



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

CERTIFICATION TEST REPORT

For

Television

MODEL NUMBER: V436-J04

FCC ID: 2AYT5-V436J04

IC: 26954-V436J04

REPORT NUMBER: 4789898885.1-3

ISSUE DATE: May 6, 2021

Prepared for

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Prepared by

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test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to
other similar products.**

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	05/06/2021	Initial Issue	

Note: The host product television installed the module SKI.WB7638U.1_MT7638BUB which had already applied for the limited single module and the FCC ID is 2AYT5-SKIWB7638U2 (IC: 26954-SKIWB7638U2). Since the installation of the module in the host does not change those parameters, full radiated testing was conducted and the original conducted data from the module is being leveraged. The conducted data contained within is taken directly from the module reports. The module reports were listed as followed. For other data, please refer to the original module reports.

Module Reports Details:

Equipment Class	Application Type	Test Report Number	Exhibit Type	FCC / ISED
DTS	Limited Single Module	SEFI2001042	Test Report	FCC
	Limited Single Module	SEDL2001042	Test Report	ISED
	Limited Single Module	4789787344.1-3	Test Report	FCC / ISED
NII	Limited Single Module	SEDL2001042	Test Report	FCC
	Limited Single Module	SEDM2001042	Test Report	ISED
	Limited Single Module	4789787344.1-4	Test Report	FCC / ISED
BLE	Limited Single Module	4789787344.1-1	Test Report	FCC / ISED
BT	Limited Single Module	4789787344.1-2	Test Report	FCC / ISED

Summary of Test Results			
Clause	Test Items	FCC/ISED Rules	Test Results
1	Conducted Output Power Spot Check	FCC Part 15.247 (b) (3) RSS-247 Clause 5.4 (d)	Pass
2	Conducted Bandedge and Spurious Emission Spot Check	FCC Part 15.247 (d) RSS-247 Clause 5.5	Pass
3	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	Pass
4	Conducted Emission Test for AC Power Port	FCC Part 15.207 RSS-GEN Clause 8.8	Pass
5	Antenna Requirement	FCC 15.203 RSS-GEN Clause 6.8	Pass

Note:

1. This test report is only published to and used by the applicant, and it is not for evidence purpose in China.

2. The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C >< ISED RSS-247 > when <Accuracy Method> decision rule is applied.

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Hefei BOE Vision-electronic Technology Co.,Ltd.
Address: NO.2177 Dongfang RD, Xinzhan General Pilot Zone HeFei, Anhui, 230012, P.R.China

Manufacturer Information

Company Name: Hefei BOE Vision-electronic Technology Co.,Ltd.
Address: NO.2177 Dongfang RD, Xinzhan General Pilot Zone HeFei, Anhui, 230012, P.R.China

EUT Information

EUT Name: Television
Model: V436-J04
Brand: VIZIO
Sample Received Date: February 25, 2021
Sample Status: Normal
Date of Tested: March 1, 2021 ~ May 6, 2021

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

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, KDB 484596 D01 Referencing Test Data v01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 2 and ISED RSS-GEN Issue 5.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p>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.</p> <p>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</p> <p>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 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p>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.</p> <p>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</p>
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Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Conduction Emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz) 5.23 dB (18 GHz ~ 26 GHz)
Maximum Conducted Output Power	±0.686 dB
Conducted Band-edge Compliance	±1.328 dB
Conducted Unwanted Emissions In Non-restricted Frequency Bands	±0.746 dB (9 kHz ~ 1 GHz) ±1.328dB (1 GHz ~ 26 GHz)

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	Television
Model	V436-J04
Radio Technology	WLAN (IEEE 802.11b/g/n HT20/n HT40)
Operation frequency	IEEE 802.11b: 2412MHz ~ 2462MHz IEEE 802.11g: 2412MHz ~ 2462MHz IEEE 802.11n HT20: 2412MHz ~ 2462MHz IEEE 802.11n HT40: 2422MHz ~ 2452MHz
Modulation	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK)
Ratings	AC 120 V, 50/60 Hz

5.2. CHANNEL LIST

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

Channel List for 802.11n (40 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	5	2432	7	2442	9	2452
4	2427	6	2437	8	2447	/	/

5.3. TEST CHANNEL CONFIGURATION

IEEE Std. 802.11	Test Channel Number	Frequency
b	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz
g	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz
n HT20	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz
n HT40	CH 3(Low Channel), CH 6(MID Channel), CH 9(High Channel)	2422 MHz, 2437 MHz, 2452 MHz

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency	Antenna Type	Maximum Antenna Gain
	(MHz)		(dBi)
0	2412 ~ 2462	PIFA	1.5
1	2412 ~ 2452	PIFA	1.5

IEEE Std. 802.11	Transmit and Receive Mode	Description
b	1TX, 1RX	Antenna 1, 2 can be used as transmitting/receiving antenna.
g	1TX, 1RX	Antenna 1, 2 can be used as transmitting/receiving antenna.
n HT20	2TX, 2RX	Antenna 1, 2 can be used as transmitting/receiving antenna.
n HT40	2TX, 2RX	Antenna 1, 2 can be used as transmitting/receiving antenna.

Note: 1. Only 802.11n HT20/HT40 support MIMO mode

2. BT & 2.4 GHz WLAN, BT & 5 GHz WLAN can transmit simultaneously. (Declared by customer.)

Note: The value of the antenna gain was declared by customer.

5.5. THE WORSE CASE CONFIGURATIONS

For SISO modes, there are two transmission antennas. The antenna used in any given time can be either ANTENNA 1 or ANTENNA 2. The output power measurement for SISO modes on both antennas are reported.

For 2TX MIMO modes, ANTENNA 1 and ANTENNA 2, used at the same time.

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

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

802.11n HT20 mode: MCS0

802.11n HT40 mode: MCS0

Note: Only 802.11n HT20 and 802.11n HT40 support MIMO mode, for 802.11b and 802.11g, all antennas had been tested, but only the worst data for Antenna 1 was recorded.

For 802.11n HT20 and 802.11n HT40, all antennas had the same power in MIMO mode and SISO mode, so only the worst data for MIMO mode was recorded.



5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	Dell	Vostro 3902	/
2	USB Disk	/	/	/
3	DVD	/	DV-410V-K	/
4	Laptop	Lenovo	E42-80	/
5	Laptop	Lenovo	E42-80	/
6	Speaker	/	MS20	/
7	50 Ω Load	/	MS20	/
8	Test fixture	/	/	/
9	Switching Adapter	FLYPOWER	PS65IBCAY5000H	Input: AC 100-240 V, 50/60 Hz, 1.5A Output: DC 12.0 V, 5000 mA

I/O CABLES

Cable No	Port	Cable Type	Cable Length(m)	Remarks
1	USB	Unshielded	1	/
2	HDMI 1	Shielded	1.5	/
3	HDMI 2	Shielded	1.5	/
4	HDMI 3	Shielded	1.5	/
5	OPTICAL	Unshielded	1	/
6	COMPOSITE INPUT	Unshielded	2	/
7	AUDIO OUT	Unshielded	2	/
8	ANTENNA	Unshielded	1	/
9	ETHERNET	Unshielded	1	/

ACCESSORIES

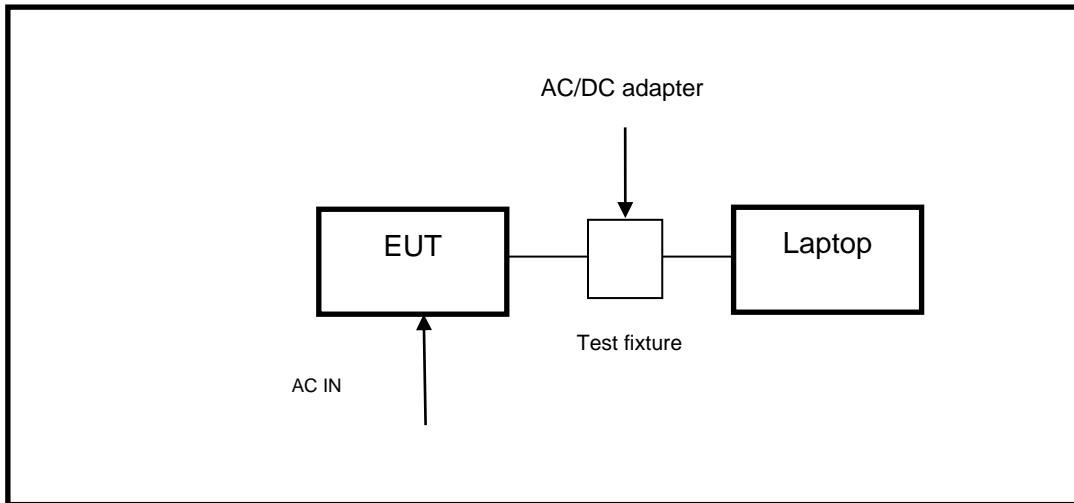
Item	Accessory	Brand Name	Model Name	Description
1	Remote Controller	/	/	/

TEST SETUP

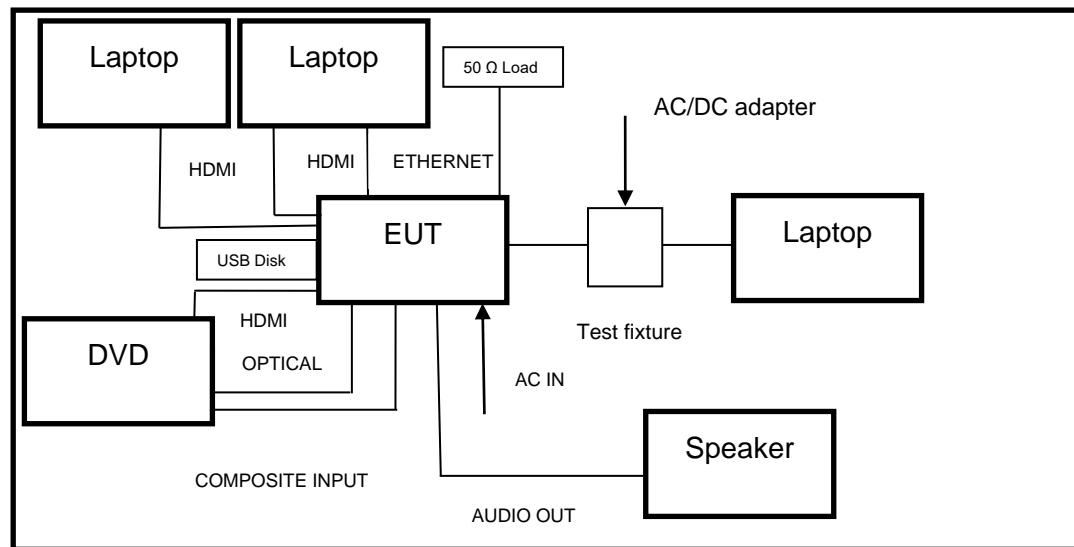
The EUT can work in engineering mode with a software through a Laptop.

SETUP DIAGRAM FOR TESTS

For Conducted Test:



For Radiated Test:





6. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Nov. 12, 2020	Nov. 11, 2021
Two-Line V-Network	R&S	ENV216	101983	Nov. 12, 2020	Nov. 11, 2021
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1
Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Nov. 12, 2020	Nov. 11, 2021
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug. 11, 2018	Aug. 10, 2021
Preamplifier	HP	8447D	2944A09099	Nov. 12, 2020	Nov. 11, 2021
EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
Horn Antenna	TDK	HRN-0118	130939	Sept. 17, 2018	Sept. 17, 2021
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Nov. 20, 2020	Nov. 19, 2021
Horn Antenna	Schwarzbeck	BBHA9170	#691	Aug. 11, 2018	Aug. 11, 2021
Preamplifier	TDK	PA-02-2	TRS-307-00003	Nov. 12, 2020	Nov. 11, 2021
Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Nov. 20, 2020	Nov. 19, 2021
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Nov. 12, 2020	Nov. 11, 2021
Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Nov. 12, 2020	Nov. 11, 2021
Software					
Description			Manufacturer	Name	Version
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1



Other Instruments					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Keysight	N9020A	MY49100060	Nov. 20, 2020	Nov. 19, 2021
Dual Channel Power Meter	Keysight	N1912A	MY55416024	Nov. 20, 2020	Nov. 19, 2021
Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Nov. 20, 2020	Nov. 19, 2021

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

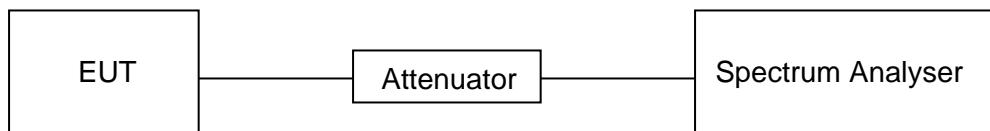
LIMITS

None; for reporting purposes only

PROCEDURE

Refer to ANSI C63.10-2013 clause 11.6 Zero – Span Spectrum Analyzer method.

TEST SETUP



TEST ENVIRONMENT

Temperature	23.2 °C	Relative Humidity	65.1 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V

RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
11b	100	100	1	100	0	0.01	10
11g	100	100	1	100	0	0.01	10
11n HT20	100	100	1	100	0	0.01	10
11n HT40	100	100	1	100	0	0.01	10

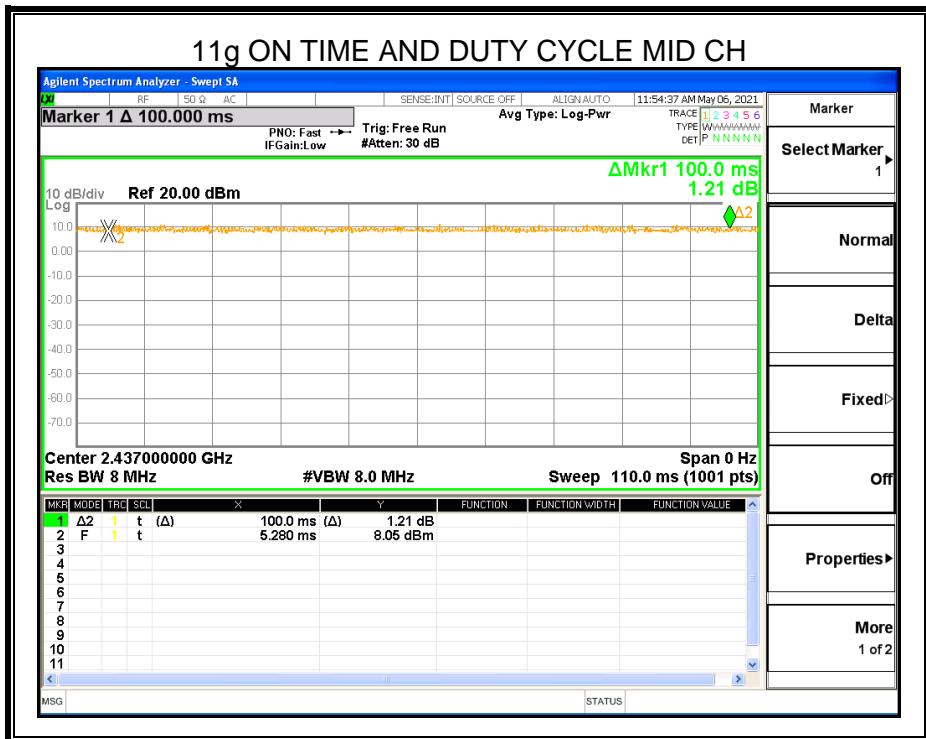
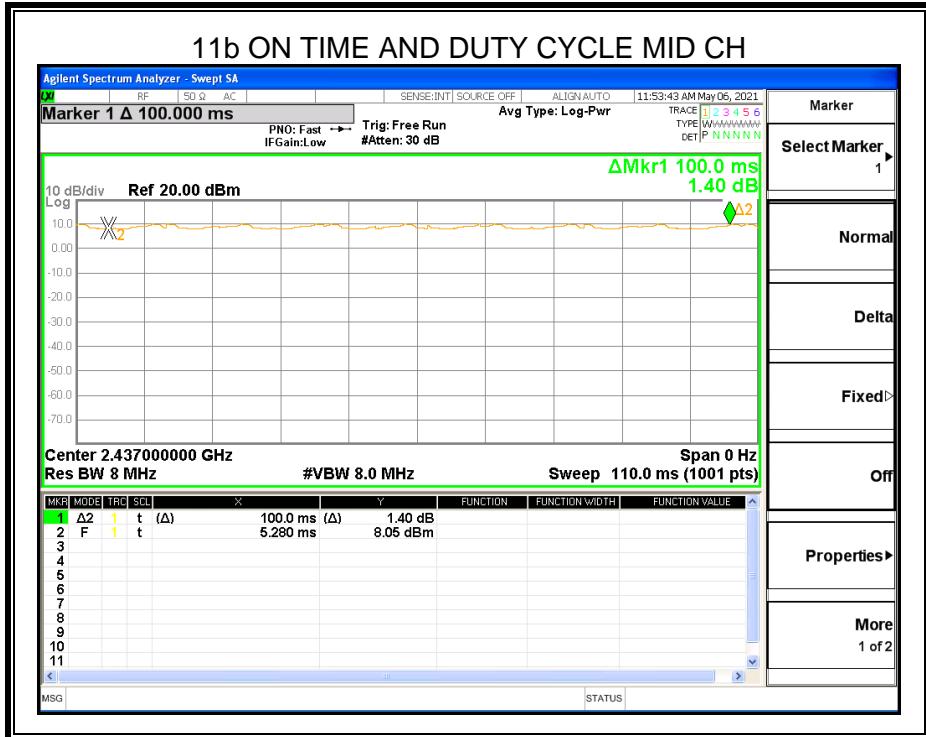
Note:

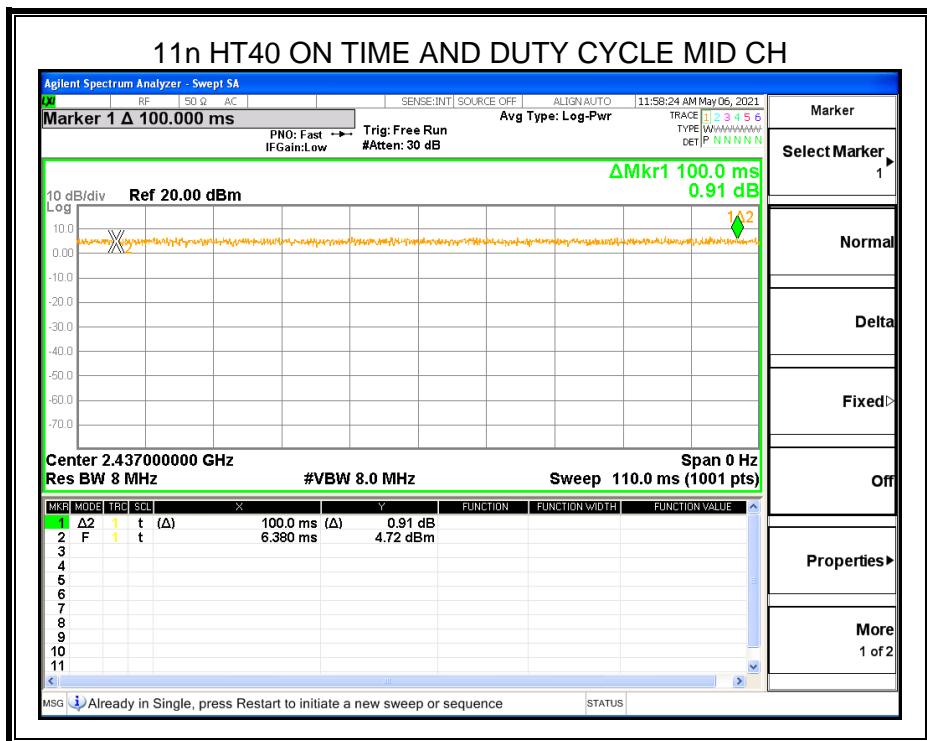
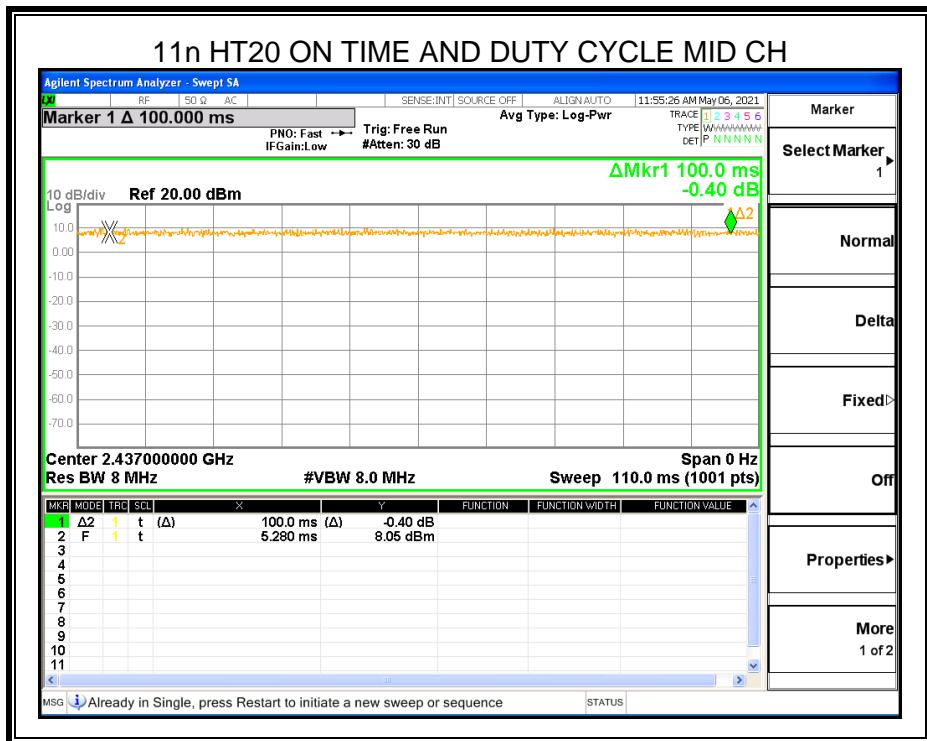
Duty Cycle Correction Factor=10log (1/x).

Where: x is Duty Cycle (Linear)

Where: T is On Time

If that calculated VBW is not available on the analyzer then the next higher value should be used.





7.2. CONDUCTED OUTPUT POWER

LIMITS

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

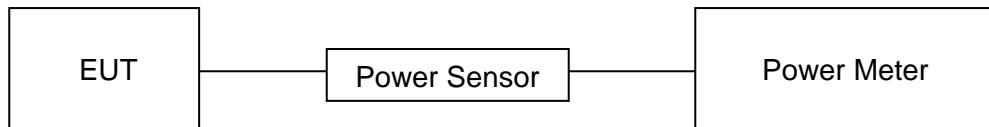
TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.9.

Connect the EUT to a low loss RF cable from the antenna port to the power sensor (video bandwidth is greater than the occupied bandwidth).

Measure peak emission level, the indicated level is the average output power, after any corrections for external attenuators and cables.

TEST SETUP



TEST ENVIRONMENT

Temperature	23.6 °C	Relative Humidity	67.2 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V

RESULTS

Spot Check Verification Result:

Test Item	Test Mode	Frequency	Antenna	Worst Case Test Result	
				Original Model	Spot Check Model
Conducted AV Power	802.11b	2437 MHz	0	15.63 dBm	15.68 dBm
			1	15.52 dBm	15.47 dBm
	802.11g	2437 MHz	0	14.22 dBm	14.25 dBm
			1	14.68 dBm	14.63 dBm
	802.11n HT20	2437 MHz	0	13.27 dBm	13.35 dBm
			1	13.38 dBm	13.41 dBm
	802.11n HT40	2437 MHz	0	13.21 dBm	13.18 dBm
			1	13.64 dBm	13.65 dBm

Conclusion:

The spot check test result show that the new devices still comply with the standard and the new test result was close to the original test result, so it can demonstrate that the original test data remains valid for the new device.

7.3. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d) ISED RSS-247 5.5	Conducted Bandedge and Spurious Emissions	at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.11 and 11.13.

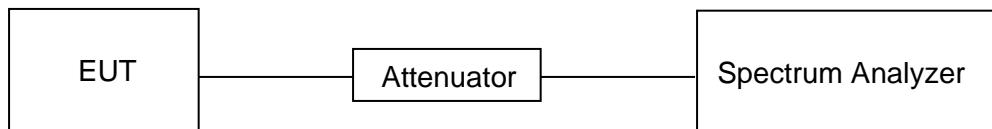
Connect the EUT to the spectrum analyser and use the following settings for reference level measurement:

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

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level. Change the settings for emission level measurement:

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times$ RBW
measurement points	\geq span/RBW
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11.

TEST SETUP**TEST ENVIRONMENT**

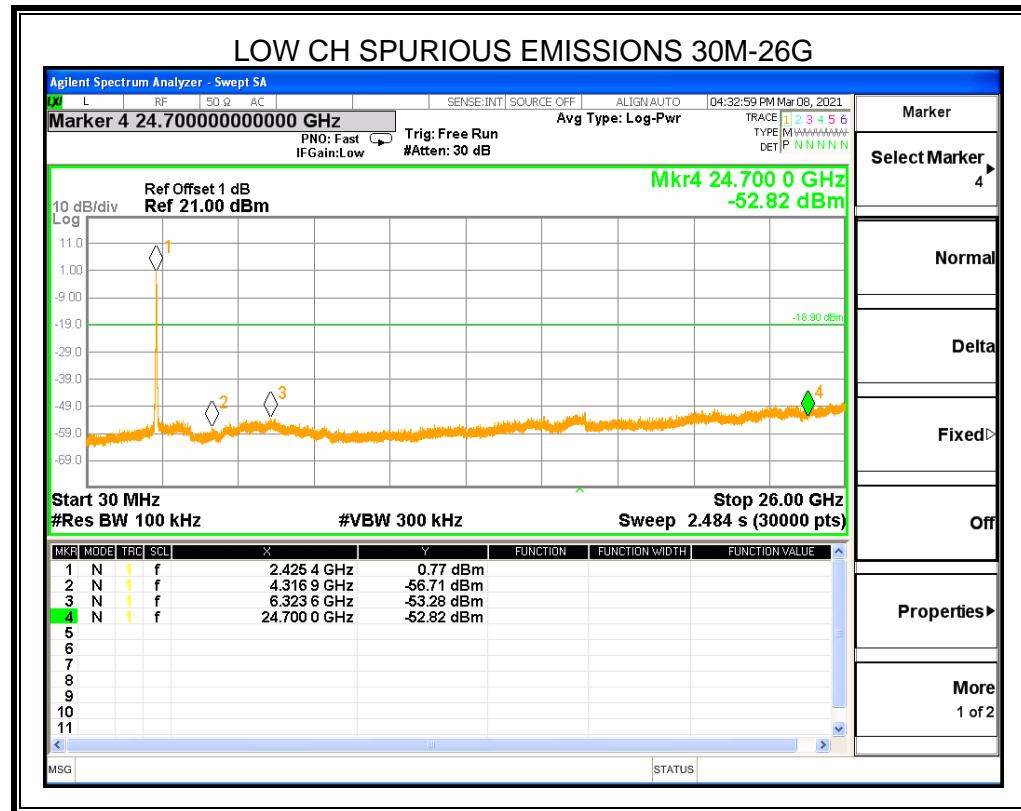
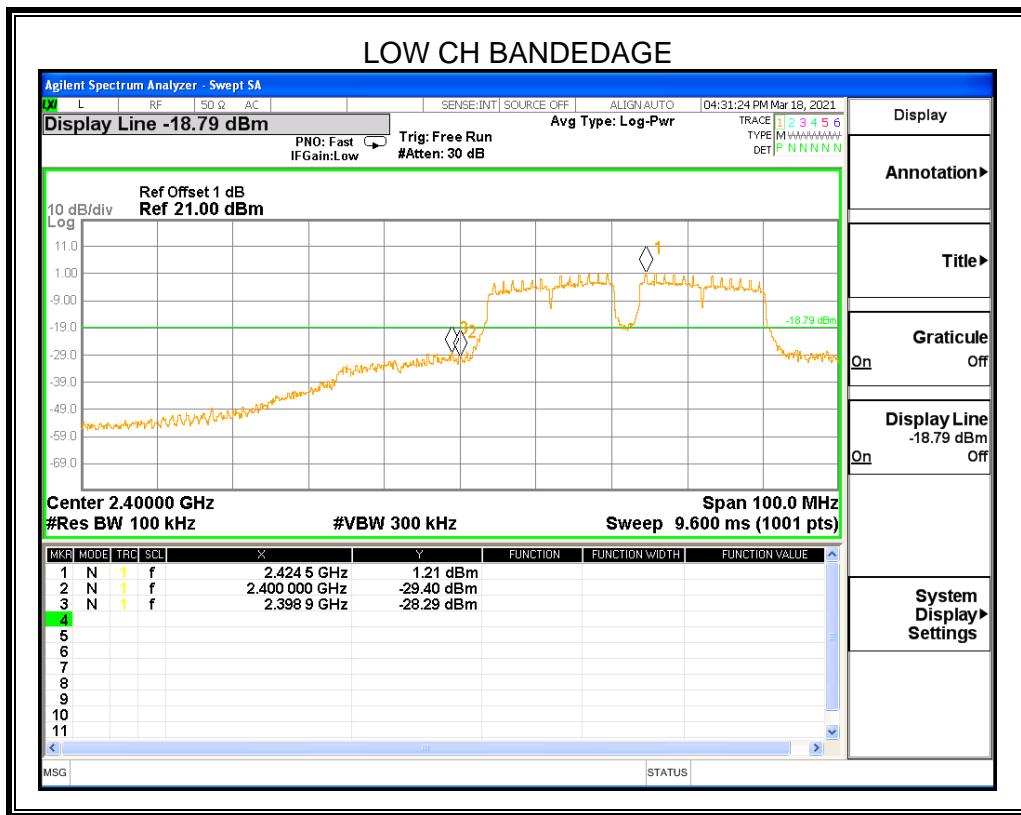
Temperature	23.6 °C	Relative Humidity	67.2 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V

RESULTS**SPOT CHECK VERIFICATION SUMMERY**

Test Item	Test Mode	Test Channel	Worst Case Test Result	
			Original Model	Spot Check Model
			MHz	dBm
Conducted Bandedge	802.11n HT40	2422	-25.370	-28.29
Spurious Emission	802.11n HT40	2422	-47.378	-52.82

Conclusion:

The spot check test result show that the new devices still comply with the standard and the new test result was close to the original test result, so it can demonstrate that the original test data remains valid for the new device.



8. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.205 and §15.209.

Please refer to ISED RSS-GEN Clause 8.9 and Clause 8.10.

Radiation Disturbance Test Limit for FCC (9 kHz ~ 1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
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

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
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

ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) (μ A/m)	Measurement distance (m)
9 - 490 kHz ^{Note 1}	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

ISED Restricted bands please refer to ISED RSS-GEN Clause 8.10

Table 7 – Restricted frequency bands ^{Note 1}		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.405 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	158.7 - 158.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.28775 - 6.28825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.382 - 8.386	1660 - 1710	
8.37625 - 8.39675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.511975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.38 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.8	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.



FCC Restricted bands of operation refer to FCC §15.205 (a):

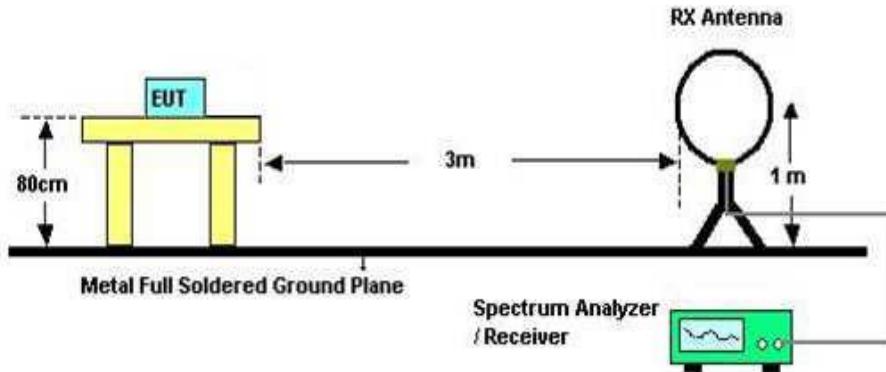
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

Note: ¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6c

TEST SETUP AND PROCEDURE

Below 30 MHz

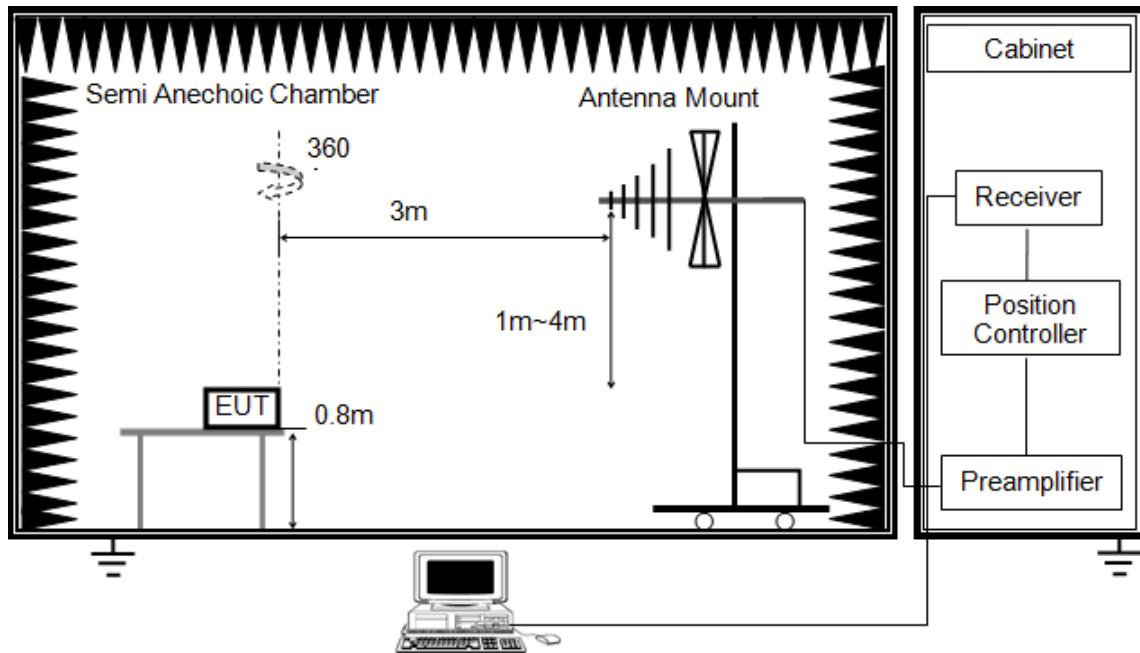


The setting of the spectrum analyser

RBW	200 Hz (From 9 kHz to 0.15 MHz) / 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz) / 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 11.11 & 11.12.
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 80cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, 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 and average 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 and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m 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 1 GHz and above 30 MHz

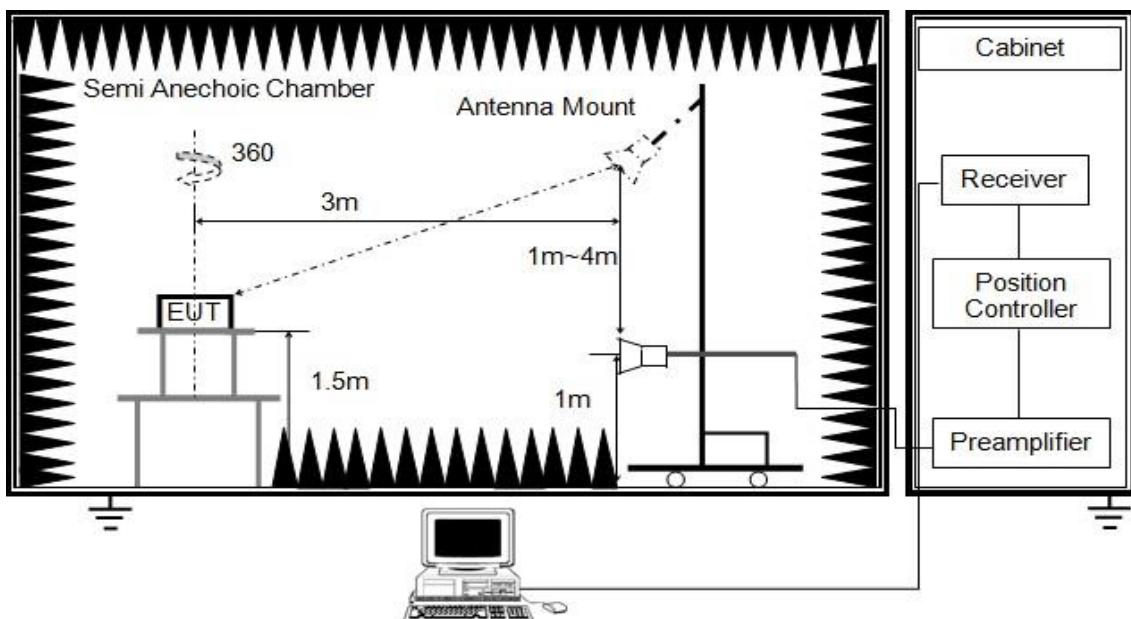


The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 11.11 & 11.12.
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 80 cm 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 1 GHz, 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 1 GHz



The setting of the spectrum analyser

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 11.11 and 11.12.
2. The EUT was arranged to its worst case and then tune the antenna tower (1.5 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 1.5 m 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 1 GHz, 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.

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: Simultaneous transmission had been evaluated with the 2.4 GHz WiFi, 5 GHz WiFi and BT transmitter and there were no any additional or worse emissions found. Only the worst data was recorded in the test report.

TEST ENVIRONMENT

Temperature	22.6 °C	Relative Humidity	64.4 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V

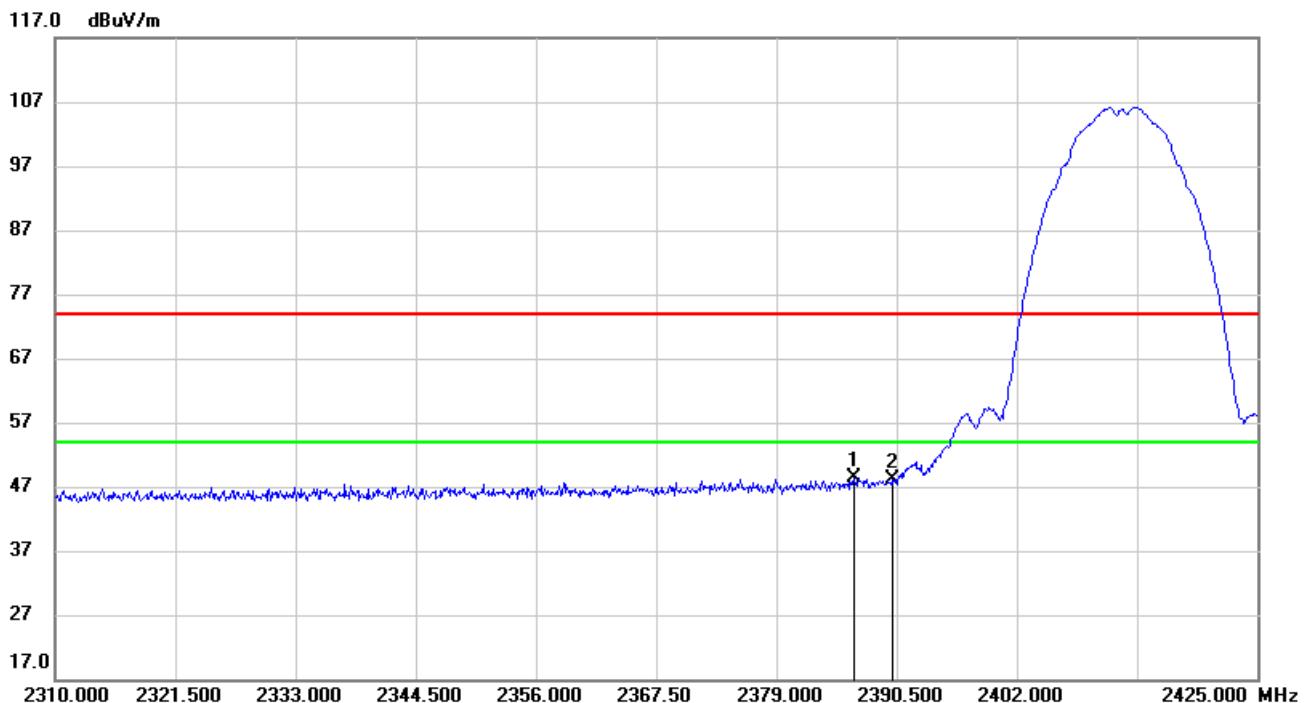
RESULTS

8.1. RESTRICTED BANDEDGE

8.1.1. 802.11b SISO MODE

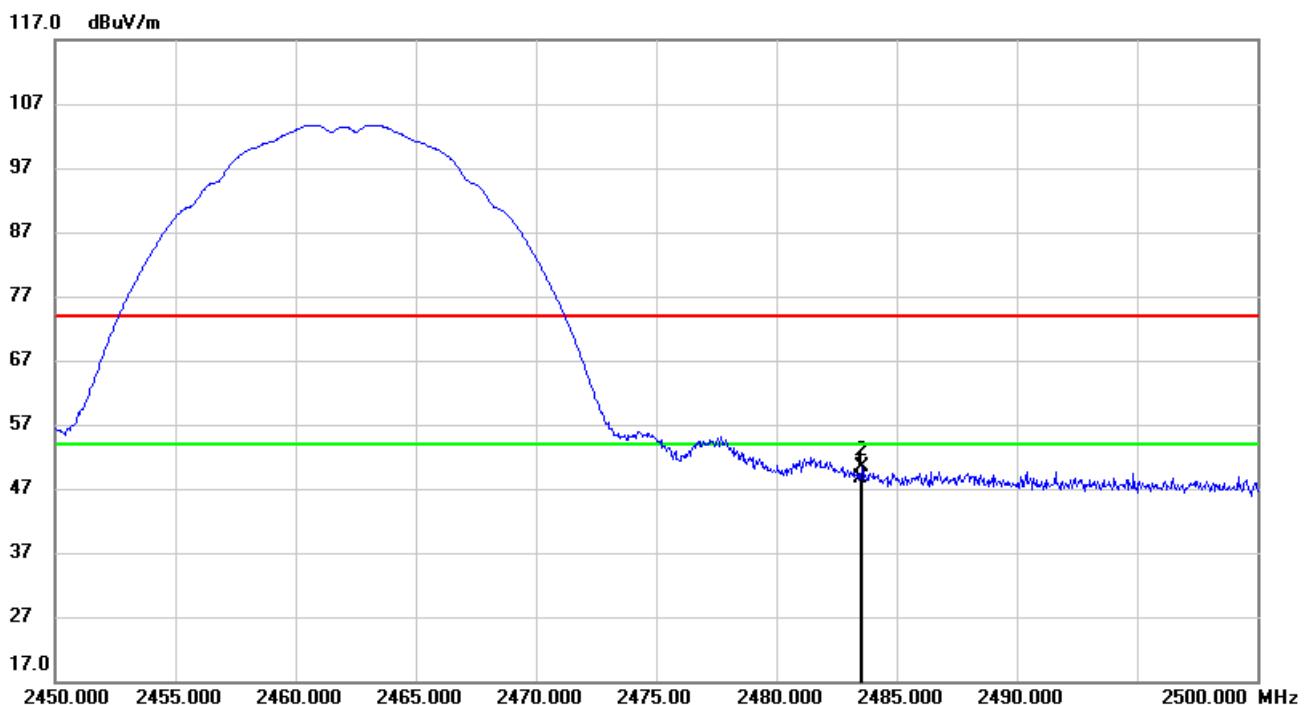
ANTENNA 1 TEST RESULTS (WORST CASE)

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.360	15.14	33.33	48.47	74.00	-25.53	peak
2	2390.000	14.67	33.35	48.02	74.00	-25.98	peak

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

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)PEAK

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	14.95	33.71	48.66	74.00	-25.34	peak
2	2483.550	16.60	33.71	50.31	74.00	-23.69	peak

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

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

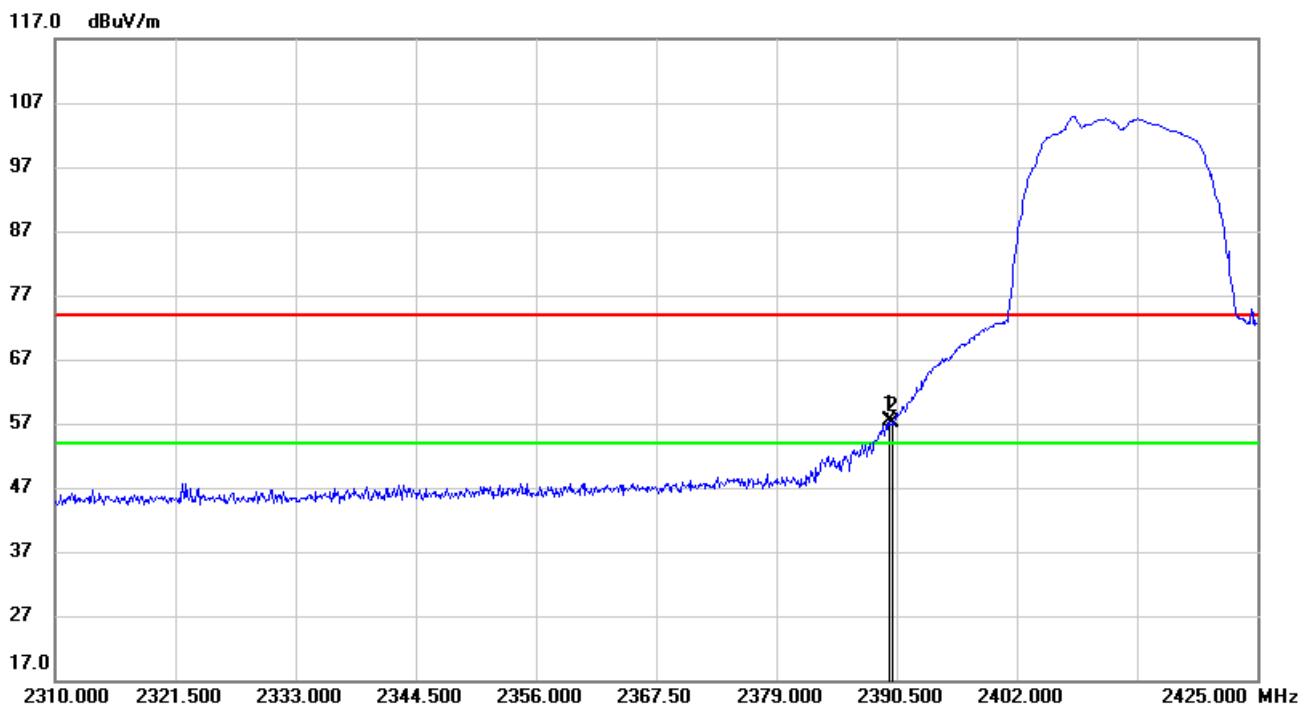
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

8.1.2. 802.11g SISO MODE

ANTENNA 1 TEST RESULTS (WORST CASE)

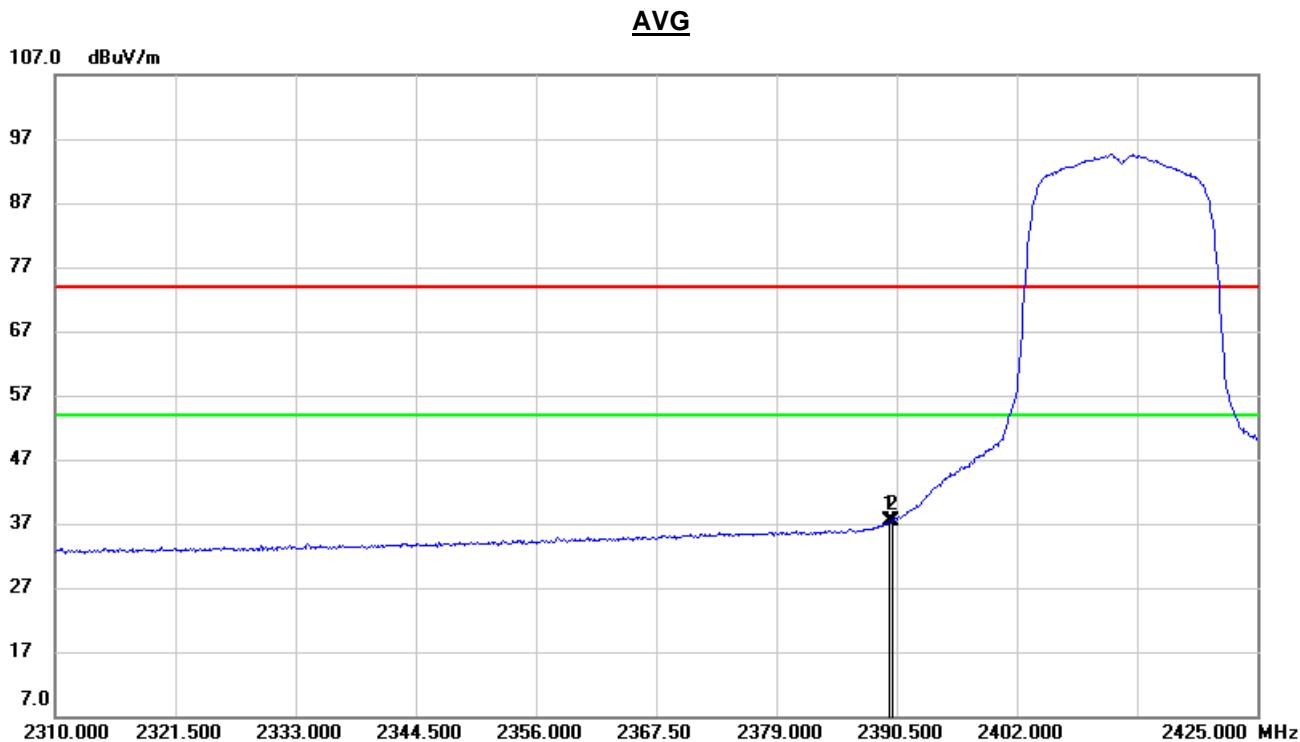
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.810	23.99	33.35	57.34	74.00	-16.66	peak
2	2390.000	23.83	33.35	57.18	74.00	-16.82	peak

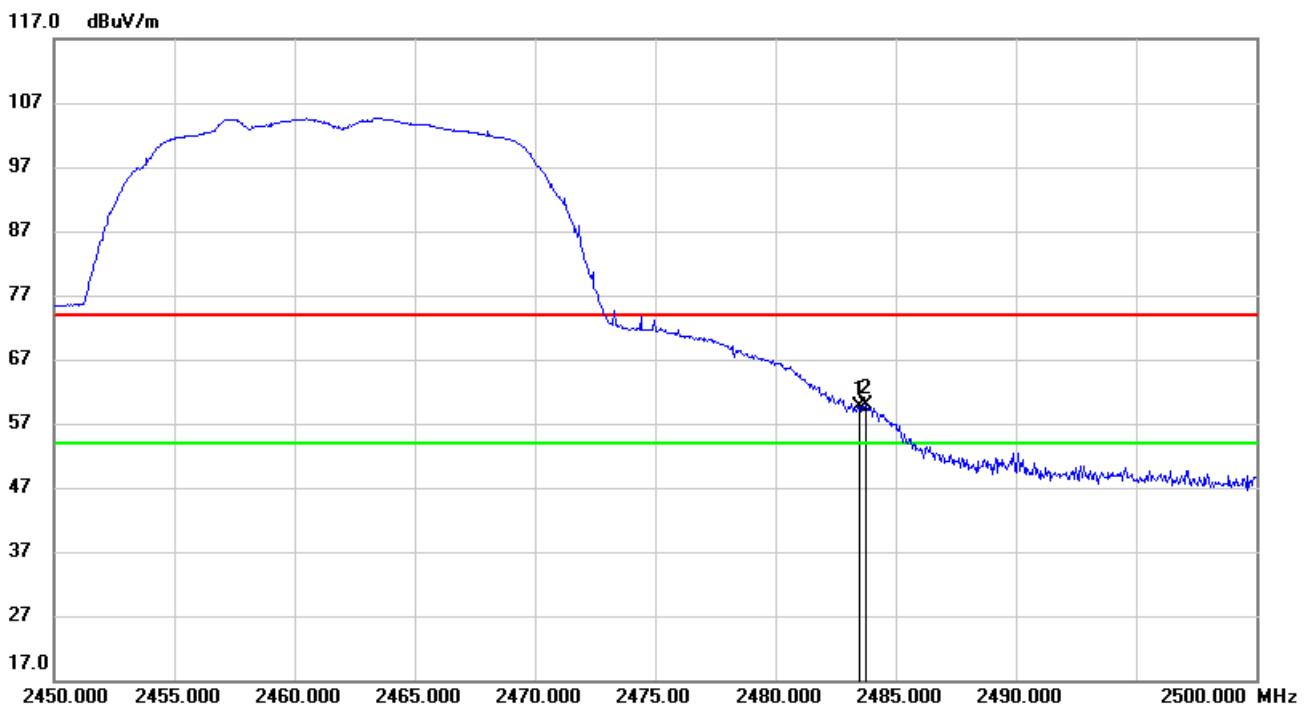
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.810	3.91	33.35	37.26	54.00	-16.74	AVG
2	2390.000	4.04	33.35	37.39	54.00	-16.61	AVG

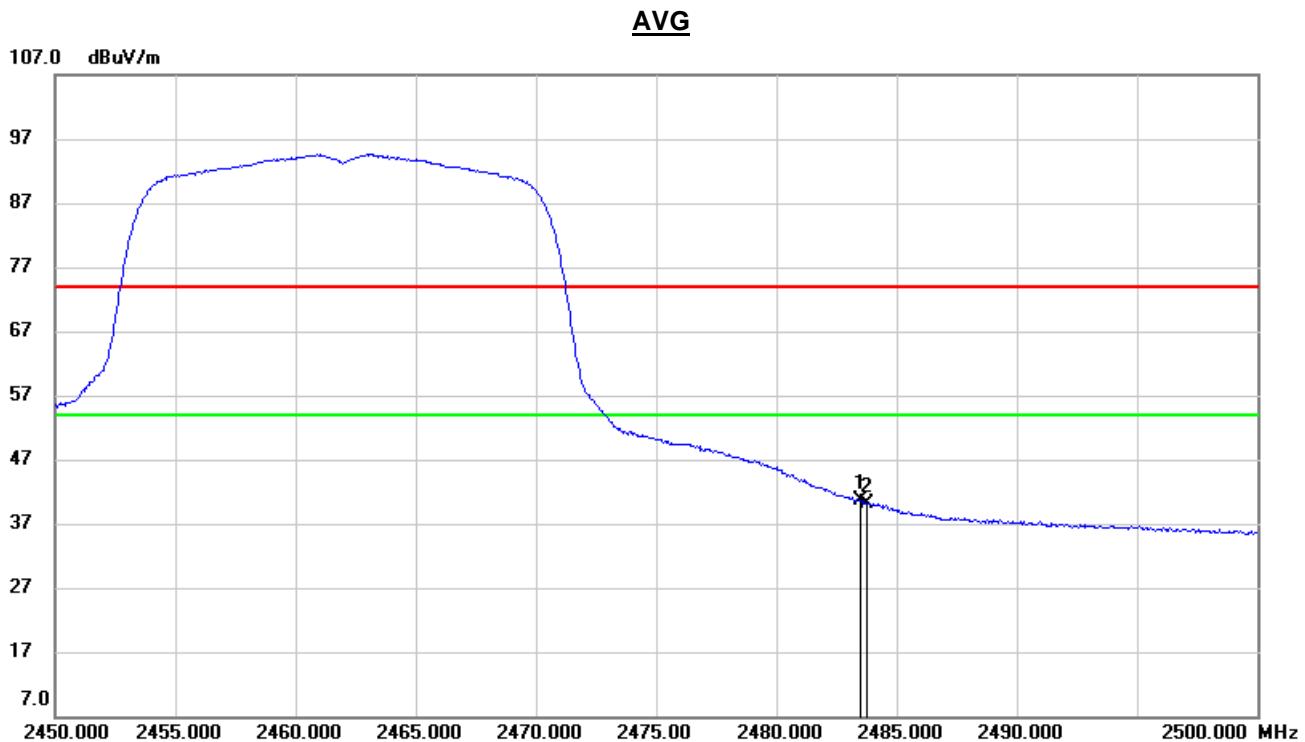
Note:

1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)PEAK

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	26.04	33.71	59.75	74.00	-14.25	peak
2	2483.750	26.07	33.71	59.78	74.00	-14.22	peak

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	6.83	33.71	40.54	54.00	-13.46	AVG
2	2483.750	6.35	33.71	40.06	54.00	-13.94	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

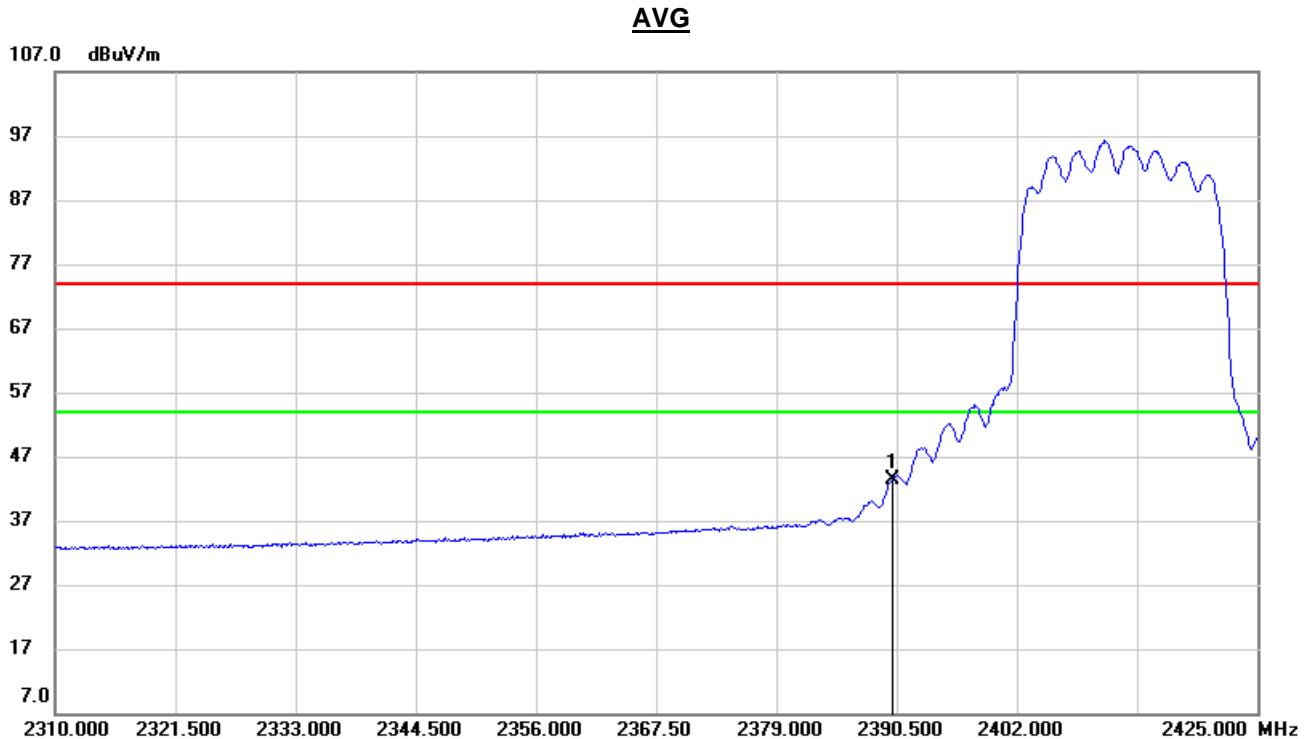
8.1.3. 802.11n HT20 MIMO MODE

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	29.32	33.35	62.67	74.00	-11.33	peak

