

## FCC Test Report

**Report No.:** RFBASM-WTW-P21071003-1

**FCC ID:** QYLWCN3990Z11

**Test Model:** ZX10

**Series Model:** ZX10Y (Y= 10 characters, Y can be 0-9, a-z, A-Z, “ - “, “ \_ “, “ / “, “ \ “ or blank for marketing purpose and no impact safety related critical components and constructions.)

**Received Date:** Jul. 28, 2021

**Test Date:** Aug. 26 ~ Nov. 08, 2021

**Issued Date:** Nov. 19, 2021

**Applicant:** Getac Technology Corporation.

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

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**FCC Registration / Designation Number (1):** 788550 / TW0003

**FCC Registration / Designation Number (2):** 281270 / TW0032



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### Release Control Record

Issue No.	Description	Date Issued
RFBASM-WTW-P21071003-1	Original release	Nov. 19, 2021

## 1 Certificate of Conformity

**Product:** Tablet

**Brand:** Getac

**Test Model:** ZX10

**Series Model:** ZX10Y (Y= 10 characters, Y can be 0-9, a-z, A-Z, “ - “, “ \_ “, “ / “, “ \ “ or blank for marketing purpose and no impact safety related critical components and constructions.)

**Sample Status:** Identical Prototype


**Applicant:** Getac Technology Corporation.

**Test Date:** Aug. 26 ~ Nov. 08, 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 :**  , **Date:** Nov. 19, 2021  
Polly Chien / Specialist

**Approved by :**  , **Date:** Nov. 19, 2021  
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)(9)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -10.93dB at 0.38600MHz.
15.407(b)(1/2/3/4(i/ii)/9)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.5dB at 5350.00MHz.
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 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	9 kHz ~ 30 MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~1000MHz	2.93 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	Tablet
Brand	Getac
Test Model	ZX10
Series Model	ZX10Y (Y= 10 characters, Y can be 0-9, a-z, A-Z, “ - “, “ _ “, “ / “, “ \ “ or blank for marketing purpose and no impact safety related critical components and constructions.)
Model Difference	For marketing purpose
Sample Status	Identical Prototype
Power Supply Rating	19Vdc (from adapter) 3.84Vdc (from battery)
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: 13.934mW 5260 ~ 5320MHz: 14.062mW 5500 ~ 5700MHz: 13.460mW 5745 ~ 5825MHz: 11.169mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Refer to note
Cable Supplied	NA

**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	FSP	FSP065-RBBN3	I/P: 100-240 Vac, 50-60Hz, 1.5 A O/P: 19.0 Vdc, 3.42 A 1.47m non-shielded cable with 1 core
Battery 1	Getac	BP1S2P4990B	Rating: 3.84Vdc, 9740mAh, 37.4Wh Typical Capacity: 9980mAh, 38.32Wh
Battery 2	Getac	BP1S1P4990B	Rating: 3.84Vdc, 4870mAh, 18.7Wh Typical Capacity: 4990mAh, 19.16Wh
Power cord	I-SHENG ELECTRIC WIRE & CABLE CO., LTD.	SP-305B+IS-034	1.7M
Touch pen	Getac	N52 Magnet	N/A

\* After the pretesting battery, battery 2 mode is found to be the worst case and therefore had been chosen for final test.

3. The EUT uses the following antennas.

Ant. Type	PIFA				
Ant. Connector	IPEX				
Peak Gain (dBi)					
Frequency (MHz)	2400~2500	5180 ~ 5240	5260 ~ 5320	5500 ~ 5700	5745 ~ 5825
Main	1.84	0.74	0.62	-0.82	-1.96
Aux	-3.3	3.08	2.84	2.59	2.9

\* 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. EUT contains following configurations.

Part	Brand	Model	Note	Configuration			
				1	2	3	4
CPU	Qualcomm	SDA 660	-	V	V	V	V
Memory	Samsung	KM3V6001CM-B705	4GB	V	V	V	V
VIDEO CONTROLLER	Qualcomm	Adreno GU 512	-	V	V	V	V
eMMC Storage	Samsung	-	64GB	V	V	V	V
DISPLAY	AUO	G101UAN2.0	-	V	V	V	V
Touch Screen	EETI	EXC80H60	-	V	V	V	V
Real Camera	Unison	MV21A6A1-TF5D	16M PLCC MIPI	V	V	V	V
Front Camera	Unison	MV2980A1-TF4R-P	8M PLCC MIPI	V	V	V	V
WLAN/BT	Qualcomm	WCN3990	-	V	V	V	V
HF-RFID	Getac	PN7150	-	V	V	V	V
GPS	Locosys	MC-1010-V2B	-	V	V	V	V
Barcode Reader	Honeywell	N6703SR-W5-103	-	V	V	V	V
Smart Card Option Bay	Alcor	AU9560-GBS-GR	-			V	V
Normal capacity battery	Getac	BP1S1P4990B	BYD Cell, CSL595490HPPlus	V		V	
High capacity battery	Getac	BP1S2P4990B	BYD Cell, CSL595490HPPlus		V		V

\*After the pretesting, the configuration 3 is found to be the worst case and had been chosen for final test.

5. Spurious emission of the simultaneous operation (WLAN 2.4GHz, BT and NFC or WLAN 5GHz and NFC) has been evaluated and no non-compliance was found.

### 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	
-	√	√	√	√	-

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:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y plane**.
2. For radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum fundamental emission level channel.

#### 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)
-	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
-	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
-	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
-	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)
-	802.11ac (VHT20)	5180-5240	36, 40, 48	157	OFDM	7.2
		5260-5320	52, 60, 64		OFDM	7.2
		5500-5700	100 to 140		OFDM	7.2
		5745-5825	149, 157, 165		OFDM	7.2

**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)
-	802.11ac (VHT20)	5180-5240	36, 40, 48	157	OFDM	7.2
		5260-5320	52, 60, 64		OFDM	7.2
		5500-5700	100 to 140		OFDM	7.2
		5745-5825	149, 157, 165		OFDM	7.2

**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)
-	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
-	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
-	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
-	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

**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)
-	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
-	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
-	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
-	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, 66% RH	120Vac, 60Hz	Titan Hsu, Adair Peng
RE<1G	23 deg. C, 66% RH	120Vac, 60Hz	Titan Hsu
PLC	23 deg. C, 67% RH	120Vac, 60Hz	Adair Peng
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Jisyong Wang

### 3.3 Duty Cycle of Test Signal

Duty cycle of test signal is > 98 %, duty factor is not required.

