



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

CERTIFICATION TEST REPORT

For

**Cubinote
MODEL NUMBER: CG1-80**

**FCC ID: 2AL4X0000G3
IC: 22723-0000G3**

REPORT NUMBER: 4788064175.1-1

ISSUE DATE: August 23, 2017

Prepared for

**Knectek Labs Inc.
9225 Leslie Street, Suite 201 Richmond Hill, ON. L4B 3H6 Canada**

Prepared by

**UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch
Room 101, Building 10, Innovation Technology Park,
Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China**
**Tel: +86 769 33817100
Fax: +86 769 33244054
Website: www.ul.com**

Revision History

Rev.	Issue Date	Revisions	Revised By
--	08/23/2017	Initial Issue	

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

Remark: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device.

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Knectek Labs Inc.
Address: 9225 Leslie Street, Suite 201 Richmond Hill, ON. L4B 3H6
Canada

Manufacturer Information

Company Name: Knectek Labs Inc.
Address: 9225 Leslie Street, Suite 201 Richmond Hill, ON. L4B 3H6
Canada

EUT Description

Product Name Cubinote
Brand Name N/A
Model Name CG1-80
Serial Number N/A
Model Difference N/A
Date Tested July 20, 2017 ~ August 27, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	PASS
ISED RSS-247 Issue 2	PASS
ISED RSS-GEN Issue 4	PASS

Tested By :

Miller Ma

Miller Ma
Engineer
Approved By:

Stephen Guo

Stephen Guo
Laboratory Manager

Check By:

Shawn Wen

Shawn Wen
Laboratory Leader

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, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 2.

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	<p>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.</p> <p>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.</p> <p>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.</p>

Note: 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.

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	Cubinote
Model Name	CG1-80
Radio Technology	IEEE802.11b/g/n HT20/n HT40
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)
Power Adapter	Model:PS65B120Y4000S INPUT:100-240V~,50/60Hz,1.5A OUTPUT:12.0V/4000mA

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)
2412-2462	1	IEEE 802.11b	2412-2462	1-11[11]	19.20
2412-2462	1	IEEE 802.11g	2412-2462	1-11[11]	19.85
2412-2462	1	IEEE 802.11nHT20	2412-2462	1-11[11]	19.61

5.3. CHANNEL LIST

Channel	Frequency (MHz)						
1	2412	4	2425	7	2442	10	2457
2	2417	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452	N/A	N/A

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel (MHz)
IEEE 802.11b	LCH :CH01 2412
	MCH: CH06 2437
	HCH: CH11 2462
IEEE 802.11g	LCH :CH01 2412
	MCH: CH06 2437
	HCH: CH11 2462
IEEE 802.11n HT20	LCH :CH01 2412
	MCH: CH06 2437
	HCH: CH11 2462

5.5. THE WORSE CASE CONFIGURATIONS

Test Software Version	DutApiWiFiMW30XBrdigeUart	
Test Mode	Setting TX Power	Setting data rate (Mbps)
IEEE 802.11b	16	CCK_1Mbps
	16	CCK_1Mbps
	16	CCK_1Mbps
IEEE 802.11g	9	NO HT_6Mbps
	9	NO HT_6Mbps
	9	NO HT_6Mbps
IEEE 802.11n HT20	9	HT20_MCS_0_20
	9	HT20_MCS_0_20
	9	HT20_MCS_0_20

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2412-2462	PCB Antenna	2.7

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	<input checked="" type="checkbox"/> 1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.
IEEE 802.11g	<input checked="" type="checkbox"/> 1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	<input checked="" type="checkbox"/> 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	AC120V/60Hz
	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
2	USB serial board	N/A	N/A	N/A

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	USB	shielded	1.2	N/A

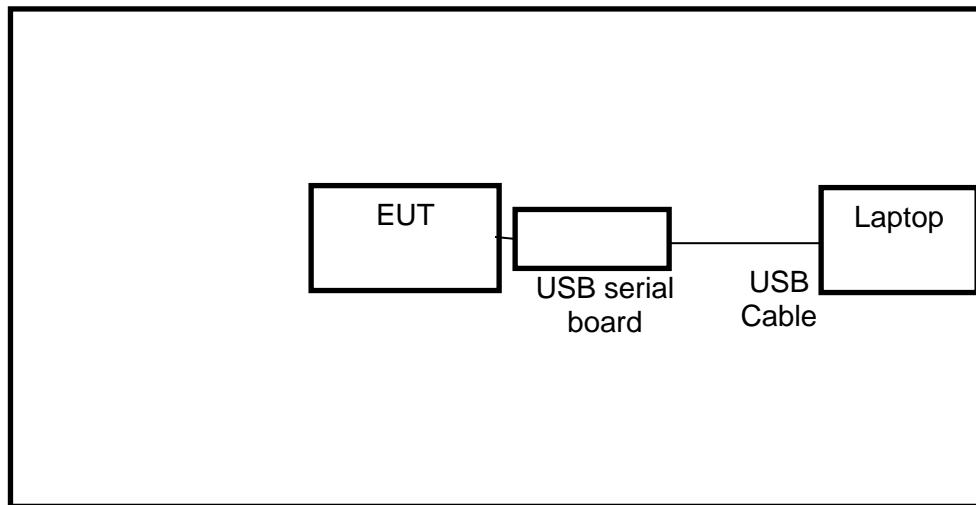
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	Switching Adapter	N/A	PS65B120Y4000S	INPUT:100-240V~,50/60Hz,1.5A OUTPUT:12.0V/4000mA

TEST SETUP

The EUT can work in engineering mode with firmware DutApiWiFiMW30XBrdigeUart 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.				
<input checked="" type="checkbox"/>	EMI Test Receiver	R&S	ESR3	101961	Dec.20, 2016	Dec.19, 2017				
<input checked="" type="checkbox"/>	Two-Line V-Network	R&S	ENV216	101983	Dec.20, 2016	Dec.19, 2017				
<input checked="" type="checkbox"/>	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Feb.10, 2017	Feb.10, 2018				
Software										
Used	Description		Manufacturer	Name	Version					
<input checked="" type="checkbox"/>	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.				
<input checked="" type="checkbox"/>	MXE EMI Receiver	KESIGHT	N9038A	MY56400 036	Feb. 24, 2017	Feb. 24, 2018				
<input checked="" type="checkbox"/>	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Jan.09, 2016	Jan.09, 2019				
<input checked="" type="checkbox"/>	Preamplifier	HP	8447D	2944A090 99	Feb. 13, 2017	Feb. 13, 2018				
<input checked="" type="checkbox"/>	EMI Measurement Receiver	R&S	ESR26	101377	Dec. 20, 2016	Dec. 20, 2017				
<input checked="" type="checkbox"/>	Horn Antenna	TDK	HRN-0118	130939	Jan. 09, 2016	Jan. 09, 2019				
<input checked="" type="checkbox"/>	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Jan.06, 2016	Jan.06, 2019				
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Jan. 14, 2017	Jan. 14, 2018				
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec. 20, 2016	Dec. 20, 2017				
<input checked="" type="checkbox"/>	Loop antenna	Schwarzbeck	1519B	00008	Mar. 26, 2016	Mar. 25, 2019				
Software										
Used	Description		Manufacturer	Name	Version					
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance		Farad	EZ-EMC	Ver. UL-3A1					
Other instruments										
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.				
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec. 20, 2016	Dec. 20, 2017				
<input checked="" type="checkbox"/>	Power Meter	Keysight	N1911A	MY55416024	Aug. 20, 2017	Aug. 20, 2018				
<input checked="" type="checkbox"/>	Power Sensor	Keysight	N1921A	MY51100041	Feb. 13, 2017	Feb. 13, 2018				
<input checked="" type="checkbox"/>	DC Supply	Keysight	E36103A	MY55350020	Feb. 10, 2017	Feb. 10, 2018				

6. MEASUREMENT METHODS

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

Remark: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device.

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

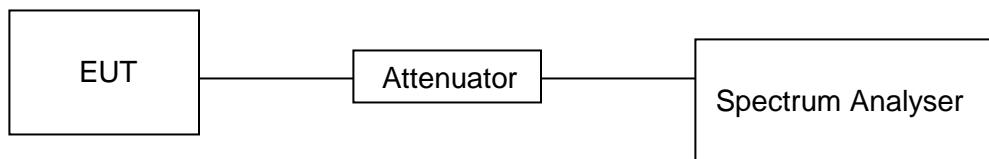
LIMITS

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	4.54	9.1	0.498901099	50	3.02	0.22
11g	2.11	4.94	0.427125506	43	3.69	0.47
11n20	1.96	4.37	0.448512586	45	3.48	0.51

Note: Duty Cycle Correction Factor=10log(1/x).

Where: x is Duty Cycle(Linear)

Where: B is On Time

ON TIME AND DUTY CYCLE MID CH

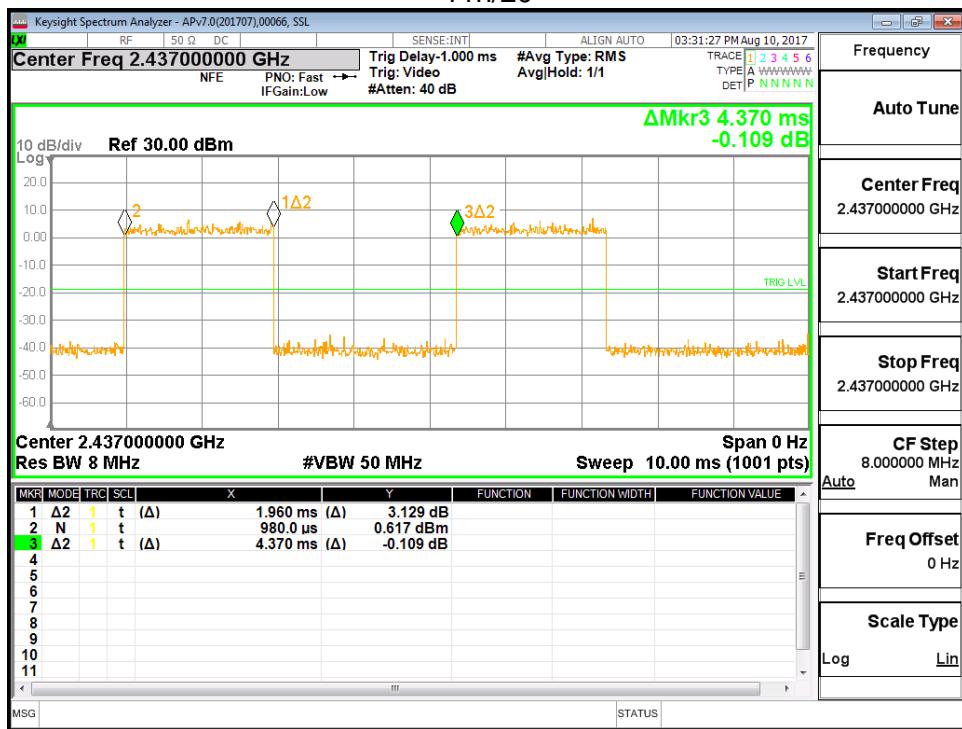
11b



11g



11n/20



7.2. 6 dB DTS BANDWIDTH AND 99% BANDWIDTH

LIMITS

FCC Part15 (15.247) Subpart C RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2) RSS-247 5.1 (a)	6 dB Bandwidth	$\geq 500\text{KHz}$	2400-2483.5
RSS-Gen Clause 6.6	99% Bandwidth	For reporting purposes only.	2400-2483.5

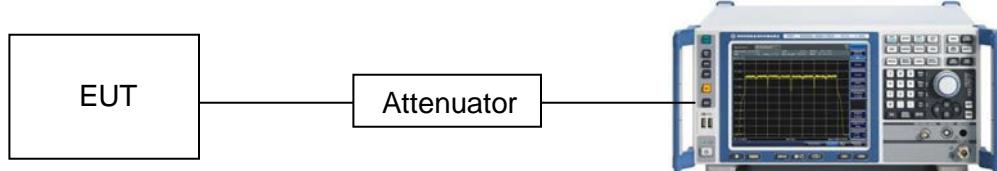
TEST PROCEDURE

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% Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : $\geq 3 \times \text{RBW}$ For 99% Bandwidth : approximately $3 \times \text{RBW}$
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 CONDITIONS

Temperature: 26.6°C

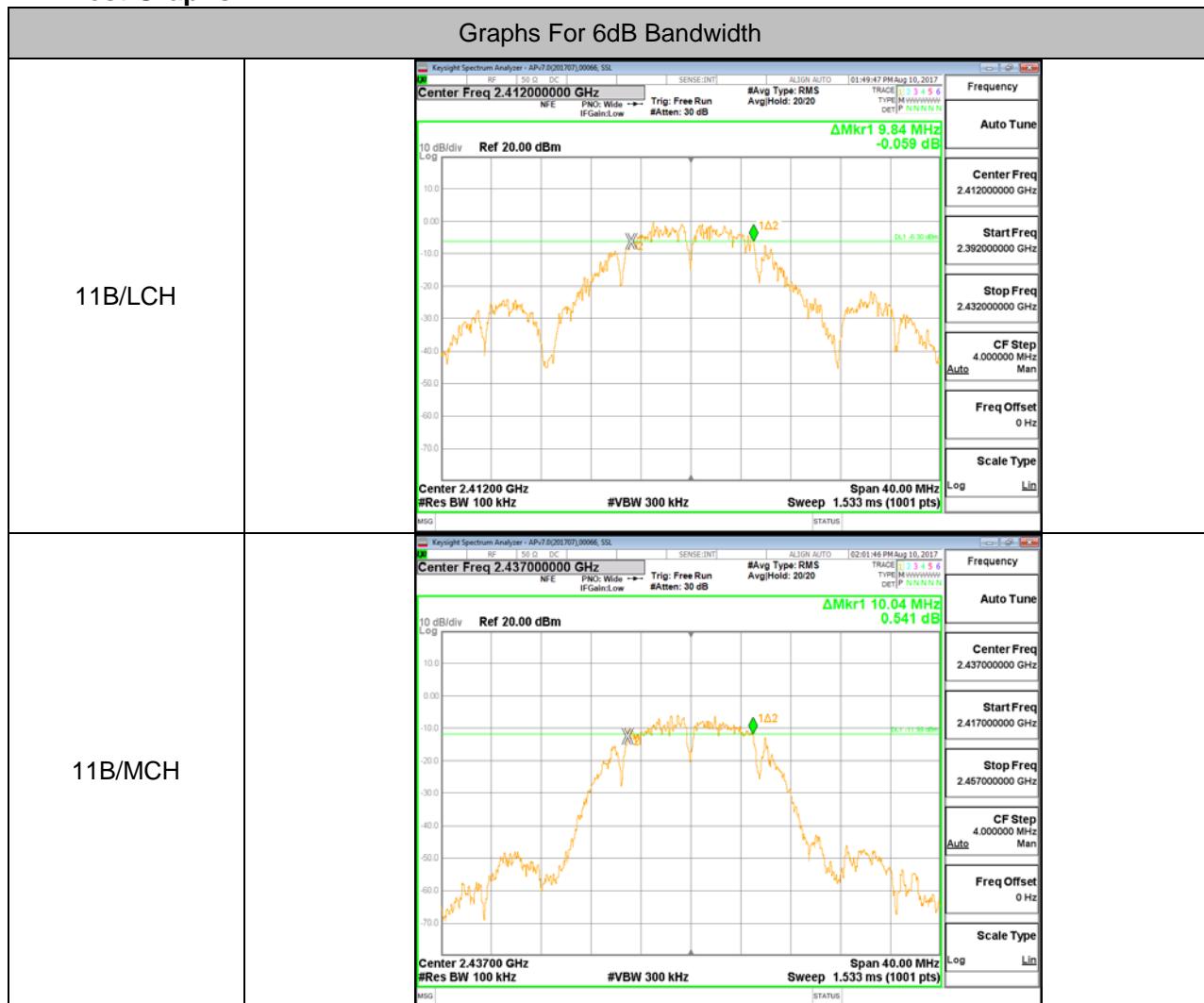
Relative Humidity: 58%

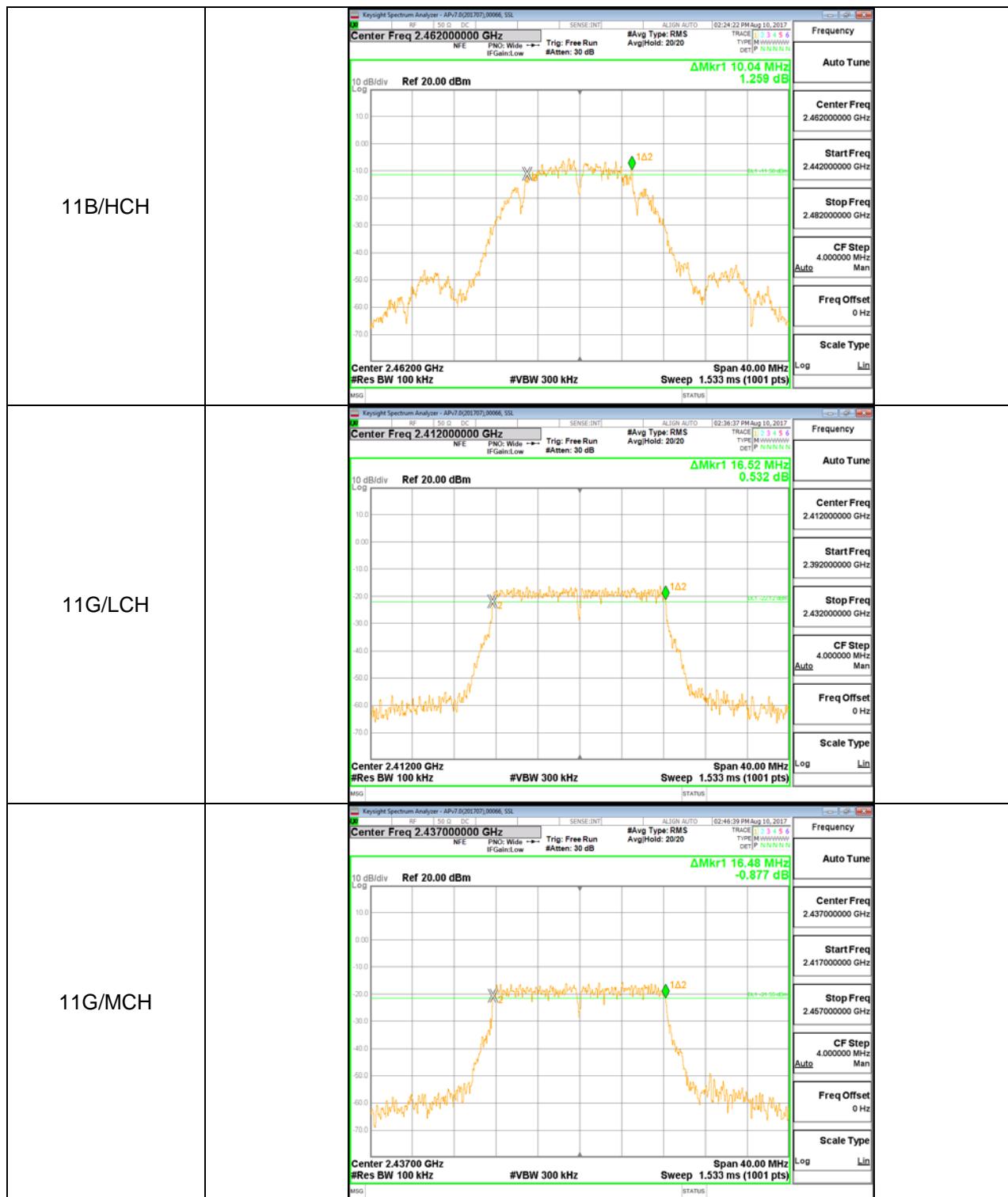
Test Voltage: AC 120V

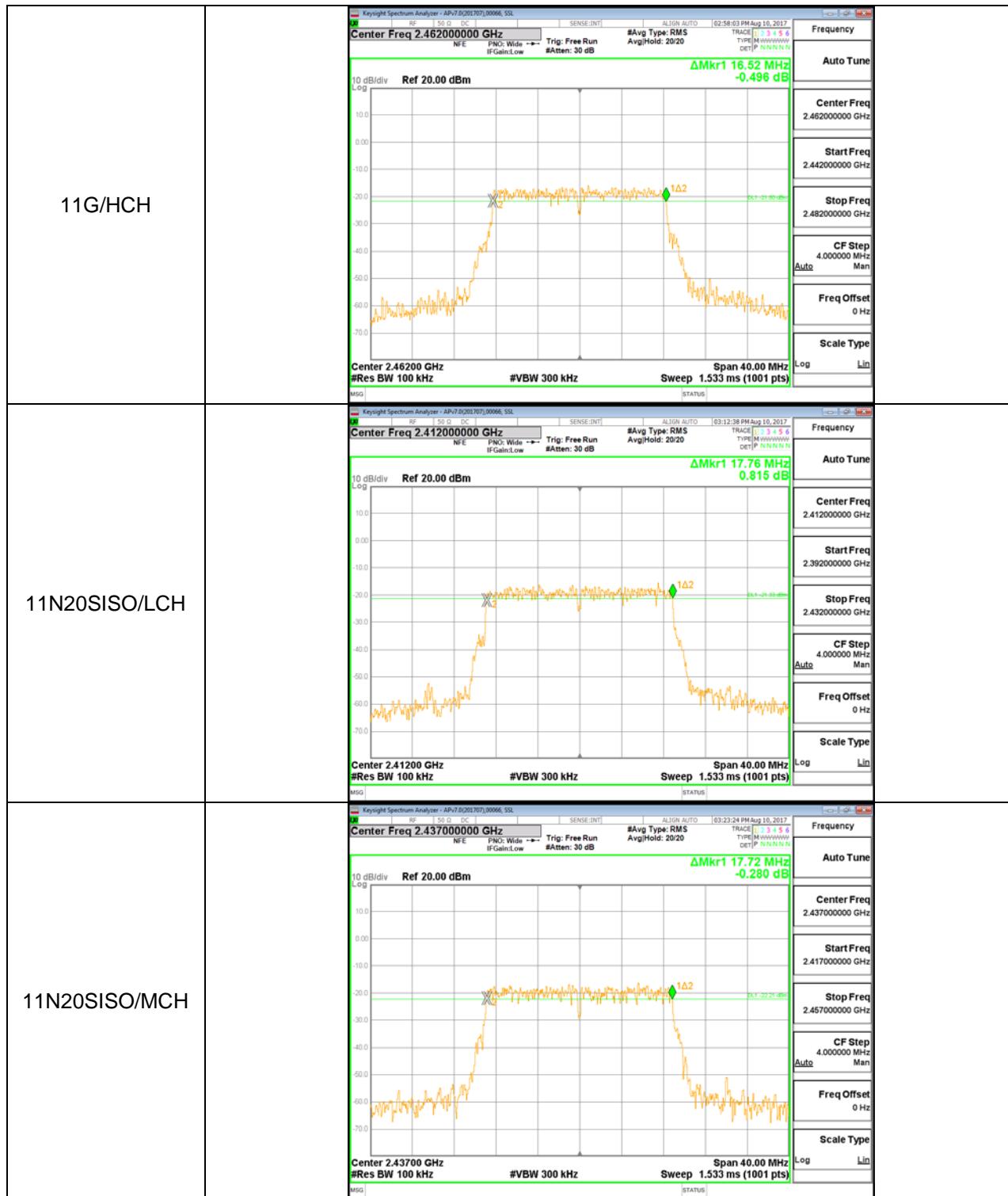
RESULTS

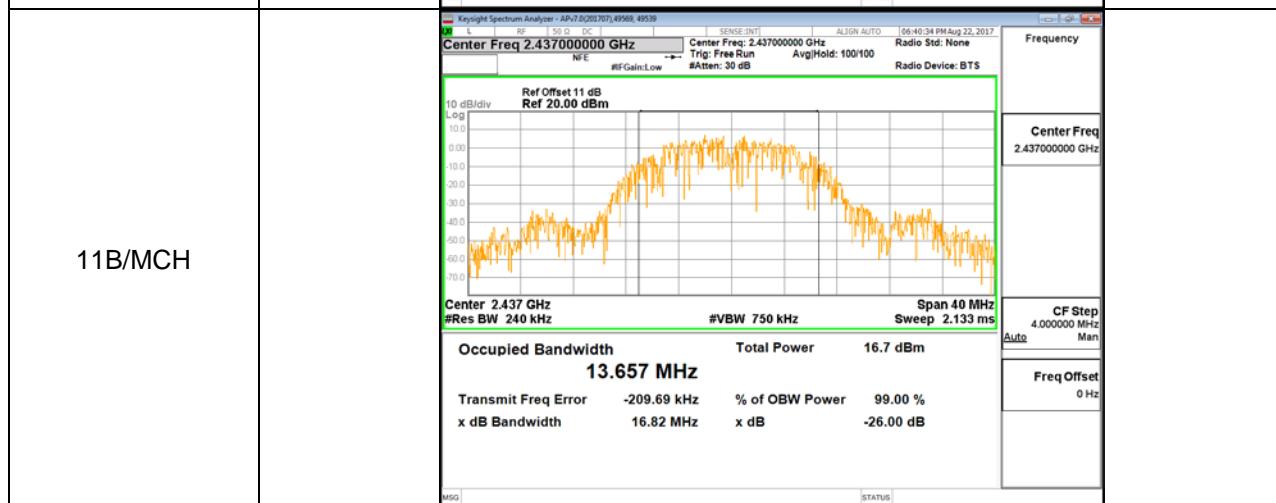
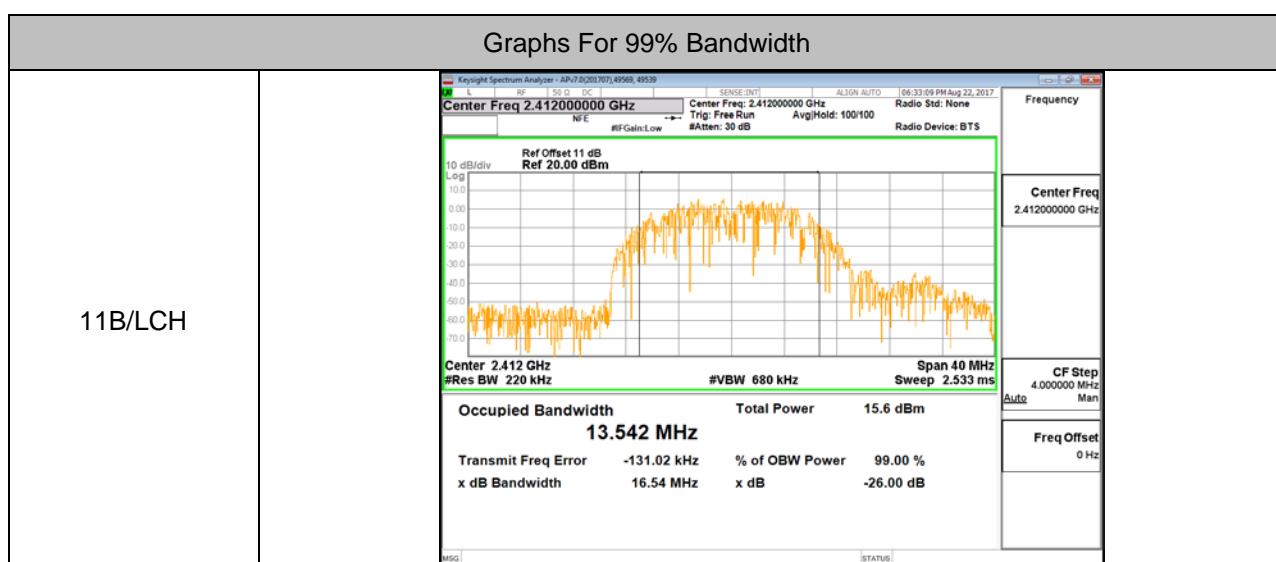
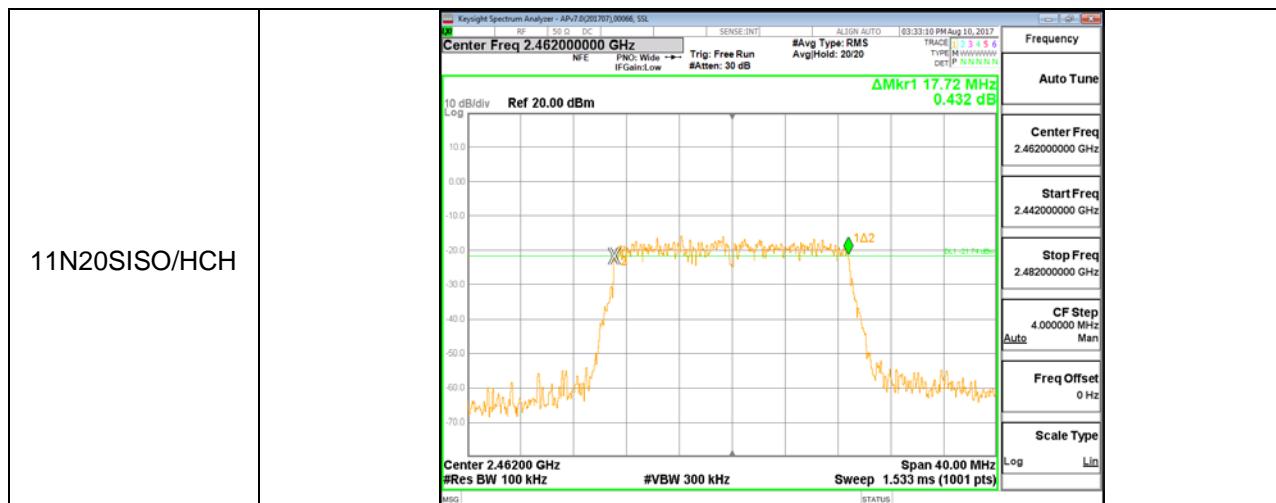
Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
11B	LCH	9.84	13.542	PASS
11B	MCH	10.04	13.657	PASS
11B	HCH	10.04	13.584	PASS
11G	LCH	16.52	16.556	PASS
11G	MCH	16.48	16.488	PASS
11G	HCH	16.52	16.556	PASS
11N20SISO	LCH	17.76	17.739	PASS
11N20SISO	MCH	17.72	17.785	PASS
11N20SISO	HCH	17.72	17.749	PASS

