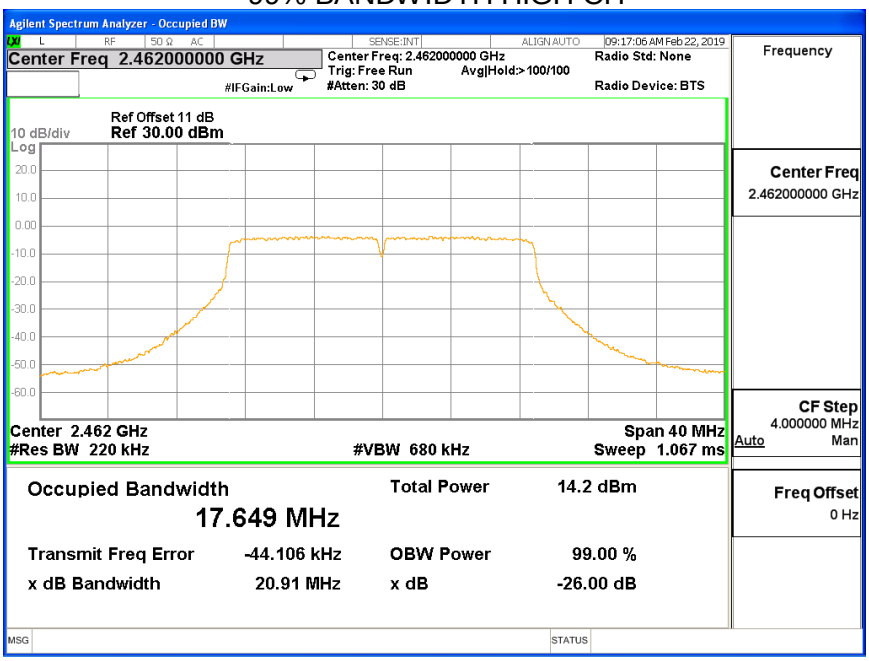
99%BANDWIDTH LOW CH



99% BANDWIDTH MID CH



99% BANDWIDTH HIGH CH



8.3. PEAK CONDUCTED OUTPUT POWER

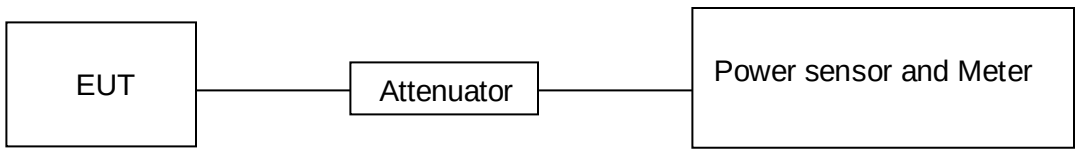
LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3) ISED RSS-247 5.4 (e)	Peak Output Power	1 watt or 30dBm	2400-2483.5

TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.
Measure the power of each channel.
Peak Detector use for Peak result.
AVG Detector use for AVG result.

TEST SETUP



TEST ENVIRONMENT

Temperature	22.3°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V,60Hz

RESULTS

8.3.1. 802.11b MODE

Test Channel	Maximum Conducted Output Power(PK)	Maximum Conducted Output Power(AV)	LIMIT
	(dBm)	(dBm)	dBm
Low	19.46	15.58	30
Middle	19.7	15.50	30
High	19.19	15.17	30

8.3.2. 802.11g MODE

Test Channel	Maximum Conducted Output Power(PK)	Maximum Conducted Output Power(AV)	LIMIT
	(dBm)	(dBm)	dBm
Low	20.16	13.64	30
Middle	20.34	13.44	30
High	19.84	13.33	30

8.3.3. 802.11n HT20 MODE

Test Channel	Maximum Conducted Output Power(PK)	Maximum Conducted Output Power(AV)	LIMIT
	(dBm)	(dBm)	dBm
Low	19.08	12.36	30
Middle	19.08	12.27	30
High	18.67	12.23	30

8.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.247 (e) ISED RSS-247 5.2 (b)	Power Spectral Density	8 dBm/3 kHz	2400-2483.5

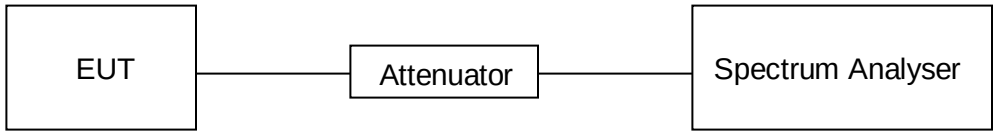
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	3 kHz ≤ RBW ≤100 kHz
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST SETUP



TEST ENVIRONMENT

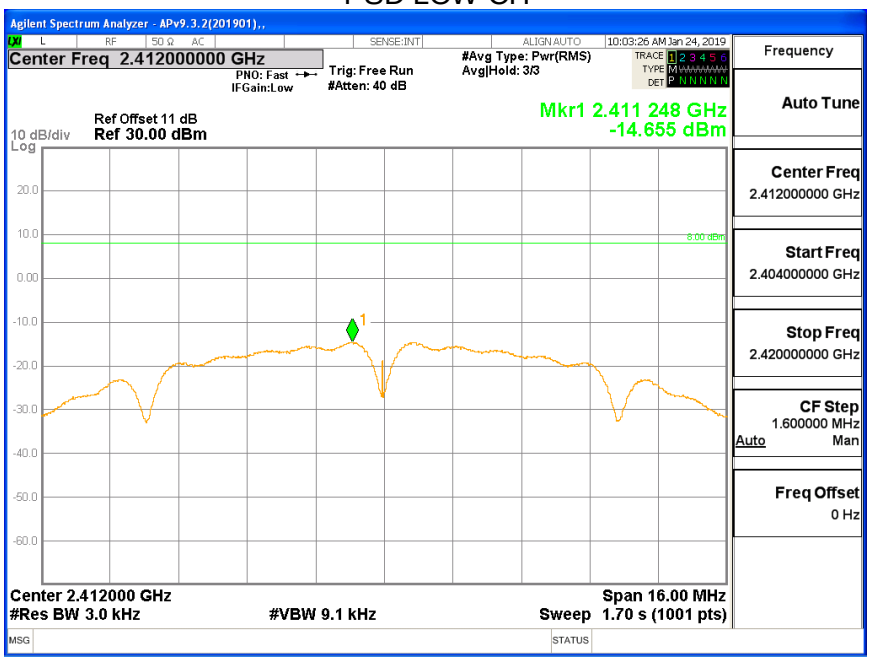
Temperature	22.3°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V,60Hz

RESULTS

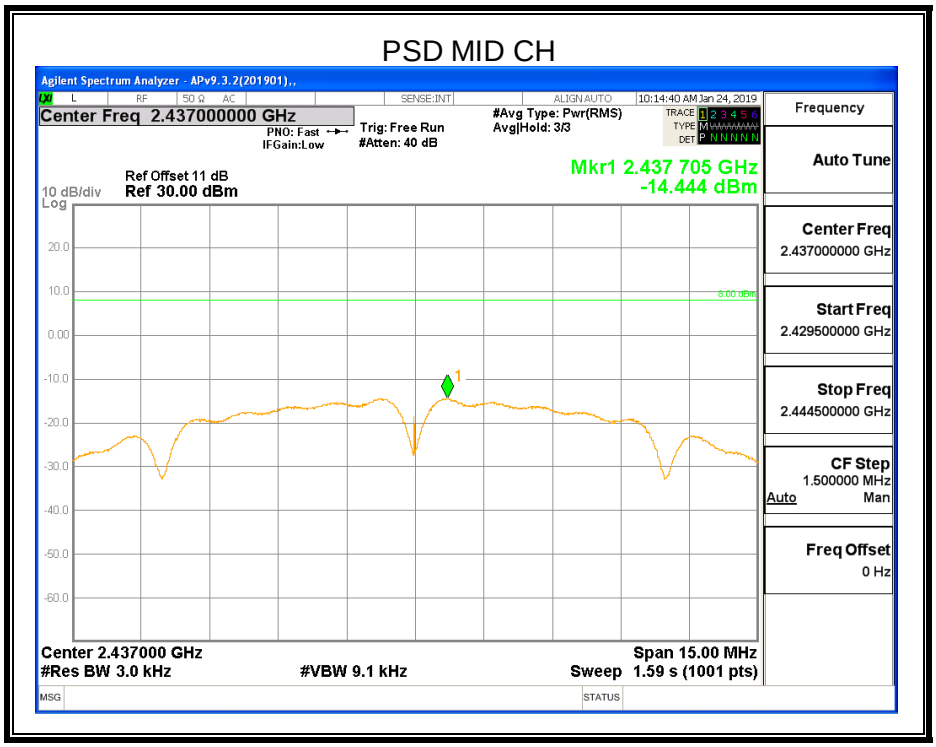
8.4.1. 802.11b MODE

Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	-14.655	8	PASS
Middle	-14.444	8	PASS
High	-14.737	8	PASS

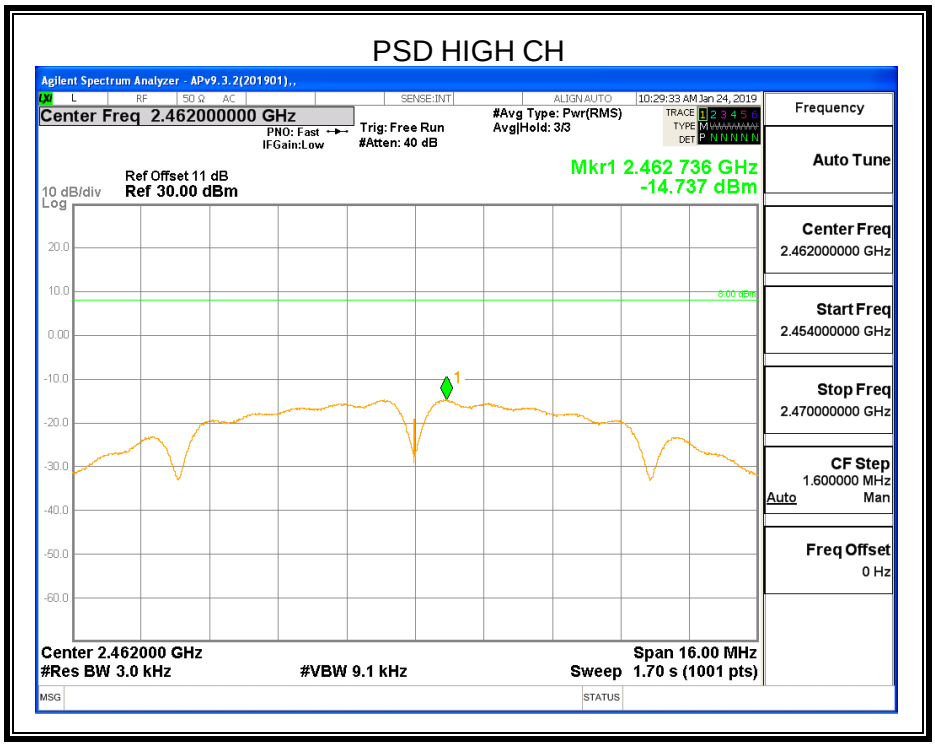
PSD LOW CH



PSD MID CH



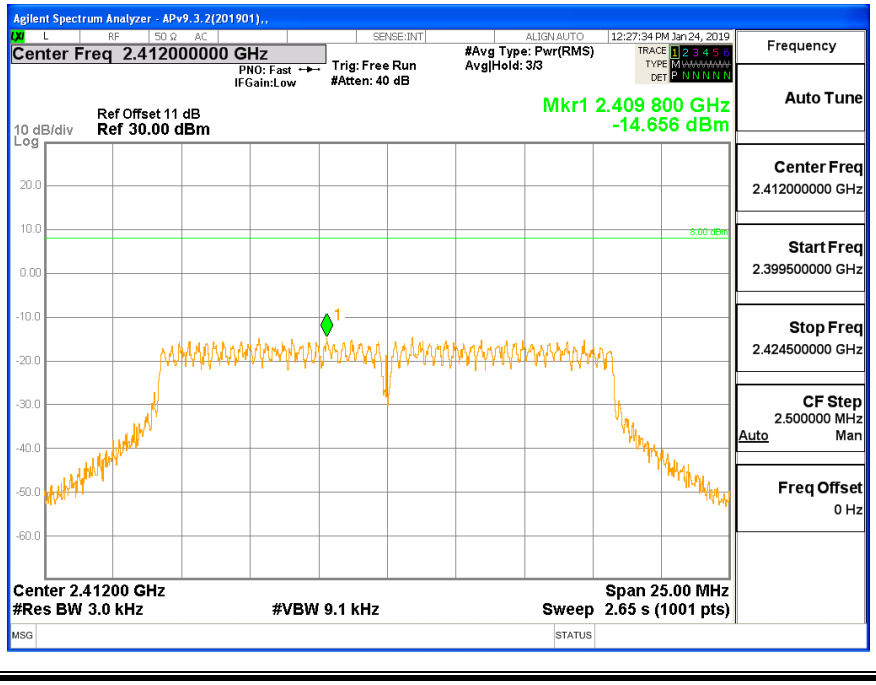
PSD HIGH CH



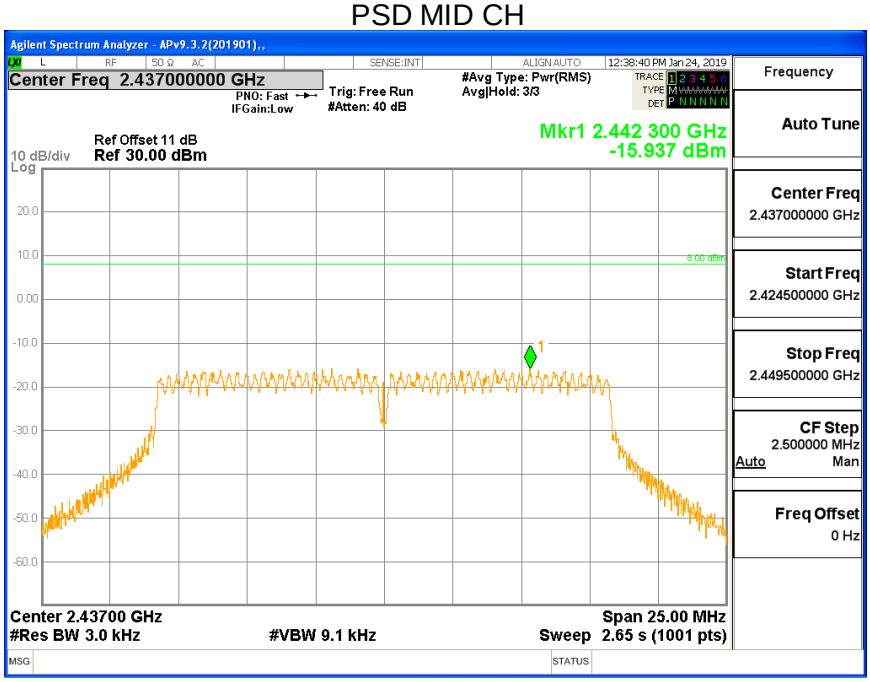
8.4.2. 802.11g MODE

Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	-14.656	8	PASS
Middle	-15.937	8	PASS
High	-15.567	8	PASS

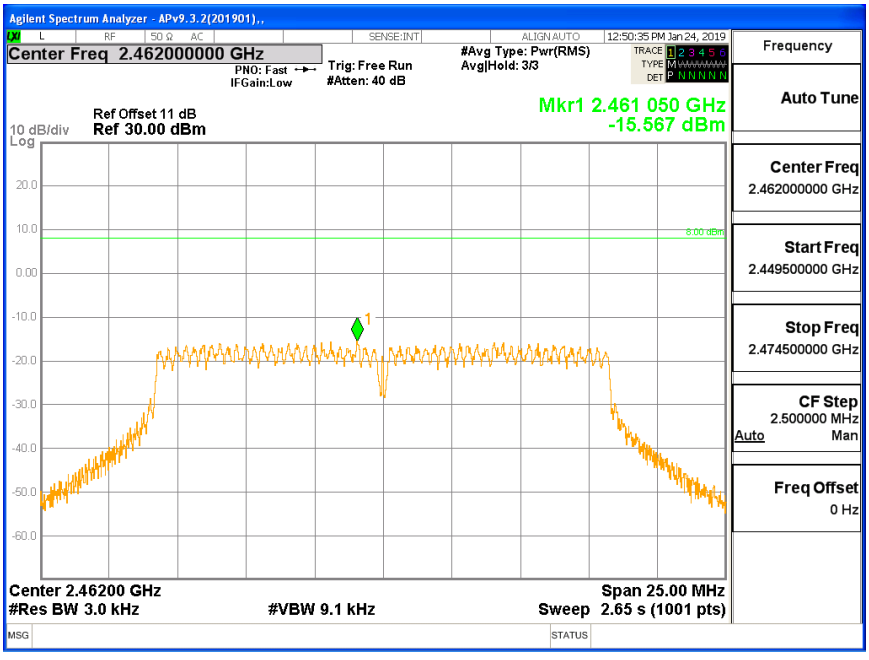
PSD LOW CH



PSD MID CH



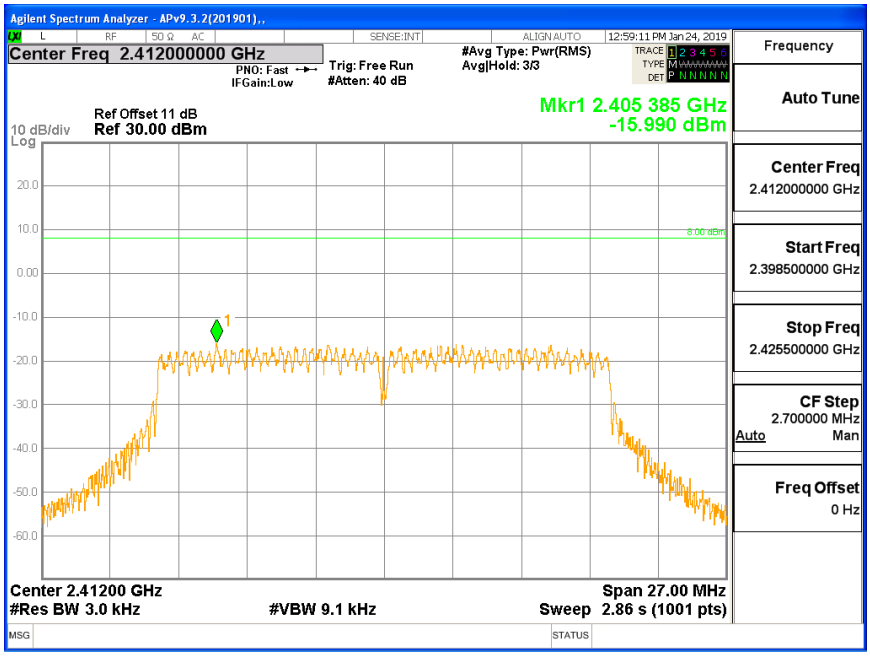
PSD HIGH CH



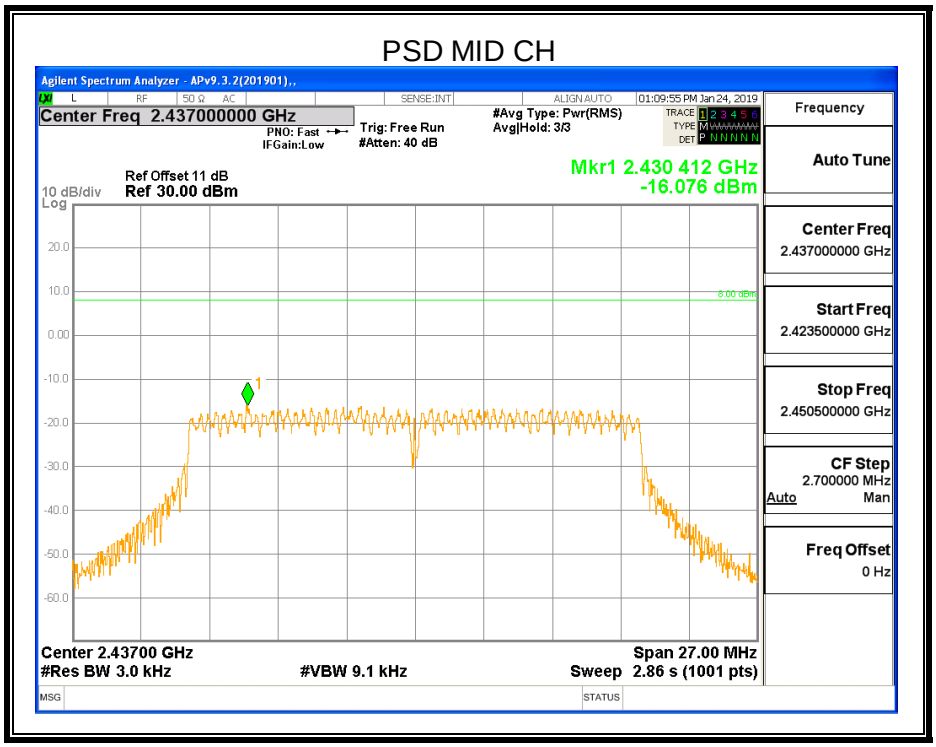
8.4.3. 802.11n HT20 MODE

Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	-15.990	8	PASS
Middle	-16.076	8	PASS
High	-15.838	8	PASS

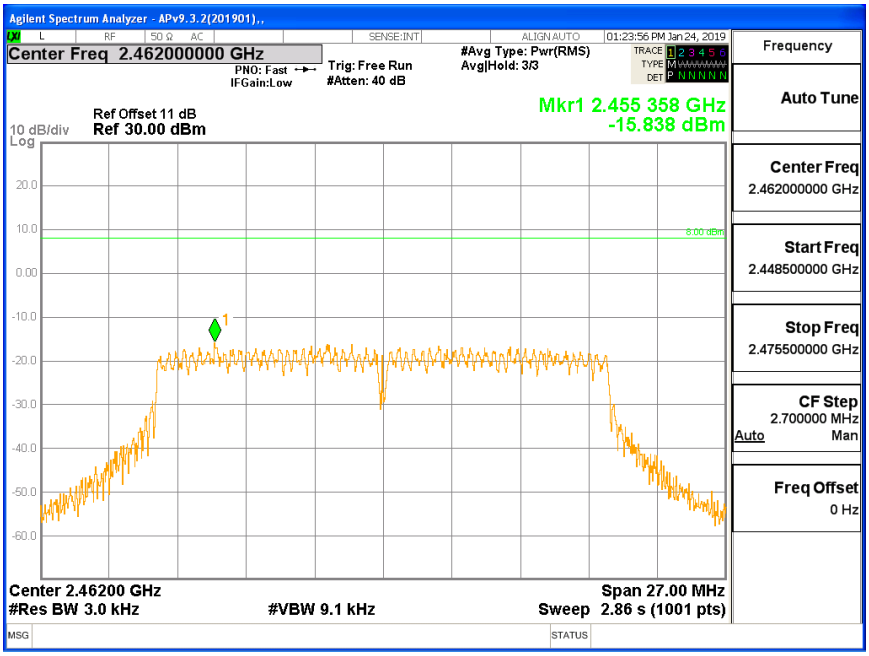
PSD LOW CH



PSD MID CH



PSD HIGH CH



8.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d) ISED RSS-247 5.5	Conducted Bandedge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

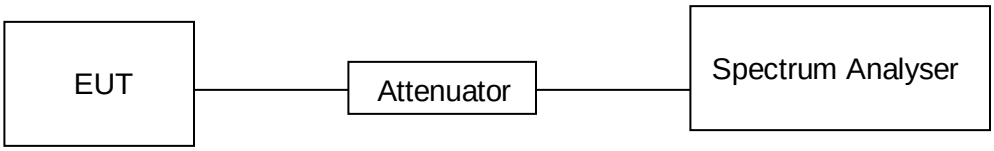
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100K
VBW	≥3 × RBW
measurement points	≥span/RBW
Trace	Max hold
Sweep time	Auto couple.

