

# FCC 47 CFR PART 15 SUBPART E

#### **CERTIFICATION TEST REPORT**

For

**UAV Remote Controller** 

**MODEL NUMBER: DHI-UAV-R1S-RH** 

FCC ID: SVNUAV-R1

REPORT NUMBER: 4788322398-4-5

**ISSUE DATE: July 19, 2018** 

# Prepared for

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

# Prepared by

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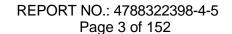


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# **Revision History**

Rev.	Issue Date	Revisions	Revised By
	07/19/2018	Initial Issue	





Summary of Test Results Test Clause Test Items FCC/IC Rules Results 1 6/26db Bandwidth FCC 15.407 (a)&(e) **PASS** Maximum Conducted Output 3 FCC 15.407 (a) **PASS** Power Power Spectral Density FCC 15.407 (a) **PASS** Antenna Conducted Spurious 5 FCC 15.407 (b) **PASS Emission** FCC 15.407 (a) Radiated Bandedge and Spurious 6 FCC 15.209 **PASS** Emission FCC 15.205 Conducted Emission Test For AC 7 FCC 15.207 PASS Power Port 8 Antenna Requirement FCC 15.203 **PASS** 9 Frequency Stability FCC 15.407 (g) PASS



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# 1. ATTESTATION OF TEST RESULTS

**Applicant Information** 

Company Name: Zhejiang Dahua Vision Technology Co., Ltd.

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

**Manufacturer Information** 

Company Name: Zhejiang Dahua Vision Technology Co., Ltd.

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

**Factory Information** 

Company Name: Zhejiang Dahua Vision Technology Co., Ltd.

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

**EUT Name:** UAV Remote Controller

Brand: (a)hua

Model: DHI-UAV-R1S-RH
Serial Model: See chapter 5.1
Sample Received Date: November 20, 2017

**Date of Tested:** April 10, 2018 ~ June 26,2018

APPLICABLE STANDARDS

STANDARD TEST RESULTS

CFR 47 Part 15 Subpart E Pass

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# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 789033 D02 v02r01, KDB 662911 D01 v02r01, and KDB414788 D01 Radiated Test Site v01.

# 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.  IAS (Lab Code: TL-702)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has demonstrated compliance with ISO/IEC Standard 17025:2005,
	General requirements for the competence of testing and calibration laboratories
	FCC (FCC Designation No.: CN1187)
Accreditation	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
Certificate	rules
	IC(Company No.: 21320)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320.
	VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with VCCI, the
	Membership No. is 3793.
	Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004
	Shielding Room B, the VCCI registration No. is C-20019 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
- 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.
- 3. For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OATS.



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# 4. CALIBRATION AND UNCERTAINTY

# 4.1. MEASURING INSTRUMENT CALIBRATION

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

# 4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty	
Uncertainty for Conduction emission test	2.90dB	
Uncertainty for Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	2.2dB	
Uncertainty for Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.52dB	
	5.04dB(1-6GHz)	
Uncertainty for Radiation Emission test (1GHz to 40GHz)( include Fundamental	5.30dB (6GHz-18Gz)	
emission)	5.23dB (18GHz-26Gz)	
Note: This was added to a second and a second a second and a second and a second and a second and a second an	5.64dB (26GHz-40Gz)	

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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# 5. EQUIPMENT UNDER TEST

# 5.1. DESCRIPTION OF EUT

Equipment	UAV Remote Controller			
Product Description	The EUT is a remote controller used for UAV.			
Model Name	DHI-UAV-R1S-RH			
Series Model	R1123,DHI-UAV-R1133,U DH-UAV-R1133,OEM-UAV 11,DHI-UAV-R1S-23,DHI- 23,UAV-R1S-33,DH-UAV- R1S-33-C,OEM-UAV-R1S UAV-R1S-11CH,OEM-UAV- UAV-R1S-11CH-C,DH-UA 11CH,DH-UAV-R1S-S-110 R1S-33CH,UAV-R1S-33C C,DHI-UAV-R1S-S-33CH-C,DH R1S-23CH-C,HI-UAV-R1S	S-RH,OEM-UAV-R1S-RH,DHI-UAV-AV-R1123,UAV-R1123,UAV-R1133,DH-UAV-R1S-UAV-R1S-33,OEM-UAV-R1S-11,UAV-R1S-R1S-11-C,DHI-UAV-R1S-23-C,DHI-UAV-R1S-11-C,UAV-R1S-23-C,UAV-R1S-33-C,DH-V-R1S-11CH,DH-UAV-R1S-11CH-C,OEM-V-R1S-S-11CH,OEM-UAV-R1S-S-11CH-C,DHI-UAV-H,DHI-UAV-R1S-33CH-C,UAV-R1S-S-33CH-UAV-R1S-S-33CH-UAV-R1S-S-33CH-UAV-R1S-S-23CH,UAV-R1S-23CH-C,DHI-UAV-R1S-23CH-C,DHI-UAV-R1S-23CH-C,DHI-UAV-R1S-23CH-C,DHI-UAV-R1S-23CH-C,DHI-UAV-R1S-23CH-C,DHI-UAV-R1S-S-23CH-C,UAV-R1S-S-23CH-C,UAV-R1S-S-23CH-C,UAV-R1S-S-23CH-C,UAV-R1S-S-23CH-C.		
Model Difference	All the same except for the appearance of the different color and graphic pattern.			
Product Description	Operation Frequency 5150 MHz ~ 5250 MHz			
Rated Power Input	100-240V~,50Hz/60Hz,1.5A max			
Battery	7.4V, 7800mAh			

# 5.2. MAXIMUM OUTPUT POWER

Frequency Range (MHz)	IEE Std. 802.11	Frequency (MHz)	Max Power (dBm)	Max EIRP (dBm)
UNII-1	а	5150-5250	13.98	17.60
UNII-1	n(HT20)	5150-5250	13.78	17.40
UNII-1	n(HT40)	5150-5250	11.62	15.24
UNII-1	ac(HT20)	5150-5250	13.52	17.14
UNII-1	ac(HT40)	5150-5250	12.02	15.64
UNII-1	ac(HT80)	5150-5250	11.89	15.51

Note: The EUT only support UNII-1.



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# 5.3. CHANNEL LIST

UNII-1		UNII-1		UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

# 5.4. TEST CHANNEL CONFIGURATION

Pretest Test Mode	Description		
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)		
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)		
Mode 3	TX N40 Mode / CH38, CH46 (UNII-1)		
Mode 4	TX AC20 Mode / CH36, CH40, CH48 (UNII-1)		
Mode 5	TX AC40 Mode / CH38, CH46 (UNII-1)		
Mode 6	TX AC80 Mode / CH42 (UNII-1)		



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# 5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under UNII-1				
Test Software	/			

Band	Mode	Rate	Channel	Setting Parameter
			36	14
UNII-1	11a	6M	40	14
			48	14

Band	Mode	Rate	Channel	Setting Parameter
			36	14
	11n (20M)		40	14
UNII-1		MCS0	48	14
	11n(40M)		38	12
			46	12

Band	Mode	Rate	Channel	Setting Parameter
			36	14
	11ac (20M)	MCCO	40	14
UNII-1			48	14
UNII- I	11ac (40M)	MCS0	38	12
			46	12
	11ac (80M)		42	12



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# 5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
Antenna 1	5150-5250	FPCB Antenna	3.62

IEEE Std. 802.11	Transmit and Receive Mode	Description		
a ⊠1TX, 1RX		Chain 1 can be used as transmitting/receiving antenna.		
n(MCS0-7)	⊠1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.		
ac(MCS0-7)	⊠1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.		

# 5.7. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests					
Relative Humidity	55 ~ 65%					
Atmospheric Pressure:	1025Pa					
Temperature	TN	23 ~ 28°C				
	VL	N/A				
Voltage :	VN	DC 7.4V				
	VH	N/A				

Note: VL= Lower Extreme Test Voltage

VN= Nominal Voltage

VH= Upper Extreme Test Voltage

TN= Normal Temperature



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# 5.8. WORST-CASE CONFIGURATIONS

IEE Std. 802.11	Modulation Technology	Modulation Type	Data Rate (Mbps)	Worst Case (Mbps)
а	OFDM	BPSK, QPSK, 16QAM, 64QAM	54/48/36/24/18/12/9/6	6

802.11n HT20/HT40										
Antenna	MCS	Modulation	HT20 Data	Rate(Mbps)	HT40 Data	Rate(Mbps)	Worst Case			
, uncornia	woo	Modulation	GI=800ns	GI=400ns	GI=800ns	GI=400ns	(Mbps)			
	0	BPSK	6.5	7.2	13.5	15.0	MCS0			
	1	QPSK	13.0	14.2	27.0	30.0	MCS0			
	2	QPSK	19.5	21.7	40.5	45.0	MCS0			
44	3	16-QAM	26.0	28.9	54.0	60.0	MCS0			
1x1	4	16-QAM	39.0	43.3	81.0	90.0	MCS0			
	5	64-QAM	52.0	57.8	108.0	120.0	MCS0			
	6	64-QAM	58.5	65.0	121.5	135.0	MCS0			
	7	64-QAM	65.0	72.2	135.0	150.0	MCS0			

	802.11ac HT20/HT40/HT80										
Antenna	MCS Modulation			ata Rate bps)	HT40 Data Rate (Mbps)		HT80 Data Rate (Mbps)		Worst Case		
			GI=800ns	GI=400ns	GI=800ns	GI=400ns	GI=800ns	GI=400ns	(Mbps)		
	0	BPSK	6.5	7.2	13.5	15	29.3	32.5	MCS0		
	1	QPSK	13	14.4	27	30	58.5	65	MCS0		
	2	QPSK	19.5	21.7	40.5	45	87.8	97.5	MCS0		
	3	16-QAM	26	28.9	54	60	117	130	MCS0		
1x1	4	16-QAM	39	43.3	81	90	175.5	195	MCS0		
IXI	5	64-QAM	52	57.8	108	120	234	260	MCS0		
	6	64-QAM	58.5	65	121.5	135	263.3	292.5	MCS0		
	7	64-QAM	65	72.2	135	150	292.5	325	MCS0		
	8	256-QAM	78	86.7	162	180	351	390	MCS0		
	9	256-QAM	N/A	N/A	180	200	390	433.3	MCS0		



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# 5.9. DESCRIPTION OF TEST SETUP

# **SUPPORT EQUIPMENT**

Item	Equipment	Equipment Brand Name		P/N
1	Laptop	ThinkPad	T460S	SL10K24796 JS
2	USB to Serial board	/	/	/

# **I/O CABLES**

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

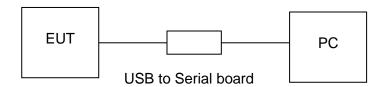
# **ACCESSORY**

Item	Accessory	Brand Name	Model Name	Description
1	LiPo Charger for Drones	(a)hua	ADS-65HI-12N- 1 12048E	AC Input: 100 ~ 240V, 1.5A DC Output: 12V, 4A

# **TEST SETUP**

The EUT can work in engineering mode with the inside software.

# **SETUP DIAGRAM FOR TESTS**





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5.10. MEASURING INSTRUMENT AND SOFTWARE USED

	5.10. MEASURING INSTRUMENT AND SOFTWARE USED									
	Conducted Emissions									
	Instrument									
Used	Equipment	Manufacturer	Мо	del N	0.	Serial No	. Last Cal.	Next Cal.		
V	EMI Test Receiver	R&S	E	SR3		101961	Dec.12,2017	Dec.11,2018		
V	Two-Line V-Network	R&S	EI	NV216	6	101983	Dec.12,2017	Dec.11,2018		
V	Artificial Mains Networks	Schwarzbeck	NSI	_K 812	26	8126465	Dec.12,2017	Dec.11,2018		
			Sof	tware						
Used	Des	cription		ı	Manu	facturer	Name	Version		
V	Test Software for 0	Conducted disturb	ance		Fa	arad	EZ-EMC	Ver. UL-3A1		
		Rad	diated	Emis	sion	s				
			Instr	umen	t					
Used	Equipment	Manufacturer	Мо	del N	0.	Serial No	. Last Cal.	Next Cal.		
V	MXE EMI Receiver	KESIGHT	N:	90384	\	MY56400 36	0 Dec.12,2017	Dec.11,2018		
V	Hybrid Log Periodic Antenna	TDK	HLF	P-3003		130960	Jan.09, 2016	Jan.09, 2019		
V	Preamplifier	HP	8	447D		2944A090 9	Dec.12,2017	Dec.11,2018		
	EMI Measurement Receiver	R&S	Е	SR26		101377	Dec.12,2017	Dec.11,2018		
$\checkmark$	Horn Antenna	TDK	HR	N-011	8	130939	Jan. 09, 2016	Jan. 09, 2019		
V	High Gain Horn Antenna	Schwarzbeck	BBH	HA-91	70	691	Jan.06, 2016	Jan.06, 2019		
V	Preamplifier	TDK	PA-	02-01	18	TRS-305 00066	Dec.12,2017	Dec.11,2018		
V	Preamplifier	TDK	P	A-02-2	2	TRS-307 00003	Dec.12,2017	Dec.11,2018		
V	Loop antenna	Schwarzbeck	1	519B		80000	Mar. 26, 2016	Mar. 25, 2019		
			Sof	tware						
Used	Descr	ription		Manu	ıfactu	ırer	Name	Version		
V	Test Software for R	се	F	arad		EZ-EMC	Ver. UL-3A1			
	Other instruments									
Used	Equipment	Manufacturer	Mode	el No.	S	erial No.	Last Cal.	Next Cal.		
<b>V</b>	Spectrum Analyzer	Keysight	N90			′55410512	Dec.12,2017	Dec.11,2018		
V	Power Meter	Keysight	N19	11A	MY	′55416024	Dec.12,2017	Dec.11,2018		
V	Power Sensor	Keysight	N19	21A	MY	′5110004′	Dec.12,2017	Dec.11,2018		
	i .						1	1		



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# 6. ANTENNA PORT TEST RESULTS

# 6.1. ON TIME AND DUTY CYCLE

# **LIMITS**

None; for reporting purposes only.

# **RESULTS**

# **ANTENNA1**

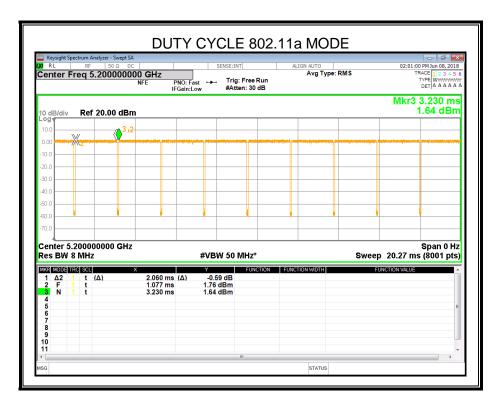
Mode	ON Time (ms)	Period (ms)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (KHz)
11a 1TX	2.0600	2.1530	0.9568	95.68	0.19	0.5
11n HT20	1.9180	2.0120	0.9533	95.33	0.21	1
11n HT40	0.9424	1.0410	0.9053	90.53	0.43	2
11ac HT20	1.9250	2.0190	0.9534	95.34	0.21	1
11ac HT40	0.9449	1.0442	0.9049	90.49	0.43	2
11ac HT80	0.4611	0.5573	0.8274	82.74	0.82	3

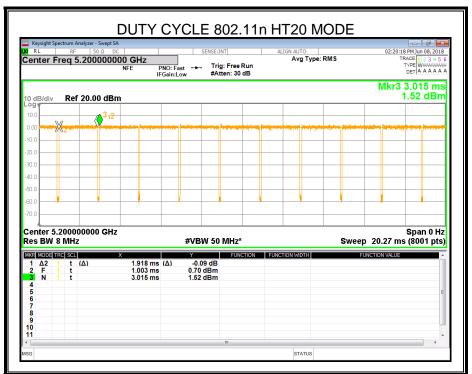
Note: Duty Cycle Correction Factor=10log(1/x).

Where: x is Duty Cycle (Linear)

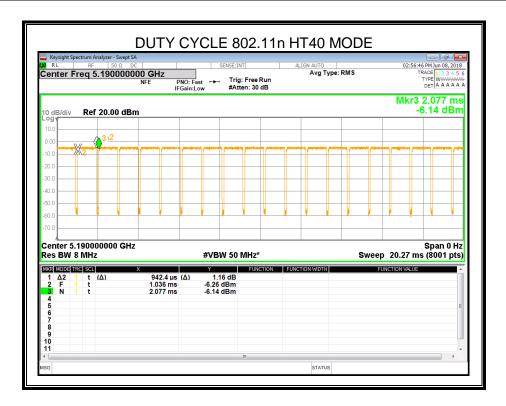
Where: T is On Time (transmit duration)

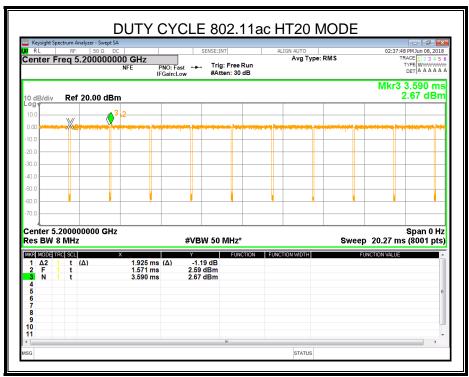




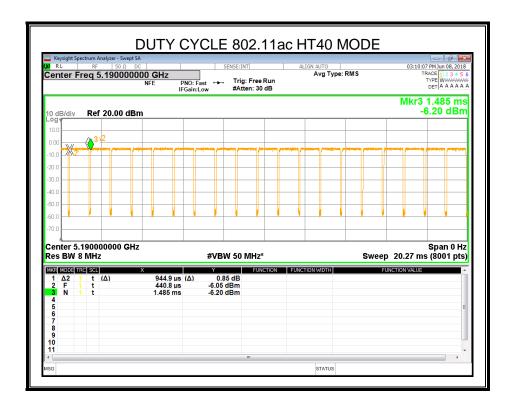


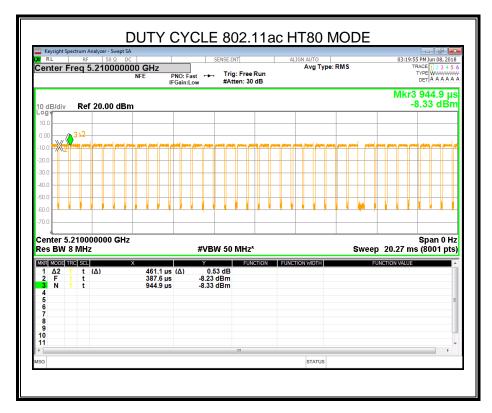














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# 6.2. 26/99% dB BANDWIDTH

# **LIMITS**

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	26 dB Bandwidth	5150-5250

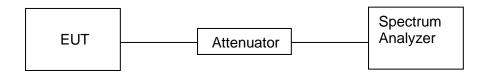
#### **TEST PROCEDUREC**

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

Center Frequency	The center frequency of the channel under test
Detector	Peak
	For 6dB Bandwidth: RBW=100kHz
	For 26dB Bandwidth: approximately 1% of the emission bandwidth.
	For 99dB Bandwidth: approximately 1%~5% of the emission bandwidth.
	For 6dB Bandwidth: VBW=300kHz
VBW	For 26dB Bandwidth: >3RBW
	For 99%dB Bandwidth: >3RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26/99% dB relative to the maximum level measured in the fundamental emission.