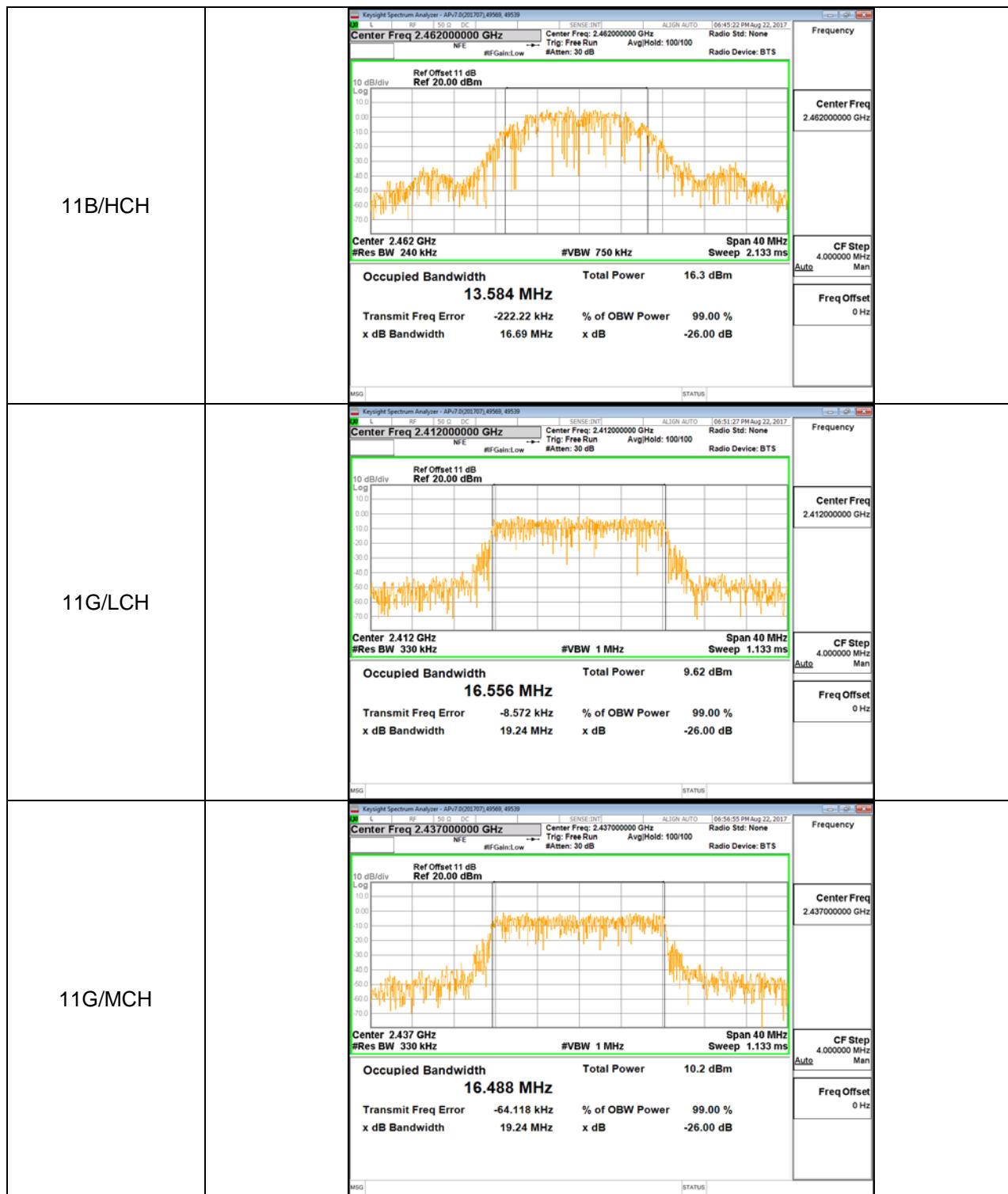
Test Graphs

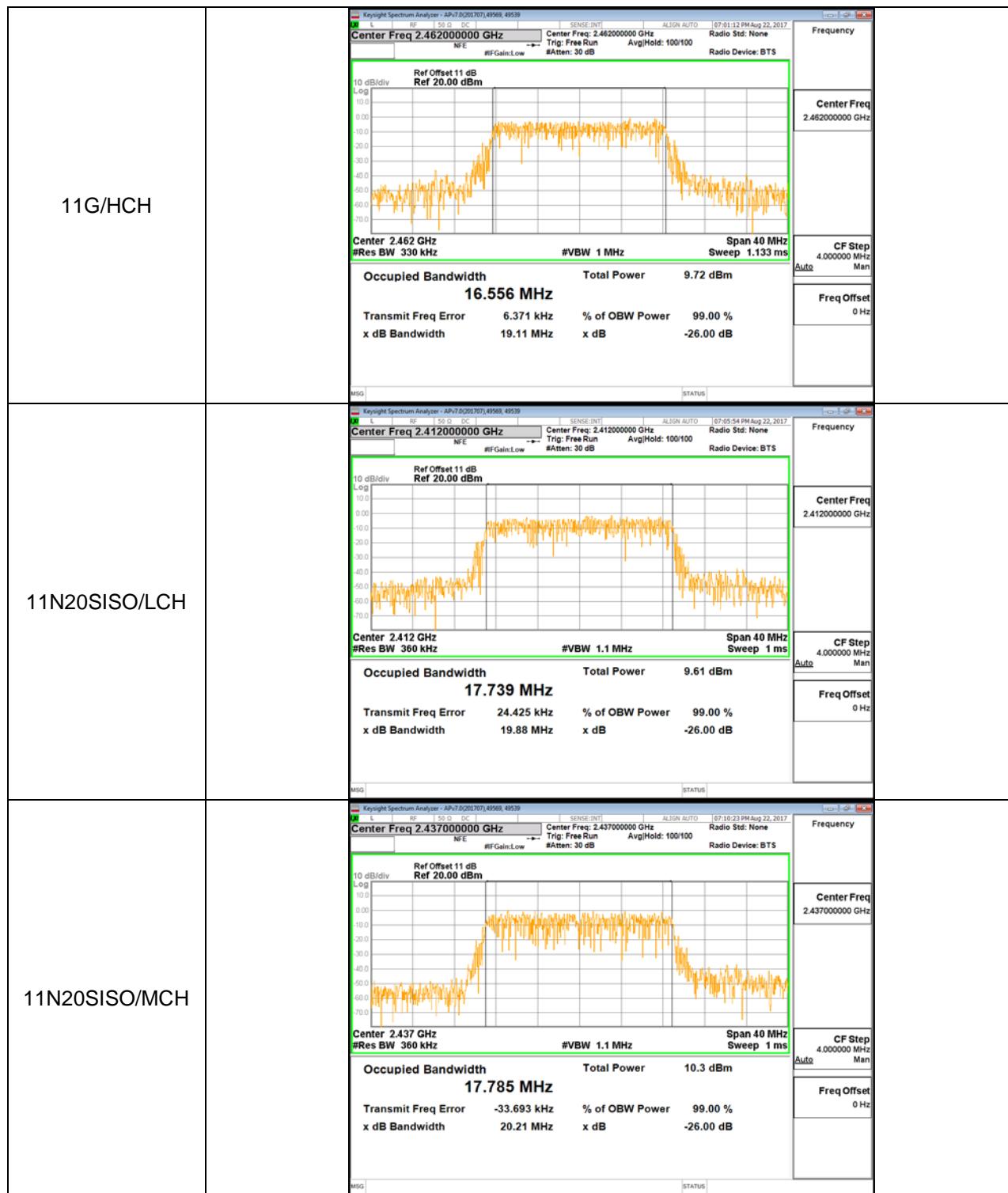


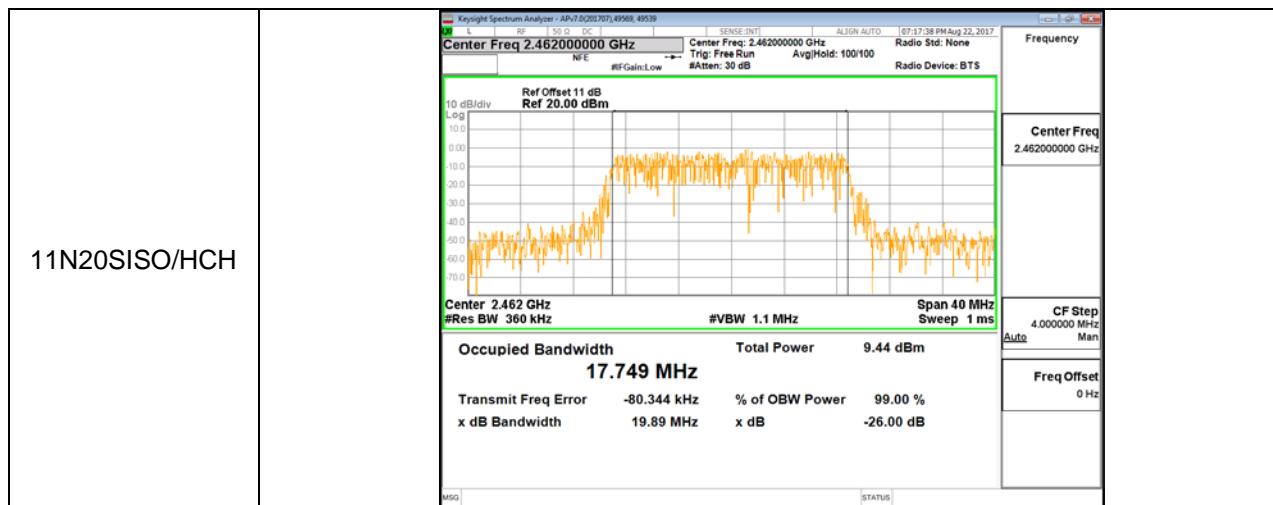












7.3. PEAK & AVERAGE CONDUCTED OUTPUT POWER

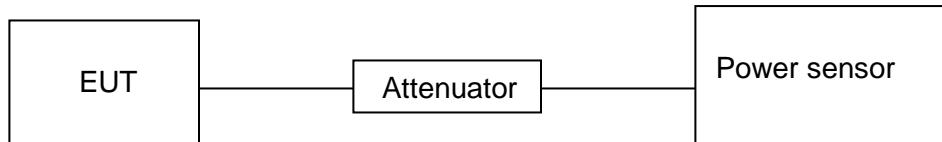
LIMITS

FCC Part15 (15.247) Subpart C RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3) RSS-247 5.4 (e)	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

Mode	Channel	Average. Power [dBm]	Peak. Power [dBm]	Verdict
11B	LCH	15.80	19.17	PASS
11B	MCH	15.86	19.20	PASS
11B	HCH	15.74	18.65	PASS
11G	LCH	9.26	19.24	PASS
11G	MCH	9.13	19.18	PASS
11G	HCH	8.89	19.85	PASS
11N20SISO	LCH	9.13	19.45	PASS
11N20SISO	MCH	9.28	19.61	PASS
11N20SISO	HCH	8.75	19.17	PASS

7.4. POWER SPECTRAL DENSITY

LIMITS

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

TEST PROCEDURE

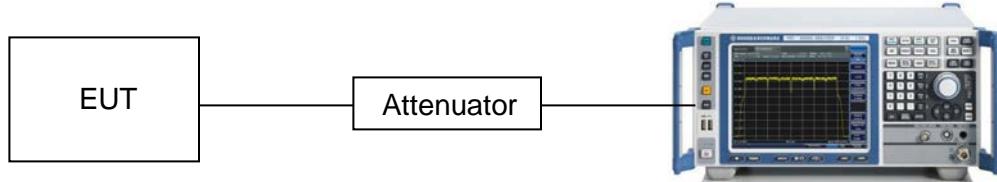
Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	$1.5 \times \text{DTS bandwidth}$
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



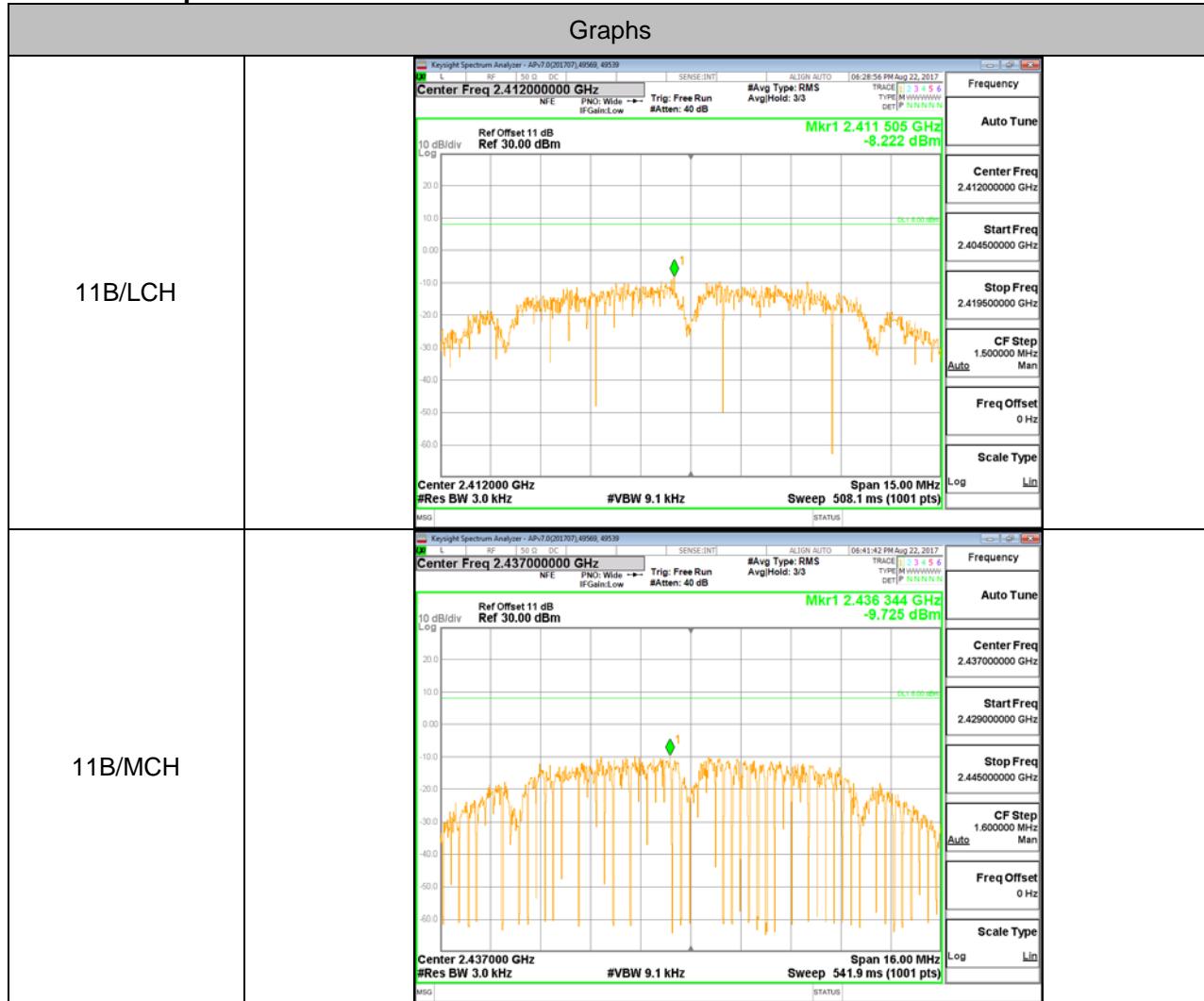
TEST CONDITIONS

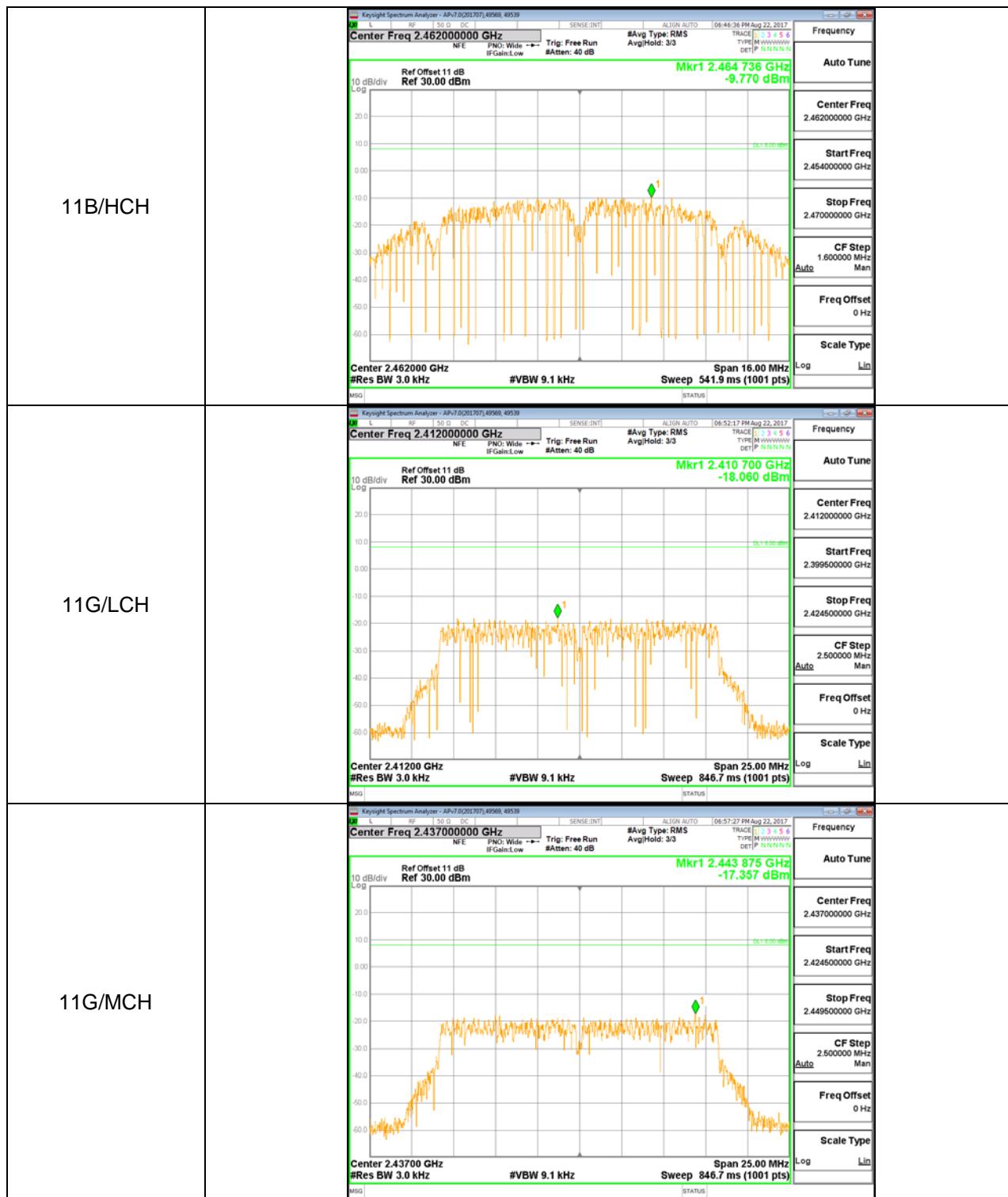
Temperature: 27°C
Relative Humidity: 60%
Test Voltage: 3.8Vdc

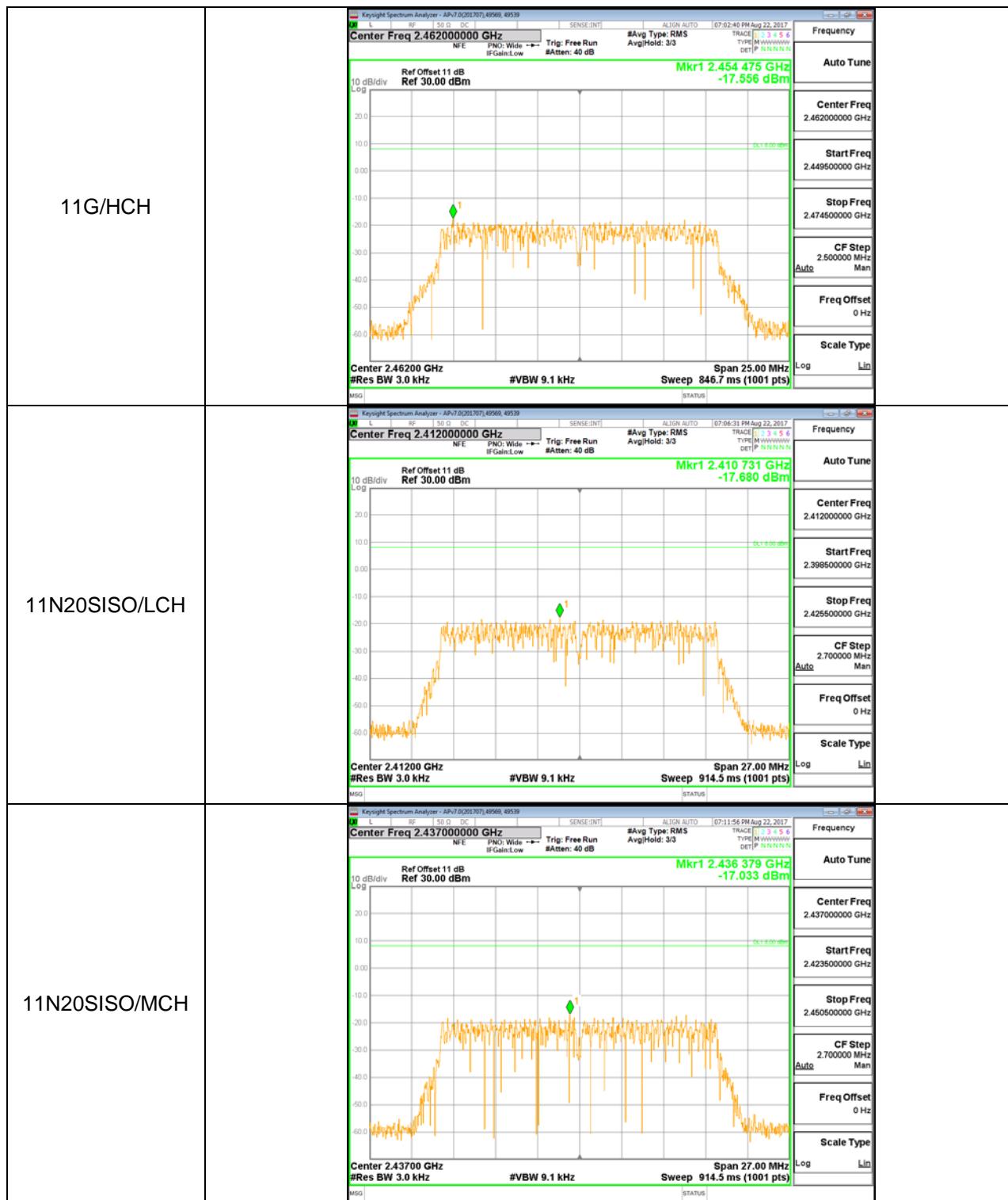
RESULTS

Mode	Channel	Meas.Level [dBm/30kHz]	Verdict
11B	LCH	-8.22	PASS
11B	MCH	-9.72	PASS
11B	HCH	-9.77	PASS
11G	LCH	-18.06	PASS
11G	MCH	-17.36	PASS
11G	HCH	-17.56	PASS
11N20SISO	LCH	-17.68	PASS
11N20SISO	MCH	-17.03	PASS
11N20SISO	HCH	-17.2	PASS

Test Graphs









7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247) Subpart C RSS-247 ISSUE 2		
Section	Test Item	Limit
FCC §15.247 (d) 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:

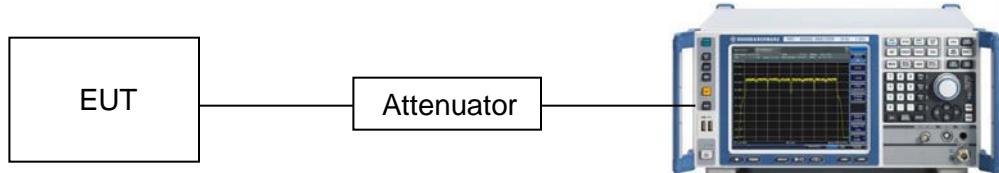
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	$\geq 3 \times$ RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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	$\geq 3 \times$ RBW
measurement points	\geq span/RBW
Trace	Max hold
Sweep time	Auto couple.