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

TEST SETUP



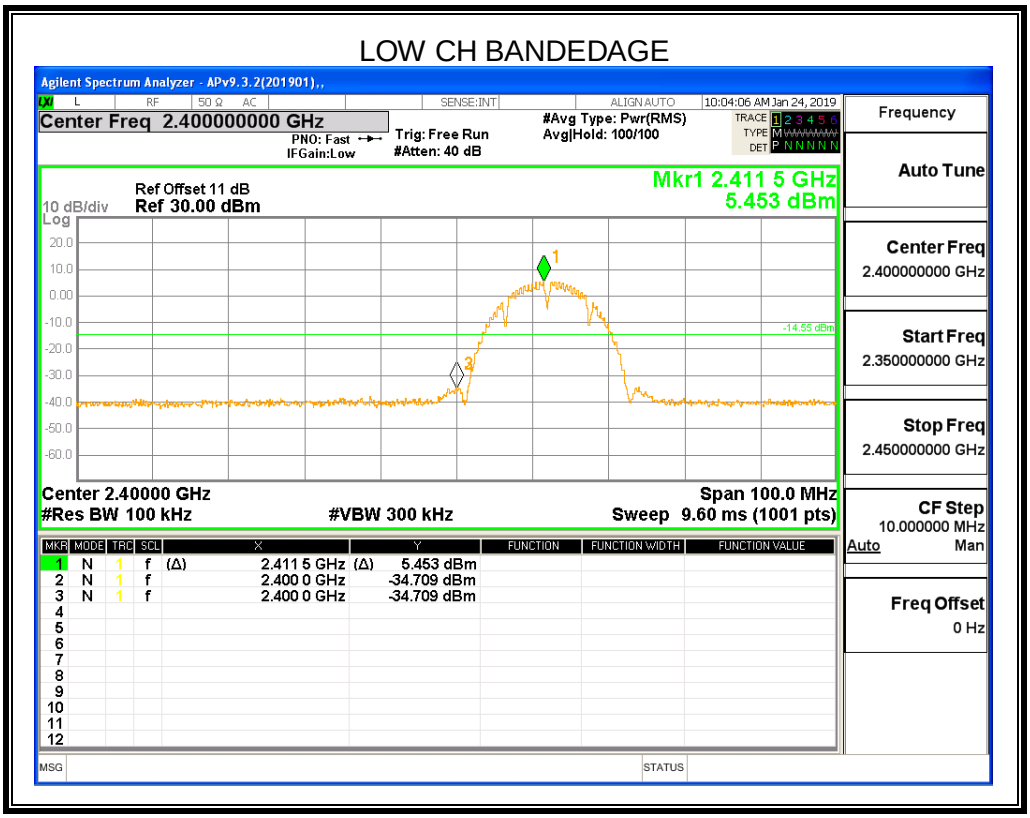
TEST ENVIRONMENT

Temperature	22.3°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V,60Hz

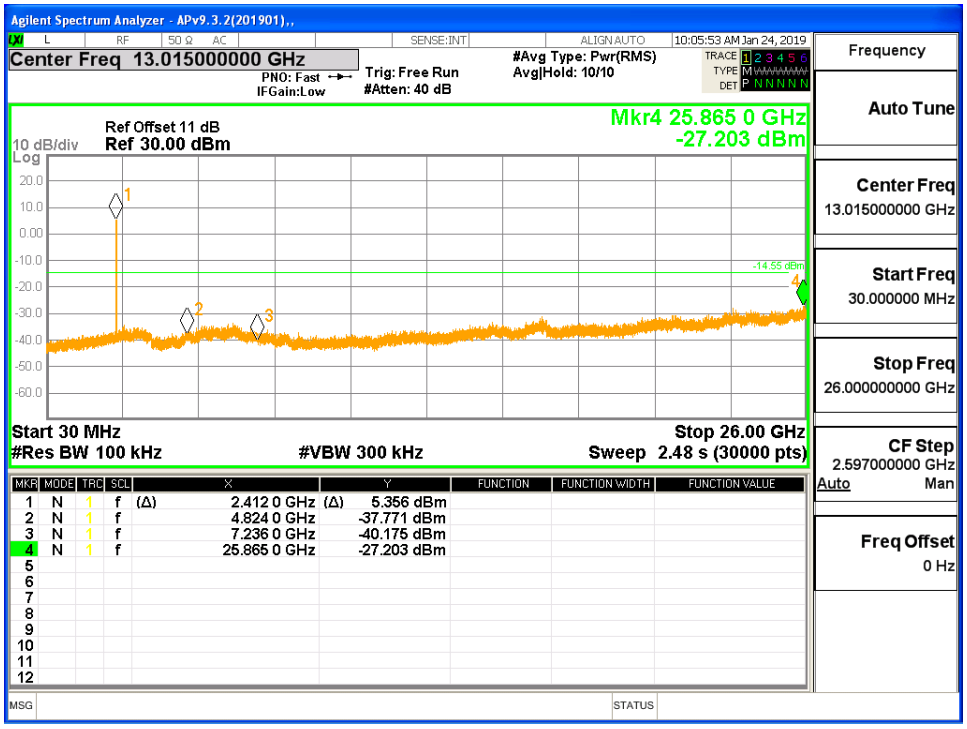
RESULTS

8.5.1. 802.11b MODE

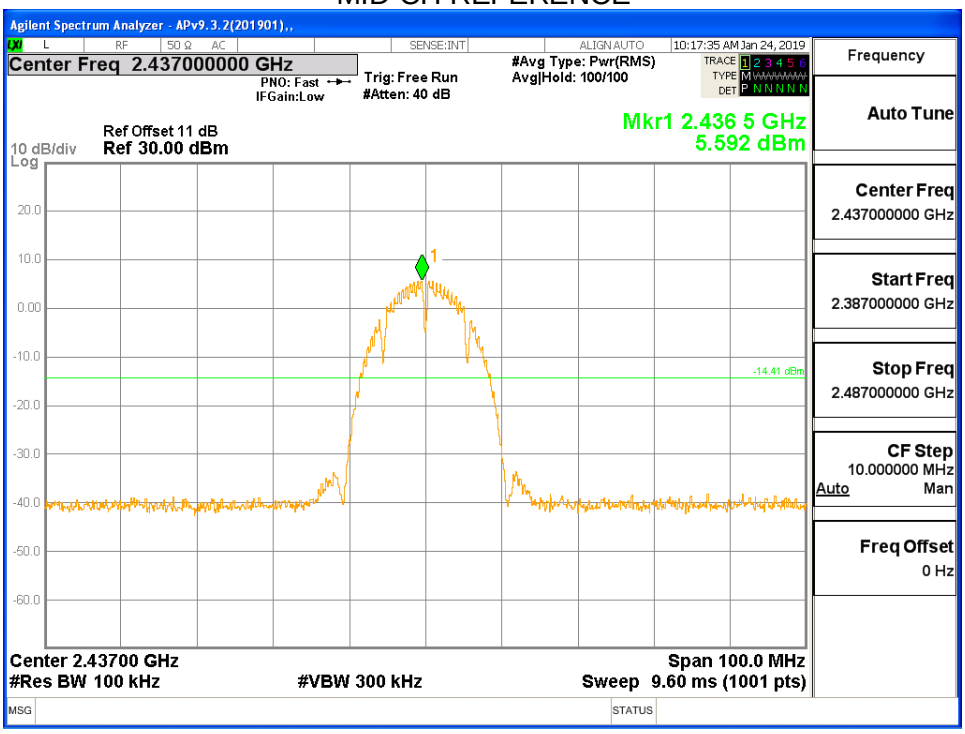
LOW CH BANDEDAGE



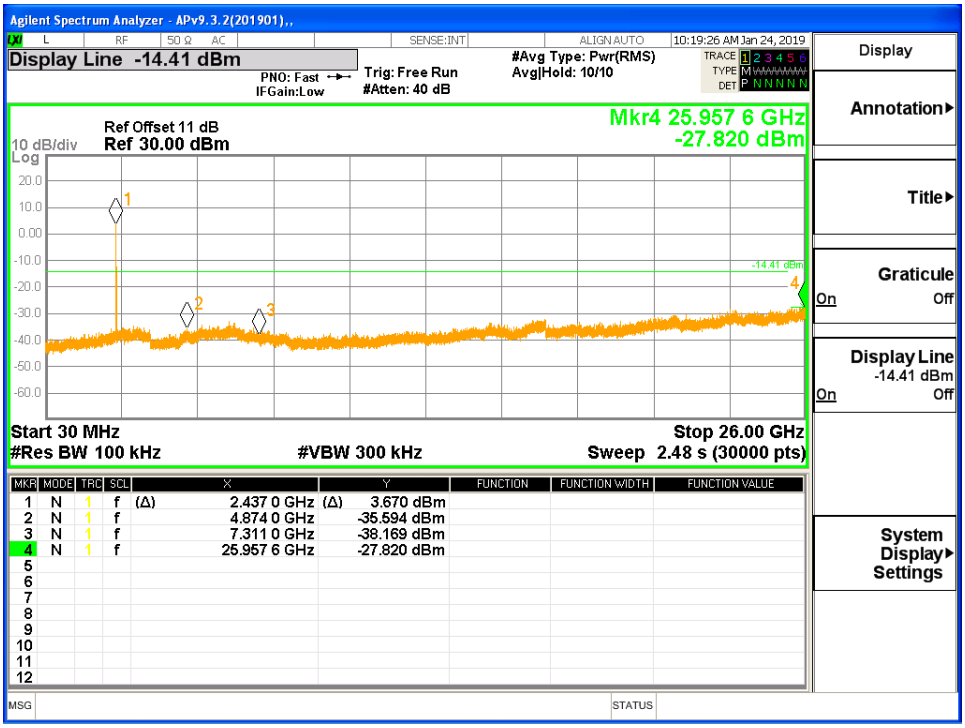
LOW CH SPURIOUS EMISSIONS 30M-26G



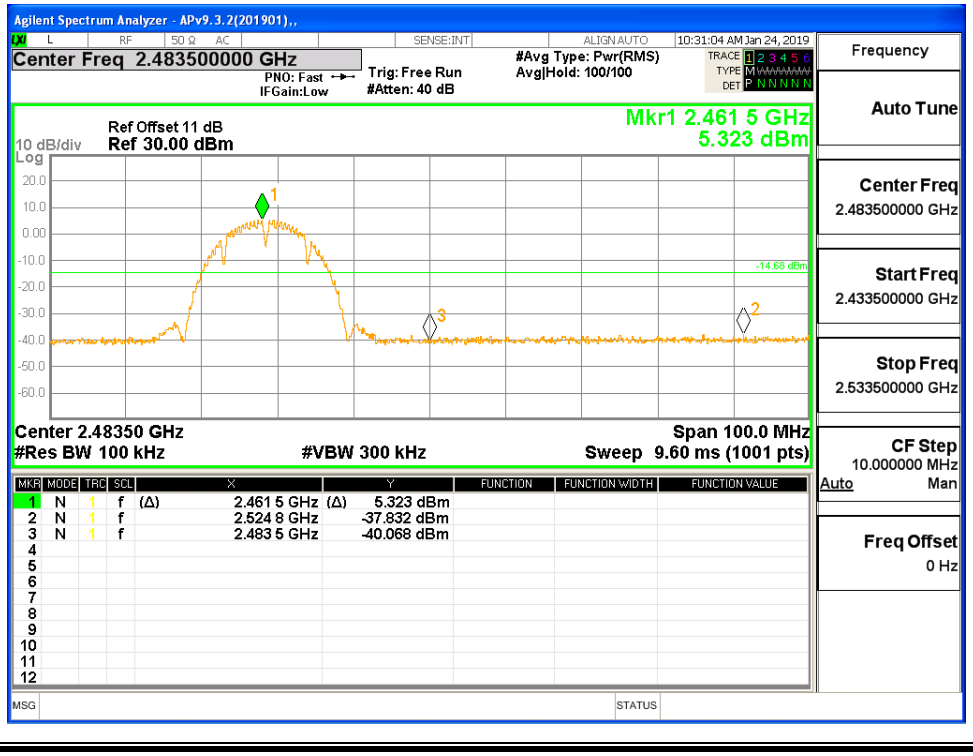
MID CH REFERENCE



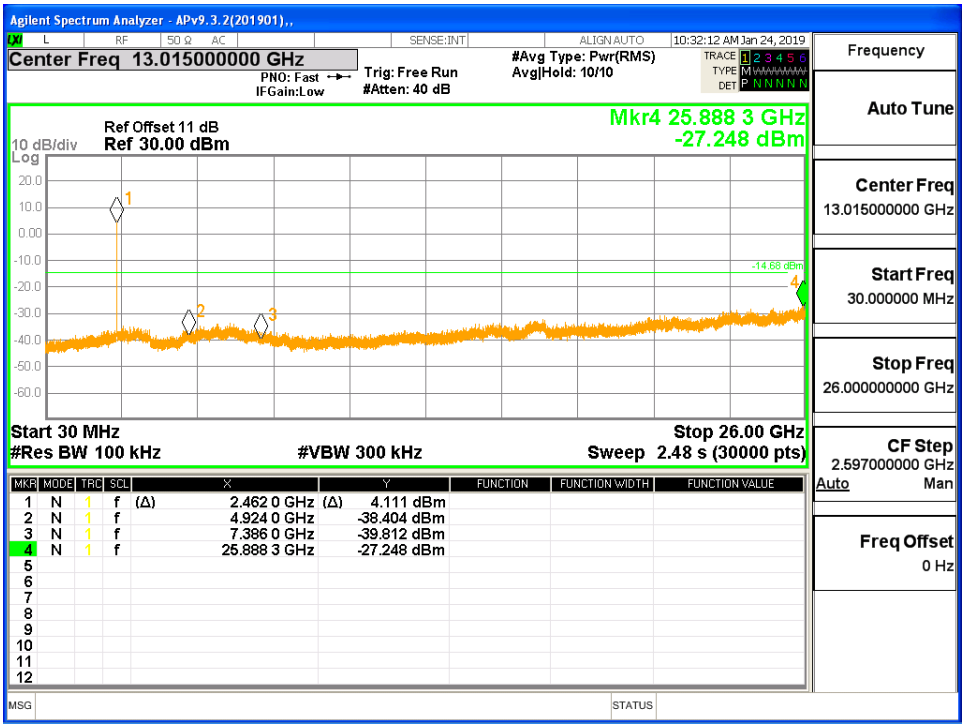
MID CH SPURIOUS EMISSIONS 30M-26G



HIGH CH BANDEDAGE

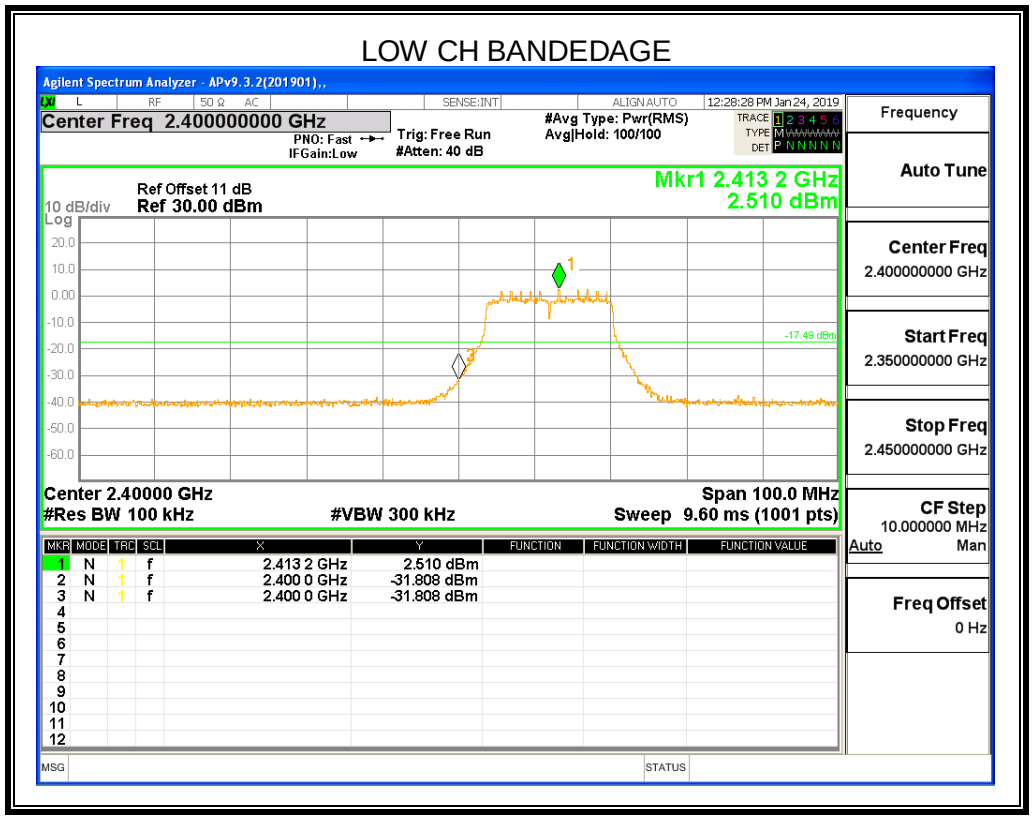


HIGH CH SPURIOUS EMISSIONS 30M-26G

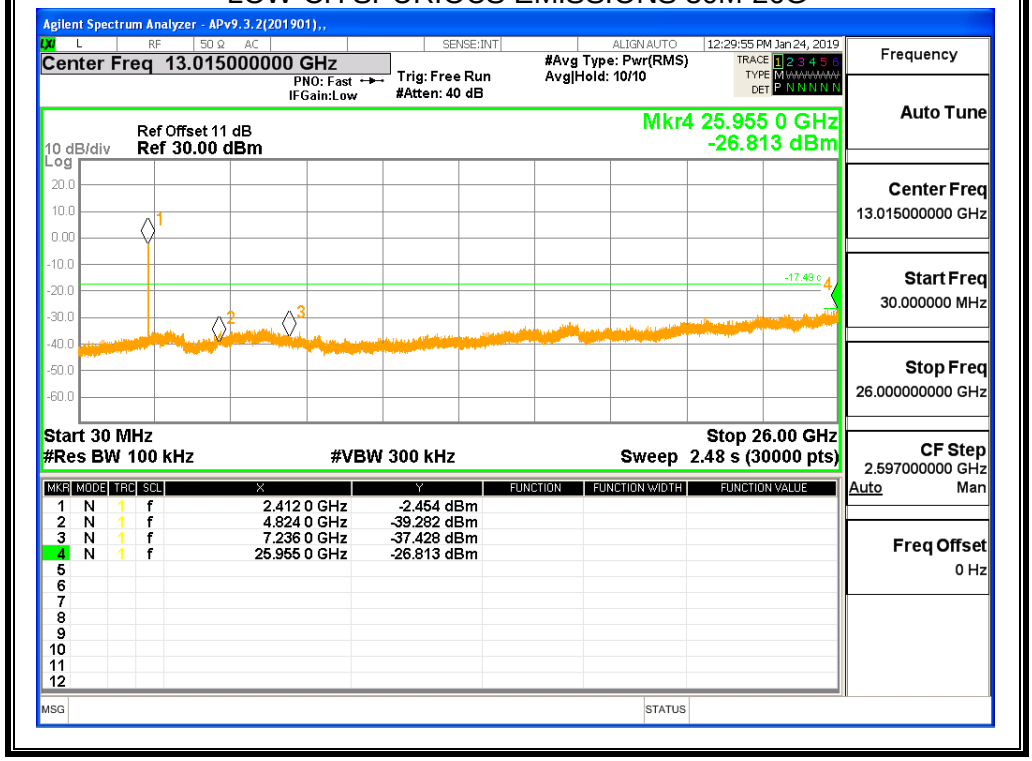


8.5.2. 802.11g MODE

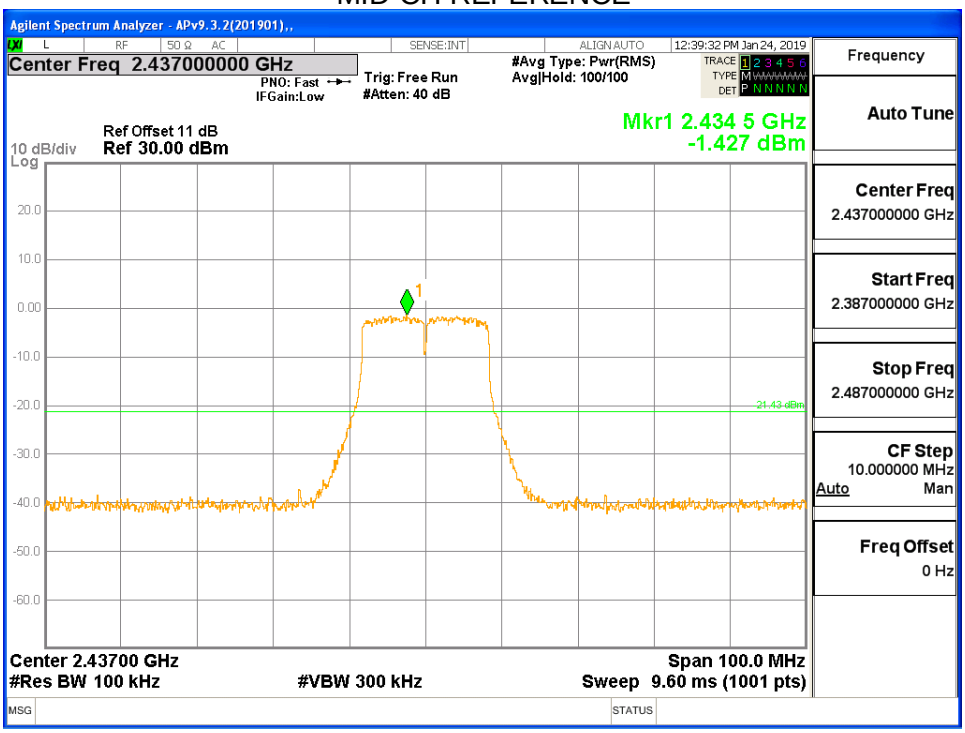
LOW CH BANDEDAGE



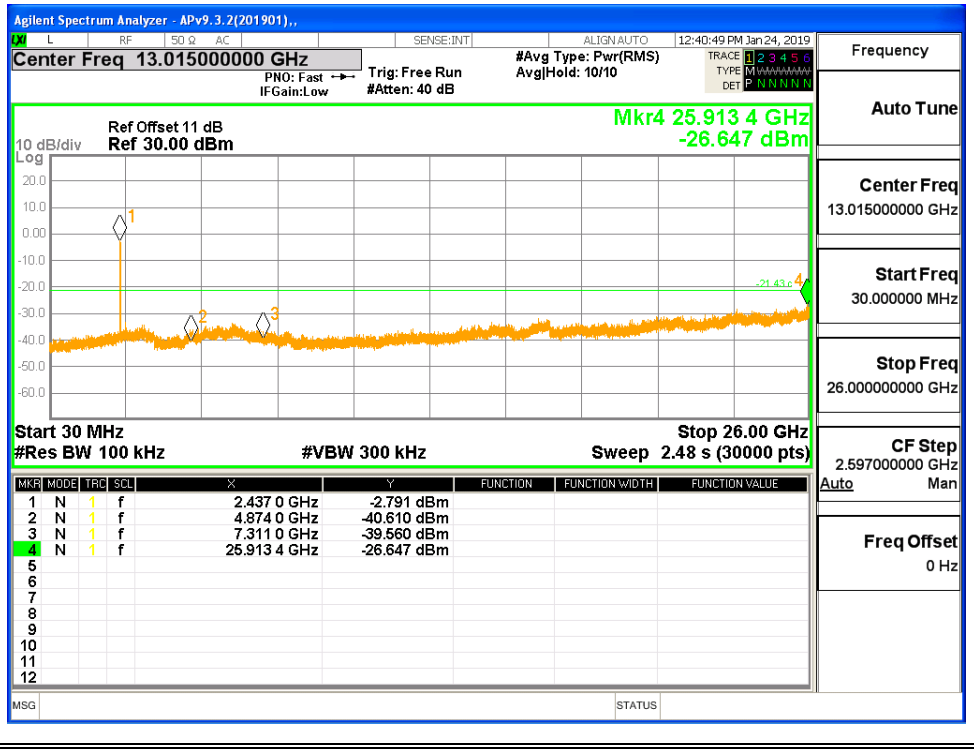
LOW CH SPURIOUS EMISSIONS 30M-26G



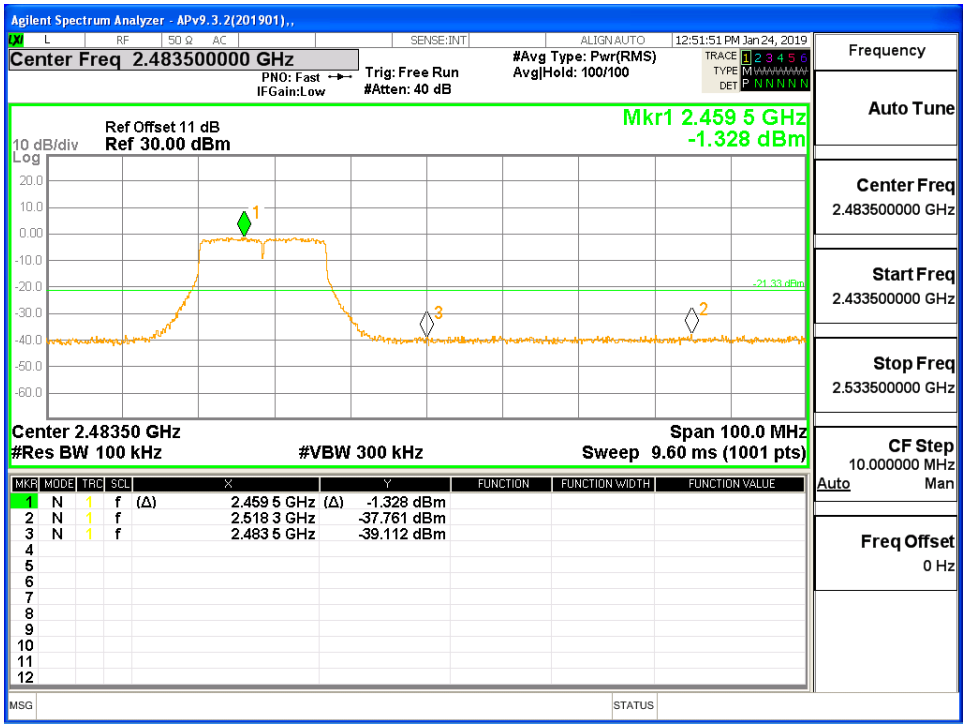
MID CH REFERENCE



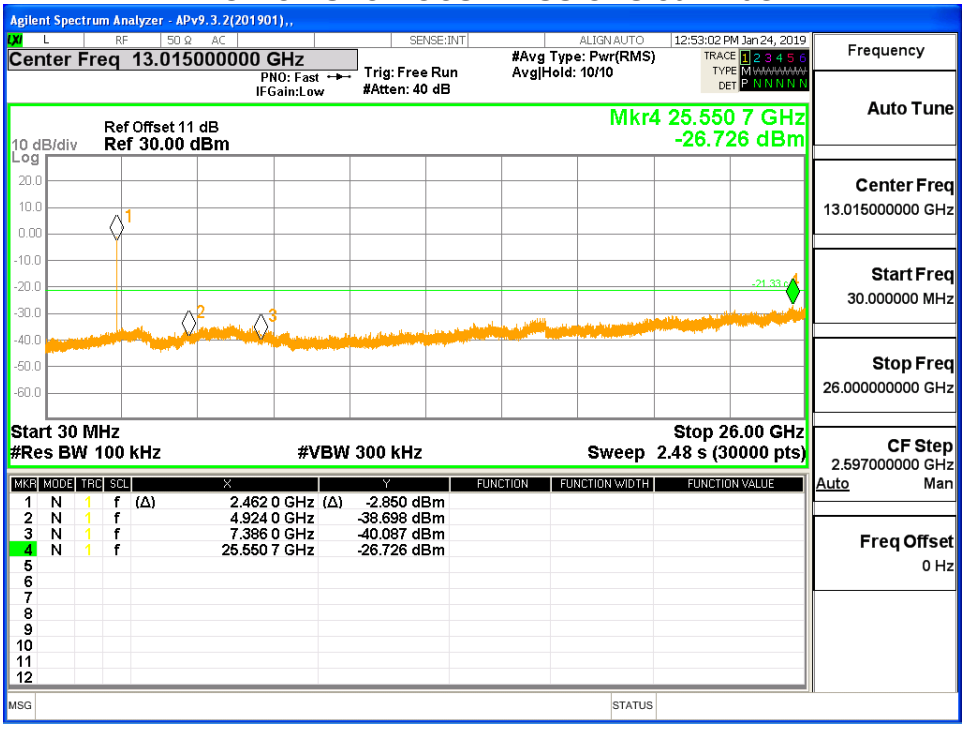
MID CH SPURIOUS EMISSIONS 30M-26G



HIGH CH BANDEDAGE

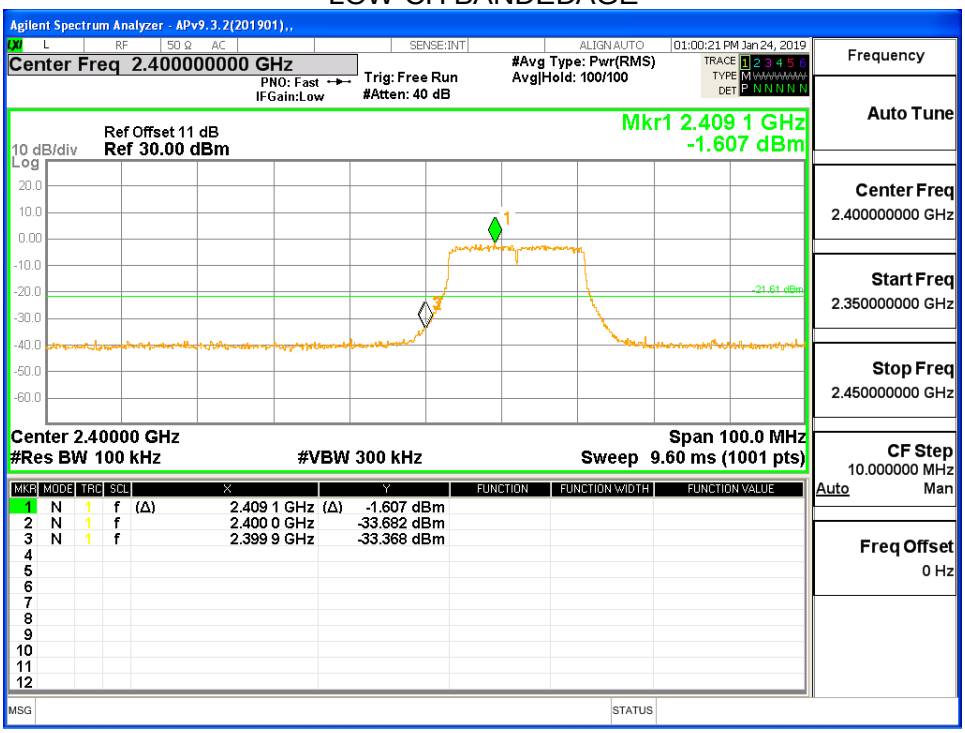


HIGH CH SPURIOUS EMISSIONS 30M-26G

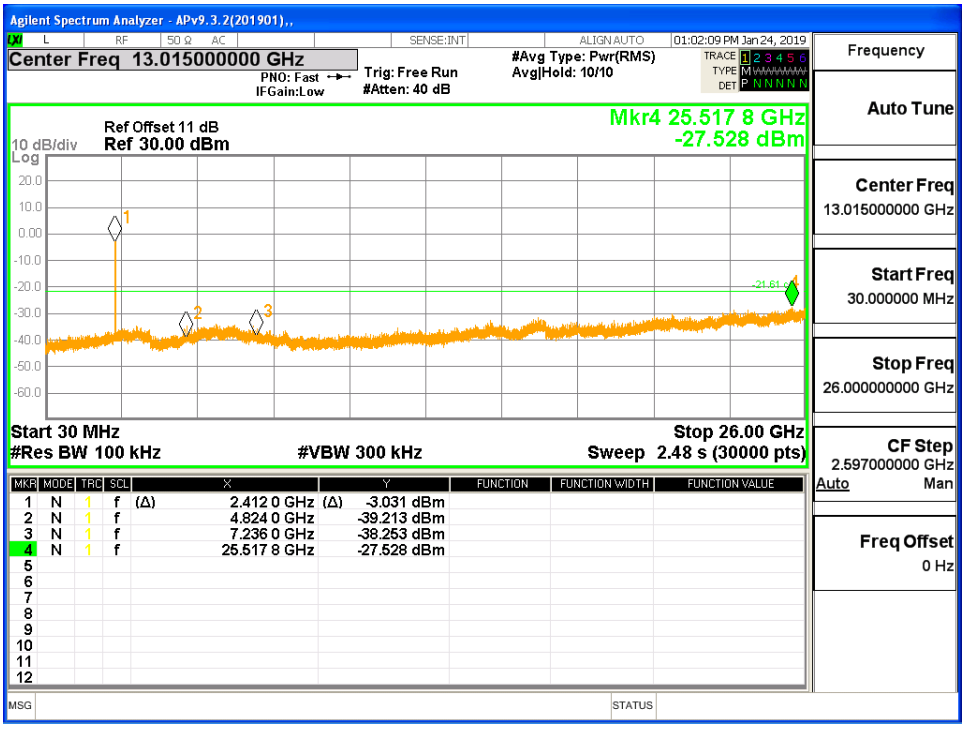


8.5.3. 802.11n HT20 MODE

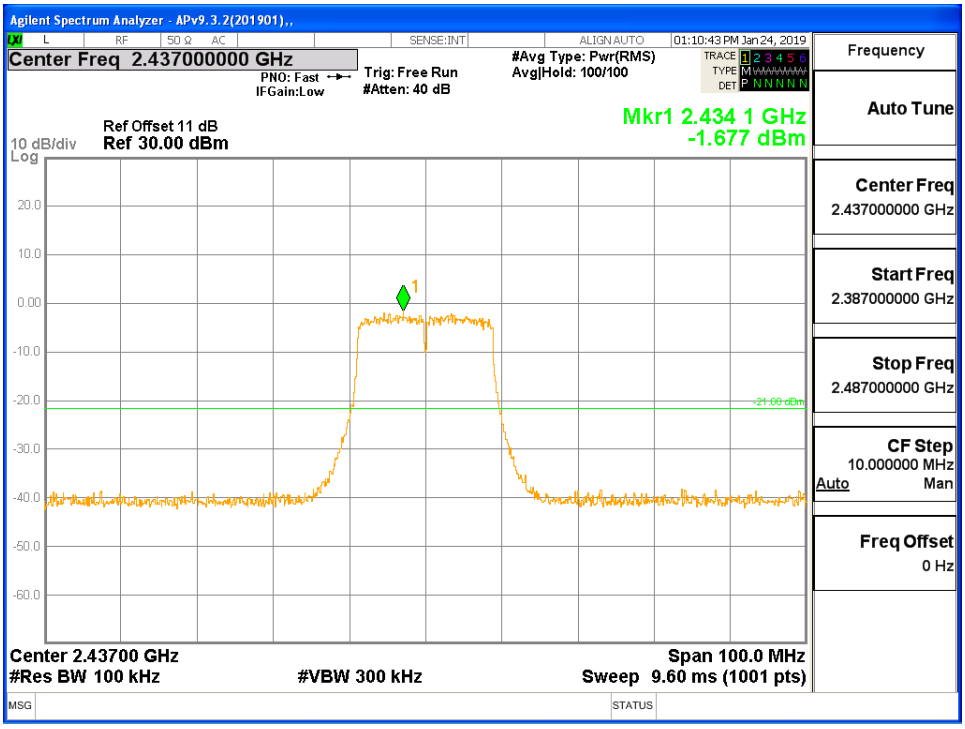
LOW CH BANDEDAGE



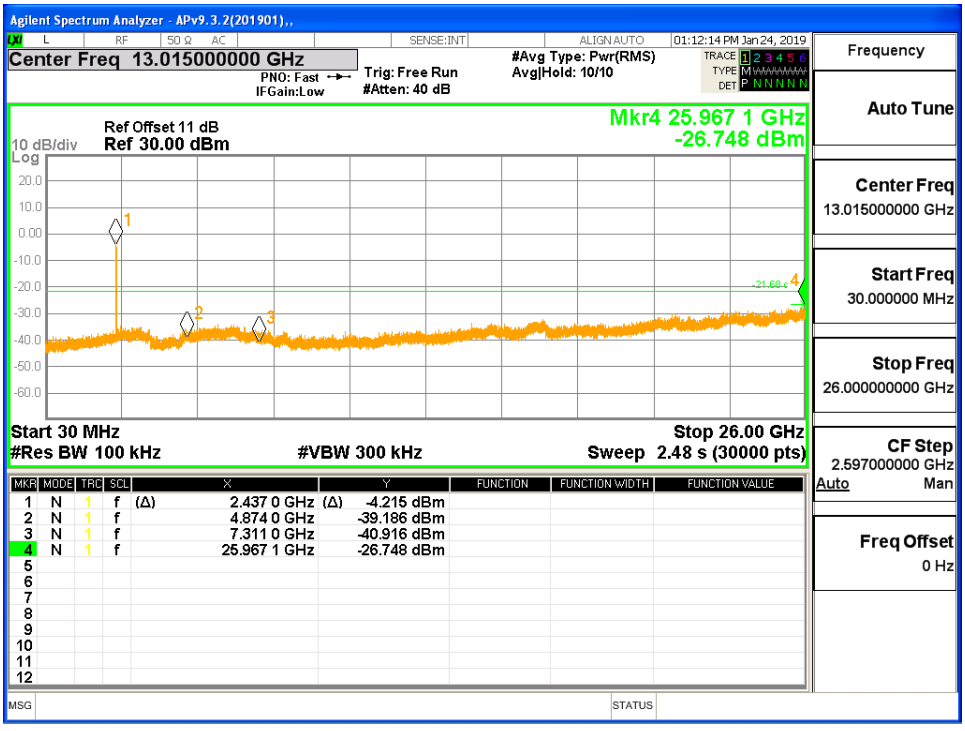
LOW CH SPURIOUS EMISSIONS 30M-26G



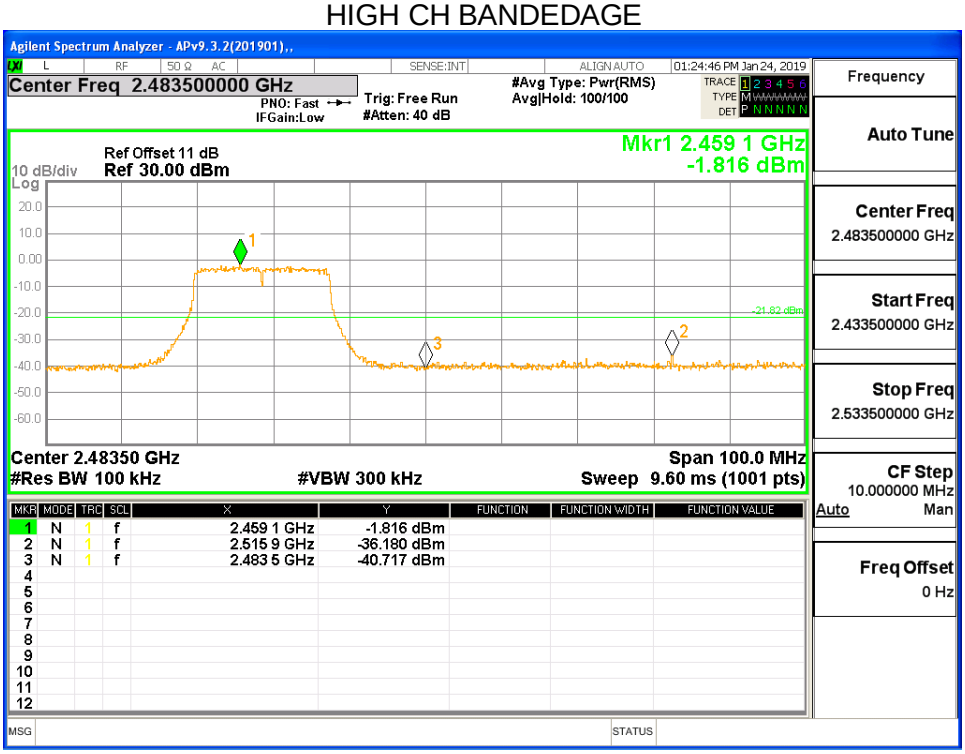
MID CH REFERENCE



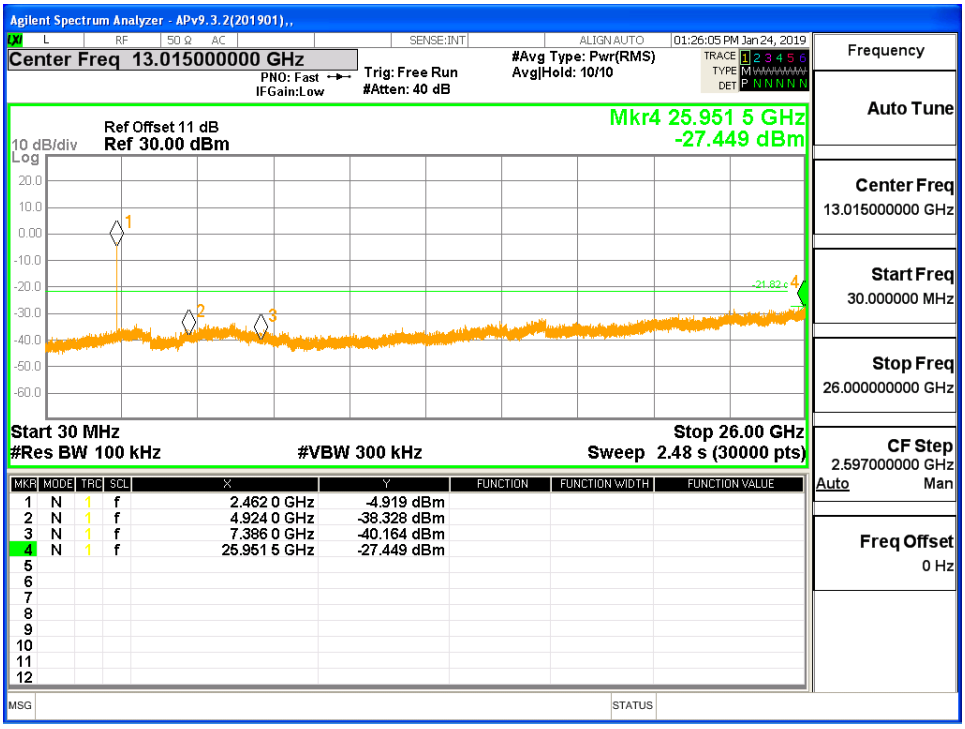
MID CH SPURIOUS EMISSIONS 30M-26G



HIGH CH BANDEDAGE



HIGH CH SPURIOUS EMISSIONS 30M-26G



9. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.205 and §15.209

Please refer to ISED RSS-GEN Clause 8.9 (Transmitter)

