FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

UAV Ground Station

MODEL NUMBER: DHI-UAV-S10-HV

REPORT NUMBER: 4788103049-2-7

FCC ID: SVNX820UAV-S

ISSUE DATE: November 03, 2017

Prepared for

Zhejiang Dahua Vision Technology Co., Ltd.

No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	11/03/2017	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Zhejiang Dahua Vision Technology Co., Ltd.
Address:	No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

Manufacturer Information

Company Name:	Zhejiang Dahua Vision Technology Co., Ltd.
Address:	No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

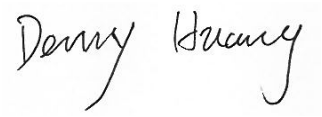
Factory Information

Company Name:	Zhejiang Dahua Vision Technology Co., Ltd.
Address:	No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

EUT Name:	UAV Ground Station
Brand:	alhua
Model:	DHI-UAV-S10-HV
Serials mode:	UAV-S10-HV
Model Difference	All the same except for the model name.
Date of Tested:	September 01, 2017~ October 22, 2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	PASS

Tested By:



Denny Huang
Engineer Project Associate

Checked By:

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Approved By:

Stephen Guo

Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 558074 D01 DTS Meas Guidance v04, 414788 D01 Radiated Test Site v01, FCC CFR 47 Part 2, FCC CFR 47 Part 15 and ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

Test Location	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Address	Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China
Accreditation Certificate	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. The Certificate Registration Number is 4102.01. UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The Designation Number is CN1187. UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been registered and fully described in a report filed with Industry Canada. The Company Number is 21320.

Note:

1. 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.
2. 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 OATS.

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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
Uncertainty for Conduction emission test	2.90dB
Uncertainty for Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.52dB
Uncertainty for Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	5.04dB(1-6GHz)
	5.30dB (6GHz-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

Equipment	UAV Ground Station
Model Name	DHI-UAV-S10-HV
Radio Technology	IEEE802.11b/g/n HT20
Operation frequency	IEEE 802.11b: 2462MHz IEEE 802.11g: 2462MHz IEEE 802.11n HT20: 2462MHz
Modulation	IEEE 802.11b: DSSS(CCK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK)
Adapter	Input: AC 100~240V, 50~60Hz, 0.3A Output: DC 24V/0.42A
Battery	DC 10.65V, 8550mAh

Note: The WiFi of EUT had been locked at 2462MHz channel by customer through software, so we only test the 2462MHz channel.

5.2. MAXIMUM OUTPUT POWER

Frequency Range (MHz)	Number of Transmit Chains (NTX)	IEE Std. 802.11	Frequency (MHz)	Channel Number	Max PK Conducted Power (dBm)
2462	1	IEEE 802.11b	2462	11[1]	21.195
2462	1	IEEE 802.11g	2462	11[1]	20.220
2462	1	IEEE 802.11n HT20	2462	11[1]	20.543

5.3. CHANNEL LIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
11	2462						

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
WiFi TX(802.11b)	CH 11	2462MHz
WiFi TX(802.11g)	CH 11	2462MHz
WiFi TX(802.11n HT20)	CH 11	2462MHz

5.5. THE WORSE CASE CONFIGURATIONS

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Software		artgui					
Modulation Mode	Transmit Antenna Number	Test Channel					
		NCB: 20MHz			NCB: 40MHz		
		CH 1	CH 7	CH 11	CH 3	CH 7	CH 9
802.11b	1	N/A	N/A	21	N/A		
802.11g	1	N/A	N/A	20			
802.11n HT20	1	N/A	N/A	20			

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2462	PCB Antenna	5.0

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

5.7. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	23 ~ 28°C
Voltage :	VL	N/A
	VN	DC 10.56V
	VH	N/A

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	Laptop	ThinkPad	T460S	SL10K24796 JS

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	Ethernet Port	RJ45	Unshielded	1	N/A

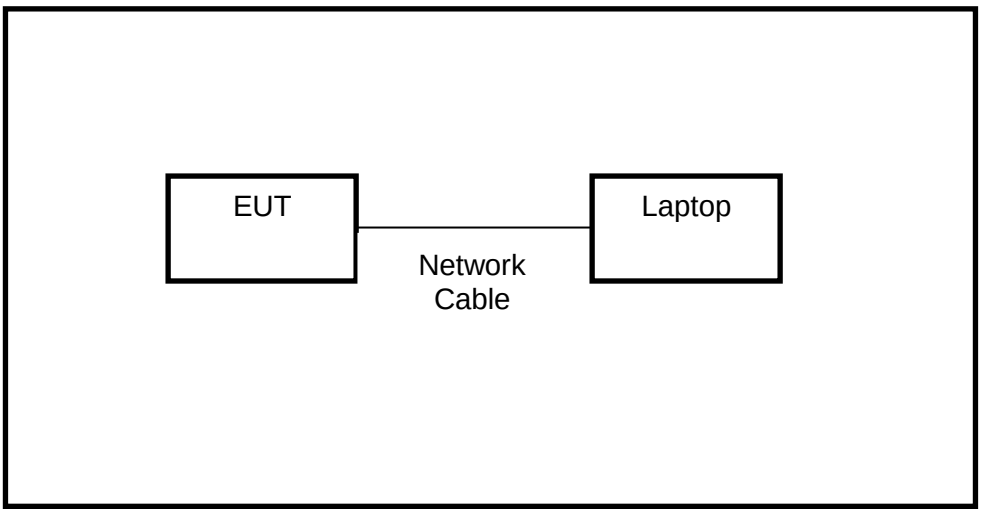
ACCESSORY

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

TEST SETUP

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

SETUP DIAGRAM FOR TESTS



5.9. 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.20, 2016	Dec.19, 2017
☑	Two-Line V-Network	R&S	ENV216	101983	Dec.20, 2016	Dec.19, 2017
☑	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Feb.10, 2017	Feb.10, 2018
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	Feb. 24, 2017	Feb. 24, 2018
☑	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Jan.09, 2016	Jan.09, 2019
☑	Preamplifier	HP	8447D	2944A09099	Feb. 13, 2017	Feb. 13, 2018
☑	EMI Measurement Receiver	R&S	ESR26	101377	Dec. 20, 2016	Dec. 20, 2017
☑	Horn Antenna	TDK	HRN-0118	130939	Jan. 09, 2016	Jan. 09, 2019
☑	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Jan.06, 2016	Jan.06, 2019
☑	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Jan. 14, 2017	Jan. 14, 2018
☑	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec. 20, 2016	Dec. 20, 2017
☑	Loop antenna	Schwarzbeck	1519B	00008	Mar. 26, 2016	Mar. 25, 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. 20, 2016	Dec. 20, 2017
☑	Power Meter	Keysight	N1911A	MY55416024	Aug. 20, 2017	Aug. 20, 2018
☑	Power Sensor	Keysight	N1921A	MY51100041	Feb. 13, 2017	Feb. 13, 2018
☑	DC Supply	Keysight	E36103A	MY55350020	Feb. 10, 2017	Feb. 10, 2018

6. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth and 99% Bandwidth	KDB 558074 D01 DTS Meas Guidance v04	8.0
2	Peak Output Power	KDB 558074 D01 DTS Meas Guidance v04	9.1.1
3	Power Spectral Density	KDB 558074 D01 DTS Meas Guidance v04	10.2
4	Out-of-band emissions in non-restricted bands	KDB 558074 D01 DTS Meas Guidance v04	11.0
5	Out-of-band emissions in restricted bands	KDB 558074 D01 DTS Meas Guidance v04	12.1
6	Band-edge	KDB 558074 D01 DTS Meas Guidance v04	13.3.2
7	Conducted Emission Test For AC Power Port	ANSI C63.10-2013	7.3

7. SUMMARY OF TEST RESULTS

Summary of Test Results			
Clause	**Test Items**	FCC/IC Rules	Test Results
1	6dB Bandwidth and 99% Bandwidth	FCC 15.247 (a) (2)	Pass
2	Peak Conducted Output Power	FCC 15.247 (b) (3)	Pass
3	Power Spectral Density	FCC 15.247 (e)	Pass
4	Conducted Bandedge and Spurious Emission	FCC 15.247 (d)	Pass
5	Radiated Bandedge and Spurious Emission	FCC 15.247 (d) FCC 15.209 FCC 15.205	Pass
6	Conducted Emission Test For AC Power Port	FCC 15.207	Pass
7	Antenna Requirement	FCC 15.203	Pass

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

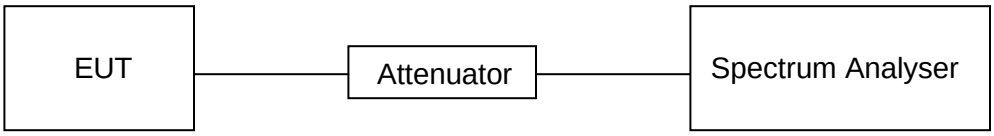
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP

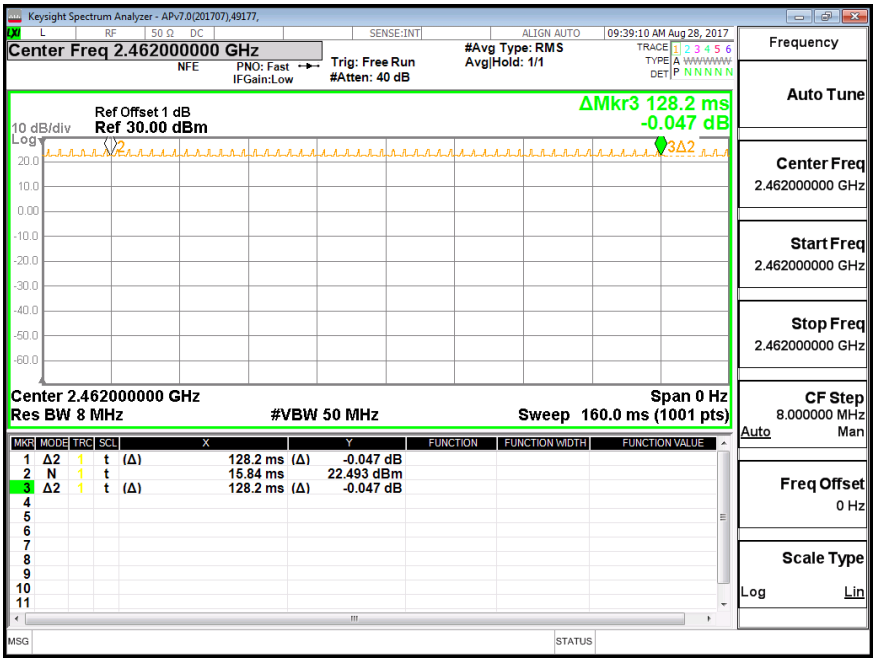


RESULTS

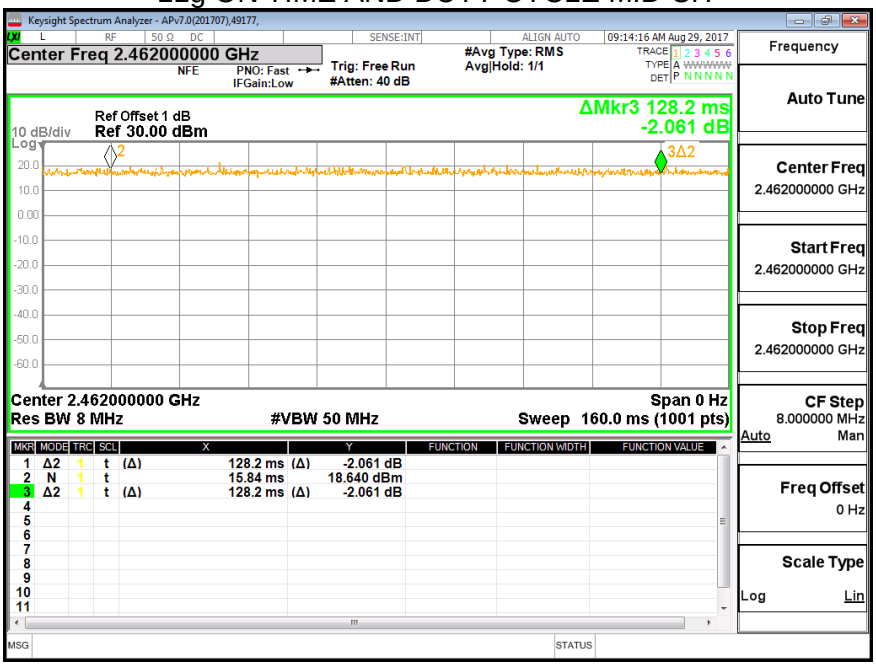
Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/B Minimum VBW (KHz)
11b	100	100	1	100	0	0.01
11g	100	100	1	100	0	0.01
11n20	100	100	1	100	0	0.01

Note: Duty Cycle Correction Factor=10log(1/x).
Where: x is Duty Cycle (Linear)
Where: B is On Time

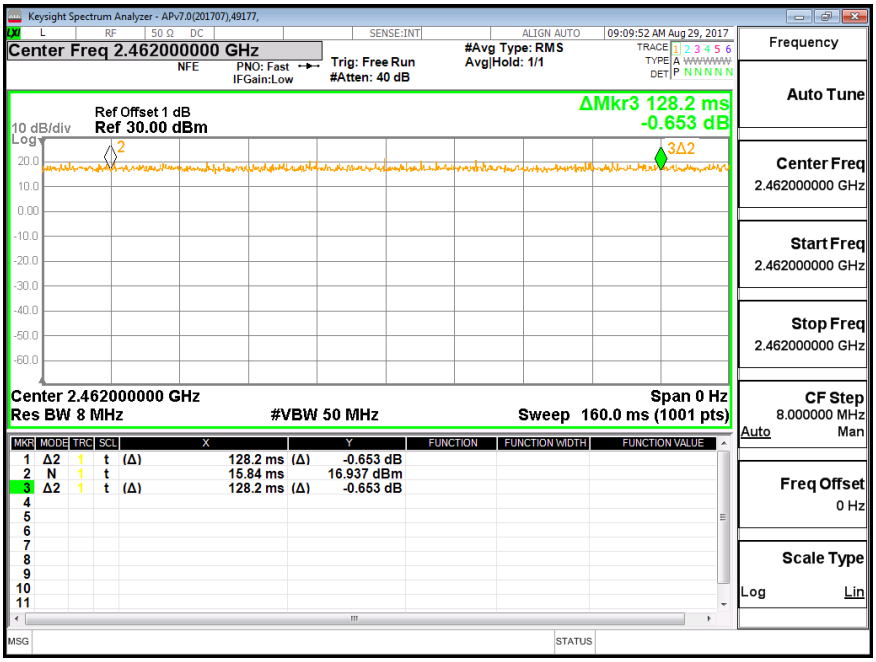
11b ON TIME AND DUTY CYCLE MID CH



11g ON TIME AND DUTY CYCLE MID CH



11n20 ON TIME AND DUTY CYCLE MID CH



8.2. 6 dB DTS BANDWIDTH AND 99% BANDWIDTH

LIMITS

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2)	6 dB Bandwidth	>= 500KHz	2400-2483.5

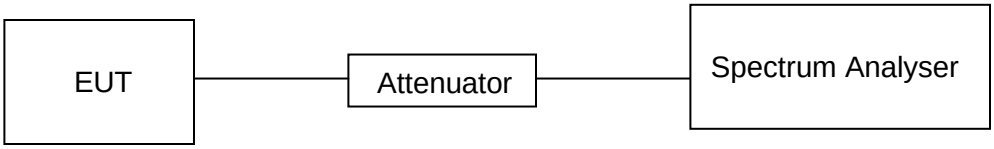
TEST PROCEDURE

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% Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : ≥3 × RBW For 99% 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

