



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

# **CERTIFICATION TEST REPORT**

For

# WIFI+BT Module

# MODEL NUMBER: WXT21M2511B

FCC ID: 2AC23-WXT2

IC: 12290A-WXT2

# **REPORT NUMBER: 4790244590-4**

ISSUE DATE: March 07, 2022

Prepared for

Hui Zhou Gaoshengda Technology Co.,LTD NO.75 Zhongkai Development Area, Huizhou, Guangdong, China

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch

Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China

> Tel: +86 769 22038881 Fax: +86 769 33244054 Website: www.ul.com



## **Revision History**

Rev.	Issue Date	Revisions	Revised By
V0	3/7/2021	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC/IC Rules	Test Results
1	6dB/26dB Bandwidth	FCC 15.407 (a)&(e) RSS-247 Clause 6.2	PASS
2	99% Occupied Bandwidth	RSS-Gen Clause 6.7	PASS
3	Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
4	Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	PASS
5	Radiated Bandedge and Spurious Emission	FCC 15.407 (b) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	PASS
6	Conducted Emission Test for AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	PASS
7	Frequency Stability	FCC 15.407 (g)	PASS
8	Dynamic Frequency Selection	FCC 15.407 (h) RSS-247 Clause 6.3	PASS
9	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 E >< ISED RSS-247 > when <Accuracy Method> decision rule is applied.



# TABLE OF CONTENTS

1.	AT	TESTATION OF TEST RESULTS	8
2.	TE	ST METHODOLOGY	9
3.	FA	CILITIES AND ACCREDITATION	9
4.	СА	LIBRATION AND UNCERTAINTY	10
4	4.1.	MEASURING INSTRUMENT CALIBRATION	10
4	4.2.	MEASUREMENT UNCERTAINTY	10
5.	EQ	UIPMENT UNDER TEST	11
5	5.1.	DESCRIPTION OF EUT	11
5	5.2.	MAXIMUM OUTPUT POWER	12
5	5.3.	CHANNEL LIST	14
5	5.4.	DESCRIPTION OF AVAILABLE ANTENNAS	15
5	5.1.	THE WORSE CASE POWER SETTING PARAMETER	16
5	5.2.	TEST CHANNEL CONFIGURATION	19
5	5.3.	THE WORSE CASE CONFIGURATIONS	21
5	5.4.	DESCRIPTION OF TEST SETUP	22
6.	ME	ASURING INSTRUMENT AND SOFTWARE USED	23
6. 7.		ASURING INSTRUMENT AND SOFTWARE USED TENNA PORT TEST RESULTS	
7.			25
<b>7</b> .	AN	TENNA PORT TEST RESULTS	<b>25</b> 25
<b>7</b> . 7	<b>AN</b> 7.1.	TENNA PORT TEST RESULTS ON TIME AND DUTY CYCLE	<b>25</b> 25 26
7. 7 7 7	<b>AN</b> 7.1. 7.2.	TENNA PORT TEST RESULTS ON TIME AND DUTY CYCLE 6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH	<b>25</b> 25 26 28
7. 7 7 7	<b>AN</b> 7.1. 7.2. 7.3. 7.4.	TENNA PORT TEST RESULTS ON TIME AND DUTY CYCLE 6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH CONDUCTED OUTPUT POWER	25 25 26 28 31
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. RA 3.1.	TENNA PORT TEST RESULTS ON TIME AND DUTY CYCLE	25 26 26 28 31 33 40
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. RA 8.1. 8.1.	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER         POWER SPECTRAL DENSITY         DIATED TEST RESULTS	25 26 28 31 33 40 40 40
7. 7 7 7 7 8.	<b>AN</b> 7.1. 7.2. 7.3. 7.4. <b>RA</b> 8.1. 8.1. UN	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER         POWER SPECTRAL DENSITY         DIATED TEST RESULTS         RESTRICTED BANDEDGE         .1       802.11a 20 SISO MODE         II-1 BAND	25 25 26 28 31 33 40 40 40 40
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. 8.1. 8.1. UN UN UN	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER         POWER SPECTRAL DENSITY         DIATED TEST RESULTS         RESTRICTED BANDEDGE         .1       802.11a 20 SISO MODE         II-1 BAND         II-2C BAND	25 26 26 28 31 33 40 40 40 40 45 49
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. 8.1. 8.1. UN UN UN UN	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER         POWER SPECTRAL DENSITY         DIATED TEST RESULTS         RESTRICTED BANDEDGE         .1       802.11a 20 SISO MODE         II-1 BAND         II-2C BAND         II-3 BAND	25 26 26 28 31 33 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. 8.1. 8.1. UN UN UN UN 8.1.	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER         POWER SPECTRAL DENSITY         DIATED TEST RESULTS         RESTRICTED BANDEDGE         .1       802.11a 20 SISO MODE         II-1 BAND         II-2C BAND         .2       802.11n HT20 MIMO MODE	25 25 26 28 31 33 40 40 40 40 40 40 40 40 45 49 52 54
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. 8.1. UN UN UN UN UN UN	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER         POWER SPECTRAL DENSITY         DIATED TEST RESULTS         RESTRICTED BANDEDGE         .1       802.11a 20 SISO MODE         II-1 BAND         II-2C BAND         II-3 BAND	25 26 26 28 31 33 40
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. 8.1. UN UN UN UN 8.1. UN UN UN UN	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER         POWER SPECTRAL DENSITY         DIATED TEST RESULTS         RESTRICTED BANDEDGE         1. 802.11a 20 SISO MODE         II-2A BAND         12. 802.11n HT20 MIMO MODE         11-2A BAND         11-2A BAND	25 26 26 28 31 33 40 40 40 40 40 40 40 40 40 52 54 54 58 58 62
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. 8.1. 0N 0N 0N 0N 0N 0N 0N 0N 0N 0N 0N	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE.         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER.         POWER SPECTRAL DENSITY.         DIATED TEST RESULTS.         RESTRICTED BANDEDGE.         .1. 802.11a 20 SISO MODE.         II-1 BAND         II-2A BAND         .2. 802.11n HT20 MIMO MODE.         II-3 BAND         .1.2C BAND         II-2A BAND         II-3 BAND         II-3 BAND         II-2A BAND	25 26 26 28 31 33 40 40 40 40 40 40 40 40 52 54 54 54 58 62 65
7. 7 7 7 7 8.	AN 7.1. 7.2. 7.3. 7.4. 8.1. 8.1. UN UN UN UN UN UN UN UN UN UN UN S.1.	TENNA PORT TEST RESULTS         ON TIME AND DUTY CYCLE.         6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH         CONDUCTED OUTPUT POWER.         POWER SPECTRAL DENSITY.         DIATED TEST RESULTS.         RESTRICTED BANDEDGE.         1. 802.11a 20 SISO MODE.         II-1 BAND         II-2C BAND         II-3 BAND         .2. 802.11n HT20 MIMO MODE.         II-1 BAND         II-2A BAND         II-2A BAND         II-3 BAND         II-3 BAND         II-2A BAND         II-3 BAND	25 25 26 28 28 28 

UNII-2C BAND	-
UNII-3 BAND	
8.1.4. 802.11ac VHT80 MIMO MODE	80
UNII-1 BAND	
UNII-2A BAND	
UNII-2C BAND	84
UNII-3 BAND	
8.1.5. 802.11ax HE20 MIMO MODE	
UNII-1 BAND	
UNII-2A BAND	92
UNII-2C BAND	96
UNII-3 BAND	
8.1.6. 802.11ax HE40 MIMO MODE	101
UNII-1 BAND	101
UNII-2A BAND	105
UNII-2C BAND	109
UNII-3 BAND	112
8.1.7. 802.11ax HE80 MIMO MODE	114
UNII-1 BAND	114
UNII-2A BAND	116
UNII-2C BAND	118
UNII-3 BAND	121
8.2. SPURIOUS EMISSIONS (1 GHz ~ 7 GHz)	122
8.2.1. 802.11ax HE20 SISO MODE	122
UNII-1 BAND	
UNII-2A BAND	
UNII-2C BAND	
STRADDLE CHANNEL 144	
UNII-3 BAND	
8.3. SPURIOUS EMISSIONS (7 GHz ~ 18 GHz)	
8.3.1. 802.11a 20 SISO MODE	
UNII-1 BAND	
UNII-2A BAND	
UNII-2C BAND	
STRADDLE CHANNEL 144	
8.3.2. 802.11n HT20 MIMO MODE	
UNII-2A BAND	
UNII-2C BAND	
STRADDLE CHANNEL 144	
8.3.3. 802.11n HT40 MIMO MODE	
UNII-1 BAND	
UNII-2A BAND	-
STRADDLE CHANNEL 142	
UNII-3 BAND	
8.3.4. 802.11ac VHT80 MIMO MODE	
UNII-1 BAND	
UNII-2A BAND	222

		004
	UNII-2C BAND	
	STRADDLE CHANNEL 138	
	UNII-3 BAND	
	8.3.5. 802.11ax HE20 MIMO MODE	
	UNII-1 BAND	
	UNII-2A BAND	238
	UNII-2C BAND	
	STRADDLE CHANNEL 144	250
	UNII-3 BAND	
	8.3.6. 802.11ax HE40 MIMO MODE	258
	UNII-1 BAND	
	UNII-2A BAND	
	UNII-2C BAND	-
	STRADDLE CHANNEL 142	
	UNII-3 BAND	
	UNII-1 BAND	-
	UNII-2A BAND	
	UNII-2C BAND	
	STRADDLE CHANNEL 138	
	UNII-3 BAND	288
	3.4. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)	200
(	8.4.1. 802.11ac VHT80 MODE	290
ä	3.5. SPURIOUS EMISSIONS (26 GHz ~ 40 GHz)	292
	8.5.1. 802.11 ac VHT80 MODE	292
ě	3.6. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)	294
	8.6.1. 802.11ac VHT80 MODE	294
	3.7. SPURIOUS EMISSIONS BELOW 30 MHz	296
,	8.7.1. 802.11ac VHT80 MODE	
		230
9.	AC POWER LINE CONDUCTED EMISSIONS	200
э.		
	9.1.1. 802.11ac VHT80 MODE	300
10	FREQUENCY STABILITY	302
11	DYNAMIC FREQUENCY SELECTION	304
12	ANTENNA REQUIREMENTS	308
	12.1. Appendix A1: Emission Bandwidth	200
	12.1.1. Test Result	
	12.1.2. Test Graphs	312
	12.2. Appendix A2: Occupied channel bandwidth	360
	12.2.1. Test Result	
	12.2.2. Test Graphs	
	· · · · · · · · · · · · · · · · · · ·	
	12.3. Appendix A3: Min emission bandwidth	
	12.3.1. Test Result	
	12.3.2. Test Graphs	413
	12.4. Appendix B: Maximum conducted output power	100



12.4.1. Test Result	
<ul> <li>12.5. Appendix C: Maximum power spectral density</li> <li>12.5.1. Test Result</li> <li>12.5.2. Test Graphs</li> </ul>	434
12.6.       Appendix D: Duty Cycle	<i>491</i> 491
12.7. Appendix E: Frequency Stability Test Result	
12.8.Appendix F: DFS Detection Thresholds12.8.1.Test Result12.8.2.Test Graphs	497
<ul> <li>12.9. Appendix G: Channel Move Time and Channel Closing Transmission</li> <li>12.9.1. Test Result</li> <li>12.9.2. Test Graphs</li> </ul>	499
12.10. Appendix H: Non-Occupancy Period	



# **1. ATTESTATION OF TEST RESULTS**

## Applicant Information

Company Name:	Hui Zhou Gaoshengda Technology Co.,LTD
Address:	NO.75 Zhongkai Development Area, Huizhou, Guangdong,
	China

#### Manufacturer Information

Company Name:	Hui Zhou Gaoshengda Technology Co.,LTD
Address:	No.2, Jin-da Road, Huinan High-tech Industrial Park, Hui-ao
	Avenue, Huizhou City, Guangdong, China

## **EUT Information**

WIFI+BT Module
WXT21M2511B
January 12, 2022
Normal
4576654
January 12, 2022~ March 6, 2022

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

Prepared By:

Kebo. zhung.

Checked By:

Sherry les

Kebo Zhang Project Engineer Approved By:

shentur

Shawn Wen Laboratory Leader

Stephen Guo Laboratory Manager



# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, CFR 47 FCC Part 2, CFR 47 FCC Part 15, KDB 789033 D02 v02r01, RSS-GEN Issue 5, RSS-247 Issue 2, KDB414788 D01 Radiated Test Site v01r01, KDB 662911 D01 Multiple Transmitter Output v02r01, KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02, KDB 905462 D03 UNII clients without radar detection New Rules v01r02, KDB 905462 D04 Operational Modes for DFS Testing New Rules v01 and KDB 905462 D06 802 11 Channel Plans New Rules v02.

# 3. FACILITIES AND ACCREDITATION

	A2LA (Certificate No.: 4102.01)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with A2LA.
	FCC (FCC Designation No.: CN1187)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	Has been recognized to perform compliance testing on equipment subject
	to the Commission's Delcaration of Conformity (DoC) and Certification
	rules
	ISED (Company No.: 21320)
Accreditation	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Certificate	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.
VCCI (Registration No.: G-20019, R-20004, C-20012 and T-2	
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with VCCI, the
	Membership No. is 3793.
	Facility Name:
	Chamber D, the VCCI registration No. is G-20019 and R-20004
	Shielding Room B, the VCCI registration No. is C-20012 and T-20011

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

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

Note 3: For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz 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 40 GHz)	5.78 dB (1 GHz-18 GHz)	
	5.23dB (18 GHz-26 GHz)	
	5.64 dB (26 GHz-40 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	WIFI+BT Module
Model	WXT21M2511B
Radio Technology	IEEE802.11a 20 IEEE802.11n HT20/n HT40 IEEE802.11ac VHT20/VHT40/VHT80 IEEE802.11ax HE20/HE40/HE80
Operation frequency	UNII-1/ UNII-2A/ UNII-2C/ UNII-3
Modulation	IEEE 802.11a/n HT20/n HT40/ac VHT20/VHT40/VHT80: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM only in ac mode) IEEE 802.11ax HE20/HE40/HE80: OFDMA (BPSK, QPSK,16QAM, 64QAM, 256QAM, 1024QAM)
Power Supply	DC 5 V



# 5.2. MAXIMUM OUTPUT POWER

# UNII-1 BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)	Max Average EIRP (dBm)
a 20		14.75	18.75
n HT20		12.76	16.76
n HT40		14.29	18.29
ac VHT80	5150 ~ 5250	15.79	19.79
ax HE20		12.85	16.85
ax HE40		15.25	19.25
ax HE80		14.87	18.87

## UNII-2A BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a 20		14.80
n HT20		13.12
n HT40		13.93
ac VHT 80	5250 ~ 5350	14.29
ax HE20		13.80
ax HE40		13.64
ax HE80		13.47

## UNII-2C BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a 20		15.16
n HT20		14.37
n HT40		15.00
ac VHT 80	5470 ~ 5725	16.48
ax HE20		16.19
ax HE40		15.86
ax HE80		15.74



## UNII-3 BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a 20		15.26
n HT20		15.14
n HT40		14.92
ac VHT 80	5725 ~ 5850	16.32
ax HE20		15.92
ax HE40		15.51
ax HE80		15.24

# 5.3. CHANNEL LIST

UNII-1		UNII-1		UNII-1	
(For Bandwid	dth=20MHz)	(For Bandwidth=40MHz)		(For Bandwi	dth=80MHz)
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

-	UNII-2A (For Bandwidth=20MHz)		UNII-2A (For Bandwidth=40MHz)		UNII-2A (For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	
52	5260	54	5270	58	5290	
56	5280	62	5310			
60	5300					
64	5320					

UNII-2C (For Bandwidth=20MHz)		UNII-2C (For Bandwidth=40MHz)		UNII-2C (For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590	138	5690
112	5560	126	5630		
116	5580	134	5670		
120	5600	142	5710		
124	5620				
128	5640				
132	5660				
136	5680				
140	5700				
144	5720				

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

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



5.4. DESCRIPTION OF AVAILABLE ANTENNAS
--

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
1	5180 ~ 5825	PCB	4
2	5180 ~ 5825	PCB	4

The EUT support Cyclic Shift Diversity (CDD) mode.

MIMO output power port and MIMO PSD port summing was performed in accordance with KDB 662911 D01. For the CDD mode results the Directional Gain was calculated in accordance with the following mothed.

For output power measurements: Directional gain=  $G_{ANT}$  + Array Gain = 4 dBi  $G_{ANT}$ : equal to the gain of the antenna having the highest gain Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \le 4$ 

For power spectral density (PSD) measurements: Directional gain=  $G_{ANT}$  + Array Gain = 7 dBi Array Gain = 10 log ( $N_{ANT}/N_{SS}$ ) dB7  $N_{ANT}$ : number of transmit antennas  $N_{SS}$ : number of spatial streams, the worst case directional gain will occur when  $N_{SS} = 1$ 

IEEE Std. 802.11	Transmit and Receive Mode	Description	
a 20	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	
n HT20	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	
n HT40	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	
ac VHT20	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	
ac VHT40	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	
ac VHT80	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	
ax HE20	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	
ax HE40	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	
ax HE80	⊠2TX, 2RX	ANT 1, 2 can be used as transmitting/receiving antenna.	

1.BT&WLAN 2.4G, BT & WLAN 5G, WLAN 2.4G & WLAN 5G can't transmit simultaneously. (Declared by client)

2. The value of the antenna gain was declared by customer.



# 5.1. THE WORSE CASE POWER SETTING PARAMETER

	The Worse Case Power Setting Parameter						
	Test Software QA tool						
_							
	Mode		Rate	Channel	Soft set value		

wode	Rale	Channel	ANT 1	ANT 2
	6M	36	17	17
11a20		40	17	17
		48	17	17
	MCS0	36	12.5	12.5
11n HT20		40	12.5	12.5
		48	12	12
11n HT40	MCS0	38	14	14
		46	14	14
11ac VHT80	MCS0	42	17	17

Mode	Rate	Channel	Soft set value	
Mode	Nale	Channel	ANT 1	ANT 2
		36	14	14
11ax HE20	MCS0	40	14.5	14.5
		48	14	14
	MCS0	38	17	17
11ax HE40		46	16	16
11ax HE80	MCS0	43	17	17

#### UNII-2A

Mada	Dete	Channel	Soft set value	
Mode	Rate	Channel	ANT 1	ANT 2
		52	17	17
11a	6M	56	17	17
		64	17	17
	MCS0	52	13	13
11n HT20		56	13	13
		64	13	13
11n HT40	MCS0	54	14	14
		62	14	14
11ac VHT80	MCS0	58	15.5	15.5

Mada	Data	Channel	Soft set value	
Mode	Rate	Channel	ANT 1	ANT 2
11ax HE20		52	15.5	15.5
	MCS0	56	15.5	15.5
		64	15.5	15.5
	MCS0	54	15.5	15.5
11ax HE40		62	15.5	15.5
11ax HE80	MCS0	58	15.5	15.5

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



## UNII-2C

Mode	Rate	Channel	Soft set value	
Mode	Nale	Channel	ANT 1	ANT 2
		100	15.5	15.5
11a	6M	116	15.5	15.5
l l la	OIVI	140	15.5	15
		144	15.5	15
	MCS0	100	12	12
11n HT20		116	12	12
		140	12	12
		144	12	12
	MCS0	102	13	13
11n HT40		118	12.5	12.5
11111140		134	12.5	12.5
		142	12.5	12.5
		106	15.5	15.5
11ac VHT80	MCS0	122	15.5	15.5
		138	15.5	15.5

Mode	Modo Poto		e Rate Channel	Channel	Soft set value	
Mode	Nale	Channel	ANT 1	ANT 2		
		100	15.5	15.5		
11ax HE20	MCS0	116	15.5	15.5		
		140	15.5	15.5		
		144	15.5	15.5		
	MCS0	102	15	15		
11ax HE40		118	15	15		
TTax TTE40		134	15	15		
		142	15	15		
		106	15	15		
11ax HE80	MCS0	122	15	15		
		138	15	15		



nnel AN 49 1 <sup>°</sup> 57 1°	7 16	2
49 1	7 16	
57 1		
	7 16.5	5
65 1 <sup>°</sup>	7 16.5	5
49 1 <sub>4</sub>	4 14	
57 1 <sup>,</sup>	4 14	
65 1 <sup>,</sup>	4 14	
51 1 <sup>,</sup>	4 14	
59 1·	4 14	
55 16	6.5 16.5	5
	55     1       19     1       57     1       55     1       51     1       59     1	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Mada	Dete	Channal	Soft set value	
Mode	Rate	Channel	ANT1	ANT 2
		149	16.5	16.5
11ax HE20	MCS0	157	16.5	16.5
		165	17	17
11ax HE40	MCS0	151	16.5	16.5
		159	16.5	16.5
11ax HE80	MCS0	155	16.5	16.5

Note: 802.11ac VHT20 and 802.11ac VHT40 mode is cover by 802.11n HT20 and 802.11n HT40 mode.