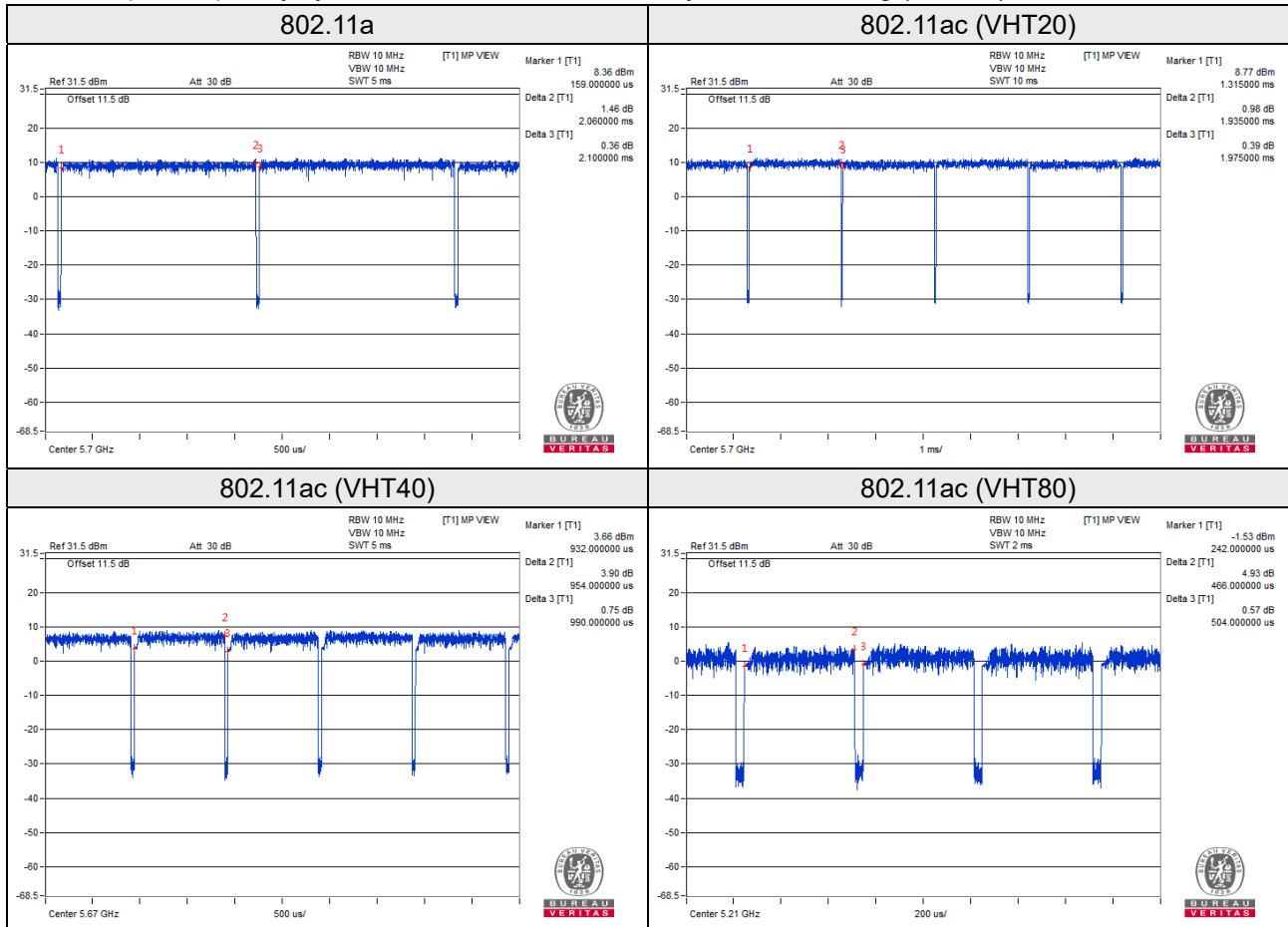
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = 2.060/2.100 = 0.981

802.11ac (VHT20): Duty cycle = 1.935/1.975 = 0.980

802.11ac (VHT40): Duty cycle = 0.954/0.990 = 0.964, Duty factor =  $10 * \log (1/0.964) = 0.16$

802.11ac (VHT80): Duty cycle = 0.466/0.504 = 0.925, Duty factor =  $10 * \log (1/0.925) = 0.34$



### 3.4 Description of Support Units

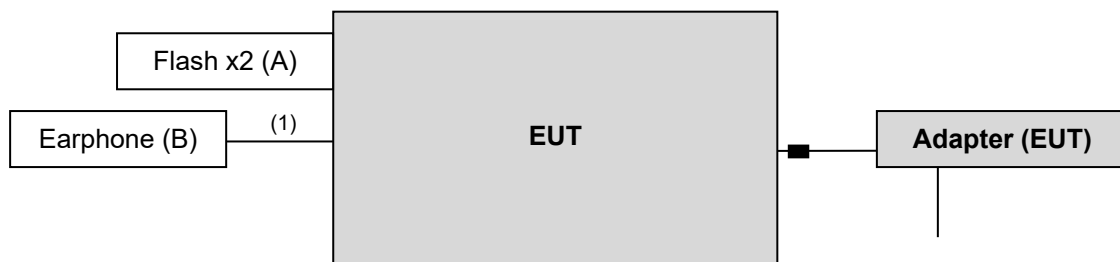
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Flash	SanDisk	SDDDC3-032G	NA	NA	Type-C
	Flash	HP	v250W	05	NA	Type-A
B.	Earphone	APPLE	MB770FE	NA	NA	-

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Audio cable	1	1.2	N	0	-

#### 3.4.1 Configuration of System under Test



### 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:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. 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	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110440	Dec. 18, 2020	Dec. 17, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-1213	Nov. 04, 2020	Nov. 03, 2021
			Oct. 27, 2021	Oct. 26, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	995	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980782	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC118A45SE	980808	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC184045SE	980788	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC104-SM-SM-(9000+2000+1000)	201243+ 201231+ 210102	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMCCFD400-NM-NM-(9000+300+500)	201236+ 201235+ 201233	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC101G-KM-KM-(5000+3000+2000)	201260+201257+201254	Jan. 12, 2021	Jan. 11, 2022
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
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 WM Chamber 8.  
 3. Tested date: Aug. 26 ~ Nov. 08, 2021

