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

TEST REPORT

For

907X-SPECIAL EDITION

MODEL NUMBER: CFVII-1

FCC ID: 2AEFA-CFVII1910
IC: 20193-CFVII1910

REPORT NUMBER: 4789290187.2-6

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Prepared for

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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	12/13/2019	Initial Issue	

Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	6/26db/99% Bandwidth	FCC 15.407 (a)&(e) RSS-247 Clause 6.2 RSS-Gen Clause 6.7	PASS
2	Maximum Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
3	Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
4	Antenna Conducted Spurious Emission	FCC 15.407 (b) RSS-247 Clause 6.2	PASS
5	Radiated Bandedge and Spurious Emission	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	PASS
6	Conducted Emission Test For AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	PASS
7	Antenna Requirement	FCC 15.203 RSS-GEN Clause 8.3	PASS
8	Frequency Stability	FCC 15.407 (g)	PASS
9	Dynamic Frequency Selection	FCC 15.407 (h) RSS-247 Clause 6.3	No support
Note: This test report is only published to and used by the applicant, and it is not for evidence purpose in China.			

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Victor Hasselblad AB
Address: Utvecklingsgatan 2 SE-417 56 Gothenburg Sweden

Manufacturer Information

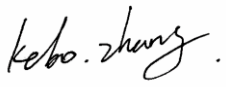
Company Name: Victor Hasselblad AB
Address: Utvecklingsgatan 2 SE-417 56 Gothenburg Sweden

EUT Information

EUT Name: 907X-SPECIAL EDITION
Model: CFVII-1
Sample Status: Normal
Sample ID: 2756781
Sample Received Date: November 30, 2019
Date of Tested: November 31 ~ December 12, 2019

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

Prepared By:



Kebo Zhang
Engineer Project Associate

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo
Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, CFR 47 FCC Part 2, CFR 47 FCC Part 15, KDB 789033 D02 v02r01, RSS-GEN Issue 5, RSS-247 Issue 2, KDB414788 D01 Radiated Test Site v01r01, KDB 662911 D01 v02r01, KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 and 905462 D03 Client Without DFS New Rules v01r02.

3. FACILITIES AND ACCREDITATION

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

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

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Uncertainty for Conduction emission test	3.62dB
Uncertainty for Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	2.2dB
Uncertainty for Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.00dB
Uncertainty for Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	5.78dB (1GHz-18Gz)
	5.23dB (18GHz-26Gz)
	5.64dB (26GHz-40Gz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	907X-SPECIAL EDITION
Model	CFVII-1
Radio Technology	IEEE802.11a 20 IEEE802.11n HT20/n HT40 IEEE802.11ac VHT20/VHT40/VHT80
Operation frequency	UNII-3
Modulation	OFDM(BPSK,QPSK,16QAM,64QAM,256QAM in ac mode only.)
Rated Input	DC 7.27 V

5.2. MAXIMUM EIRP

IEE Std. 802.11	Frequency (MHz)	Max Power (dBm)
a 20 MIMO	5725-5850	17.76
n HT20 MIMO	5725-5850	17.65
n HT40 MIMO	5725-5850	17.26
ac VHT20 MIMO	5725-5850	17.26
ac VHT40 MIMO	5725-5850	16.13
ac VHT80 MIMO	5725-5850	15.87

5.3. CHANNEL LIST

UNII-3(20MHz)		UNII-3(40MHz)		UNII-3(80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

5.4. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	adb
Test Software Setting Value	
IEEE802.11a 20	13
IEEE802.11n HT20	13
IEEE802.11n HT40	12
IEEE802.11ac HT20	13
IEEE802.11ac HT40	12
IEEE802.11ac HT80	10

5.5. THE WORSE CASE CONFIGURATIONS

For 2TX MIMO modes, ANTENNA 0 and ANTENNA 1, used at the same time.
For SISO modes, there are two transmission antennas. The antenna used in any given time can be either ANTENNA 0 or ANTENNA 1. All antenna ports have the same power.
SISO mode and MIMO mode have the same power setting, so only the worst case MIMO mode will be record in the report.

Worst-case data rates as provided by the client were:

802.11a 20 mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11n HT40 mode: MCS0
802.11ac VHT20 mode: MCS0
802.11ac VHT40 mode: MCS0
802.11ac VHT80 mode: MCS0

Note: 802.11ac VHT20 and VHT40 mode are different from 802.11nHT20 and HT40 only in control messages and have the same power settings, so for these 4 modes, only 802.11nHT20 and 802.11nHT40 modes data are recorded in the report .

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency (MHz)	Antenna Type	Max Antenna Gain (dBi)
0	5725-5850	IFA Antenna	1.0
1	5725-5850		1.0

Note: Directional gain= G_{ANT} + 10 log(N_{ANT}) dBi=4.01dBi
G_{ANT} : Antenna Gain
N_{ANT} : Antenna numbers

IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a 20	☒2TX, 2RX	ANT 0, 1 can be used as transmitting/receiving antenna.
802.11n HT20	☒2TX, 2RX	ANT 0, 1 can be used as transmitting/receiving antenna.
802.11n HT40	☒2TX, 2RX	ANT 0, 1 can be used as transmitting/receiving antenna.
802.11ac VHT20	☒2TX, 2RX	ANT 0, 1 can be used as transmitting/receiving antenna.
802.11ac VHT40	☒2TX, 2RX	ANT 0, 1 can be used as transmitting/receiving antenna.
802.11ac VHT80	☒2TX, 2RX	ANT 0, 1 can be used as transmitting/receiving antenna.
Note: All mode support MIMO mode.		

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	PC	Dell	Vostro 3902	8KNDDB2
2	USB TO UART	/	/	/

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	/	/	1.0	/

Note: The USB cable is for debugging only.

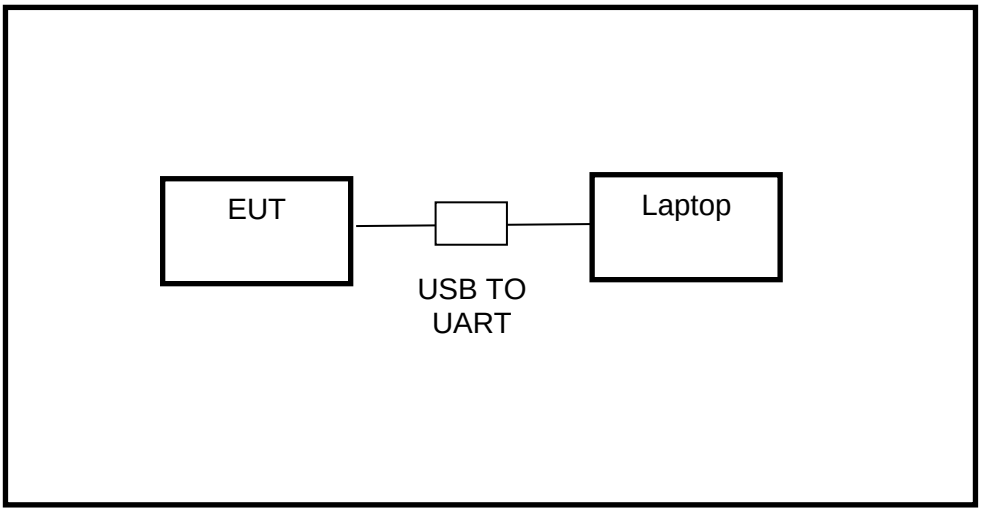
ACCESSORIES

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

TEST SETUP

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

SETUP DIAGRAM FOR TESTS



6. MEASURING INSTRUMENT AND SOFTWARE USED

For the previous calibration information

Conducted Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	EMI Test Receiver	R&S	ESR3	101961	Dec.10,2018	Dec.10,2019
☑	Two-Line V-Network	R&S	ENV216	101983	Dec.10,2018	Dec.10,2019
☑	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Dec.10,2018	Dec.10,2019
Software						
Used	Description		Manufacturer	Name	Version	
☑	Test Software for Conducted disturbance		Farad	EZ-EMC	Ver. UL-3A1	
Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.10,2018	Dec.10,2019
☑	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Sep.17, 2018	Sep.17, 2021
☑	Preamplifier	HP	8447D	2944A09099	Dec.10,2018	Dec.10,2019
☑	EMI Measurement Receiver	R&S	ESR26	101377	Dec.10,2018	Dec.10,2019
☑	Horn Antenna	TDK	HRN-0118	130939	Sep.17, 2018	Sep.17, 2021
☑	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Aug.11, 2018	Aug.11, 2021
☑	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Dec.10,2018	Dec.10,2019
☑	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec.10,2018	Dec.10,2019
☑	Preamplifier	TDK	PA-02-3	TRS-308-00002	Dec.10,2018	Dec.10,2019
☑	Loop antenna	Schwarzbeck	1519B	00008	Jan.07, 2019	Jan.07, 2022
☑	Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4	Dec.10,2018	Dec.10,2019
☑	Band Reject Filter	Wainwright	WRCJV20-5120-5150-5350-5380-60SS	2	Dec.10,2018	Dec.10,2019

☑	Band Reject Filter	Wainwright	WRCJV20-5440-5470-5725-5755-60SS	1	Dec.10,2018	Dec.10,2019
☑	High Pass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Dec.10,2018	Dec.10,2019

Software				
Used	Description	Manufacturer	Name	Version
☑	Test Software for Radiated disturbance	Farad	EZ-EMC	Ver. UL-3A1

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

Note: This table records the previous calibration information

For the last calibration information

Conducted Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	EMI Test Receiver	R&S	ESR3	101961	Dec.05,2019	Dec.05,2020
☑	Two-Line V-Network	R&S	ENV216	101983	Dec.05,2019	Dec.05,2020
☑	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Dec.05,2019	Dec.05,2020

Software				
Used	Description	Manufacturer	Name	Version
☑	Test Software for Conducted disturbance	Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.06,2019	Dec.06,2020
☑	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Sep.17, 2018	Sep.17, 2021
☑	Preamplifier	HP	8447D	2944A09099	Dec.05,2019	Dec.05,2020
☑	EMI Measurement Receiver	R&S	ESR26	101377	Dec.05,2019	Dec.05,2020

☑	Horn Antenna	TDK	HRN-0118	130939	Sep.17, 2018	Sep.17, 2021
☑	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Aug.11, 2018	Aug.11, 2021
☑	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Dec.05,2019	Dec.05,2020
☑	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec.05,2019	Dec.05,2020
☑	Preamplifier	TDK	PA-02-3	TRS-308-00002	Dec.05,2019	Dec.05,2020
☑	Loop antenna	Schwarzbeck	1519B	00008	Jan.07, 2019	Jan.07, 2022
☑	Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4	Dec.05,2019	Dec.05,2020
☑	Band Reject Filter	Wainwright	WRCJV20-5120-5150-5350-5380-60SS	2	Dec.05,2019	Dec.05,2020
☑	Band Reject Filter	Wainwright	WRCJV20-5440-5470-5725-5755-60SS	1	Dec.05,2019	Dec.05,2020
☑	High Pass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Dec.05,2019	Dec.05,2020

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.06,2019	Dec.06,2020
☑	Power Meter	Keysight	N1911A	MY55416024	Dec.06,2019	Dec.06,2020
☑	Power Sensor	Keysight	U2021XA	MY5100022	Dec.06,2019	Dec.06,2020

Note: This table records the last calibration information

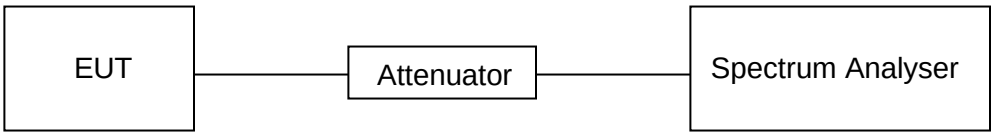
7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only

TEST SETUP



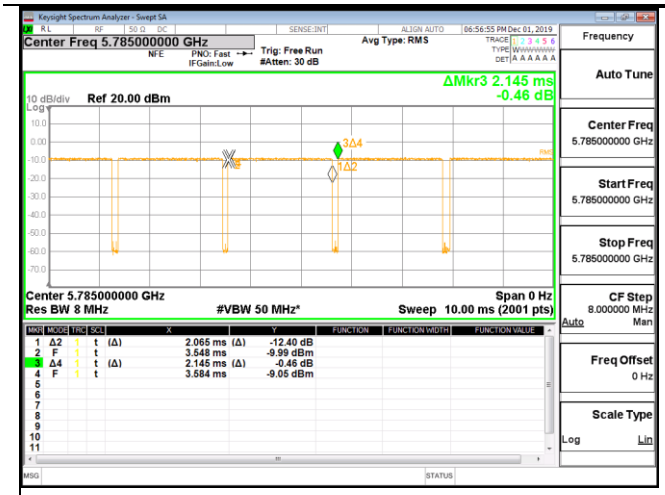
TEST ENVIRONMENT

Temperature	24.2°C	Relative Humidity	47%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.27V

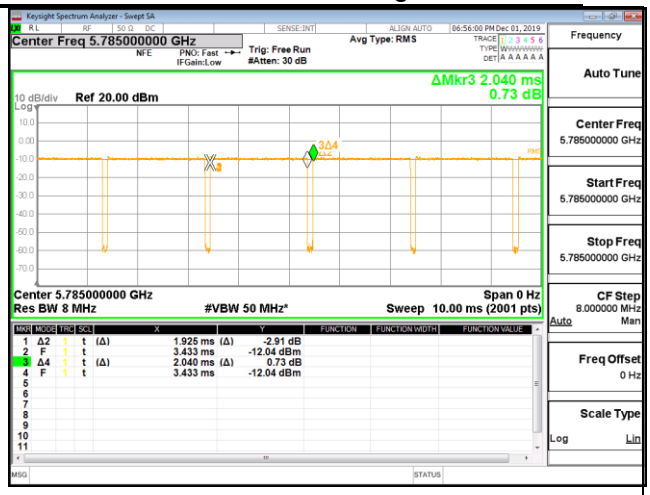
RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (KHz)	Final setting For VBW (KHz)
11a 20 MIMO	2.065	2.145	0.963	96.3	0.164	0.48	0.5
11n HT20 MIMO	1.925	2.040	0.944	94.4	0.250	0.52	1
11n HT40 MIMO	0.949	1.056	0.899	89.9	0.462	1.05	2
11ac VHT20 MIMO	0.995	1.135	0.877	87.7	0.570	1.00	2
11ac VHT40 MIMO	0.501	0.606	0.827	82.7	0.825	2.00	3
11ac VHT80 MIMO	0.257	0.372	0.691	69.1	1.605	3.89	4

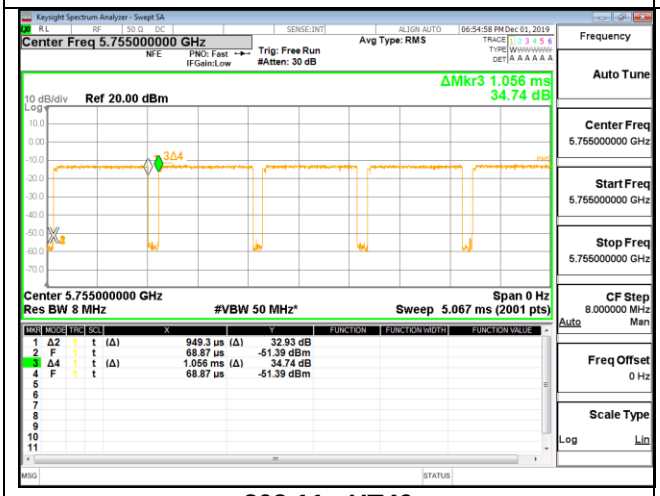
Note:
Duty Cycle Correction Factor=10log(1/x).
Where: x is Duty Cycle(Linear)
Where: T is On Time (transmit duration)
If that calculated VBW is not available on the analyzer then the next higher value should be used.
Antenna 0 and Antenna 1 has the same duty cycle, only ANT 0 data show here.



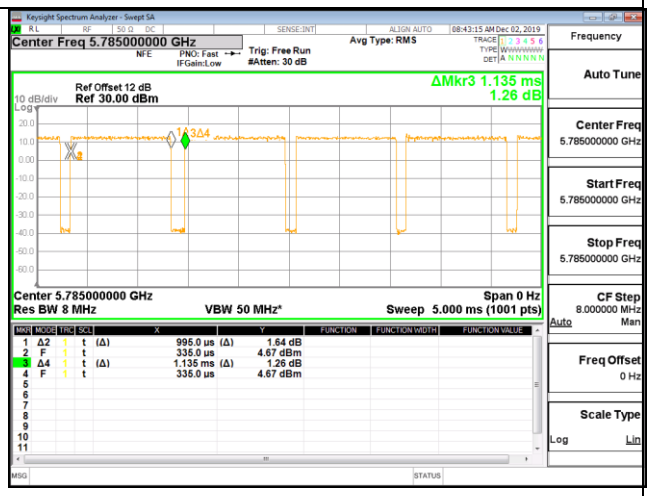
802.11a 20



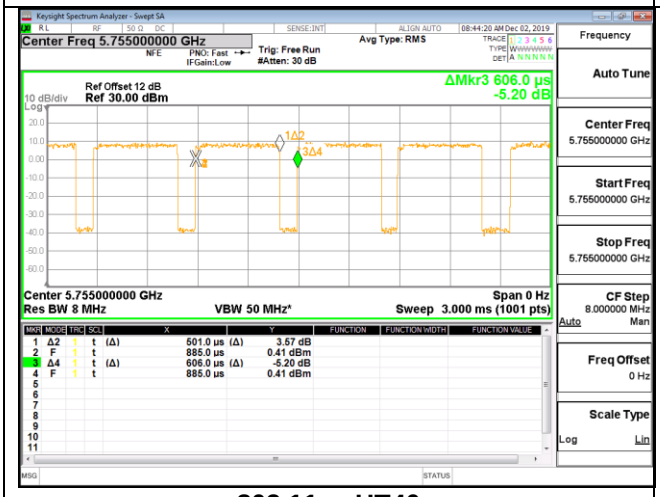
802.11n HT20



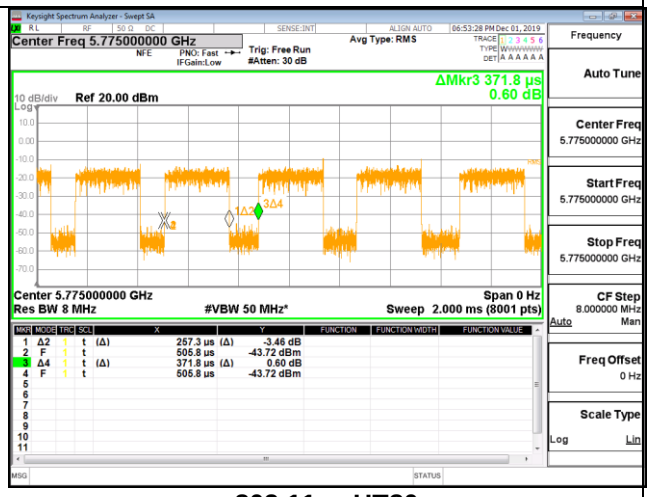
802.11n HT40



802.11ac HT20



802.11ac HT40



802.11ac HT80

7.2. 6/26/99% dB BANDWIDTH

LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	Minimum 500kHz 6dB Bandwidth	5725-5850

ISED RSS-247 ISSUE 2		
RSS-Gen Clause 6.7	99% Bandwidth	For reporting purposes only.

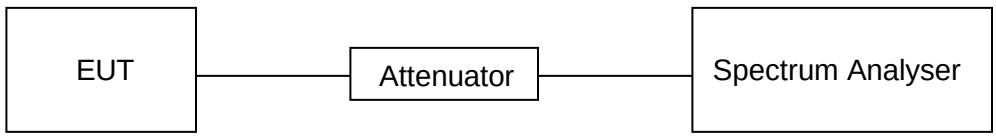
TEST PROCEDURE

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

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6dB Bandwidth: RBW=100kHz For 26dB Bandwidth: approximately 1% of the emission bandwidth. For 99dB Bandwidth: approximately 1%~5% of the emission bandwidth.
VBW	For 6dB Bandwidth : ≥3×RBW For 26dB Bandwidth : ≥3×RBW For 99% Occupied Bandwidth: ≥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 6dB/26dB&99% Occupied Bandwidth relative to the maximum level measured in the fundamental emission.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.2°C	Relative Humidity	47%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.27V

RESULTS

7.2.1. 802.11a 20 MIMO MODE

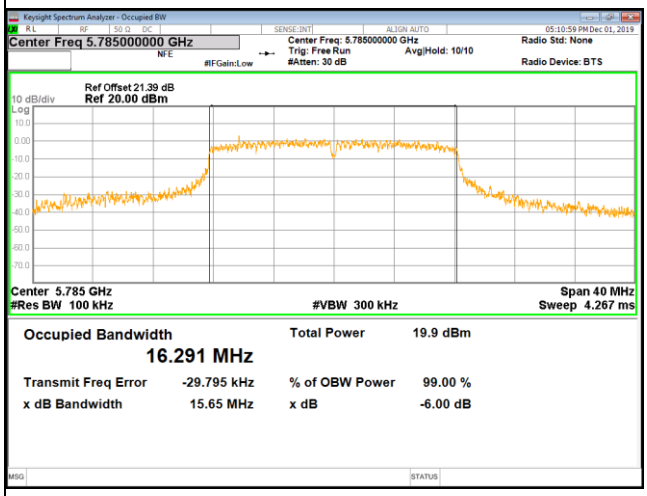
ANT0 WORST CASE

UNII-3 BAND

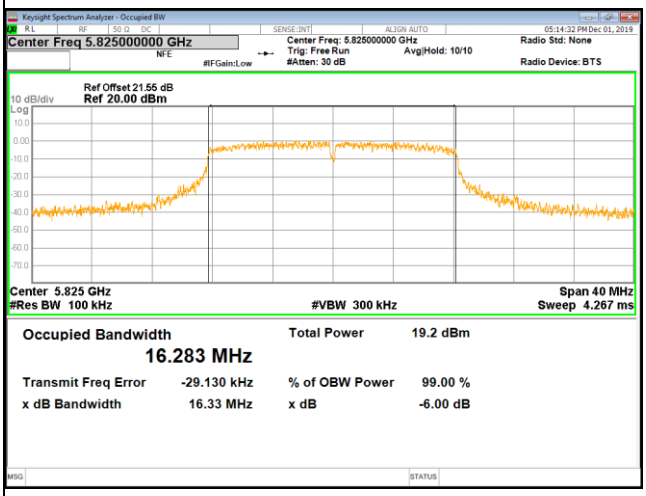
Channel	Frequency (MHz)	6 dB BW (MHz)	99% BW (MHz)	Limit For 6dB BW (KHz)	Result
Low	5745	15.65	16.314	500	PASS
Mid	5785	16.33	16.278	500	PASS
High	5825	16.27	16.306	500	PASS

6dB BW

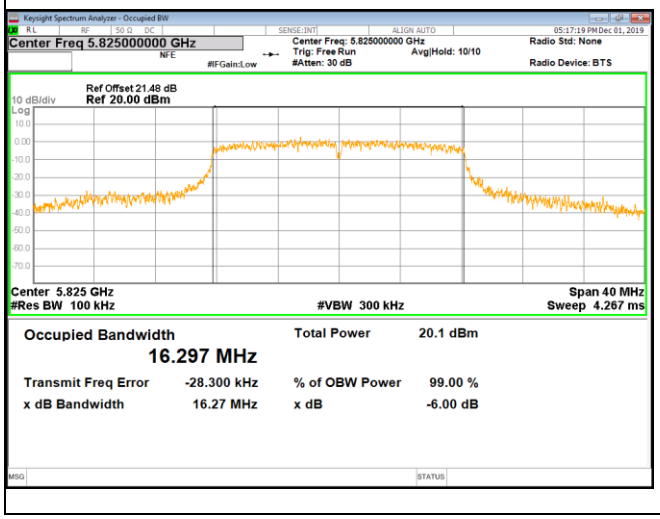
Low CHANNEL



Mid CHANNEL

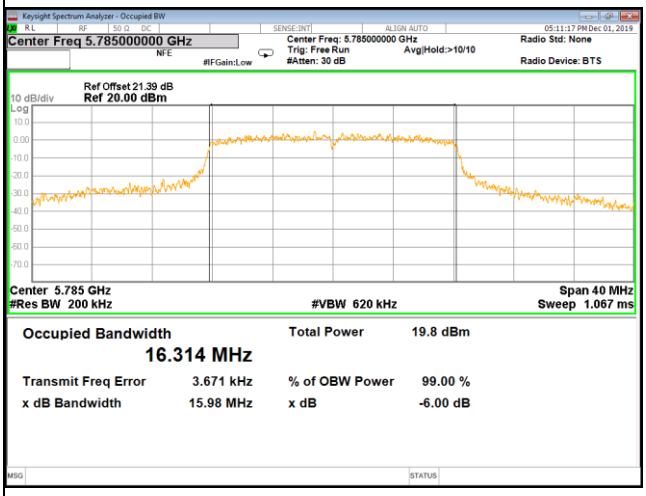


High CHANNEL

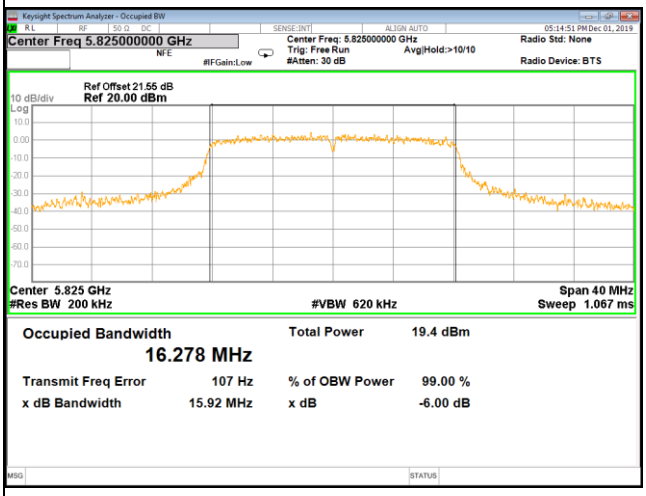


99% BW

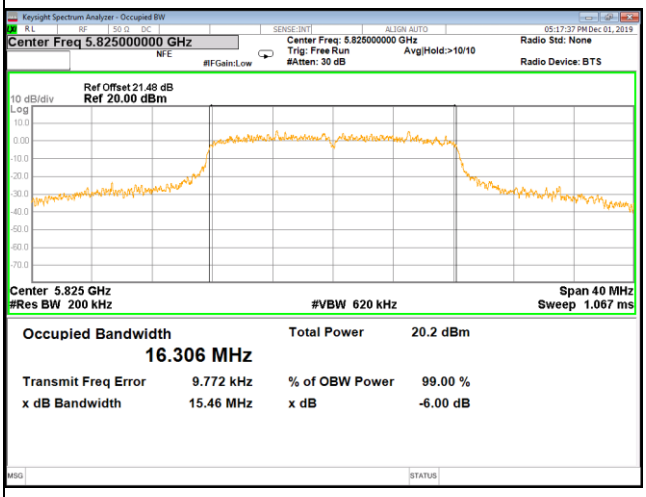
Low CHANNEL



Mid CHANNEL



High CHANNEL



Note: All the modes and antenna ports had been tested, only the worst data recorded in the report.

7.2.2. 802.11n HT20 MIMO MODE

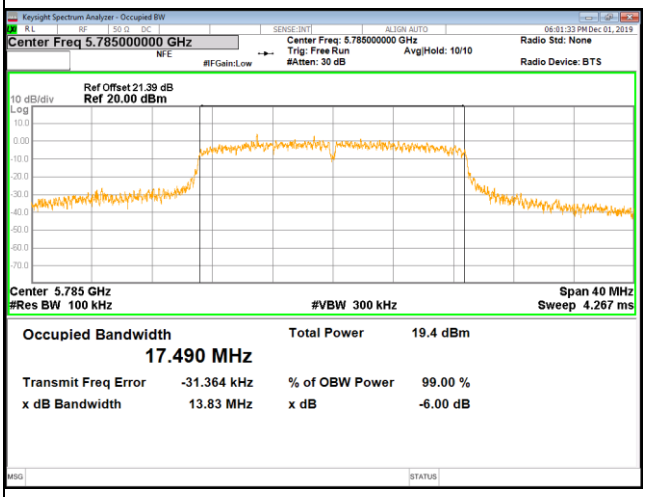
ANT0 WORST CASE

UNII-3 BAND

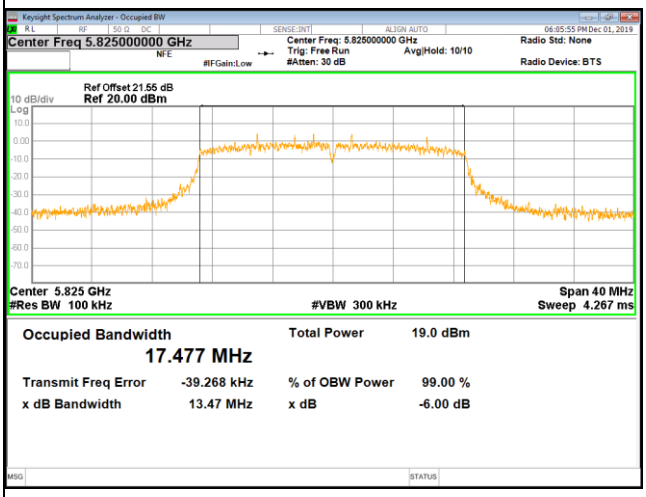
Channel	Frequency (MHz)	6 dB BW (MHz)	99% BW (MHz)	Limit For 6dB BW (KHz)	Result
Low	5745	13.83	17.491	500	PASS
Mid	5785	13.47	17.439	500	PASS
High	5825	16.28	17.446	500	PASS

6dB BW

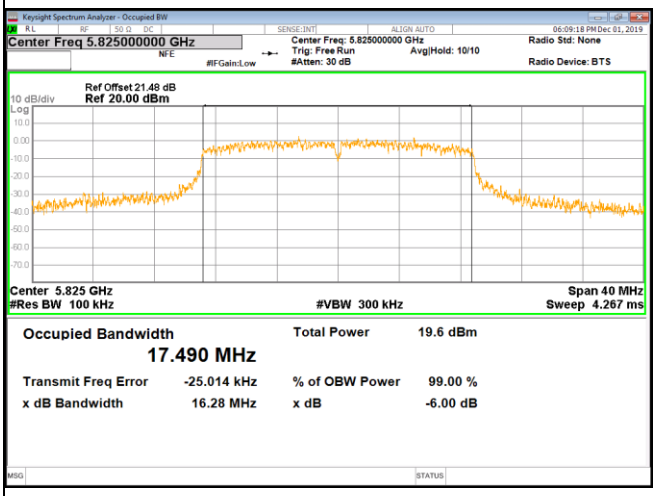
Low CHANNEL



Mid CHANNEL

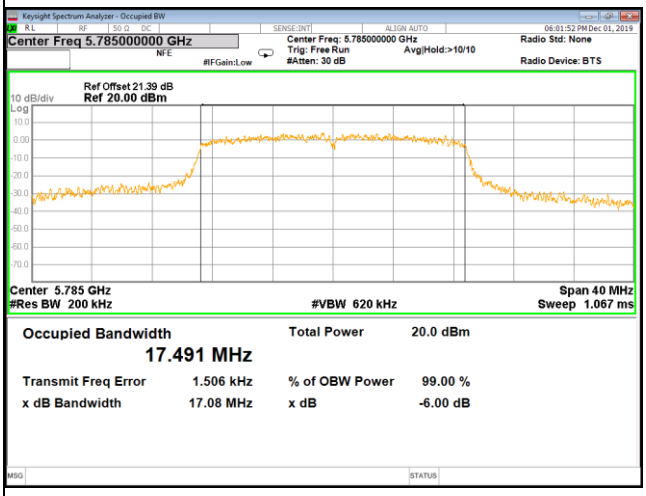


High CHANNEL

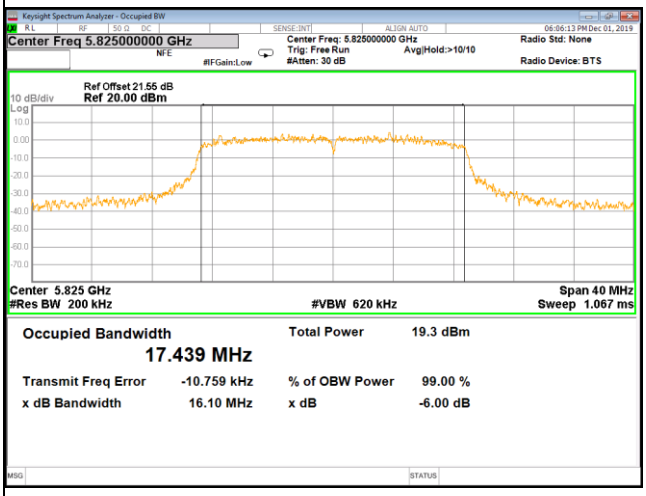


99% BW

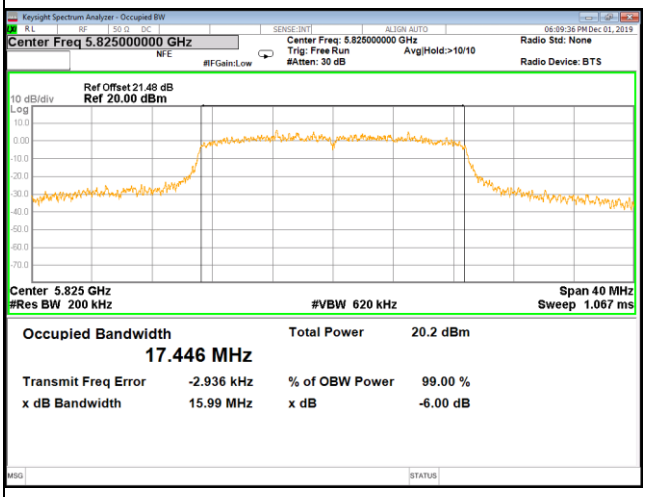
Low CHANNEL



Mid CHANNEL



High CHANNEL



Note: All the modes and antenna ports had been tested, only the worst data recorded in the report.

