

## FCC Test Report

**Report No.:** RFBEAD-WTW-P21031019-1 R1

**FCC ID:** M82-AIM78S2

**Test Model:** AIM-78S-2

**Series Model:** AIM-78H-2, AIM-78H-2XXXXXXXXXXXXXXXXXX,  
AIM-78S-2XXXXXXXXXXXXXXXXXX (X: maybe 0-9, A-Z or blank) (refer to  
item 3.1 for more details)

**Received Date:** Apr. 01, 2021

**Test Date:** May 20 ~ Sep. 24, 2021

**Issued Date:** Jan. 10, 2022

**Applicant:** ADVANTECH CO., LTD

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

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33383, TAIWAN

**FCC Registration /  
Designation Number:** 788550 / TW0003



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## Table of Contents

<b>Release Control Record</b> .....	<b>4</b>
<b>1 Certificate of Conformity</b> .....	<b>5</b>
<b>2 Summary of Test Results</b> .....	<b>6</b>
2.1 Measurement Uncertainty.....	6
2.2 Modification Record.....	6
<b>3 General Information</b> .....	<b>7</b>
3.1 General Description of EUT.....	7
3.2 Description of Test Modes.....	10
3.2.1 Test Mode Applicability and Tested Channel Detail.....	12
3.3 Duty Cycle of Test Signal.....	15
3.4 Description of Support Units.....	16
3.4.1 Configuration of System under Test.....	16
3.5 General Description of Applied Standards and References.....	16
<b>4 Test Types and Results</b> .....	<b>19</b>
4.1 Radiated Emission and Bandedge Measurement.....	19
4.1.1 Limits of Radiated Emission and Bandedge Measurement.....	19
4.1.2 Test Instruments.....	20
4.1.3 Test Procedures.....	21
4.1.4 Deviation from Test Standard.....	22
4.1.5 Test Setup.....	22
4.1.6 EUT Operating Conditions.....	23
4.1.7 Test Results.....	24
4.2 Conducted Emission Measurement.....	70
4.2.1 Limits of Conducted Emission Measurement.....	70
4.2.2 Test Instruments.....	70
4.2.3 Test Procedures.....	71
4.2.4 Deviation from Test Standard.....	71
4.2.5 Test Setup.....	71
4.2.6 EUT Operating Conditions.....	71
4.2.7 Test Results.....	72
4.3 Transmit Power Measurement.....	80
4.3.1 Limits of Transmit Power Measurement.....	80
4.3.2 Test Setup.....	80
4.3.3 Test Instruments.....	80
4.3.4 Test Procedure.....	81
4.3.5 Deviation from Test Standard.....	81
4.3.6 EUT Operating Conditions.....	81
4.3.7 Test Result.....	82
4.4 Occupied Bandwidth Measurement.....	92
4.4.1 Test Setup.....	92
4.4.2 Test Instruments.....	92
4.4.3 Test Procedure.....	92
4.4.4 Test Result.....	93
4.5 Peak Power Spectral Density Measurement.....	98
4.5.1 Limits of Peak Power Spectral Density Measurement.....	98
4.5.2 Test Setup.....	98
4.5.3 Test Instruments.....	98
4.5.4 Test Procedures.....	98
4.5.5 Deviation from Test Standard.....	99
4.5.6 EUT Operating Conditions.....	99
4.5.7 Test Results.....	100
4.6 Frequency Stability.....	107
4.6.1 Limits of Frequency Stability Measurement.....	107

4.6.2	Test Setup.....	107
4.6.3	Test Instruments .....	107
4.6.4	Test Procedure .....	108
4.6.5	Deviation from Test Standard .....	108
4.6.6	EUT Operating Condition .....	108
4.6.7	Test Results .....	108
4.7	6dB Bandwidth Measurement.....	109
4.7.1	Limits of 6dB Bandwidth Measurement.....	109
4.7.2	Test Setup.....	109
4.7.3	Test Instruments .....	109
4.7.4	Test Procedure .....	109
4.7.5	Deviation from Test Standard .....	109
4.7.6	EUT Operating Condition .....	109
4.7.7	Test Results .....	110
<b>Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band).....</b>		<b>112</b>
<b>Annex B- Band Edge Measurement.....</b>		<b>115</b>
<b>5</b>	<b>Pictures of Test Arrangements.....</b>	<b>126</b>
<b>Appendix – Information of the Testing Laboratories .....</b>		<b>127</b>

### Release Control Record

Issue No.	Description	Date Issued
RFBEAD-WTW-P21031019-1	Original release	Dec. 17, 2021
RFBEAD-WTW-P21031019-1 R1	Revised accessory devices of EUT.	Jan. 10, 2022

## 1 Certificate of Conformity

**Product:** 10.1" Tablet PC  
**Brand:** ADVANTECH  
**Test Model:** AIM-78S-2  
**Series Model:** AIM-78H-2, AIM-78H-2XXXXXXXXXXXXXXXXXX, AIM-78S-2XXXXXXXXXXXXXXXXXX  
(X: maybe 0-9, A-Z or blank) (refer to item 3.1 for more details)  
**Sample Status:** Engineering sample  
**Applicant:** ADVANTECH CO., LTD  
**Test Date:** May 20 ~ Sep. 24, 2021  
**Standards:** 47 CFR FCC Part 15, Subpart E (Section 15.407)  
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

**Prepared by :**                     Polly Chien                     , **Date:**                     Jan. 10, 2022                      
Polly Chien / Specialist

**Approved by :**                     Jeremy Lin                     , **Date:**                     Jan. 10, 2022                      
Jeremy Lin / Project Engineer

## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(8)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -1.59dB at 0.57400MHz.
15.407(b)(1/2/3/4(i/ii)/8)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.6dB at 5470.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX_IV not a standard connector.

### Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
- For U-NII-1, U-NII-2A and U-NII-2C band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex B. Test Procedures refer to report 4.1.3.

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	10.1" Tablet PC
Brand	ADVANTECH
Test Model	AIM-78S-2
Series Model	AIM-78H-2, AIM-78H-2XXXXXXXXXXXXXXXXXX, AIM-78S-2XXXXXXXXXXXXXXXXXX (X: maybe 0-9, A-Z or blank)
Model Difference	For marketing purpose
Sample Status	Engineering sample
Power Supply Rating	10.8Vdc (Battery) 19Vdc (from adapter)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
Operating Frequency	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5260 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500 ~ 5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	5180 ~ 5240MHz: 49.321mW 5260 ~ 5320MHz: 49.095mW 5500 ~ 5700MHz: 48.990mW 5745 ~ 5825MHz: 37.979mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Refer to note
Cable Supplied	Refer to note

**Note:**

1. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function
802.11a	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX

\* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40/VHT80 on 802.11ac mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	Tamura	XEW1934N	Input: 100-240Vac~1.5A , 50/60Hz Output: 19Vdc / 3.42A Power Line: AC: 1.5m cable without core DC: 1.2m cable without core
Adapter 2 (option)	FSP	FSP065-DBCM1	Input: 100-240Vac~ 2.0-1.0A, 50-60Hz Output: 19Vdc / 3.43A Power Line: AC: 1.5m cable without core DC: 1.5m cable with 1 core
Battery	ADVANTECH	AIM-BAT-10	Rating: 10.8Vdc, 24.84Wh, 2300mAh
Docking Station (option)	ADVANTECH	AIM-DOC-0001	Rating: 19Vdc, 3.42A (VESA Dock)
Docking Station (option)	ADVANTECH	AIM-VED0	Rating: 9 ~ 32Vdc (Vehicle Dock)
Docking Station (option)	ADVANTECH	AIM-OFD-0000	Rating: 19Vdc (Office Dock)
Extension Modules-Barcode scanner (20° ) (option)	ADVANTECH	AIM-EXT0-0040 (20 degree)	Sensor: 640 x 480 CMOS sensor
Extension Modules-Barcode scanner (70° ) (option)	ADVANTECH	AIM-EXT0-0041 (70 degree)	Sensor: 640 x 480 CMOS sensor
WLAN module	USI	MS-01	-



3. The EUT uses the following antennas.

Ant. Type	PIFA										
Ant. Connector	I-PEX_IV										
WiFi/B_Main											
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	3.36	3.36	3.15	3.16	3.06	3.25	3.22	3.23	3.32	3.01	3.12
Frequency (MHz)	5150	5250	5350	5450	5550	5650	5750	5850			
Peak Gain (dBi)	4.31	3.23	2.63	1.97	2.33	2.76	2.61	2.71			
WiFi_Aux											
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	4.19	4.09	4.25	4.12	4.07	3.95	3.86	3.86	3.71	3.46	3.43
Frequency (MHz)	5150	5250	5350	5450	5550	5650	5750	5850			
Peak Gain (dBi)	0.97	1.81	2.02	1.08	1.63	1.95	0.30	0.41			

\* The max. gain was chosen for final tests.

\* The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

4. The device WLAN 2.4GHz, BT and NFC can transmit simultaneously.

The device WLAN 5GHz, BT and NFC can transmit simultaneously.

### 3.2 Description of Test Modes

#### For 5180 ~ 5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20) and 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40) and 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

#### For 5260 ~ 5320MHz:

4 channels are provided for 802.11a, 802.11n (HT20) and 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40) and 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

**For 5500 ~ 5700MHz:**

11 channels are provided for 802.11a, 802.11n (HT20) and 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

5 channels are provided for 802.11n (HT40) and 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

**For 5745 ~ 5825MHz:**

5 channels are provided for 802.11a, 802.11n (HT20) and 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40) and 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE $\geq$ 1G	RE $<$ 1G	PLC	APCM	
A	√	√	√	√	EUT + Adapter
B	-	√	√	-	EUT + VESA Dock
C	-	√	√	-	EUT + Vehicle Dock
D	-	√	√	-	EUT + Office Dock

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement  
 RE $<$ 1G: Radiated Emission below 1GHz  
 PLC: Power Line Conducted Emission  
 APCM: Antenna Port Conducted Measurement

Note:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z plane**.
- For radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum fundamental emission level channel.
- "-": Means no effect.

#### Radiated Emission Test (Above 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	7.2
	802.11ac (VHT40)		38 to 46	38, 46	OFDM	15.0
	802.11ac (VHT80)		42	42	OFDM	29.3
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	7.2
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	15.0
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	7.2
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	15.0
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	7.2
	802.11ac (VHT40)		151 to 159	151, 159	OFDM	15.0
	802.11ac (VHT80)		155	155	OFDM	29.3

#### Radiated Emission Test (Below 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C, D	802.11a	5180-5240	36, 40, 48	157	OFDM	6.0
		5260-5320	52, 60, 64		OFDM	6.0
		5500-5700	100 to 140		OFDM	6.0
		5745-5825	149, 157, 165		OFDM	6.0

**Power Line Conducted Emission Test:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C, D	802.11a	5180-5240	36, 40, 48	157	OFDM	6.0
		5260-5320	52, 60, 64		OFDM	6.0
		5500-5700	100 to 140		OFDM	6.0
		5745-5825	149, 157, 165		OFDM	6.0

**Conducted Power Measurement:**

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	7.2
	802.11ac (VHT40)		38 to 46	38, 46	OFDM	15.0
	802.11ac (VHT80)		42	42	OFDM	29.3
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	7.2
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	15.0
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	7.2
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	15.0
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	7.2
	802.11ac (VHT40)		151 to 159	151, 159	OFDM	15.0
	802.11ac (VHT80)		155	155	OFDM	29.3

**Bandwidth, Peak Power Spectral Density Measurement:**

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	7.2
	802.11ac (VHT40)		38 to 46	38, 46	OFDM	15.0
	802.11ac (VHT80)		42	42	OFDM	29.3
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	7.2
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	15.0
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	7.2
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	15.0
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	7.2
	802.11ac (VHT40)		151 to 159	151, 159	OFDM	15.0
	802.11ac (VHT80)		155	155	OFDM	29.3

**Test Condition:**

Applicable to	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	23 deg. C, 67% RH	120Vac, 60Hz	Adair Peng
RE<1G	23 deg. C, 67% RH	120Vac, 60Hz	Adair Peng, Titan Hsu
	23 deg. C, 66% RH		
PLC	23 deg. C, 67% RH	120Vac, 60Hz	Adair Peng, Edison Lee
	25 deg. C, 75% RH		
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ivan Tseng

### 3.3 Duty Cycle of Test Signal

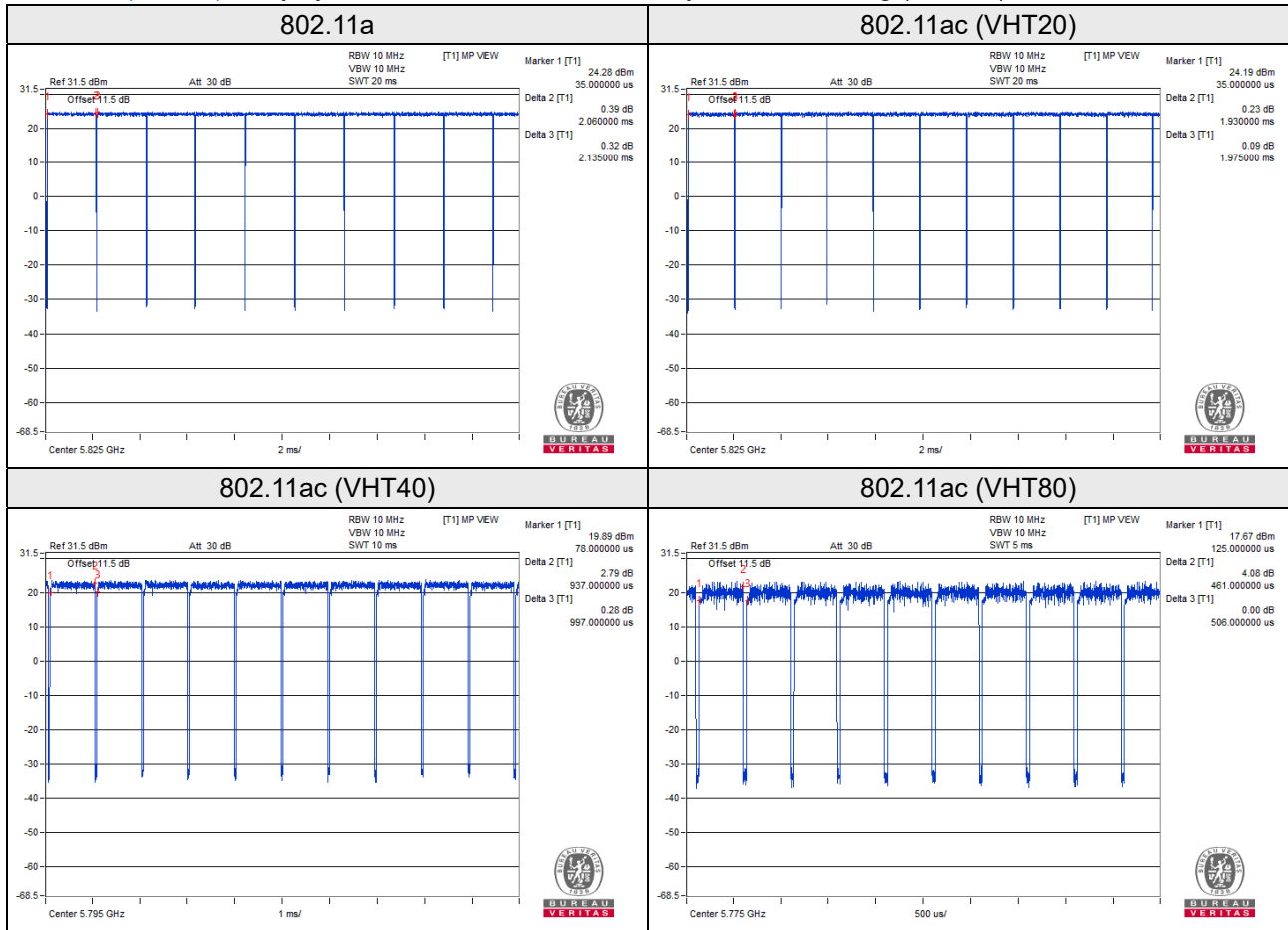
Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = 2.060/2.135 = 0.965, Duty factor =  $10 \cdot \log(1/0.965) = 0.16$

802.11ac (VHT20): Duty cycle = 1.930/1.975 = 0.977, Duty factor =  $10 \cdot \log(1/0.977) = 0.10$

802.11ac (VHT40): Duty cycle = 0.937/0.997 = 0.940, Duty factor =  $10 \cdot \log(1/0.940) = 0.27$

802.11ac (VHT80): Duty cycle = 0.461/0.506 = 0.911, Duty factor =  $10 \cdot \log(1/0.911) = 0.40$



### 3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	Lenovo	20J4 MD A003TW	PF-11H9AK	FCC DoC Approved	-
B.	Flash	HP	v250W	05	NA	Type-A
C.	Flash	HP	v250W	03	NA	Type-A
D.	Earphone	APPLE	NA	NA	NA	-
E.	Load	NA	NA	NA	NA	-
F.	Power Supply	TOPWARD	6306D	809760	NA	-
G.	GPS Antenna	Connectec	SP070809-001	3-6004-031R0 00	NA	Provided by client
H.	Monitor	DELL	SE2416Hc	CN-OWJKMC- 64180-66D-01 3B-A00	NA	-
I.	Docking Station	ADVANTECH	AIM-DOC-0001	NA	NA	Provided by client
J.	Docking Station	ADVANTECH	AIM-VED0	NA	NA	Provided by client
K.	Docking Station	ADVANTECH	AIM-OFD-0000	NA	NA	Provided by client
L.	Adapter	FSP	FSP065-DBCM1	NA	NA	Provided by client

Note:

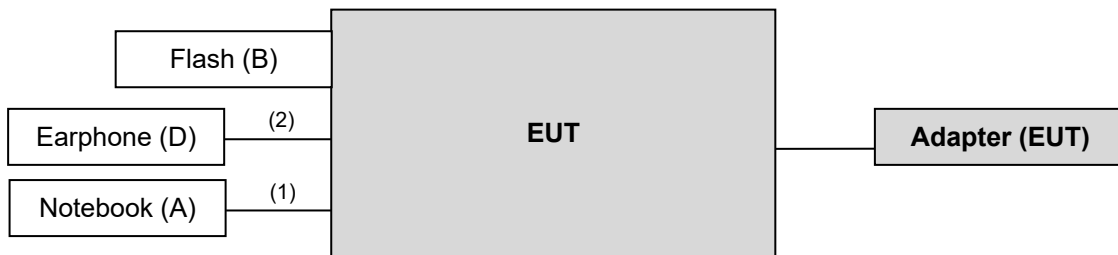
1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Type C cable	1	1	Y	0	-
2.	Audio cable	1	1.2	N	0	-
3.	RS232 cable	1	1.5	N	0	-
4.	LAN cable	1	7	N	0	RJ45, Cat.5e
5.	Antenna cable	1	5	N	0	Provided by client
6.	Power cable	1	1	N	0	Provided by client
7.	HDMI cable	1	2.0	Y	0	Provided by Lab. (Brand: Amber, Model: HDMI-AA120)
8.	DC Power cable	1	1.5	N	1	Provided by client
9.	AC Power cable	1	1.5	N	0	Provided by client

Note: The core(s) is(are) originally attached to the cable(s).

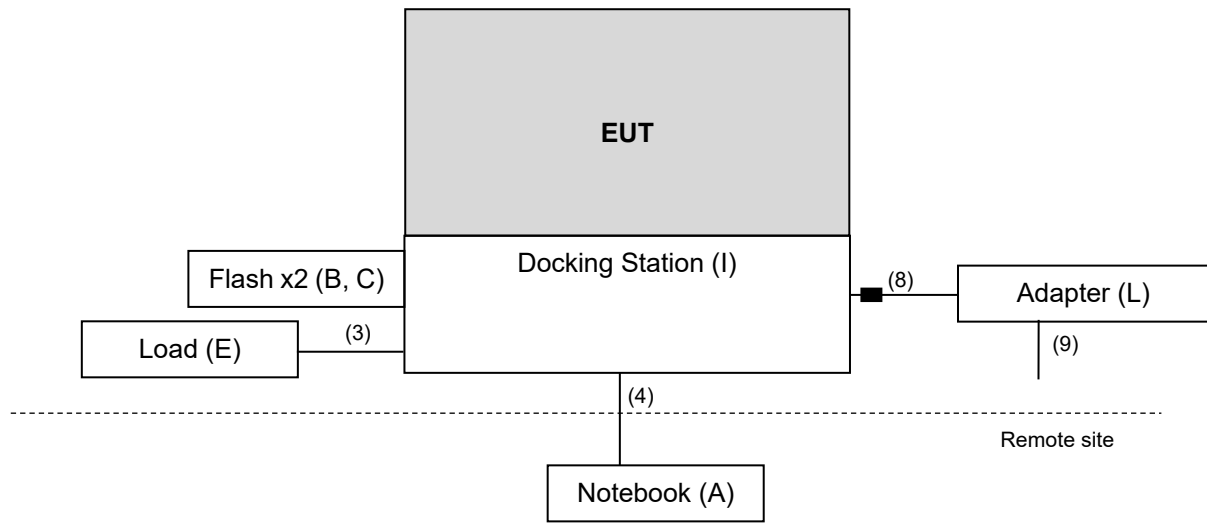
#### 3.4.1 Configuration of System under Test

Mode A

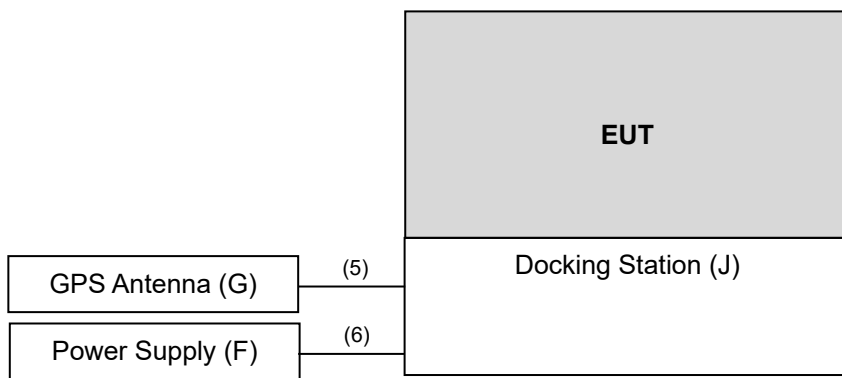




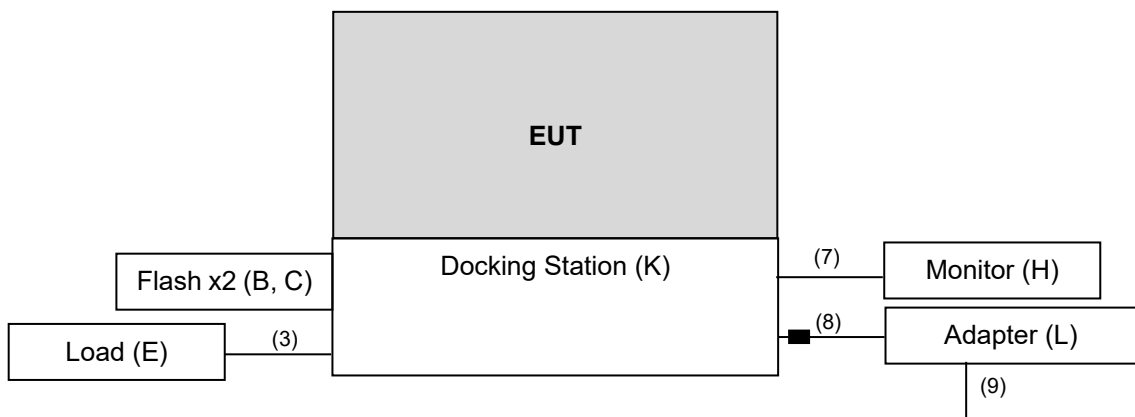
Mode B



Mode C



Mode D



### 3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

**Test standard:**

**FCC Part 15, Subpart E (15.407)**

ANSI C63.10:2013

All test items have been performed and recorded as per the above standards.

**References Test Guidance:**

**KDB 789033 D02 General UNII Test Procedure New Rules v02r01**

**KDB 662911 D01 Multiple Transmitter Output v02r01**

All test items have been performed as a reference to the above KDB test guidance.

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

Frequencies (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
Above 960	500	3

Note:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2(dBµV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	<input checked="" type="checkbox"/> 15.407(b)(4)(i)	PK: -27 (dBm/MHz) <sup>*1</sup> PK: 10 (dBm/MHz) <sup>*2</sup> PK: 15.6 (dBm/MHz) <sup>*3</sup> PK: 27 (dBm/MHz) <sup>*4</sup>	PK: 68.2(dBµV/m) <sup>*1</sup> PK: 105.2 (dBµV/m) <sup>*2</sup> PK: 110.8(dBµV/m) <sup>*3</sup> PK: 122.2 (dBµV/m) <sup>*4</sup>
<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.	

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000}{3} \sqrt{30 P} \quad \mu\text{V/m, where } P \text{ is the eirp (Watts).}$$

#### 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Dec. 31, 2020	Dec. 30, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
			Jun. 07, 2021	Jun. 06, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
			Jul. 24, 2021	Jul. 23, 2022
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 22, 2021	Mar. 21, 2022
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
			Jul. 24, 2021	Jul. 23, 2022
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
			Jul. 24, 2021	Jul. 23, 2022
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM -SM-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
			Jul. 24, 2021	Jul. 23, 2022
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 04, 2020	Sep. 03, 2021
			Sep. 04, 2021	Sep. 03, 2022
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	Jan. 19, 2021	Jan. 18, 2022
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	Jan. 11, 2021	Jan. 10, 2022

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. The test was performed in HwaYa Chamber 3.