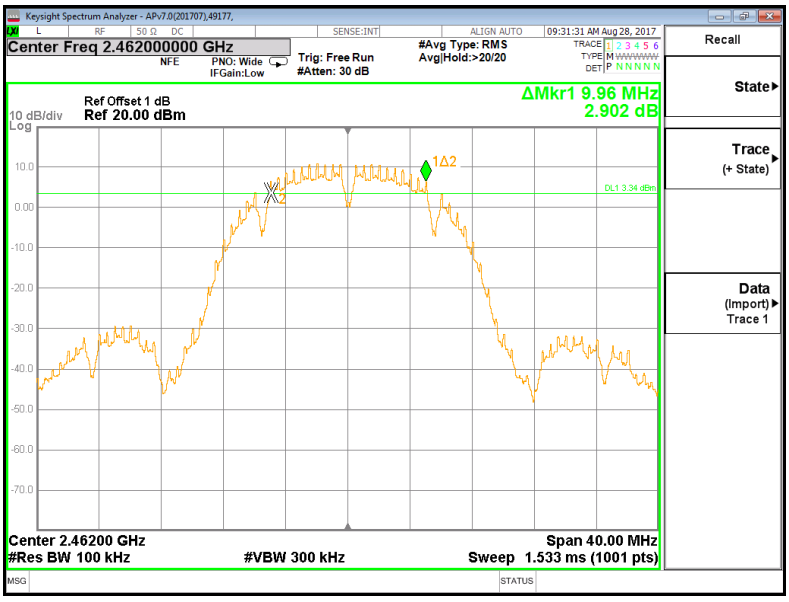


RESULTS

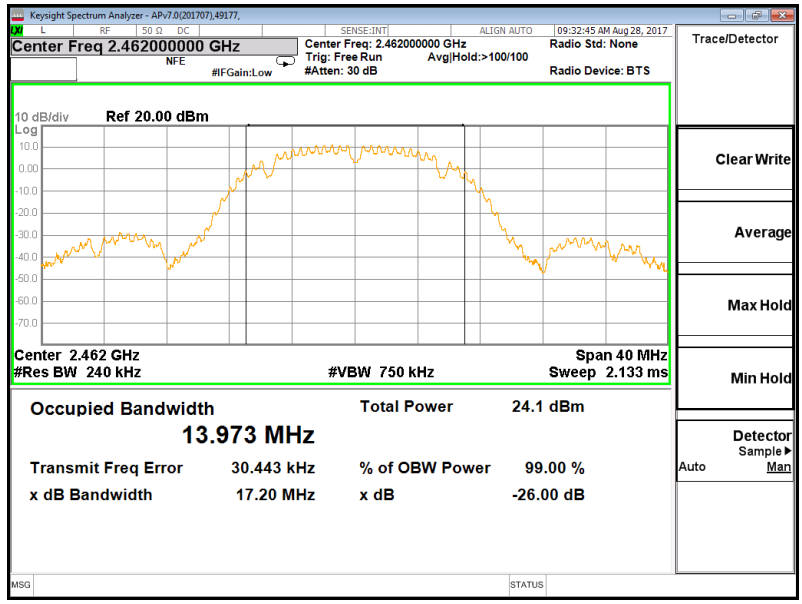
8.2.1. 802.11b MODE

Channel	Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (kHz)	Result
High	2462	9.96	13.973	500	Pass

6 dB BANDWIDTH HIGH CH



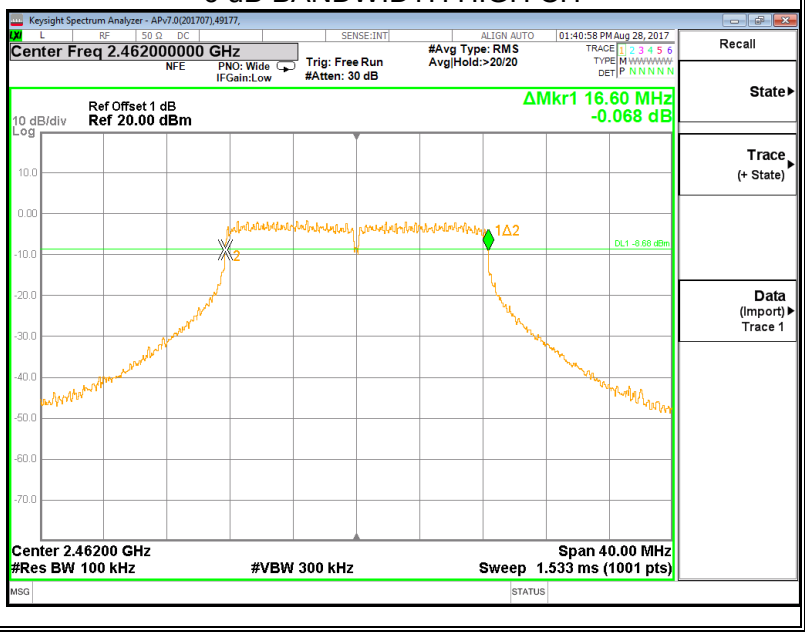
99% BANDWIDTH HIGH CH



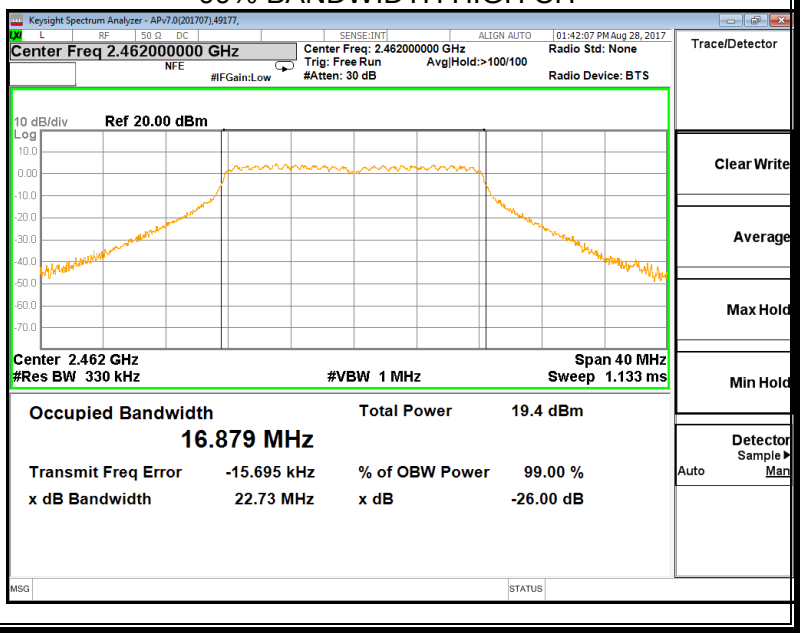
8.2.2. 802.11g MODE

Channel	Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (kHz)	Result
High	2462	16.60	16.879	500	Pass

6 dB BANDWIDTH HIGH CH



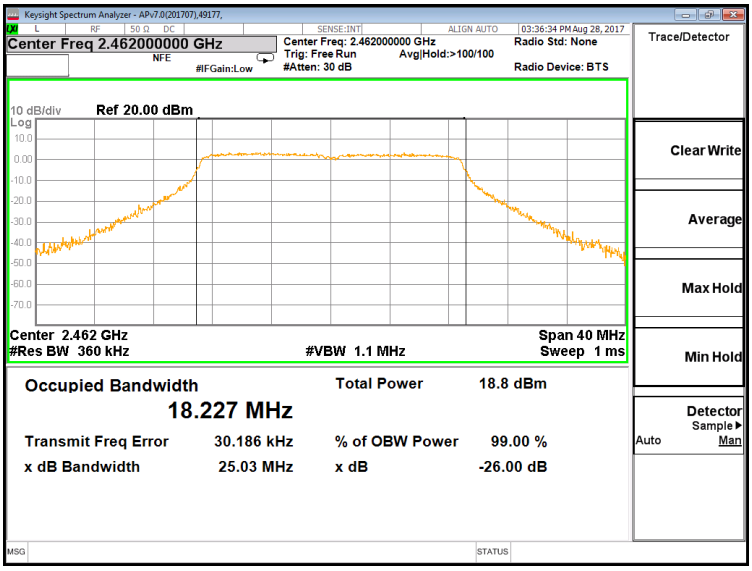
99% BANDWIDTH HIGH CH



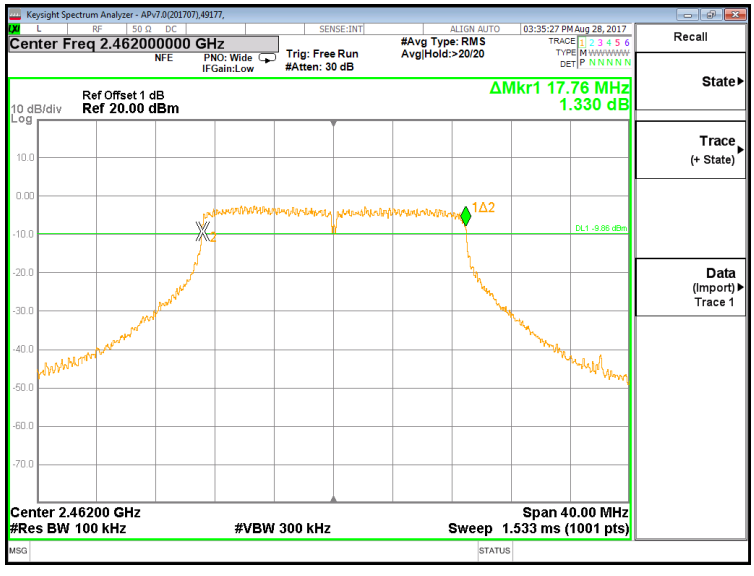
8.2.3. 802.11n HT20 MODE

Channel	Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (kHz)	Result
High	2462	17.76	18.227	500	Pass

99% BANDWIDTH HIGH CH



6 dB BANDWIDTH HIGH CH



8.3. PEAK CONDUCTED OUTPUT POWER

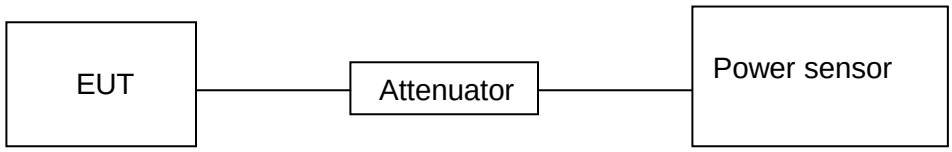
LIMITS

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3)	Peak & Average 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 peak power each channel.

TEST SETUP



RESULTS

8.3.1. 802.11b MODE

Test Channel	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
High	2462	21.195	30

8.3.2. 802.11g MODE

Test Channel	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
High	2462	20.220	30

8.3.3. 802.11n HT20 MODE

Test Channel	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
High	2462	20.543	30

8.4. POWER SPECTRAL DENSITY

LIMITS

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC §15.247 (e)	Power Spectral Density	8 dBm in any 3 kHz band	2400-2483.5

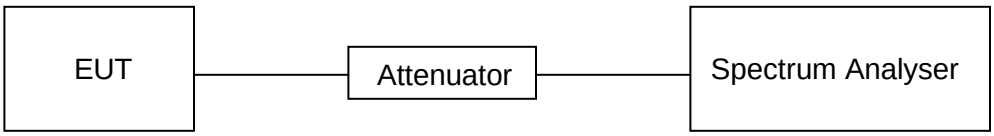
TEST PROCEDURE

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

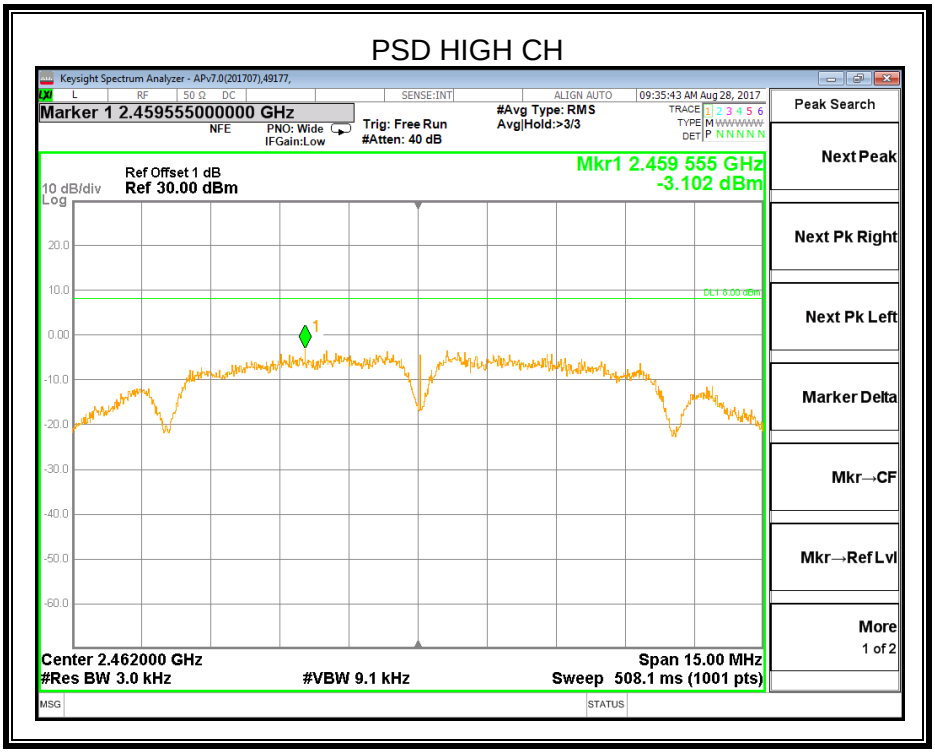


RESULTS

8.4.1. 802.11b MODE

Test Channel	Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
High	2462MHz	-3.102	8	PASS

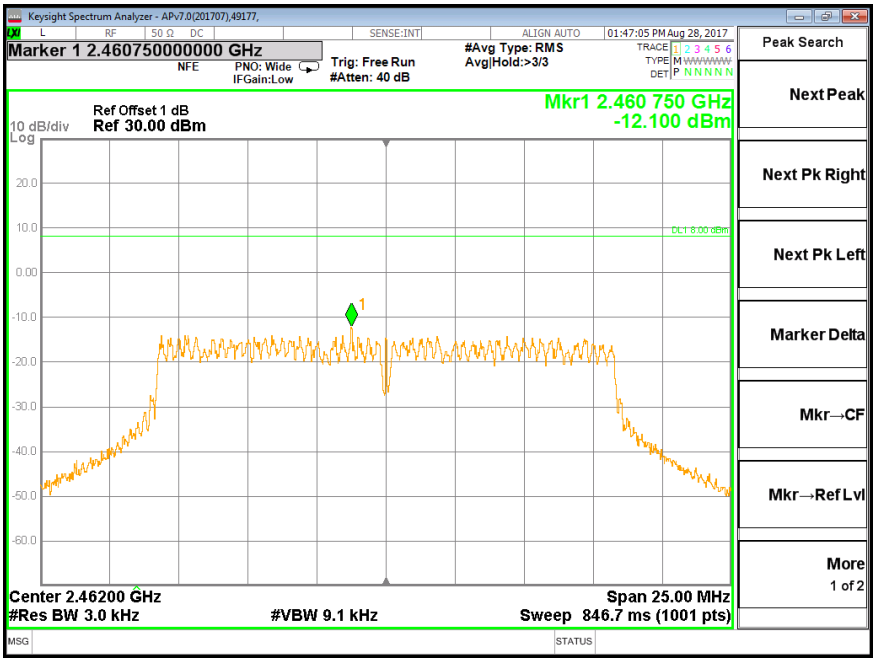
PSD HIGH CH



8.4.2. 802.11g MODE

Test Channel	Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
High	2462MHz	-12.100	8	PASS