7.2.3. 802.11n HT40 MIMO MODE

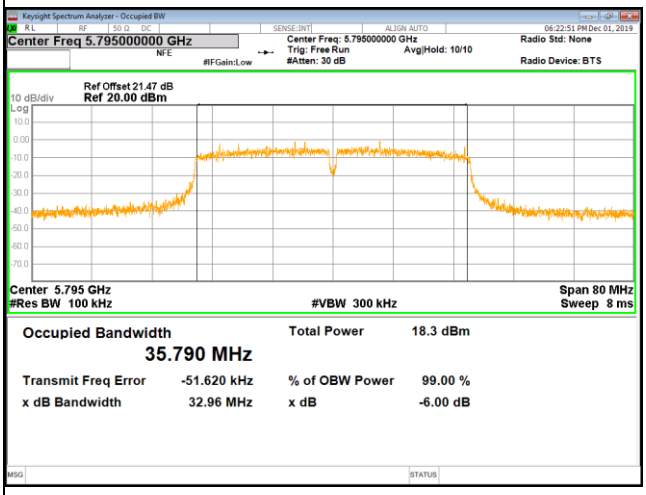
ANT0 WORST CASE

UNII-3 BAND

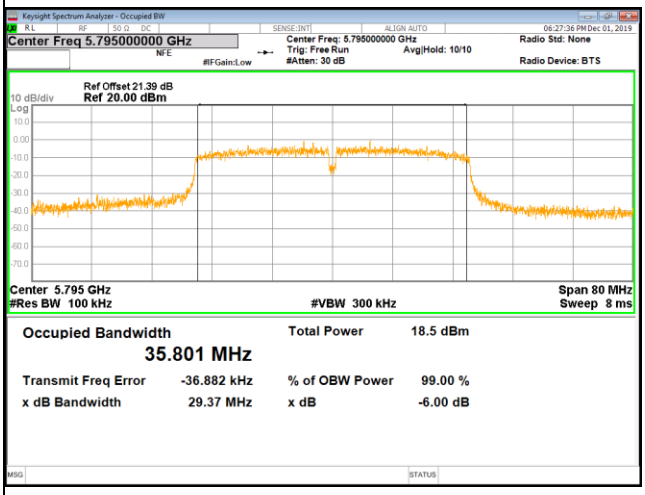
Channel	Frequency (MHz)	6 dB BW (MHz)	99% BW (MHz)	Limit (KHz)	Result
Low	5755	32.96	35.817	500	PASS
High	5795	29.37	35.856	500	PASS

6dB BW

Low CHANNEL

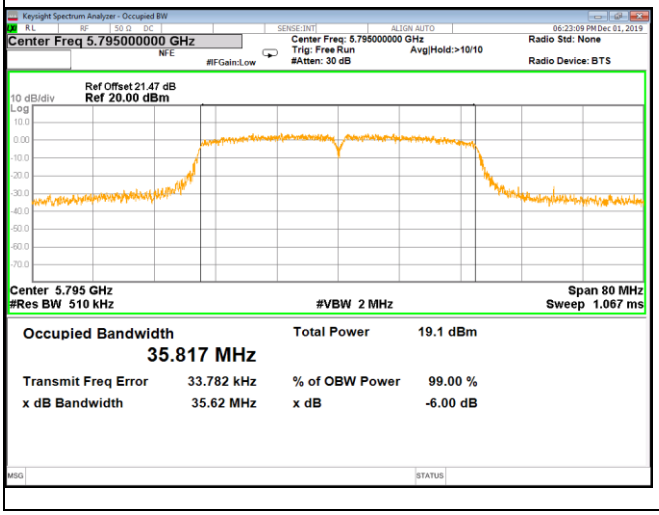


High CHANNEL

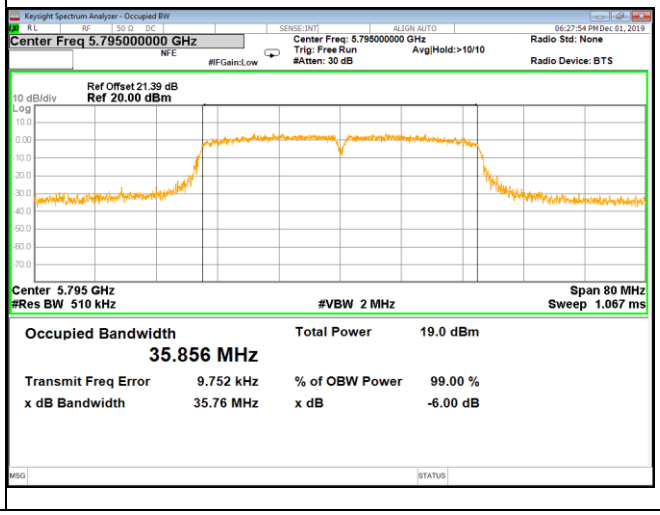


99% BW

Low CHANNEL



High CHANNEL



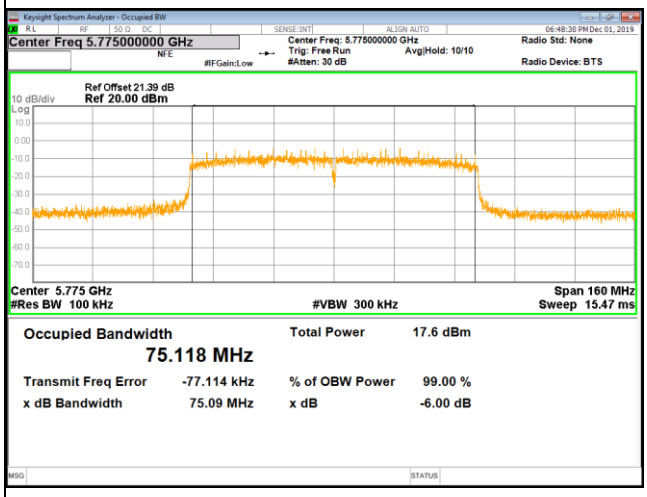
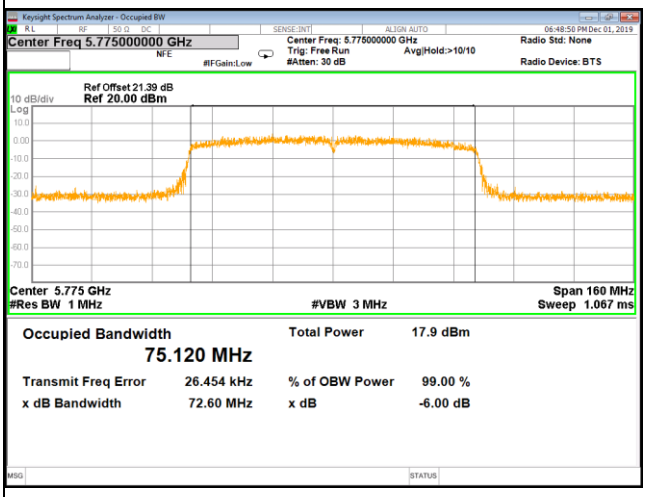
Note: All the modes and antenna ports had been tested, only the worst data recorded in the report.

7.2.4. 802.11ac VHT80 MIMO MODE

ANT0 WORST CASE

UNII-3 BAND

Channel	Frequency (MHz)	6 dB BW (MHz)	99% BW (MHz)	Limit For 6dB BW (KHz)	Result
Mid	5775	75.09	75.120	500	PASS

6dB BW	99% BW
Mid CHANNEL	**Mid CHANNEL**
	

Note: All the modes and antenna ports had been tested, only the worst data recorded in the report.

7.3. MAXIMUM CONDUCTED OUTPUT POWER

LIMITS

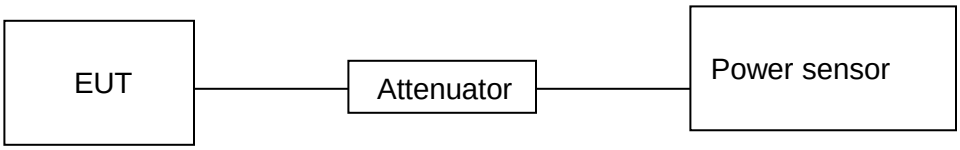
FCC Part15, Subpart E/ ISEDRSS-247		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	1 Watt (30dBm)	5725-5850
Note: 1. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. 2. Directional gain= G_{ANT} + 10 log(N_{ANT}) dBi, where N_{ANT} is the number of outputs, G_{ANT} is the Antenna gain.		

TEST PROCEDURE

Refer to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Connect the EUT to the a broadband average RF power meter, the power meter shall have a video bandwidth that is greater than or equal to the bandwidth and shall utilize a fast-responding diode detector.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.2°C	Relative Humidity	47%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.27V

RESULTS

7.3.1. UNII-3 BAND

Mode	Frequency (MHz)	ANT	CONDUCTED POWER (dBm)		Limit (dBm)
			Single	Total	
a 20	5745	0	14.58	17.96	30
		1	15.29		
	5785	0	14.42	17.59	30
		1	14.73		
	5825	0	14.48	17.84	30
		1	15.16		
n HT20	5745	0	14.46	17.41	30
		1	14.33		
	5785	0	14.85	17.65	30
		1	14.41		
	5825	0	13.58	17.39	30
		1	15.05		
ac HT20	5745	0	13.74	16.88	30
		1	14.00		
	5785	0	13.93	17.13	30
		1	14.30		
	5825	0	13.98	17.26	30
		1	14.50		
n HT40	5755	0	14.42	17.26	30
		1	14.08		
	5795	0	13.82	16.83	30
		1	13.82		
ac VHT40	5755	0	12.94	15.78	30
		1	12.60		
	5795	0	13.33	16.13	30
		1	12.90		
ac VHT80	5775	0	12.22	15.87	30
		1	13.41		

Note: 1.Conducted Power=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1

7.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	30dBm/500kHz	5725-5850
Note: 1. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. 2. Directional gain= G_{ANT} + 10 log(N_{ANT}) dBi, where N_{ANT} is the number of outputs, G_{ANT} is the Antenna gain.		

TEST PROCEDURE

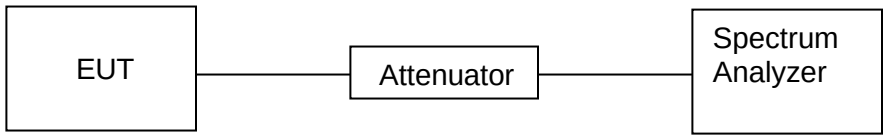
Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Note: The spectrum analyzers do not have 500 kHz RBW, thus 510 kHz RBW may need to be used.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.2°C	Relative Humidity	47%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.27V

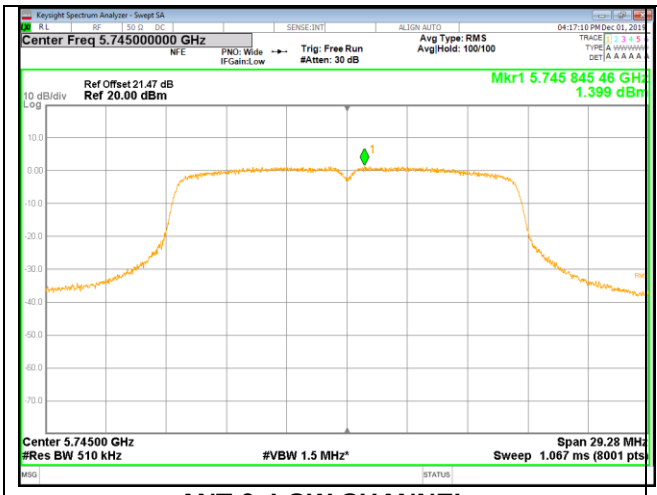
RESULTS

7.4.1. 802.11a 20 MIMO MODE

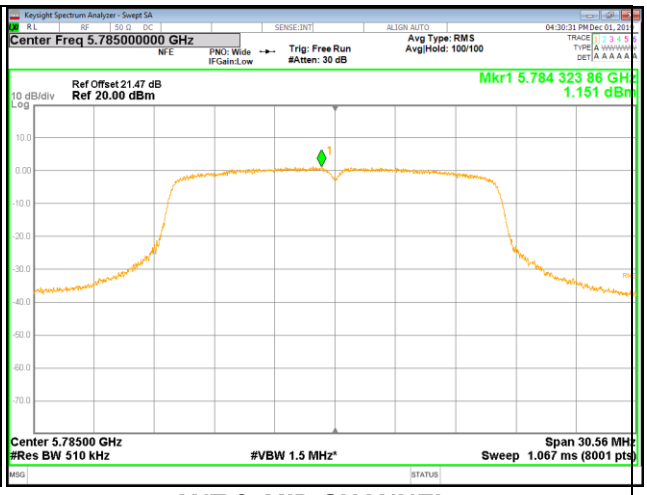
UNII-3 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/500KHz)		Limit (dBm/500KHz)
			Single	Total	
Low	5745	0	1.399	4.822	30
		1	1.882		
Middle	5785	0	1.151	4.482	
		1	1.458		
High	5825	0	0.965	4.508	
		1	1.674		

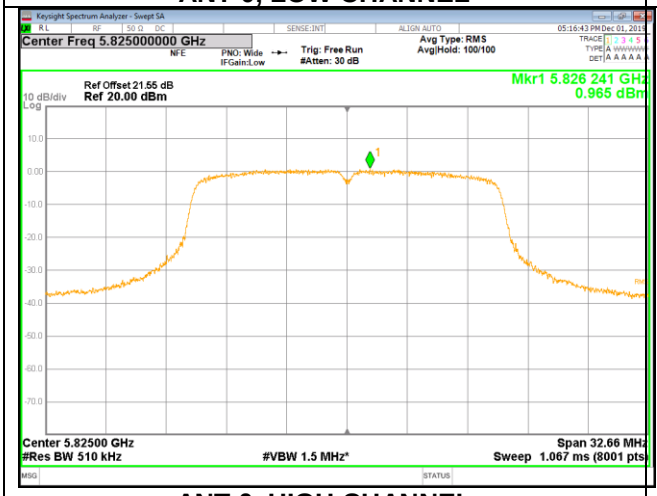
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



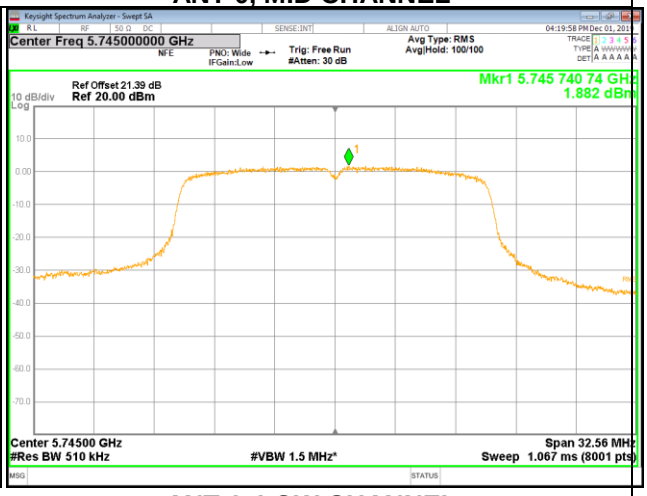
ANT 0, LOW CHANNEL



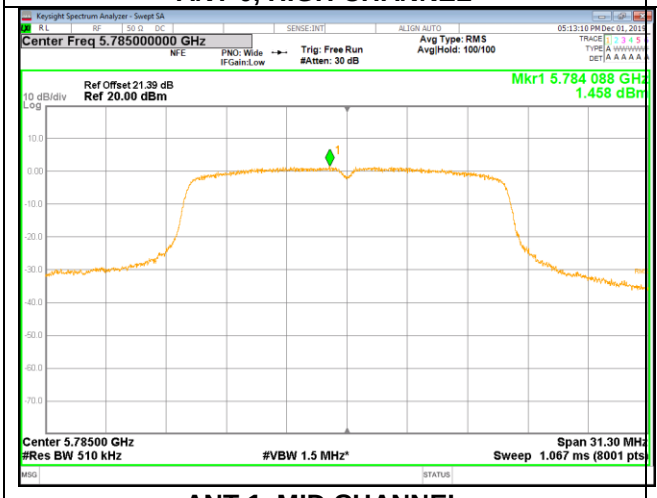
ANT 0, MID CHANNEL



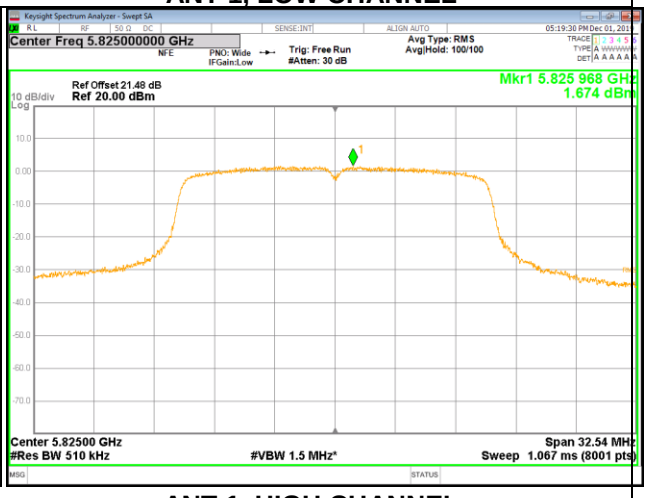
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL



ANT 1, MID CHANNEL



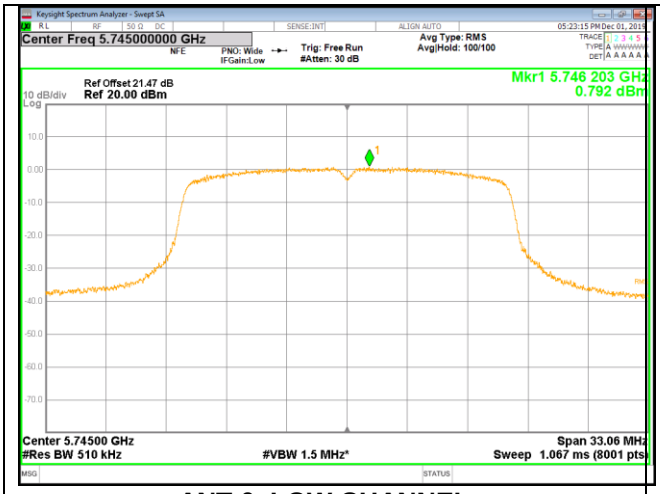
ANT 1, HIGH CHANNEL

7.4.2. 802.11n HT20 MIMO MODE

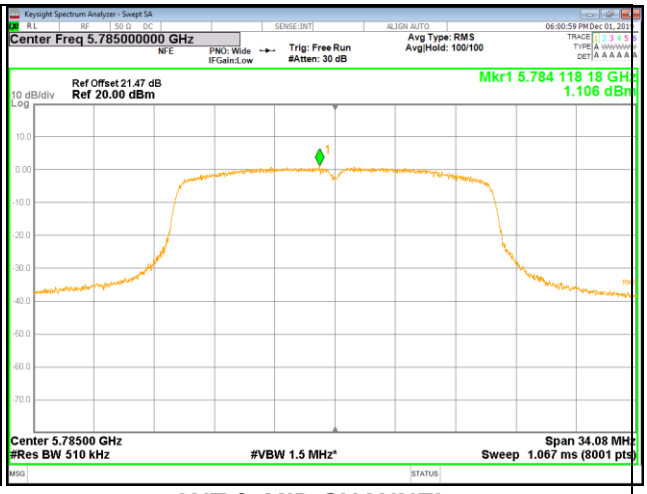
UNII-3 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/500KHz)		Limit (dBm/500KHz)
			Single	Total	
Low	5745	0	0.792	4.286	30
		1	1.247		
Middle	5785	0	1.106	4.585	
		1	1.533		
High	5825	0	0.894	4.493	
		1	1.546		

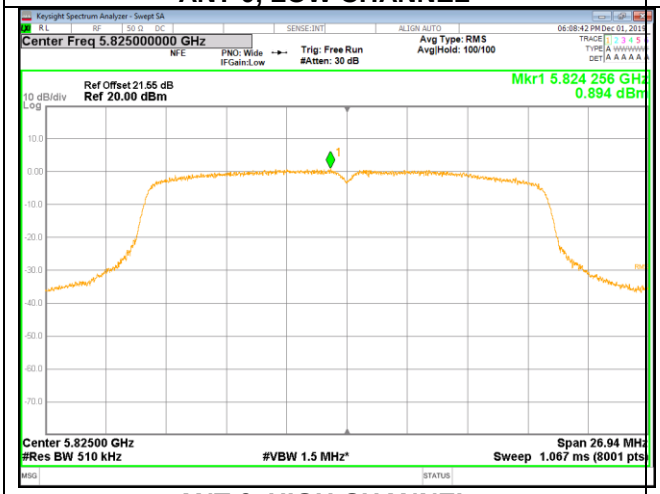
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



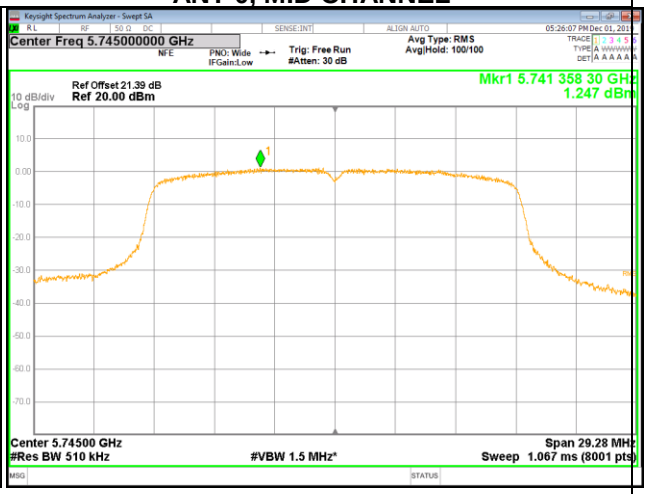
ANT 0, LOW CHANNEL



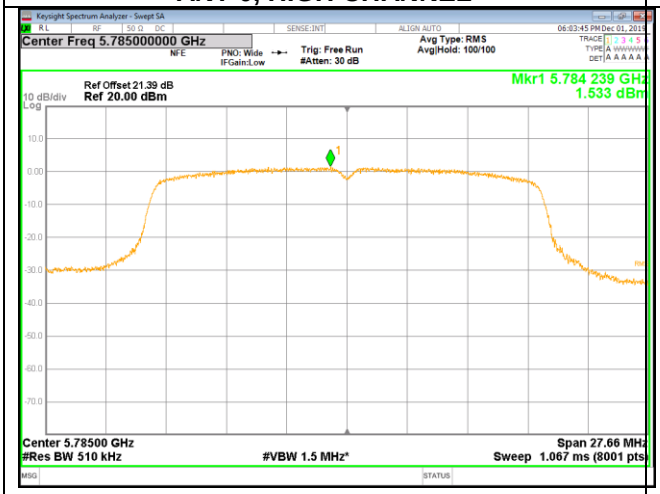
ANT 0, MID CHANNEL



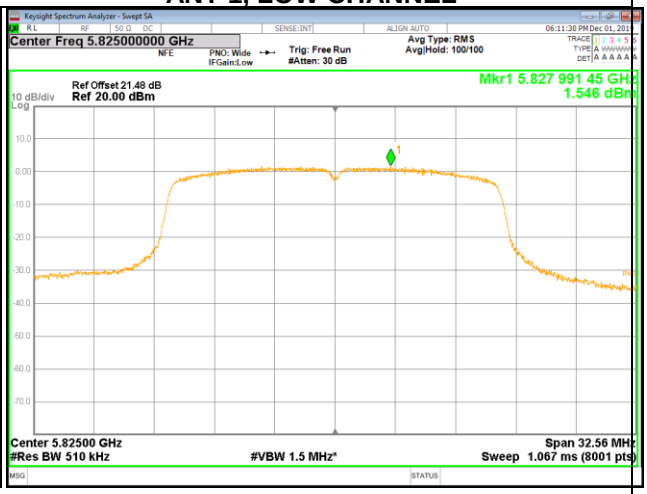
ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL



ANT 1, MID CHANNEL



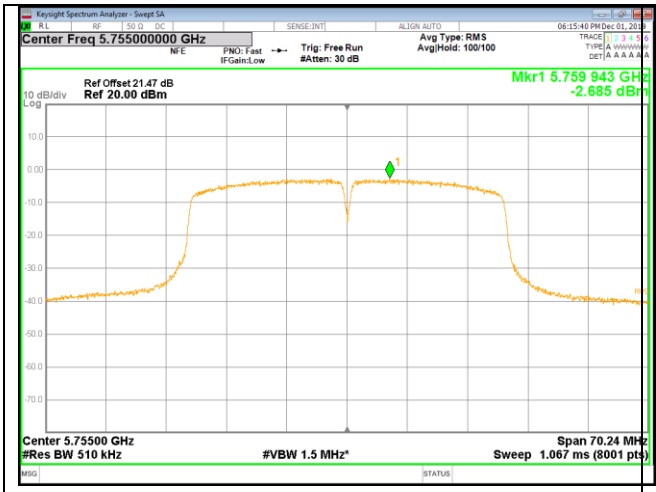
ANT 1, HIGH CHANNEL

7.4.3. 802.11n HT40 MIMO MODE

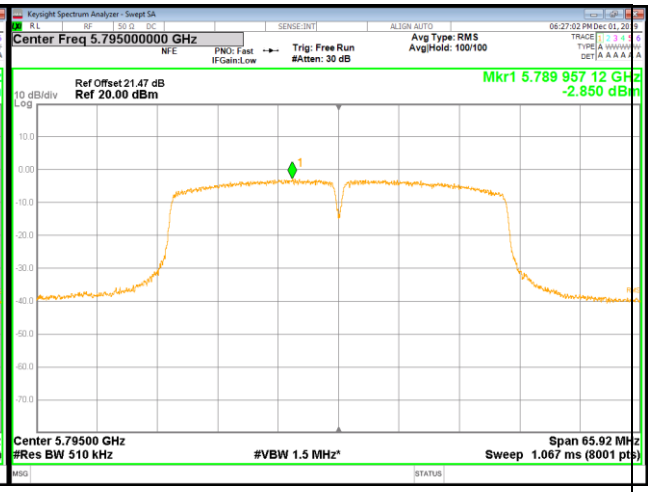
UNII-3 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/500KHz)		Limit (dBm/500KHz)
			Single	Total	
Low	5755	0	-2.685	0.990	30
		1	-2.289		
High	5795	0	-2.850	0.887	
		1	-2.335		

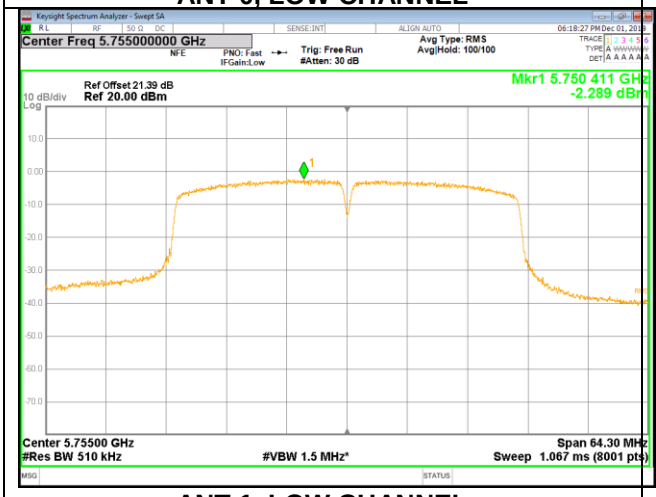
Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



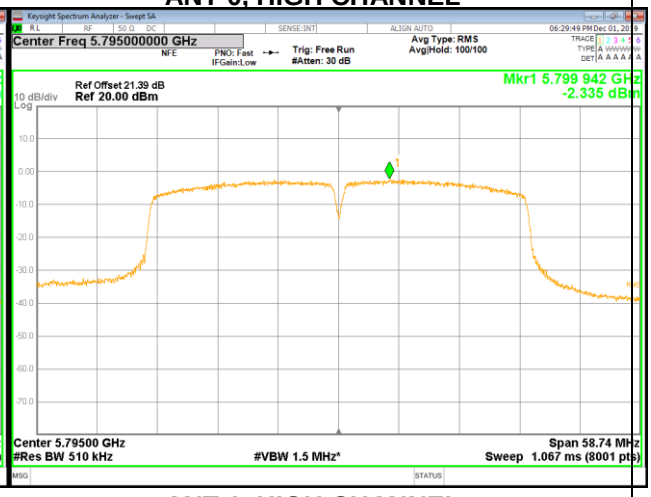
ANT 0, LOW CHANNEL



ANT 0, HIGH CHANNEL



ANT 1, LOW CHANNEL



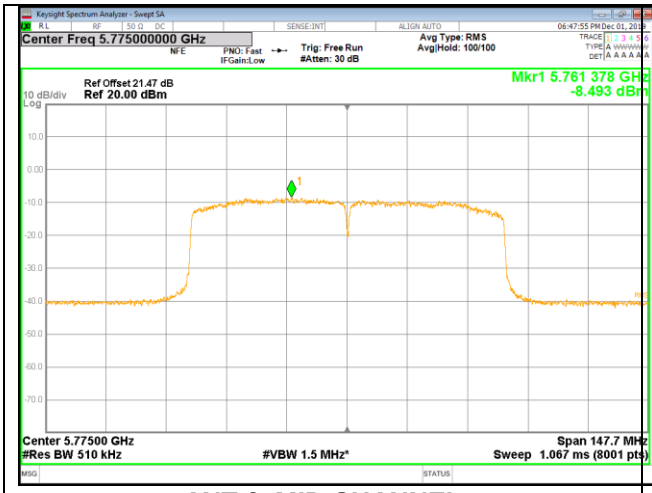
ANT 1, HIGH CHANNEL

7.4.4. 802.11ac VHT80 MIMO MODE

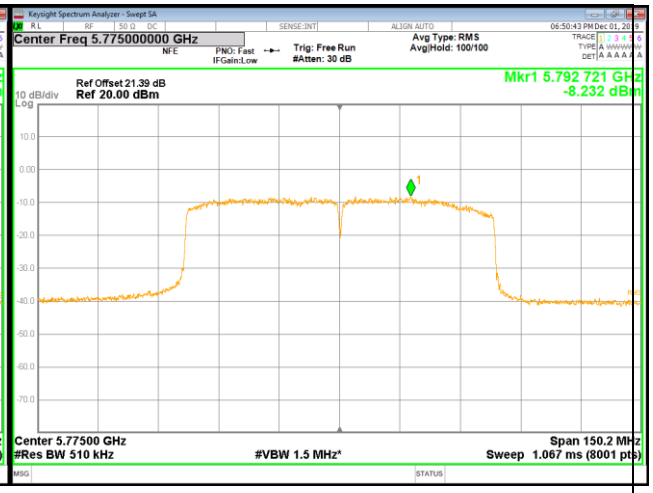
UNII-3 BAND

Test Channel	Frequency (MHz)	ANT	Meas. Level (dBm/500KHz)		Limit (dBm/500KHz)
			Single	Total	
MID	5775	0	-8.493	-3.745	30
		1	-8.232		

Note: 1.PSD=Meas. Level+ Correction Factor
2. About correction Factor please refer to section 7.1



ANT 0, MID CHANNEL



ANT 1, MID CHANNEL

Note: All the modes and antenna ports had been tested, only the worst data recorded in the report.

8. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.205, §15.209 and §15.407(b) (4)

Please refer to ISED RSS-GEN Clause 8.9

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.

IC Restricted bands please refer to ISED RSS-GEN Clause 8.10.
FCC Restricted bands please refer to CFR 47 FCC 15.209.

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

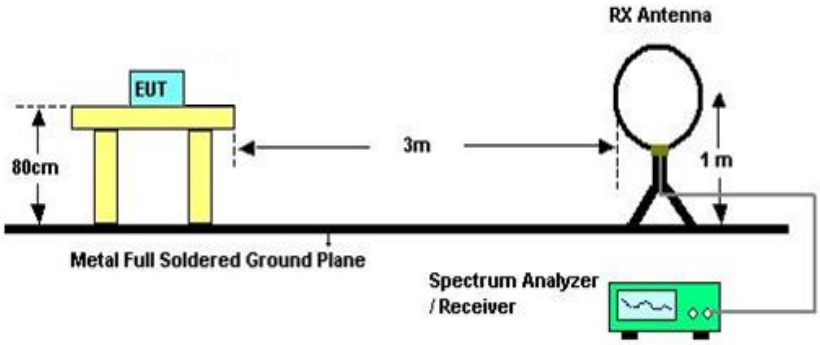
LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1GHz)			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

Limits of unwanted emission out of the restricted bands

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)		
Frequency Range (MHz)	EIRP Limit	Field Strength Limit (dBuV/m) at 3 m
5150~5250 MHz	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz		
5470~5725 MHz		
5725~5850 MHz	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4
Note: *1 beyond 75 MHz or more above of the band edge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

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, Face-on and Face-off polarizations of the antenna are set to make the measurement.

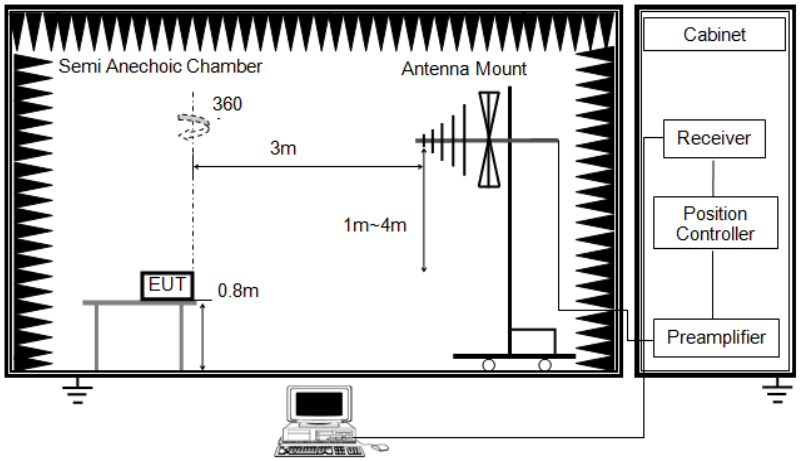
3. The EUT was placed on a turntable with 0.8 meter above ground.