### 4.1.3 Test Procedures

#### For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

#### For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

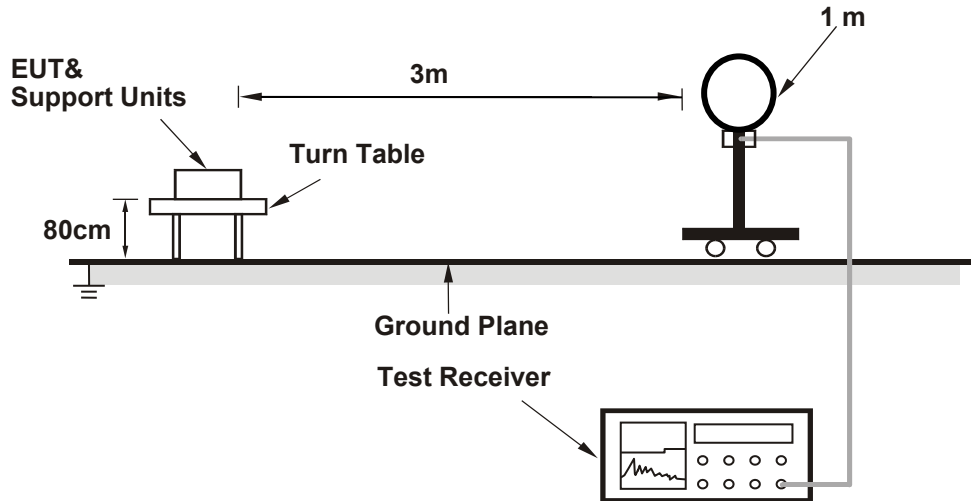
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz. (802.11a: RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT20): RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT40): RBW = 1MHz, VBW = 3kHz; 802.11ac (VHT80): RBW = 1MHz, VBW = 3kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

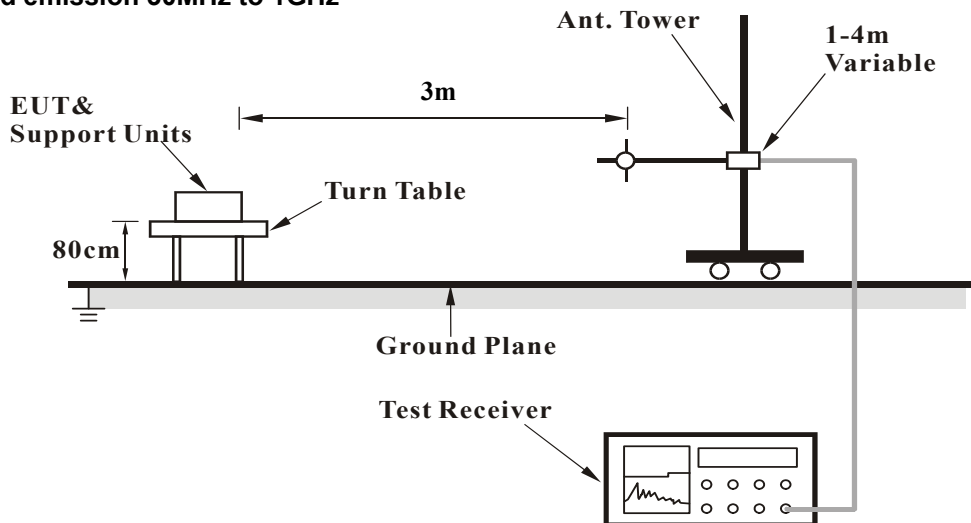
No deviation.

#### 4.1.5 Test Setup

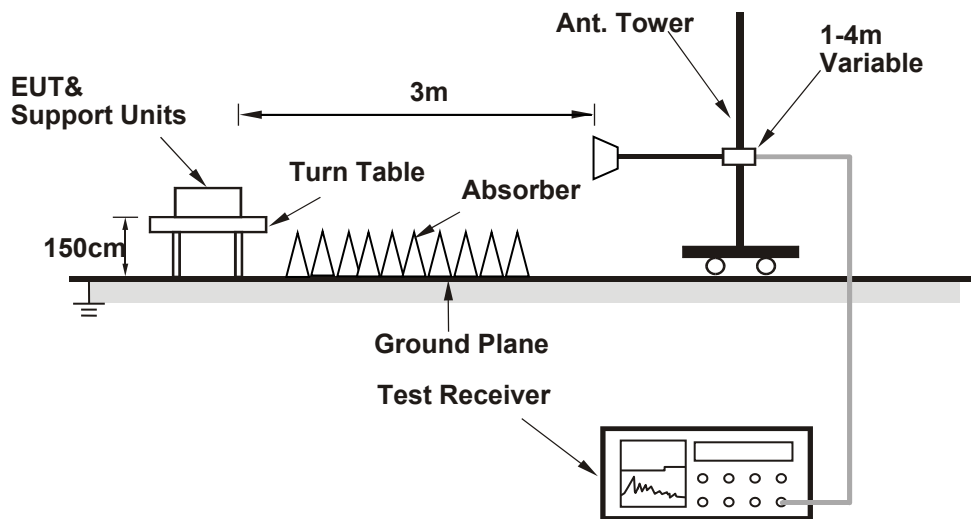
##### For Radiated emission below 30MHz



##### For Radiated emission 30MHz to 1GHz



### For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.6 EUT Operating Conditions

##### Mode A

- The EUT powered by adapter.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via USB cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.

##### Mode B

- The EUT powered by cradle.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via LAN cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.

##### Mode C

- The EUT powered by cradle.
- The EUT under transmission condition continuously at specific channel frequency.

##### Mode D

- The EUT powered by cradle.
- The EUT communicated with monitor via HDMI cables and transmission condition continuously at specific channel frequency.

#### 4.1.7 Test Results

Above 1GHz data:

RF Mode	TX 802.11a	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	64.1 PK	74.0	-9.9	2.15 H	28	57.7	6.4
2	5150.00	48.5 AV	54.0	-5.5	2.15 H	28	42.1	6.4
3	*5180.00	114.6 PK			2.15 H	28	72.4	42.2
4	*5180.00	103.6 AV			2.15 H	28	61.4	42.2
5	#10360.00	58.2 PK	68.2	-10.0	2.02 H	177	41.7	16.5

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	68.6 PK	74.0	-5.4	2.38 V	225	62.2	6.4
2	5150.00	49.9 AV	54.0	-4.1	2.38 V	225	43.5	6.4
3	*5180.00	117.1 PK			2.38 V	225	74.9	42.2
4	*5180.00	106.9 AV			2.38 V	225	64.7	42.2
5	#10360.00	58.5 PK	68.2	-9.7	1.77 V	20	42.0	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



RF Mode	TX 802.11a	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	115.2 PK			2.22 H	31	73.1	42.1
2	*5200.00	104.4 AV			2.22 H	31	62.3	42.1
3	#10400.00	58.5 PK	68.2	-9.7	2.13 H	185	42.0	16.5

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	118.2 PK			2.51 V	264	76.1	42.1
2	*5200.00	107.4 AV			2.51 V	264	65.3	42.1
3	#10400.00	58.8 PK	68.2	-9.4	1.81 V	28	42.3	16.5

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	113.5 PK			2.05 H	36	71.5	42.0
2	*5240.00	102.9 AV			2.05 H	36	60.9	42.0
3	5350.00	58.8 PK	74.0	-15.2	2.05 H	36	52.5	6.3
4	5350.00	43.6 AV	54.0	-10.4	2.05 H	36	37.3	6.3
5	#10480.00	59.5 PK	68.2	-8.7	1.97 H	179	41.4	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	119.0 PK			2.49 V	264	77.0	42.0
2	*5240.00	107.9 AV			2.49 V	264	65.9	42.0
3	5350.00	61.1 PK	74.0	-12.9	2.49 V	264	54.8	6.3
4	5350.00	44.9 AV	54.0	-9.1	2.49 V	264	38.6	6.3
5	#10480.00	59.8 PK	68.2	-8.4	1.79 V	23	41.7	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.1 PK	74.0	-15.9	1.53 H	18	51.7	6.4
2	5150.00	44.5 AV	54.0	-9.5	1.53 H	18	38.1	6.4
3	*5260.00	112.2 PK			1.53 H	18	70.3	41.9
4	*5260.00	102.7 AV			1.53 H	18	60.8	41.9
5	#10520.00	58.8 PK	68.2	-9.4	2.19 H	175	40.6	18.2

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.2 PK	74.0	-15.8	1.75 V	280	51.8	6.4
2	5150.00	44.6 AV	54.0	-9.4	1.75 V	280	38.2	6.4
3	*5260.00	115.0 PK			1.75 V	280	73.1	41.9
4	*5260.00	105.5 AV			1.75 V	280	63.6	41.9
5	#10520.00	59.9 PK	68.2	-8.3	1.85 V	28	41.7	18.2

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 60 : 5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	112.0 PK			1.61 H	18	70.1	41.9
2	*5300.00	102.6 AV			1.61 H	18	60.7	41.9
3	10600.00	58.0 PK	74.0	-16.0	2.09 H	162	40.4	17.6
4	10600.00	45.3 AV	54.0	-8.7	2.09 H	162	27.7	17.6

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	114.8 PK			1.48 V	181	72.9	41.9
2	*5300.00	105.1 AV			1.48 V	181	63.2	41.9
3	10600.00	58.3 PK	74.0	-15.7	1.72 V	34	40.7	17.6
4	10600.00	45.8 AV	54.0	-8.2	1.72 V	34	28.2	17.6

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	111.4 PK			1.44 H	130	69.4	42.0
2	*5320.00	101.9 AV			1.44 H	130	59.9	42.0
3	5350.00	64.4 PK	74.0	-9.6	1.00 H	130	58.1	6.3
4	5350.00	46.1 AV	54.0	-7.9	1.00 H	130	39.8	6.3
5	10640.00	58.8 PK	74.0	-15.2	2.11 H	172	41.3	17.5
6	10640.00	45.7 AV	54.0	-8.3	2.11 H	172	28.2	17.5

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	113.3 PK			1.67 V	279	71.3	42.0
2	*5320.00	103.9 AV			1.67 V	279	61.9	42.0
3	5350.00	67.2 PK	74.0	-6.8	1.67 V	279	60.9	6.3
4	5350.00	47.7 AV	54.0	-6.3	1.67 V	279	41.4	6.3
5	10640.00	58.8 PK	74.0	-15.2	1.79 V	31	41.3	17.5
6	10640.00	45.6 AV	54.0	-8.4	1.79 V	31	28.1	17.5

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 100 : 5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	61.3 PK	74.0	-12.7	1.59 H	131	55.0	6.3
2	5460.00	44.4 AV	54.0	-9.6	1.59 H	131	38.1	6.3
3	#5470.00	63.7 PK	68.2	-4.5	1.59 H	131	57.5	6.2
4	*5500.00	115.0 PK			1.59 H	131	72.9	42.1
5	*5500.00	104.0 AV			1.59 H	131	61.9	42.1
6	11000.00	59.2 PK	74.0	-14.8	2.22 H	189	41.1	18.1
7	11000.00	46.4 AV	54.0	-7.6	2.22 H	189	28.3	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	63.1 PK	74.0	-10.9	2.24 V	195	56.8	6.3
2	5460.00	45.0 AV	54.0	-9.0	2.24 V	195	38.7	6.3
3	#5470.00	66.7 PK	68.2	-1.5	2.24 V	195	60.5	6.2
4	*5500.00	115.6 PK			2.24 V	195	73.5	42.1
5	*5500.00	105.0 AV			2.24 V	195	62.9	42.1
6	11000.00	59.5 PK	74.0	-14.5	1.82 V	26	41.4	18.1
7	11000.00	46.6 AV	54.0	-7.4	1.82 V	26	28.5	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 116 : 5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	115.7 PK			1.66 H	125	73.6	42.1
2	*5580.00	105.1 AV			1.66 H	125	63.0	42.1
3	11160.00	59.7 PK	74.0	-14.3	2.15 H	182	41.3	18.4
4	11160.00	46.9 AV	54.0	-7.1	2.15 H	182	28.5	18.4

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	116.5 PK			2.23 V	189	74.4	42.1
2	*5580.00	106.0 AV			2.23 V	189	63.9	42.1
3	11160.00	60.1 PK	74.0	-13.9	1.90 V	35	41.7	18.4
4	11160.00	47.1 AV	54.0	-6.9	1.90 V	35	28.7	18.4

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	114.7 PK			1.61 H	128	72.4	42.3
2	*5700.00	103.5 AV			1.61 H	128	61.2	42.3
3	#5725.00	65.2 PK	68.2	-3.0	1.61 H	128	59.0	6.2
4	11400.00	59.0 PK	74.0	-15.0	2.19 H	178	41.1	17.9
5	11400.00	46.0 AV	54.0	-8.0	2.19 H	178	28.1	17.9

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	115.5 PK			2.26 V	173	73.2	42.3
2	*5700.00	104.5 AV			2.26 V	173	62.2	42.3
3	#5725.00	66.5 PK	68.2	-1.7	2.26 V	173	60.3	6.2
4	11400.00	59.4 PK	74.0	-14.6	1.82 V	29	41.5	17.9
5	11400.00	46.4 AV	54.0	-7.6	1.82 V	29	28.5	17.9

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.



RF Mode	TX 802.11a	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5619.60	56.6 PK	68.2	-11.6	1.84 H	337	50.4	6.2
2	*5745.00	116.6 PK			1.84 H	337	74.4	42.2
3	*5745.00	105.8 AV			1.84 H	337	63.6	42.2
4	#5980.40	58.1 PK	68.2	-10.1	1.84 H	337	51.0	7.1
5	11490.00	62.4 PK	74.0	-11.6	1.52 H	210	43.8	18.6
6	11490.00	49.2 AV	54.0	-4.8	1.52 H	210	30.6	18.6

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5644.80	56.5 PK	68.2	-11.7	1.53 V	144	50.3	6.2
2	*5745.00	118.5 PK			1.53 V	144	76.3	42.2
3	*5745.00	108.5 AV			1.53 V	144	66.3	42.2
4	#5957.60	58.5 PK	68.2	-9.7	1.53 V	144	51.2	7.3
5	11490.00	62.3 PK	74.0	-11.7	1.64 V	173	43.7	18.6
6	11490.00	49.1 AV	54.0	-4.9	1.64 V	173	30.5	18.6

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5633.20	57.1 PK	68.2	-11.1	1.86 H	337	50.8	6.3
2	*5785.00	116.9 PK			1.86 H	337	74.7	42.2
3	*5785.00	106.6 AV			1.86 H	337	64.4	42.2
4	#5972.80	58.4 PK	68.2	-9.8	1.86 H	337	51.2	7.2
5	11570.00	62.4 PK	74.0	-11.6	1.58 H	215	44.0	18.4
6	11570.00	49.1 AV	54.0	-4.9	1.58 H	215	30.7	18.4

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5635.20	56.9 PK	68.2	-11.3	1.51 V	141	50.6	6.3
2	*5785.00	119.6 PK			1.51 V	141	77.4	42.2
3	*5785.00	109.2 AV			1.51 V	141	67.0	42.2
4	#5960.80	58.8 PK	68.2	-9.4	1.51 V	141	51.5	7.3
5	11570.00	62.3 PK	74.0	-11.7	1.69 V	175	43.9	18.4
6	11570.00	49.1 AV	54.0	-4.9	1.69 V	175	30.7	18.4

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5640.40	57.4 PK	68.2	-10.8	1.90 H	336	51.2	6.2
2	*5825.00	116.2 PK			1.90 H	336	73.9	42.3
3	*5825.00	106.1 AV			1.90 H	336	63.8	42.3
4	#5998.40	58.3 PK	68.2	-9.9	1.90 H	336	51.2	7.1
5	11650.00	61.7 PK	74.0	-12.3	1.58 H	209	43.6	18.1
6	11650.00	48.6 AV	54.0	-5.4	1.58 H	209	30.5	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5605.60	57.9 PK	68.2	-10.3	1.64 V	141	51.7	6.2
2	*5825.00	118.6 PK			1.64 V	141	76.3	42.3
3	*5825.00	108.5 AV			1.64 V	141	66.2	42.3
4	#5930.80	58.6 PK	68.2	-9.6	1.64 V	141	51.3	7.3
5	11650.00	61.6 PK	74.0	-12.4	1.61 V	169	43.5	18.1
6	11650.00	48.5 AV	54.0	-5.5	1.61 V	169	30.4	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	67.7 PK	74.0	-6.3	2.19 H	27	61.3	6.4
2	5150.00	50.8 AV	54.0	-3.2	2.19 H	27	44.4	6.4
3	*5180.00	112.3 PK			2.19 H	27	70.1	42.2
4	*5180.00	101.3 AV			2.19 H	27	59.1	42.2
5	#10360.00	58.0 PK	68.2	-10.2	1.96 H	175	41.5	16.5

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	66.9 PK	74.0	-7.1	2.37 V	231	60.5	6.4
2	5150.00	49.9 AV	54.0	-4.1	2.37 V	231	43.5	6.4
3	*5180.00	117.2 PK			2.37 V	231	75.0	42.2
4	*5180.00	105.6 AV			2.37 V	231	63.4	42.2
5	#10360.00	58.4 PK	68.2	-9.8	1.80 V	19	41.9	16.5

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	112.3 PK			2.42 H	25	70.2	42.1
2	*5200.00	101.2 AV			2.42 H	25	59.1	42.1
3	#10400.00	58.5 PK	68.2	-9.7	2.08 H	181	42.0	16.5

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	117.1 PK			2.47 V	241	75.0	42.1
2	*5200.00	105.8 AV			2.47 V	241	63.7	42.1
3	#10400.00	58.7 PK	68.2	-9.5	1.84 V	29	42.2	16.5

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.6 PK	74.0	-15.4	2.27 H	26	52.2	6.4
2	5150.00	43.7 AV	54.0	-10.3	2.27 H	26	37.3	6.4
3	*5240.00	113.6 PK			2.27 H	26	71.6	42.0
4	*5240.00	102.1 AV			2.27 H	26	60.1	42.0
5	#10480.00	59.4 PK	68.2	-8.8	2.09 H	174	41.3	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	118.6 PK			2.43 V	264	76.6	42.0
2	*5240.00	106.9 AV			2.43 V	264	64.9	42.0
3	5350.00	60.5 PK	74.0	-13.5	2.43 V	264	54.2	6.3
4	5350.00	44.7 AV	54.0	-9.3	2.43 V	264	38.4	6.3
5	#10480.00	59.9 PK	68.2	-8.3	1.75 V	26	41.8	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	48.2 PK	74.0	-25.8	1.63 H	131	41.8	6.4
2	5150.00	34.8 AV	54.0	-19.2	1.63 H	131	28.4	6.4
3	*5260.00	112.0 PK			1.63 H	131	70.1	41.9
4	*5260.00	102.0 AV			1.63 H	131	60.1	41.9
5	#10520.00	58.5 PK	68.2	-9.7	2.87 H	171	40.3	18.2

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.8 PK	74.0	-15.2	1.82 V	291	52.4	6.4
2	5150.00	45.0 AV	54.0	-9.0	1.82 V	291	38.6	6.4
3	*5260.00	114.7 PK			1.82 V	291	72.8	41.9
4	*5260.00	104.6 AV			1.82 V	291	62.7	41.9
5	#10520.00	59.8 PK	68.2	-8.4	1.89 V	30	41.6	18.2

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 60 : 5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	111.9 PK			1.52 H	19	70.0	41.9
2	*5300.00	102.1 AV			1.52 H	19	60.2	41.9
3	10600.00	58.0 PK	74.0	-16.0	2.10 H	162	40.4	17.6
4	10600.00	45.1 AV	54.0	-8.9	2.10 H	162	27.5	17.6

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	114.7 PK			1.64 V	183	72.8	41.9
2	*5300.00	104.8 AV			1.64 V	183	62.9	41.9
3	10600.00	59.5 PK	74.0	-14.5	1.75 V	39	41.9	17.6
4	10600.00	46.0 AV	54.0	-8.0	1.75 V	39	28.4	17.6

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.



RF Mode	TX 802.11ac (VHT20)	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	111.5 PK			1.31 H	129	69.5	42.0
2	*5320.00	102.0 AV			1.31 H	129	60.0	42.0
3	5350.00	67.0 PK	74.0	-7.0	1.31 H	129	60.7	6.3
4	5350.00	46.5 AV	54.0	-7.5	1.31 H	129	40.2	6.3
5	10640.00	58.9 PK	74.0	-15.1	2.10 H	175	41.4	17.5
6	10640.00	45.8 AV	54.0	-8.2	2.10 H	175	28.3	17.5

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	113.3 PK			1.65 V	283	71.3	42.0
2	*5320.00	103.4 AV			1.65 V	283	61.4	42.0
3	5350.00	66.7 PK	74.0	-7.3	1.65 V	283	60.4	6.3
4	5350.00	47.2 AV	54.0	-6.8	1.65 V	283	40.9	6.3
5	10640.00	58.1 PK	74.0	-15.9	1.82 V	29	40.6	17.5
6	10640.00	45.9 AV	54.0	-8.1	1.82 V	29	28.4	17.5

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 100 : 5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	64.3 PK	74.0	-9.7	1.52 H	144	58.0	6.3
2	5460.00	43.4 AV	54.0	-10.6	1.52 H	144	37.1	6.3
3	#5470.00	65.2 PK	68.2	-3.0	1.52 H	144	59.0	6.2
4	*5500.00	114.8 PK			1.52 H	144	72.7	42.1
5	*5500.00	103.7 AV			1.52 H	144	61.6	42.1
6	11000.00	59.4 PK	74.0	-14.6	2.24 H	190	41.3	18.1
7	11000.00	46.5 AV	54.0	-7.5	2.24 H	190	28.4	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	65.6 PK	74.0	-8.4	2.06 V	192	59.3	6.3
2	5460.00	44.6 AV	54.0	-9.4	2.06 V	192	38.3	6.3
3	#5470.00	67.0 PK	68.2	-1.2	2.06 V	192	60.8	6.2
4	*5500.00	115.7 PK			2.06 V	192	73.6	42.1
5	*5500.00	104.7 AV			2.06 V	192	62.6	42.1
6	11000.00	59.8 PK	74.0	-14.2	1.94 V	21	41.7	18.1
7	11000.00	46.8 AV	54.0	-7.2	1.94 V	21	28.7	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 116 : 5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	114.7 PK			1.69 H	135	72.6	42.1
2	*5580.00	103.7 AV			1.69 H	135	61.6	42.1
3	11160.00	59.6 PK	74.0	-14.4	2.08 H	179	41.2	18.4
4	11160.00	46.9 AV	54.0	-7.1	2.08 H	179	28.5	18.4

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	115.8 PK			2.12 V	189	73.7	42.1
2	*5580.00	104.7 AV			2.12 V	189	62.6	42.1
3	11160.00	60.0 PK	74.0	-14.0	1.87 V	29	41.6	18.4
4	11160.00	47.2 AV	54.0	-6.8	1.87 V	29	28.8	18.4

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	114.3 PK			1.71 H	149	72.0	42.3
2	*5700.00	103.1 AV			1.71 H	149	60.8	42.3
3	#5725.00	65.2 PK	68.2	-3.0	1.71 H	149	59.0	6.2
4	11400.00	59.4 PK	74.0	-14.6	2.08 H	176	41.5	17.9
5	11400.00	46.4 AV	54.0	-7.6	2.08 H	176	28.5	17.9

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	115.3 PK			2.46 V	198	73.0	42.3
2	*5700.00	104.2 AV			2.46 V	198	61.9	42.3
3	#5725.00	66.7 PK	68.2	-1.5	2.46 V	198	60.5	6.2
4	11400.00	59.7 PK	74.0	-14.3	1.90 V	27	41.8	17.9
5	11400.00	46.8 AV	54.0	-7.2	1.90 V	27	28.9	17.9

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5624.80	56.8 PK	68.2	-11.4	1.86 H	336	50.6	6.2
2	*5745.00	116.7 PK			1.86 H	336	74.5	42.2
3	*5745.00	105.2 AV			1.86 H	336	63.0	42.2
4	#5928.80	58.3 PK	68.2	-9.9	1.86 H	336	51.0	7.3
5	11490.00	62.0 PK	74.0	-12.0	1.58 H	205	43.4	18.6
6	11490.00	49.0 AV	54.0	-5.0	1.58 H	205	30.4	18.6

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5635.60	57.1 PK	68.2	-11.1	1.58 V	144	50.8	6.3
2	*5745.00	119.1 PK			1.58 V	144	76.9	42.2
3	*5745.00	107.5 AV			1.58 V	144	65.3	42.2
4	#5958.80	58.6 PK	68.2	-9.6	1.58 V	144	51.3	7.3
5	11490.00	62.1 PK	74.0	-11.9	1.70 V	169	43.5	18.6
6	11490.00	48.9 AV	54.0	-5.1	1.70 V	169	30.3	18.6

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5610.80	56.8 PK	68.2	-11.4	2.08 H	335	50.6	6.2
2	*5785.00	117.2 PK			2.08 H	335	75.0	42.2
3	*5785.00	106.1 AV			2.08 H	335	63.9	42.2
4	#5928.80	57.7 PK	68.2	-10.5	2.08 H	335	50.4	7.3
5	11570.00	62.3 PK	74.0	-11.7	1.58 H	214	43.9	18.4
6	11570.00	49.0 AV	54.0	-5.0	1.58 H	214	30.6	18.4

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5627.20	57.3 PK	68.2	-10.9	1.59 V	143	51.1	6.2
2	*5785.00	118.6 PK			1.59 V	143	76.4	42.2
3	*5785.00	107.9 AV			1.59 V	143	65.7	42.2
4	#5934.80	58.6 PK	68.2	-9.6	1.59 V	143	51.3	7.3
5	11570.00	62.1 PK	74.0	-11.9	1.65 V	172	43.7	18.4
6	11570.00	48.9 AV	54.0	-5.1	1.65 V	172	30.5	18.4

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5638.80	56.5 PK	68.2	-11.7	1.87 H	335	50.2	6.3
2	*5825.00	115.4 PK			1.87 H	335	73.1	42.3
3	*5825.00	104.7 AV			1.87 H	335	62.4	42.3
4	#5959.60	58.1 PK	68.2	-10.1	1.87 H	335	50.8	7.3
5	11650.00	61.4 PK	74.0	-12.6	1.51 H	211	43.3	18.1
6	11650.00	48.4 AV	54.0	-5.6	1.51 H	211	30.3	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.00	57.0 PK	68.2	-11.2	1.66 V	162	50.8	6.2
2	*5825.00	119.2 PK			1.67 V	163	76.9	42.3
3	*5825.00	108.5 AV			1.67 V	163	66.2	42.3
4	#5965.60	58.6 PK	68.2	-9.6	1.66 V	162	51.3	7.3
5	11650.00	61.5 PK	74.0	-12.5	1.65 V	170	43.4	18.1
6	11650.00	48.2 AV	54.0	-5.8	1.65 V	170	30.1	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 38 : 5190 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	63.3 PK	74.0	-10.7	2.12 H	26	56.9	6.4
2	5150.00	47.6 AV	54.0	-6.4	2.12 H	26	41.2	6.4
3	*5190.00	105.0 PK			2.12 H	26	62.9	42.1
4	*5190.00	95.4 AV			2.12 H	26	53.3	42.1
5	#10380.00	57.9 PK	68.2	-10.3	1.96 H	182	41.3	16.6

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	66.6 PK	74.0	-7.4	2.46 V	231	60.2	6.4
2	5150.00	53.3 AV	54.0	-0.7	2.46 V	231	46.9	6.4
3	*5190.00	109.2 PK			2.46 V	231	67.1	42.1
4	*5190.00	99.2 AV			2.46 V	231	57.1	42.1
5	#10380.00	58.2 PK	68.2	-10.0	1.77 V	27	41.6	16.6

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.