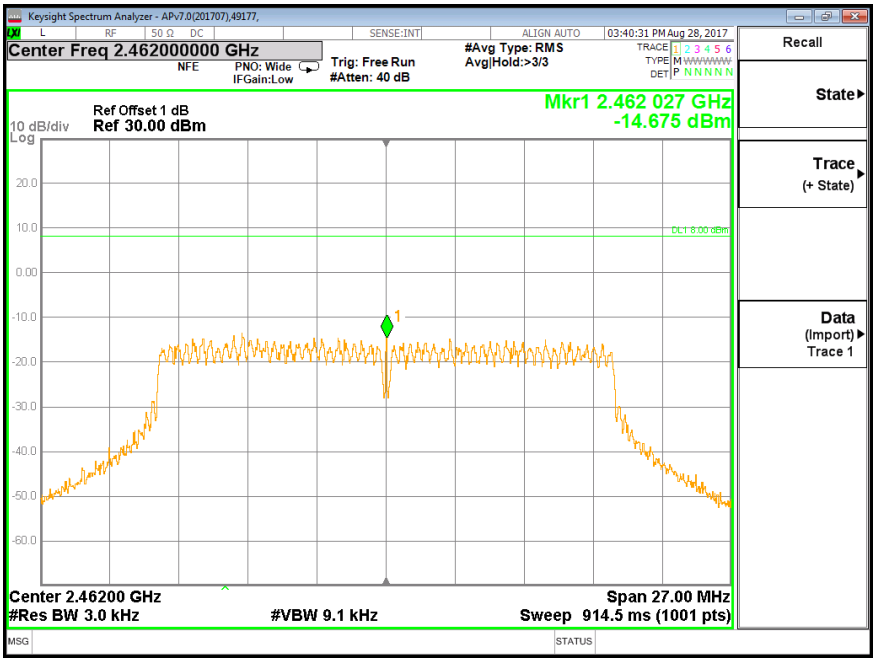
PSD HIGH CH



8.4.3. 802.11n HT20 MODE

Test Channel	Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
High	2462MHz	-21.393	8	PASS

PSD HIGH CH



8.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247) Subpart C		
Section	Test Item	Limit
FCC §15.247 (d)	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:

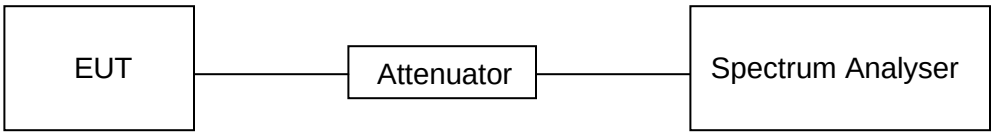
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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**.**

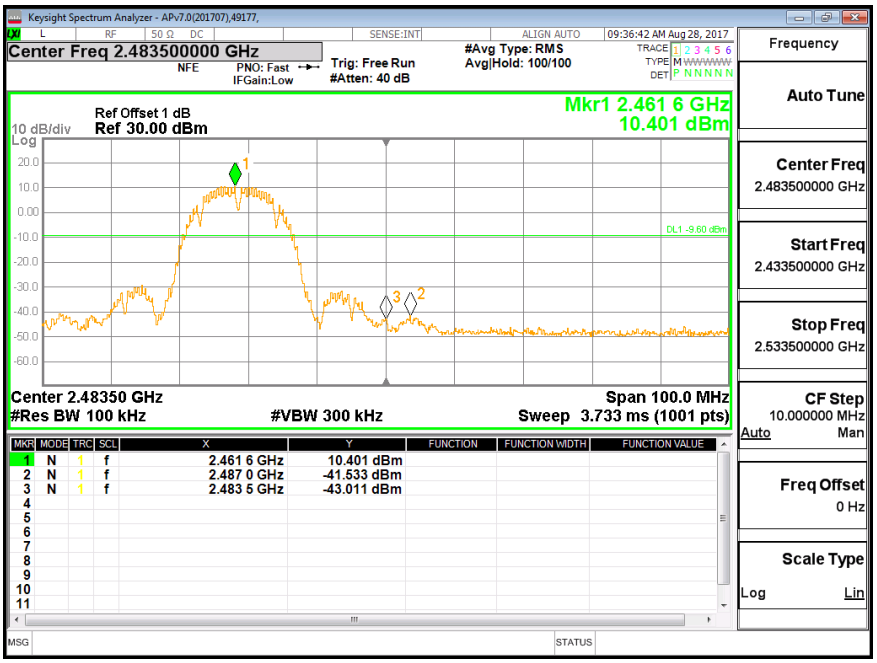
TEST SETUP



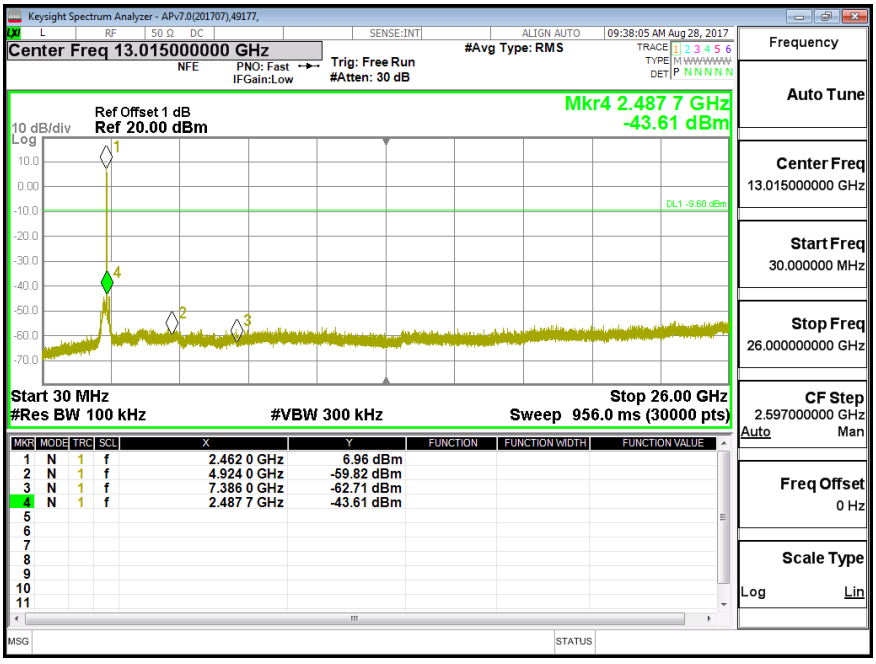
RESULTS

8.5.1. 802.11b MODE

HIGH CH BANDEDAGE

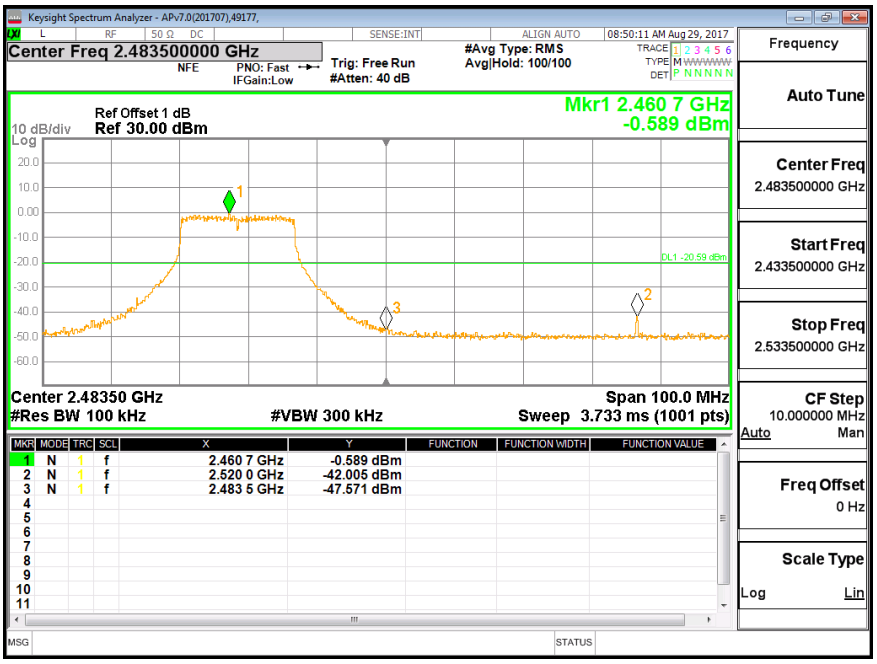


HIGH CH SPURIOUS EMISSIONS 30M-26G

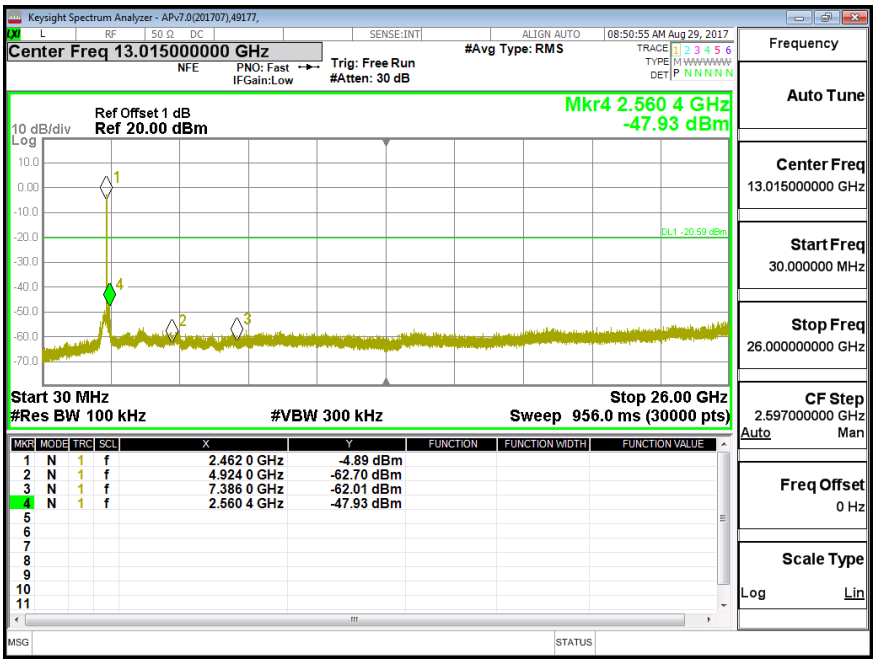


8.5.1. 802.11g MODE

HIGH CH BANDEDAGE

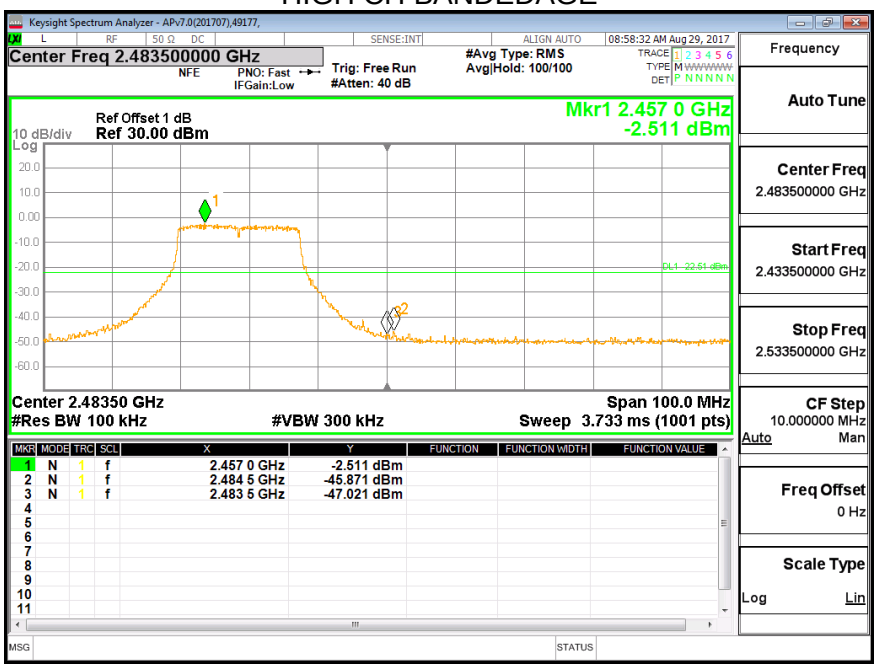


HIGH CH SPURIOUS EMISSIONS 30M-26G

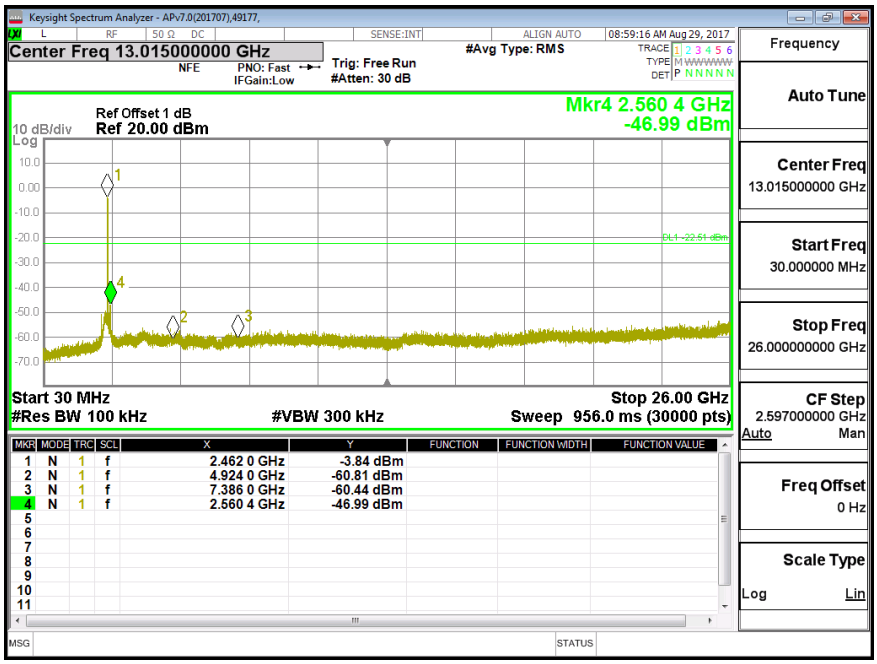


8.5.1. 802.11n HT20 MODE

HIGH CH BANDEDAGE



HIGH CH SPURIOUS EMISSIONS 30M-26G



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

Please refer to FCC §15.205 and §15.209

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

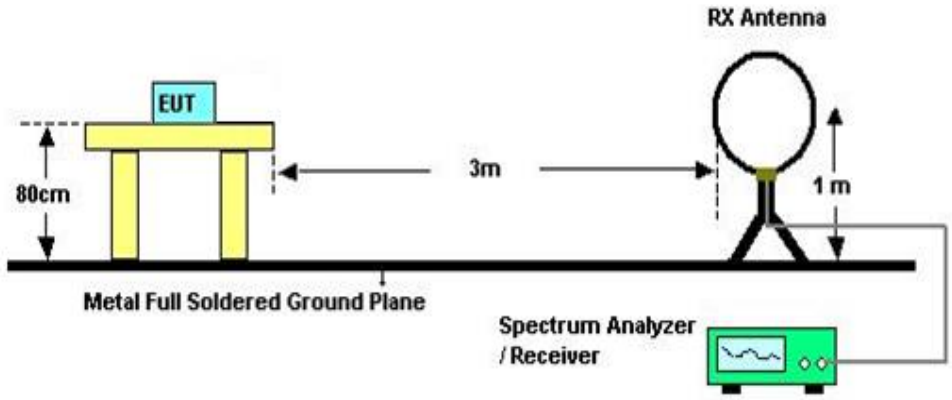
Restricted bands of operation

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.