### 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:

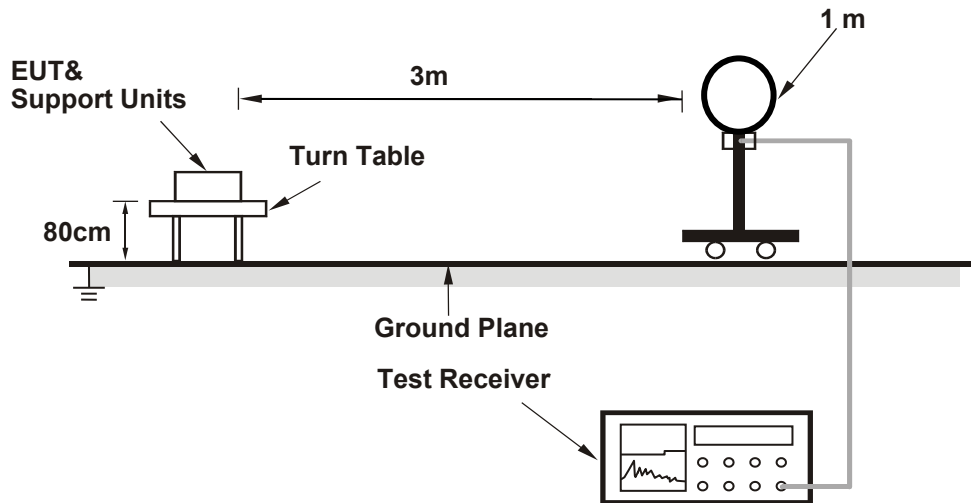
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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 = 10Hz; 802.11ac (VHT20): RBW = 1MHz, VBW = 10Hz; 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

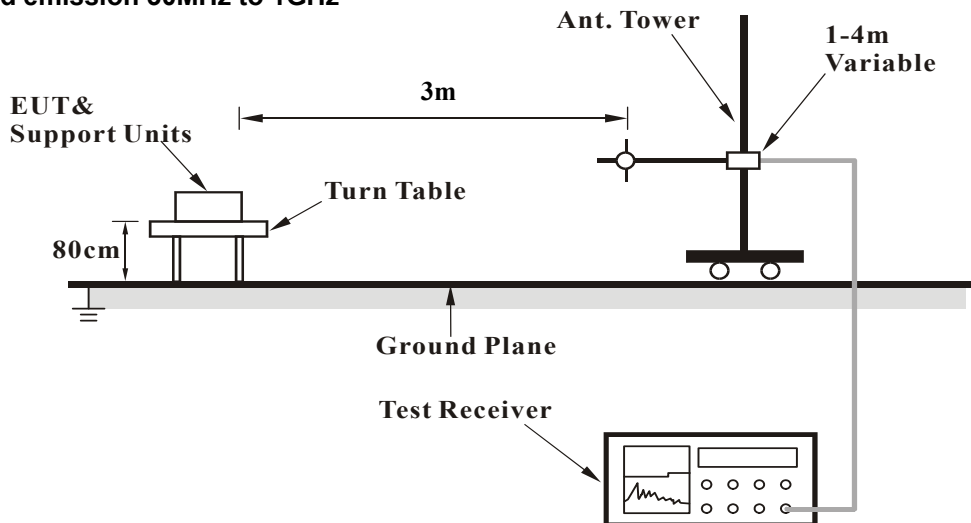
No deviation.

#### 4.1.5 Test Setup

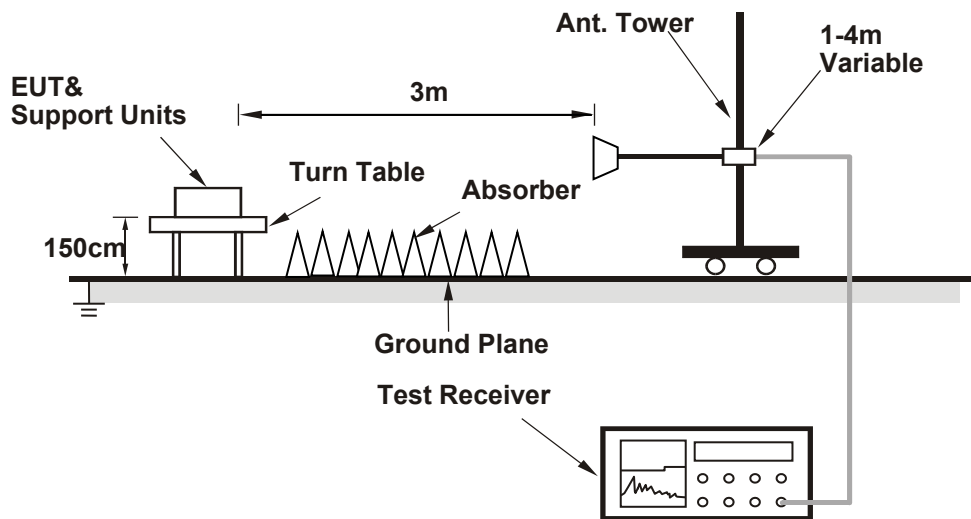
##### For Radiated emission below 30MHz



##### 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

- The EUT powered by adapter.
- The EUT under 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	65.3 PK	74.0	-8.7	1.01 H	357	63.5	1.8
2	5150.00	46.7 AV	54.0	-7.3	1.01 H	357	44.9	1.8
3	*5180.00	105.0 PK			1.01 H	357	65.0	40.0
4	*5180.00	96.1 AV			1.01 H	357	56.1	40.0
5	#10360.00	54.0 PK	68.2	-14.2	1.92 H	311	45.8	8.2

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	65.7 PK	74.0	-8.3	1.48 V	31	63.9	1.8
2	5150.00	46.0 AV	54.0	-8.0	1.48 V	31	44.2	1.8
3	*5180.00	104.1 PK			1.48 V	31	64.1	40.0
4	*5180.00	95.3 AV			1.48 V	31	55.3	40.0
5	#10360.00	53.9 PK	68.2	-14.3	1.55 V	225	45.7	8.2

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 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	105.0 PK			1.10 H	357	65.0	40.0
2	*5200.00	95.6 AV			1.10 H	357	55.6	40.0
3	#10400.00	53.8 PK	68.2	-14.4	1.95 H	315	45.7	8.1

**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	*5200.00	104.0 PK			1.46 V	35	64.0	40.0
2	*5200.00	95.3 AV			1.46 V	35	55.3	40.0
3	#10400.00	53.7 PK	68.2	-14.5	1.58 V	229	45.6	8.1

**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 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	105.1 PK			1.02 H	358	65.1	40.0
2	*5240.00	96.1 AV			1.02 H	358	56.1	40.0
3	5350.00	57.3 PK	74.0	-16.7	1.02 H	358	55.5	1.8
4	5350.00	43.8 AV	54.0	-10.2	1.02 H	358	42.0	1.8
5	#10480.00	53.8 PK	68.2	-14.4	1.95 H	315	45.7	8.1

**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	104.4 PK			1.45 V	36	64.4	40.0
2	*5240.00	95.7 AV			1.45 V	36	55.7	40.0
3	5350.00	57.1 PK	74.0	-16.9	1.45 V	36	55.3	1.8
4	5350.00	43.8 AV	54.0	-10.2	1.45 V	36	42.0	1.8
5	#10480.00	53.9 PK	68.2	-14.3	1.49 V	219	45.8	8.1