RF Mode	TX 802.11ac (VHT40)	Channel	CH 46 : 5230 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	64.0 PK	74.0	-10.0	2.27 H	27	57.6	6.4
2	5150.00	49.2 AV	54.0	-4.8	2.27 H	27	42.8	6.4
3	*5230.00	112.2 PK			2.27 H	27	70.2	42.0
4	*5230.00	101.7 AV			2.27 H	27	59.7	42.0
5	5350.00	58.1 PK	74.0	-15.9	2.27 H	27	51.8	6.3
6	5350.00	44.7 AV	54.0	-9.3	2.27 H	27	38.4	6.3
7	#10460.00	59.3 PK	68.2	-8.9	2.12 H	181	41.6	17.7

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	71.3 PK	74.0	-2.7	2.49 V	261	64.9	6.4
2	5150.00	52.7 AV	54.0	-1.3	2.49 V	261	46.3	6.4
3	*5230.00	116.4 PK			2.49 V	261	74.4	42.0
4	*5230.00	105.9 AV			2.49 V	261	63.9	42.0
5	5350.00	61.5 PK	74.0	-12.5	2.49 V	261	55.2	6.3
6	5350.00	47.6 AV	54.0	-6.4	2.49 V	261	41.3	6.3
7	#10460.00	59.2 PK	68.2	-9.0	1.87 V	36	41.5	17.7

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 54 : 5270 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.1 PK	74.0	-15.9	1.52 H	130	51.7	6.4
2	5150.00	44.6 AV	54.0	-9.4	1.52 H	130	38.2	6.4
3	*5270.00	109.9 PK			1.52 H	130	68.0	41.9
4	*5270.00	100.1 AV			1.52 H	130	58.2	41.9
5	5350.00	61.1 PK	74.0	-12.9	1.52 H	130	54.8	6.3
6	5350.00	44.7 AV	54.0	-9.3	1.52 H	130	38.4	6.3
7	#10540.00	59.1 PK	68.2	-9.1	2.05 H	159	41.0	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.3 PK	74.0	-15.7	1.57 V	286	51.9	6.4
2	5150.00	44.6 AV	54.0	-9.4	1.57 V	286	38.2	6.4
3	*5270.00	113.1 PK			1.57 V	286	71.2	41.9
4	*5270.00	103.2 AV			1.57 V	286	61.3	41.9
5	5350.00	66.5 PK	74.0	-7.5	1.57 V	286	60.2	6.3
6	5350.00	46.7 AV	54.0	-7.3	1.57 V	286	40.4	6.3
7	#10540.00	59.8 PK	68.2	-8.4	1.75 V	34	41.7	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 62 : 5310 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	105.6 PK			1.47 H	355	63.6	42.0
2	*5310.00	95.8 AV			1.47 H	355	53.8	42.0
3	5350.00	63.9 PK	74.0	-10.1	1.47 H	355	57.6	6.3
4	5350.00	50.9 AV	54.0	-3.1	1.47 H	355	44.6	6.3
5	10620.00	58.9 PK	74.0	-15.1	2.02 H	188	41.2	17.7
6	10620.00	45.8 AV	54.0	-8.2	2.02 H	188	28.1	17.7

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	107.7 PK			1.67 V	286	65.7	42.0
2	*5310.00	98.8 AV			1.67 V	286	56.8	42.0
3	5350.00	65.5 PK	74.0	-8.5	1.67 V	286	59.2	6.3
4	5350.00	52.5 AV	54.0	-1.5	1.67 V	286	46.2	6.3
5	10620.00	59.1 PK	74.0	-14.9	1.73 V	34	41.4	17.7
6	10620.00	46.1 AV	54.0	-7.9	1.73 V	34	28.4	17.7

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 102 : 5510 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	61.0 PK	74.0	-13.0	1.67 H	130	54.7	6.3
2	5460.00	47.1 AV	54.0	-6.9	1.67 H	130	40.8	6.3
3	#5470.00	64.7 PK	68.2	-3.5	1.67 H	130	58.5	6.2
4	*5510.00	109.5 PK			1.67 H	130	67.4	42.1
5	*5510.00	99.3 AV			1.67 H	130	57.2	42.1
6	11020.00	59.2 PK	74.0	-14.8	2.23 H	190	41.1	18.1
7	11020.00	46.3 AV	54.0	-7.7	2.23 H	190	28.2	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	63.2 PK	74.0	-10.8	2.32 V	192	56.9	6.3
2	5460.00	46.6 AV	54.0	-7.4	2.32 V	192	40.3	6.3
<b>3</b>	<b>#5470.00</b>	<b>67.6 PK</b>	<b>68.2</b>	<b>-0.6</b>	<b>2.32 V</b>	<b>192</b>	<b>61.4</b>	<b>6.2</b>
4	*5510.00	110.0 PK			2.32 V	192	67.9	42.1
5	*5510.00	100.3 AV			2.32 V	192	58.2	42.1
6	11020.00	59.4 PK	74.0	-14.6	1.82 V	25	41.3	18.1
7	11020.00	46.5 AV	54.0	-7.5	1.82 V	25	28.4	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 110 : 5550 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	112.5 PK			1.68 H	128	70.4	42.1
2	*5550.00	102.1 AV			1.68 H	128	60.0	42.1
3	11100.00	59.4 PK	74.0	-14.6	2.08 H	179	41.2	18.2
4	11100.00	46.5 AV	54.0	-7.5	2.08 H	179	28.3	18.2

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	113.3 PK			2.29 V	190	71.2	42.1
2	*5550.00	103.2 AV			2.29 V	190	61.1	42.1
3	11100.00	59.7 PK	74.0	-14.3	1.79 V	27	41.5	18.2
4	11100.00	46.8 AV	54.0	-7.2	1.79 V	27	28.6	18.2

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 134 : 5670 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	111.4 PK			1.68 H	135	69.2	42.2
2	*5670.00	101.7 AV			1.68 H	135	59.5	42.2
3	#5725.00	63.2 PK	68.2	-5.0	1.68 H	135	57.0	6.2
4	11340.00	59.4 PK	74.0	-14.6	2.17 H	176	41.1	18.3
5	11340.00	46.5 AV	54.0	-7.5	2.17 H	176	28.2	18.3

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	112.2 PK			2.32 V	193	70.0	42.2
2	*5670.00	102.7 AV			2.32 V	193	60.5	42.2
3	#5725.00	61.5 PK	68.2	-6.7	2.32 V	193	55.3	6.2
4	11340.00	59.6 PK	74.0	-14.4	1.87 V	20	41.3	18.3
5	11340.00	46.8 AV	54.0	-7.2	1.87 V	20	28.5	18.3

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 151 : 5755 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5636.40	56.8 PK	68.2	-11.4	2.01 H	319	50.5	6.3
2	*5755.00	112.5 PK			2.01 H	319	70.2	42.3
3	*5755.00	102.0 AV			2.01 H	319	59.7	42.3
4	#6000.00	58.4 PK	68.2	-9.8	2.01 H	319	51.3	7.1
5	11510.00	61.5 PK	74.0	-12.5	1.57 H	200	42.9	18.6
6	11510.00	48.5 AV	54.0	-5.5	1.57 H	200	29.9	18.6

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5620.40	57.3 PK	68.2	-10.9	1.74 V	162	51.1	6.2
2	*5755.00	115.7 PK			1.74 V	162	73.4	42.3
3	*5755.00	104.9 AV			1.74 V	162	62.6	42.3
4	#5943.20	58.0 PK	68.2	-10.2	1.74 V	162	50.7	7.3
5	11510.00	61.3 PK	74.0	-12.7	1.71 V	171	42.7	18.6
6	11510.00	48.3 AV	54.0	-5.7	1.71 V	171	29.7	18.6

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 159 : 5795 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5629.20	56.9 PK	68.2	-11.3	1.94 H	357	50.7	6.2
2	*5795.00	112.9 PK			1.94 H	357	70.7	42.2
3	*5795.00	102.6 AV			1.94 H	357	60.4	42.2
4	#5974.40	58.6 PK	68.2	-9.6	1.94 H	357	51.5	7.1
5	11590.00	61.2 PK	74.0	-12.8	1.59 H	213	43.0	18.2
6	11590.00	48.3 AV	54.0	-5.7	1.59 H	213	30.1	18.2

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5638.40	56.8 PK	68.2	-11.4	1.88 V	161	50.5	6.3
2	*5795.00	116.6 PK			1.88 V	161	74.4	42.2
3	*5795.00	106.2 AV			1.88 V	161	64.0	42.2
4	#5996.40	58.5 PK	68.2	-9.7	1.88 V	161	51.4	7.1
5	11590.00	61.1 PK	74.0	-12.9	1.69 V	165	42.9	18.2
6	11590.00	48.1 AV	54.0	-5.9	1.69 V	165	29.9	18.2

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.



RF Mode	TX 802.11ac (VHT80)	Channel	CH 42 : 5210 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	60.7 PK	74.0	-13.3	2.30 H	27	54.3	6.4
2	5150.00	47.6 AV	54.0	-6.4	2.30 H	27	41.2	6.4
3	*5210.00	103.3 PK			2.30 H	27	61.3	42.0
4	*5210.00	93.9 AV			2.30 H	27	51.9	42.0
5	5350.00	59.4 PK	74.0	-14.6	2.30 H	27	53.1	6.3
6	5350.00	46.2 AV	54.0	-7.8	2.30 H	27	39.9	6.3
7	#10420.00	57.9 PK	68.2	-10.3	1.99 H	172	40.9	17.0

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	63.9 PK	74.0	-10.1	2.51 V	264	57.5	6.4
2	5150.00	52.5 AV	54.0	-1.5	2.51 V	264	46.1	6.4
3	*5210.00	107.8 PK			2.51 V	264	65.8	42.0
4	*5210.00	98.0 AV			2.51 V	264	56.0	42.0
5	5350.00	59.3 PK	74.0	-14.7	2.51 V	264	53.0	6.3
6	5350.00	46.5 AV	54.0	-7.5	2.51 V	264	40.2	6.3
7	#10420.00	58.3 PK	68.2	-9.9	1.87 V	38	41.3	17.0

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 58 : 5290 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.5 PK	74.0	-15.5	2.21 H	29	52.1	6.4
2	5150.00	45.4 AV	54.0	-8.6	2.21 H	29	39.0	6.4
3	*5290.00	102.6 PK			2.21 H	29	60.7	41.9
4	*5290.00	92.3 AV			2.21 H	29	50.4	41.9
5	5350.00	62.2 PK	74.0	-11.8	2.21 H	29	55.9	6.3
6	5350.00	48.8 AV	54.0	-5.2	2.21 H	29	42.5	6.3
7	#10580.00	59.1 PK	68.2	-9.1	2.05 H	188	41.3	17.8

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	57.7 PK	74.0	-16.3	1.78 V	277	51.3	6.4
2	5150.00	45.4 AV	54.0	-8.6	1.78 V	277	39.0	6.4
3	*5290.00	103.2 PK			1.78 V	277	61.3	41.9
4	*5290.00	93.6 AV			1.78 V	277	51.7	41.9
5	5350.00	64.0 PK	74.0	-10.0	1.78 V	277	57.7	6.3
6	5350.00	52.4 AV	54.0	-1.6	1.78 V	277	46.1	6.3
7	#10580.00	59.5 PK	68.2	-8.7	1.97 V	33	41.7	17.8

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 106 : 5530 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	62.3 PK	74.0	-11.7	1.55 H	130	56.0	6.3
2	5460.00	50.2 AV	54.0	-3.8	1.55 H	130	43.9	6.3
3	#5470.00	65.3 PK	68.2	-2.9	1.55 H	130	59.1	6.2
4	*5530.00	106.0 PK			1.55 H	130	63.9	42.1
5	*5530.00	96.0 AV			1.55 H	130	53.9	42.1
6	#5725.00	57.3 PK	68.2	-10.9	1.55 H	130	51.1	6.2
7	11060.00	59.8 PK	74.0	-14.2	2.24 H	181	41.7	18.1
8	11060.00	47.2 AV	54.0	-6.8	2.24 H	181	29.1	18.1

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	64.1 PK	74.0	-9.9	2.22 V	195	57.8	6.3
2	5460.00	52.8 AV	54.0	-1.2	2.22 V	195	46.5	6.3
3	#5470.00	64.7 PK	68.2	-3.5	2.22 V	195	58.5	6.2
4	*5530.00	105.3 PK			2.22 V	195	63.2	42.1
5	*5530.00	95.5 AV			2.22 V	195	53.4	42.1
6	#5725.00	57.8 PK	68.2	-10.4	2.22 V	195	51.6	6.2
7	11060.00	60.1 PK	74.0	-13.9	1.85 V	29	42.0	18.1
8	11060.00	47.5 AV	54.0	-6.5	1.85 V	29	29.4	18.1

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 122 : 5610 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	57.9 PK	74.0	-16.1	1.52 H	130	51.6	6.3
2	5460.00	45.5 AV	54.0	-8.5	1.52 H	130	39.2	6.3
3	#5470.00	59.2 PK	68.2	-9.0	1.52 H	130	53.0	6.2
4	*5610.00	109.1 PK			1.52 H	130	67.0	42.1
5	*5610.00	99.1 AV			1.52 H	130	57.0	42.1
6	#5725.00	59.1 PK	68.2	-9.1	1.52 H	130	52.9	6.2
7	11220.00	60.5 PK	74.0	-13.5	2.11 H	191	42.0	18.5
8	11220.00	47.7 AV	54.0	-6.3	2.11 H	191	29.2	18.5

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	58.2 PK	74.0	-15.8	2.20 V	196	51.9	6.3
2	5460.00	45.8 AV	54.0	-8.2	2.20 V	196	39.5	6.3
3	#5470.00	58.5 PK	68.2	-9.7	2.20 V	196	52.3	6.2
4	*5610.00	109.8 PK			2.20 V	196	67.7	42.1
5	*5610.00	100.1 AV			2.20 V	196	58.0	42.1
6	#5725.00	60.0 PK	68.2	-8.2	2.20 V	196	53.8	6.2
7	11220.00	60.7 PK	74.0	-13.3	1.79 V	33	42.2	18.5
8	11220.00	48.0 AV	54.0	-6.0	1.79 V	33	29.5	18.5

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 155 : 5775 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5645.20	63.4 PK	68.2	-4.8	1.93 H	336	57.2	6.2
2	#5650.00	64.8 PK	68.2	-3.4	1.93 H	336	58.6	6.2
3	*5775.00	110.4 PK			1.93 H	336	68.2	42.2
4	*5775.00	101.0 AV			1.93 H	336	58.8	42.2
5	#5925.00	62.5 PK	68.2	-5.7	1.93 H	336	55.2	7.3
6	#5935.20	61.3 PK	68.2	-6.9	1.93 H	336	54.0	7.3
7	11550.00	61.2 PK	74.0	-12.8	1.56 H	218	42.8	18.4
8	11550.00	48.1 AV	54.0	-5.9	1.56 H	218	29.7	18.4

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5648.40	65.0 PK	68.2	-3.2	1.50 V	145	58.8	6.2
2	#5650.00	66.5 PK	68.2	-1.7	1.50 V	145	60.3	6.2
3	*5775.00	113.2 PK			1.50 V	145	71.0	42.2
4	*5775.00	103.3 AV			1.50 V	145	61.1	42.2
5	#5925.00	65.4 PK	68.2	-2.8	1.50 V	145	58.1	7.3
6	#5932.80	64.3 PK	68.2	-3.9	1.50 V	145	57.0	7.3
7	11550.00	61.0 PK	74.0	-13.0	1.73 V	168	42.6	18.4
8	11550.00	48.0 AV	54.0	-6.0	1.73 V	168	29.6	18.4

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

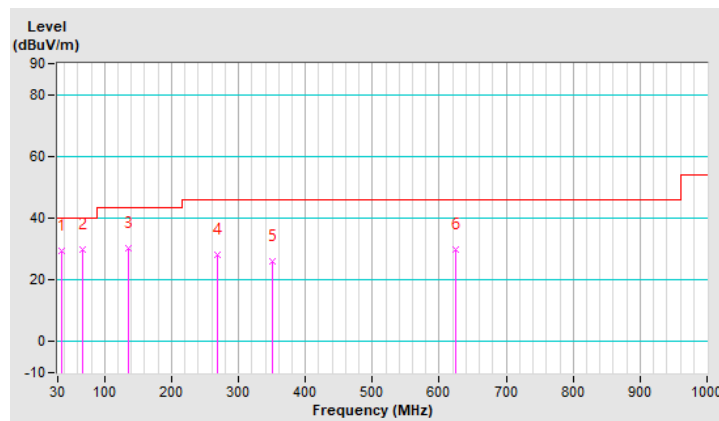
Below 1GHz Worst-Case Data:

RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	35.62	29.4 QP	40.0	-10.6	1.00 H	189	39.7	-10.3
2	66.55	30.0 QP	40.0	-10.0	1.50 H	319	40.3	-10.3
3	135.43	30.1 QP	43.5	-13.4	1.00 H	349	39.5	-9.4
4	268.99	28.0 QP	46.0	-18.0	1.00 H	186	35.5	-7.5
5	350.52	26.2 QP	46.0	-19.8	2.00 H	16	31.8	-5.6
6	624.65	30.0 QP	46.0	-16.0	1.00 H	33	29.2	0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

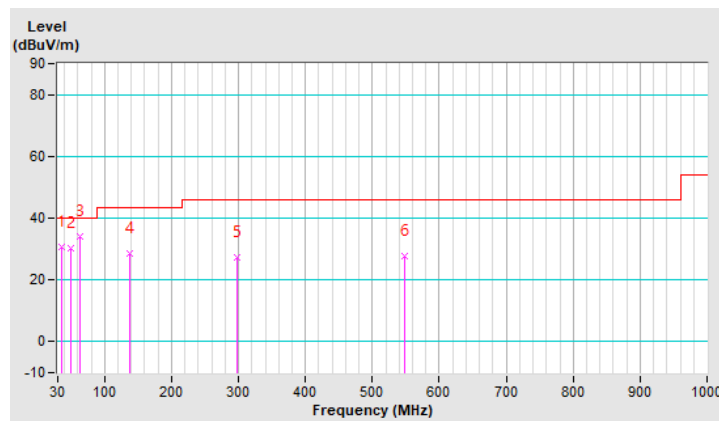


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	35.62	30.8 QP	40.0	-9.2	1.00 V	265	41.1	-10.3
2	49.68	30.4 QP	40.0	-9.6	1.00 V	265	39.5	-9.1
3	63.74	34.1 QP	40.0	-5.9	1.50 V	352	43.9	-9.8
4	138.25	28.6 QP	43.5	-14.9	1.00 V	166	37.7	-9.1
5	297.10	27.4 QP	46.0	-18.6	2.00 V	51	34.0	-6.6
6	548.74	27.8 QP	46.0	-18.2	1.50 V	339	29.1	-1.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

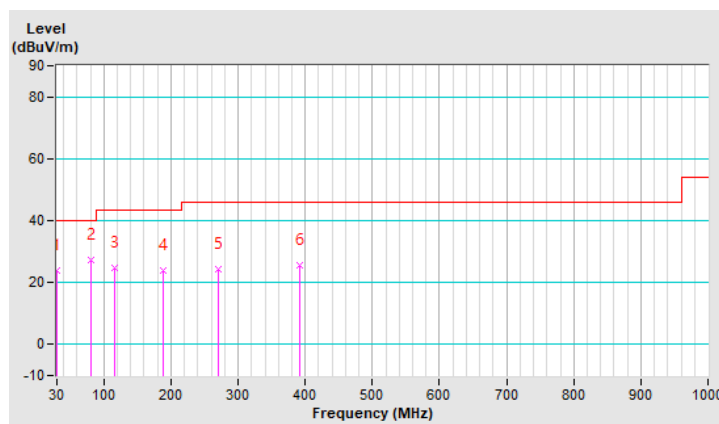


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	24.1 QP	40.0	-15.9	1.00 H	275	35.0	-10.9
2	80.44	27.2 QP	40.0	-12.8	1.50 H	224	40.7	-13.5
3	115.36	24.6 QP	43.5	-18.9	1.00 H	210	36.1	-11.5
4	189.08	23.8 QP	43.5	-19.7	1.50 H	270	34.7	-10.9
5	270.56	24.3 QP	46.0	-21.7	2.00 H	334	31.7	-7.4
6	390.84	25.7 QP	46.0	-20.3	1.00 H	345	30.5	-4.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



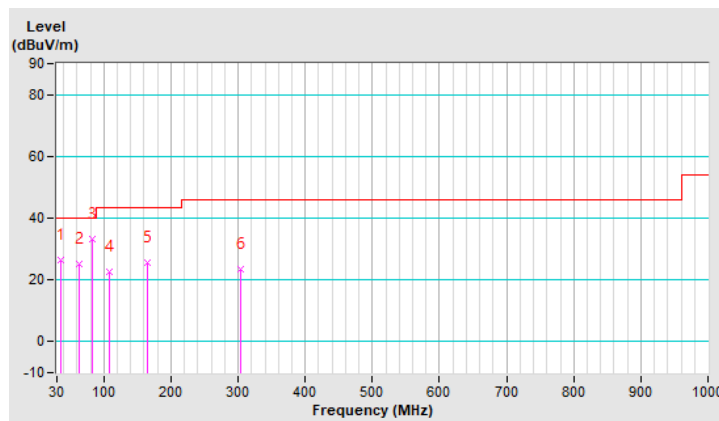


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	35.82	26.4 QP	40.0	-13.6	1.00 V	214	36.7	-10.3
2	62.98	25.0 QP	40.0	-15.0	1.50 V	321	34.5	-9.5
3	82.38	33.4 QP	40.0	-6.6	2.00 V	183	47.2	-13.8
4	107.60	22.5 QP	43.5	-21.0	1.00 V	103	34.6	-12.1
5	165.80	25.4 QP	43.5	-18.1	1.50 V	203	34.0	-8.6
6	303.54	23.3 QP	46.0	-22.7	1.00 V	243	29.8	-6.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



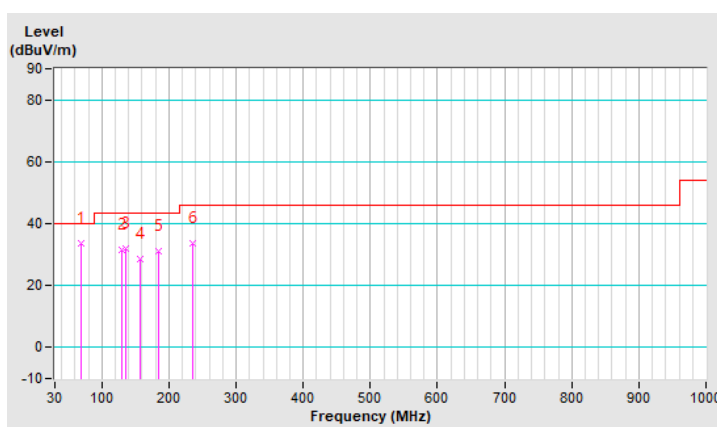
RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	C		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	68.80	33.6 QP	40.0	-6.4	1.00 H	97	44.5	-10.9
2	128.94	31.7 QP	43.5	-11.8	1.50 H	58	41.8	-10.1
3	134.76	32.0 QP	43.5	-11.5	1.00 H	263	41.5	-9.5
4	158.04	28.5 QP	43.5	-15.0	1.50 H	10	36.9	-8.4
5	185.20	31.0 QP	43.5	-12.5	2.00 H	109	41.4	-10.4
6	235.64	33.6 QP	46.0	-12.4	1.00 H	254	43.2	-9.6

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

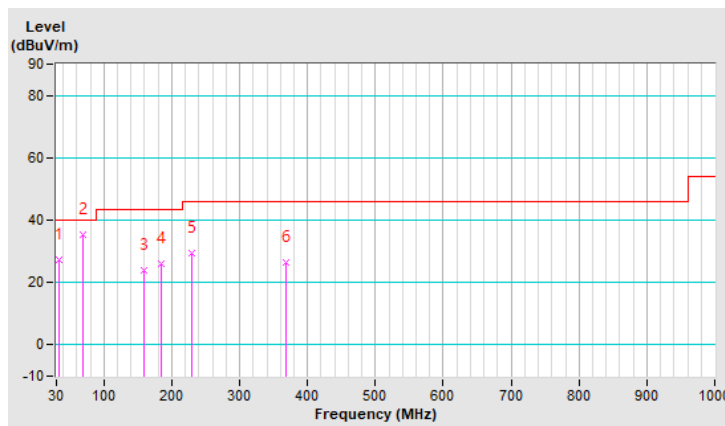


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	C		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	33.88	27.4 QP	40.0	-12.6	1.00 V	120	38.0	-10.6
2	68.80	35.4 QP	40.0	-4.6	1.50 V	13	46.3	-10.9
3	159.98	23.9 QP	43.5	-19.6	2.00 V	156	32.3	-8.4
4	185.20	26.2 QP	43.5	-17.3	1.50 V	111	36.6	-10.4
5	229.82	29.5 QP	46.0	-16.5	1.00 V	280	39.9	-10.4
6	367.56	26.5 QP	46.0	-19.5	1.50 V	195	31.7	-5.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

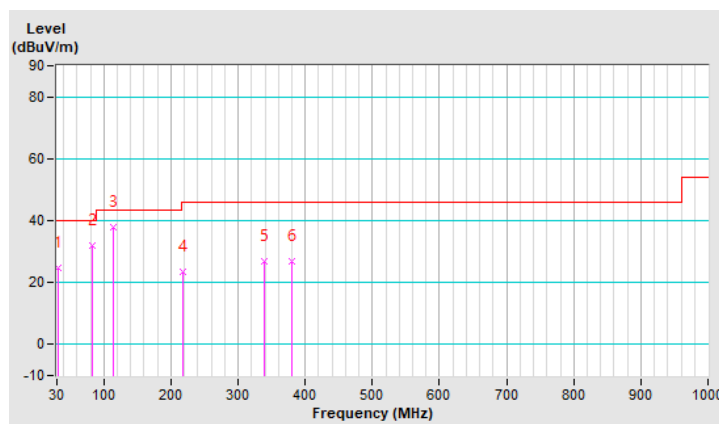


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	D		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	31.94	24.8 QP	40.0	-15.2	1.01 H	80	35.7	-10.9
2	82.38	32.0 QP	40.0	-8.0	2.00 H	234	45.8	-13.8
3	113.42	37.7 QP	43.5	-5.8	1.51 H	46	49.4	-11.7
4	218.18	23.6 QP	46.0	-22.4	1.01 H	53	34.2	-10.6
5	338.46	26.8 QP	46.0	-19.2	1.01 H	218	32.6	-5.8
6	379.20	26.7 QP	46.0	-19.3	2.00 H	171	31.7	-5.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

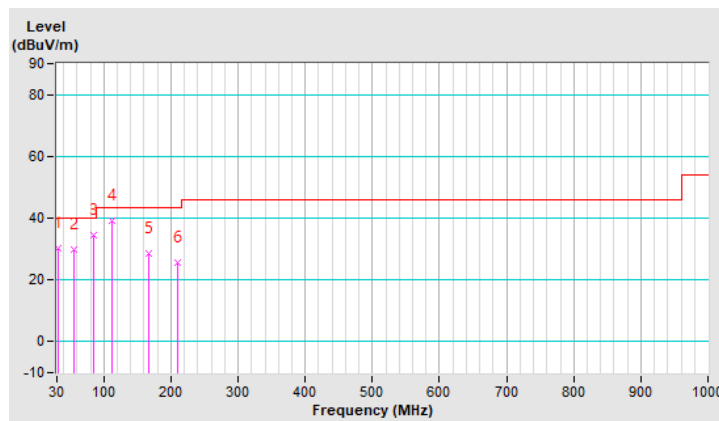


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	D		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	31.94	30.2 QP	40.0	-9.8	1.50 V	240	41.1	-10.9
2	55.22	29.9 QP	40.0	-10.1	1.50 V	170	39.0	-9.1
3	84.32	34.4 QP	40.0	-5.6	1.50 V	177	48.5	-14.1
4	111.48	39.2 QP	43.5	-4.3	1.00 V	233	51.0	-11.8
5	167.74	28.5 QP	43.5	-15.0	1.00 V	176	37.2	-8.7
6	210.42	25.8 QP	43.5	-17.7	2.00 V	3	36.7	-10.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable Woken	5D-FB	Cable-cond1-01	Jan. 16, 2021	Jan. 15, 2022
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 25, 2021	Feb. 24, 2022
V-LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 1 (Conduction 1).