# **TEST SETUP**



#### **RESULTS**

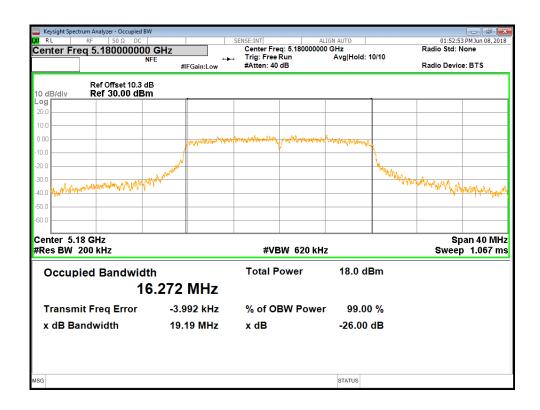


# 6.2.1. 802.11a MODE

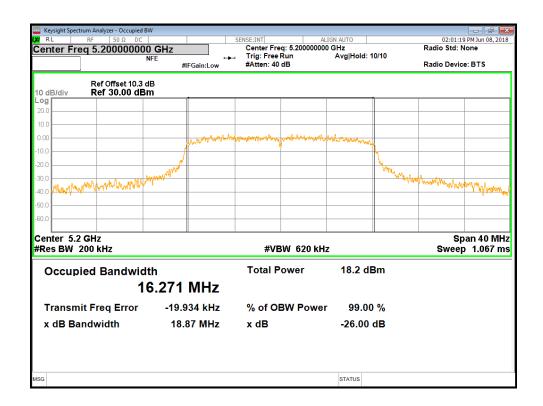
# 6.2.1.1. UNII-1 BAND

Channel	Frequency (MHz)	26 dB BW
Low	5180	19.19
Mid	5200	18.87
High	5240	18.99

Channel	Frequency (MHz)	99% BW
Low	5180	16.272
Mid	5200	16.271
High	5240	16.304





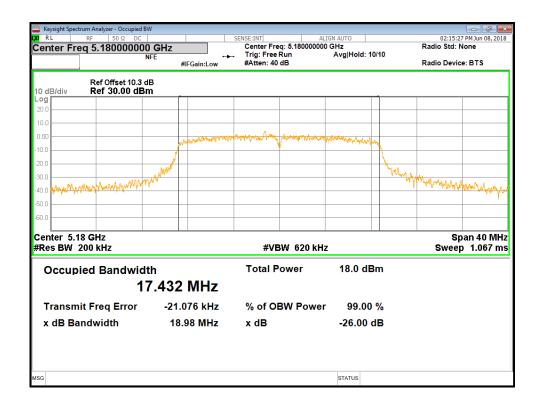




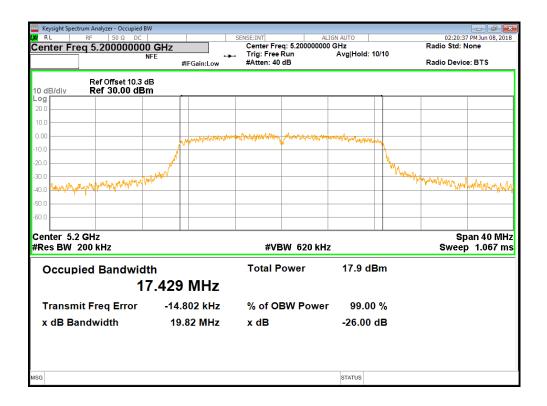
# 6.2.2. 802.11n HT20 MODE 6.2.2.1. UNII-1 BAND

Channel	Frequency (MHz)	26 dB BW
Low	5180	18.98
Mid	5200	19.82
High	5240	19.07

Channel	Frequency (MHz)	99% dB BW
Low	5180	17.432
Mid	5200	17.429
High	5240	17.445









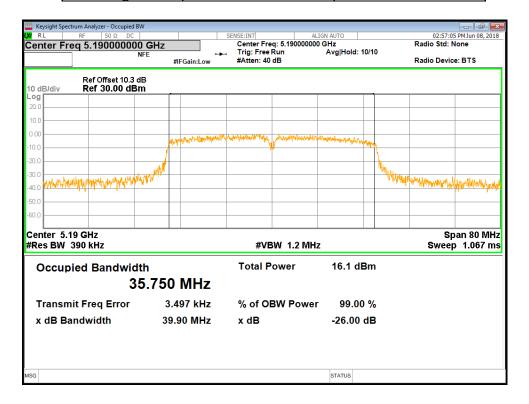


# 6.2.3. 802.11n HT40 MODE

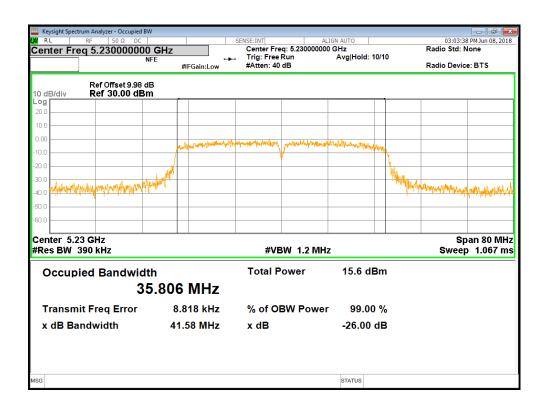
#### 6.2.3.1. UNII-1 BAND

Channel	Frequency (MHz)	26 dB BW
Low	5190	39.90
High	5230	41.58

Channel	Frequency (MHz)	99% dB BW
Low	5190	35.750
High	5230	35.806





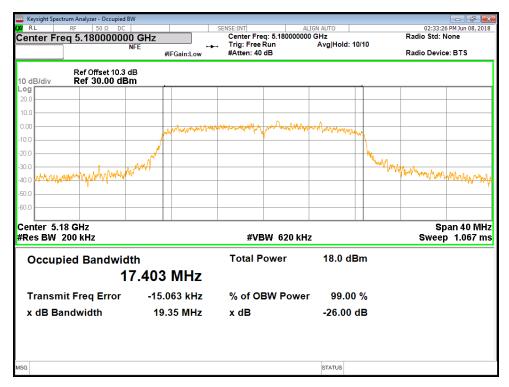


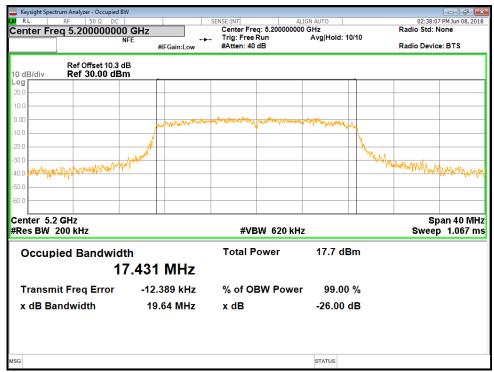
# 6.2.4. 802.11ac HT20 MODE 6.2.4.1. UNII-1 BAND

Channel	Frequency (MHz)	26 dB BW
Low	5180	19.35
Mid	5200	19.64
High	5240	19.95

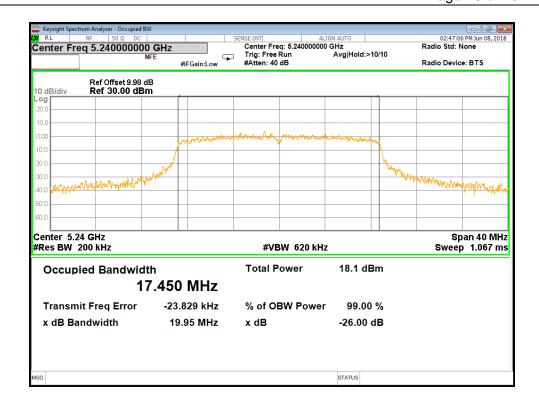
Channel	Frequency (MHz)	99% dB BW
Low	5180	17.403
Mid	5200	17.431
High	5240	17.450









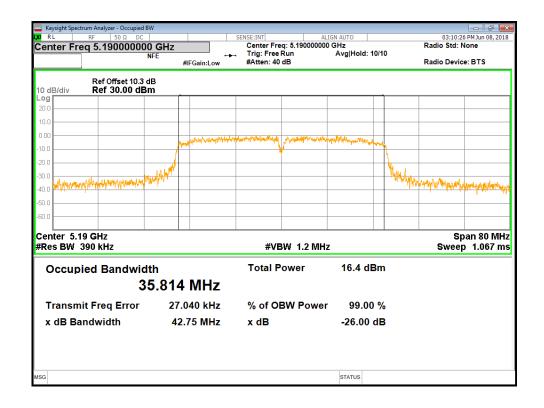




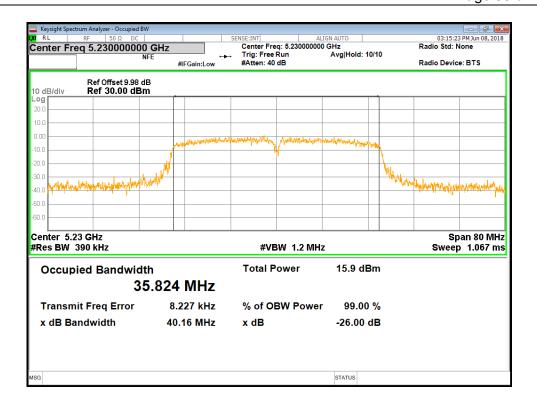
# 6.2.5. 802.11ac HT40 MODE 6.2.5.1. UNII-1 BAND

Channel	Frequency (MHz)	26 dB BW
Low	5190	42.75
High	5230	40.16

Channel	Frequency (MHz)	99% dB BW
Low	5190	35.814
High	5230	35.824





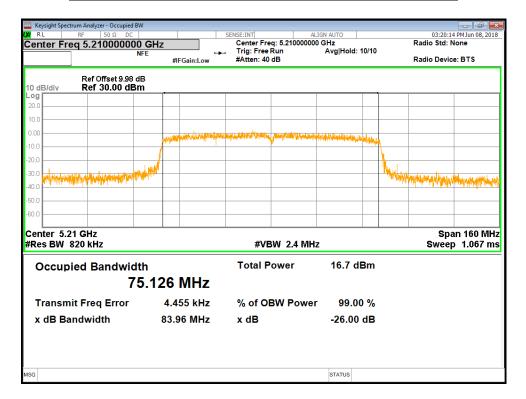




# 6.2.6. 802.11ac HT80 MODE 6.2.6.1. UNII-1 BAND

Channel	Frequency (MHz)	26 dB BW
Low	5210	83.96

Channel	Frequency (MHz)	99% dB BW
Low	5210	75.126



Note: Because 99% OBW for all channels and bandwidths are stays completely within the 5150-5250MHz band, so DFS test is not required.



# 6.3. MAXIMUM CONDUCTED OUTPUT POWER

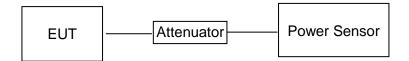
#### **LIMITS**

	FCC Part15, Subpart E					
Test Item	Limit	Frequency Range (MHz)				
Conducted Output Power	FCC client devices :250mW (24dBm)	5150-5250				

#### **TEST PROCEDURE**

Refer to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Connect the EUT to the a broadband peak RF power meter, the power meter shall have a video bandwidth that is greater than or equal to the bandwidth and shall utilize a fast-responding diode detector.

# **TEST SETUP**



# **RESULTS**



# 6.3.1. 802.11a MODE

# 6.3.1.1. UNII-1 BAND

Test	Frequency	ANT	Maximum AVG Con- Power (dE	•	FCC Limit
Channel	(MHz)		Single	Total	(dBm)
Low	5180	1	13.79		
Middle	5200	1	13.98	/	24
High	5240	1	13.59		

# 6.3.2. 802.11n HT20 MODE

# 6.3.2.1. UNII-1 BAND

Test	Frequency	ANT	Maximum AVG Con Power (dE		FCC Limit
Channel	(MHz)		Single	Total	(dBm)
Low	5180	1	13.46		
Middle	5200	1	13.78	/	24
High	5240	1	13.19		

# 6.3.3. 802.11n HT40 MODE

# 6.3.3.1. UNII-1 BAND

Test	Frequency	ANT	Maximum AVG Conducted Output Power (dBm)		FCC Limit
Channel	(MHz)		Single	Total	(dBm)
Low	5190	1	11.62	1	0.4
High	5230	1	11.39	/	24



# 6.3.4. 802.11ac HT20 MODE 6.3.4.1. UNII-1 BAND

Test	Frequency		ANT	Maximum AVG Conducted Output Power (dBm)		FCC Limit
Channel	(MHz)		Single	Total	(dBm)	
Low	5180	1	13.52			
Middle	5200	1	13.48	/	24	
High	5240	1	13.40			

# 6.3.5. 802.11ac HT40 MODE

# 6.3.5.1. UNII-1 BAND

Test Channel	Frequency (MHz)	ANT	Maximum AVG Con- Power (dE	Bm)	FCC Limit
G.1.G.1.1.1.G.1	(1011-12)		Single	Total	(dBm)
Low	5190	1	12.02	,	24
High	5230	1	11.53	/	24

# 6.3.6. 802.11ac HT80 CDD MODE

# 6.3.6.1. UNII-1 BAND

Test	Frequency	ANT	Maximum AVG Con- Power (dE		FCC Limit
Channel	(MHz)		Single	Total	(dBm)
Low	5210	1	11.89	/	24

Note: Because the maximum power is below 500mW, so TPC is not required.



# 6.4. POWER SPECTRAL DENSITY

#### LIMITS

FCC Part15, Subpart E				
Test Item	Limit	Frequency Range (MHz)		
Power Spectral Density	FCC: Other than Mobile and portable:17dBm/MHz Mobile and portable:11dBm/MHz	5150-5250		

# **TEST PROCEDURE**

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

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

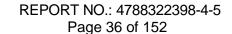
1 of C till 1, C till E talla C till E C balla.		
Center Frequency	The center frequency of the channel under test	
Detector	RMS	
RBW	1MHz	
VBW	≥3 × RBW	
Span	Encompass the entire emissions bandwidth (EBW) of the signal	
Trace	Max hold	
Sweep time	Auto	

#### For U-NII-3:

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

#### Note:

1. For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v01, section II.F.5., it is acceptable to set RBW at 1MHz and VBW at 3MHz if the spectrum analyzer does not have 500kHz RBW.

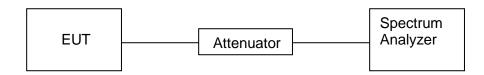




2. The value measured with RBW=1MHz is to be added with 10log(500kHz/1MHz) which is - 3dB. For example, if the measured value is +10dBm using RBW=1MHz (that is +10dBm/MHz), then the converted value will be +7dBm/500kHz.

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

# **TEST SETUP**



#### **RESULTS**



## 6.4.1. 802.11a MODE

## 6.4.1.1. UNII-1 BAND

Test	Frequency		Meas. Level (dBm/MHz)		FCC
Channel	(MHz)	ANT	Single	Total	Limit (dBm/MHz)
Low	5180	1	3.142		
Middle	5200	1	3.343	/	11
High	5240	1	3.208		

Note: 1.PSD=Meas. Level+ Correction Factor











# 6.4.2. 802.11n HT20 MODE 6.4.2.1. UNII-1 BAND

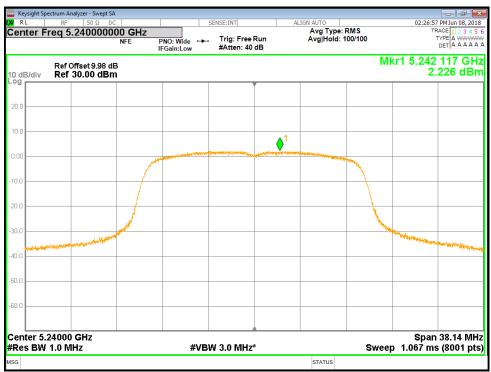
Test	Frequency	ANTEN	Meas. Level (dBm/MHz)		FCC
Channel	(MHz)	NA	Single	Total	Limit (dBm/MHz)
Low	5180	1	2.720	/	
Middle	5200	1	3.375	/	11
High	5240	1	2.436	/	

Note: 1.PSD=Meas. Level+ Correction Factor











## 6.4.3. 802.11n HT40 MODE

# 6.4.3.1. UNII-1 BAND

Test	Frequency	ANTEN	Meas. Level (d	Bm/MHz)	FCC
Channel	(MHz)	NA	Single	Total	Limit (dBm/MHz)
Low	5190	1	-1.780	/	11
High	5230	1	-2.104	/	11

Note: 1.PSD=Meas. Level+ Correction Factor









# 6.4.4. 802.11ac HT20 MODE 6.4.4.1. UNII-1 BAND

Test	Frequency	ANTEN	Meas. Level (dBm/MHz)		FCC
Channel	(MHz)	NA	Single	Total	Limit (dBm/MHz)
Low	5180	1	3.145	/	
Middle	5200	1	2.862	/	11
High	5240	1	3.025	/	

Note: 1.PSD=Meas. Level+ Correction Factor







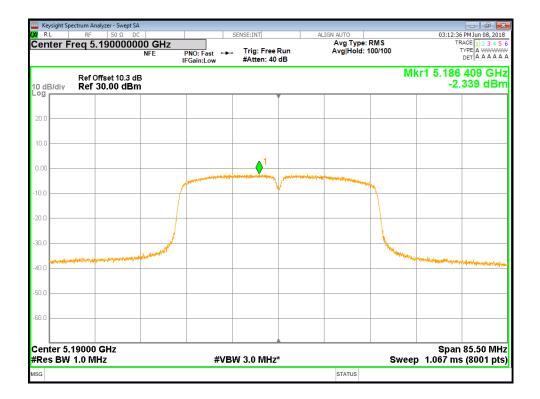




# 6.4.5. 802.11ac HT40 MODE 6.4.5.1. UNII-1 BAND

Test	Frequency	ANTEN	Meas. Level (d	Bm/MHz)	FCC
Channel	(MHz)	NA	Single	Total	Limit (dBm/MHz)
Low	5190	1	-1.909	/	11
High	5230	1	-1.939	/	11

Note: 1.PSD=Meas. Level+ Correction Factor









# 6.4.6. 802.11ac HT80 MODE 6.4.6.1. UNII-1 BAND

Test	Frequency	ANTEN	Meas. Level (d	Bm/MHz)	FCC
Channel	(MHz)	NA	Single	Total	Limit (dBm/MHz)
Low	5210	1	-4.71	/	11

Note: 1.PSD=Meas. Level+ Correction Factor





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## 7. RADIATED TEST RESULTS

#### **LIMITS**

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

Please refer to RSS-GEN Clause 8.9 (Transmitter)

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

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

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.



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

LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1GHz)				
_		Field Strength Limit		
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	(dBuV/m) at 3 m		
		Quasi-Peak		
30 - 88	100	4	10	
88 - 216	150	43	3.5	
216 - 960	200 46		16	
Above 960	500	5	54	
Abovo 1000	500	Peak	Average	
Above 1000	300	74	54	

#### Limits of unwanted emission out of the restricted bands

LIMITS OF RADIATED EMISSION MEASUREMENT ( Above 1GHz)				
Frequency Range		Field Strength Limit		
(MHz) 30 - 88	EIRP Limit	(dBuV/m) at 3 m		
5150~5250 MHz				
5250~5350 MHz	PK:-27 (dBm/MHz)	PK:68.2(dBµV/m)		
5470~5725 MHz				
	PK:-27 (dBm/MHz) *1	PK: 68.2(dBµV/m) *1		
5725~5850 MHz	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:

<sup>\*1</sup> beyond 75 MHz or more above of the band edge.

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

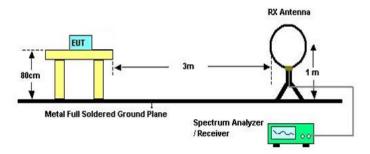
<sup>\*3</sup> below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

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



#### **TEST SETUP AND PROCEDURE**

Below 30MHz



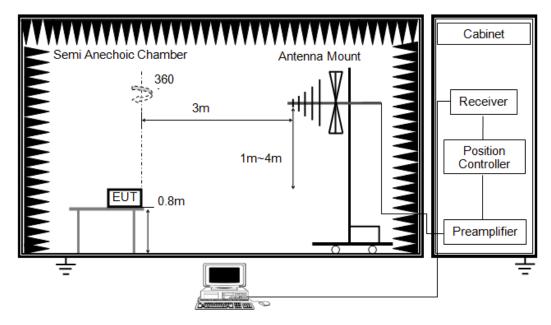
#### The setting of the spectrum analyser

RBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/ Average
Trace	Max hold

- 1. The testing follows the guidelines in ANSI C63.10-2013 and 414788 D01 Radiated Test Site v01.
- 2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 3. The EUT was placed on a turntable with 80cm meter above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. 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 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- 7. Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open are test 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 based on KDB 414788.



#### Below 1G



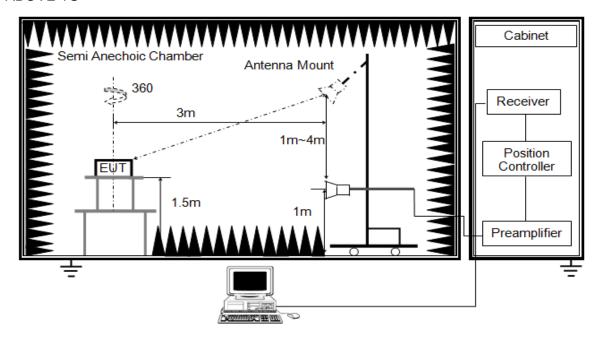
The setting of the spectrum analyser

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

- 1. The testing follows the guidelines in ANSI C63.10-2013.
- 2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 3. The EUT was placed on a turntable with 0.8 meter above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.



#### **ABOVE 1G**



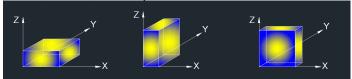
#### The setting of the spectrum analyser

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

- 1. The testing follows the guidelines in ANSI C63.10-2013.
- 2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 3. The EUT was placed on a turntable with 1.5m above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
- 6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector. For the Duty Cycle please refer to clause 6.1.ON TIME AND DUTY CYCLE.



X axis, Y axis, Z axis positions:



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

Note 2: All the EUT's emissions had been evaluated for simultaneous transmission with the other 2.4GHz(2.4G SRD and 2.4G WiFi) and 915MHz transmitter and there were no any additional or worse emissions found.

Note 3: For all radiated measurements, EUT was worked in stand-alone mode but it can simulated the communication between PC and the accessories through software.