# 5.2. TEST CHANNEL CONFIGURATION

	UNII-1 Test Channel Configuration				
IEEE Std.	Test Channel Number	Frequency			
802.11a	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz			
802.11n HT20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz			
802.11n HT40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz			
802.11ac VHT20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz			
802.11ac VHT40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz			
802.11ac VHT80	CH 42(Low Channel)	5210 MHz			
802.11ax HE20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz			
802.11ax HE40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz			
802.11ax HE80	CH 42(Low Channel)	5210 MHz			

	UNII-2A Test Channel Configuration				
IEEE Std.	Test Channel Number	Frequency			
802.11a	CH 52(Low Channel), CH 56(MID Channel), CH 64(High Channel)	5260 MHz, 5280 MHz, 5320 MHz			
802.11n HT20	CH 52(Low Channel), CH 56(MID Channel), CH 64(High Channel)	5260 MHz, 5280 MHz, 5320 MHz			
802.11n HT40	CH 54(Low Channel), CH 62(High Channel)	5270 MHz, 5310 MHz			
802.11ac VHT20	CH 52(Low Channel), CH 56(MID Channel), CH 64(High Channel)	5260 MHz, 5280 MHz, 5320 MHz			
802.11ac VHT40	CH 54(Low Channel), CH 62(High Channel)	5270 MHz, 5310 MHz			
802.11ac VHT80	CH 58(Low Channel)	5290 MHz			
802.11ax HE20	CH 52(Low Channel), CH 56(MID Channel), CH 64(High Channel)	5260 MHz, 5280 MHz, 5320 MHz			
802.11ax HE40	CH 54(Low Channel), CH 62(High Channel)	5270 MHz, 5310 MHz			
802.11ax HE80	CH 58(Low Channel)	5290 MHz			



	UNII-2C Test Channel Configuration				
IEEE Std.	Test Channel Number	Frequency			
802.11a	CH 100(Low Channel), CH 120(MID Channel), CH 140(High Channel)	5500 MHz, 5600 MHz, 5700 MHz			
802.11n VHT20	CH 100(Low Channel), CH 120(MID Channel), CH 140(High Channel)	5500 MHz, 5600 MHz, 5700 MHz			
802.11n VHT40	CH 102(Low Channel), CH 118(MID Channel), CH 134(High Channel)	5510 MHz, 5590 MHz, 5670 MHz			
802.11ac VHT20	CH 100(Low Channel), CH 120(MID Channel), CH 140(High Channel)	5500MHz, 5600 MHz, 5700MHz			
802.11ac VHT40	CH 102(Low Channel), CH 118(MID Channel), CH 134(High Channel)	5510 MHz, 5590 MHz, 5670 MHz			
802.11ac VHT80	CH 102(Low Channel), CH 122(High Channel)	5530 MHz, 5610 MHz			
802.11ax HE20	CH 100(Low Channel), CH 120(MID Channel), CH 140(High Channel)	5500MHz, 5600 MHz, 5700MHz			
802.11ax HE40	CH 102(Low Channel), CH 118(MID Channel), CH 134(High Channel)	5510 MHz, 5590 MHz, 5670 MHz			
802.11ax HE80	CH 102(Low Channel), CH 122(High Channel)	5530 MHz, 5610 MHz			

	UNII-3 Test Channel Configuration					
IEEE Std.	Test Channel Number	Frequency				
802.11a	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz				
802.11n HT20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz				
802.11n HT40	CH 151(Low Channel), CH 159(High Channel)	5755MHz, 5795MHz				
802.11ac VHT20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz				
802.11ac VHT40	CH 151(Low Channel), CH 159(High Channel)	5755 MHz, 5795 MHz				
802.11ac VHT80	CH 155(Low Channel)	5775 MHz				
802.11ax HE20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz				
802.11ax HE40	CH 151(Low Channel), CH 159(High Channel)	5755 MHz, 5795 MHz				
802.11ax HE80	CH 155(Low Channel)	5775 MHz				



# 5.3. THE WORSE CASE CONFIGURATIONS

The EUT was tested in the following configuration(s):

Controlled in test mode using a software application on the EUT supplied by customer. The application was used to enable a continuous transmission and to select the mode, test channels, bandwidth, data rates as required.

Test channels referring to section 5.4.

Maximum power setting referring to section 5.6.

Worst case Data Rates declared by the customer:

802.11a 20 mode: 6 Mbps 802.11n HT20 mode: MCS0 802.11n HT40 mode: MCS0 802.11ac VHT20 mode: MCS0 802.11ac VHT40 mode: MCS0 802.11ac VHT80 mode: MCS0 802.11ax HE20 mode: MCS0 802.11ax HE40 mode: MCS0 802.11ax HE80 mode: MCS0

802.11ac VHT20 and VHT40 mode are different from 802.11nHT20 and HT40 only in control messages, so for these 4 modes, only 802.11n HT20 and 802.11n HT40 worst case power modes radiated emission test data are recorded in the report.

802.11ac&n SISO mode and MIMO mode have the same power setting, so only the worst case power mode (MIMO) will be record in the report.

The EUT has 2 separate antennas which correspond to 2 separate antenna ports. Core 1 and Core 2 correspond to antenna 1 and antenna 2 respectively.

Antenna 1 and Antenna 2 have the same power setting, but the power test data are different. (Declared by customer.)

The measured additional path loss was included in any path loss calculations for all RF cable used during tested.

Conducted output power, power spectral density tests separately on each port with all supported SISO & MIMO port combinations.

The EUT support Cyclic Shift Diversity (CDD), Tx beamforming mode, Space Time Coding (STBC), Spartial Division Multiplexing (SDM) modes. They use the same conducted power per chain in any given mode, CDD mode have the maximum power setting, so we only chose the worst case mode CDD for final testing.



# 5.4. DESCRIPTION OF TEST SETUP

#### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	Laptop	Lenovo	E42-80	R303U5AG
2	UART	/	/	/

#### I/O CABLES

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

#### ACCESSORIES

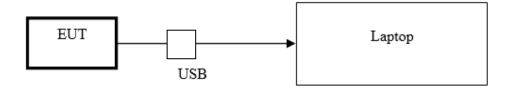
Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

Note: The cable is provided by customer.

#### TEST SETUP

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

## SETUP DIAGRAM FOR TESTS





# 6. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Oct.30, 2021	Oct.29, 2022
Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Oct.30, 2021	Oct.29, 2022
		So	ftware		
I	Description		Manufacturer	Name	Version
Test Software	Test Software for Conducted Emissions			EZ-EMC	Ver. UL-3A1

	Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date	
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.30, 2021	Oct.29, 2022	
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024	
Preamplifier	HP	8447D	2944A09099	Oct.30, 2021	Oct.29, 2022	
EMI Measurement Receiver	R&S	ESR26	101377	Oct.30, 2021	Oct.29, 2022	
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024	
Preamplifier	TDK	PA-02-0118	TRS-305- 00067	Oct.30, 2021	Oct.29, 2022	
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024	
Preamplifier	TDK	PA-02-2	TRS-307- 00003	Oct.31, 2021	Oct.30, 2022	
Preamplifier	TDK	PA-02-3	TRS-308- 00002	Oct.31, 2021	Oct.30, 2022	
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024	
Preamplifier	TDK	PA-02-001- 3000	TRS-302- 00050	Oct.31, 2021	Oct.30, 2022	
Preamplifier	Mini-Circuits	ZX60-83LN- S+	SUP01201941	Oct.31, 2021	Oct.30, 2022	
High Pass Filter	Wi	WHKX10- 2700-3000- 18000-40SS	23	Oct.31, 2021	Oct.30, 2022	
Highpass Filter	Wainwright	WHKX10- 5850-6500- 1800-40SS	4	Oct.31, 2021	Oct.30, 2022	
Band Reject Filter	Wainwright	WRCJV12- 5695-5725- 5850-5880- 40SS	4	Oct.31, 2021	Oct.30, 2022	

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



	1	1	T	1	1
Band Reject Filter	Wainwright	WRCJV20- 5120-5150- 5350-5380- 60SS	2	Oct.31, 2021	Oct.30, 2022
Band Reject Filter	Wainwright	WRCJV20- 5440-5470- 5725-5755- 60SS	1	Oct.31, 2021	Oct.30, 2022
Band Reject Filter	Wainwright	WRCJV8- 2350-2400- 2483.5- 2533.5-40SS	4	Oct.31, 2021	Oct.30, 2022
Band Reject Filter	Wainwright	WRCD5- 1879- 1879.85- 1880.15- 1881-40SS	1	Oct.31, 2021	Oct.30, 2022
Notch Filter	Wainwright	WHJ10-882- 980-7000- 40SS	1	Oct.31, 2021	Oct.30, 2022
	Software				
[	Description		Manufacturer	Name	Version
Test Software	Test Software for Radiated Emissions			EZ-EMC	Ver. UL-3A1

Other instruments						
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.	
Spectrum Analyzer	R&S	FSV40	101117	Oct.31, 2021	Oct.30, 2022	
Dual Channel Power Meter	Keysight	N1912A	MY55416024	Oct.30, 2021	Oct.29, 2022	
Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Oct.30, 2021	Oct.29, 2022	
Power sensor, Power Meter	R&S	OSP120	100921	Mar.23,2021	Mar.22,2022	



# 7. ANTENNA PORT TEST RESULTS

# 7.1. ON TIME AND DUTY CYCLE

## LIMITS

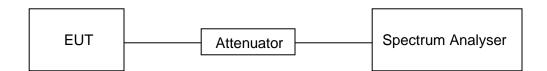
None; for reporting purposes only.

## PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.B.

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW  $\geq$  EBW if possible; otherwise, set RBW to the largest available value. Set VBW  $\geq$  RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T, where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T  $\leq$  16.7 microseconds.)

## TEST SETUP



## TEST ENVIRONMENT

Temperature	24.6 °C	Relative Humidity	58 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

## **RESULTS**

Please refer to appendix D.



# 7.2. 6/26 dB EMISSION BANDWIDTH AND 99 % OCCUPIED BANDWIDTH

#### <u>LIMITS</u>

	CFR 47 FCC Part15, Subpart E ISED RSS-247 ISSUE 2					
Test Item	Limit	Frequency Range (MHz)				
26 dB Emission Bandwidth	For reporting purposes only.	5150 ~ 5250				
26 dB Emission Bandwidth	For reporting purposes only.	5250 ~ 5350				
26 dB Emission Bandwidth	For reporting purposes only.	5470 ~ 5725 (For FCC) 5470 ~ 5600 (For ISED) 5650 ~ 5725 (For ISED)				
6 dB Emission Bandwidth	The minimum 6 dB emission bandwidth shall be 500 kHz.	5725 ~ 5850				
99 % Occupied Bandwidth	For reporting purposes only.	5150 ~ 5825 (For ISED)				

#### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.C1. for 26 dB Emission Bandwidth; section II.C2. for 6 dB Emission Bandwidth; section II.D. for 99 % Occupied Bandwidth.

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

Center Frequency	The center frequency of the channel under test
Detector	Peak
	For 6 dB Emission Bandwidth: RBW=100 kHz For 26 dB Emission bandwidth: approximately 1 % of the EBW. For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW.
VBW	For 6 dB Bandwidth: ≥ 3*RBW For 26 dB Bandwidth: >3*RBW For 99 % Bandwidth: >3*RBW
Trace	Max hold
Sweep	Auto couple

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

b) Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26 dB relative to the maximum level measured in the fundamental emission.

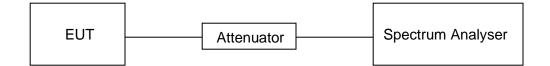


## Calculation for 99 % Bandwidth of UNII-2C and UNII-3 Straddle Channel:

For Example: Fundamental Frequency: 5720 MHz 99 % OBW: 21.00 MHz Turning Frequency: 5725 MHz 99 % Bandwidth of UNII-2C Band Portion = (5725-(5720-(21.00/2)) = 15.50 MHz 99 % Bandwidth of UNII-3 Band Portion = (5720+(21.00/2)-5725) = 5.50 MHz **Calculation for 26 dB Bandwidth of UNII-2C Straddle Channel:** For Example: Fundamental frequency: 5720 MHz 26 dB BW: 20.00 MHz FL: 5710.16 MHz FH: 5730.16 MHz Turning Frequency: 5725 MHz 26 dB Bandwidth of UNII-2C Band Portion = 5725-5710.16=14.84 MHz **Calculation for 6dB Bandwidth of UNII-3 Straddle Channel:** For Example: Fundamental frequency: 5720 MHz 6 dB BW: 16.44 MHz EL: 5711 76 MHz

FL: 5711.76 MHz FH: 5728.2 MHz Turning Frequency: 5725 MHz 6 dB Bandwidth of UNII-3 band Portion = 5728.2-5725=3.2 MHz

## TEST SETUP



## TEST ENVIRONMENT

Temperature	24.6 °C	Relative Humidity	58 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

## **RESULTS**

Please refer to Appendix A1&A2&A3.

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



# 7.3. CONDUCTED OUTPUT POWER

#### **LIMITS**

	CFR 47 FCC Part15, Subpart E	
Test Item	Limit	Frequency Range (MHz)
Conducted	<ul> <li>Outdoor Access Point: 1 W (30 dBm)</li> <li>Indoor Access Point: 1 W (30 dBm)</li> <li>Fixed Point-To-Point Access Points: 1 W (30 dBm)</li> <li>Client Devices: 250 mW (24 dBm)</li> </ul>	5150 ~ 5250
Output Power	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

	ISED RSS-247 ISSUE 2	
Test Item	Limit	Frequency Range (MHz)
	The maximum e.i.r.p. shall not exceed 200 mW (23 dBm) or 10 + 10 log <sub>10</sub> B, dBm, whichever power is less. B is the 99 % emission bandwidth in megahertz.	5150 ~ 5250
Conducted Output Power or e.i.r.p.	<ul> <li>a. The maximum conducted output power shall not exceed 250 mW (24 dBm) or 11 + 10 log<sub>10</sub>B dBm, whichever is less.</li> <li>b. The maximum e.i.r.p. shall not exceed 1.0 W (30 dBm) or 17 + 10 log<sub>10</sub>B dBm, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.</li> </ul>	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	Shall not exceed 1 Watt (30 dBm). The e.i.r.p. shall not exceed 4 W	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



## TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

# Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):

(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep  $\ge 2 \times \text{span} / \text{RBW}$ . (This ensures that bin-to-bin spacing is  $\le \text{RBW}/2$ , so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode. (vii) If transmit duty cycle < 98 %, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle  $\ge$  98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."

(viii) Trace average at least 100 traces in power averaging (rms) mode.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

## Method PM (Measurement using an RF average power meter):

(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:

a. The EUT is configured to transmit continuously or to transmit with a constant duty cycle. b. At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.

c. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in II.B.

(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

(iv) Adjust the measurement in dBm by adding 10 log (1/x) where x is the duty cycle (e.g., 10 log (1/0.25) if the duty cycle is 25 %).

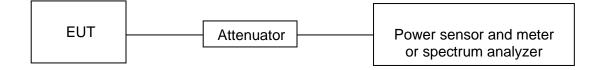
## Method PM-G (Measurement using a gated RF average power meter):

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power was measured using spectrum analyzer.



## TEST SETUP



#### **TEST ENVIRONMENT**

Temperature	24.6 °C	Relative Humidity	58 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

## **RESULTS**

Please refer to Appendix B.



# 7.4. POWER SPECTRAL DENSITY

#### LIMITS

	CFR 47 FCC Part15, Subpart E	
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	<ul> <li>Outdoor Access Point: 17 dBm/MHz</li> <li>Indoor Access Point: 17 dBm/MHz</li> <li>Fixed Point-To-Point Access Points: 17 dBm/MHz</li> <li>Client Devices: 11 dBm/MHz</li> </ul>	5150 ~ 5250
Density	11 dBm/MHz	5250 ~ 5350 5470 ~ 5725
	30 dBm/500kHz	5725 ~ 5850

	ISED RSS-247 ISSUE 2	
Test Item	Limit	Frequency Range (MHz)
	The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.	5150 ~ 5250
Power Spectral Density	The power spectral density shall not exceed 11 dBm inany 1.0 MHz band.	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	30 dBm / 500 kHz	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

## TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.



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

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1 MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

For U-NII-1, U-NII-2A and U-NII-2C band:

#### For U-NII-3:

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

Allow trace to fully stabilize and Use the peak search function on the instrument to find the peak of the spectrum and record its value.

Add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

# TEST SETUP



#### TEST ENVIRONMENT

Temperature	24.6 °C	Relative Humidity	58 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

## **RESULTS**

Please refer to Appendix C.



# 8. RADIATED TEST RESULTS

## <u>LIMITS</u>

Refer to CFR 47 FCC §15.205, §15.209 and §15.407 (b).

Refer to ISED RSS-GEN Clause 8.9, Clause 8.10 and ISED RSS-247 6.2.

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

Emissions radia	Emissions radiated outside of the specified frequency bands above 30 MHz		
Frequency Range			0
(MHz)	(uV/m) at 3 m	(dBuV/m) Quasi-I	
30 - 88	100	40	
88 - 216	150	43.	5
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
	300	74	54

FCC Emissio	ons radiated outside of the specified fr	equency 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) (µA/m)	Measurement distance (m)
9 - 490 kHz <sup>Note 1</sup>	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 refer to ISED RSS-GEN Clause 8.10

Hz	MHz	GHz
90 - 0.110	149.9 - 150.05	9.0 - 9.2
95 - 0.505	158.52475 - 158.52525	9.3 - 9.5
1735 - 2.1905	158.7 - 156.9	10.6 - 12.7
120 - 3.028	162.0125 - 187.17	13.25 - 13.4
25 - 4.128	167.72 - 173.2	14.47 - 14.5
17725 - 4.17775	240 - 285	15.35 - 16.2
20725 - 4.20775	322 - 335.4	17.7 - 21.4
877 - 5.683	399.9 - 410	22.01 - 23.12
215 - 6.218	608 - 614	23.6 - 24.0
8775 - 6.26825	960 - 1427	31.2 - 31.8
1175 - 6.31225	1435 - 1626.5	36.43 - 36.5
1 - 8.294	1645.5 - 1646.5	Above 38.6
32 - 8.366	1660 - 1710	
7625 - 8.38675	1718.8 - 1722.2	
1425 - 8.41475	2200 - 2300	
29 - 12.293	2310 - 2390	
.51975 - 12.52025	2483.5 - 2500	
57675 - 12.57725	2655 - 2900	
.36 - 13.41	3260 - 3267	
.42 - 16.423	3332 - 3339	
.69475 - 16.69525	3345.8 - 3358	
.80425 - 16.80475	3500 - 4400	
5 - 25.67	4500 - 5150	
5 - 38.25	5350 - 5460	
- 74.6	7250 - 7750	
8 - 75.2	8025 - 8500	

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
<sup>1</sup> 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: <sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. <sup>2</sup>Above 38.6c

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISED RSS-247 6.2.

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)			
Frequency Range (MHz)	EIRP Limit	Field Strength Limit	
		(dBuV/m) at 3 m	
5150~5250 MHz			
5250~5350 MHz	PK: -27 (dBm/MHz)	PK:68.2(dBµV/m)	
5470~5725 MHz			
5725~5850 MHz	PK: -27 (dBm/MHz) *1	PK: 68.2(dBµV/m) *1	
	PK: 10 (dBm/MHz) *2	PK: 105.2 (dBµV/m) *2	
	PK: 15.6 (dBm/MHz) *3	PK: 110.8(dBµV/m) *3	
	PK: 27 (dBm/MHz) *4	PK: 122.2 (dBµV/m) *4	
Note:			

\*1 beyond 75 MHz or more above of the band edge.

\*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

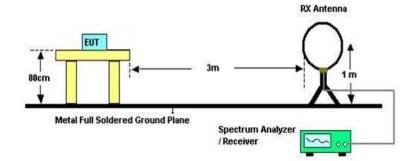
\*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

\*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



## TEST SETUP AND PROCEDURE

Below 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 6.4.

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 80 cm 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.

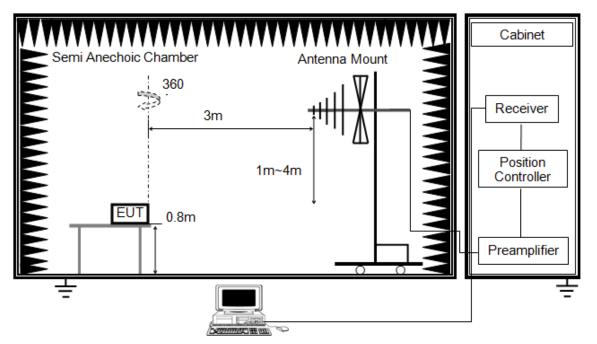
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode remeasured. If the emission level of the EUT measured 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 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 ohm; For example, the measurement frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to Y-51.5 = Z dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.



### 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 6.5.

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.

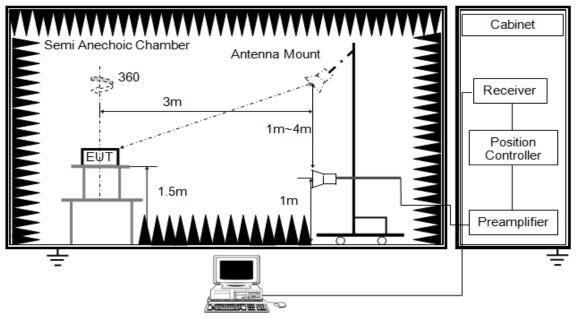
3. The EUT was placed on a turntable with 80 cm above ground.

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

1. The testing follows the guidelines in KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.G.3 ~ II.G.6.

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

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

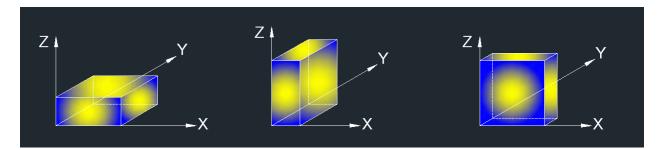
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

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.