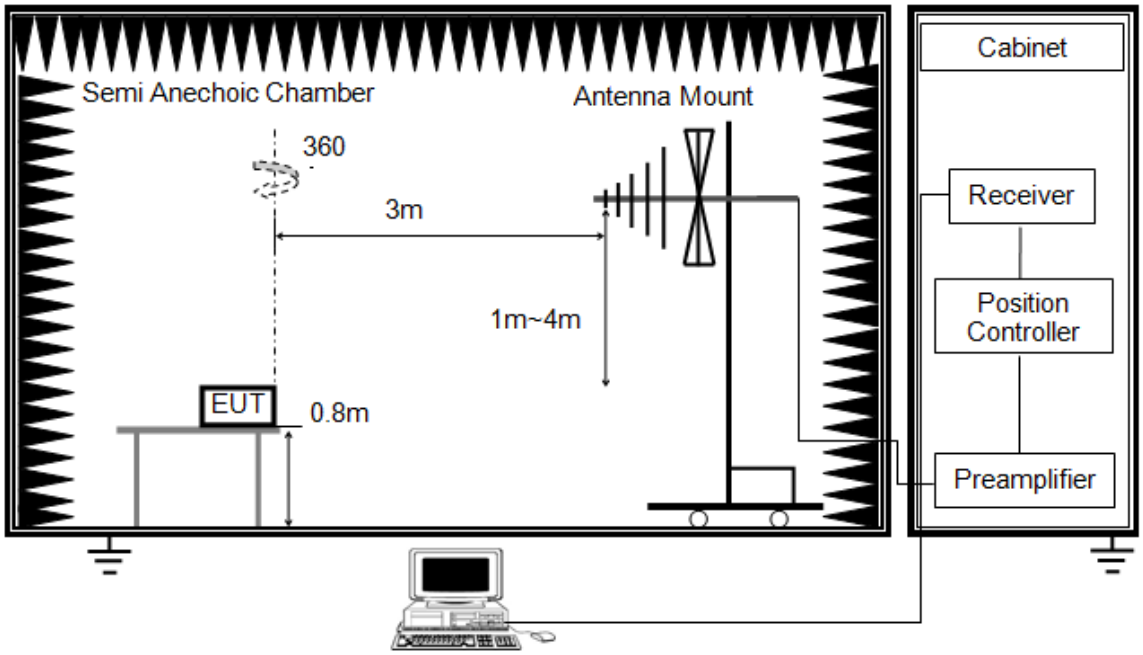
3. The EUT was placed on a turntable with 0.8 meter above ground.

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)

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.

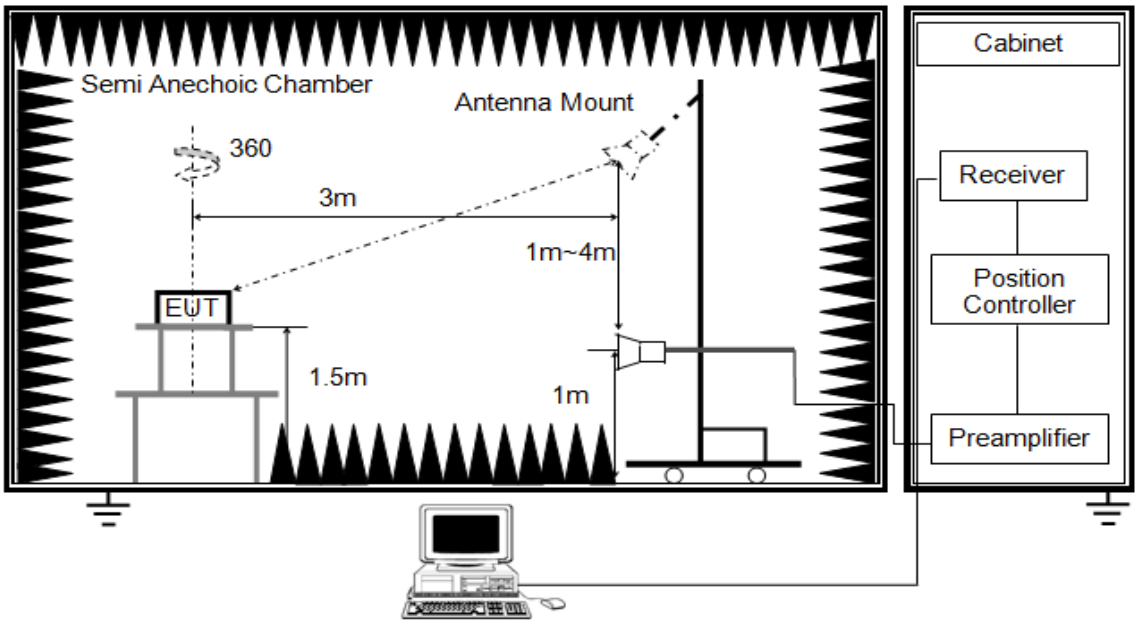
3. The EUT was placed on a turntable with 0.8 meter above ground.

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.

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

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.

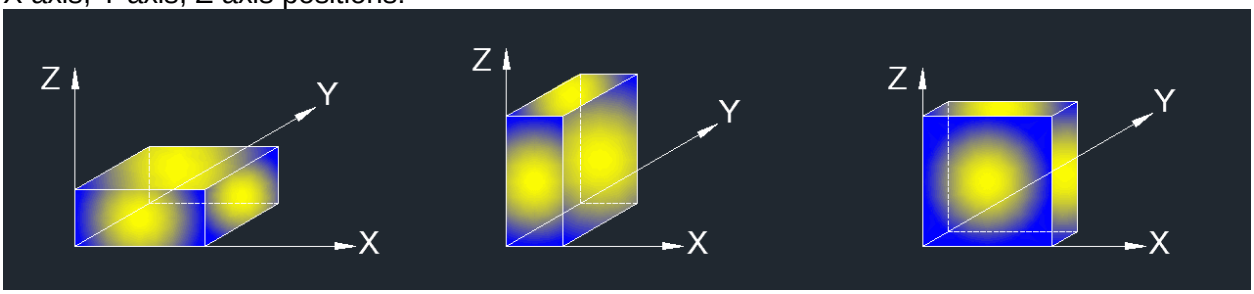
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

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.

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

X axis, Y axis, Z axis positions:



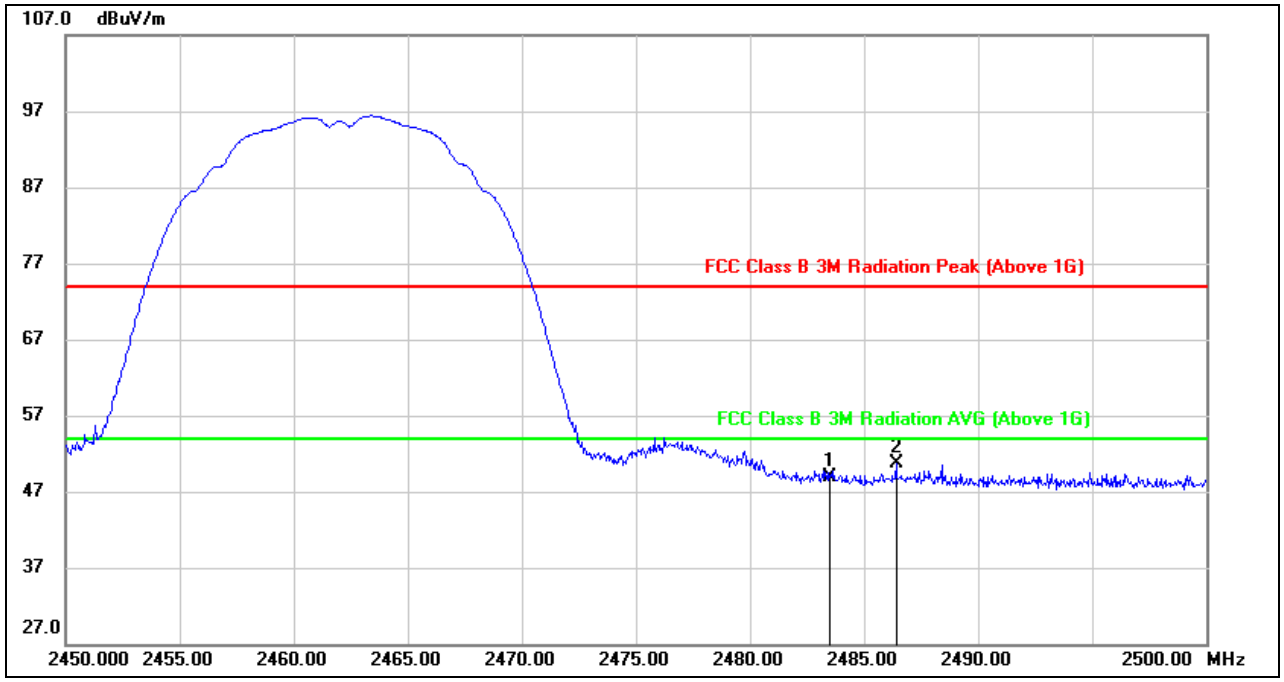
Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: All the EUT's emissions had been evaluated for simultaneous transmission with the other 2.4GHz transmitter and there were no any additional or worse emissions found.

9.2. RESTRICTED BANDEDGE

9.2.1. 802.11b MODE

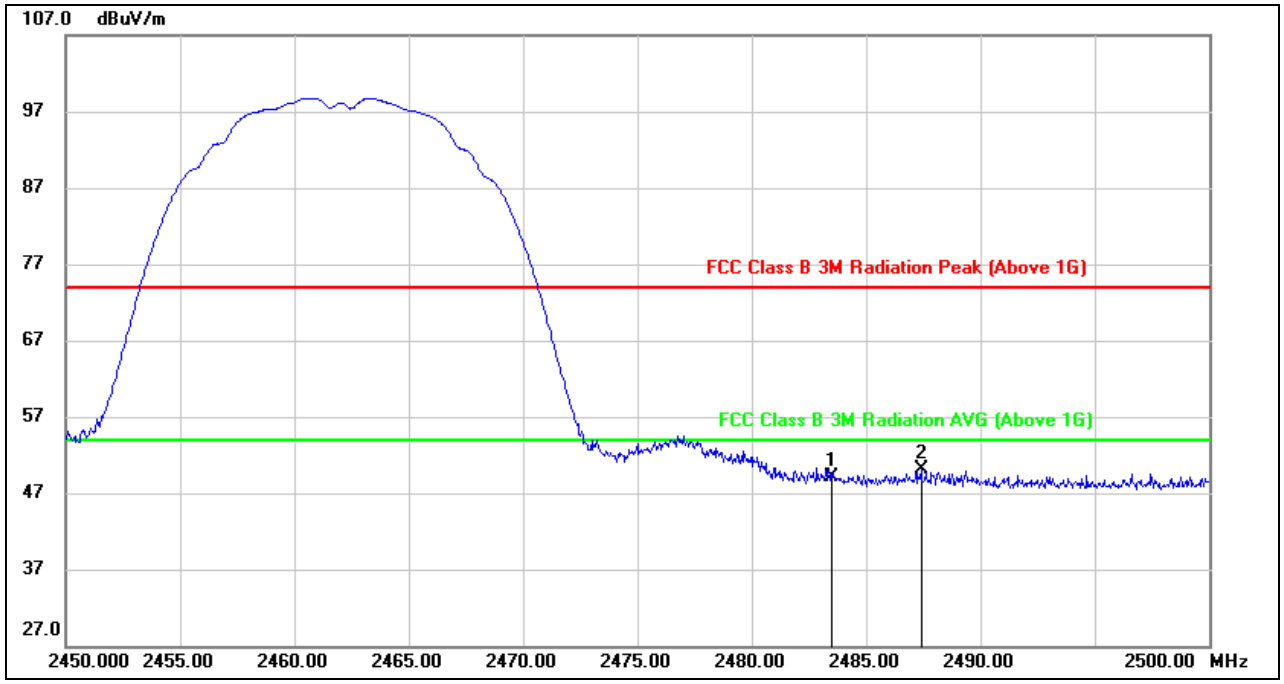
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	16.14	32.78	48.92	74.00	-25.08	peak
2	2486.400	17.88	32.79	50.67	74.00	-23.33	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.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

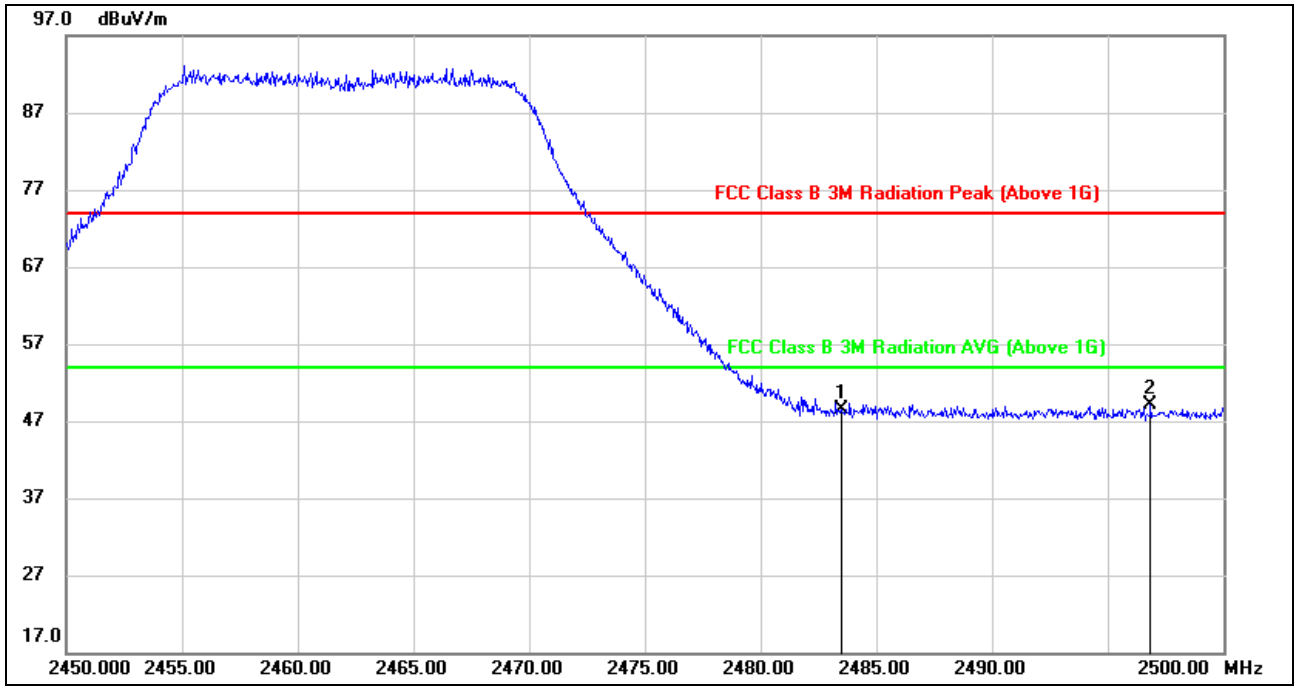


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	16.31	32.88	49.19	74.00	-24.81	peak
2	2487.400	17.25	32.89	50.14	74.00	-23.86	peak

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.