**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	57.2 PK	74.0	-16.8	1.12 H	357	55.4	1.8
2	5150.00	43.7 AV	54.0	-10.3	1.12 H	357	41.9	1.8
3	*5260.00	105.5 PK			1.12 H	357	65.6	39.9
4	*5260.00	95.9 AV			1.12 H	357	56.0	39.9
5	#10520.00	54.0 PK	68.2	-14.2	2.01 H	302	45.8	8.2

**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	56.8 PK	74.0	-17.2	1.38 V	32	55.0	1.8
2	5150.00	43.7 AV	54.0	-10.3	1.38 V	32	41.9	1.8
3	*5260.00	105.0 PK			1.38 V	32	65.1	39.9
4	*5260.00	95.8 AV			1.38 V	32	55.9	39.9
5	#10520.00	53.8 PK	68.2	-14.4	1.36 V	225	45.6	8.2

**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	105.0 PK			1.01 H	354	65.0	40.0
2	*5300.00	95.5 AV			1.01 H	354	55.5	40.0
3	10600.00	53.8 PK	74.0	-20.2	2.05 H	311	45.7	8.1
4	10600.00	42.0 AV	54.0	-12.0	2.05 H	311	33.9	8.1

**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	*5300.00	104.4 PK			1.43 V	36	64.4	40.0
2	*5300.00	95.7 AV			1.43 V	36	55.7	40.0
3	10600.00	53.8 PK	74.0	-20.2	1.41 V	229	45.7	8.1
4	10600.00	41.9 AV	54.0	-12.1	1.41 V	229	33.8	8.1

**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.

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	105.9 PK			1.09 H	357	65.9	40.0
2	*5320.00	95.9 AV			1.09 H	357	55.9	40.0
3	5350.00	65.7 PK	74.0	-8.3	1.09 H	357	63.9	1.8
4	5350.00	46.0 AV	54.0	-8.0	1.09 H	357	44.2	1.8
5	10640.00	53.9 PK	74.0	-20.1	2.09 H	316	45.8	8.1
6	10640.00	41.9 AV	54.0	-12.1	2.09 H	316	33.8	8.1

**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	*5320.00	105.0 PK			1.41 V	34	65.0	40.0
2	*5320.00	95.0 AV			1.41 V	34	55.0	40.0
3	5350.00	64.5 PK	74.0	-9.5	1.41 V	34	62.7	1.8
4	5350.00	45.1 AV	54.0	-8.9	1.41 V	34	43.3	1.8
5	10640.00	53.9 PK	74.0	-20.1	1.47 V	231	45.8	8.1
6	10640.00	42.1 AV	54.0	-11.9	1.47 V	231	34.0	8.1

**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.

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	57.4 PK	74.0	-16.6	1.00 H	335	55.3	2.1
2	5460.00	44.2 AV	54.0	-9.8	1.00 H	335	42.1	2.1
3	#5470.00	61.2 PK	68.2	-7.0	1.00 H	335	59.1	2.1
4	*5500.00	104.3 PK			1.00 H	335	64.0	40.3
5	*5500.00	95.4 AV			1.00 H	335	55.1	40.3
6	11000.00	54.9 PK	74.0	-19.1	1.47 H	134	46.7	8.2
7	11000.00	42.3 AV	54.0	-11.7	1.47 H	134	34.1	8.2

**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	5460.00	57.3 PK	74.0	-16.7	1.36 V	146	55.2	2.1
2	5460.00	44.4 AV	54.0	-9.6	1.36 V	146	42.3	2.1
3	#5470.00	59.7 PK	68.2	-8.5	1.36 V	146	57.6	2.1
4	*5500.00	104.4 PK			1.36 V	146	64.1	40.3
5	*5500.00	95.7 AV			1.36 V	146	55.4	40.3
6	11000.00	54.1 PK	74.0	-19.9	1.52 V	258	45.9	8.2
7	11000.00	41.4 AV	54.0	-12.6	1.52 V	258	33.2	8.2

**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 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	104.7 PK			1.49 H	349	64.0	40.7
2	*5580.00	95.4 AV			1.49 H	349	54.7	40.7
3	11160.00	54.5 PK	74.0	-19.5	1.45 H	132	46.3	8.2
4	11160.00	42.2 AV	54.0	-11.8	1.45 H	132	34.0	8.2

**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	*5580.00	104.8 PK			1.28 V	145	64.1	40.7
2	*5580.00	95.5 AV			1.28 V	145	54.8	40.7
3	11160.00	53.9 PK	74.0	-20.1	1.55 V	252	45.7	8.2
4	11160.00	41.5 AV	54.0	-12.5	1.55 V	252	33.3	8.2

**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 802.11a	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	103.6 PK			1.67 H	339	62.3	41.3
2	*5700.00	94.3 AV			1.67 H	339	53.0	41.3
3	#5725.00	60.7 PK	68.2	-7.5	1.67 H	339	57.4	3.3
4	11400.00	54.8 PK	74.0	-19.2	1.49 H	138	46.0	8.8
5	11400.00	42.7 AV	54.0	-11.3	1.49 H	138	33.9	8.8

**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	*5700.00	106.1 PK			2.20 V	142	64.8	41.3
2	*5700.00	96.5 AV			2.20 V	142	55.2	41.3
3	#5725.00	62.1 PK	68.2	-6.1	2.20 V	142	58.8	3.3
4	11400.00	54.6 PK	74.0	-19.4	1.56 V	252	45.8	8.8
5	11400.00	42.3 AV	54.0	-11.7	1.56 V	252	33.5	8.8

**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 802.11a	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	#5640.00	58.3 PK	68.2	-9.9	2.14 H	34	55.4	2.9
2	*5745.00	104.0 PK			2.14 H	34	62.6	41.4
3	*5745.00	94.8 AV			2.14 H	34	53.4	41.4
4	#5929.20	58.3 PK	68.2	-9.9	2.14 H	34	54.6	3.7
5	11490.00	56.7 PK	74.0	-17.3	1.66 H	158	48.0	8.7
6	11490.00	42.7 AV	54.0	-11.3	1.66 H	158	34.0	8.7

**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	#5604.40	57.5 PK	68.2	-10.7	2.21 V	140	54.8	2.7
2	*5745.00	105.9 PK			2.21 V	140	64.5	41.4
3	*5745.00	96.9 AV			2.21 V	140	55.5	41.4
4	#5972.80	58.5 PK	68.2	-9.7	2.21 V	140	54.8	3.7
5	11490.00	56.5 PK	74.0	-17.5	1.72 V	255	47.8	8.7
6	11490.00	42.4 AV	54.0	-11.6	1.72 V	255	33.7	8.7