### X axis, Y axis, Z axis positions:



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

#### TEST ENVIRONMENT

Temperature	20.1 °C	Relative Humidity	57.3 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

#### **RESULTS**

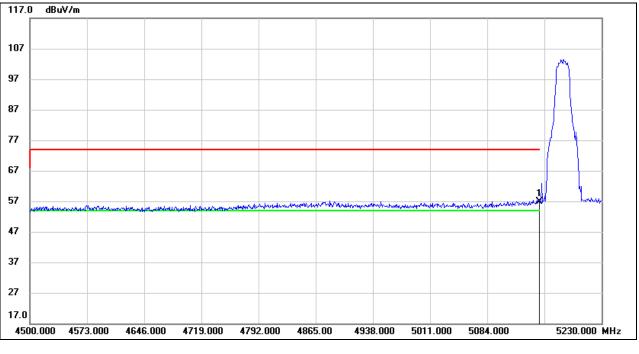
# 8.1. RESTRICTED BANDEDGE

# 8.1.1. 802.11a 20 SISO MODE

#### UNII-1 BAND

# ANTENNA 1 TEST RESULTS (WORST CASE)

### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**



### <u>PEAK</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	17.08	39.91	56.99	74.00	-17.01	peak

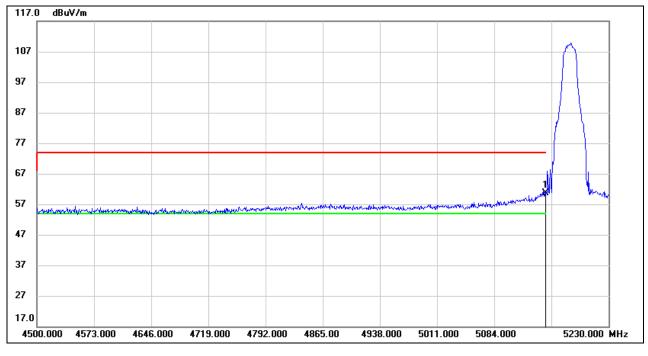
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



### <u>PEAK</u>



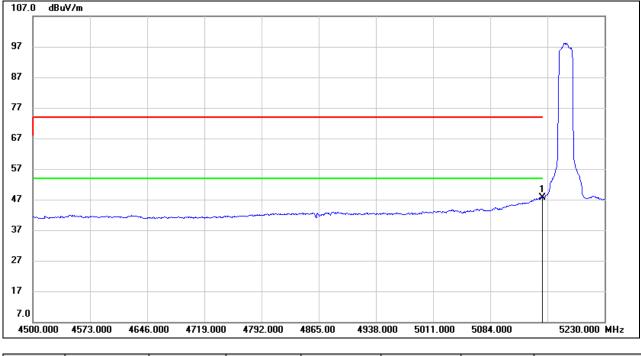
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	20.72	39.91	60.63	74.00	-13.37	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	7.74	39.91	47.65	54.00	-6.35	AVG

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

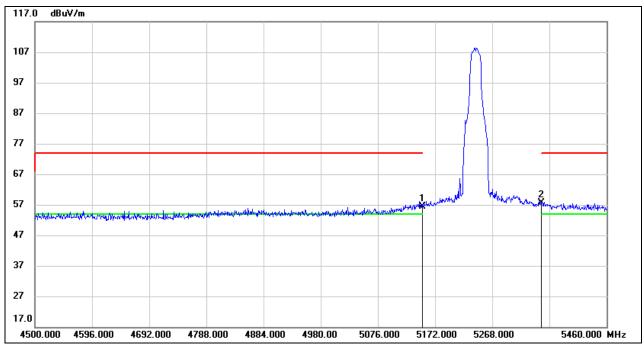
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



<u>PEAK</u>



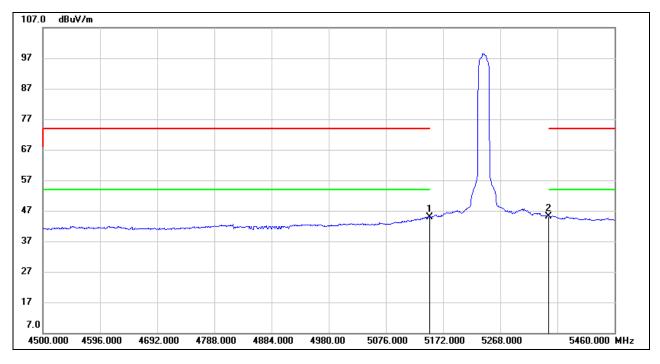
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	16.48	39.91	56.39	74.00	-17.61	peak
2	5350.000	17.53	40.08	57.61	74.00	-16.39	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	4.89	39.91	44.80	54.00	-9.20	AVG
2	5350.000	5.04	40.08	45.12	54.00	-8.88	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.

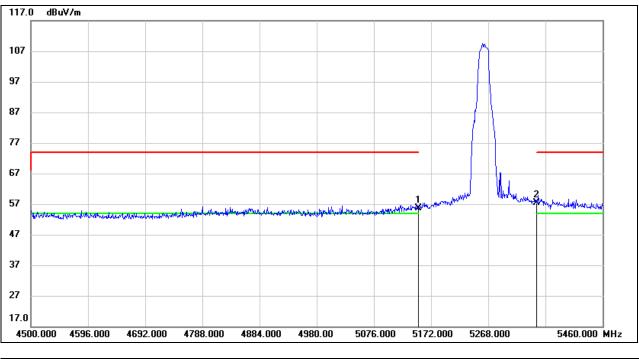


#### UNII-2A BAND

#### ANTENNA 1 TEST RESULTS (WORST CASE)

#### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

# <u>PEAK</u>



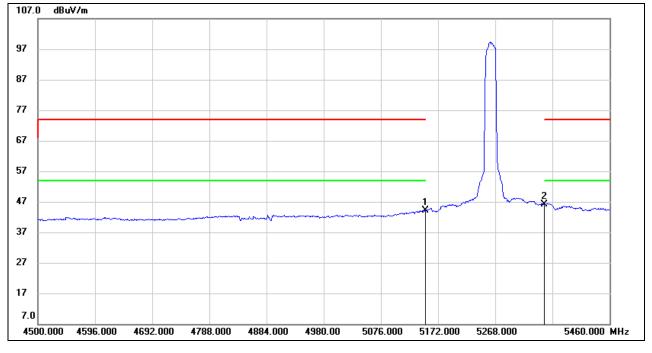
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	15.66	39.91	55.57	74.00	-18.43	peak
2	5350.000	17.25	40.08	57.33	74.00	-16.67	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	4.18	39.91	44.09	54.00	-9.91	AVG
2	5350.000	6.10	40.08	46.18	54.00	-7.82	AVG

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

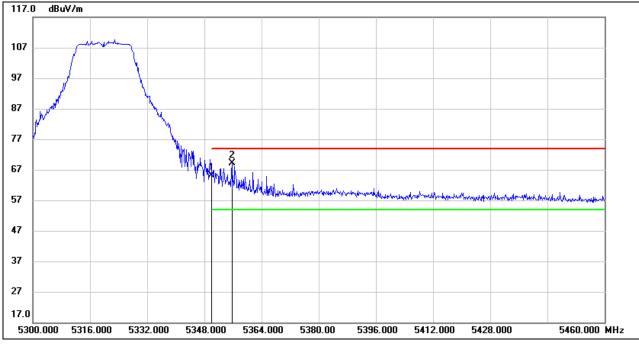
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



#### <u>PEAK</u>



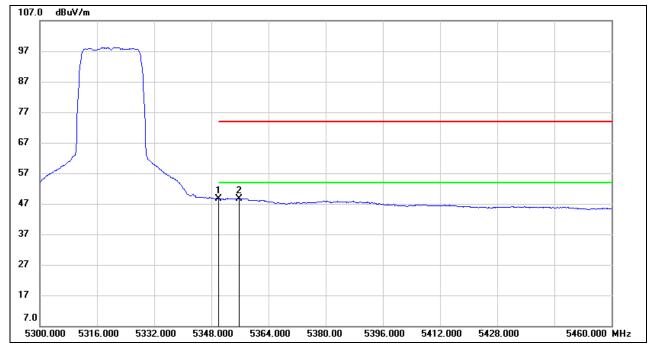
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	25.04	40.08	65.12	74.00	-8.88	peak
2	5355.680	29.06	40.12	69.18	74.00	-4.82	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	8.59	40.08	48.67	54.00	-5.33	AVG
2	5355.680	8.48	40.12	48.60	54.00	-5.40	AVG

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.

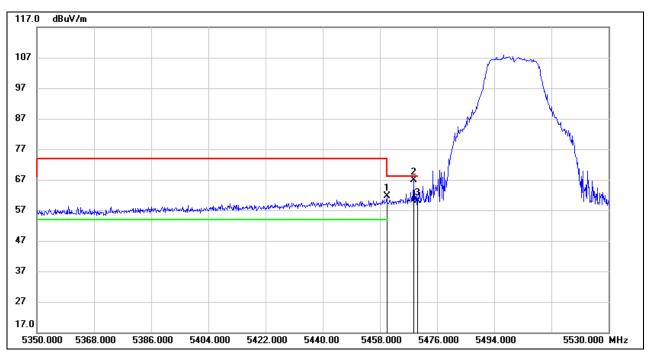


UNII-2C BAND

### ANTENNA 1 TEST RESULTS (WORST CASE)

#### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

# <u>PEAK</u>



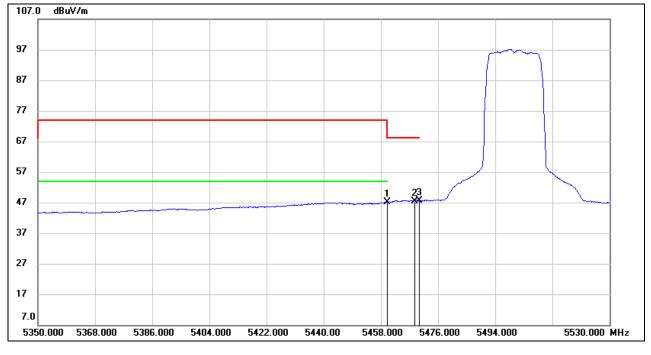
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	20.95	40.79	61.74	68.20	-6.46	peak
2	5468.620	26.15	40.85	67.00	68.20	-1.20	peak
3	5470.000	19.24	40.85	60.09	68.20	-8.11	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	6.36	40.79	47.15	54.00	-6.85	AVG
2	5468.620	6.65	40.85	47.50	/	/	AVG
3	5470.000	6.87	40.85	47.72	/	/	AVG

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

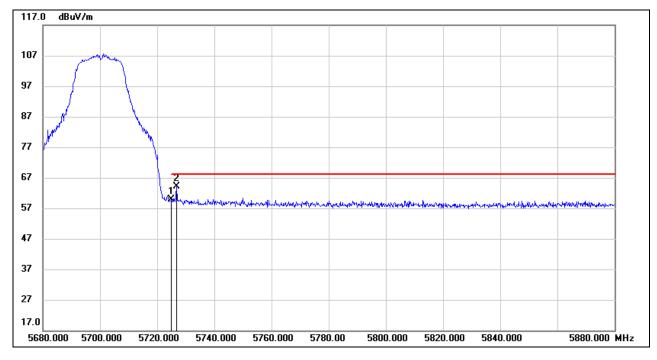
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



<u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5725.000	19.19	40.63	59.82	68.20	-8.38	peak
2	5726.800	23.54	40.63	64.17	68.20	-4.03	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.

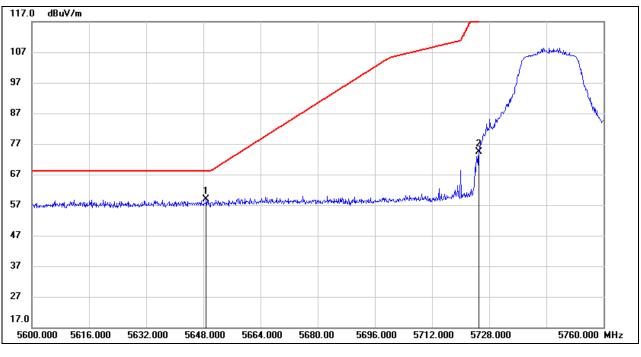
3. Peak: Peak detector.

UNII-3 BAND

### ANTENNA 1 TEST RESULTS (WORST CASE)

#### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5648.800	18.17	40.61	58.78	68.20	-9.42	peak
2	5725.000	33.63	40.63	74.26	122.20	-47.94	peak

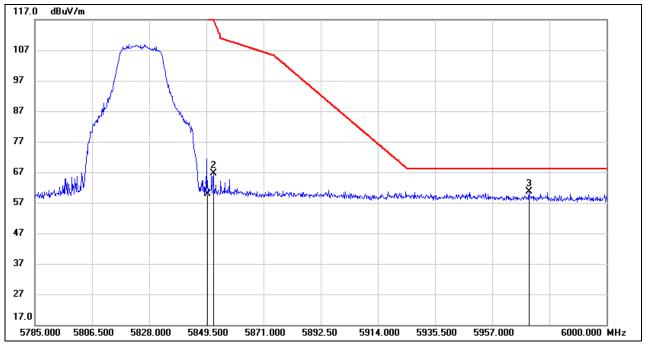
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	18.54	41.45	59.99	122.20	-62.21	peak
2	5852.080	25.05	41.47	66.52	117.46	-50.94	peak
3	5970.760	19.09	41.60	60.69	68.20	-7.51	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: All the polarities (Vertical & Horizontal) and Antennas had been tested, only the worst data was recorded in the report.

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

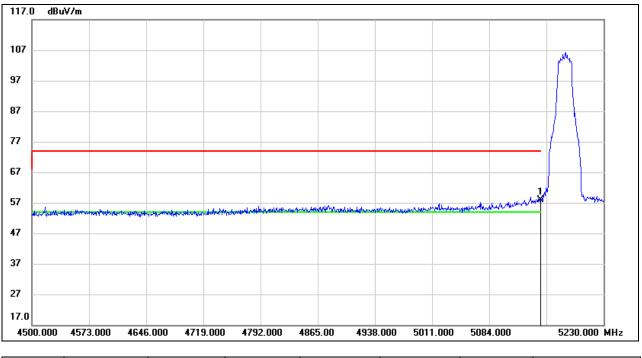


# 8.1.2. 802.11n HT20 MIMO MODE

#### UNII-1 BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

# <u>PEAK</u>



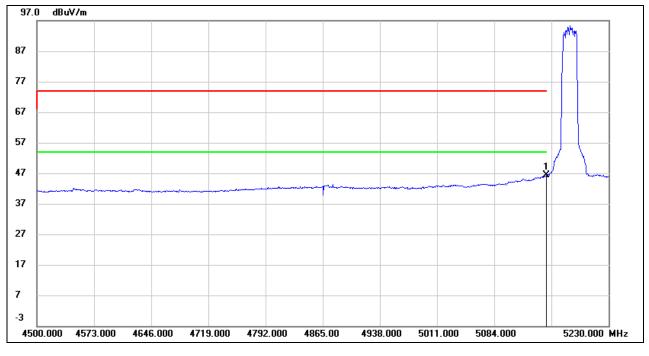
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	18.07	39.91	57.98	74.00	-16.02	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	6.35	39.91	46.26	74.00	-27.74	peak

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

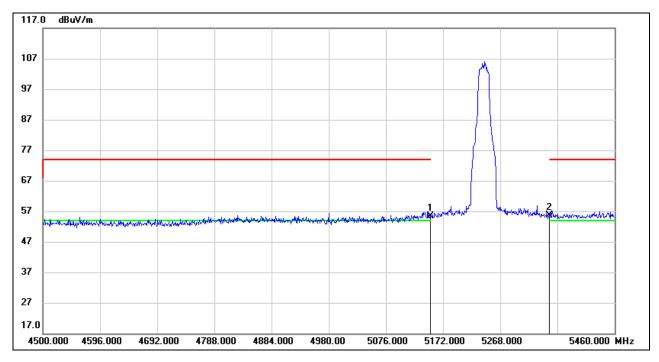
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	15.48	39.91	55.39	74.00	-18.61	peak
2	5350.000	15.48	40.08	55.56	74.00	-18.44	peak

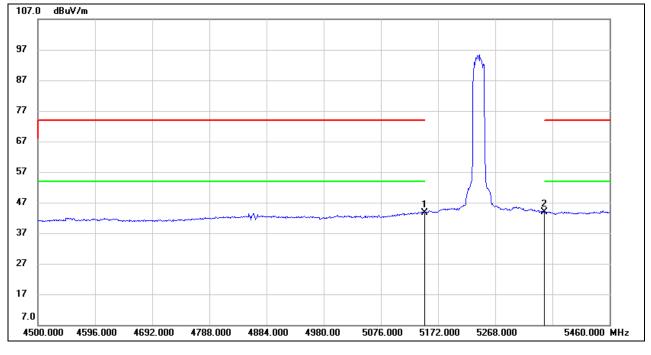
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



AVG



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	3.82	39.91	43.73	74.00	-30.27	peak
2	5350.000	3.89	40.08	43.97	74.00	-30.03	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/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



#### UNII-2A BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

### <u>PEAK</u>

117.0 dBu¥/m 107 97 87 77 67 2 57 white a service of the service of the where the second many many the second and 47 37 27 17.0 4500.000 4596.000 4692.000 4788.000 4884.000 4980.00 5076.000 5172.000 5268.000 5460.000 MHz

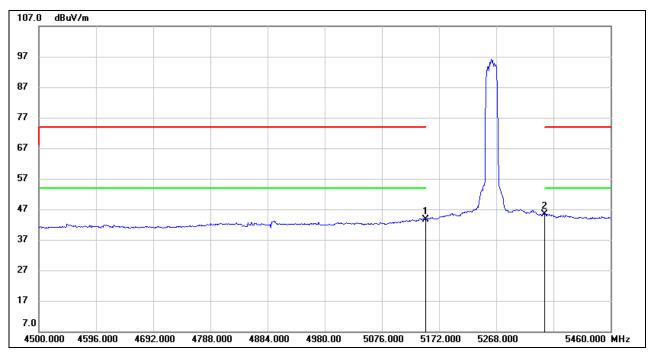
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	14.68	39.91	54.59	74.00	-19.41	peak
2	5350.000	16.87	40.08	56.95	74.00	-17.05	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	3.79	39.91	43.70	54.00	-10.30	AVG
2	5350.000	5.22	40.08	45.30	54.00	-8.70	AVG

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

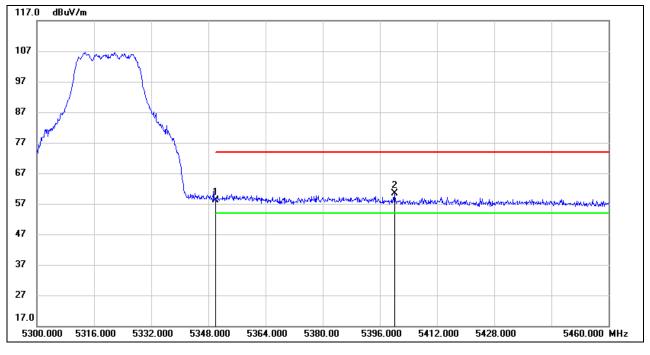
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>



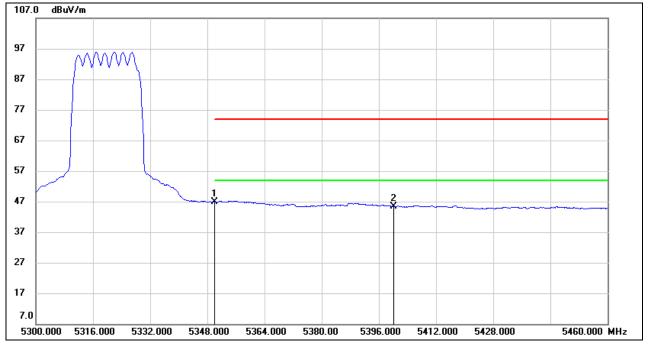
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	17.96	40.08	58.04	74.00	-15.96	peak
2	5400.160	19.86	40.40	60.26	74.00	-13.74	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	6.71	40.08	46.79	54.00	-7.21	AVG
2	5400.160	5.08	40.40	45.48	54.00	-8.52	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.

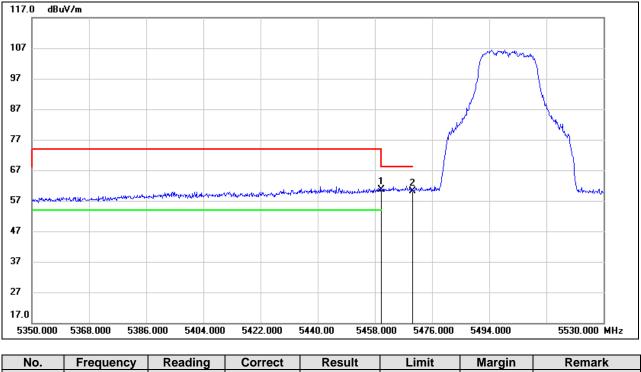
4. For the transmitting duration, please refer to clause 7.1.



#### UNII-2C BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

### <u>PEAK</u>



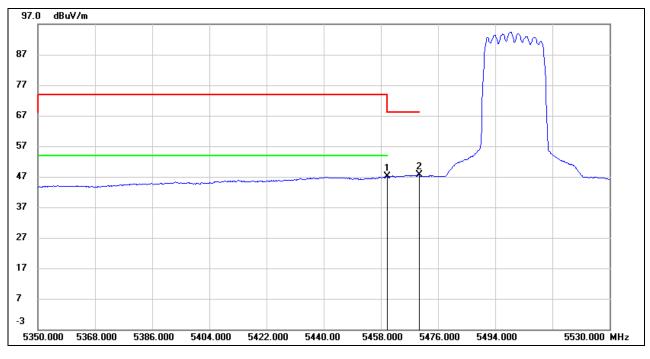
NO.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	19.93	40.79	60.72	68.20	-7.48	peak
2	5470.000	19.32	40.85	60.17	68.20	-8.03	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	6.41	40.79	47.20	54.00	-6.80	AVG
2	5470.000	6.71	40.85	47.56	/	/	AVG

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

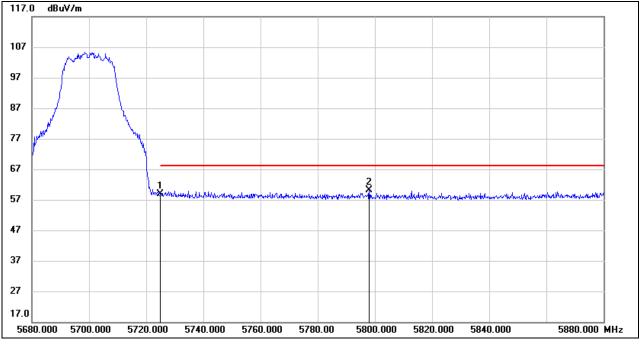
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5725.000	18.37	40.63	59.00	68.20	-9.20	peak
2	5798.000	19.11	40.95	60.06	68.20	-8.14	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

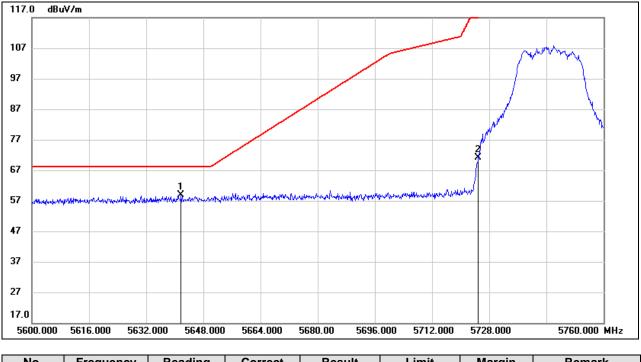
3. Peak: Peak detector.



#### UNII-3 BAND

#### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

#### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5641.760	18.31	40.62	58.93	68.20	-9.27	peak
2	5725.000	30.60	40.63	71.23	122.20	-50.97	peak

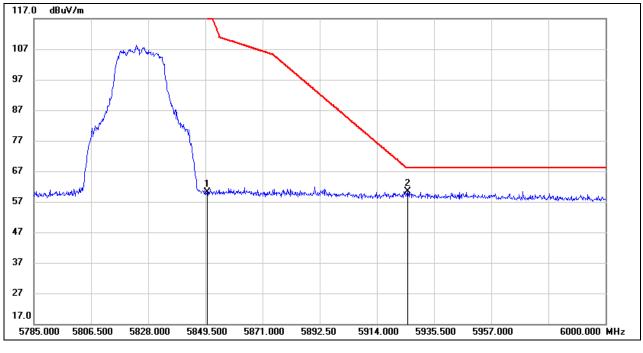
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	18.59	41.45	60.04	122.20	-62.16	peak
2	5925.610	18.55	41.83	60.38	68.20	-7.82	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.