9.2.2. 802.11g MODE

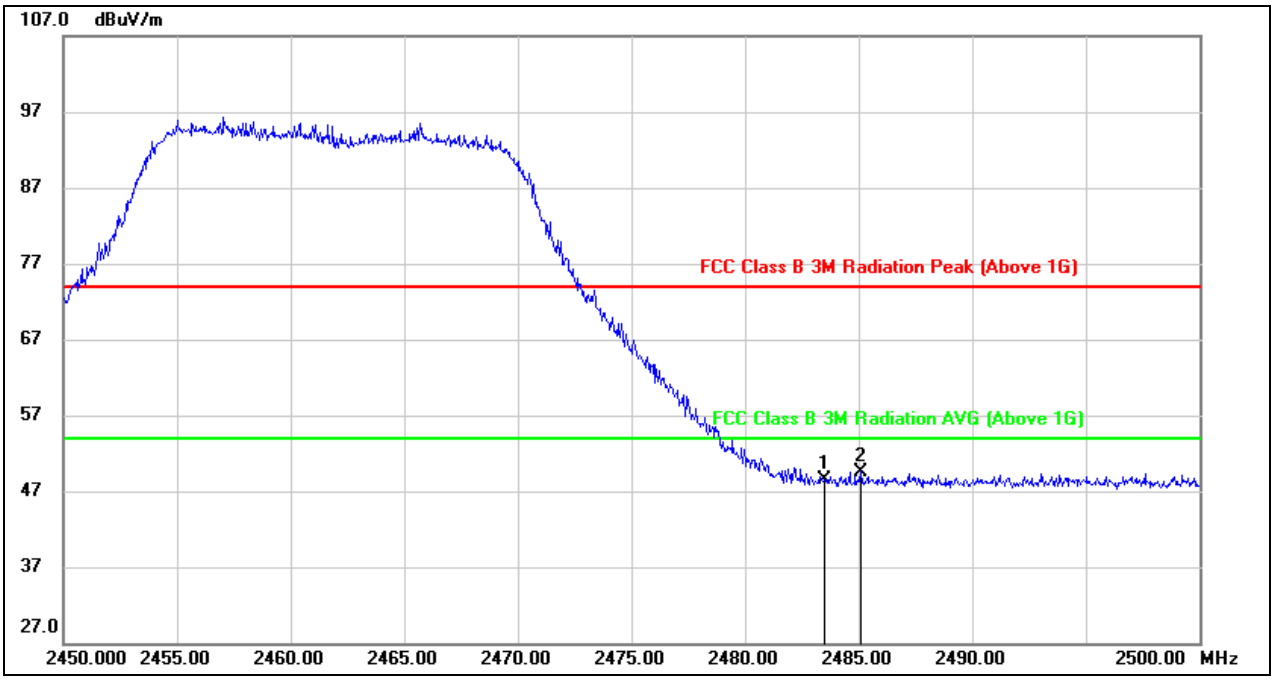
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	15.78	32.78	48.56	74.00	-25.44	peak
2	2496.850	16.34	32.78	49.12	74.00	-24.88	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.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

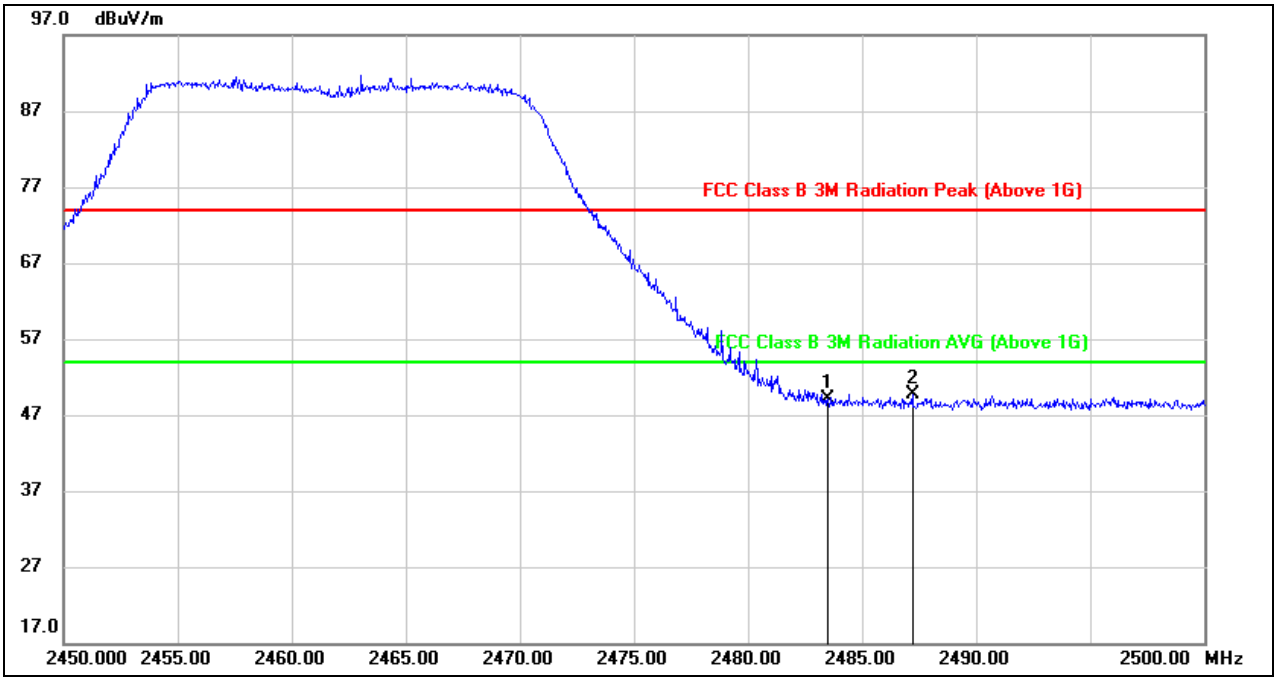


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	15.63	32.88	48.51	74.00	-25.49	peak
2	2485.100	16.72	32.88	49.60	74.00	-24.40	peak

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.

9.2.3. 802.11n HT20 MODE

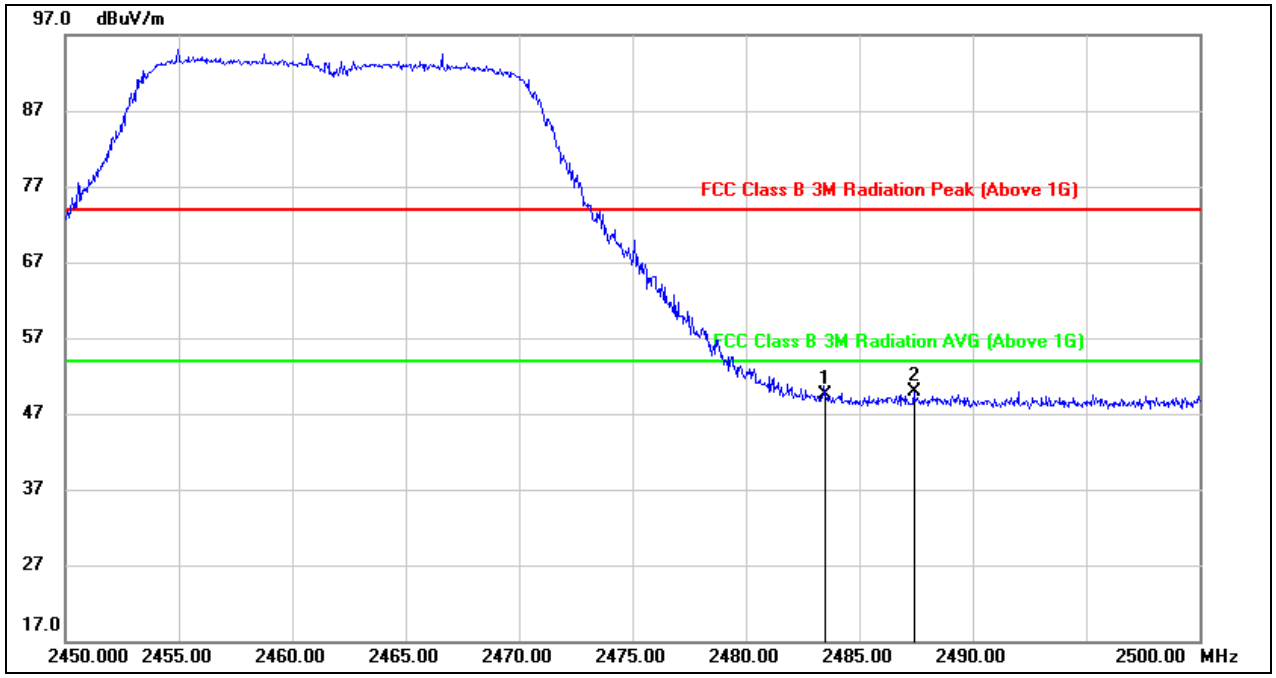
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	16.23	32.78	49.01	74.00	-24.99	peak
2	2487.200	17.01	32.79	49.80	74.00	-24.20	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.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



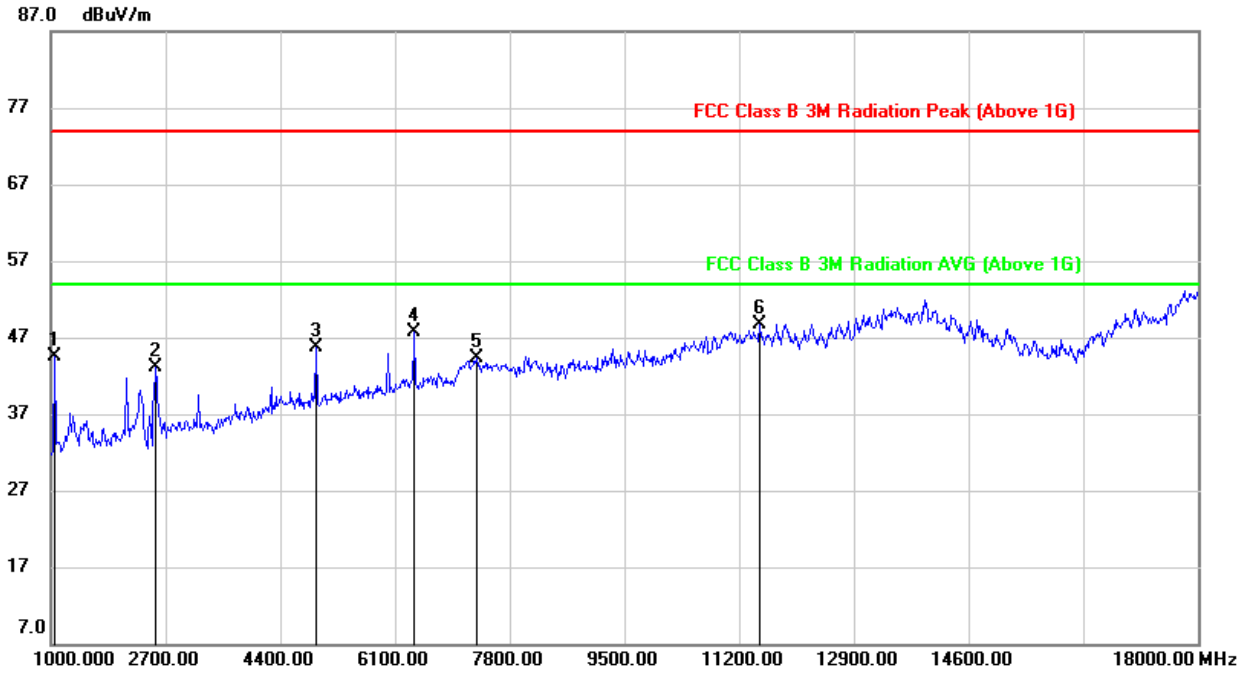
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	16.64	32.88	49.52	74.00	-24.48	peak
2	2487.400	17.11	32.89	50.00	74.00	-24.00	peak

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.

9.3. SPURIOUS EMISSIONS (1~18GHz)

9.3.1. 802.11b MODE

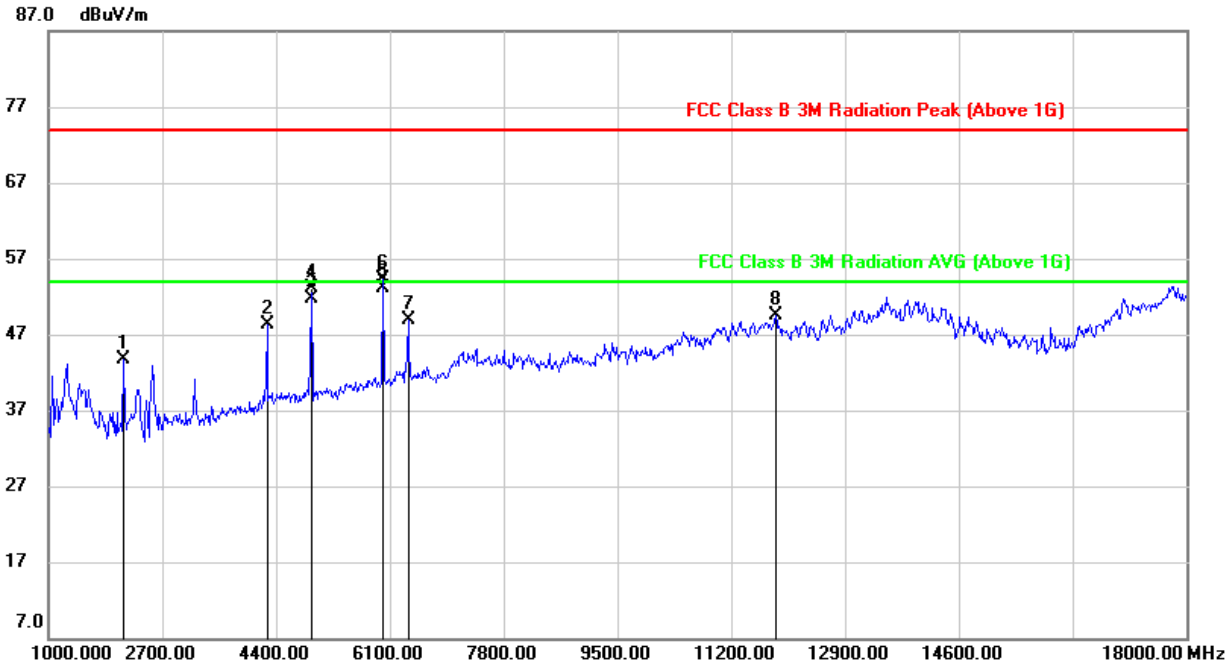
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	1051.000	58.57	-14.11	44.46	74.00	-29.54	peak
2	2547.000	52.27	-9.12	43.15	74.00	-30.85	peak
3	4927.000	46.37	-0.70	45.67	74.00	-28.33	peak
4	6389.000	44.65	3.03	47.68	74.00	-26.32	peak
5	7307.000	38.43	5.91	44.34	74.00	-29.66	peak
6	11506.000	34.84	13.81	48.65	74.00	-25.35	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.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