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

Below 1G



The setting of the spectrum analyser

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

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

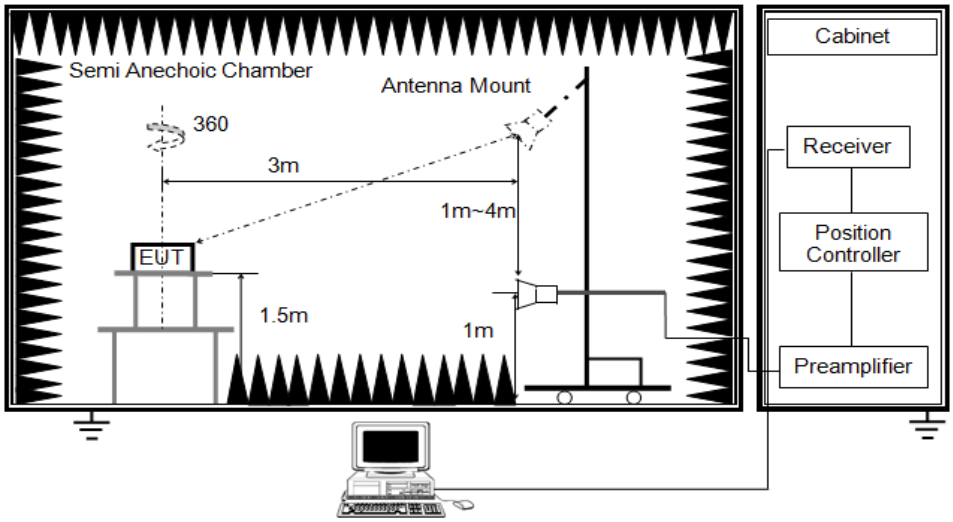
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations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

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

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

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

Above 1G



The setting of the spectrum analyser

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

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

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

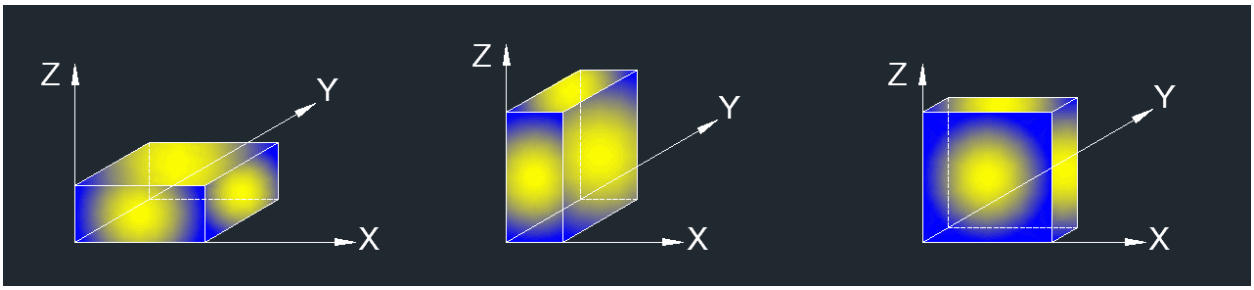
3. The EUT was placed on a turntable with 1.5m above ground.

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

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

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

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

Note 3: The EUT does not support simultaneous transmission.

TEST ENVIRONMENT

Temperature	22.4°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 7.27V

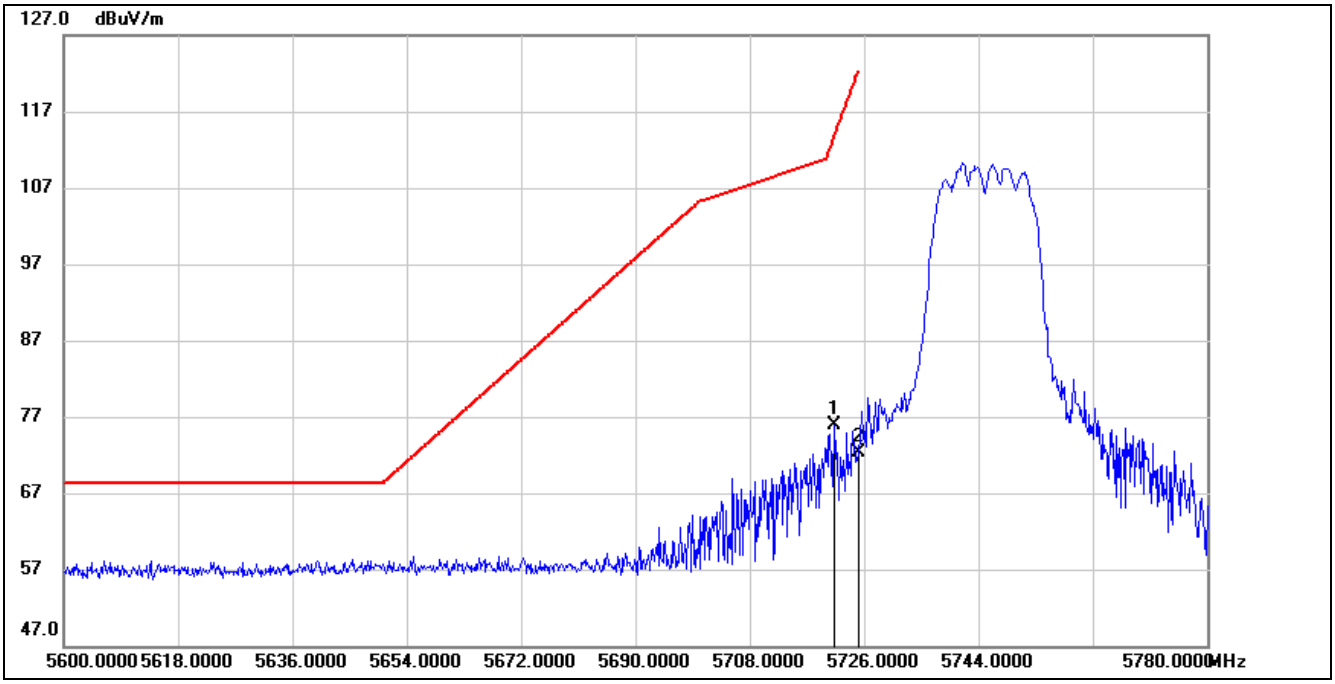
8.1. 802.11a 20 MIMO MODE

MIMO CDD MODE (WORST-CASE CONFIGURATION)

8.1.1. UNII-3 BAND

RESTRICTED BANDEDGE LOW CHANNEL

HORIZONTAL RESULTS
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5721.320	34.35	41.60	75.95	113.81	-37.86	peak
2	5725.000	30.60	41.61	72.21	122.20	-49.99	peak

Note: 1. Measurement = Reading Level + Correct Factor.

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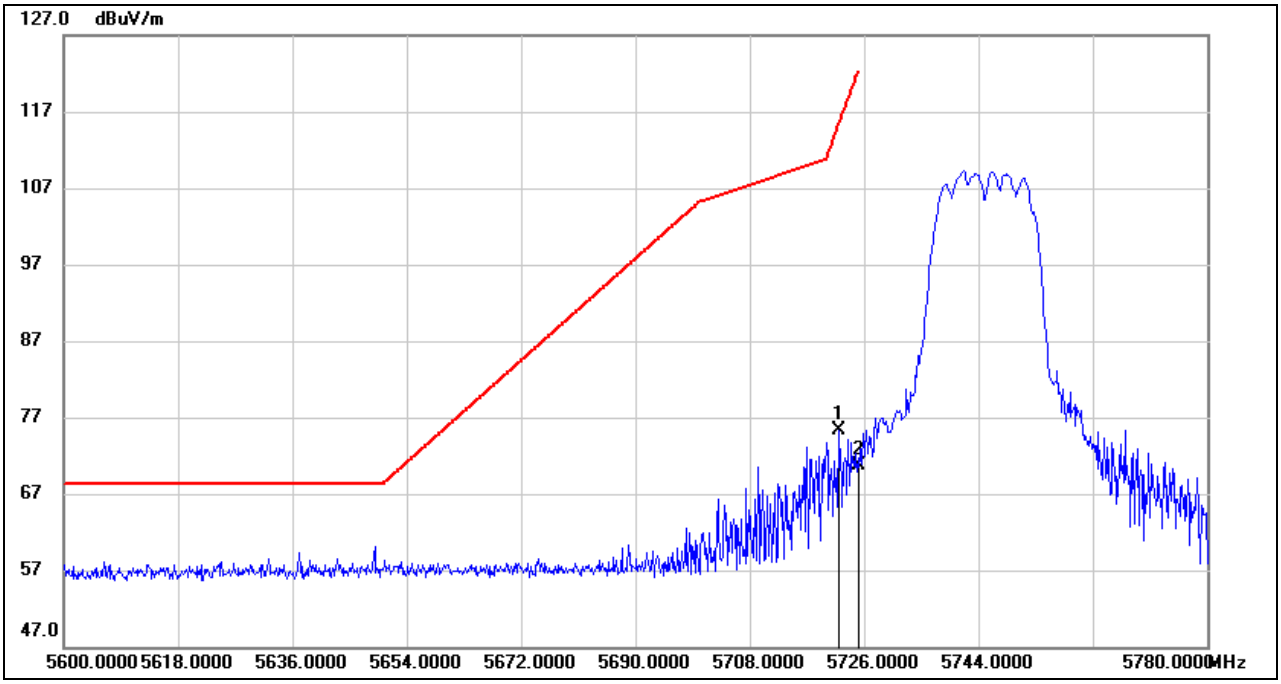
VERTICAL RESULTS
PEAK

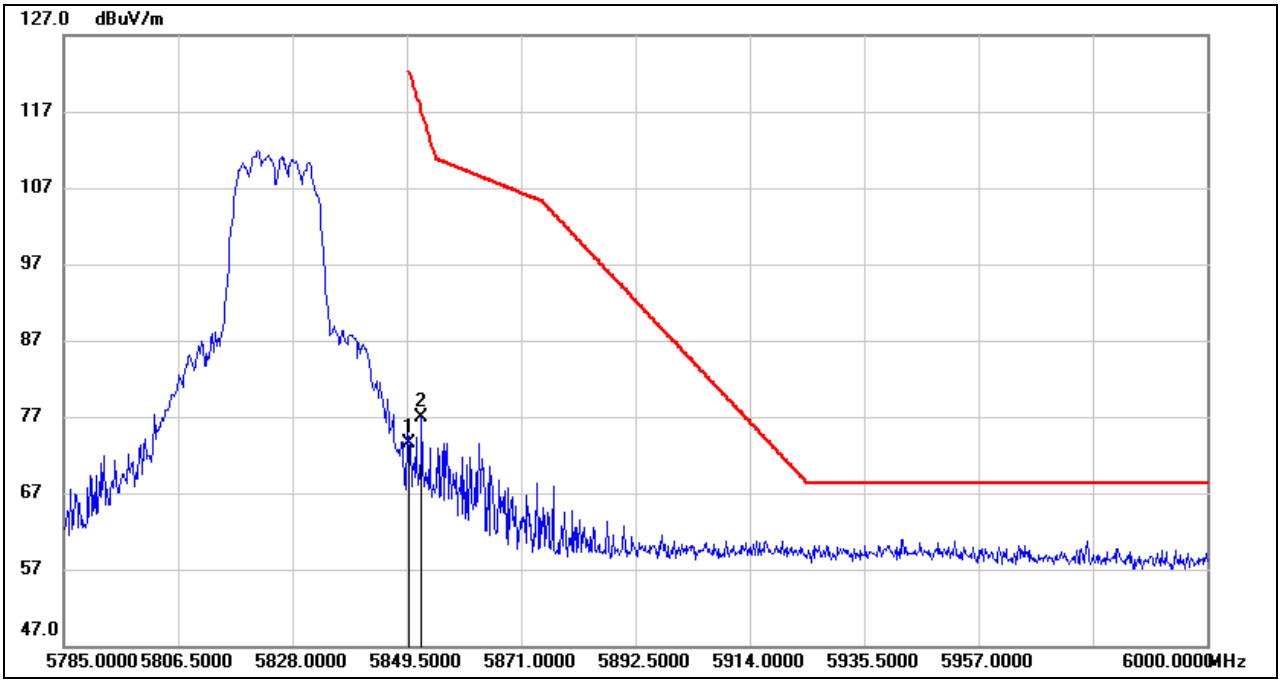


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5722.040	33.68	41.60	75.28	115.45	-40.17	peak
2	5725.000	29.04	41.61	70.65	122.20	-51.55	peak

Note: 1. Measurement = Reading Level + Correct Factor.

RESTRICTED BANDEDGE HIGH CHANNEL

HORIZONTAL RESULTS
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	30.59	42.89	73.48	122.20	-48.72	peak
2	5852.295	34.07	42.93	77.00	116.97	-39.97	peak

Note: 1. Measurement = Reading Level + Correct Factor.

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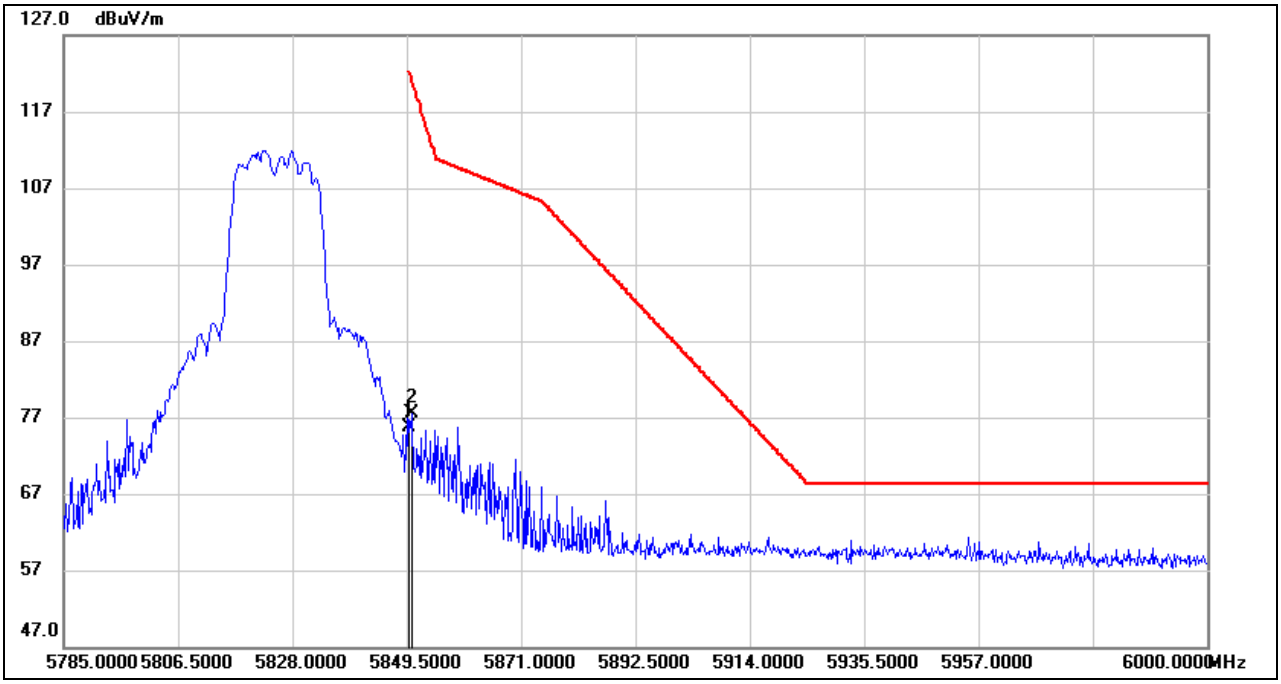
VERTICAL RESULTS
PEAK

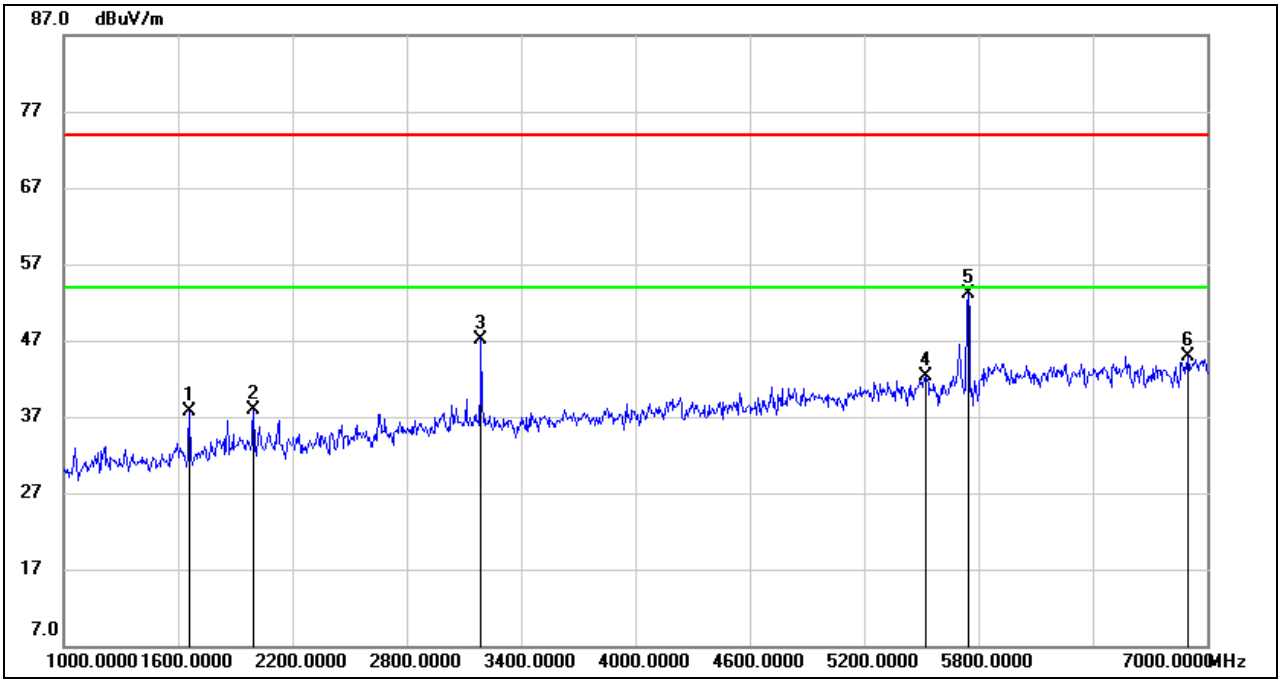


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	32.80	42.89	75.69	122.20	-46.51	peak
2	5850.360	34.52	42.90	77.42	121.38	-43.96	peak

Note: 1. Measurement = Reading Level + Correct Factor.

HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

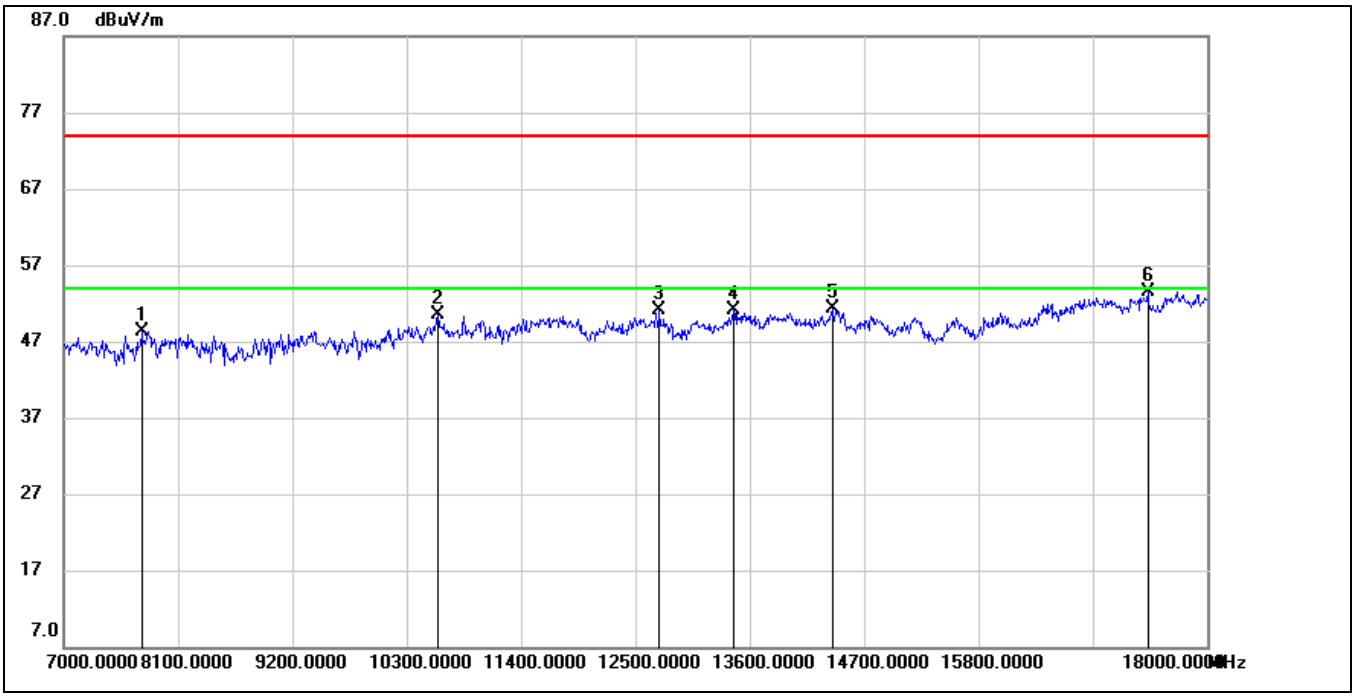
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1660.000	49.79	-12.10	37.69	74.00	-36.31	peak
2	1996.000	48.76	-10.86	37.90	74.00	-36.10	peak
3	3190.000	53.08	-5.94	47.14	74.00	-26.86	peak
4	5524.000	39.95	2.27	42.22	74.00	-31.78	peak
5	5745.000	50.52	2.52	53.04	/	/	fundamental
6	6898.000	38.64	6.28	44.92	74.00	-29.08	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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

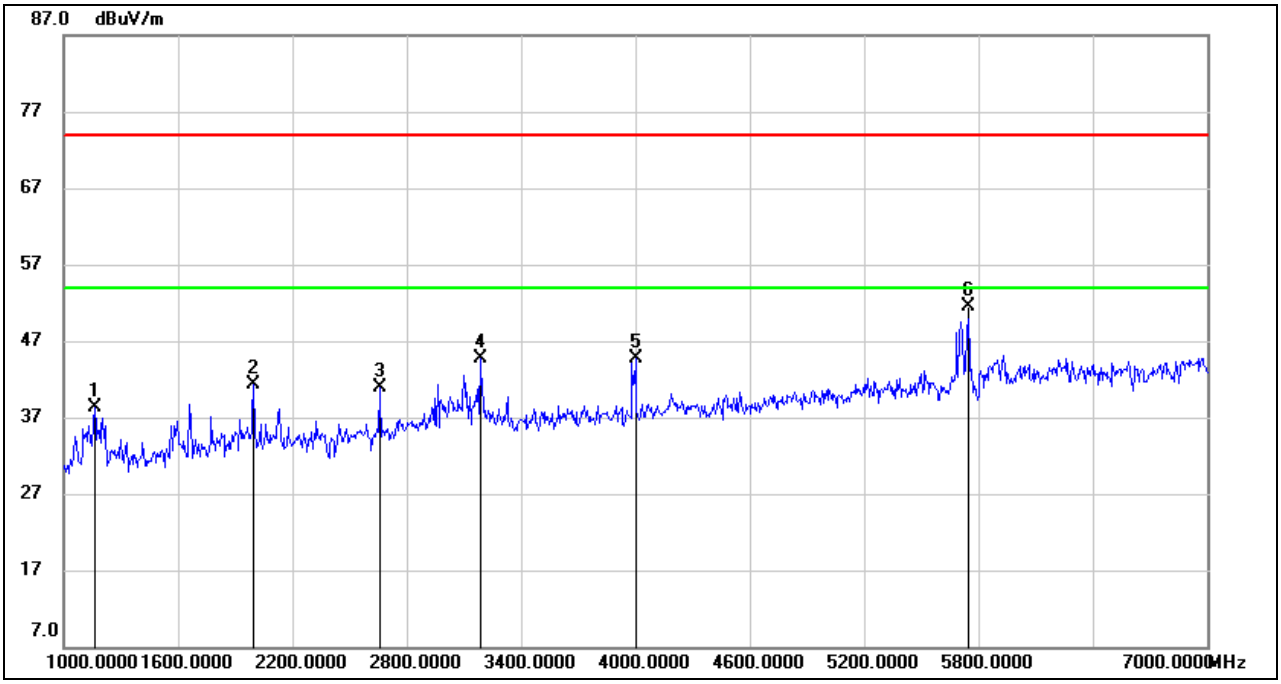
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7748.000	39.28	8.93	48.21	74.00	-25.79	peak
2	10597.000	37.06	13.38	50.44	74.00	-23.56	peak
3	12731.000	35.76	15.31	51.07	74.00	-22.93	peak
4	13446.000	34.83	16.35	51.18	74.00	-22.82	peak
5	14392.000	34.27	16.99	51.26	74.00	-22.74	peak
6	17428.000	31.73	21.73	53.46	74.00	-20.54	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

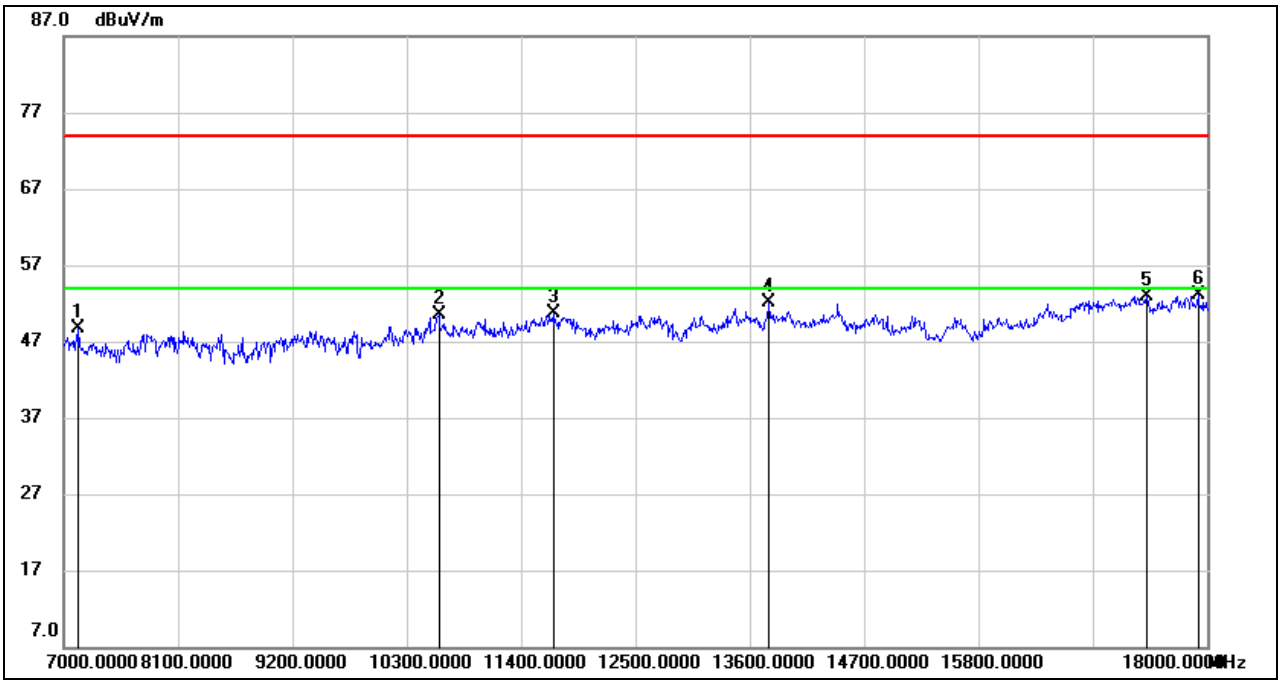
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1162.000	52.14	-13.86	38.28	74.00	-35.72	peak
2	1996.000	52.23	-10.86	41.37	74.00	-32.63	peak
3	2656.000	49.13	-8.21	40.92	74.00	-33.08	peak
4	3184.000	50.69	-5.93	44.76	74.00	-29.24	peak
5	4000.000	48.81	-4.08	44.73	74.00	-29.27	peak
6	5745.000	49.06	2.52	51.58	/	/	fundamental

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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

7-18GHz

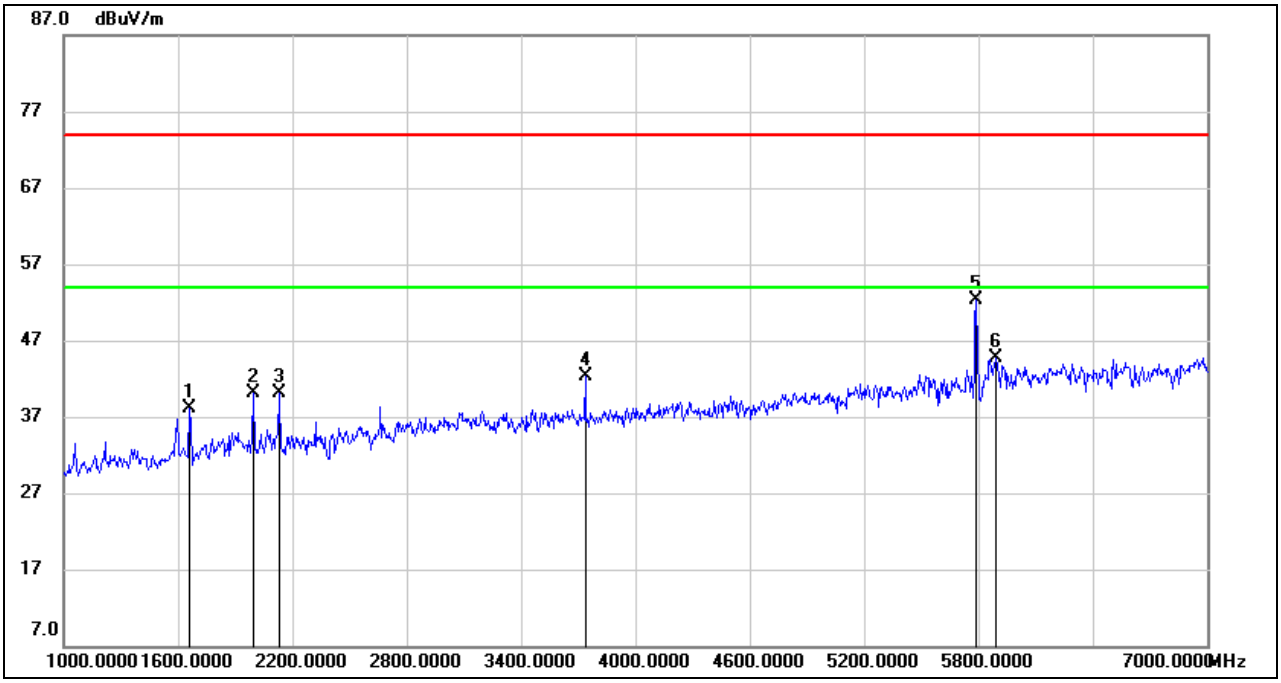


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7143.000	40.85	7.79	48.64	74.00	-25.36	peak
2	10608.000	37.18	13.34	50.52	74.00	-23.48	peak
3	11708.000	36.55	14.17	50.72	74.00	-23.28	peak
4	13787.000	34.67	17.43	52.10	74.00	-21.90	peak
5	17417.000	31.23	21.75	52.98	74.00	-21.02	peak
6	17912.000	29.72	23.40	53.12	74.00	-20.88	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.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL

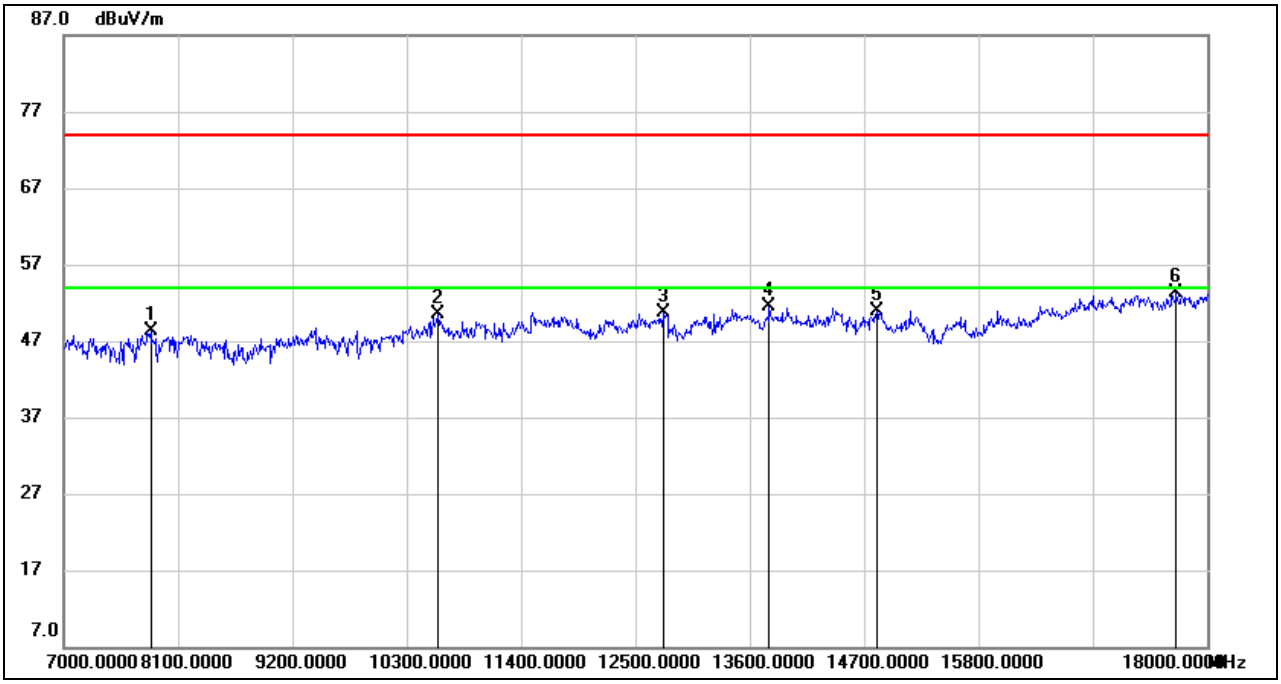
HORIZONTAL RESULTS
1-7GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1660.000	50.26	-12.10	38.16	74.00	-35.84	peak
2	1996.000	51.00	-10.86	40.14	74.00	-33.86	peak
3	2128.000	50.14	-10.09	40.05	74.00	-33.95	peak
4	3736.000	46.35	-4.11	42.24	74.00	-31.76	peak
5	5785.000	49.47	2.80	52.27	/	/	fundamental
6	5890.000	40.02	4.68	44.70	74.00	-29.30	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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