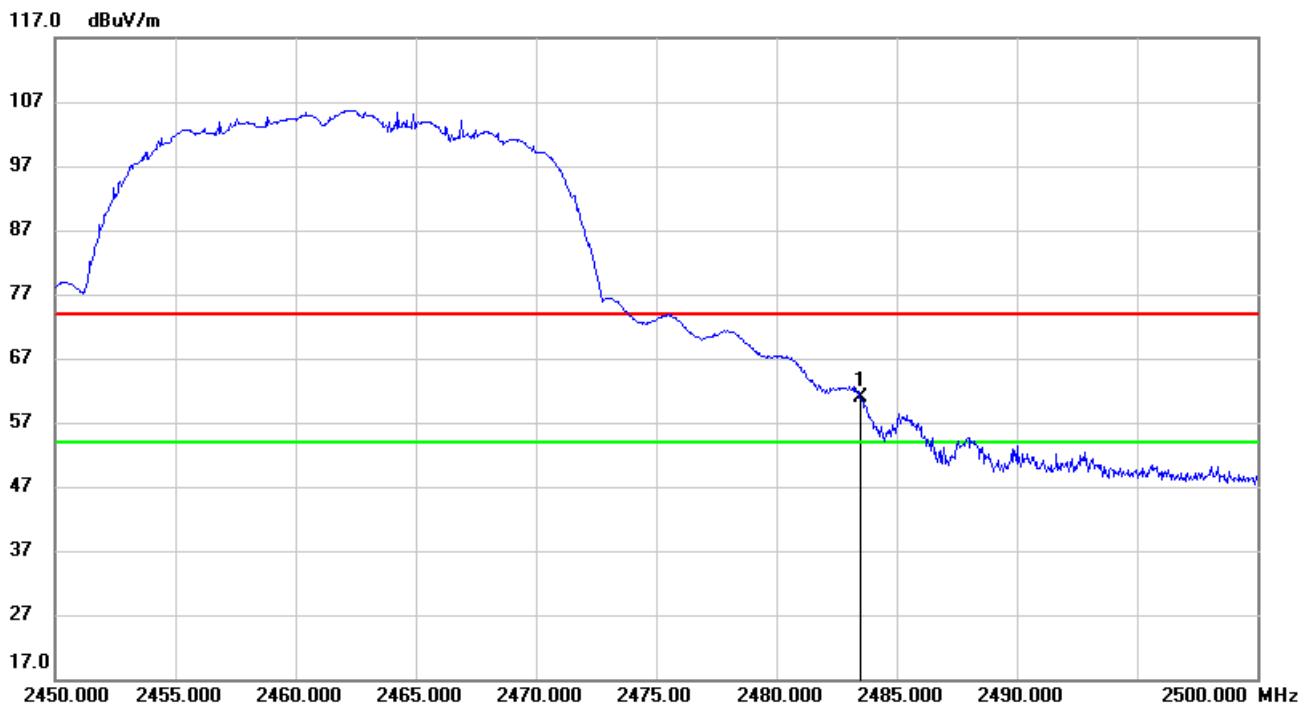
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	10.08	33.35	43.43	54.00	-10.57	AVG

Note:

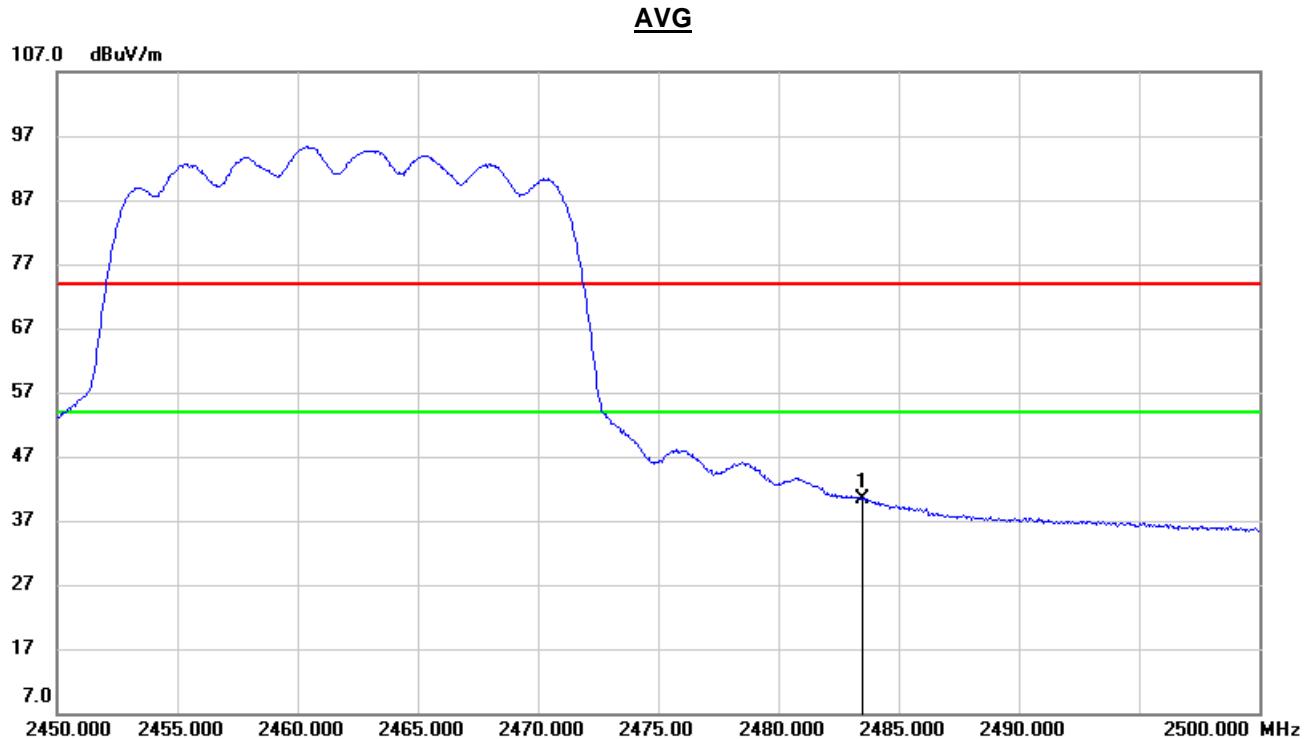
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)PEAK

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	27.20	33.71	60.91	74.00	-13.09	peak

Note:

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



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	6.73	33.71	40.44	54.00	-13.56	AVG

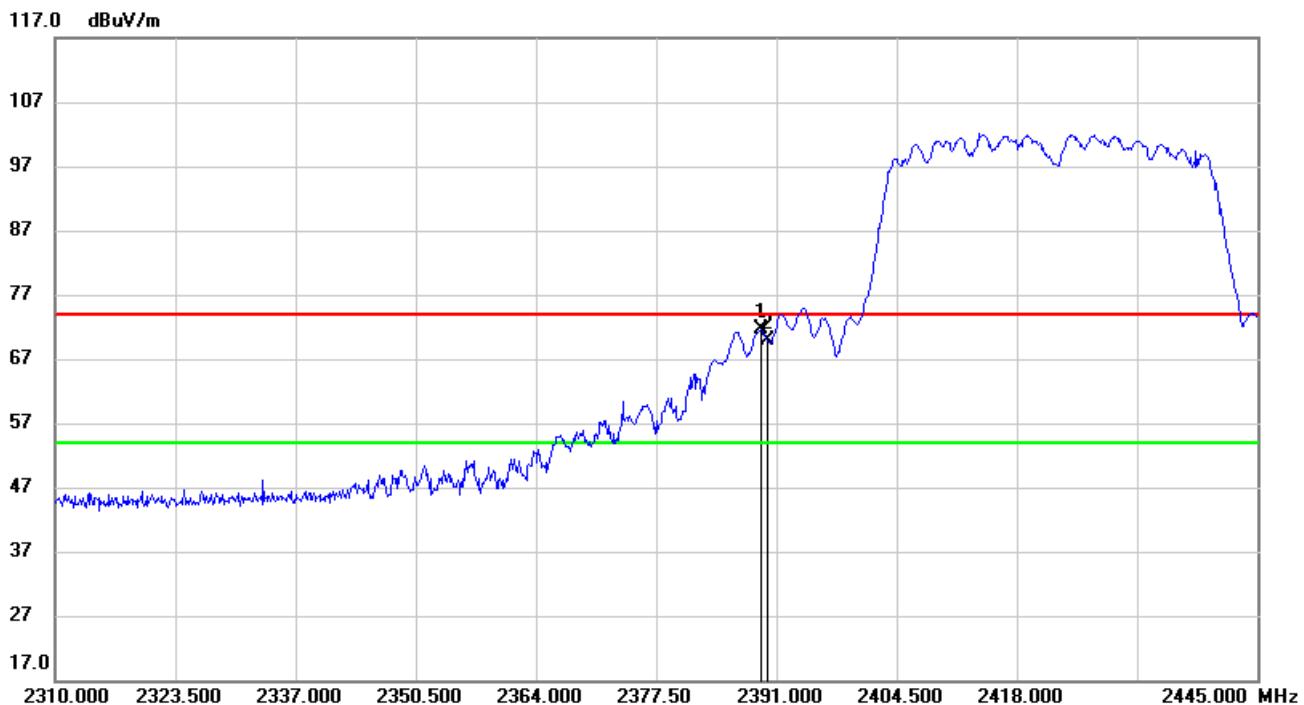
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

8.1.4. 802.11n HT40 MIMO MODE

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

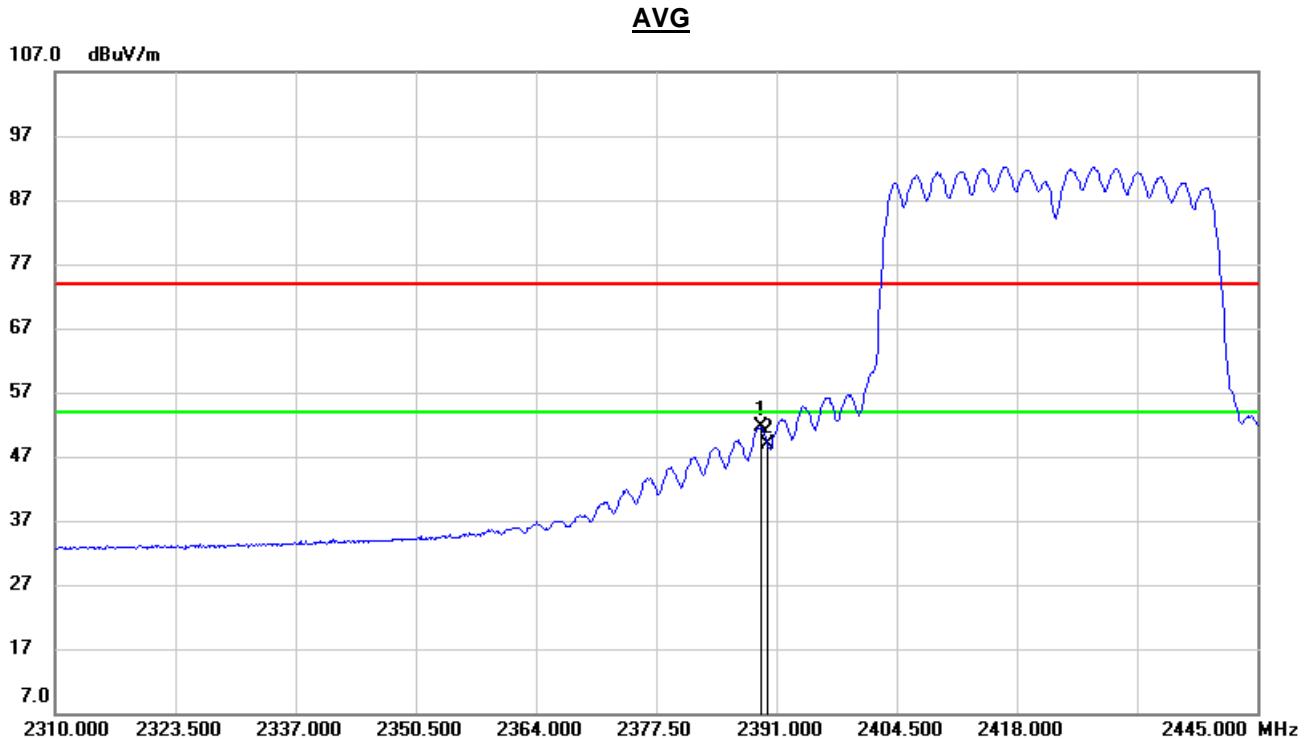
PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.245	38.18	33.35	71.53	74.00	-2.47	peak
2	2390.000	36.42	33.35	69.77	74.00	-4.23	peak

Note:

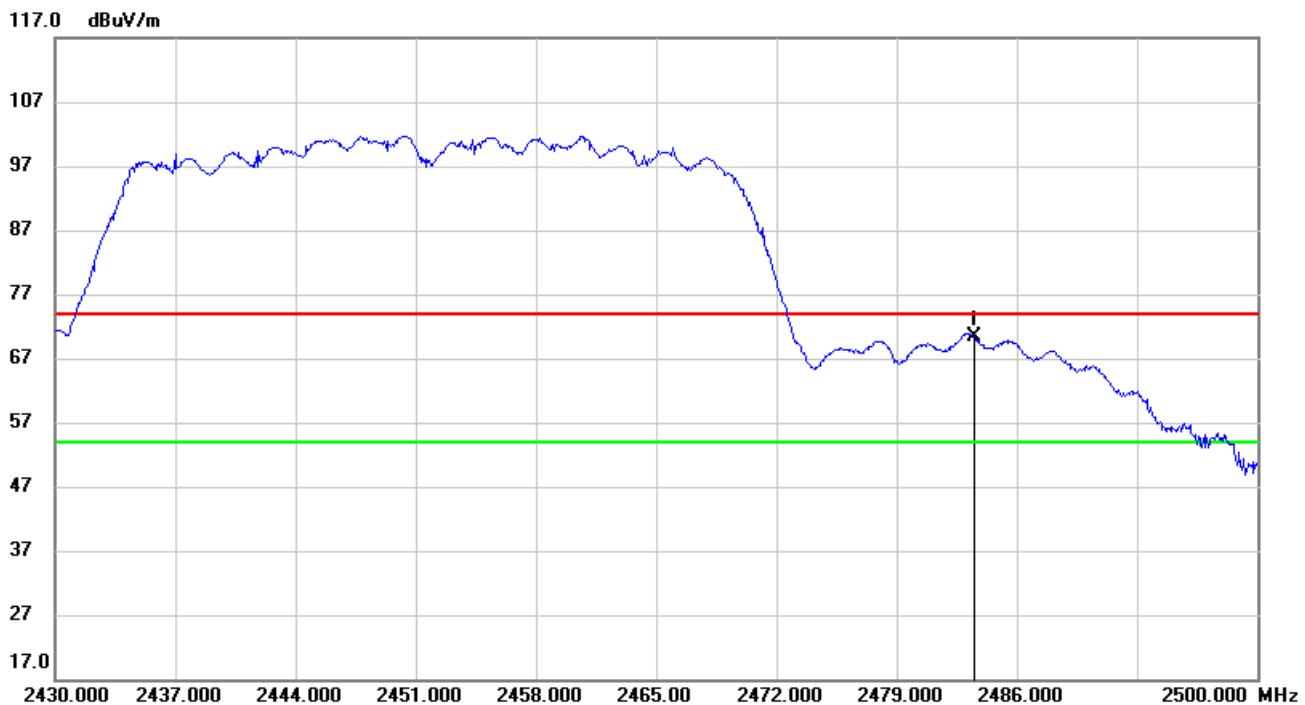
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/T_{on}$, where: T_{on} is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.245	18.26	33.35	51.61	54.00	-2.39	AVG
2	2390.000	15.52	33.35	48.87	54.00	-5.13	AVG

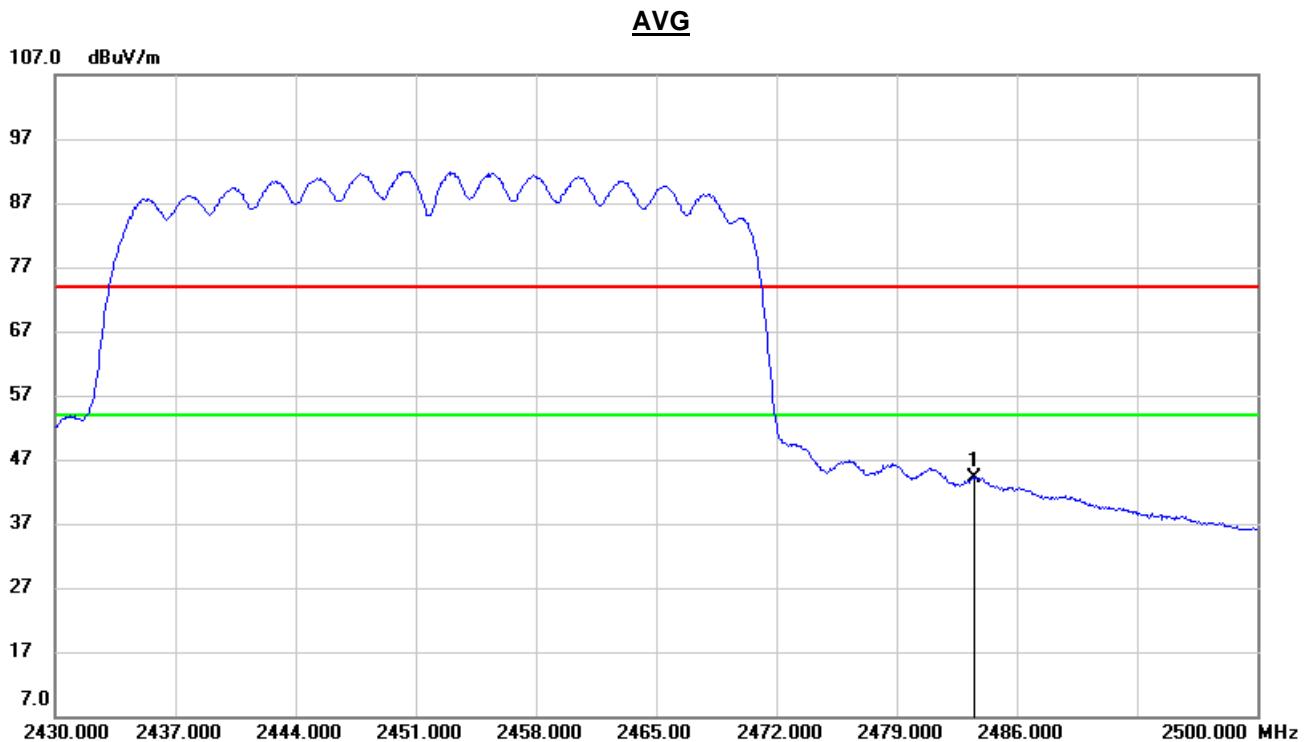
Note:

1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)PEAK

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	36.59	33.71	70.30	74.00	-3.70	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. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	10.30	33.71	44.01	54.00	-9.99	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

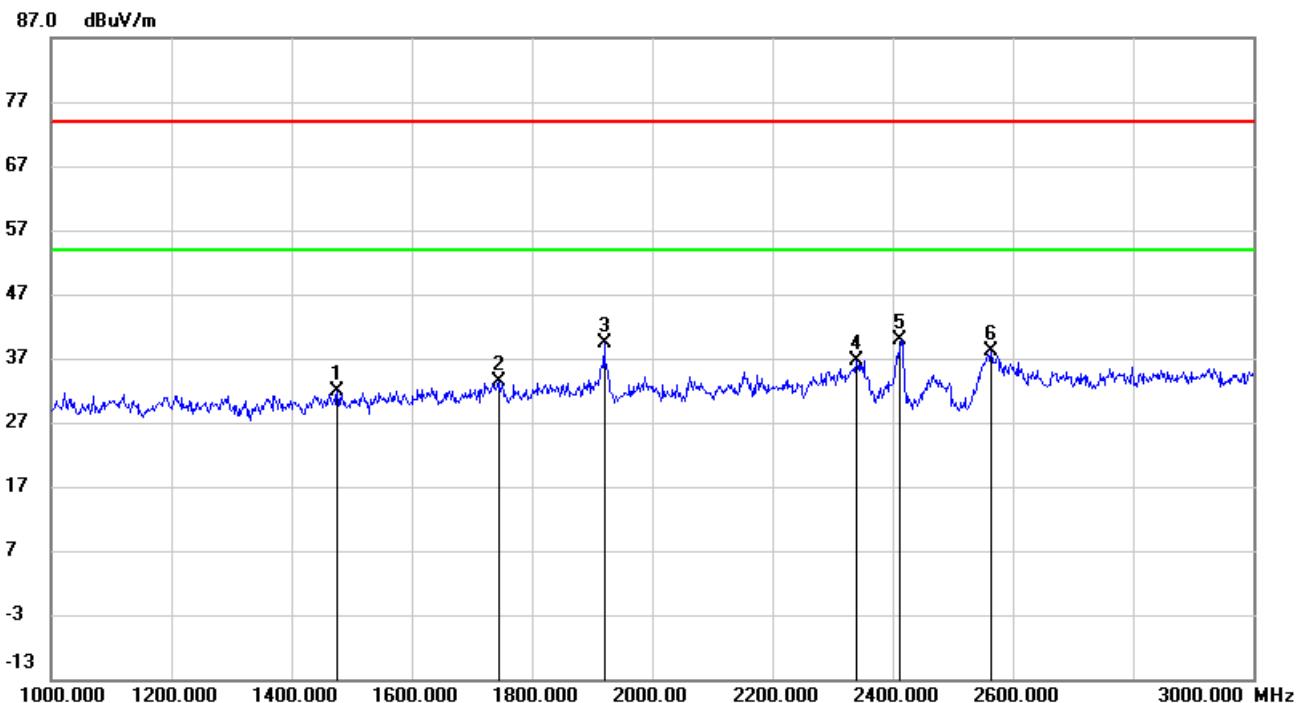
Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

8.2. SPURIOUS EMISSIONS (1 GHz ~ 3 GHz)

8.2.1. 802.11b SISO MODE

ANTENNA 1 TEST RESULTS (WORST CASE)

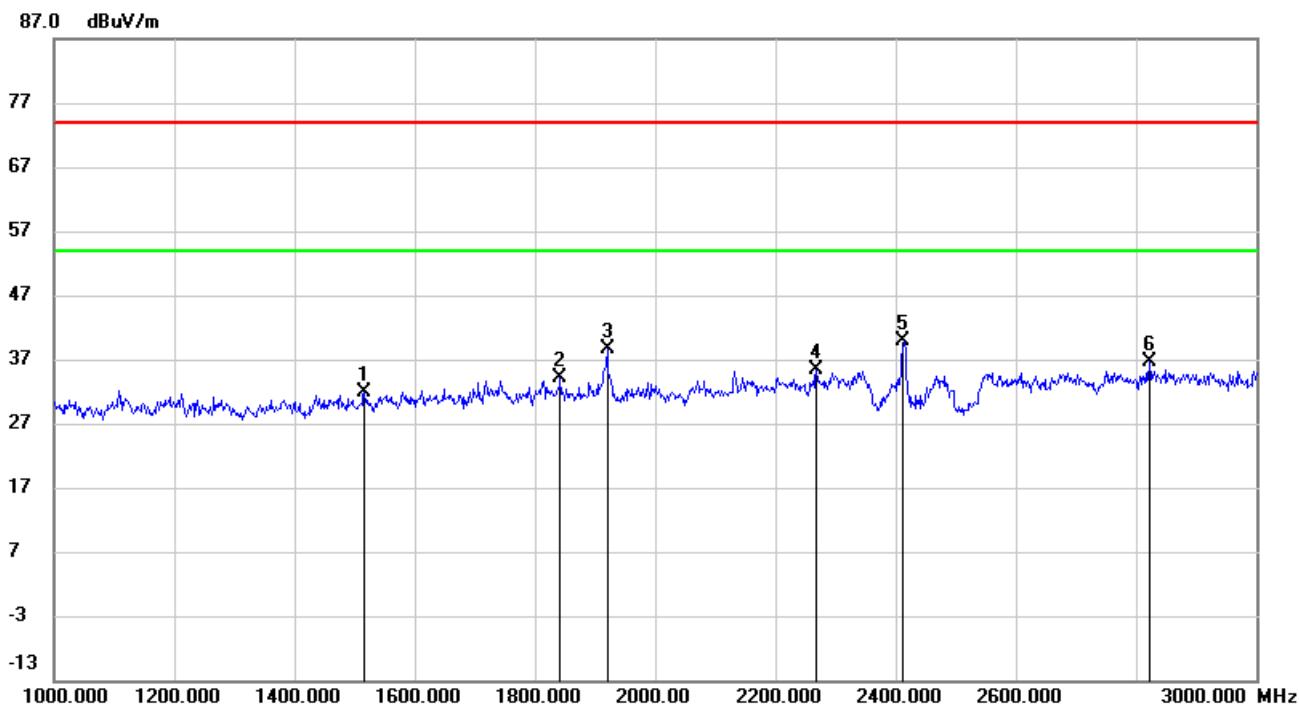
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1476.000	44.18	-12.34	31.84	74.00	-42.16	peak
2	1744.000	43.74	-10.47	33.27	74.00	-40.73	peak
3	1920.000	49.56	-10.13	39.43	74.00	-34.57	peak
4	2340.000	45.12	-8.59	36.53	74.00	-37.47	peak
5	2412.000	48.21	-8.37	39.84	/	/	fundamental
6	2564.000	46.01	-7.99	38.02	74.00	-35.98	peak

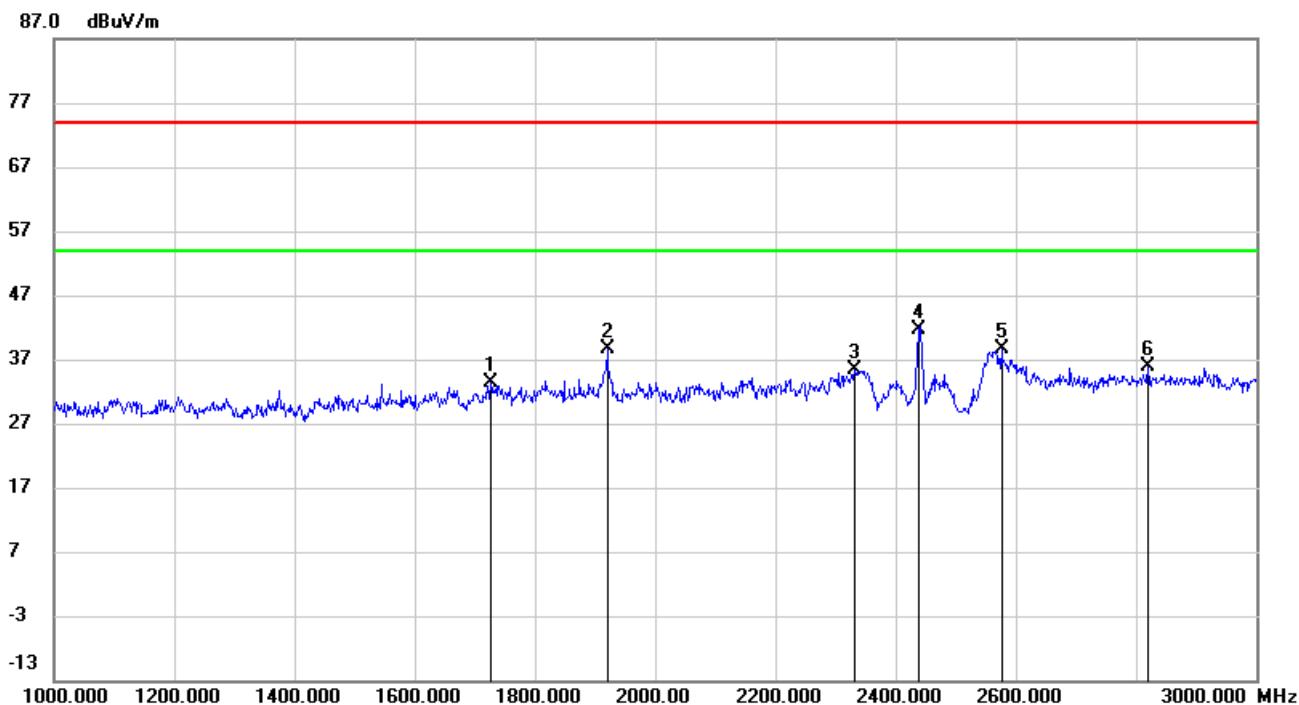
Note:

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 the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1516.000	43.93	-12.12	31.81	74.00	-42.19	peak
2	1842.000	44.29	-10.08	34.21	74.00	-39.79	peak
3	1920.000	48.65	-10.13	38.52	74.00	-35.48	peak
4	2268.000	44.29	-8.83	35.46	74.00	-38.54	peak
5	2412.000	48.13	-8.37	39.76	/	/	fundamental
6	2822.000	42.99	-6.44	36.55	74.00	-37.45	peak