3. The VCCI Site Registration No. is C-12040.

4. Tested date: May 24 ~ Jul. 15, 2021

#### 4.2.3 Test Procedures

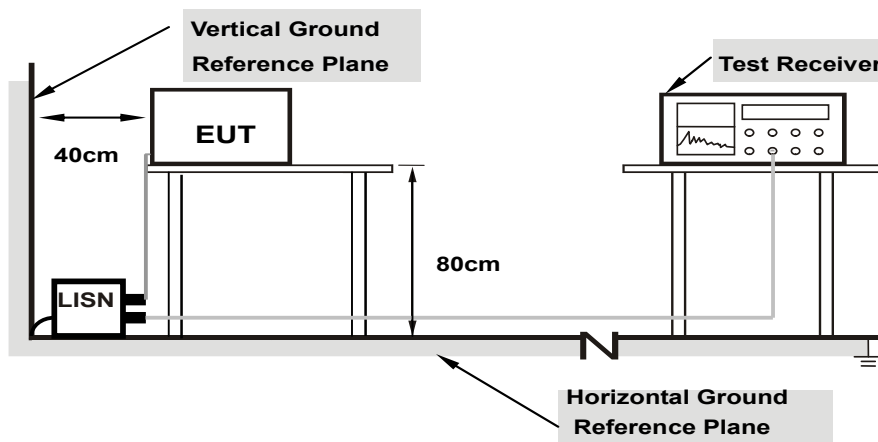
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

#### 4.2.4 Deviation from Test Standard

No deviation.

#### 4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.2.6 EUT Operating Conditions

Same as 4.1.6.

#### 4.2.7 Test Results

Worst-case data:

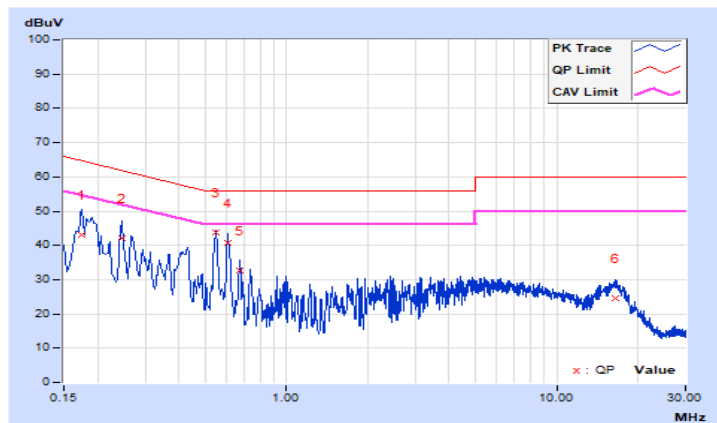
802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17400	9.71	33.53	22.63	43.24	32.34	64.77	54.77	-21.53	-22.43
2	0.24600	9.71	32.39	28.29	42.10	38.00	61.89	51.89	-19.79	-13.89
3	0.55000	9.74	33.93	30.62	43.67	40.36	56.00	46.00	-12.33	-5.64
4	0.60600	9.74	31.10	25.40	40.84	35.14	56.00	46.00	-15.16	-10.86
5	0.67400	9.74	22.91	19.06	32.65	28.80	56.00	46.00	-23.35	-17.20
6	16.44200	9.83	14.75	8.92	24.58	18.75	60.00	50.00	-35.42	-31.25

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



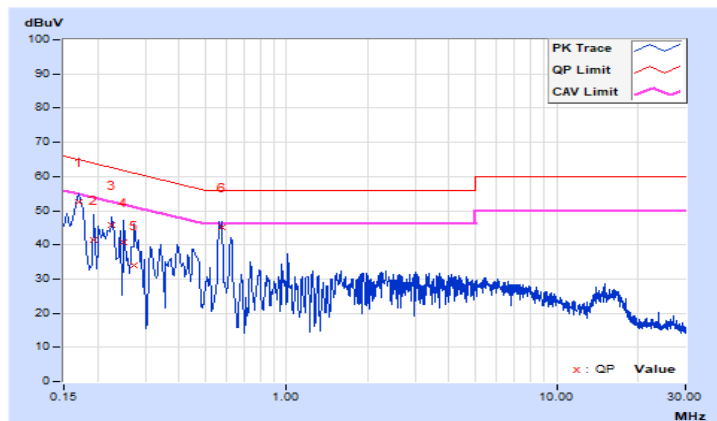


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.16977	9.77	42.74	38.54	52.51	48.31	64.97
2	0.19400	9.77	31.60	17.40	41.37	27.17	63.86	53.86	-22.49	-26.69
3	0.22600	9.77	36.16	31.41	45.93	41.18	62.60	52.60	-16.67	-11.42
4	0.25000	9.77	31.11	13.54	40.88	23.31	61.76	51.76	-20.88	-28.45
5	0.27400	9.78	24.16	16.37	33.94	26.15	61.00	51.00	-27.06	-24.85
<b>6</b>	<b>0.57400</b>	<b>9.80</b>	<b>35.21</b>	<b>34.61</b>	<b>45.01</b>	<b>44.41</b>	<b>56.00</b>	<b>46.00</b>	<b>-10.99</b>	<b>-1.59</b>

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

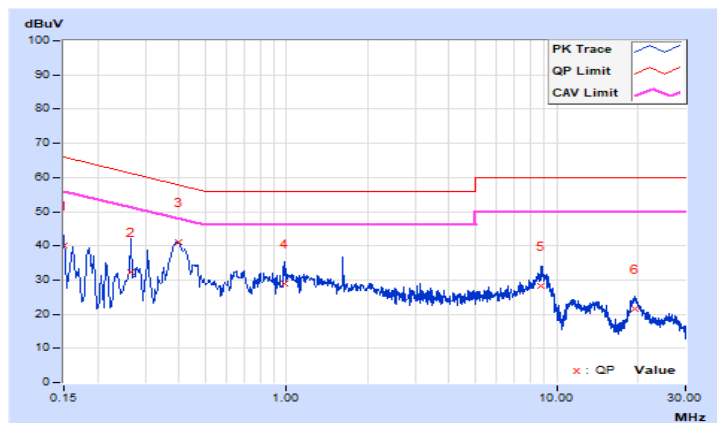


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.71	30.28	16.32	39.99	26.03	66.00
2	0.26600	9.72	22.66	11.44	32.38	21.16	61.24	51.24	-28.86	-30.08
3	0.39654	9.73	31.31	23.37	41.04	33.10	57.93	47.93	-16.89	-14.83
4	0.97800	9.76	19.19	10.85	28.95	20.61	56.00	46.00	-27.05	-25.39
5	8.75000	9.85	18.59	13.47	28.44	23.32	60.00	50.00	-31.56	-26.68
6	19.55400	9.82	11.59	6.97	21.41	16.79	60.00	50.00	-38.59	-33.21

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

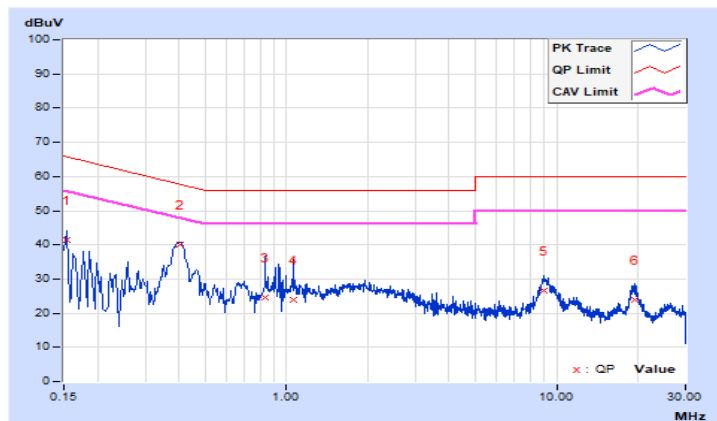


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15400	9.77	31.50	16.38	41.27	26.15	65.78
2	0.40179	9.79	30.41	22.89	40.20	32.68	57.82	47.82	-17.62	-15.14
3	0.83400	9.81	14.89	7.54	24.70	17.35	56.00	46.00	-31.30	-28.65
4	1.05800	9.82	14.24	8.78	24.06	18.60	56.00	46.00	-31.94	-27.40
5	8.99792	9.92	16.61	11.73	26.53	21.65	60.00	50.00	-33.47	-28.35
6	19.36600	9.98	14.08	9.12	24.06	19.10	60.00	50.00	-35.94	-30.90

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

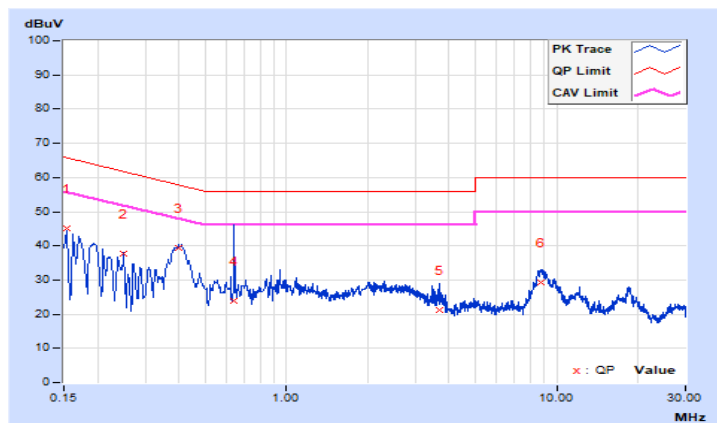


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15400	9.71	30.29	18.89	40.00	28.60	65.78
2	0.25000	9.72	27.96	11.61	37.68	21.33	61.76	51.76	-24.08	-30.43
3	0.39800	9.73	29.58	21.41	39.31	31.14	57.90	47.90	-18.59	-16.76
4	0.64200	9.74	14.20	3.95	23.94	13.69	56.00	46.00	-32.06	-32.31
5	3.70200	9.79	11.45	3.63	21.24	13.42	56.00	46.00	-34.76	-32.58
6	8.79000	9.85	19.45	14.44	29.30	24.29	60.00	50.00	-30.70	-25.71

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

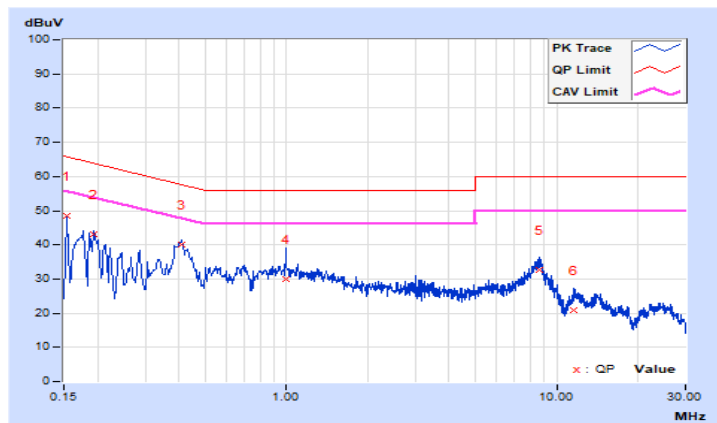


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15400	9.77	38.76	20.85	48.53	30.62	65.78
2	0.19400	9.77	33.19	17.47	42.96	27.24	63.86	53.86	-20.90	-26.62
3	0.40927	9.79	30.31	22.07	40.10	31.86	57.66	47.66	-17.56	-15.80
4	0.99800	9.82	20.14	12.29	29.96	22.11	56.00	46.00	-26.04	-23.89
5	8.61800	9.91	22.72	17.66	32.63	27.57	60.00	50.00	-27.37	-22.43
6	11.56200	9.94	10.99	6.24	20.93	16.18	60.00	50.00	-39.07	-33.82

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

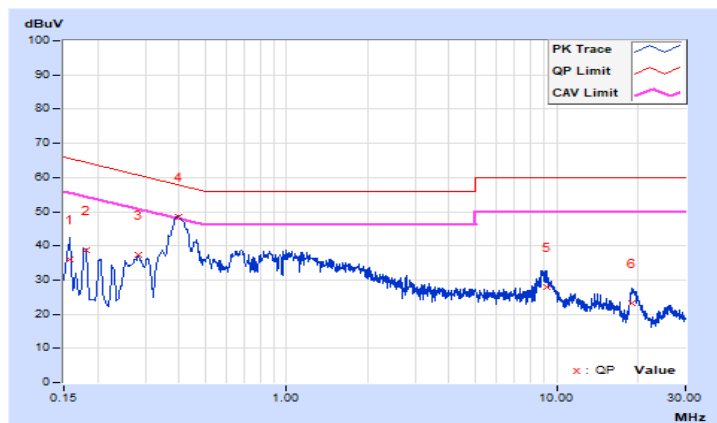


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15800	9.71	26.23	18.17	35.94	27.88	65.57
2	0.18037	9.71	29.08	12.72	38.79	22.43	64.47	54.47	-25.68	-32.04
3	0.28200	9.72	27.67	18.83	37.39	28.55	60.76	50.76	-23.37	-22.21
4	0.39654	9.73	38.91	30.97	48.64	40.70	57.93	47.93	-9.29	-7.23
5	9.15400	9.85	18.04	12.83	27.89	22.68	60.00	50.00	-32.11	-27.32
6	19.06600	9.82	13.31	8.32	23.13	18.14	60.00	50.00	-36.87	-31.86

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

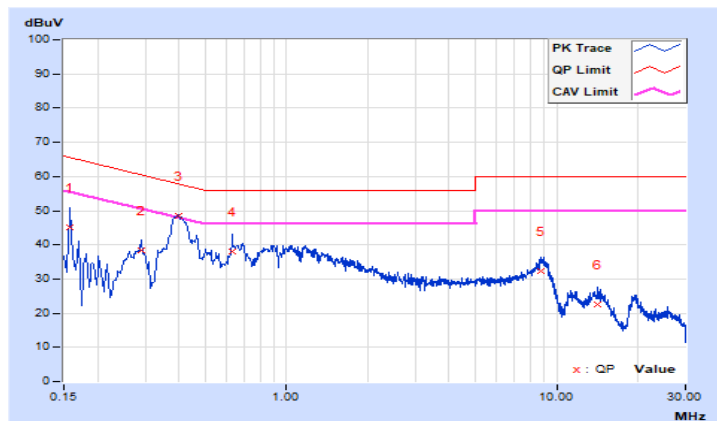


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15800	9.77	35.51	19.64	45.28	29.41	65.57
2	0.29000	9.78	28.60	17.10	38.38	26.88	60.52	50.52	-22.14	-23.64
3	0.39800	9.79	38.75	30.98	48.54	40.77	57.90	47.90	-9.36	-7.13
4	0.63000	9.80	28.12	19.39	37.92	29.19	56.00	46.00	-18.08	-16.81
5	8.71000	9.91	22.39	17.15	32.30	27.06	60.00	50.00	-27.70	-22.94
6	14.12200	9.95	12.49	7.58	22.44	17.53	60.00	50.00	-37.56	-32.47

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



### 4.3 Transmit Power Measurement

#### 4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

\*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  MHz for any  $N_{ANT}$ ;

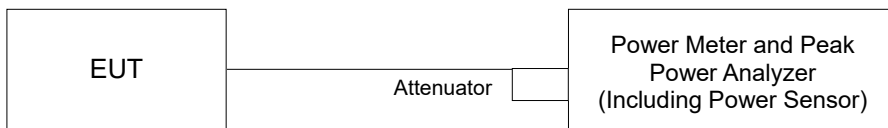
Array Gain =  $5 \log(N_{ANT}/N_{SS})$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $N_{ANT} \geq 5$ .

For power measurements on all other devices: Array Gain =  $10 \log(N_{ANT}/N_{SS})$  dB.

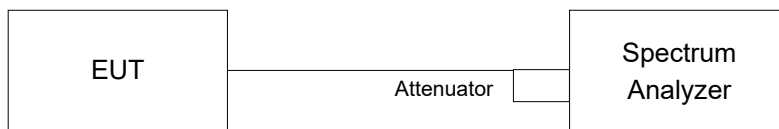
#### 4.3.2 Test Setup

For Power Output

802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40)



For 802.11ac (VHT80) & 26dB Bandwidth



#### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.



#### 4.3.4 Test Procedure

##### For Average Power Measurement

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

##### 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40)

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

##### 802.11ac (VHT80)

- a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- b. Set sweep trigger to "free run".
- c. Set RBW = 1 MHz
- d. Set VBW  $\geq$  3 MHz
- e. Number of points in sweep  $\geq$  2 Span / RBW
- f. Sweep time  $\leq$  (number of points in sweep) \* T
- g. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- h. Detector = RMS
- i. Trace mode = max hold
- j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
- k. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

##### For 26dB Bandwidth

- a. Set RBW = approximately 1% of the emission bandwidth.
- b. Set the VBW > RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
- f. For channel aggregation (channel 138, 142, 144) measurement refer to KDB 789033 D02 Section III. CHANNEL AGGREGATION.

#### 4.3.5 Deviation from Test Standard

No deviation.

#### 4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

### 4.3.7 Test Result

Power Output:  
802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	13.68	13.72	46.885	16.71	24.00	Pass
40	5200	13.59	13.63	45.923	16.62	24.00	Pass
48	5240	13.71	13.75	47.210	16.74	24.00	Pass
52	5260	13.66	13.70	46.670	16.69	24.00	Pass
60	5300	13.44	13.48	44.364	16.47	24.00	Pass
64	5320	13.69	13.73	46.993	16.72	24.00	Pass
100	5500	13.73	13.66	46.832	16.71	24.00	Pass
116	5580	13.64	13.57	45.872	16.62	24.00	Pass
140	5700	13.45	13.38	43.908	16.43	24.00	Pass
149	5745	12.70	12.63	36.944	15.68	30.00	Pass
157	5785	12.48	12.41	35.119	15.46	30.00	Pass
165	5825	12.66	12.59	36.605	15.64	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log(28.68) = 25.57 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(31.70) = 26.01 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(32.48) = 26.11 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(26.91) = 25.29 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(27.00) = 25.31 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(27.63) = 25.41 > 24\text{dBm}$

#NUM!

Chain 1

1.  $11\text{dBm} + 10\log(29.28) = 25.66 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(28.54) = 25.55 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(28.52) = 25.55 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(25.34) = 25.03 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(27.08) = 25.32 > 24\text{dBm}$

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	13.64	13.68	46.455	16.67	24.00	Pass
40	5200	13.40	13.44	43.958	16.43	24.00	Pass
48	5240	13.57	13.61	45.712	16.60	24.00	Pass
52	5260	13.62	13.66	46.242	16.65	24.00	Pass
60	5300	13.44	13.48	44.364	16.47	24.00	Pass
64	5320	13.55	13.59	45.502	16.58	24.00	Pass
100	5500	13.62	13.55	45.661	16.60	24.00	Pass
116	5580	13.54	13.47	44.827	16.52	24.00	Pass
140	5700	13.74	13.67	46.940	16.72	24.00	Pass
149	5745	12.42	12.35	34.637	15.40	30.00	Pass
157	5785	12.59	12.52	36.020	15.57	30.00	Pass
165	5825	12.72	12.65	37.115	15.70	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log(29.20) = 25.65 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(32.41) = 26.10 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(31.69) = 26.00 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(28.43) = 25.53 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(28.70) = 25.57 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(26.43) = 25.22 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(29.46) = 25.69 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(28.49) = 25.54 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(28.81) = 25.59 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(29.04) = 25.62 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(29.42) = 25.68 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(28.16) = 25.49 > 24\text{dBm}$

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	13.49	13.53	44.878	16.52	24.00	Pass
46	5230	13.70	13.74	47.101	16.73	24.00	Pass
54	5270	13.47	13.51	44.672	16.50	24.00	Pass
62	5310	13.68	13.72	46.885	16.71	24.00	Pass
102	5510	13.55	13.48	44.931	16.53	24.00	Pass
110	5550	13.81	13.74	47.703	16.79	24.00	Pass
134	5670	13.60	13.53	45.451	16.58	24.00	Pass
151	5755	12.65	12.58	36.521	15.63	30.00	Pass
159	5795	12.56	12.49	35.772	15.54	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log(52.88) = 28.23 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(42.45) = 27.27 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(42.49) = 27.28 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(42.80) = 27.31 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(47.41) = 27.75 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(54.30) = 28.34 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(42.11) = 27.24 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(42.20) = 27.25 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(49.16) = 27.91 > 24\text{dBm}$

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	13.63	13.67	46.348	16.66	24.00	Pass
40	5200	13.54	13.58	45.398	16.57	24.00	Pass
48	5240	13.90	13.94	<b>49.321</b>	16.93	24.00	Pass
52	5260	13.61	13.65	46.135	16.64	24.00	Pass
60	5300	13.67	13.71	46.777	16.70	24.00	Pass
64	5320	13.88	13.92	<b>49.095</b>	16.91	24.00	Pass
100	5500	13.72	13.65	46.724	16.70	24.00	Pass
116	5580	13.65	13.58	45.977	16.63	24.00	Pass
140	5700	13.50	13.43	44.416	16.48	24.00	Pass
149	5745	12.71	12.64	37.029	15.69	30.00	Pass
157	5785	12.52	12.45	35.444	15.50	30.00	Pass
165	5825	12.82	12.75	<b>37.979</b>	15.80	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log(29.20) = 25.65 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(32.41) = 26.10 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(31.69) = 26.00 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(28.43) = 25.53 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(28.70) = 25.57 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(26.43) = 25.22 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(29.46) = 25.69 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(28.49) = 25.54 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(28.81) = 25.59 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(29.04) = 25.62 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(29.42) = 25.68 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(28.16) = 25.49 > 24\text{dBm}$

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	13.50	13.54	44.982	16.53	24.00	Pass
46	5230	13.76	13.80	47.757	16.79	24.00	Pass
54	5270	13.48	13.52	44.775	16.51	24.00	Pass
62	5310	13.74	13.78	47.537	16.77	24.00	Pass
102	5510	13.64	13.57	45.872	16.62	24.00	Pass
110	5550	13.55	13.48	44.931	16.53	24.00	Pass
134	5670	13.51	13.44	44.519	16.49	24.00	Pass
151	5755	12.66	12.59	36.605	15.64	30.00	Pass
159	5795	12.57	12.50	35.855	15.55	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log(52.88) = 28.23 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(42.45) = 27.27 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(42.49) = 27.28 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(42.80) = 27.31 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(47.41) = 27.75 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(54.30) = 28.34 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(42.11) = 27.24 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(42.20) = 27.25 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(49.16) = 27.91 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(43.25) = 27.35 > 24\text{dBm}$