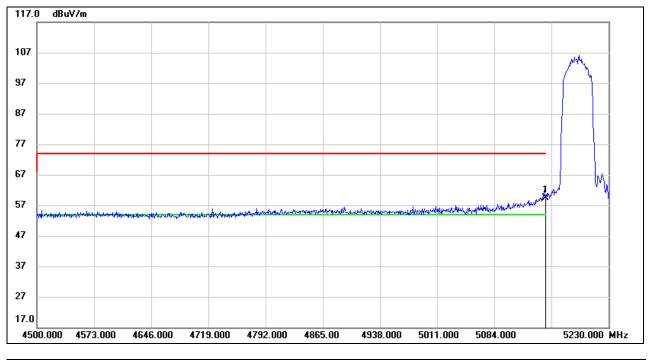
Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.



# 8.1.3. 802.11n HT40 MIMO MODE

#### UNII-1 BAND

# **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



П	c	^	v
Г		А	n

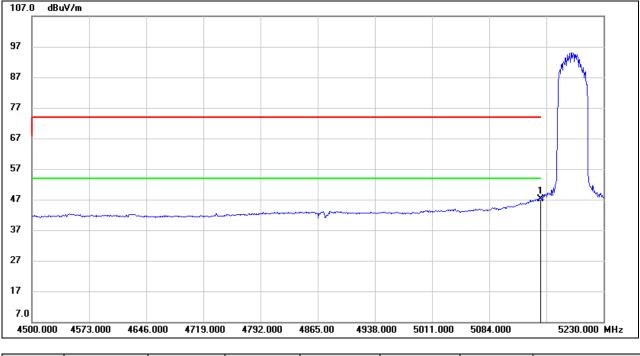
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	19.56	39.91	59.47	74.00	-14.53	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	7.27	39.91	47.18	54.00	-6.82	AVG

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

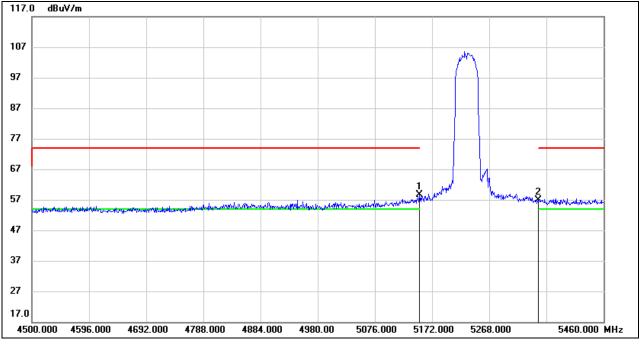
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>

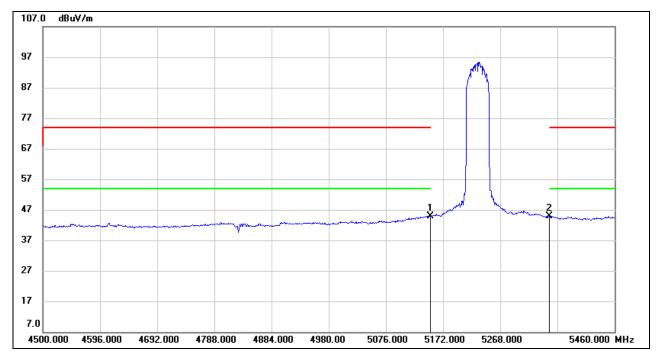


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	18.66	39.91	58.57	74.00	-15.43	peak
2	5350.000	16.71	40.08	56.79	74.00	-17.21	peak

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.



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	4.99	39.91	44.90	54.00	-9.10	AVG
2	5350.000	4.80	40.08	44.88	54.00	-9.12	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.

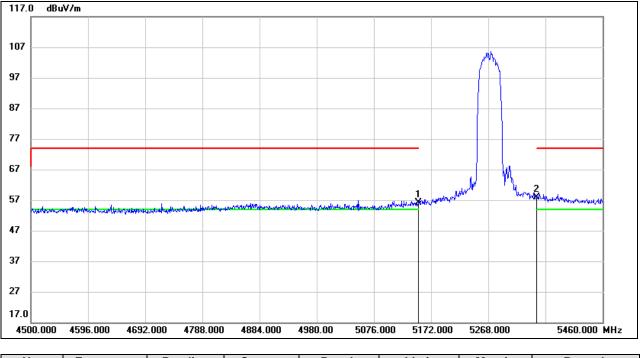
4. For the transmitting duration, please refer to clause 7.1.



### UNII-2A BAND



# <u>PEAK</u>



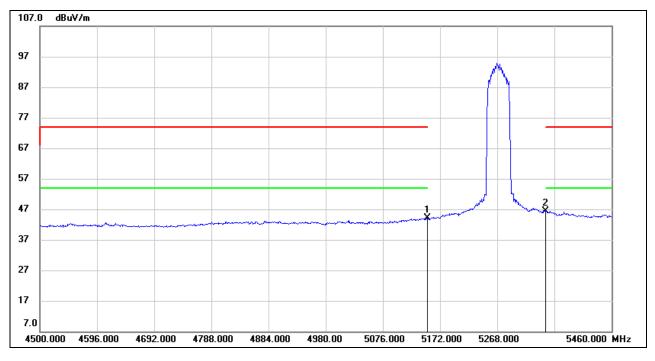
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	16.22	39.91	56.13	74.00	-17.87	peak
2	5350.000	17.72	40.08	57.80	74.00	-16.20	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	4.13	39.91	44.04	54.00	-9.96	AVG
2	5350.000	6.25	40.08	46.33	54.00	-7.67	AVG

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

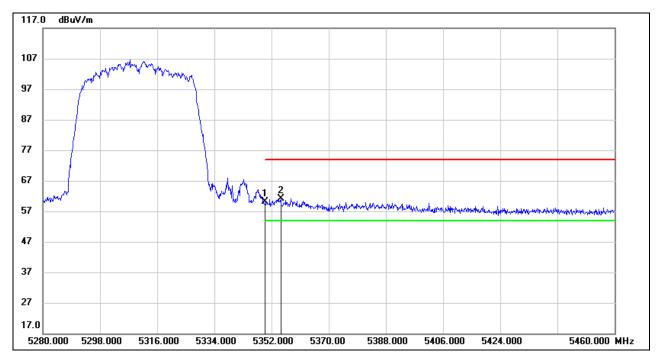
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



#### <u>PEAK</u>



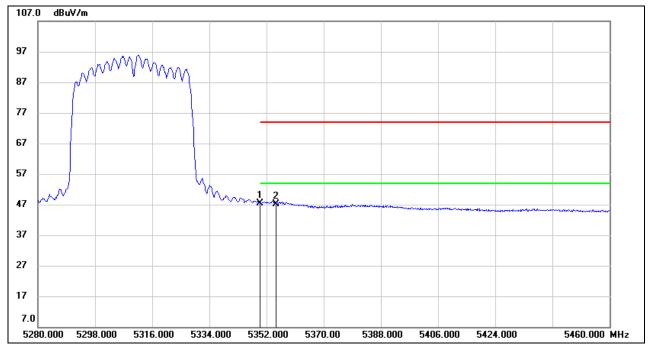
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	19.94	40.08	60.02	74.00	-13.98	peak
2	5354.880	21.02	40.12	61.14	74.00	-12.86	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	7.40	40.08	47.48	54.00	-6.52	AVG
2	5354.880	7.12	40.12	47.24	54.00	-6.76	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.

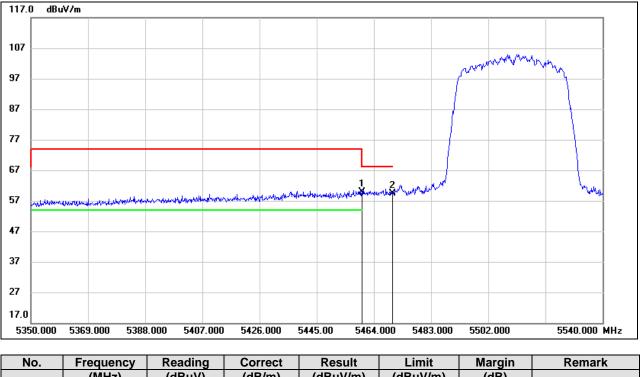
4. For the transmitting duration, please refer to clause 7.1.



#### UNII-2C BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

### <u>PEAK</u>



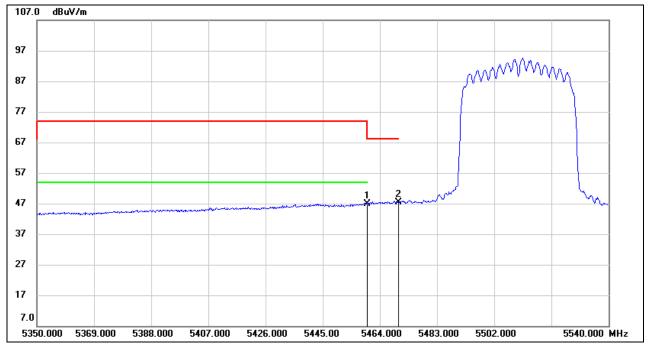
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	19.21	40.79	60.00	68.20	-8.20	peak
2	5470.000	18.62	40.85	59.47	68.20	-8.73	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	6.20	40.79	46.99	54.00	-7.01	AVG
2	5470.000	6.44	40.85	47.29	/	/	AVG

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

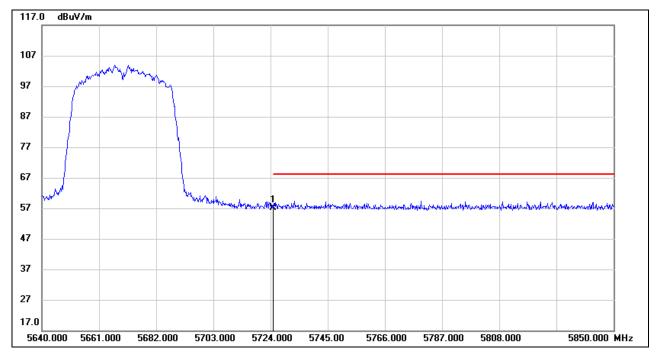
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5725.000	16.58	40.63	57.21	68.20	-10.99	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

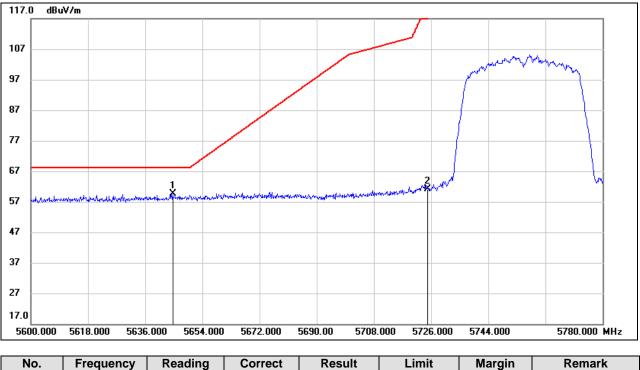
3. Peak: Peak detector.



#### UNII-3 BAND

#### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

<u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5644.640	18.89	40.62	59.51	68.20	-8.69	peak
2	5725.000	20.60	40.63	61.23	122.20	-60.97	peak

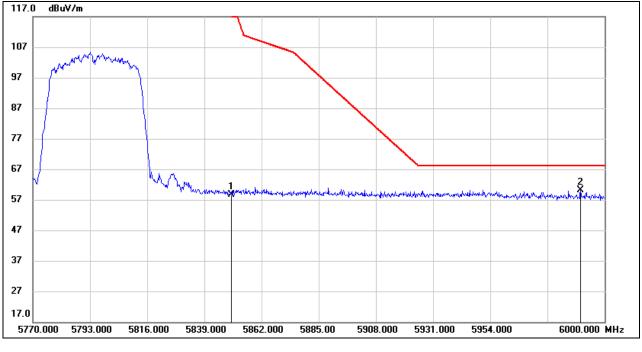
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	17.10	41.45	58.55	122.20	-63.65	peak
2	5990.340	18.65	41.51	60.16	68.20	-8.04	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.

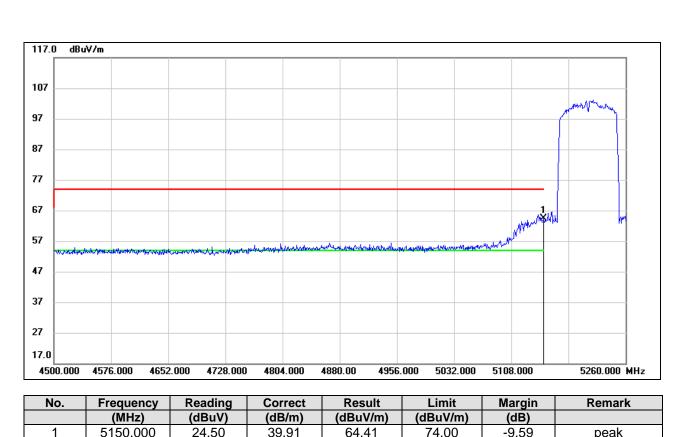
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.



# 8.1.4. 802.11ac VHT80 MIMO MODE

#### UNII-1 BAND



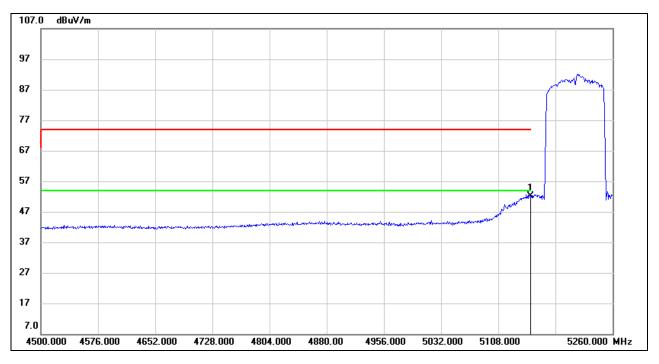
# RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL) PEAK

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	12.20	39.91	52.11	54.00	-1.89	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.

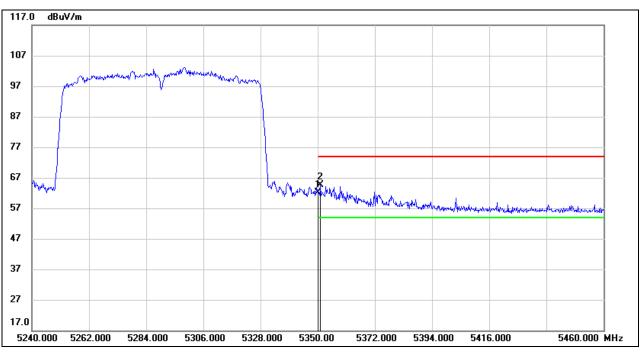
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.



### UNII-2A BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



#### <u>PEAK</u>

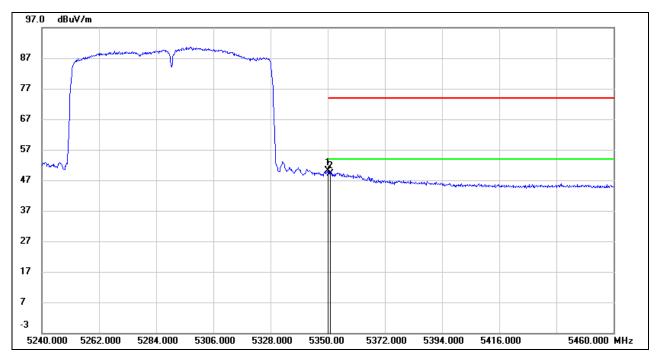
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	22.10	40.08	62.18	74.00	-11.82	peak
2	5351.100	24.66	40.09	64.75	74.00	-9.25	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	9.93	40.08	50.01	54.00	-3.99	AVG
2	5351.100	9.05	40.09	49.14	54.00	-4.86	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.

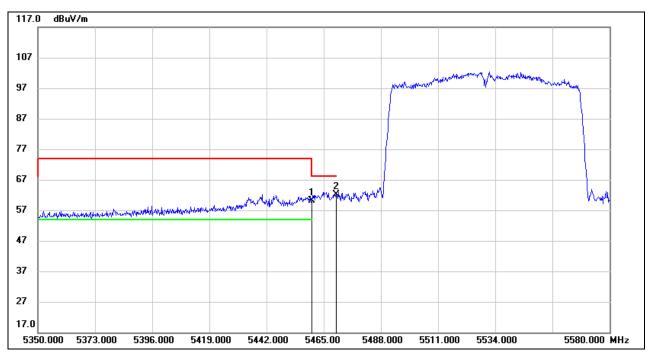
Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.



#### UNII-2C BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

# <u>PEAK</u>



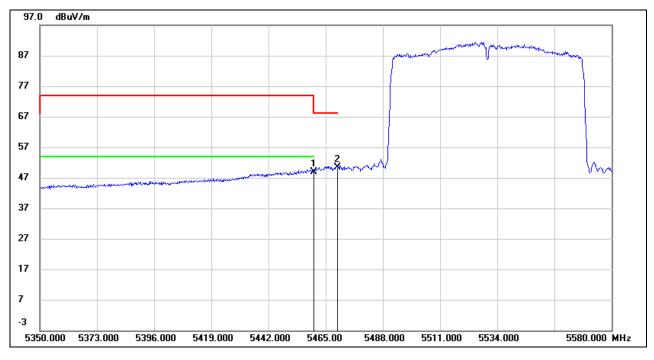
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	19.36	40.79	60.15	68.20	-8.05	peak
2	5470.000	21.16	40.85	62.01	68.20	-6.19	peak

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.





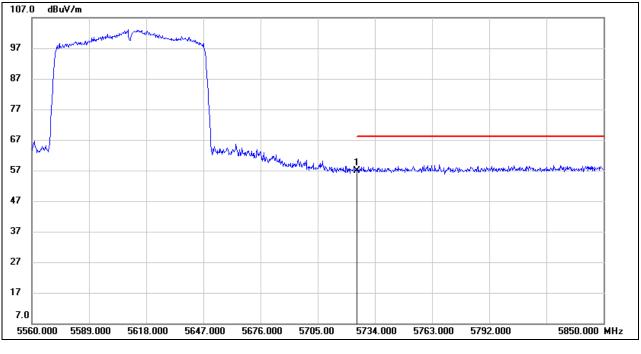
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	8.17	40.79	48.96	54.00	-5.04	AVG
2	5470.000	9.61	40.85	50.46	/	/	AVG

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.



# <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5725.000	16.17	40.63	56.80	68.20	-11.40	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

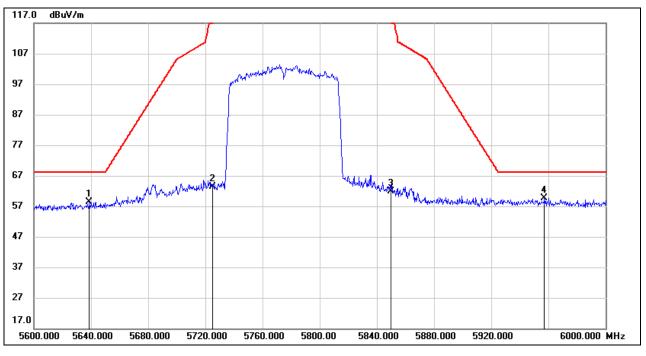
3. Peak: Peak detector.

4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the polarities (Vertical & Horizontal) and Antennas had been tested, only the worst data was recorded in the report.



#### UNII-3 BAND



### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5638.800	17.75	40.63	58.38	68.20	-9.82	peak
2	5725.000	22.85	40.63	63.48	122.20	-58.72	peak
3	5850.000	20.53	41.45	61.98	122.20	-60.22	peak
4	5957.200	17.97	41.67	59.64	68.20	-8.56	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

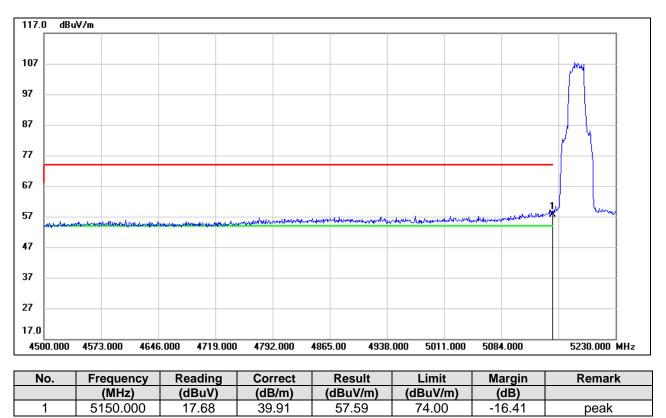


# 8.1.5. 802.11ax HE20 MIMO MODE

#### UNII-1 BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

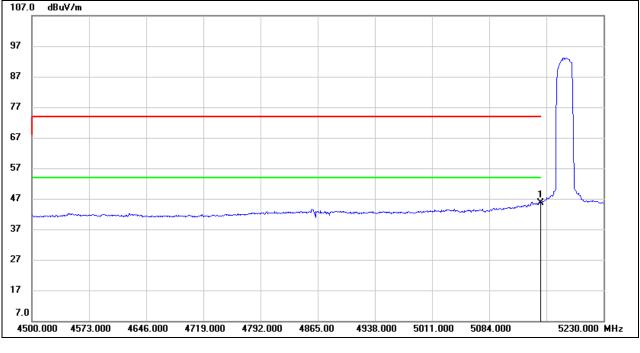
<u>PEAK</u>



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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	5.71	39.91	45.62	54.00	-8.38	AVG

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

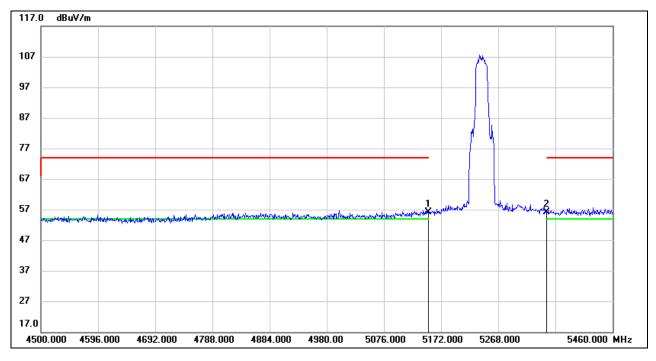
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



# <u>PEAK</u>

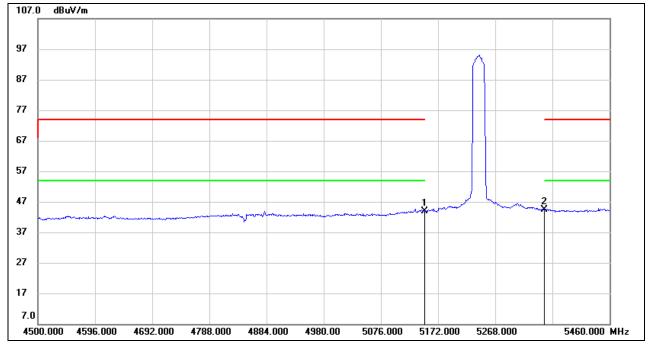


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	16.21	39.91	56.12	74.00	-17.88	peak
2	5350.000	16.04	40.08	56.12	74.00	-17.88	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	3.88	39.91	43.79	54.00	-10.21	AVG
2	5350.000	4.37	40.08	44.45	54.00	-9.55	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.