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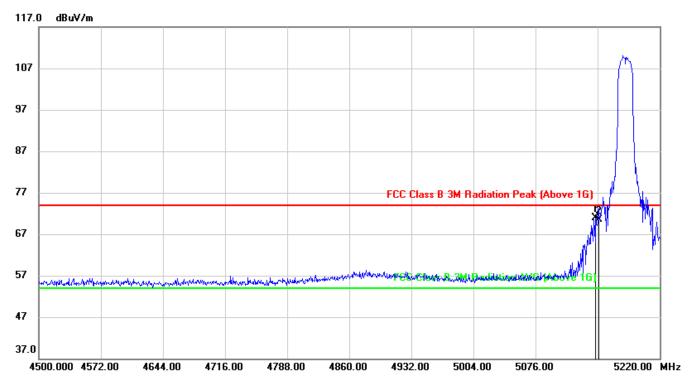


## 7.1.1. UNII-1 BAND

## RESTRICTED BANDEDGE LOW CHANNEL

#### **HORIZONTAL RESULTS**

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

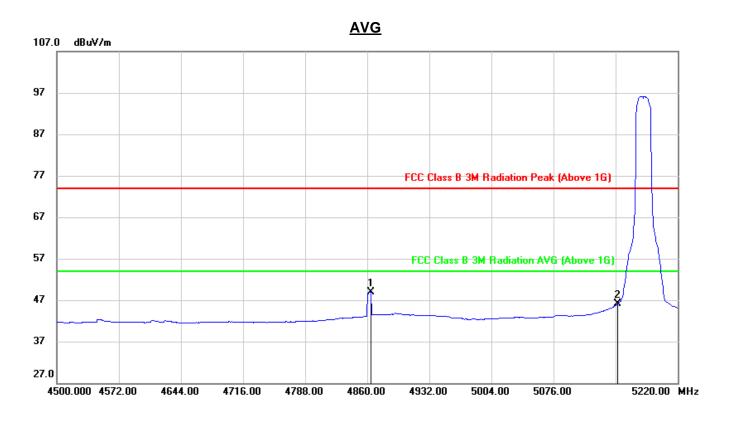


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5145.840	30.44	40.38	70.82	74.00	-3.18	peak
2	5150.000	30.02	40.40	70.42	74.00	-3.58	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.13	39.75	48.88	54.00	-5.12	AVG
2	5150.000	5.70	40.40	46.10	54.00	-7.90	AVG

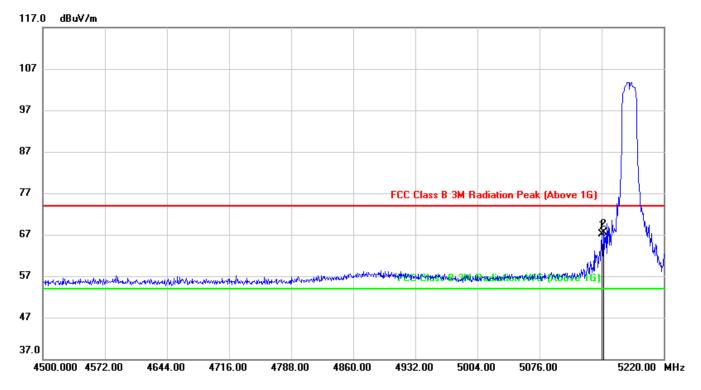
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=0.5K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## VERTICAL RESULTS

# **PEAK**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5148.720	26.46	40.60	67.06	74.00	-6.94	peak
2	5150.000	26.92	40.60	67.52	74.00	-6.48	peak

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

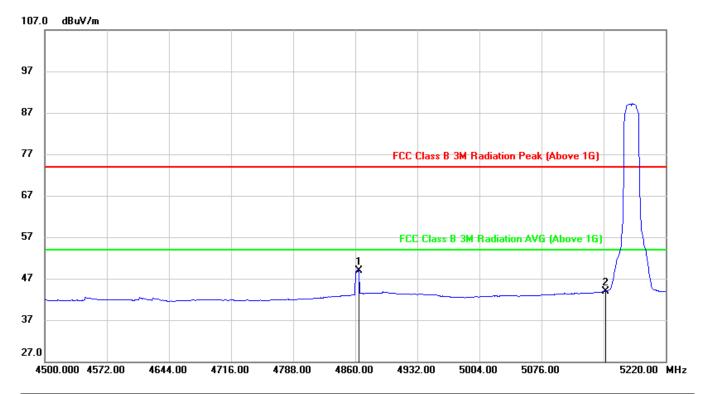
- 2. Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  - 3. Peak: Peak detector.

4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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# <u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.15	39.72	48.87	54.00	-5.13	AVG
2	5150.000	3.39	40.60	43.99	54.00	-10.01	AVG

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

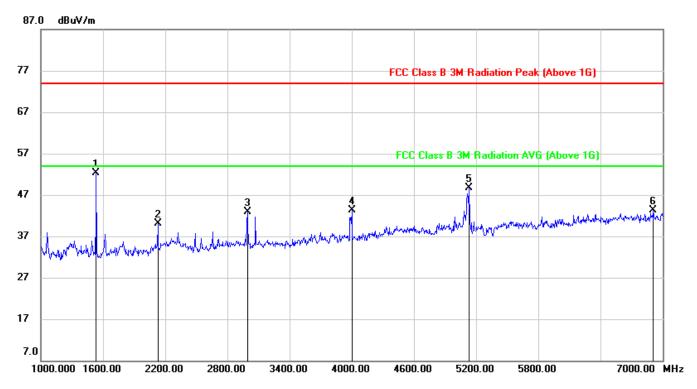
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=0.5K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



# HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

# **HORIZONTAL RESULTS**

## <u>1-7G</u>



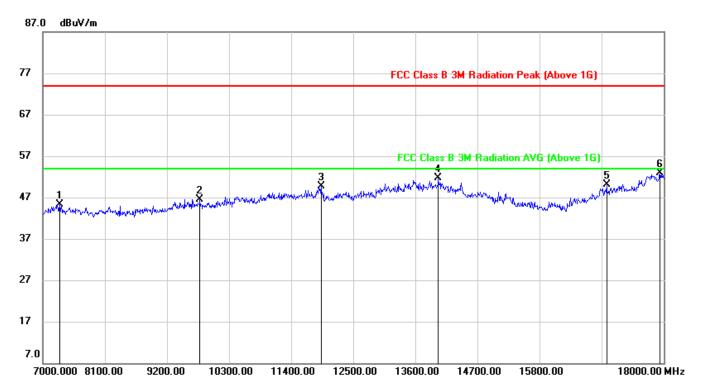
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.14	-12.79	52.35	74.00	-21.65	peak
2	2128.000	50.02	-9.84	40.18	74.00	-33.82	peak
3	2992.000	50.17	-7.29	42.88	74.00	-31.12	peak
4	4000.000	47.81	-4.54	43.27	74.00	-30.73	peak
5	5134.000	49.11	-0.32	48.79	74.00	-25.21	peak
6	6910.000	38.19	5.06	43.25	74.00	-30.75	peak

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

- 2. Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  - 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7297.000	38.76	6.46	45.22	74.00	-28.78	peak
2	9783.000	36.44	10.11	46.55	74.00	-27.45	peak
3	11928.000	34.96	14.80	49.76	74.00	-24.24	peak
4	14007.000	33.17	18.47	51.64	74.00	-22.36	peak
5	16988.000	30.50	19.58	50.08	74.00	-23.92	peak
6	17934.000	28.30	24.54	52.84	74.00	-21.16	peak

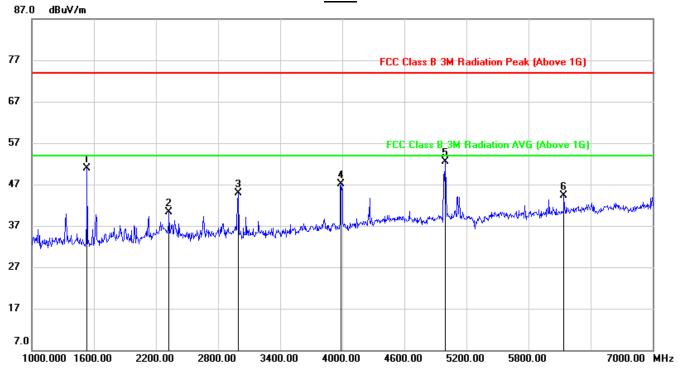
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**





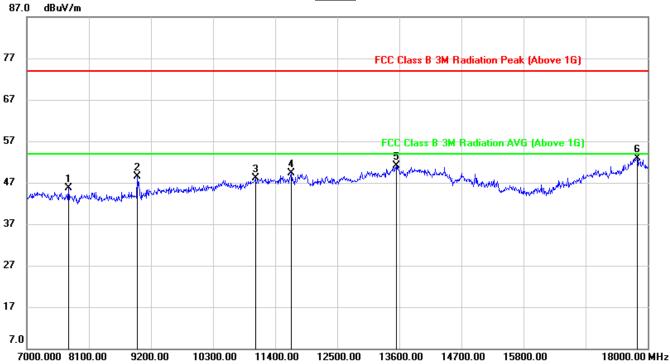
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.64	-12.76	50.88	74.00	-23.12	peak
2	2326.000	48.66	-8.39	40.27	74.00	-33.73	peak
3	2998.000	52.13	-7.29	44.84	74.00	-29.16	peak
4	3988.000	51.58	-4.54	47.04	74.00	-26.96	peak
5	4996.000	53.25	-0.78	52.47	74.00	-21.53	peak
6	6142.000	41.71	2.52	44.23	74.00	-29.77	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7737.000	39.28	6.51	45.79	74.00	-28.21	peak
2	8958.000	40.51	8.00	48.51	74.00	-25.49	peak
3	11048.000	35.24	12.92	48.16	74.00	-25.84	peak
4	11686.000	34.62	14.71	49.33	74.00	-24.67	peak
5	13545.000	32.30	18.86	51.16	74.00	-22.84	peak
6	17813.000	28.53	24.44	52.97	74.00	-21.03	peak

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

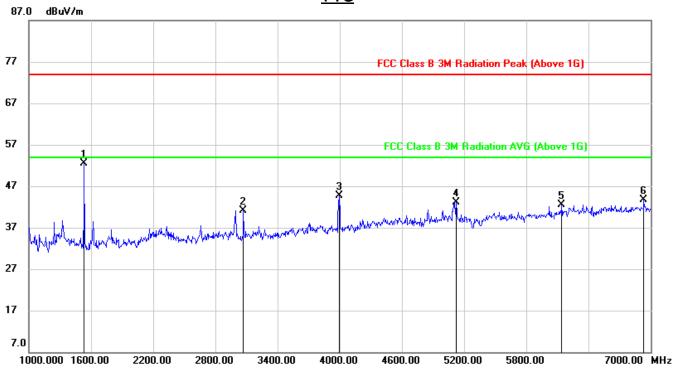
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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# **HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL**

# **HORIZONTAL RESULTS**

## 1-7G



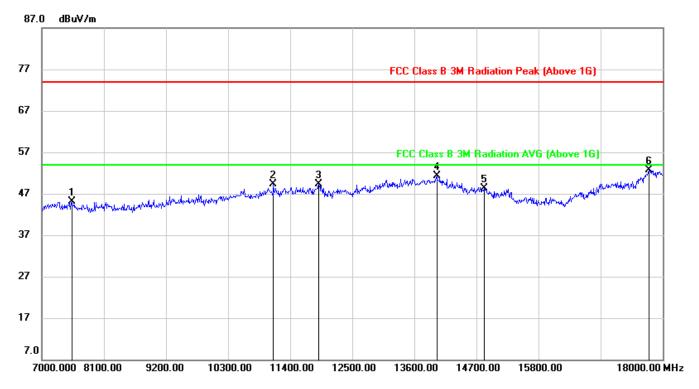
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.25	-12.79	52.46	74.00	-21.54	peak
2	3070.000	48.11	-7.02	41.09	74.00	-32.91	peak
3	3994.000	49.15	-4.54	44.61	74.00	-29.39	peak
4	5122.000	43.53	-0.38	43.15	74.00	-30.85	peak
5	6142.000	40.15	2.41	42.56	74.00	-31.44	peak
6	6934.000	38.53	5.15	43.68	74.00	-30.32	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7528.000	38.33	6.71	45.04	74.00	-28.96	peak
2	11103.000	36.50	12.84	49.34	74.00	-24.66	peak
3	11906.000	34.14	15.16	49.30	74.00	-24.70	peak
4	13996.000	32.79	18.48	51.27	74.00	-22.73	peak
5	14832.000	32.49	15.90	48.39	74.00	-25.61	peak
6	17758.000	29.09	23.68	52.77	74.00	-21.23	peak

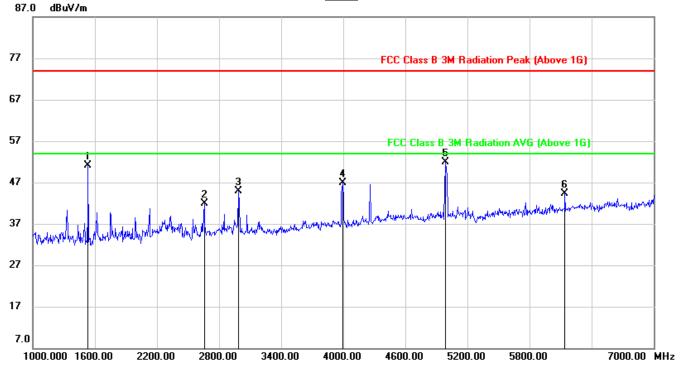
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**





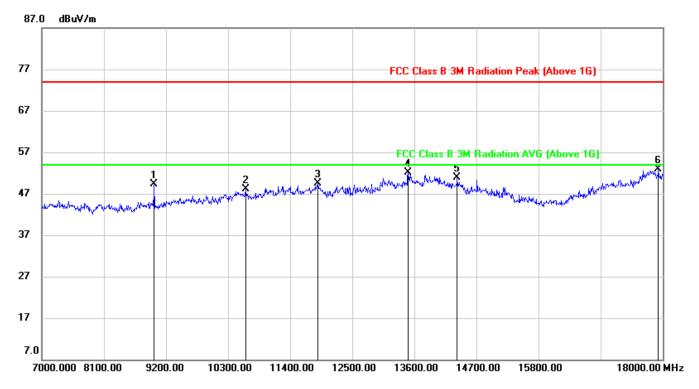
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.88	-12.76	51.12	74.00	-22.88	peak
2	2656.000	50.52	-8.63	41.89	74.00	-32.11	peak
3	2986.000	52.20	-7.29	44.91	74.00	-29.09	peak
4	3994.000	51.50	-4.54	46.96	74.00	-27.04	peak
5	4984.000	52.64	-0.78	51.86	74.00	-22.14	peak
6	6142.000	41.71	2.52	44.23	74.00	-29.77	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8991.000	41.37	7.95	49.32	74.00	-24.68	peak
2	10608.000	36.05	11.98	48.03	74.00	-25.97	peak
3	11884.000	34.73	14.75	49.48	74.00	-24.52	peak
4	13490.000	33.57	18.45	52.02	74.00	-21.98	peak
5	14359.000	32.59	18.25	50.84	74.00	-23.16	peak
6	17923.000	29.02	23.97	52.99	74.00	-21.01	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

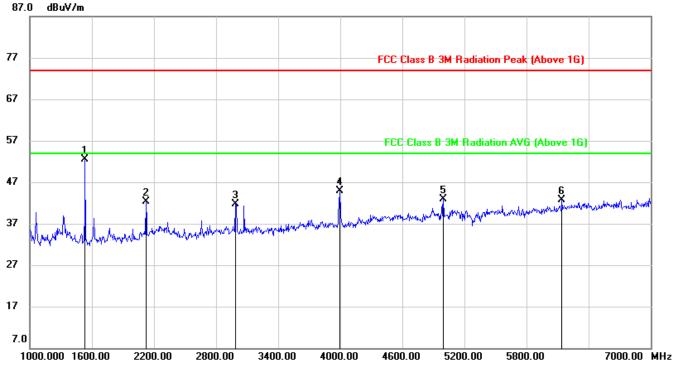
REPORT NO.: 4788322398-4-5

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# HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

# **HORIZONTAL RESULTS**





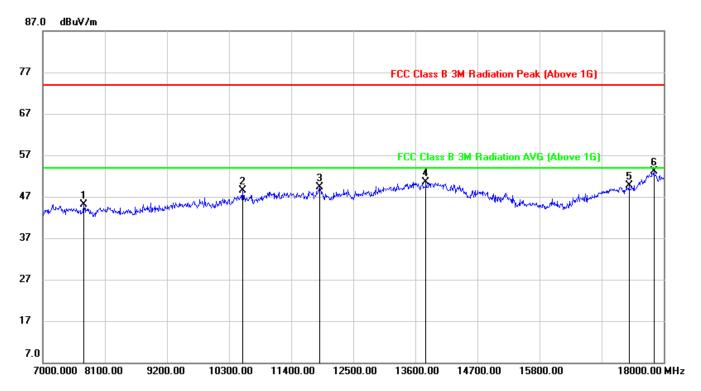
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.21	-12.79	52.42	74.00	-21.58	peak
2	2122.000	52.21	-9.93	42.28	74.00	-31.72	peak
3	2986.000	49.02	-7.29	41.73	74.00	-32.27	peak
4	3994.000	49.46	-4.54	44.92	74.00	-29.08	peak
5	4996.000	43.85	-0.87	42.98	74.00	-31.02	peak
6	6142.000	40.38	2.41	42.79	74.00	-31.21	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7726.000	38.69	6.42	45.11	74.00	-28.89	peak
2	10542.000	36.62	11.97	48.59	74.00	-25.41	peak
3	11906.000	34.07	15.16	49.23	74.00	-24.77	peak
4	13787.000	31.86	18.59	50.45	74.00	-23.55	peak
5	17384.000	28.83	20.79	49.62	74.00	-24.38	peak
6	17824.000	28.86	24.25	53.11	74.00	-20.89	peak

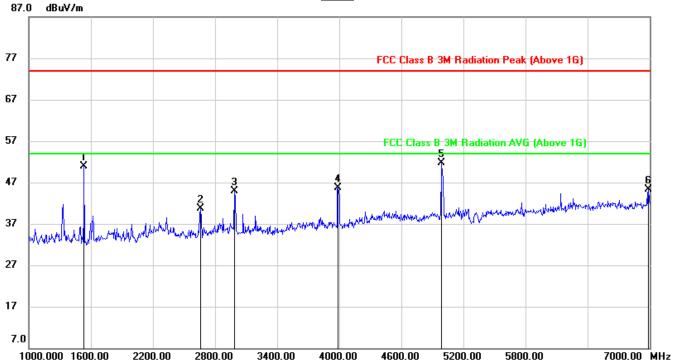
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**





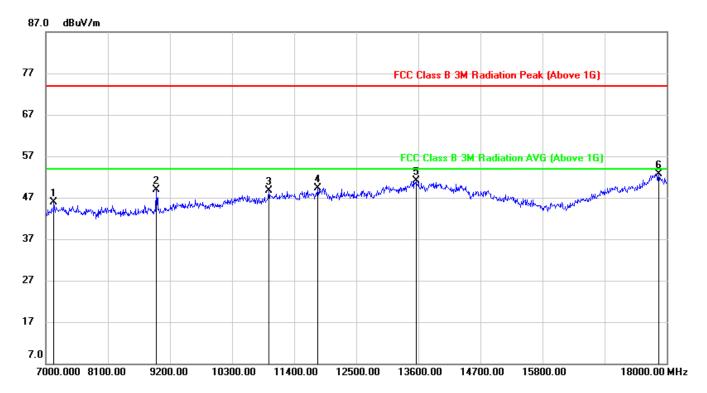
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.60	-12.76	50.84	74.00	-23.16	peak
2	2662.000	49.39	-8.59	40.80	74.00	-33.20	peak
3	2986.000	52.16	-7.29	44.87	74.00	-29.13	peak
4	3988.000	50.27	-4.54	45.73	74.00	-28.27	peak
5	4990.000	52.46	-0.78	51.68	74.00	-22.32	peak
6	6988.000	40.02	5.35	45.37	74.00	-28.63	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7143.000	39.48	6.43	45.91	74.00	-28.09	peak
2	8958.000	40.90	8.00	48.90	74.00	-25.10	peak
3	10949.000	36.10	12.52	48.62	74.00	-25.38	peak
4	11818.000	34.72	14.65	49.37	74.00	-24.63	peak
5	13556.000	32.33	18.84	51.17	74.00	-22.83	peak
6	17857.000	28.77	23.92	52.69	74.00	-21.31	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



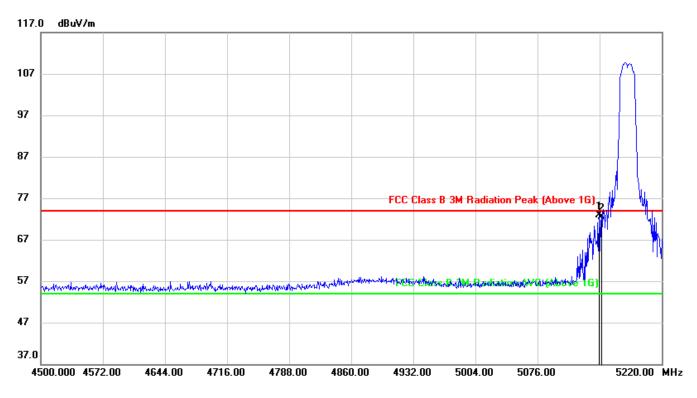
#### 7.1. 802.11n HT20 MODE

## 7.1.1. UNII-1 BAND

## RESTRICTED BANDEDGE LOW CHANNEL

#### **HORIZONTAL RESULTS**

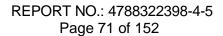
## **PEAK**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5147.280	32.42	40.39	72.81	74.00	-1.19	peak
2	5150.000	32.08	40.40	72.48	74.00	-1.52	peak

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

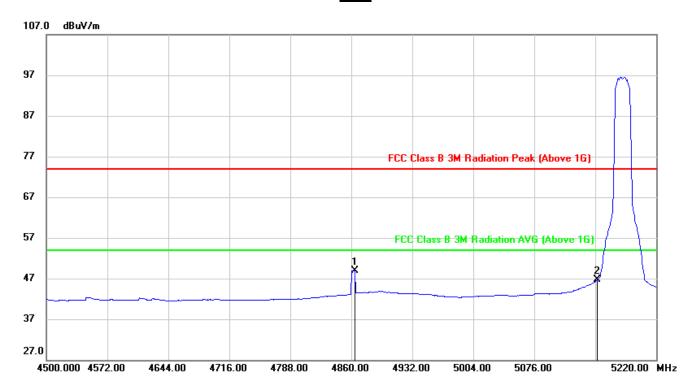
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.