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

TEST SETUP

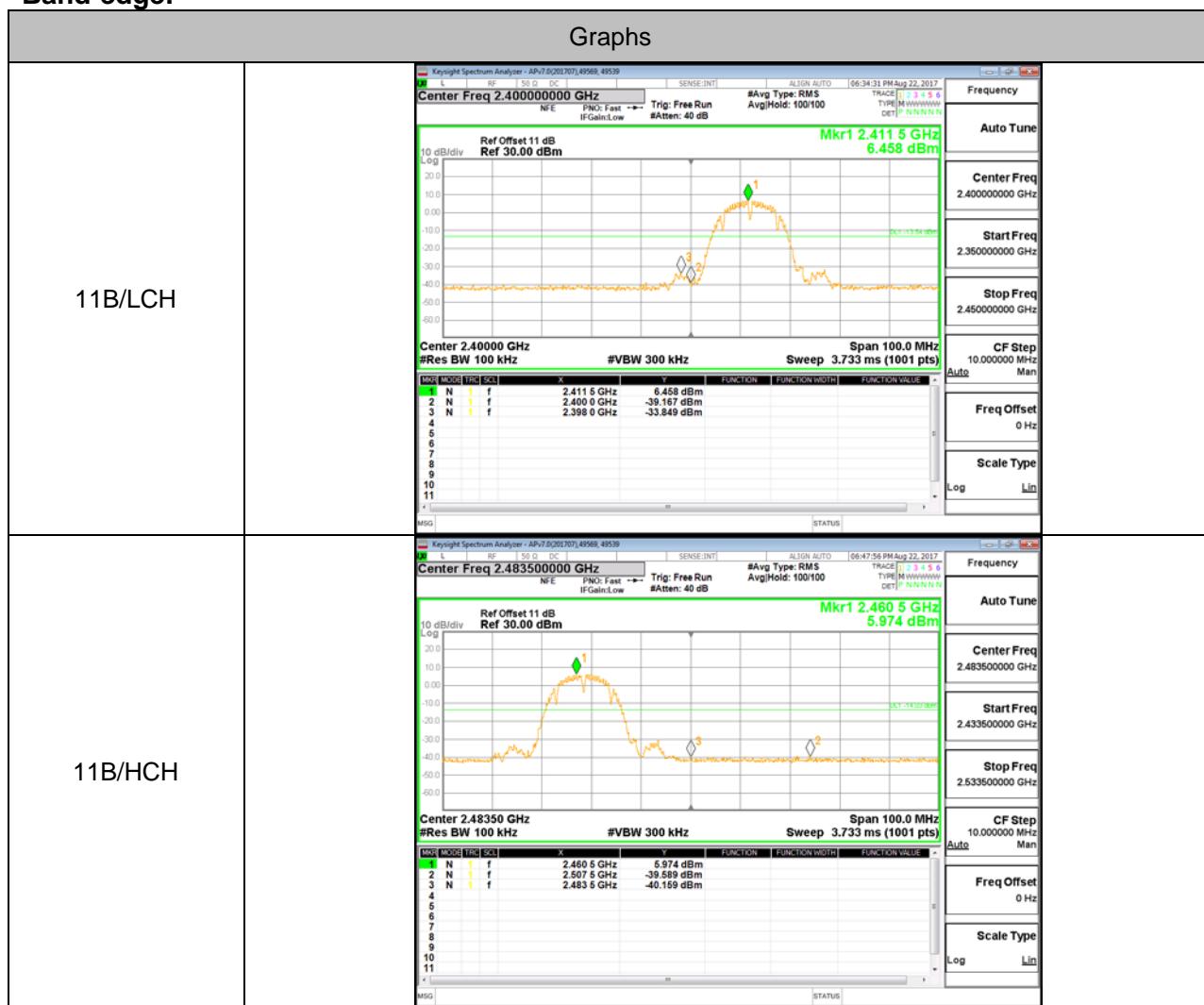


TEST CONDITIONS

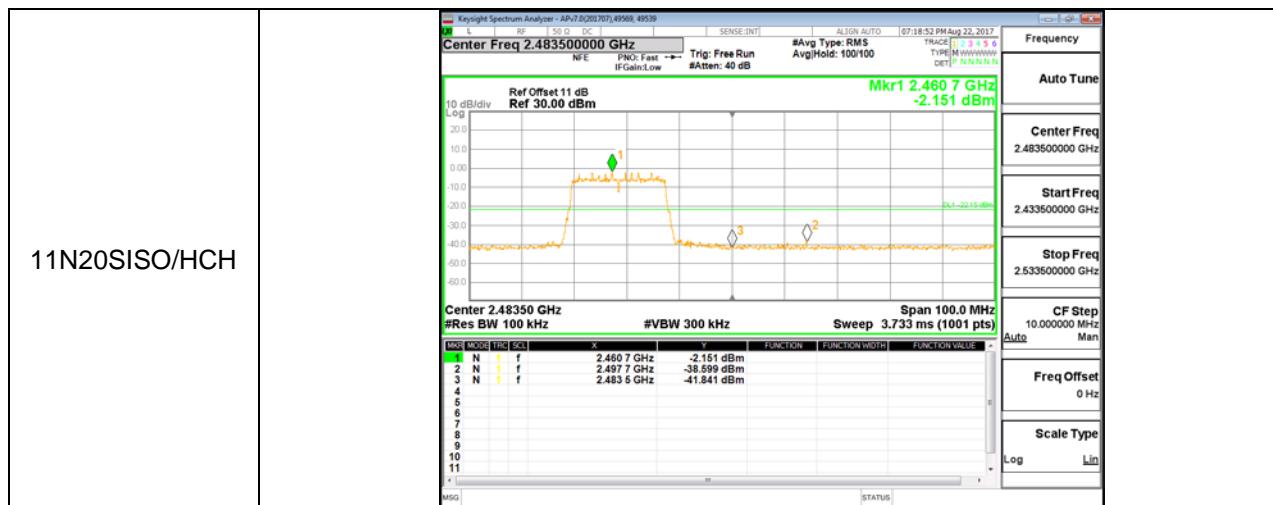
Temperature: 27°C
Relative Humidity: 60%
Test Voltage: 3.8Vdc

RESULTS

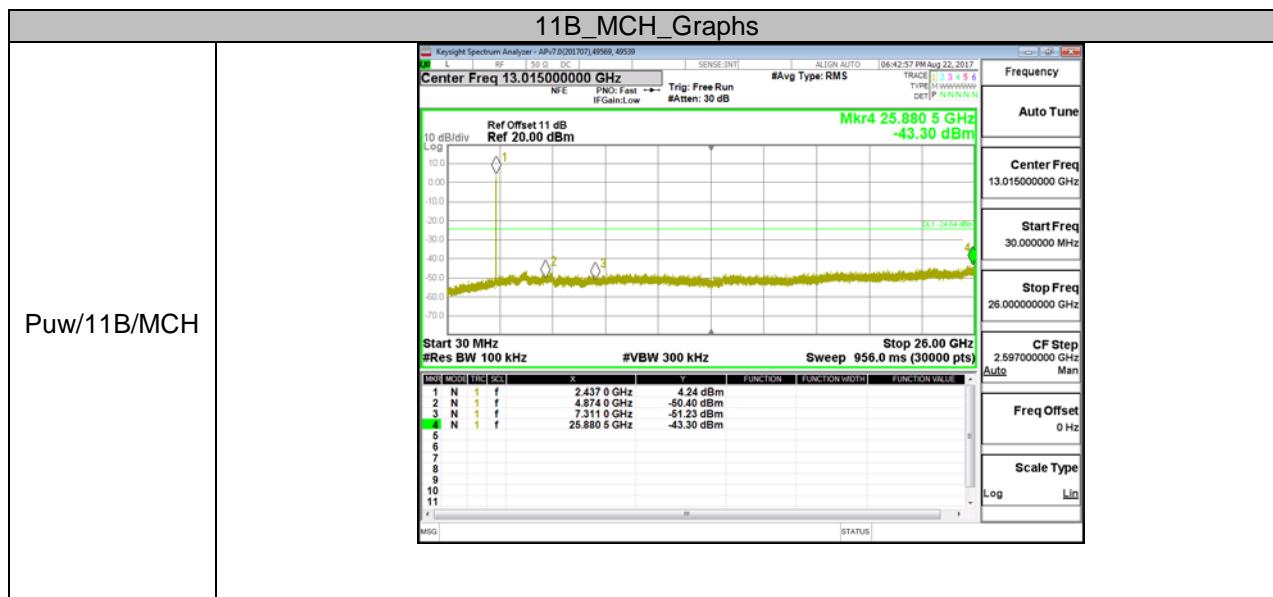
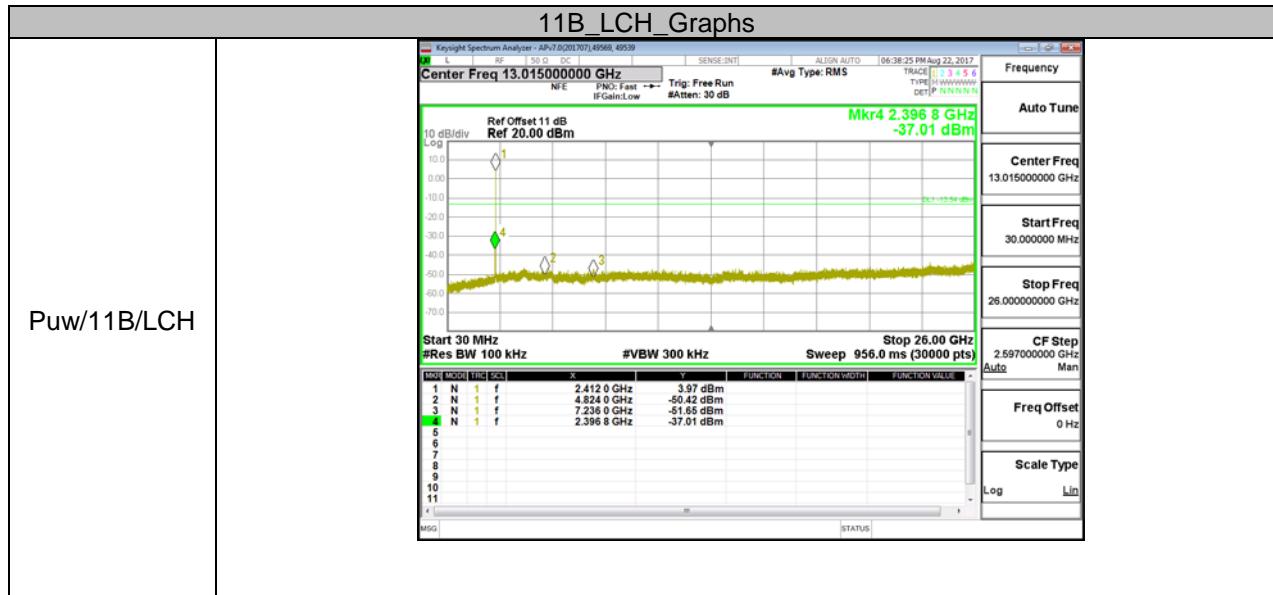
Band-edge:

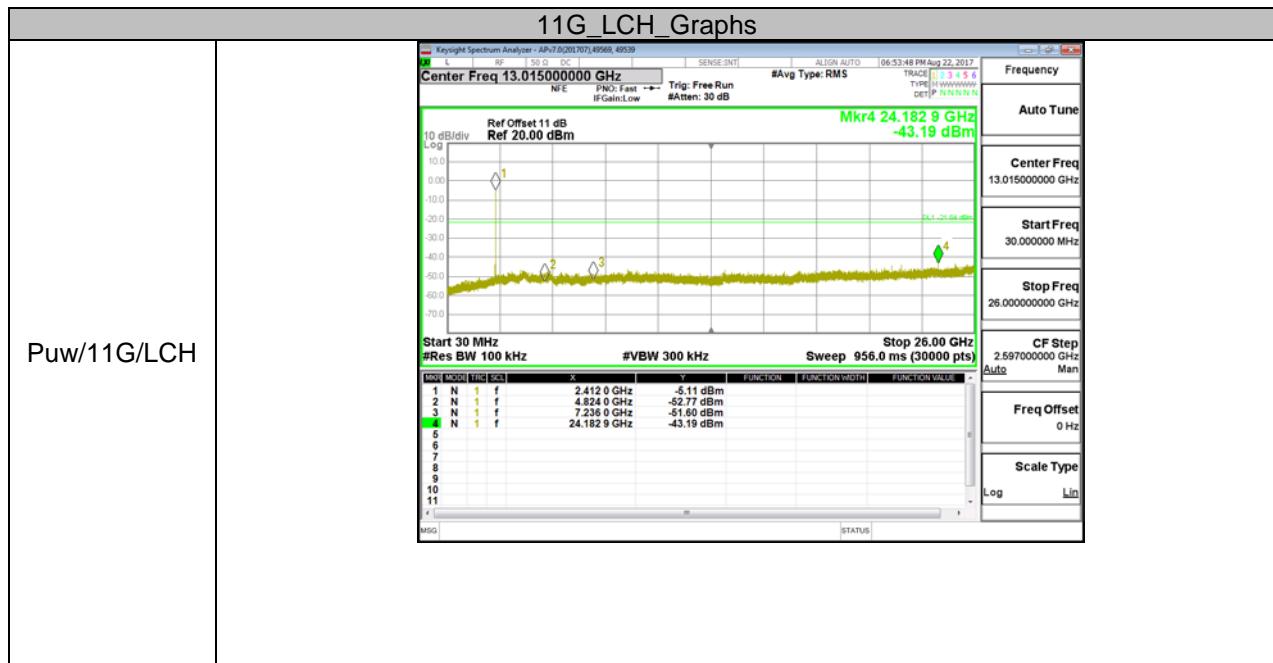
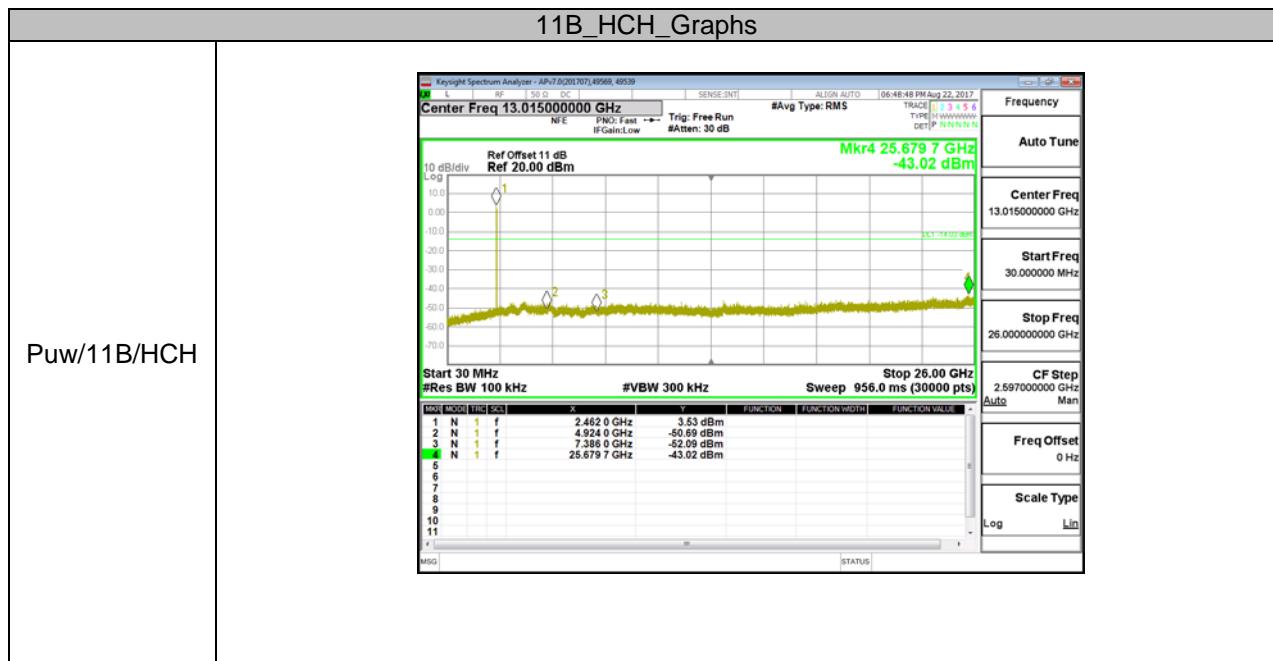


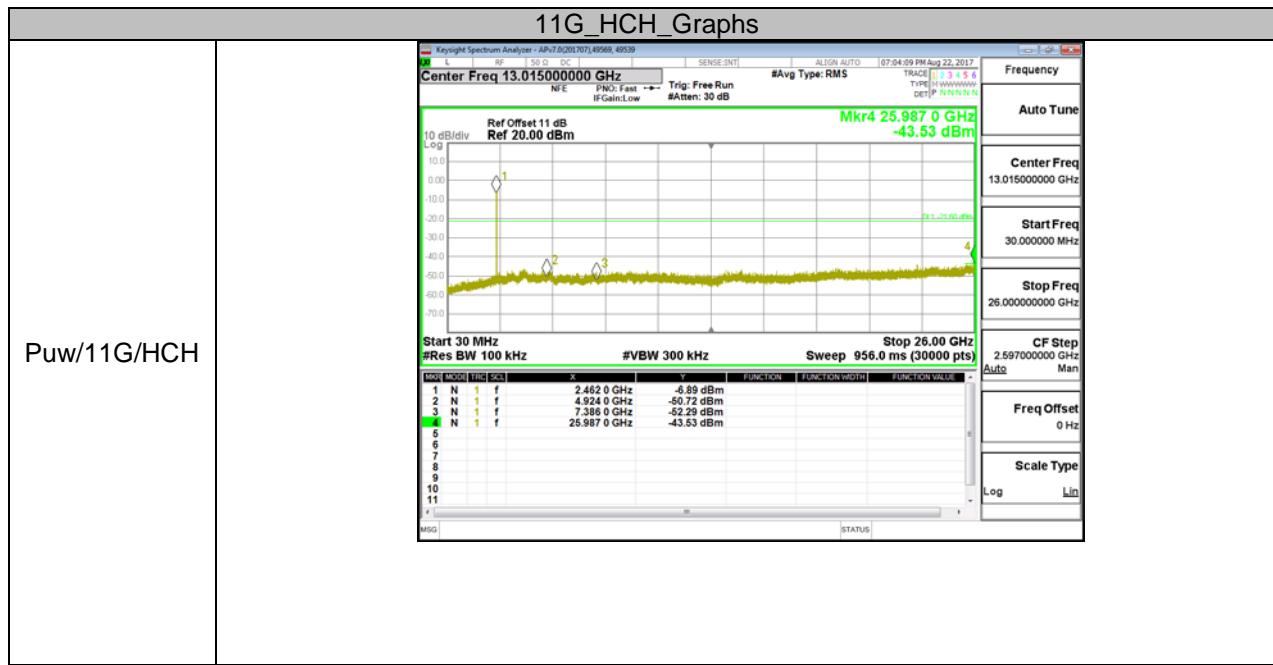
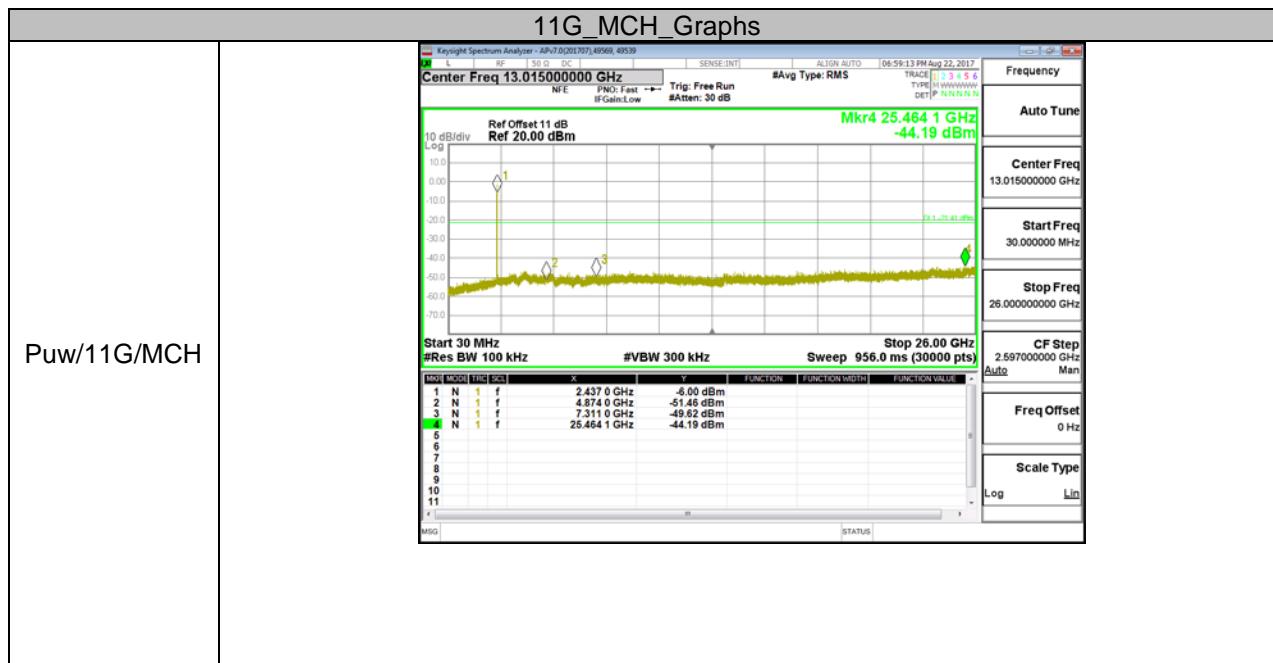


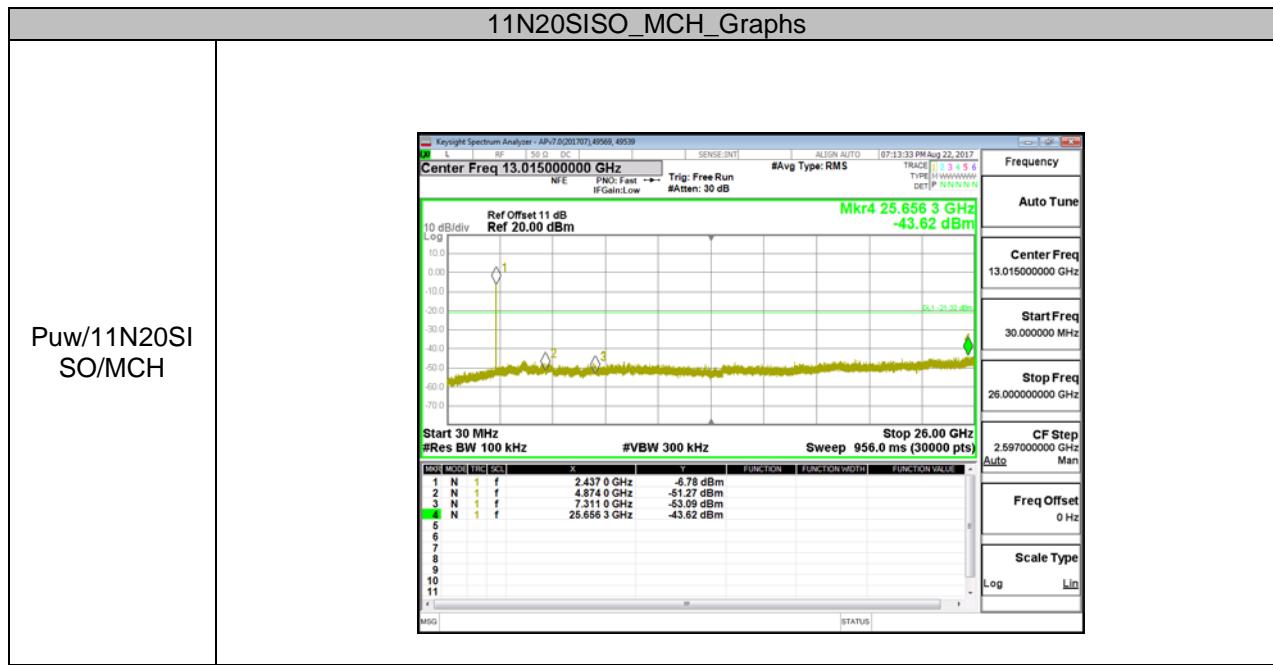
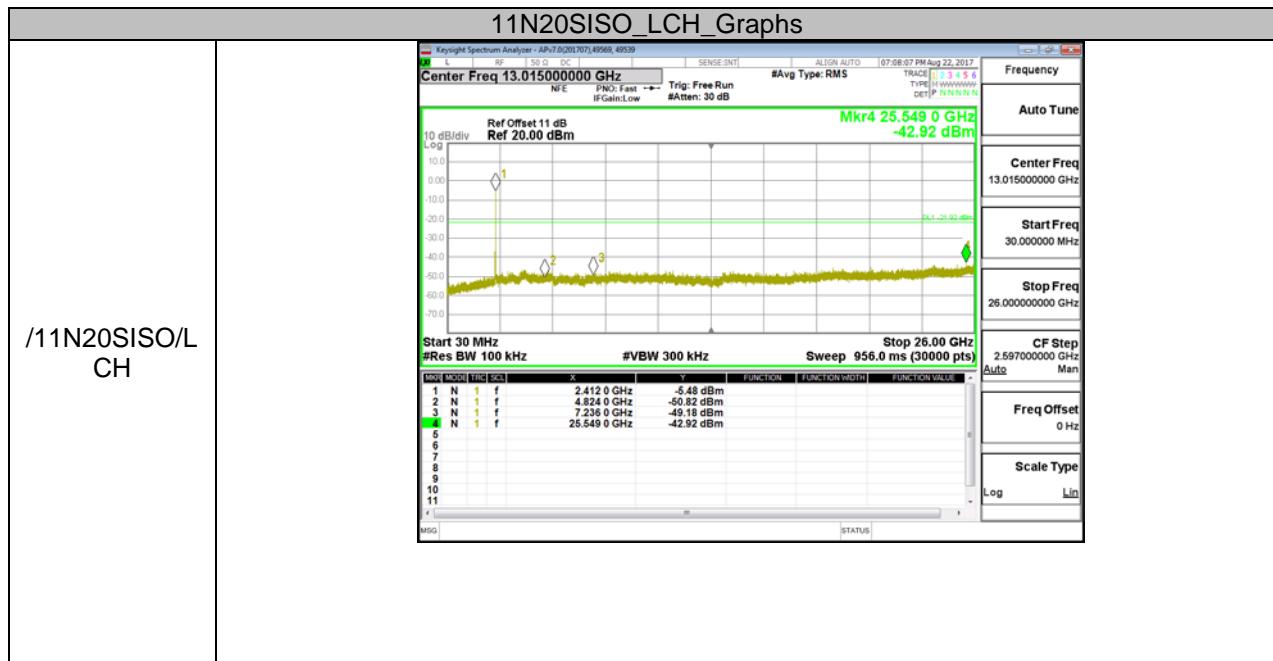


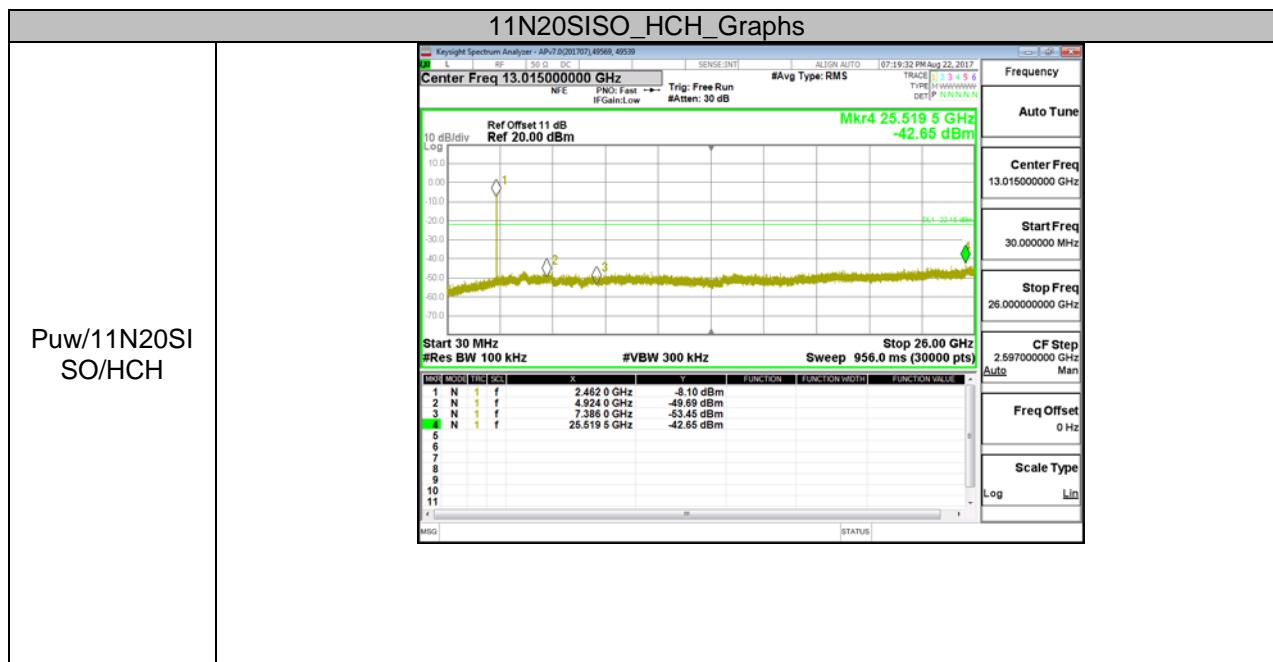
Spurious Emissions:











8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

Please refer to FCC §15.205 and §15.209

Please refer to RSS-GEN Clause 8.9 (Transmitter)