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	13.80	13.66	47.216	16.74	24.00	Pass
58	5290	13.78	13.99	48.939	16.90	24.00	Pass
106	5530	13.81	13.97	<b>48.990</b>	16.90	24.00	Pass
122	5610	13.57	13.95	47.582	16.77	24.00	Pass
155	5775	12.98	12.31	36.883	15.67	30.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1.  $11\text{dBm} + 10\log(85.04) = 30.29 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(84.44) = 30.26 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(98.96) = 30.95 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(84.64) = 30.27 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(84.67) = 30.27 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(91.68) = 30.62 > 24\text{dBm}$

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	31.94	28.75
40	5200	26.93	28.93
48	5240	28.62	31.75
52	5260	28.68	29.28
60	5300	31.70	28.54
64	5320	32.48	28.52
100	5500	26.91	25.34
116	5580	27.00	27.08
140	5700	27.63	28.49

802.11ac (VHT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	29.19	29.41
40	5200	32.87	34.18
48	5240	32.28	29.78
52	5260	29.20	29.46
60	5300	32.41	28.49
64	5320	31.69	28.81
100	5500	28.43	29.04
116	5580	28.70	29.42
140	5700	26.43	28.16



802.11ac (VHT40)

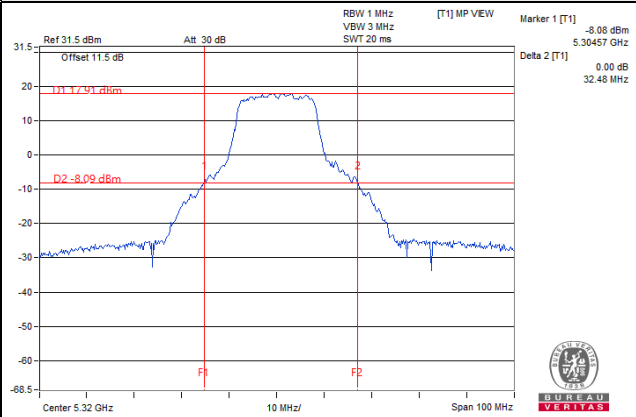
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	42.43	42.19
46	5230	62.23	52.68
54	5270	52.88	54.30
62	5310	42.45	42.11
102	5510	42.49	42.20
110	5550	42.80	49.16
134	5670	47.41	43.25

802.11ac (VHT80)

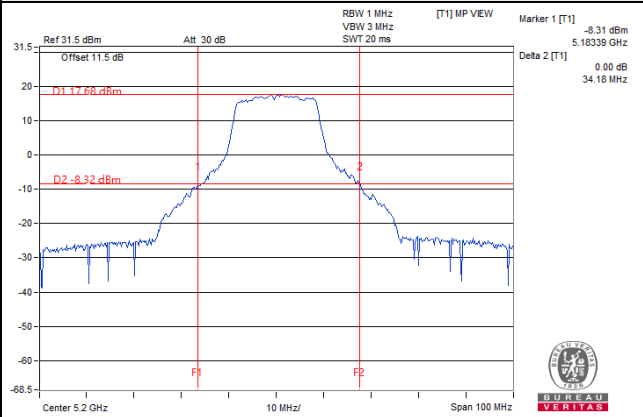
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	84.89	85.05
58	5290	85.04	84.64
106	5530	84.44	84.67
122	5610	98.96	91.68

### Spectrum Plot of Worst Value

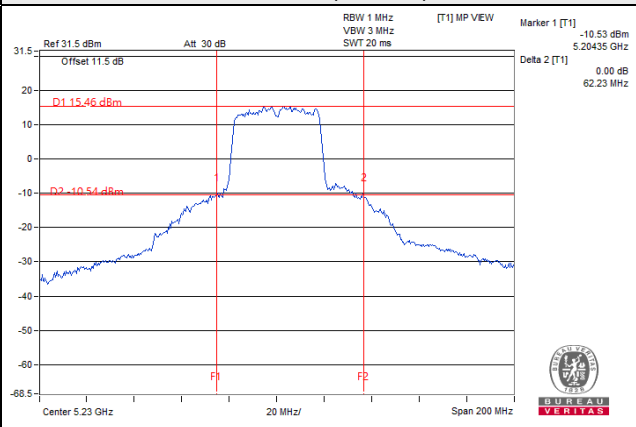
#### 802.11a



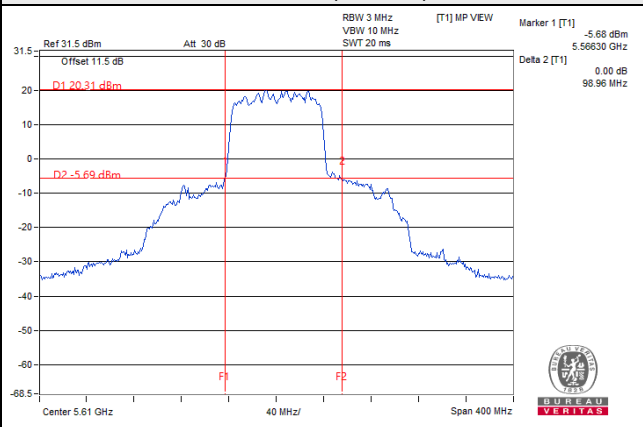
#### 802.11ac (VHT20)



#### 802.11ac (VHT40)



#### 802.11ac (VHT80)



**EUT Maximum Conducted Power**

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	46.993	16.72
5470~5725	46.832	16.71

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	46.242	16.65
5470~5725	46.940	16.72

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	46.885	16.71
5470~5725	47.703	16.79

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	49.095	16.91
5470~5725	46.724	16.70

802.11ac (VHT40)

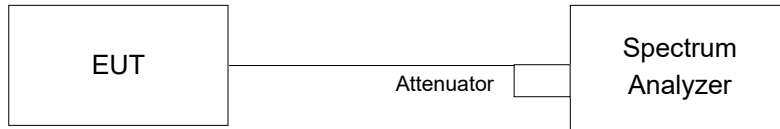
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	47.537	16.77
5470~5725	45.872	16.62

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	48.939	16.90
5470~5725	48.990	16.90

## 4.4 Occupied Bandwidth Measurement

### 4.4.1 Test Setup



### 4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

#### 4.4.4 Test Result

##### 802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.12	17.40
40	5200	17.16	17.52
48	5240	17.28	18.12
52	5260	17.64	17.64
60	5300	18.00	17.28
64	5320	18.00	17.40
100	5500	17.28	16.92
116	5580	17.16	17.16
140	5700	17.16	17.40
149	5745	27.54	27.12
157	5785	28.14	27.54
165	5825	23.40	23.34

##### 802.11ac (VHT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.30	18.48
40	5200	18.18	18.72
48	5240	18.12	18.60
52	5260	18.06	18.48
60	5300	18.06	18.36
64	5320	18.06	18.24
100	5500	18.06	18.24
116	5580	18.18	18.36
140	5700	18.18	18.12
149	5745	24.72	24.36
157	5785	25.02	24.48
165	5825	24.60	24.30

802.11ac (VHT40)

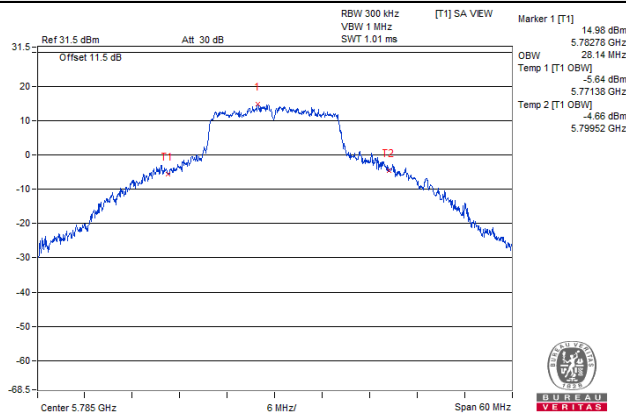
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.60	36.60
46	5230	36.96	36.84
54	5270	36.72	36.72
62	5310	36.60	36.60
102	5510	36.60	36.48
110	5550	36.60	36.60
134	5670	36.60	36.60
151	5755	37.92	40.44
159	5795	37.92	41.64

802.11ac (VHT80)

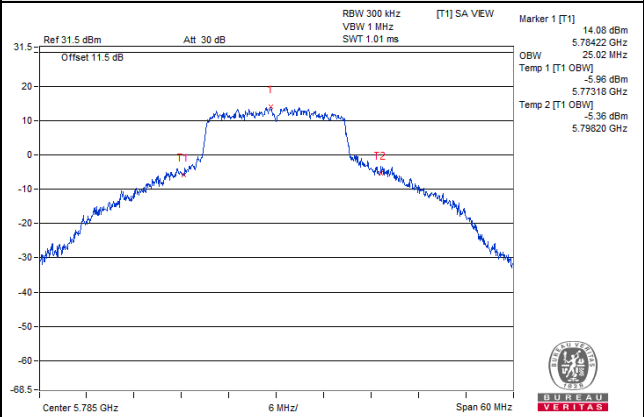
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.84	75.84
58	5290	75.84	75.84
106	5530	75.84	75.84
122	5610	76.08	76.08
155	5775	84.48	78.24

### Spectrum Plot of Worst Value

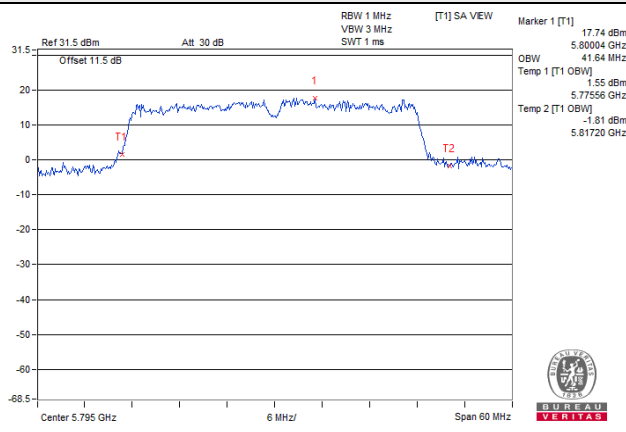
#### 802.11a



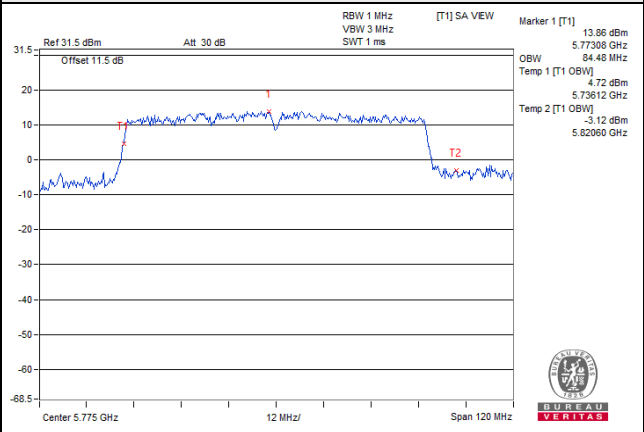
#### 802.11ac (VHT20)



#### 802.11ac (VHT40)

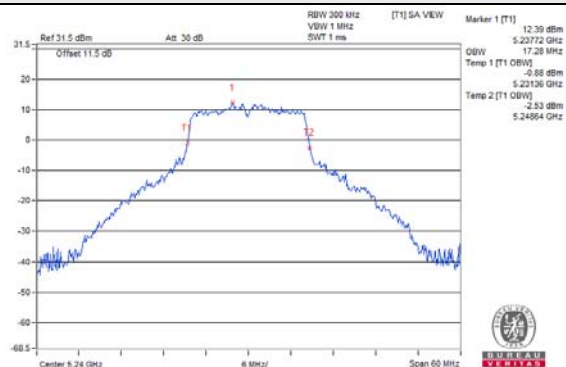


#### 802.11ac (VHT80)

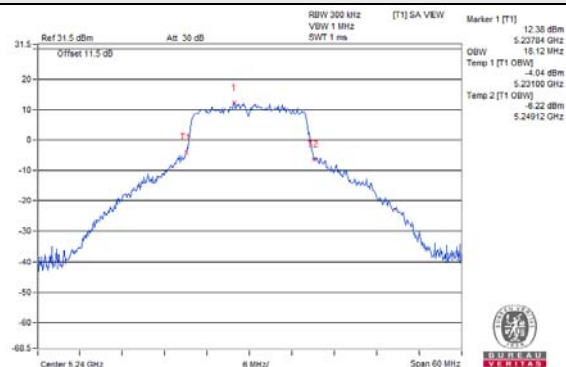


Spectrum Plot for near By DFS Band

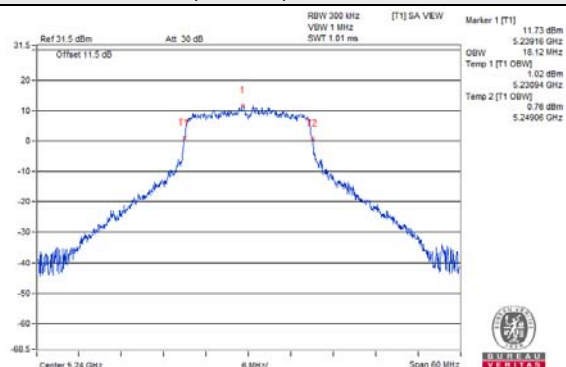
802.11a / Chain 0 / CH 48



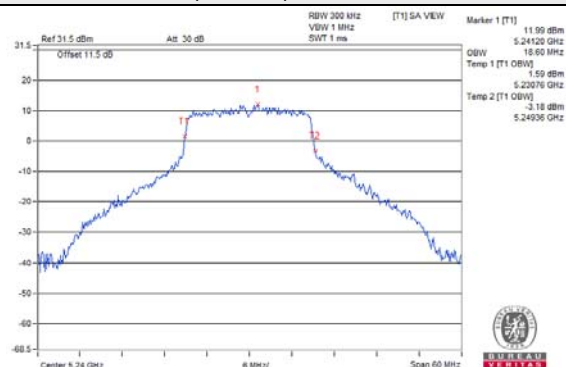
802.11a / Chain 1 / CH 48



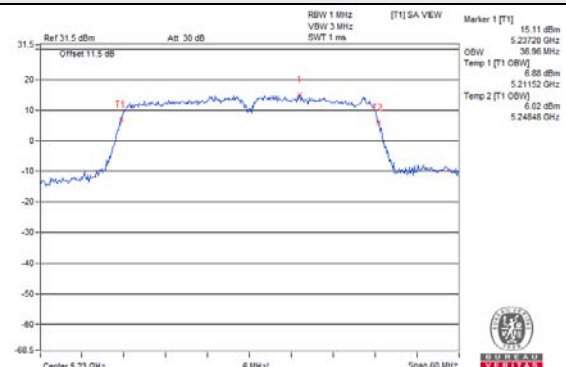
802.11ac (VHT20) / Chain 0 / CH 48



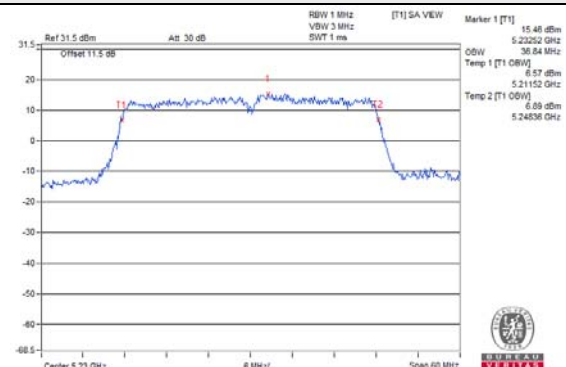
802.11ac (VHT20) / Chain 1 / CH 48



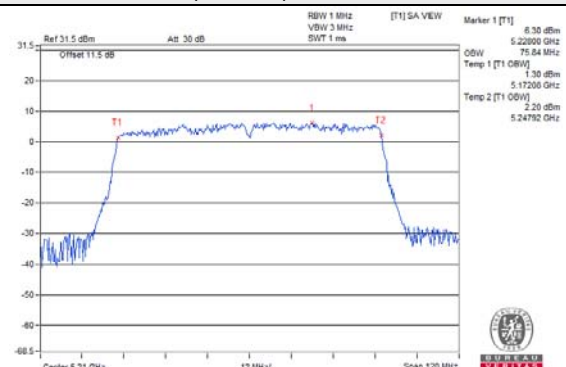
802.11ac (VHT40) / Chain 0 / CH 46



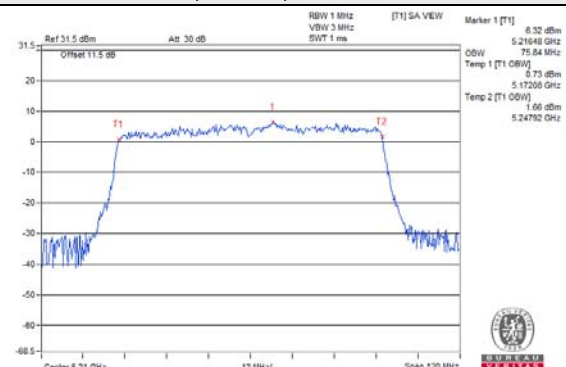
802.11ac (VHT40) / Chain 1 / CH 46



802.11ac (VHT80) / Chain 0 / CH 42



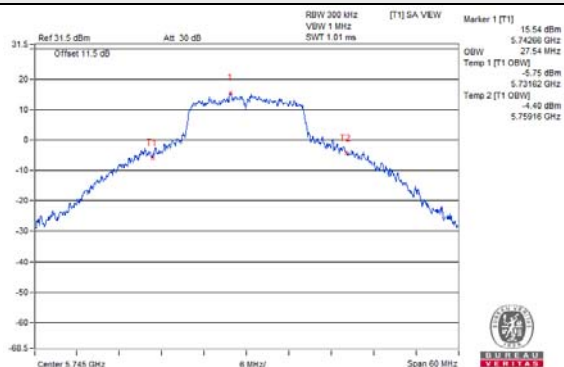
802.11ac (VHT80) / Chain 1 / CH 42



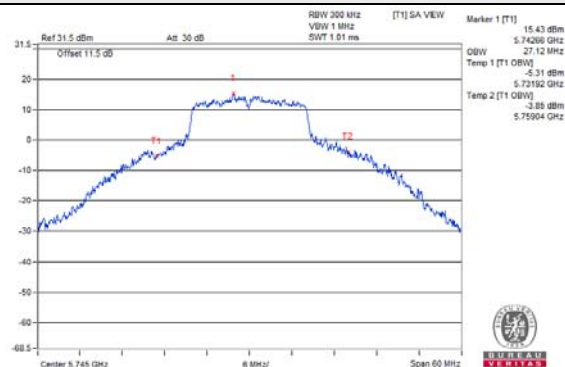


### Spectrum Plot for near By DFS Band

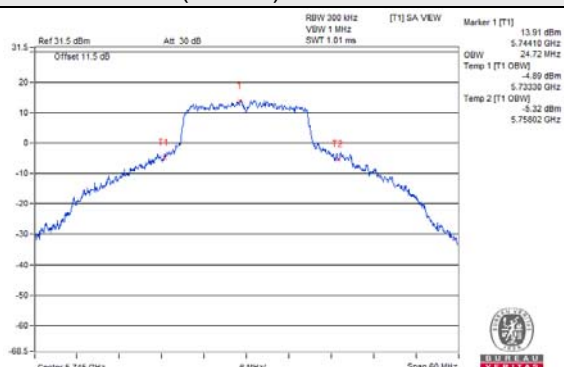
**802.11a / Chain 0 / CH 149**



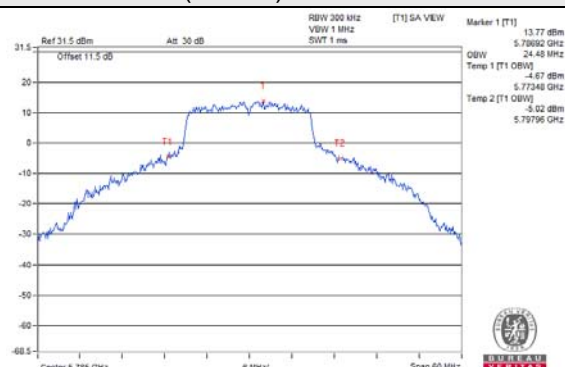
**802.11a / Chain 1 / CH 149**



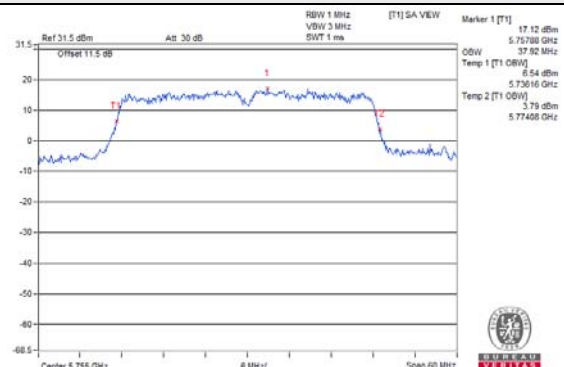
**802.11ac (VHT20) / Chain 0 / CH 149**



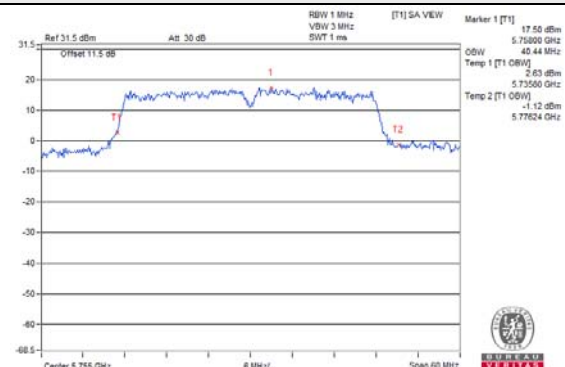
**802.11ac (VHT20) / Chain 1 / CH 149**



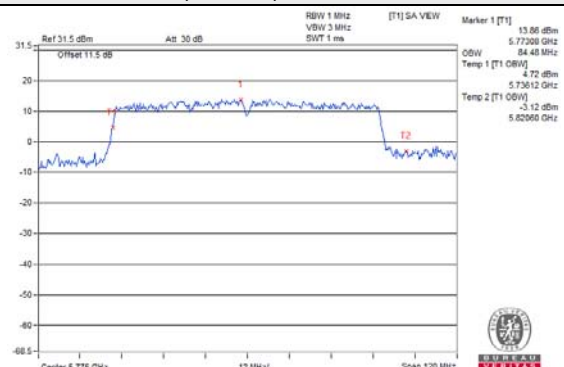
**802.11ac (VHT40) / Chain 0 / CH 151**



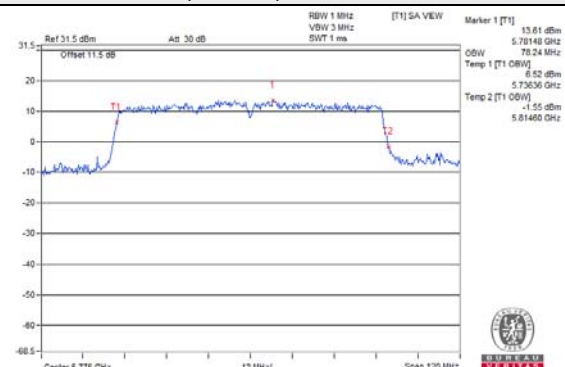
**802.11ac (VHT40) / Chain 1 / CH 151**



**802.11ac (VHT80) / Chain 0 / CH 155**



**802.11ac (VHT80) / Chain 1 / CH 155**

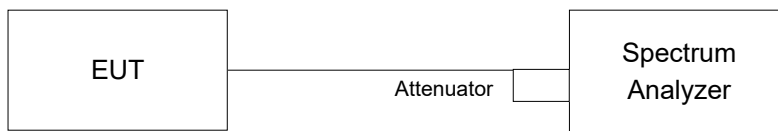


## 4.5 Peak Power Spectral Density Measurement

### 4.5.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
	√	Indoor Access Point	
		Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

### 4.5.2 Test Setup



### 4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.5.4 Test Procedures

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

Duty cycle of test signal is < 98%

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS.
- 3) Set Channel power measure = 1MHz.
- 4) Sweep time = auto, trigger set to “free run”.
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle).

For U-NII-3 band:

Duty cycle <98%

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
- 3) Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- 4) Scale the observed power level to an equivalent value in 500 kHz by adjusting (raising) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(500\text{ kHz}/300\text{kHz})$
- 5) Sweep time = auto, trigger set to “free run”.
- 6) Trace average at least 100 traces in power averaging mode.
- 7) Record the max value and add 10 log (1/duty cycle)

#### **4.5.5 Deviation from Test Standard**

No deviation.

#### **4.5.6 EUT Operating Conditions**

Same as 4.3.6.