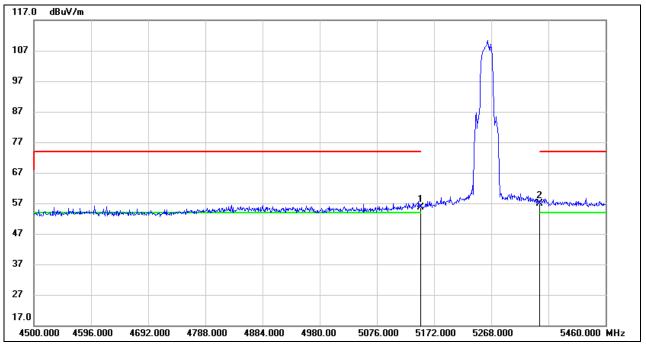
4. For the transmitting duration, please refer to clause 7.1.



#### UNII-2A BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

### <u>PEAK</u>



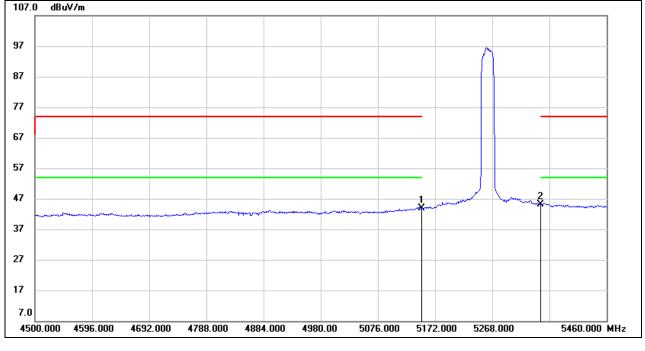
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	15.67	39.91	55.58	74.00	-18.42	peak
2	5350.000	16.73	40.08	56.81	74.00	-17.19	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	3.87	39.91	43.78	54.00	-10.22	AVG
2	5350.000	5.16	40.08	45.24	54.00	-8.76	AVG

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

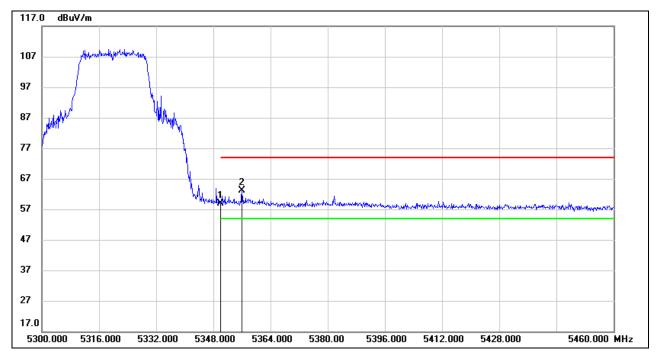
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>



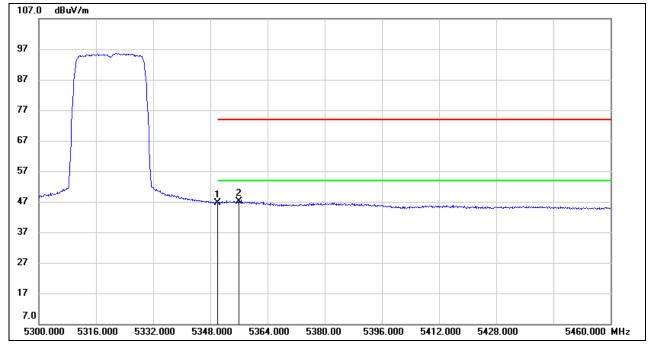
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	18.86	40.08	58.94	74.00	-15.06	peak
2	5356.000	22.95	40.12	63.07	74.00	-10.93	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	6.61	40.08	46.69	54.00	-7.31	AVG
2	5356.000	6.95	40.12	47.07	54.00	-6.93	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.

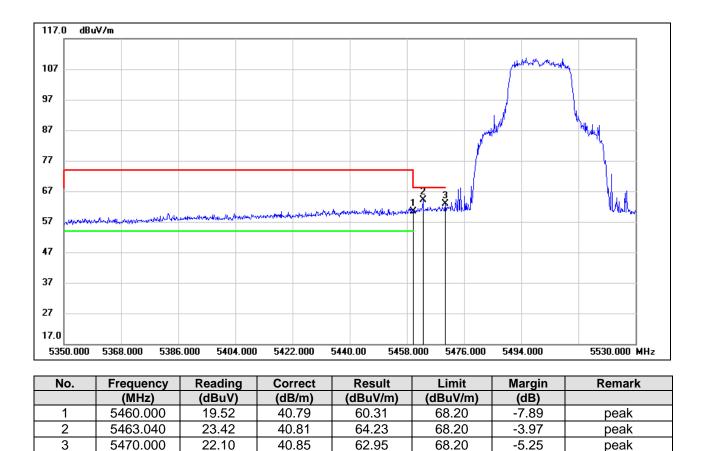
4. For the transmitting duration, please refer to clause 7.1.



#### UNII-2C BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

### <u>PEAK</u>

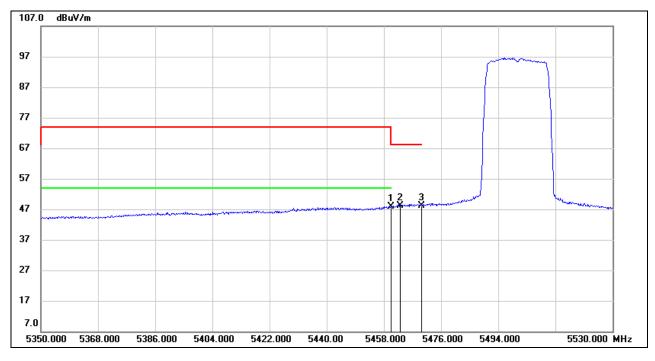


Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	7.09	40.79	47.88	54.00	-6.12	AVG
2	5463.040	7.38	40.81	48.19	/	/	AVG
3	5470.000	7.40	40.85	48.25	/	/	AVG

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

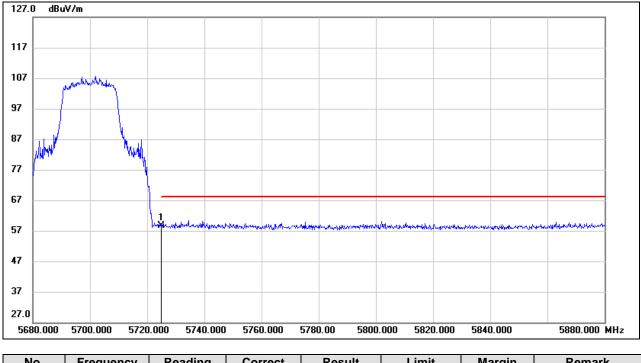
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5725.000	17.93	40.63	58.56	68.20	-9.64	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

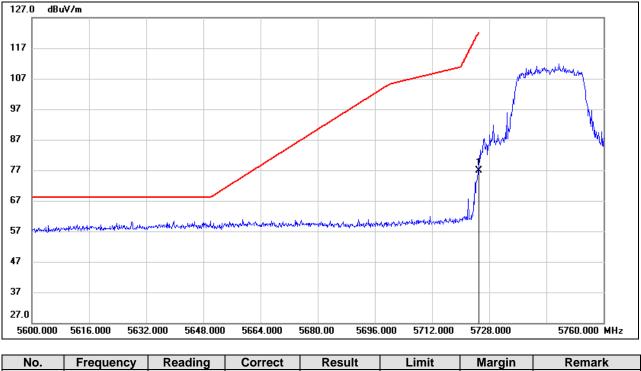
3. Peak: Peak detector.



#### UNII-3 BAND

#### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

#### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5725.000	36.25	40.63	76.88	122.20	-45.32	peak

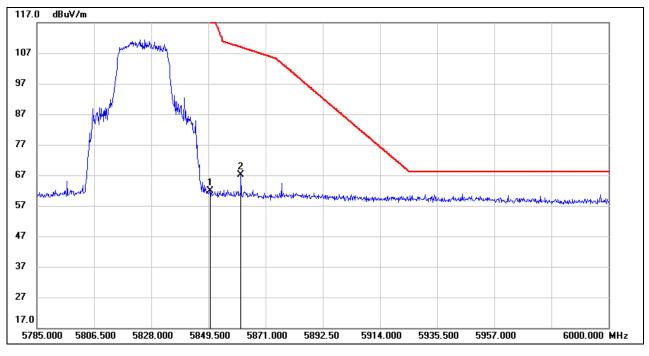
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	20.49	41.45	61.94	122.20	-60.26	peak
2	5861.755	25.65	41.57	67.22	108.91	-41.69	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: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

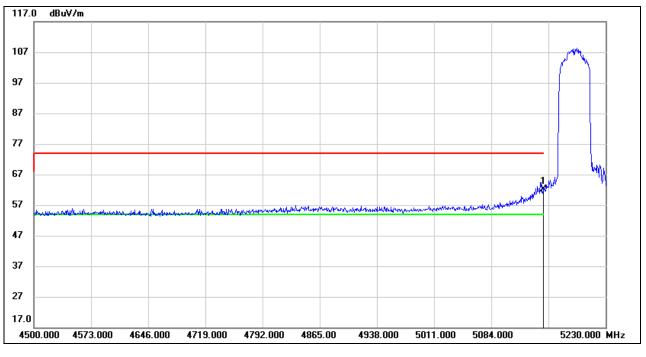


# 8.1.6. 802.11ax HE40 MIMO MODE

#### UNII-1 BAND

#### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

# <u>PEAK</u>

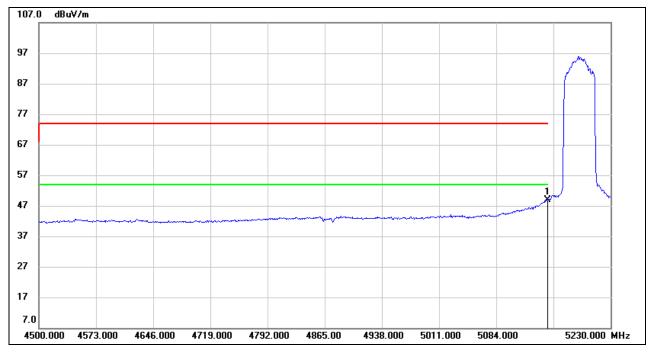


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	22.17	39.91	62.08	74.00	-11.92	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	8.85	39.91	48.76	54.00	-5.24	AVG

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

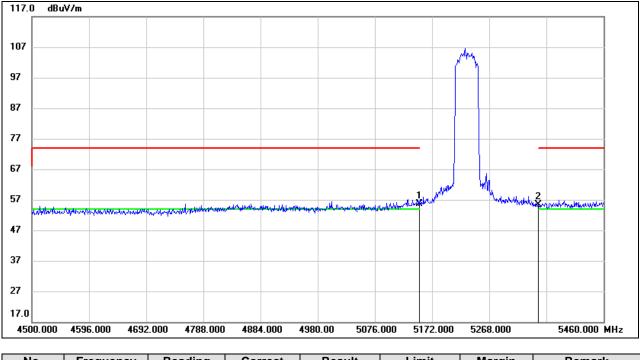
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>



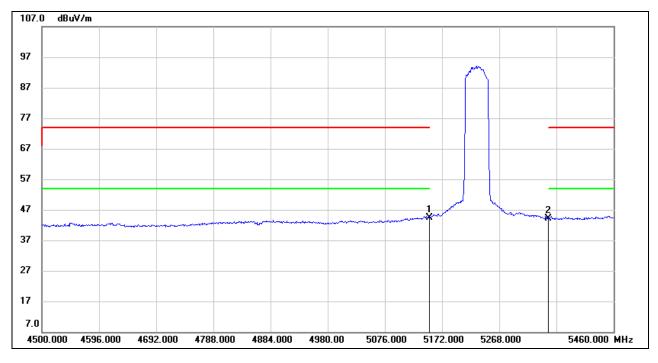
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	15.79	39.91	55.70	74.00	-18.30	peak
2	5350.000	15.28	40.08	55.36	74.00	-18.64	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	4.56	39.91	44.47	54.00	-9.53	AVG
2	5350.000	4.15	40.08	44.23	54.00	-9.77	AVG

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

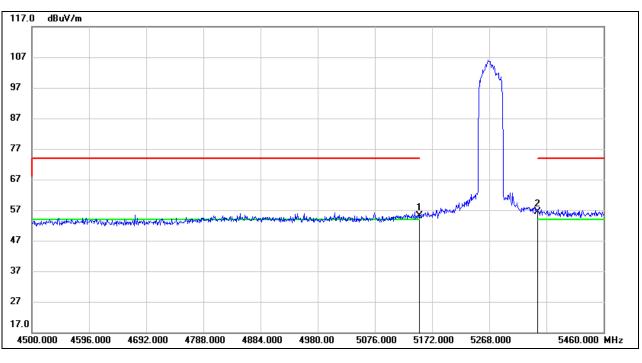
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### UNII-2A BAND



# <u>PEAK</u>

**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)** 

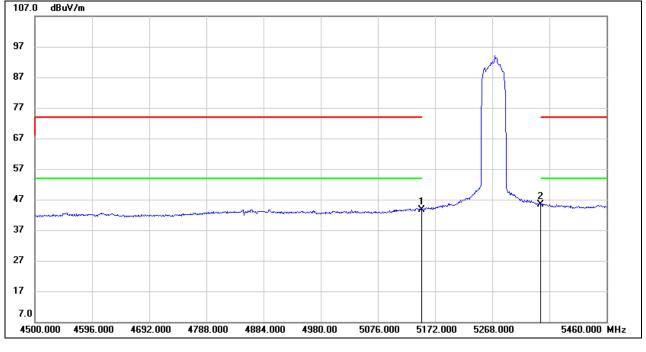
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	15.33	39.91	55.24	74.00	-18.76	peak
2	5350.000	16.35	40.08	56.43	74.00	-17.57	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	3.69	39.91	43.60	54.00	-10.40	AVG
2	5350.000	5.18	40.08	45.26	54.00	-8.74	AVG

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

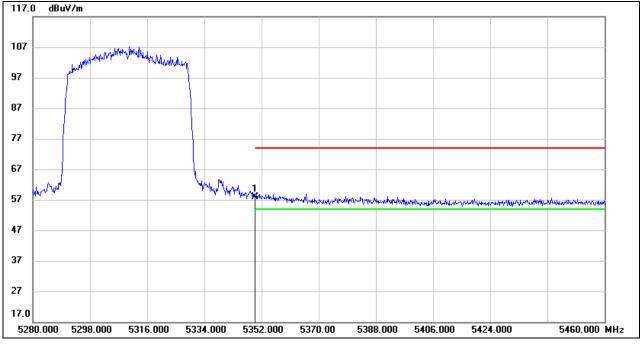
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### <u>PEAK</u>



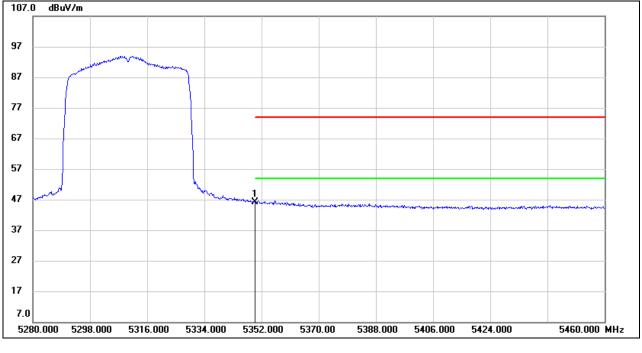
[	No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
ſ		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
	1	5350.000	17.72	40.08	57.80	74.00	-16.20	peak

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.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	6.08	40.08	46.16	54.00	-7.84	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.

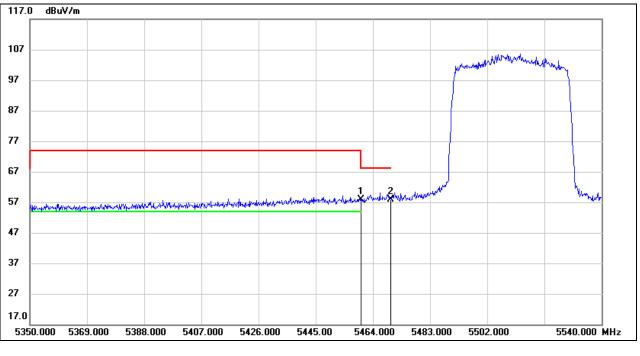
3. AVG: VBW=1/Ton, where: Ton is the transmitting duration.

4. For the transmitting duration, please refer to clause 7.1.



### UNII-2C BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



#### <u>PEAK</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	17.16	40.79	57.95	68.20	-10.25	peak
2	5470.000	17.14	40.85	57.99	68.20	-10.21	peak

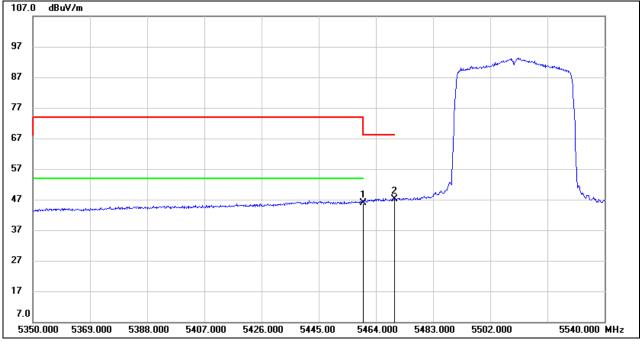
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	5.12	40.79	45.91	54.00	-8.09	AVG
2	5470.000	6.25	40.85	47.10	/	/	AVG

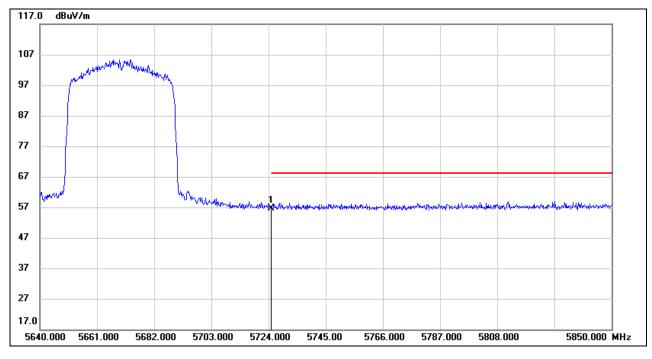
Note: 1. Measurement = Reading Level + Correct Factor.

- 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.



# **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**

### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5725.000	15.98	40.63	56.61	68.20	-11.59	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.

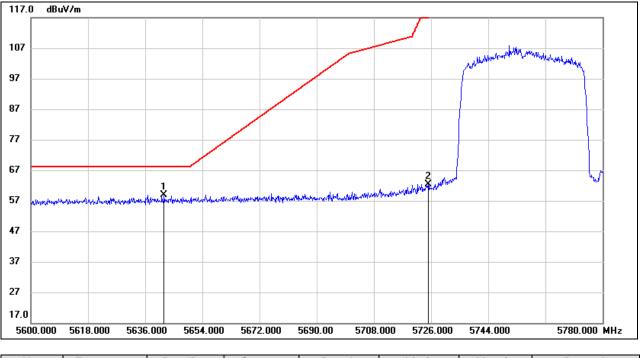
3. Peak: Peak detector.



#### UNII-3 BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

<u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5641.940	18.26	40.62	58.88	68.20	-9.32	peak
2	5725.000	21.81	40.63	62.44	122.20	-59.76	peak

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

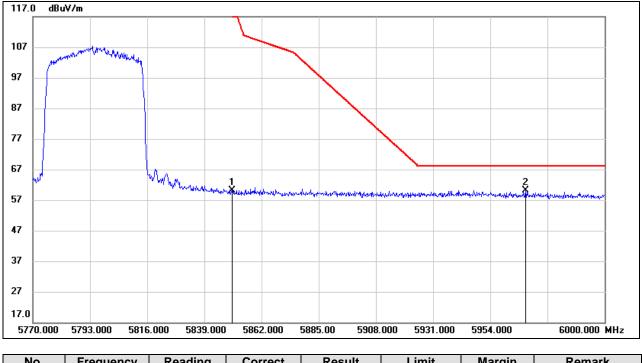
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



# **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**





	equency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1 58	850.000	18.72	41.45	60.17	122.20	-62.03	peak
2 59	968.260	18.58	41.62	60.20	68.20	-8.00	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

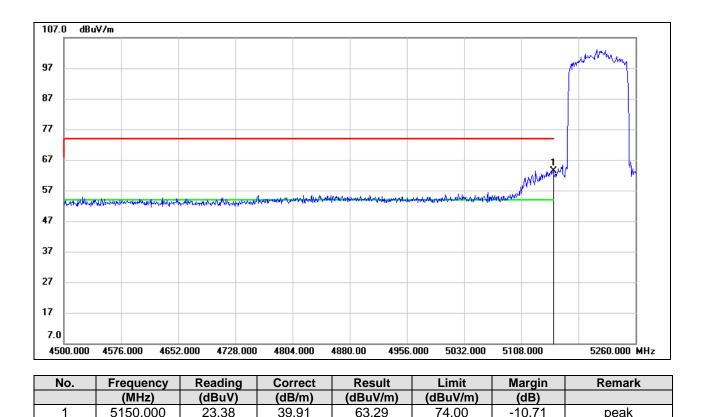


# 8.1.7. 802.11ax HE80 MIMO MODE

#### UNII-1 BAND

## **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

# <u>PEAK</u>



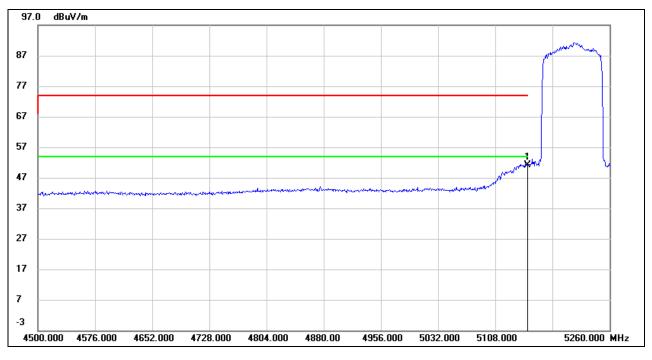
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	11.26	39.91	51.17	54.00	-2.83	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.