**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 802.11a	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	#5612.80	57.3 PK	68.2	-10.9	2.02 H	37	54.6	2.7
2	*5785.00	103.4 PK			2.02 H	37	61.9	41.5
3	*5785.00	94.3 AV			2.02 H	37	52.8	41.5
4	#6000.00	58.3 PK	68.2	-9.9	2.02 H	37	54.5	3.8
5	11570.00	56.8 PK	74.0	-17.2	1.68 H	158	48.2	8.6
6	11570.00	42.5 AV	54.0	-11.5	1.68 H	158	33.9	8.6

**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	#5642.00	57.5 PK	68.2	-10.7	2.26 V	139	54.6	2.9
2	*5785.00	106.0 PK			2.26 V	139	64.5	41.5
3	*5785.00	97.2 AV			2.26 V	139	55.7	41.5
4	#5966.40	58.4 PK	68.2	-9.8	2.26 V	139	54.7	3.7
5	11570.00	56.3 PK	74.0	-17.7	1.67 V	251	47.7	8.6
6	11570.00	42.2 AV	54.0	-11.8	1.67 V	251	33.6	8.6

**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 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	#5646.40	57.9 PK	68.2	-10.3	2.10 H	36	54.9	3.0
2	*5825.00	104.4 PK			2.10 H	36	62.8	41.6
3	*5825.00	94.6 AV			2.10 H	36	53.0	41.6
4	#5964.40	58.7 PK	68.2	-9.5	2.10 H	36	55.0	3.7
5	11650.00	55.9 PK	74.0	-18.1	1.57 H	161	47.2	8.7
6	11650.00	42.2 AV	54.0	-11.8	1.57 H	161	33.5	8.7

**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	#5649.20	57.4 PK	68.2	-10.8	2.26 V	143	54.4	3.0
2	*5825.00	105.9 PK			2.26 V	143	64.3	41.6
3	*5825.00	96.4 AV			2.26 V	143	54.8	41.6
4	#5946.40	58.7 PK	68.2	-9.5	2.26 V	143	55.0	3.7
5	11650.00	55.7 PK	74.0	-18.3	1.72 V	260	47.0	8.7
6	11650.00	42.0 AV	54.0	-12.0	1.72 V	260	33.3	8.7

**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 (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	64.6 PK	74.0	-9.4	1.00 H	357	62.8	1.8
2	5150.00	46.8 AV	54.0	-7.2	1.00 H	357	45.0	1.8
3	*5180.00	105.6 PK			1.00 H	357	65.6	40.0
4	*5180.00	95.4 AV			1.00 H	357	55.4	40.0
5	#10360.00	53.9 PK	68.3	-14.4	1.99 H	318	45.7	8.2

**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	63.6 PK	74.0	-10.4	1.48 V	32	61.8	1.8
2	5150.00	46.2 AV	54.0	-7.8	1.48 V	32	44.4	1.8
3	*5180.00	105.0 PK			1.48 V	32	65.0	40.0
4	*5180.00	95.0 AV			1.48 V	32	55.0	40.0
5	#10360.00	53.8 PK	68.2	-14.4	1.66 V	231	45.6	8.2

**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 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	104.7 PK			1.17 H	357	64.7	40.0
2	*5200.00	95.4 AV			1.17 H	357	55.4	40.0
3	#10400.00	53.9 PK	68.2	-14.3	1.92 H	314	45.8	8.1

**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	*5200.00	104.2 PK			1.42 V	31	64.2	40.0
2	*5200.00	95.3 AV			1.42 V	31	55.3	40.0
3	#10400.00	53.7 PK	68.2	-14.5	1.62 V	231	45.6	8.1

**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 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	105.2 PK			1.01 H	358	65.2	40.0
2	*5240.00	96.0 AV			1.01 H	358	56.0	40.0
3	5350.00	57.5 PK	74.0	-16.5	1.01 H	358	55.7	1.8
4	5350.00	43.8 AV	54.0	-10.2	1.01 H	358	42.0	1.8
5	#10480.00	53.9 PK	68.2	-14.3	2.02 H	321	45.8	8.1

**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	104.9 PK			1.47 V	37	64.9	40.0
2	*5240.00	95.4 AV			1.47 V	37	55.4	40.0
3	5350.00	57.0 PK	74.0	-17.0	1.47 V	37	55.2	1.8
4	5350.00	43.9 AV	54.0	-10.1	1.47 V	37	42.1	1.8
5	#10480.00	53.8 PK	68.2	-14.4	1.69 V	235	45.7	8.1

**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	56.7 PK	74.0	-17.3	1.14 H	357	54.9	1.8
2	5150.00	43.7 AV	54.0	-10.3	1.14 H	357	41.9	1.8
3	*5260.00	105.8 PK			1.14 H	357	65.9	39.9
4	*5260.00	95.9 AV			1.14 H	357	56.0	39.9
5	#10520.00	54.1 PK	68.2	-14.1	2.11 H	328	45.9	8.2

**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	56.7 PK	74.0	-17.3	1.43 V	33	54.9	1.8
2	5150.00	43.8 AV	54.0	-10.2	1.43 V	33	42.0	1.8
3	*5260.00	105.3 PK			1.43 V	33	65.4	39.9
4	*5260.00	95.7 AV			1.43 V	33	55.8	39.9
5	#10520.00	53.8 PK	68.2	-14.4	1.44 V	232	45.6	8.2

**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	105.0 PK			1.16 H	355	65.0	40.0
2	*5300.00	95.6 AV			1.16 H	355	55.6	40.0
3	10600.00	53.8 PK	74.0	-20.2	2.12 H	314	45.7	8.1
4	10600.00	41.8 AV	54.0	-12.2	2.12 H	314	33.7	8.1

**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	*5300.00	104.5 PK			1.46 V	34	64.5	40.0
2	*5300.00	95.1 AV			1.46 V	34	55.1	40.0
3	10600.00	53.8 PK	74.0	-20.2	1.45 V	237	45.7	8.1
4	10600.00	41.8 AV	54.0	-12.2	1.45 V	237	33.7	8.1

**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.

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	105.2 PK			1.03 H	353	65.2	40.0
2	*5320.00	95.2 AV			1.03 H	353	55.2	40.0
3	5350.00	64.4 PK	74.0	-9.6	1.03 H	353	62.6	1.8
4	5350.00	46.1 AV	54.0	-7.9	1.03 H	353	44.3	1.8
5	10640.00	53.8 PK	74.0	-20.2	1.95 H	308	45.7	8.1
6	10640.00	42.0 AV	54.0	-12.0	1.95 H	308	33.9	8.1