#### 4.5.7 Test Results

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

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	7.65	7.19	0.16	10.59	10.84	Pass
40	5200	7.41	7.34	0.16	10.54	10.84	Pass
48	5240	7.50	7.52	0.16	10.68	10.84	Pass
52	5260	7.60	7.22	0.16	10.58	11.00	Pass
60	5300	7.77	7.26	0.16	10.69	11.00	Pass
64	5320	7.45	7.23	0.16	10.51	11.00	Pass
100	5500	7.39	6.81	0.16	10.28	11.00	Pass
116	5580	7.54	7.24	0.16	10.56	11.00	Pass
140	5700	7.39	7.23	0.16	10.48	11.00	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- 5180~5240MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 6.16\text{dBi} > 6\text{dBi}$ , so the limit shall be reduced to  $11 - (6.16 - 6) = 10.84\text{dBm}$ .  
 5260~5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.66\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
 5500~5700MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.37\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	7.63	7.62	0.10	10.74	10.84	Pass
40	5200	7.72	7.68	0.10	10.81	10.84	Pass
48	5240	7.39	7.53	0.10	10.57	10.84	Pass
52	5260	7.55	7.34	0.10	10.56	11.00	Pass
60	5300	7.35	7.07	0.10	10.32	11.00	Pass
64	5320	7.21	7.09	0.10	10.26	11.00	Pass
100	5500	7.41	7.49	0.10	10.56	11.00	Pass
116	5580	7.74	7.70	0.10	10.83	11.00	Pass
140	5700	6.98	6.90	0.10	10.05	11.00	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- 5180~5240MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 6.16\text{dBi} > 6\text{dBi}$ , so the limit shall be reduced to  $11 - (6.16 - 6) = 10.84\text{dBm}$ .  
 5260~5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.66\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
 5500~5700MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.37\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-0.26	-1.11	0.27	2.62	10.84	Pass
46	5230	4.73	4.21	0.27	7.76	10.84	Pass
54	5270	4.15	4.40	0.27	7.56	11.00	Pass
62	5310	1.24	0.69	0.27	4.25	11.00	Pass
102	5510	1.70	1.46	0.27	4.86	11.00	Pass
110	5550	4.40	4.16	0.27	7.56	11.00	Pass
134	5670	4.42	4.53	0.27	7.76	11.00	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- 5180~5240MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 6.16\text{dBi} > 6\text{dBi}$ , so the limit shall be reduced to  $11 - (6.16 - 6) = 10.84\text{dBm}$ .  
5260~5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.66\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
5500~5700MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.37\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

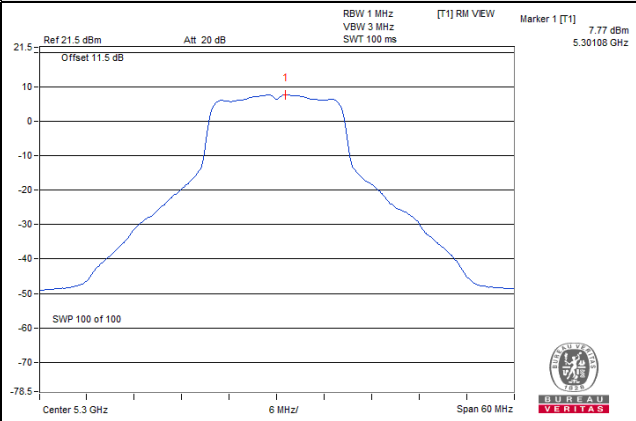
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-3.66	-4.43	0.40	-0.61	10.84	Pass
58	5290	-3.98	-4.35	0.40	-0.75	11.00	Pass
106	5530	-2.09	-2.96	0.40	0.91	11.00	Pass
122	5610	2.18	1.35	0.40	5.20	11.00	Pass

Note:

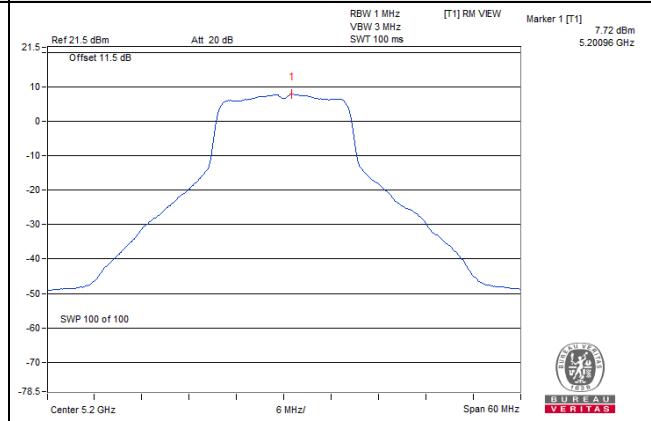
- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- 5180~5240MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 6.16\text{dBi} > 6\text{dBi}$ , so the limit shall be reduced to  $11 - (6.16 - 6) = 10.84\text{dBm}$ .  
5260~5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.66\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
5500~5700MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.37\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

### Spectrum Plot of Worst Value

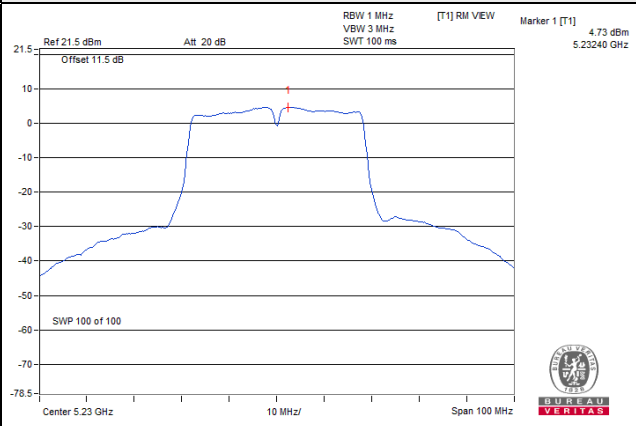
**802.11a / Chain 0 / CH 60**



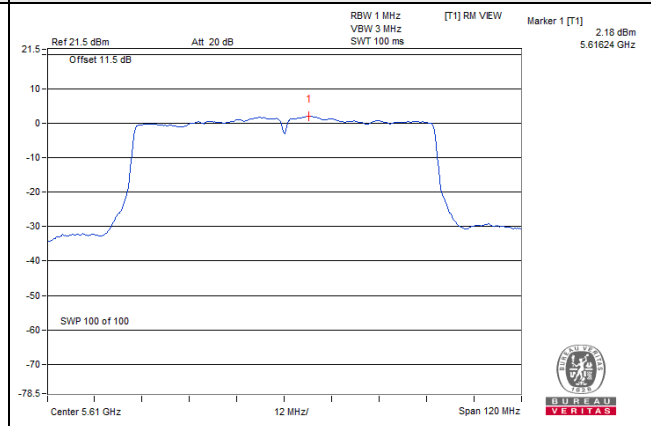
**802.11ac (VHT20) / Chain 0 / CH 40**



**802.11ac (VHT40) / Chain 0 / CH 46**



**802.11ac (VHT80) / Chain 0 / 122**



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	6.88	9.10	3.01	0.16	12.27	30.00	Pass
	157	5785	6.91	9.13	3.01	0.16	12.30	30.00	Pass
	165	5825	6.71	8.93	3.01	0.16	12.10	30.00	Pass
1	149	5745	6.30	8.52	3.01	0.16	11.69	30.00	Pass
	157	5785	6.62	8.84	3.01	0.16	12.01	30.00	Pass
	165	5825	6.43	8.65	3.01	0.16	11.82	30.00	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add  $10 \log (N_{ANT})$  dB.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.65\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	6.11	8.33	3.01	0.10	11.44	30.00	Pass
	157	5785	6.21	8.43	3.01	0.10	11.54	30.00	Pass
	165	5825	6.12	8.34	3.01	0.10	11.45	30.00	Pass
1	149	5745	5.68	7.90	3.01	0.10	11.01	30.00	Pass
	157	5785	5.88	8.10	3.01	0.10	11.21	30.00	Pass
	165	5825	5.74	7.96	3.01	0.10	11.07	30.00	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add  $10 \log (N_{ANT})$  dB.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.65\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
- Refer to section 3.3 for duty cycle spectrum plot.



802.11ac (VHT40)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	2.70	4.92	3.01	0.27	8.20	30.00	Pass
	159	5795	2.76	4.98	3.01	0.27	8.26	30.00	Pass
1	151	5755	3.06	5.28	3.01	0.27	8.56	30.00	Pass
	159	5795	3.26	5.48	3.01	0.27	8.76	30.00	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add  $10 \log (N_{ANT})$  dB.
2. Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.65\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

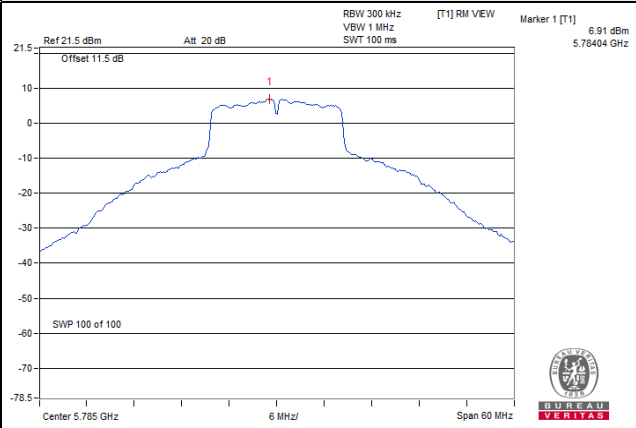
TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	0.27	2.49	3.01	0.40	5.90	30.00	Pass
1	155	5775	-0.17	2.05	3.01	0.40	5.46	30.00	Pass

Note:

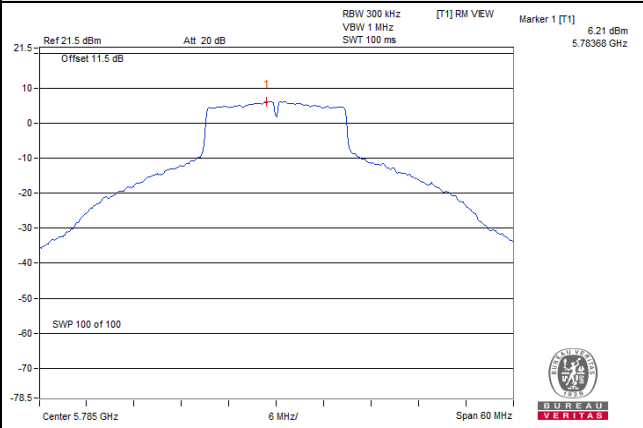
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add  $10 \log (N_{ANT})$  dB.
2. Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.65\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

### Spectrum Plot of Worst Value

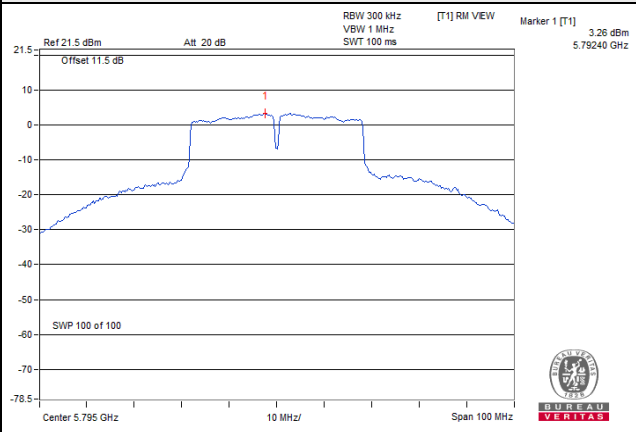
#### 802.11a



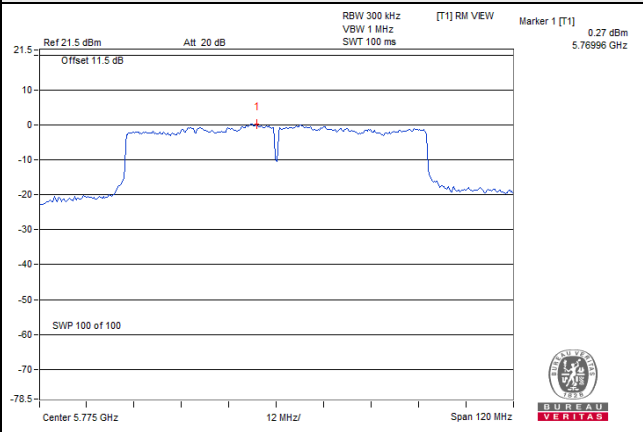
#### 802.11ac (VHT20)



#### 802.11ac (VHT40)



#### 802.11ac (VHT80)

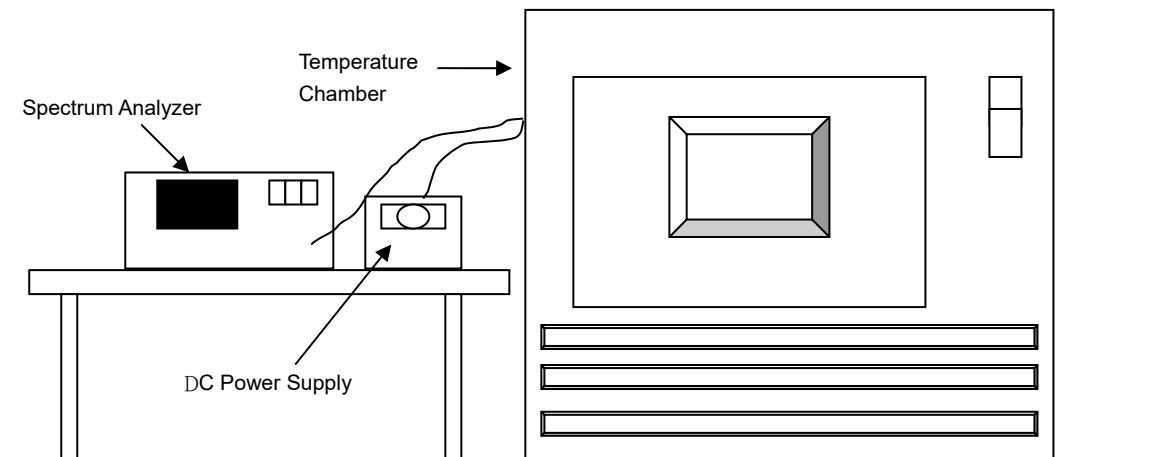


## 4.6 Frequency Stability

### 4.6.1 Limits of Frequency Stability Measurement

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

### 4.6.2 Test Setup



### 4.6.3 Test Instruments

Test Date: Jul. 01, 2021

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 16, 2020	Sep. 15, 2021
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2021	May 31, 2022
Three-phase coupling / decoupling network TESEQ	CDN 3063	4006	Mar. 10, 2021	Mar. 09, 2022
DC Power Supply Topward	6306A	727263	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

#### 4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

#### 4.6.5 Deviation from Test Standard

No deviation.

#### 4.6.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

#### 4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
50	10.8	5180.0072	PASS	5180.0062	PASS	5180.0068	PASS	5180.0056	PASS
40	10.8	5180.0132	PASS	5180.0143	PASS	5180.0122	PASS	5180.0146	PASS
30	10.8	5179.9798	PASS	5179.9756	PASS	5179.9801	PASS	5179.9758	PASS
20	10.8	5180.0063	PASS	5180.0064	PASS	5180.0056	PASS	5180.0069	PASS
10	10.8	5179.9909	PASS	5179.9904	PASS	5179.9924	PASS	5179.9886	PASS
0	10.8	5180.0224	PASS	5180.0211	PASS	5180.0231	PASS	5180.0225	PASS
-10	10.8	5180.0227	PASS	5180.0232	PASS	5180.0262	PASS	5180.0252	PASS

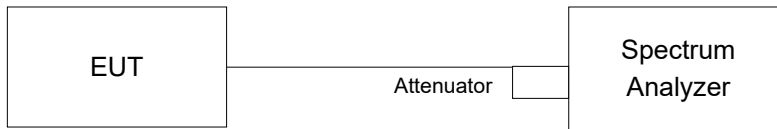
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	12.42	5180.0053	PASS	5180.006	PASS	5180.0048	PASS	5180.0075	PASS
	10.8	5180.0063	PASS	5180.0064	PASS	5180.0056	PASS	5180.0069	PASS
	9.18	5180.0059	PASS	5180.007	PASS	5180.0059	PASS	5180.0061	PASS

## 4.7 6dB Bandwidth Measurement

### 4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

### 4.7.2 Test Setup



### 4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.7.4 Test Procedure

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW)  $\geq 3 \times$  RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

### 4.7.5 Deviation from Test Standard

No deviation.

### 4.7.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

#### 4.7.7 Test Results

##### 802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	15.15	15.55	0.5	Pass
157	5785	16.31	15.35	0.5	Pass
165	5825	15.75	15.22	0.5	Pass

##### 802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	17.59	16.57	0.5	Pass
157	5785	17.61	16.58	0.5	Pass
165	5825	16.89	16.57	0.5	Pass

##### 802.11ac (VHT40)

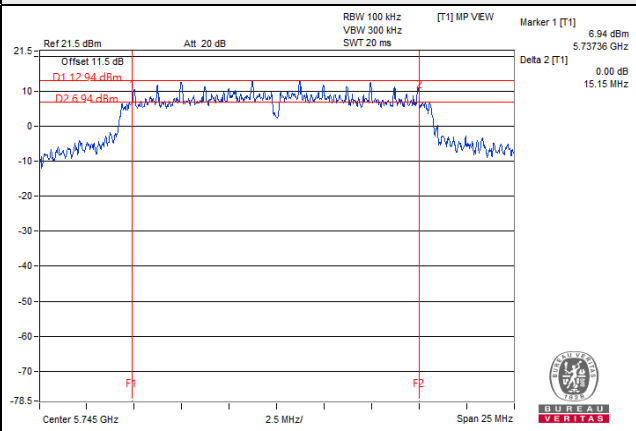
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	35.41	35.23	0.5	Pass
159	5795	35.22	35.22	0.5	Pass

##### 802.11ac (VHT80)

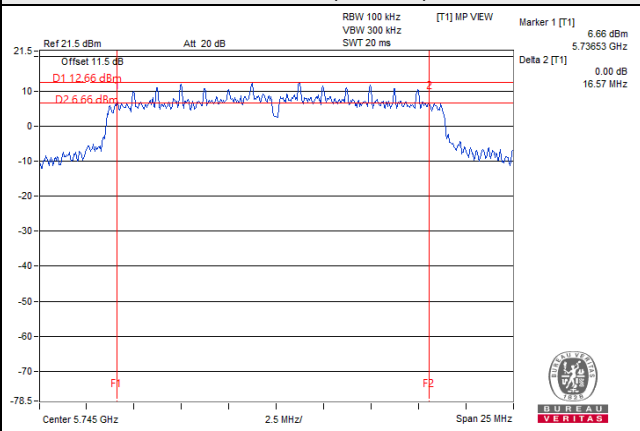
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.41	75.44	0.5	Pass

### Spectrum Plot of Worst Value

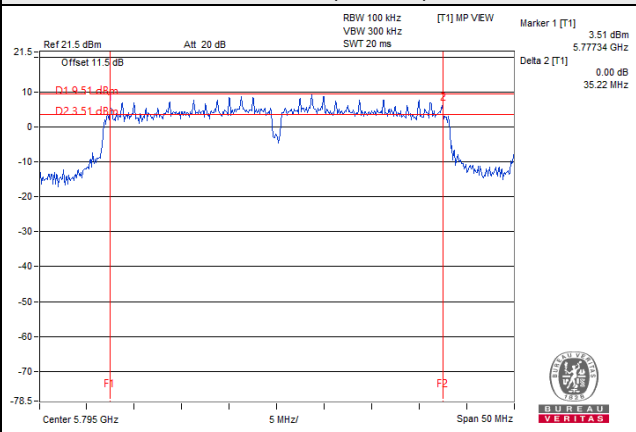
#### 802.11a



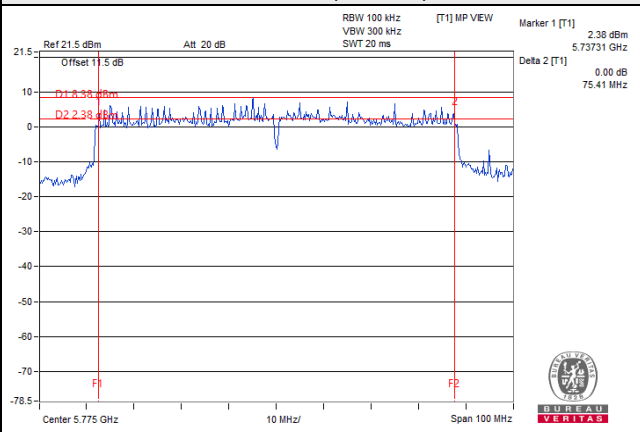
#### 802.11ac (VHT20)



#### 802.11ac (VHT40)

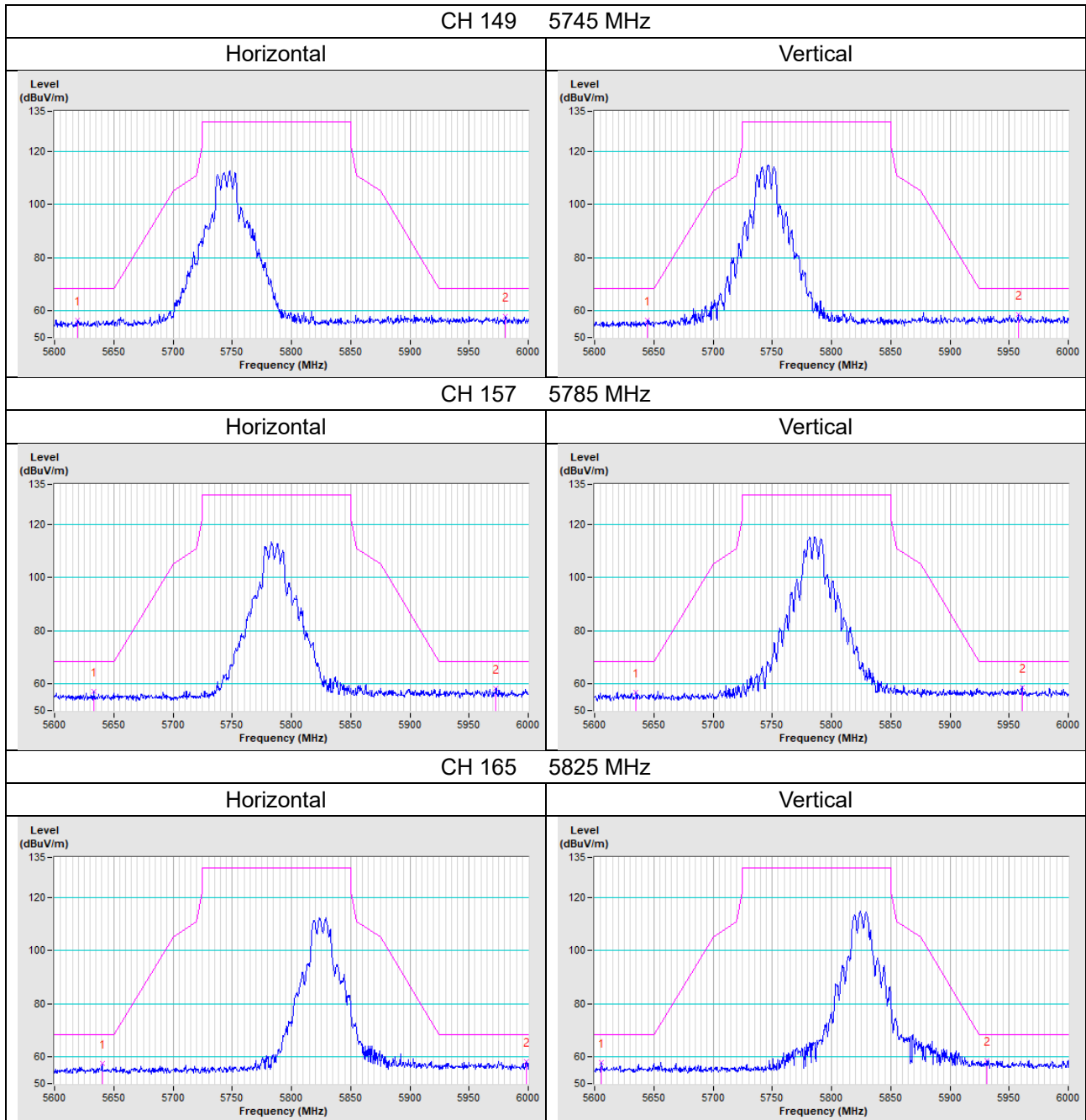


#### 802.11ac (VHT80)



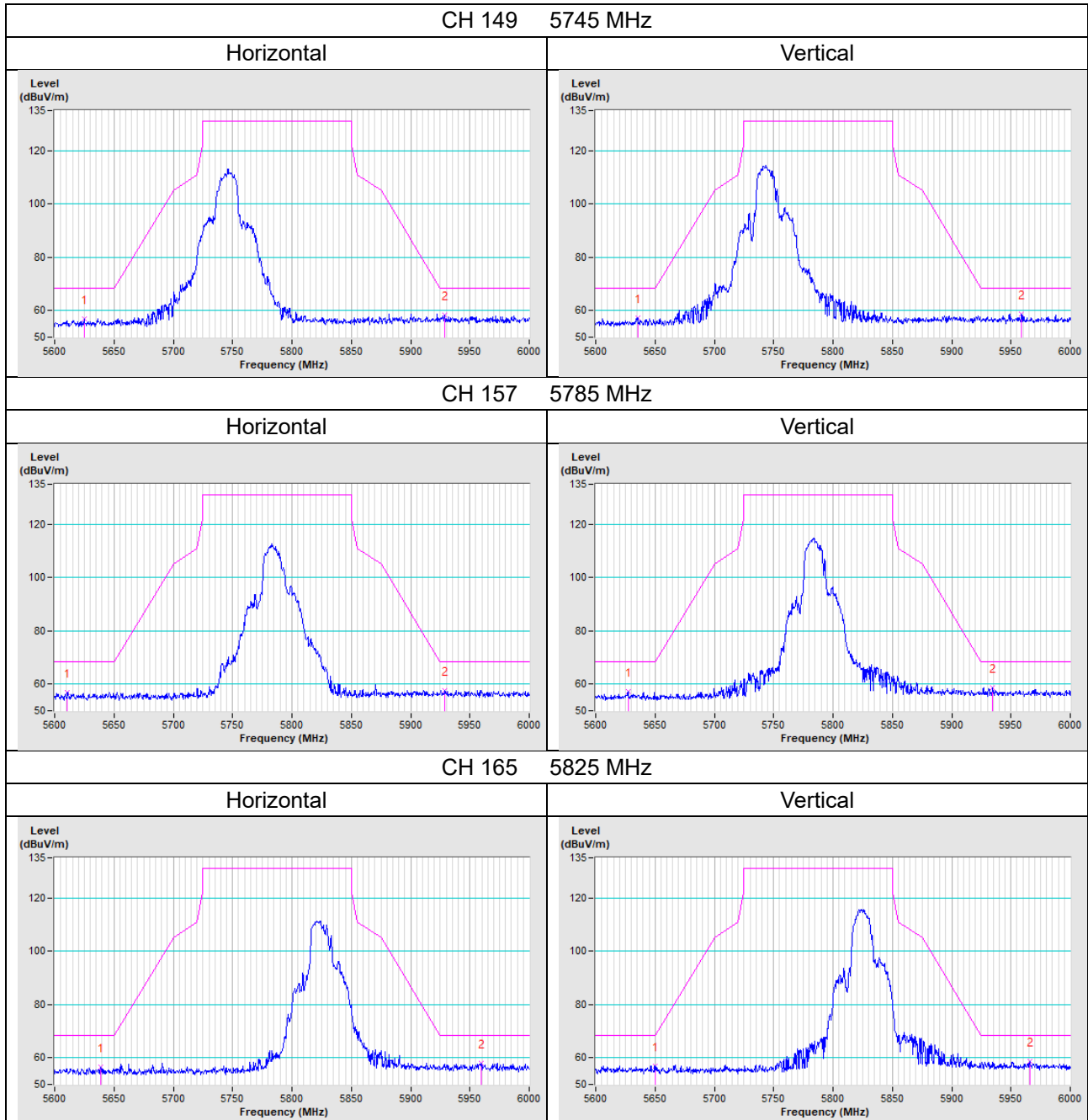
### Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