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

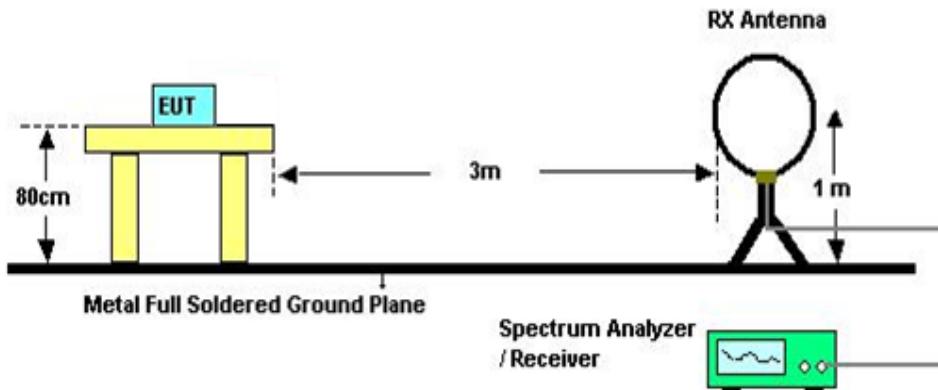
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Radiation Disturbance Test Limit for FCC (Above 1G)

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

TEST SETUP AND PROCEDURE

Below 30MHz

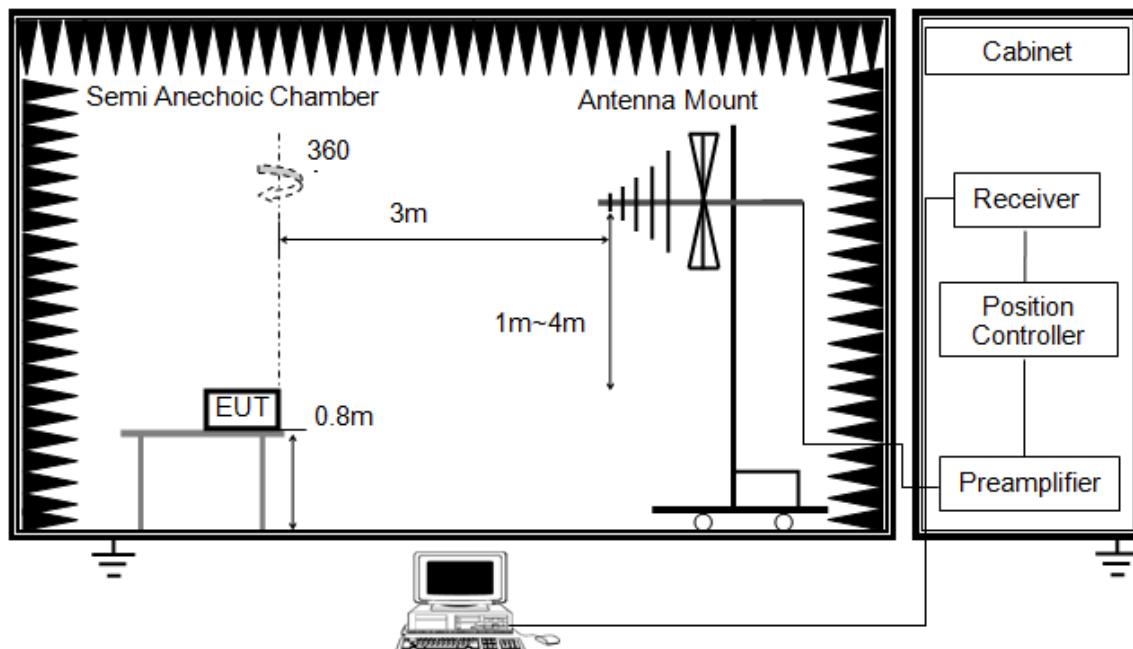


The setting of the spectrum analyser

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. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. 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.
7. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

Below 1G

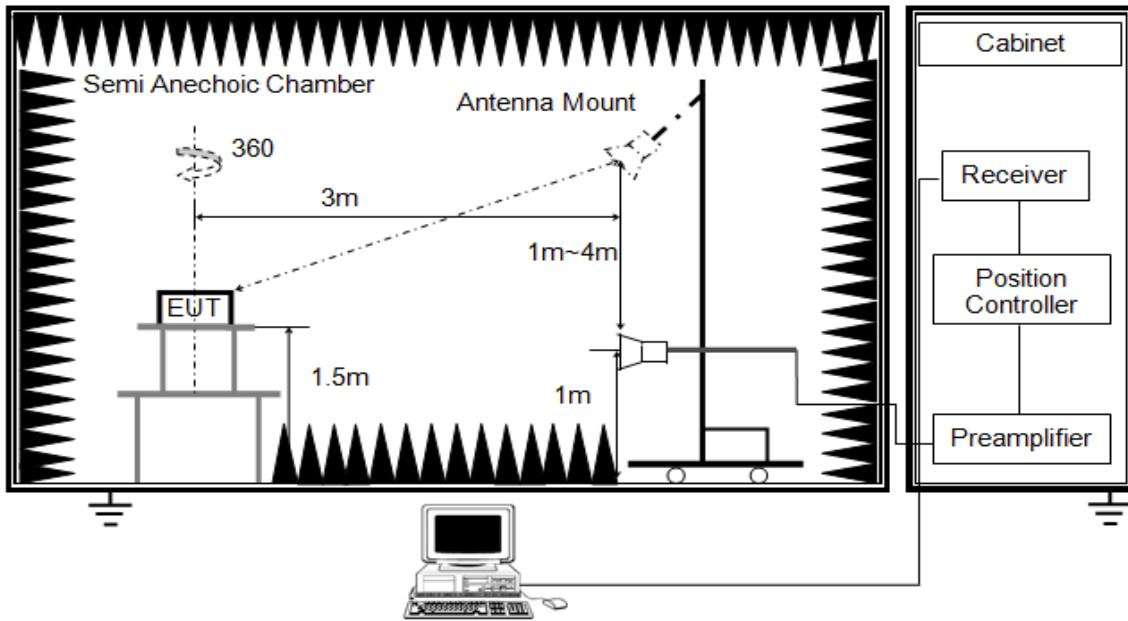


The setting of the spectrum analyser

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. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. 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.
7. For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration)

ABOVE 1G

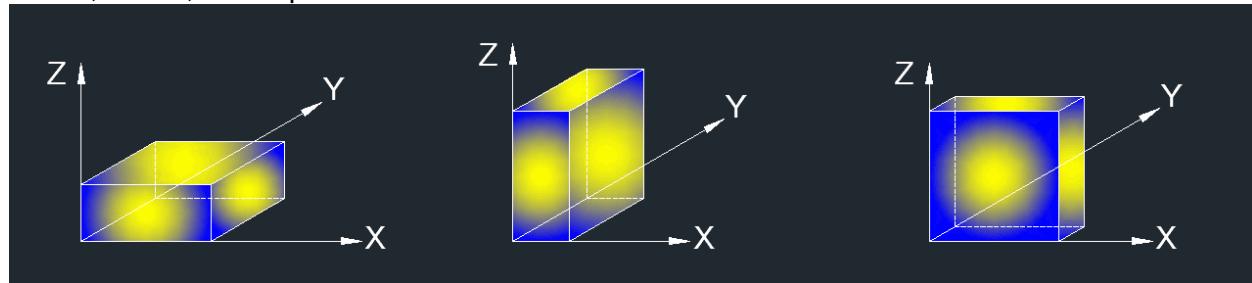


The setting of the spectrum analyser

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

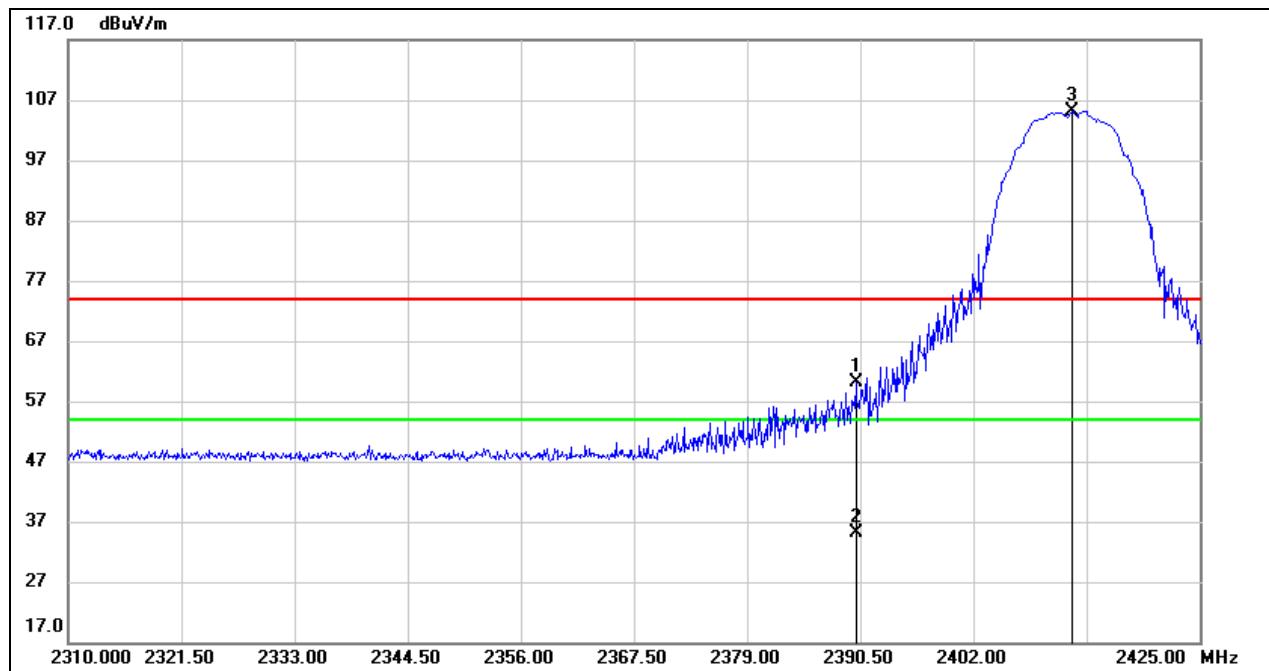
1. The testing follows the guidelines in ANSI C63.10-2013.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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, max hold to be run for at least 50 x (1/duty cycle) traces for average measurements.
8. 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:



8.2. RESTRICTED BANEDGE

RESTRICTED BANEDGE (11b LOW CHANNEL, HORIZONTAL)

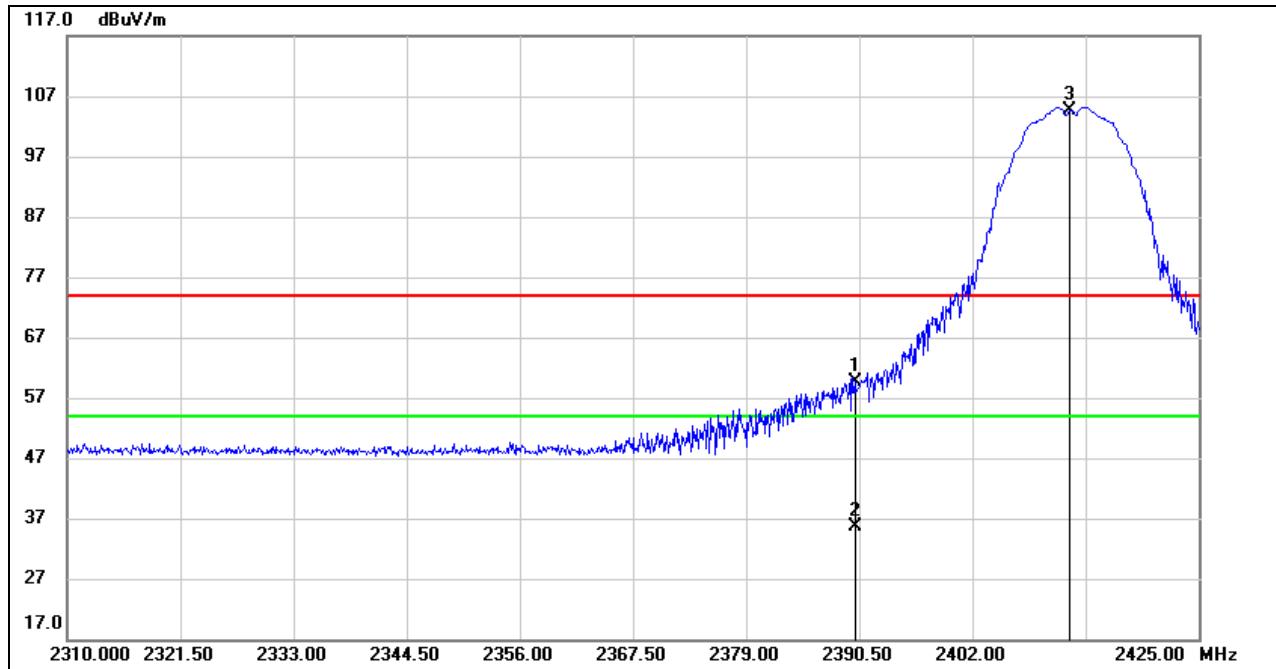


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	27.05	33.14	60.19	74.00	-13.81	peak
2	2390.000	2.09	33.14	35.23	54.00	-18.77	AVG
3	2412.000	72.05	33.01	105.06			peak

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEDGE (11b LOW CHANNEL, VERTICAL)

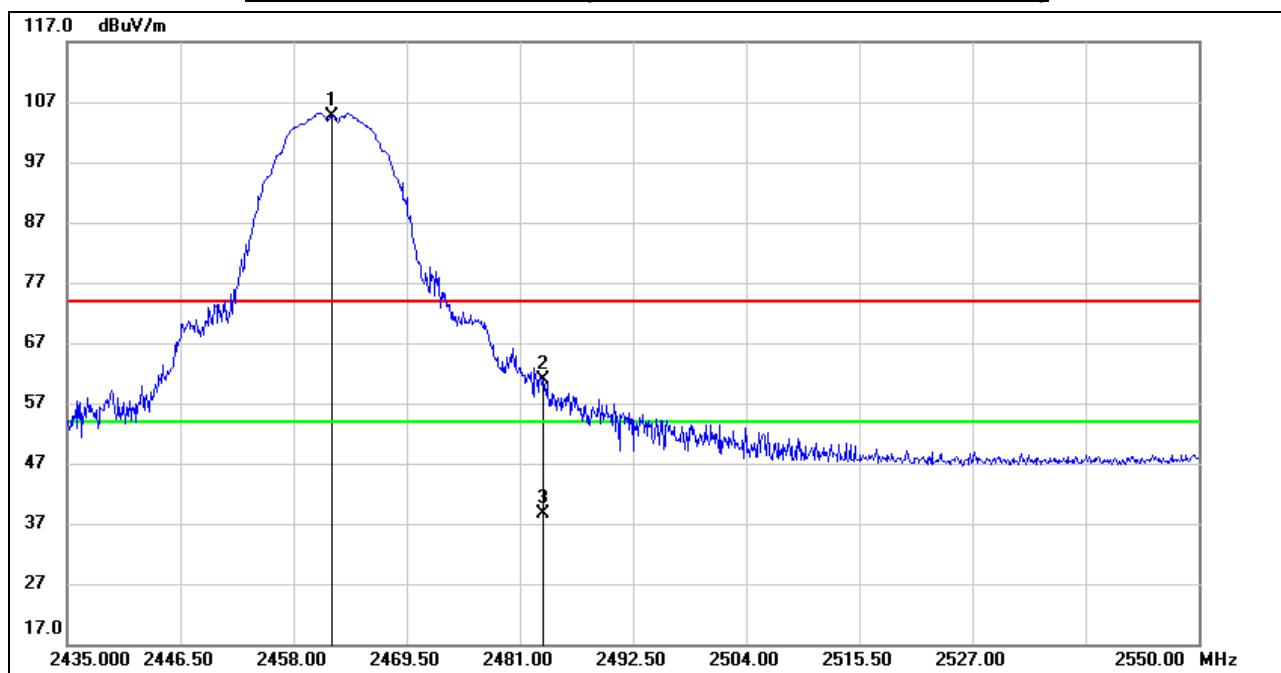


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.42	33.24	59.66	74.00	-14.34	peak
2	2390.000	2.36	33.24	35.60	54.00	-18.40	AVG
3	2412.000	71.49	33.11	104.60			peak

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEdge (11b HIGH CHANNEL, HORIZONTAL)

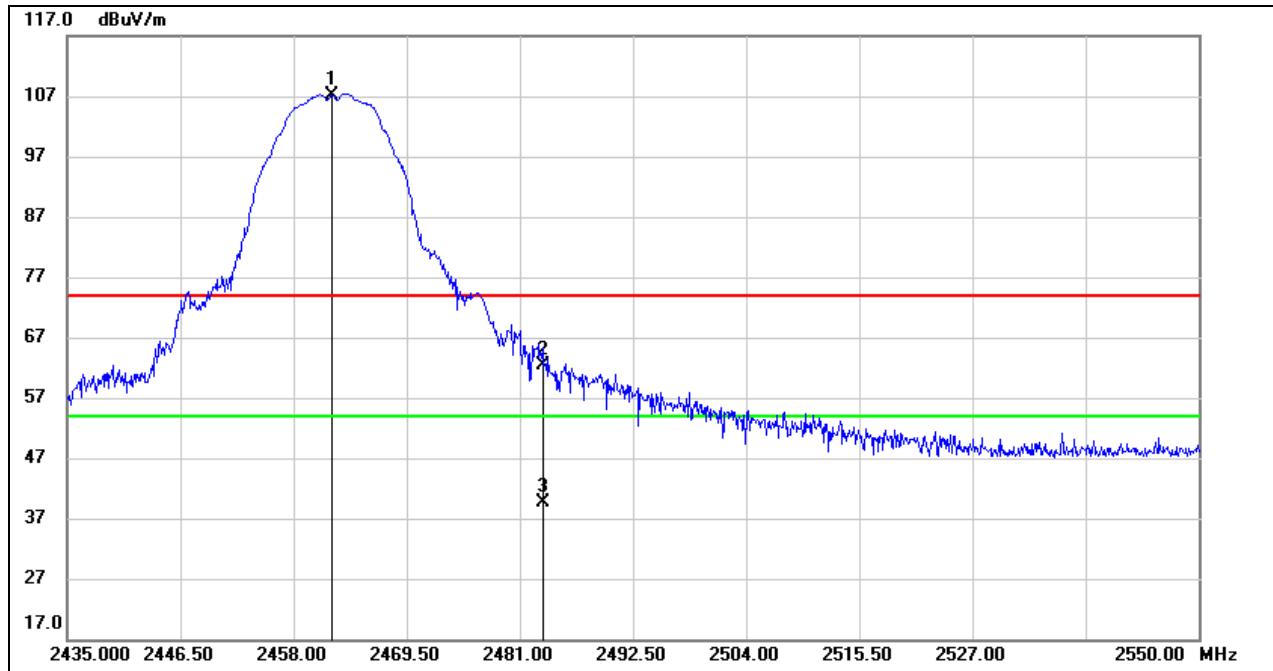


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.000	71.70	32.81	104.51			peak
2	2483.500	28.00	32.78	60.78	74.00	-13.22	peak
3	2483.500	5.78	32.78	38.56	54.00	-15.44	AVG

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEDGE (11b HIGH CHANNEL, VERTICAL)

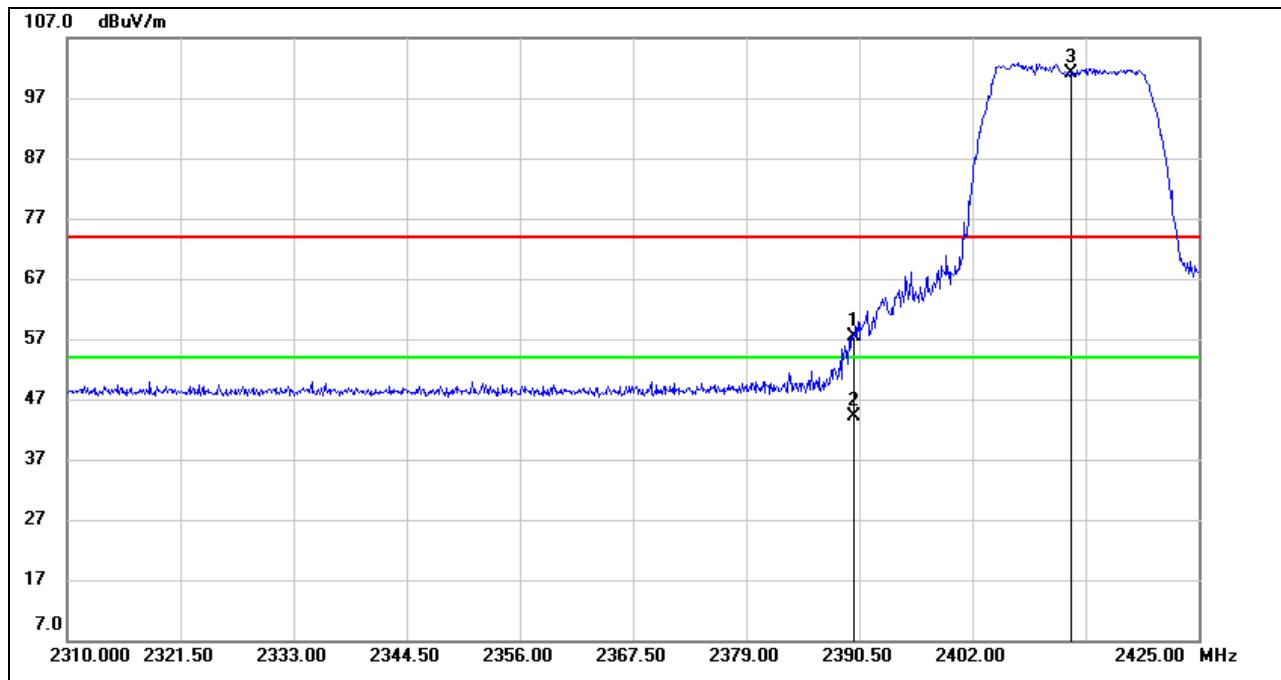


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.000	74.14	32.91	107.05			peak
2	2483.500	29.49	32.88	62.37	74.00	-11.63	peak
3	2483.500	6.86	32.88	39.74	54.00	-14.26	AVG

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEDGE (11g LOW CHANNEL, HORIZONTAL)

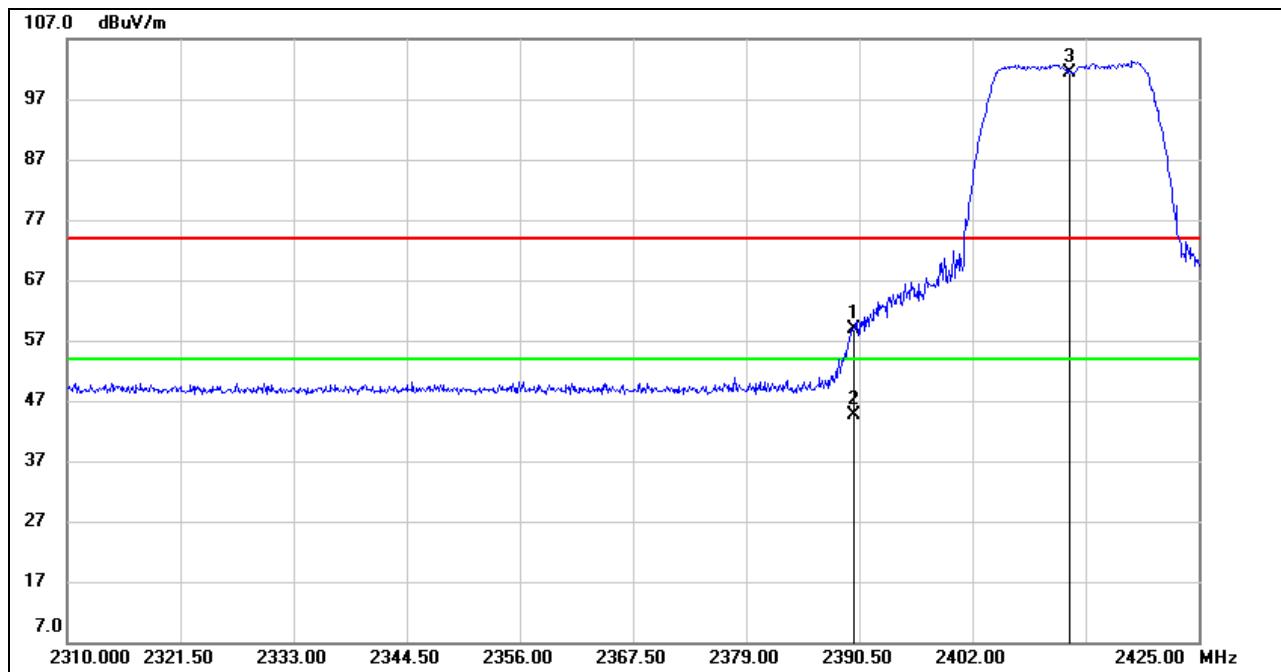


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	24.15	33.14	57.29	74.00	-16.71	peak
2	2390.000	10.97	33.14	44.11	54.00	-9.89	Avg
3	2412.000	68.12	33.01	101.13			peak

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEDGE (11g LOW CHANNEL, VERTICAL)

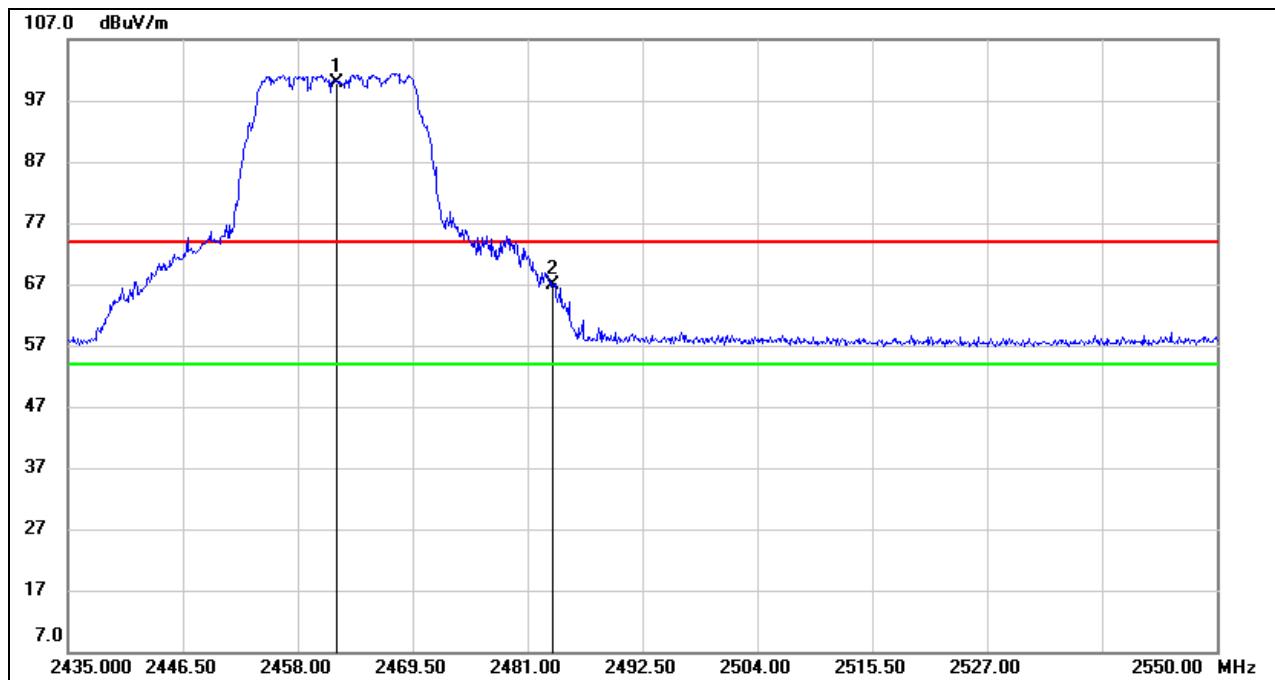


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	25.73	33.24	58.97	74.00	-15.03	peak
2	2390.000	11.33	33.24	44.57	54.00	-9.43	AVG
3	2412.000	68.19	33.11	101.30			peak

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEDGE (11g HIGH CHANNEL, HORIZONTAL)