#### **AVG**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.20	39.75	48.95	54.00	-5.05	AVG
2	5150.000	6.32	40.40	46.72	54.00	-7.28	AVG

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

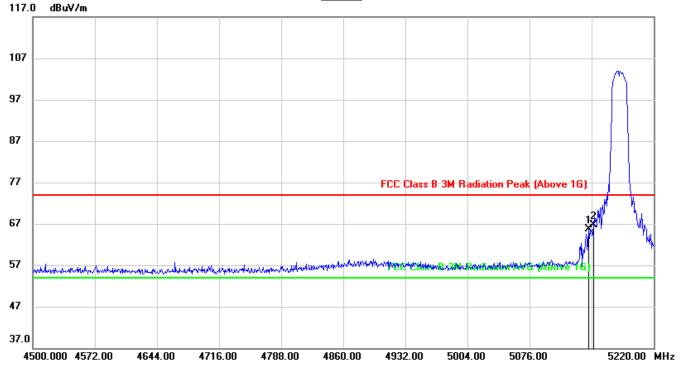
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=1K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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## **VERTICAL RESULTS**

## **PEAK**



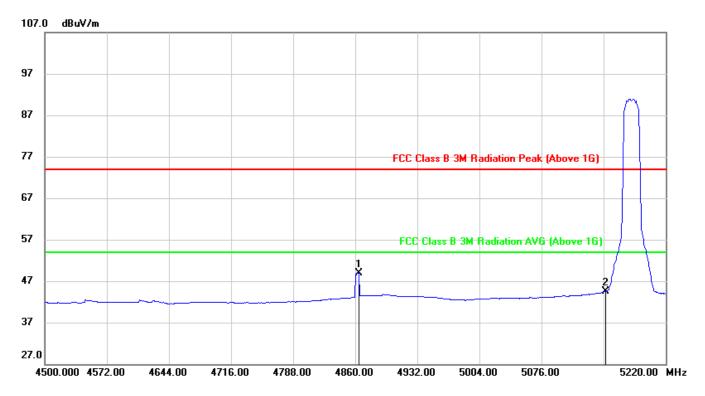
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5144.400	25.15	40.58	65.73	74.00	-8.27	peak
2	5150.000	26.09	40.60	66.69	74.00	-7.31	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.17	39.72	48.89	54.00	-5.11	AVG
2	5150.000	3.94	40.60	44.54	54.00	-9.46	AVG

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

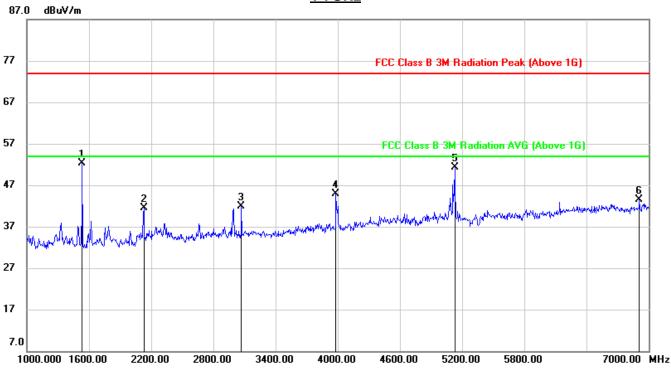
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=1K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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## HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

## **HORIZONTAL RESULTS**

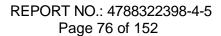
#### 1-7GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.07	-12.79	52.28	74.00	-21.72	peak
2	2128.000	51.29	-9.84	41.45	74.00	-32.55	peak
3	3070.000	48.93	-7.02	41.91	74.00	-32.09	peak
4	3982.000	49.53	-4.54	44.99	74.00	-29.01	peak
5	5128.000	51.72	-0.34	51.38	74.00	-22.62	peak
6	6910.000	38.53	5.06	43.59	74.00	-30.41	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





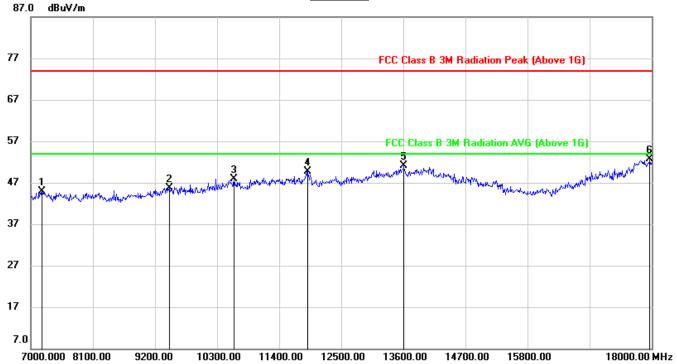
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Ltd, Song Shan Lake Branch.







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7198.000	38.53	6.34	44.87	74.00	-29.13	peak
2	9453.000	36.22	9.49	45.71	74.00	-28.29	peak
3	10597.000	36.12	11.76	47.88	74.00	-26.12	peak
4	11906.000	34.62	15.16	49.78	74.00	-24.22	peak
5	13611.000	32.65	18.50	51.15	74.00	-22.85	peak
6	17967.000	27.86	24.80	52.66	74.00	-21.34	peak

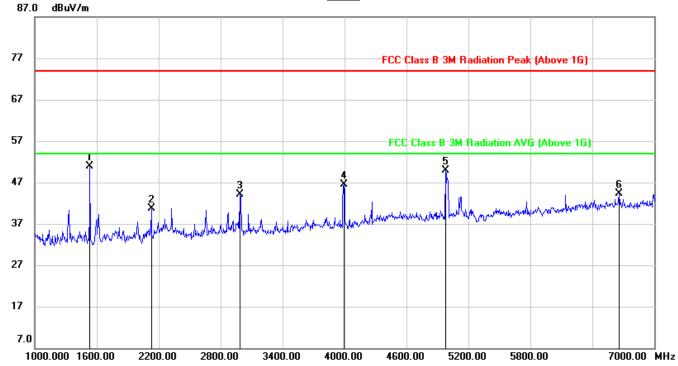
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**



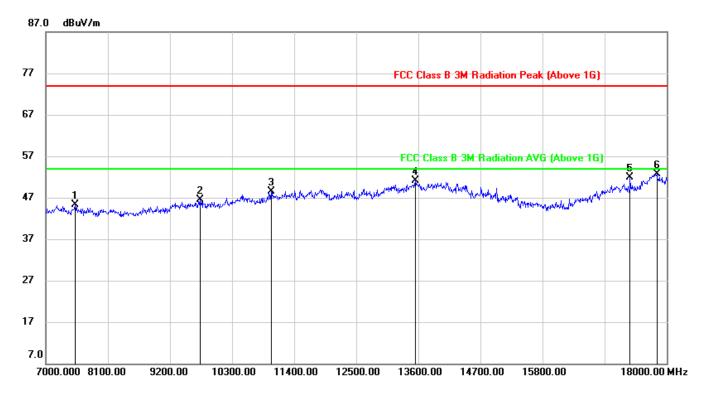


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.73	-12.76	50.97	74.00	-23.03	peak
2	2128.000	50.60	-9.94	40.66	74.00	-33.34	peak
3	2986.000	51.38	-7.29	44.09	74.00	-29.91	peak
4	3994.000	51.01	-4.54	46.47	74.00	-27.53	peak
5	4978.000	50.76	-0.77	49.99	74.00	-24.01	peak
6	6658.000	39.96	4.34	44.30	74.00	-29.70	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7517.000	38.42	6.83	45.25	74.00	-28.75	peak
2	9728.000	36.55	10.00	46.55	74.00	-27.45	peak
3	10993.000	35.65	12.78	48.43	74.00	-25.57	peak
4	13545.000	32.21	18.86	51.07	74.00	-22.93	peak
5	17351.000	30.68	21.16	51.84	74.00	-22.16	peak
6	17824.000	28.52	24.26	52.78	74.00	-21.22	peak

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

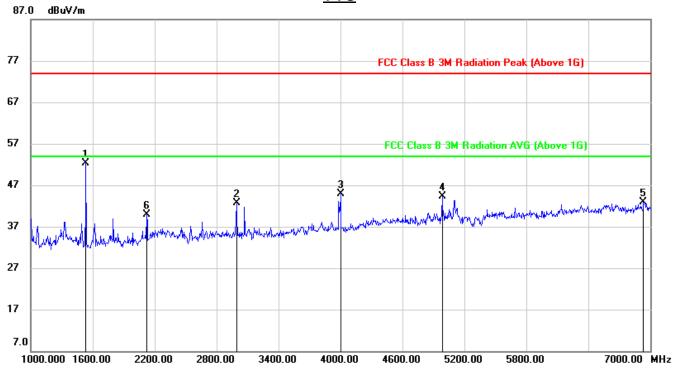
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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## **HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL**

## **HORIZONTAL RESULTS**

1-7G

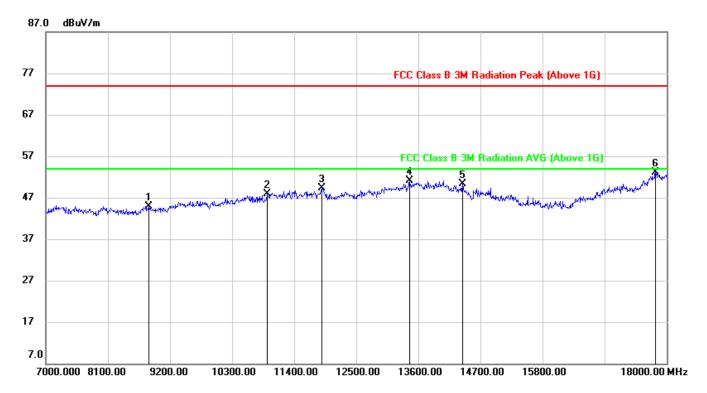


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.19	-12.79	52.40	74.00	-21.60	peak
2	2992.000	49.92	-7.29	42.63	74.00	-31.37	peak
3	4000.000	49.35	-4.54	44.81	74.00	-29.19	peak
4	4984.000	45.06	-0.85	44.21	74.00	-29.79	peak
5	6934.000	37.73	5.15	42.88	74.00	-31.12	peak
6	2122.000	49.84	-9.93	39.91	74.00	-34.09	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8826.000	36.91	8.01	44.92	74.00	-29.08	peak
2	10916.000	35.63	12.27	47.90	74.00	-26.10	peak
3	11884.000	34.45	14.93	49.38	74.00	-24.62	peak
4	13446.000	33.10	18.05	51.15	74.00	-22.85	peak
5	14381.000	32.38	17.91	50.29	74.00	-23.71	peak
6	17802.000	28.95	24.24	53.19	74.00	-20.81	peak

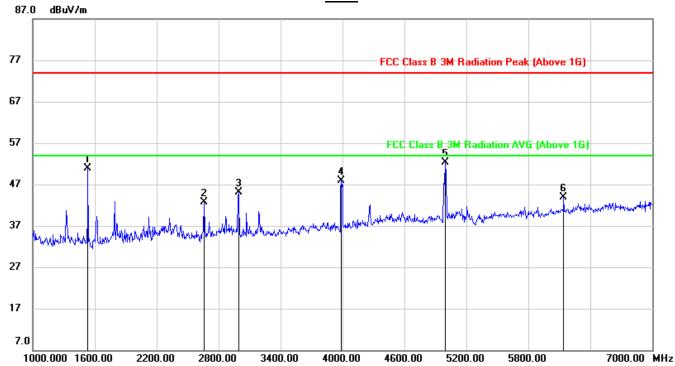
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**



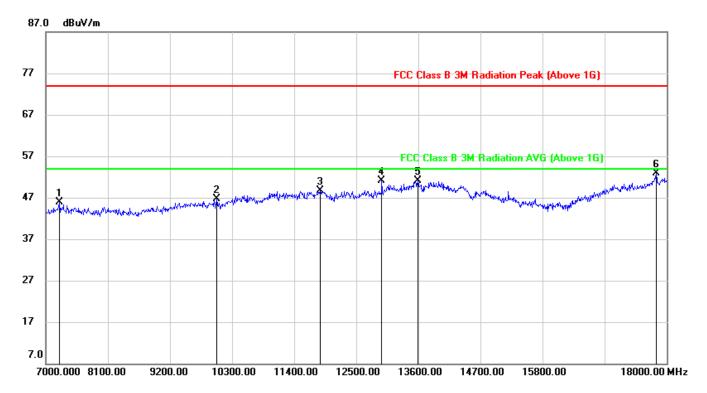


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.58	-12.76	50.82	74.00	-23.18	peak
2	2656.000	51.30	-8.63	42.67	74.00	-31.33	peak
3	2992.000	52.32	-7.29	45.03	74.00	-28.97	peak
4	3988.000	52.35	-4.54	47.81	74.00	-26.19	peak
5	4996.000	53.00	-0.78	52.22	74.00	-21.78	peak
6	6142.000	41.40	2.52	43.92	74.00	-30.08	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7242.000	39.52	6.36	45.88	74.00	-28.12	peak
2	10025.000	36.15	10.48	46.63	74.00	-27.37	peak
3	11862.000	34.06	14.73	48.79	74.00	-25.21	peak
4	12951.000	34.40	16.61	51.01	74.00	-22.99	peak
5	13589.000	32.70	18.46	51.16	74.00	-22.84	peak
6	17813.000	28.50	24.44	52.94	74.00	-21.06	peak

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

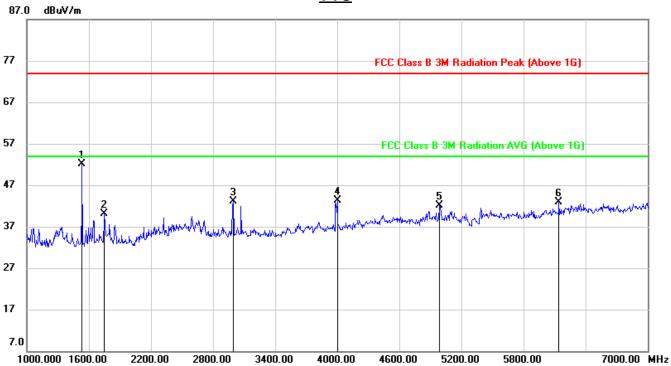
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

## **HORIZONTAL RESULTS**

#### 1-7G

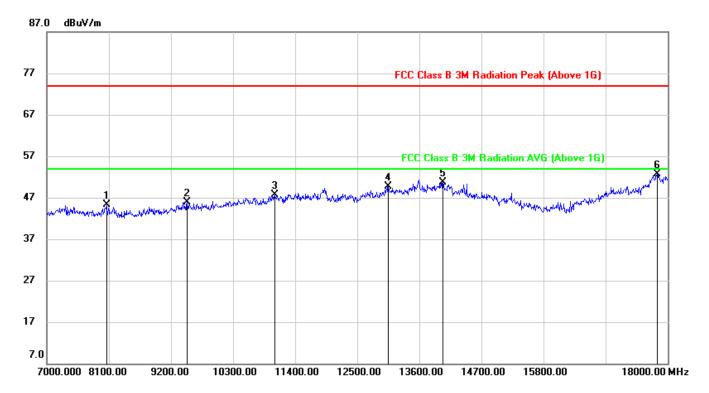


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	64.92	-12.79	52.13	74.00	-21.87	peak
2	1750.000	52.07	-11.89	40.18	74.00	-33.82	peak
3	2998.000	50.48	-7.29	43.19	74.00	-30.81	peak
4	4000.000	47.79	-4.54	43.25	74.00	-30.75	peak
5	4984.000	42.98	-0.85	42.13	74.00	-31.87	peak
6	6142.000	40.50	2.41	42.91	74.00	-31.09	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8056.000	38.44	6.79	45.23	74.00	-28.77	peak
2	9486.000	36.34	9.64	45.98	74.00	-28.02	peak
3	11037.000	35.00	12.78	47.78	74.00	-26.22	peak
4	13050.000	33.26	16.46	49.72	74.00	-24.28	peak
5	14018.000	32.15	18.47	50.62	74.00	-23.38	peak
6	17813.000	28.37	24.25	52.62	74.00	-21.38	peak

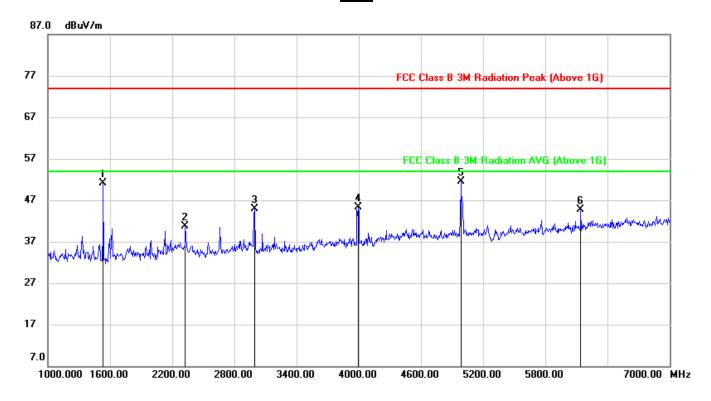
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**

#### 1-7G

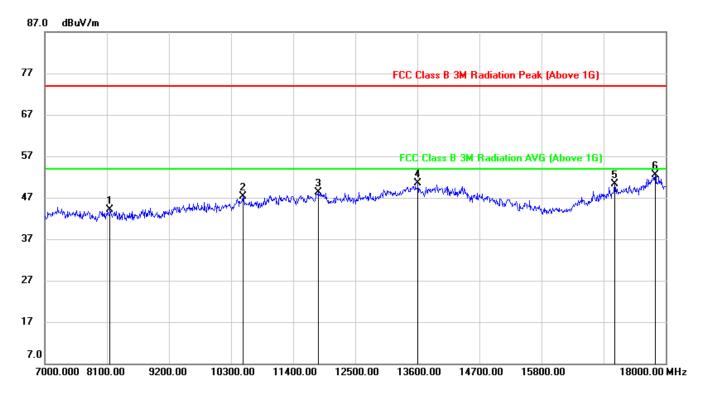


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.80	-12.76	51.04	74.00	-22.96	peak
2	2326.000	49.06	-8.39	40.67	74.00	-33.33	peak
3	2992.000	52.19	-7.29	44.90	74.00	-29.10	peak
4	3994.000	49.81	-4.54	45.27	74.00	-28.73	peak
5	4984.000	52.27	-0.78	51.49	74.00	-22.51	peak
6	6142.000	42.09	2.52	44.61	74.00	-29.39	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8155.000	37.02	7.00	44.02	74.00	-29.98	peak
2	10509.000	35.34	11.99	47.33	74.00	-26.67	peak
3	11840.000	33.53	14.70	48.23	74.00	-25.77	peak
4	13611.000	32.11	18.41	50.52	74.00	-23.48	peak
5	17098.000	29.70	20.65	50.35	74.00	-23.65	peak
6	17813.000	28.05	24.44	52.49	74.00	-21.51	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