802.11a

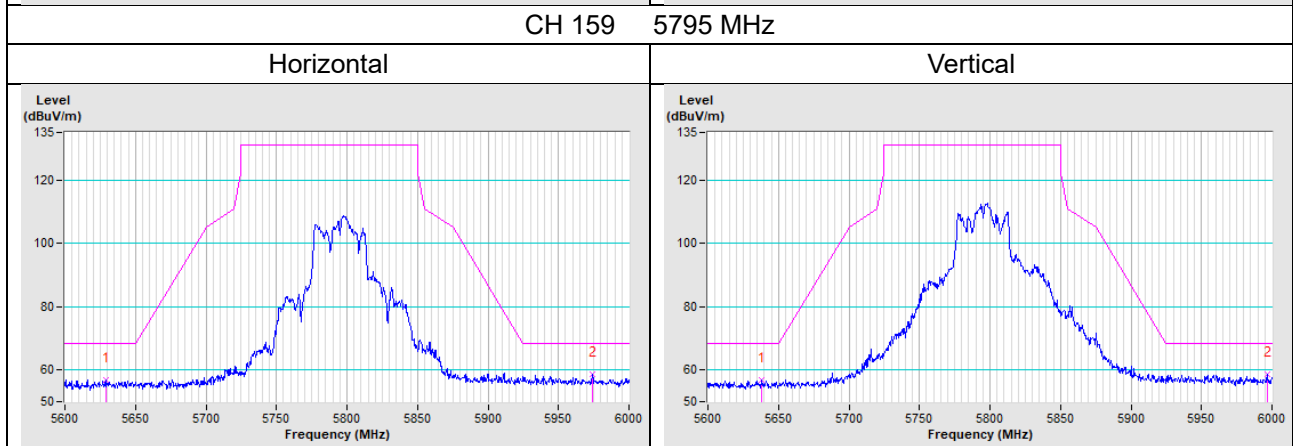
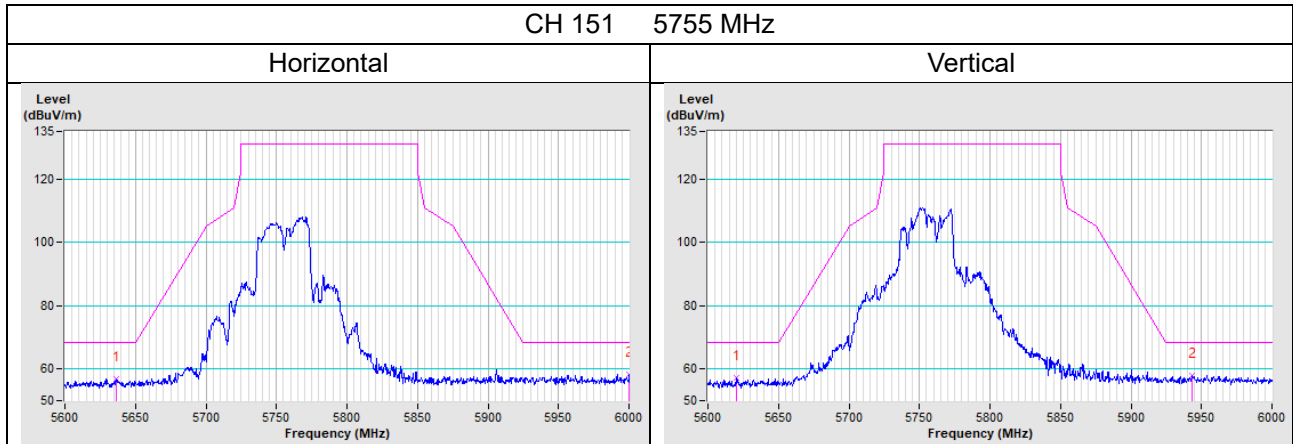




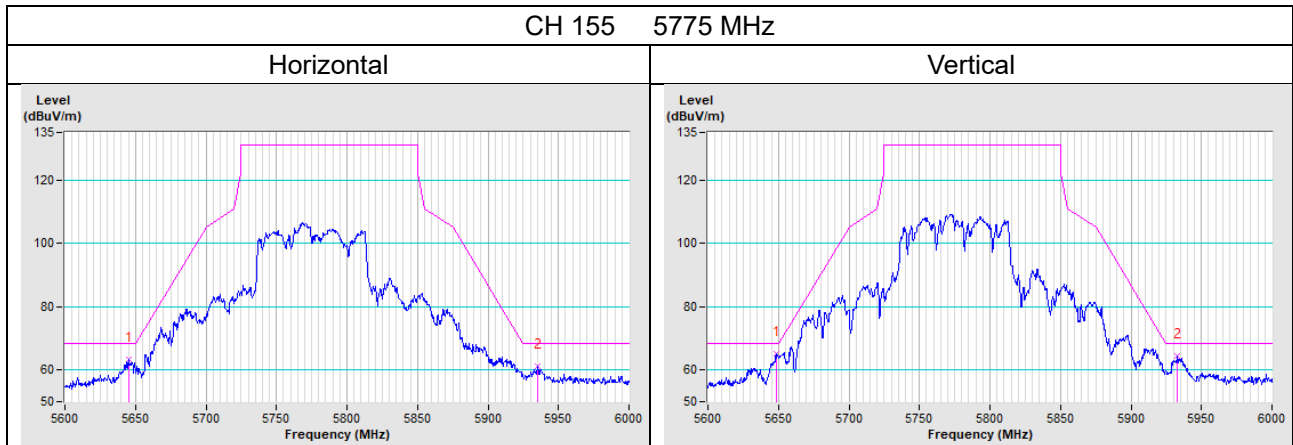
802.11ac (VHT20)



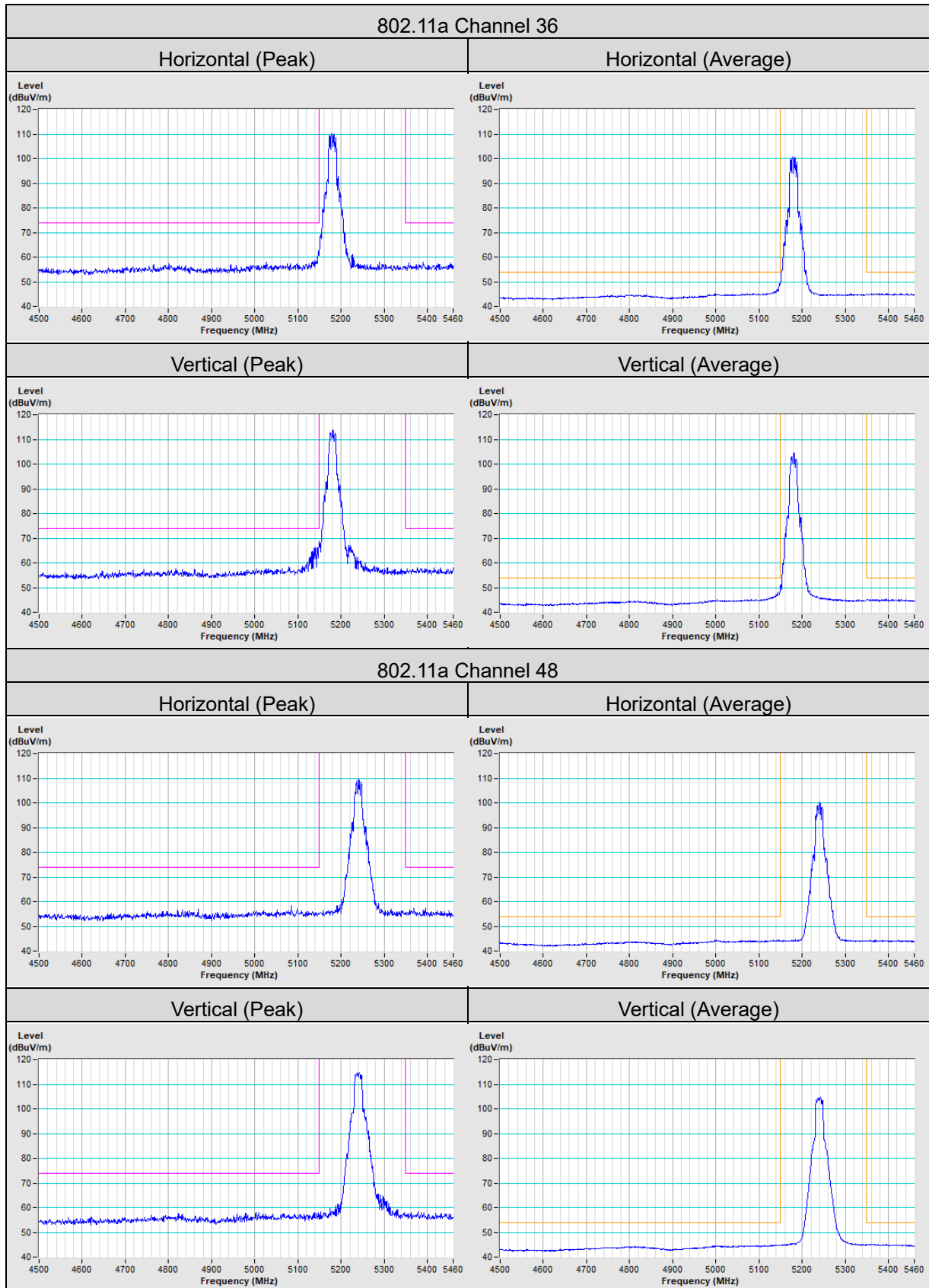
802.11ac (VHT40)



802.11ac (VHT80)

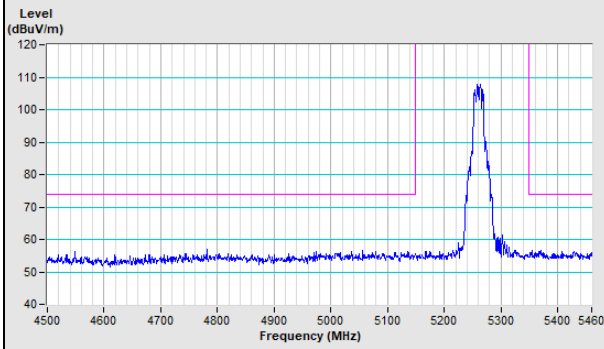


## Annex B- Band Edge Measurement

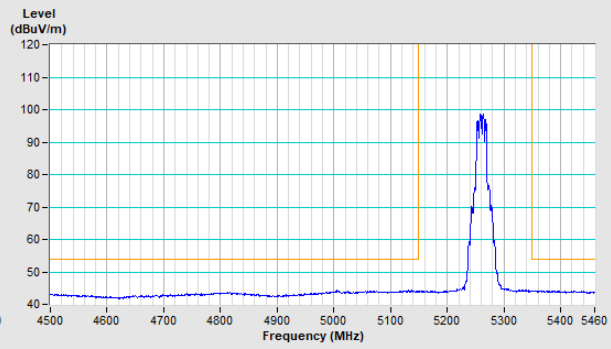


### 802.11a Channel 52

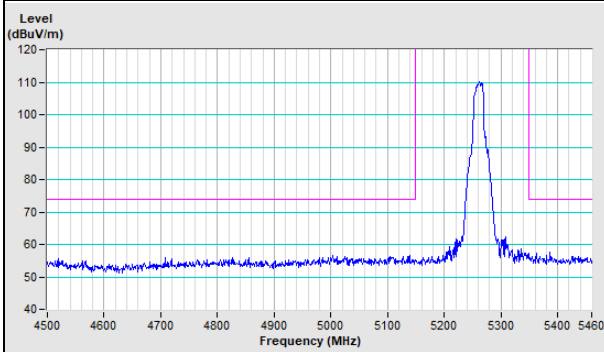
Horizontal (Peak)



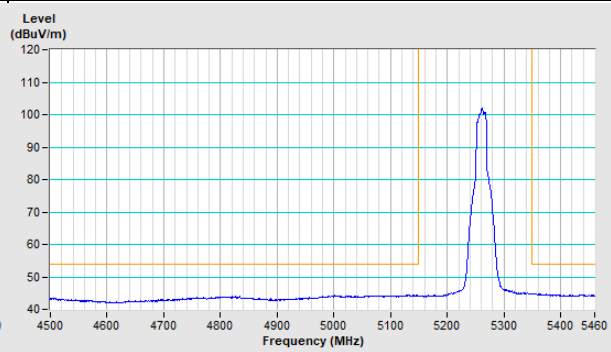
Horizontal (Average)



Vertical (Peak)

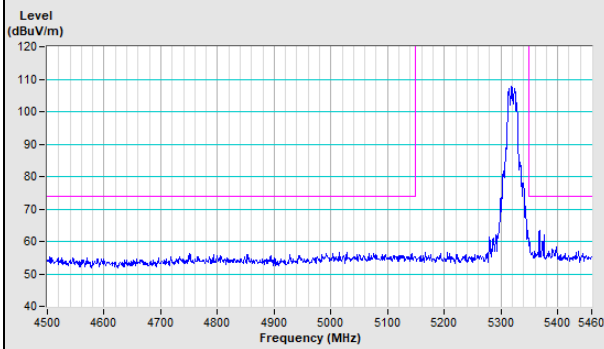


Vertical (Average)

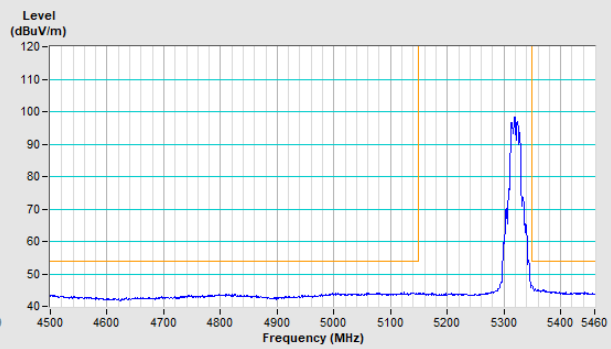


### 802.11a Channel 64

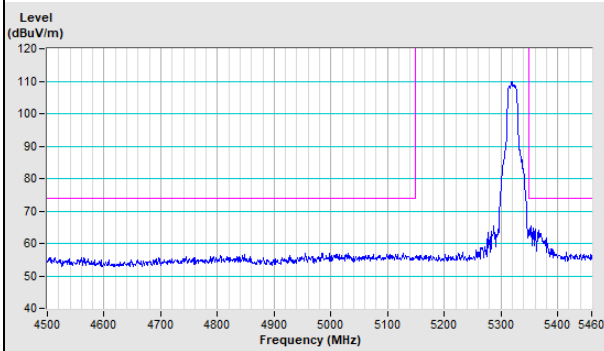
Horizontal (Peak)



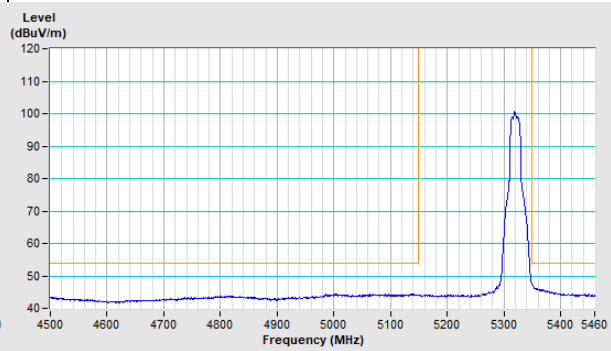
Horizontal (Average)

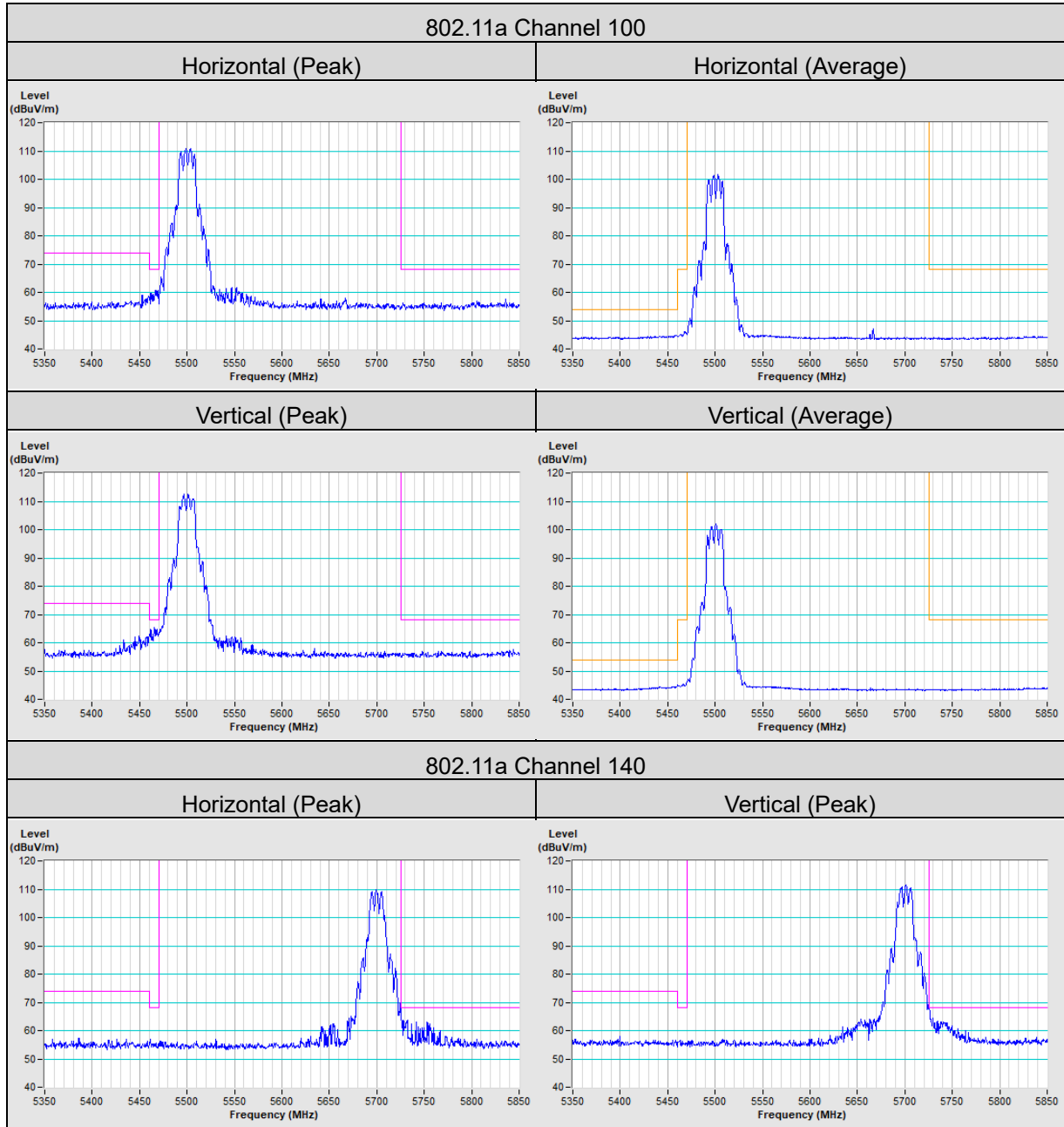


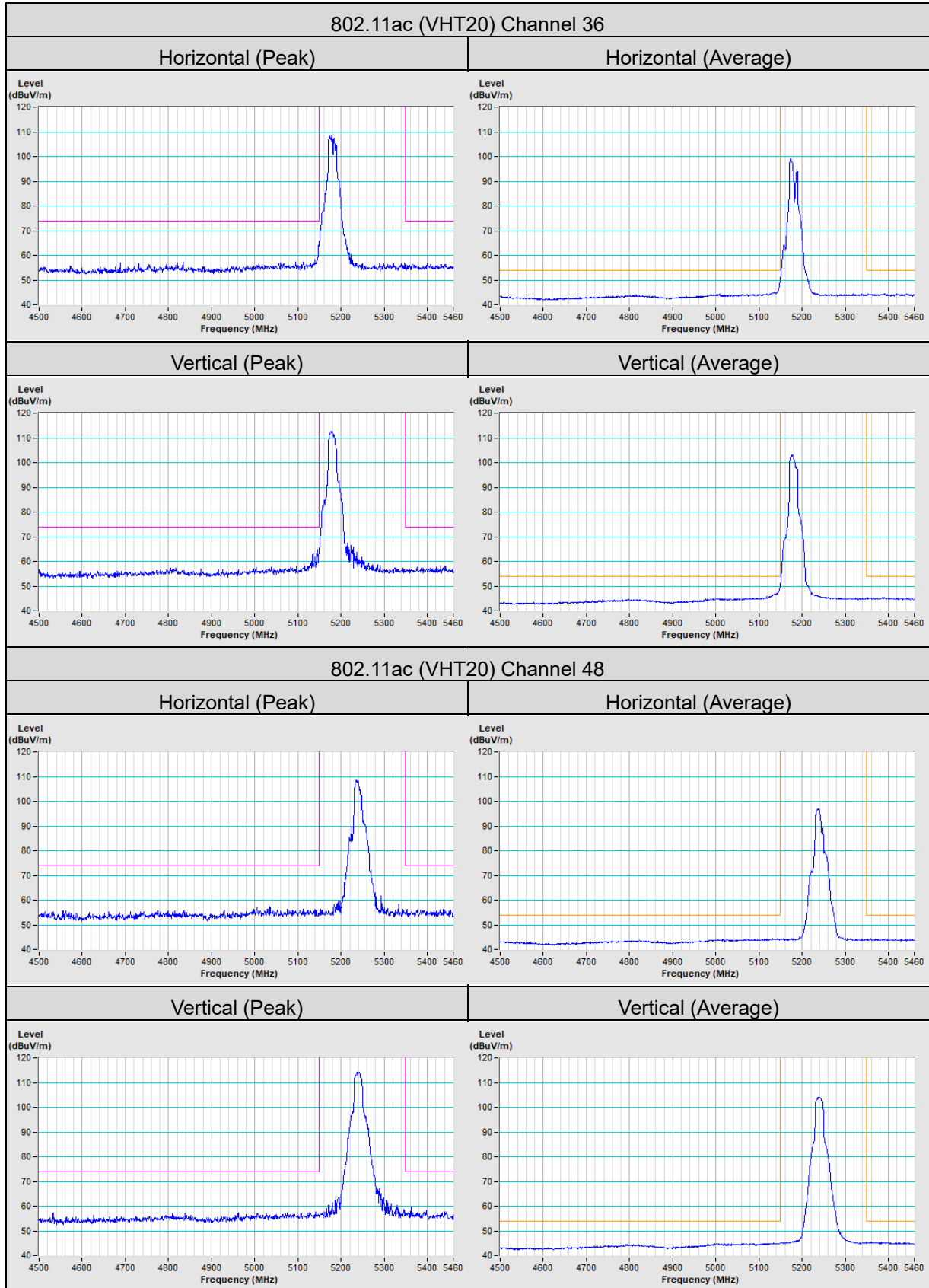
Vertical (Peak)