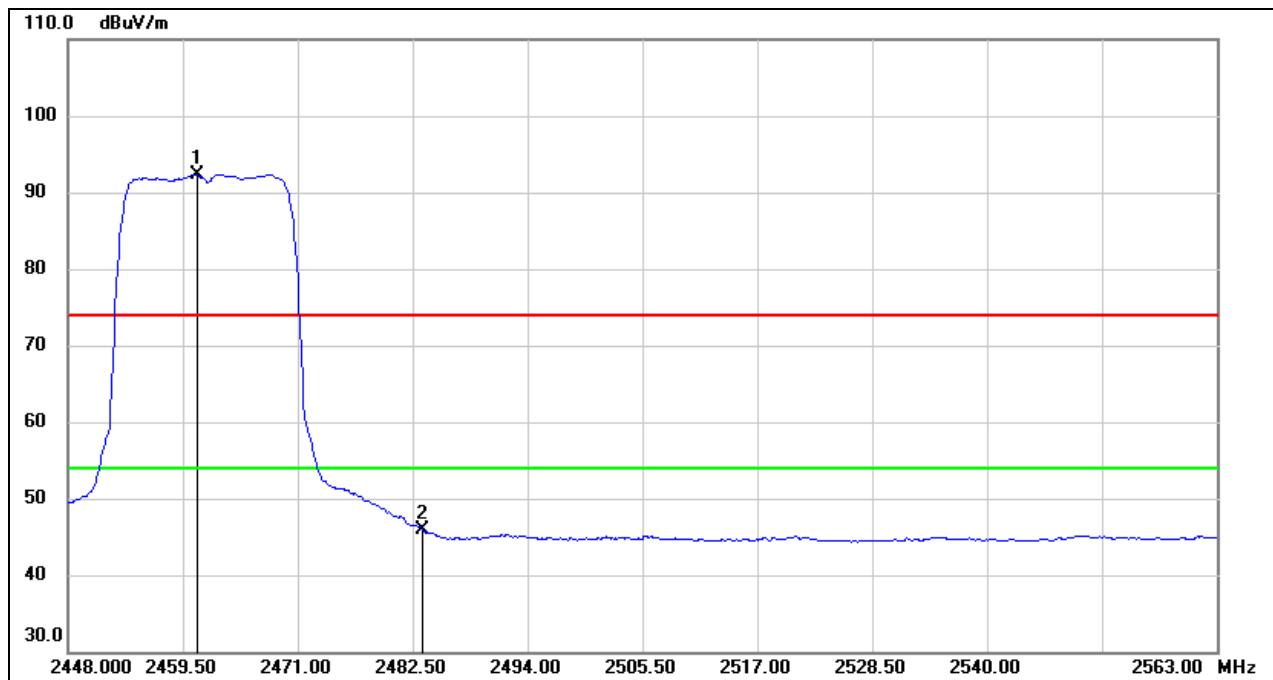
PEAK



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.000	67.10	32.81	99.91			peak
2	2483.500	34.13	32.78	66.91	74.00	-7.09	peak

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

AVERAGE

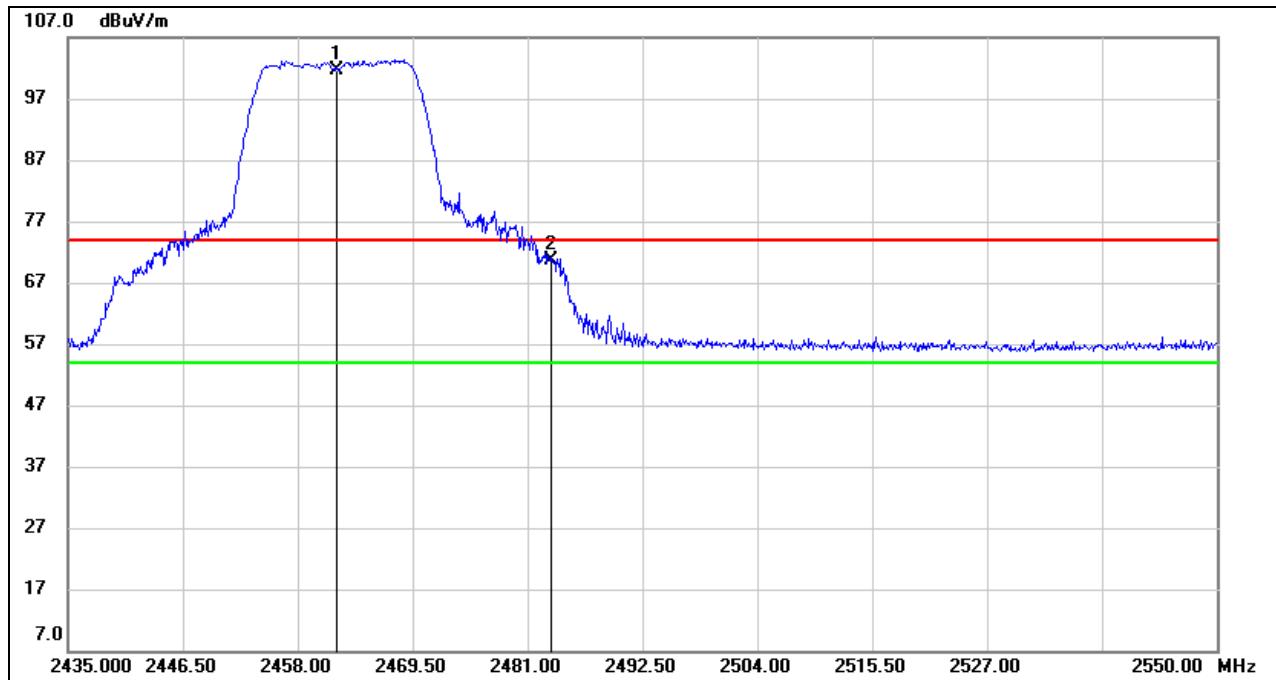


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2460.880	59.59	32.81	92.40			AVG
2	2483.500	13.15	32.78	45.93	54.00	-8.07	AVG

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report

RESTRICTED BANDEDGE (11g HIGH CHANNEL, VERTICAL)

PEAK

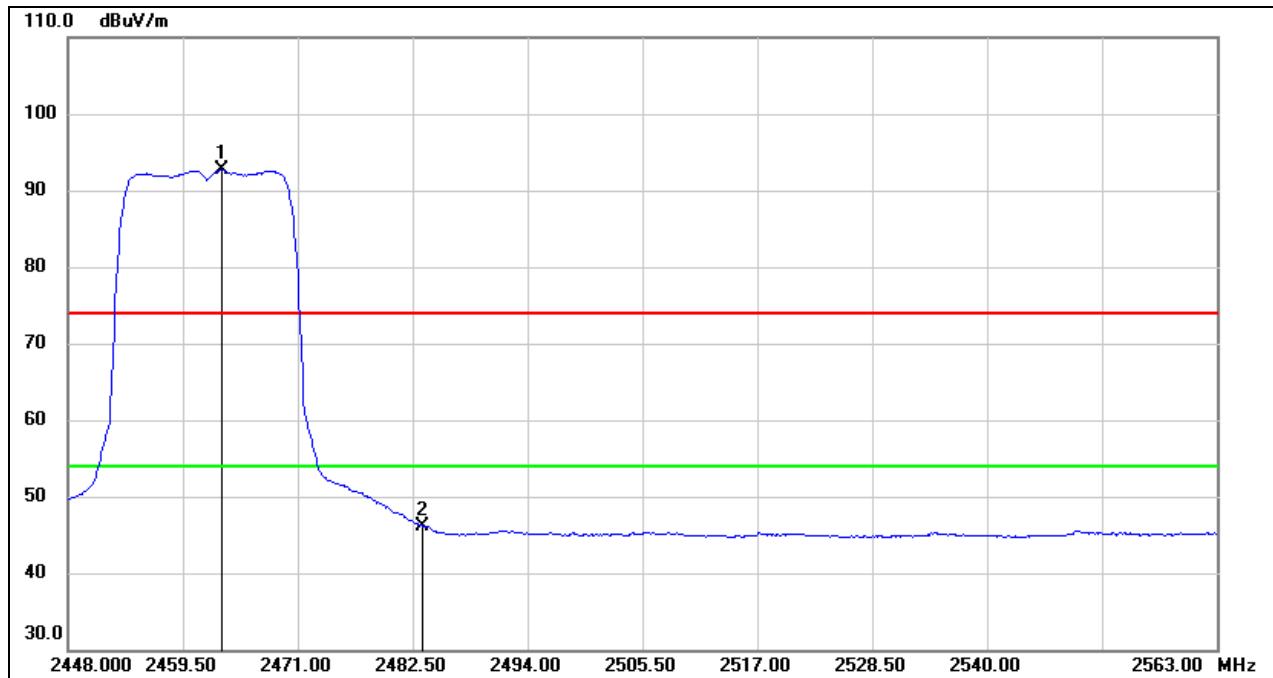


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.000	68.64	32.91	101.55			peak
2	2483.500	37.80	32.88	70.68	74.00	-3.32	peak

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

AVERAGE

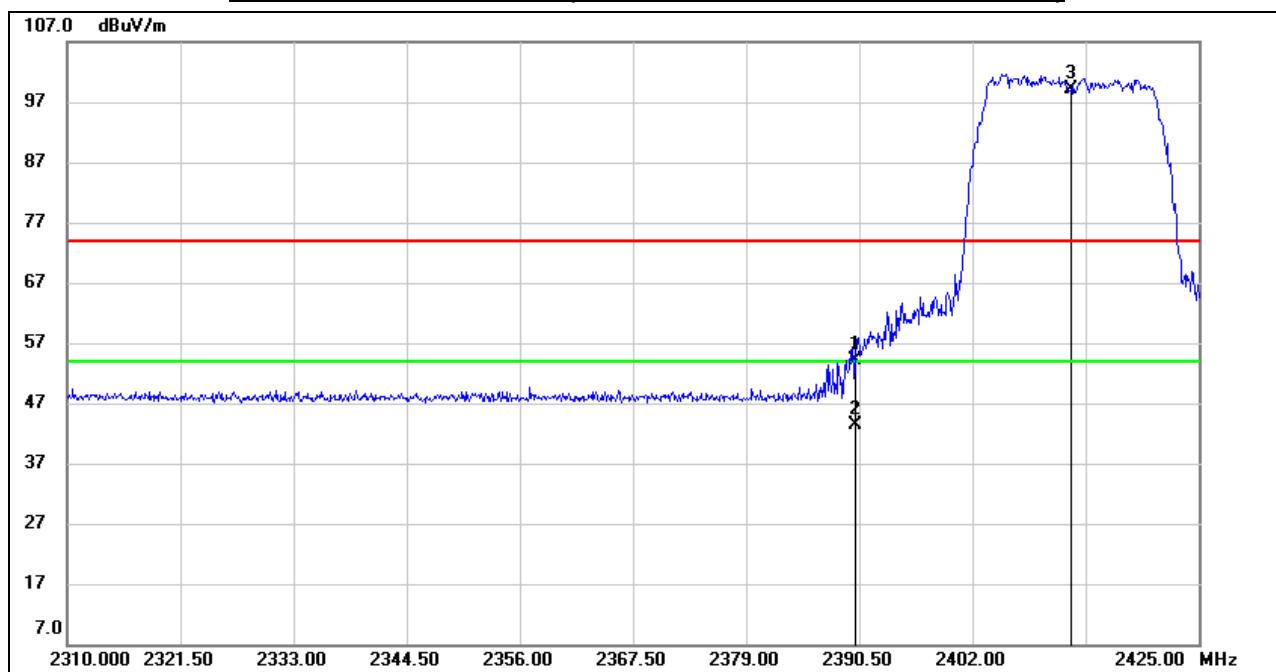


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2463.410	59.78	32.90	92.68			AVG
2	2483.500	13.31	32.88	46.19	54.00	-7.81	AVG

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEDGE (11n/20 LOW CHANNEL, HORIZONTAL)

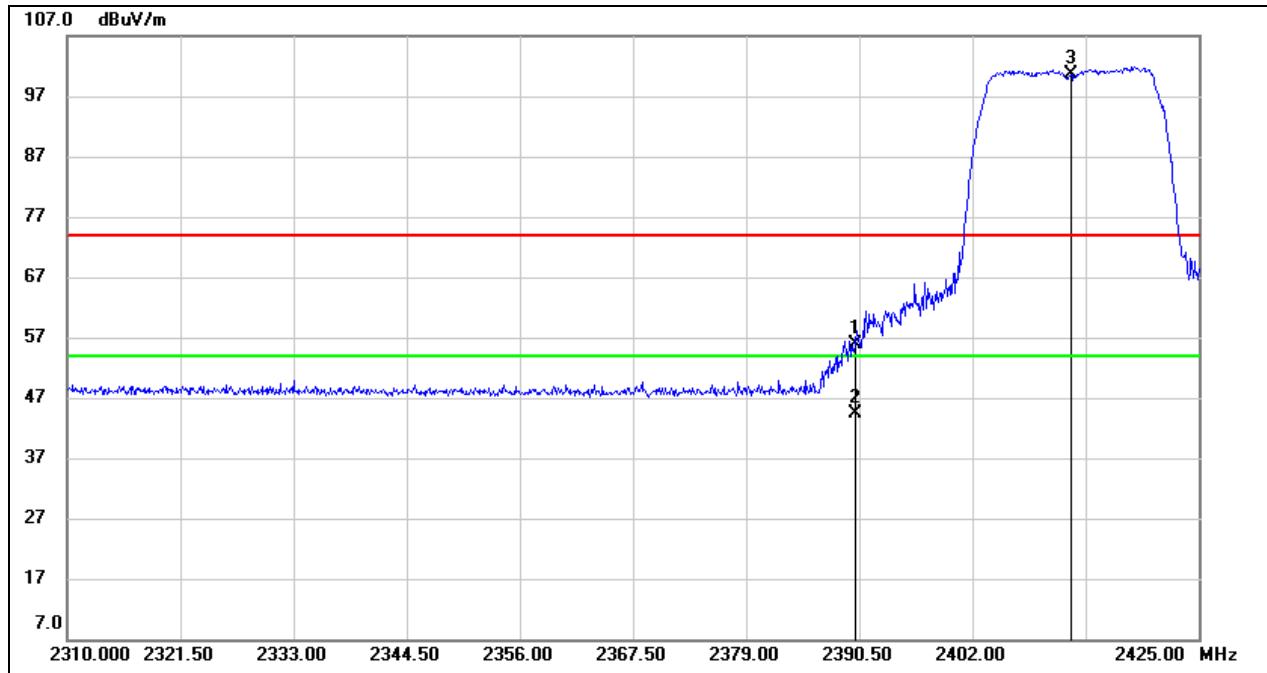


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	21.02	33.14	54.16	74.00	-19.84	peak
2	2390.000	10.12	33.14	43.26	54.00	-10.74	AVG
3	2412.000	66.09	33.01	99.10			peak

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report

RESTRICTED BANDEdge (11n/20 LOW CHANNEL, VERTICAL)

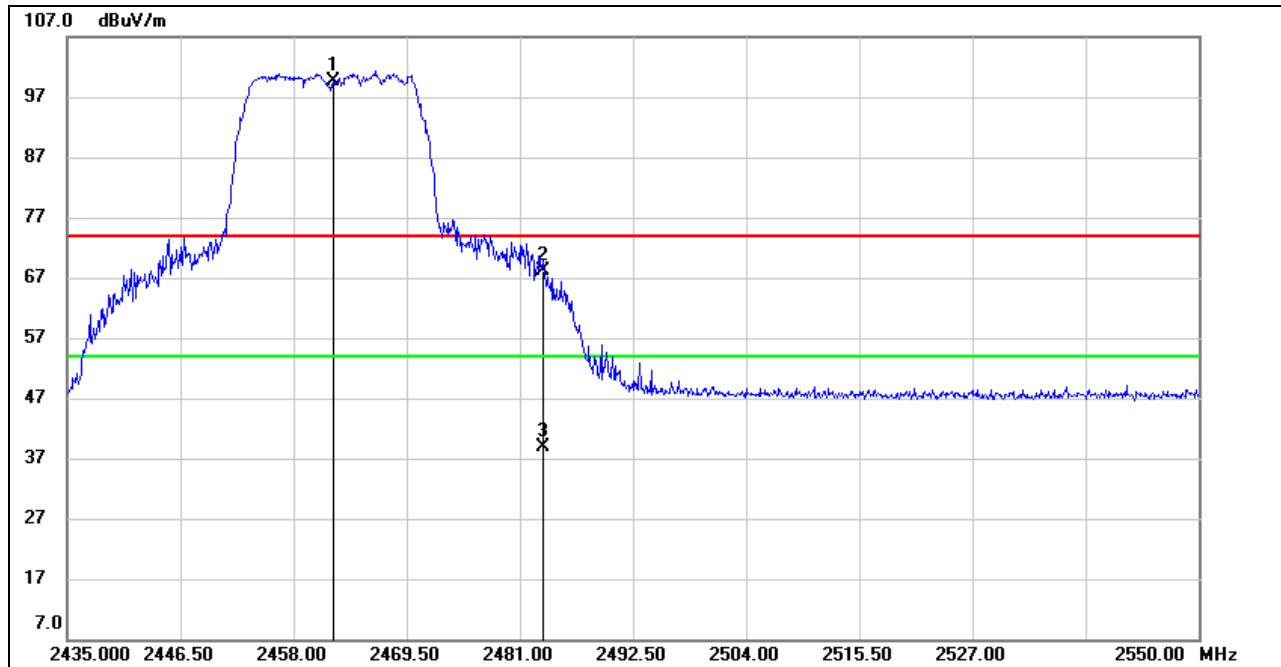


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	22.58	33.24	55.82	74.00	-18.18	peak
2	2390.000	11.18	33.24	44.42	54.00	-9.58	AVG
3	2412.000	67.49	33.11	100.60			peak

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEDGE (11n/20 HIGH CHANNEL, HORIZONTAL)

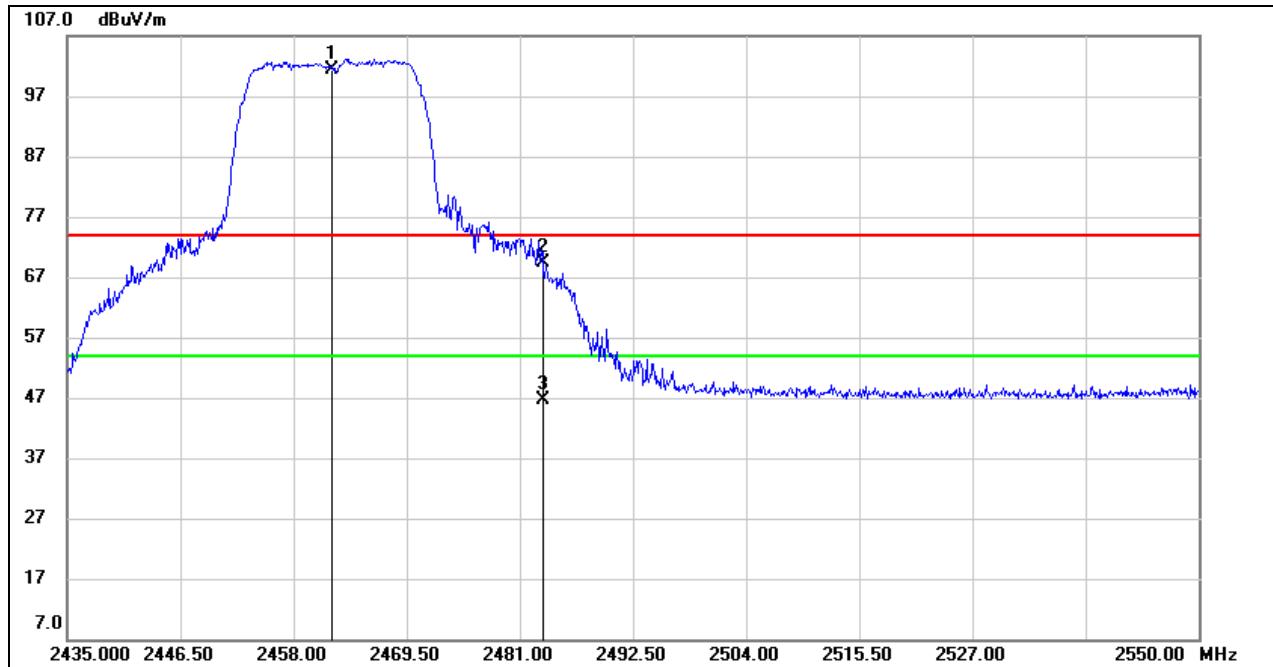


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.000	66.83	32.81	99.64			peak
2	2483.500	35.39	32.78	68.17	74.00	-5.83	peak
3	2483.500	6.21	32.78	38.99	54.00	-15.01	AVG

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

RESTRICTED BANDEDGE (11n/20 HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.000	68.42	32.91	101.33			peak
2	2483.500	36.38	32.88	69.26	74.00	-4.74	peak
3	2483.500	13.87	32.88	46.75	54.00	-7.25	AVG

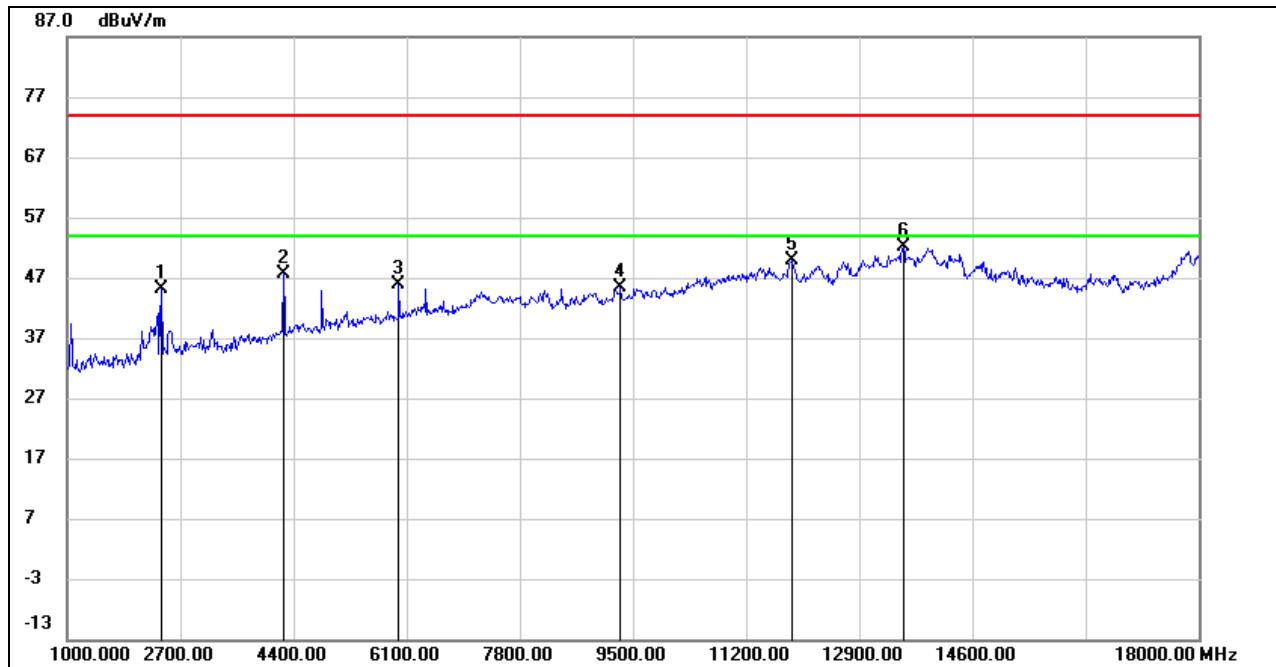
Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

8.3. SPURIOUS EMISSIONS (1~18GHz)

HARMONICS AND SPURIOUS EMISSION

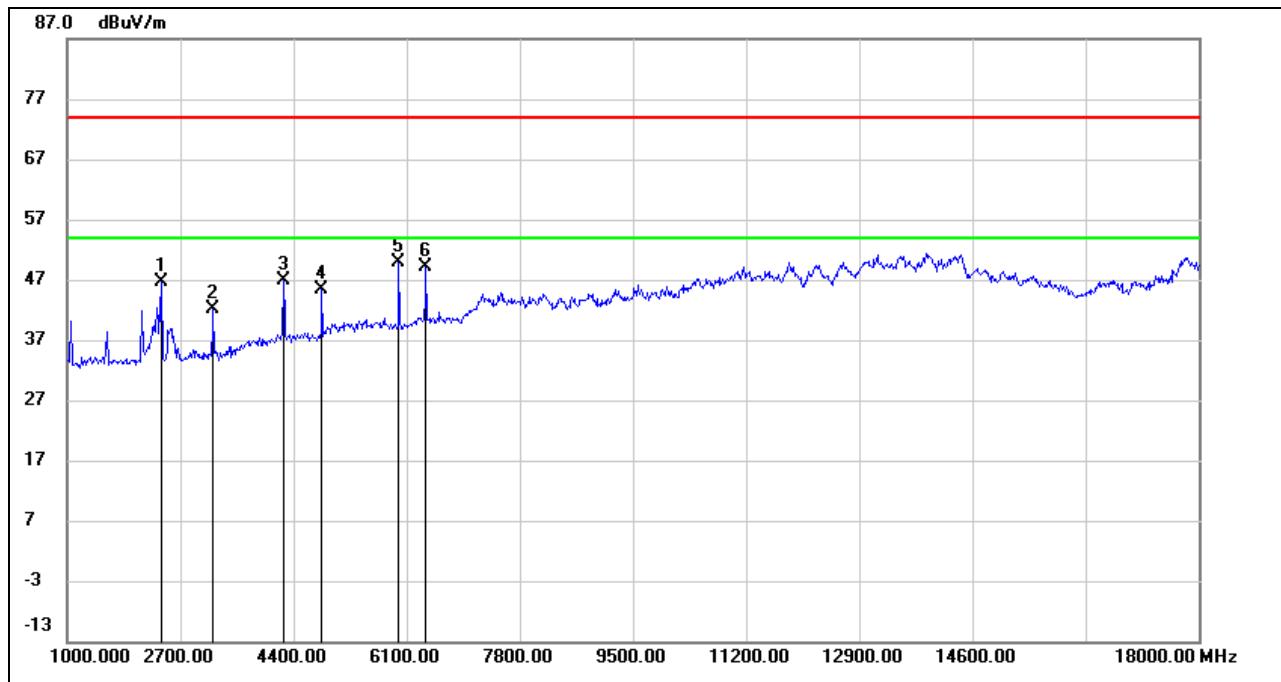
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11b Low Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2411.000	54.09	-9.04	45.05	74.00	-28.95	peak
2	4247.000	51.07	-3.36	47.71	74.00	-26.29	peak
3	5981.000	44.04	1.89	45.93	74.00	-28.07	peak
4	9313.000	36.52	8.75	45.27	74.00	-28.73	peak
5	11897.000	34.47	15.53	50.00	74.00	-24.00	peak
6	13563.000	33.32	18.86	52.18	74.00	-21.82	peak

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

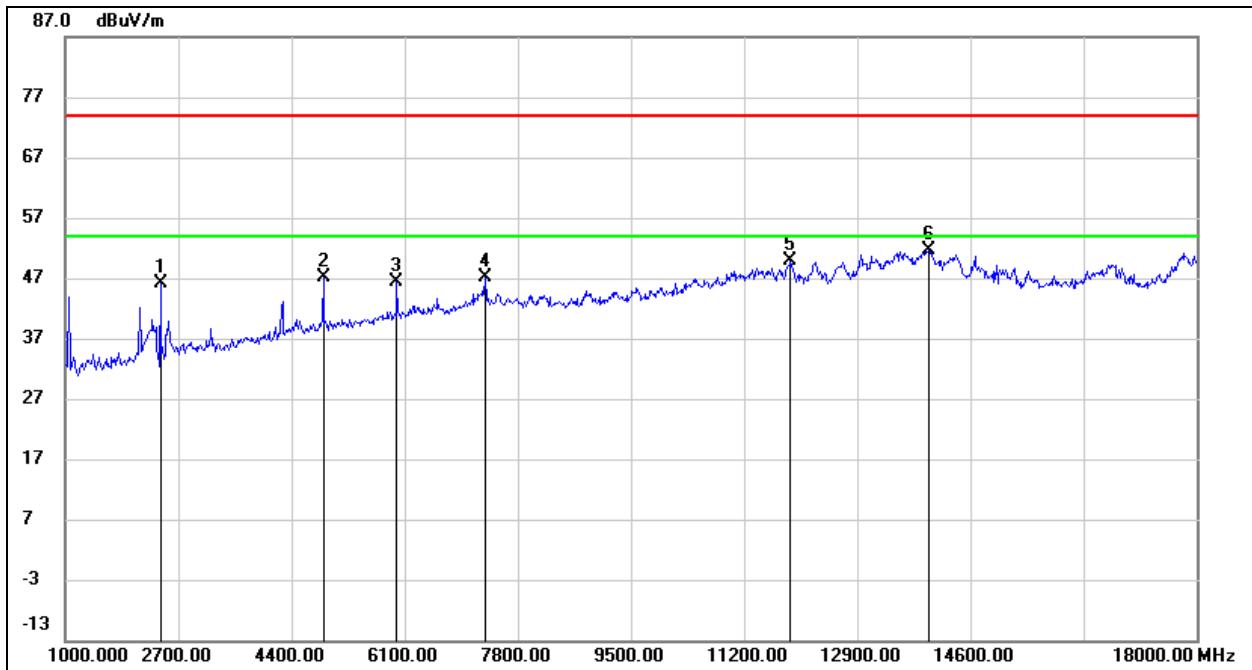
EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11b Low Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2411.000	55.59	-8.94	46.65	74.00	-27.35	peak
2	3193.000	48.36	-6.35	42.01	74.00	-31.99	peak
3	4247.000	50.09	-3.26	46.83	74.00	-27.17	peak
4	4825.000	46.95	-1.48	45.47	74.00	-28.53	peak
5	5981.000	47.85	1.99	49.84	74.00	-24.16	peak
6	6389.000	45.97	3.11	49.08	74.00	-24.92	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.