Radiation Disturbance Test Limit for FCC (Class B)(9KHz-1GHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

Radiation Disturbance Test Limit for FCC (Above 1G)

Frequency (MHz)	dB(uV/m) (at 3 meters)	
	Peak	Average
Above 1000	74	54

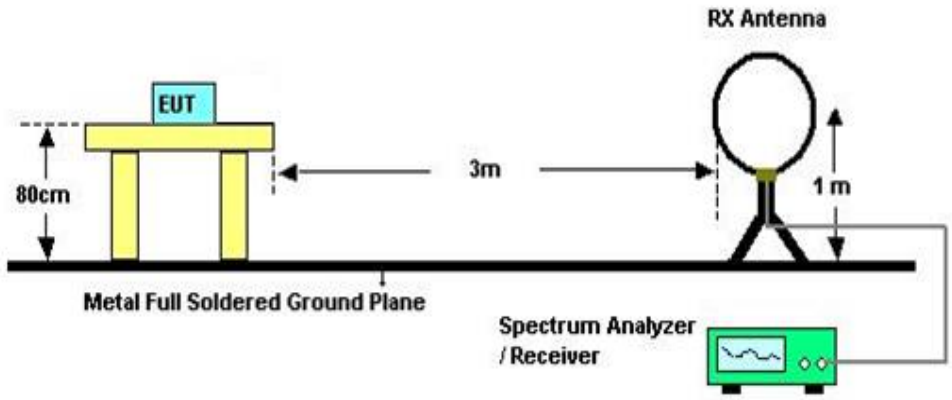
IC Restricted bands please refer to ISED RSS-GEN Clause 8.10
FCC Restricted bands of operation:

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	2690-2900	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	([2])
13.36-13.41			

Note: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

TEST SETUP AND PROCEDURE

Below 30MHz



The setting of the spectrum analyser

RBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/ Average
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

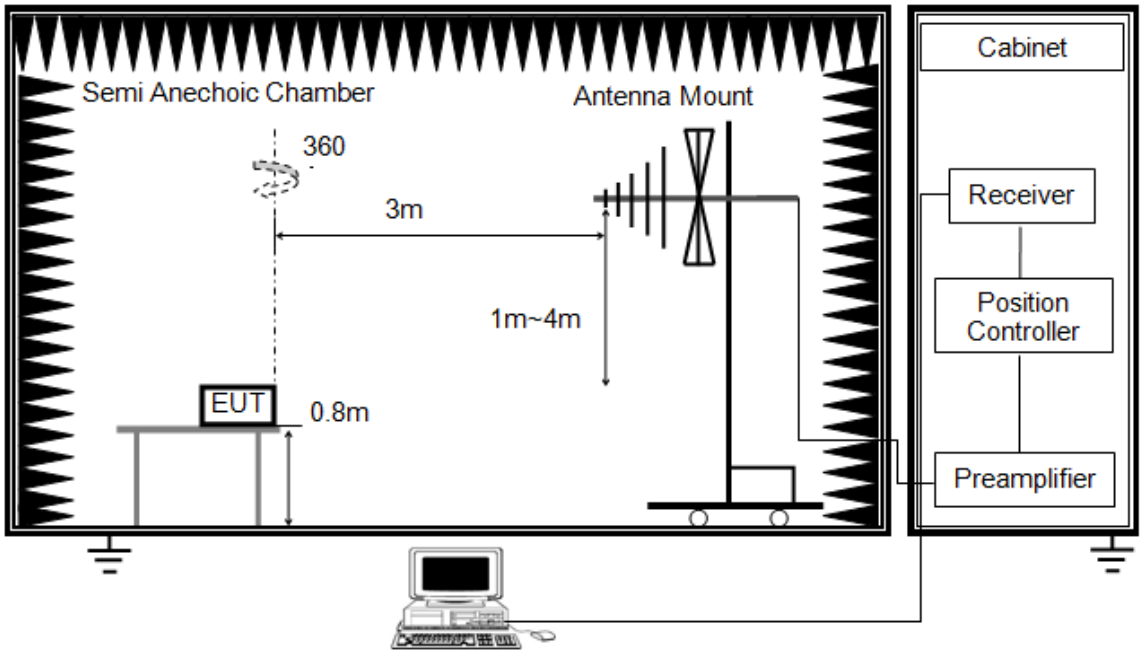
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

6. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1G



The setting of the spectrum analyser

RBW	120K
VBW	300K
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

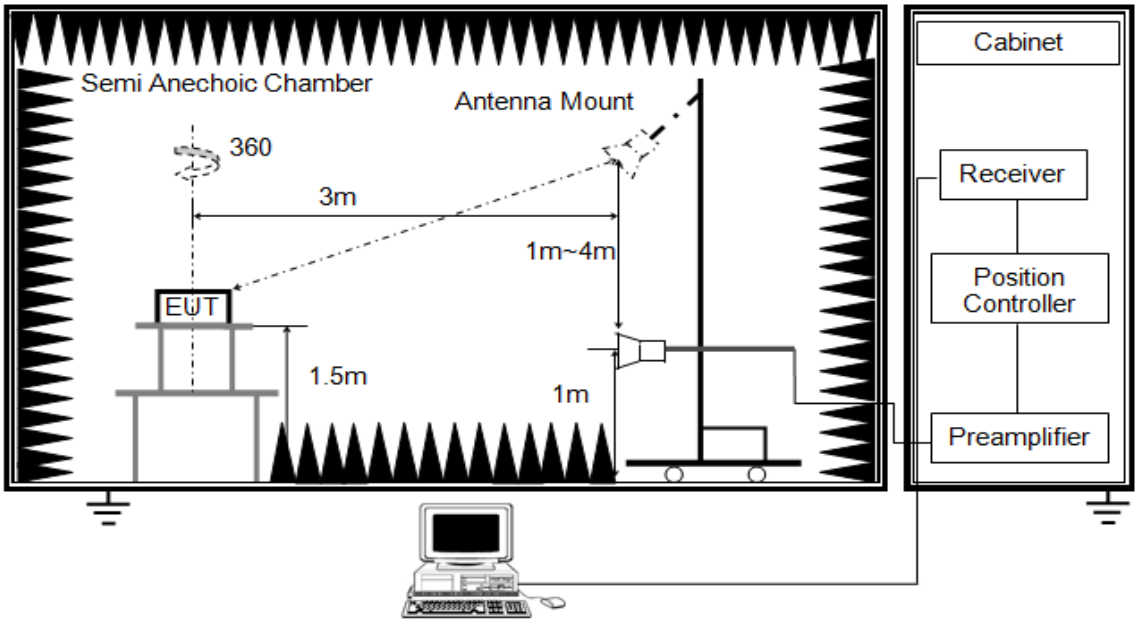
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

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

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

ABOVE 1G



The setting of the spectrum analyser

RBW	1M
VBW	PEAK: 3M AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

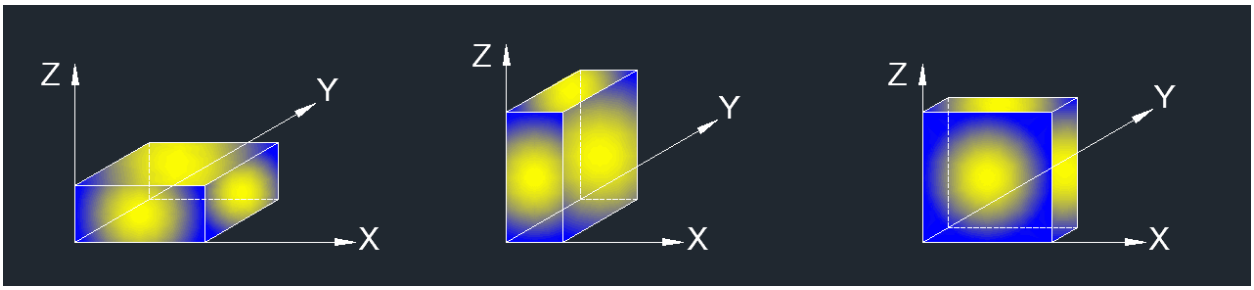
3. The EUT was placed on a turntable with 1.5m above ground.

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

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 8.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



Note 1: For below 1GHz radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: For above 1GHz radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (Y axis) data recorded in the report.

Note 3: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

TEST ENVIRONMENT

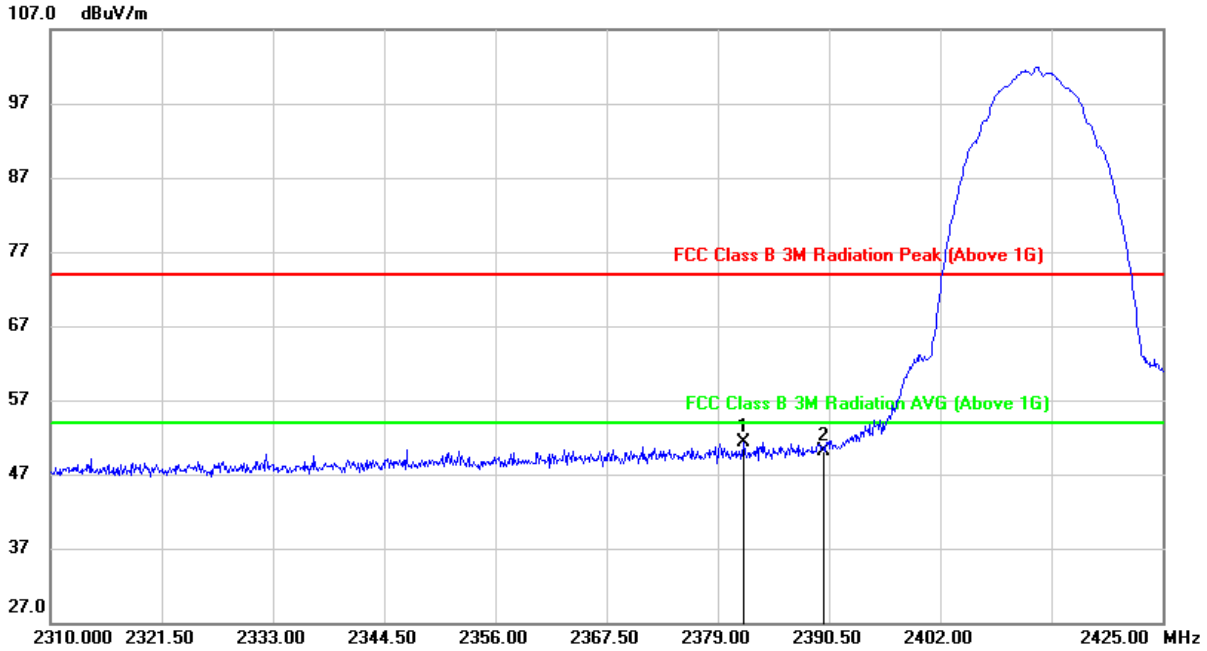
Temperature	22.1°C	Relative Humidity	49%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V,60Hz

9.1. RESTRICTED BANDEDGE

9.1.1. 802.11b MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

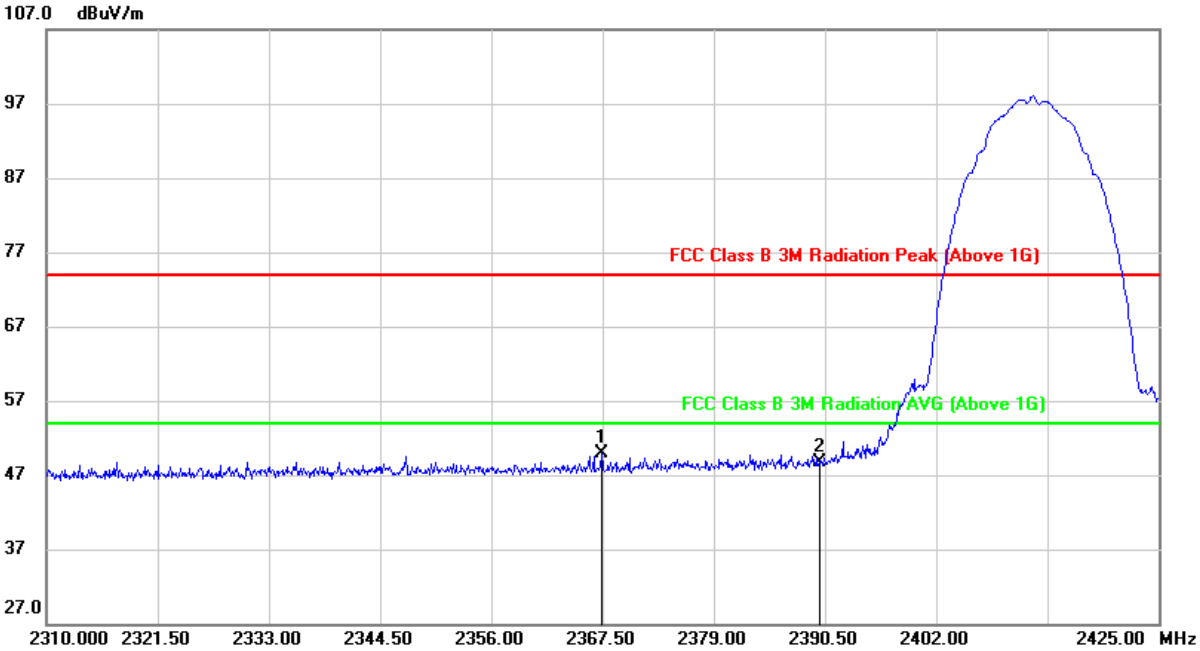


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2381.645	18.41	32.92	51.33	74.00	-22.67	peak
2	2390.000	17.19	32.94	50.13	74.00	-23.87	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

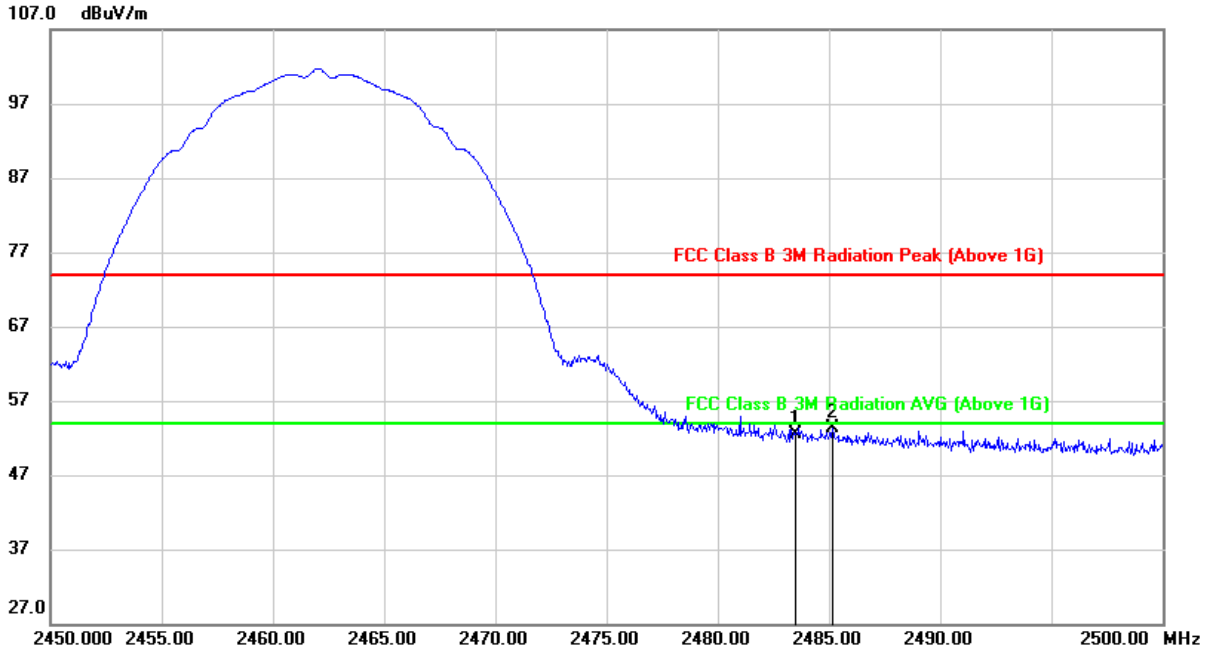


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2367.385	16.98	32.87	49.85	74.00	-24.15	peak
2	2390.000	15.72	32.94	48.66	74.00	-25.34	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK

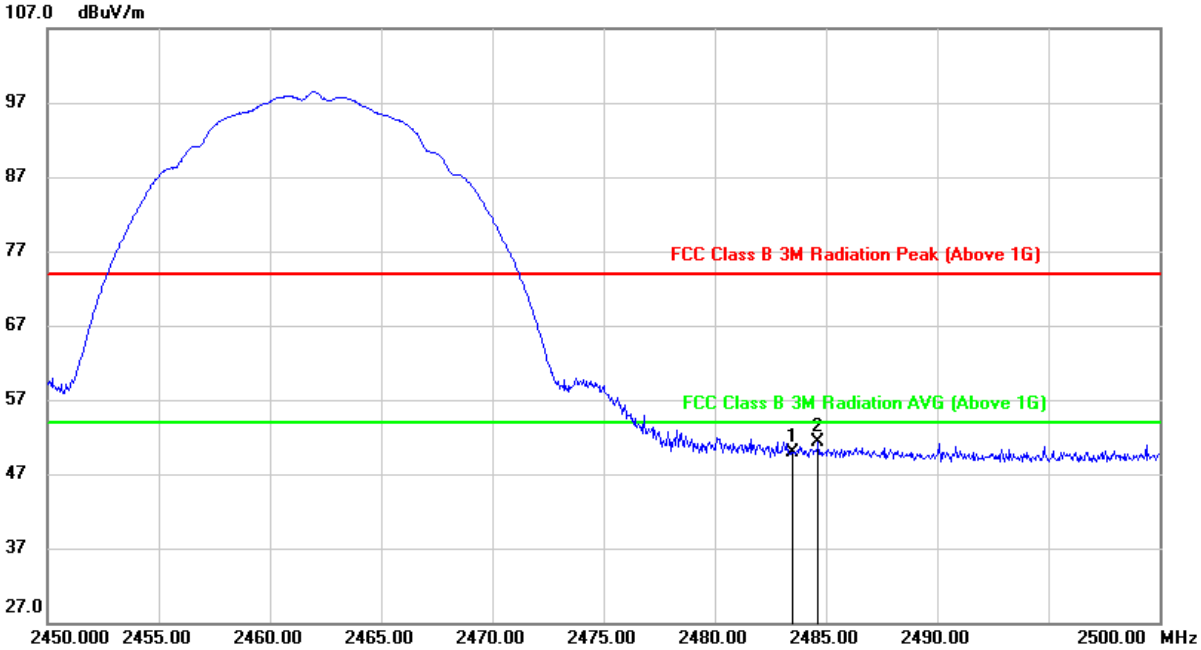


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	18.92	33.58	52.50	74.00	-21.50	peak
2	2485.150	19.64	33.59	53.23	74.00	-20.77	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



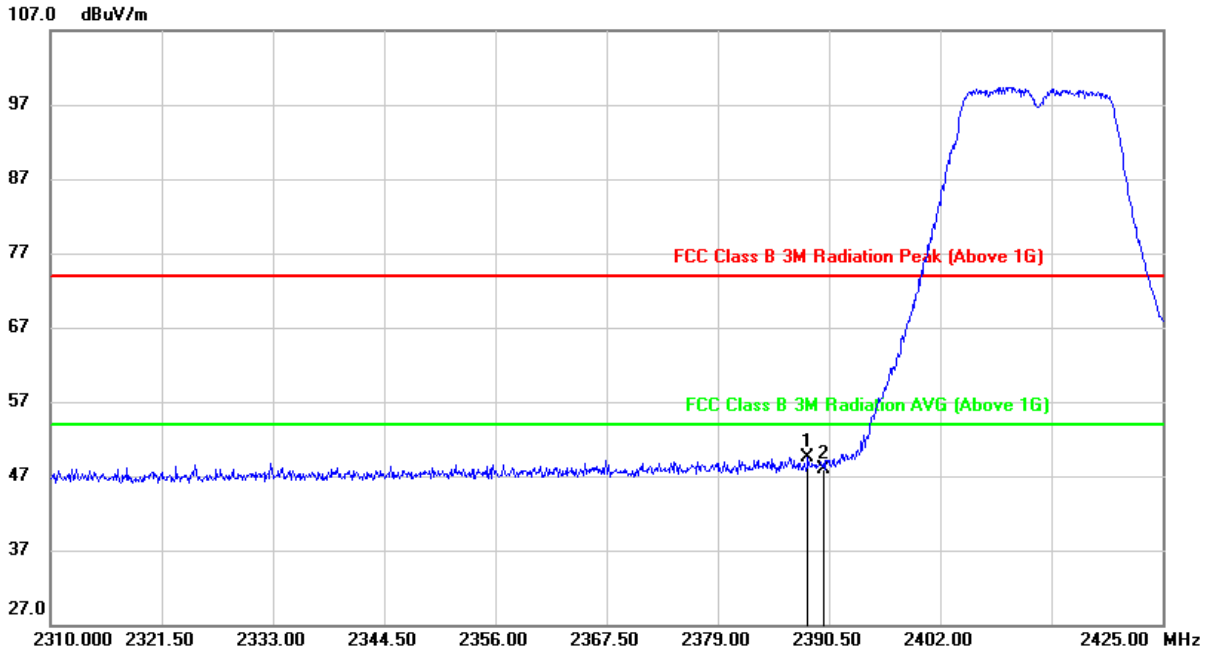
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	16.24	33.58	49.82	74.00	-24.18	peak
2	2484.650	17.80	33.59	51.39	74.00	-22.61	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

9.1.2. 802.11g MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

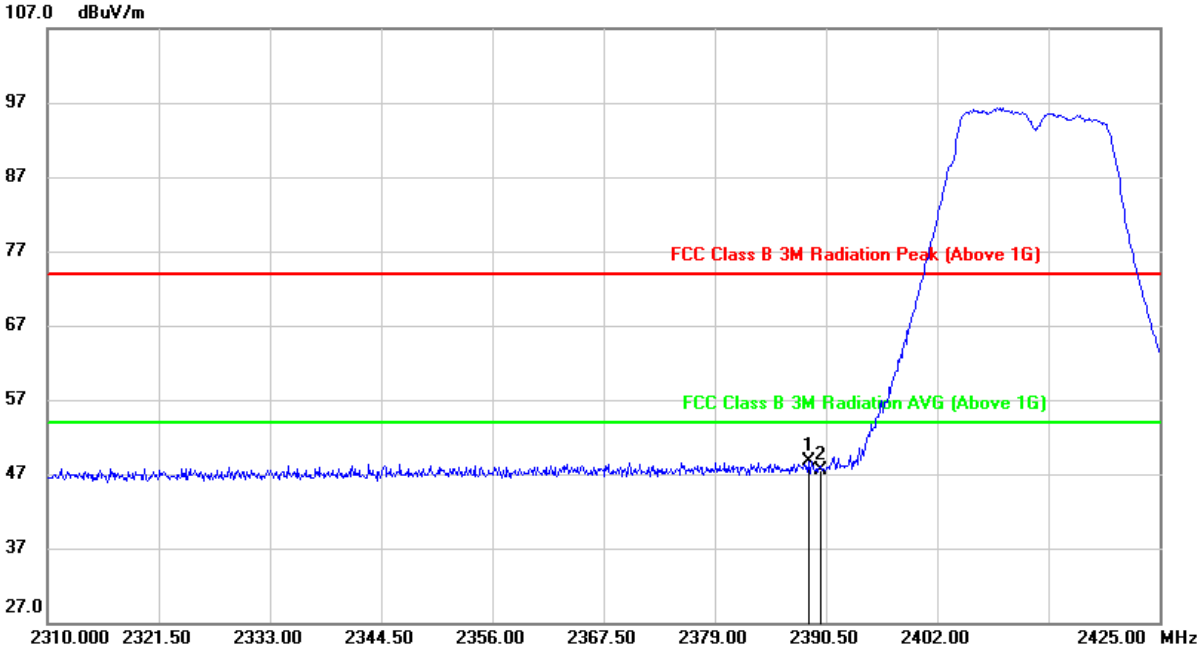


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.315	16.52	32.94	49.46	74.00	-24.54	peak
2	2390.000	14.92	32.94	47.86	74.00	-26.14	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

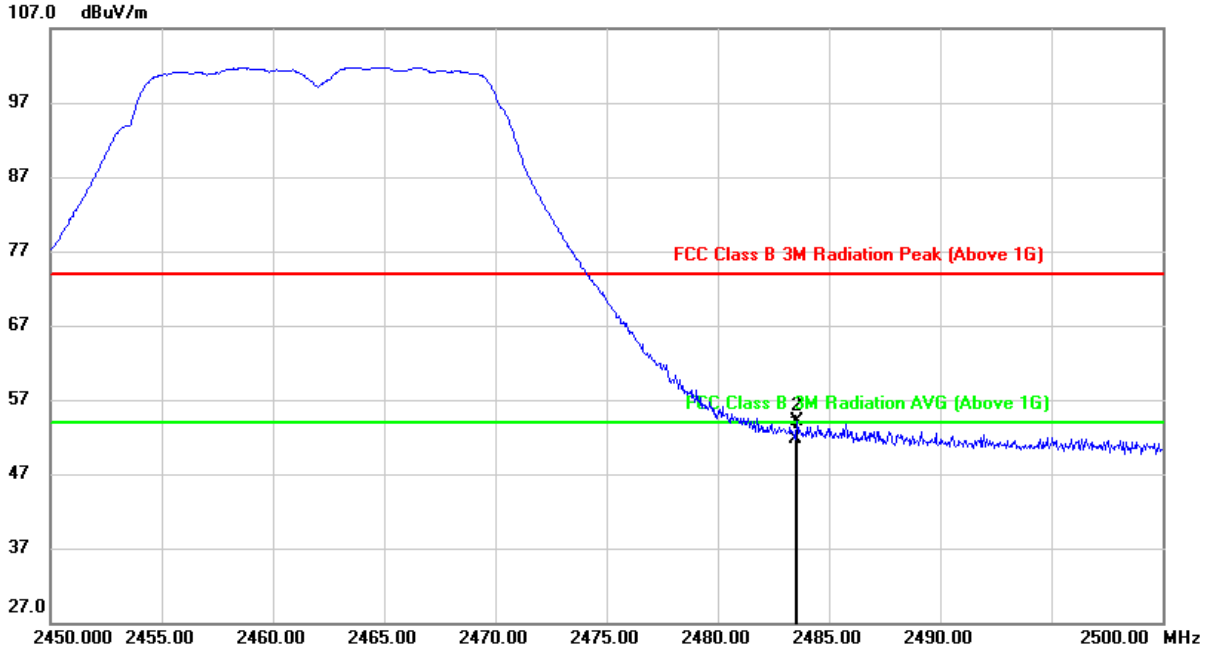


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.660	15.73	32.94	48.67	74.00	-25.33	peak
2	2390.000	14.50	32.94	47.44	74.00	-26.56	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

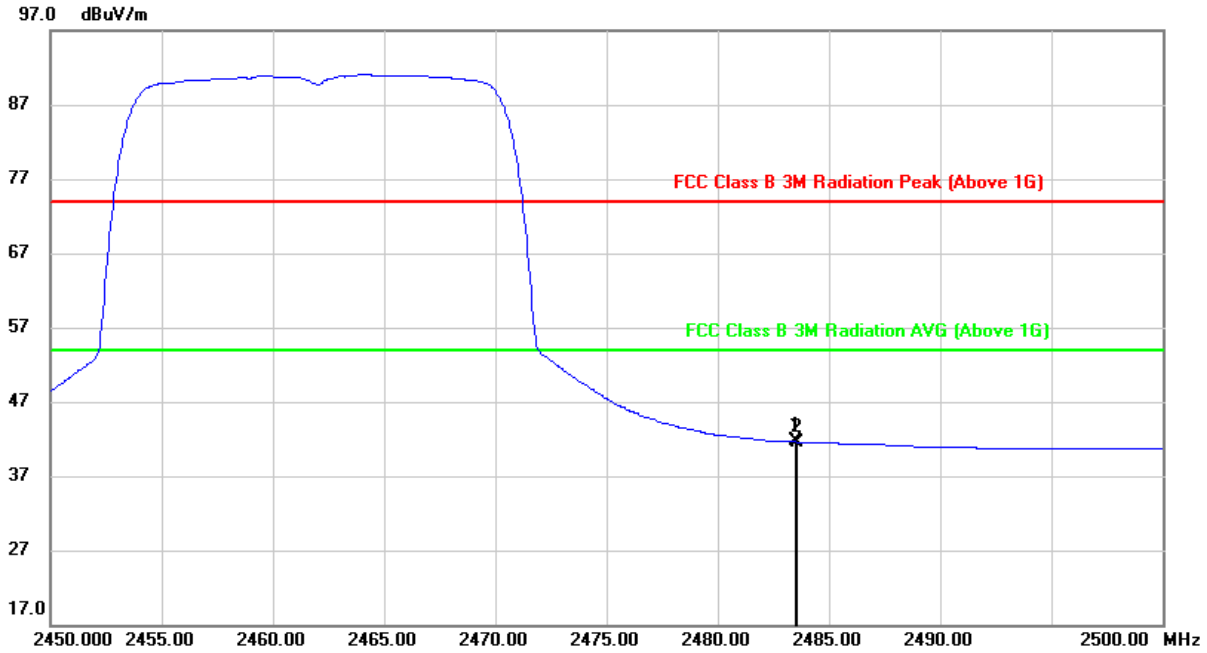
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	18.14	33.58	51.72	74.00	-22.28	peak
2	2483.550	20.51	33.58	54.09	74.00	-19.91	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