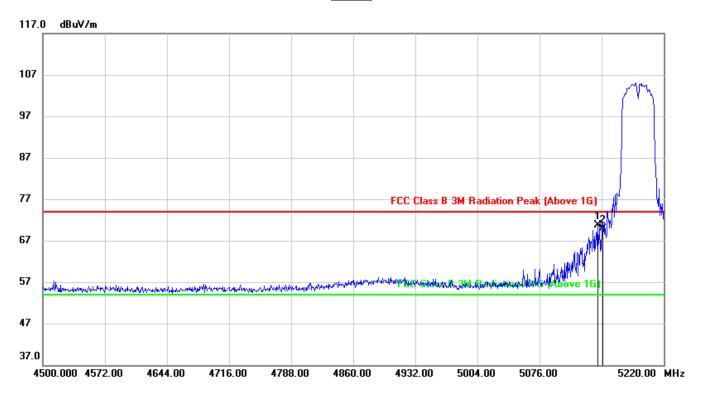
## 7.2. 802.11n HT40 MODE

## 7.2.1. UNII-1 BAND

## RESTRICTED BANDEDGE LOW CHANNEL

## **HORIZONTAL RESULTS**

## <u>PEAK</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5143.680	30.32	40.38	70.70	74.00	-3.30	peak
2	5150.000	29.60	40.40	70.00	74.00	-4.00	peak

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

Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

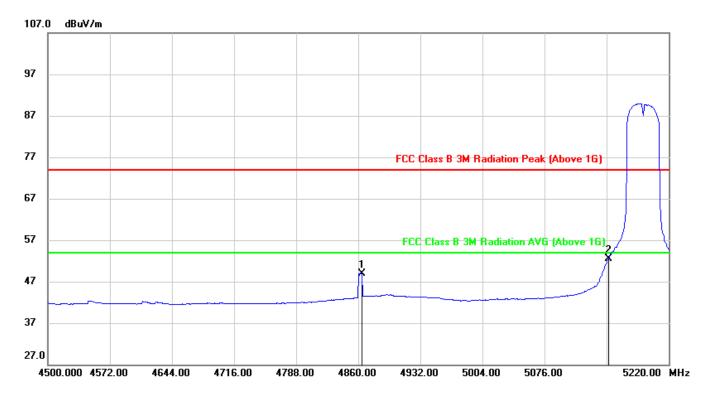


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4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **AVG**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.19	39.75	48.94	54.00	-5.06	AVG
2	5150.000	12.17	40.40	52.57	54.00	-1.43	AVG

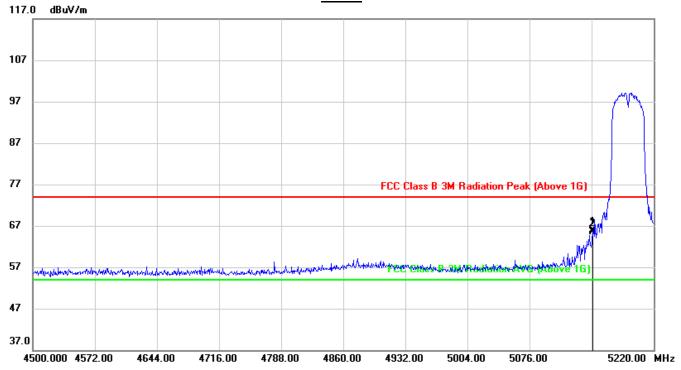
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=2K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**

## **PEAK**



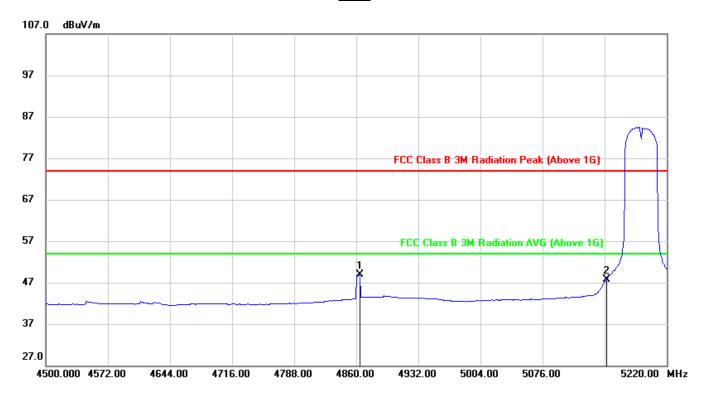
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5149.440	25.33	40.60	65.93	74.00	-8.07	peak
2	5150.000	24.98	40.60	65.58	74.00	-8.42	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **AVG**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.14	39.72	48.86	54.00	-5.14	AVG
2	5150.000	7.19	40.60	47.79	54.00	-6.21	AVG

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

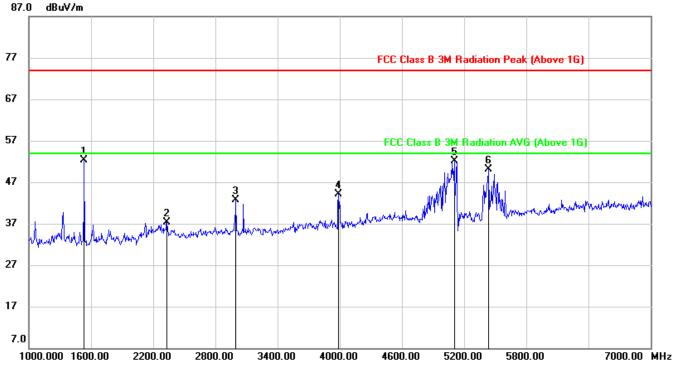
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=2K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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# HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

## **HORIZONTAL RESULTS**



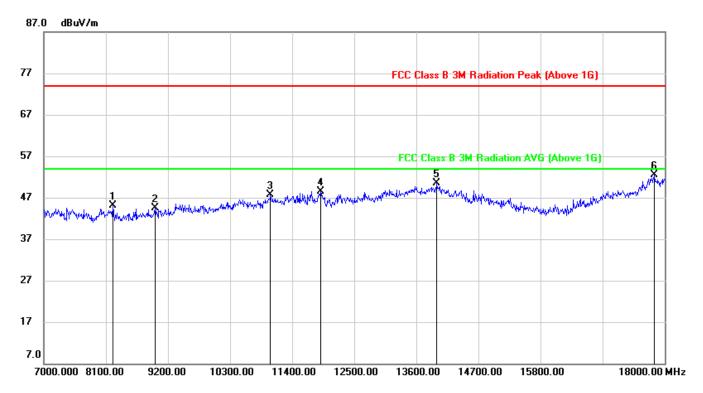


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.11	-12.79	52.32	74.00	-21.68	peak
2	2332.000	45.97	-8.57	37.40	74.00	-36.60	peak
3	2998.000	49.90	-7.29	42.61	74.00	-31.39	peak
4	3988.000	48.71	-4.54	44.17	74.00	-29.83	peak
5	5104.000	52.60	-0.47	52.13	74.00	-21.87	peak
6	5434.000	49.58	0.56	50.14	74.00	-23.86	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8221.000	38.03	7.10	45.13	74.00	-28.87	peak
2	8969.000	36.62	7.98	44.60	74.00	-29.40	peak
3	11015.000	34.81	12.87	47.68	74.00	-26.32	peak
4	11906.000	33.36	15.16	48.52	74.00	-25.48	peak
5	13963.000	31.96	18.53	50.49	74.00	-23.51	peak
6	17813.000	28.26	24.25	52.51	74.00	-21.49	peak

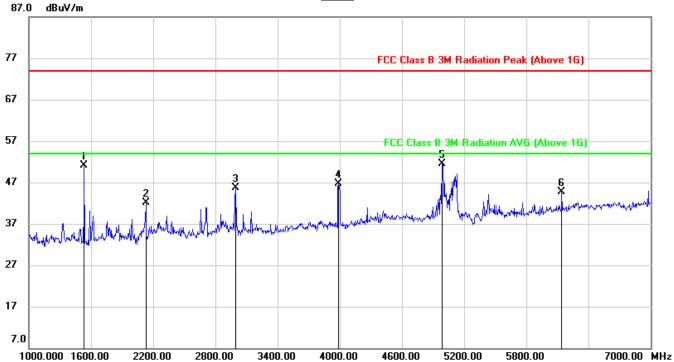
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**



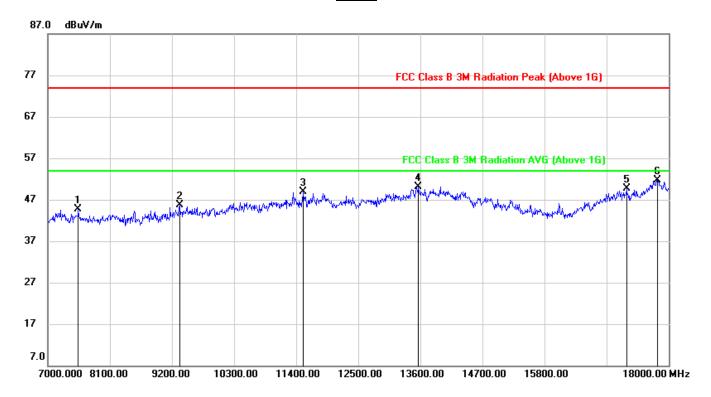


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.77	-12.76	51.01	74.00	-22.99	peak
2	2128.000	51.97	-9.94	42.03	74.00	-31.97	peak
3	2998.000	52.99	-7.29	45.70	74.00	-28.30	peak
4	3988.000	51.20	-4.54	46.66	74.00	-27.34	peak
5	4984.000	52.33	-0.78	51.55	74.00	-22.45	peak
6	6142.000	42.11	2.52	44.63	74.00	-29.37	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7539.000	37.82	6.79	44.61	74.00	-29.39	peak
2	9332.000	36.25	9.40	45.65	74.00	-28.35	peak
3	11521.000	34.77	14.14	48.91	74.00	-25.09	peak
4	13567.000	31.34	18.71	50.05	74.00	-23.95	peak
5	17252.000	28.62	21.00	49.62	74.00	-24.38	peak
6	17802.000	27.18	24.61	51.79	74.00	-22.21	peak

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

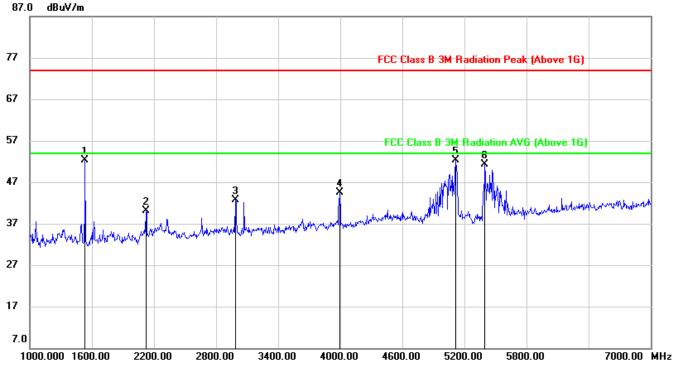
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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#### HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

## **HORIZONTAL RESULTS**



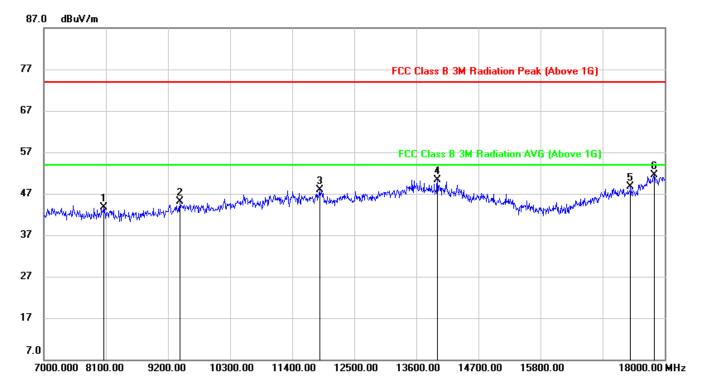


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.07	-12.79	52.28	74.00	-21.72	peak
2	2122.000	50.01	-9.93	40.08	74.00	-33.92	peak
3	2986.000	49.97	-7.29	42.68	74.00	-31.32	peak
4	3994.000	49.03	-4.54	44.49	74.00	-29.51	peak
5	5116.000	52.72	-0.41	52.31	74.00	-21.69	peak
6	5398.000	51.09	0.30	51.39	74.00	-22.61	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8056.000	37.01	6.79	43.80	74.00	-30.20	peak
2	9409.000	35.60	9.53	45.13	74.00	-28.87	peak
3	11895.000	32.77	15.15	47.92	74.00	-26.08	peak
4	13974.000	31.77	18.51	50.28	74.00	-23.72	peak
5	17395.000	27.86	20.80	48.66	74.00	-25.34	peak
6	17813.000	27.22	24.25	51.47	74.00	-22.53	peak

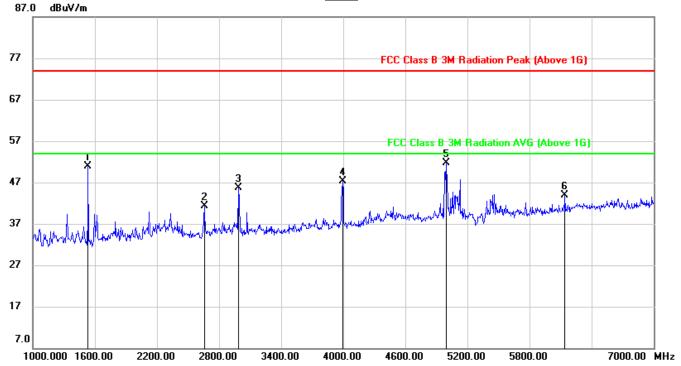
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



## **VERTICAL RESULTS**





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.57	-12.76	50.81	74.00	-23.19	peak
2	2656.000	49.99	-8.63	41.36	74.00	-32.64	peak
3	2986.000	53.00	-7.29	45.71	74.00	-28.29	peak
4	3994.000	51.93	-4.54	47.39	74.00	-26.61	peak
5	4996.000	52.51	-0.78	51.73	74.00	-22.27	peak
6	6142.000	41.47	2.52	43.99	74.00	-30.01	peak

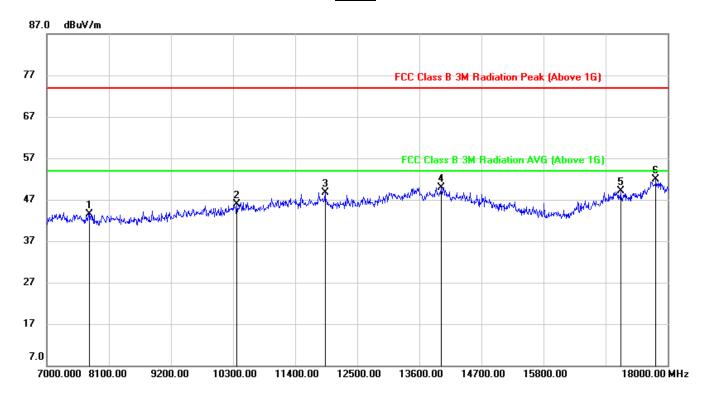
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7748.000	36.99	6.55	43.54	74.00	-30.46	peak
2	10366.000	34.57	11.27	45.84	74.00	-28.16	peak
3	11928.000	33.97	14.75	48.72	74.00	-25.28	peak
4	13985.000	31.40	18.60	50.00	74.00	-24.00	peak
5	17164.000	28.47	20.68	49.15	74.00	-24.85	peak
6	17791.000	27.29	24.52	51.81	74.00	-22.19	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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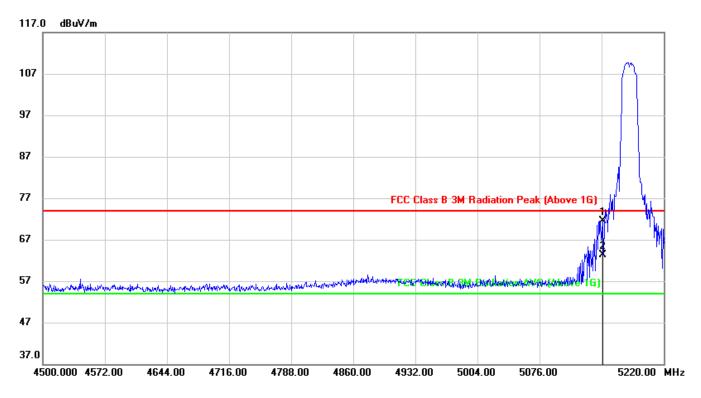
## 7.3. 802.11ac HT20 MODE

## 7.3.1. UNII-1 BAND

# RESTRICTED BANDEDGE LOW CHANNEL

#### **HORIZONTAL RESULTS**

## **PEAK**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5149.440	31.15	40.40	71.55	74.00	-2.45	peak
2	5150.000	22.85	40.40	63.25	74.00	-10.75	peak

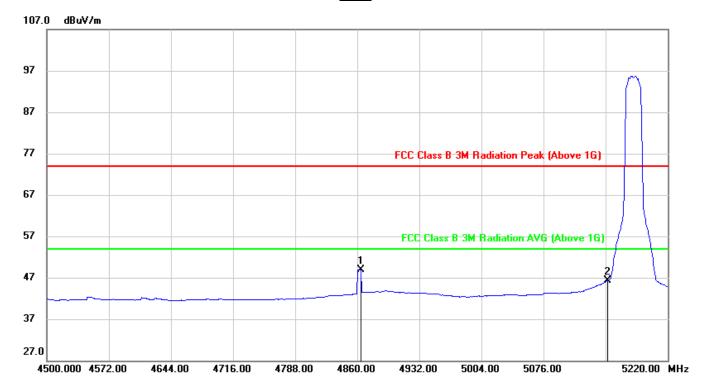
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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# <u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.16	39.75	48.91	54.00	-5.09	AVG
2	5150.000	5.98	40.40	46.38	54.00	-7.62	AVG

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

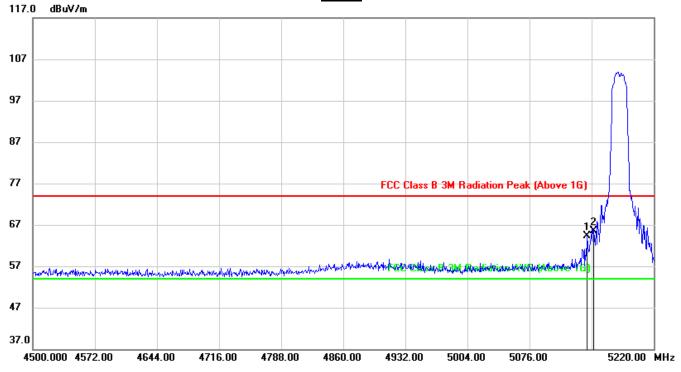
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=1K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **VERTICAL RESULTS**

## **PEAK**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5142.960	23.69	40.58	64.27	74.00	-9.73	peak
2	5150.000	25.00	40.60	65.60	74.00	-8.40	peak

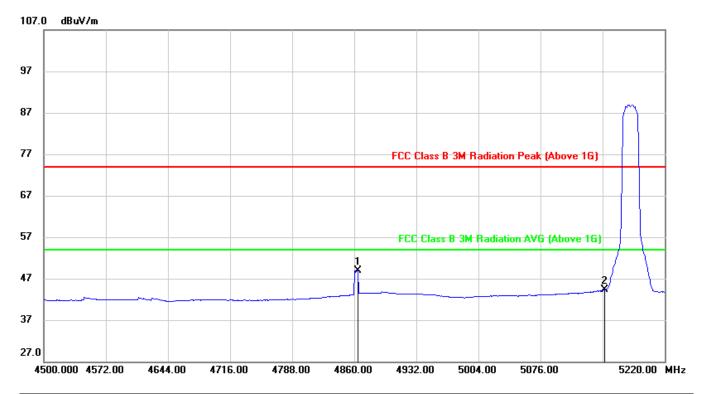
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **AVG**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.14	39.72	48.86	54.00	-5.14	AVG
2	5150.000	3.65	40.60	44.25	54.00	-9.75	AVG

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

- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=1K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

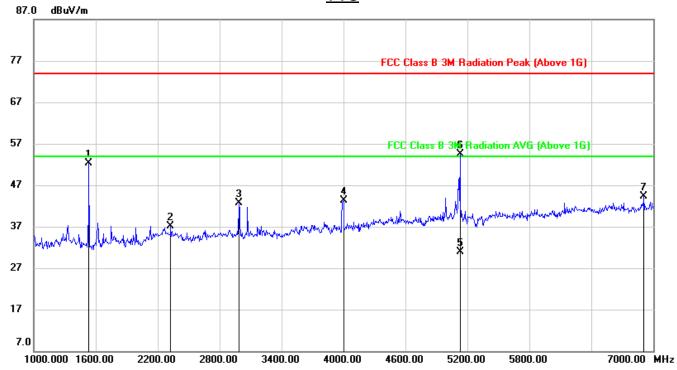


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## HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

## **HORIZONTAL RESULTS**

## 1-7G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.13	-12.79	52.34	74.00	-21.66	peak
2	2326.000	45.69	-8.54	37.15	74.00	-36.85	peak
3	2986.000	50.05	-7.29	42.76	74.00	-31.24	peak
4	4000.000	47.86	-4.54	43.32	74.00	-30.68	peak
5	5125.143	31.20	-0.36	30.84	54.00	-23.16	AVG
6	5128.000	54.79	-0.34	54.45	74.00	-19.55	peak
7	6910.000	39.17	5.06	44.23	74.00	-29.77	peak