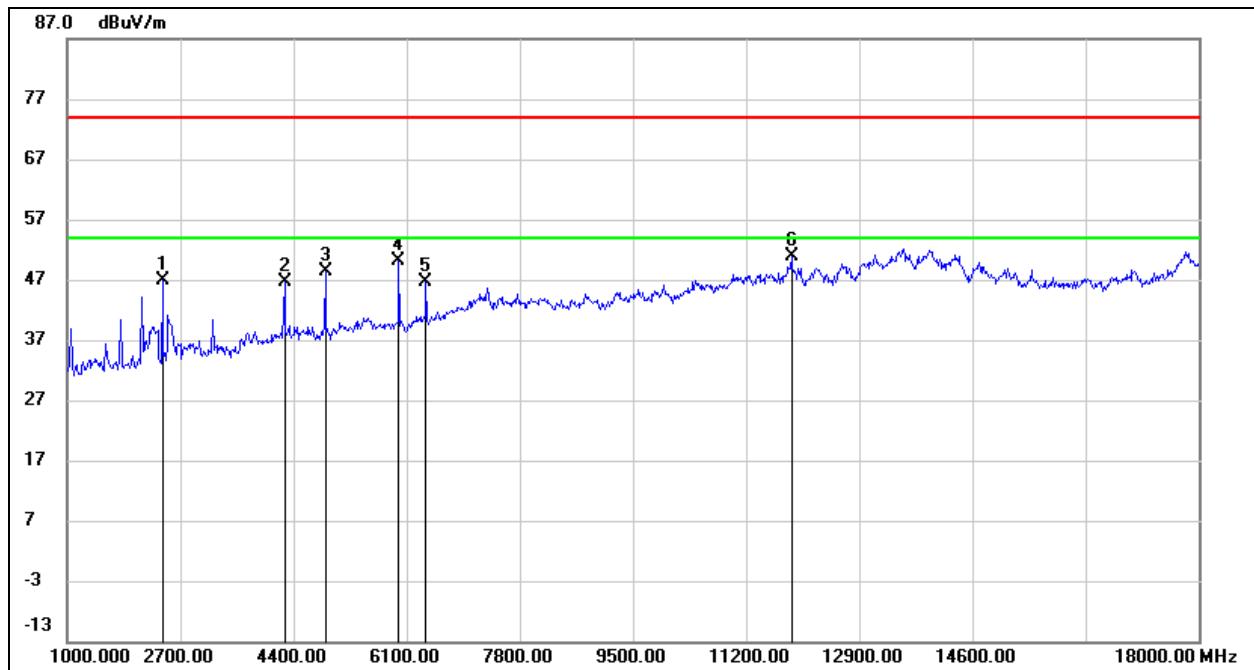
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11b Middle Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2428.000	55.31	-9.11	46.20	74.00	-27.80	peak
2	4876.000	48.11	-0.93	47.18	74.00	-26.82	peak
3	5981.000	44.53	1.89	46.42	74.00	-27.58	peak
4	7307.000	41.26	5.91	47.17	74.00	-26.83	peak
5	11897.000	34.28	15.53	49.81	74.00	-24.19	peak
6	13971.000	32.75	18.93	51.68	74.00	-22.32	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. AVG: VBW=1/Ton where: ton is transmit duration.

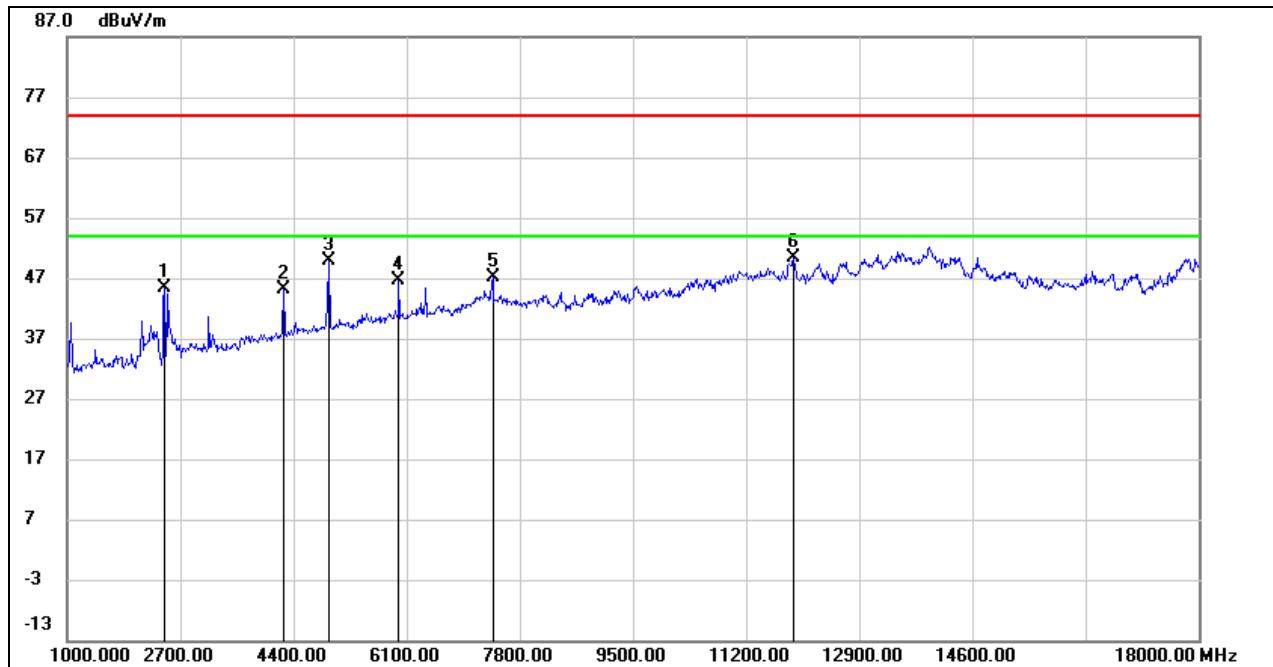
EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11b Middle Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2428.000	55.87	-9.01	46.86	74.00	-27.14	peak
2	4264.000	49.90	-3.15	46.75	74.00	-27.25	peak
3	4876.000	49.48	-0.98	48.50	74.00	-25.50	peak
4	5981.000	48.07	1.99	50.06	74.00	-23.94	peak
5	6389.000	43.64	3.11	46.75	74.00	-27.25	peak
6	11880.000	35.79	15.08	50.87	74.00	-23.13	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.

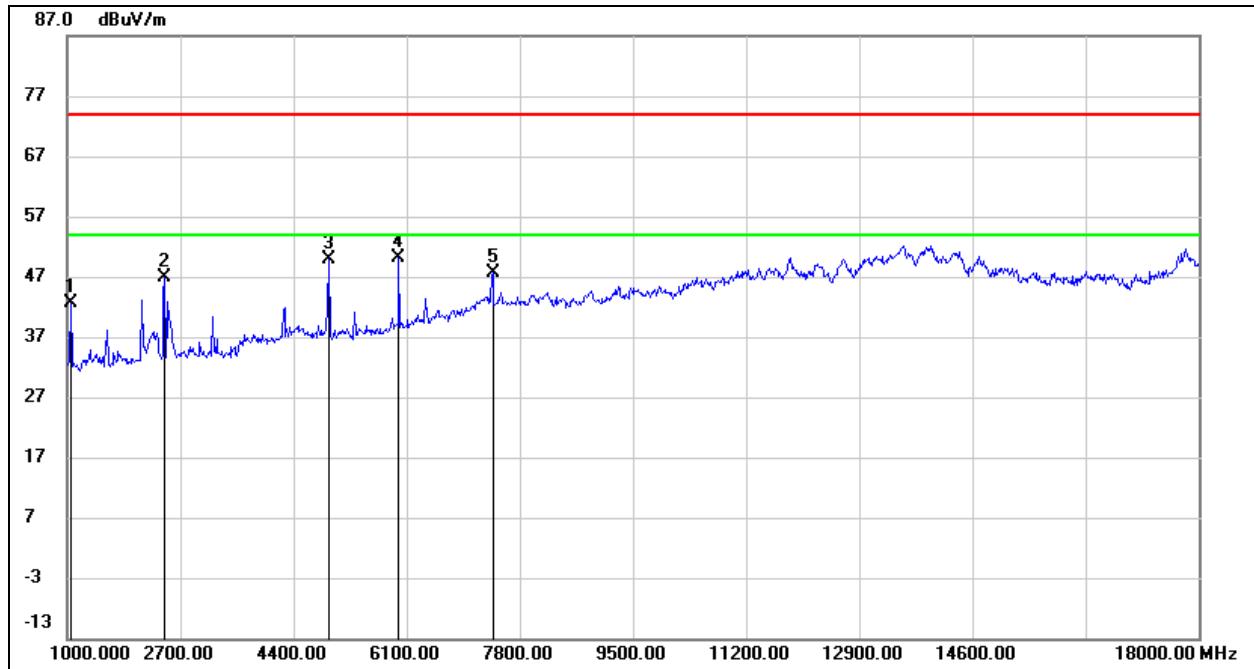
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11b High Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.000	54.71	-9.21	45.50	74.00	-28.50	peak
2	4247.000	48.48	-3.36	45.12	74.00	-28.88	peak
3	4927.000	50.53	-0.70	49.83	74.00	-24.17	peak
4	5981.000	44.68	1.89	46.57	74.00	-27.43	peak
5	7392.000	41.94	5.26	47.20	74.00	-26.80	peak
6	11914.000	35.05	15.37	50.42	74.00	-23.58	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.

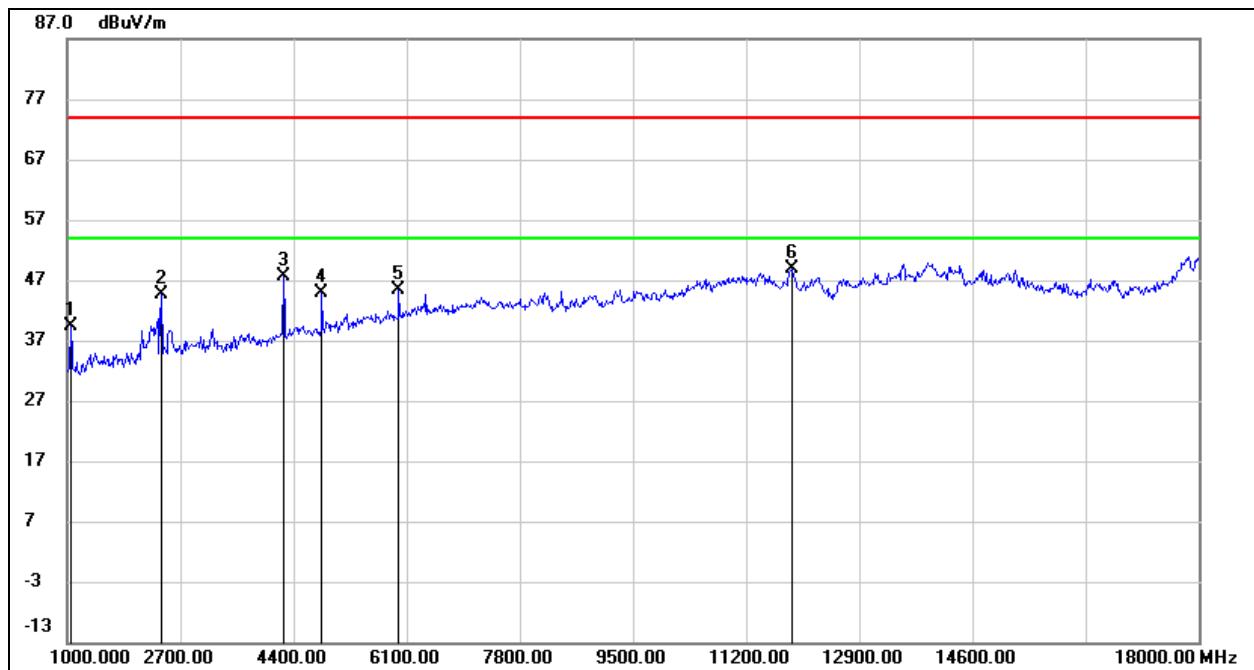
EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11b High Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	56.93	-14.41	42.52	74.00	-31.48	peak
2	2462.000	55.92	-9.11	46.81	74.00	-27.19	peak
3	4927.000	50.58	-0.75	49.83	74.00	-24.17	peak
4	5981.000	48.14	1.99	50.13	74.00	-23.87	peak
5	7392.000	42.24	5.28	47.52	74.00	-26.48	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.

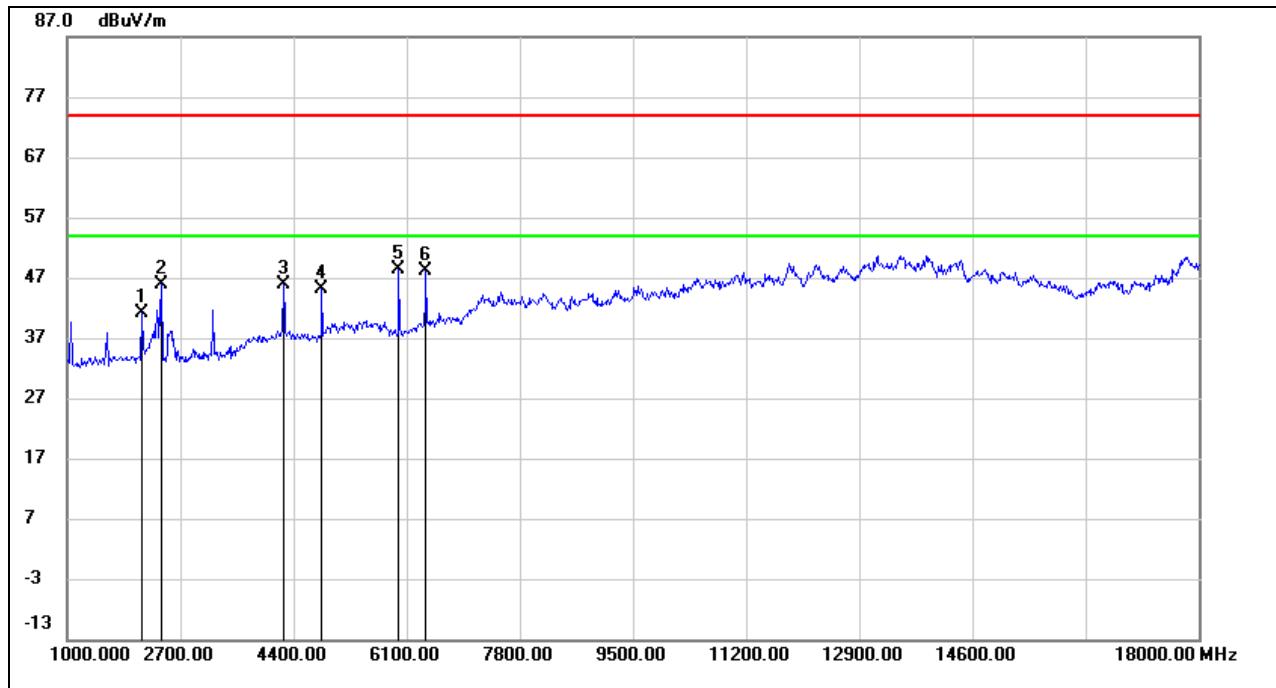
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11g Low Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	53.48	-14.11	39.37	74.00	-34.63	peak
2	2411.000	53.59	-9.04	44.55	74.00	-29.45	peak
3	4247.000	51.07	-3.36	47.71	74.00	-26.29	peak
4	4825.000	46.29	-1.53	44.76	74.00	-29.24	peak
5	5981.000	43.54	1.89	45.43	74.00	-28.57	peak
6	11897.000	33.47	15.53	49.00	74.00	-25.00	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. AVG: VBW=1/Ton where: ton is transmit duration.

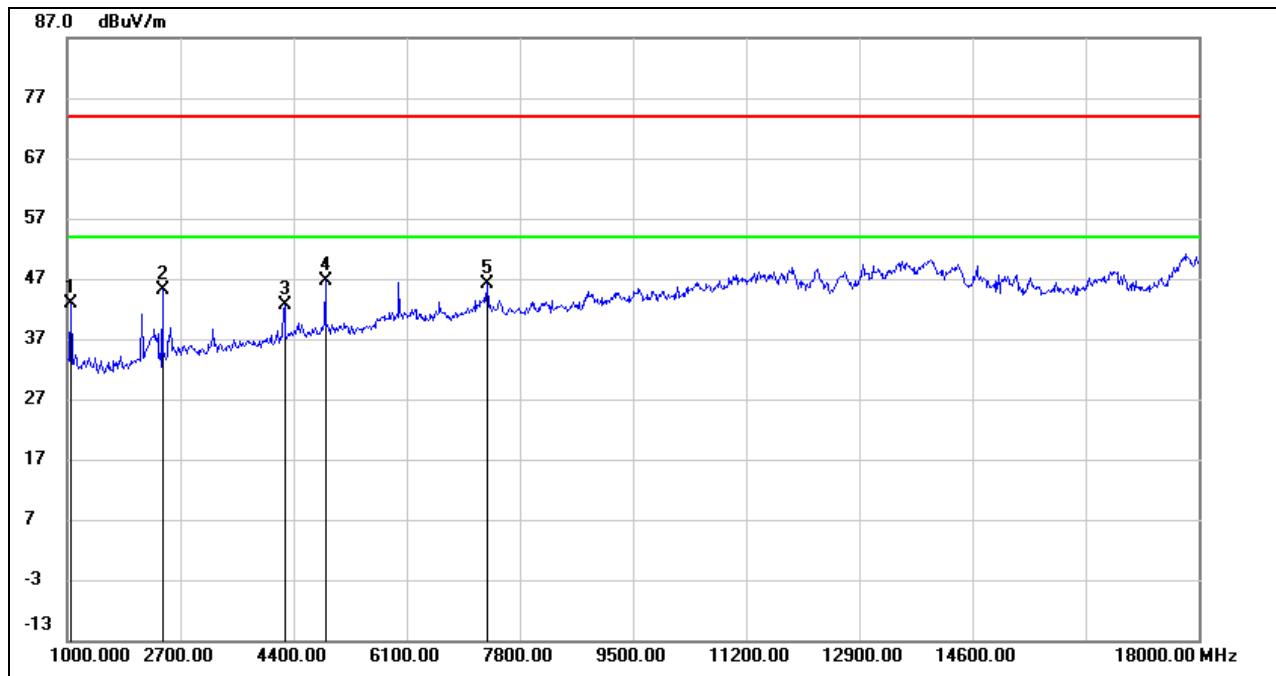
EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11g Low Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2122.000	51.08	-10.03	41.05	74.00	-32.95	peak
2	2411.000	54.73	-8.94	45.79	74.00	-28.21	peak
3	4247.000	49.23	-3.26	45.97	74.00	-28.03	peak
4	4825.000	46.59	-1.48	45.11	74.00	-28.89	peak
5	5981.000	46.49	1.99	48.48	74.00	-25.52	peak
6	6389.000	45.11	3.11	48.22	74.00	-25.78	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. AVG: VBW=1/Ton where: ton is transmit duration.

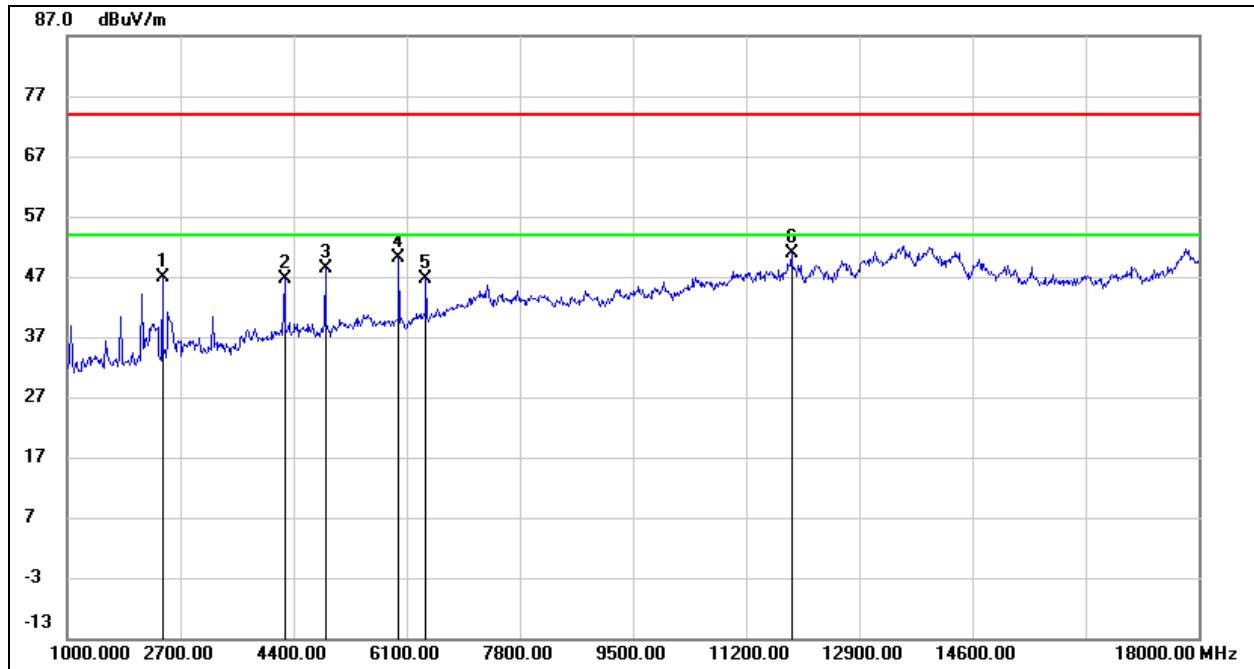
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11g Middle Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	56.96	-14.11	42.85	74.00	-31.15	peak
2	2428.000	54.31	-9.11	45.20	74.00	-28.80	peak
3	4264.000	45.81	-3.25	42.56	74.00	-31.44	peak
4	4876.000	47.61	-0.93	46.68	74.00	-27.32	peak
5	7307.000	40.26	5.91	46.17	74.00	-27.83	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. AVG: VBW=1/Ton where: ton is transmit duration.

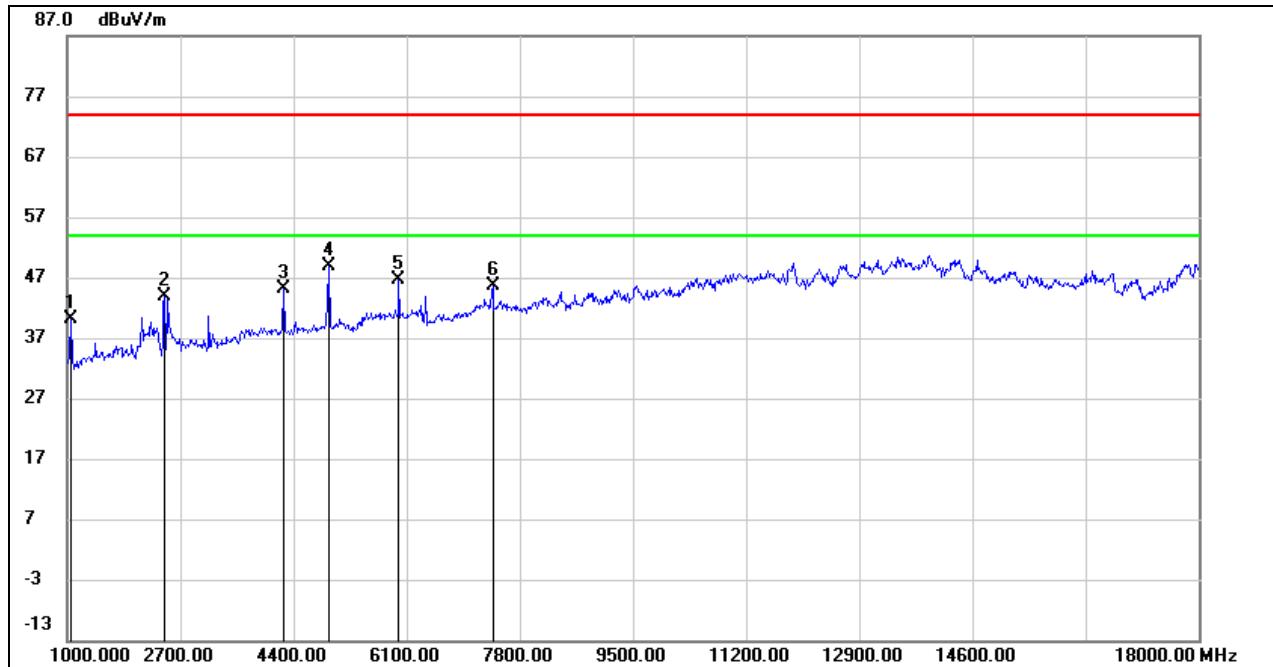
EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11g Middle Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2428.000	55.87	-9.01	46.86	74.00	-27.14	peak
2	4264.000	49.90	-3.15	46.75	74.00	-27.25	peak
3	4876.000	49.48	-0.98	48.50	74.00	-25.50	peak
4	5981.000	48.07	1.99	50.06	74.00	-23.94	peak
5	6389.000	43.64	3.11	46.75	74.00	-27.25	peak
6	11880.000	35.79	15.08	50.87	74.00	-23.13	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.

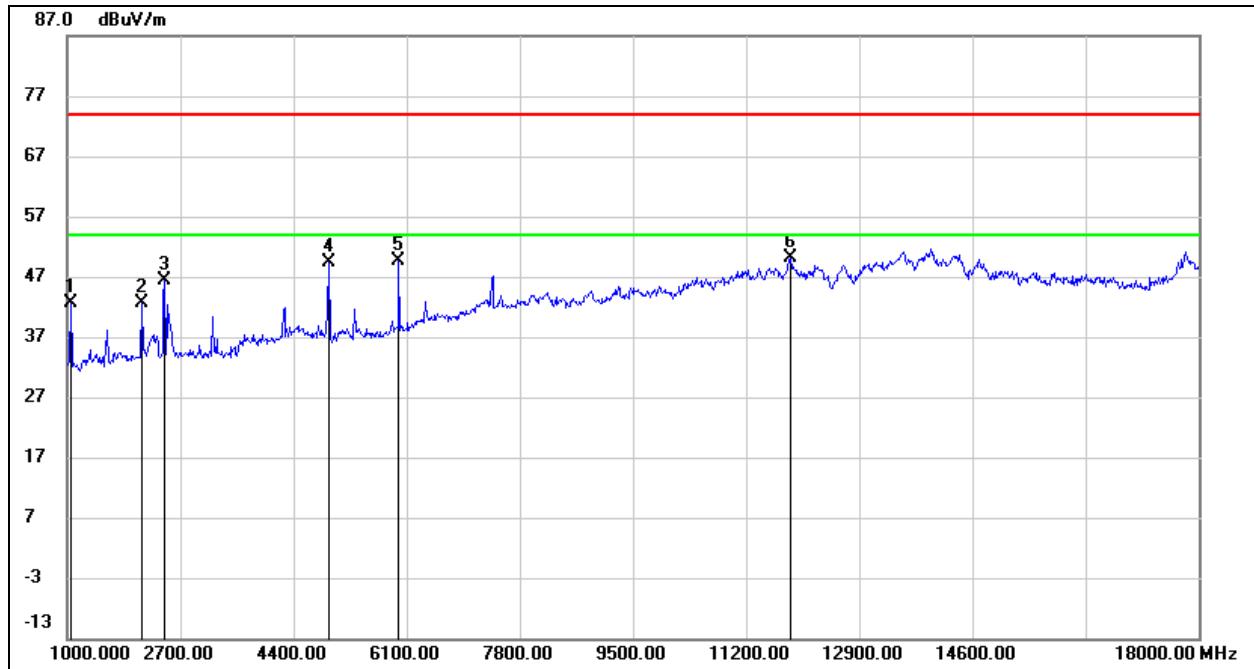
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11g High Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	54.16	-14.11	40.05	74.00	-33.95	peak
2	2462.000	53.21	-9.21	44.00	74.00	-30.00	peak
3	4247.000	48.48	-3.36	45.12	74.00	-28.88	peak
4	4927.000	49.53	-0.70	48.83	74.00	-25.17	peak
5	5981.000	44.68	1.89	46.57	74.00	-27.43	peak
6	7392.000	40.44	5.26	45.70	74.00	-28.30	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. AVG: VBW=1/Ton where: ton is transmit duration.