AVG

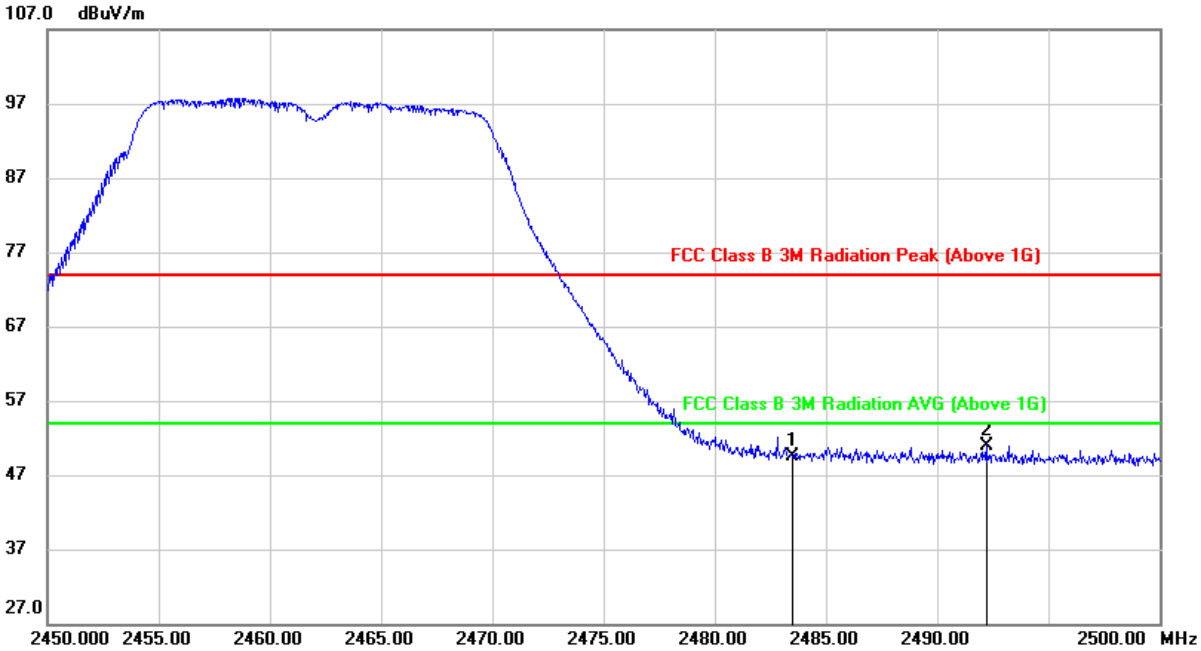


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	8.04	33.58	41.62	54.00	-12.38	AVG
2	2483.550	8.02	33.58	41.60	54.00	-12.40	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: VBW=1/Ton where: ton is transmit duration.
4. For transmit duration, please refer to clause 8.1.
5. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



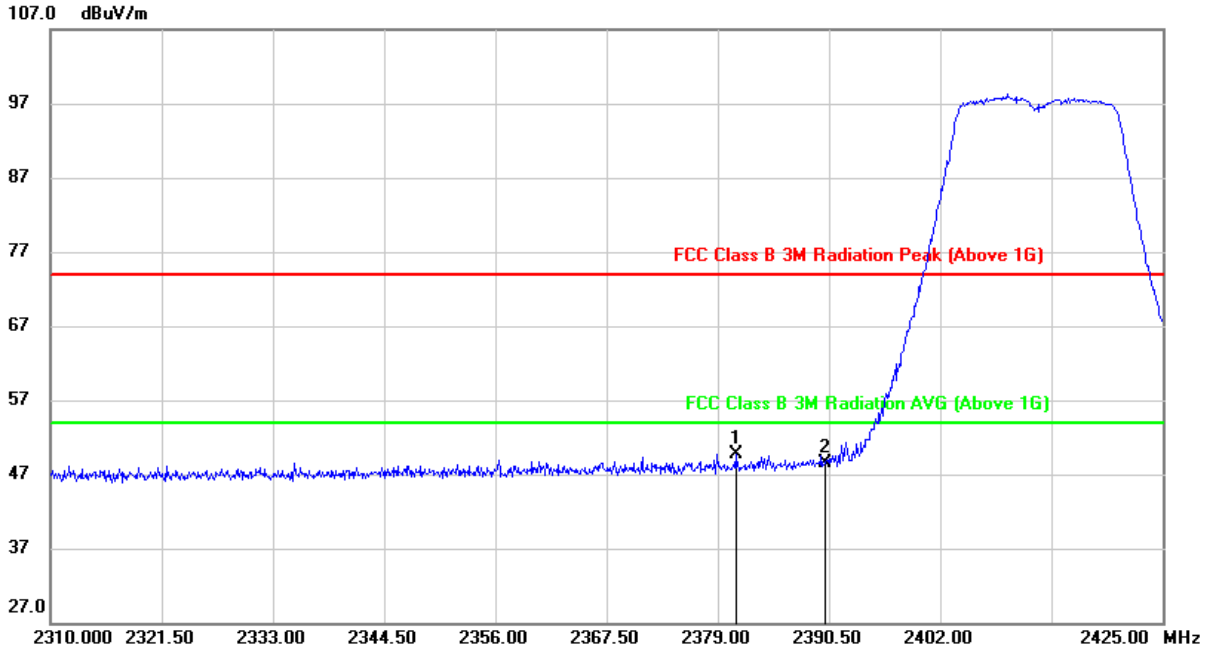
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	15.94	33.58	49.52	74.00	-24.48	peak
2	2492.200	17.35	33.65	51.00	74.00	-23.00	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

9.1.3. 802.11n HT20 MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

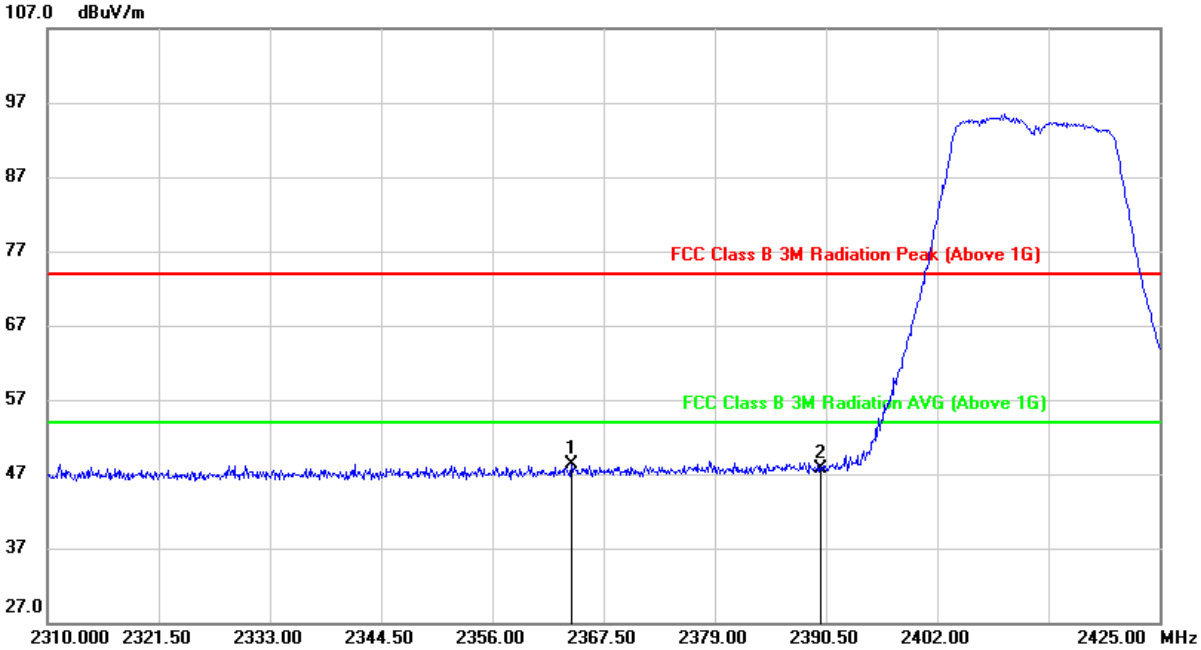


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2380.840	16.86	32.92	49.78	74.00	-24.22	peak
2	2390.000	15.56	32.94	48.50	74.00	-25.50	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

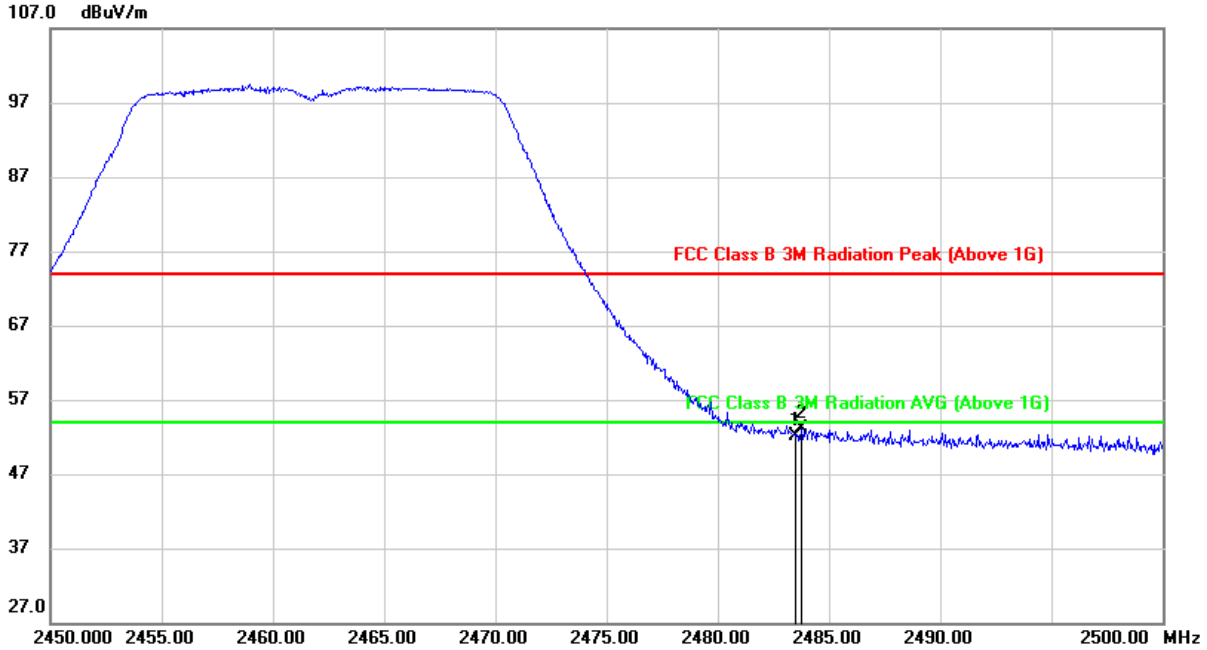


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2364.165	15.40	32.86	48.26	74.00	-25.74	peak
2	2390.000	14.76	32.94	47.70	74.00	-26.30	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK

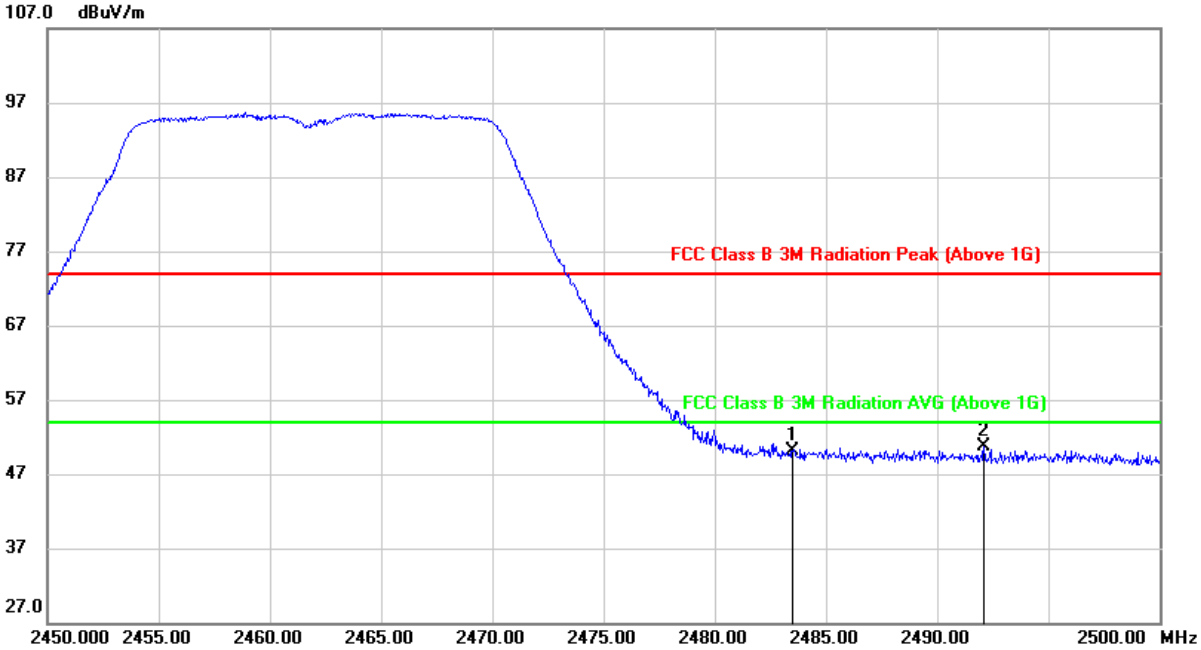


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	18.52	33.58	52.10	74.00	-21.90	peak
2	2483.750	19.59	33.58	53.17	74.00	-20.83	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK



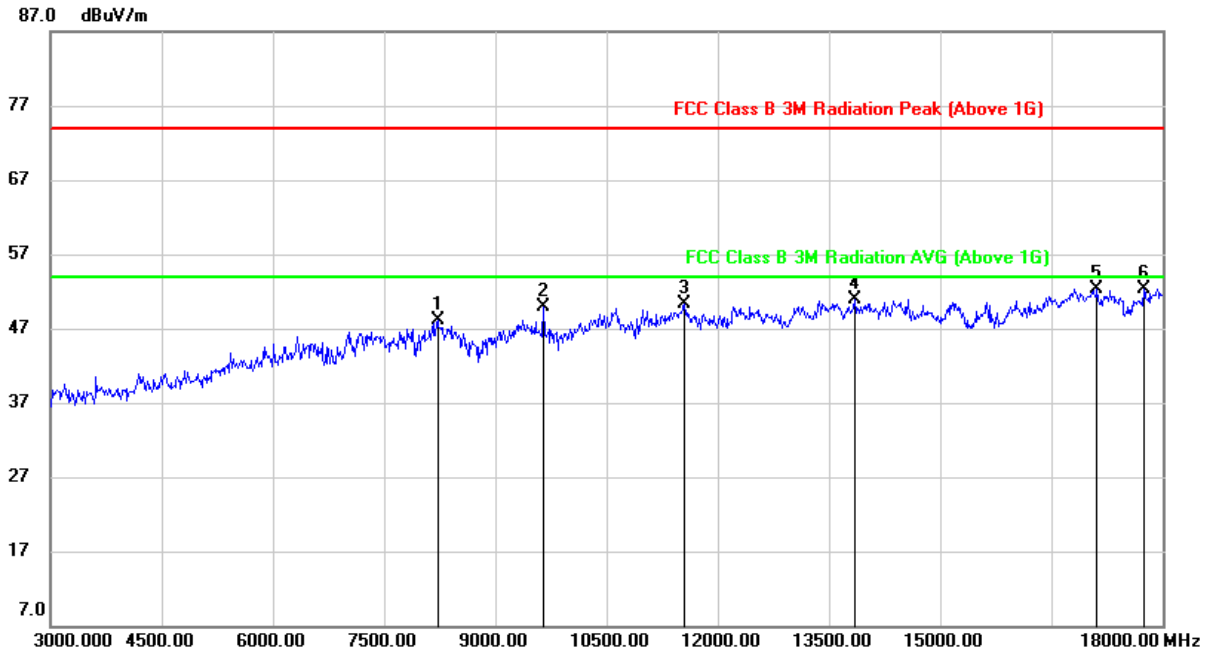
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	16.45	33.58	50.03	74.00	-23.97	peak
2	2492.100	16.99	33.65	50.64	74.00	-23.36	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

9.2. SPURIOUS EMISSIONS (3~18GHz)

9.2.1. 802.11b MODE

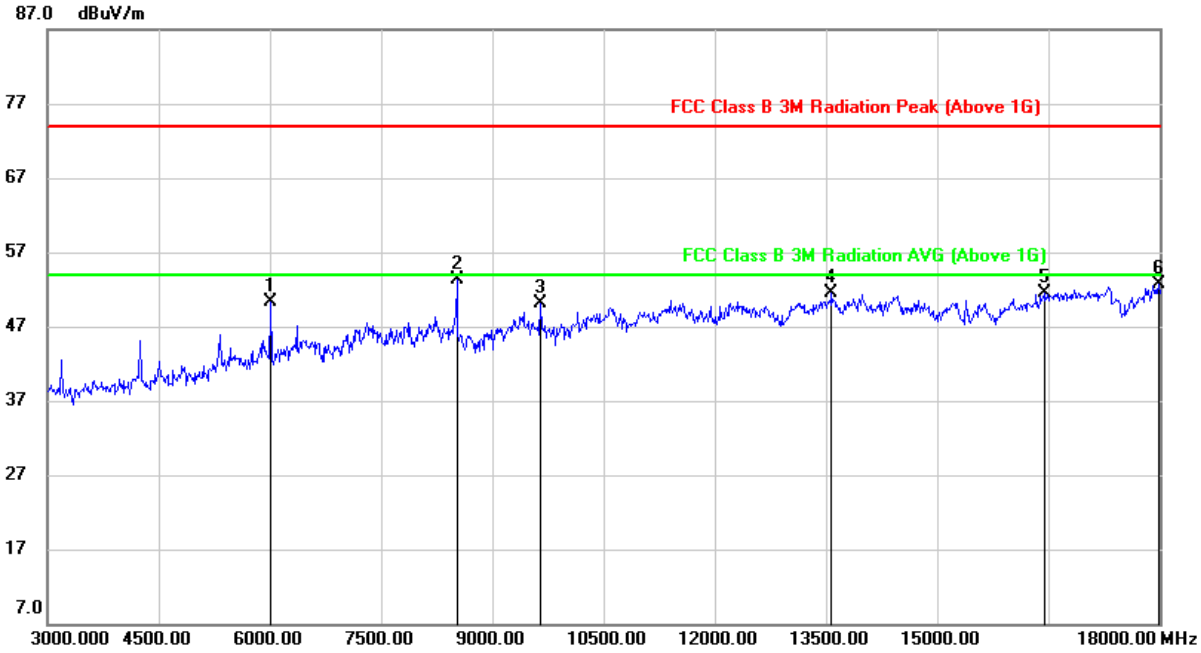
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8220.000	38.70	9.40	48.10	74.00	-25.90	peak
2	9645.000	39.91	10.03	49.94	74.00	-24.06	peak
3	11550.000	36.25	14.13	50.38	74.00	-23.62	peak
4	13845.000	34.43	16.52	50.95	74.00	-23.05	peak
5	17115.000	31.51	20.81	52.32	74.00	-21.68	peak
6	17745.000	29.65	22.68	52.33	74.00	-21.67	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

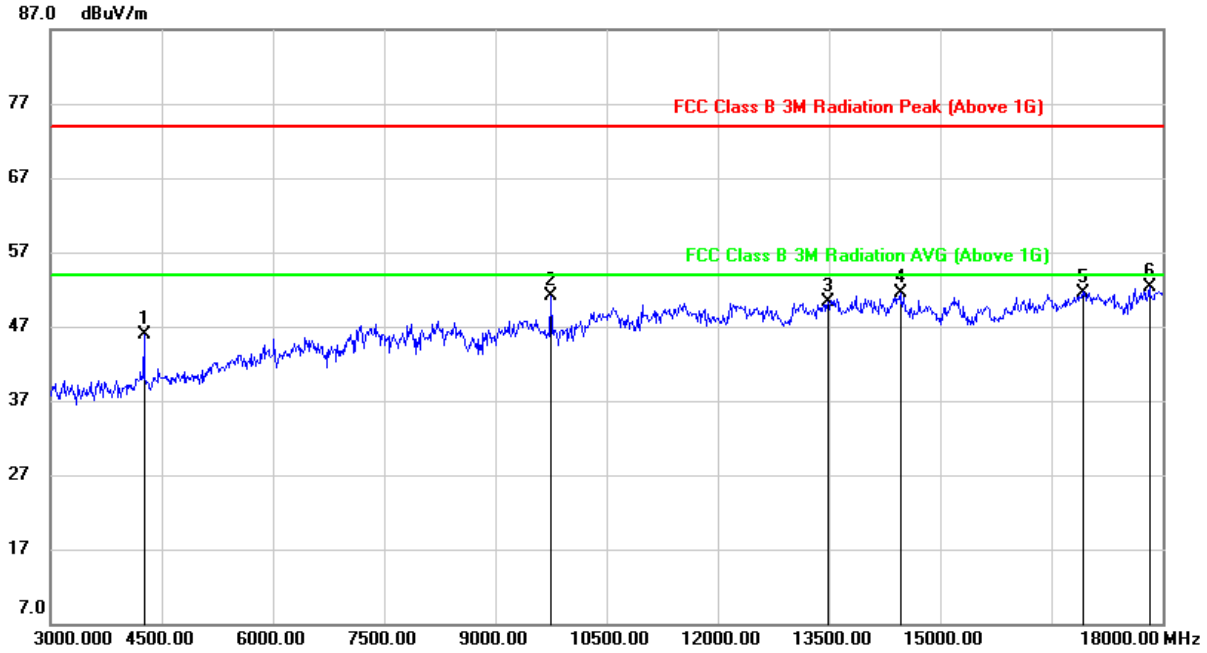
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	6015.000	46.60	3.78	50.38	74.00	-23.62	peak
2	8520.000	44.76	8.53	53.29	74.00	-20.71	peak
3	9645.000	40.11	10.03	50.14	74.00	-23.86	peak
4	13575.000	35.53	15.98	51.51	74.00	-22.49	peak
5	16440.000	32.88	18.69	51.57	74.00	-22.43	peak
6	17985.000	29.45	23.25	52.70	74.00	-21.30	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

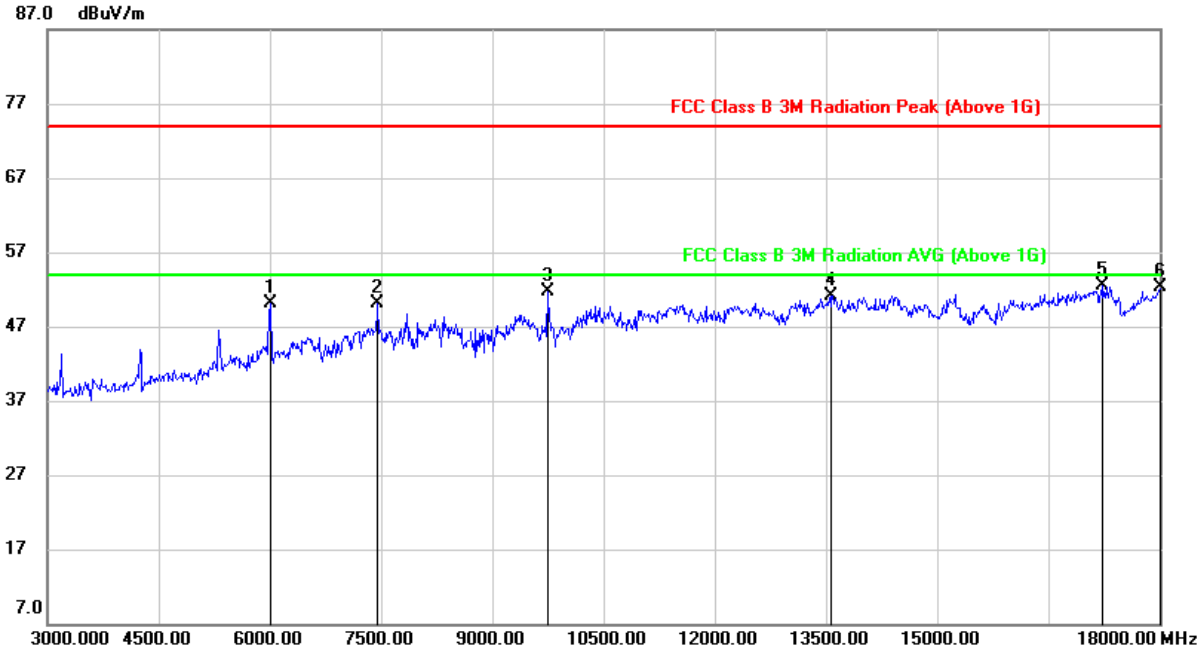
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4260.000	47.90	-2.09	45.81	74.00	-28.19	peak
2	9750.000	40.88	10.14	51.02	74.00	-22.98	peak
3	13485.000	34.62	15.70	50.32	74.00	-23.68	peak
4	14460.000	35.09	16.35	51.44	74.00	-22.56	peak
5	16920.000	31.59	20.01	51.60	74.00	-22.40	peak
6	17820.000	29.13	23.21	52.34	74.00	-21.66	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

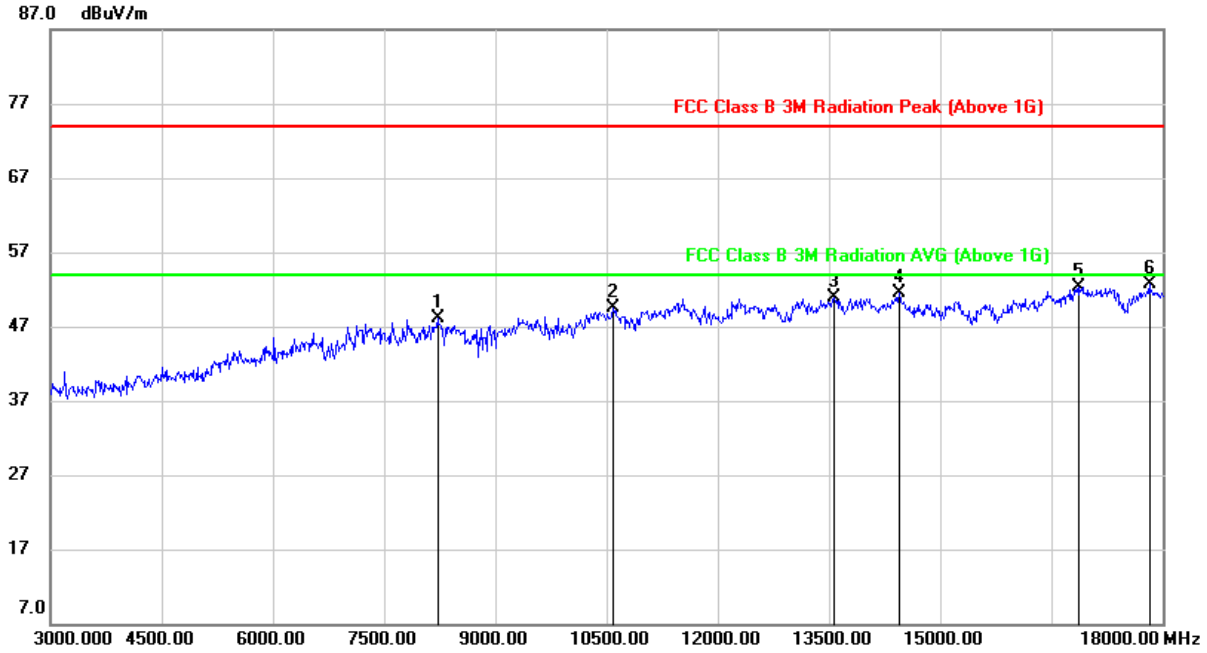
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	6015.000	46.30	3.78	50.08	74.00	-23.92	peak
2	7455.000	42.67	7.35	50.02	74.00	-23.98	peak
3	9750.000	41.61	10.14	51.75	74.00	-22.25	peak
4	13575.000	35.06	15.98	51.04	74.00	-22.96	peak
5	17235.000	31.09	21.32	52.41	74.00	-21.59	peak
6	18000.000	29.04	23.27	52.31	74.00	-21.69	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

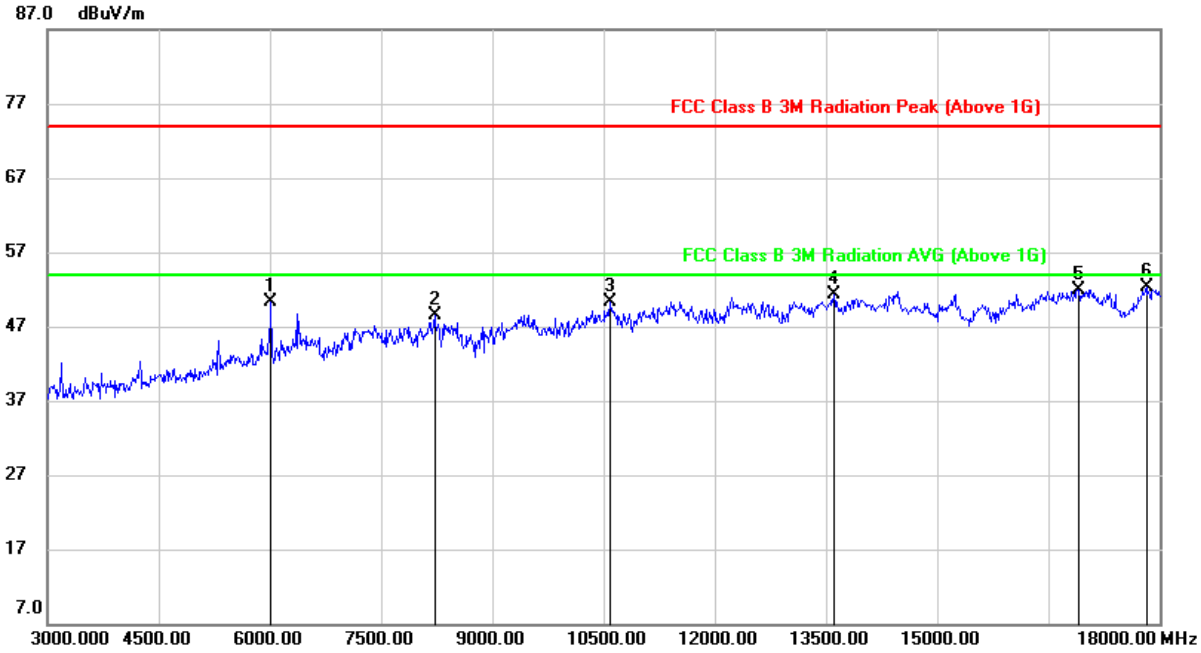
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8220.000	38.66	9.40	48.06	74.00	-25.94	peak
2	10590.000	36.74	12.68	49.42	74.00	-24.58	peak
3	13560.000	35.03	15.91	50.94	74.00	-23.06	peak
4	14445.000	35.14	16.37	51.51	74.00	-22.49	peak
5	16875.000	32.37	19.93	52.30	74.00	-21.70	peak
6	17820.000	29.44	23.21	52.65	74.00	-21.35	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