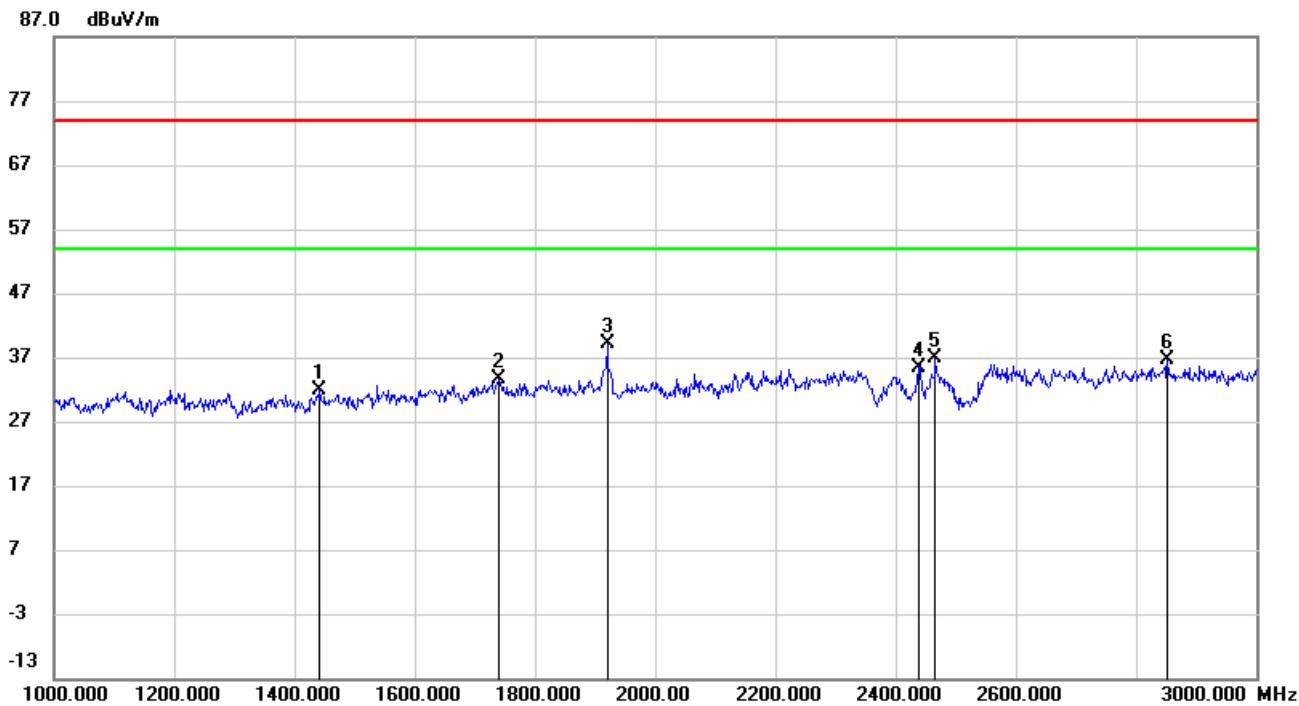
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1726.000	43.98	-10.60	33.38	74.00	-40.62	peak
2	1920.000	48.82	-10.13	38.69	74.00	-35.31	peak
3	2332.000	43.91	-8.61	35.30	74.00	-38.70	peak
4	2437.000	49.92	-8.33	41.59	/	/	fundamental
5	2576.000	46.52	-7.96	38.56	74.00	-35.44	peak
6	2820.000	42.26	-6.46	35.80	74.00	-38.20	peak

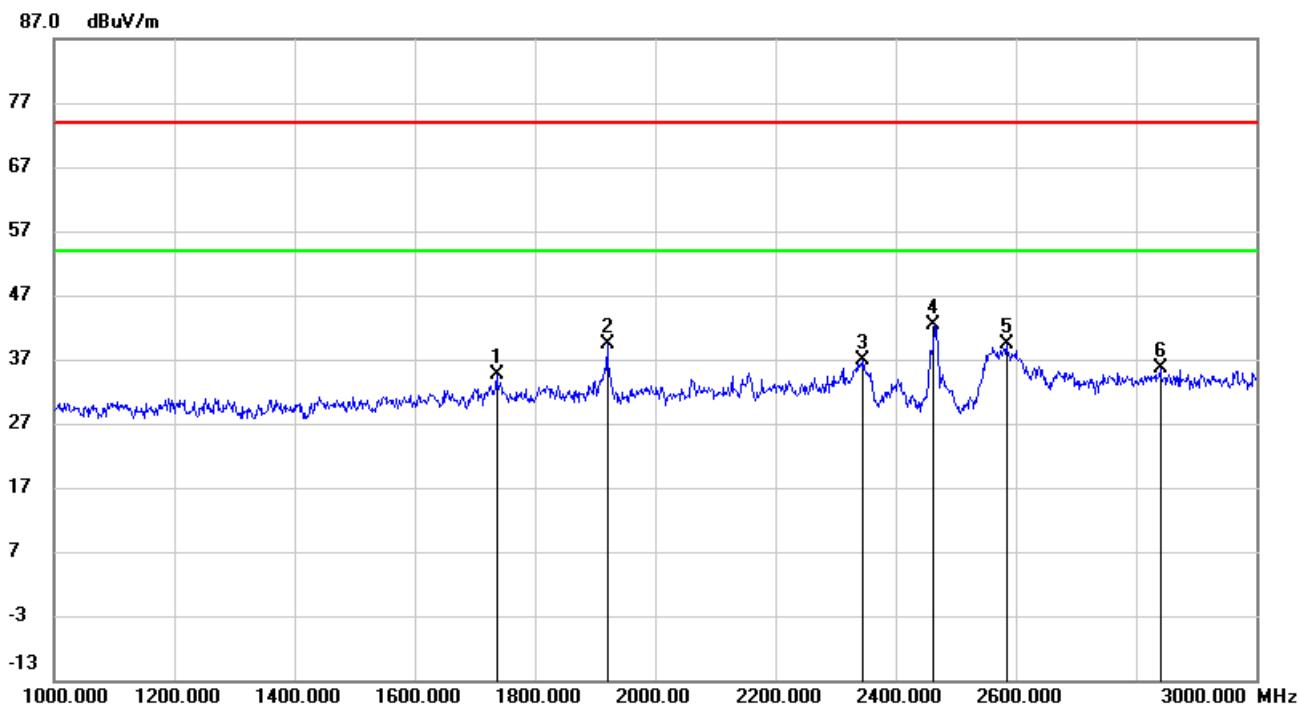
Note:

1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

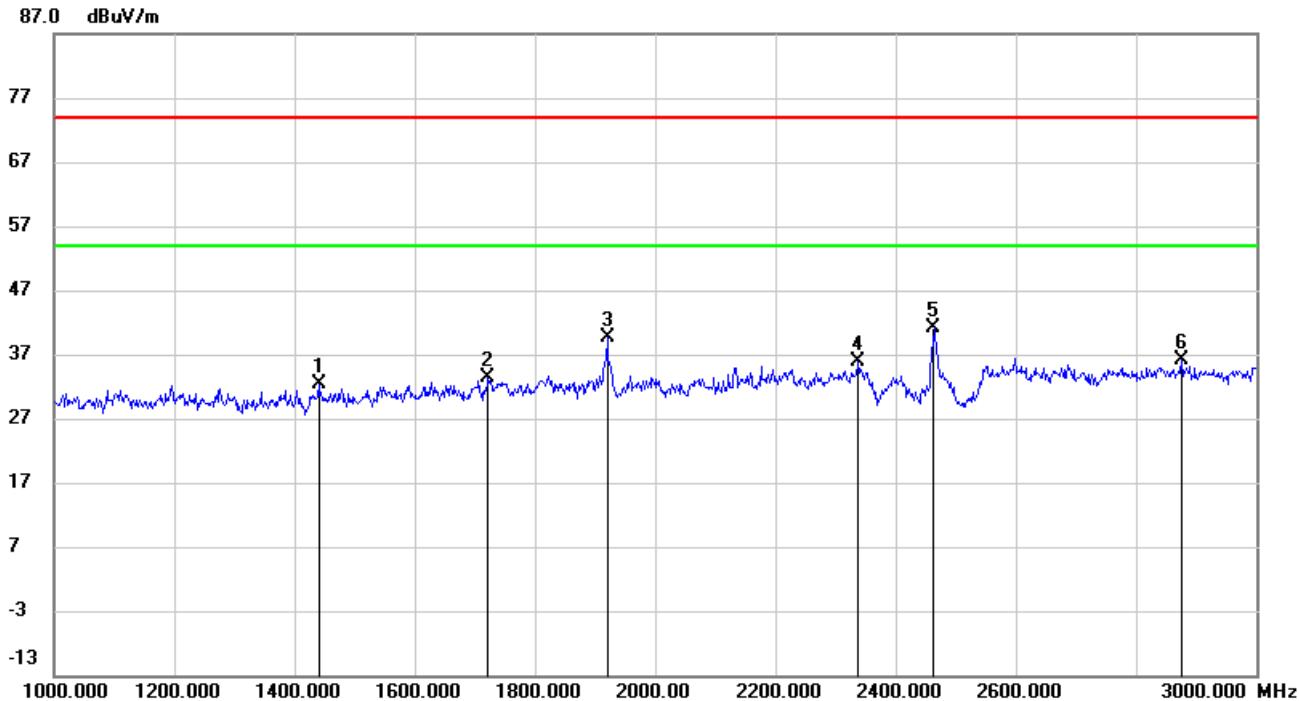
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1442.000	44.50	-12.50	32.00	74.00	-42.00	peak
2	1740.000	44.05	-10.51	33.54	74.00	-40.46	peak
3	1920.000	49.16	-10.13	39.03	74.00	-34.97	peak
4	2437.000	43.77	-8.33	35.44	/	/	fundamental
5	2466.000	45.19	-8.28	36.91	74.00	-37.09	peak
6	2852.000	42.85	-6.30	36.55	74.00	-37.45	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 the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1736.000	45.09	-10.52	34.57	74.00	-39.43	peak
2	1920.000	49.58	-10.13	39.45	74.00	-34.55	peak
3	2346.000	45.38	-8.58	36.80	74.00	-37.20	peak
4	2462.000	50.76	-8.29	42.47	/	/	fundamental
5	2584.000	47.38	-7.92	39.46	74.00	-34.54	peak
6	2840.000	42.03	-6.36	35.67	74.00	-38.33	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1440.000	44.86	-12.51	32.35	74.00	-41.65	peak
2	1722.000	43.96	-10.64	33.32	74.00	-40.68	peak
3	1920.000	49.74	-10.13	39.61	74.00	-34.39	peak
4	2338.000	44.40	-8.60	35.80	74.00	-38.20	peak
5	2462.000	49.38	-8.29	41.09	/	/	fundamental
6	2876.000	42.23	-6.19	36.04	74.00	-37.96	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

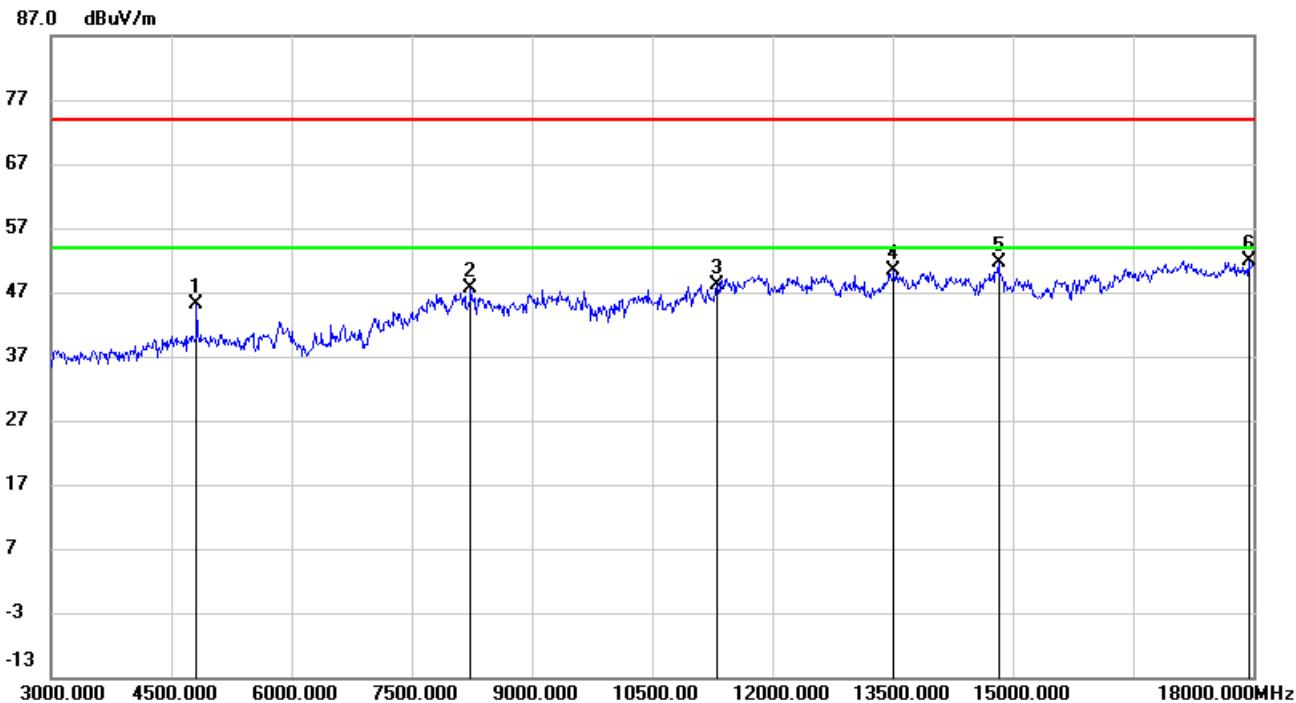
Note: All the test modes, channels and antennas have been tested, only the worst data record in the report.

8.3. SPURIOUS EMISSIONS (3 GHz ~ 18 GHz)

8.3.1. 802.11b SISO MODE

ANTENNA 1 TEST RESULTS (WORST CASE)

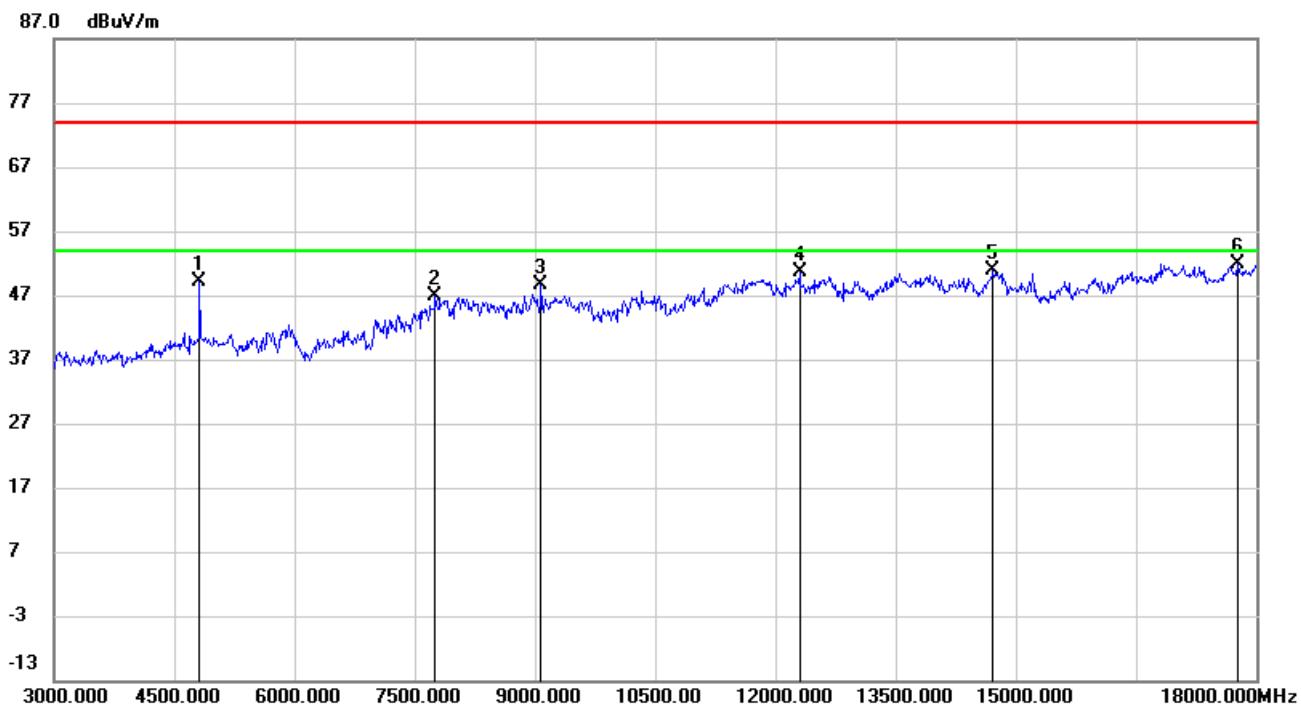
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	43.72	1.38	45.10	74.00	-28.90	peak
2	8235.000	37.78	9.76	47.54	74.00	-26.46	peak
3	11310.000	34.22	13.94	48.16	74.00	-25.84	peak
4	13515.000	33.26	17.19	50.45	74.00	-23.55	peak
5	14820.000	33.68	17.91	51.59	74.00	-22.41	peak
6	17940.000	27.95	24.04	51.99	74.00	-22.01	peak

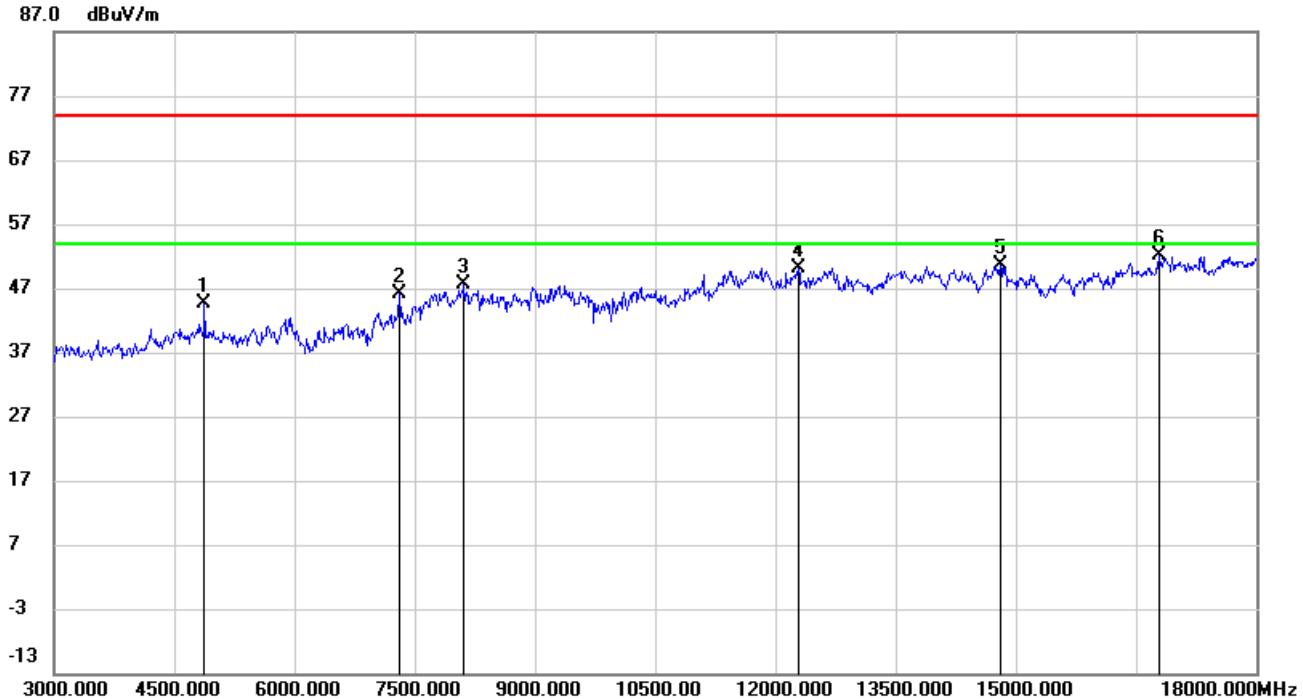
Note:

1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	47.65	1.38	49.03	74.00	-24.97	peak
2	7755.000	38.01	8.94	46.95	74.00	-27.05	peak
3	9075.000	38.24	10.43	48.67	74.00	-25.33	peak
4	12300.000	34.50	16.09	50.59	74.00	-23.41	peak
5	14715.000	33.20	17.74	50.94	74.00	-23.06	peak
6	17775.000	28.08	23.91	51.99	74.00	-22.01	peak

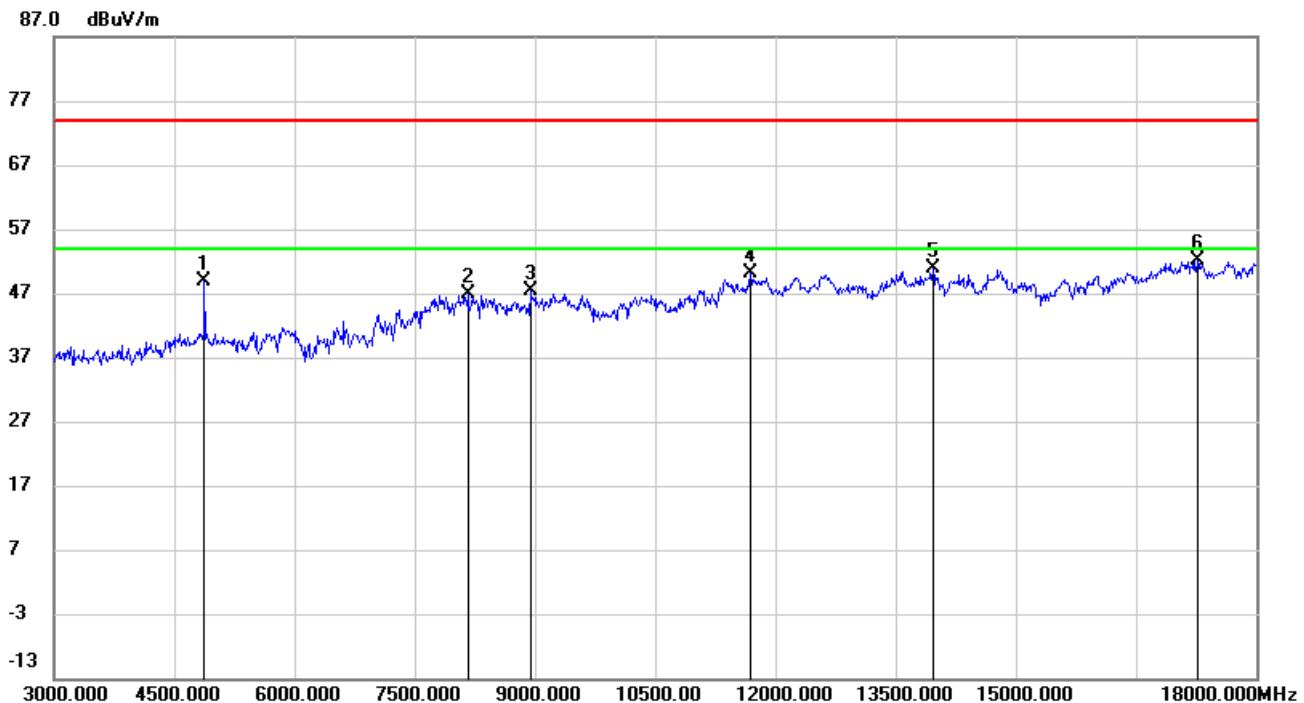
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	43.25	1.32	44.57	74.00	-29.43	peak
2	7305.000	38.89	7.14	46.03	74.00	-27.97	peak
3	8115.000	37.42	10.13	47.55	74.00	-26.45	peak
4	12285.000	34.10	16.08	50.18	74.00	-23.82	peak
5	14805.000	32.68	18.00	50.68	74.00	-23.32	peak
6	16785.000	31.42	20.59	52.01	74.00	-21.99	peak

Note:

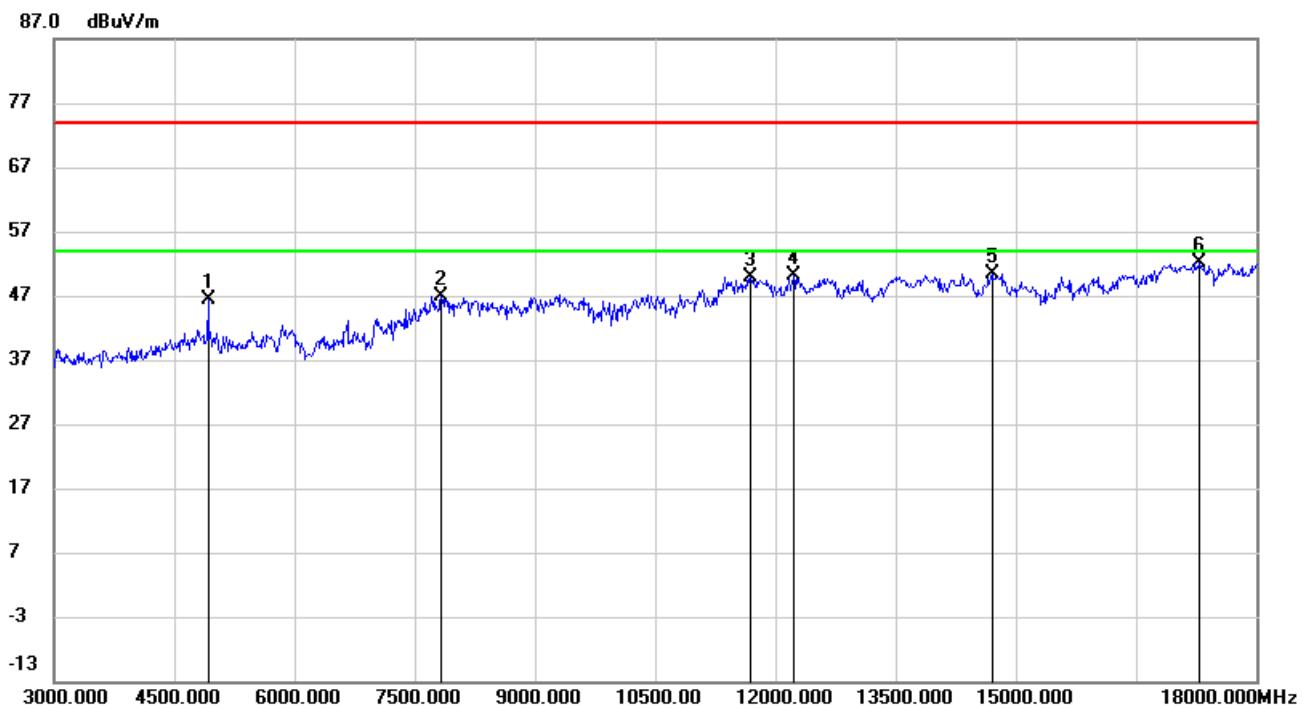
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dB _{UV})	Correct (dB/m)	Result (dB _{UV} /m)	Limit (dB _{UV} /m)	Margin (dB)	Remark
1	4875.000	47.50	1.32	48.82	74.00	-25.18	peak
2	8160.000	36.81	9.96	46.77	74.00	-27.23	peak
3	8940.000	37.20	10.13	47.33	74.00	-26.67	peak
4	11685.000	34.84	15.26	50.10	74.00	-23.90	peak
5	13965.000	33.14	17.62	50.76	74.00	-23.24	peak
6	17265.000	29.72	22.39	52.11	74.00	-21.89	peak

Note:

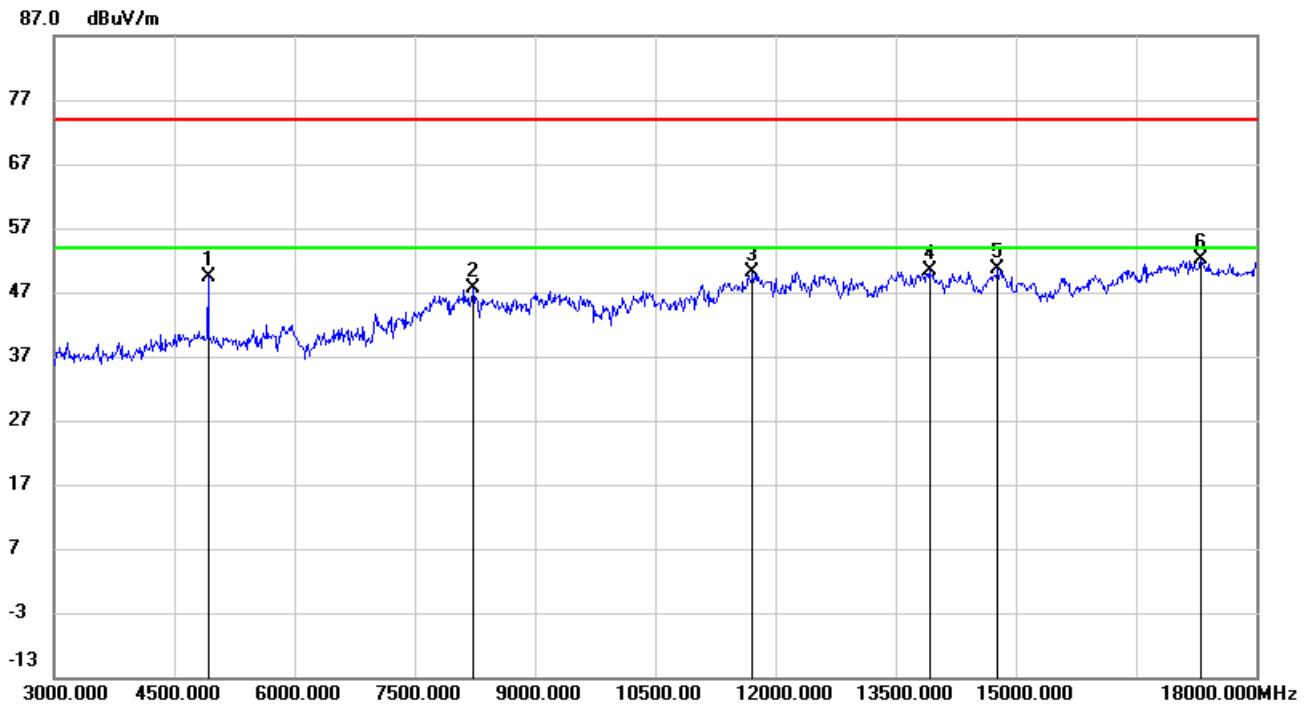
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	44.95	1.45	46.40	74.00	-27.60	peak
2	7830.000	37.65	9.20	46.85	74.00	-27.15	peak
3	11685.000	34.67	15.26	49.93	74.00	-24.07	peak
4	12225.000	34.05	15.99	50.04	74.00	-23.96	peak
5	14700.000	32.64	17.69	50.33	74.00	-23.67	peak
6	17280.000	29.64	22.48	52.12	74.00	-21.88	peak