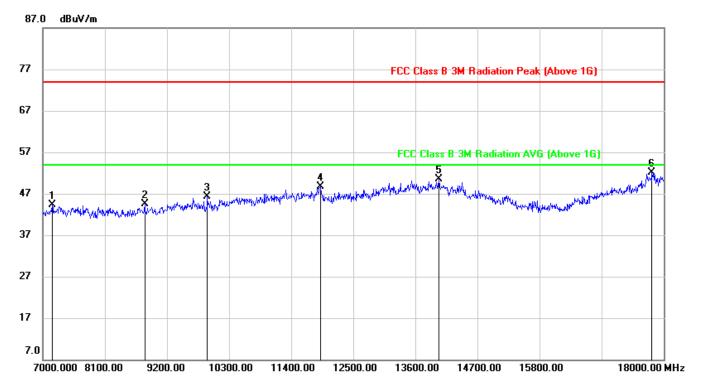
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7165.000	38.02	6.36	44.38	74.00	-29.62	peak
2	8804.000	36.53	8.06	44.59	74.00	-29.41	peak
3	9915.000	36.02	10.21	46.23	74.00	-27.77	peak
4	11917.000	33.80	14.98	48.78	74.00	-25.22	peak
5	14018.000	32.11	18.47	50.58	74.00	-23.42	peak
6	17791.000	28.08	24.12	52.20	74.00	-21.80	peak

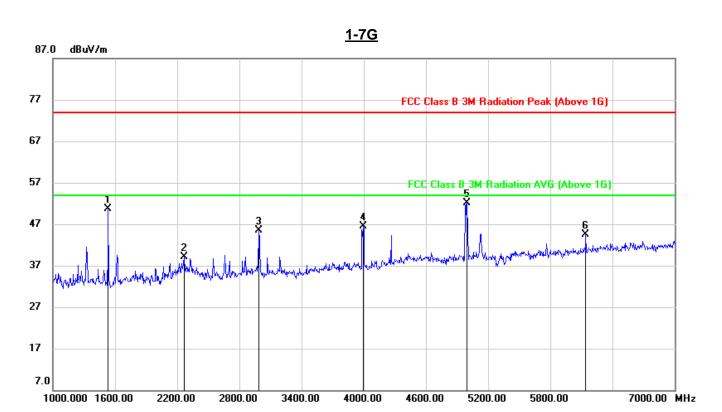
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **VERTICAL RESULTS**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.54	-12.76	50.78	74.00	-23.22	peak
2	2266.000	47.39	-8.31	39.08	74.00	-34.92	peak
3	2986.000	52.70	-7.29	45.41	74.00	-28.59	peak
4	3994.000	51.05	-4.54	46.51	74.00	-27.49	peak
5	4996.000	52.93	-0.78	52.15	74.00	-21.85	peak
6	6142.000	42.08	2.52	44.60	74.00	-29.40	peak

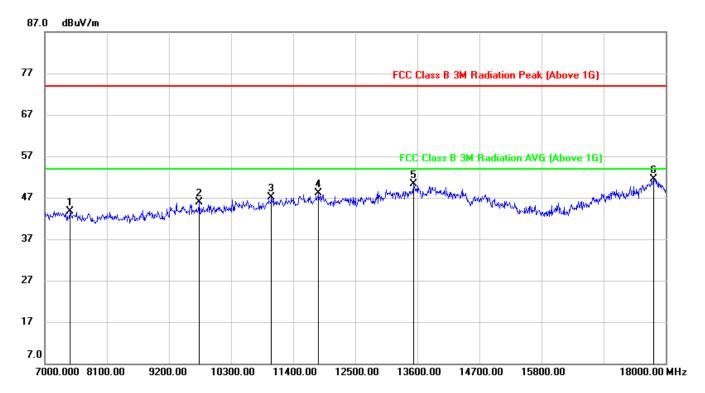
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7451.000	37.46	6.27	43.73	74.00	-30.27	peak
2	9739.000	35.78	10.04	45.82	74.00	-28.18	peak
3	11015.000	34.19	12.86	47.05	74.00	-26.95	peak
4	11851.000	33.38	14.72	48.10	74.00	-25.90	peak
5	13534.000	31.42	18.79	50.21	74.00	-23.79	peak
6	17780.000	27.04	24.38	51.42	74.00	-22.58	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

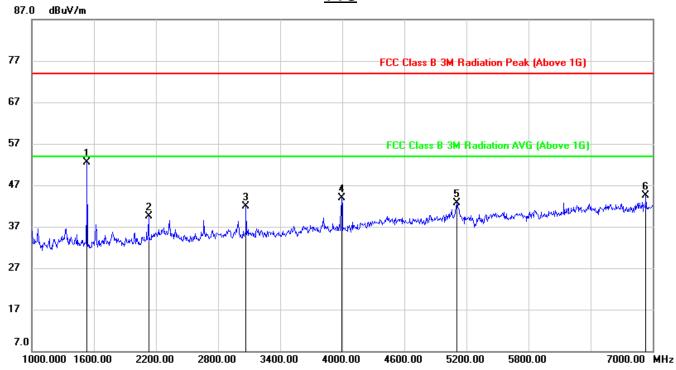


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## HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL

## **HORIZONTAL RESULTS**

1-7G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.24	-12.79	52.45	74.00	-21.55	peak
2	2128.000	49.44	-9.84	39.60	74.00	-34.40	peak
3	3070.000	48.86	-7.02	41.84	74.00	-32.16	peak
4	3994.000	48.54	-4.54	44.00	74.00	-30.00	peak
5	5110.000	43.12	-0.44	42.68	74.00	-31.32	peak
6	6934.000	39.31	5.15	44.46	74.00	-29.54	peak

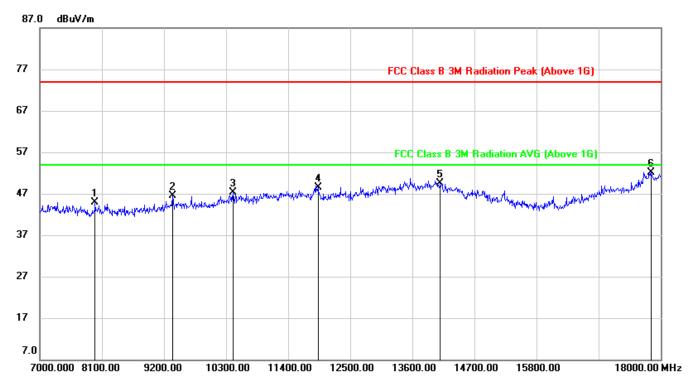
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7979.000	38.09	6.72	44.81	74.00	-29.19	peak
2	9354.000	37.04	9.41	46.45	74.00	-27.55	peak
3	10421.000	35.70	11.51	47.21	74.00	-26.79	peak
4	11928.000	33.74	14.80	48.54	74.00	-25.46	peak
5	14095.000	30.96	18.48	49.44	74.00	-24.56	peak
6	17835.000	27.86	24.25	52.11	74.00	-21.89	peak

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

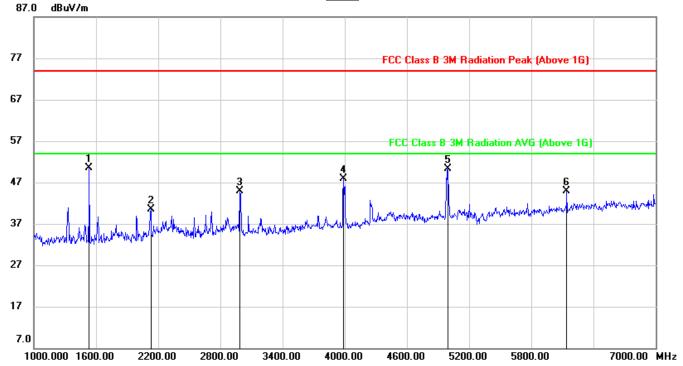
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **VERTICAL RESULTS**





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.36	-12.76	50.60	74.00	-23.40	peak
2	2128.000	50.36	-9.94	40.42	74.00	-33.58	peak
3	2986.000	52.24	-7.29	44.95	74.00	-29.05	peak
4	3988.000	52.52	-4.54	47.98	74.00	-26.02	peak
5	4996.000	50.99	-0.78	50.21	74.00	-23.79	peak
6	6142.000	42.41	2.52	44.93	74.00	-29.07	peak

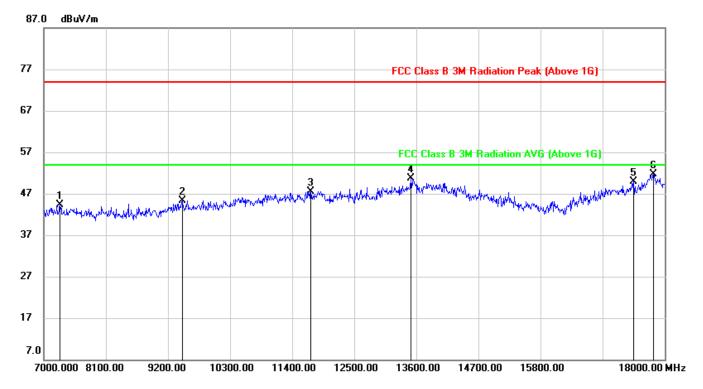
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7286.000	37.88	6.43	44.31	74.00	-29.69	peak
2	9453.000	35.57	9.68	45.25	74.00	-28.75	peak
3	11730.000	33.16	14.30	47.46	74.00	-26.54	peak
4	13501.000	32.07	18.57	50.64	74.00	-23.36	peak
5	17450.000	28.28	21.56	49.84	74.00	-24.16	peak
6	17802.000	27.04	24.61	51.65	74.00	-22.35	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

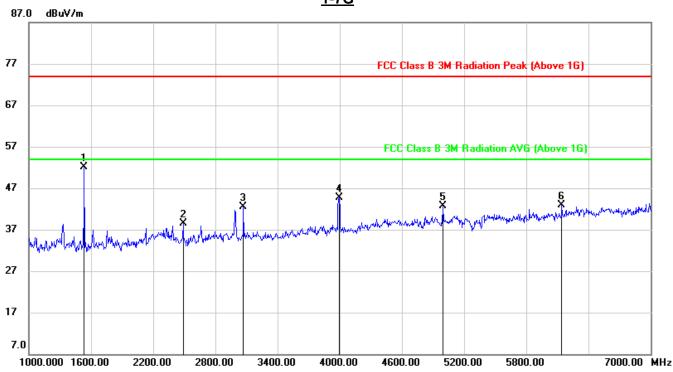


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### HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

## **HORIZONTAL RESULTS**

1-7G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	64.98	-12.79	52.19	74.00	-21.81	peak
2	2488.000	47.79	-9.28	38.51	74.00	-35.49	peak
3	3070.000	49.46	-7.02	42.44	74.00	-31.56	peak
4	3994.000	49.15	-4.54	44.61	74.00	-29.39	peak
5	4996.000	43.67	-0.87	42.80	74.00	-31.20	peak
6	6142.000	40.56	2.41	42.97	74.00	-31.03	peak

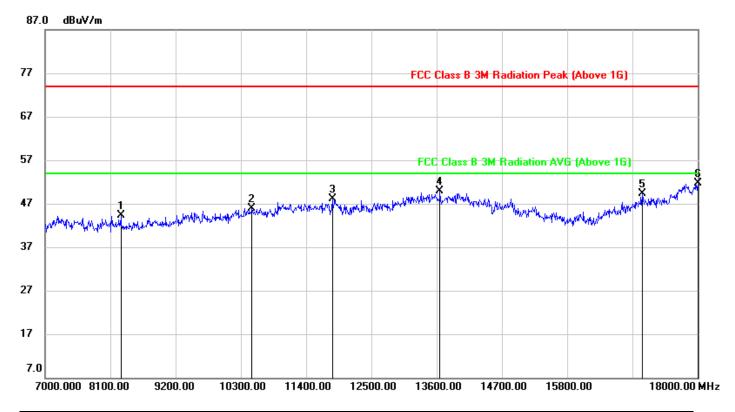
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8276.000	37.34	6.90	44.24	74.00	-29.76	peak
2	10487.000	34.13	11.85	45.98	74.00	-28.02	peak
3	11840.000	34.10	14.10	48.20	74.00	-25.80	peak
4	13655.000	31.56	18.40	49.96	74.00	-24.04	peak
5	17065.000	29.32	19.99	49.31	74.00	-24.69	peak
6	18000.000	26.96	24.81	51.77	74.00	-22.23	peak

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

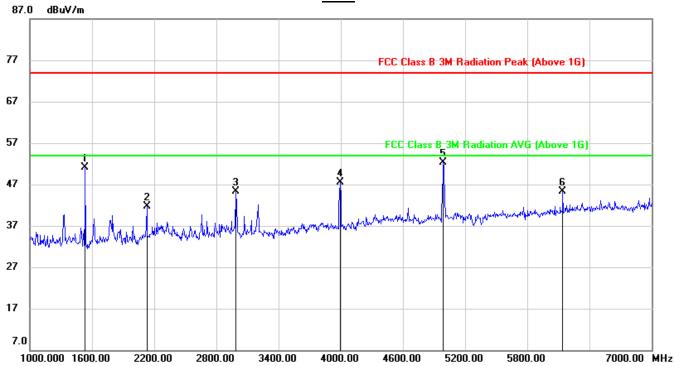
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **VERTICAL RESULTS**





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.82	-12.76	51.06	74.00	-22.94	peak
2	2128.000	51.61	-9.94	41.67	74.00	-32.33	peak
3	2986.000	52.51	-7.29	45.22	74.00	-28.78	peak
4	3994.000	51.95	-4.54	47.41	74.00	-26.59	peak
5	4990.000	53.05	-0.78	52.27	74.00	-21.73	peak
6	6142.000	42.70	2.52	45.22	74.00	-28.78	peak

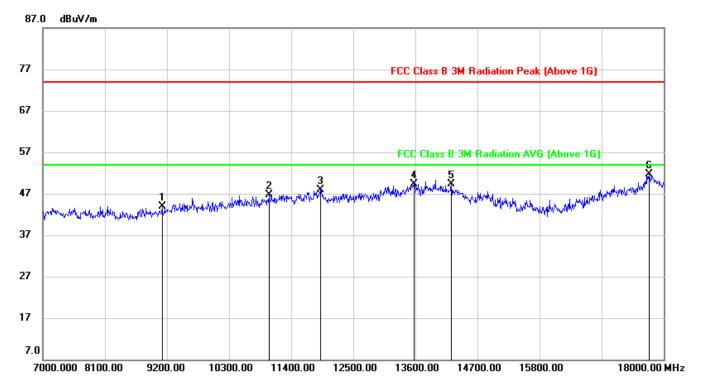
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9112.000	35.75	8.20	43.95	74.00	-30.05	peak
2	11004.000	33.86	12.84	46.70	74.00	-27.30	peak
3	11917.000	33.13	14.75	47.88	74.00	-26.12	peak
4	13578.000	30.72	18.58	49.30	74.00	-24.70	peak
5	14238.000	31.40	17.87	49.27	74.00	-24.73	peak
6	17736.000	27.99	23.80	51.79	74.00	-22.21	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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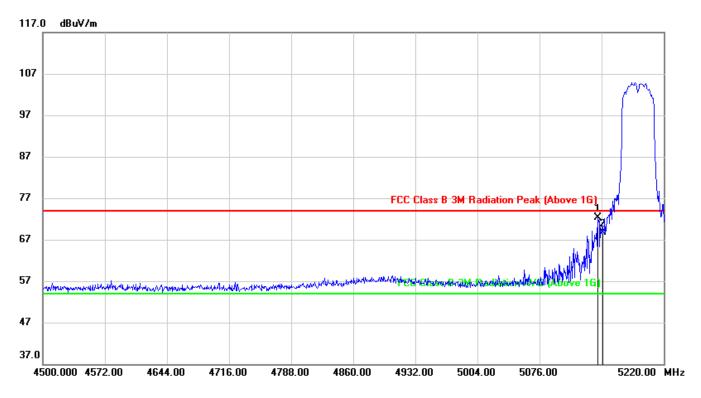
#### 7.4. 802.11ac HT40 MODE

## 7.4.1. UNII-1 BAND

## RESTRICTED BANDEDGE LOW CHANNEL

#### **HORIZONTAL RESULTS**

## **PEAK**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5143.680	32.01	40.38	72.39	74.00	-1.61	peak
2	5150.000	28.33	40.40	68.73	74.00	-5.27	peak

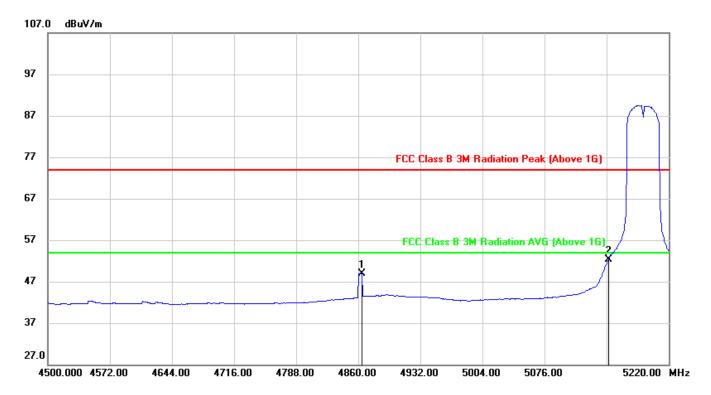
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **AVG**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.17	39.75	48.92	54.00	-5.08	AVG
2	5150.000	11.85	40.40	52.25	54.00	-1.75	AVG

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

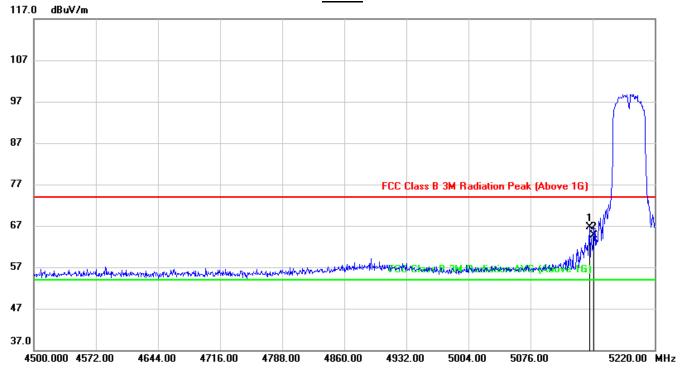
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=2K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **VERTICAL RESULTS**

## **PEAK**



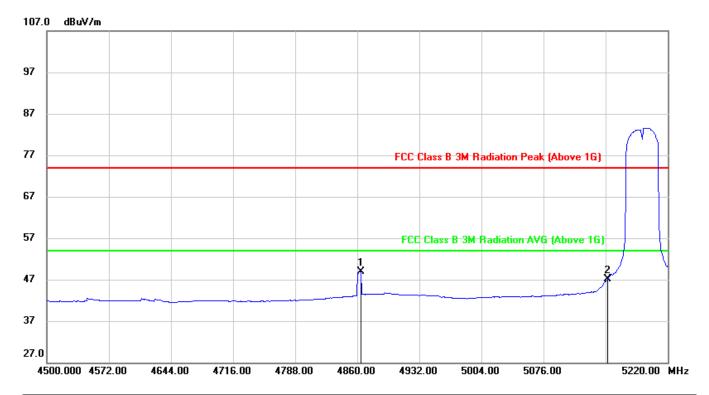
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5144.400	26.14	40.58	66.72	74.00	-7.28	peak
2	5150.000	24.05	40.60	64.65	74.00	-9.35	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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## <u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.320	9.15	39.72	48.87	54.00	-5.13	AVG
2	5150.000	6.59	40.60	47.19	54.00	-6.81	AVG

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

- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=2K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

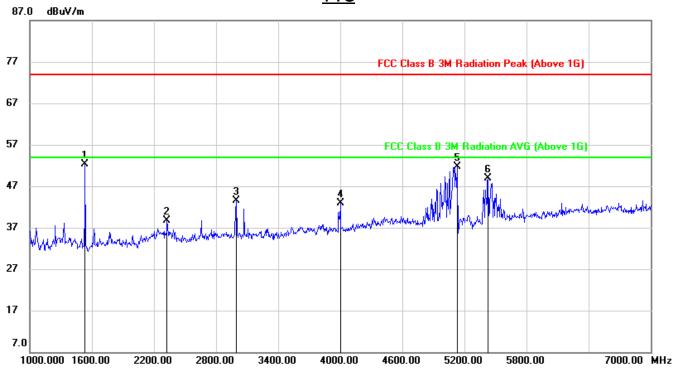


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HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

## **HORIZONTAL RESULTS**

1-7G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.11	-12.79	52.32	74.00	-21.68	peak
2	2326.000	47.32	-8.54	38.78	74.00	-35.22	peak
3	2998.000	50.80	-7.29	43.51	74.00	-30.49	peak
4	4000.000	47.53	-4.54	42.99	74.00	-31.01	peak
5	5128.000	52.07	-0.34	51.73	74.00	-22.27	peak
6	5428.000	48.40	0.52	48.92	74.00	-25.08	peak