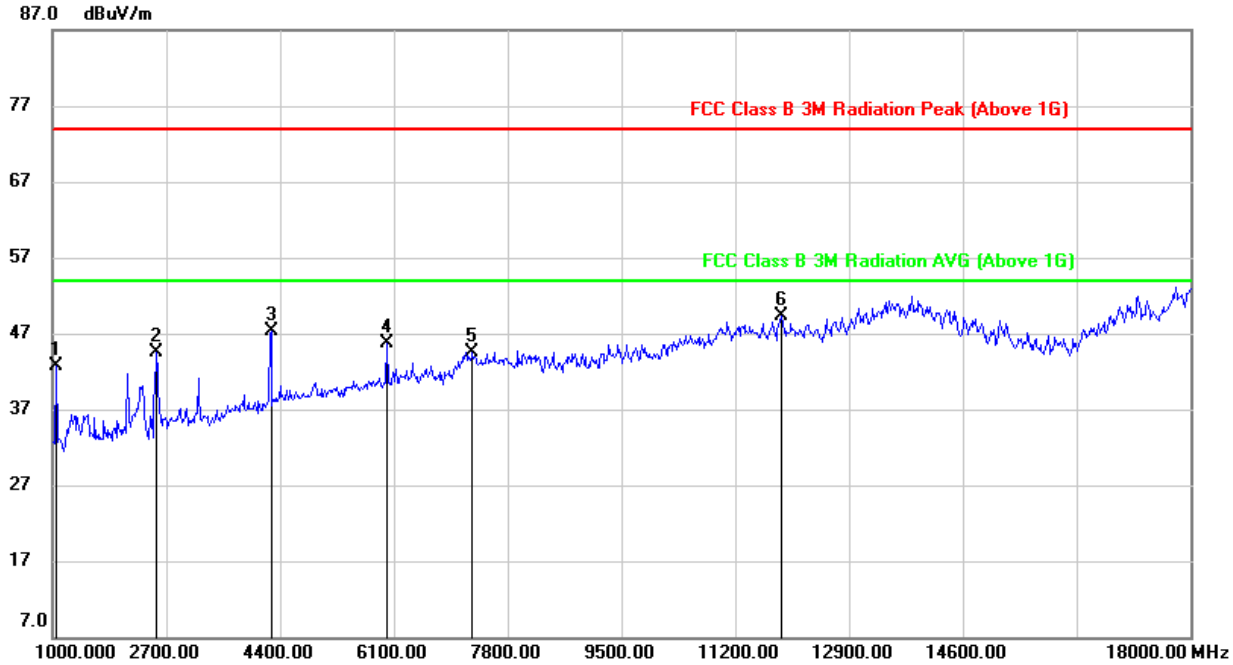


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2122.000	53.66	-10.03	43.63	74.00	-30.37	peak
2	4264.000	51.50	-3.15	48.35	74.00	-25.65	peak
3	4924.123	52.42	-0.75	51.67	54.00	-2.33	AVG
4	4927.000	53.92	-0.75	53.17	74.00	-20.83	peak
5	5991.130	51.10	2.05	53.15	54.00	-0.85	AVG
6	5998.000	52.27	2.09	54.36	74.00	-19.64	peak
7	6372.000	45.85	3.07	48.92	74.00	-25.08	peak
8	11863.000	34.43	15.07	49.50	74.00	-24.50	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. AVG: VBW=1/Ton where: ton is transmit duration.
5. For transmit duration, please refer to clause 7.1.

9.3.2. 802.11g MODE

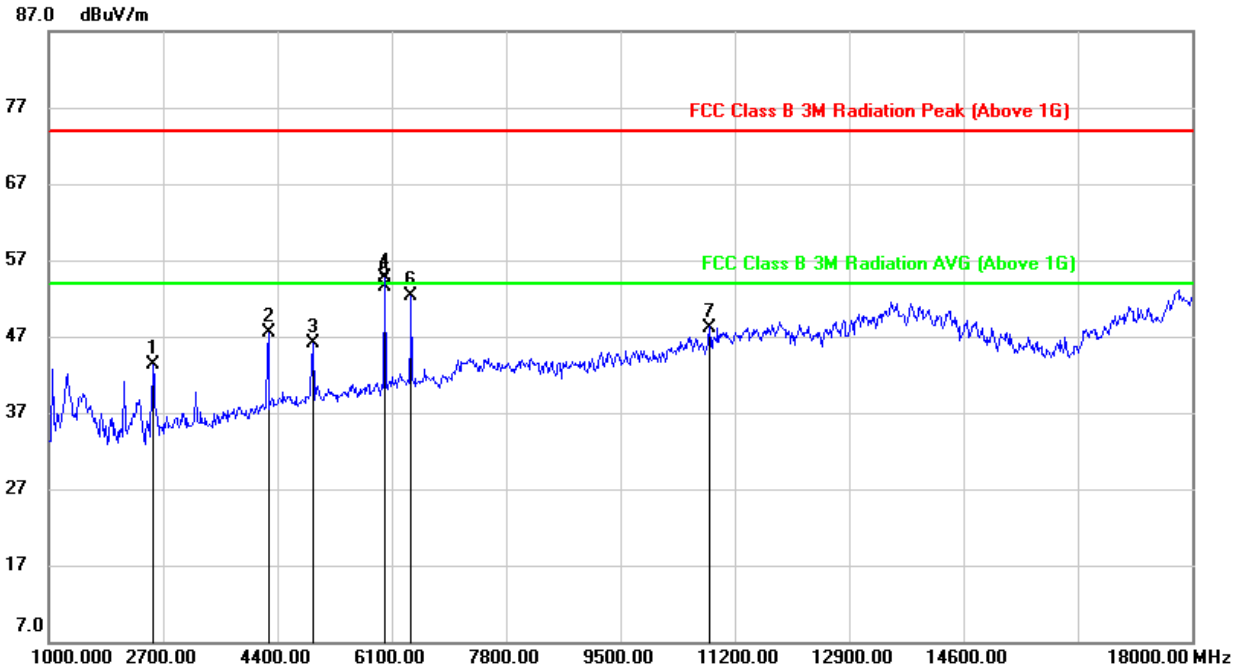
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	56.86	-14.11	42.75	74.00	-31.25	peak
2	2547.000	53.59	-9.11	44.48	74.00	-29.52	peak
3	4264.000	50.61	-3.25	47.36	74.00	-26.64	peak
4	5998.000	43.65	1.99	45.64	74.00	-28.36	peak
5	7273.000	38.53	5.96	44.49	74.00	-29.51	peak
6	11880.000	34.16	15.18	49.34	74.00	-24.66	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.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

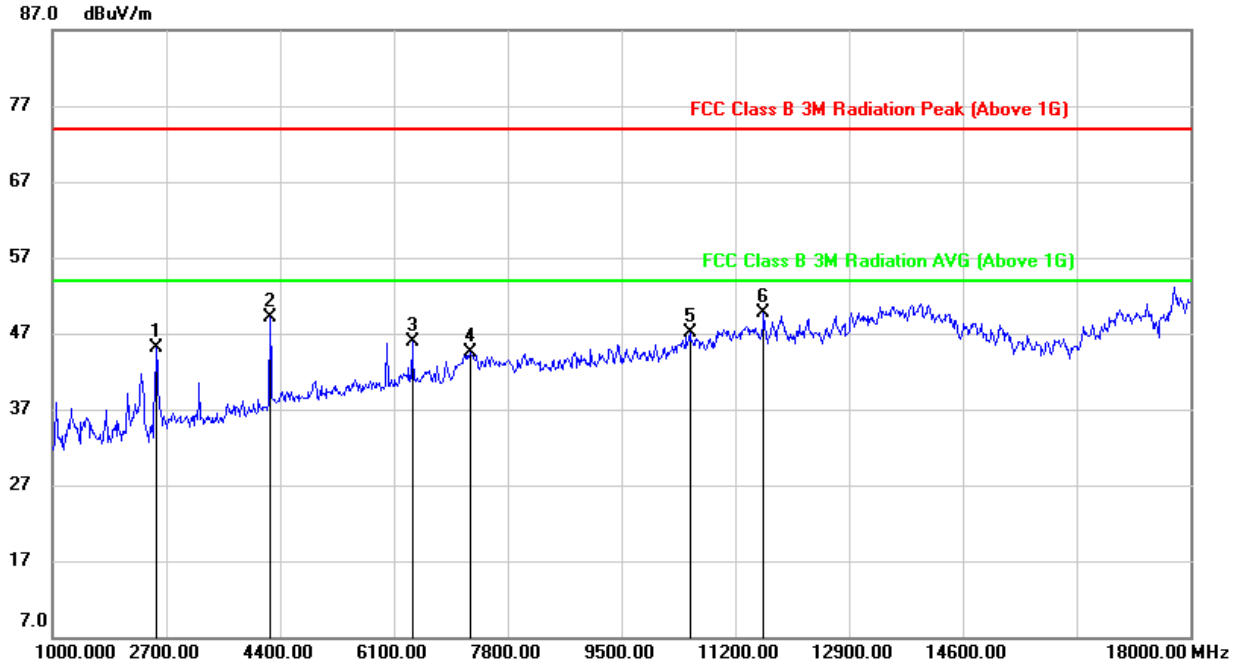


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2547.000	52.27	-9.01	43.26	74.00	-30.74	peak
2	4264.000	50.73	-3.15	47.58	74.00	-26.42	peak
3	4927.000	46.83	-0.75	46.08	74.00	-27.92	peak
4	5991.130	52.69	2.05	54.74	74.00	-19.26	peak
5	5991.130	51.36	2.05	53.41	54.00	-0.59	AVG
6	6389.000	49.19	3.11	52.30	74.00	-21.70	peak
7	10826.000	35.88	12.32	48.20	74.00	-25.80	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. AVG: VBW=1/Ton where: ton is transmit duration.
5. For transmit duration, please refer to clause 7.1.

9.3.3. 802.11n HT20 MODE

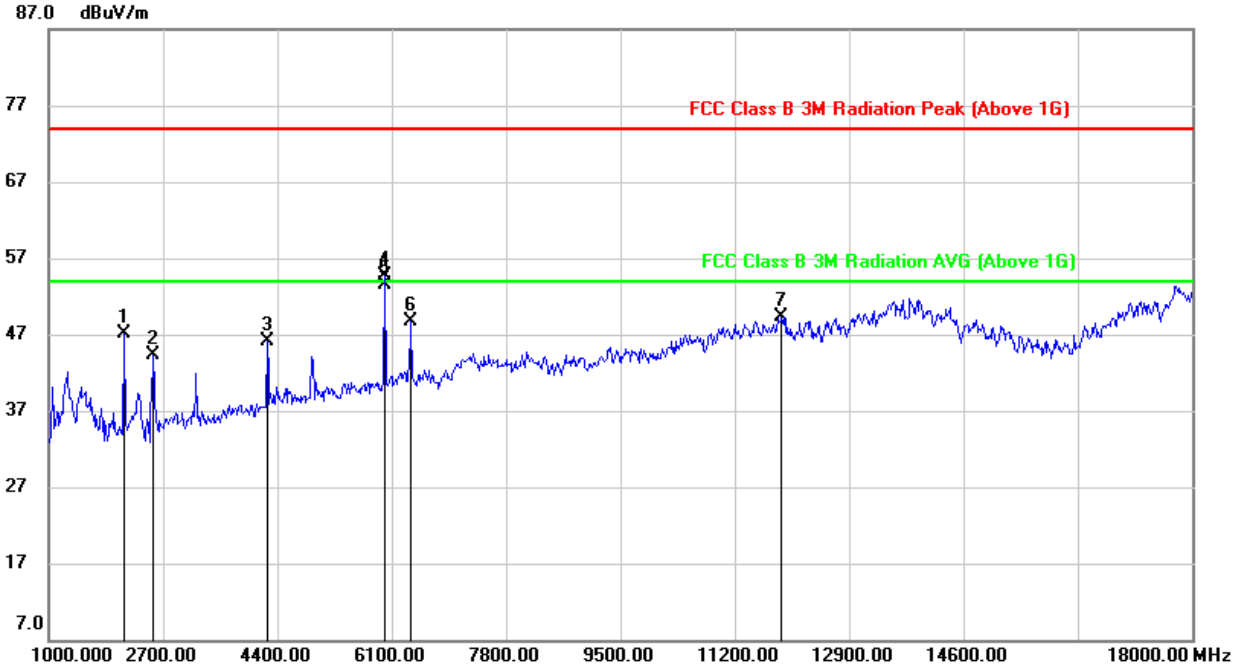
HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2547.000	54.16	-9.11	45.05	74.00	-28.95	peak
2	4247.000	52.38	-3.36	49.02	74.00	-24.98	peak
3	6372.000	42.92	3.03	45.95	74.00	-28.05	peak
4	7239.000	38.52	5.91	44.43	74.00	-29.57	peak
5	10520.000	35.51	11.69	47.20	74.00	-26.80	peak
6	11625.000	35.11	14.51	49.62	74.00	-24.38	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.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



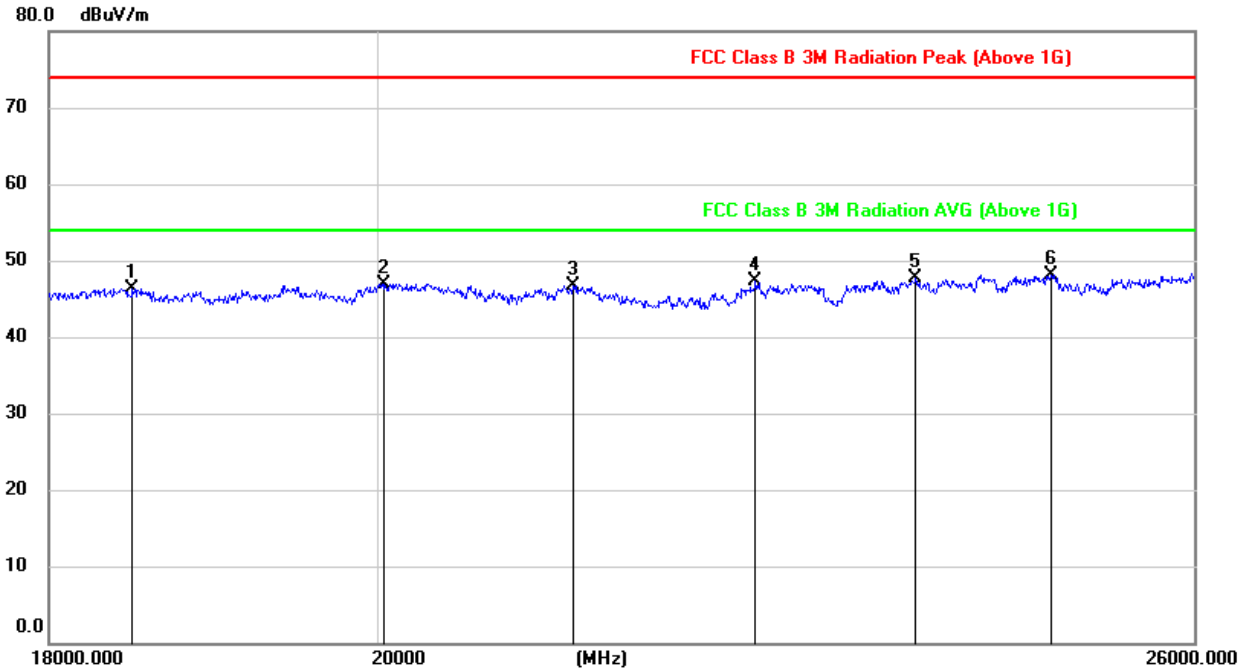
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2122.000	57.18	-10.03	47.15	74.00	-26.85	peak
2	2547.000	53.25	-9.01	44.24	74.00	-29.76	peak
3	4247.000	49.28	-3.26	46.02	74.00	-27.98	peak
4	5991.130	52.68	2.05	54.73	74.00	-19.27	peak
5	5991.130	51.47	2.05	53.52	54.00	-0.48	AVG
6	6389.000	45.64	3.11	48.75	74.00	-25.25	peak
7	11897.000	34.15	15.09	49.24	74.00	-24.76	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. AVG: VBW=1/Ton where: ton is transmit duration.
5. For transmit duration, please refer to clause 7.1.