Note:

1. Peak Result = 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 the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	48.03	1.45	49.48	74.00	-24.52	peak
2	8235.000	37.76	9.76	47.52	74.00	-26.48	peak
3	11715.000	34.75	15.34	50.09	74.00	-23.91	peak
4	13920.000	32.73	17.55	50.28	74.00	-23.72	peak
5	14775.000	32.68	17.95	50.63	74.00	-23.37	peak
6	17310.000	29.55	22.54	52.09	74.00	-21.91	peak

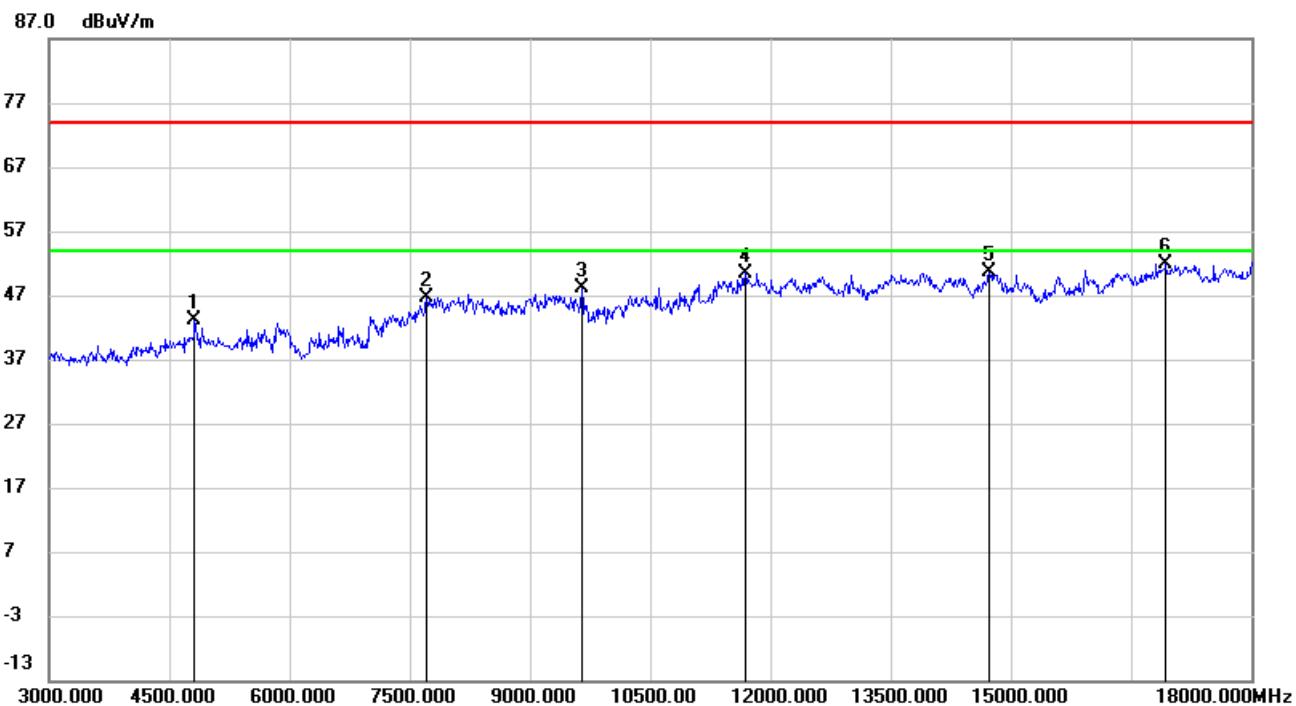
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

8.3.2. 802.11g SISO MODE

ANTENNA 1 TEST RESULTS (WORST CASE)

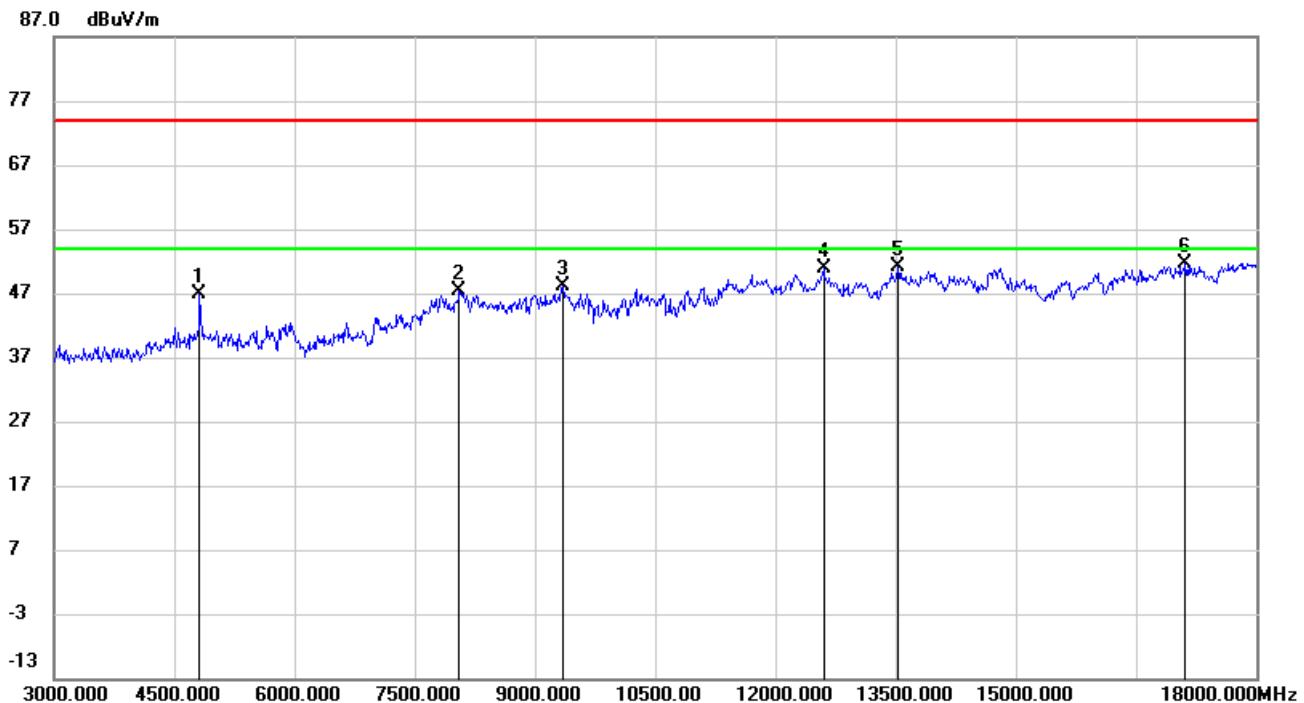
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	41.69	1.38	43.07	74.00	-30.93	peak
2	7710.000	38.05	8.54	46.59	74.00	-27.41	peak
3	9645.000	37.28	10.81	48.09	74.00	-25.91	peak
4	11685.000	35.24	15.26	50.50	74.00	-23.50	peak
5	14730.000	32.79	17.79	50.58	74.00	-23.42	peak
6	16935.000	30.43	21.45	51.88	74.00	-22.12	peak

Note:

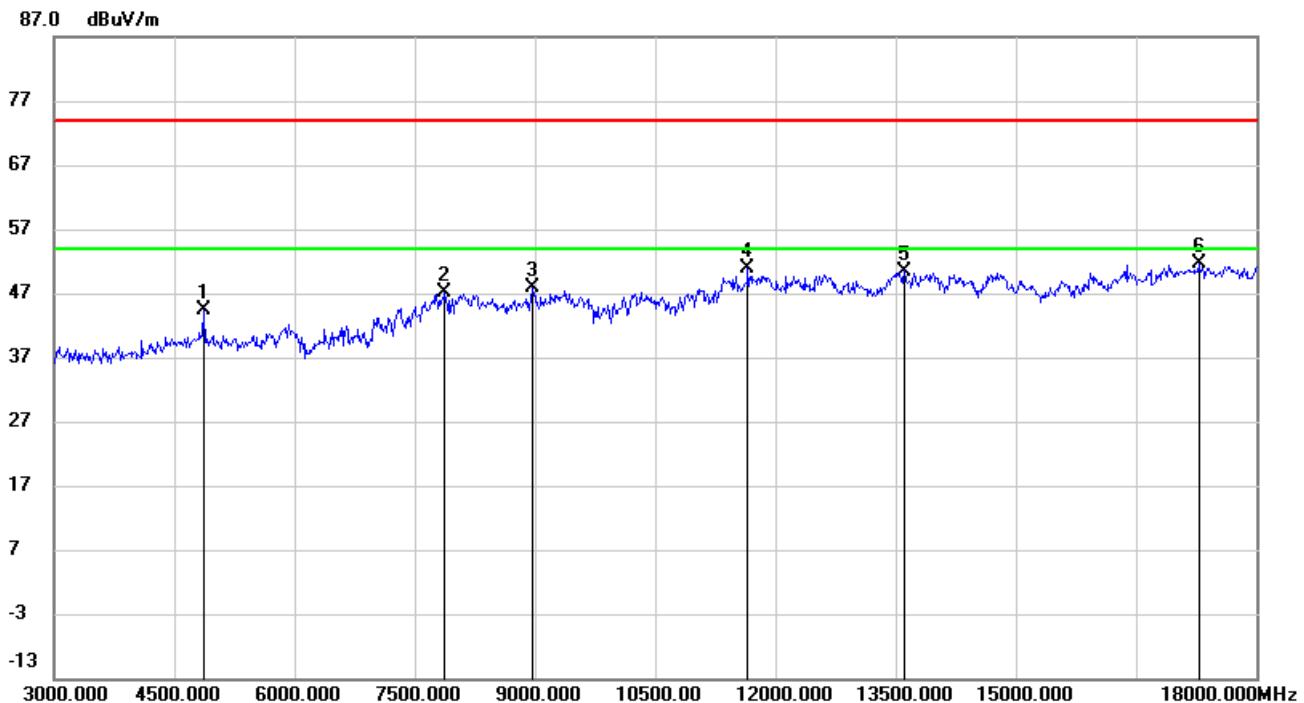
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	45.60	1.38	46.98	74.00	-27.02	peak
2	8055.000	37.89	9.48	47.37	74.00	-26.63	peak
3	9345.000	37.36	10.66	48.02	74.00	-25.98	peak
4	12600.000	35.12	15.78	50.90	74.00	-23.10	peak
5	13530.000	33.97	17.19	51.16	74.00	-22.84	peak
6	17115.000	29.63	21.91	51.54	74.00	-22.46	peak

Note:

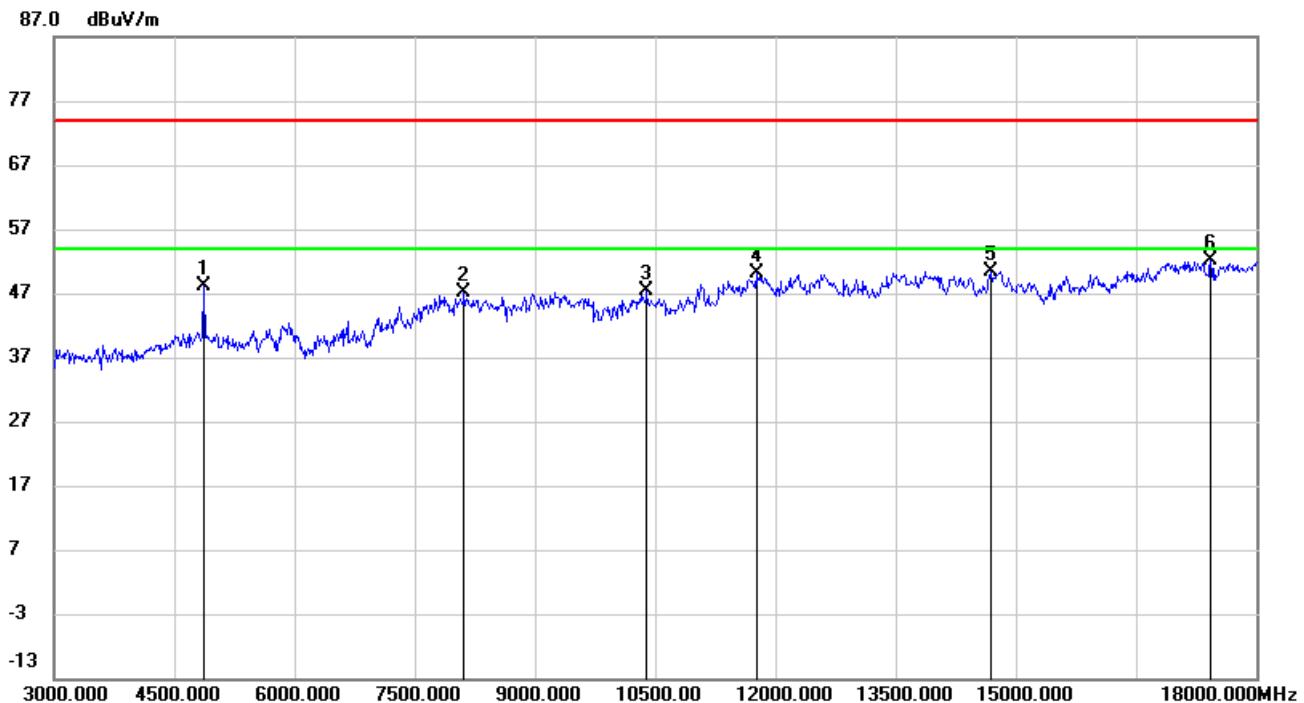
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4860.000	43.00	1.33	44.33	74.00	-29.67	peak
2	7875.000	38.21	8.98	47.19	74.00	-26.81	peak
3	8970.000	37.06	10.70	47.76	74.00	-26.24	peak
4	11655.000	35.87	15.07	50.94	74.00	-23.06	peak
5	13605.000	33.38	17.12	50.50	74.00	-23.50	peak
6	17280.000	29.22	22.48	51.70	74.00	-22.30	peak

Note:

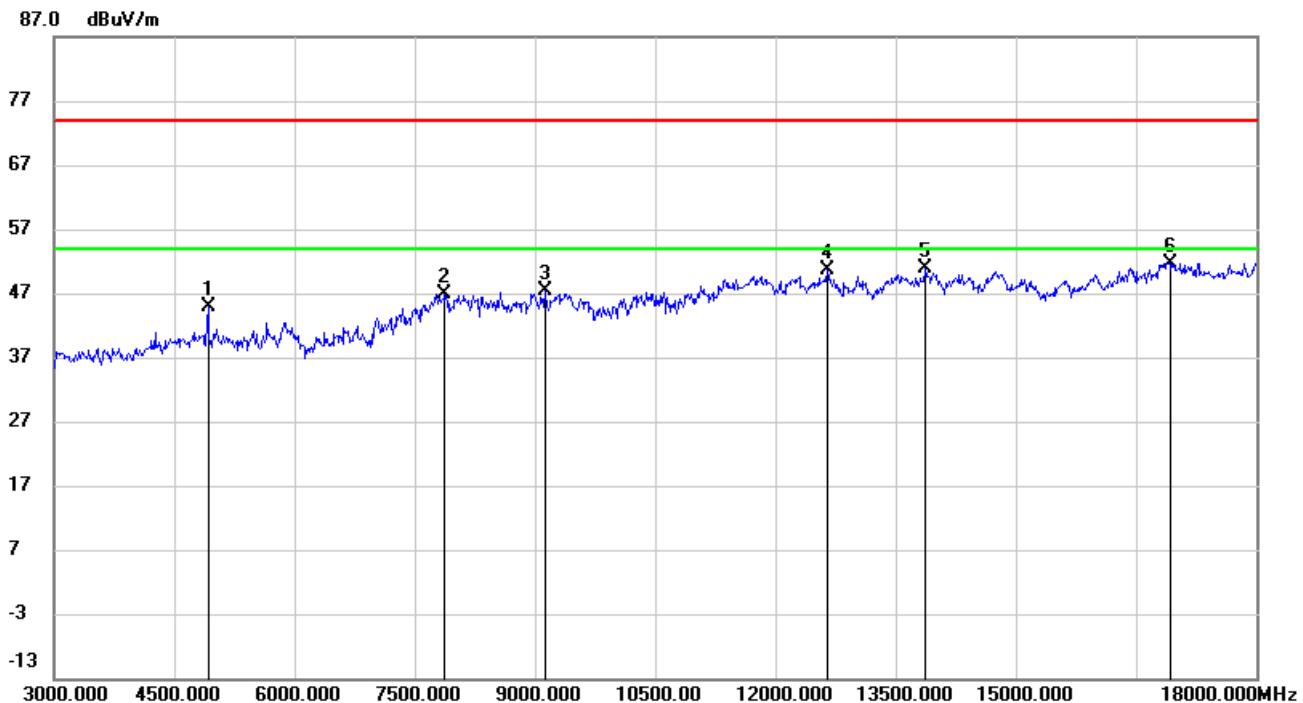
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4860.000	46.71	1.33	48.04	74.00	-25.96	peak
2	8115.000	37.07	10.13	47.20	74.00	-26.80	peak
3	10395.000	35.17	12.20	47.37	74.00	-26.63	peak
4	11760.000	34.78	15.29	50.07	74.00	-23.93	peak
5	14685.000	32.78	17.64	50.42	74.00	-23.58	peak
6	17430.000	30.20	21.92	52.12	74.00	-21.88	peak

Note:

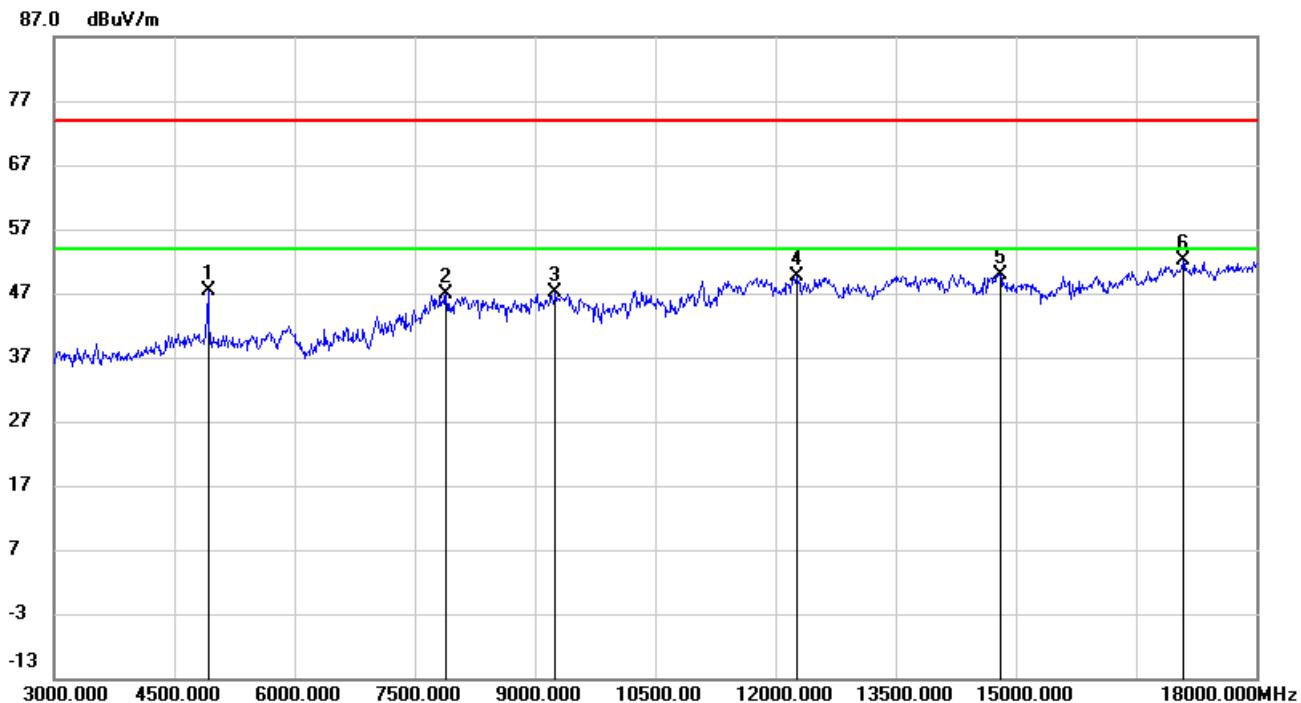
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	43.45	1.45	44.90	74.00	-29.10	peak
2	7875.000	37.89	8.98	46.87	74.00	-27.13	peak
3	9120.000	37.17	10.10	47.27	74.00	-26.73	peak
4	12645.000	34.97	15.71	50.68	74.00	-23.32	peak
5	13875.000	33.23	17.55	50.78	74.00	-23.22	peak
6	16920.000	30.21	21.51	51.72	74.00	-22.28	peak

Note:

1. Peak Result = 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 the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

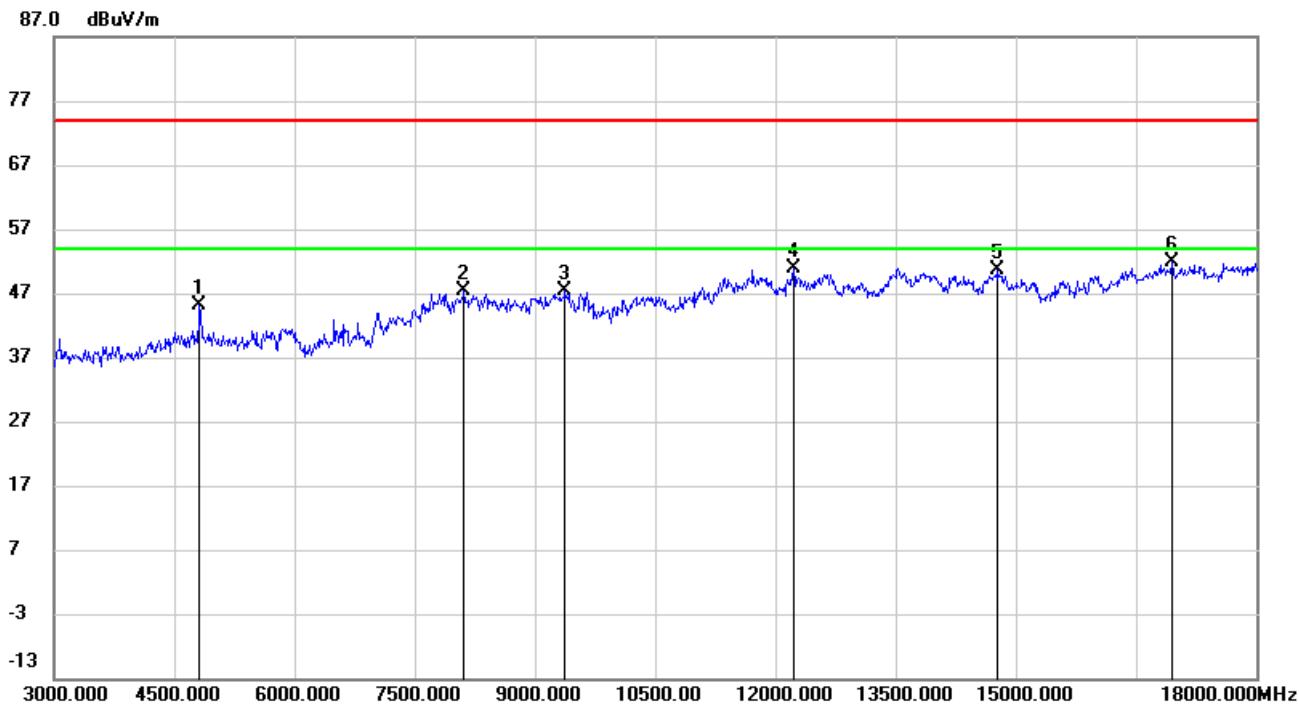
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	45.98	1.45	47.43	74.00	-26.57	peak
2	7890.000	37.99	8.91	46.90	74.00	-27.10	peak
3	9255.000	37.06	10.17	47.23	74.00	-26.77	peak
4	12270.000	33.55	16.04	49.59	74.00	-24.41	peak
5	14805.000	31.81	18.00	49.81	74.00	-24.19	peak
6	17085.000	30.24	21.80	52.04	74.00	-21.96	peak

Note: 1. Peak Result = 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 the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

8.3.3. 802.11n HT20 MIMO MODE

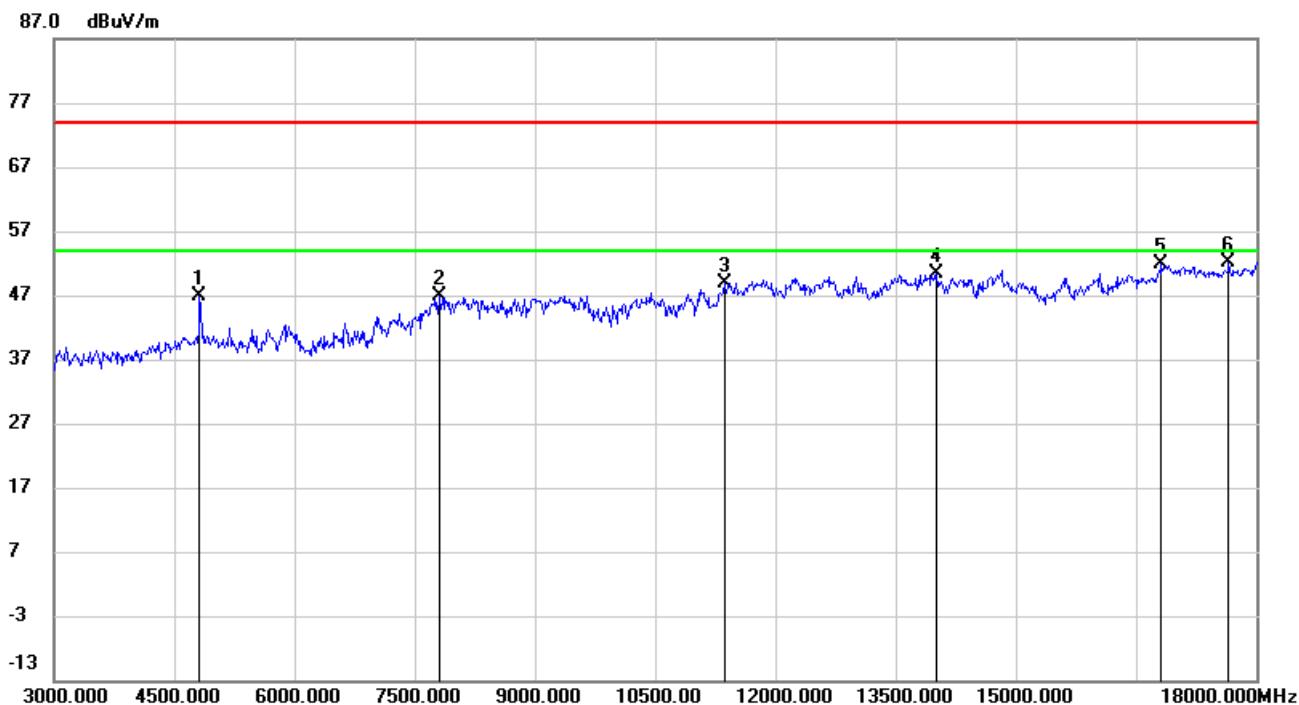
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	43.80	1.38	45.18	74.00	-28.82	peak
2	8115.000	37.13	10.13	47.26	74.00	-26.74	peak
3	9375.000	36.46	10.83	47.29	74.00	-26.71	peak
4	12225.000	34.86	15.99	50.85	74.00	-23.15	peak
5	14775.000	32.70	17.95	50.65	74.00	-23.35	peak
6	16950.000	30.41	21.41	51.82	74.00	-22.18	peak

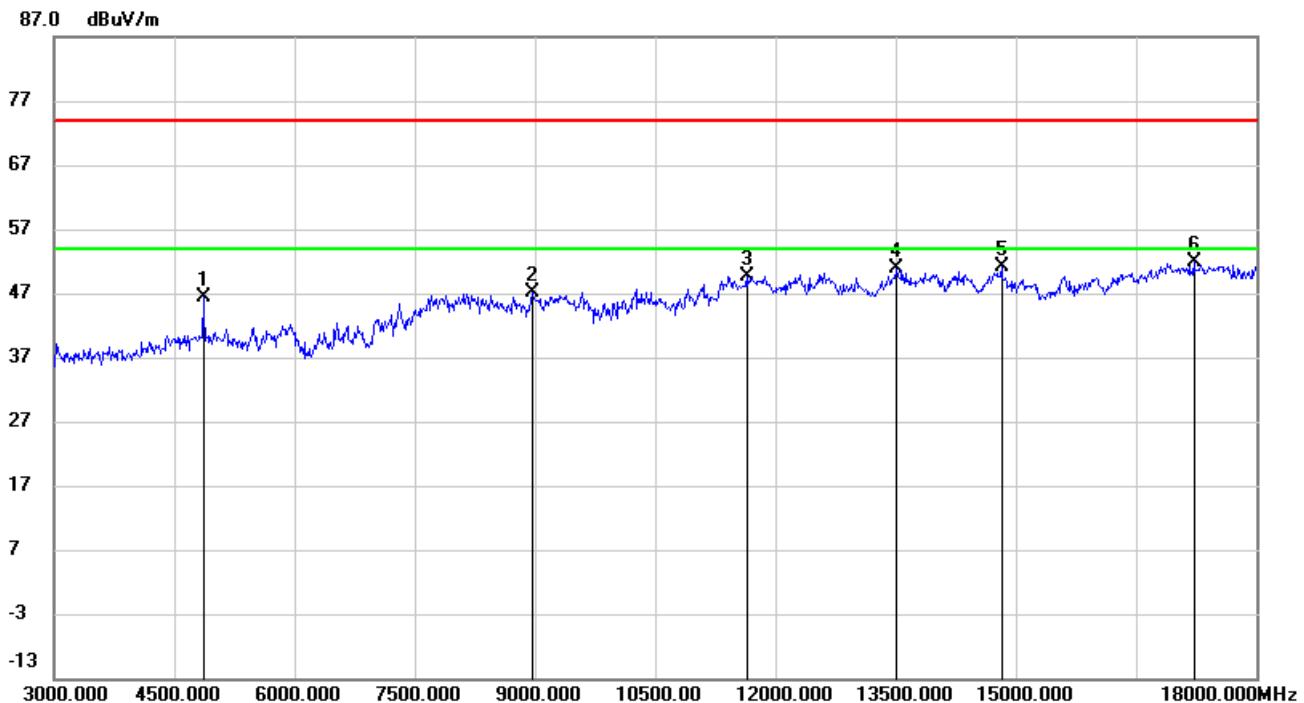
Note:

1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	45.54	1.38	46.92	74.00	-27.08	peak
2	7800.000	37.51	9.35	46.86	74.00	-27.14	peak
3	11370.000	34.43	14.49	48.92	74.00	-25.08	peak
4	14010.000	32.68	17.64	50.32	74.00	-23.68	peak
5	16815.000	31.04	20.84	51.88	74.00	-22.12	peak
6	17655.000	28.95	23.14	52.09	74.00	-21.91	peak

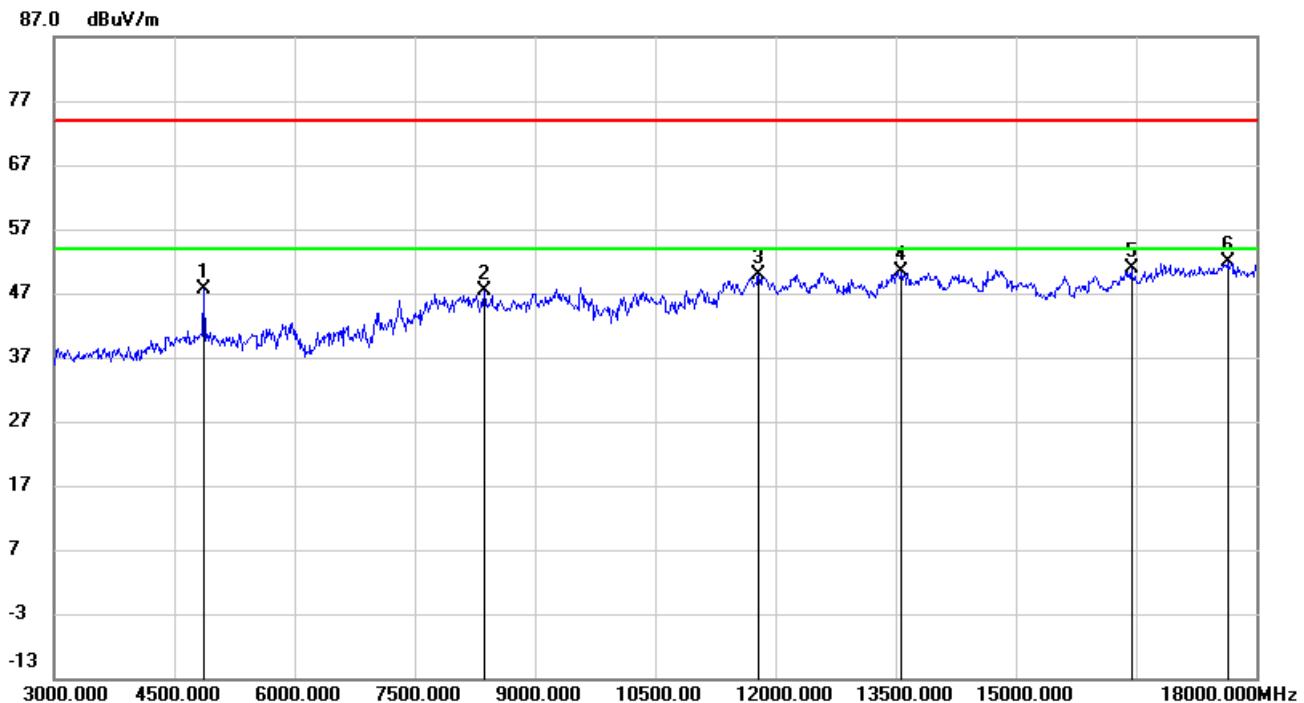
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dB _{UV})	Correct (dB/m)	Result (dB _{UV} /m)	Limit (dB _{UV} /m)	Margin (dB)	Remark
1	4860.000	45.06	1.33	46.39	74.00	-27.61	peak
2	8970.000	36.38	10.70	47.08	74.00	-26.92	peak
3	11640.000	34.75	14.97	49.72	74.00	-24.28	peak
4	13515.000	33.72	17.19	50.91	74.00	-23.09	peak
5	14820.000	33.27	17.91	51.18	74.00	-22.82	peak
6	17220.000	29.79	22.12	51.91	74.00	-22.09	peak

Note:

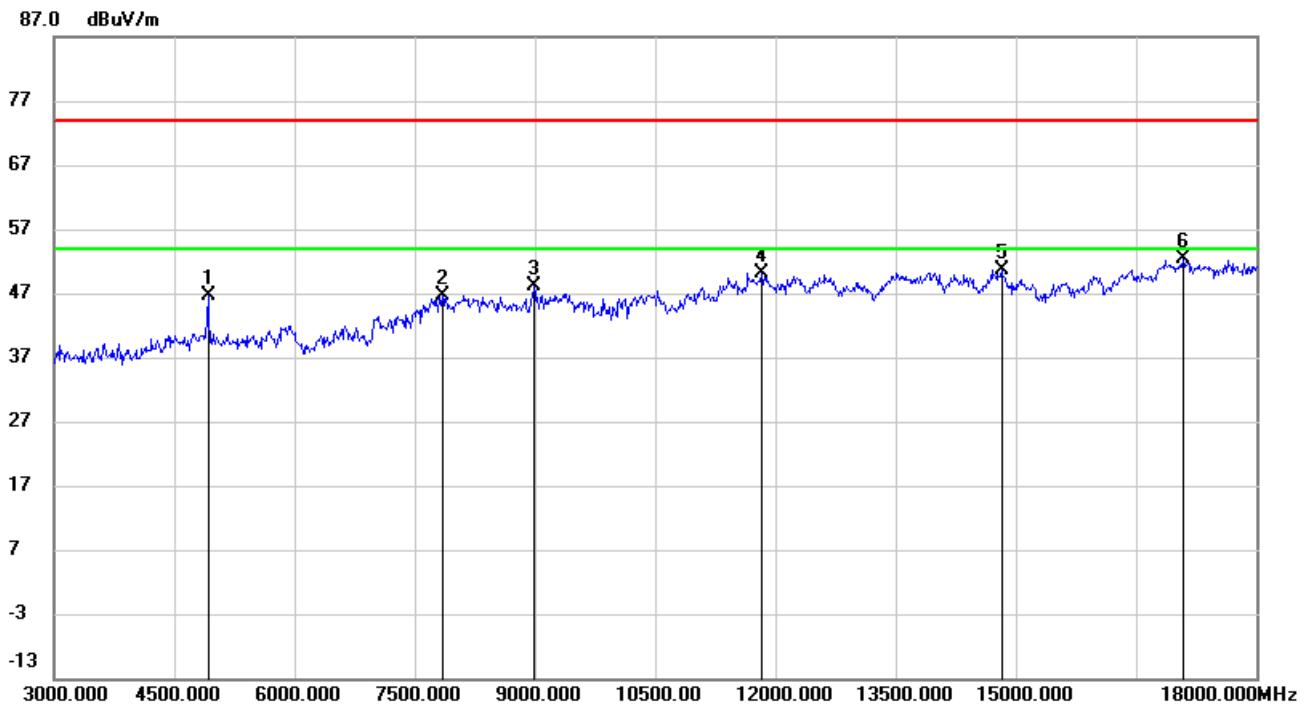
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dB _{UV})	Correct (dB/m)	Result (dB _{UV} /m)	Limit (dB _{UV} /m)	Margin (dB)	Remark
1	4860.000	46.31	1.33	47.64	74.00	-26.36	peak
2	8370.000	37.81	9.45	47.26	74.00	-26.74	peak
3	11790.000	34.58	15.26	49.84	74.00	-24.16	peak
4	13575.000	33.21	17.13	50.34	74.00	-23.66	peak
5	16440.000	31.10	19.68	50.78	74.00	-23.22	peak
6	17655.000	28.80	23.14	51.94	74.00	-22.06	peak

Note:

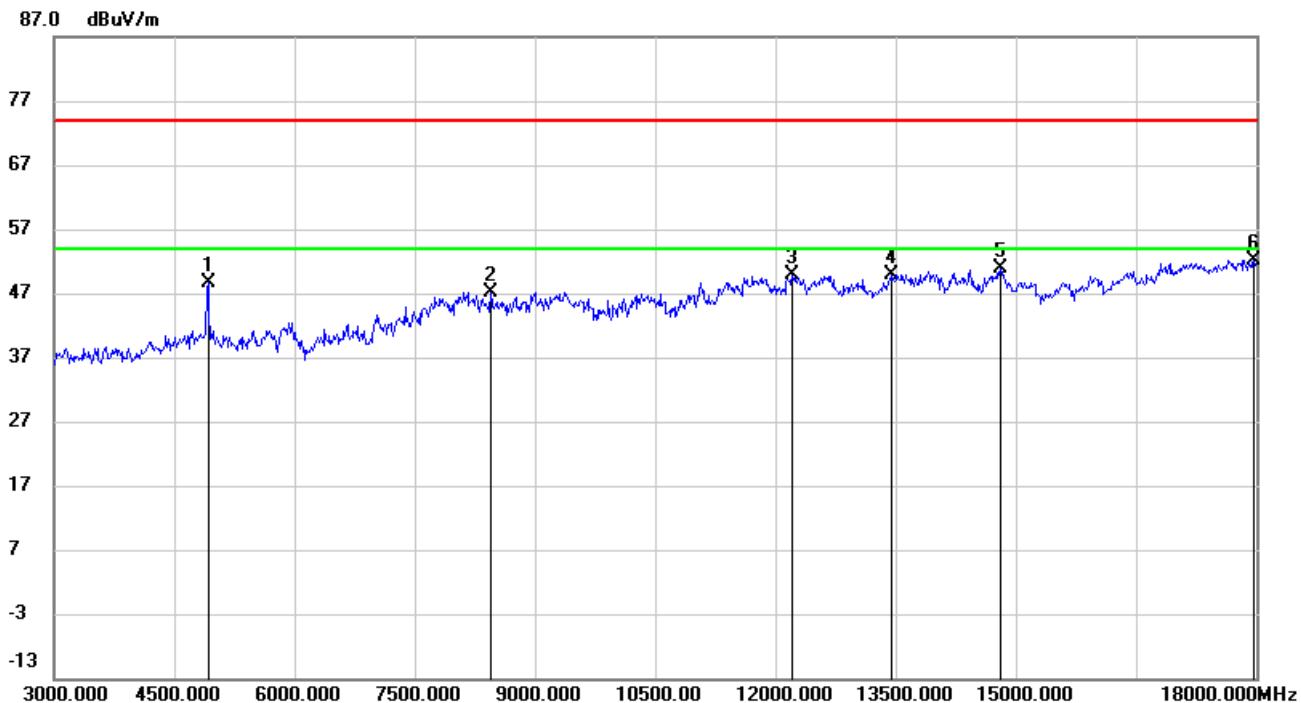
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	45.18	1.45	46.63	74.00	-27.37	peak
2	7845.000	37.49	9.14	46.63	74.00	-27.37	peak
3	8985.000	37.12	10.99	48.11	74.00	-25.89	peak
4	11835.000	34.89	15.34	50.23	74.00	-23.77	peak
5	14820.000	32.80	17.91	50.71	74.00	-23.29	peak
6	17085.000	30.58	21.80	52.38	74.00	-21.62	peak

Note:

1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

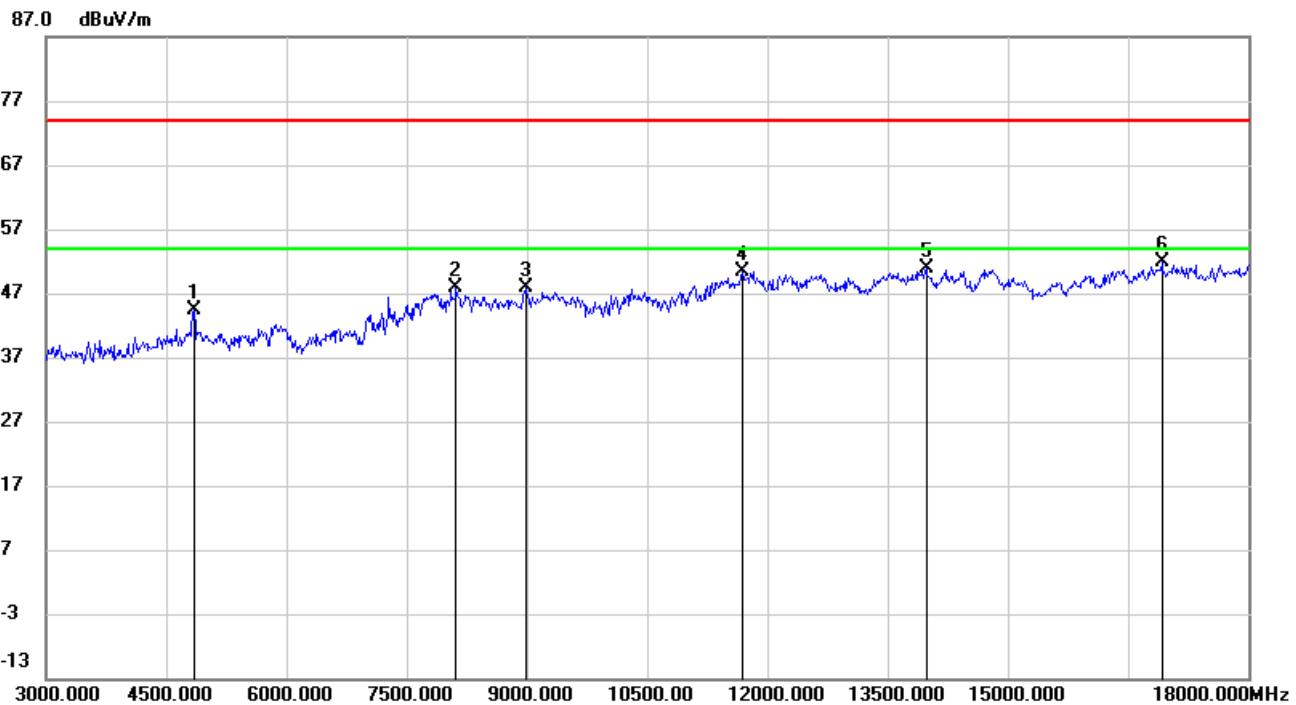
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	47.21	1.45	48.66	74.00	-25.34	peak
2	8445.000	37.98	9.24	47.22	74.00	-26.78	peak
3	12210.000	33.82	15.97	49.79	74.00	-24.21	peak
4	13455.000	32.75	17.14	49.89	74.00	-24.11	peak
5	14805.000	32.98	18.00	50.98	74.00	-23.02	peak
6	17970.000	28.08	24.15	52.23	74.00	-21.77	peak

Note: 1. Peak Result = 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 the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

8.3.4. 802.11n HT40 MIMO MODE

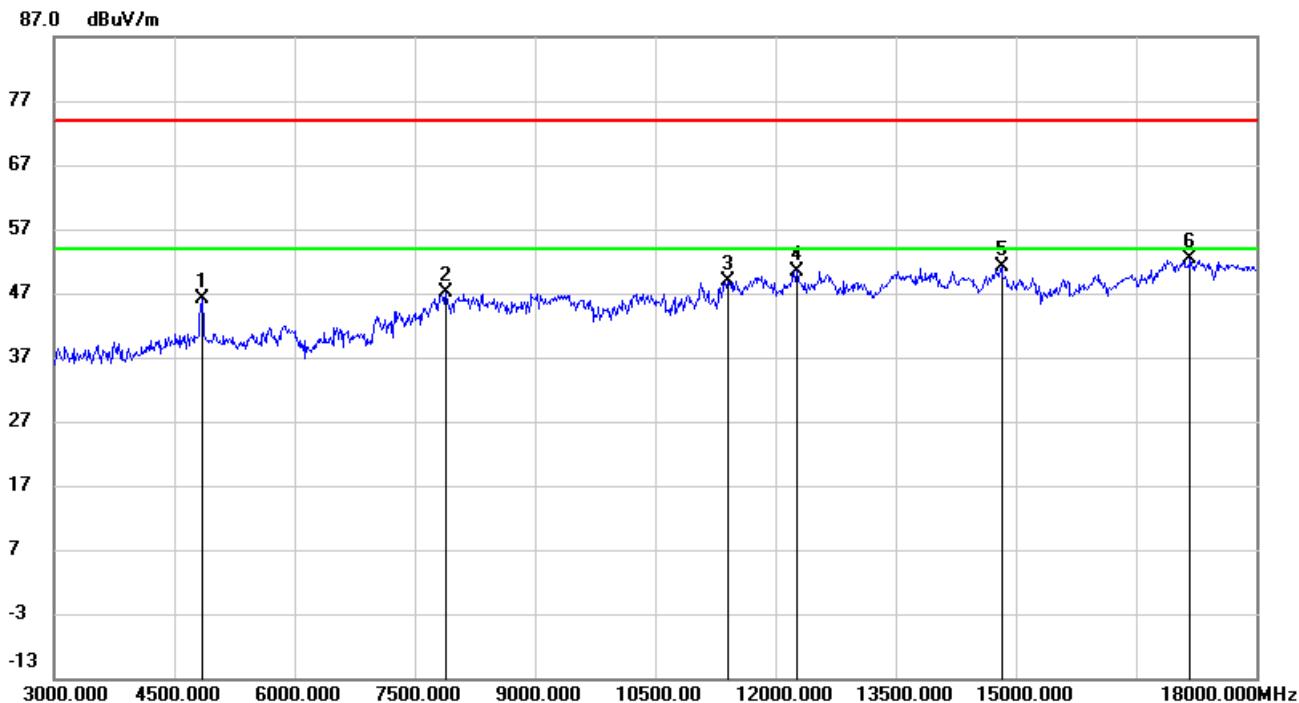
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4845.000	43.11	1.35	44.46	74.00	-29.54	peak
2	8115.000	37.73	10.13	47.86	74.00	-26.14	peak
3	8985.000	36.94	10.99	47.93	74.00	-26.07	peak
4	11685.000	35.03	15.26	50.29	74.00	-23.71	peak
5	13980.000	33.18	17.64	50.82	74.00	-23.18	peak
6	16920.000	30.29	21.51	51.80	74.00	-22.20	peak

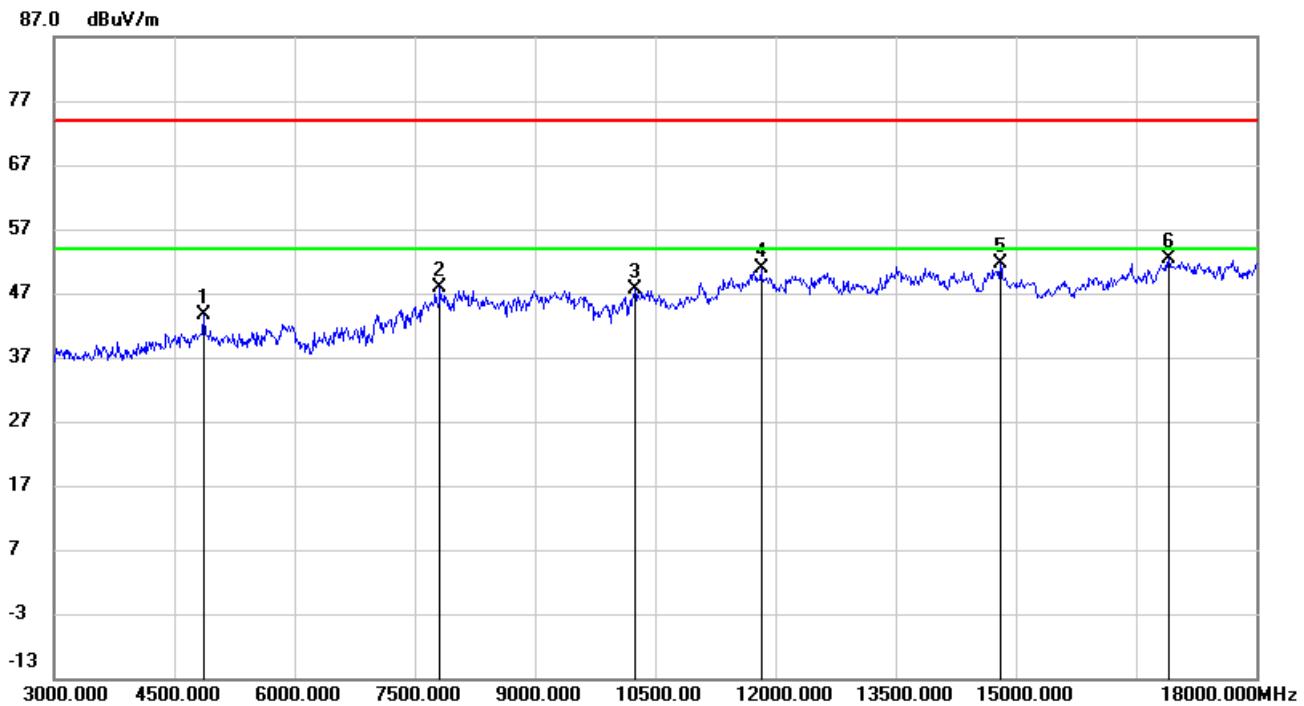
Note:

1. Peak Result = 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 the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4845.000	44.72	1.35	46.07	74.00	-27.93	peak
2	7890.000	38.12	8.91	47.03	74.00	-26.97	peak
3	11400.000	34.14	14.76	48.90	74.00	-25.10	peak
4	12270.000	34.46	16.04	50.50	74.00	-23.50	peak
5	14820.000	33.27	17.91	51.18	74.00	-22.82	peak
6	17175.000	30.30	21.97	52.27	74.00	-21.73	peak

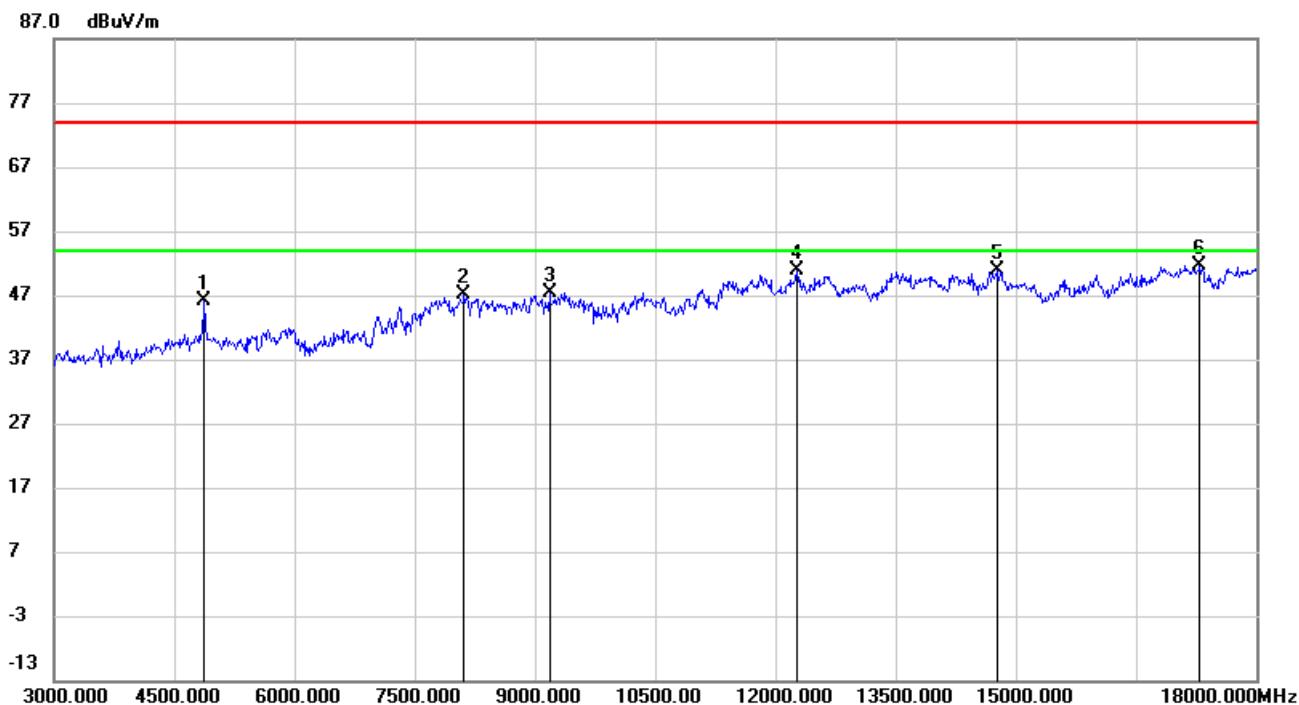
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dB _{UV})	Correct (dB/m)	Result (dB _{UV} /m)	Limit (dB _{UV} /m)	Margin (dB)	Remark
1	4860.000	42.37	1.33	43.70	74.00	-30.30	peak
2	7815.000	38.61	9.28	47.89	74.00	-26.11	peak
3	10245.000	35.99	11.63	47.62	74.00	-26.38	peak
4	11820.000	35.67	15.29	50.96	74.00	-23.04	peak
5	14805.000	33.73	18.00	51.73	74.00	-22.27	peak
6	16905.000	30.76	21.55	52.31	74.00	-21.69	peak

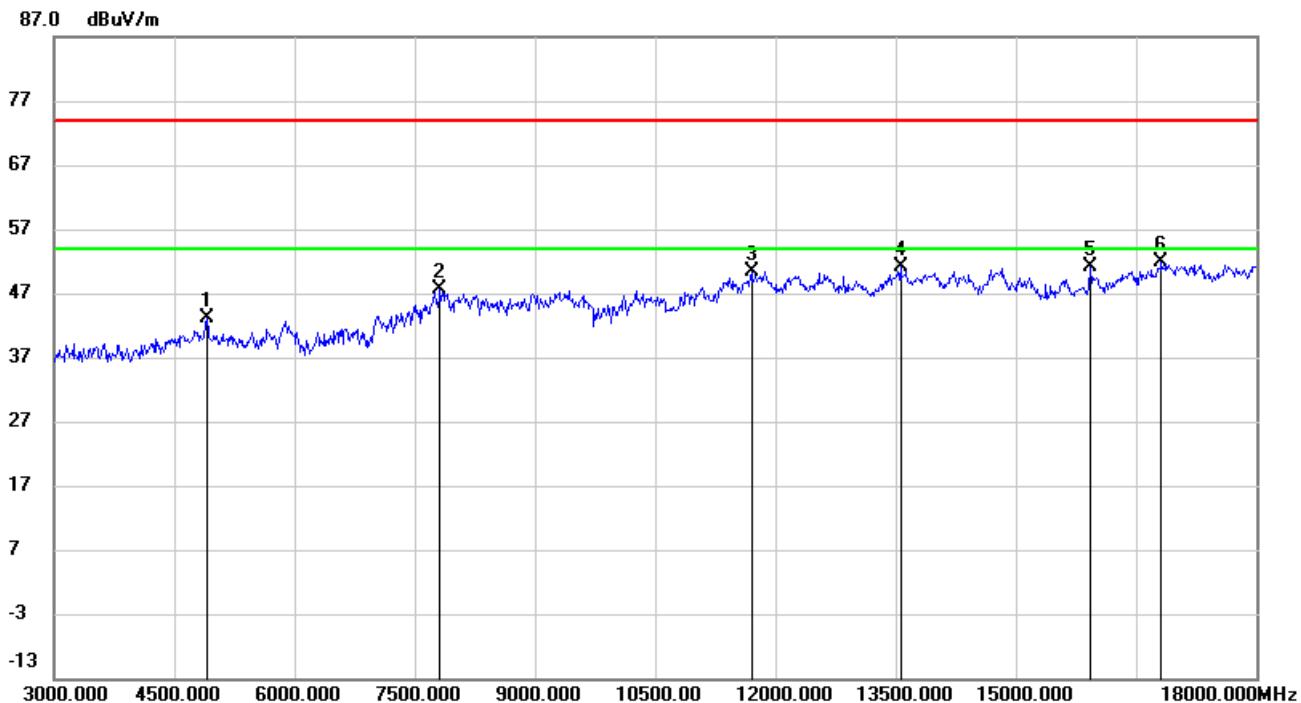
Note:

1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	44.70	1.32	46.02	74.00	-27.98	peak
2	8115.000	36.96	10.13	47.09	74.00	-26.91	peak
3	9180.000	37.46	9.95	47.41	74.00	-26.59	peak
4	12270.000	34.81	16.04	50.85	74.00	-23.15	peak
5	14775.000	32.94	17.95	50.89	74.00	-23.11	peak
6	17295.000	29.02	22.58	51.60	74.00	-22.40	peak