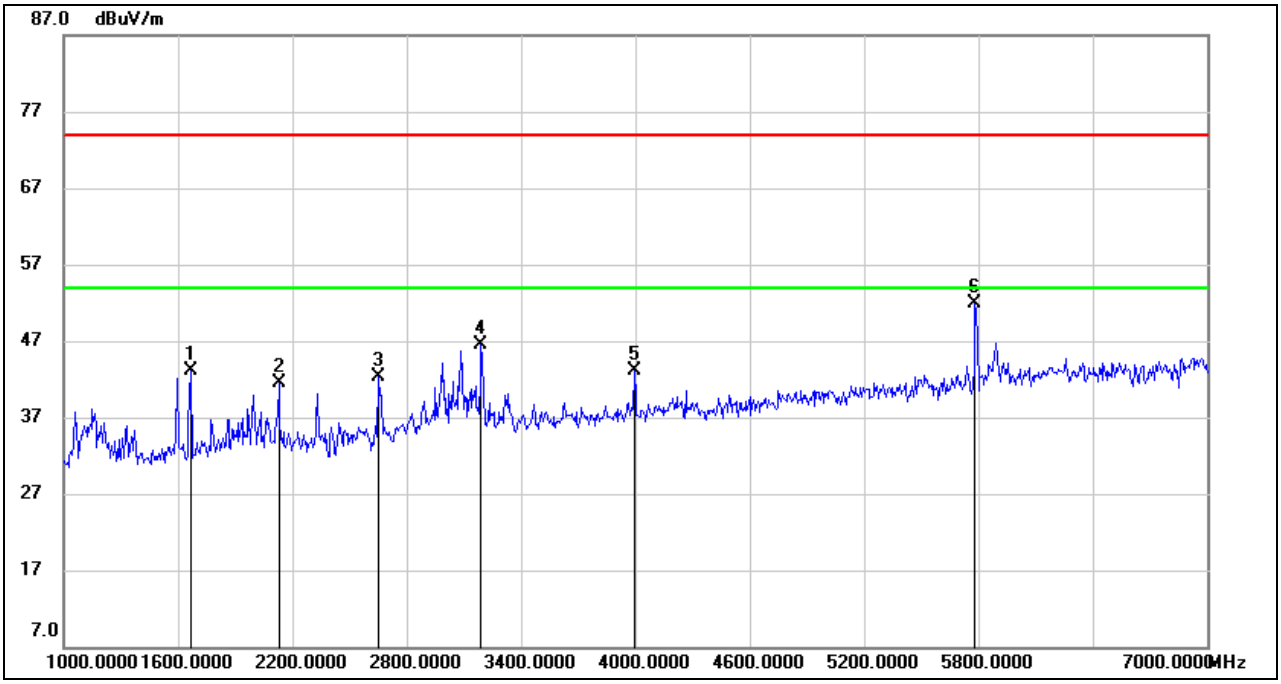
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7836.000	38.81	9.46	48.27	74.00	-25.73	peak
2	10597.000	37.07	13.38	50.45	74.00	-23.55	peak
3	12764.000	34.81	15.84	50.65	74.00	-23.35	peak
4	13787.000	34.09	17.43	51.52	74.00	-22.48	peak
5	14821.000	34.80	16.13	50.93	74.00	-23.07	peak
6	17703.000	30.68	22.62	53.30	74.00	-20.70	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

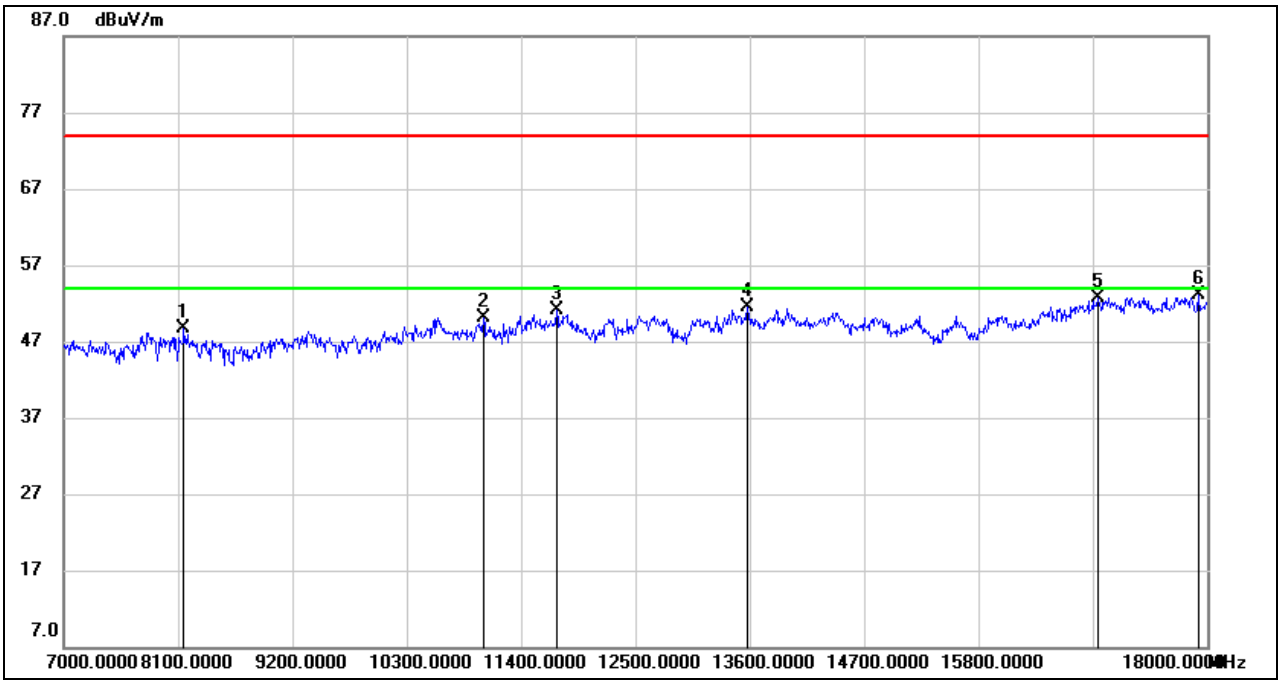
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1666.000	55.12	-12.09	43.03	74.00	-30.97	peak
2	2128.000	51.57	-10.09	41.48	74.00	-32.52	peak
3	2650.000	50.63	-8.26	42.37	74.00	-31.63	peak
4	3190.000	52.47	-5.94	46.53	74.00	-27.47	peak
5	3994.000	47.20	-4.08	43.12	74.00	-30.88	peak
6	5785.000	49.09	2.80	51.89	/	/	fundamental

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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

7-18GHz

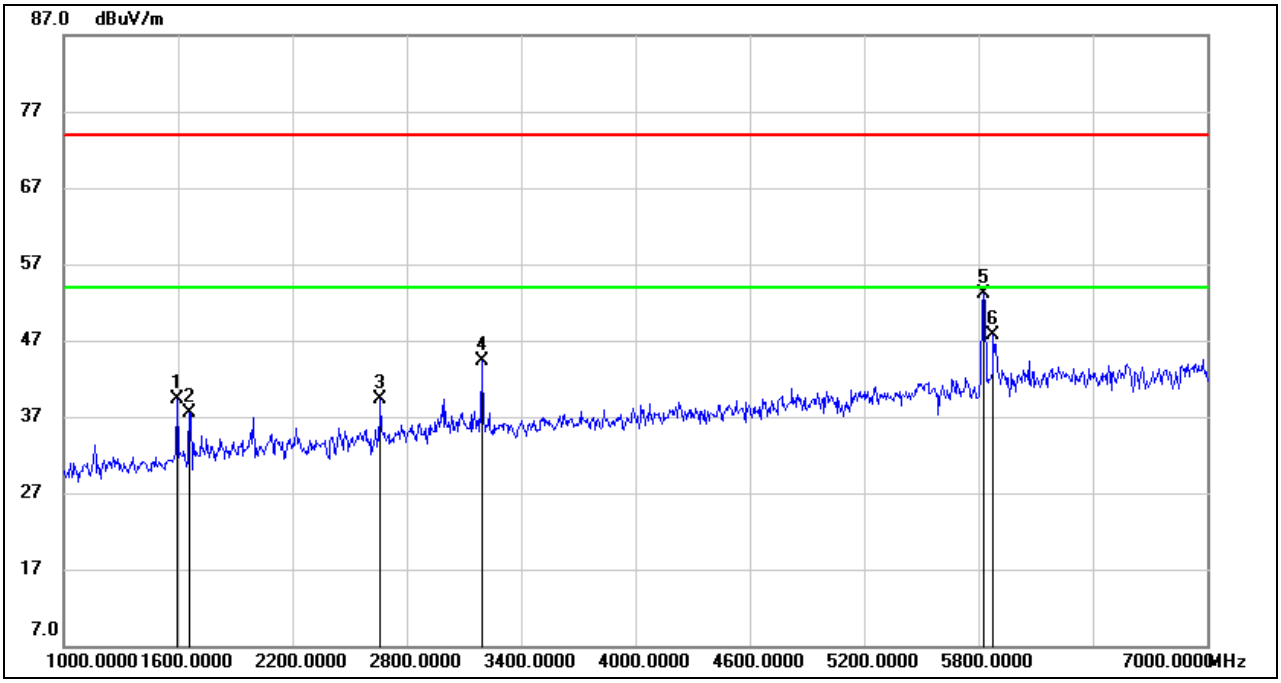


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8155.000	38.64	10.02	48.66	74.00	-25.34	peak
2	11037.000	36.42	13.66	50.08	74.00	-23.92	peak
3	11741.000	36.77	14.24	51.01	74.00	-22.99	peak
4	13578.000	35.02	16.42	51.44	74.00	-22.56	peak
5	16944.000	32.00	20.77	52.77	74.00	-21.23	peak
6	17912.000	29.63	23.40	53.03	74.00	-20.97	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.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

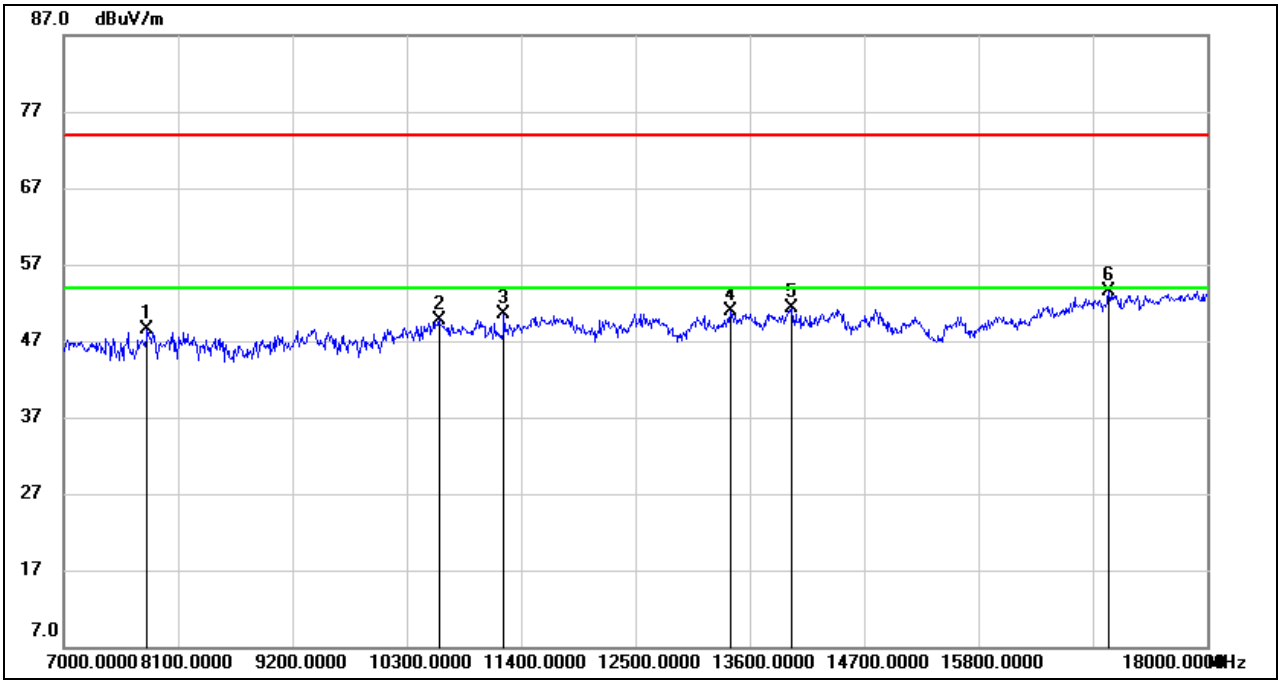
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	51.56	-12.27	39.29	74.00	-34.71	peak
2	1660.000	49.61	-12.10	37.51	74.00	-36.49	peak
3	2662.000	47.48	-8.18	39.30	74.00	-34.70	peak
4	3196.000	50.25	-5.96	44.29	74.00	-29.71	peak
5	5825.000	49.74	3.39	53.13	/	/	fundamental
6	5878.000	43.29	4.43	47.72	74.00	-26.28	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

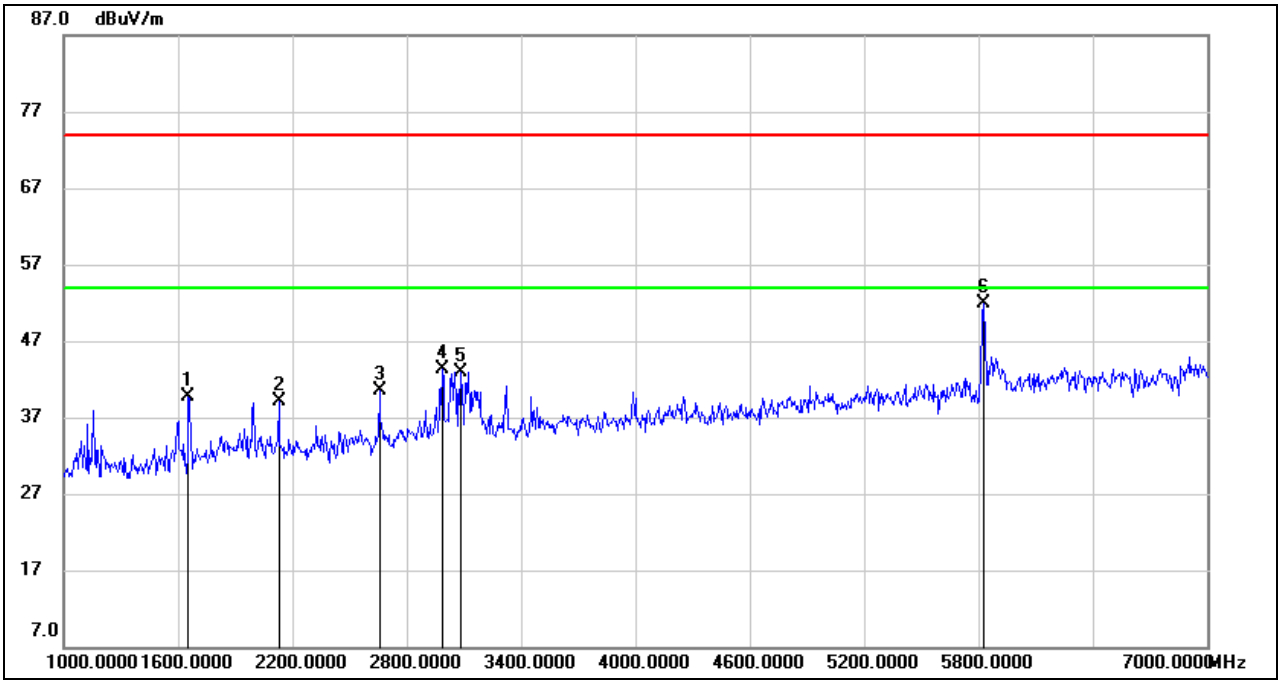
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7803.000	38.79	9.63	48.42	74.00	-25.58	peak
2	10608.000	36.46	13.34	49.80	74.00	-24.20	peak
3	11235.000	36.79	13.63	50.42	74.00	-23.58	peak
4	13413.000	34.53	16.42	50.95	74.00	-23.05	peak
5	14007.000	34.46	16.78	51.24	74.00	-22.76	peak
6	17054.000	32.27	21.18	53.45	74.00	-20.55	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

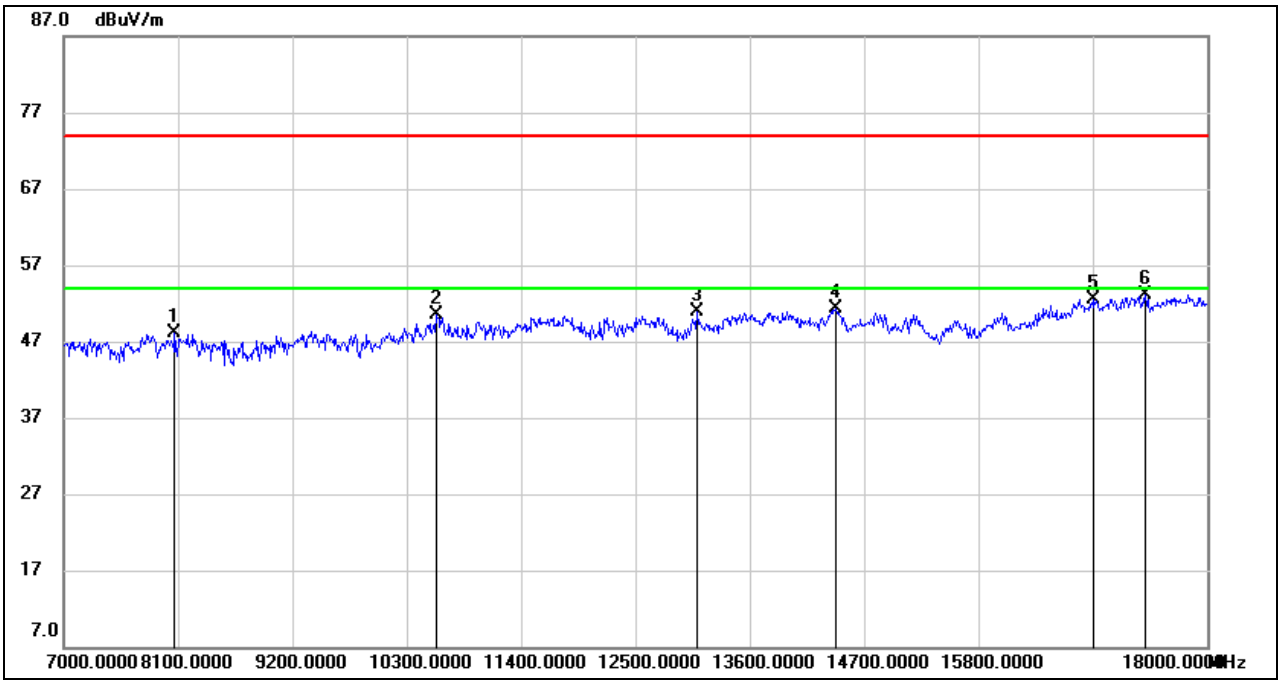
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1654.000	51.90	-12.11	39.79	74.00	-34.21	peak
2	2128.000	49.29	-10.09	39.20	74.00	-34.80	peak
3	2656.000	48.67	-8.21	40.46	74.00	-33.54	peak
4	2986.000	49.63	-6.32	43.31	74.00	-30.69	peak
5	3082.000	48.72	-5.74	42.98	74.00	-31.02	peak
6	5825.000	48.59	3.39	51.98	/	/	fundamental

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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8067.000	38.70	9.44	48.14	74.00	-25.86	peak
2	10586.000	37.32	13.25	50.57	74.00	-23.43	peak
3	13094.000	35.52	15.45	50.97	74.00	-23.03	peak
4	14425.000	34.36	16.97	51.33	74.00	-22.67	peak
5	16911.000	32.02	20.56	52.58	74.00	-21.42	peak
6	17406.000	31.42	21.77	53.19	74.00	-20.81	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

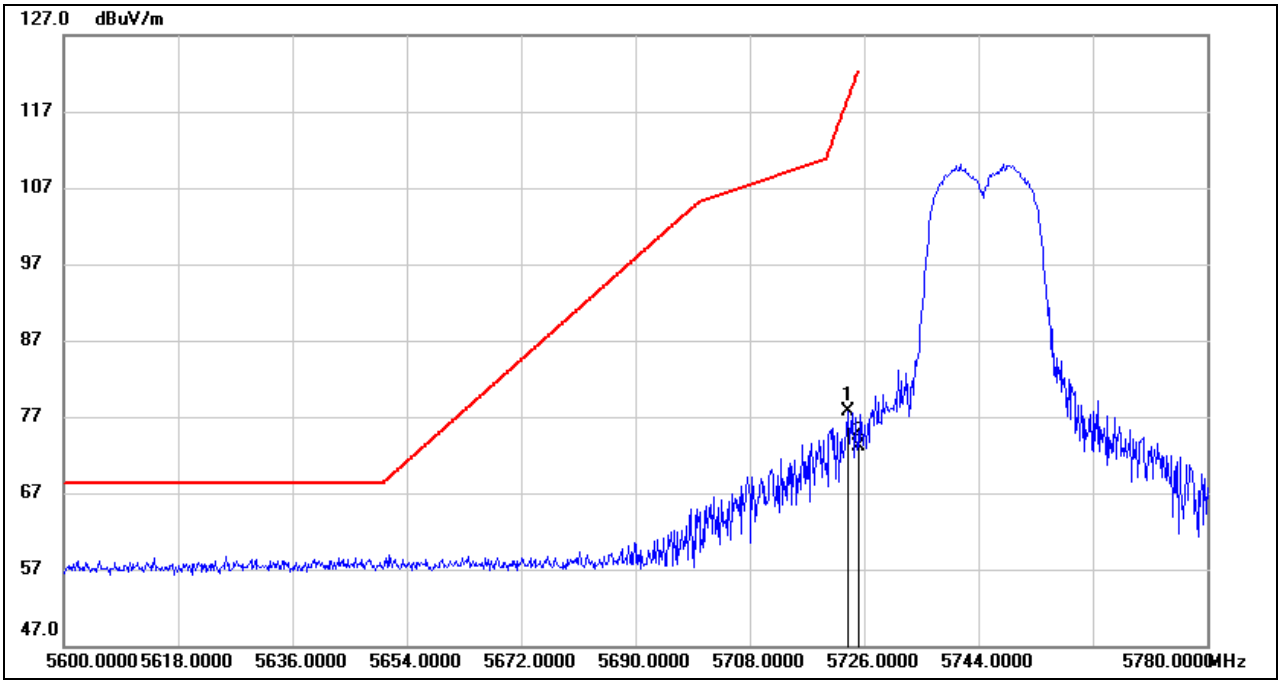
8.2. 802.11n HT20 MIMO MODE

MIMO CDD MODE (WORST-CASE CONFIGURATION)

8.2.1. UNII-3 BAND

RESTRICTED BANDEDGE LOW CHANNEL

HORIZONTAL RESULTS

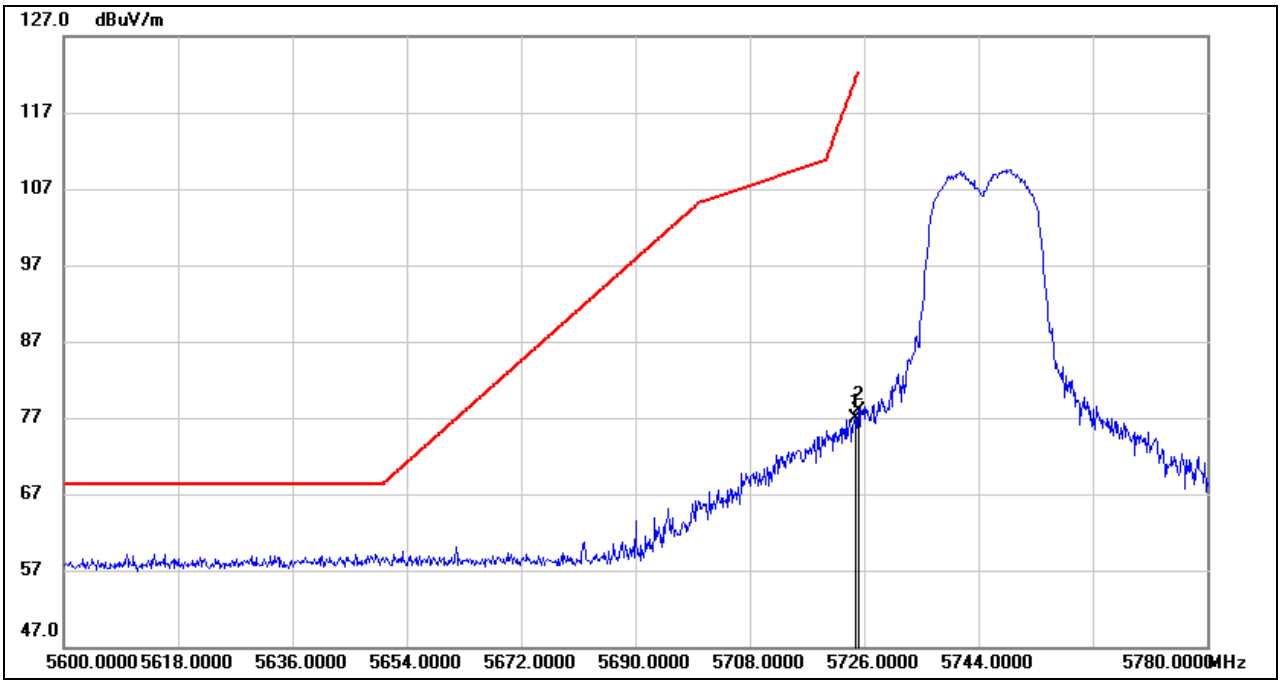


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5723.480	36.04	41.60	77.64	118.74	-41.10	peak
2	5725.000	31.52	41.61	73.13	122.20	-49.07	peak

Note: 1. Measurement = Reading Level + Correct Factor.

.

VERTICAL RESULTS

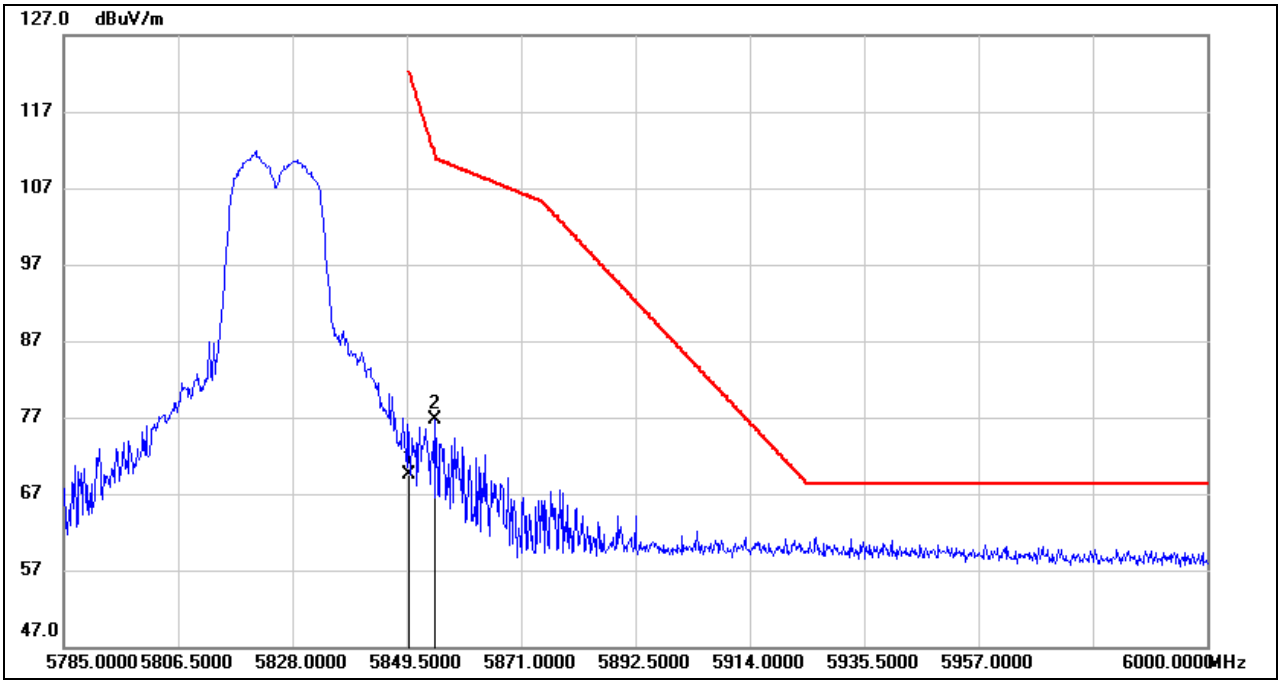


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5724.560	35.37	41.61	76.98	121.20	-44.22	peak
2	5725.000	36.28	41.61	77.89	122.20	-44.31	peak

Note: 1. Measurement = Reading Level + Correct Factor.

RESTRICTED BANDEDGE HIGH CHANNEL

HORIZONTAL RESULTS

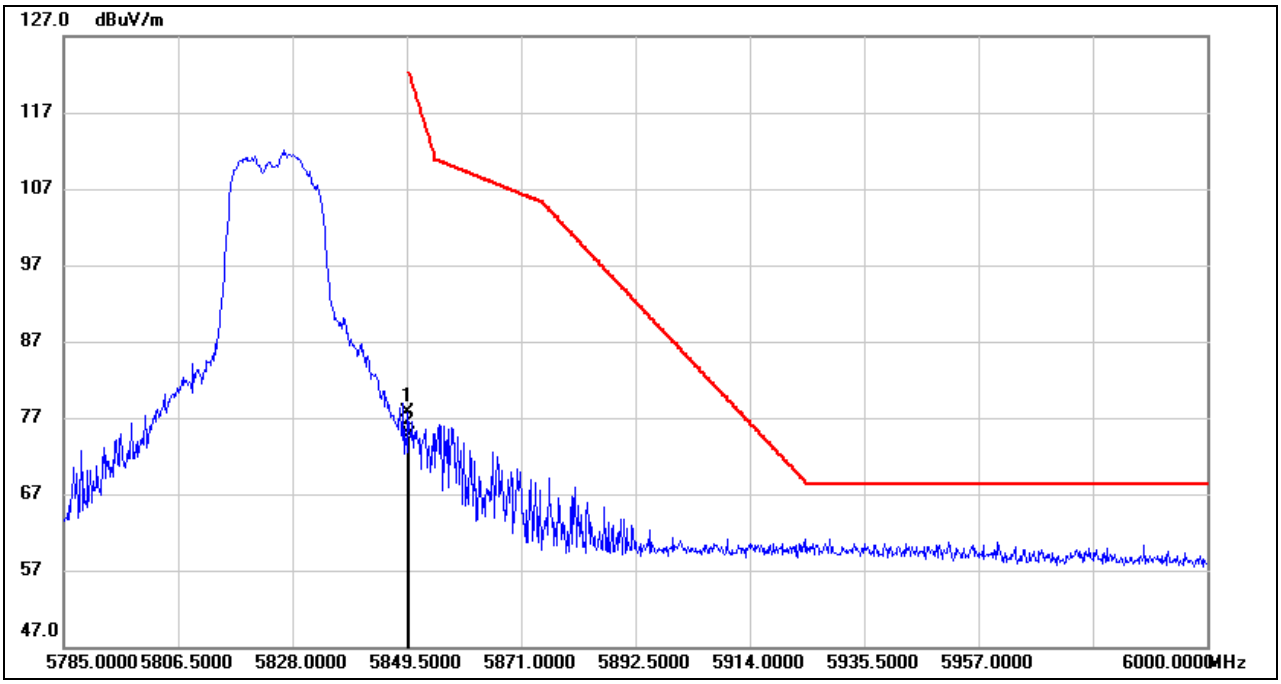


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	26.66	42.89	69.55	122.20	-52.65	peak
2	5854.660	33.65	42.98	76.63	111.57	-34.94	peak

Note: 1. Measurement = Reading Level + Correct Factor.

.

VERTICAL RESULTS

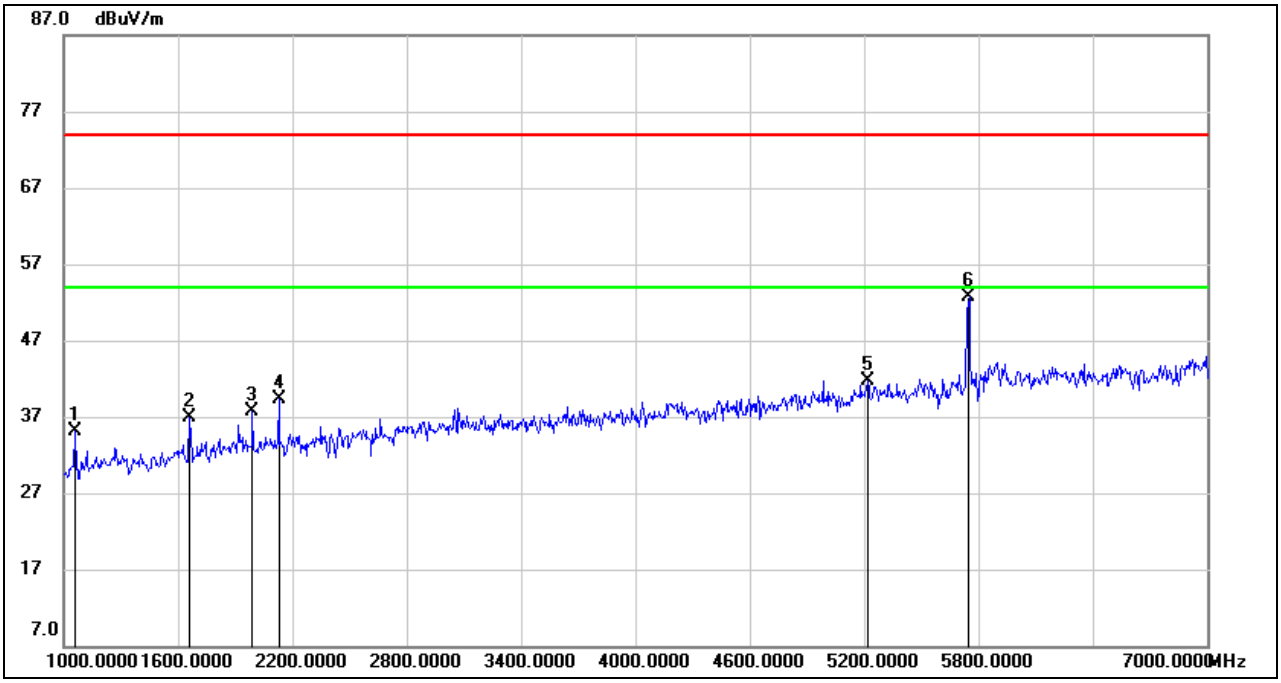


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5849.715	34.79	42.88	77.67			peak
2	5850.000	31.91	42.89	74.80	122.20	-47.40	peak

Note: 1. Measurement = Reading Level + Correct Factor.

HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

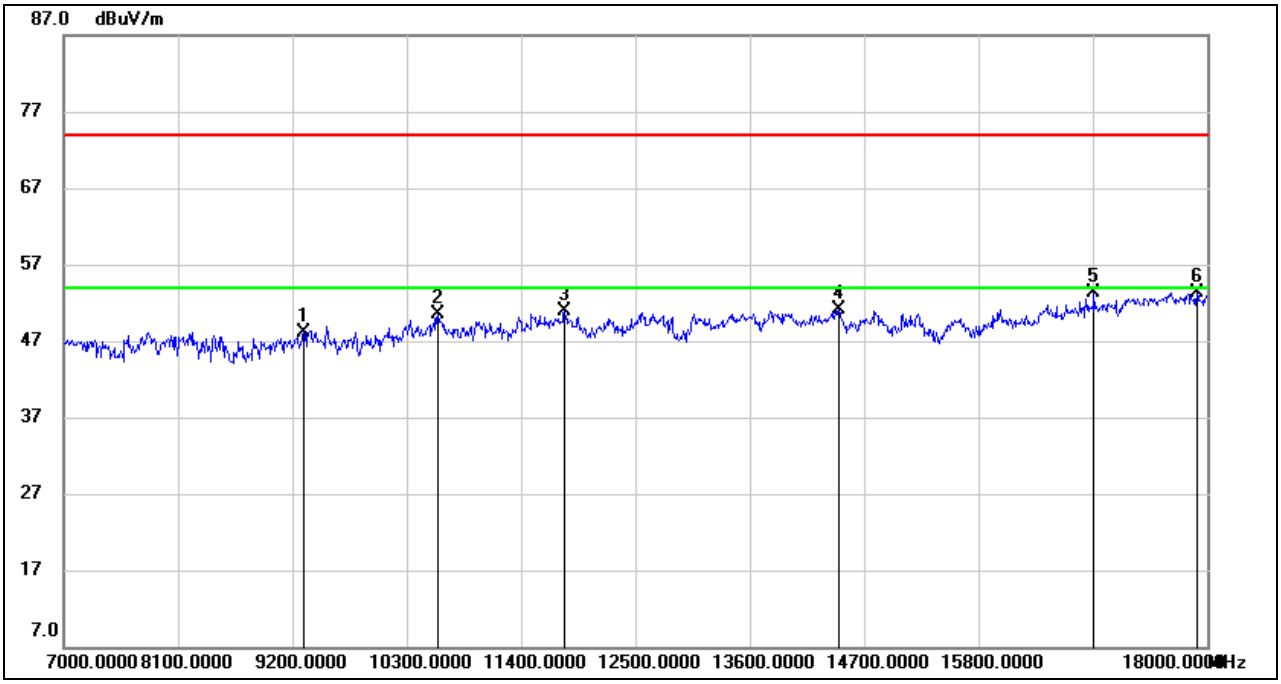
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1060.000	49.55	-14.51	35.04	74.00	-38.96	peak
2	1660.000	49.06	-12.10	36.96	74.00	-37.04	peak
3	1990.000	48.64	-10.86	37.78	74.00	-36.22	peak
4	2128.000	49.47	-10.09	39.38	74.00	-34.62	peak
5	5218.000	40.71	0.93	41.64	74.00	-32.36	peak
6	5745.000	50.21	2.52	52.73	/	/	fundamental

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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

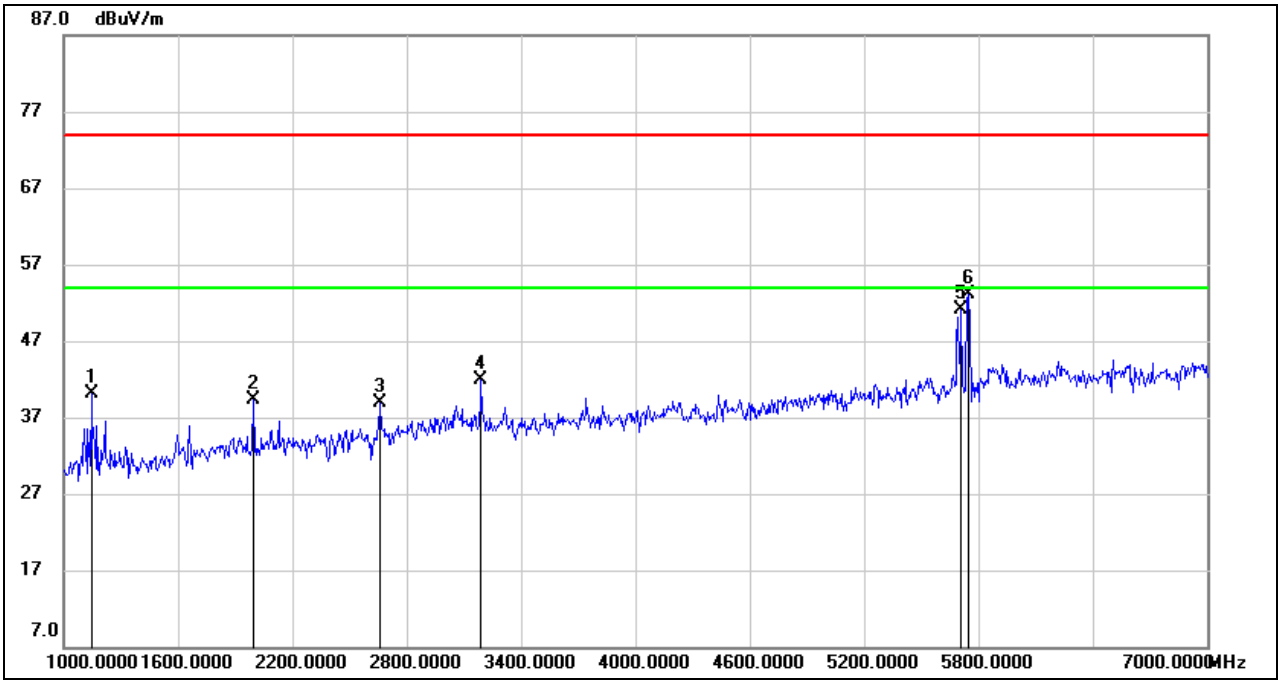
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9310.000	37.76	10.44	48.20	74.00	-25.80	peak
2	10597.000	37.07	13.38	50.45	74.00	-23.55	peak
3	11818.000	36.46	14.41	50.87	74.00	-23.13	peak
4	14458.000	34.24	16.91	51.15	74.00	-22.85	peak
5	16911.000	32.65	20.56	53.21	74.00	-20.79	peak
6	17901.000	29.94	23.39	53.33	74.00	-20.67	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

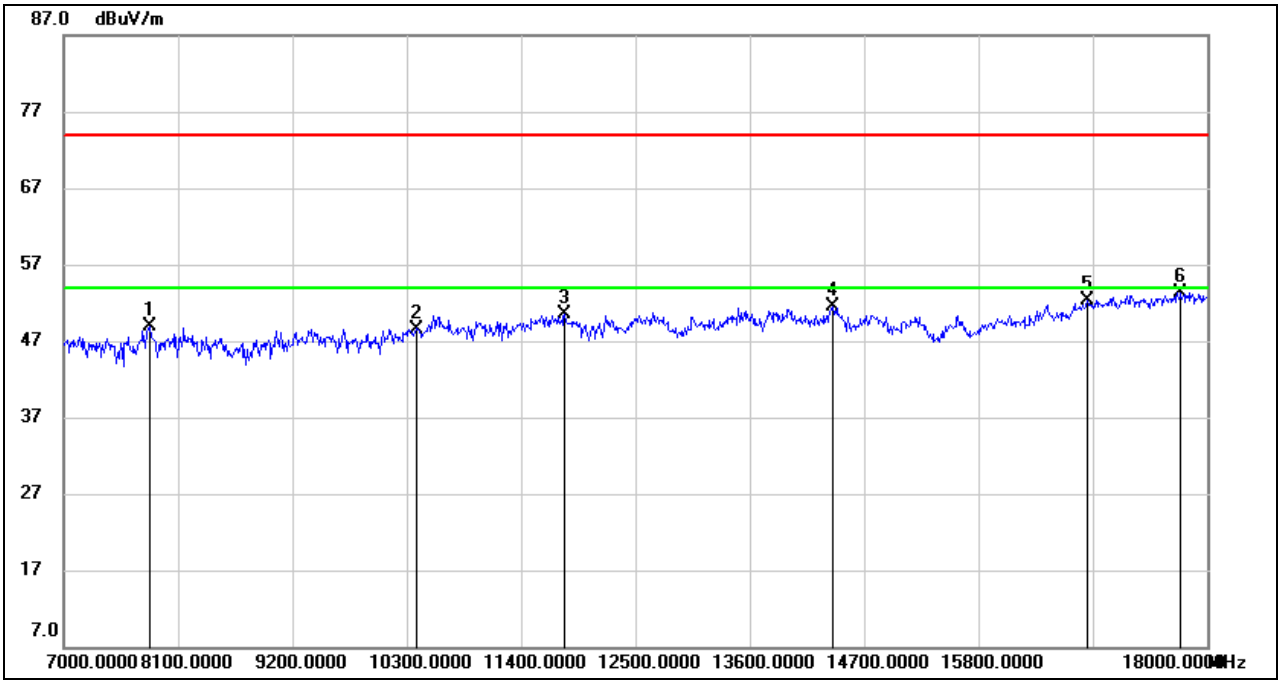
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1144.000	54.07	-14.01	40.06	74.00	-33.94	peak
2	1996.000	50.08	-10.86	39.22	74.00	-34.78	peak
3	2662.000	47.17	-8.18	38.99	74.00	-35.01	peak
4	3190.000	47.85	-5.94	41.91	74.00	-32.09	peak
5	5710.000	48.79	2.28	51.07	74.00	-22.93	peak
6	5745.000	50.62	2.52	53.14	/	/	fundamental

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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

VERTICAL RESULTS
7-18GHz

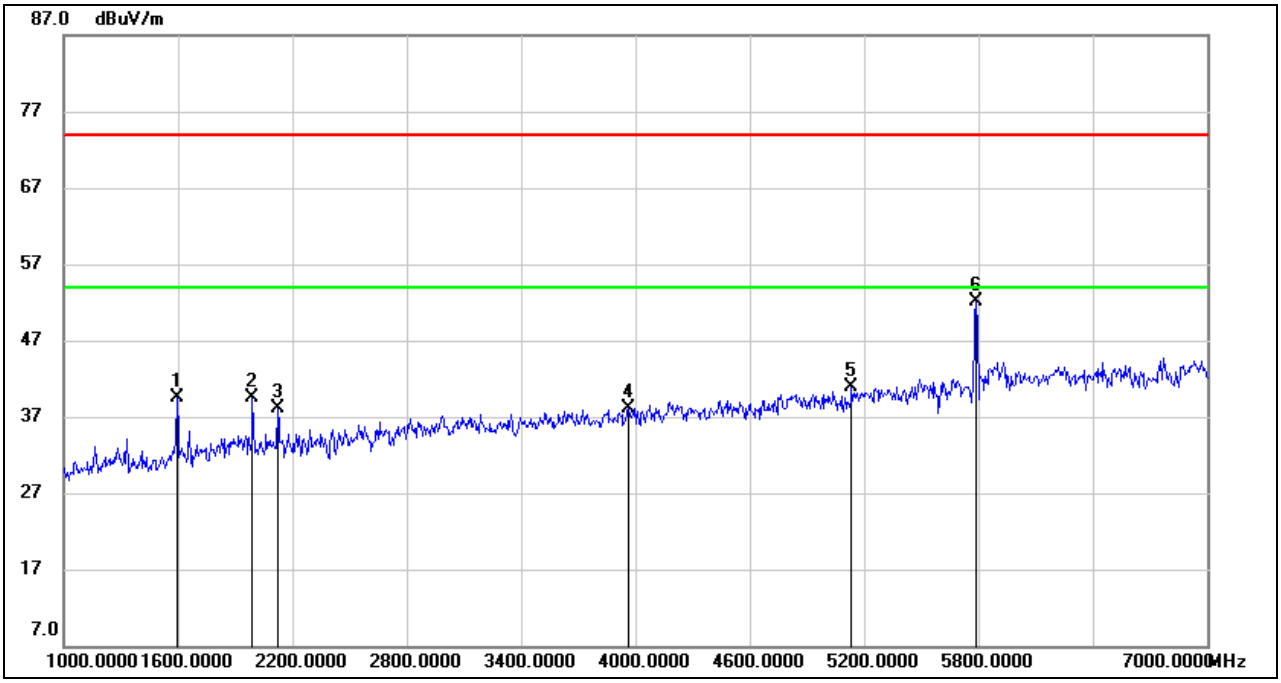


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7825.000	39.35	9.53	48.88	74.00	-25.12	peak
2	10388.000	36.51	12.09	48.60	74.00	-25.40	peak
3	11818.000	36.14	14.41	50.55	74.00	-23.45	peak
4	14403.000	34.40	17.01	51.41	74.00	-22.59	peak
5	16845.000	31.69	20.52	52.21	74.00	-21.79	peak
6	17747.000	30.23	22.99	53.22	74.00	-20.78	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL

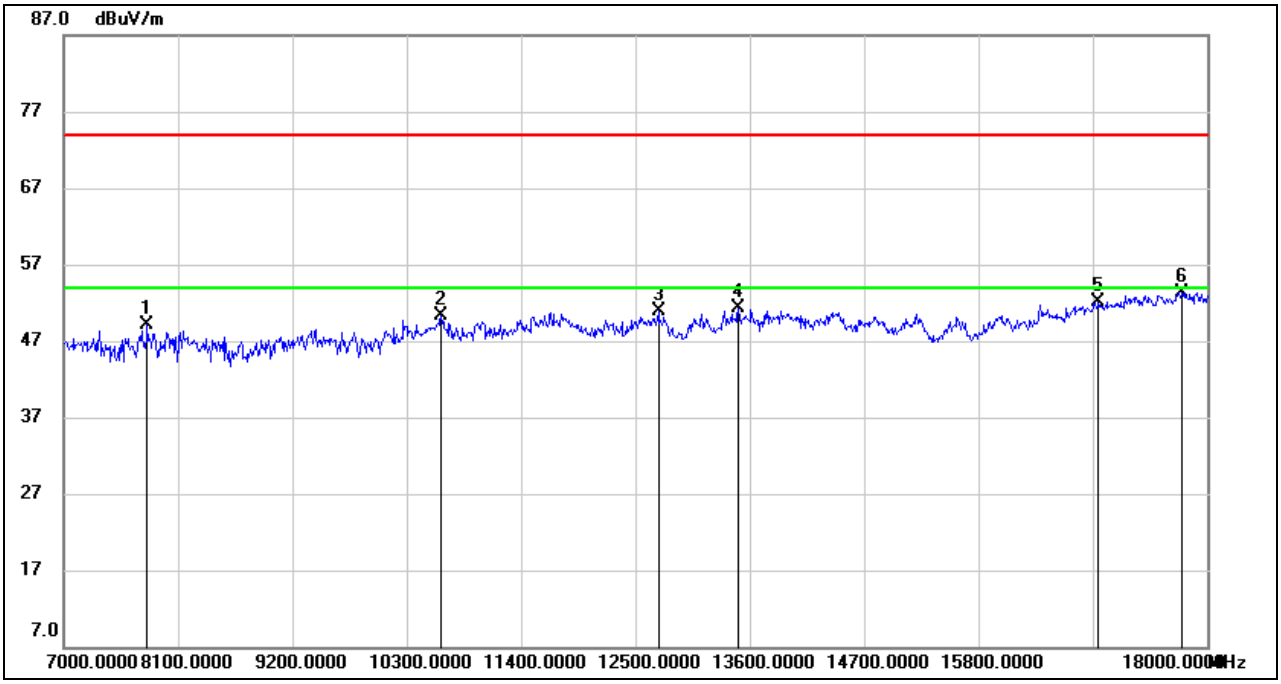
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	51.85	-12.27	39.58	74.00	-34.42	peak
2	1990.000	50.35	-10.86	39.49	74.00	-34.51	peak
3	2122.000	48.14	-10.11	38.03	74.00	-35.97	peak
4	3964.000	42.18	-4.11	38.07	74.00	-35.93	peak
5	5134.000	40.59	0.39	40.98	74.00	-33.02	peak
6	5785.000	49.22	2.80	52.02	/	/	fundamental

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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

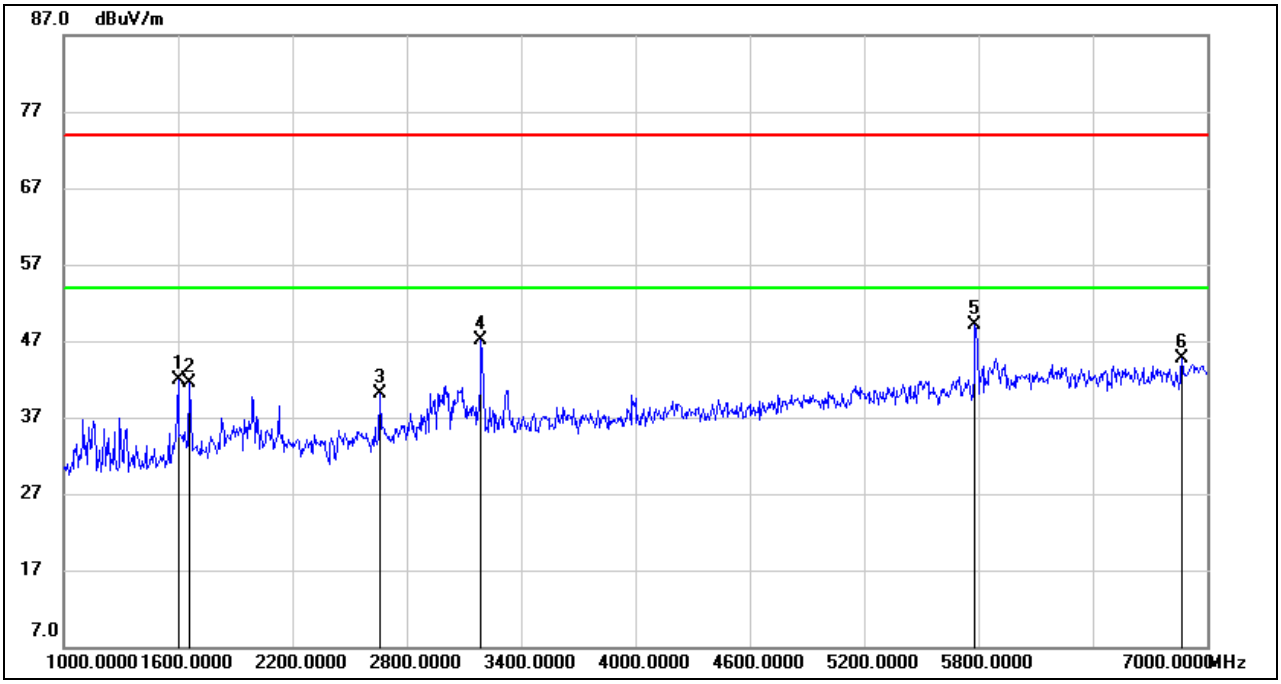
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7803.000	39.52	9.63	49.15	74.00	-24.85	peak
2	10630.000	37.16	13.20	50.36	74.00	-23.64	peak
3	12720.000	35.71	15.14	50.85	74.00	-23.15	peak
4	13490.000	35.10	16.25	51.35	74.00	-22.65	peak
5	16955.000	31.27	20.82	52.09	74.00	-21.91	peak
6	17758.000	30.17	23.09	53.26	74.00	-20.74	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

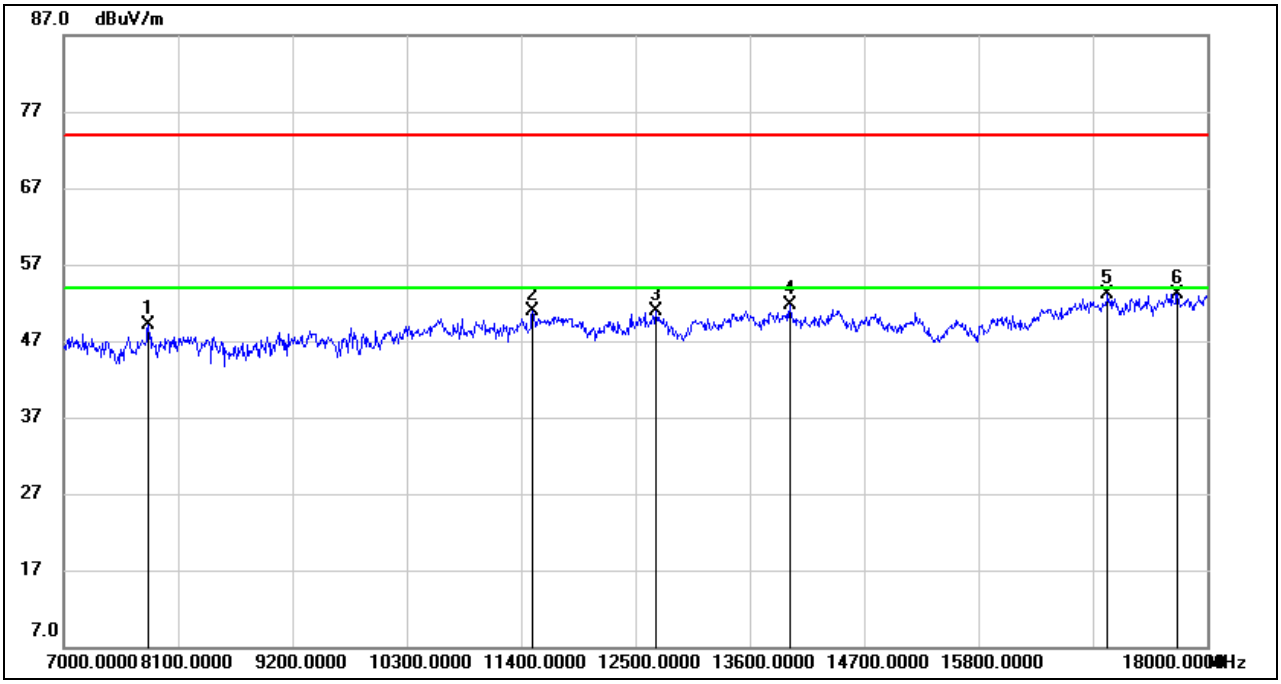
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1600.000	54.08	-12.22	41.86	74.00	-32.14	peak
2	1660.000	53.59	-12.10	41.49	74.00	-32.51	peak
3	2656.000	48.30	-8.21	40.09	74.00	-33.91	peak
4	3190.000	53.06	-5.94	47.12	74.00	-26.88	peak
5	5785.000	46.27	2.80	49.07	/	/	fundamental
6	6868.000	38.57	6.07	44.64	74.00	-29.36	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

VERTICAL RESULTS
7-18GHz

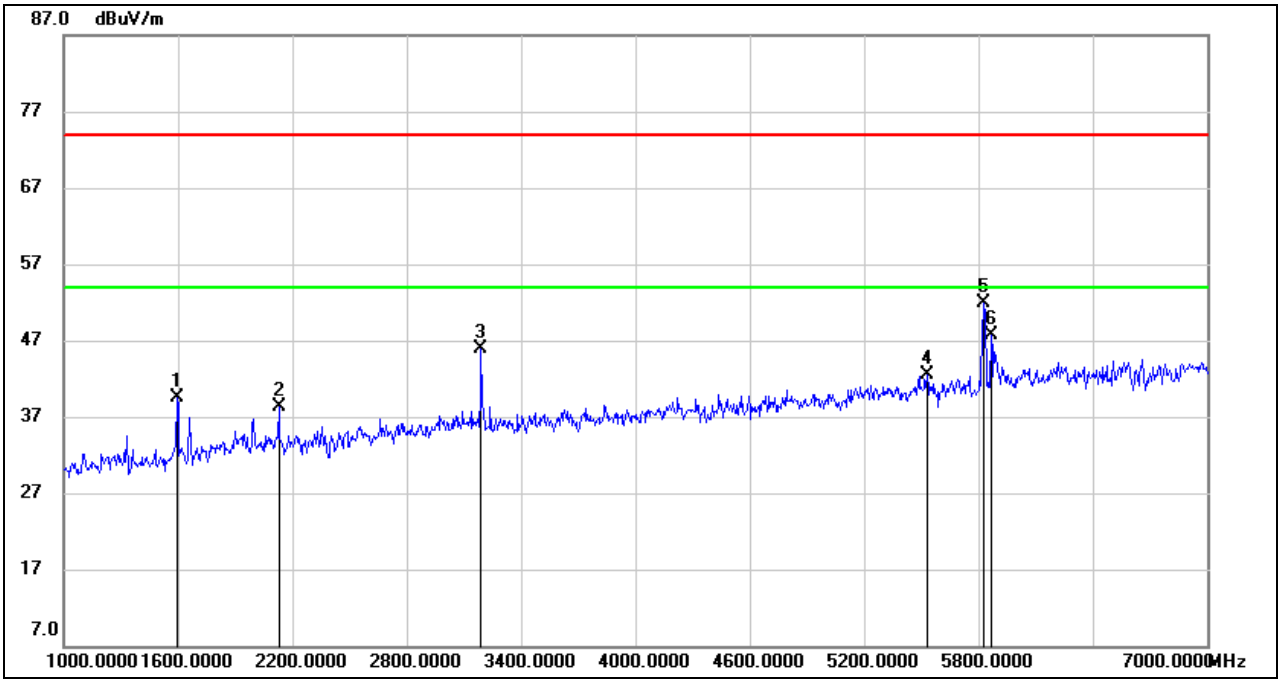


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7814.000	39.60	9.58	49.18	74.00	-24.82	peak
2	11510.000	36.40	14.47	50.87	74.00	-23.13	peak
3	12698.000	36.12	14.81	50.93	74.00	-23.07	peak
4	13985.000	34.89	16.77	51.66	74.00	-22.34	peak
5	17043.000	31.95	21.16	53.11	74.00	-20.89	peak
6	17714.000	30.42	22.71	53.13	74.00	-20.87	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

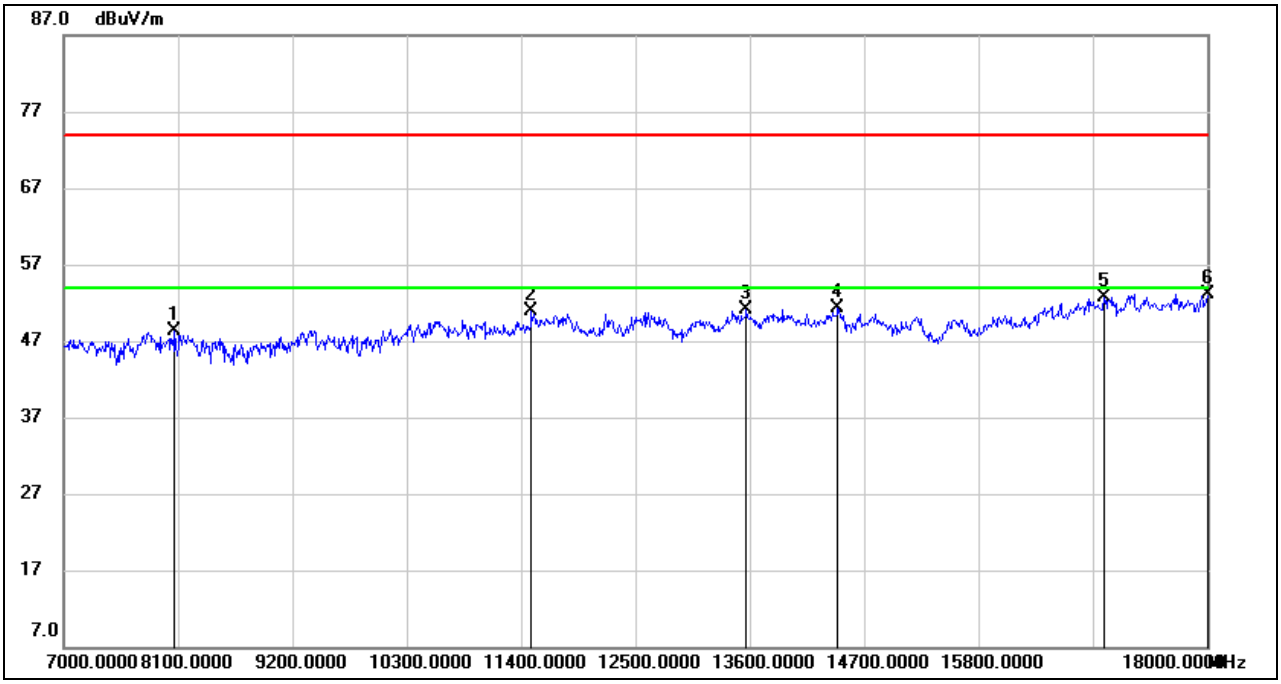
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	51.85	-12.27	39.58	74.00	-34.42	peak
2	2128.000	48.48	-10.09	38.39	74.00	-35.61	peak
3	3190.000	51.89	-5.94	45.95	74.00	-28.05	peak
4	5530.000	40.23	2.27	42.50	74.00	-31.50	peak
5	5825.000	48.54	3.39	51.93	/	/	fundamental
6	5866.000	43.56	4.20	47.76	74.00	-26.24	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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

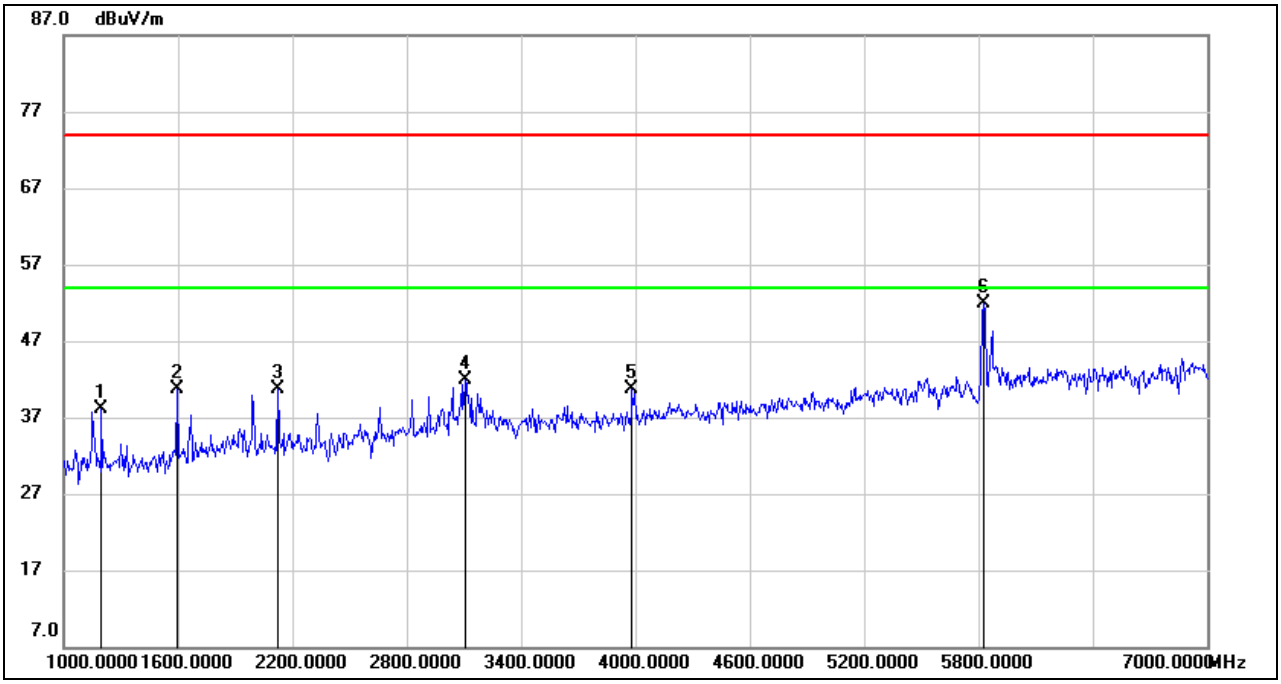
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8067.000	38.90	9.44	48.34	74.00	-25.66	peak
2	11499.000	36.38	14.43	50.81	74.00	-23.19	peak
3	13567.000	34.68	16.39	51.07	74.00	-22.93	peak
4	14447.000	34.29	16.93	51.22	74.00	-22.78	peak
5	17010.000	31.52	21.11	52.63	74.00	-21.37	peak
6	18000.000	29.70	23.48	53.18	74.00	-20.82	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