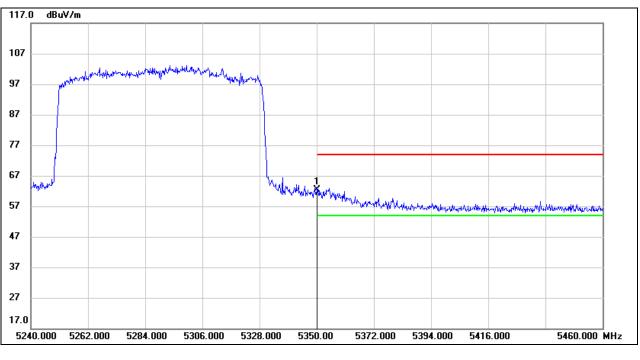
5. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.



### UNII-2A BAND

## **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



### <u>PEAK</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	22.38	40.08	62.46	74.00	-11.54	peak

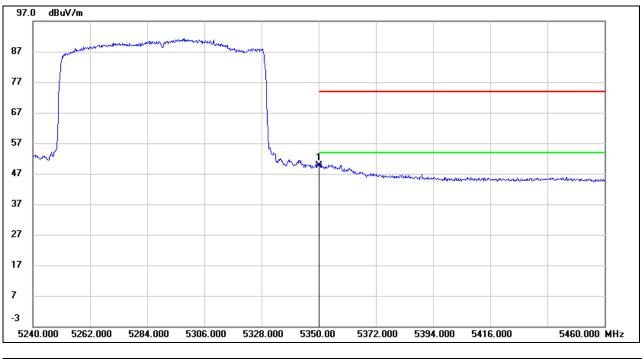
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	9.57	40.08	49.65	54.00	-4.35	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.

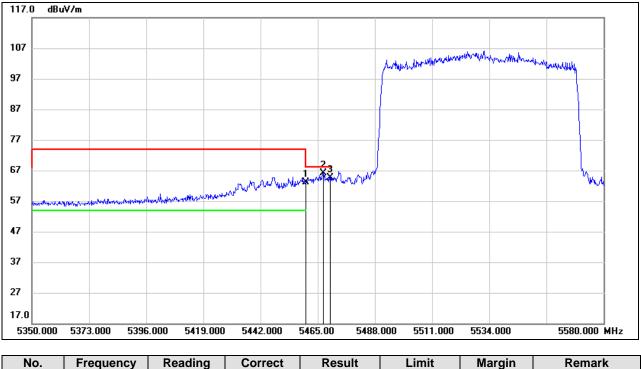
4. For the transmitting duration, please refer to clause 7.1.



### UNII-2C BAND

### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

### <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	22.39	40.79	63.18	68.20	-5.02	peak
2	5467.300	25.23	40.83	66.06	68.20	-2.14	peak
3	5470.000	23.83	40.85	64.68	68.20	-3.52	peak

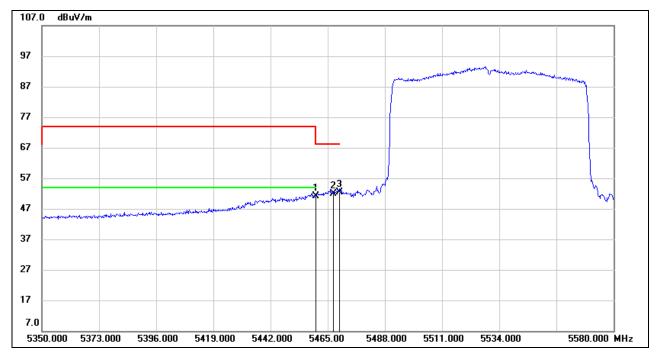
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5460.000	10.39	40.79	51.18	54.00	-2.82	AVG
2	5467.300	11.06	40.83	51.89	/	/	AVG
3	5470.000	11.48	40.85	52.33	/	/	AVG

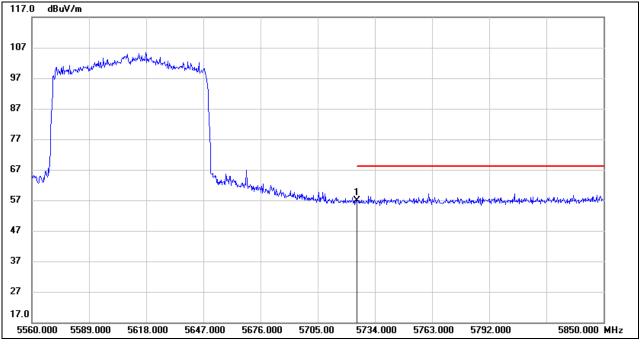
Note: 1. Measurement = Reading Level + Correct Factor.

- 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.



# **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**

# <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5725.000	16.34	40.63	56.97	68.20	-11.23	peak

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

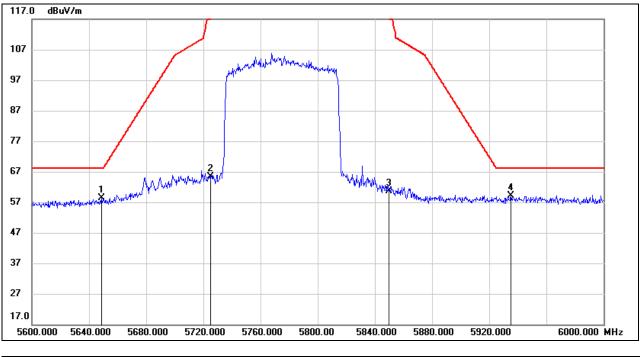
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



#### UNII-3 BAND





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5648.800	17.72	40.61	58.33	68.20	-9.87	peak
2	5725.000	24.74	40.63	65.37	122.20	-56.83	peak
3	5850.000	19.25	41.45	60.70	122.20	-61.50	peak
4	5935.200	17.39	41.78	59.17	68.20	-9.03	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: All the polarities (Vertical & Horizontal) had been tested, only the worst data was recorded in the report.

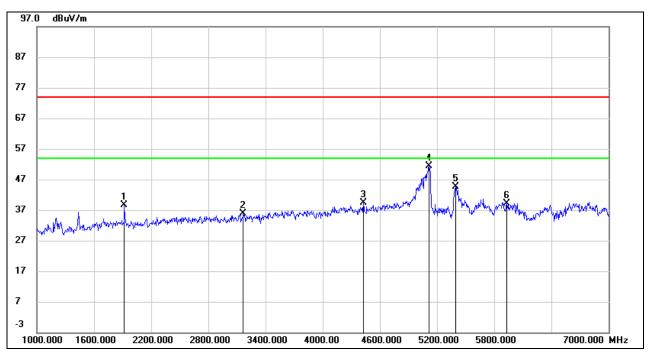


# 8.2. SPURIOUS EMISSIONS (1 GHz ~ 7 GHz)

# 8.2.1. 802.11ax HE20 SISO MODE

#### UNII-1 BAND

### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1918.000	49.50	-10.81	38.69	74.00	-35.31	peak
2	3166.000	42.66	-6.69	35.97	74.00	-38.03	peak
3	4426.000	42.27	-2.96	39.31	74.00	-34.69	peak
4	5116.000	51.83	-0.36	51.47	74.00	-22.53	peak
5	5392.000	44.64	0.09	44.73	74.00	-29.27	peak
6	5932.000	38.01	1.12	39.13	74.00	-34.87	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

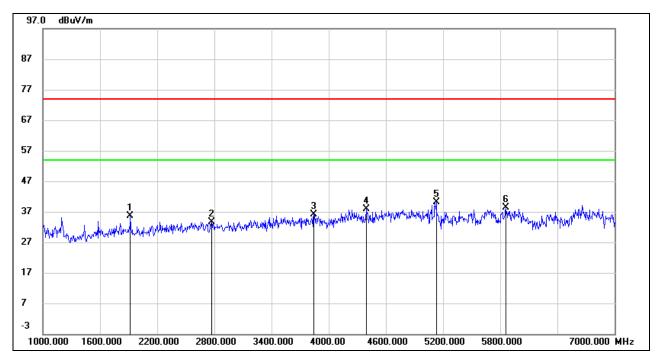
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1918.000	46.39	-10.81	35.58	74.00	-38.42	peak
2	2770.000	41.54	-7.80	33.74	74.00	-40.26	peak
3	3844.000	40.46	-4.40	36.06	74.00	-37.94	peak
4	4396.000	41.00	-3.10	37.90	74.00	-36.10	peak
5	5128.000	40.45	-0.27	40.18	74.00	-33.82	peak
6	5860.000	37.47	0.88	38.35	74.00	-35.65	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

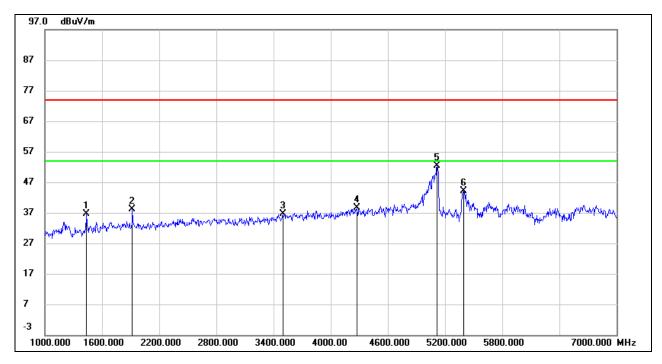
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	49.33	-12.81	36.52	74.00	-37.48	peak
2	1918.000	48.83	-10.81	38.02	74.00	-35.98	peak
3	3496.000	42.40	-5.83	36.57	74.00	-37.43	peak
4	4276.000	41.48	-2.94	38.54	74.00	-35.46	peak
5	5116.000	52.78	-0.36	52.42	74.00	-21.58	peak
6	5398.000	44.14	0.10	44.24	74.00	-29.76	peak

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

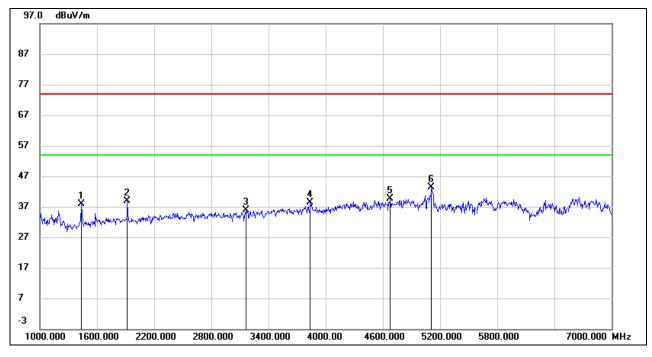
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	50.70	-12.81	37.89	74.00	-36.11	peak
2	1918.000	49.72	-10.81	38.91	74.00	-35.09	peak
3	3160.000	42.52	-6.71	35.81	74.00	-38.19	peak
4	3838.000	42.82	-4.39	38.43	74.00	-35.57	peak
5	4678.000	41.22	-1.67	39.55	74.00	-34.45	peak
6	5110.000	43.81	-0.40	43.41	74.00	-30.59	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.

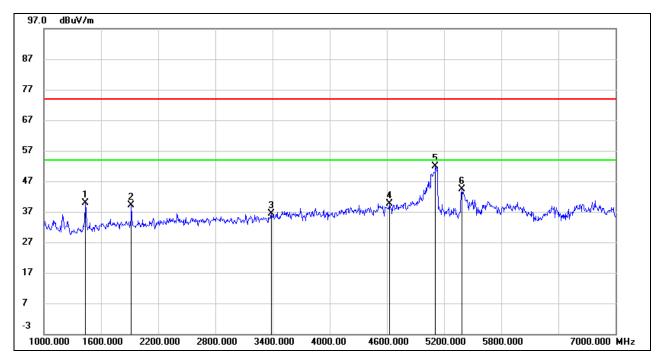
3. Peak: Peak detector.

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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	52.57	-12.81	39.76	74.00	-34.24	peak
2	1918.000	49.98	-10.81	39.17	74.00	-34.83	peak
3	3388.000	42.63	-6.31	36.32	74.00	-37.68	peak
4	4624.000	41.47	-1.90	39.57	74.00	-34.43	peak
5	5110.000	52.22	-0.40	51.82	74.00	-22.18	peak
6	5386.000	44.25	0.10	44.35	74.00	-29.65	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

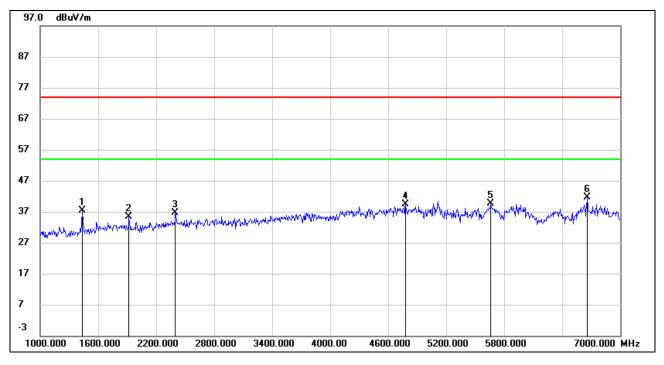
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1432.000	50.19	-12.85	37.34	74.00	-36.66	peak
2	1918.000	46.17	-10.81	35.36	74.00	-38.64	peak
3	2398.000	45.63	-8.96	36.67	74.00	-37.33	peak
4	4780.000	40.55	-1.22	39.33	74.00	-34.67	peak
5	5662.000	39.00	0.68	39.68	74.00	-34.32	peak
6	6658.000	37.98	3.69	41.67	74.00	-32.33	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.

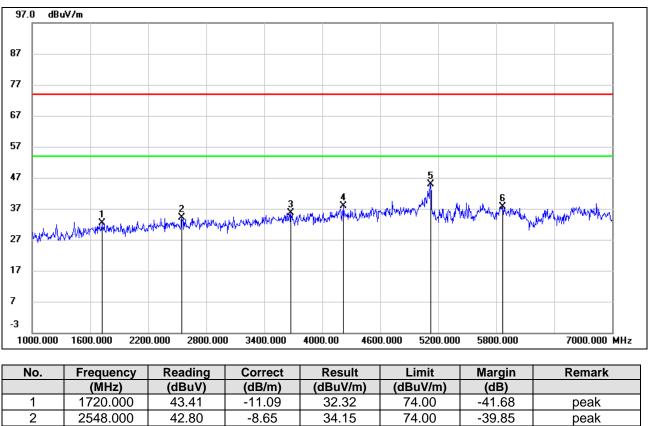
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



#### UNII-2A BAND

### ANTENNA 1 TEST RESULTS (WORST CASE)

### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



2	2548.000	42.80	-8.65	34.15	74.00	-39.85	peak
3	3676.000	40.65	-4.92	35.73	74.00	-38.27	peak
4	4222.000	40.81	-2.85	37.96	74.00	-36.04	peak
5	5122.000	45.30	-0.32	44.98	74.00	-29.02	peak
6	5866.000	36.77	0.90	37.67	74.00	-36.33	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.

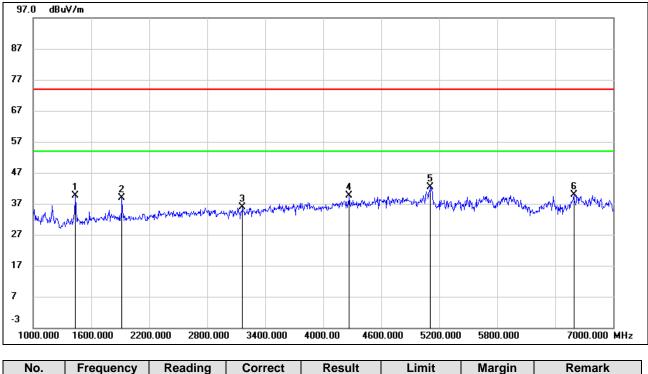
3. Peak: Peak detector.

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 (LOW CHANNEL, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	52.34	-12.81	39.53	74.00	-34.47	peak
2	1918.000	49.58	-10.81	38.77	74.00	-35.23	peak
3	3166.000	42.66	-6.69	35.97	74.00	-38.03	peak
4	4270.000	42.58	-2.92	39.66	74.00	-34.34	peak
5	5110.000	42.68	-0.40	42.28	74.00	-31.72	peak
6	6592.000	36.33	3.64	39.97	74.00	-34.03	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.

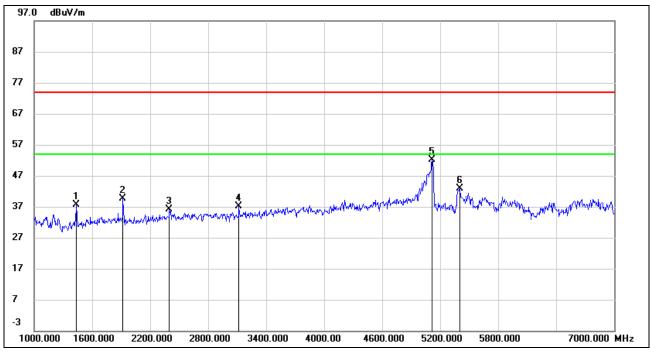
3. Peak: Peak detector.

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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	50.32	-12.81	37.51	74.00	-36.49	peak
2	1918.000	50.45	-10.81	39.64	74.00	-34.36	peak
3	2398.000	45.12	-8.96	36.16	74.00	-37.84	peak
4	3118.000	43.89	-6.82	37.07	74.00	-36.93	peak
5	5116.000	52.37	-0.36	52.01	74.00	-21.99	peak
6	5404.000	42.79	0.11	42.90	74.00	-31.10	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

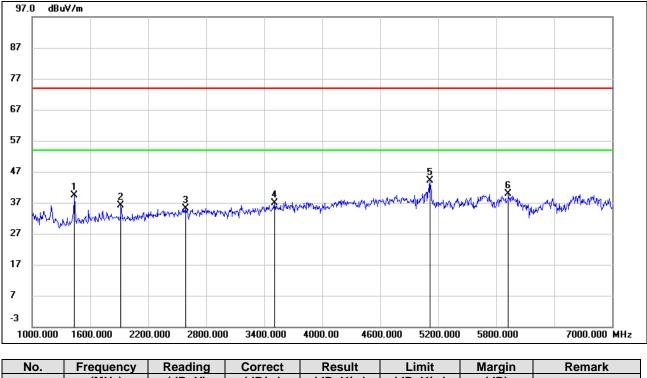
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	52.26	-12.81	39.45	74.00	-34.55	peak
2	1918.000	46.99	-10.81	36.18	74.00	-37.82	peak
3	2590.000	43.61	-8.59	35.02	74.00	-38.98	peak
4	3508.000	42.53	-5.76	36.77	74.00	-37.23	peak
5	5116.000	44.53	-0.36	44.17	74.00	-29.83	peak
6	5926.000	38.79	1.11	39.90	74.00	-34.10	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

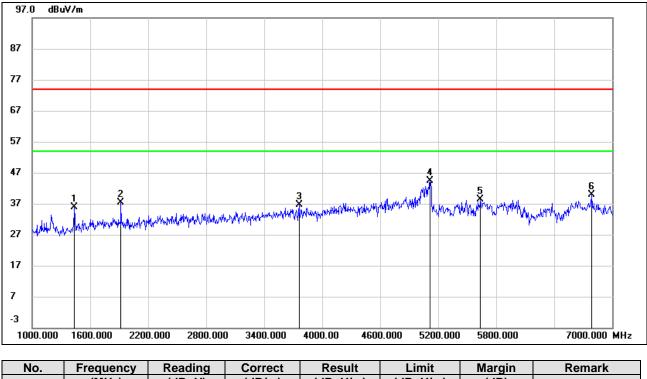
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	48.80	-12.81	35.99	74.00	-38.01	peak
2	1918.000	48.23	-10.81	37.42	74.00	-36.58	peak
3	3760.000	41.07	-4.52	36.55	74.00	-37.45	peak
4	5116.000	44.78	-0.36	44.42	74.00	-29.58	peak
5	5638.000	37.58	0.68	38.26	74.00	-35.74	peak
6	6790.000	36.25	3.75	40.00	74.00	-34.00	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

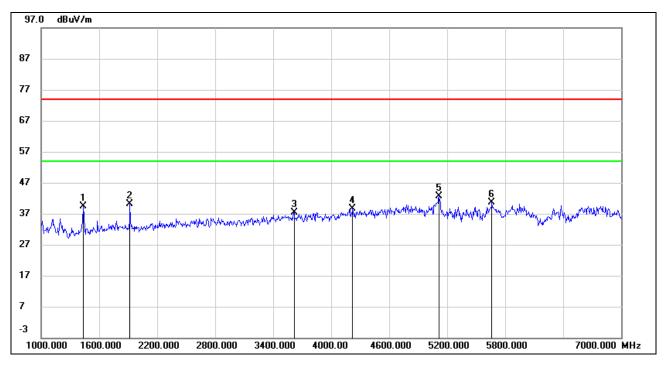
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	52.08	-12.81	39.27	74.00	-34.73	peak
2	1918.000	51.00	-10.81	40.19	74.00	-33.81	peak
3	3616.000	42.49	-5.21	37.28	74.00	-36.72	peak
4	4222.000	41.43	-2.85	38.58	74.00	-35.42	peak
5	5116.000	42.91	-0.36	42.55	74.00	-31.45	peak
6	5662.000	39.85	0.68	40.53	74.00	-33.47	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.