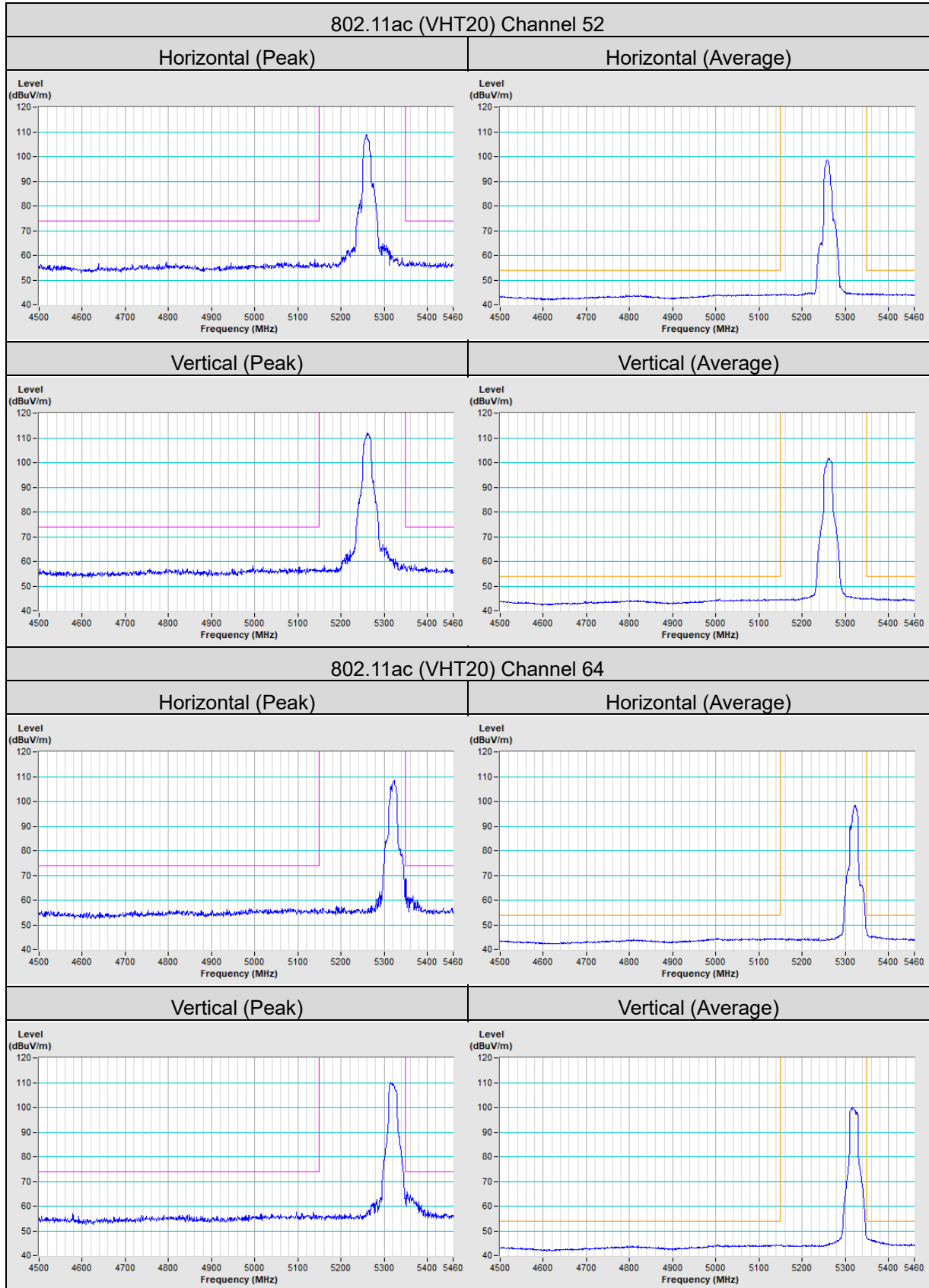


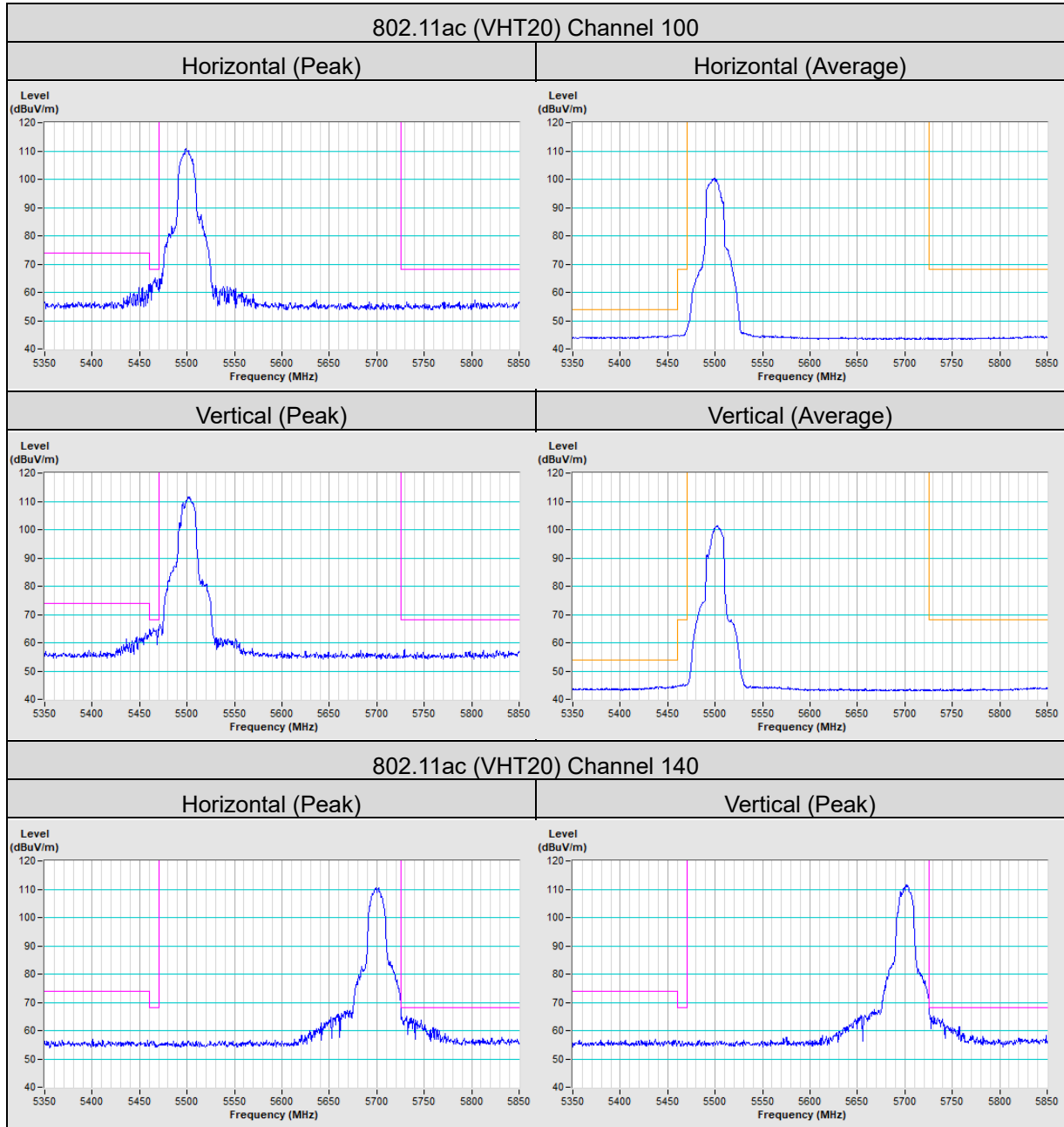
Vertical (Average)



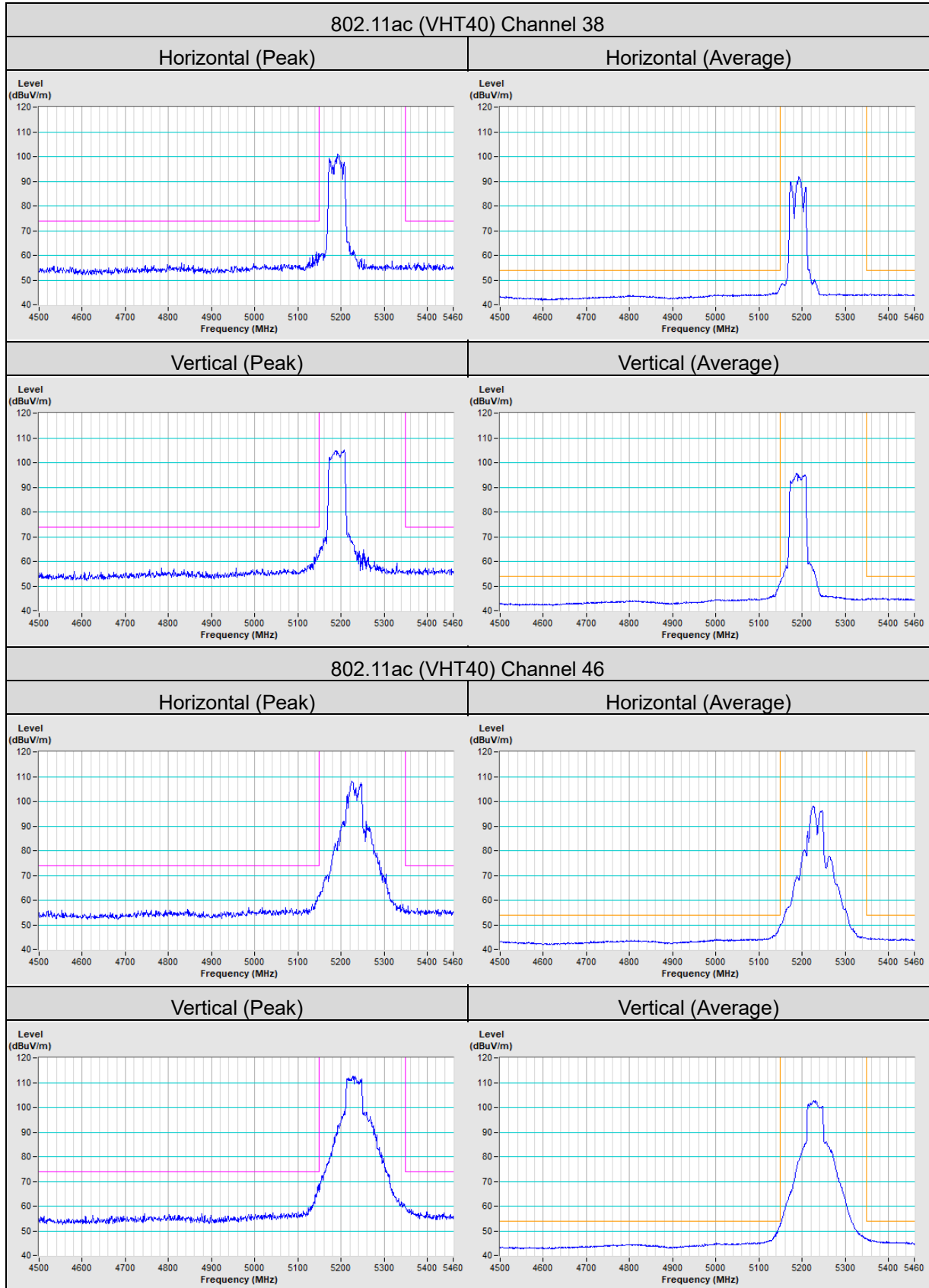


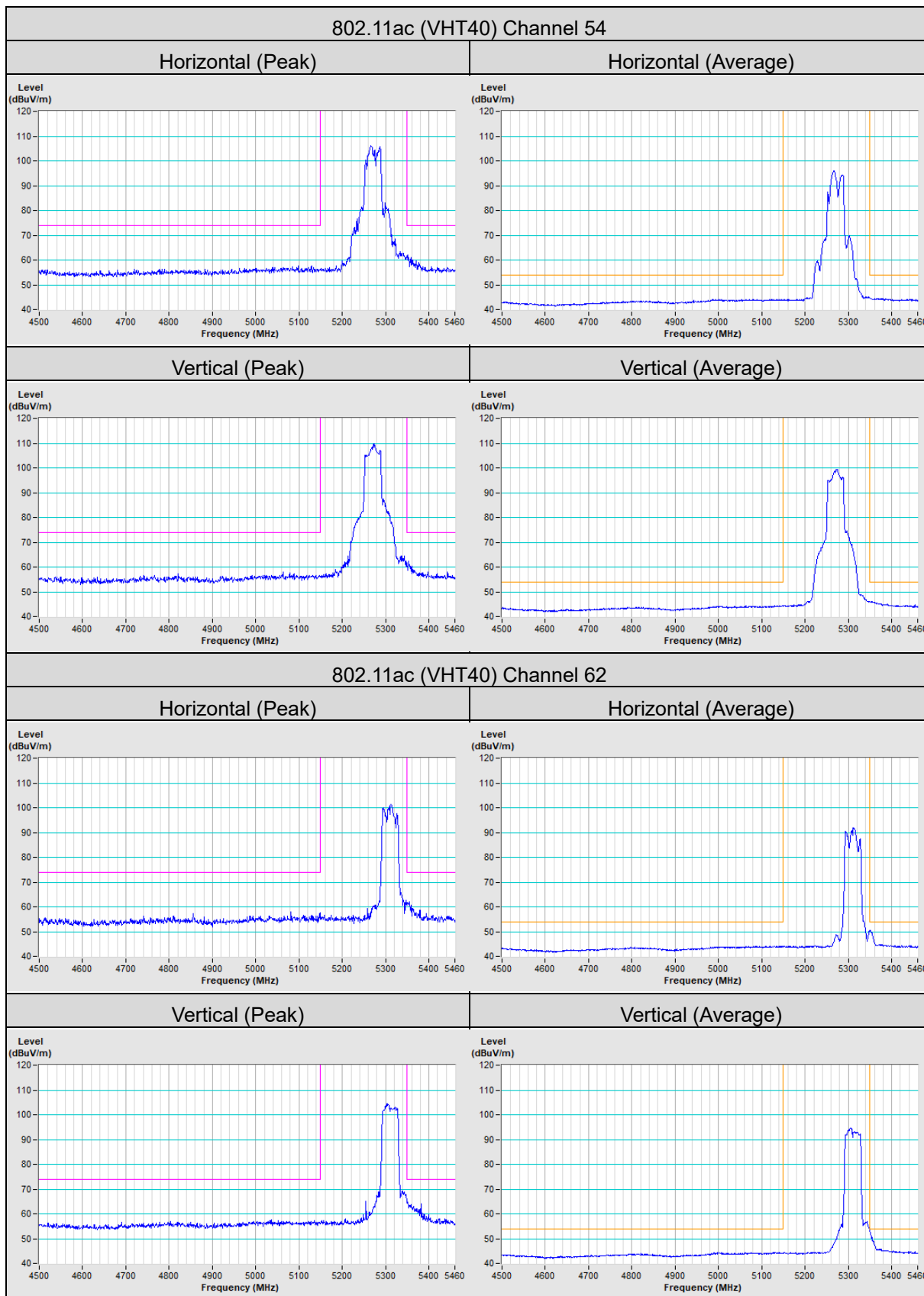


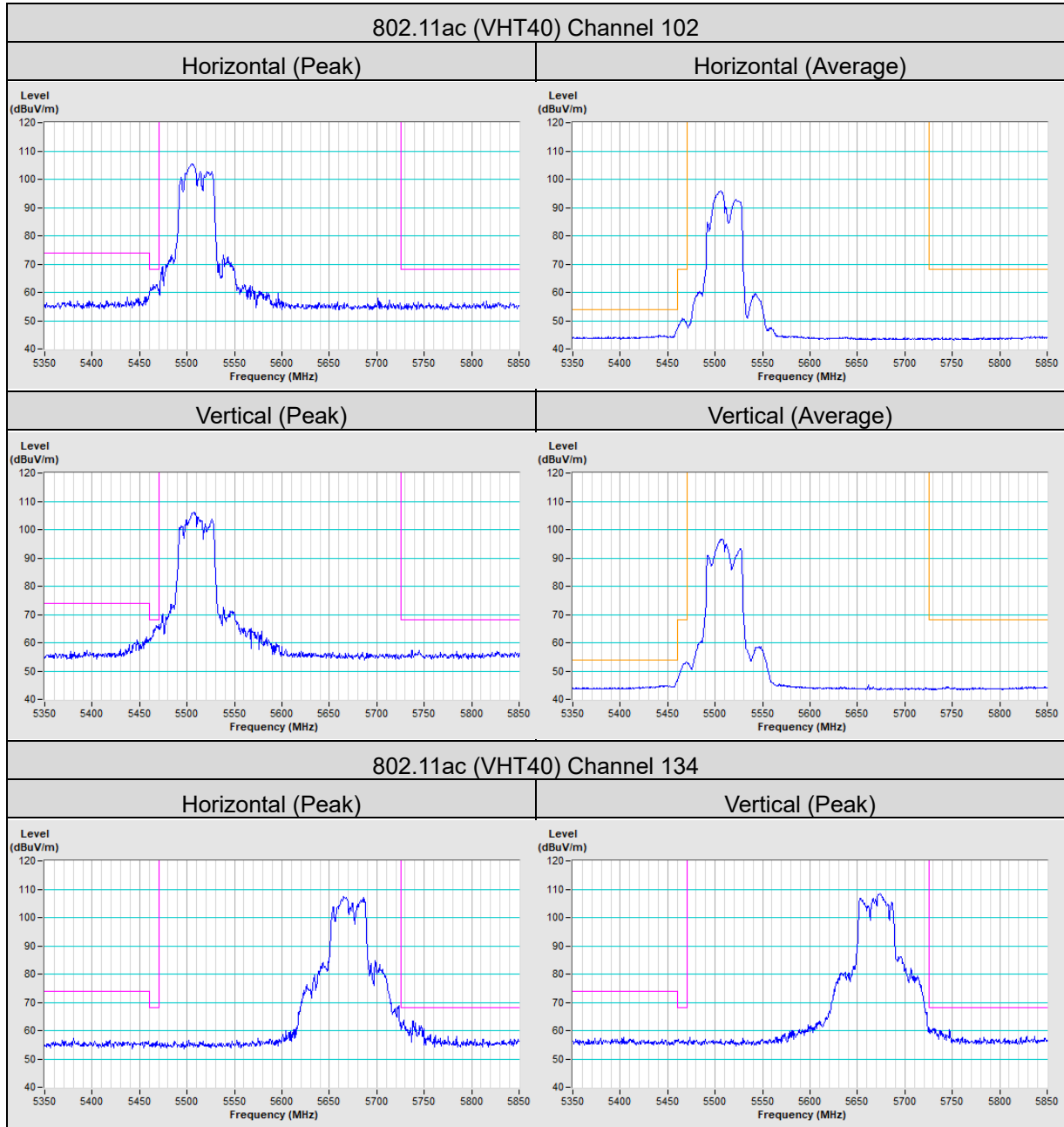






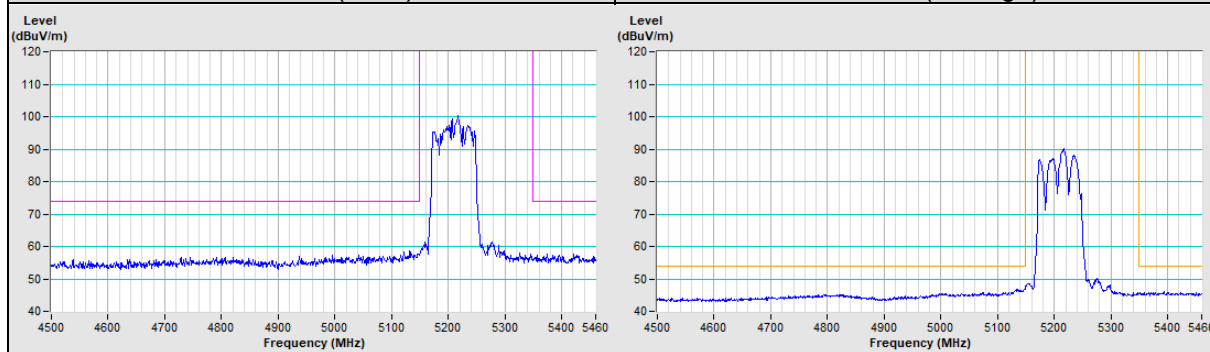




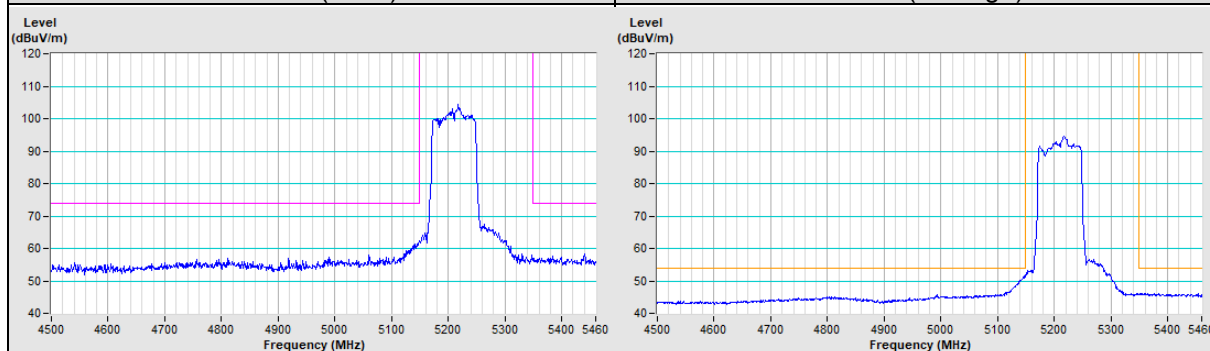


### 802.11ac (VHT80) Channel 42

Horizontal (Peak)	Horizontal (Average)
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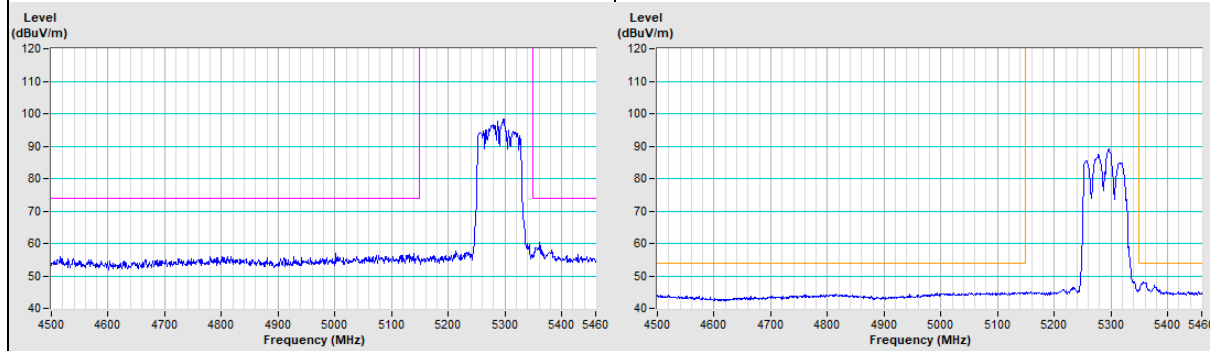


Vertical (Peak)	Vertical (Average)
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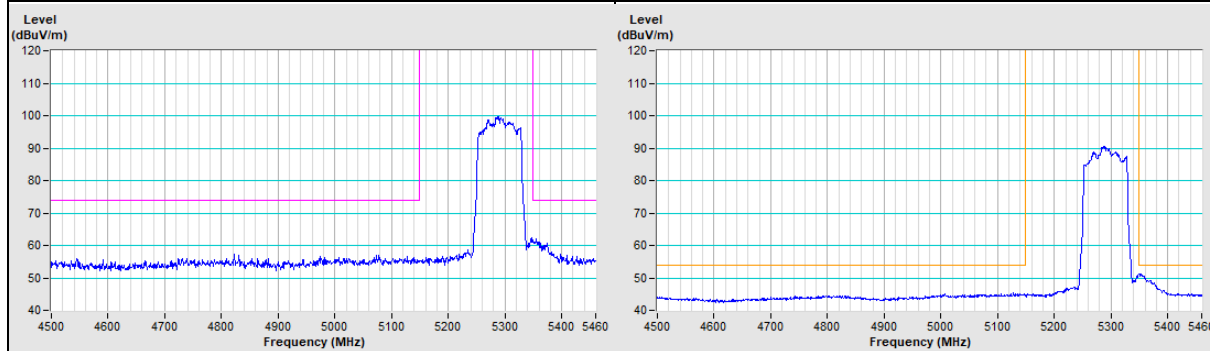


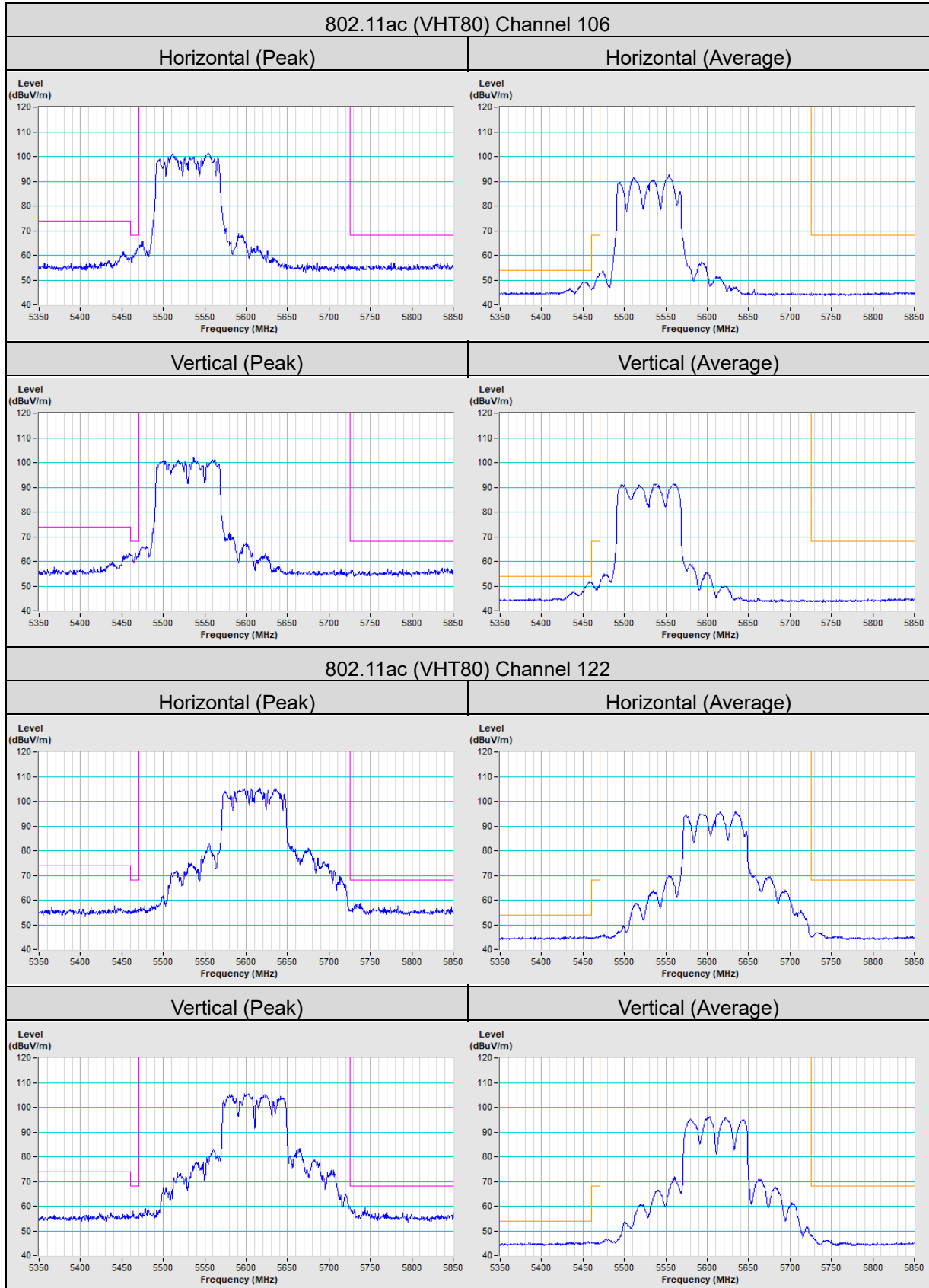
### 802.11ac (VHT80) Channel 58

Horizontal (Peak)	Horizontal (Average)
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Vertical (Peak)	Vertical (Average)
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## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

## Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

The address and road map of all our labs can be found in our web site also.

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