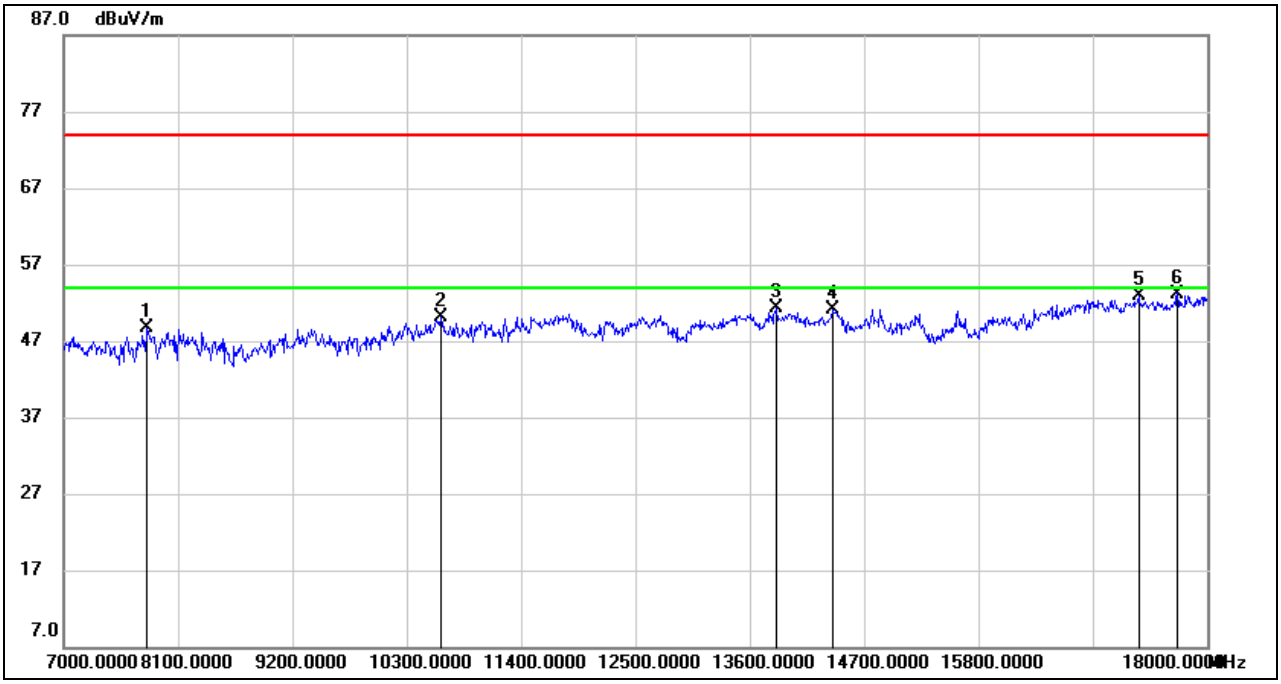
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1198.000	51.62	-13.52	38.10	74.00	-35.90	peak
2	1594.000	52.98	-12.27	40.71	74.00	-33.29	peak
3	2122.000	50.88	-10.11	40.77	74.00	-33.23	peak
4	3106.000	47.58	-5.66	41.92	74.00	-32.08	peak
5	3982.000	44.74	-4.10	40.64	74.00	-33.36	peak
6	5825.000	48.49	3.39	51.88	/	/	fundamental

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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

VERTICAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7803.000	39.10	9.63	48.73	74.00	-25.27	peak
2	10630.000	36.93	13.20	50.13	74.00	-23.87	peak
3	13853.000	34.14	17.11	51.25	74.00	-22.75	peak
4	14392.000	34.19	16.99	51.18	74.00	-22.82	peak
5	17340.000	30.89	22.02	52.91	74.00	-21.09	peak
6	17714.000	30.49	22.71	53.20	74.00	-20.80	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

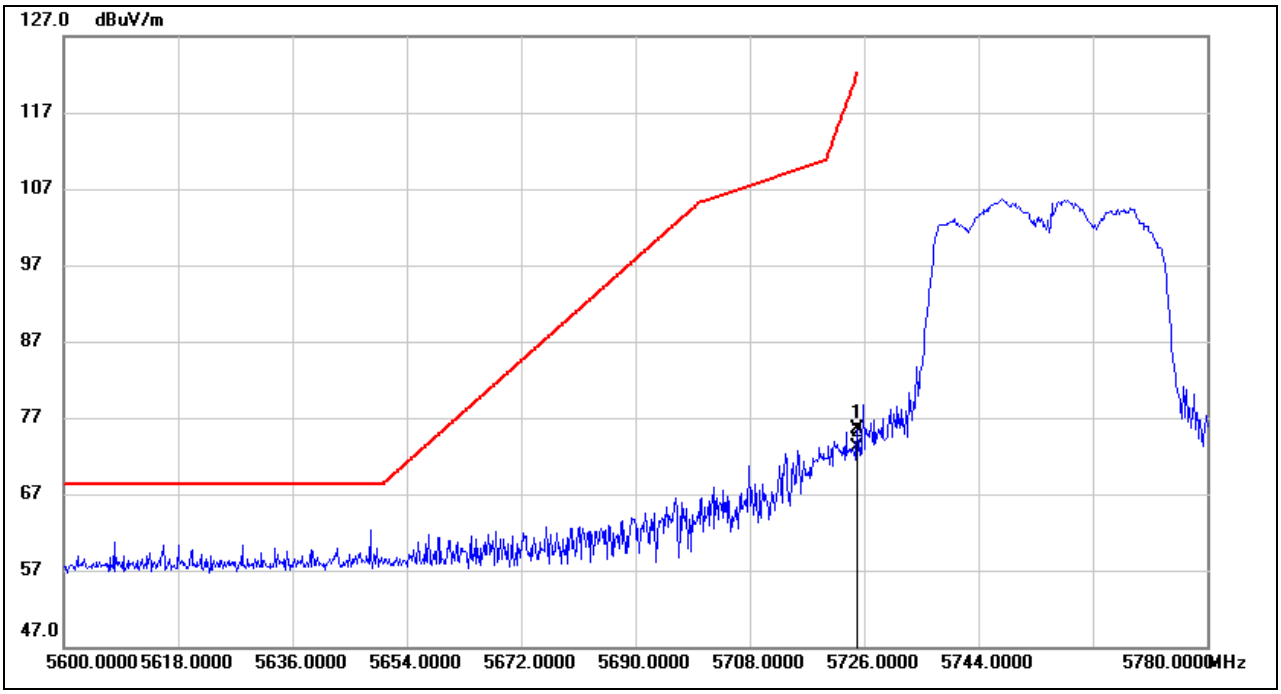
8.3. 802.11n HT40 MIMO MODE

MIMO CDD MODE (WORST-CASE CONFIGURATION)

8.3.1. UNII-3 BAND

RESTRICTED BANDEDGE LOW CHANNEL

HORIZONTAL RESULTS

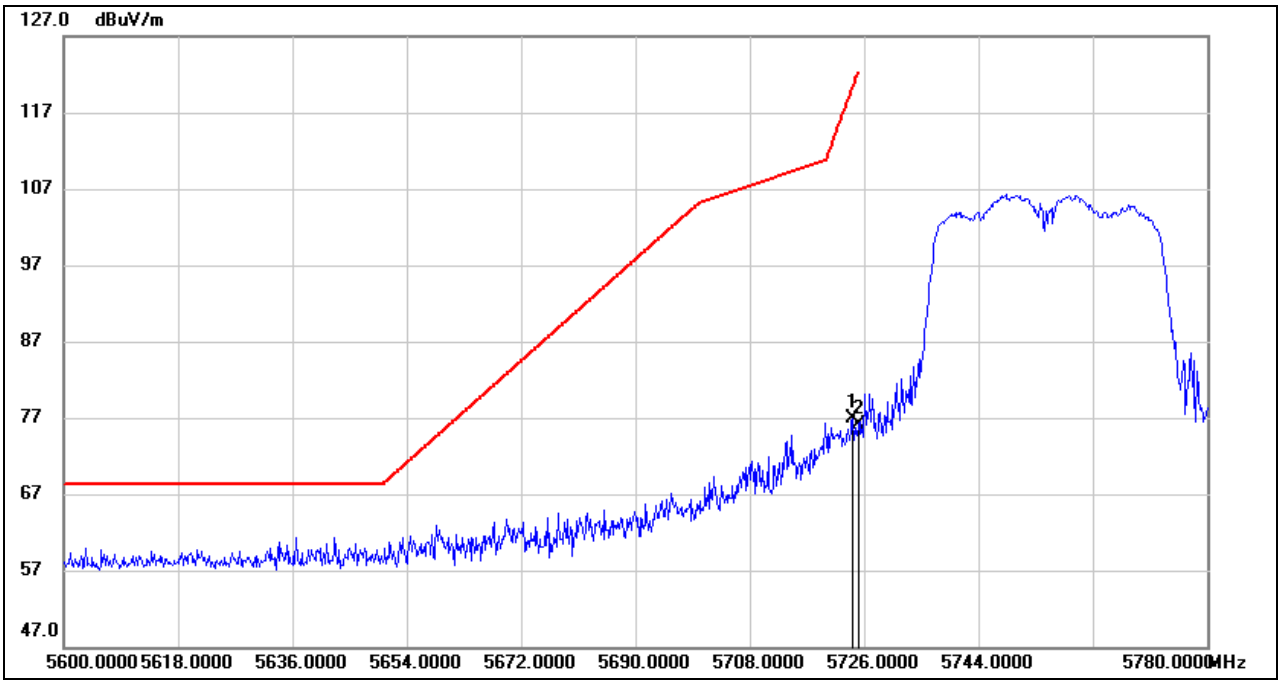


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5724.920	33.90	41.61	75.51	122.02	-46.51	peak
2	5725.000	31.57	41.61	73.18	122.20	-49.02	peak

Note: 1. Measurement = Reading Level + Correct Factor.

.

VERTICAL RESULTS

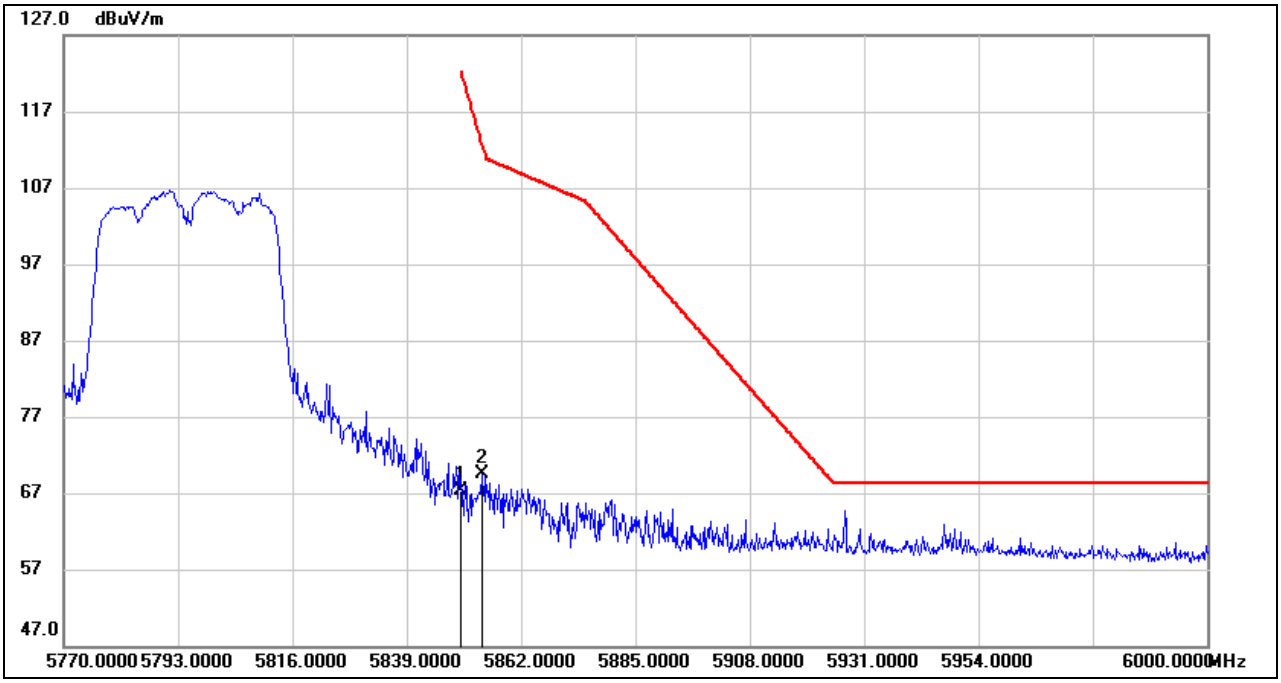


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5724.200	35.37	41.60	76.97	120.38	-43.41	peak
2	5725.000	34.42	41.61	76.03	122.20	-46.17	peak

Note: 1. Measurement = Reading Level + Correct Factor.

RESTRICTED BANDEDGE HIGH CHANNEL

HORIZONTAL RESULTS

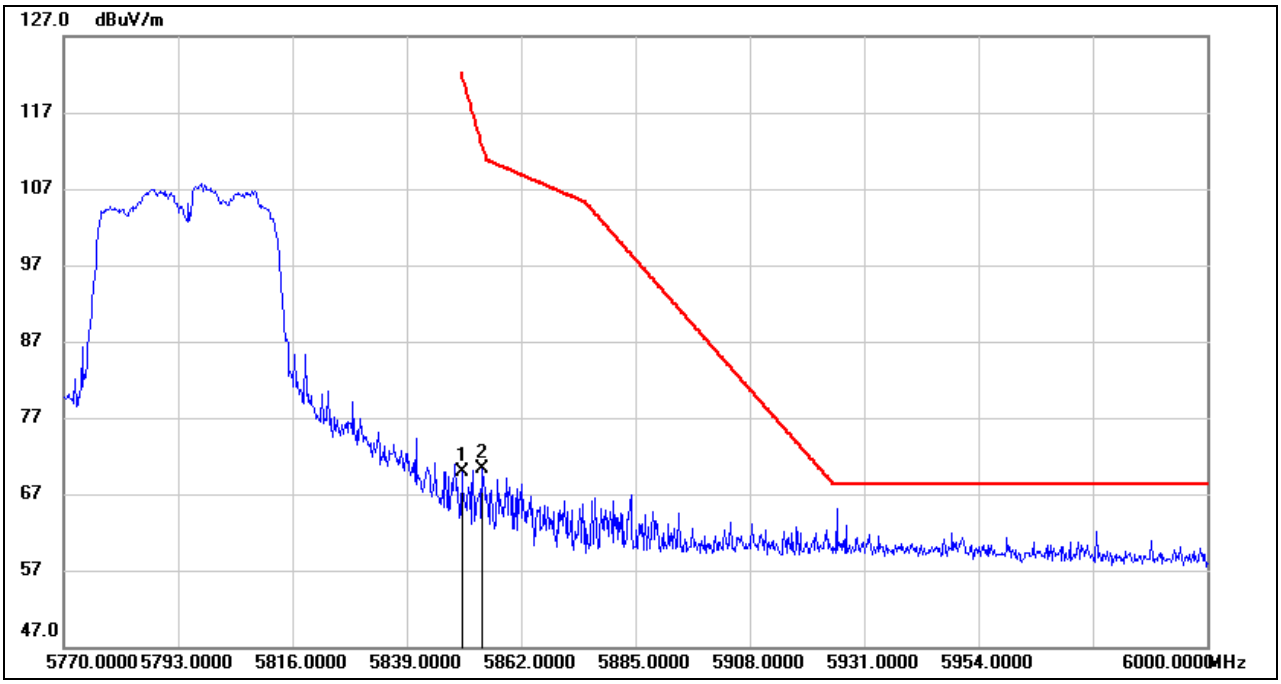


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	24.45	42.89	67.34	122.20	-54.86	peak
2	5854.180	26.46	42.97	69.43	112.67	-43.24	peak

Note: 1. Measurement = Reading Level + Correct Factor.

.

VERTICAL RESULTS

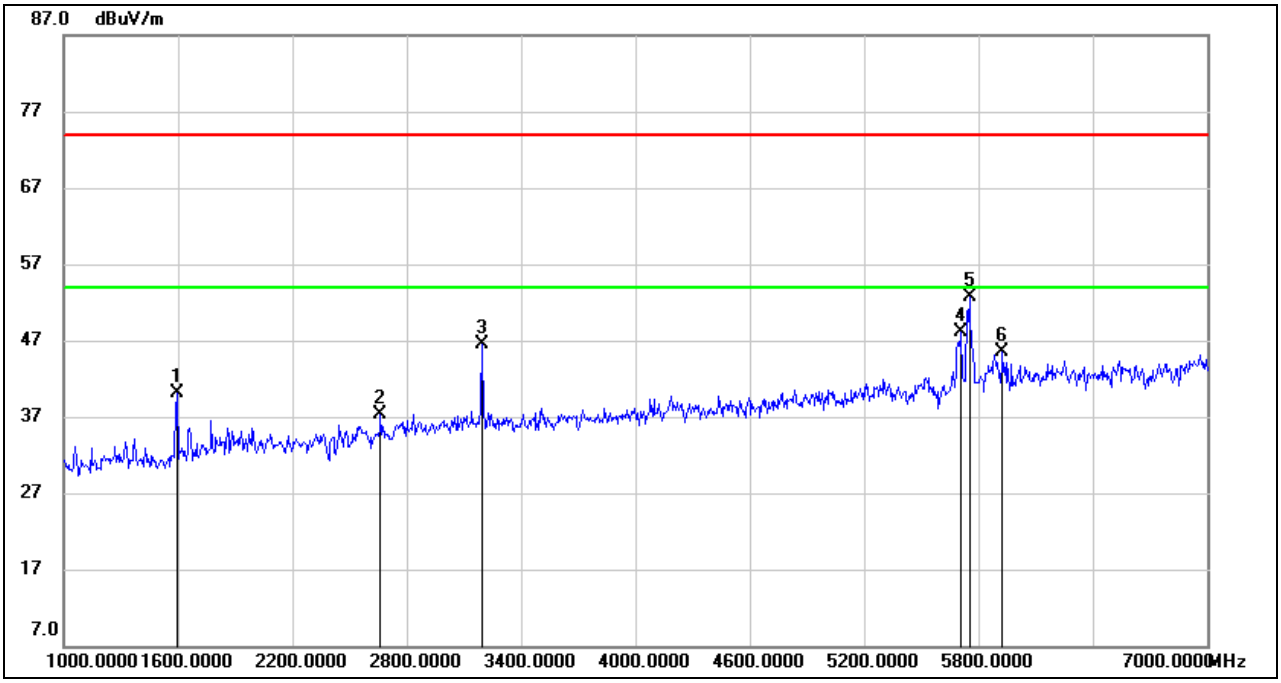


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	27.11	42.89	70.00	122.20	-52.20	peak
2	5854.180	27.41	42.97	70.38	112.67	-42.29	peak

Note: 1. Measurement = Reading Level + Correct Factor.

HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

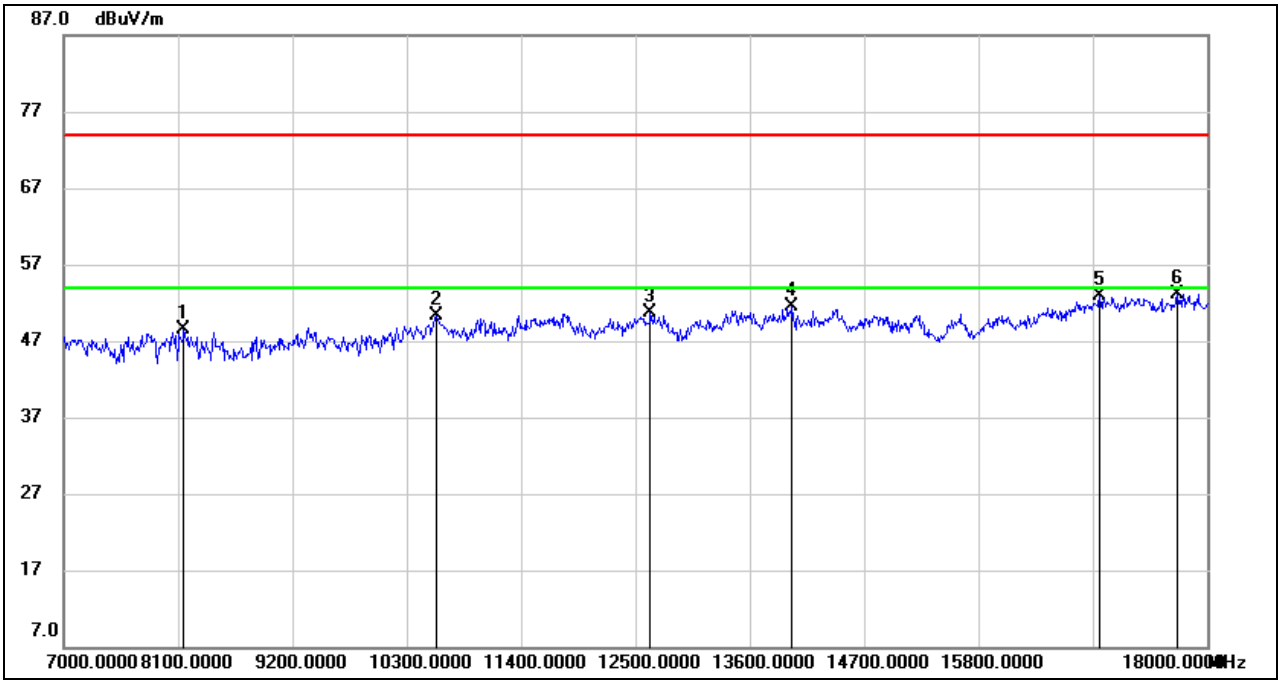
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	52.35	-12.27	40.08	74.00	-33.92	peak
2	2662.000	45.47	-8.18	37.29	74.00	-36.71	peak
3	3196.000	52.47	-5.96	46.51	74.00	-27.49	peak
4	5710.000	45.81	2.28	48.09	74.00	-25.91	peak
5	5755.000	50.06	2.60	52.66	/	/	fundamental
6	5926.000	41.11	4.46	45.57	74.00	-28.43	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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

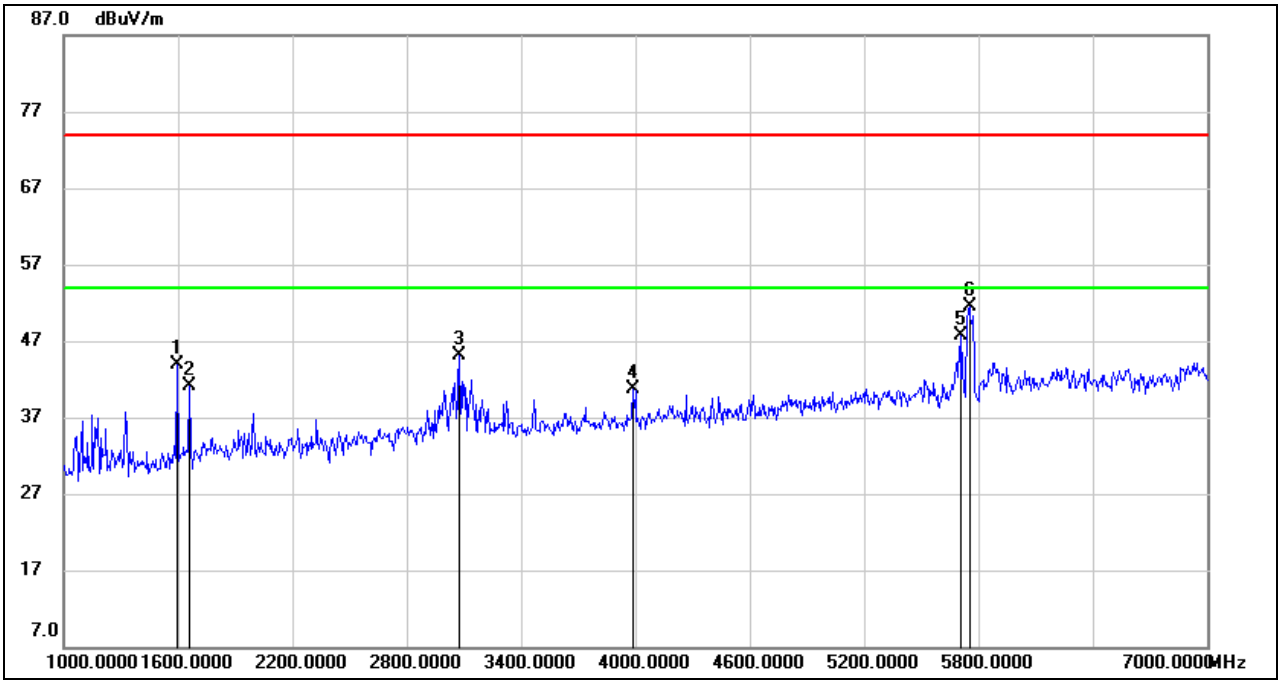
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8155.000	38.45	10.02	48.47	74.00	-25.53	peak
2	10586.000	37.00	13.25	50.25	74.00	-23.75	peak
3	12643.000	35.92	14.72	50.64	74.00	-23.36	peak
4	14007.000	34.63	16.78	51.41	74.00	-22.59	peak
5	16966.000	31.94	20.89	52.83	74.00	-21.17	peak
6	17714.000	30.44	22.71	53.15	74.00	-20.85	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. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

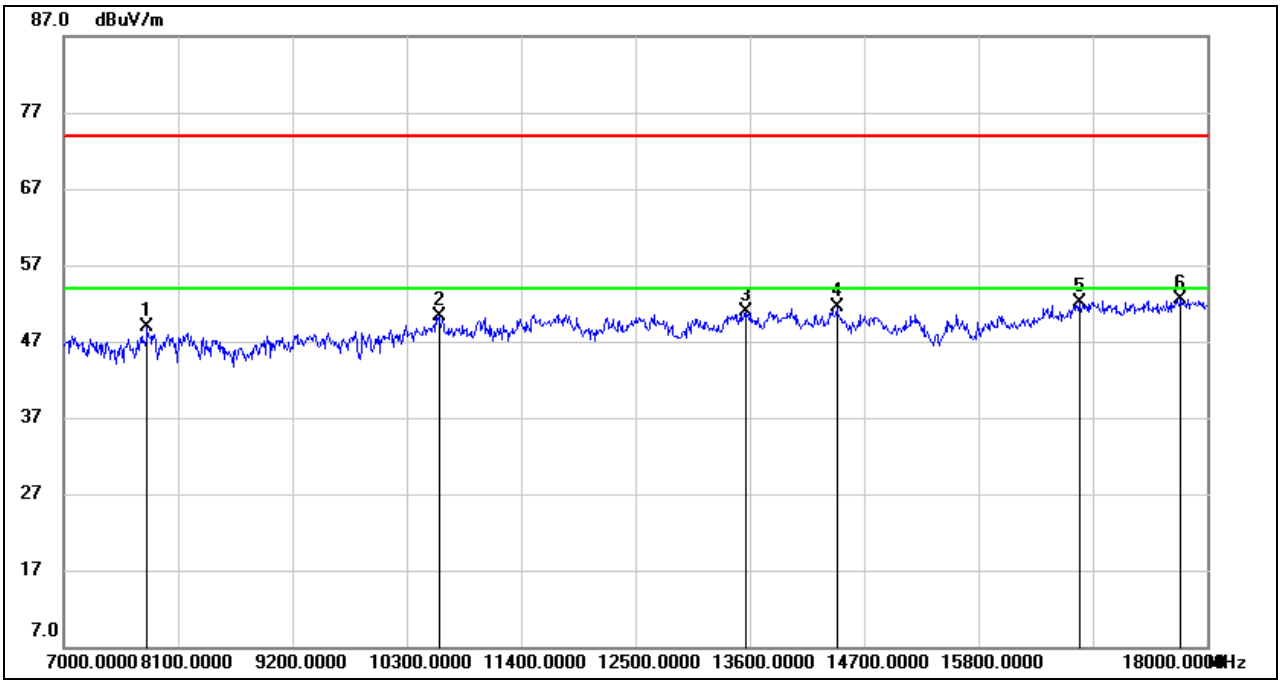
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	56.10	-12.27	43.83	74.00	-30.17	peak
2	1660.000	53.13	-12.10	41.03	74.00	-32.97	peak
3	3076.000	50.93	-5.78	45.15	74.00	-28.85	peak
4	3988.000	44.75	-4.08	40.67	74.00	-33.33	peak
5	5710.000	45.35	2.28	47.63	74.00	-26.37	peak
6	5755.000	48.90	2.60	51.50	/	/	fundamental

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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

7-18GHz

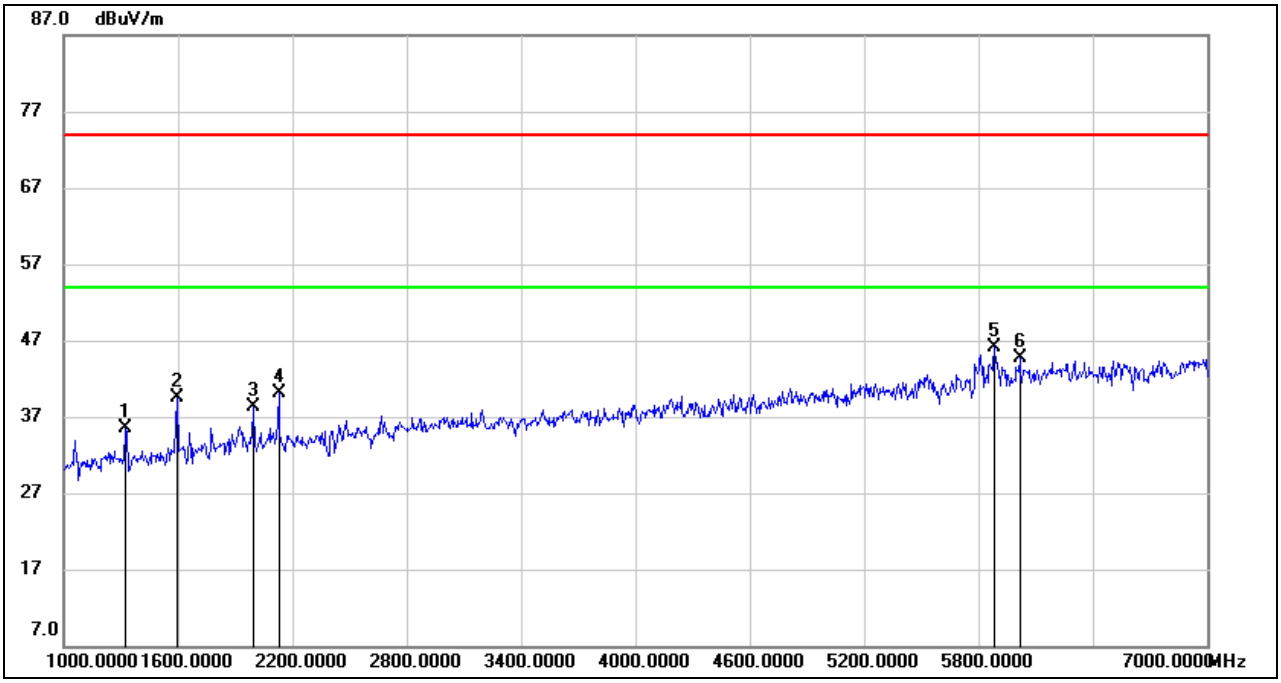


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7803.000	39.31	9.63	48.94	74.00	-25.06	peak
2	10608.000	37.04	13.34	50.38	74.00	-23.62	peak
3	13556.000	34.46	16.37	50.83	74.00	-23.17	peak
4	14436.000	34.51	16.95	51.46	74.00	-22.54	peak
5	16768.000	31.70	20.47	52.17	74.00	-21.83	peak
6	17747.000	29.57	22.99	52.56	74.00	-21.44	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. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

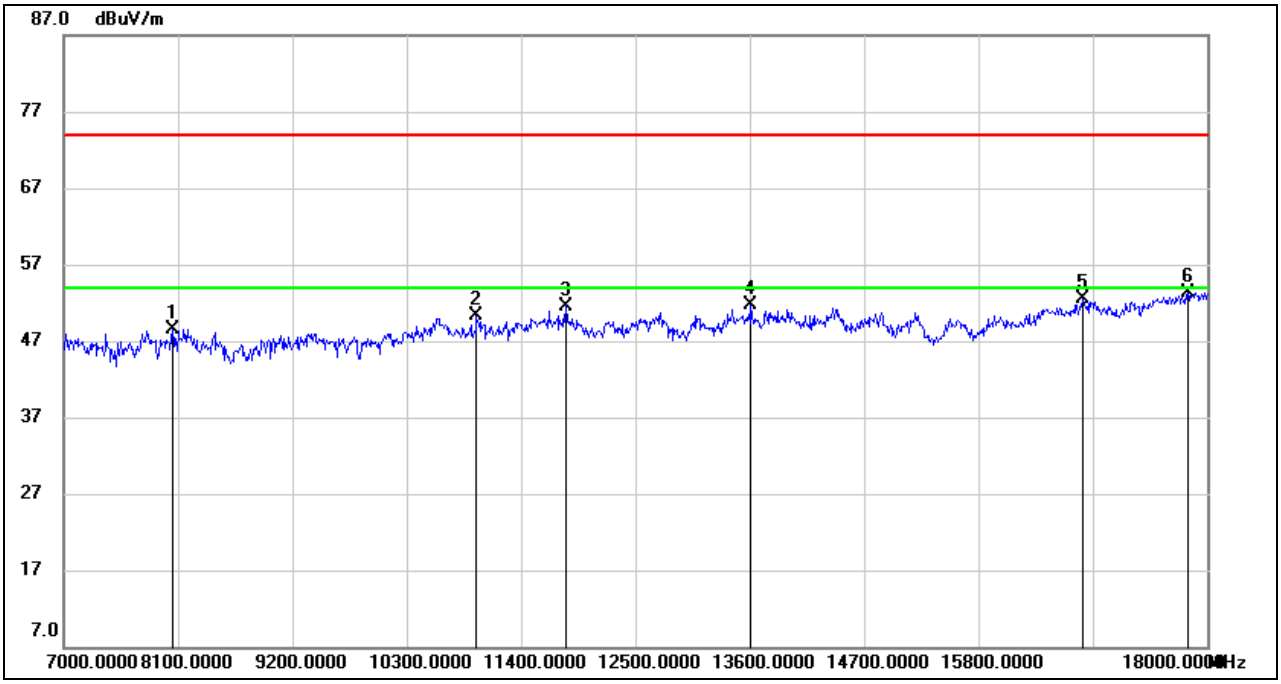
HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1324.000	48.72	-13.17	35.55	74.00	-38.45	peak
2	1594.000	51.79	-12.27	39.52	74.00	-34.48	peak
3	1996.000	49.11	-10.86	38.25	74.00	-35.75	peak
4	2128.000	50.19	-10.09	40.10	74.00	-33.90	peak
5	5884.000	41.61	4.55	46.16	74.00	-27.84	peak
6	6016.000	41.35	3.31	44.66	74.00	-29.34	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