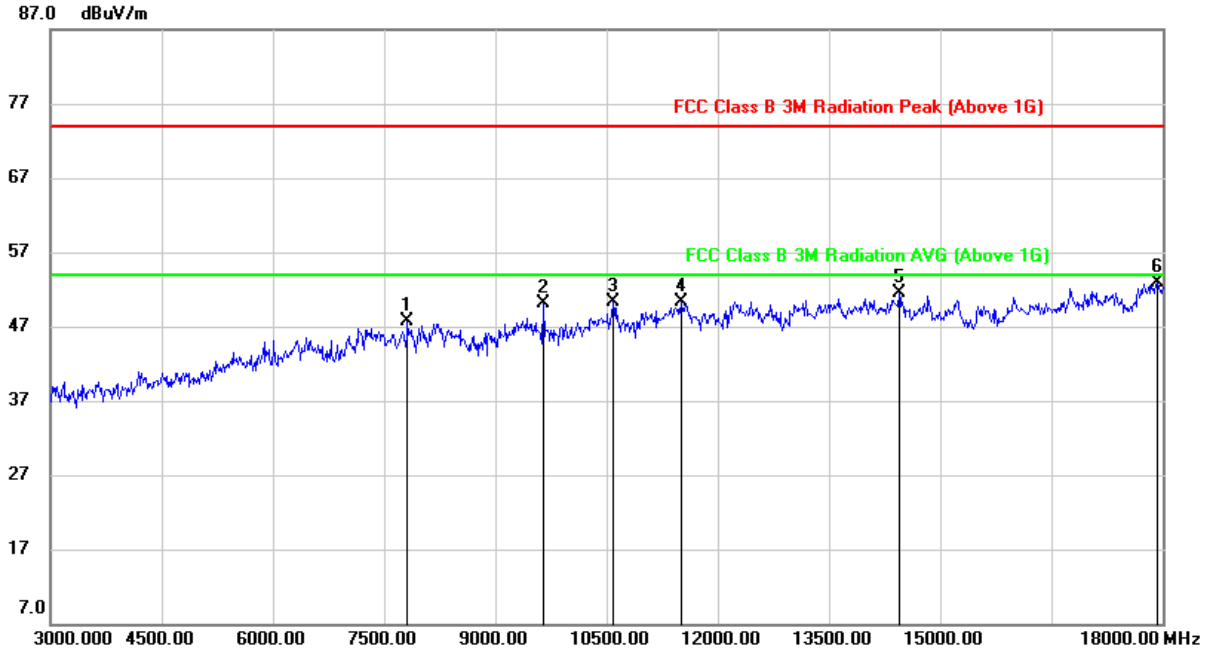


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	6015.000	46.54	3.78	50.32	74.00	-23.68	peak
2	8220.000	39.01	9.40	48.41	74.00	-25.59	peak
3	10590.000	37.62	12.68	50.30	74.00	-23.70	peak
4	13605.000	35.28	16.07	51.35	74.00	-22.65	peak
5	16905.000	31.97	19.95	51.92	74.00	-22.08	peak
6	17820.000	29.00	23.21	52.21	74.00	-21.79	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

9.2.2. 802.11g MODE

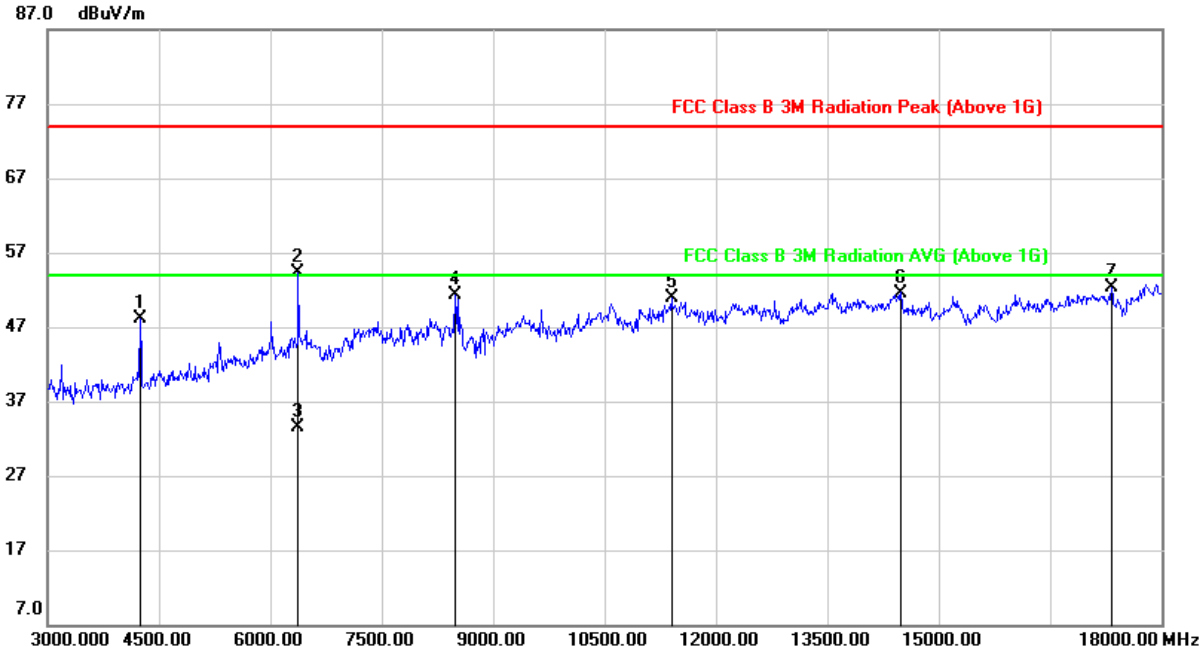
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7815.000	38.83	8.81	47.64	74.00	-26.36	peak
2	9645.000	40.02	10.03	50.05	74.00	-23.95	peak
3	10590.000	37.61	12.68	50.29	74.00	-23.71	peak
4	11505.000	36.21	14.09	50.30	74.00	-23.70	peak
5	14445.000	35.15	16.37	51.52	74.00	-22.48	peak
6	17925.000	29.73	23.18	52.91	74.00	-21.09	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

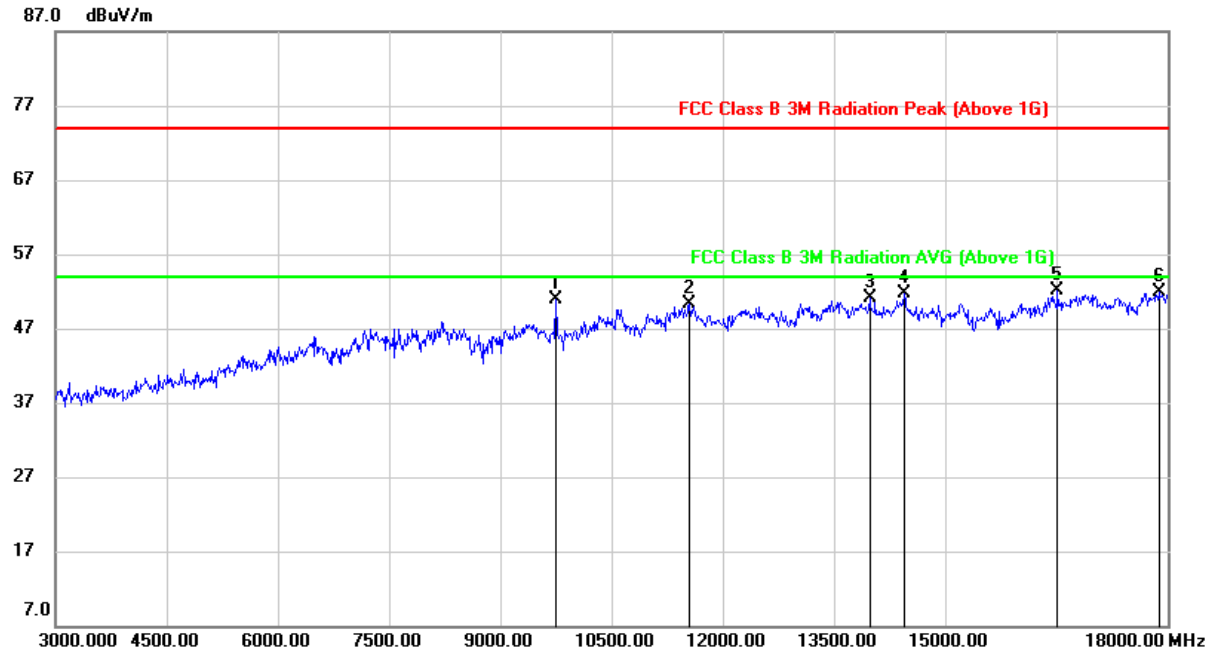
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4245.000	50.20	-2.02	48.18	74.00	-25.82	peak
2	6375.000	49.46	4.90	54.36	74.00	-19.64	peak
3	6375.000	28.67	4.90	33.57	54.00	-20.43	AVG
4	8490.000	42.71	8.59	51.30	74.00	-22.70	peak
5	11400.000	37.49	13.36	50.85	74.00	-23.15	peak
6	14490.000	35.28	16.32	51.60	74.00	-22.40	peak
7	17325.000	30.42	21.80	52.22	74.00	-21.78	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

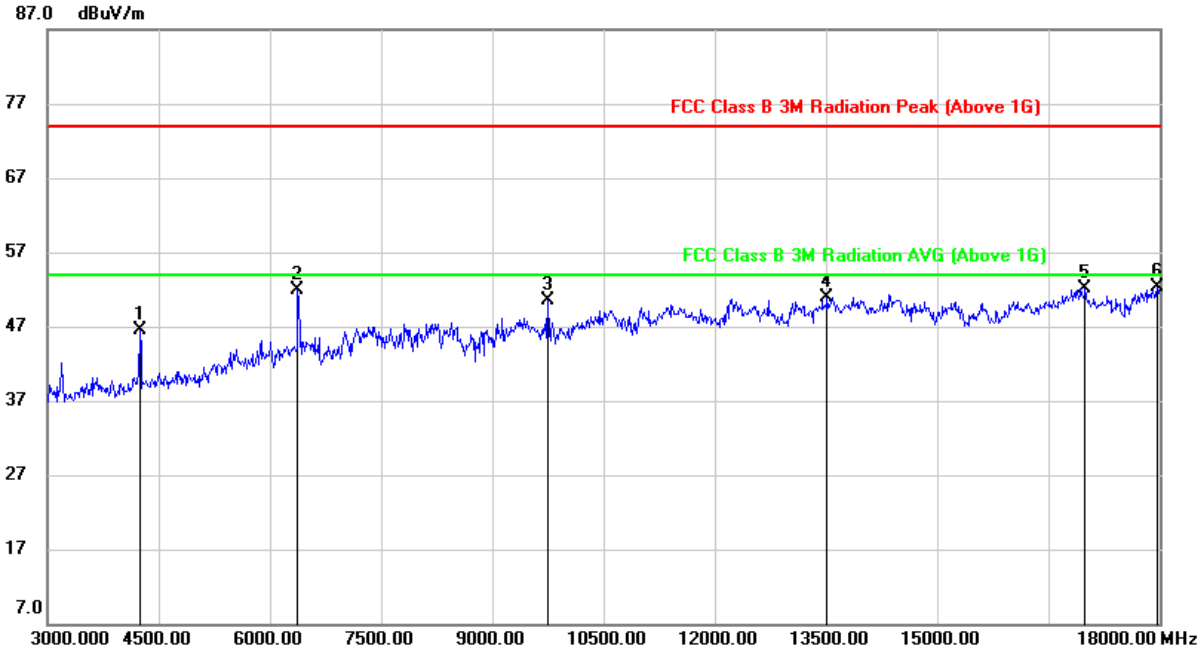
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9750.000	40.75	10.14	50.89	74.00	-23.11	peak
2	11550.000	36.08	14.13	50.21	74.00	-23.79	peak
3	13980.000	34.73	16.32	51.05	74.00	-22.95	peak
4	14445.000	35.25	16.37	51.62	74.00	-22.38	peak
5	16515.000	33.10	18.97	52.07	74.00	-21.93	peak
6	17880.000	28.64	23.18	51.82	74.00	-22.18	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

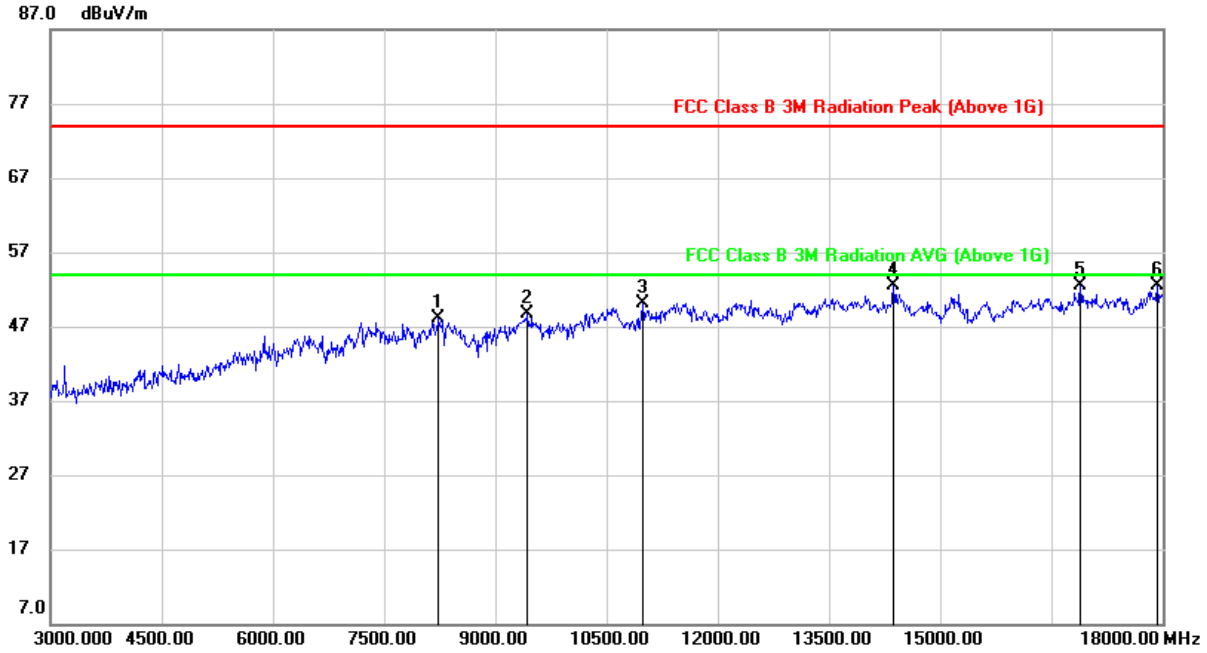
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4245.000	48.57	-2.02	46.55	74.00	-27.45	peak
2	6375.000	46.98	4.90	51.88	74.00	-22.12	peak
3	9750.000	40.28	10.14	50.42	74.00	-23.58	peak
4	13515.000	35.14	15.72	50.86	74.00	-23.14	peak
5	16995.000	31.77	20.32	52.09	74.00	-21.91	peak
6	17970.000	29.00	23.24	52.24	74.00	-21.76	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

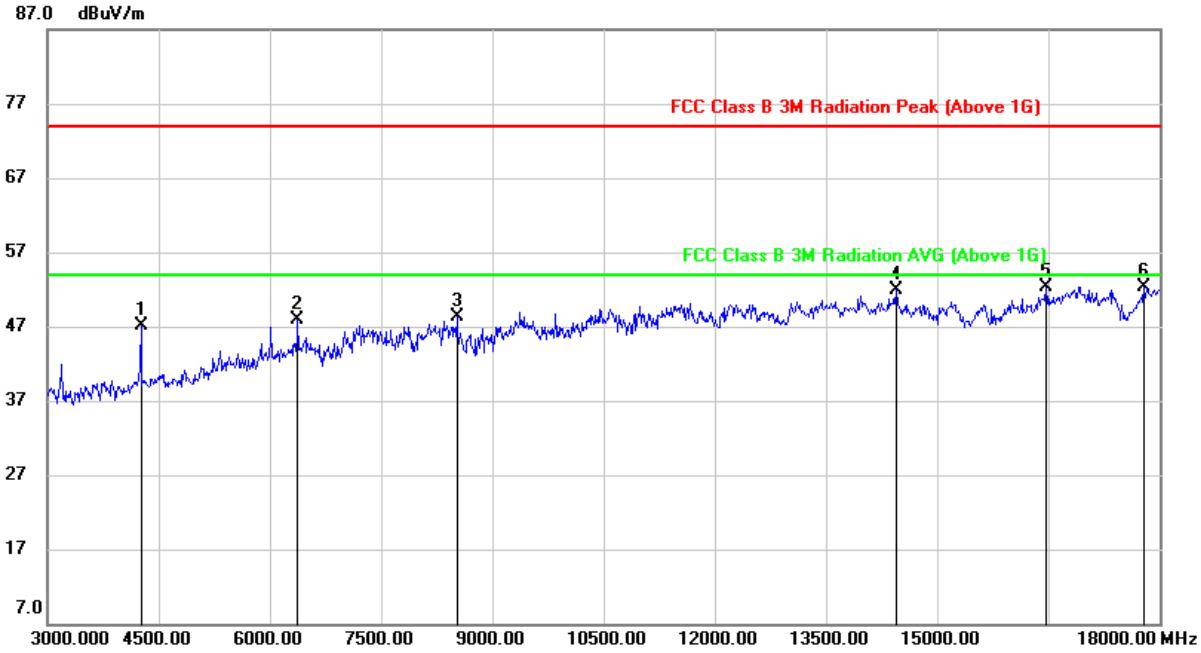
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8235.000	38.80	9.23	48.03	74.00	-25.97	peak
2	9435.000	38.33	10.37	48.70	74.00	-25.30	peak
3	10995.000	36.93	13.23	50.16	74.00	-23.84	peak
4	14370.000	36.12	16.39	52.51	74.00	-21.49	peak
5	16890.000	32.52	19.93	52.45	74.00	-21.55	peak
6	17925.000	29.27	23.18	52.45	74.00	-21.55	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

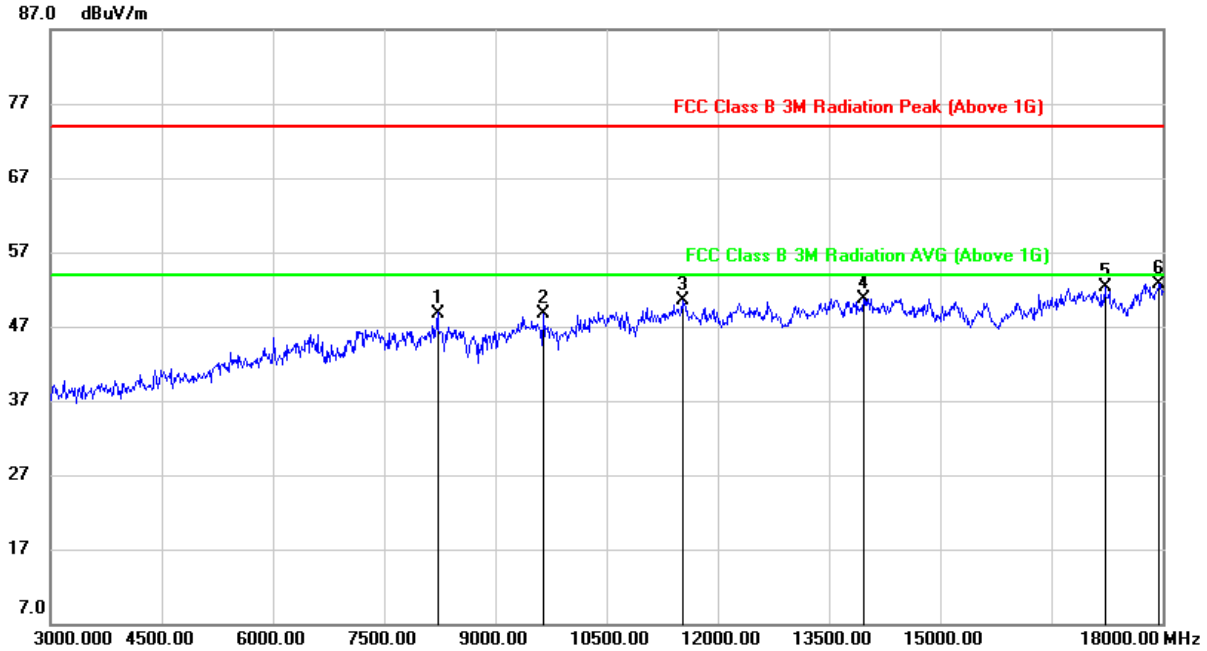


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4260.000	49.28	-2.09	47.19	74.00	-26.81	peak
2	6375.000	43.07	4.90	47.97	74.00	-26.03	peak
3	8520.000	39.74	8.53	48.27	74.00	-25.73	peak
4	14445.000	35.47	16.37	51.84	74.00	-22.16	peak
5	16470.000	33.56	18.80	52.36	74.00	-21.64	peak
6	17790.000	29.28	23.12	52.40	74.00	-21.60	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

9.2.3. 802.11n HT20 MODE

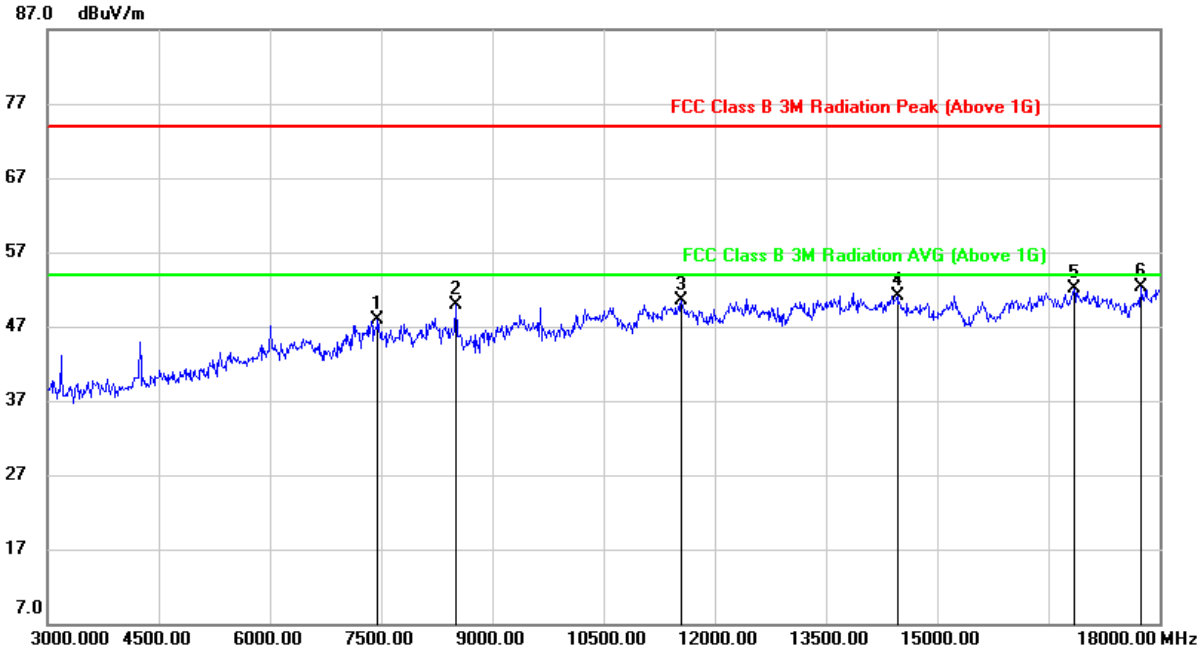
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8220.000	39.40	9.40	48.80	74.00	-25.20	peak
2	9645.000	38.61	10.03	48.64	74.00	-25.36	peak
3	11520.000	36.31	14.10	50.41	74.00	-23.59	peak
4	13965.000	34.51	16.29	50.80	74.00	-23.20	peak
5	17220.000	31.09	21.19	52.28	74.00	-21.72	peak
6	17955.000	29.45	23.23	52.68	74.00	-21.32	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

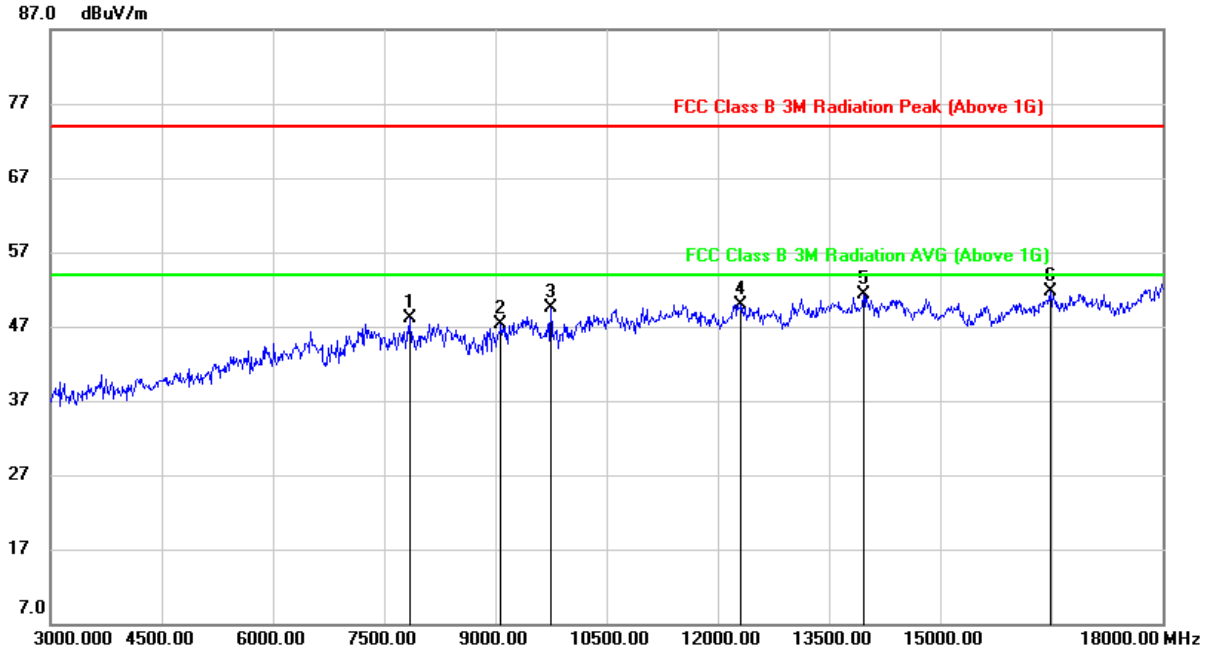
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7455.000	40.46	7.35	47.81	74.00	-26.19	peak
2	8505.000	41.27	8.55	49.82	74.00	-24.18	peak
3	11550.000	36.30	14.13	50.43	74.00	-23.57	peak
4	14460.000	34.71	16.35	51.06	74.00	-22.94	peak
5	16845.000	32.27	19.92	52.19	74.00	-21.81	peak
6	17745.000	29.58	22.68	52.26	74.00	-21.74	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

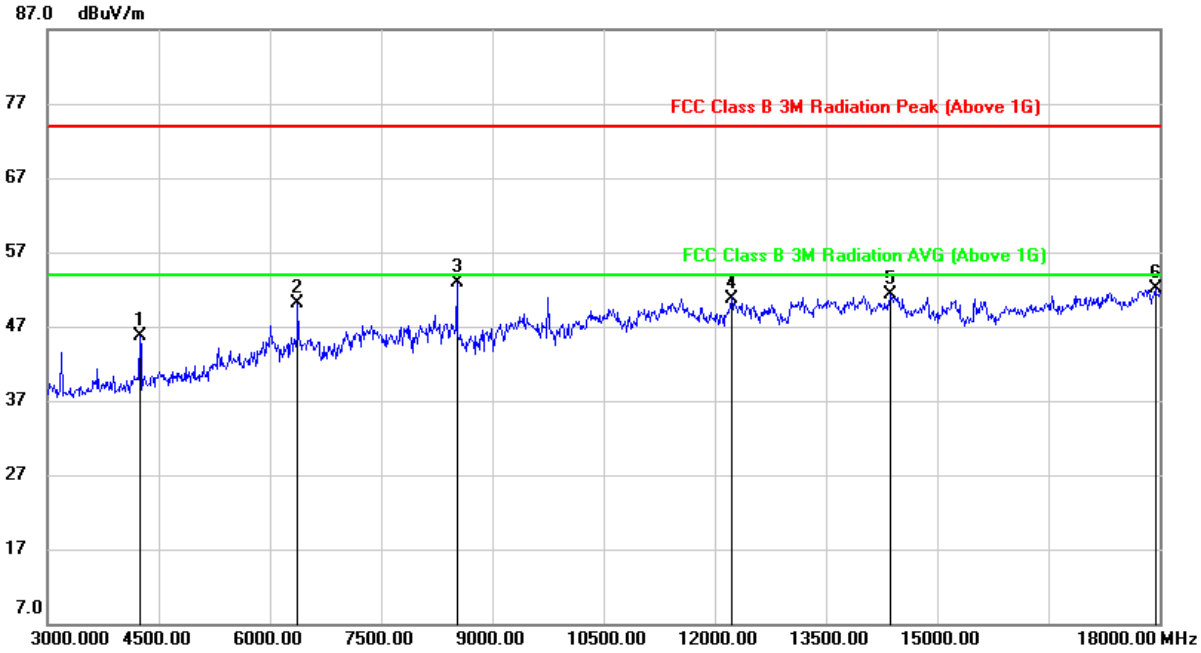
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7845.000	39.46	8.68	48.14	74.00	-25.86	peak
2	9075.000	37.29	10.04	47.33	74.00	-26.67	peak
3	9750.000	39.42	10.14	49.56	74.00	-24.44	peak
4	12315.000	35.57	14.37	49.94	74.00	-24.06	peak
5	13965.000	35.11	16.29	51.40	74.00	-22.60	peak
6	16485.000	32.85	18.84	51.69	74.00	-22.31	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

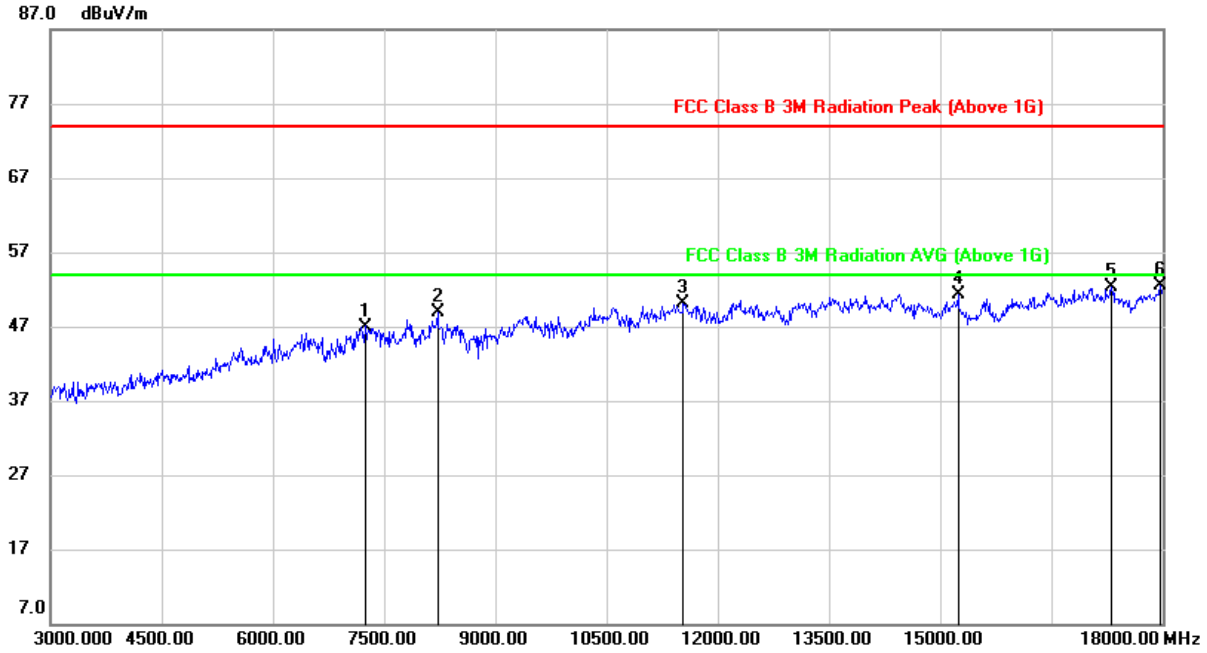
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4245.000	47.63	-2.02	45.61	74.00	-28.39	peak
2	6375.000	45.20	4.90	50.10	74.00	-23.90	peak
3	8520.000	44.34	8.53	52.87	74.00	-21.13	peak
4	12225.000	36.52	14.28	50.80	74.00	-23.20	peak
5	14370.000	34.90	16.39	51.29	74.00	-22.71	peak
6	17940.000	28.99	23.21	52.20	74.00	-21.80	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