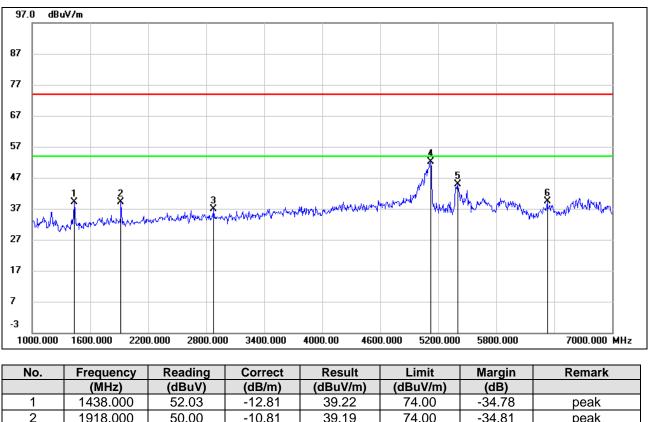
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



#### UNII-2C BAND

### ANTENNA 1 TEST RESULTS (WORST CASE)

### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



2	1918.000	50.00	-10.81	39.19	74.00	-34.81	peak
3	2878.000	44.26	-7.46	36.80	74.00	-37.20	peak
4	5122.000	52.35	-0.32	52.03	74.00	-21.97	peak
5	5404.000	44.73	0.11	44.84	74.00	-29.16	peak
6	6328.000	37.21	2.12	39.33	74.00	-34.67	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

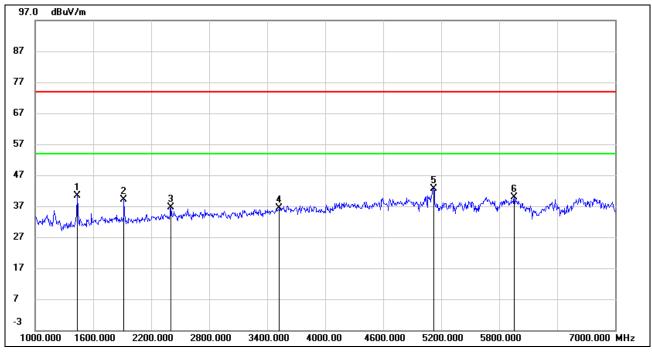
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1432.000	53.23	-12.85	40.38	74.00	-33.62	peak
2	1918.000	49.91	-10.81	39.10	74.00	-34.90	peak
3	2404.000	45.59	-8.94	36.65	74.00	-37.35	peak
4	3526.000	42.11	-5.67	36.44	74.00	-37.56	peak
5	5122.000	42.94	-0.32	42.62	74.00	-31.38	peak
6	5956.000	38.56	1.22	39.78	74.00	-34.22	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.

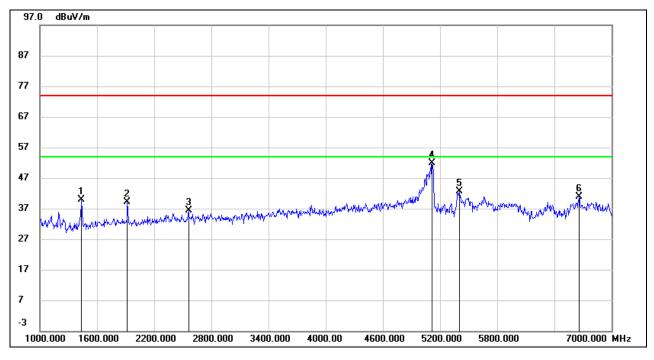
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	52.57	-12.81	39.76	74.00	-34.24	peak
2	1918.000	49.96	-10.81	39.15	74.00	-34.85	peak
3	2560.000	45.07	-8.63	36.44	74.00	-37.56	peak
4	5116.000	52.34	-0.36	51.98	74.00	-22.02	peak
5	5404.000	42.46	0.11	42.57	74.00	-31.43	peak
6	6658.000	37.27	3.69	40.96	74.00	-33.04	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.

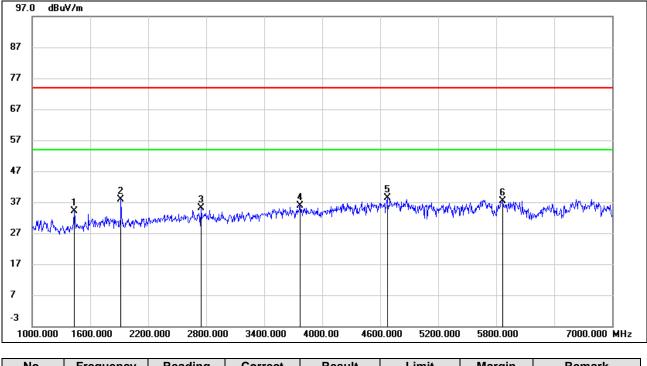
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1432.000	47.02	-12.85	34.17	74.00	-39.83	peak
2	1918.000	48.80	-10.81	37.99	74.00	-36.01	peak
3	2746.000	43.14	-7.92	35.22	74.00	-38.78	peak
4	3772.000	40.44	-4.47	35.97	74.00	-38.03	peak
5	4672.000	39.96	-1.69	38.27	74.00	-35.73	peak
6	5866.000	36.58	0.90	37.48	74.00	-36.52	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.

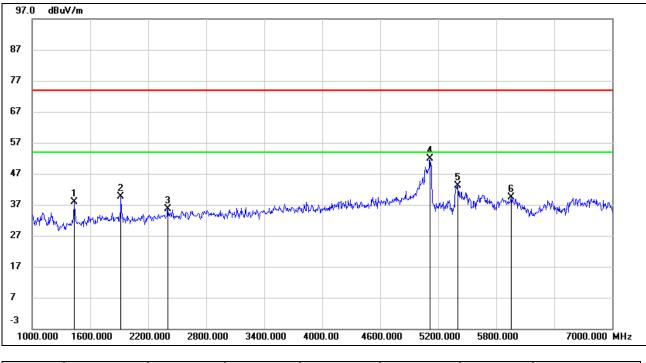
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1432.000	50.79	-12.85	37.94	74.00	-36.06	peak
2	1918.000	50.49	-10.81	39.68	74.00	-34.32	peak
3	2404.000	44.58	-8.94	35.64	74.00	-38.36	peak
4	5116.000	52.16	-0.36	51.80	74.00	-22.20	peak
5	5404.000	43.10	0.11	43.21	74.00	-30.79	peak
6	5956.000	38.25	1.22	39.47	74.00	-34.53	peak

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

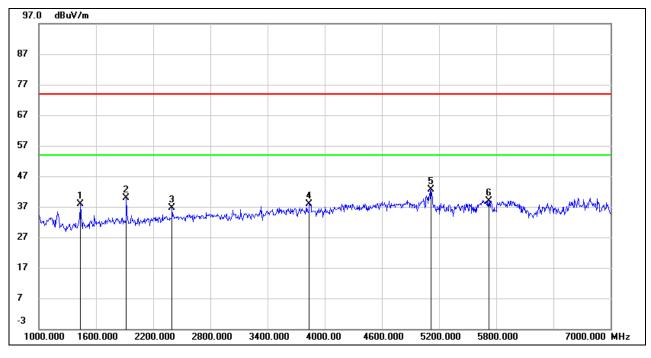
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	50.69	-12.81	37.88	74.00	-36.12	peak
2	1918.000	50.61	-10.81	39.80	74.00	-34.20	peak
3	2398.000	45.49	-8.96	36.53	74.00	-37.47	peak
4	3838.000	42.37	-4.39	37.98	74.00	-36.02	peak
5	5116.000	42.97	-0.36	42.61	74.00	-31.39	peak
6	5722.000	38.32	0.67	38.99	74.00	-35.01	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 High Pass Filter losses.

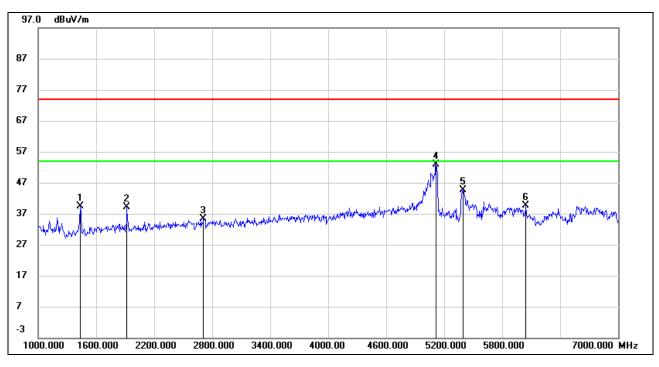
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



# **STRADDLE CHANNEL 144**

# ANTENNA 1 TEST RESULTS (WORST CASE)

# HARMONICS AND SPURIOUS EMISSIONS (HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1432.000	52.19	-12.85	39.34	74.00	-34.66	peak
2	1918.000	50.03	-10.81	39.22	74.00	-34.78	peak
3	2710.000	43.50	-8.07	35.43	74.00	-38.57	peak
4	5116.000	53.17	-0.36	52.81	74.00	-21.19	peak
5	5392.000	44.65	0.09	44.74	74.00	-29.26	peak
6	6046.000	38.14	1.37	39.51	74.00	-34.49	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.

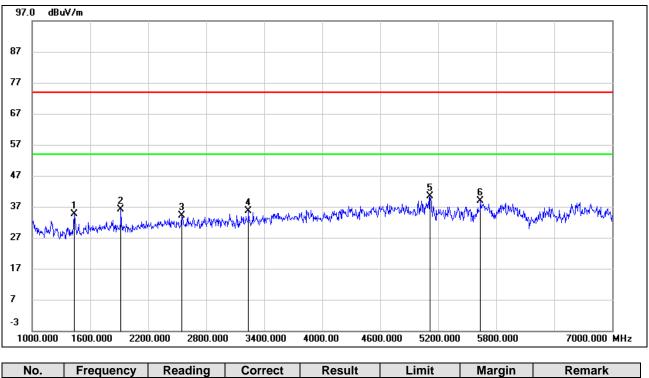
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



# HARMONICS AND SPURIOUS EMISSIONS (VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1432.000	47.57	-12.85	34.72	74.00	-39.28	peak
2	1918.000	46.88	-10.81	36.07	74.00	-37.93	peak
3	2548.000	42.76	-8.65	34.11	74.00	-39.89	peak
4	3238.000	42.17	-6.55	35.62	74.00	-38.38	peak
5	5116.000	40.63	-0.36	40.27	74.00	-33.73	peak
6	5638.000	38.23	0.68	38.91	74.00	-35.09	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. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

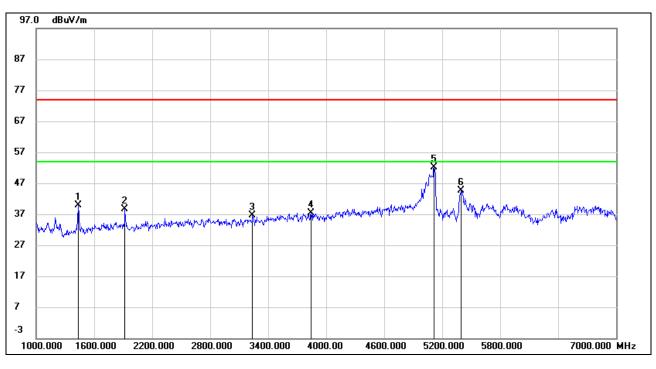
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



UNII-3 BAND

# ANTENNA 1 TEST RESULTS (WORST CASE)

# HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	52.74	-12.81	39.93	74.00	-34.07	peak
2	1918.000	49.36	-10.81	38.55	74.00	-35.45	peak
3	3238.000	43.16	-6.55	36.61	74.00	-37.39	peak
4	3844.000	41.76	-4.40	37.36	74.00	-36.64	peak
5	5116.000	52.37	-0.36	52.01	74.00	-21.99	peak
6	5398.000	44.53	0.10	44.63	74.00	-29.37	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.

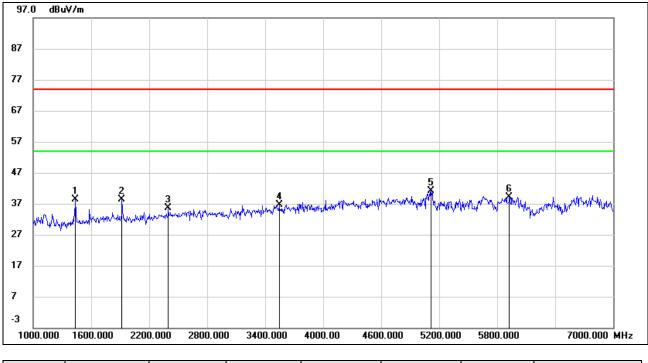
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	51.26	-12.81	38.45	74.00	-35.55	peak
2	1918.000	49.23	-10.81	38.42	74.00	-35.58	peak
3	2398.000	44.53	-8.96	35.57	74.00	-38.43	peak
4	3544.000	42.26	-5.57	36.69	74.00	-37.31	peak
5	5116.000	41.41	-0.36	41.05	74.00	-32.95	peak
6	5926.000	38.13	1.11	39.24	74.00	-34.76	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

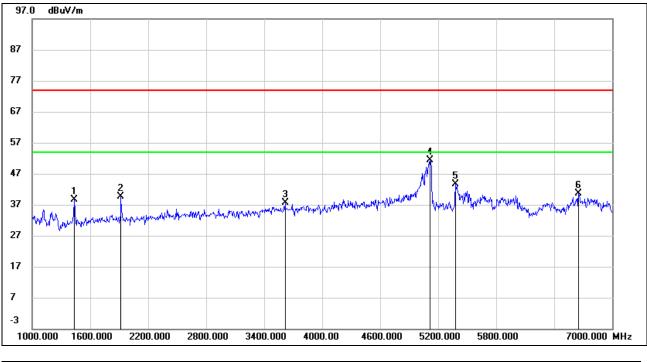
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	51.45	-12.81	38.64	74.00	-35.36	peak
2	1918.000	50.43	-10.81	39.62	74.00	-34.38	peak
3	3616.000	42.83	-5.21	37.62	74.00	-36.38	peak
4	5116.000	51.75	-0.36	51.39	74.00	-22.61	peak
5	5380.000	43.44	0.10	43.54	74.00	-30.46	peak
6	6652.000	36.85	3.70	40.55	74.00	-33.45	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.

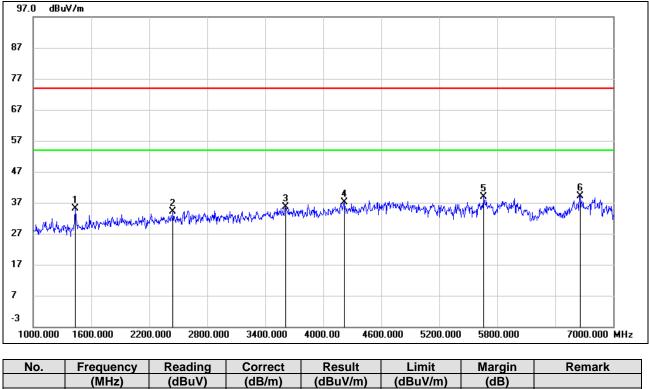
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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, VERTICAL)



NO.	Frequency	Reading	Correct	Result	LIIIIL	Wargin	Relliark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1438.000	47.99	-12.81	35.18	74.00	-38.82	peak
2	2446.000	43.02	-8.85	34.17	74.00	-39.83	peak
3	3610.000	40.90	-5.23	35.67	74.00	-38.33	peak
4	4216.000	40.01	-2.85	37.16	74.00	-36.84	peak
5	5662.000	38.29	0.68	38.97	74.00	-35.03	peak
6	6658.000	35.46	3.69	39.15	74.00	-34.85	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

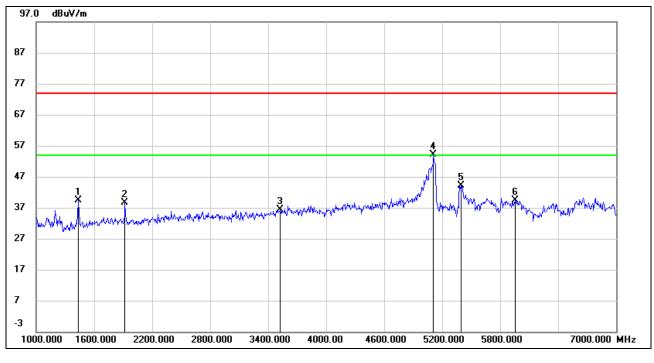
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1432.000	52.28	-12.85	39.43	74.00	-34.57	peak
2	1918.000	49.37	-10.81	38.56	74.00	-35.44	peak
3	3526.000	42.10	-5.67	36.43	74.00	-37.57	peak
4	5110.000	54.49	-0.40	54.09	74.00	-19.91	peak
5	5398.000	44.10	0.10	44.20	74.00	-29.80	peak
6	5956.000	38.13	1.22	39.35	74.00	-34.65	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

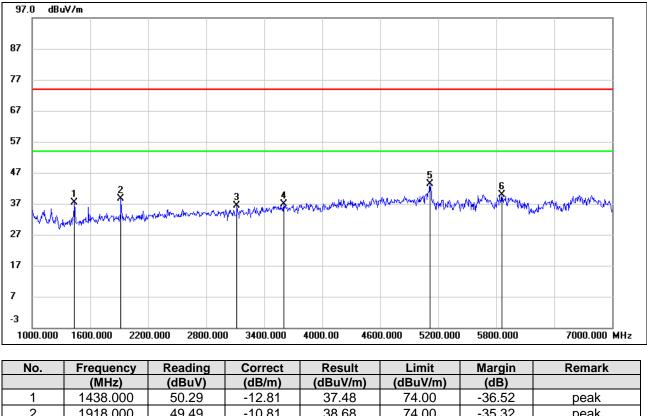
3. Peak: Peak detector.

4. 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)



2	1918.000	49.49	-10.81	38.68	74.00	-35.32	peak
3	3118.000	43.13	-6.82	36.31	74.00	-37.69	peak
4	3604.000	42.12	-5.26	36.86	74.00	-37.14	peak
5	5116.000	43.80	-0.36	43.44	74.00	-30.56	peak
6	5860.000	39.08	0.88	39.96	74.00	-34.04	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 High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

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



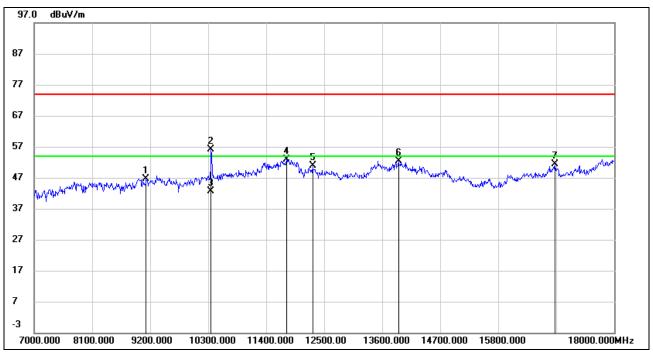
# 8.3. SPURIOUS EMISSIONS (7 GHz ~ 18 GHz)

## 8.3.1. 802.11a 20 SISO MODE

#### UNII-1 BAND

#### ANTENNA 1 TEST RESULTS (WORST CASE)

#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9123.000	37.51	9.13	46.64	74.00	-27.36	peak
2	10355.000	44.00	12.08	56.08	74.00	-17.92	peak
3	10355.000	30.47	12.08	42.55	54.00	-11.45	AVG
4	11785.000	36.01	16.85	52.86	74.00	-21.14	peak
5	12280.000	33.33	17.67	51.00	74.00	-23.00	peak
6	13908.000	31.23	21.22	52.45	74.00	-21.55	peak
7	16878.000	31.28	19.99	51.27	74.00	-22.73	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.

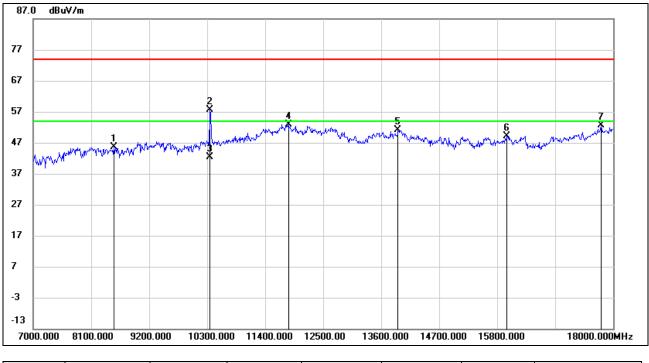
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8529.000	38.24	7.31	45.55	74.00	-28.45	peak
2	10355.000	45.50	12.08	57.58	74.00	-16.42	peak
3	10355.000	30.32	12.08	42.40	54.00	-11.60	AVG
4	11840.000	35.88	16.99	52.87	74.00	-21.13	peak
5	13919.000	29.90	21.24	51.14	74.00	-22.86	peak
6	15987.000	32.66	16.54	49.20	74.00	-24.80	peak
7	17769.000	28.46	24.25	52.71	74.00	-21.29	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.

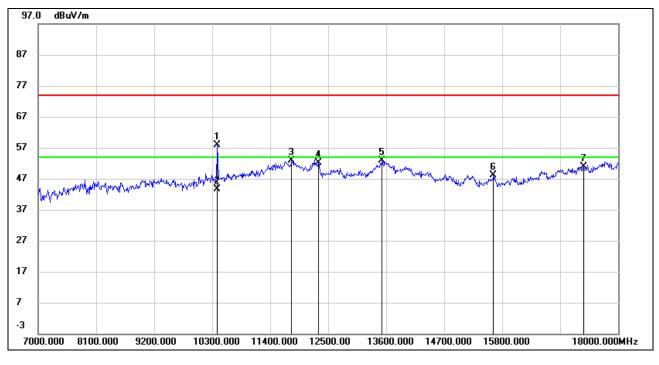
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10399.000	45.69	12.22	57.91	74.00	-16.09	peak
2	10399.000	31.32	12.22	43.54	54.00	-10.46	AVG
3	11807.000	35.95	16.88	52.83	74.00	-21.17	peak
4	12313.000	34.51	17.66	52.17	74.00	-21.83	peak
5	13523.000	32.52	20.39	52.91	74.00	-21.09	peak
6	15635.000	31.63	16.42	48.05	74.00	-25.95	peak
7	17340.000	29.20	21.68	50.88	74.00	-23.12	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.

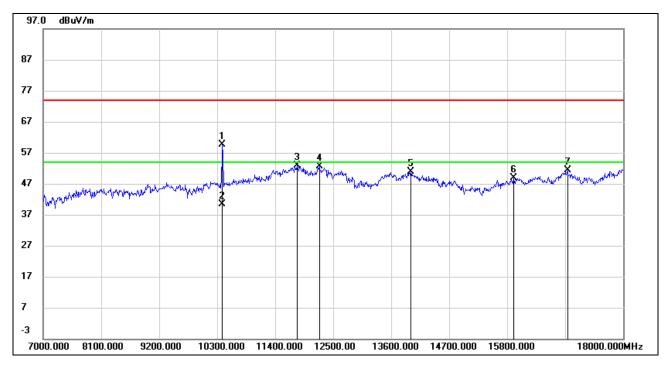
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10399.000	47.29	12.22	59.51	74.00	-14.49	peak
2	10399.000	28.16	12.22	40.38	54.00	-13.62	AVG
3	11818.000	35.96	16.91	52.87	74.00	-21.13	peak
4	12236.000	34.95	17.64	52.59	74.00	-21.41	peak
5	13974.000	29.61	21.39	51.00	74.00	-23.00	peak
6	15921.000	32.48	16.40	48.88	74.00	-25.12	peak
7	16944.000	31.31	20.10	51.41	74.00	-22.59	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 High Pass Filter losses.