**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	*5320.00	104.2 PK			1.49 V	35	64.2	40.0
2	*5320.00	94.9 AV			1.49 V	35	54.9	40.0
3	5350.00	63.8 PK	74.0	-10.2	1.49 V	35	62.0	1.8
4	5350.00	45.3 AV	54.0	-8.7	1.49 V	35	43.5	1.8
5	10640.00	53.8 PK	74.0	-20.2	1.45 V	227	45.7	8.1
6	10640.00	41.8 AV	54.0	-12.2	1.45 V	227	33.7	8.1

**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.

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	57.5 PK	74.0	-16.5	1.00 H	334	55.4	2.1
2	5460.00	44.4 AV	54.0	-9.6	1.00 H	334	42.3	2.1
3	#5470.00	61.6 PK	68.2	-6.6	1.00 H	334	59.5	2.1
4	*5500.00	104.6 PK			1.00 H	334	64.3	40.3
5	*5500.00	95.3 AV			1.00 H	334	55.0	40.3
6	11000.00	54.4 PK	74.0	-19.6	1.49 H	138	46.2	8.2
7	11000.00	42.2 AV	54.0	-11.8	1.49 H	138	34.0	8.2

**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	5460.00	57.6 PK	74.0	-16.4	1.32 V	146	55.5	2.1
2	5460.00	44.4 AV	54.0	-9.6	1.32 V	146	42.3	2.1
3	#5470.00	60.9 PK	68.2	-7.3	1.32 V	146	58.8	2.1
4	*5500.00	104.8 PK			1.32 V	146	64.5	40.3
5	*5500.00	95.8 AV			1.32 V	146	55.5	40.3
6	11000.00	53.9 PK	74.0	-20.1	1.55 V	261	45.7	8.2
7	11000.00	41.5 AV	54.0	-12.5	1.55 V	261	33.3	8.2

**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 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	104.9 PK			1.75 H	340	64.2	40.7
2	*5580.00	94.8 AV			1.75 H	340	54.1	40.7
3	11160.00	53.8 PK	74.0	-20.2	1.52 H	139	45.6	8.2
4	11160.00	42.0 AV	54.0	-12.0	1.52 H	139	33.8	8.2

**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	*5580.00	107.3 PK			2.30 V	142	66.6	40.7
2	*5580.00	97.0 AV			2.30 V	142	56.3	40.7
3	11160.00	53.9 PK	74.0	-20.1	1.62 V	258	45.7	8.2
4	11160.00	41.5 AV	54.0	-12.5	1.62 V	258	33.3	8.2

**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 (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	103.8 PK			1.65 H	339	62.5	41.3
2	*5700.00	93.9 AV			1.65 H	339	52.6	41.3
3	#5725.00	61.3 PK	68.2	-6.9	1.65 H	339	58.0	3.3
4	11400.00	54.6 PK	74.0	-19.4	1.55 H	141	45.8	8.8
5	11400.00	42.6 AV	54.0	-11.4	1.55 H	141	33.8	8.8

**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	*5700.00	105.3 PK			2.25 V	137	64.0	41.3
2	*5700.00	96.1 AV			2.25 V	137	54.8	41.3
3	#5725.00	59.6 PK	68.2	-8.6	2.25 V	137	56.3	3.3
4	11400.00	54.5 PK	74.0	-19.5	1.60 V	245	45.7	8.8
5	11400.00	42.5 AV	54.0	-11.5	1.60 V	245	33.7	8.8

**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 (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	#5646.40	58.5 PK	68.2	-9.7	2.08 H	37	55.5	3.0
2	*5745.00	103.2 PK			2.08 H	37	61.8	41.4
3	*5745.00	93.5 AV			2.08 H	37	52.1	41.4
4	#5960.40	57.8 PK	68.2	-10.4	2.08 H	37	54.1	3.7
5	11490.00	55.2 PK	74.0	-18.8	1.52 H	159	46.5	8.7
6	11490.00	42.0 AV	54.0	-12.0	1.52 H	159	33.3	8.7

**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	#5614.40	57.8 PK	68.2	-10.4	2.28 V	141	55.0	2.8
2	*5745.00	106.7 PK			2.28 V	141	65.3	41.4
3	*5745.00	96.7 AV			2.28 V	141	55.3	41.4
4	#5959.20	58.7 PK	68.2	-9.5	2.28 V	141	55.0	3.7
5	11490.00	55.0 PK	74.0	-19.0	1.71 V	259	46.3	8.7
6	11490.00	41.7 AV	54.0	-12.3	1.71 V	259	33.0	8.7

**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 (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	#5649.20	57.9 PK	68.2	-10.3	1.83 H	35	54.9	3.0
2	*5785.00	103.7 PK			1.83 H	35	62.2	41.5
3	*5785.00	94.3 AV			1.83 H	35	52.8	41.5
4	#5996.80	57.9 PK	68.2	-10.3	1.83 H	35	54.1	3.8
5	11570.00	54.9 PK	74.0	-19.1	1.59 H	161	46.3	8.6
6	11570.00	41.8 AV	54.0	-12.2	1.59 H	161	33.2	8.6

**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	#5648.40	58.1 PK	68.2	-10.1	2.26 V	142	55.1	3.0
2	*5785.00	107.5 PK			2.26 V	142	66.0	41.5
3	*5785.00	96.9 AV			2.26 V	142	55.4	41.5
4	#5997.60	58.3 PK	68.2	-9.9	2.26 V	142	54.5	3.8
5	11570.00	54.7 PK	74.0	-19.3	1.66 V	263	46.1	8.6
6	11570.00	41.5 AV	54.0	-12.5	1.66 V	263	32.9	8.6

**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 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	#5647.20	57.1 PK	68.2	-11.1	2.14 H	35	54.1	3.0
2	*5825.00	104.0 PK			2.14 H	35	62.4	41.6
3	*5825.00	94.2 AV			2.14 H	35	52.6	41.6
4	#5942.00	57.9 PK	68.2	-10.3	2.14 H	35	54.2	3.7
5	11650.00	55.7 PK	74.0	-18.3	1.56 H	152	47.0	8.7
6	11650.00	42.4 AV	54.0	-11.6	1.56 H	152	33.7	8.7

**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	#5627.20	57.8 PK	68.2	-10.4	2.28 V	140	54.9	2.9
2	*5825.00	106.5 PK			2.28 V	140	64.9	41.6
3	*5825.00	96.2 AV			2.28 V	140	54.6	41.6
4	#5946.80	59.0 PK	68.2	-9.2	2.28 V	140	55.3	3.7
5	11650.00	55.2 PK	74.0	-18.8	1.71 V	253	46.5	8.7
6	11650.00	42.0 AV	54.0	-12.0	1.71 V	253	33.3	8.7