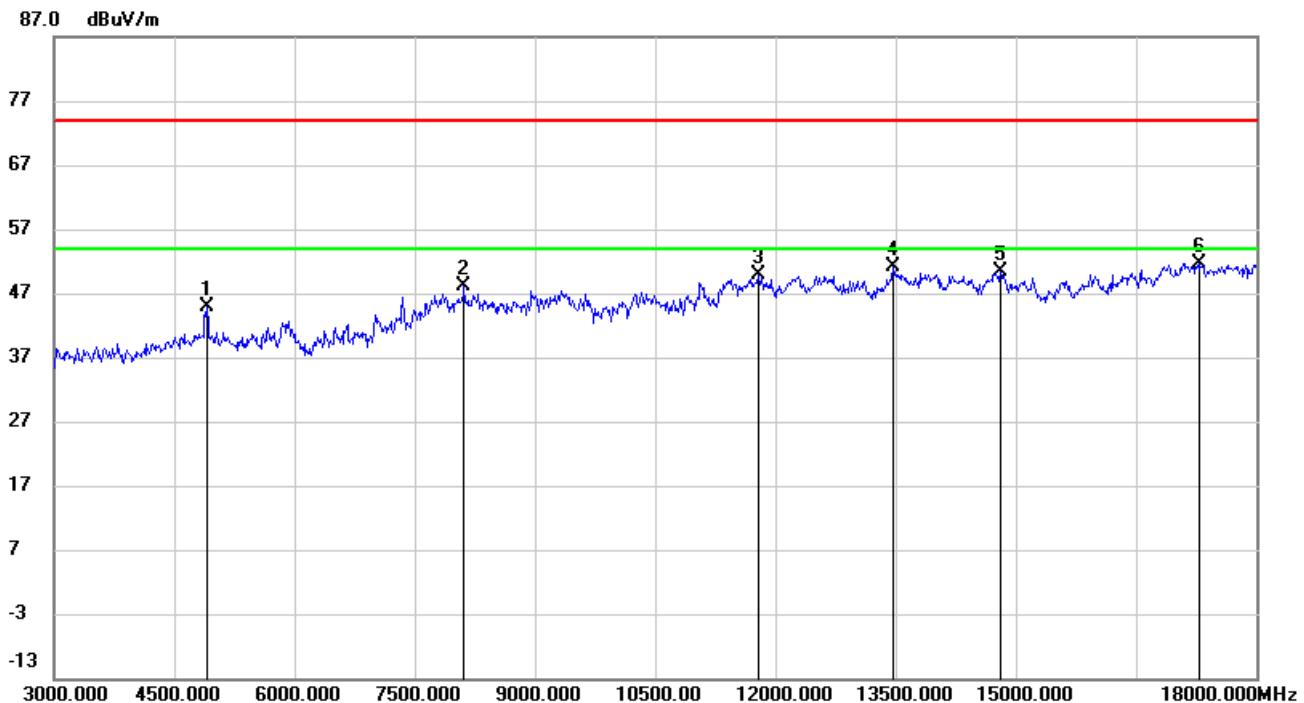
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4905.000	41.75	1.33	43.08	74.00	-30.92	peak
2	7815.000	38.23	9.28	47.51	74.00	-26.49	peak
3	11700.000	35.10	15.35	50.45	74.00	-23.55	peak
4	13560.000	34.01	17.15	51.16	74.00	-22.84	peak
5	15930.000	32.98	18.17	51.15	74.00	-22.85	peak
6	16815.000	31.06	20.84	51.90	74.00	-22.10	peak

Note:

1. Peak Result = 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 the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4905.000	43.66	1.33	44.99	74.00	-29.01	peak
2	8115.000	37.96	10.13	48.09	74.00	-25.91	peak
3	11790.000	34.64	15.26	49.90	74.00	-24.10	peak
4	13470.000	33.91	17.15	51.06	74.00	-22.94	peak
5	14805.000	32.49	18.00	50.49	74.00	-23.51	peak
6	17295.000	29.15	22.58	51.73	74.00	-22.27	peak

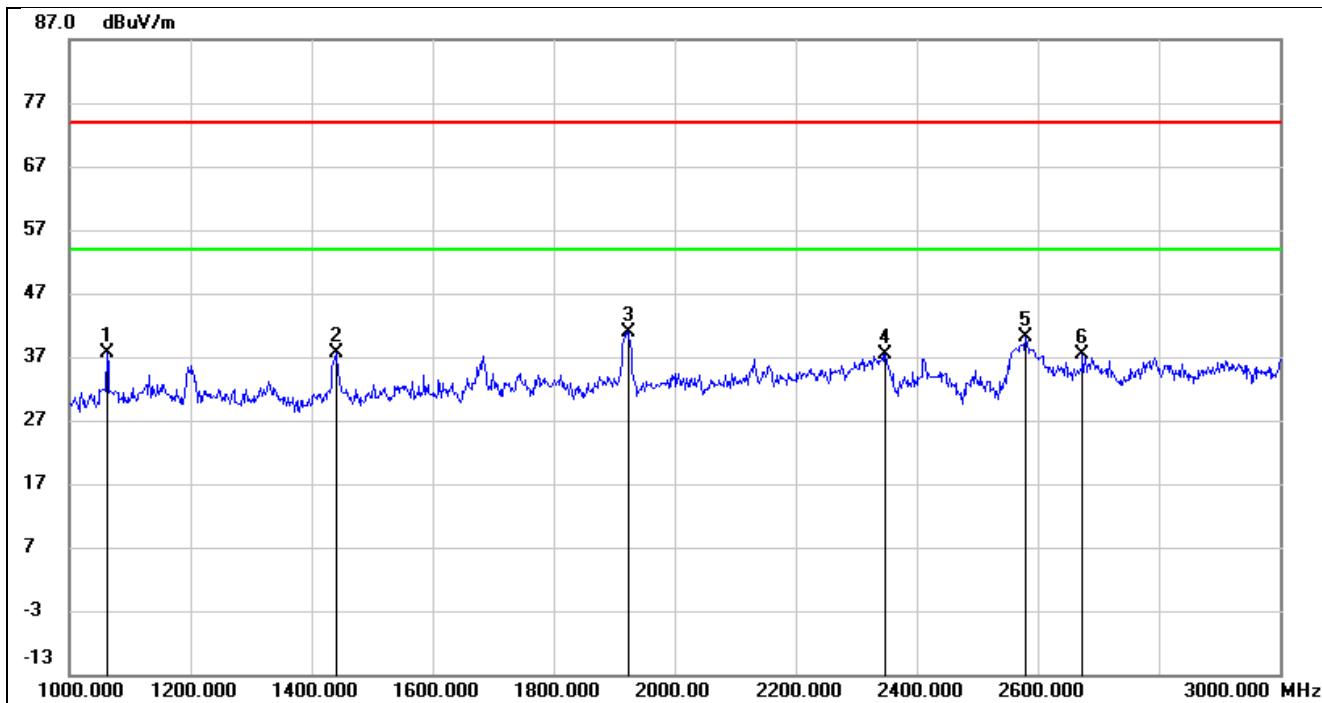
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: Both the two antennas had been tested, but only the worst data was recorded in the report.

8.4. SPURIOUS EMISSIONS FOR SIMULTANEOUS TRANSMISSION

8.4.1. 802.11b MIMO MODE AND BT MODE WORST CASE (TRANSMIT SIMULTANEOUSLY)

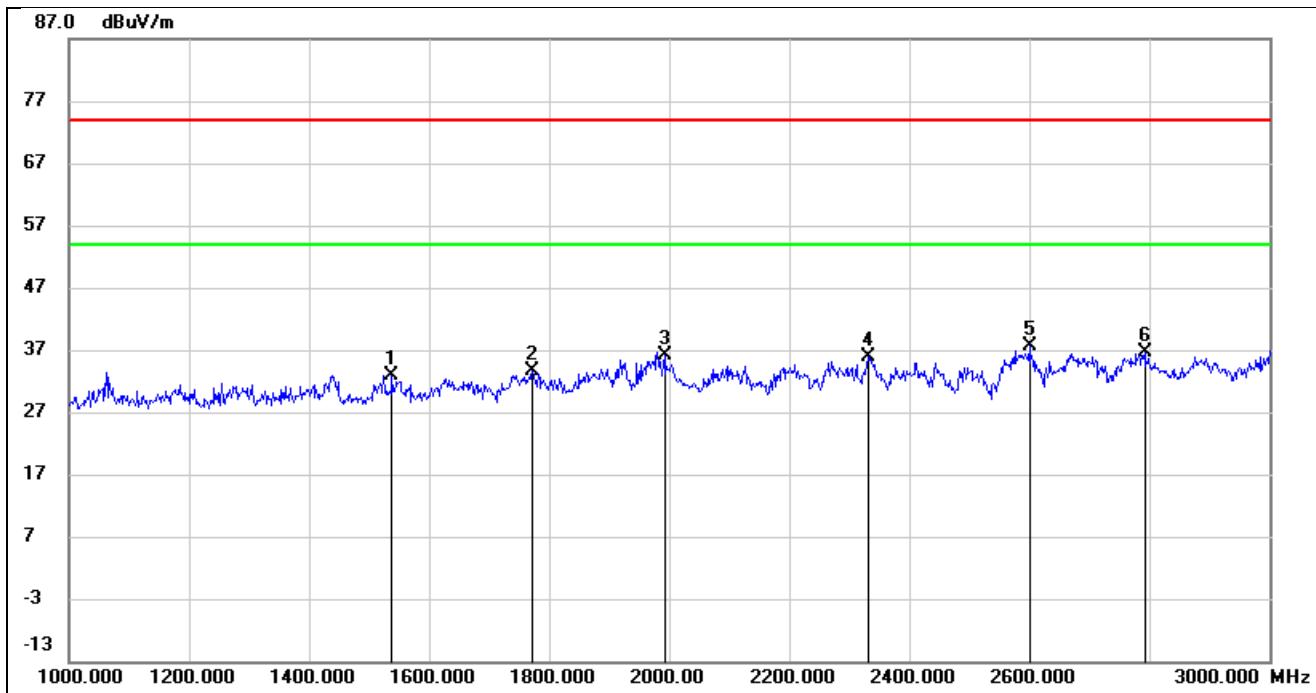
HARMONICS AND SPURIOUS EMISSIONS (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1062.000	51.21	-13.67	37.54	74.00	-36.46	peak
2	1440.000	50.16	-12.51	37.65	74.00	-36.35	peak
3	1924.000	51.08	-10.13	40.95	74.00	-33.05	peak
4	2348.000	46.07	-8.57	37.50	74.00	-36.50	peak
5	2580.000	48.15	-7.93	40.22	74.00	-33.78	peak
6	2674.000	44.79	-7.37	37.42	74.00	-36.58	peak

Note:

1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

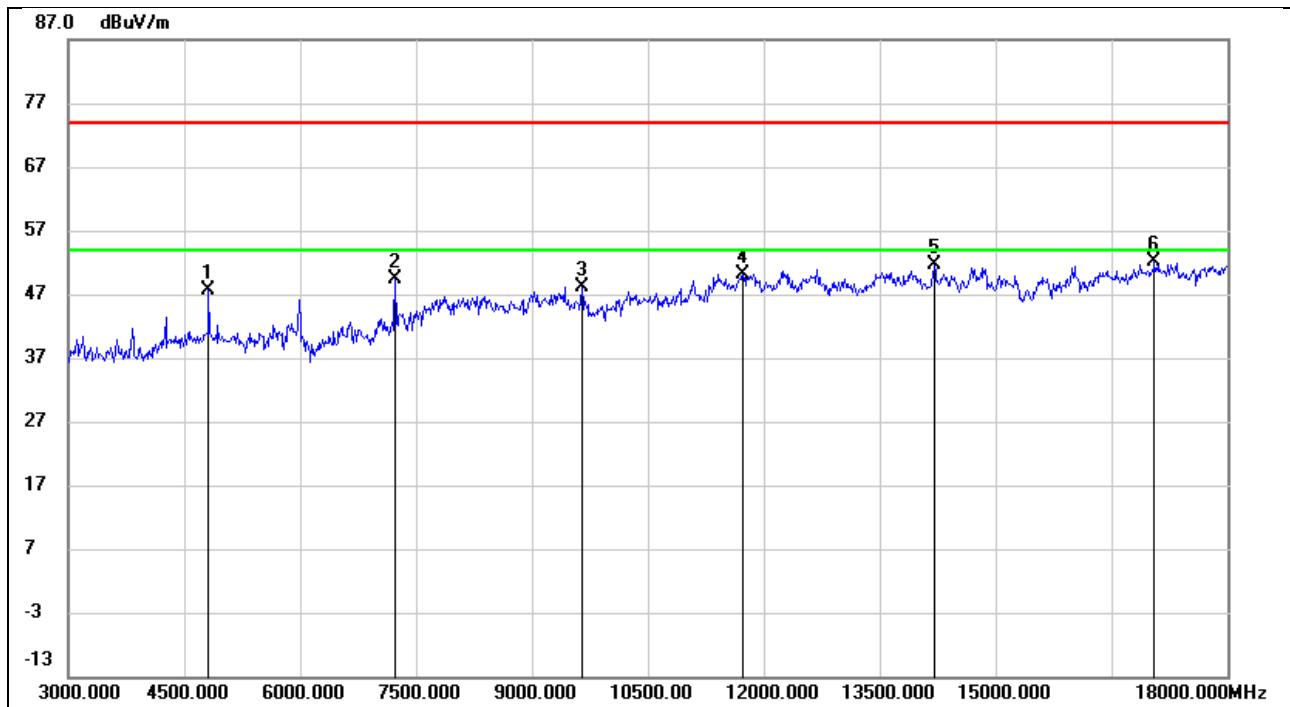
HARMONICS AND SPURIOUS EMISSIONS (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1538.000	44.91	-11.98	32.93	74.00	-41.07	peak
2	1772.000	43.82	-10.26	33.56	74.00	-40.44	peak
3	1992.000	46.35	-10.19	36.16	74.00	-37.84	peak
4	2332.000	44.55	-8.61	35.94	74.00	-38.06	peak
5	2600.000	45.56	-7.86	37.70	74.00	-36.30	peak
6	2792.000	43.16	-6.61	36.55	74.00	-37.45	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 the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

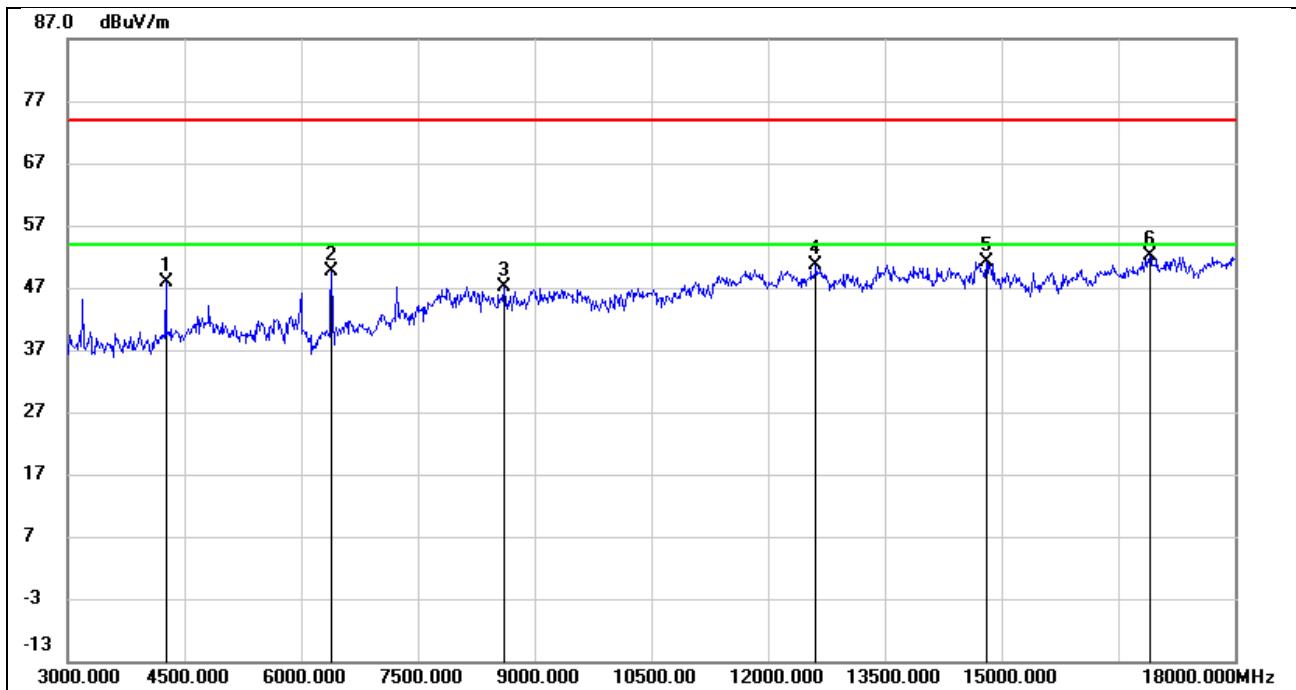
Note: All the modes have been tested, only the worst data was recorded in the report.

HARMONICS AND SPURIOUS EMISSIONS (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, HORIZONTAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.000	46.16	1.37	47.53	74.00	-26.47	peak
2	7230.000	42.14	7.28	49.42	74.00	-24.58	peak
3	9645.000	37.42	10.81	48.23	74.00	-25.77	peak
4	11730.000	34.90	15.32	50.22	74.00	-23.78	peak
5	14205.000	33.74	17.81	51.55	74.00	-22.45	peak
6	17055.000	30.47	21.60	52.07	74.00	-21.93	peak

Note:

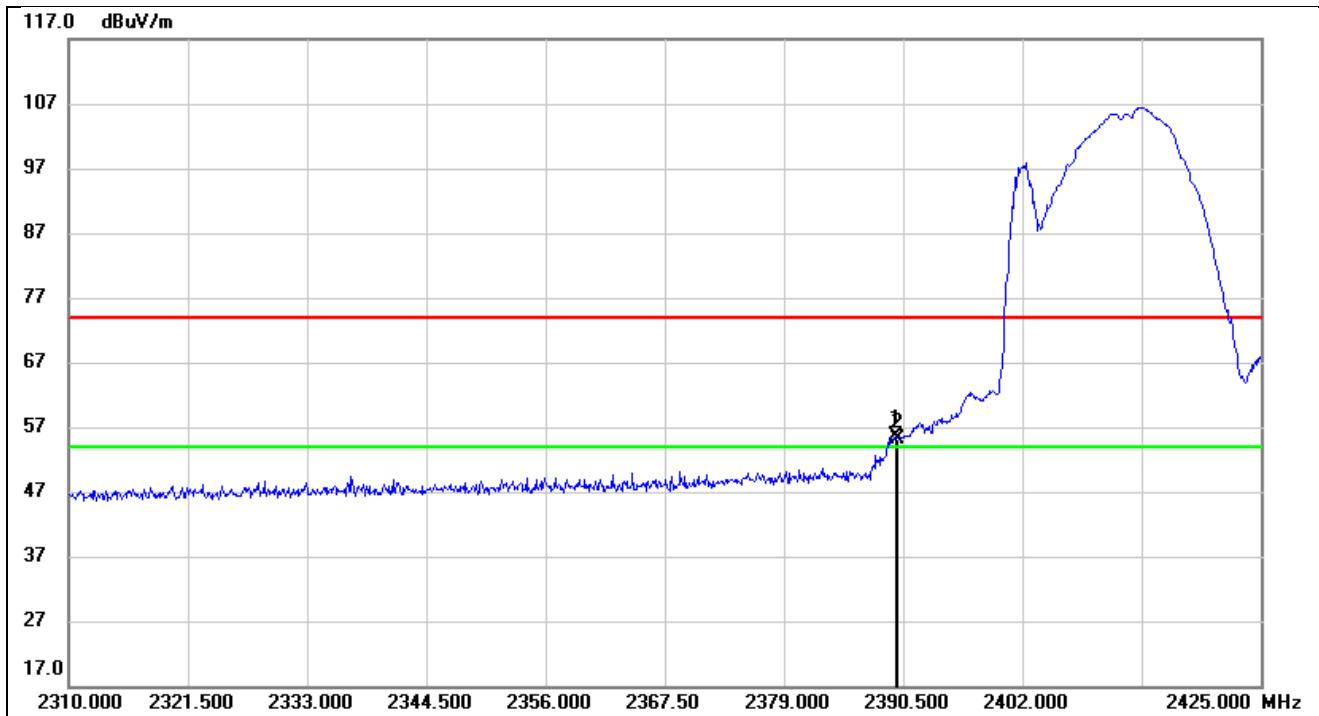
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, VERTICAL)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4260.000	49.28	-1.36	47.92	74.00	-26.08	peak
2	6390.000	44.77	4.83	49.60	74.00	-24.40	peak
3	8610.000	38.02	9.16	47.18	74.00	-26.82	peak
4	12615.000	34.82	15.75	50.57	74.00	-23.43	peak
5	14805.000	33.17	18.00	51.17	74.00	-22.83	peak
6	16905.000	30.48	21.55	52.03	74.00	-21.97	peak

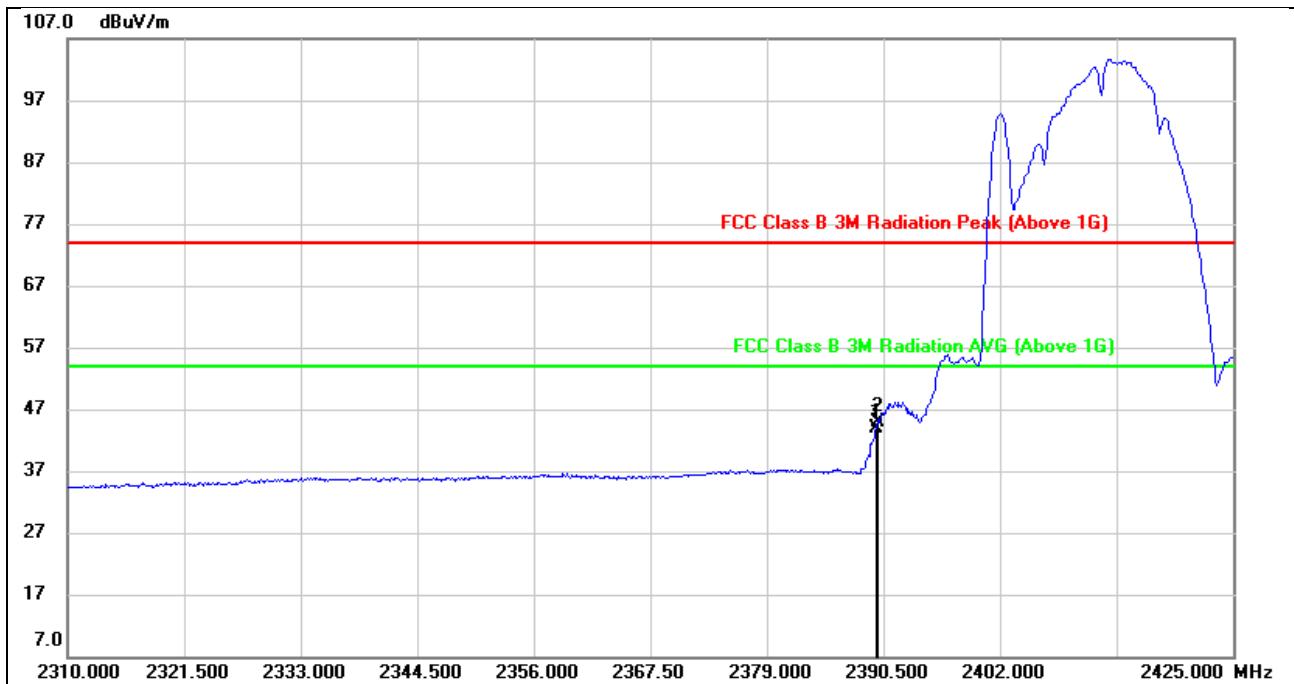
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: All the modes have been tested, only the worst data was recorded in the report.

RESTRICTED BANDEDGE (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, HORIZONTAL)**PEAK**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.810	22.30	33.35	55.65	74.00	-18.35	peak
2	2390.000	21.85	33.35	55.20	74.00	-18.80	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. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

AVERAGE

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.810	10.46	33.35	43.81	54.00	-10.19	AVG
2	2390.000	11.54	33.35	44.89	54.00	-9.11	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.
4. For the transmitting duration, please refer to clause 7.1.
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

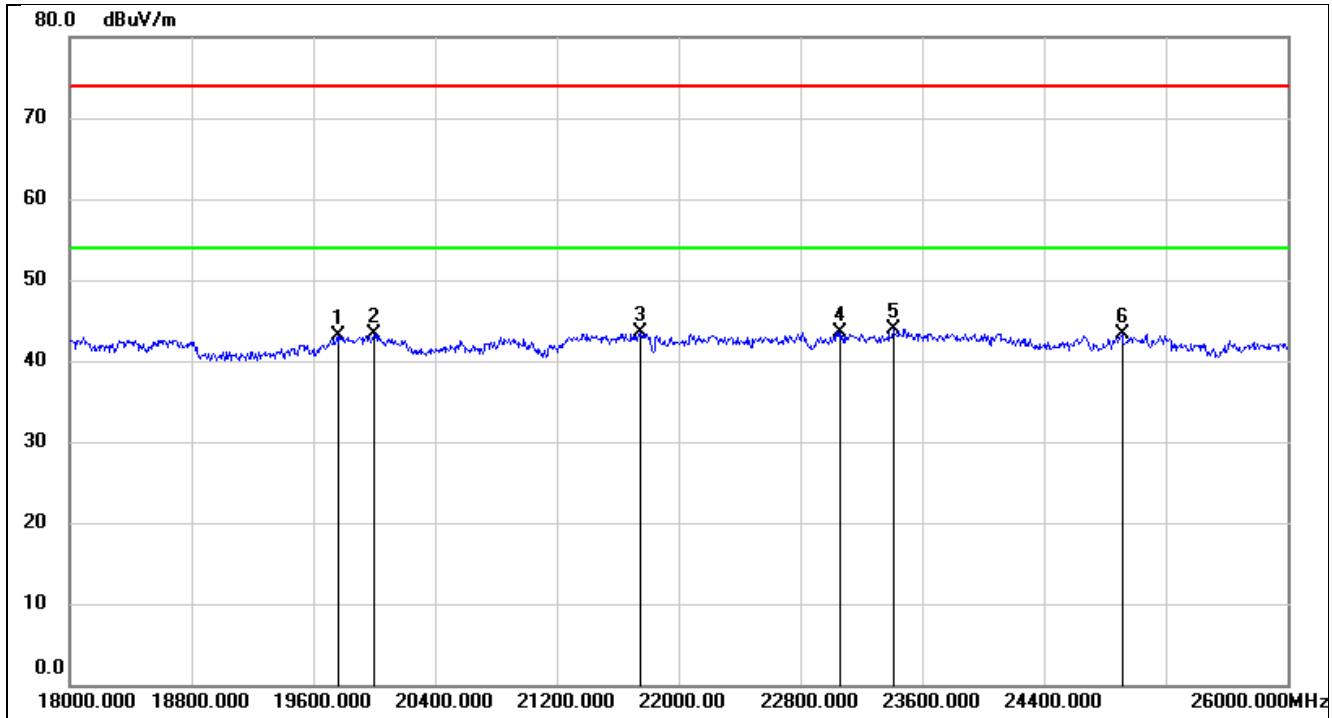
Note: Both horizontal and vertical had been tested, but only the worst data was recorded in the report.