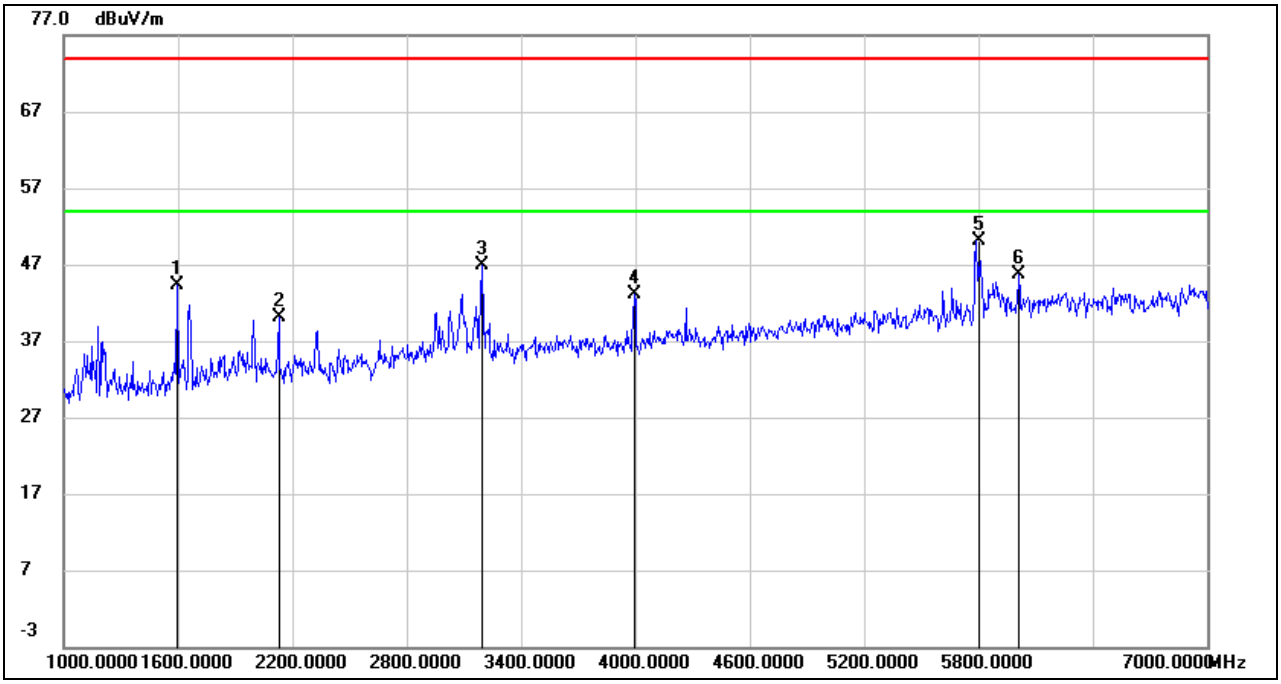
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8045.000	39.24	9.29	48.53	74.00	-25.47	peak
2	10971.000	36.88	13.41	50.29	74.00	-23.71	peak
3	11829.000	37.18	14.42	51.60	74.00	-22.40	peak
4	13611.000	35.20	16.49	51.69	74.00	-22.31	peak
5	16801.000	31.96	20.53	52.49	74.00	-21.51	peak
6	17813.000	29.88	23.45	53.33	74.00	-20.67	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

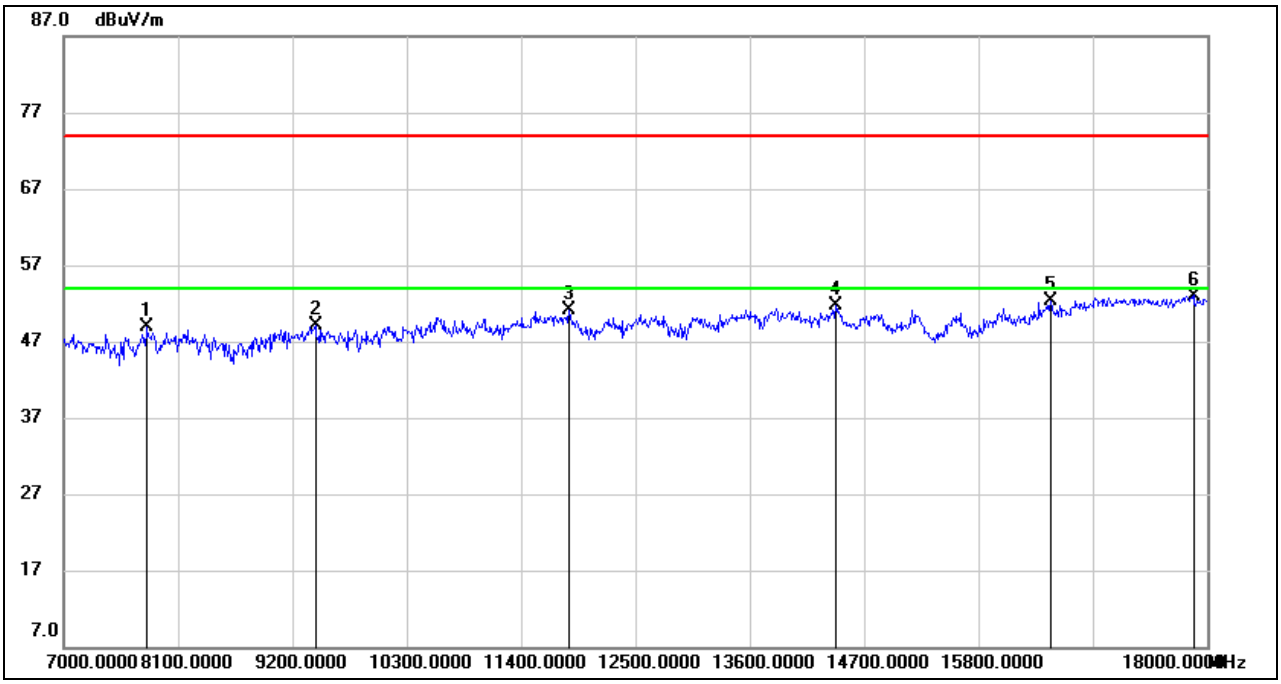
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	56.60	-12.27	44.33	74.00	-29.67	peak
2	2128.000	50.16	-10.09	40.07	74.00	-33.93	peak
3	3196.000	52.90	-5.96	46.94	74.00	-27.06	peak
4	3994.000	47.14	-4.08	43.06	74.00	-30.94	peak
5	5795.000	47.33	2.87	50.20	/	/	fundamental
6	6010.000	42.44	3.30	45.74	74.00	-28.26	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7803.000	39.18	9.63	48.81	74.00	-25.19	peak
2	9420.000	38.10	10.93	49.03	74.00	-24.97	peak
3	11862.000	36.61	14.47	51.08	74.00	-22.92	peak
4	14425.000	34.67	16.97	51.64	74.00	-22.36	peak
5	16493.000	32.53	19.77	52.30	74.00	-21.70	peak
6	17868.000	29.59	23.41	53.00	74.00	-21.00	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. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

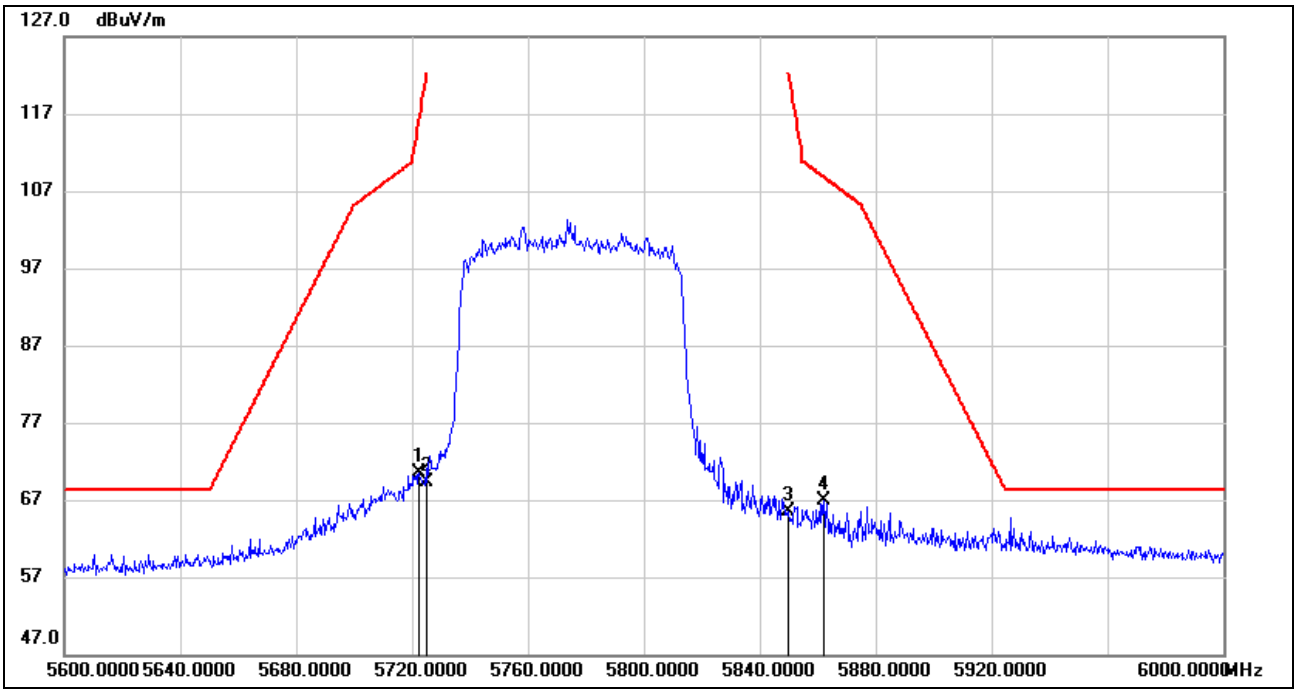
8.4. 802.11ac VHT80 MIMO MODE

MIMO CDD MODE (WORST-CASE CONFIGURATION)

8.4.1. UNII-3 BAND

RESTRICTED BANDEDGE MID CHANNEL

HORIZONTAL RESULTS



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5722.400	28.84	41.60	70.44	116.27	-45.83	peak
2	5725.000	27.71	41.61	69.32	122.20	-52.88	peak
3	5850.000	22.65	42.89	65.54	122.20	-56.66	peak
4	5862.000	23.83	43.12	66.95	108.84	-41.89	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

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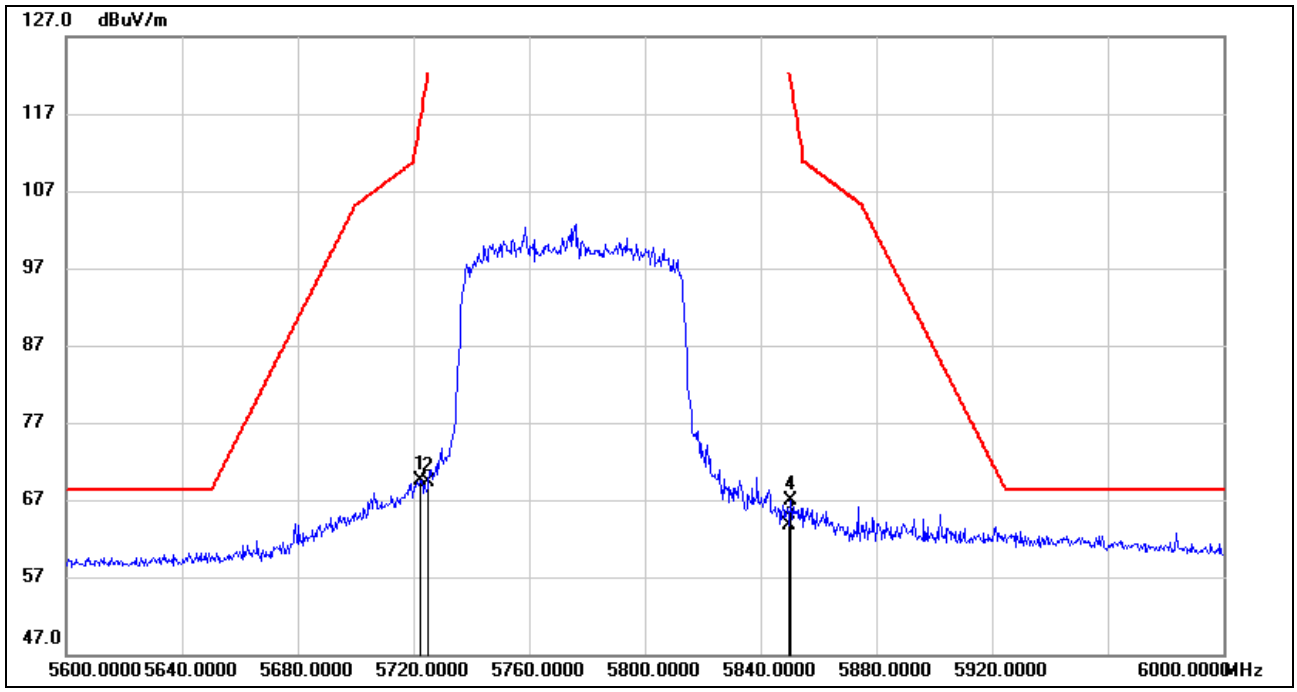
VERTICAL RESULTS

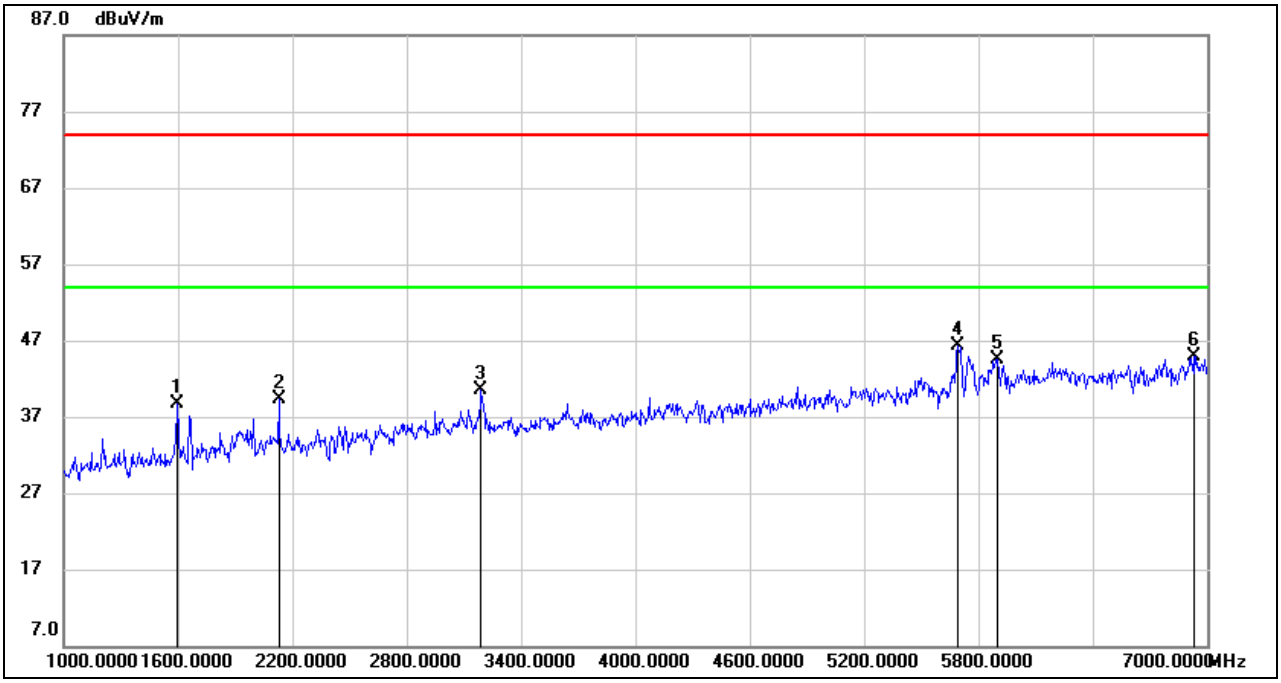


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5722.400	27.96	41.60	69.56	116.27	-46.71	peak
2	5725.000	27.72	41.61	69.33	122.20	-52.87	peak
3	5850.000	20.84	42.89	63.73	122.20	-58.47	peak
4	5850.400	23.92	42.90	66.82	121.29	-54.47	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL

HORIZONTAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	50.98	-12.27	38.71	74.00	-35.29	peak
2	2128.000	49.45	-10.09	39.36	74.00	-34.64	peak
3	3190.000	46.38	-5.94	40.44	74.00	-33.56	peak
4	5692.000	44.17	2.21	46.38	74.00	-27.62	peak
5	5902.000	39.77	4.83	44.60	74.00	-29.40	peak
6	6928.000	38.57	6.32	44.89	74.00	-29.11	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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

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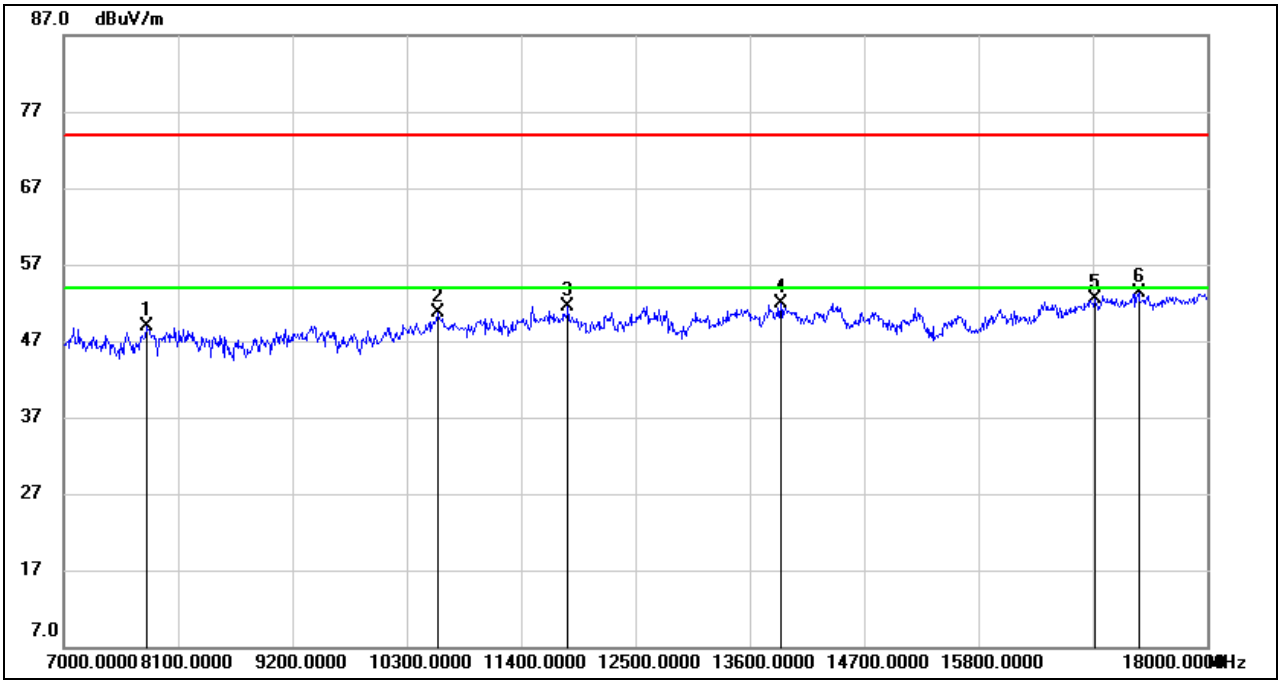
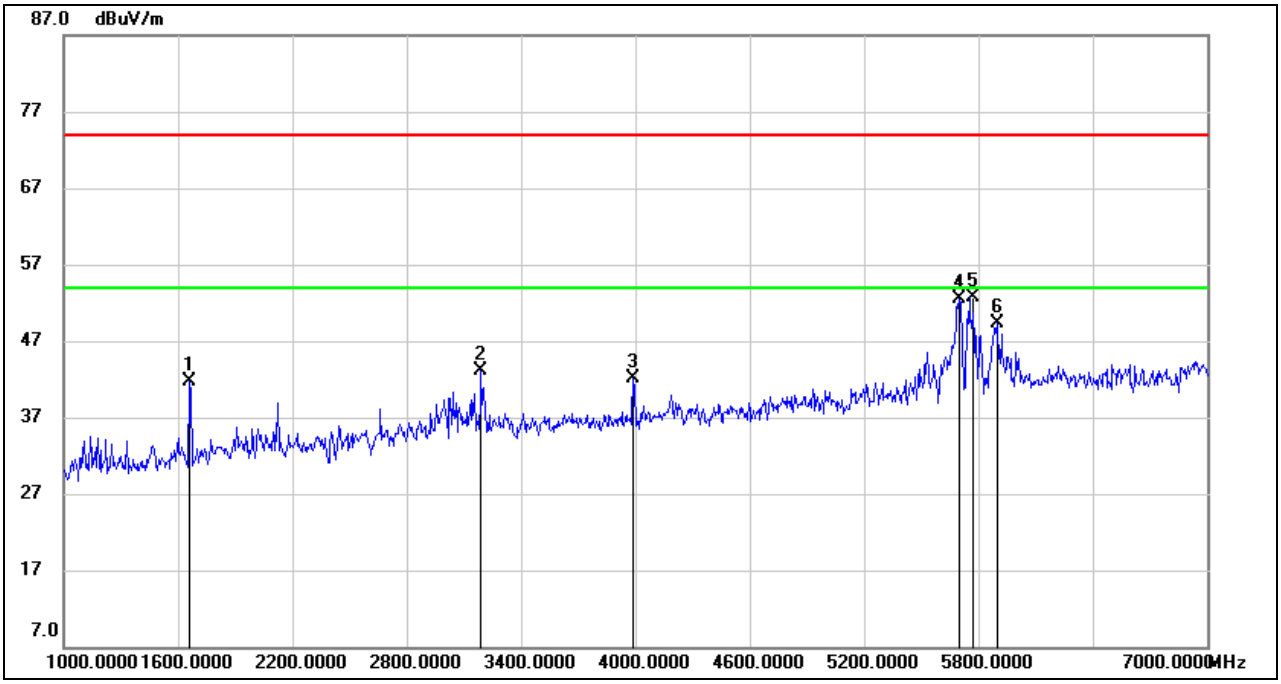
HORIZONTAL RESULTS
7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7803.000	39.28	9.63	48.91	74.00	-25.09	peak
2	10597.000	37.30	13.38	50.68	74.00	-23.32	peak
3	11851.000	37.12	14.46	51.58	74.00	-22.42	peak
4	13897.000	35.09	16.75	51.84	74.00	-22.16	peak
5	16922.000	31.91	20.63	52.54	74.00	-21.46	peak
6	17340.000	31.21	22.02	53.23	74.00	-20.77	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

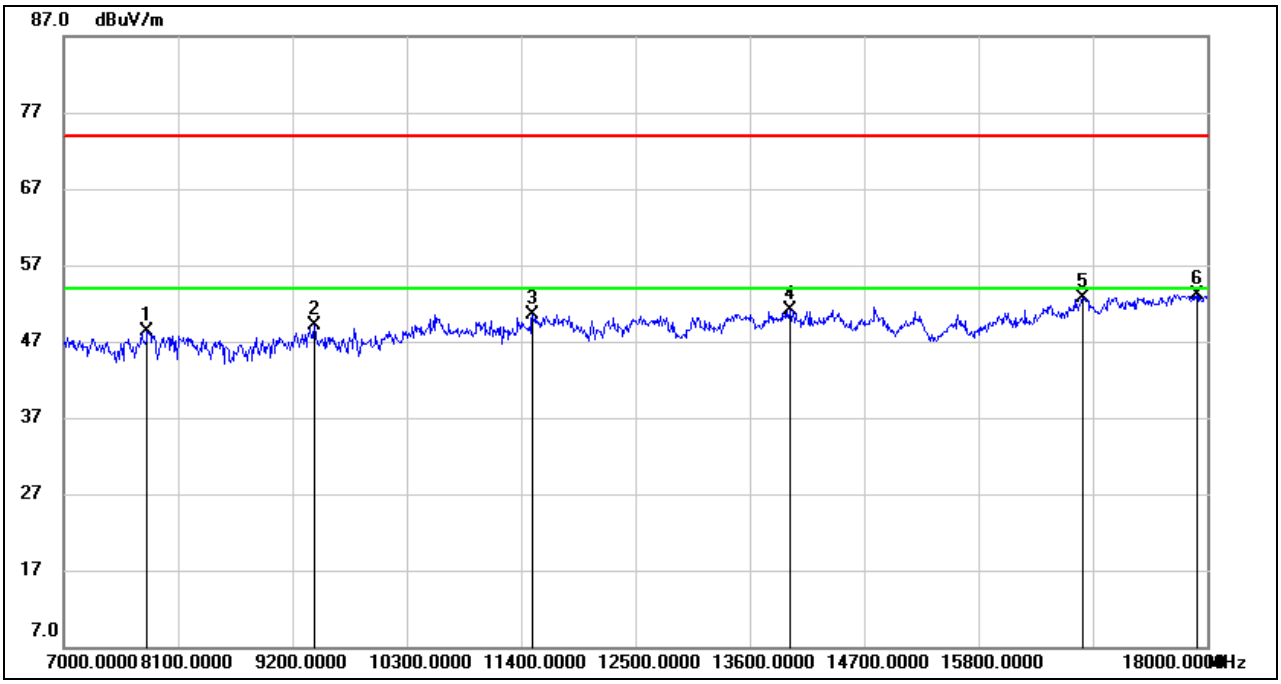
VERTICAL RESULTS
1-7GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1660.000	53.84	-12.10	41.74	74.00	-32.26	peak
2	3190.000	48.99	-5.94	43.05	74.00	-30.95	peak
3	3988.000	46.19	-4.08	42.11	74.00	-31.89	peak
4	5698.000	50.26	2.22	52.48	74.00	-21.52	peak
5	5775.000	50.04	2.74	52.78	/	/	fundamental
6	5896.000	44.59	4.79	49.38	74.00	-24.62	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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

7-18GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7803.000	38.70	9.63	48.33	74.00	-25.67	peak
2	9409.000	38.08	10.95	49.03	74.00	-24.97	peak
3	11510.000	35.98	14.47	50.45	74.00	-23.55	peak
4	13985.000	34.32	16.77	51.09	74.00	-22.91	peak
5	16801.000	32.16	20.53	52.69	74.00	-21.31	peak
6	17901.000	29.77	23.39	53.16	74.00	-20.84	peak

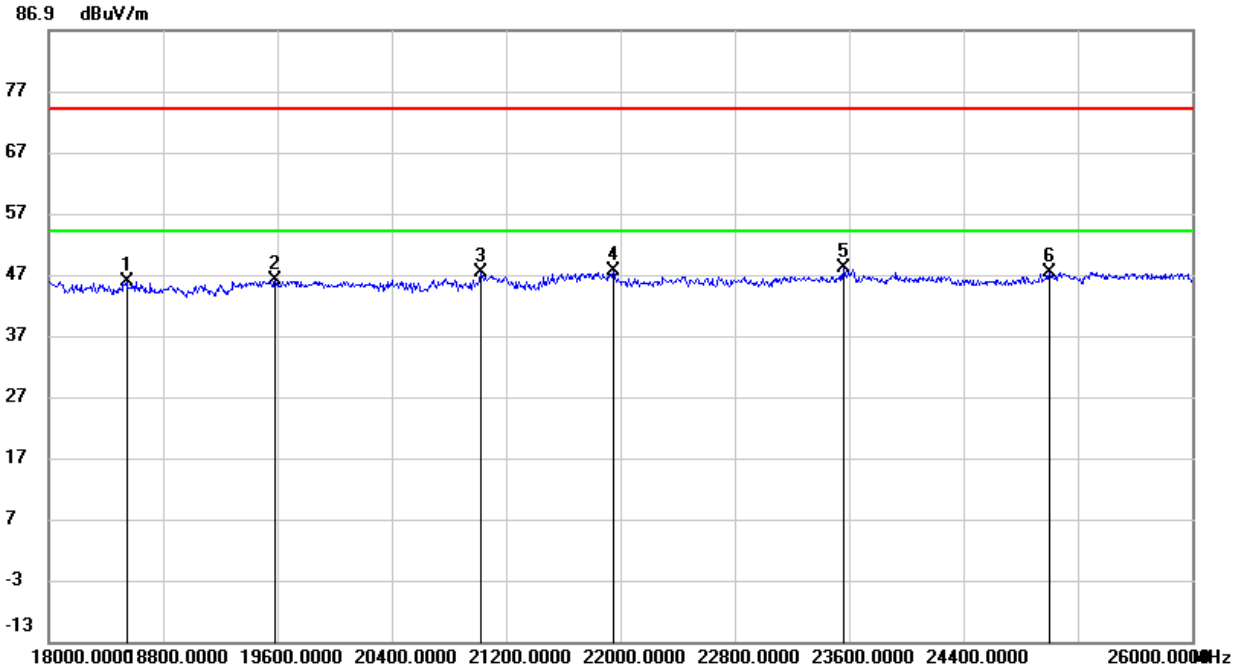
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The High Pass filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands, so all the test point were deemed to comply with the limits list in the standard.

8.5. SPURIOUS EMISSIONS 18~26GHz

8.5.1. 802.11n HT20 MIMO MODE

MIMO CDD MODE (WORST-CASE CONFIGURATION)

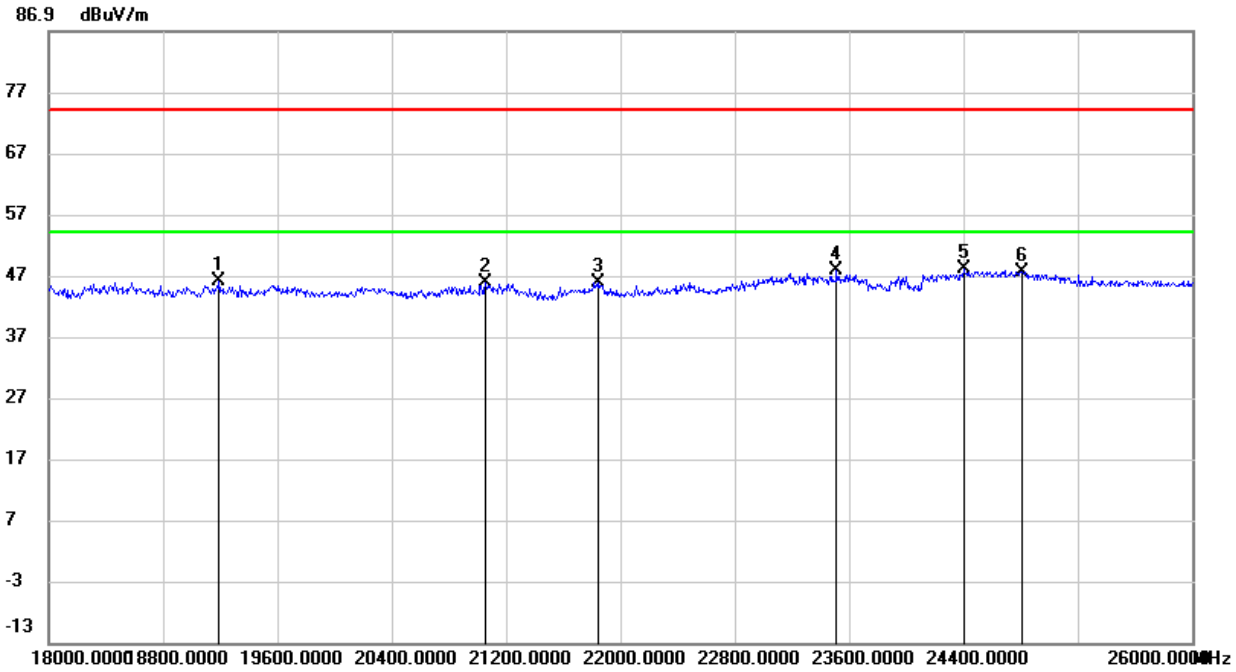
SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18544.000	50.26	-4.46	45.80	74.00	-28.20	peak
2	19584.000	50.67	-4.64	46.03	74.00	-27.97	peak
3	21024.000	52.62	-5.30	47.32	74.00	-26.68	peak
4	21952.000	53.70	-6.16	47.54	74.00	-26.46	peak
5	23560.000	52.71	-4.72	47.99	74.00	-26.01	peak
6	25000.000	48.46	-1.08	47.38	74.00	-26.62	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, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19192.000	50.98	-5.01	45.97	74.00	-28.03	peak
2	21056.000	51.01	-5.33	45.68	74.00	-28.32	peak
3	21848.000	51.76	-5.95	45.81	74.00	-28.19	peak
4	23512.000	52.51	-4.76	47.75	74.00	-26.25	peak
5	24400.000	51.14	-2.99	48.15	74.00	-25.85	peak
6	24808.000	49.36	-1.74	47.62	74.00	-26.38	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.