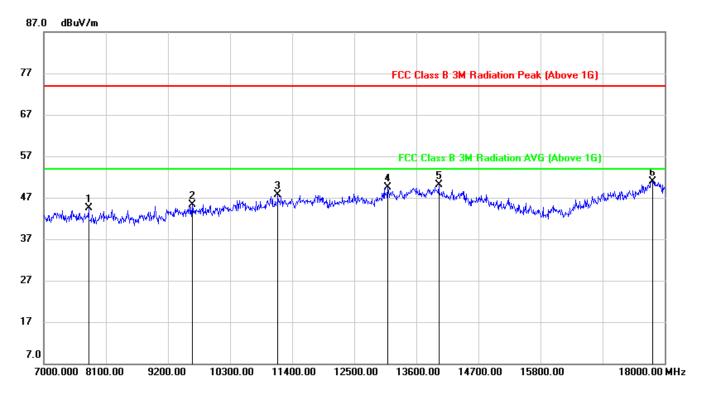
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7792.000	37.84	6.70	44.54	74.00	-29.46	peak
2	9629.000	35.63	9.76	45.39	74.00	-28.61	peak
3	11147.000	34.73	13.02	47.75	74.00	-26.25	peak
4	13094.000	33.00	16.47	49.47	74.00	-24.53	peak
5	13996.000	31.49	18.58	50.07	74.00	-23.93	peak
6	17780.000	26.56	24.38	50.94	74.00	-23.06	peak

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

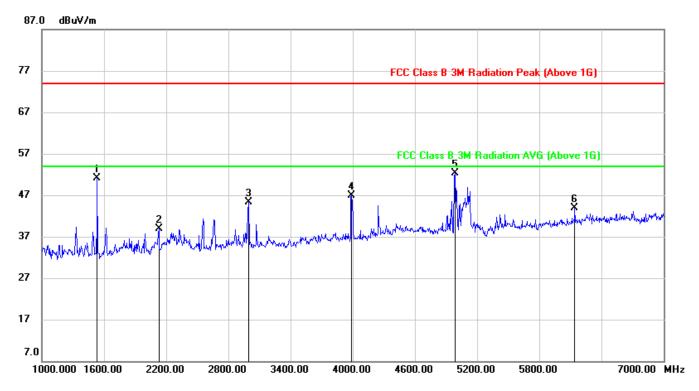
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **VERTICAL RESULTS**

## <u>1-7G</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.79	-12.76	51.03	74.00	-22.97	peak
2	2128.000	48.93	-9.94	38.99	74.00	-35.01	peak
3	2998.000	52.52	-7.29	45.23	74.00	-28.77	peak
4	3988.000	51.38	-4.54	46.84	74.00	-27.16	peak
5	4990.000	53.01	-0.78	52.23	74.00	-21.77	peak
6	6142.000	41.44	2.52	43.96	74.00	-30.04	peak

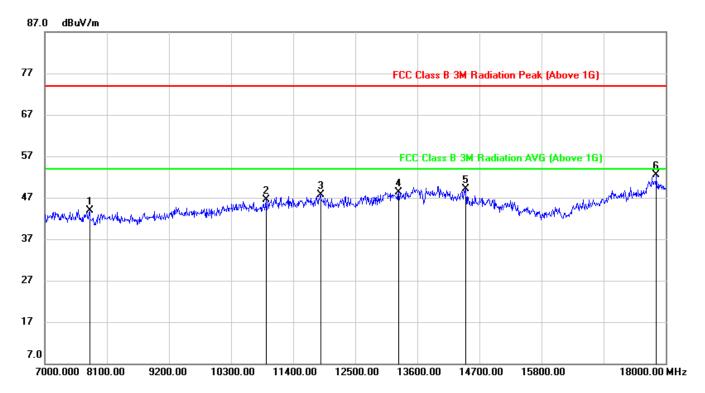
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7792.000	37.25	6.70	43.95	74.00	-30.05	peak
2	10916.000	34.13	12.30	46.43	74.00	-27.57	peak
3	11884.000	32.99	14.75	47.74	74.00	-26.26	peak
4	13270.000	30.93	17.47	48.40	74.00	-25.60	peak
5	14458.000	31.65	17.53	49.18	74.00	-24.82	peak
6	17835.000	28.46	24.09	52.55	74.00	-21.45	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

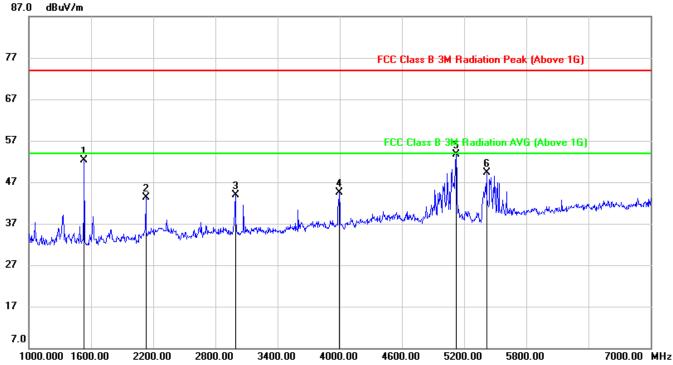


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## HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL

## **HORIZONTAL RESULTS**





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.14	-12.79	52.35	74.00	-21.65	peak
2	2128.000	53.19	-9.84	43.35	74.00	-30.65	peak
3	2992.000	51.20	-7.29	43.91	74.00	-30.09	peak
4	3994.000	48.98	-4.54	44.44	74.00	-29.56	peak
5	5122.000	54.14	-0.38	53.76	74.00	-20.24	peak
6	5416.000	48.93	0.43	49.36	74.00	-24.64	peak

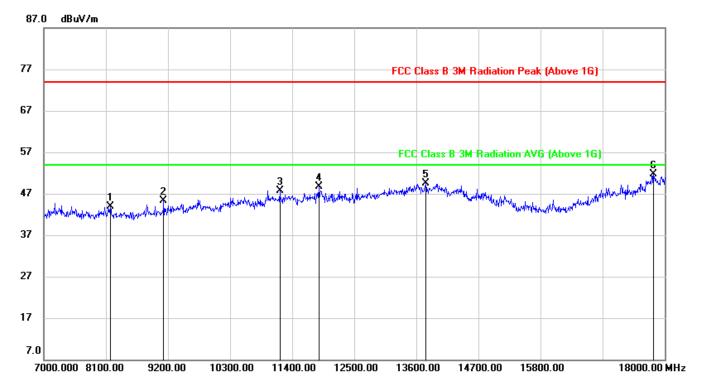
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8177.000	36.78	7.12	43.90	74.00	-30.10	peak
2	9123.000	37.10	8.28	45.38	74.00	-28.62	peak
3	11180.000	34.73	13.00	47.73	74.00	-26.27	peak
4	11873.000	34.11	14.69	48.80	74.00	-25.20	peak
5	13765.000	30.81	18.67	49.48	74.00	-24.52	peak
6	17802.000	27.53	24.24	51.77	74.00	-22.23	peak

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

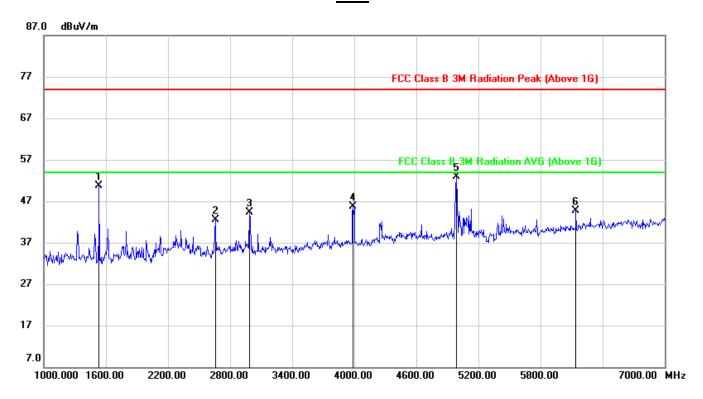
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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VERTICAL RESULTS

## 1-7G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.55	-12.76	50.79	74.00	-23.21	peak
2	2656.000	51.10	-8.63	42.47	74.00	-31.53	peak
3	2986.000	51.65	-7.29	44.36	74.00	-29.64	peak
4	3988.000	50.24	-4.54	45.70	74.00	-28.30	peak
5	4990.000	53.72	-0.78	52.94	74.00	-21.06	peak
6	6142.000	42.10	2.52	44.62	74.00	-29.38	peak

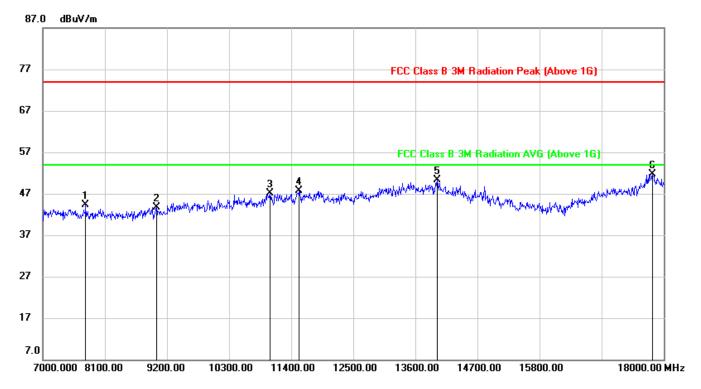
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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# 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7759.000	37.69	6.59	44.28	74.00	-29.72	peak
2	9013.000	35.66	7.95	43.61	74.00	-30.39	peak
3	11026.000	34.25	12.88	47.13	74.00	-26.87	peak
4	11543.000	33.49	14.21	47.70	74.00	-26.30	peak
5	13985.000	31.74	18.60	50.34	74.00	-23.66	peak
6	17802.000	27.08	24.61	51.69	74.00	-22.31	peak

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

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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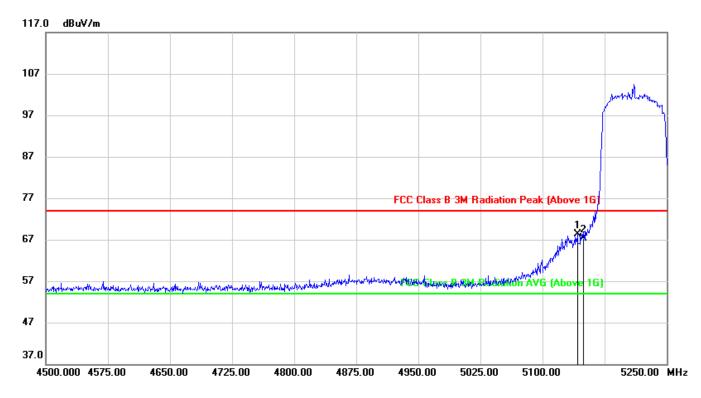
## 7.5. 802.11ac HT80 MODE

## 7.5.1. UNII-1 BAND

## RESTRICTED BANDEDGE LOW CHANNEL

#### **HORIZONTAL RESULTS**

## **PEAK**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5142.000	27.97	40.36	68.33	74.00	-5.67	peak
2	5150.000	26.93	40.40	67.33	74.00	-6.67	peak

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

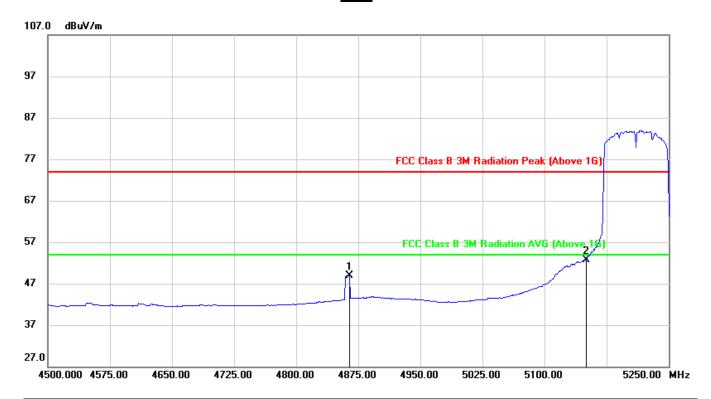
Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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## **AVG**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.500	9.17	39.75	48.92	54.00	-5.08	AVG
2	5150.000	12.25	40.40	52.65	54.00	-1.35	AVG

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

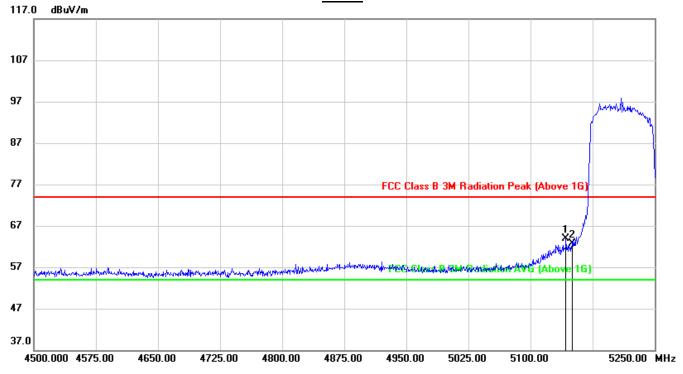
- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=3K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **VERTICAL RESULTS**

## **PEAK**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5142.750	23.23	40.58	63.81	74.00	-10.19	peak
2	5150.000	22.07	40.60	62.67	74.00	-11.33	peak

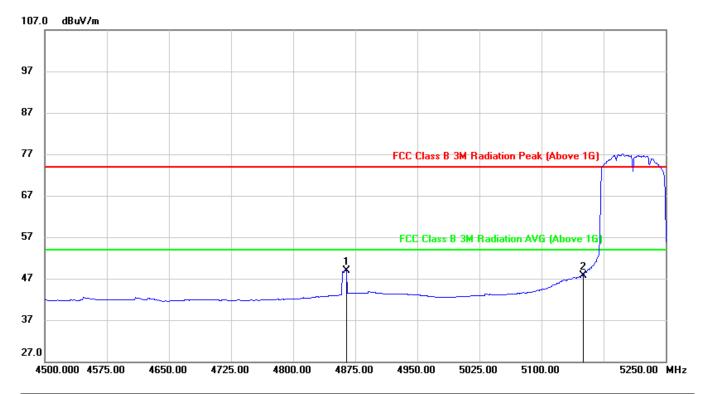
Note: 1. Measurement = Reading Level + Correct Factor.

- 2. Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  - 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## <u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4864.500	9.19	39.72	48.91	54.00	-5.09	AVG
2	5150.000	7.20	40.60	47.80	54.00	-6.20	AVG

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

- 3. Peak: Peak detector.
- 4. AVG: VBW=1/Ton=3K, where: Ton is transmit duration.
- 5. For transmit duration, please refer to clause 6.1.
- 6. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

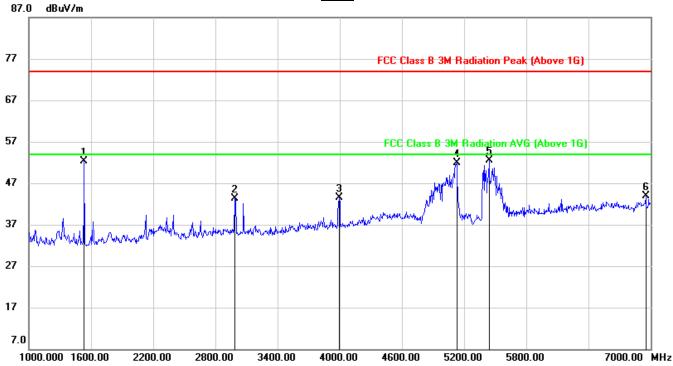


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## HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL

## **HORIZONTAL RESULTS**





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	65.11	-12.79	52.32	74.00	-21.68	peak
2	2986.000	50.66	-7.29	43.37	74.00	-30.63	peak
3	3994.000	48.09	-4.54	43.55	74.00	-30.45	peak
4	5128.000	52.21	-0.34	51.87	74.00	-22.13	peak
5	5440.000	51.99	0.61	52.60	74.00	-21.40	peak
6	6952.000	38.60	5.21	43.81	74.00	-30.19	peak

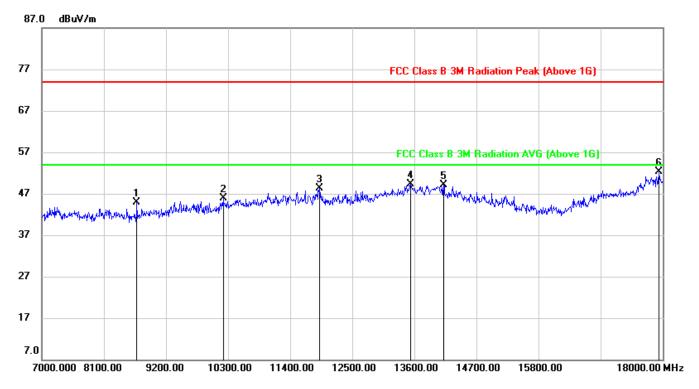
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8683.000	37.23	7.65	44.88	74.00	-29.12	peak
2	10212.000	35.08	10.85	45.93	74.00	-28.07	peak
3	11917.000	33.39	14.98	48.37	74.00	-25.63	peak
4	13534.000	30.98	18.23	49.21	74.00	-24.79	peak
5	14117.000	30.67	18.43	49.10	74.00	-24.90	peak
6	17934.000	27.84	24.54	52.38	74.00	-21.62	peak

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

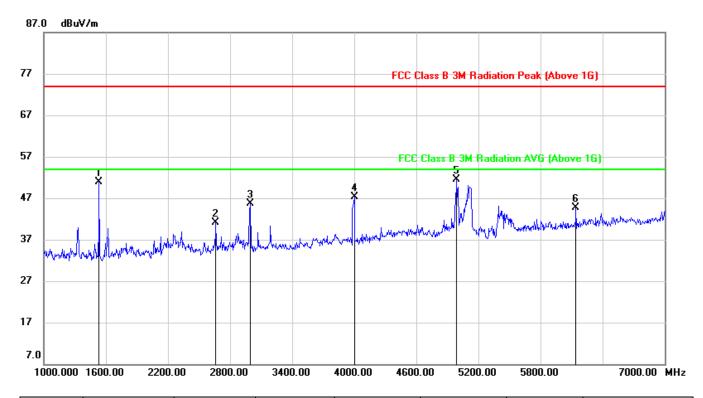
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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## **VERTICAL RESULTS**

## <u>1-7G</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1534.000	63.61	-12.76	50.85	74.00	-23.15	peak
2	2662.000	49.61	-8.59	41.02	74.00	-32.98	peak
3	2998.000	52.98	-7.29	45.69	74.00	-28.31	peak
4	4000.000	51.88	-4.54	47.34	74.00	-26.66	peak
5	4990.000	52.31	-0.78	51.53	74.00	-22.47	peak
6	6142.000	42.27	2.52	44.79	74.00	-29.21	peak

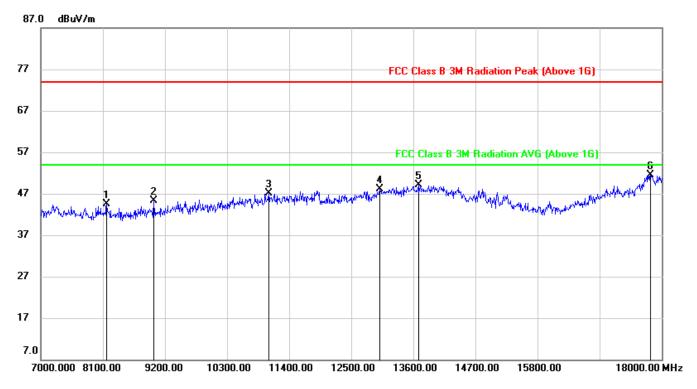
Note: 1. Measurement = Reading Level + Correct Factor.

- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.



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#### 7-18G



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8166.000	37.44	7.05	44.49	74.00	-29.51	peak
2	9002.000	37.32	7.93	45.25	74.00	-28.75	peak
3	11037.000	34.24	12.78	47.02	74.00	-26.98	peak
4	13006.000	31.40	16.62	48.02	74.00	-25.98	peak
5	13688.000	30.61	18.55	49.16	74.00	-24.84	peak
6	17802.000	27.31	24.24	51.55	74.00	-22.45	peak

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

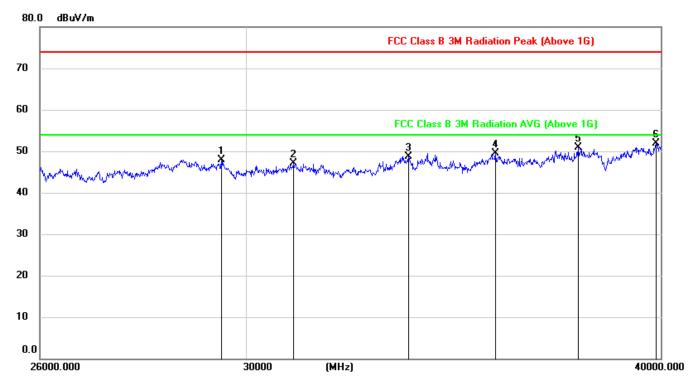
- 3. Peak: Peak detector.
- 4. Owing to the highest peak level complies with the lowest limit of unwanted emission out of the restricted bands (Please refer to page 49), so all the test point were deemed to comply with the limits list in the standard.