9.4. SPURIOUS EMISSIONS 18~26GHz

9.4.1. 802.11b MODE

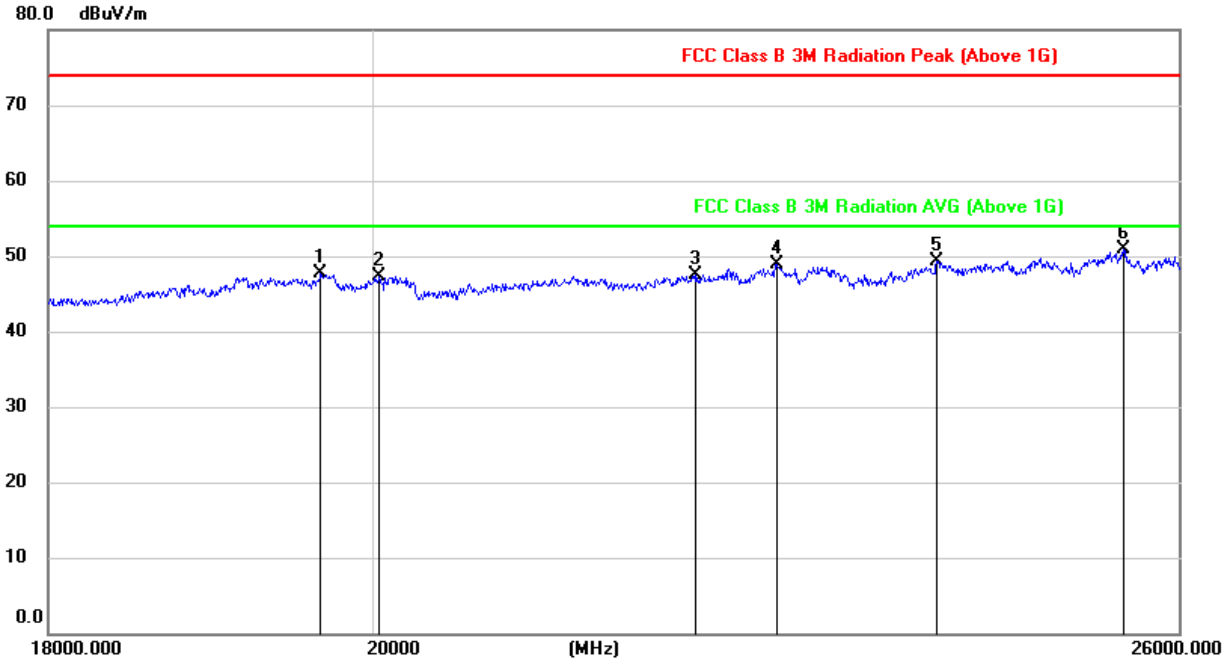
SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	18489.734	51.47	-5.26	46.21	74.00	-27.79	peak
2	20047.714	52.49	-5.49	47.00	74.00	-27.00	peak
3	21301.760	51.43	-4.75	46.68	74.00	-27.32	peak
4	22584.367	51.06	-3.81	47.25	74.00	-26.75	peak
5	23777.492	50.79	-3.15	47.64	74.00	-26.36	peak
6	24831.945	50.27	-2.24	48.03	74.00	-25.97	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 (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



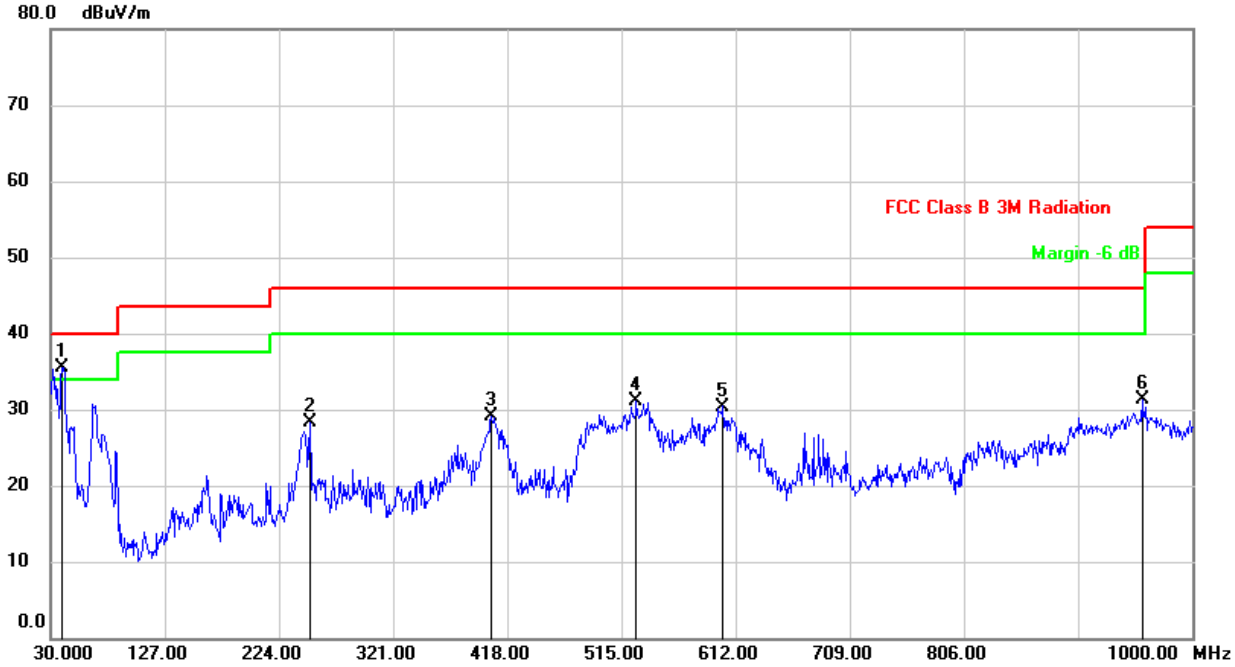
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	19668.009	52.98	-5.34	47.64	74.00	-26.36	peak
2	20047.714	52.71	-5.49	47.22	74.00	-26.78	peak
3	22221.895	51.84	-4.26	47.58	74.00	-26.42	peak
4	22818.104	52.59	-3.63	48.96	74.00	-25.04	peak
5	24032.412	52.12	-2.75	49.37	74.00	-24.63	peak
6	25535.714	52.56	-1.62	50.94	74.00	-23.06	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.

9.5. SPURIOUS EMISSIONS 30M ~ 1 GHz

9.5.1. 802.11b MODE

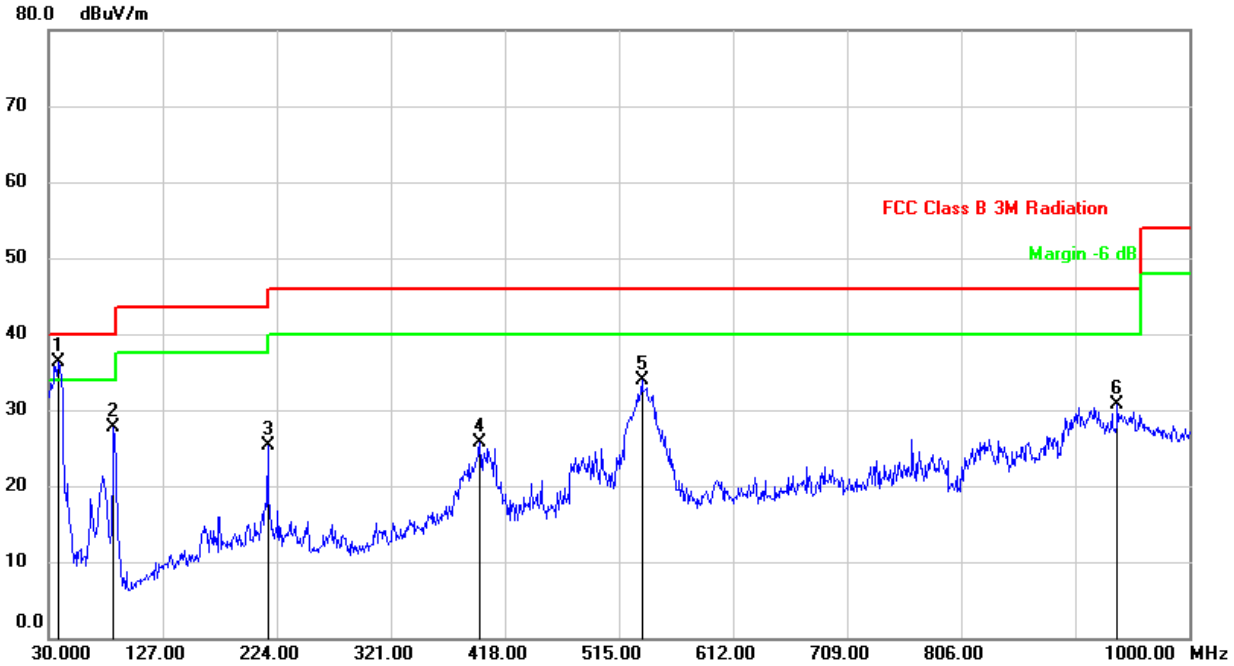
SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	39.7000	50.81	-15.36	35.45	40.00	-4.55	QP
2	250.1900	41.52	-13.31	28.21	46.00	-17.79	QP
3	404.4200	39.25	-10.09	29.16	46.00	-16.84	QP
4	527.6100	38.52	-7.51	31.01	46.00	-14.99	QP
5	601.3300	36.41	-6.01	30.40	46.00	-15.60	QP
6	957.3200	5.12	26.25	31.37	46.00	-14.63	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 (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	38.7300	51.59	-15.32	36.27	40.00	-3.73	QP
2	85.2900	45.77	-18.16	27.61	40.00	-12.39	QP
3	216.2400	38.27	-12.91	25.36	46.00	-20.64	QP
4	396.6600	35.93	-10.23	25.70	46.00	-20.30	QP
5	534.4000	41.31	-7.47	33.84	46.00	-12.16	QP
6	938.8900	5.32	25.41	30.73	46.00	-15.27	QP

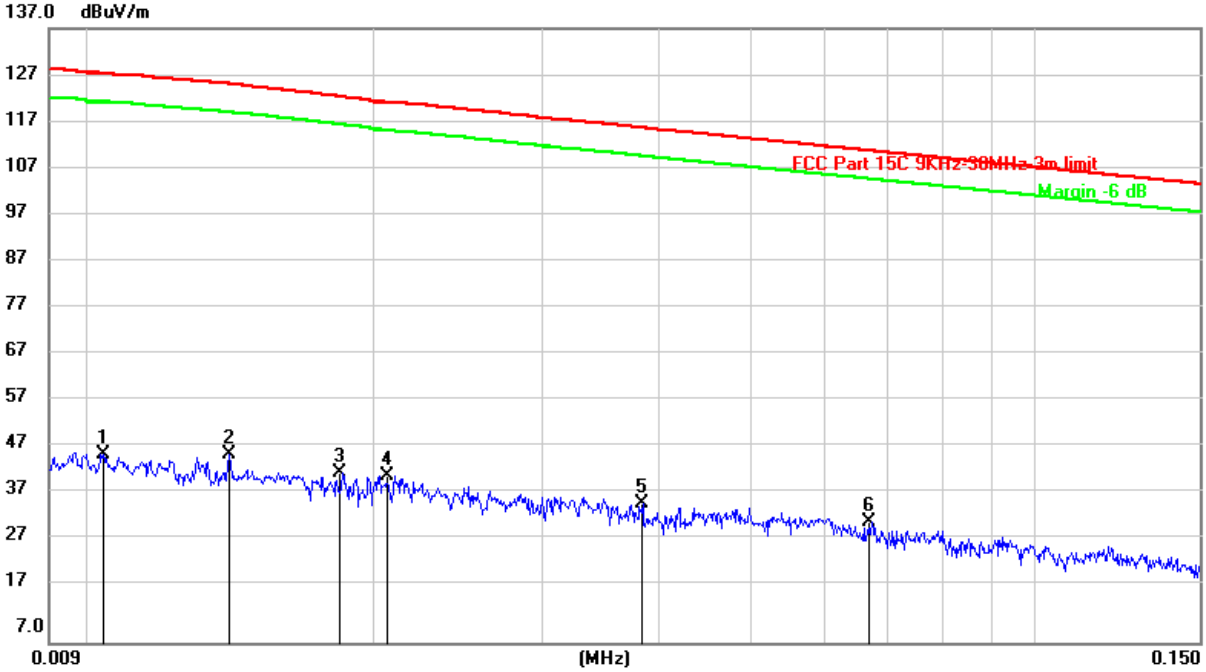
Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

9.6. SPURIOUS EMISSIONS BELOW 30M

9.6.1. 802.11b MODE

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

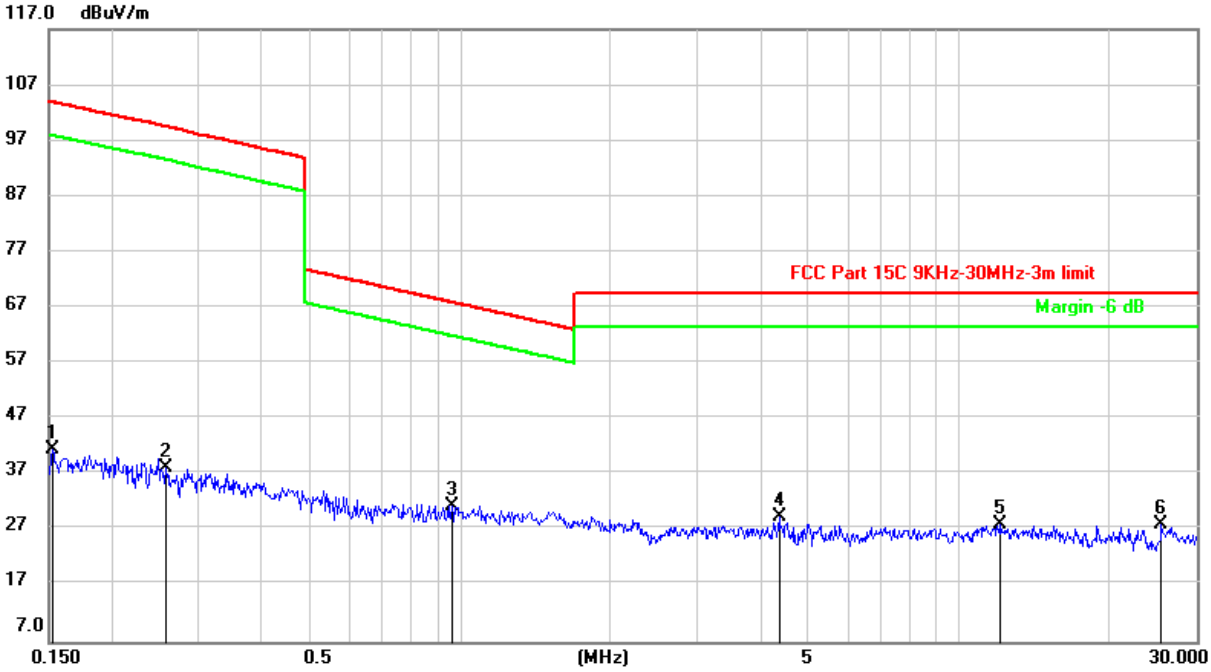
0.09KHz~ 150KHz



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0103	26.69	20.21	46.90	127.42	-80.52	peak
2	0.0140	26.47	20.25	46.72	125.19	-78.47	peak
3	0.0183	22.57	20.29	42.86	122.60	-79.74	peak
4	0.0206	21.95	20.31	42.26	121.37	-79.11	peak
5	0.0383	16.25	20.31	36.56	115.98	-79.42	peak
6	0.0670	12.21	20.31	32.52	111.10	-78.58	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 ~ 30M