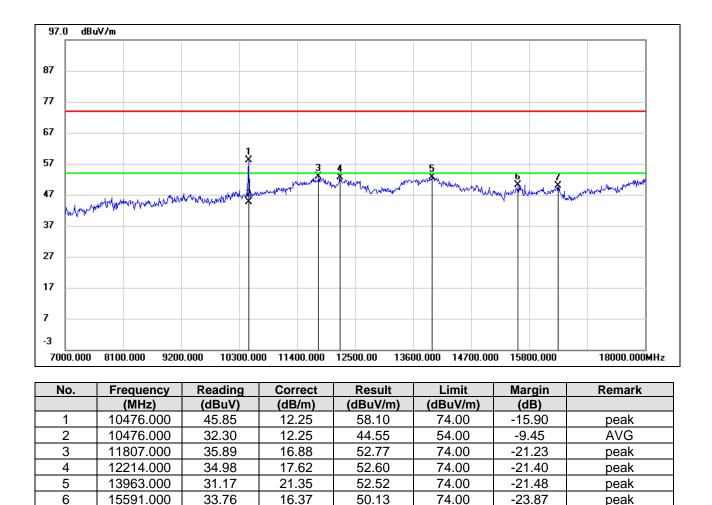
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



peak

peak

#### HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



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

32.09

17.86

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

49.95

74.00

-24.05

3. Peak: Peak detector.

16350.000

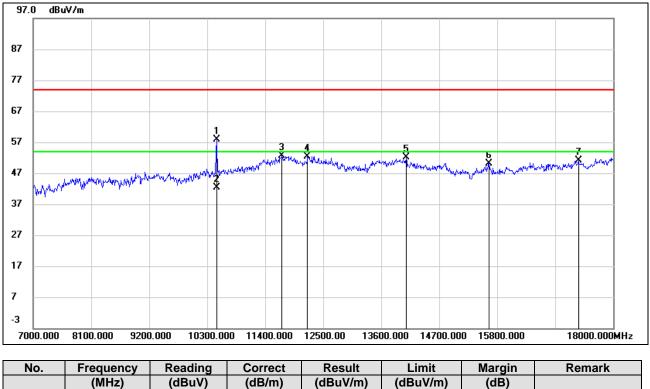
7

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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10476.000	45.59	12.25	57.84	74.00	-16.16	peak
2	10476.000	30.13	12.25	42.38	54.00	-11.62	AVG
3	11719.000	35.66	16.87	52.53	74.00	-21.47	peak
4	12203.000	34.82	17.61	52.43	74.00	-21.57	peak
5	14073.000	31.10	21.00	52.10	74.00	-21.90	peak
6	15646.000	33.73	16.42	50.15	74.00	-23.85	peak
7	17340.000	29.35	21.68	51.03	74.00	-22.97	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

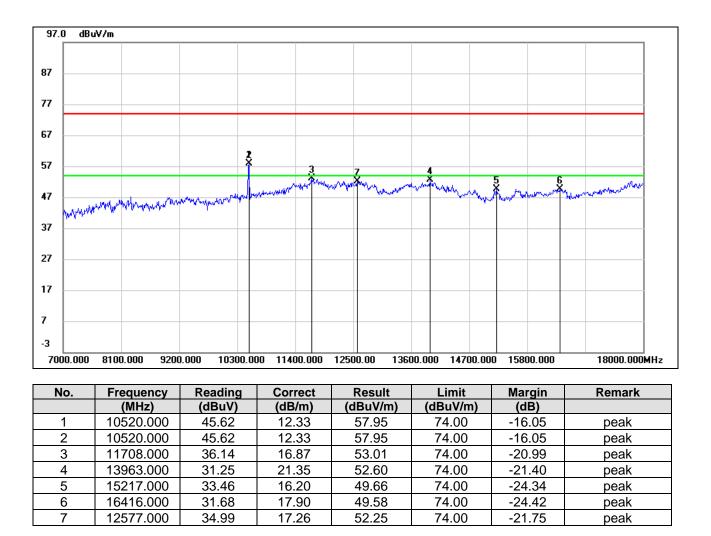
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



#### UNII-2A BAND

### ANTENNA 1 TEST RESULTS (WORST CASE)

#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

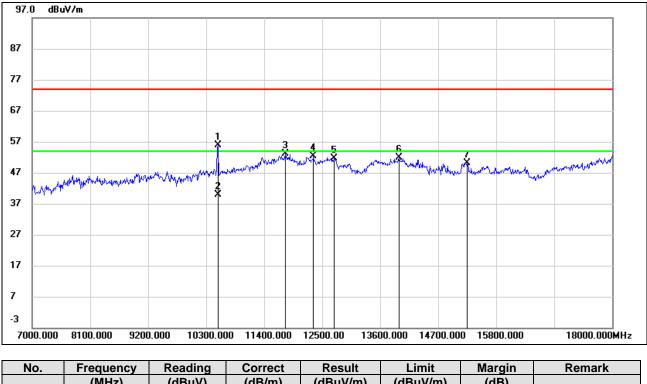
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10520.000	43.64	12.33	55.97	74.00	-18.03	peak
2	10520.000	27.49	12.33	39.82	54.00	-14.18	AVG
3	11796.000	36.27	16.85	53.12	74.00	-20.88	peak
4	12335.000	34.65	17.61	52.26	74.00	-21.74	peak
5	12731.000	34.36	17.34	51.70	74.00	-22.30	peak
6	13952.000	30.56	21.33	51.89	74.00	-22.11	peak
7	15250.000	33.84	16.22	50.06	74.00	-23.94	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

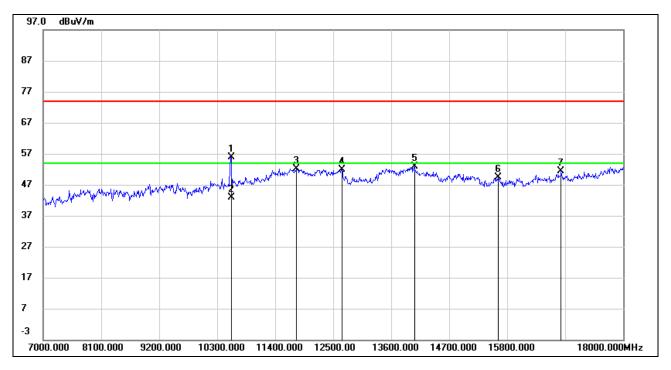
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10564.000	43.44	12.47	55.91	74.00	-18.09	peak
2	10564.000	30.39	12.47	42.86	54.00	-11.14	AVG
3	11796.000	35.30	16.85	52.15	74.00	-21.85	peak
4	12665.000	34.64	17.24	51.88	74.00	-22.12	peak
5	14040.000	31.78	21.20	52.98	74.00	-21.02	peak
6	15635.000	33.06	16.42	49.48	74.00	-24.52	peak
7	16823.000	31.83	19.46	51.29	74.00	-22.71	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.

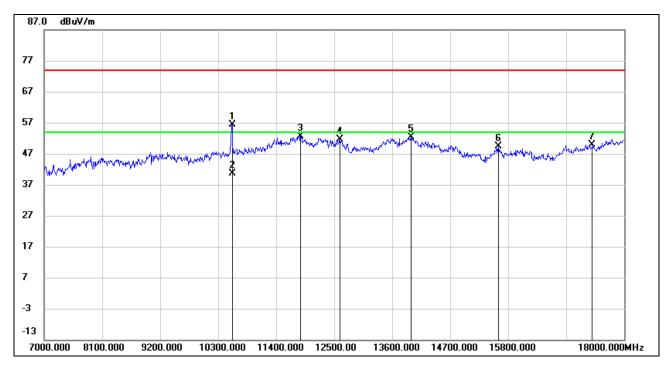
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10564.000	43.97	12.47	56.44	74.00	-17.56	peak
2	10564.000	28.04	12.47	40.51	54.00	-13.49	AVG
3	11862.000	35.64	17.08	52.72	74.00	-21.28	peak
4	12610.000	34.34	17.29	51.63	74.00	-22.37	peak
5	13952.000	30.97	21.33	52.30	74.00	-21.70	peak
6	15613.000	32.85	16.42	49.27	74.00	-24.73	peak
7	17395.000	28.52	21.38	49.90	74.00	-24.10	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

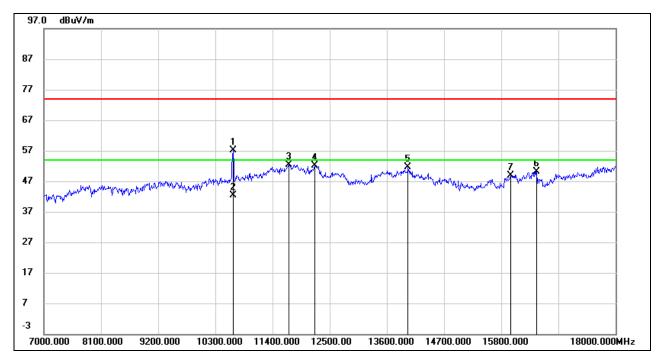
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10641.000	44.56	12.68	57.24	74.00	-16.76	peak
2	10641.000	29.64	12.68	42.32	54.00	-11.68	AVG
3	11708.000	35.63	16.87	52.50	74.00	-21.50	peak
4	12214.000	34.60	17.62	52.22	74.00	-21.78	peak
5	14007.000	30.29	21.42	51.71	74.00	-22.29	peak
6	16482.000	32.27	17.93	50.20	74.00	-23.80	peak
7	15987.000	32.32	16.54	48.86	74.00	-25.14	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

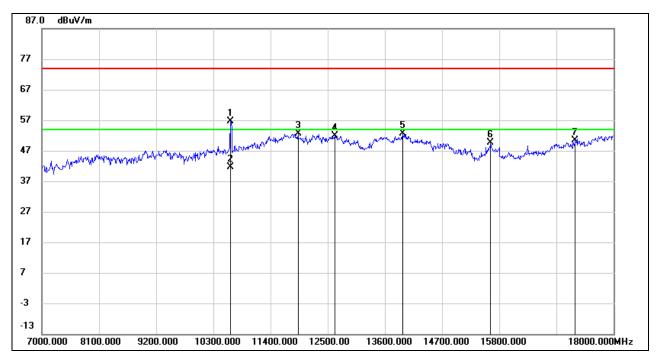
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10630.000	43.94	12.65	56.59	74.00	-17.41	peak
2	10630.000	28.94	12.65	41.59	54.00	-12.41	AVG
3	11928.000	35.35	17.25	52.60	74.00	-21.40	peak
4	12632.000	34.54	17.27	51.81	74.00	-22.19	peak
5	13941.000	31.32	21.30	52.62	74.00	-21.38	peak
6	15635.000	33.18	16.42	49.60	74.00	-24.40	peak
7	17263.000	28.70	21.60	50.30	74.00	-23.70	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. 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.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

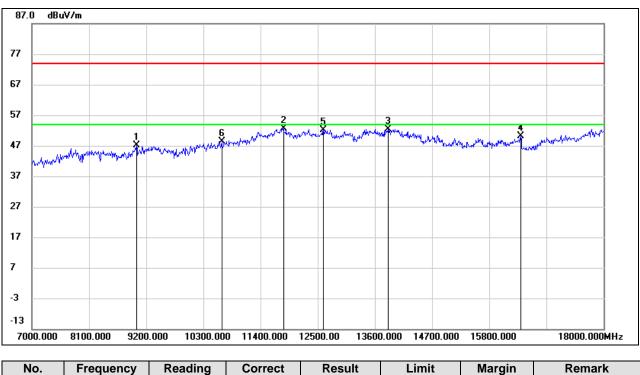
UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



#### UNII-2C BAND

## ANTENNA 1 TEST RESULTS (WORST CASE)

#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9013.000	37.03	10.03	47.06	74.00	-26.94	peak
2	11840.000	35.60	16.99	52.59	74.00	-21.41	peak
3	13853.000	31.32	21.17	52.49	74.00	-21.51	peak
4	16405.000	32.11	17.91	50.02	74.00	-23.98	peak
5	12610.000	34.94	17.29	52.23	74.00	-21.77	peak
6	10652.000	35.66	12.71	48.37	74.00	-25.63	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.

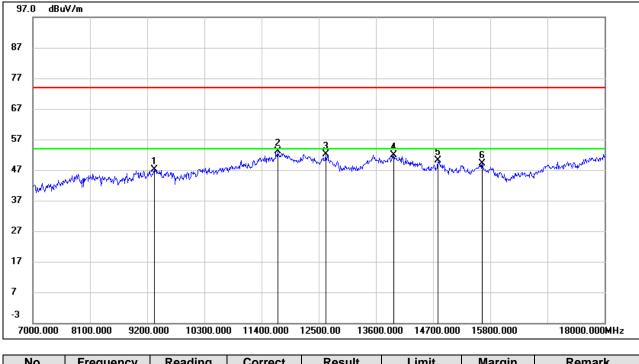
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9332.000	37.33	9.87	47.20	74.00	-26.80	peak
2	11708.000	36.17	16.87	53.04	74.00	-20.96	peak
3	12632.000	34.79	17.27	52.06	74.00	-21.94	peak
4	13941.000	30.57	21.30	51.87	74.00	-22.13	peak
5	14788.000	31.59	18.52	50.11	74.00	-23.89	peak
6	15646.000	32.66	16.42	49.08	74.00	-24.92	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

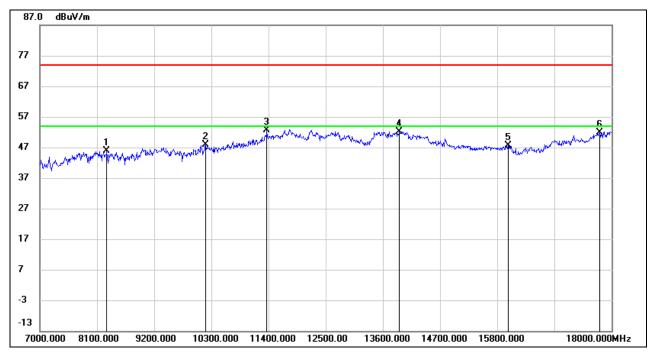
3. Peak: Peak detector.

4. 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8287.000	38.19	7.66	45.85	74.00	-28.15	peak
2	10190.000	36.14	11.65	47.79	74.00	-26.21	peak
3	11367.000	37.17	15.42	52.59	74.00	-21.41	peak
4	13919.000	30.91	21.24	52.15	74.00	-21.85	peak
5	16009.000	31.09	16.57	47.66	74.00	-26.34	peak
6	17769.000	27.74	24.25	51.99	74.00	-22.01	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.

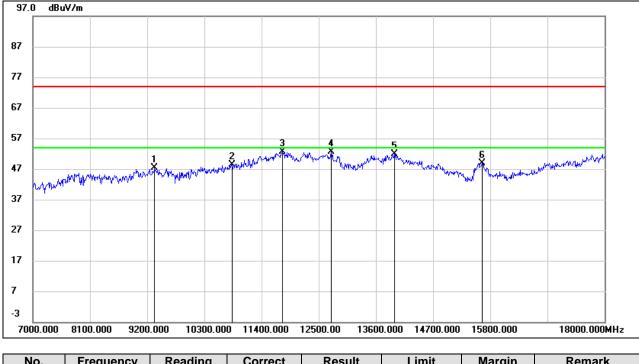
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9343.000	37.35	9.94	47.29	74.00	-26.71	peak
2	10828.000	35.39	13.01	48.40	74.00	-25.60	peak
3	11796.000	35.83	16.85	52.68	74.00	-21.32	peak
4	12742.000	35.20	17.39	52.59	74.00	-21.41	peak
5	13952.000	30.45	21.33	51.78	74.00	-22.22	peak
6	15646.000	32.42	16.42	48.84	74.00	-25.16	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.

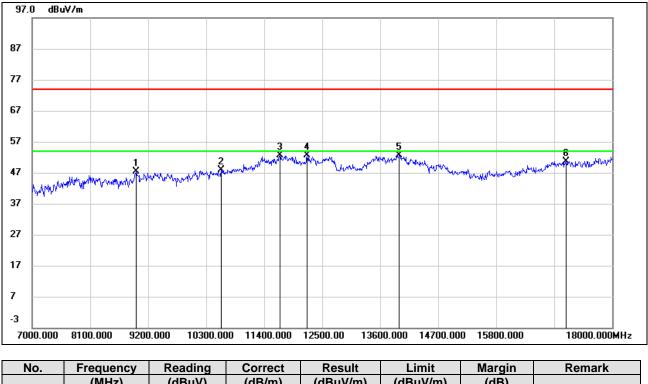
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for 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	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8969.000	37.81	9.54	47.35	74.00	-26.65	peak
2	10586.000	35.46	12.54	48.00	74.00	-26.00	peak
3	11697.000	35.80	16.85	52.65	74.00	-21.35	peak
4	12214.000	35.06	17.62	52.68	74.00	-21.32	peak
5	13963.000	31.29	21.35	52.64	74.00	-21.36	peak
6	17131.000	29.76	20.91	50.67	74.00	-23.33	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

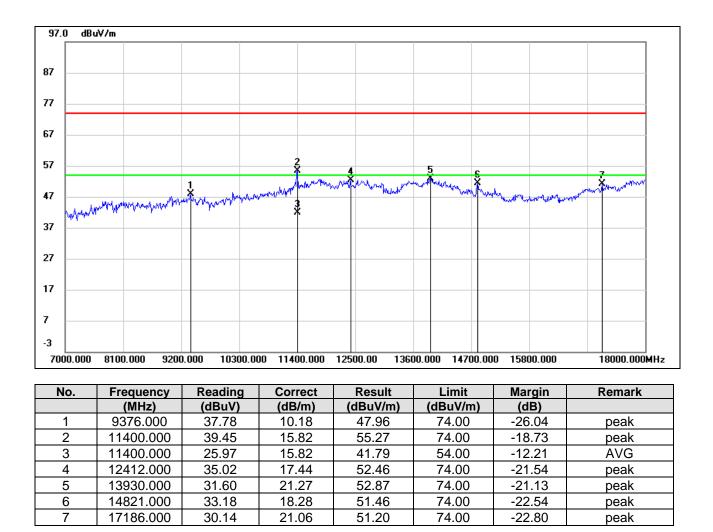
3. Peak: Peak detector.

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)



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 High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

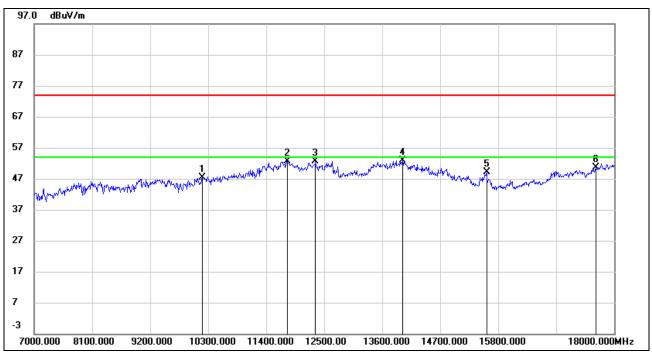
UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



## **STRADDLE CHANNEL 144**

## ANTENNA 1 TEST RESULTS (WORST CASE)

## HARMONICS AND SPURIOUS EMISSIONS (HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10190.000	35.75	11.65	47.40	74.00	-26.60	peak
2	11807.000	35.75	16.88	52.63	74.00	-21.37	peak
3	12335.000	35.08	17.61	52.69	74.00	-21.31	peak
4	13985.000	31.40	21.42	52.82	74.00	-21.18	peak
5	15580.000	32.69	16.32	49.01	74.00	-24.99	peak
6	17648.000	27.54	23.16	50.70	74.00	-23.30	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

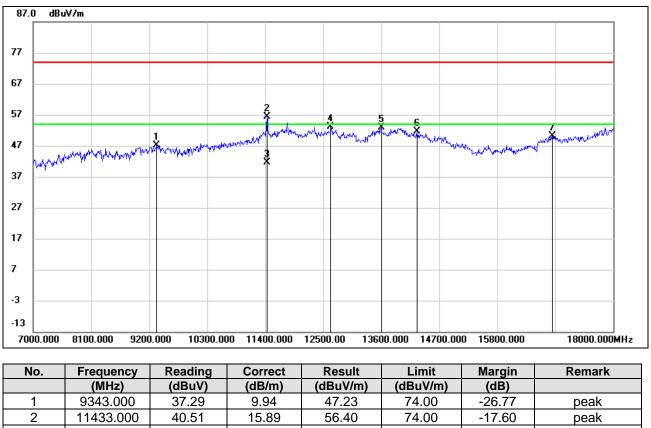
3. Peak: Peak detector.

4. Filter losses were only considered in 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 (VERTICAL)



	9343.000	37.29	9.94	47.23	74.00	-20.77	реак
2	11433.000	40.51	15.89	56.40	74.00	-17.60	peak
3	11433.000	25.81	15.89	41.70	54.00	-12.30	AVG
4	12643.000	35.81	17.26	53.07	74.00	-20.93	peak
5	13600.000	32.56	20.39	52.95	74.00	-21.05	peak
6	14282.000	30.90	20.67	51.57	74.00	-22.43	peak
7	16845.000	30.38	19.67	50.05	74.00	-23.95	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 High Pass Filter losses.

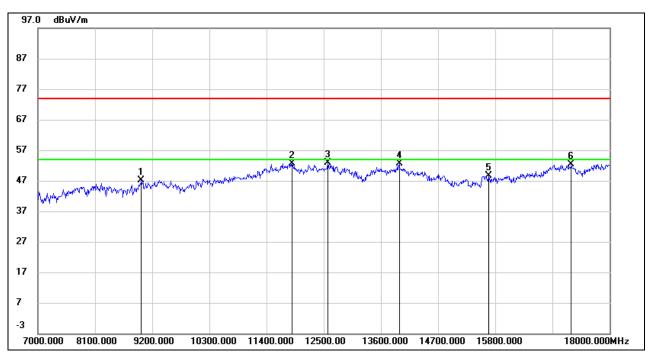
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



UNII-3 BAND

# ANTENNA 1 TEST RESULTS (WORST CASE)

# HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8991.000	37.03	9.99	47.02	74.00	-26.98	peak
2	11895.000	35.55	17.19	52.74	74.00	-21.26	peak
3	12577.000	35.56	17.26	52.82	74.00	-21.18	peak
4	13952.000	31.20	21.33	52.53	74.00	-21.47	peak
5	15668.000	32.33	16.41	48.74	74.00	-25.26	peak
6	17263.000	30.68	21.60	52.28	74.00	-21.72	peak

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. 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.

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.