**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 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	70.0 PK	74.0	-4.0	1.09 H	358	68.2	1.8
2	5150.00	52.0 AV	54.0	-2.0	1.09 H	358	50.2	1.8
3	*5190.00	102.0 PK			1.09 H	358	62.0	40.0
4	*5190.00	92.6 AV			1.09 H	358	52.6	40.0
5	#10380.00	53.8 PK	68.2	-14.4	2.25 H	325	45.7	8.1

**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	68.6 PK	74.0	-5.4	1.47 V	33	66.8	1.8
2	5150.00	50.4 AV	54.0	-3.6	1.47 V	33	48.6	1.8
3	*5190.00	101.2 PK			1.47 V	33	61.2	40.0
4	*5190.00	91.9 AV			1.47 V	33	51.9	40.0
5	#10380.00	53.6 PK	68.2	-14.6	1.72 V	236	45.5	8.1

**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 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	*5230.00	102.5 PK			1.10 H	359	62.5	40.0
2	*5230.00	92.9 AV			1.10 H	359	52.9	40.0
3	5350.00	59.1 PK	74.0	-14.9	1.10 H	359	57.3	1.8
4	5350.00	46.8 AV	54.0	-7.2	1.10 H	359	45.0	1.8
5	#10460.00	53.5 PK	68.2	-14.7	2.09 H	328	45.5	8.0

**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	*5230.00	102.3 PK			1.44 V	34	62.3	40.0
2	*5230.00	92.6 AV			1.44 V	34	52.6	40.0
3	5350.00	57.8 PK	74.0	-16.2	1.44 V	34	56.0	1.8
4	5350.00	45.1 AV	54.0	-8.9	1.44 V	34	43.3	1.8
5	#10460.00	53.6 PK	68.2	-14.6	1.72 V	233	45.6	8.0

**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 (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	*5270.00	102.3 PK			1.16 H	358	62.3	40.0
2	*5270.00	93.0 AV			1.16 H	358	53.0	40.0
3	5350.00	57.0 PK	74.0	-17.0	1.16 H	358	55.2	1.8
4	5350.00	44.0 AV	54.0	-10.0	1.16 H	358	42.2	1.8
5	#10540.00	54.0 PK	68.2	-14.2	2.12 H	318	45.8	8.2

**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	*5270.00	102.2 PK			1.42 V	34	62.2	40.0
2	*5270.00	92.9 AV			1.42 V	34	52.9	40.0
3	5350.00	57.0 PK	74.0	-17.0	1.42 V	34	55.2	1.8
4	5350.00	43.9 AV	54.0	-10.1	1.42 V	34	42.1	1.8
5	#10540.00	54.0 PK	68.2	-14.2	1.42 V	231	45.8	8.2

**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 (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	101.6 PK			1.00 H	359	61.6	40.0
2	*5310.00	92.4 AV			1.00 H	359	52.4	40.0
3	5350.00	71.0 PK	74.0	-3.0	1.00 H	359	69.2	1.8
4	5350.00	53.4 AV	54.0	-0.6	1.00 H	359	51.6	1.8
5	10620.00	53.8 PK	74.0	-20.2	2.16 H	324	45.7	8.1
6	10620.00	41.9 AV	54.0	-12.1	2.16 H	324	33.8	8.1

**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	*5310.00	101.0 PK			1.41 V	36	61.0	40.0
2	*5310.00	91.8 AV			1.41 V	36	51.8	40.0
3	5350.00	69.1 PK	74.0	-4.9	1.41 V	36	67.3	1.8
4	5350.00	51.6 AV	54.0	-2.4	1.41 V	36	49.8	1.8
5	10620.00	53.8 PK	74.0	-20.2	1.45 V	236	45.7	8.1
6	10620.00	42.0 AV	54.0	-12.0	1.45 V	236	33.9	8.1

**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.

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	59.4 PK	74.0	-14.6	1.44 H	26	57.3	2.1
2	5460.00	44.9 AV	54.0	-9.1	1.44 H	26	42.8	2.1
3	#5470.00	66.8 PK	68.2	-1.4	1.44 H	26	64.7	2.1
4	*5510.00	102.6 PK			1.44 H	26	62.2	40.4
5	*5510.00	92.8 AV			1.44 H	26	52.4	40.4
6	11020.00	54.6 PK	74.0	-19.4	1.53 H	159	46.4	8.2
7	11020.00	41.5 AV	54.0	-12.5	1.53 H	159	33.3	8.2

**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	5460.00	68.1 PK	74.0	-5.9	2.39 V	142	66.0	2.1
2	5460.00	44.8 AV	54.0	-9.2	2.39 V	142	42.7	2.1
3	#5470.00	61.1 PK	68.2	-7.1	2.39 V	142	59.0	2.1
4	*5510.00	104.4 PK			2.39 V	142	64.0	40.4
5	*5510.00	94.9 AV			2.39 V	142	54.5	40.4
6	11020.00	54.0 PK	74.0	-20.0	1.75 V	266	45.8	8.2
7	11020.00	40.7 AV	54.0	-13.3	1.75 V	266	32.5	8.2

**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 (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	102.2 PK			1.49 H	29	61.6	40.6
2	*5550.00	92.6 AV			1.49 H	29	52.0	40.6
3	11100.00	54.7 PK	74.0	-19.3	1.63 H	162	46.5	8.2
4	11100.00	41.6 AV	54.0	-12.4	1.63 H	162	33.4	8.2

**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	104.0 PK			2.20 V	146	63.4	40.6
2	*5550.00	94.6 AV			2.20 V	146	54.0	40.6
3	11100.00	54.2 PK	74.0	-19.8	1.77 V	275	46.0	8.2
4	11100.00	40.8 AV	54.0	-13.2	1.77 V	275	32.6	8.2

**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	100.5 PK			2.19 H	34	59.4	41.1
2	*5670.00	90.5 AV			2.19 H	34	49.4	41.1
3	#5725.00	59.4 PK	68.2	-8.8	2.19 H	34	56.1	3.3
4	11340.00	57.4 PK	74.0	-16.6	1.59 H	161	48.8	8.6
5	11340.00	42.8 AV	54.0	-11.2	1.59 H	161	34.2	8.6

**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	*5670.00	102.3 PK			2.18 V	143	61.2	41.1
2	*5670.00	92.6 AV			2.18 V	143	51.5	41.1
3	#5725.00	59.6 PK	68.2	-8.6	2.18 V	143	56.3	3.3
4	11340.00	56.9 PK	74.0	-17.1	1.69 V	265	48.3	8.6
5	11340.00	42.3 AV	54.0	-11.7	1.69 V	265	33.7	8.6