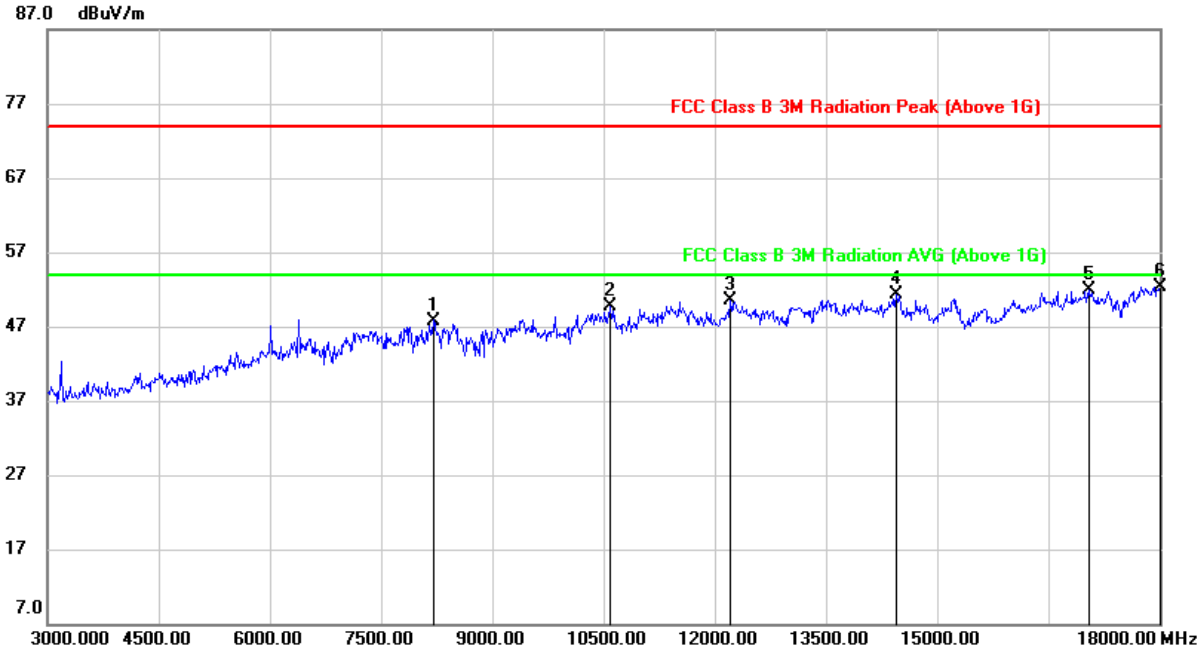
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7245.000	40.00	7.00	47.00	74.00	-27.00	peak
2	8220.000	39.49	9.40	48.89	74.00	-25.11	peak
3	11535.000	35.92	14.10	50.02	74.00	-23.98	peak
4	15240.000	35.73	15.56	51.29	74.00	-22.71	peak
5	17310.000	30.36	21.86	52.22	74.00	-21.78	peak
6	17970.000	29.23	23.24	52.47	74.00	-21.53	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



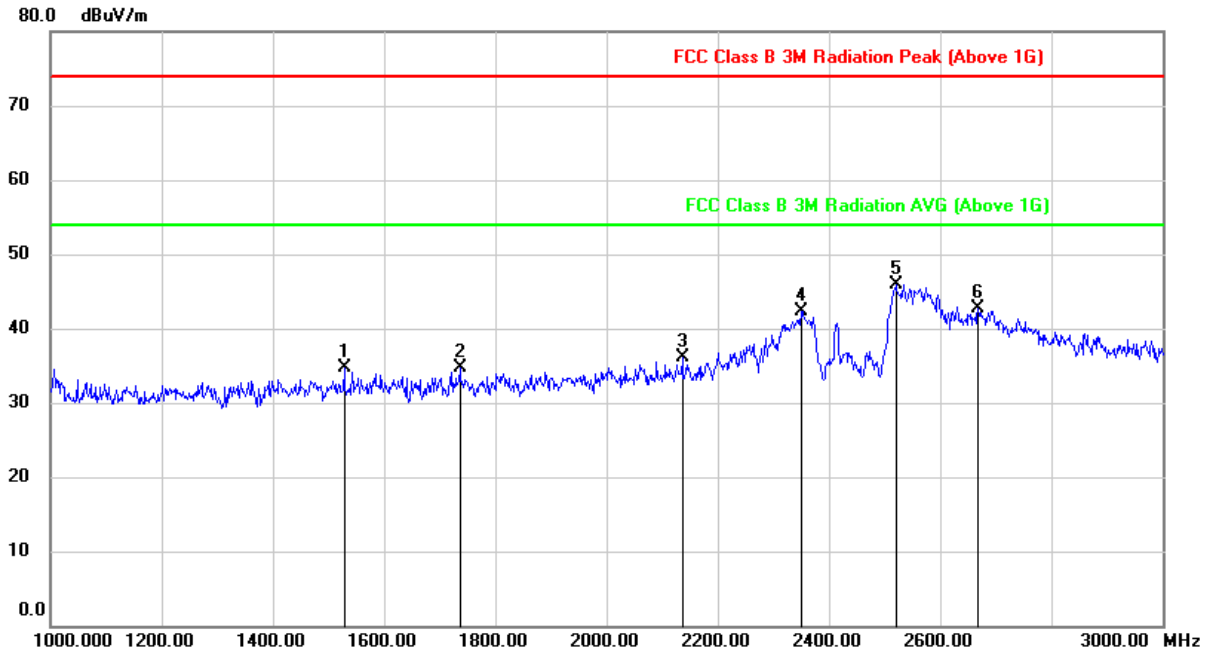
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8205.000	38.23	9.57	47.80	74.00	-26.20	peak
2	10590.000	37.11	12.68	49.79	74.00	-24.21	peak
3	12210.000	36.18	14.25	50.43	74.00	-23.57	peak
4	14445.000	35.02	16.37	51.39	74.00	-22.61	peak
5	17040.000	31.47	20.51	51.98	74.00	-22.02	peak
6	18000.000	29.08	23.27	52.35	74.00	-21.65	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

9.3. SPURIOUS EMISSIONS (1~3GHz)

9.3.1. 802.11b MODE

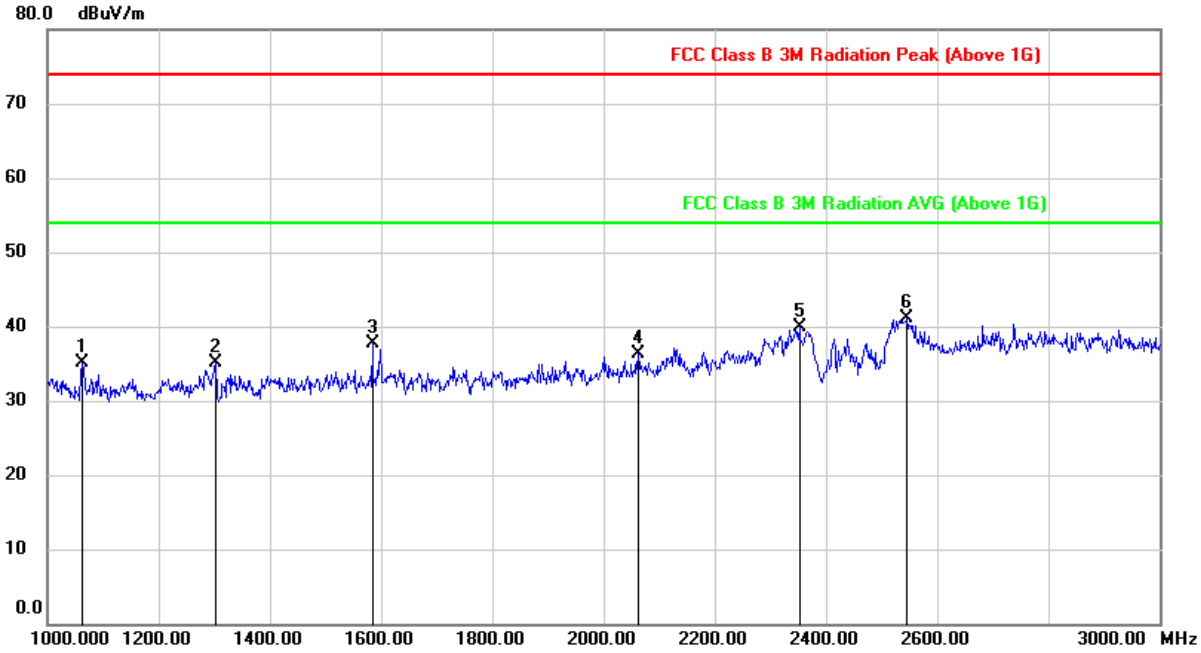
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1528.000	46.11	-11.32	34.79	74.00	-39.21	peak
2	1736.000	44.90	-10.24	34.66	74.00	-39.34	peak
3	2136.000	44.56	-8.37	36.19	74.00	-37.81	peak
4	2350.000	49.63	-7.30	42.33	74.00	-31.67	peak
5	2520.000	52.30	-6.43	45.87	74.00	-28.13	peak
6	2668.000	49.96	-7.22	42.74	74.00	-31.26	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

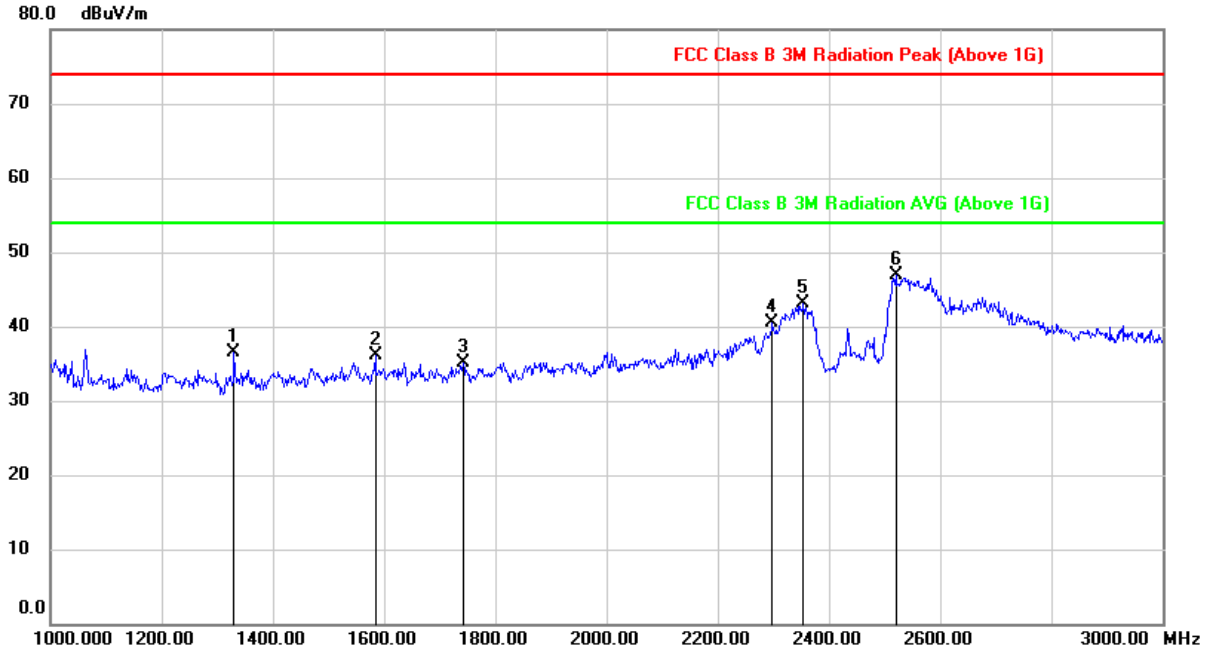
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1062.000	47.87	-12.80	35.07	74.00	-38.93	peak
2	1302.000	46.29	-11.23	35.06	74.00	-38.94	peak
3	1584.000	48.53	-10.77	37.76	74.00	-36.24	peak
4	2062.000	45.25	-8.87	36.38	74.00	-37.62	peak
5	2352.000	47.25	-7.29	39.96	74.00	-34.04	peak
6	2546.000	47.55	-6.54	41.01	74.00	-32.99	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

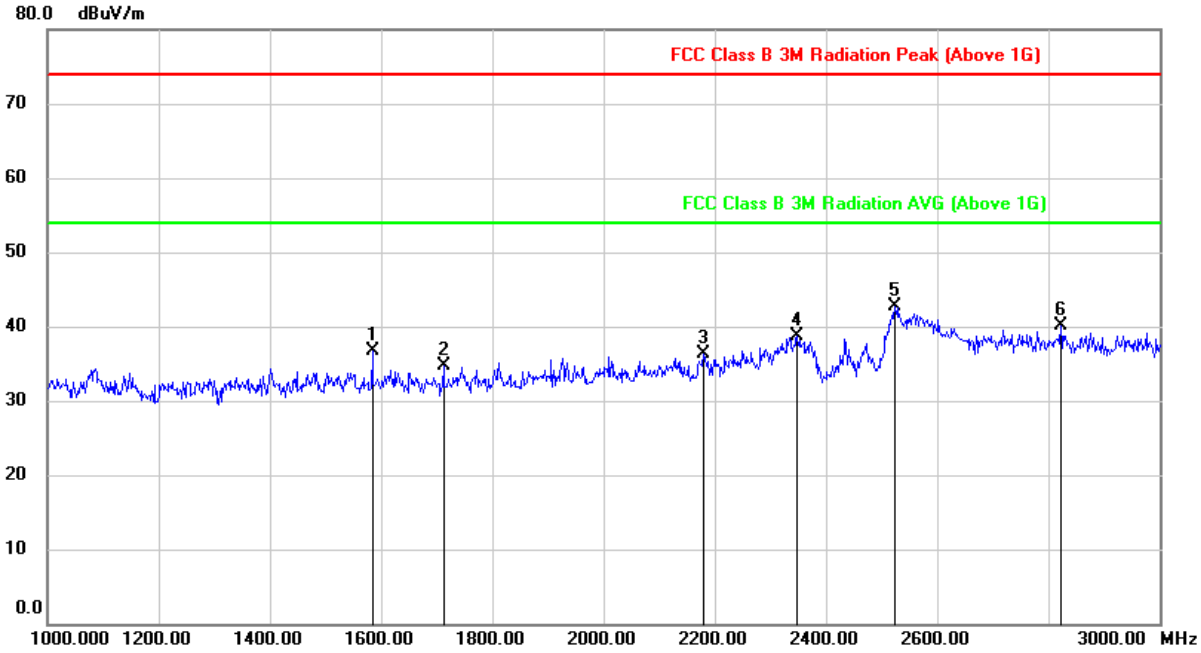
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1330.000	47.96	-11.42	36.54	74.00	-37.46	peak
2	1584.000	46.82	-10.77	36.05	74.00	-37.95	peak
3	1742.000	45.36	-10.16	35.20	74.00	-38.80	peak
4	2298.000	48.07	-7.50	40.57	74.00	-33.43	peak
5	2354.000	50.47	-7.28	43.19	74.00	-30.81	peak
6	2520.000	53.26	-6.43	46.83	74.00	-27.17	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

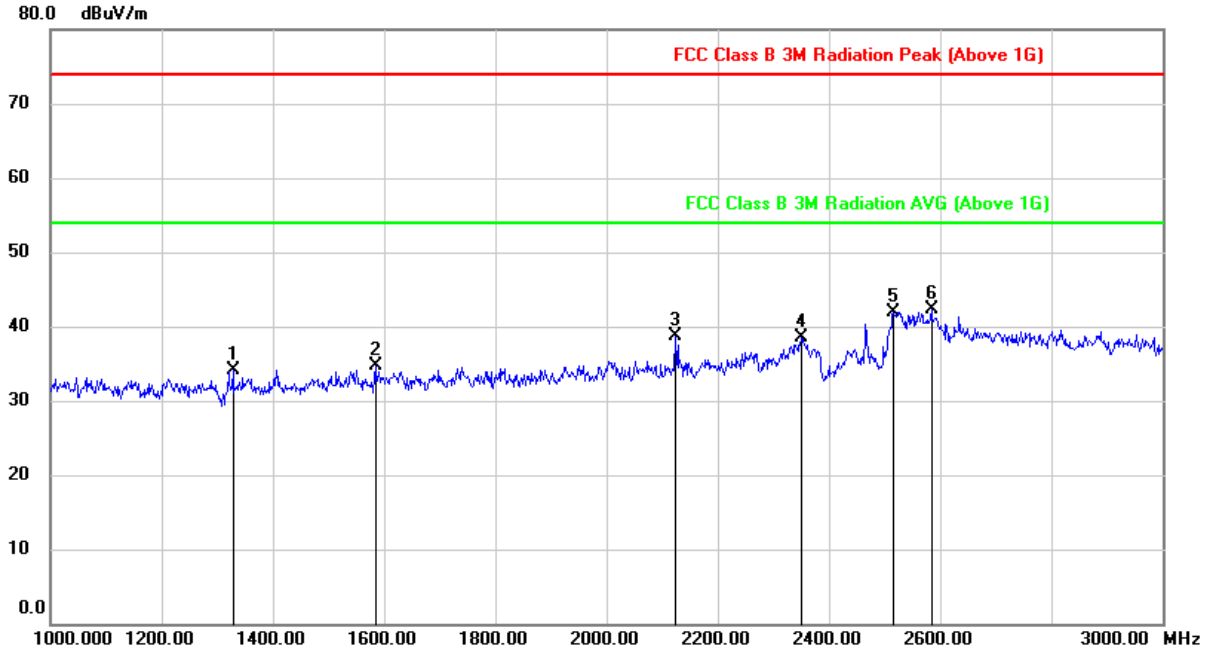
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1584.000	47.41	-10.77	36.64	74.00	-37.36	peak
2	1712.000	45.30	-10.55	34.75	74.00	-39.25	peak
3	2180.000	44.79	-8.42	36.37	74.00	-37.63	peak
4	2348.000	46.07	-7.31	38.76	74.00	-35.24	peak
5	2524.000	49.09	-6.45	42.64	74.00	-31.36	peak
6	2822.000	45.22	-5.18	40.04	74.00	-33.96	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

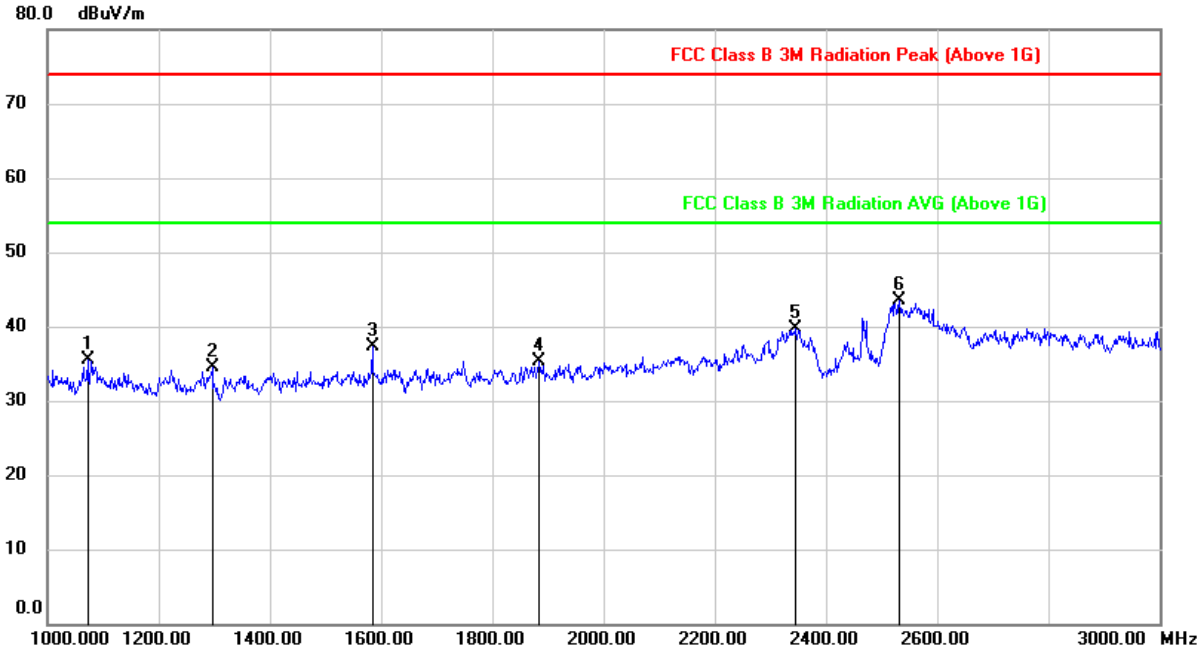
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1328.000	45.49	-11.41	34.08	74.00	-39.92	peak
2	1584.000	45.43	-10.77	34.66	74.00	-39.34	peak
3	2124.000	47.08	-8.35	38.73	74.00	-35.27	peak
4	2350.000	45.89	-7.30	38.59	74.00	-35.41	peak
5	2516.000	48.39	-6.40	41.99	74.00	-32.01	peak
6	2584.000	49.03	-6.73	42.30	74.00	-31.70	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

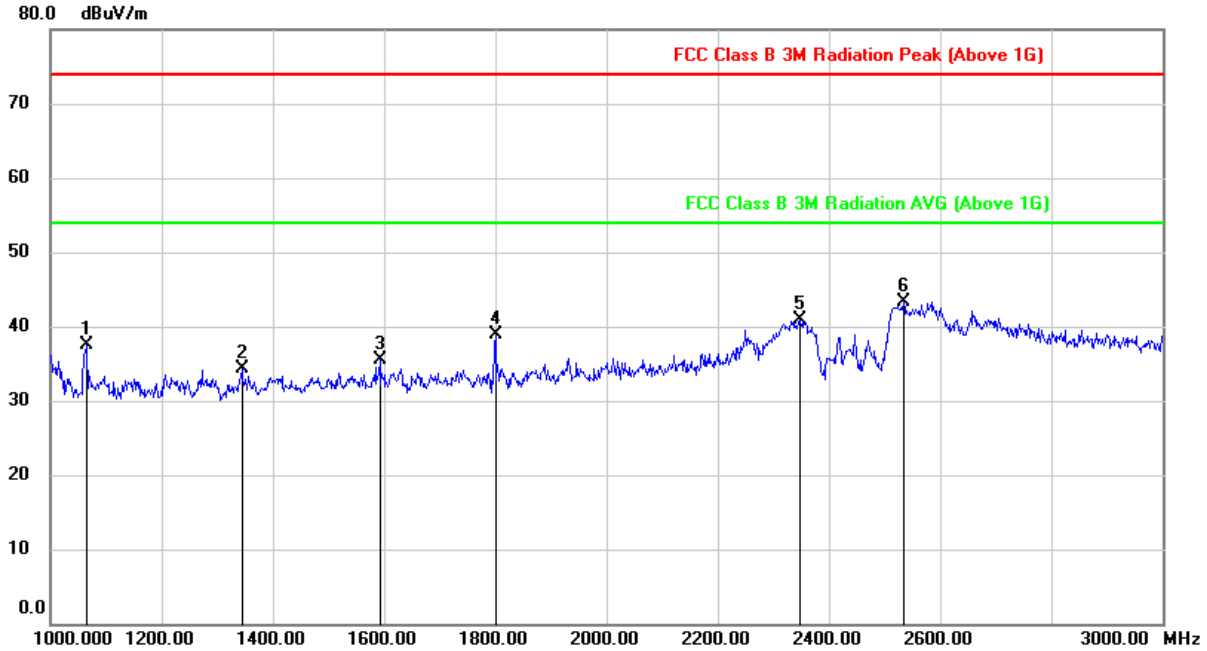


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1072.000	48.21	-12.75	35.46	74.00	-38.54	peak
2	1296.000	45.73	-11.26	34.47	74.00	-39.53	peak
3	1584.000	48.00	-10.77	37.23	74.00	-36.77	peak
4	1884.000	44.68	-9.32	35.36	74.00	-38.64	peak
5	2346.000	46.97	-7.32	39.65	74.00	-34.35	peak
6	2532.000	49.93	-6.48	43.45	74.00	-30.55	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

9.3.2. 802.11g MODE

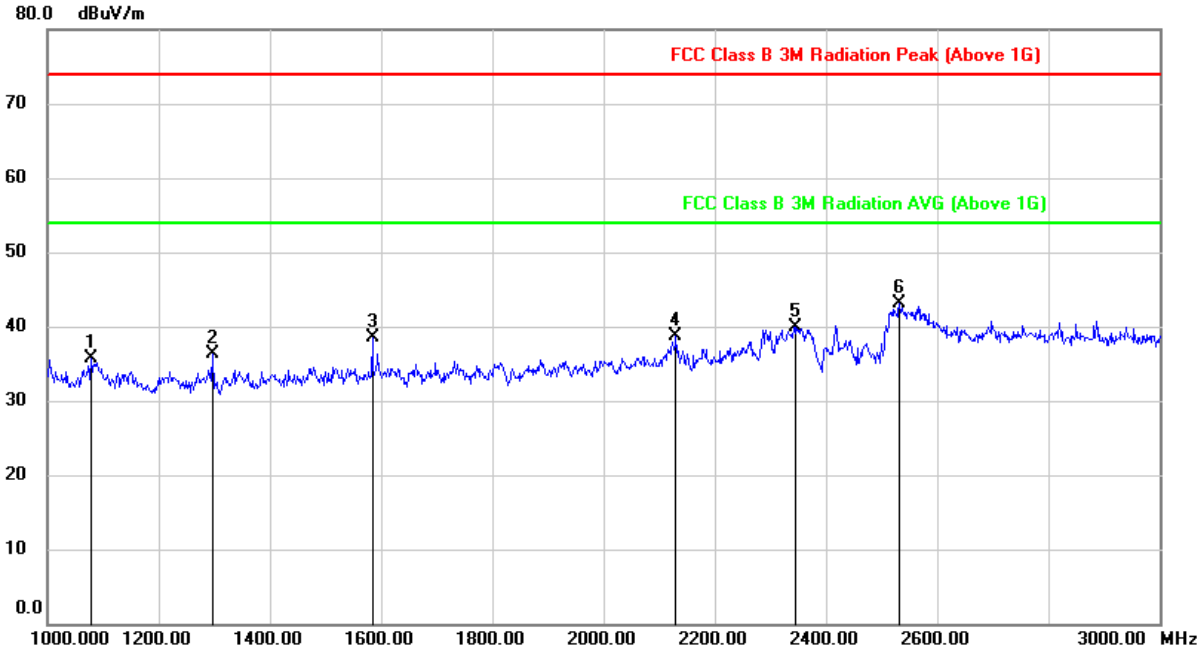
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1064.000	50.19	-12.78	37.41	74.00	-36.59	peak
2	1344.000	45.74	-11.52	34.22	74.00	-39.78	peak
3	1592.000	46.25	-10.69	35.56	74.00	-38.44	peak
4	1800.000	48.27	-9.42	38.85	74.00	-35.15	peak
5	2348.000	48.25	-7.31	40.94	74.00	-33.06	peak
6	2534.000	49.75	-6.50	43.25	74.00	-30.75	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

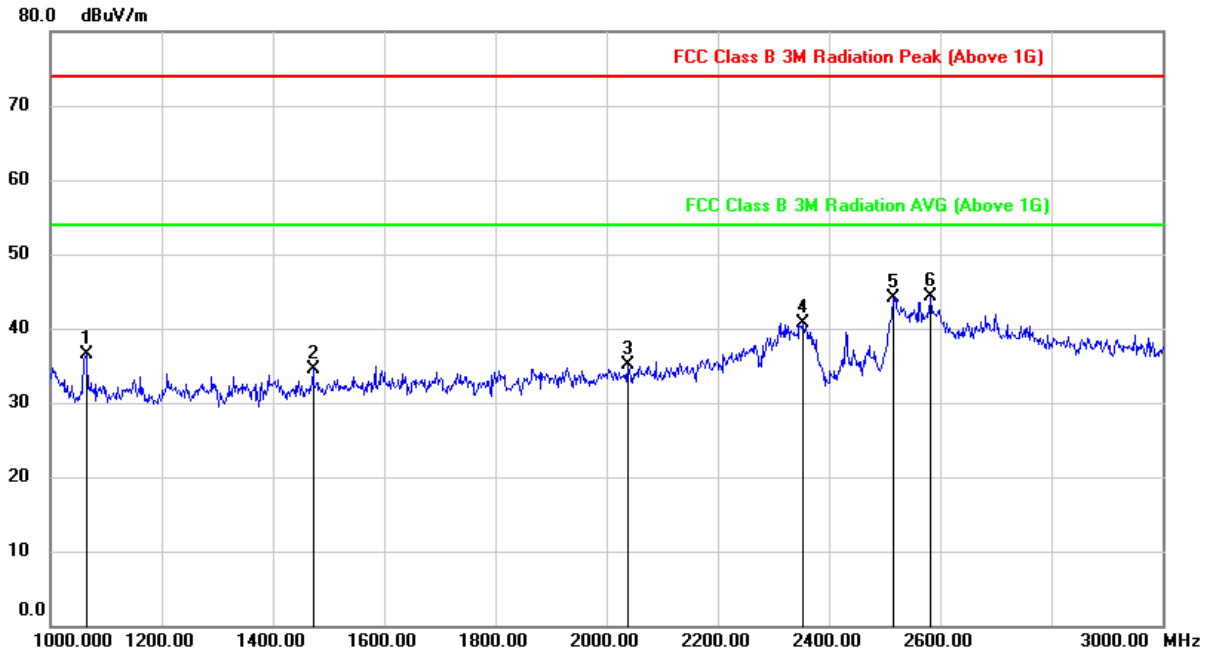
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1078.000	48.34	-12.71	35.63	74.00	-38.37	peak
2	1296.000	47.62	-11.26	36.36	74.00	-37.64	peak
3	1584.000	49.25	-10.77	38.48	74.00	-35.52	peak
4	2130.000	46.99	-8.36	38.63	74.00	-35.37	peak
5	2344.000	47.28	-7.32	39.96	74.00	-34.04	peak
6	2532.000	49.54	-6.48	43.06	74.00	-30.94	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

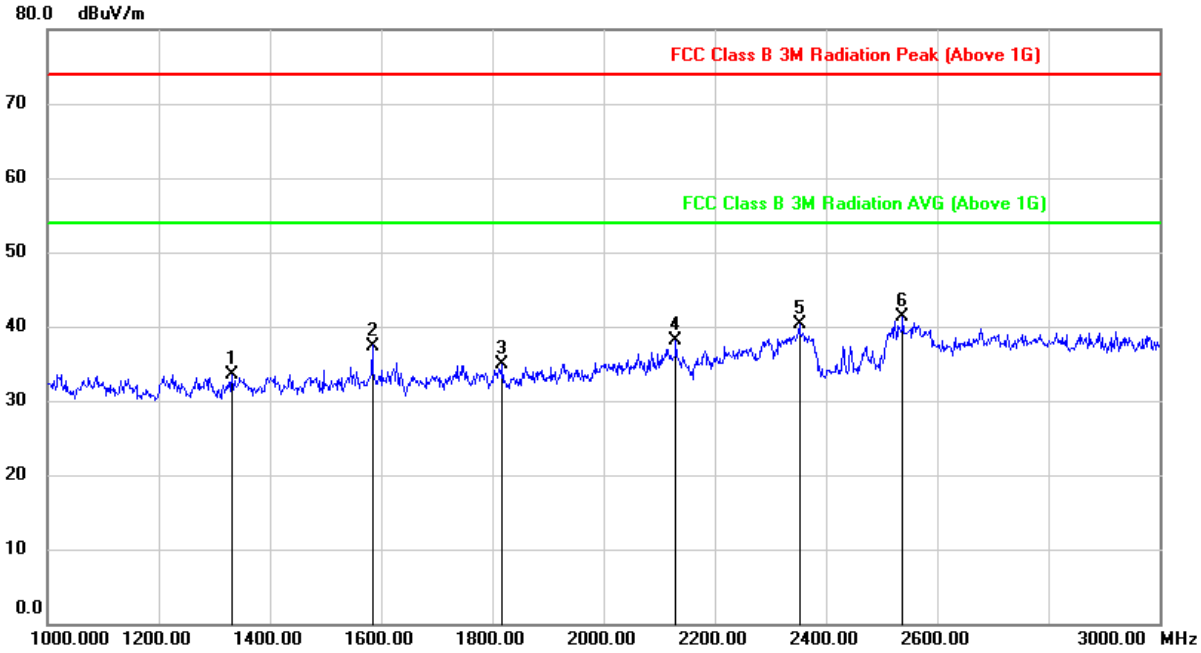
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1064.000	49.30	-12.78	36.52	74.00	-37.48	peak
2	1472.000	46.27	-11.69	34.58	74.00	-39.42	peak
3	2038.000	44.27	-9.22	35.05	74.00	-38.95	peak
4	2352.000	48.01	-7.29	40.72	74.00	-33.28	peak
5	2516.000	50.47	-6.40	44.07	74.00	-29.93	peak
6	2582.000	51.00	-6.72	44.28	74.00	-29.72	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