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## 7.6. SPURIOUS EMISSIONS 26~40GHz

## 7.6.1. 802.11a MODE

#### SPURIOUS EMISSIONS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	29485.103	47.19	0.73	47.92	74.00	-26.08	peak
2	30995.932	48.32	-1.15	47.17	74.00	-26.83	peak
3	33581.711	46.22	2.48	48.70	74.00	-25.30	peak
4	35669.329	46.48	3.03	49.51	74.00	-24.49	peak
5	37772.651	46.05	4.90	50.95	74.00	-23.05	peak
6	39862.387	45.17	6.80	51.97	74.00	-22.03	peak

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

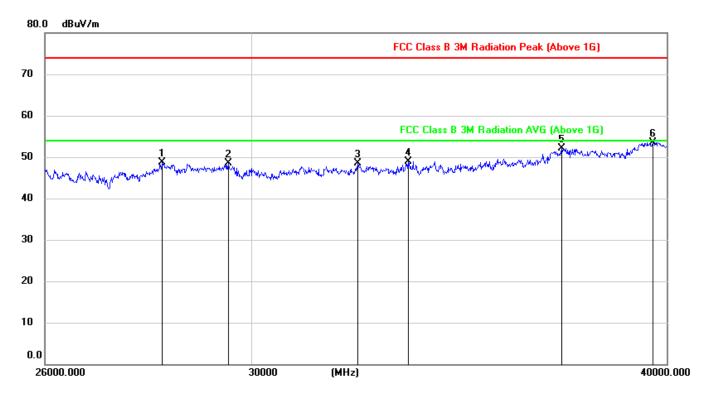
Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



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#### SPURIOUS EMISSIONS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	26326.848	50.96	-5.06	45.90	74.00	-28.10	peak
2	28695.658	47.69	1.18	48.87	74.00	-25.13	peak
3	31049.388	48.46	-1.19	47.27	74.00	-26.73	peak
4	33437.357	47.50	2.39	49.89	74.00	-24.11	peak
5	35577.254	46.69	2.80	49.49	74.00	-24.51	peak
6	38231.021	45.70	4.79	50.49	74.00	-23.51	peak

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

Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

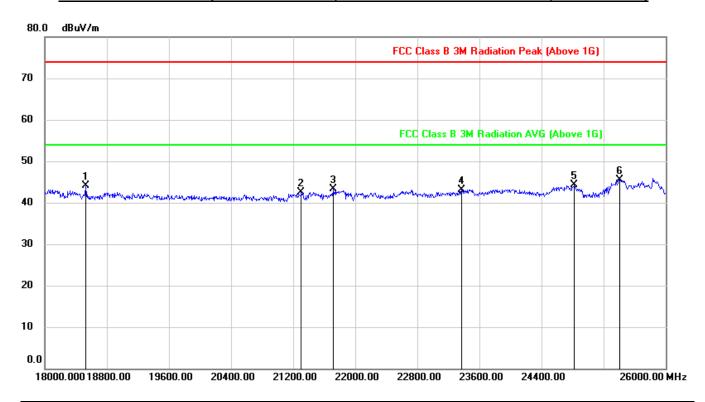
Note: EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.



## 7.7. SPURIOUS EMISSIONS 18~26GHz

## 7.7.1. 802.11a MODE

## SPURIOUS EMISSIONS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	18528.000	49.41	-5.26	44.15	74.00	-29.85	peak
2	21304.000	47.26	-4.75	42.51	74.00	-31.49	peak
3	21720.000	47.61	-4.37	43.24	74.00	-30.76	peak
4	23368.000	46.45	-3.26	43.19	74.00	-30.81	peak
5	24824.000	46.47	-2.26	44.21	74.00	-29.79	peak
6	25408.000	47.20	-1.73	45.47	74.00	-28.53	peak

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

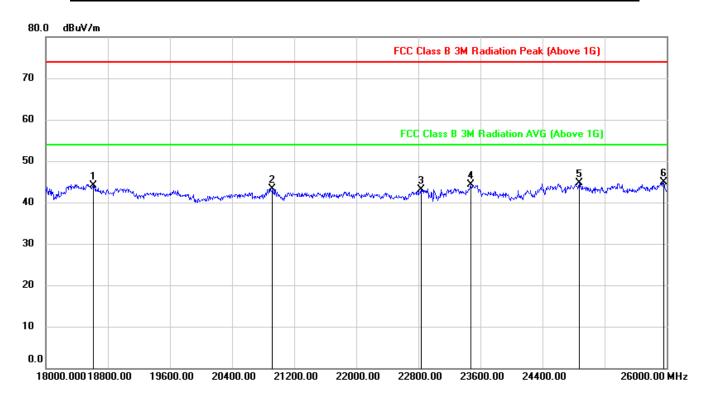
Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



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#### SPURIOUS EMISSIONS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	18616.000	49.39	-5.34	44.05	74.00	-29.95	peak
2	20920.000	48.22	-4.95	43.27	74.00	-30.73	peak
3	22832.000	46.72	-3.60	43.12	74.00	-30.88	peak
4	23472.000	47.48	-3.17	44.31	74.00	-29.69	peak
5	24872.000	46.94	-2.22	44.72	74.00	-29.28	peak
6	25960.000	45.86	-0.99	44.87	74.00	-29.13	peak

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

Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

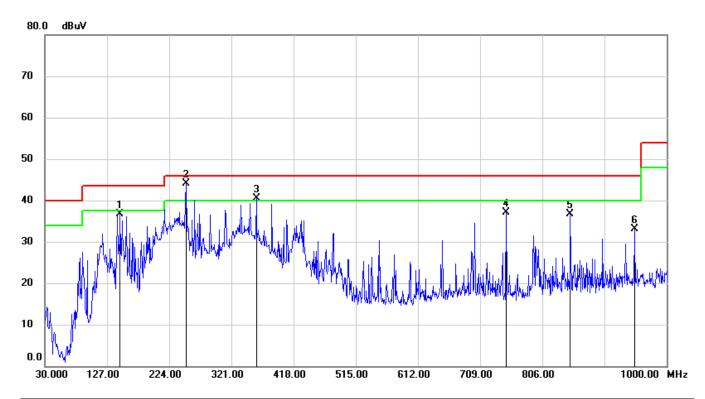
Note: EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.



## 7.8. SPURIOUS EMISSIONS 30M ~ 1 GHz

#### 7.8.1. 802.11a MODE

## SPURIOUS EMISSIONS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

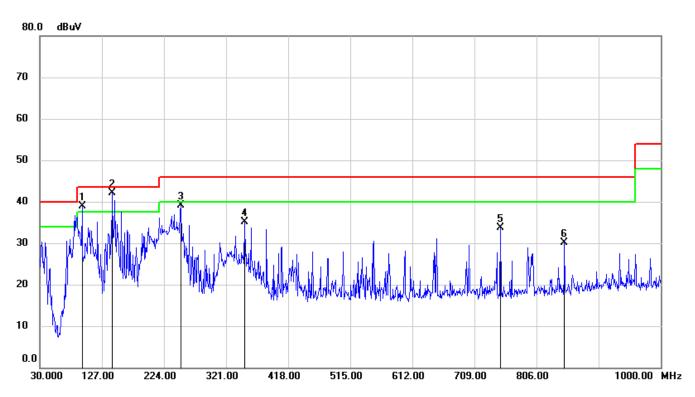


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	147.3700	54.41	-17.61	36.80	43.50	-6.70	QP
2	250.1900	61.82	-17.70	44.12	46.00	-1.88	QP
3	359.8000	54.01	-13.52	40.49	46.00	-5.51	QP
4	749.7400	44.63	-7.52	37.11	46.00	-8.89	QP
5	849.6500	42.98	-6.21	36.77	46.00	-9.23	QP
6	949.5600	37.87	-4.75	33.12	46.00	-12.88	QP

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

- 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
- 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	95.9600	60.84	-21.93	38.91	43.50	-4.59	QP
2	143.4900	59.98	-17.97	42.01	43.50	-1.49	QP
3	250.1900	56.78	-17.70	39.08	46.00	-6.92	QP
4	350.1000	48.84	-13.83	35.01	46.00	-10.99	QP
5	749.7400	41.27	-7.52	33.75	46.00	-12.25	QP
6	849.6500	36.26	-6.21	30.05	46.00	-15.95	QP

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

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

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

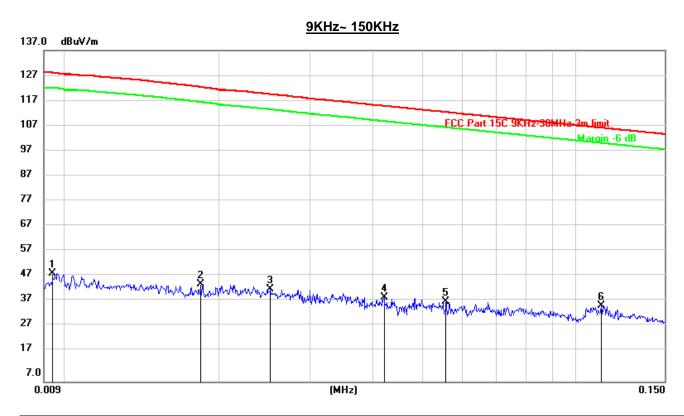
Note: EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.



## 7.9. SPURIOUS EMISSIONS BELOW 30M

## 7.9.1. 802.11a MODE

## SPURIOUS EMISSIONS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL



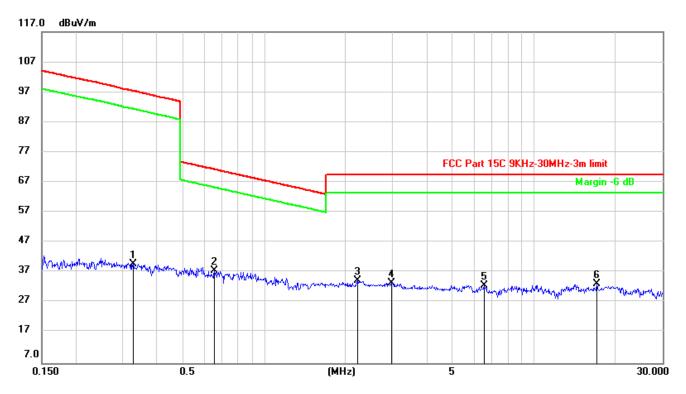
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0094	29.01	20.26	49.27	128.06	-78.79	peak
2	0.0183	24.89	20.29	45.18	122.60	-77.42	peak
3	0.0251	23.08	20.31	43.39	119.78	-76.39	peak
4	0.0420	19.59	20.31	39.90	115.17	-75.27	peak
5	0.0555	17.89	20.31	38.20	112.75	-74.55	peak
6	0.1126	16.63	20.27	36.90	106.58	-69.68	peak

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

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.



## 150KHz ~ 30M



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.3266	19.60	20.30	39.90	97.39	-57.49	peak
2	0.6542	17.31	20.31	37.62	71.31	-33.69	peak
3	2.2132	13.48	20.77	34.25	69.54	-35.29	peak
4	2.9618	12.77	20.89	33.66	69.54	-35.88	peak
5	6.5227	11.89	20.89	32.78	69.54	-36.76	peak
6	17.1082	12.33	20.98	33.31	69.54	-36.23	peak

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

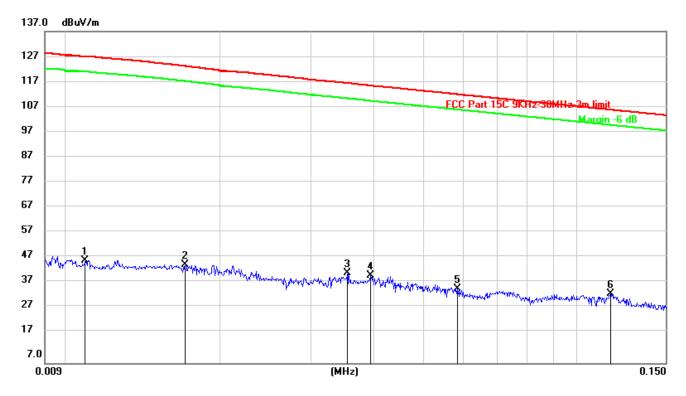
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.



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## SPURIOUS EMISSIONS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)

## 9KHz~ 150KHz



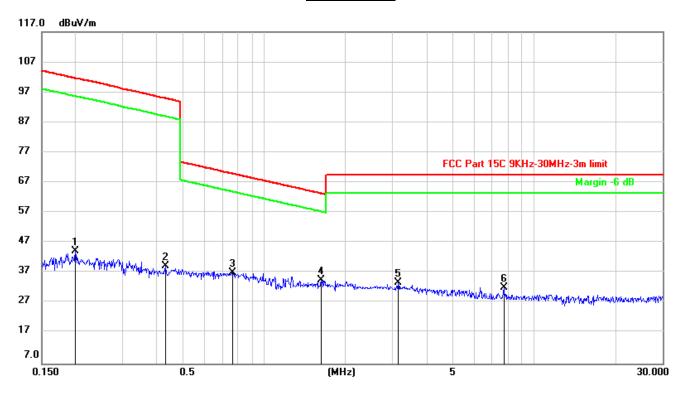
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0108	27.08	20.22	47.30	127.12	-79.82	peak
2	0.0170	25.12	20.28	45.40	123.39	-77.99	peak
3	0.0354	21.97	20.31	42.28	116.71	-74.43	peak
4	0.0393	21.01	20.31	41.32	115.73	-74.41	peak
5	0.0582	15.71	20.31	36.02	112.32	-76.30	peak
6	0.1168	13.74	20.29	34.03	106.26	-72.23	peak

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

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.



## 150KHz ~ 30M



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.1995	23.85	20.37	44.22	101.60	-57.38	peak
2	0.4304	18.93	20.27	39.20	94.97	-55.77	peak
3	0.7630	16.66	20.36	37.02	69.97	-32.95	peak
4	1.6270	14.01	20.60	34.61	63.38	-28.77	peak
5	3.1396	12.82	20.91	33.73	69.54	-35.81	peak
6	7.7278	11.17	20.95	32.12	69.54	-37.42	peak

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

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

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



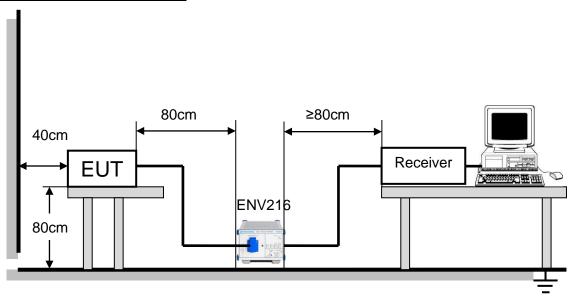
## 8. AC POWER LINE CONDUCTED EMISSIONS

#### **LIMITS**

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

	Class A	(dBuV)	Class B (dBuV)		
FREQUENCY (MHz)	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	
0.50 -5.0	73.00	60.00	56.00	46.00	
5.0 -30.0	73.00	60.00	60.00	50.00	

### **TEST SETUP AND PROCEDURE**



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

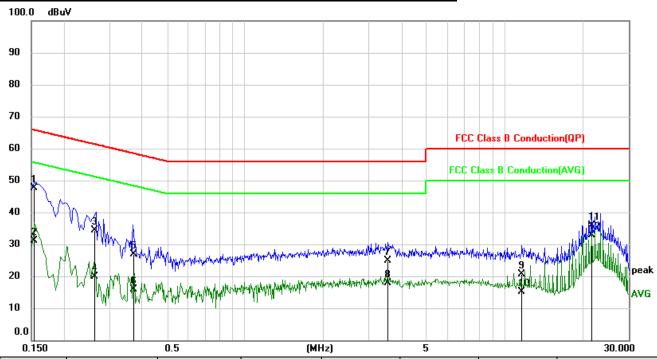
The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

#### **TEST RESULT**



## 8.1. 802.11a MODE

## LINE N RESULTS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1533	38.09	9.46	47.55	65.82	-18.27	QP
2	0.1533	21.64	9.46	31.10	55.82	-24.72	AVG
3	0.2623	24.96	9.43	34.39	61.36	-26.97	QP
4	0.2623	10.38	9.43	19.81	51.36	-31.55	AVG
5	0.3716	17.44	9.43	26.87	58.47	-31.60	QP
6	0.3716	6.49	9.43	15.92	48.47	-32.55	AVG
7	3.5621	15.46	9.47	24.93	56.00	-31.07	QP
8	3.5621	8.35	9.47	17.82	46.00	-28.18	AVG
9	11.6432	11.15	9.60	20.75	60.00	-39.25	QP
10	11.6432	5.60	9.60	15.20	50.00	-34.80	AVG
11	21.6596	26.16	9.63	35.79	60.00	-24.21	QP
12	21.6596	23.26	9.63	32.89	50.00	-17.11	AVG

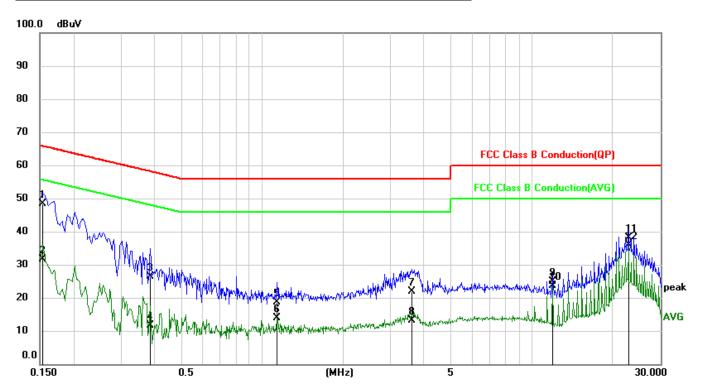
Note: 1. Result = Reading +Correct Factor.

- 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
- 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.



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## LINE L RESULTS (MIDDLE CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1533	38.80	9.46	48.26	65.82	-17.56	QP
2	0.1533	22.21	9.46	31.67	55.82	-24.15	AVG
3	0.3855	16.90	9.42	26.32	58.16	-31.84	QP
4	0.3855	2.10	9.42	11.52	48.16	-36.64	AVG
5	1.1395	9.08	9.43	18.51	56.00	-37.49	QP
6	1.1395	4.43	9.43	13.86	46.00	-32.14	AVG
7	3.6077	12.39	9.47	21.86	56.00	-34.14	QP
8	3.6077	3.73	9.47	13.20	46.00	-32.80	AVG
9	11.9655	15.17	9.61	24.78	60.00	-35.22	QP
10	11.9655	14.02	9.61	23.63	50.00	-26.37	AVG
11	22.7893	28.51	9.62	38.13	60.00	-21.87	QP
12	22.7893	26.31	9.62	35.93	50.00	-14.07	AVG

Note: 1. Result = Reading +Correct Factor.

- 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
- 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

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# 9. FREQUENCY STABILITY

#### **LIMITS**

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

#### **TEST SETUP AND PROCEDURE**

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

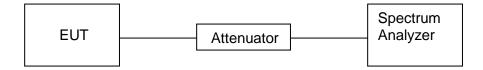
Center Frequency	The center frequency of the channel under test
Detector	PEAK
RBW	10KHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

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

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

User manual temperature is -20°C~60°C.

## **TEST SETUP**





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# TEST RESULTS (WORST-CASE CONFIGURATION)

Test Mode: 802.11a MODE

## Frequency Error vs. Voltage:

Test Mode	Antenna	Channel	Temp.	Volt.	Freq.Error(MHz)	Freq.vs.rated(ppm)	Verdict
	11A Ant1 5	Ant1 5180	TN	VL	5180.0155	2.99	PASS
11A			TN	VN	5180.0145	2.80	PASS
			TN	VH	5180.0152	2.93	PASS

# **Frequency Error vs. Temperature:**

Test Mode	Antenna	Channel	Temp.	Volt.	Freq.Error(MHz)	Freq.vs.rated(ppm)	Verdict	
		5180		60	VN	5180.0148	2.86	PASS
			50	VN	5180.0144	2.78	PASS	
			5180	40	VN	5180.0141	2.72	PASS
				30	VN	5180.0146	2.82	PASS
11A	Ant1			20	VN	5180.0142	2.74	PASS
			10	VN	5180.0147	2.84	PASS	
	0 VN -10 VN	0	VN	5180.0151	2.92	PASS		
		VN	5180.0150	2.91	PASS			
			-20	VN	5180.0152	2.92	PASS	



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## 10. ANTENNA REQUIREMENTS

### **APPLICABLE REQUIREMENTS**

Please refer to FCC §15.203

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

## Please refer to FCC §15.247(b)(4)

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

#### **ANTENNA CONNECTOR**

EUT has a FPCB antenna without antenna connector.

#### **ANTENNA GAIN**

The antenna gain of EUT is less than 6 dBi.

## **END OF REPORT**