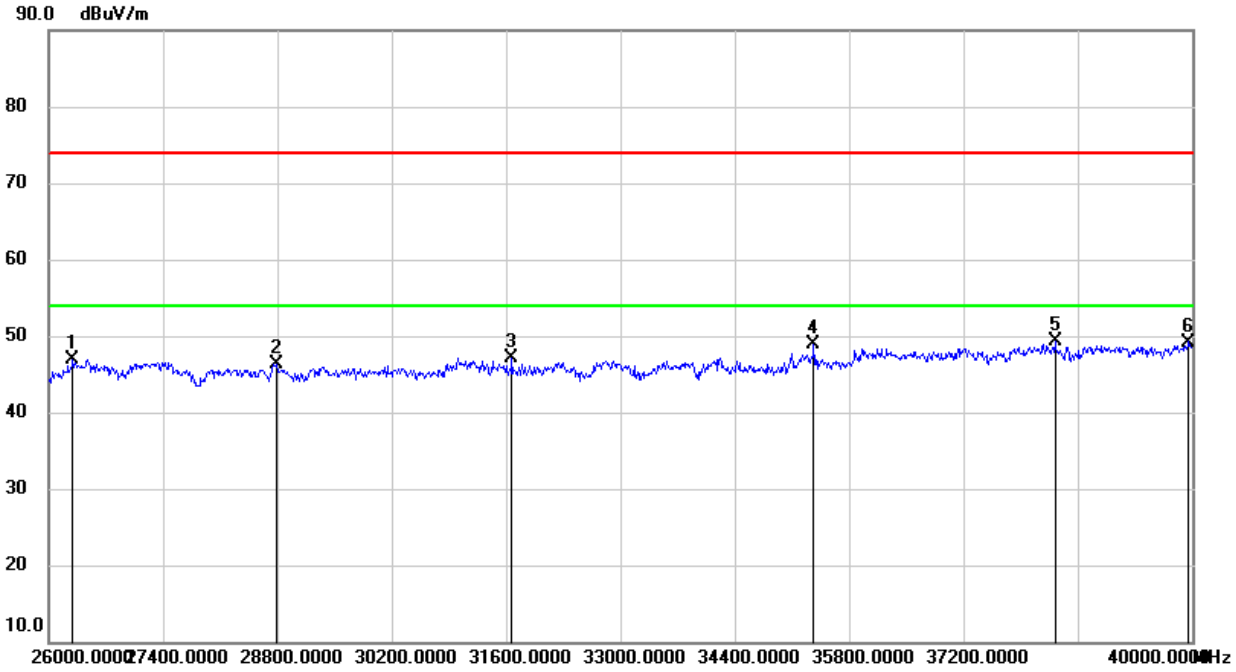
Note: All antennas and test modes have been tested, only the worst data record in the report.

8.6. SPURIOUS EMISSIONS 26~40GHz

8.6.1. 802.11n HT20 MIMO MODE

UNII-1 MIMO CDD MODE (WORST-CASE CONFIGURATION)

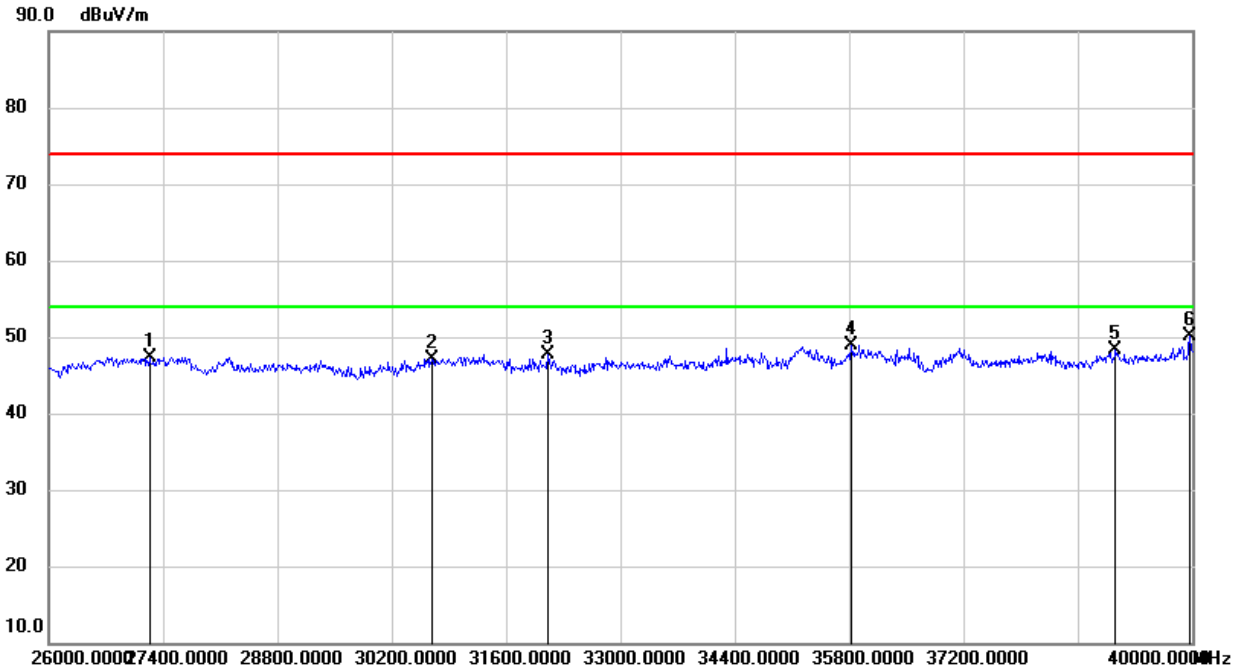
SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26294.000	52.19	-5.25	46.94	74.00	-27.06	peak
2	28786.000	46.99	-0.64	46.35	74.00	-27.65	peak
3	31670.000	48.36	-1.21	47.15	74.00	-26.85	peak
4	35366.000	46.40	2.59	48.99	74.00	-25.01	peak
5	38320.000	45.56	3.77	49.33	74.00	-24.67	peak
6	39958.000	44.08	5.12	49.20	74.00	-24.80	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.

SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	27232.000	51.60	-4.31	47.29	74.00	-26.71	peak
2	30690.000	48.30	-1.11	47.19	74.00	-26.81	peak
3	32104.000	49.49	-1.75	47.74	74.00	-26.26	peak
4	35828.000	45.25	3.67	48.92	74.00	-25.08	peak
5	39062.000	43.98	4.30	48.28	74.00	-25.72	peak
6	39972.000	44.95	5.13	50.08	74.00	-23.92	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.

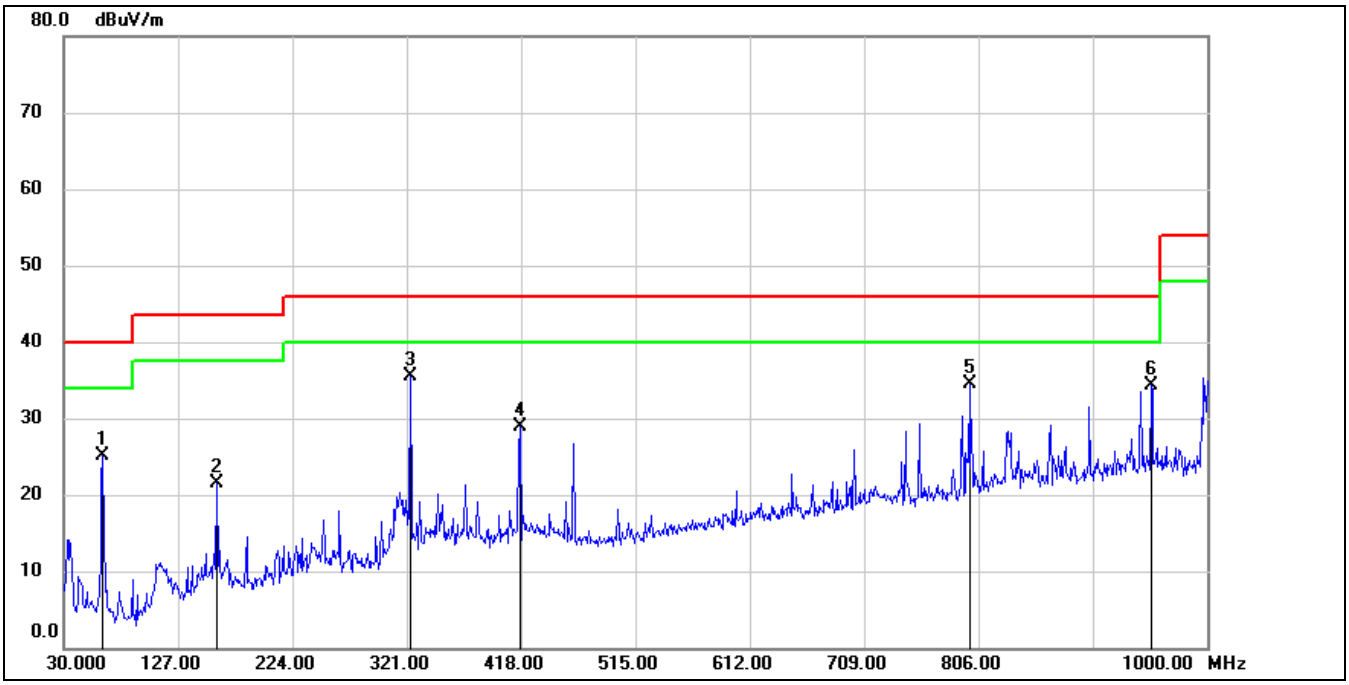
Note: All antennas and test modes have been tested, only the worst data record in the report.

8.7. SPURIOUS EMISSIONS 30M ~ 1 GHz

8.7.1. 802.11n HT20 MIMO MODE

MIMO CDD MODE (WORST-CASE CONFIGURATION)

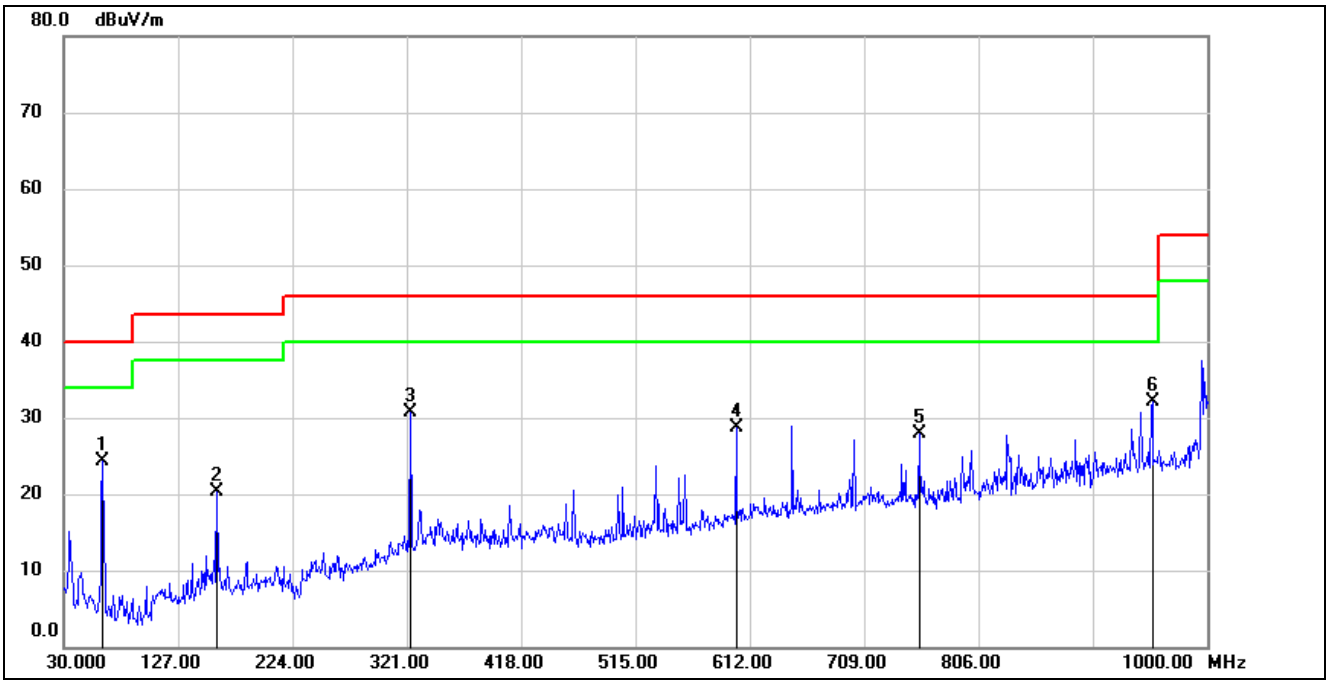
SPURIOUS EMISSIONS (HIGH CHANNELHORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	62.9800	44.67	-19.61	25.06	40.00	-14.94	QP
2	159.9800	39.25	-17.77	21.48	43.50	-22.02	QP
3	323.9100	49.18	-13.60	35.58	46.00	-10.42	QP
4	417.0300	40.86	-12.02	28.84	46.00	-17.16	QP
5	798.2400	39.80	-5.29	34.51	46.00	-11.49	QP
6	952.4700	37.59	-3.36	34.23	46.00	-11.77	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, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	62.9800	43.99	-19.61	24.38	40.00	-15.62	QP
2	159.9800	38.11	-17.77	20.34	43.50	-23.16	QP
3	323.9100	44.24	-13.60	30.64	46.00	-15.36	QP
4	600.3600	37.08	-8.42	28.66	46.00	-17.34	QP
5	755.5600	33.78	-5.89	27.89	46.00	-18.11	QP
6	953.4400	35.41	-3.37	32.04	46.00	-13.96	QP

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

Note: All antennas and test modes have been tested, only the worst data record in the report.

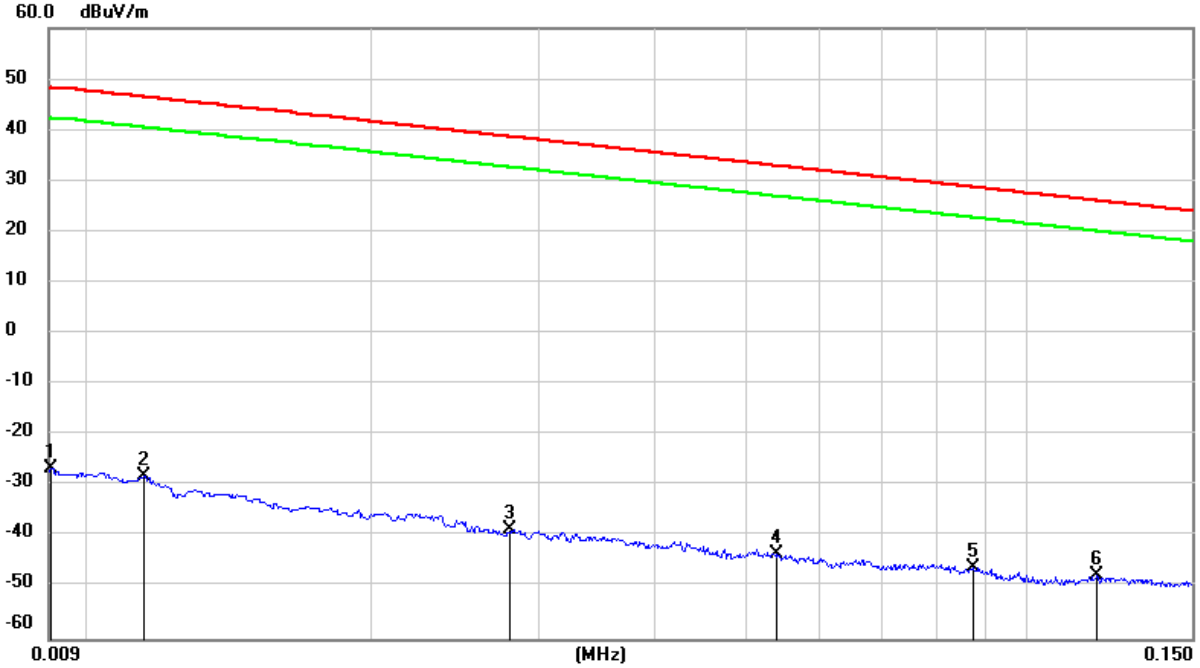
8.8. SPURIOUS EMISSIONS BELOW 30M

8.8.1. 802.11n HT20 MIMO MODE

MIMO CDD MODE (WORST-CASE CONFIGURATION)

SPURIOUS EMISSIONS (HIGH CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

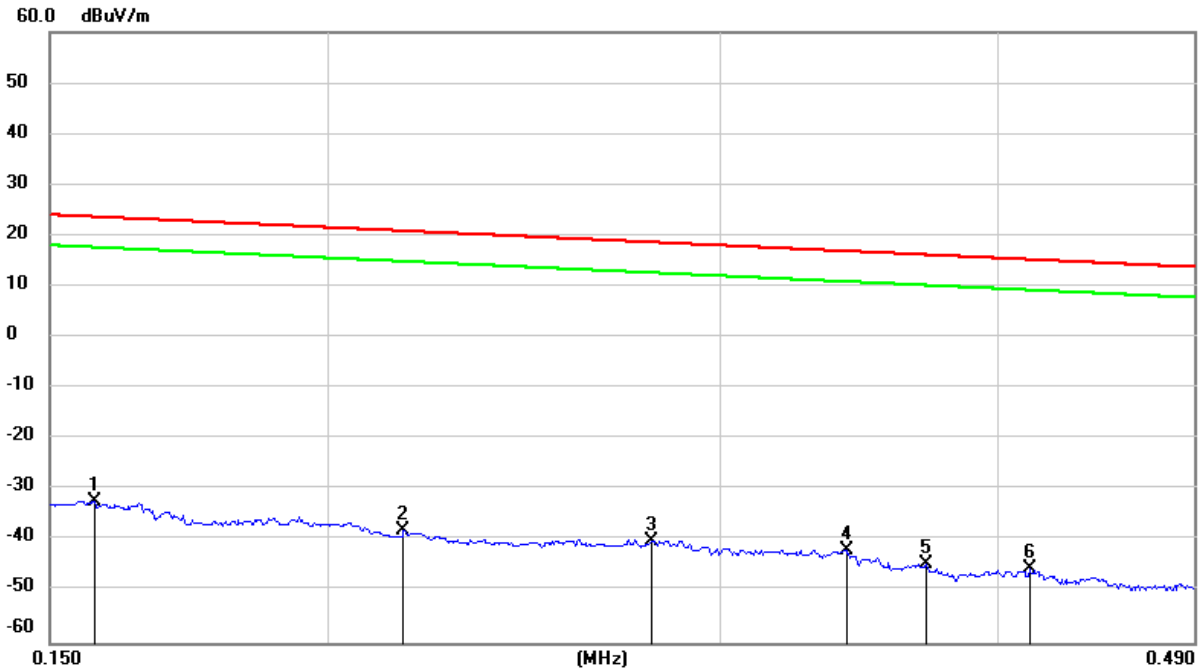
9kHz~ 150kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0091	74.79	-101.33	-26.54	48.28	-74.82	peak
2	0.0114	73.38	-101.40	-28.02	46.46	-74.48	peak
3	0.0280	62.79	-101.38	-38.59	38.66	-77.25	peak
4	0.0539	58.26	-101.50	-43.24	32.97	-76.21	peak
5	0.0874	55.58	-101.69	-46.11	28.77	-74.88	peak
6	0.1188	54.06	-101.74	-47.68	26.11	-73.79	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.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

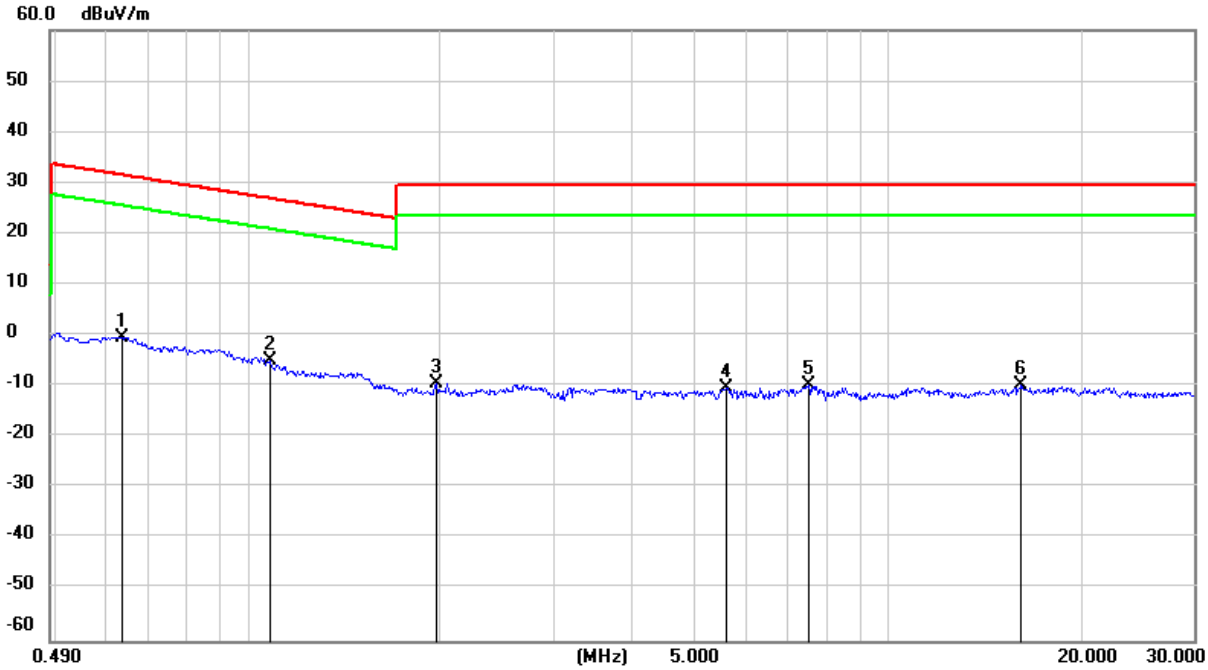
150kHz ~ 490kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1570	69.53	-101.65	-32.12	23.68	-55.80	peak
2	0.2162	63.94	-101.75	-37.81	20.90	-58.71	peak
3	0.2796	61.91	-101.83	-39.92	18.67	-58.59	peak
4	0.3421	60.10	-101.90	-41.80	16.92	-58.72	peak
5	0.3714	57.28	-101.93	-44.65	16.20	-60.85	peak
6	0.4132	56.55	-101.98	-45.43	15.28	-60.71	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

490kHz ~ 30MHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.6370	61.75	-62.10	-0.35	31.52	-31.87	peak
2	1.0802	57.16	-62.23	-5.07	26.94	-32.01	peak
3	1.9681	52.50	-61.83	-9.33	29.54	-38.87	peak
4	5.5952	51.05	-61.41	-10.36	29.54	-39.90	peak
5	7.5133	51.27	-61.14	-9.87	29.54	-39.41	peak
6	16.1598	51.11	-60.97	-9.86	29.54	-39.40	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.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

Note: All antennas and test modes have been tested, only the worst data record in the report.

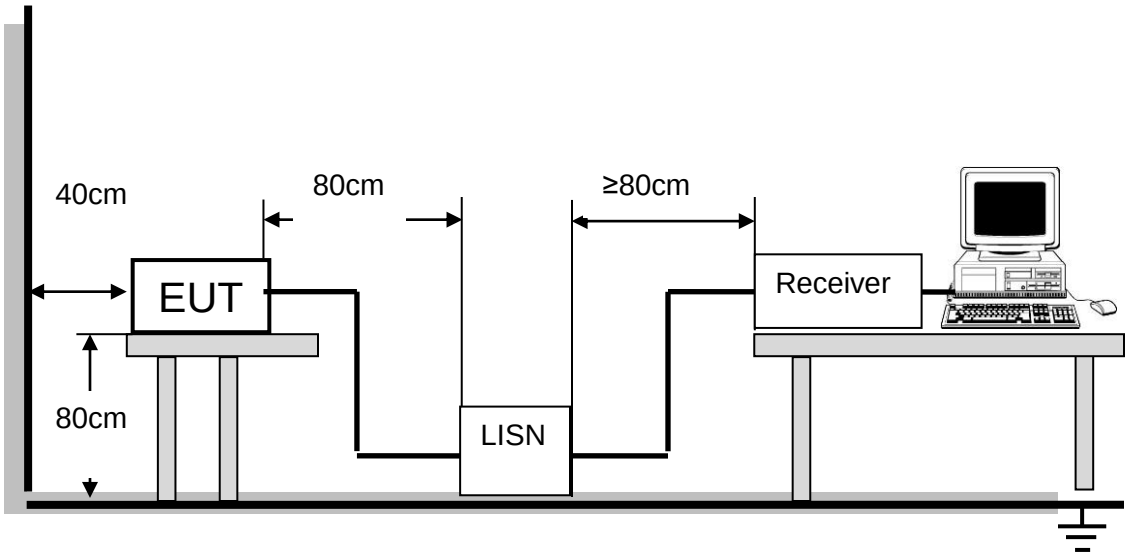
9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

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

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

TEST SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through an 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 ENVIRONMENT

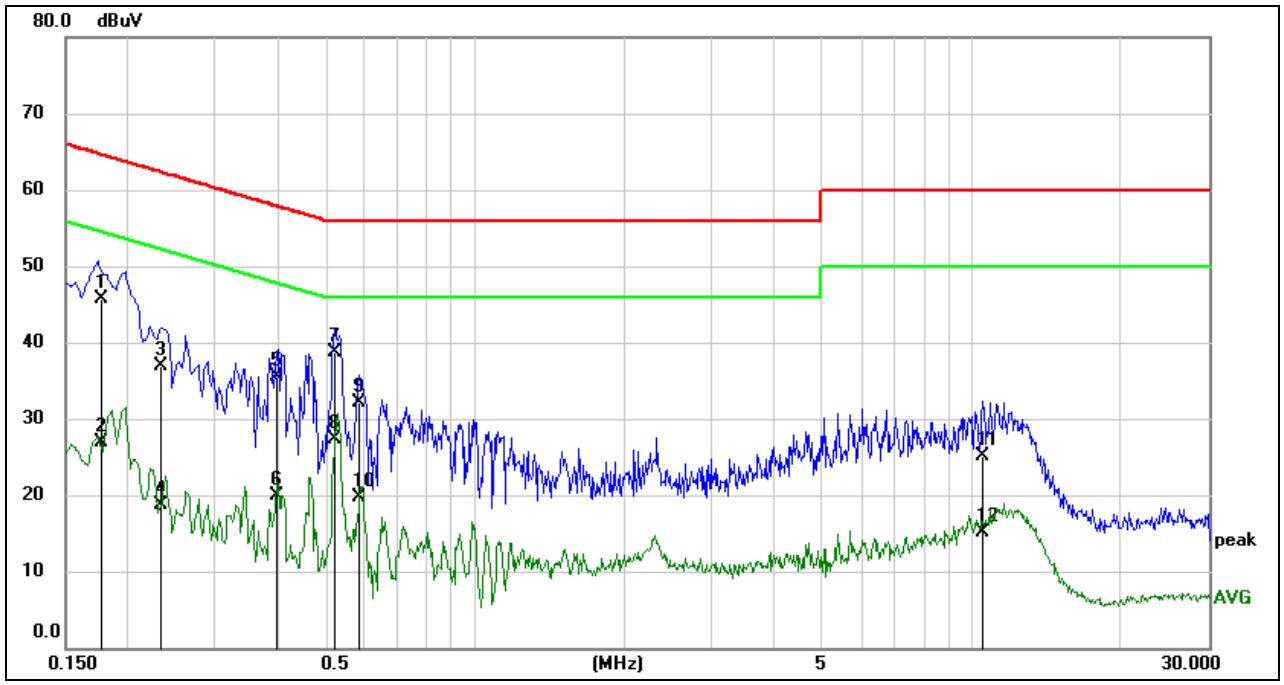
Temperature	24.7°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V_60Hz

TEST RESULTS

802.11n HT20 MIMO MODE

UNII-3 MIMO CDD MODE (WORST-CASE CONFIGURATION)

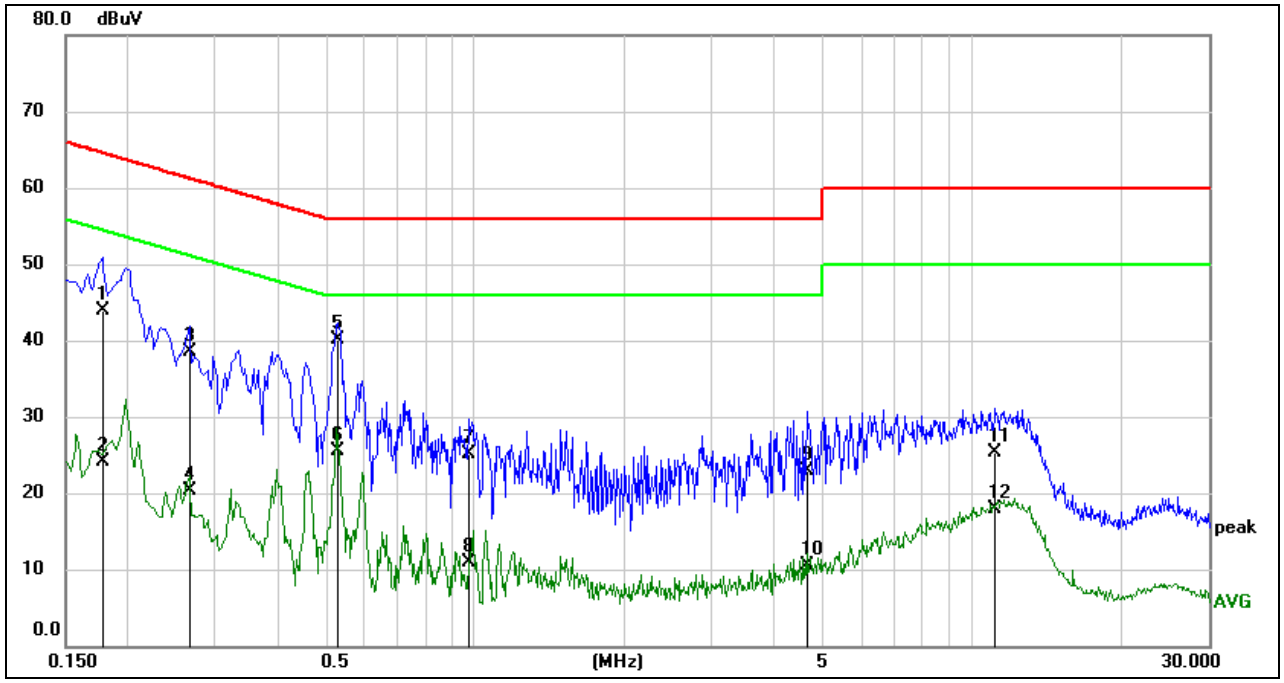
LINE N RESULTS (HIGH CHANNEL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1771	36.11	9.61	45.72	64.62	-18.90	QP
2	0.1771	17.33	9.61	26.94	54.62	-27.68	AVG
3	0.2326	27.23	9.60	36.83	62.36	-25.53	QP
4	0.2326	9.07	9.60	18.67	52.36	-33.69	AVG
5	0.3982	25.99	9.60	35.59	57.89	-22.30	QP
6	0.3982	10.29	9.60	19.89	47.89	-28.00	AVG
7	0.5223	29.13	9.60	38.73	56.00	-17.27	QP
8	0.5223	17.66	9.60	27.26	46.00	-18.74	AVG
9	0.5884	22.47	9.60	32.07	56.00	-23.93	QP
10	0.5884	10.17	9.60	19.77	46.00	-26.23	AVG
11	10.5395	15.28	9.75	25.03	60.00	-34.97	QP
12	10.5395	5.30	9.75	15.05	50.00	-34.95	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 (LOW CHANNEL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1782	34.32	9.61	43.93	64.57	-20.64	QP
2	0.1782	14.47	9.61	24.08	54.57	-30.49	AVG
3	0.2658	28.95	9.60	38.55	61.25	-22.70	QP
4	0.2658	10.64	9.60	20.24	51.25	-31.01	AVG
5	0.5311	30.50	9.60	40.10	56.00	-15.90	QP
6	0.5311	15.90	9.60	25.50	46.00	-20.50	AVG
7	0.9754	15.41	9.61	25.02	56.00	-30.98	QP
8	0.9754	1.35	9.61	10.96	46.00	-35.04	AVG
9	4.6548	13.29	9.67	22.96	56.00	-33.04	QP
10	4.6548	0.87	9.67	10.54	46.00	-35.46	AVG
11	11.1853	15.64	9.76	25.40	60.00	-34.60	QP
12	11.1853	8.06	9.76	17.82	50.00	-32.18	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 antennas and test modes have been tested, only the worst data record in the report.

10. FREQUENCY STABILITY

LIMITS

The frequency of the carrier signal shall be maintained within band of operation

TEST SETUP AND PROCEDURE

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

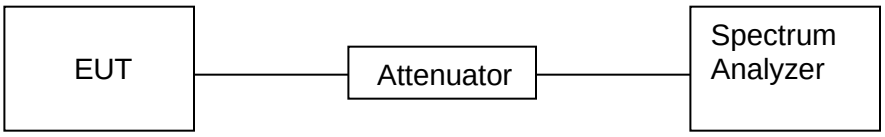
Center Frequency	The center frequency of the channel under test
Detector	PEAK
RBW	10kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

User manual temperature is -10°C~45°C.

TEST SETUP



	Normal Test Conditions	Extreme Test Conditions
Temperature	NT(Normal Temperature): 23.5°C	LT(Low Temperature): -10°C
		HT(High Temperature): 45°C
Supply Voltage	NV(Normal Voltage): DC 7.27V	LT(Low Voltage): DC 6.18V
		HT(High Voltage): DC 8.36V

TEST RESULTS

Frequency Error vs. Voltage									
802.11a 20:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
TN	VL	5825.0367	6.31	5825.0221	3.80	5825.0340	5.84	5825.0440	7.56
TN	VN	5825.0281	4.83	5825.0331	5.69	5825.0350	6.01	5825.0412	7.08
TN	VH	5825.0394	6.77	5825.0324	5.57	5825.0331	5.68	5825.0359	6.17
Frequency Error vs. Temperature									
802.11a 20:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
45	VN	5825.0471	8.09	5825.0424	7.28	5825.0431	7.40	5825.0417	7.16
40	VN	5825.0392	6.73	5825.0365	6.27	5825.0350	6.01	5825.0541	9.29
30	VN	5825.0485	8.33	5825.0415	7.12	5825.0485	8.33	5825.0425	7.30
20	VN	5825.0419	7.19	5825.0533	9.15	5825.0486	8.34	5825.0438	7.52
10	VN	5825.0502	8.62	5825.0476	8.17	5825.0437	7.50	5825.0408	7.00
0	VN	5825.0314	5.39	5825.0451	7.74	5825.0487	8.36	5825.0464	7.97
-10	VN	5825.0412	7.08	5825.0441	7.57	5825.0351	6.03	5825.0292	5.01

Note: All antennas and test modes have been tested, only the worst data record in the report.

11. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

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

Please refer to FCC §15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS

Complies

END OF REPORT