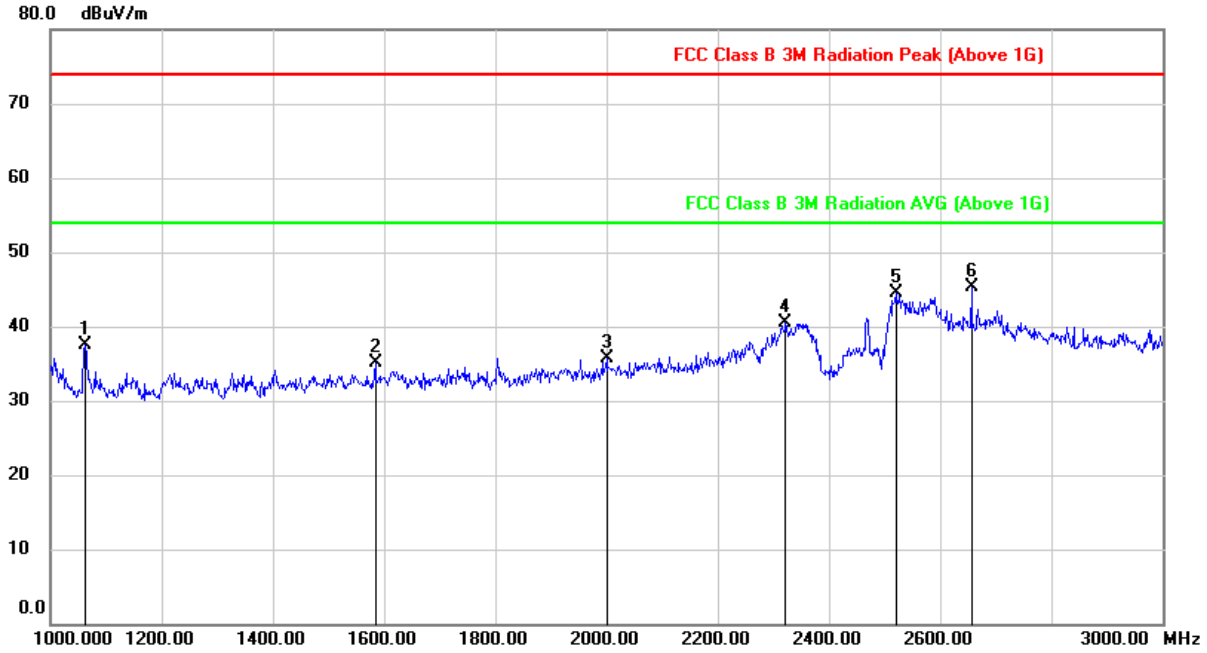
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1332.000	44.89	-11.43	33.46	74.00	-40.54	peak
2	1584.000	48.17	-10.77	37.40	74.00	-36.60	peak
3	1818.000	44.33	-9.39	34.94	74.00	-39.06	peak
4	2130.000	46.38	-8.36	38.02	74.00	-35.98	peak
5	2352.000	47.57	-7.29	40.28	74.00	-33.72	peak
6	2538.000	47.76	-6.51	41.25	74.00	-32.75	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

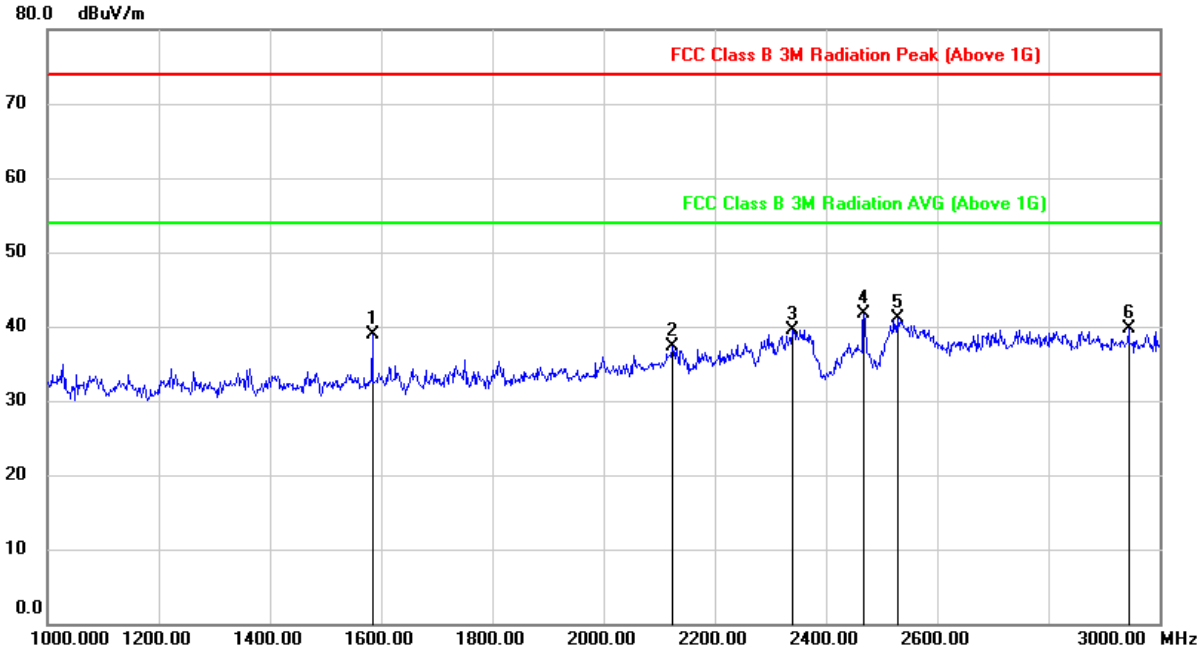
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1062.000	50.26	-12.80	37.46	74.00	-36.54	peak
2	1584.000	45.78	-10.77	35.01	74.00	-38.99	peak
3	2000.000	45.58	-9.78	35.80	74.00	-38.20	peak
4	2322.000	47.81	-7.40	40.41	74.00	-33.59	peak
5	2520.000	50.87	-6.43	44.44	74.00	-29.56	peak
6	2656.000	52.51	-7.15	45.36	74.00	-28.64	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

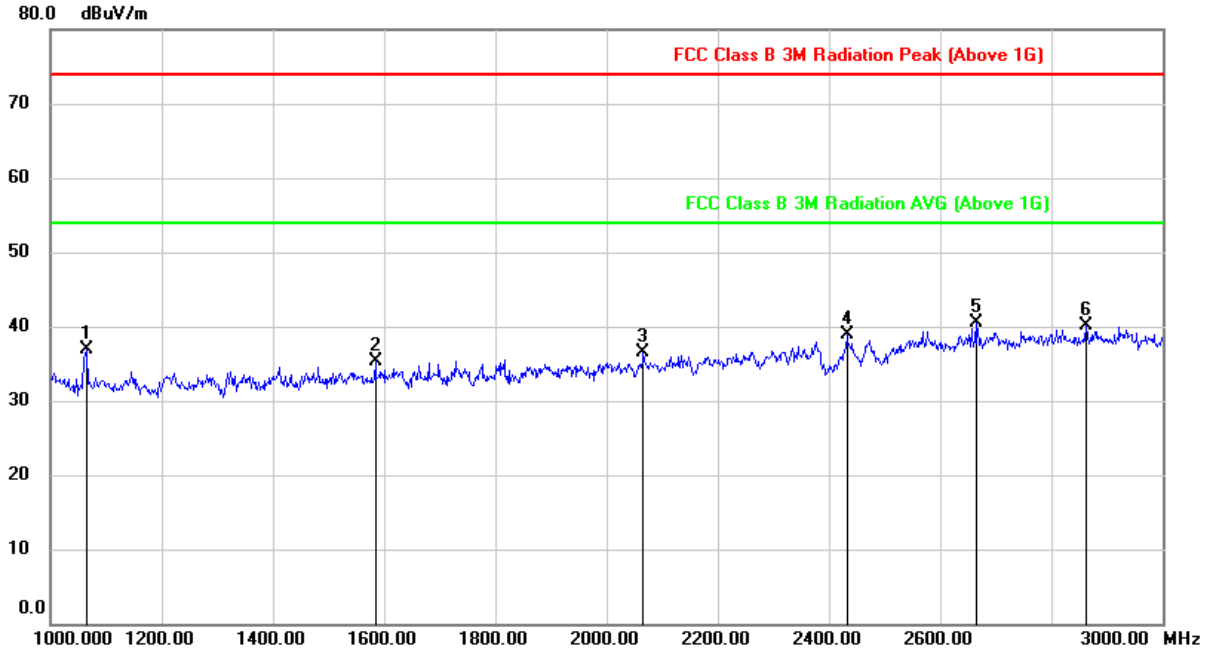


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1584.000	49.58	-10.77	38.81	74.00	-35.19	peak
2	2124.000	45.59	-8.35	37.24	74.00	-36.76	peak
3	2340.000	46.85	-7.34	39.51	74.00	-34.49	peak
4	2468.000	48.37	-6.59	41.78	74.00	-32.22	peak
5	2528.000	47.60	-6.46	41.14	74.00	-32.86	peak
6	2944.000	44.62	-4.90	39.72	74.00	-34.28	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

9.3.3. 802.11n HT20 MODE

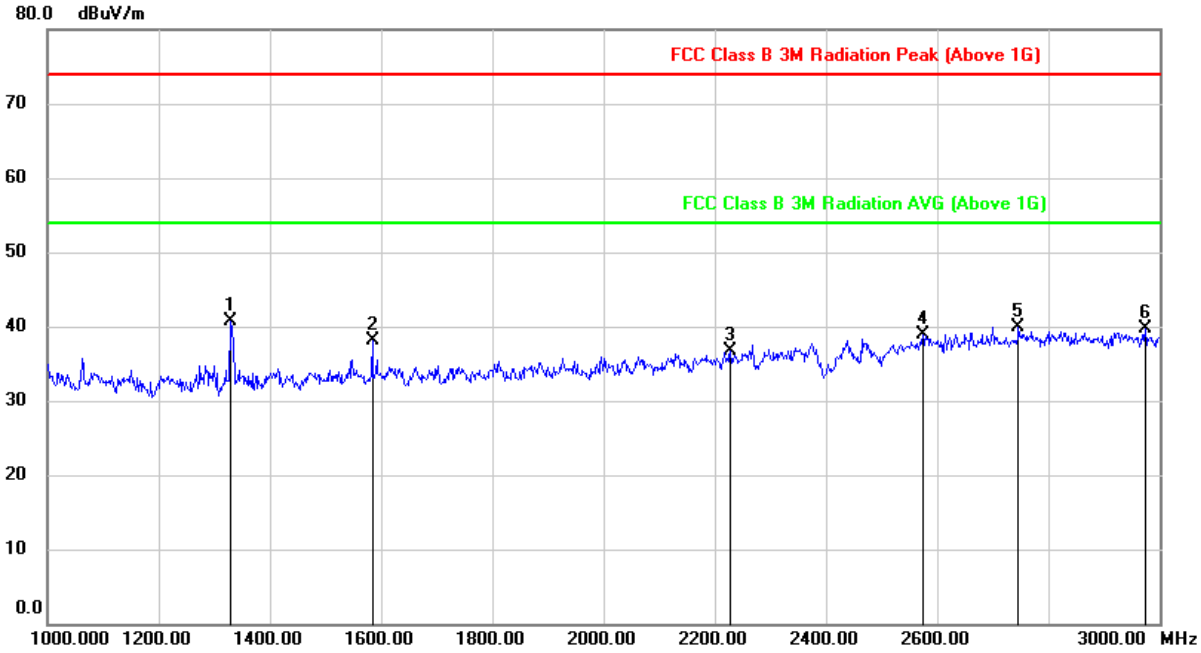
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1064.000	49.68	-12.78	36.90	74.00	-37.10	peak
2	1584.000	46.08	-10.77	35.31	74.00	-38.69	peak
3	2066.000	45.23	-8.81	36.42	74.00	-37.58	peak
4	2432.000	45.71	-6.85	38.86	74.00	-35.14	peak
5	2664.000	47.70	-7.20	40.50	74.00	-33.50	peak
6	2862.000	45.28	-5.17	40.11	74.00	-33.89	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

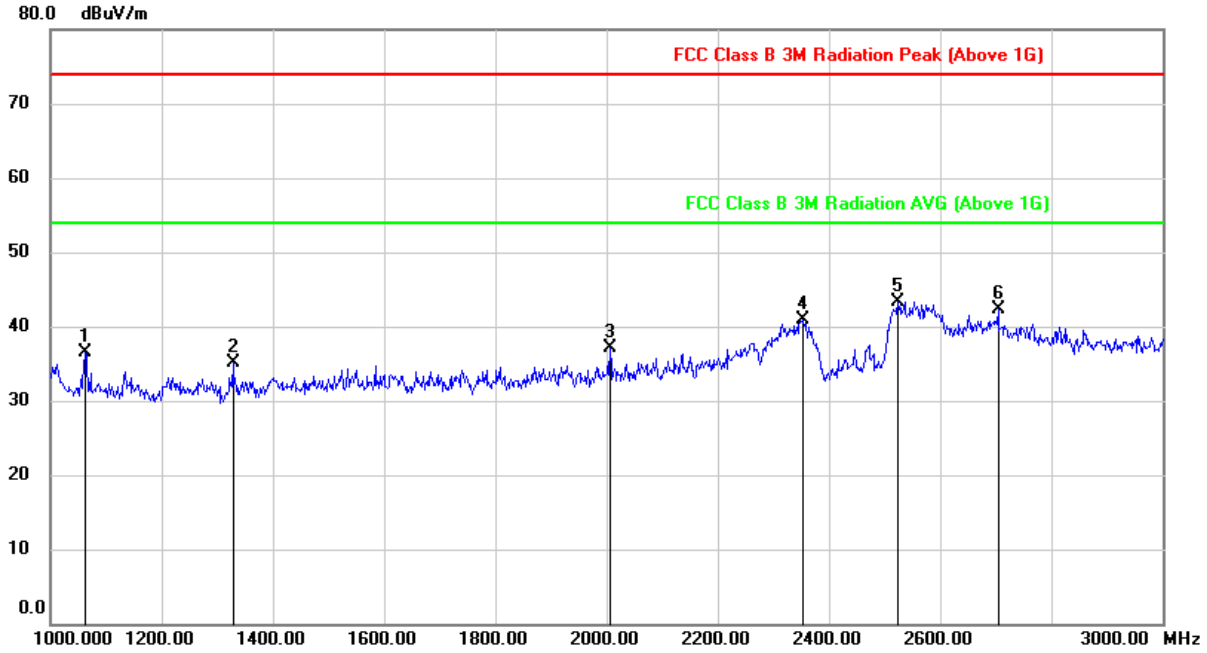
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1328.000	52.02	-11.41	40.61	74.00	-33.39	peak
2	1584.000	48.85	-10.77	38.08	74.00	-35.92	peak
3	2228.000	44.79	-8.17	36.62	74.00	-37.38	peak
4	2574.000	45.66	-6.68	38.98	74.00	-35.02	peak
5	2746.000	46.37	-6.40	39.97	74.00	-34.03	peak
6	2974.000	44.41	-4.73	39.68	74.00	-34.32	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

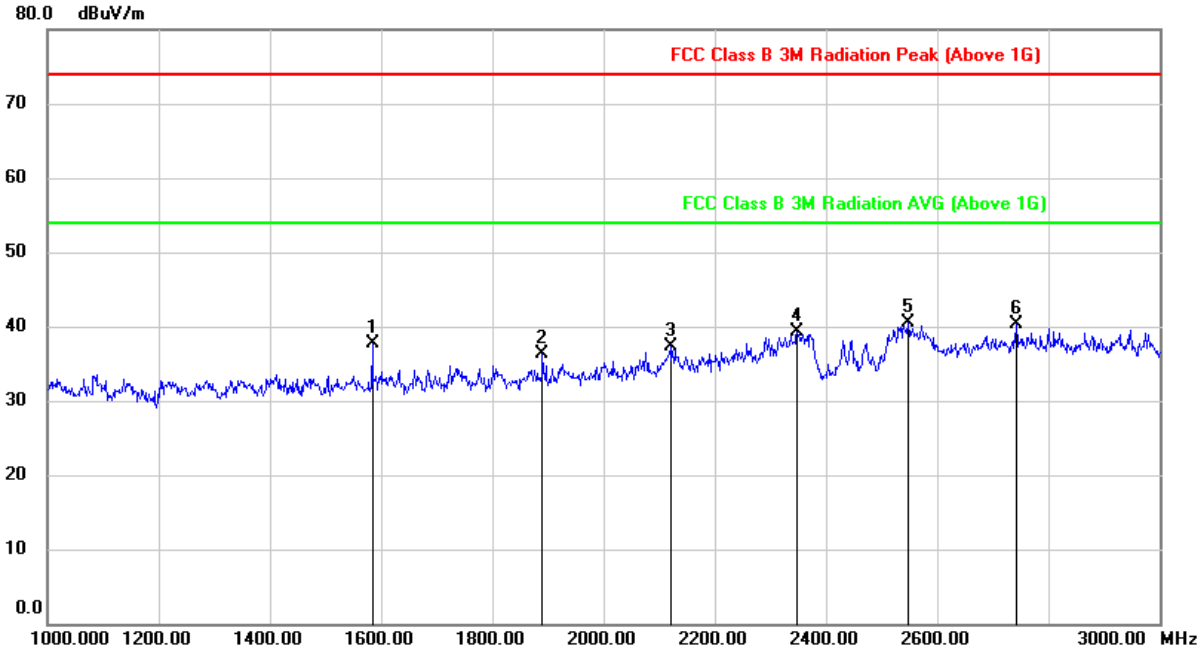
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1062.000	49.21	-12.80	36.41	74.00	-37.59	peak
2	1328.000	46.47	-11.41	35.06	74.00	-38.94	peak
3	2006.000	46.83	-9.70	37.13	74.00	-36.87	peak
4	2354.000	48.12	-7.28	40.84	74.00	-33.16	peak
5	2524.000	49.80	-6.45	43.35	74.00	-30.65	peak
6	2704.000	49.57	-7.34	42.23	74.00	-31.77	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

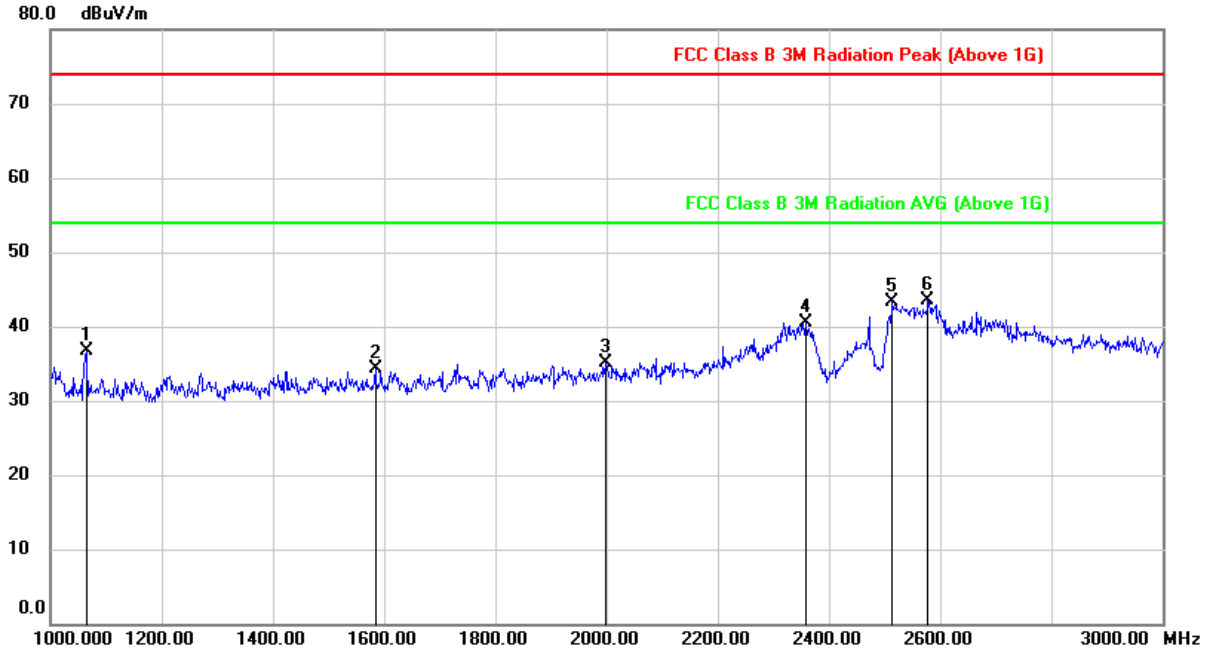
HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1584.000	48.55	-10.77	37.78	74.00	-36.22	peak
2	1890.000	45.71	-9.31	36.40	74.00	-37.60	peak
3	2120.000	45.56	-8.34	37.22	74.00	-36.78	peak
4	2348.000	46.59	-7.31	39.28	74.00	-34.72	peak
5	2548.000	47.01	-6.56	40.45	74.00	-33.55	peak
6	2742.000	46.82	-6.49	40.33	74.00	-33.67	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

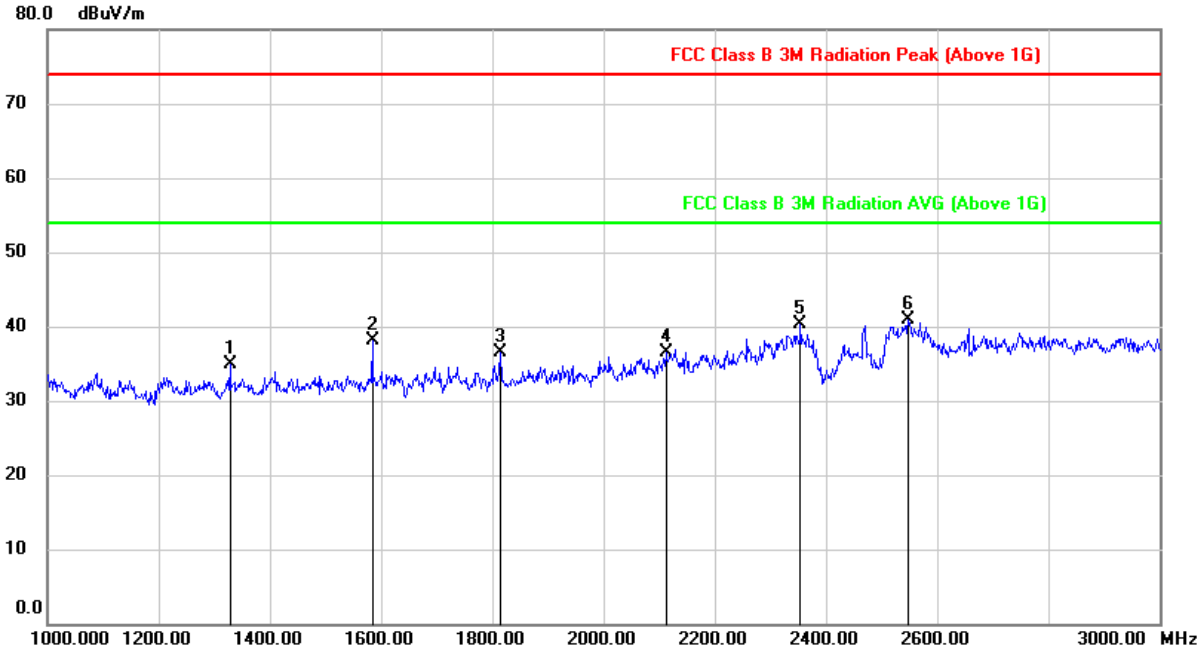
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1064.000	49.56	-12.78	36.78	74.00	-37.22	peak
2	1584.000	45.03	-10.77	34.26	74.00	-39.74	peak
3	1998.000	44.97	-9.77	35.20	74.00	-38.80	peak
4	2358.000	47.83	-7.27	40.56	74.00	-33.44	peak
5	2514.000	49.68	-6.40	43.28	74.00	-30.72	peak
6	2578.000	50.14	-6.70	43.44	74.00	-30.56	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



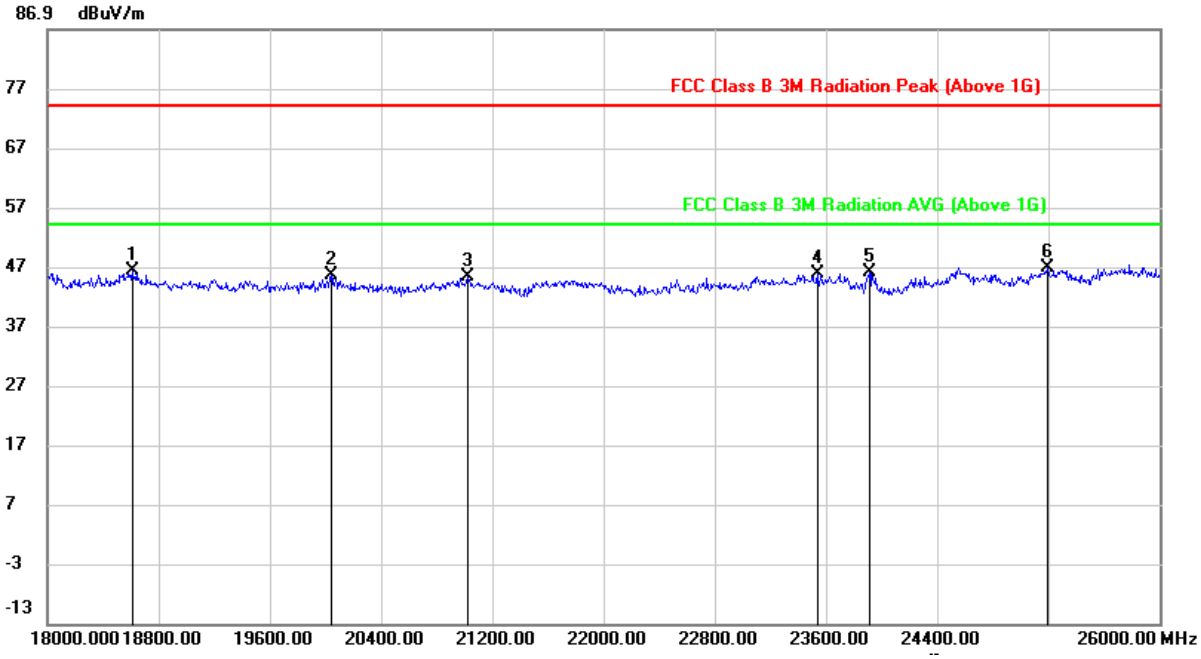
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1328.000	46.26	-11.41	34.85	74.00	-39.15	peak
2	1584.000	48.87	-10.77	38.10	74.00	-35.90	peak
3	1814.000	45.82	-9.40	36.42	74.00	-37.58	peak
4	2112.000	44.91	-8.34	36.57	74.00	-37.43	peak
5	2354.000	47.55	-7.28	40.27	74.00	-33.73	peak
6	2548.000	47.46	-6.56	40.90	74.00	-33.10	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

9.4. SPURIOUS EMISSIONS (18~26GHz)

9.4.1. 802.11b MODE

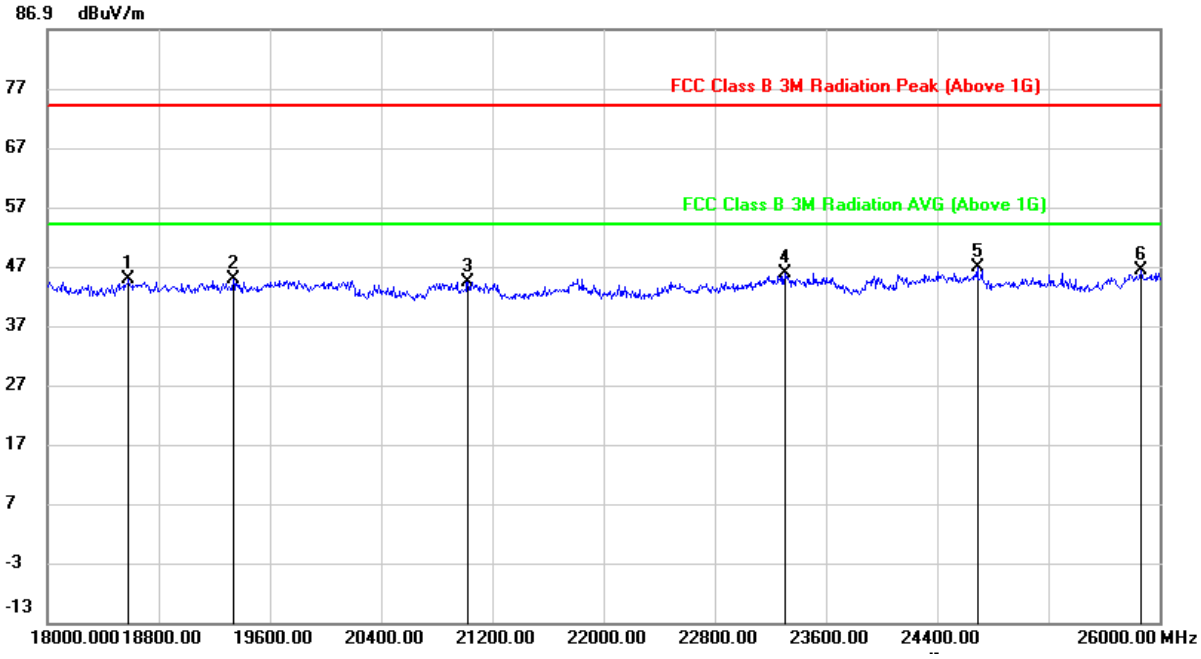
SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18608.000	50.86	-4.58	46.28	74.00	-27.72	peak
2	20040.000	49.89	-4.46	45.43	74.00	-28.57	peak
3	21024.000	50.62	-5.30	45.32	74.00	-28.68	peak
4	23536.000	50.46	-4.74	45.72	74.00	-28.28	peak
5	23912.000	50.32	-4.23	46.09	74.00	-27.91	peak
6	25192.000	47.99	-1.16	46.83	74.00	-27.17	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	18584.000	49.19	-4.53	44.66	74.00	-29.34	peak
2	19336.000	49.70	-4.97	44.73	74.00	-29.27	peak
3	21024.000	49.64	-5.30	44.34	74.00	-29.66	peak
4	23304.000	50.87	-5.16	45.71	74.00	-28.29	peak
5	24688.000	48.89	-2.11	46.78	74.00	-27.22	peak
6	25864.000	48.08	-1.84	46.24	74.00	-27.76	peak

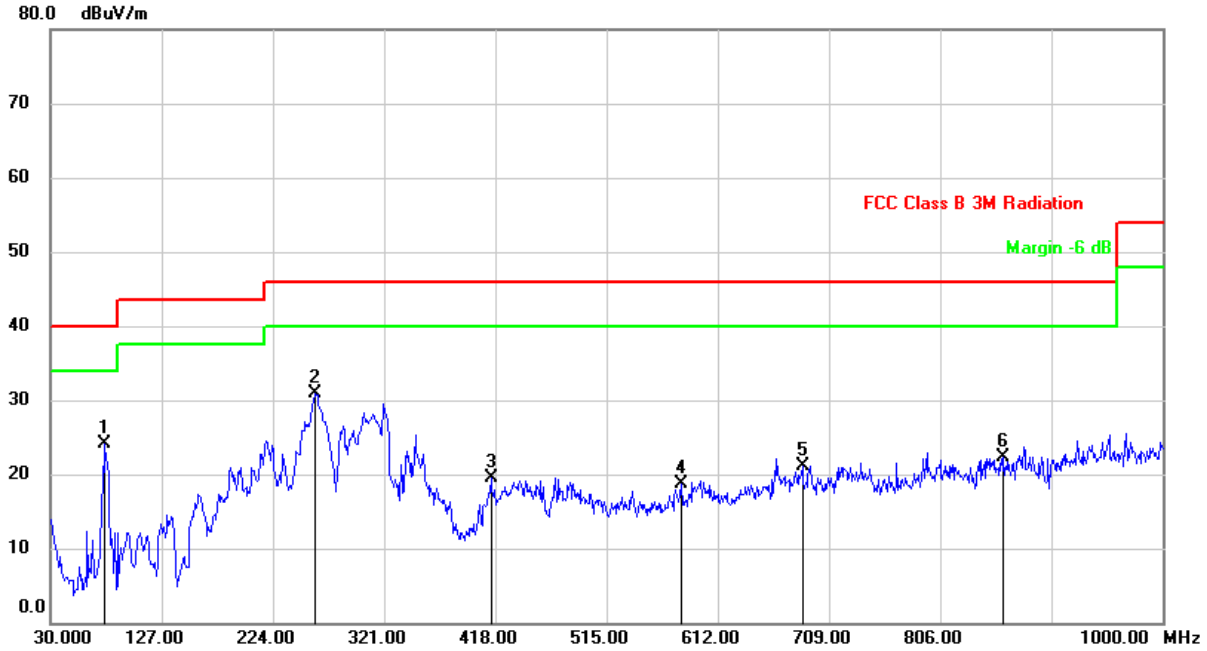
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