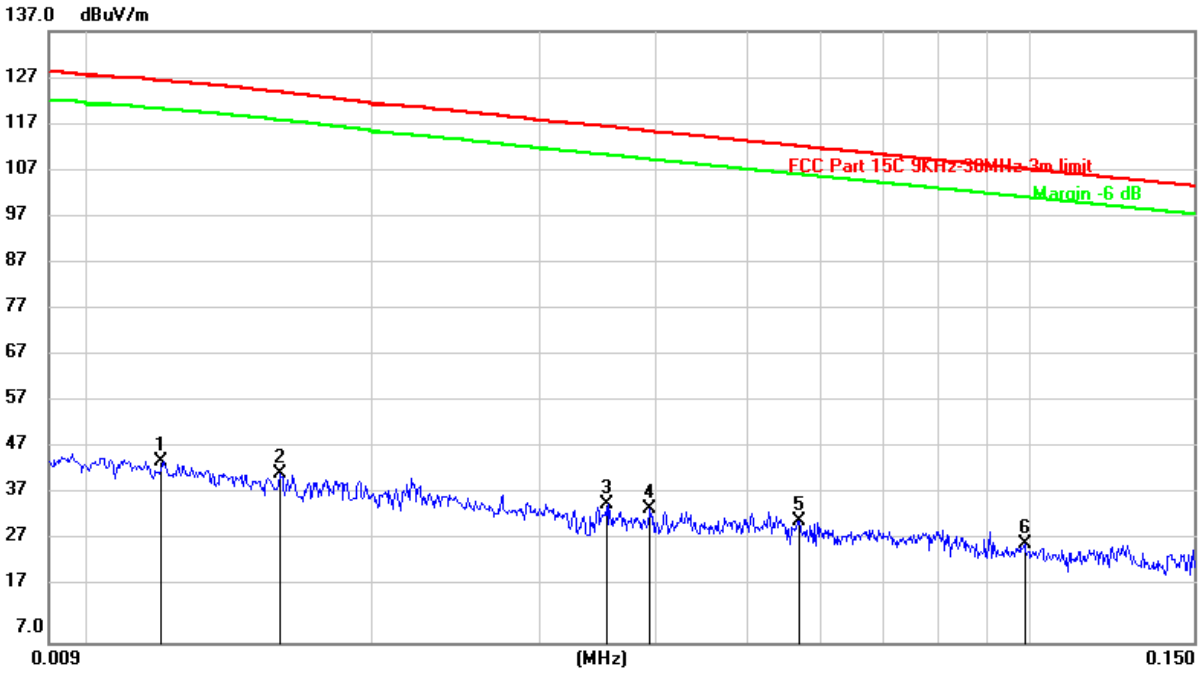


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1524	21.16	20.42	41.58	103.95	-62.37	peak
2	0.2575	17.83	20.33	38.16	99.56	-61.40	peak
3	0.9633	10.97	20.37	31.34	67.94	-36.60	peak
4	4.3605	8.43	20.97	29.40	69.54	-40.14	peak
5	12.1240	7.03	21.00	28.03	69.54	-41.51	peak
6	25.4556	6.44	21.61	28.05	69.54	-41.49	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 (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

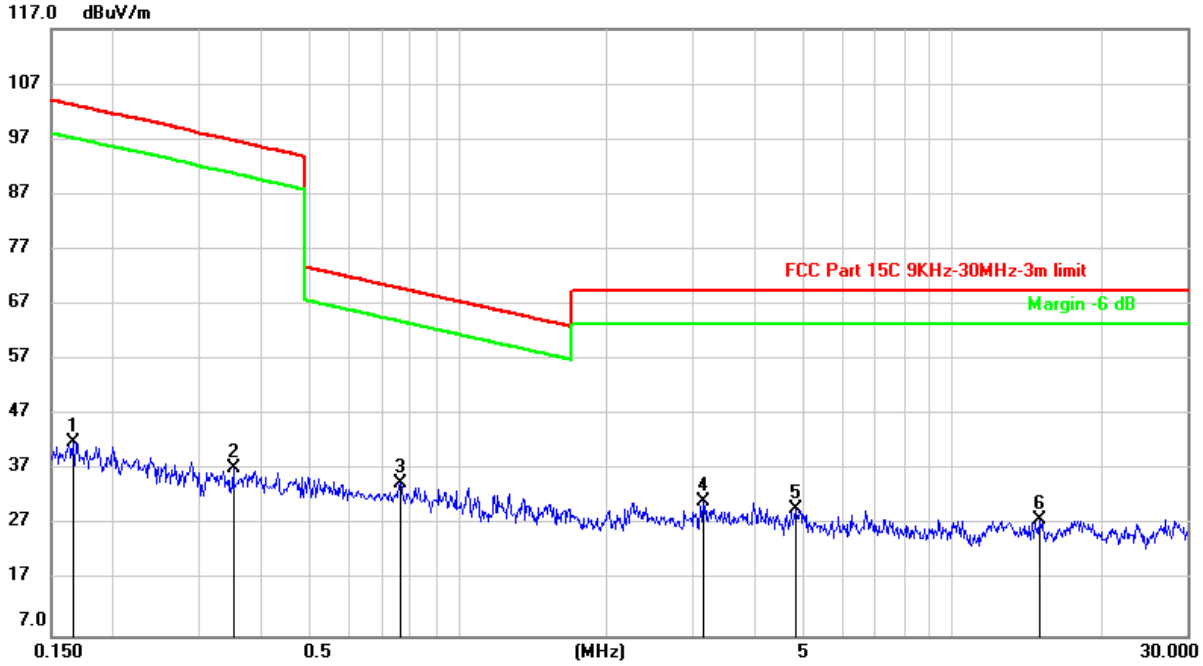
0.09KHz~ 150KHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(KHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0119	25.42	20.23	45.65	126.46	-80.81	peak
2	0.0159	22.78	20.27	43.05	124.05	-81.00	peak
3	0.0354	15.97	20.31	36.28	116.71	-80.43	peak
4	0.0393	15.01	20.31	35.32	115.73	-80.41	peak
5	0.0568	12.51	20.31	32.82	112.55	-79.73	peak
6	0.0989	7.62	20.22	27.84	107.70	-79.86	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 ~ 30M



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	0.1658	21.53	20.40	41.93	103.22	-61.29	peak
2	0.3502	16.98	20.29	37.27	96.81	-59.54	peak
3	0.7630	14.16	20.36	34.52	69.97	-35.45	peak
4	3.1396	10.32	20.91	31.23	69.54	-38.31	peak
5	4.8224	9.12	20.86	29.98	69.54	-39.56	peak
6	15.0655	7.01	20.93	27.94	69.54	-41.60	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.

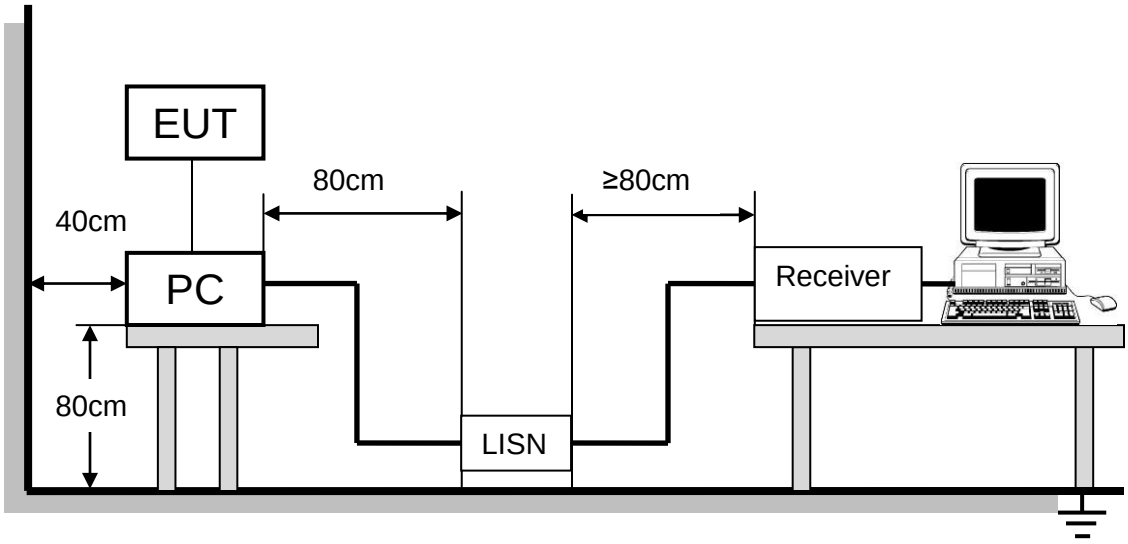
10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to FCC §15.207 (a)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	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 6.2 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.

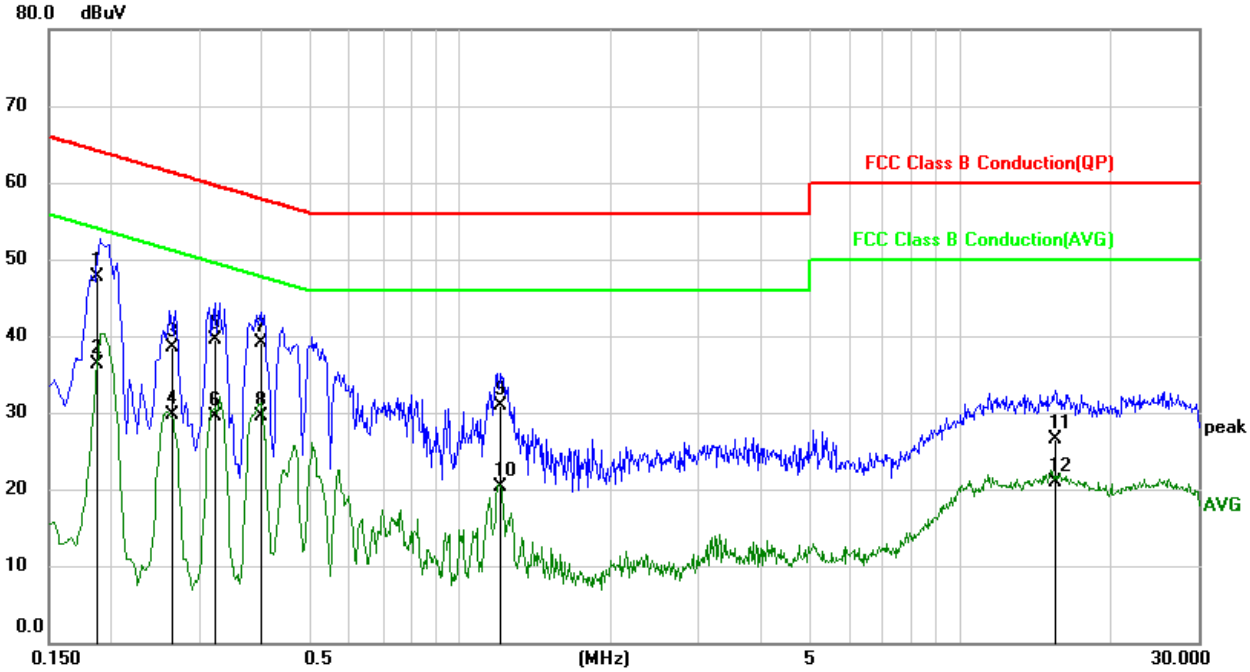
The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST RESULTS

TEST RESULTS

10.1.1. 802.11b MODE

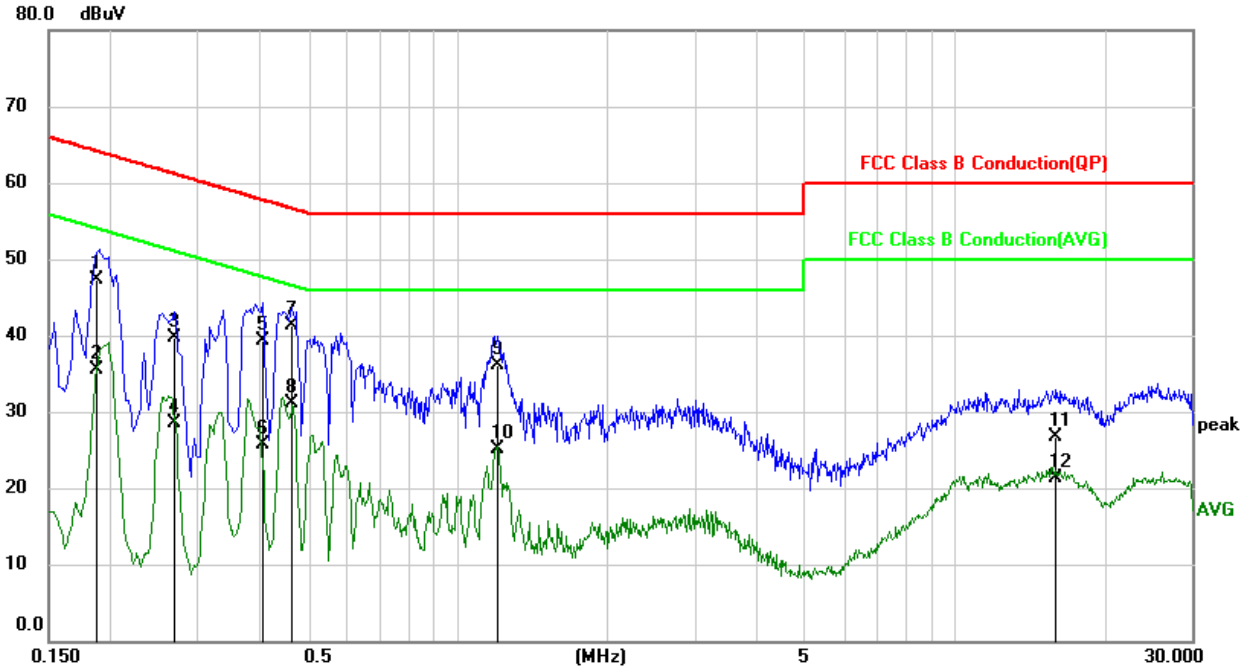
LINE N RESULTS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1870	38.13	9.65	47.78	64.17	-16.39	QP
2	0.1870	26.70	9.65	36.35	54.17	-17.82	AVG
3	0.2651	28.83	9.65	38.48	61.27	-22.79	QP
4	0.2651	20.05	9.65	29.70	51.27	-21.57	AVG
5	0.3222	29.77	9.65	39.42	59.65	-20.23	QP
6	0.3222	19.81	9.65	29.46	49.65	-20.19	AVG
7	0.3979	29.50	9.65	39.15	57.90	-18.75	QP
8	0.3979	19.93	9.65	29.58	47.90	-18.32	AVG
9	1.2019	21.28	9.67	30.95	56.00	-25.05	QP
10	1.2019	10.61	9.67	20.28	46.00	-25.72	AVG
11	15.4603	16.74	9.82	26.56	60.00	-33.44	QP
12	15.4603	11.11	9.82	20.93	50.00	-29.07	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, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB	(dBuV)	(dBuV)	(dB)	
1	0.1869	37.58	9.64	47.22	64.17	-16.95	QP
2	0.1869	25.86	9.64	35.50	54.17	-18.67	AVG
3	0.2694	30.11	9.64	39.75	61.14	-21.39	QP
4	0.2694	18.88	9.64	28.52	51.14	-22.62	AVG
5	0.4031	29.65	9.65	39.30	57.79	-18.49	QP
6	0.4031	16.05	9.65	25.70	47.79	-22.09	AVG
7	0.4632	31.58	9.65	41.23	56.63	-15.40	QP
8	0.4632	21.50	9.65	31.15	46.63	-15.48	AVG
9	1.1960	26.46	9.67	36.13	56.00	-19.87	QP
10	1.1960	15.50	9.67	25.17	46.00	-20.83	AVG
11	15.9250	16.90	9.85	26.75	60.00	-33.25	QP
12	15.9250	11.36	9.85	21.21	50.00	-28.79	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.

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.

ANTENNA CONNECTOR

EUT has an external antenna with antenna connector.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi.

END OF REPORT