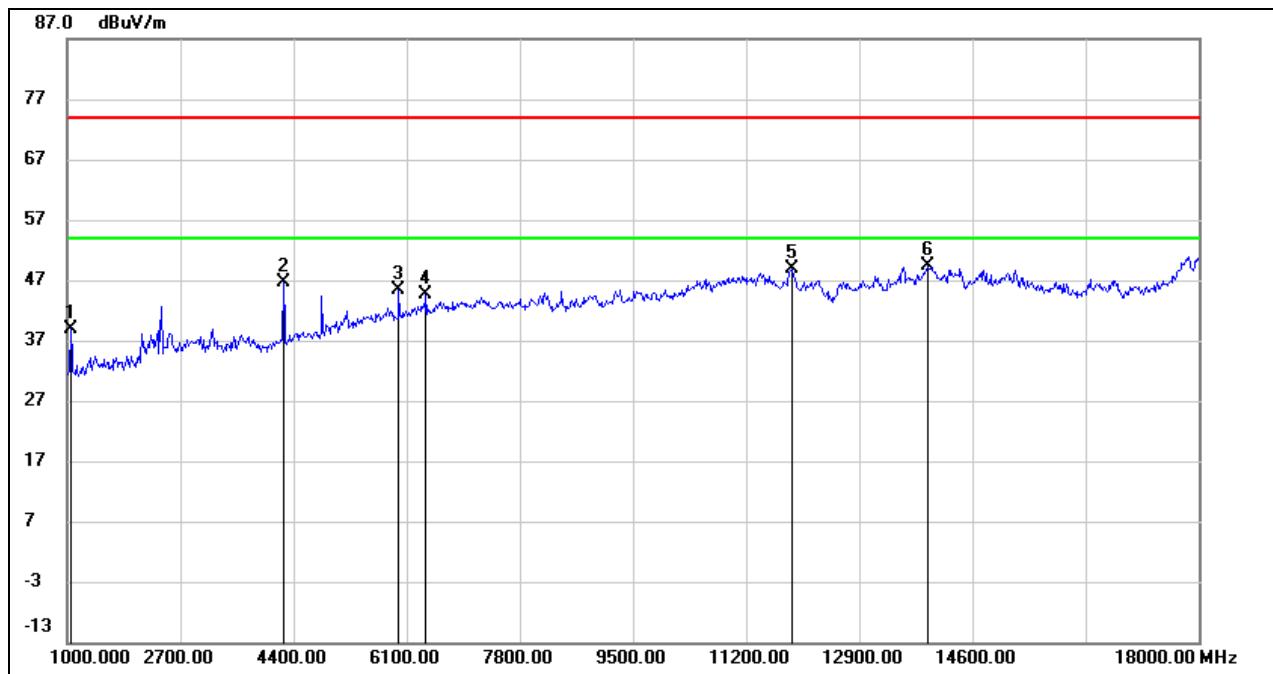
EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11g High Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	56.93	-14.41	42.52	74.00	-31.48	peak
2	2122.000	52.74	-10.03	42.71	74.00	-31.29	peak
3	2462.000	55.42	-9.11	46.31	74.00	-27.69	peak
4	4927.000	50.08	-0.75	49.33	74.00	-24.67	peak
5	5981.000	47.64	1.99	49.63	74.00	-24.37	peak
6	11863.000	35.08	15.07	50.15	74.00	-23.85	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.

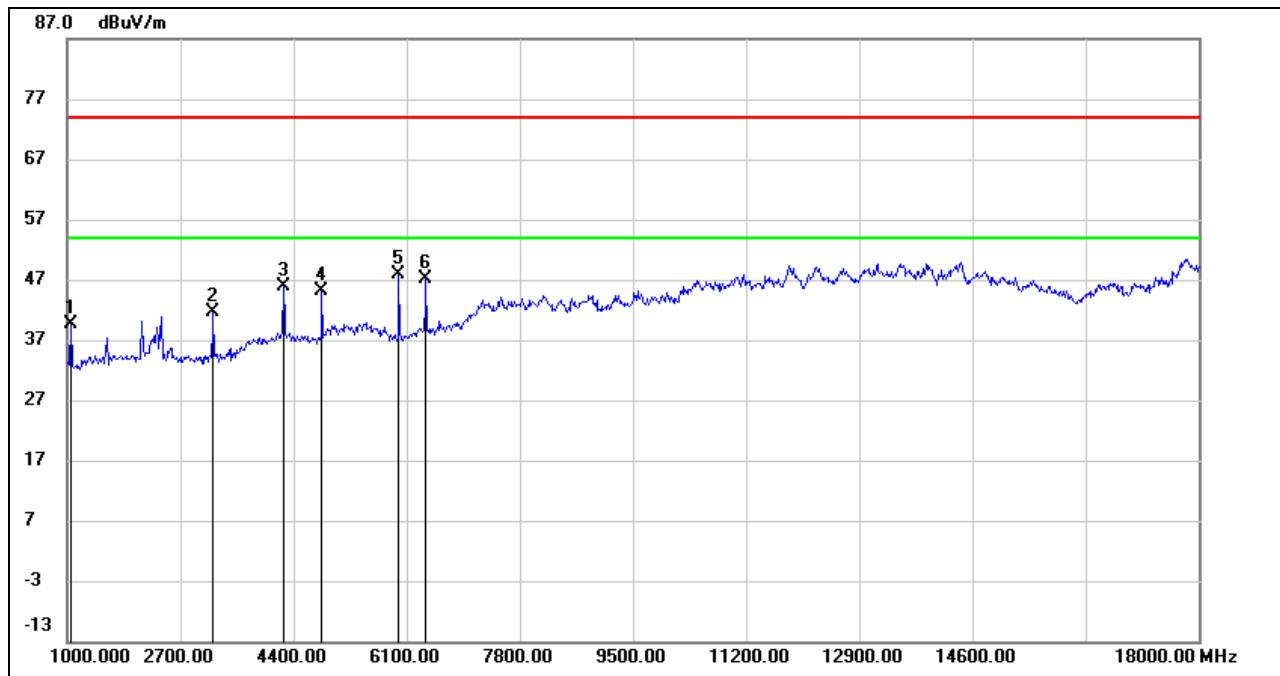
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11n/20 Low Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	52.98	-14.11	38.87	74.00	-35.13	peak
2	4247.000	50.07	-3.36	46.71	74.00	-27.29	peak
3	5981.000	43.54	1.89	45.43	74.00	-28.57	peak
4	6389.000	41.51	3.03	44.54	74.00	-29.46	peak
5	11897.000	33.47	15.53	49.00	74.00	-25.00	peak
6	13937.000	30.38	18.97	49.35	74.00	-24.65	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. AVG: VBW=1/Ton where: ton is transmit duration.

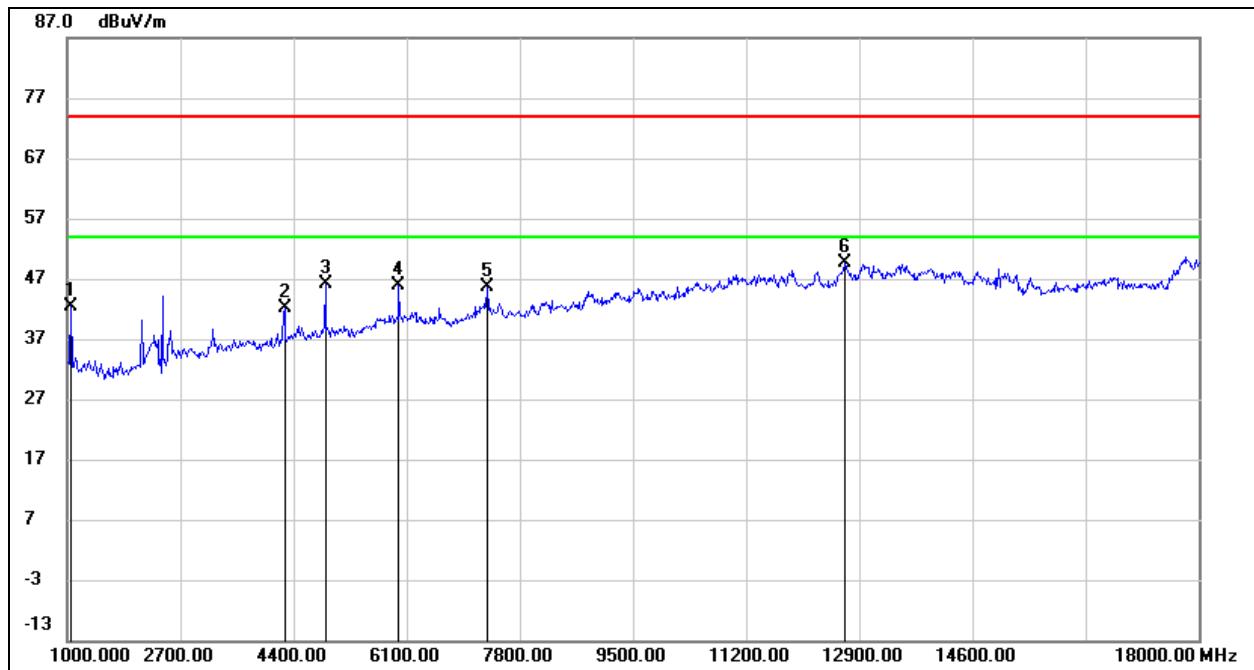
EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11n/20 Low Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	54.15	-14.41	39.74	74.00	-34.26	peak
2	3193.000	48.00	-6.35	41.65	74.00	-32.35	peak
3	4247.000	49.23	-3.26	45.97	74.00	-28.03	peak
4	4825.000	46.59	-1.48	45.11	74.00	-28.89	peak
5	5981.000	45.99	1.99	47.98	74.00	-26.02	peak
6	6389.000	44.11	3.11	47.22	74.00	-26.78	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. AVG: VBW=1/Ton where: ton is transmit duration.

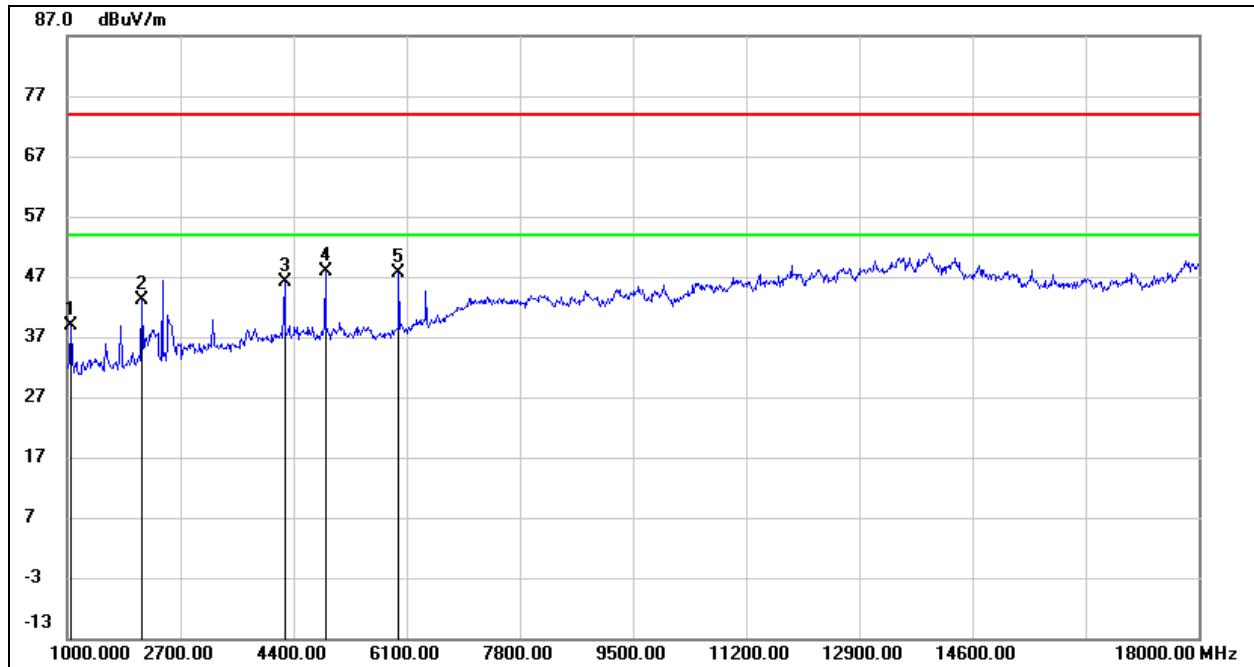
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11n/20 Middle Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	56.46	-14.11	42.35	74.00	-31.65	peak
2	4264.000	45.31	-3.25	42.06	74.00	-31.94	peak
3	4876.000	47.11	-0.93	46.18	74.00	-27.82	peak
4	5981.000	44.03	1.89	45.92	74.00	-28.08	peak
5	7307.000	39.76	5.91	45.67	74.00	-28.33	peak
6	12679.000	33.67	15.98	49.65	74.00	-24.35	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. AVG: VBW=1/Ton where: ton is transmit duration.

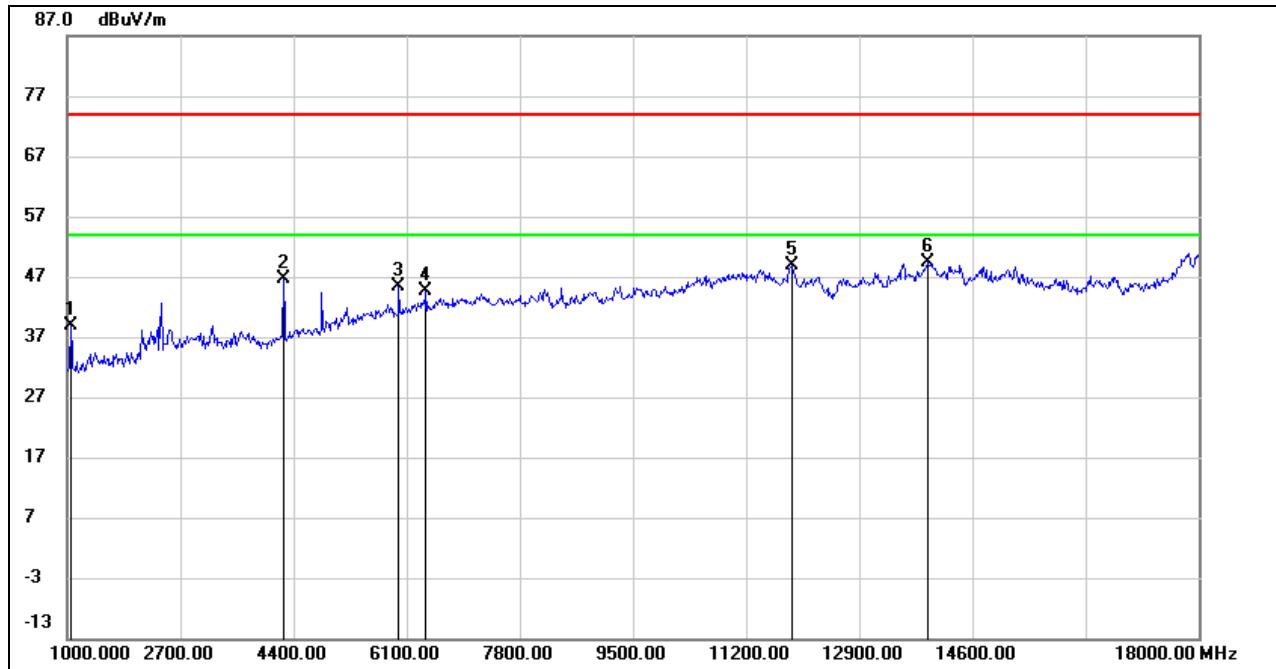
EUT:	Cubinote	Polarization :	Vertical
Test Mode:	111n/20 Middle Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	53.37	-14.41	38.96	74.00	-35.04	peak
2	2122.000	53.27	-10.03	43.24	74.00	-30.76	peak
3	4264.000	49.40	-3.15	46.25	74.00	-27.75	peak
4	4876.000	48.98	-0.98	48.00	74.00	-26.00	peak
5	5981.000	45.57	1.99	47.56	74.00	-26.44	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.

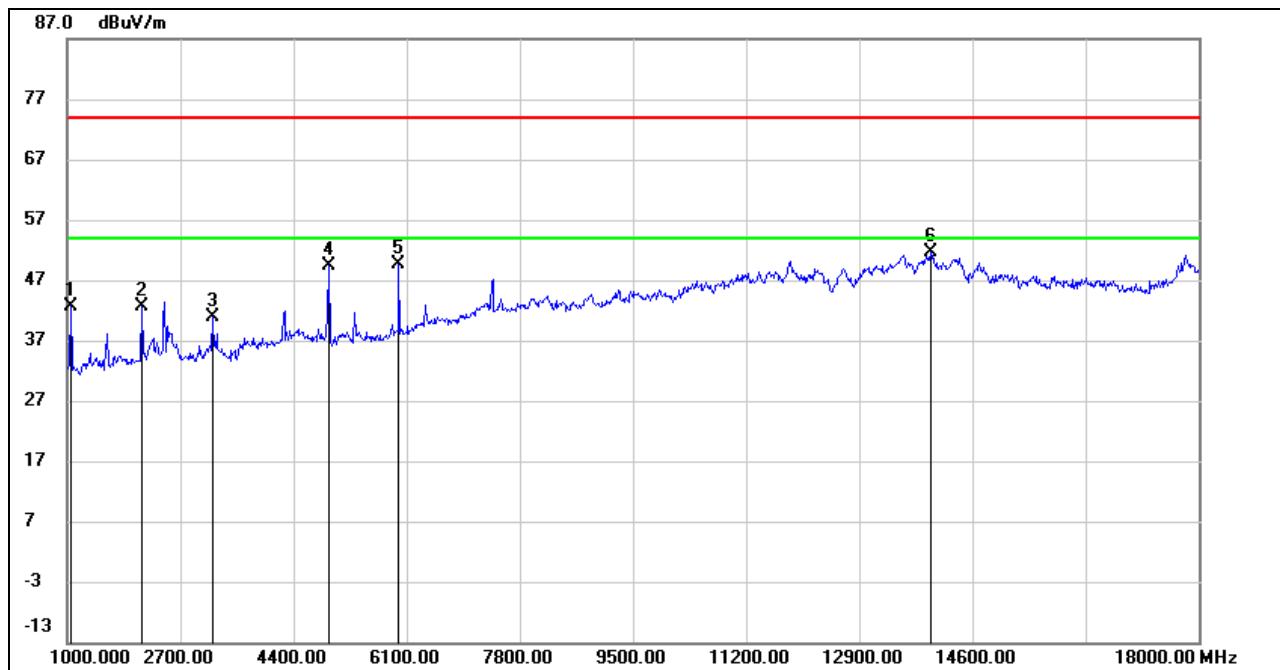
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	111n/20 High Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	52.98	-14.11	38.87	74.00	-35.13	peak
2	4247.000	50.07	-3.36	46.71	74.00	-27.29	peak
3	5981.000	43.54	1.89	45.43	74.00	-28.57	peak
4	6389.000	41.51	3.03	44.54	74.00	-29.46	peak
5	11897.000	33.47	15.53	49.00	74.00	-25.00	peak
6	13937.000	30.38	18.97	49.35	74.00	-24.65	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. AVG: VBW=1/Ton where: ton is transmit duration.

EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11n/20 High Chanel		



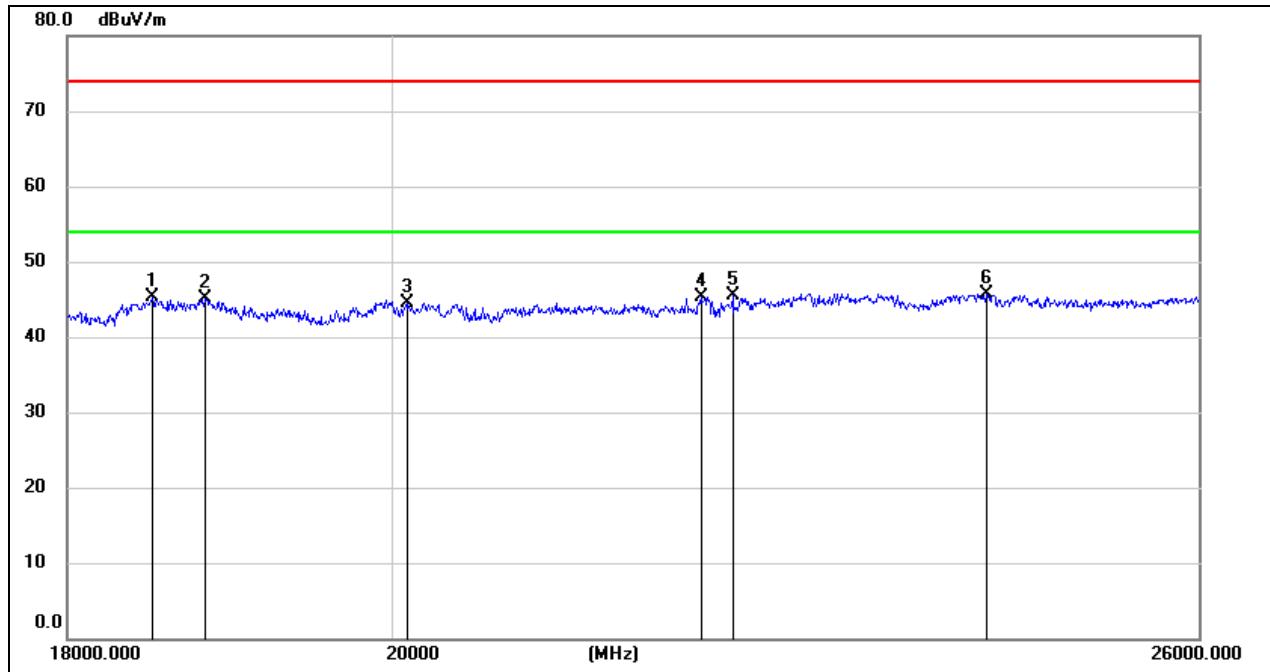
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1051.000	56.93	-14.41	42.52	74.00	-31.48	peak
2	2122.000	52.74	-10.03	42.71	74.00	-31.29	peak
3	3176.000	47.24	-6.42	40.82	74.00	-33.18	peak
4	4927.000	50.08	-0.75	49.33	74.00	-24.67	peak
5	5981.000	47.64	1.99	49.63	74.00	-24.37	peak
6	13971.000	32.64	19.03	51.67	74.00	-22.33	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.
 4. AVG: VBW=1/Ton where: ton is transmit duration.

8.4. SPURIOUS EMISSIONS (18~25GHz)

HARMONICS AND SPURIOUS EMISSIONS

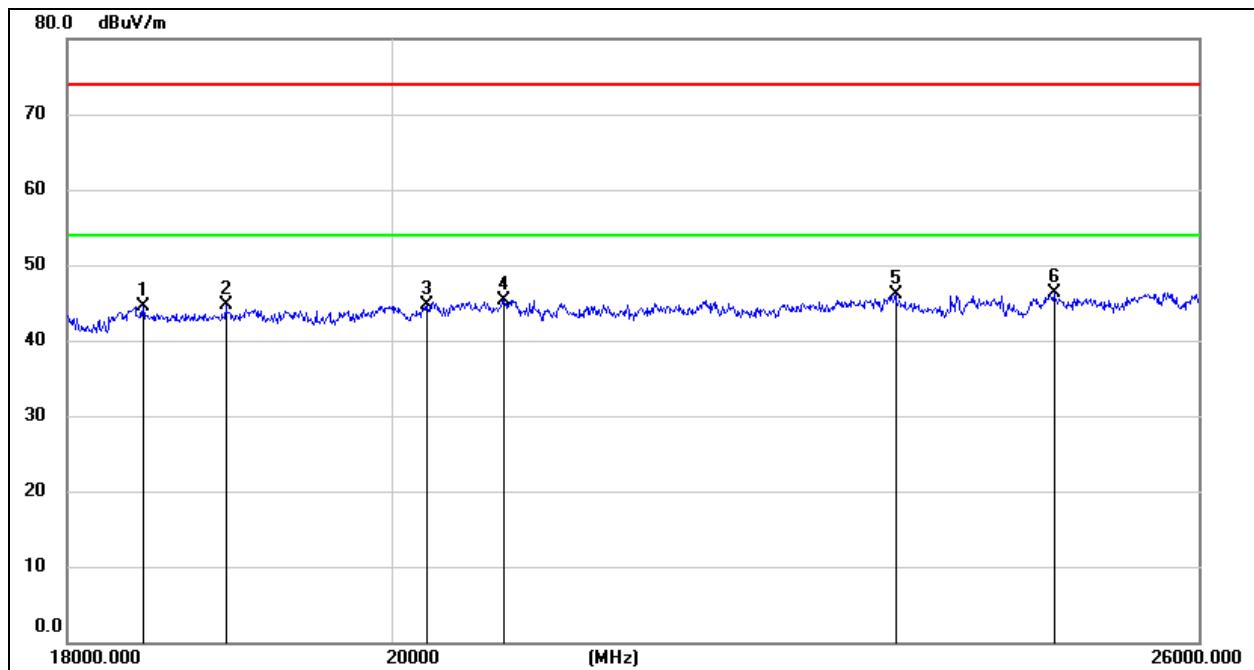
EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11b Middle Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18503.337	50.46	-5.25	45.21	74.00	-28.79	peak
2	18825.911	50.51	-5.36	45.15	74.00	-28.85	peak
3	20099.385	49.97	-5.52	44.45	74.00	-29.55	peak
4	22115.918	49.74	-4.36	45.38	74.00	-28.62	peak
5	22344.806	49.50	-4.09	45.41	74.00	-28.59	peak
6	24263.284	48.61	-2.81	45.80	74.00	-28.20	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.
4. AVG: VBW=1/Ton where: ton is transmit duration.

EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11b Middle Chanel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18448.984	49.77	-5.32	44.45	74.00	-29.55	peak
2	18950.934	49.99	-5.26	44.73	74.00	-29.27	peak
3	20232.864	50.23	-5.60	44.63	74.00	-29.37	peak
4	20745.172	50.49	-5.12	45.37	74.00	-28.63	peak
5	23559.904	49.29	-3.15	46.14	74.00	-27.86	peak
6	24804.566	48.55	-2.27	46.28	74.00	-27.72	peak

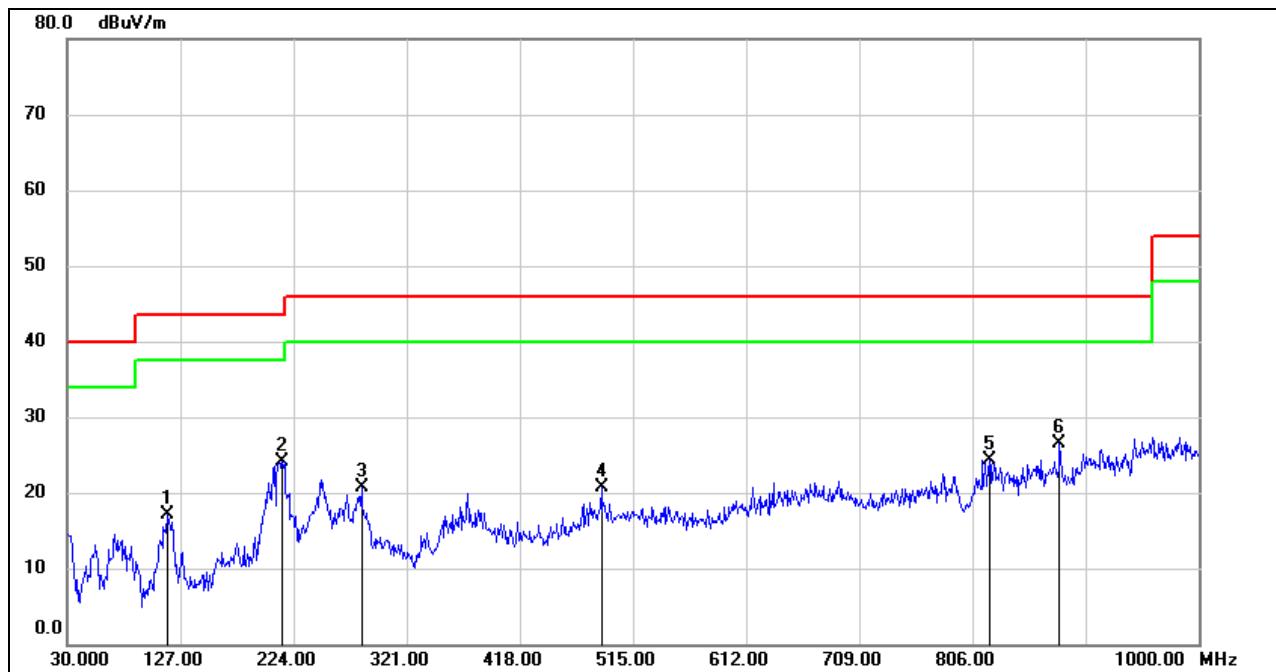
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton where: ton is transmit duration.

Note: All the modulation and channels had been tested, but only the worst data recorded in the report.

8.5. SPURIOUS EMISSIONS 30M ~ 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)

EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11b Middle Channel		

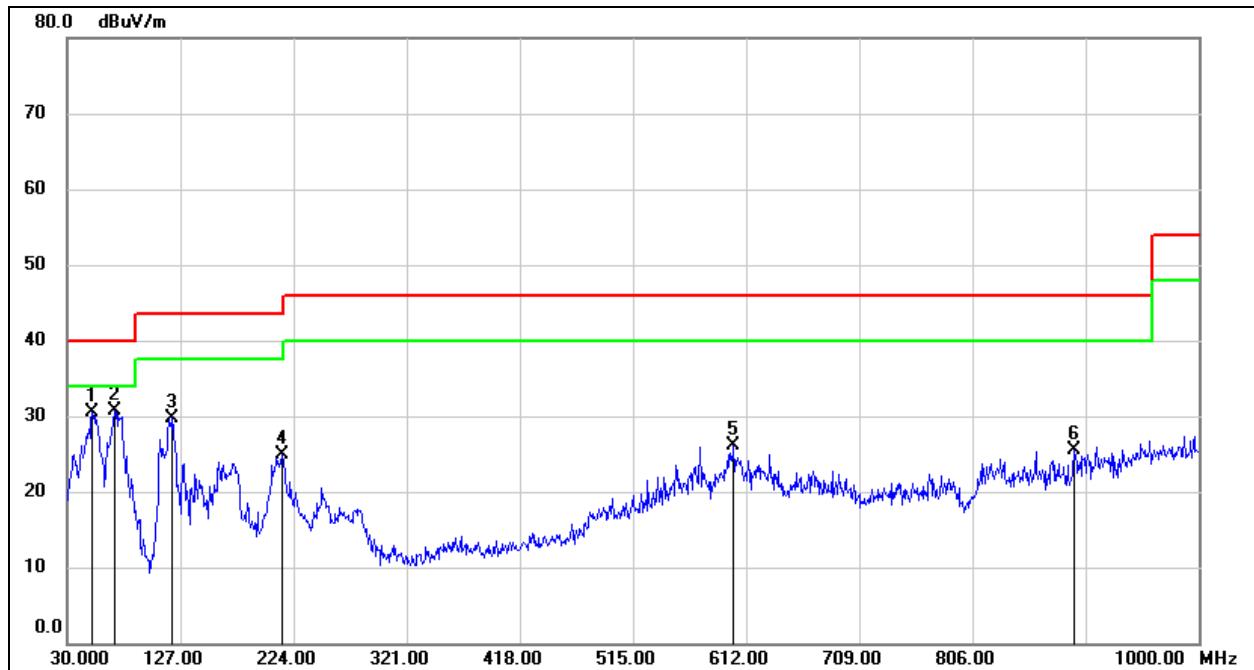


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	115.3600	33.75	-16.56	17.19	43.50	-26.31	QP
2	214.3000	36.96	-12.83	24.13	43.50	-19.37	QP
3	282.2000	33.10	-12.37	20.73	46.00	-25.27	QP
4	487.8400	29.05	-8.43	20.62	46.00	-25.38	QP
5	820.5500	-0.54	24.90	24.36	46.00	-21.64	QP
6	880.6900	2.02	24.52	26.54	46.00	-19.46	QP

Note: 1. Measurement = Reading 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 the modulation and channels had been tested, but only the worst data recorded in the report.

EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11b Middle Channel		



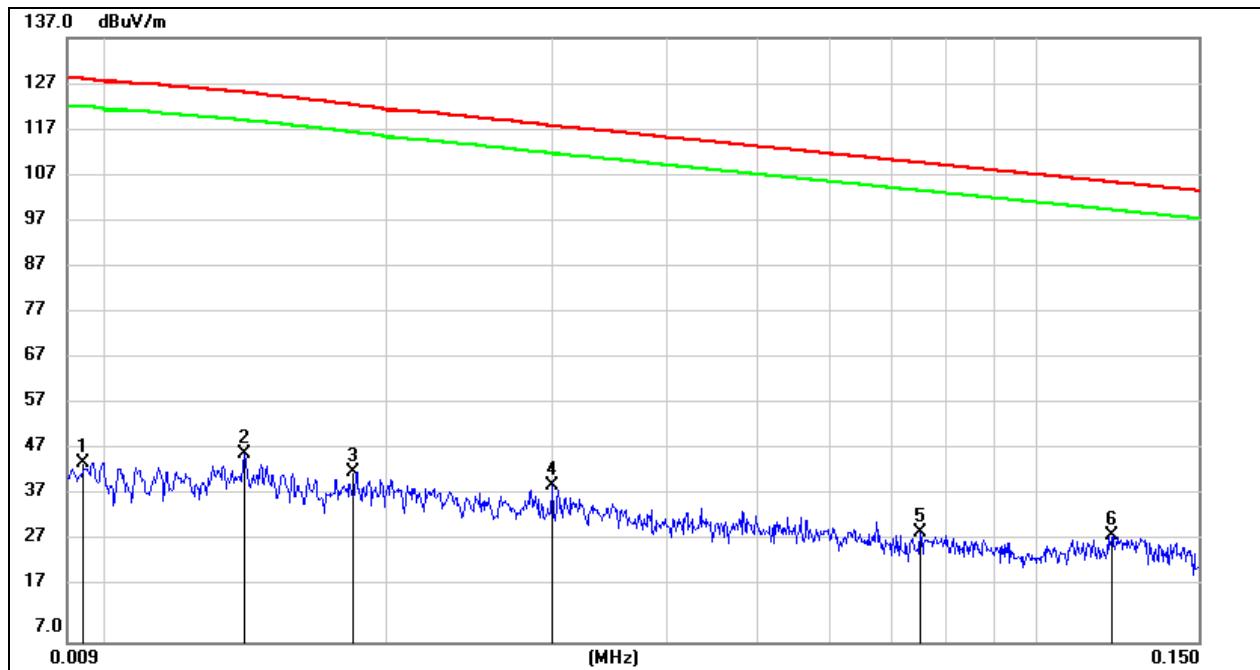
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	51.3400	46.87	-16.38	30.49	40.00	-9.51	QP
2	70.7400	47.74	-16.99	30.75	40.00	-9.25	QP
3	120.2100	45.66	-15.86	29.80	43.50	-13.70	QP
4	214.3000	37.66	-12.83	24.83	43.50	-18.67	QP
5	601.3300	32.16	-6.01	26.15	46.00	-19.85	QP
6	893.3000	1.04	24.52	25.56	46.00	-20.44	QP

Note: 1. Result Level = Read Level +Correct.
 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

8.6. SPURIOUS EMISSIONS BELOW 30M

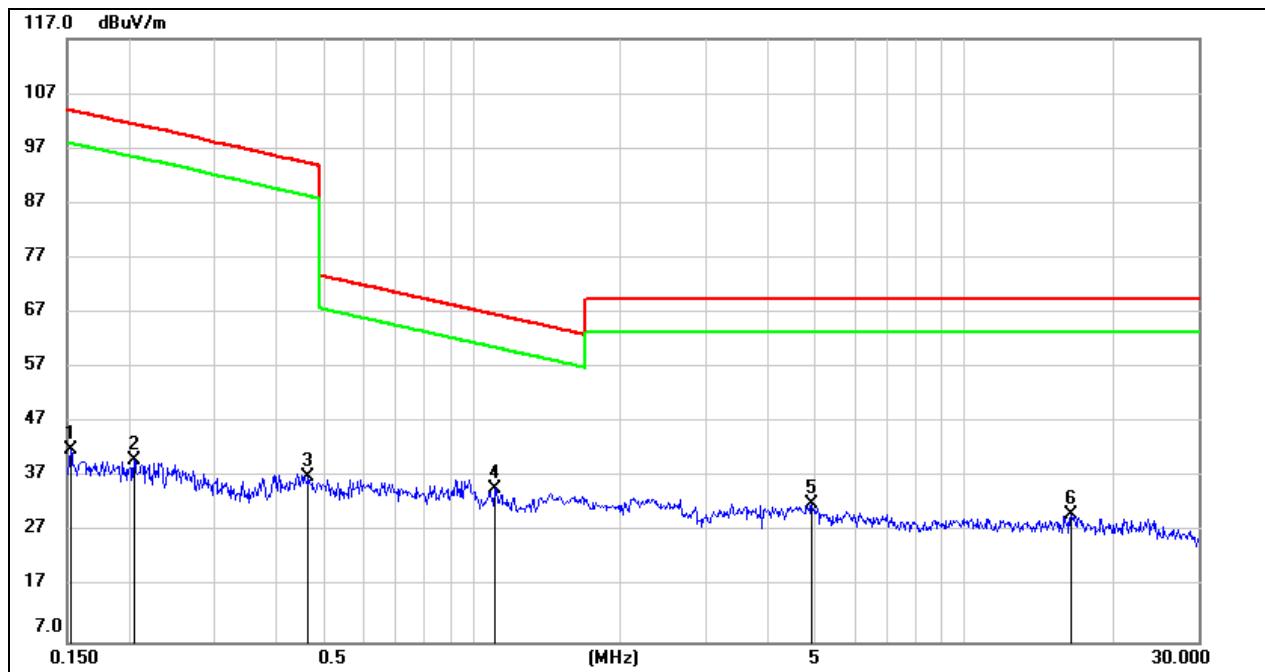
SPURIOUS EMISSIONS Below 30MHz (WORST-CASE CONFIGURATION)

EUT:	Cubinote	Polarization :	Horizontal
Test Mode:	11b Middle Channel		



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0094	25.26	20.26	45.52	128.06	-82.54	QP
2	0.0140	27.24	20.25	47.49	125.19	-77.70	QP
3	0.0183	23.16	20.29	43.45	122.60	-79.15	QP
4	0.0300	20.19	20.31	40.50	118.06	-77.56	QP
5	0.0751	10.25	20.31	30.56	110.11	-79.55	QP
6	0.1208	9.73	20.30	30.03	105.96	-75.93	QP

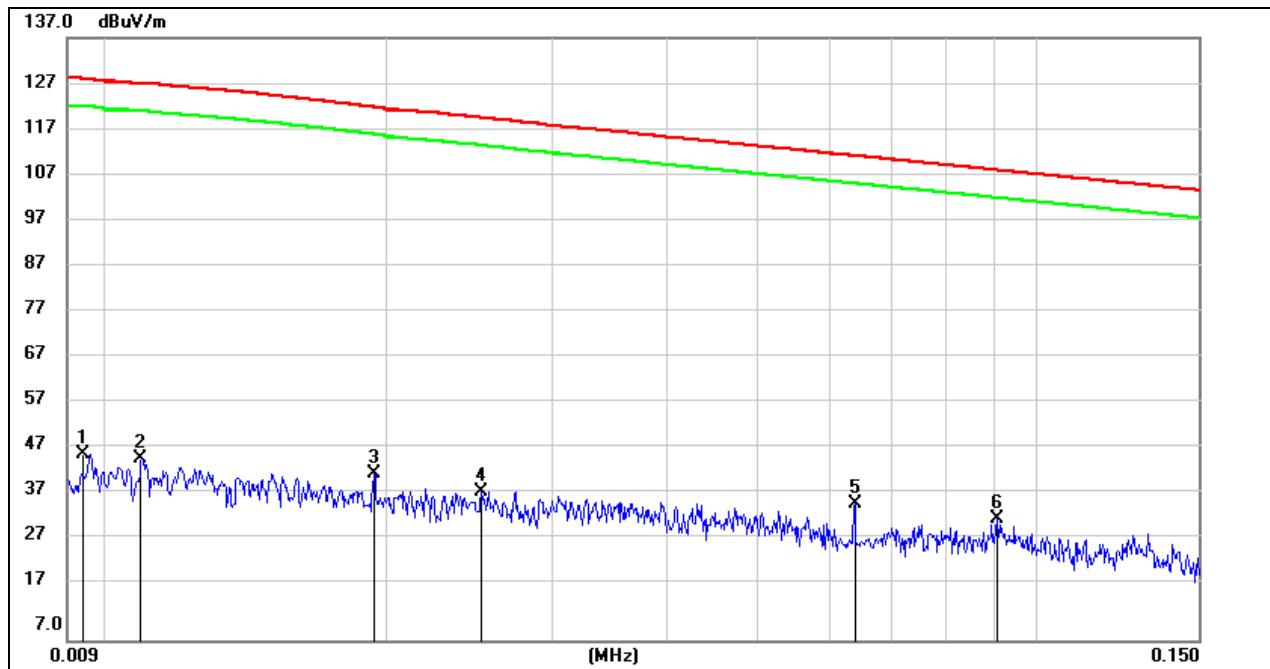
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1524	21.66	20.42	42.08	103.95	-61.87	QP
2	0.2048	19.70	20.36	40.06	101.41	-61.35	QP
3	0.4637	16.77	20.25	37.02	94.31	-57.29	QP
4	1.1109	14.39	20.41	34.80	66.70	-31.90	QP
5	4.8997	11.38	20.84	32.22	69.54	-37.32	QP
6	16.4856	9.20	20.96	30.16	69.54	-39.38	QP

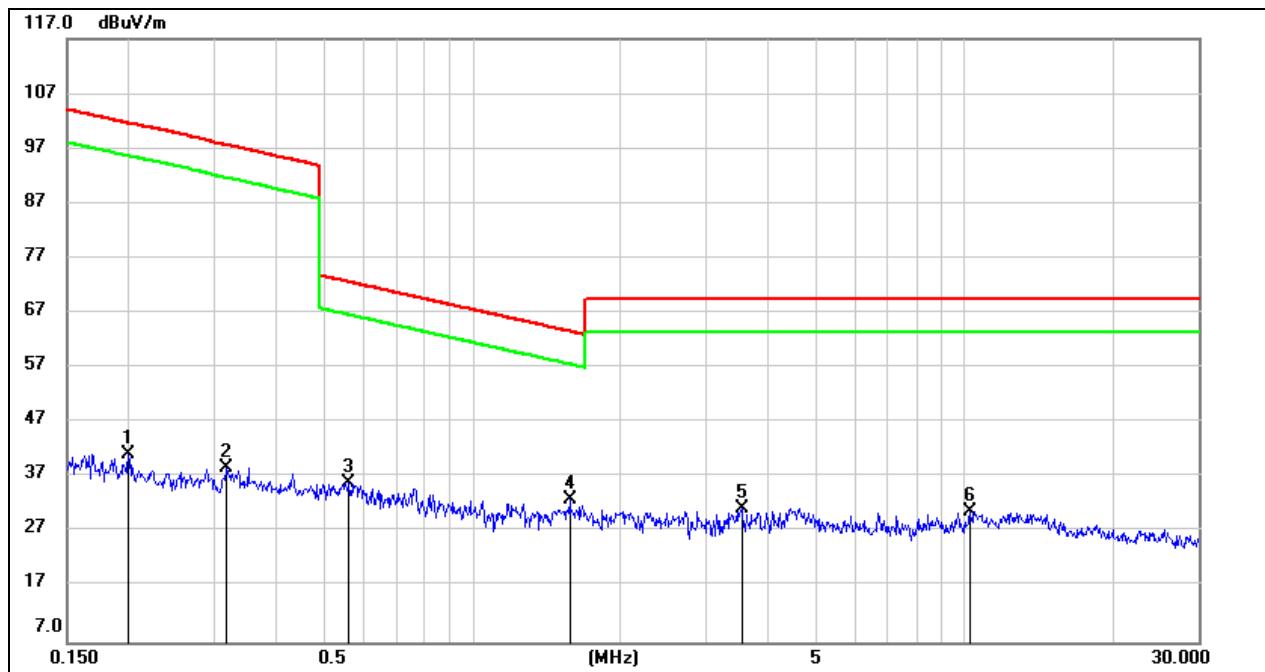
Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

EUT:	Cubinote	Polarization :	Vertical
Test Mode:	11b Middle Channel		



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0094	26.97	20.26	47.23	128.06	-80.83	QP
2	0.0108	25.81	20.22	46.03	127.12	-81.09	QP
3	0.0193	22.53	20.30	42.83	122.00	-79.17	QP
4	0.0252	18.86	20.31	39.17	119.75	-80.58	QP
5	0.0637	15.95	20.31	36.26	111.54	-75.28	QP
6	0.0908	12.91	20.26	33.17	108.45	-75.28	QP

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



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1995	20.85	20.37	41.22	101.60	-60.38	QP
2	0.3165	18.57	20.30	38.87	97.65	-58.78	QP
3	0.5581	15.80	20.26	36.06	72.71	-36.65	QP
4	1.5766	12.49	20.58	33.07	63.65	-30.58	QP
5	3.5278	10.47	20.98	31.45	69.54	-38.09	QP
6	10.2873	9.71	21.05	30.76	69.54	-38.78	QP

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

Note: All the modulation and channels had been tested, but only the worst data recorded in the report.

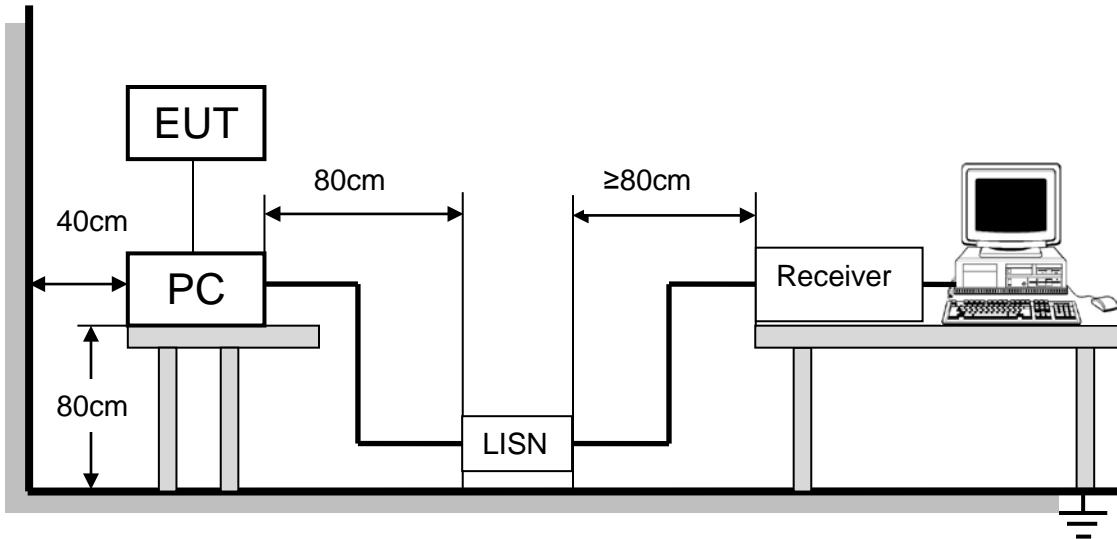
9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

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

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

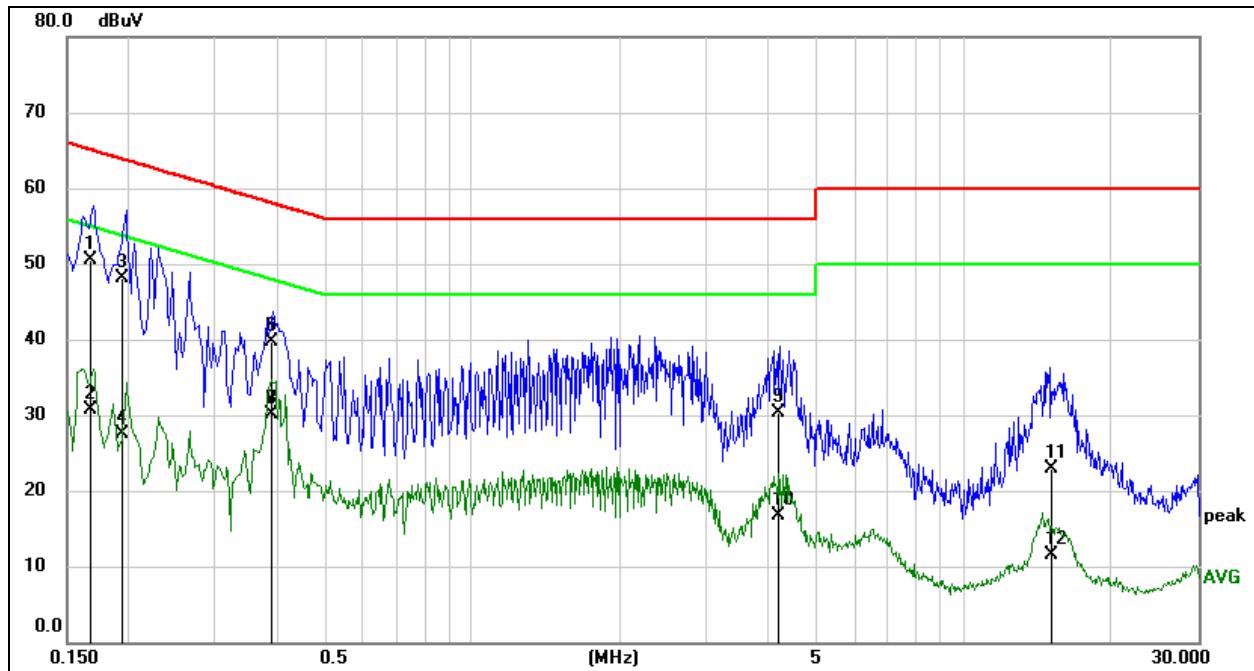


The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) 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

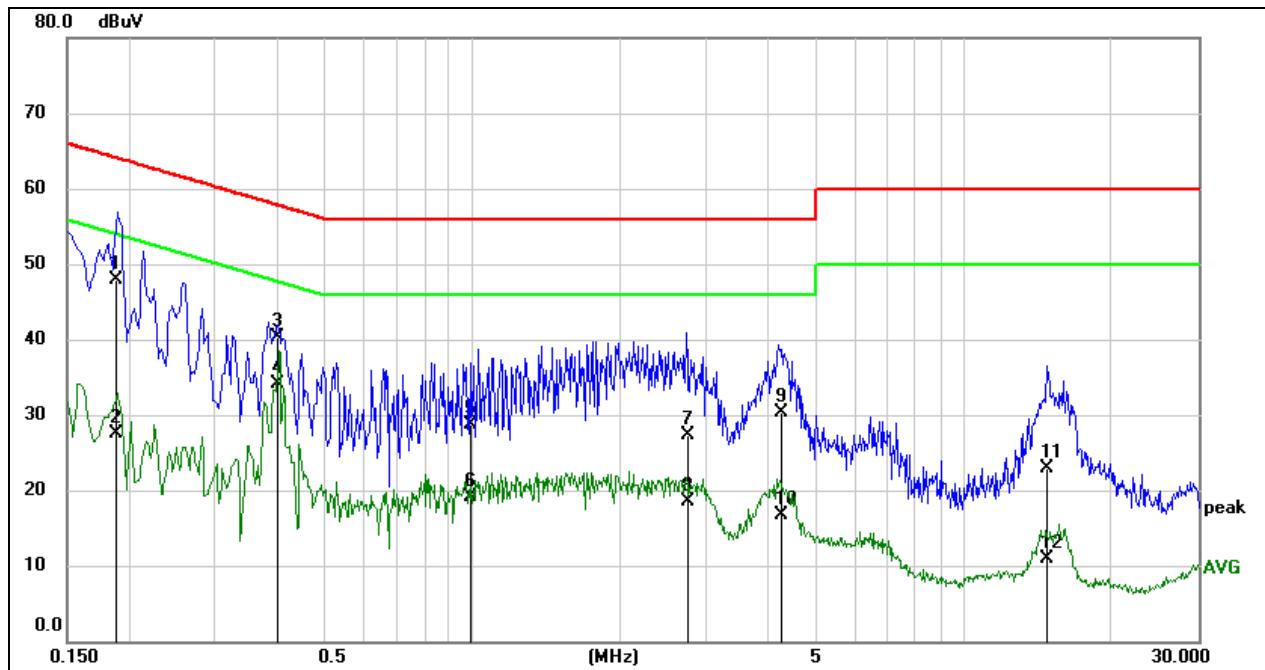
Temperature:	24.5°C	Relative Humidity:	55%
Pressure:	1012 hPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Tx Mode	Phase :	L
Remark:	N/A		



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1667	40.88	9.66	50.54	65.12	-14.58	QP
2	0.1667	21.09	9.66	30.75	55.12	-24.37	AVG
3	0.1935	38.52	9.65	48.17	63.88	-15.71	QP
4	0.1935	17.81	9.65	27.46	53.88	-26.42	AVG
5	0.3893	30.02	9.65	39.67	58.08	-18.41	QP
6	0.3893	30.02	9.65	39.67	58.08	-18.41	QP
7	0.3893	20.43	9.65	30.08	48.08	-18.00	AVG
8	0.3893	20.43	9.65	30.08	48.08	-18.00	AVG
9	4.1860	20.62	9.71	30.33	56.00	-25.67	QP
10	4.1860	6.95	9.71	16.66	46.00	-29.34	AVG
11	15.0408	13.09	9.82	22.91	60.00	-37.09	QP
12	15.0408	1.64	9.82	11.46	50.00	-38.54	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.

Temperature:	24.5°C	Relative Humidity:	55%
Pressure:	1012 hPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Tx Mode	Phase :	N
Remark:	N/A		



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1879	38.30	9.64	47.94	64.13	-16.19	QP
2	0.1879	17.89	9.64	27.53	54.13	-26.60	AVG
3	0.4004	30.71	9.65	40.36	57.85	-17.49	QP
4	0.4004	24.41	9.65	34.06	47.85	-13.79	AVG
5	0.9894	18.97	9.67	28.64	56.00	-27.36	QP
6	0.9894	9.53	9.67	19.20	46.00	-26.80	AVG
7	2.7725	17.54	9.70	27.24	56.00	-28.76	QP
8	2.7725	8.72	9.70	18.42	46.00	-27.58	AVG
9	4.2343	20.60	9.70	30.30	56.00	-25.70	QP
10	4.2343	7.03	9.70	16.73	46.00	-29.27	AVG
11	14.7873	13.14	9.84	22.98	60.00	-37.02	QP
12	14.7873	1.08	9.84	10.92	50.00	-39.08	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 the modulation and channels had been tested, but only the worst data recorded in the report.

10. 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 a FPCB Antenna without antenna connector.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi.

END OF REPORT