Note: All test mode has been tested, only the worst data record in the report

9.5. SPURIOUS EMISSIONS (0.03 ~ 1 GHz)

9.5.1. 802.11b MODE

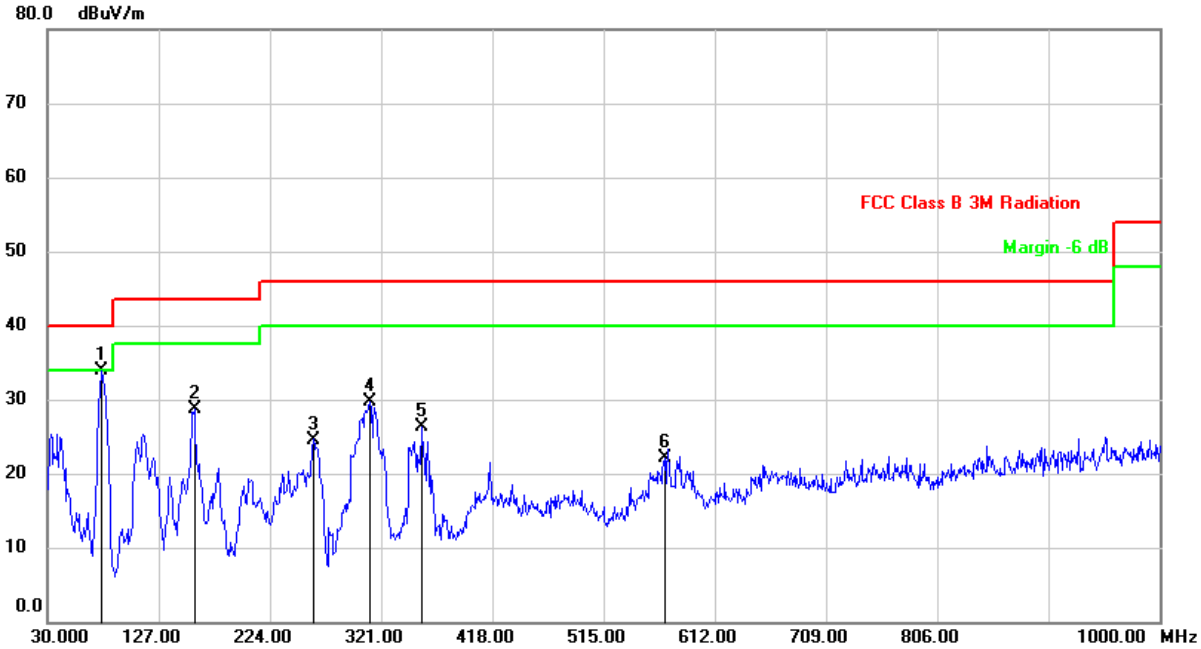
SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	77.5300	44.46	-20.45	24.01	40.00	-15.99	QP
2	260.8599	46.67	-15.70	30.97	46.00	-15.03	QP
3	414.1200	31.65	-12.07	19.58	46.00	-26.42	QP
4	579.9900	27.35	-8.71	18.64	46.00	-27.36	QP
5	685.7199	28.06	-6.91	21.15	46.00	-24.85	QP
6	861.2900	26.85	-4.55	22.30	46.00	-23.70	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	77.5300	54.27	-20.45	33.82	40.00	-6.18	QP
2	158.0399	46.59	-17.84	28.75	43.50	-14.75	QP
3	261.8299	40.25	-15.65	24.60	46.00	-21.40	QP
4	311.3000	43.44	-13.77	29.67	46.00	-16.33	QP
5	355.9200	39.36	-13.09	26.27	46.00	-19.73	QP
6	568.3500	31.19	-9.04	22.15	46.00	-23.85	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

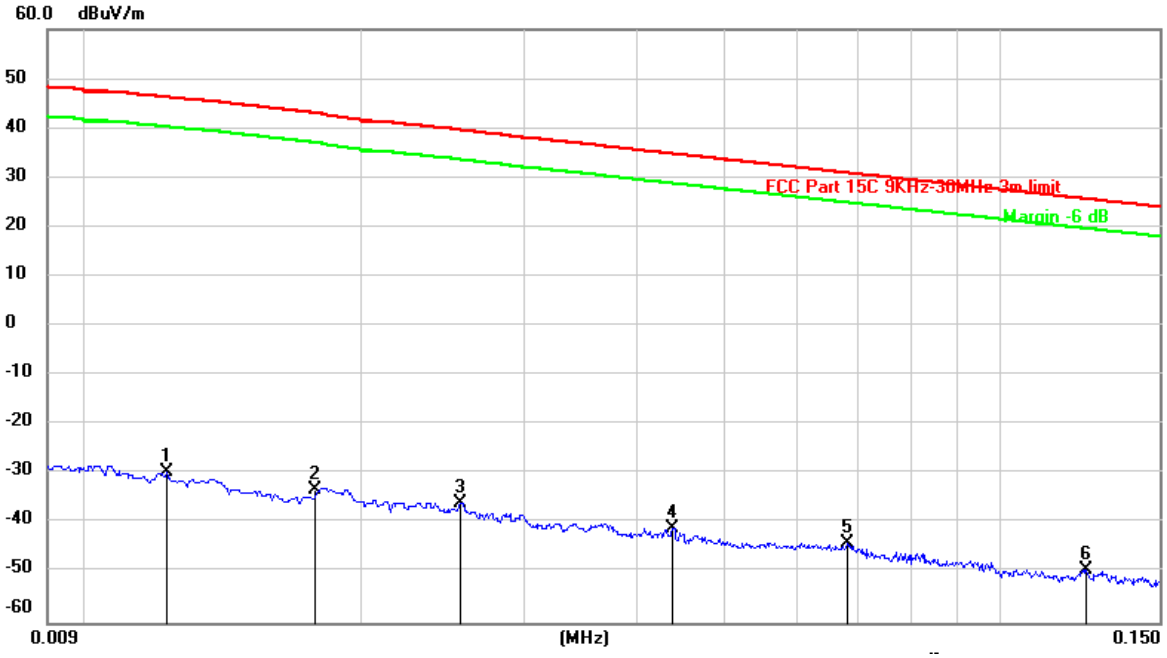
Note: All test mode has been tested, only the worst data record in the report

9.6. SPURIOUS EMISSIONS BELOW 30M

9.6.1. 802.11b MODE

SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)

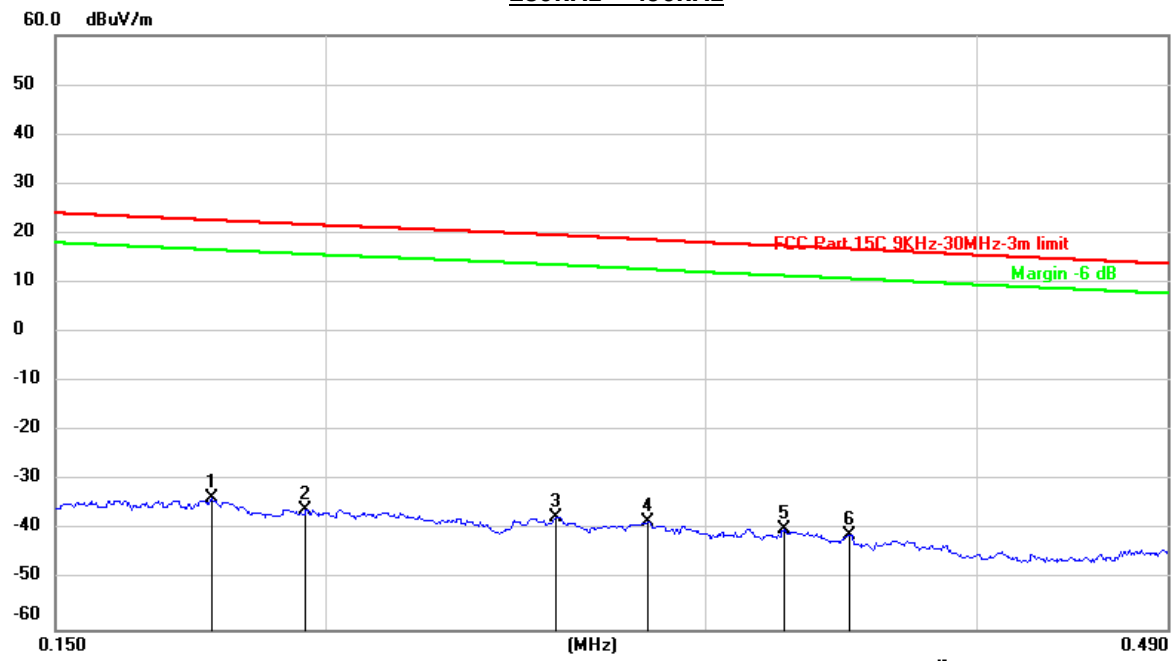
0.09kHz~ 150kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0122	71.73	-101.39	-29.66	46.28	-75.94	peak
2	0.0177	68.35	-101.35	-33.00	42.96	-75.96	peak
3	0.0256	65.41	-101.37	-35.96	39.61	-75.57	peak
4	0.0437	60.50	-101.45	-40.95	34.84	-75.79	peak
5	0.0680	57.58	-101.56	-43.98	30.97	-74.95	peak
6	0.1246	52.46	-101.72	-49.26	25.70	-74.96	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

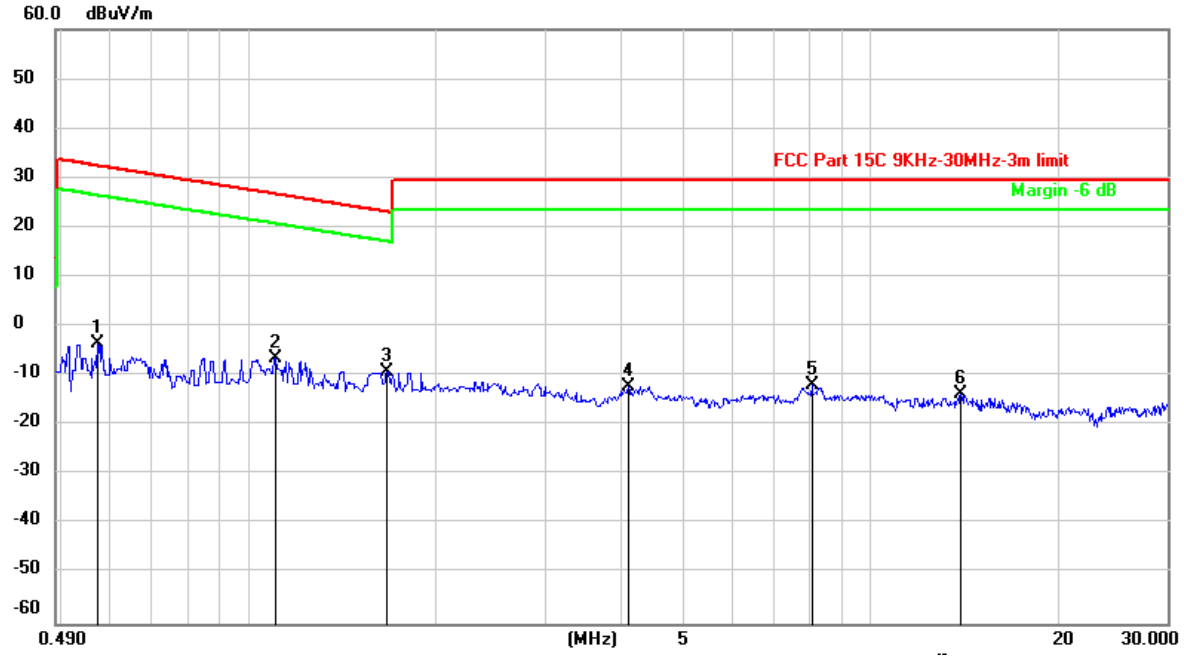
150kHz ~ 490kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1774	68.31	-101.68	-33.37	22.63	-56.00	peak
2	0.1958	65.98	-101.71	-35.73	21.77	-57.50	peak
3	0.2555	64.59	-101.80	-37.21	19.63	-56.84	peak
4	0.2816	63.67	-101.83	-38.16	18.71	-56.87	peak
5	0.3256	62.08	-101.88	-39.80	17.42	-57.22	peak
6	0.3496	61.02	-101.91	-40.89	16.82	-57.71	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

490kHz ~ 30MHz

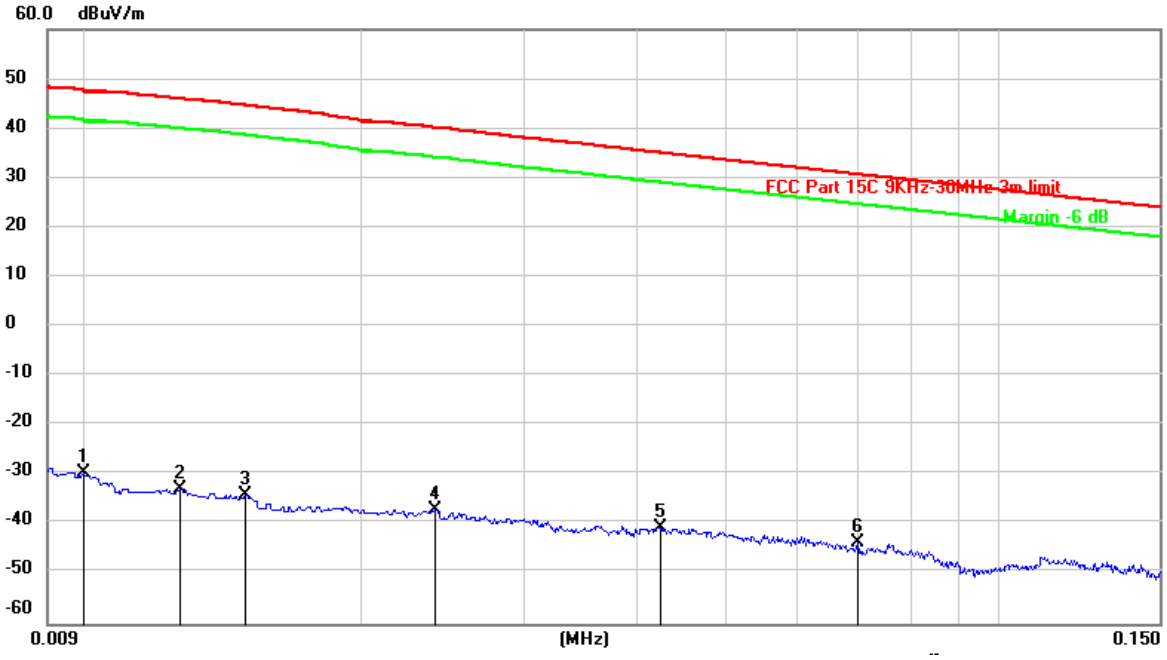


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5725	58.53	-62.07	-3.54	32.48	-36.02	peak
2	1.1090	55.76	-62.22	-6.46	26.71	-33.17	peak
3	1.6704	52.72	-61.97	-9.25	23.15	-32.40	peak
4	4.0901	49.32	-61.35	-12.03	29.54	-41.57	peak
5	8.0446	49.10	-61.07	-11.97	29.54	-41.51	peak
6	13.9761	47.30	-60.97	-13.67	29.54	-43.21	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

SPURIOUS EMISSIONS (MID CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

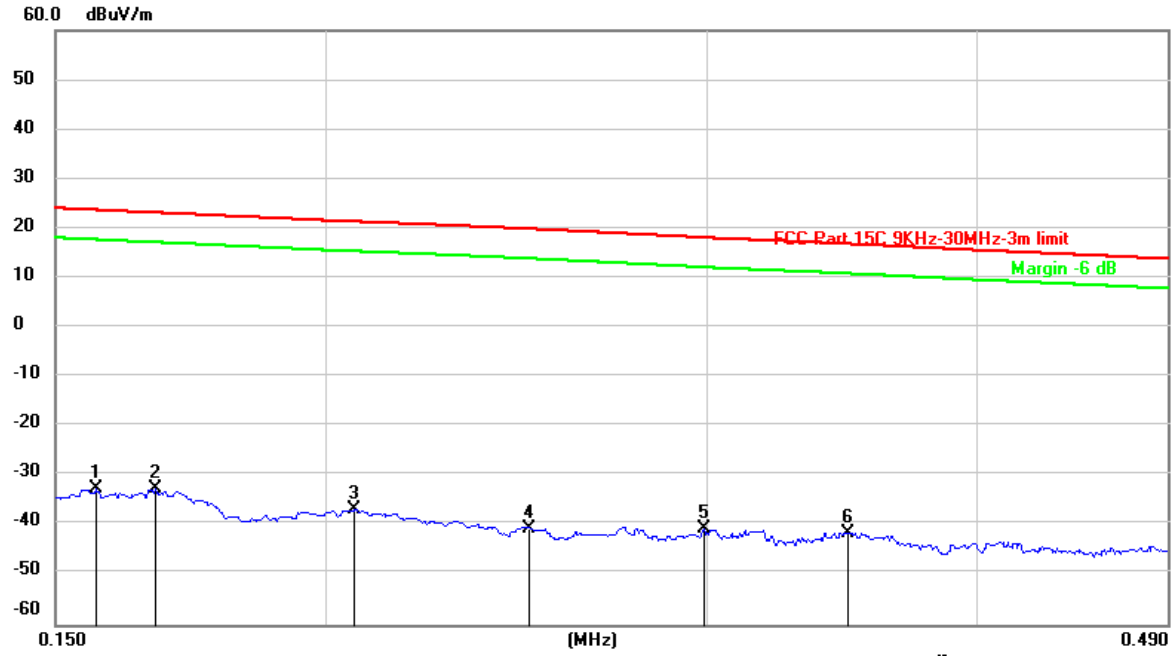
0.09~ 150kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	71.72	-101.40	-29.68	47.60	-77.28	peak
2	0.0126	68.43	-101.38	-32.95	46.03	-78.98	peak
3	0.0149	67.37	-101.37	-34.00	44.65	-78.65	peak
4	0.0240	64.32	-101.36	-37.04	40.17	-77.21	peak
5	0.0424	60.85	-101.44	-40.59	35.09	-75.68	peak
6	0.0700	57.91	-101.57	-43.66	30.70	-74.36	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

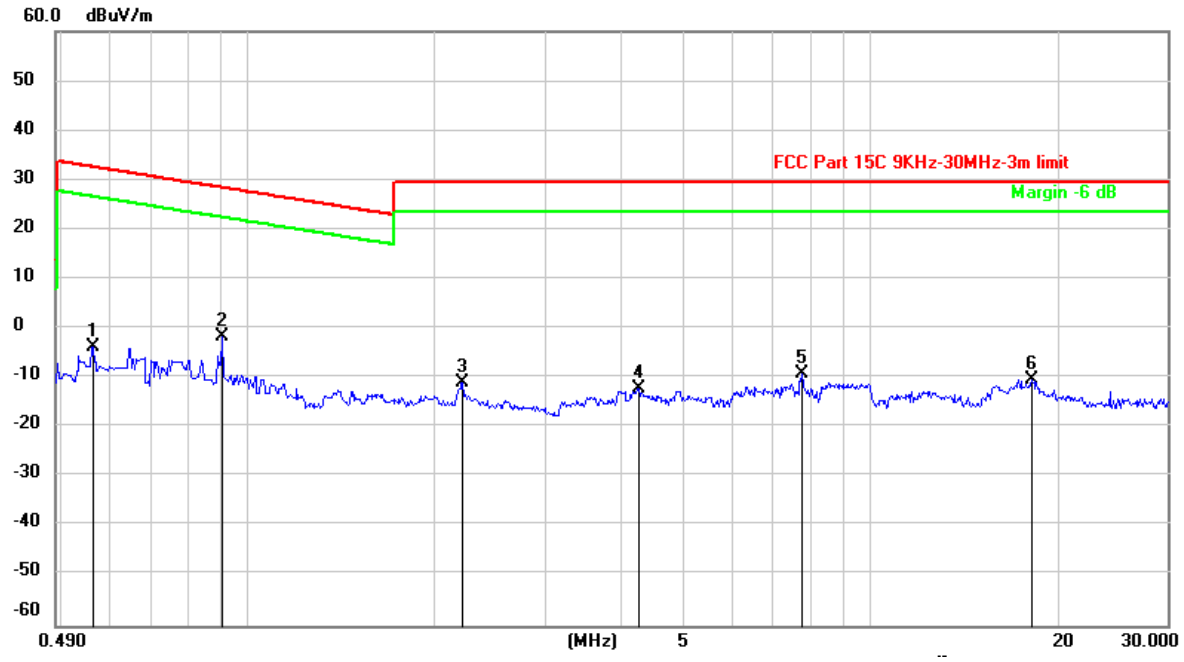
150kHz ~ 490kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1565	69.03	-101.65	-32.62	23.72	-56.34	peak
2	0.1669	69.15	-101.66	-32.51	23.16	-55.67	peak
3	0.2064	65.08	-101.73	-36.65	21.35	-58.00	peak
4	0.2484	61.30	-101.80	-40.50	19.88	-60.38	peak
5	0.2993	61.33	-101.85	-40.52	18.08	-58.60	peak
6	0.3487	60.41	-101.91	-41.50	16.84	-58.34	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

490kHz ~ 30MHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5635	58.37	-62.08	-3.71	32.62	-36.33	peak
2	0.9082	60.65	-62.21	-1.56	28.44	-30.00	peak
3	2.2090	50.94	-61.78	-10.84	29.54	-40.38	peak
4	4.2492	49.35	-61.37	-12.02	29.54	-41.56	peak
5	7.7495	51.98	-61.11	-9.13	29.54	-38.67	peak
6	18.1960	50.51	-60.90	-10.39	29.54	-39.93	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

Note: All test mode has been tested, only the worst data record in the report

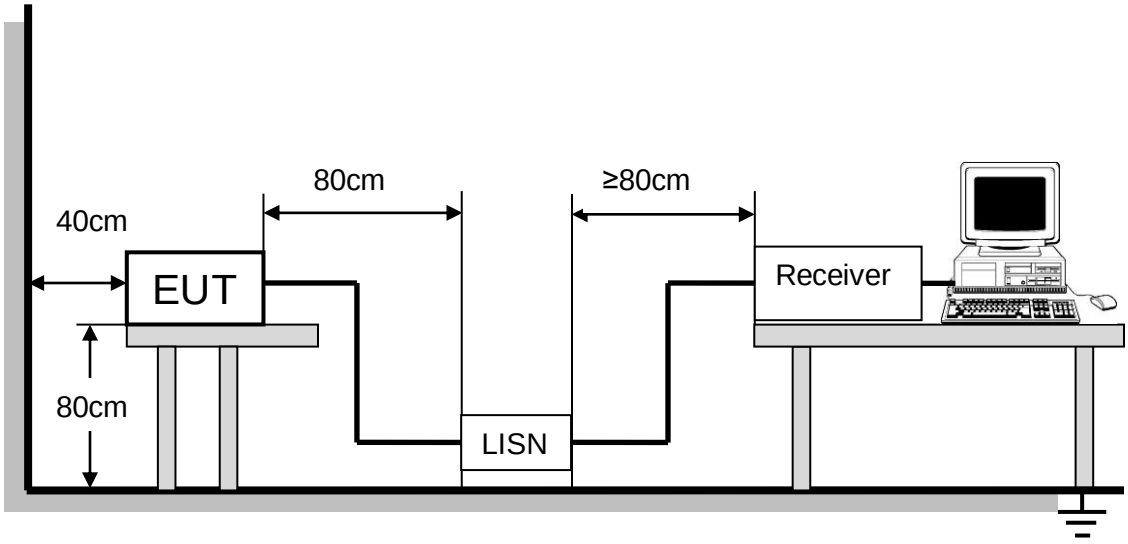
10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

TEST SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

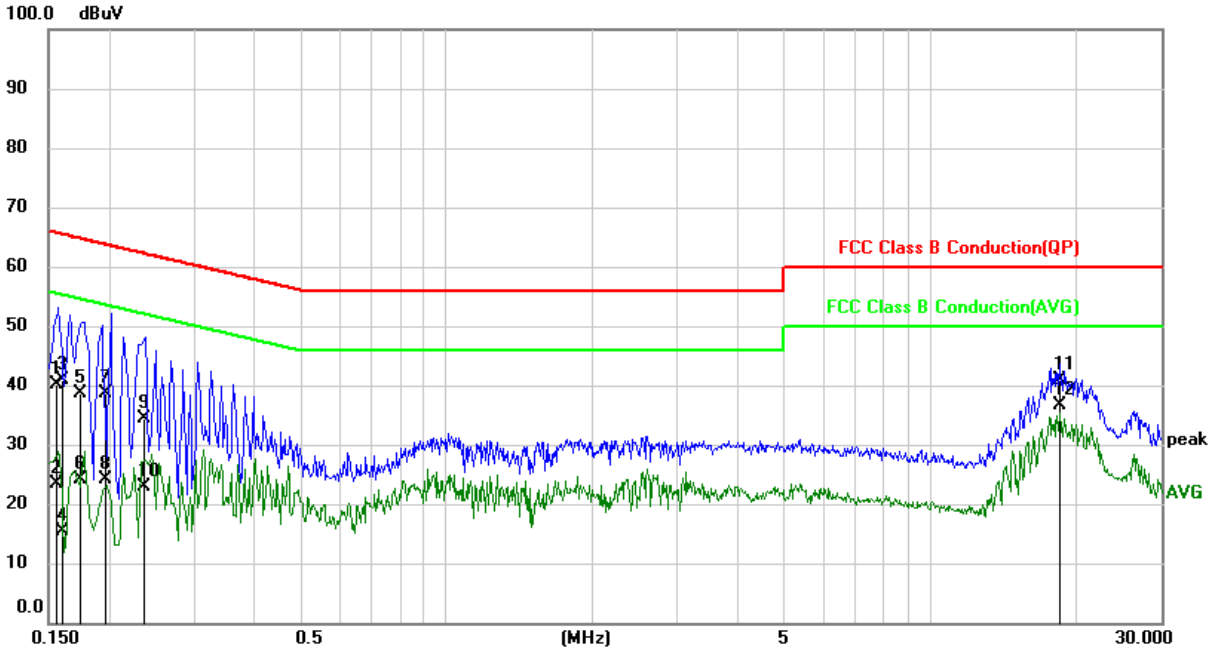
TEST ENVIRONMENT

Temperature	22.5°C	Relative Humidity	53%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V,60Hz

TEST RESULTS

10.1. 802.11b MODE

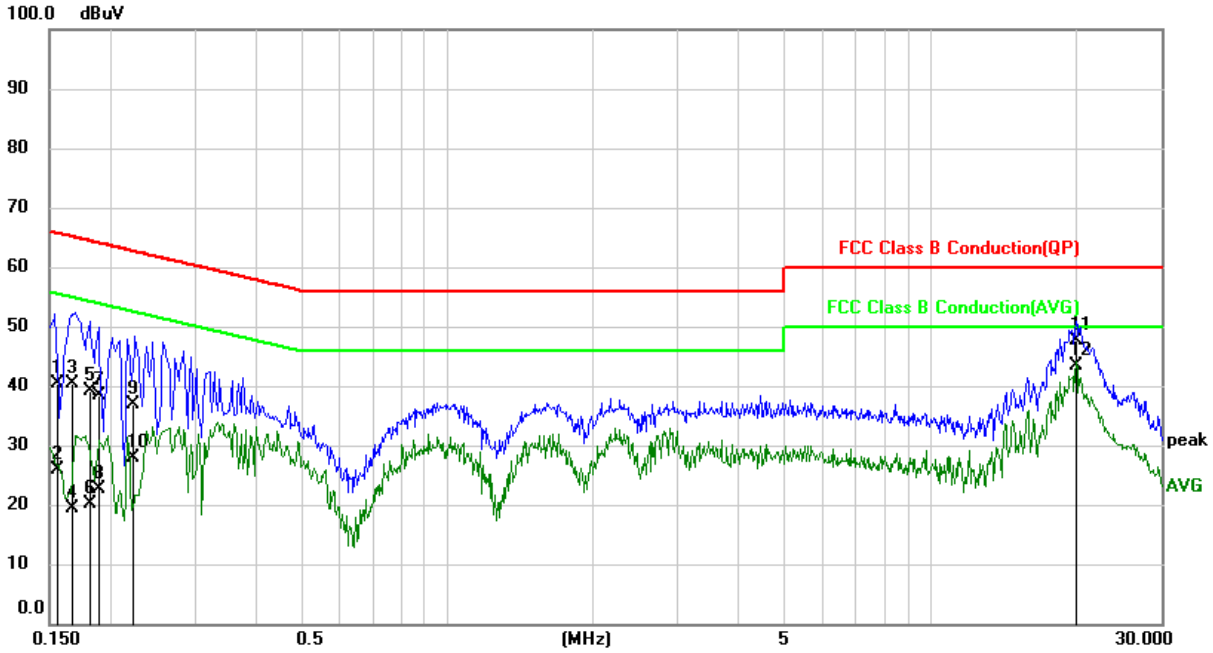
LINE N RESULTS (MID CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1550	30.47	9.60	40.07	65.73	-25.66	QP
2	0.1550	13.72	9.60	23.32	55.73	-32.41	AVG
3	0.1613	31.39	9.60	40.99	65.40	-24.41	QP
4	0.1613	5.82	9.60	15.42	55.40	-39.98	AVG
5	0.1746	29.12	9.60	38.72	64.74	-26.02	QP
6	0.1746	14.65	9.60	24.25	54.74	-30.49	AVG
7	0.1979	28.95	9.60	38.55	63.70	-25.15	QP
8	0.1979	14.49	9.60	24.09	53.70	-29.61	AVG
9	0.2361	24.72	9.60	34.32	62.23	-27.91	QP
10	0.2361	13.37	9.60	22.97	52.23	-29.26	AVG
11	18.5198	30.68	10.15	40.83	60.00	-19.17	QP
12	18.5198	26.50	10.15	36.65	50.00	-13.35	AVG

Note: 1. Result = Reading +Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

LINE L RESULTS (HIGH CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1564	30.79	9.61	40.40	65.65	-25.25	QP
2	0.1564	16.33	9.61	25.94	55.65	-29.71	AVG
3	0.1662	30.75	9.61	40.36	65.15	-24.79	QP
4	0.1662	9.71	9.61	19.32	55.15	-35.83	AVG
5	0.1827	29.53	9.61	39.14	64.36	-25.22	QP
6	0.1827	10.49	9.61	20.10	54.36	-34.26	AVG
7	0.1892	28.88	9.60	38.48	64.07	-25.59	QP
8	0.1892	13.12	9.60	22.72	54.07	-31.35	AVG
9	0.2221	27.21	9.60	36.81	62.74	-25.93	QP
10	0.2221	18.17	9.60	27.77	52.74	-24.97	AVG
11	19.9999	37.63	10.12	47.75	60.00	-12.25	QP
12	19.9999	33.23	10.12	43.35	50.00	-6.65	AVG

Note: 1. Result = Reading +Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

Note: All test mode has been tested, only the worst data record in the report

11. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. 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.

RESULTS

Complies

END OF REPORT