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

8.5. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

8.5.1. 802.11b MIMO MODE AND BT MODE WORST CASE

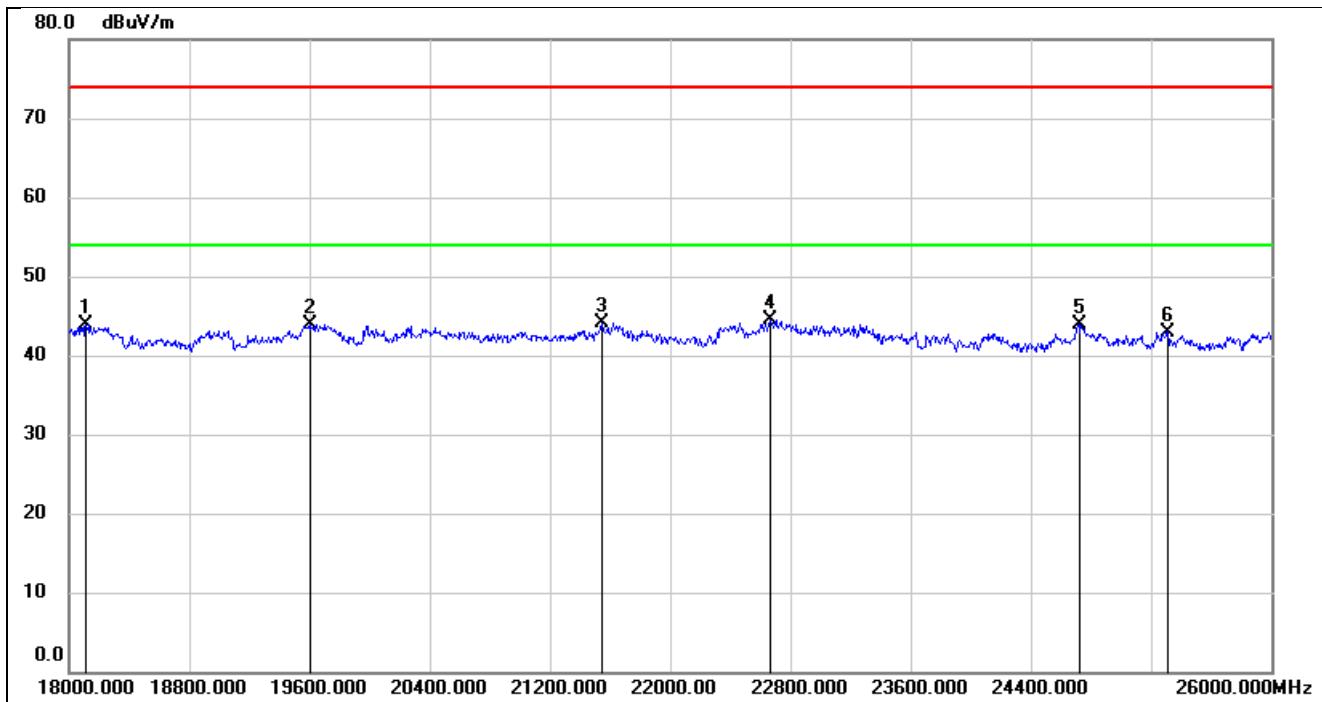
SPURIOUS EMISSIONS (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19760.000	48.36	-5.26	43.10	74.00	-30.90	peak
2	20000.000	48.81	-5.45	43.36	74.00	-30.64	peak
3	21752.000	47.80	-4.32	43.48	74.00	-30.52	peak
4	23064.000	46.99	-3.42	43.57	74.00	-30.43	peak
5	23408.000	47.11	-3.22	43.89	74.00	-30.11	peak
6	24912.000	45.42	-2.18	43.24	74.00	-30.76	peak

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

SPURIOUS EMISSIONS (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18112.000	49.46	-5.47	43.99	74.00	-30.01	peak
2	19600.000	49.29	-5.43	43.86	74.00	-30.14	peak
3	21544.000	48.76	-4.63	44.13	74.00	-29.87	peak
4	22664.000	48.21	-3.76	44.45	74.00	-29.55	peak
5	24720.000	46.22	-2.33	43.89	74.00	-30.11	peak
6	25312.000	44.70	-1.70	43.00	74.00	-31.00	peak

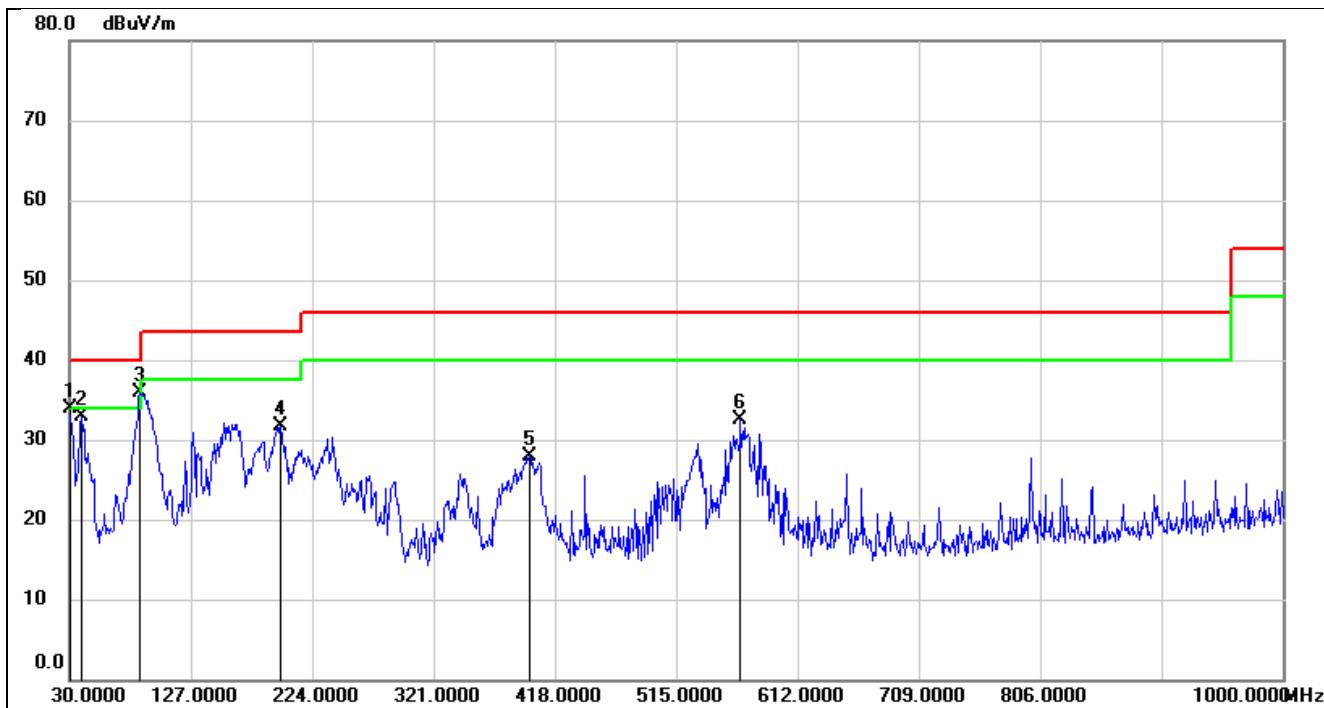
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

Note: All the modes had been tested, but only the worst data was recorded in the report.

8.6. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)

8.6.1. 802.11b MODE AND BT MODE WORST CASE

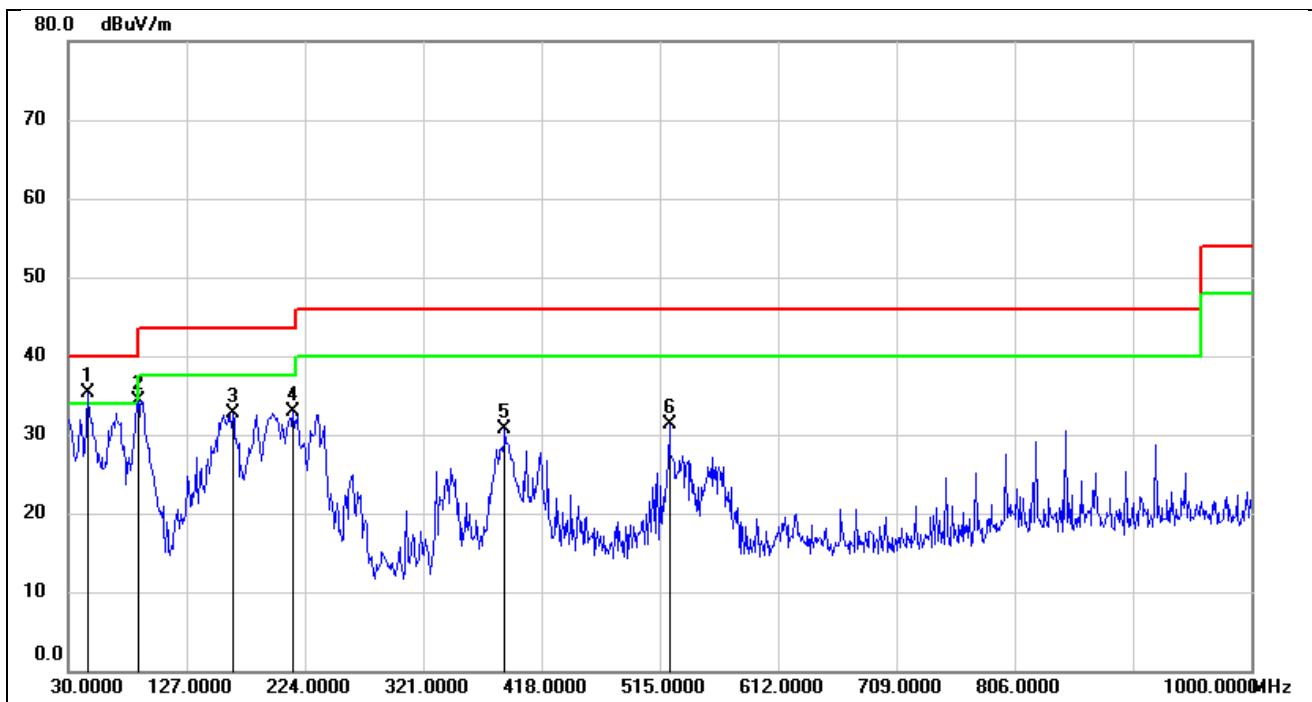
SPURIOUS EMISSIONS (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.0000	52.93	-18.94	33.99	40.00	-6.01	QP
2	39.7000	52.90	-19.96	32.94	40.00	-7.06	QP
3	86.2600	57.56	-21.75	35.81	40.00	-4.19	QP
4	198.7800	48.10	-16.39	31.71	43.50	-11.79	QP
5	397.6300	41.31	-13.39	27.92	46.00	-18.08	QP
6	566.4099	42.68	-10.16	32.52	46.00	-13.48	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 (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	45.5200	55.69	-20.38	35.31	40.00	-4.69	QP
2	87.2300	56.18	-21.80	34.38	40.00	-5.62	QP
3	164.8300	50.26	-17.55	32.71	43.50	-10.79	QP
4	214.3000	50.53	-17.66	32.87	43.50	-10.63	QP
5	387.9300	44.17	-13.53	30.64	46.00	-15.36	QP
6	522.7600	42.29	-11.01	31.28	46.00	-14.72	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

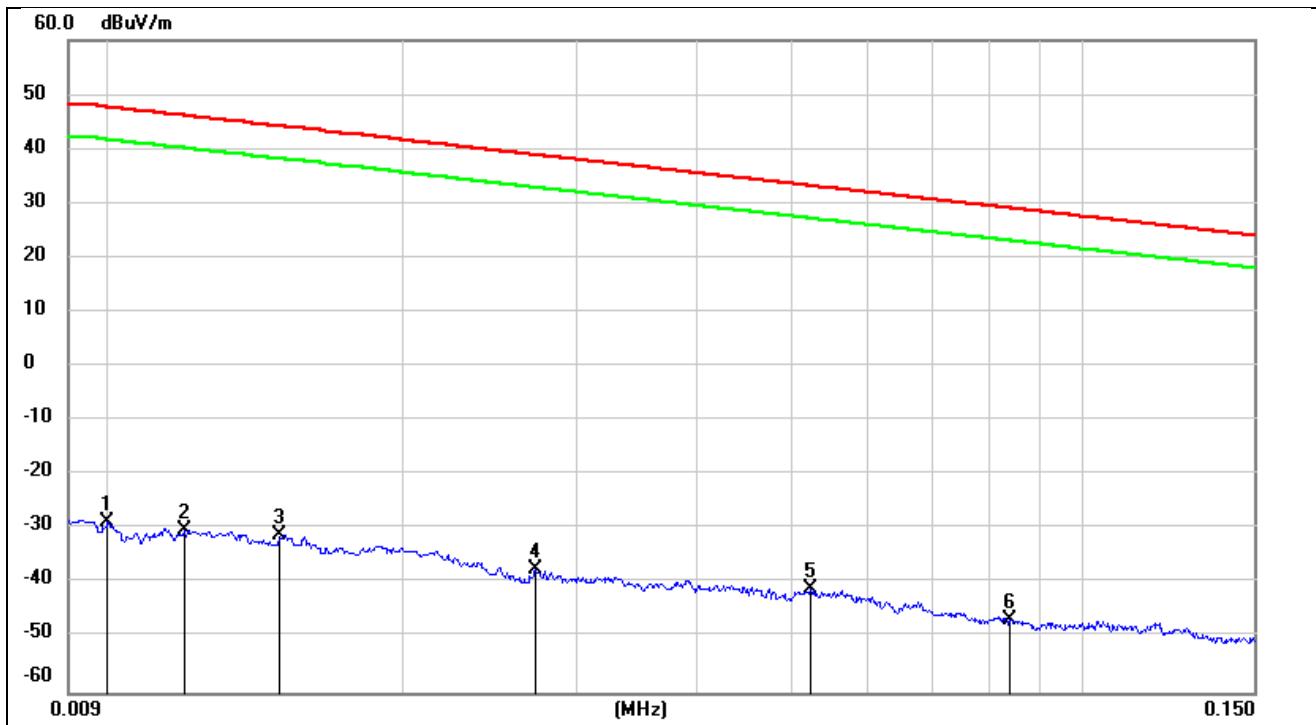
Note: All the modes had been tested, but only the worst data was recorded in the report.

8.7. SPURIOUS EMISSIONS BELOW 30 MHz

8.7.1. 802.11b MIMO MODE AND BT MODE WORST CASE

SPURIOUS EMISSIONS (802.11b MODE LOW CHANNEL, BT 8DQPSK MIDDLE CHANNEL, LOOP ANTENNA FACE ON TO THE FUT)

9 kHz~ 150 kHz

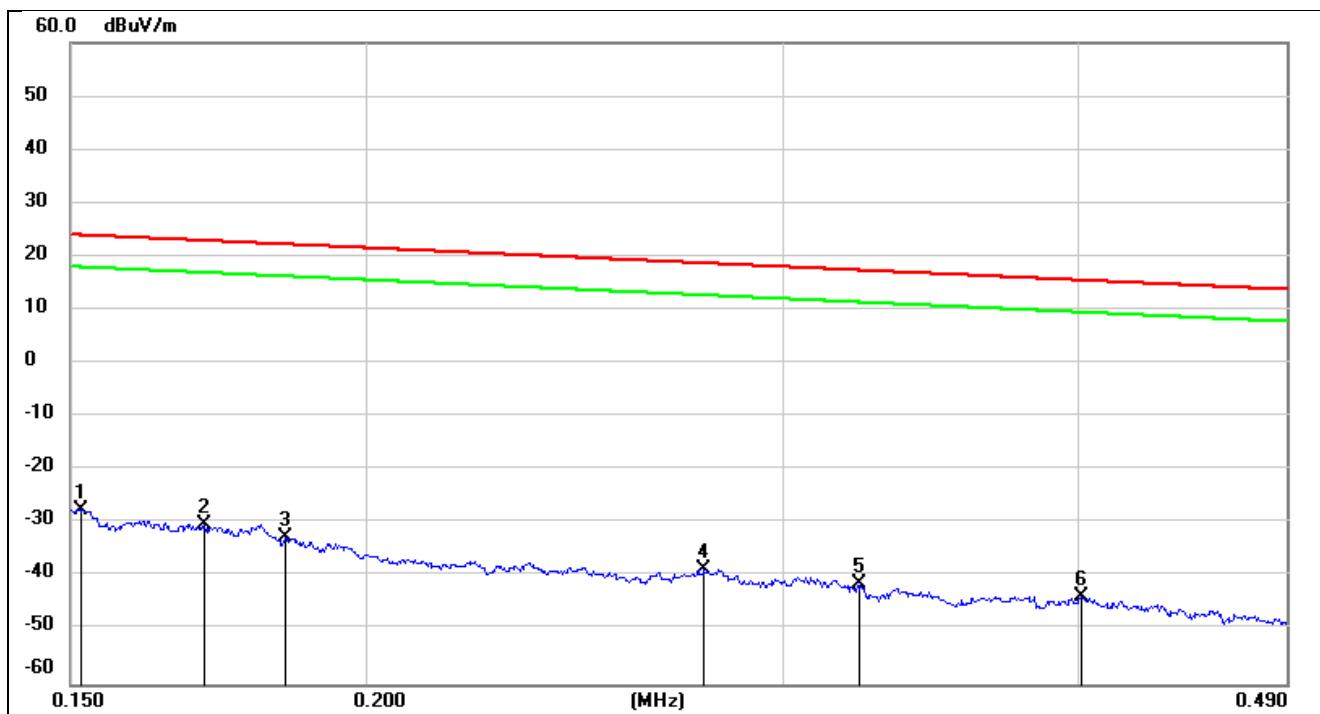


No.	Frequency	Reading	Correct	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.0100	72.72	-101.40	-28.68	47.6	-80.18	-3.90	-76.28	peak
2	0.0119	71.16	-101.39	-30.23	46.09	-81.73	-5.41	-76.32	peak
3	0.0149	70.37	-101.37	-31	44.14	-82.50	-7.36	-75.14	peak
4	0.0273	63.99	-101.38	-37.39	38.88	-88.89	-12.62	-76.27	peak
5	0.0524	60.67	-101.49	-40.82	33.21	-92.32	-18.29	-74.03	peak
6	0.0840	55.01	-101.67	-46.66	29.12	-98.16	-22.38	-75.78	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- 20Log10[120π] = dBuV/m- 51.5).

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.

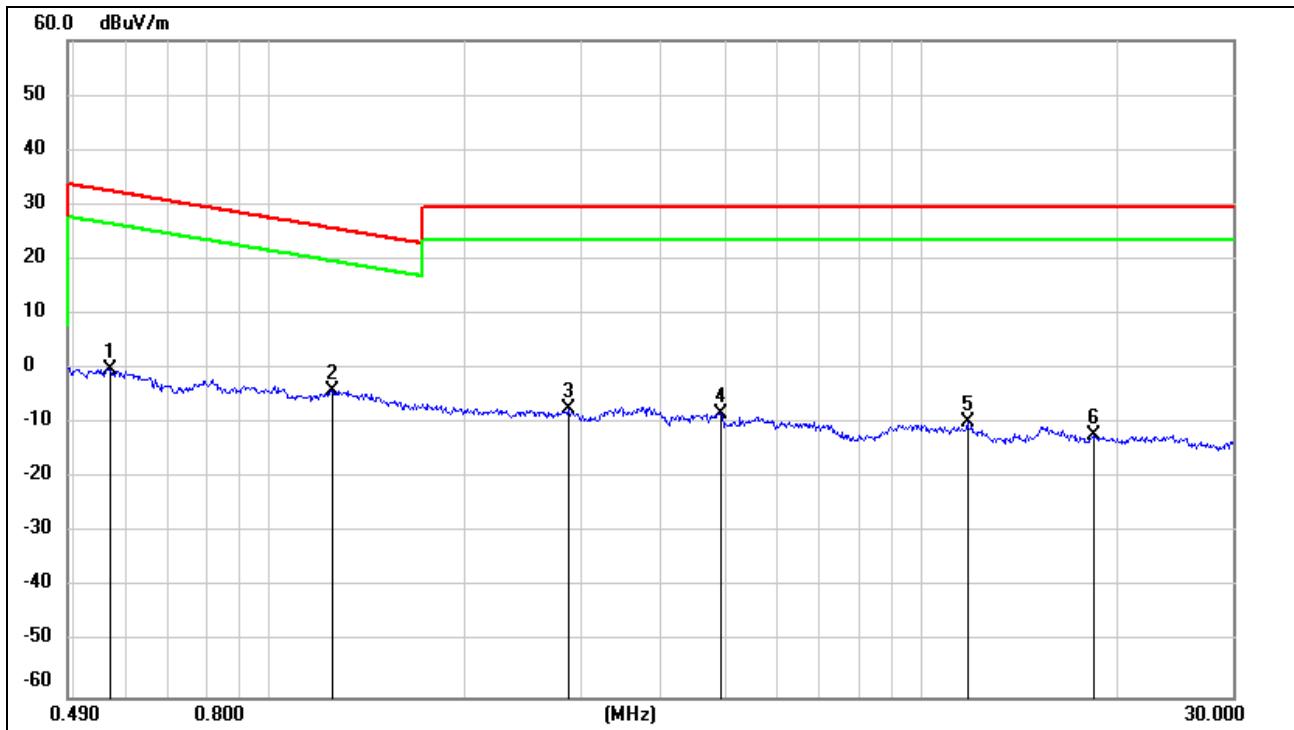
150 kHz ~ 490 kHz


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.1517	74.25	-101.63	-27.38	23.98	-78.88	-27.52	-51.36	peak
2	0.1708	71.43	-101.67	-30.24	22.96	-81.74	-28.54	-53.20	peak
3	0.1849	69.04	-101.70	-32.66	22.27	-84.16	-29.23	-54.93	peak
4	0.2782	63.29	-101.83	-38.54	18.71	-90.04	-32.79	-57.25	peak
5	0.3234	60.48	-101.88	-41.4	17.41	-92.90	-34.09	-58.81	peak
6	0.4012	58.31	-101.96	-43.65	15.53	-95.15	-35.97	-59.18	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- $20\log_{10}[120\pi]$ = dBuV/m- 51.5).

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.

490 kHz ~ 30 MHz


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.5705	61.87	-62.07	-0.2	32.48	-51.70	-19.02	-32.68	peak
2	1.2459	58.25	-62.16	-3.91	25.7	-55.41	-25.80	-29.61	peak
3	2.8803	54.34	-61.60	-7.26	29.54	-58.76	-21.96	-36.80	peak
4	4.9165	53.38	-61.48	-8.1	29.54	-59.60	-21.96	-37.64	peak
5	11.7628	51.03	-60.88	-9.85	29.54	-61.35	-21.96	-39.39	peak
6	18.3429	48.86	-60.90	-12.04	29.54	-63.54	-21.96	-41.58	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- $20\log_{10}[120\pi]$ = dBuV/m- 51.5).

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 the modes had been tested, but only the worst data was recorded in the report.

9. AC POWER LINE CONDUCTED EMISSIONS

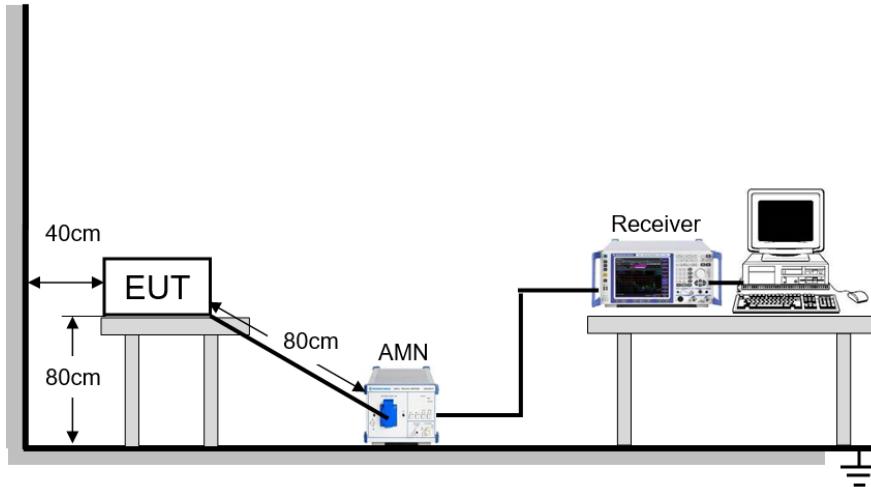
LIMITS

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

Refer to ANSI C63.10-2013 clause 6.2.

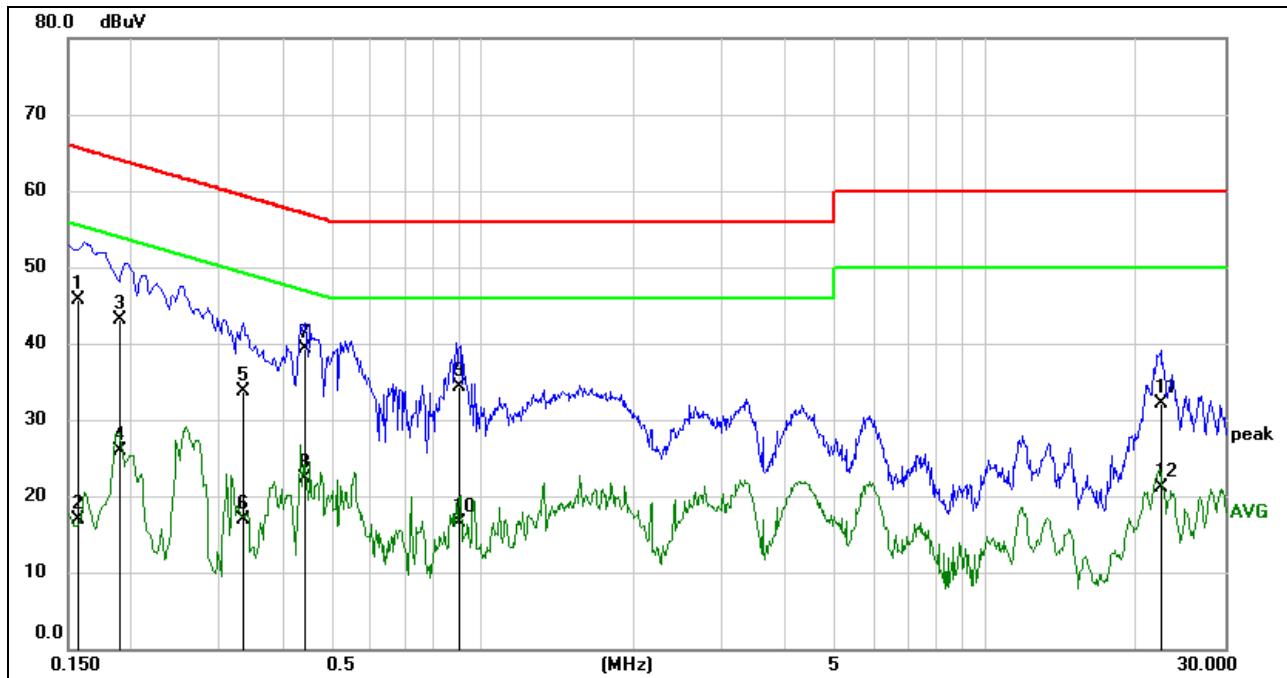


The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

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	24.1 °C	Relative Humidity	57.1 %
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V

TEST RESULTS**LINE L RESULTS (802.11a MODE LOW CHANNEL, WORST-CASE CONFIGURATION)**

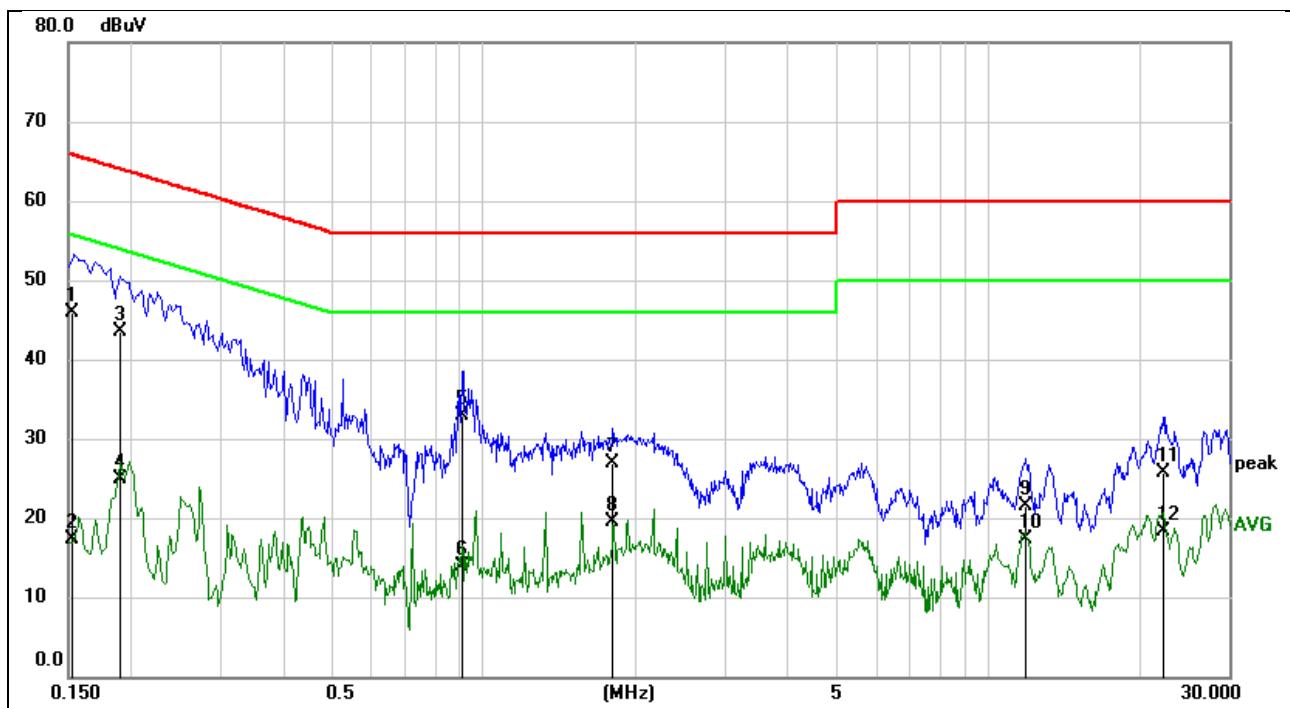
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1577	36.03	9.59	45.62	65.58	-19.96	QP
2	0.1577	7.25	9.59	16.84	55.58	-38.74	AVG
3	0.1903	33.60	9.59	43.19	64.02	-20.83	QP
4	0.1903	16.30	9.59	25.89	54.02	-28.13	AVG
5	0.3331	24.21	9.59	33.80	59.37	-25.57	QP
6	0.3331	7.34	9.59	16.93	49.37	-32.44	AVG
7	0.4448	29.64	9.60	39.24	56.97	-17.73	QP
8	0.4448	12.76	9.60	22.36	46.97	-24.61	AVG
9	0.9007	24.70	9.60	34.30	56.00	-21.70	QP
10	0.9007	6.82	9.60	16.42	46.00	-29.58	AVG
11	22.2539	22.33	9.86	32.19	60.00	-27.81	QP
12	22.2539	11.22	9.86	21.08	50.00	-28.92	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: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

LINE N RESULTS (802.11a MODE LOW CHANNEL, WORST-CASE CONFIGURATION)

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1520	36.23	9.59	45.82	65.89	-20.07	QP
2	0.1520	7.72	9.59	17.31	55.89	-38.58	AVG
3	0.1890	33.84	9.59	43.43	64.08	-20.65	QP
4	0.1890	15.24	9.59	24.83	54.08	-29.25	AVG
5	0.9081	23.39	9.61	33.00	56.00	-23.00	QP
6	0.9081	4.30	9.61	13.91	46.00	-32.09	AVG
7	1.8075	17.19	9.62	26.81	56.00	-29.19	QP
8	1.8075	9.96	9.62	19.58	46.00	-26.42	AVG
9	11.8556	11.93	9.65	21.58	60.00	-38.42	QP
10	11.8556	7.64	9.65	17.29	50.00	-32.71	AVG
11	22.2504	15.89	9.76	25.65	60.00	-34.35	QP
12	22.2504	8.56	9.76	18.32	50.00	-31.68	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: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

10. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

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

Please refer to FCC §15.247(b)(4)

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

RESULTS

Complies

END OF REPORT