**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 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	#5627.20	58.0 PK	68.2	-10.2	2.08 H	33	55.1	2.9
2	*5755.00	100.9 PK			2.08 H	33	59.5	41.4
3	*5755.00	91.6 AV			2.08 H	33	50.2	41.4
4	#5996.80	59.0 PK	68.2	-9.2	2.08 H	33	55.2	3.8
5	11510.00	56.4 PK	74.0	-17.6	1.56 H	160	47.7	8.7
6	11510.00	42.5 AV	54.0	-11.5	1.56 H	160	33.8	8.7

**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	#5639.60	58.3 PK	68.2	-9.9	2.22 V	143	55.4	2.9
2	*5755.00	103.5 PK			2.22 V	143	62.1	41.4
3	*5755.00	93.9 AV			2.22 V	143	52.5	41.4
4	#5945.20	58.0 PK	68.2	-10.2	2.22 V	143	54.3	3.7
5	11510.00	55.9 PK	74.0	-18.1	1.74 V	254	47.2	8.7
6	11510.00	42.0 AV	54.0	-12.0	1.74 V	254	33.3	8.7

**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 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	#5630.40	57.7 PK	68.2	-10.5	1.48 H	36	54.8	2.9
2	*5795.00	100.6 PK			1.48 H	36	59.0	41.6
3	*5795.00	91.5 AV			1.48 H	36	49.9	41.6
4	#5926.80	58.7 PK	68.2	-9.5	1.48 H	36	55.0	3.7
5	11590.00	56.8 PK	74.0	-17.2	1.58 H	153	48.2	8.6
6	11590.00	43.1 AV	54.0	-10.9	1.58 H	153	34.5	8.6

**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	#5646.80	57.4 PK	68.2	-10.8	2.23 V	142	54.4	3.0
2	*5795.00	103.5 PK			2.23 V	142	61.9	41.6
3	*5795.00	94.3 AV			2.23 V	142	52.7	41.6
4	#5975.20	59.2 PK	68.2	-9.0	2.23 V	142	55.5	3.7
5	11590.00	56.6 PK	74.0	-17.4	1.77 V	260	48.0	8.6
6	11590.00	42.8 AV	54.0	-11.2	1.77 V	260	34.2	8.6

**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 (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	67.3 PK	74.0	-6.7	1.00 H	354	65.5	1.8
2	5150.00	53.0 AV	54.0	-1.0	1.00 H	354	51.2	1.8
3	*5210.00	99.8 PK			1.00 H	354	59.8	40.0
4	*5210.00	89.9 AV			1.00 H	354	49.9	40.0
5	5350.00	58.2 PK	74.0	-15.8	1.00 H	354	56.4	1.8
6	5350.00	44.8 AV	54.0	-9.2	1.00 H	354	43.0	1.8
7	#10420.00	53.9 PK	68.2	-14.3	2.11 H	322	45.8	8.1

**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	65.0 PK	74.0	-9.0	1.42 V	34	63.2	1.8
2	5150.00	51.1 AV	54.0	-2.9	1.42 V	34	49.3	1.8
3	*5210.00	98.4 PK			1.42 V	34	58.4	40.0
4	*5210.00	89.1 AV			1.42 V	34	49.1	40.0
5	5350.00	56.8 PK	74.0	-17.2	1.42 V	34	55.0	1.8
6	5350.00	44.6 AV	54.0	-9.4	1.42 V	34	42.8	1.8
7	#10420.00	53.8 PK	68.2	-14.4	1.77 V	236	45.7	8.1

**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 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	56.6 PK	74.0	-17.4	1.08 H	358	54.8	1.8
2	5150.00	43.8 AV	54.0	-10.2	1.08 H	358	42.0	1.8
3	*5290.00	98.6 PK			1.08 H	358	58.6	40.0
4	*5290.00	89.8 AV			1.08 H	358	49.8	40.0
5	5350.00	67.1 PK	74.0	-6.9	1.08 H	358	65.3	1.8
<b>6</b>	<b>5350.00</b>	<b>53.5 AV</b>	<b>54.0</b>	<b>-0.5</b>	<b>1.08 H</b>	<b>358</b>	<b>51.7</b>	<b>1.8</b>
7	#10580.00	53.9 PK	68.2	-14.3	2.21 H	325	45.8	8.1

**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	57.1 PK	74.0	-16.9	1.50 V	37	55.3	1.8
2	5150.00	43.9 AV	54.0	-10.1	1.50 V	37	42.1	1.8
3	*5290.00	98.0 PK			1.50 V	37	58.0	40.0
4	*5290.00	89.0 AV			1.50 V	37	49.0	40.0
5	5350.00	64.8 PK	74.0	-9.2	1.50 V	37	63.0	1.8
<b>6</b>	<b>5350.00</b>	<b>53.5 AV</b>	<b>54.0</b>	<b>-0.5</b>	<b>1.50 V</b>	<b>37</b>	<b>51.7</b>	<b>1.8</b>
7	#10580.00	53.9 PK	68.2	-14.3	1.46 V	238	45.8	8.1

**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 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	62.1 PK	74.0	-11.9	1.53 H	17	60.0	2.1
2	5460.00	49.1 AV	54.0	-4.9	1.53 H	17	47.0	2.1
3	#5470.00	64.1 PK	68.2	-4.1	1.53 H	17	62.0	2.1
4	*5530.00	98.8 PK			1.53 H	17	58.2	40.6
5	*5530.00	90.1 AV			1.53 H	17	49.5	40.6
6	#5725.00	59.0 PK	68.2	-9.2	1.53 H	17	55.7	3.3
7	11060.00	56.1 PK	74.0	-17.9	1.59 H	160	47.9	8.2
8	11060.00	43.1 AV	54.0	-10.9	1.59 H	160	34.9	8.2

**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	5460.00	64.4 PK	74.0	-9.6	2.30 V	145	62.3	2.1
2	5460.00	50.4 AV	54.0	-3.6	2.30 V	145	48.3	2.1
3	#5470.00	67.4 PK	68.2	-0.8	2.30 V	145	65.3	2.1
4	*5530.00	102.0 PK			2.30 V	145	61.4	40.6
5	*5530.00	92.6 AV			2.30 V	145	52.0	40.6
6	#5725.00	61.2 PK	68.2	-7.0	2.30 V	145	57.9	3.3
7	11060.00	55.5 PK	74.0	-18.5	1.75 V	258	47.3	8.2
8	11060.00	42.8 AV	54.0	-11.2	1.75 V	258	34.6	8.2

**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 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	57.2 PK	74.0	-16.8	1.42 H	30	55.1	2.1
2	5460.00	45.1 AV	54.0	-8.9	1.42 H	30	43.0	2.1
3	#5470.00	57.8 PK	68.2	-10.4	1.42 H	30	55.7	2.1
4	*5610.00	98.0 PK			1.42 H	30	57.2	40.8
5	*5610.00	88.6 AV			1.42 H	30	47.8	40.8
6	#5725.00	58.8 PK	68.2	-9.4	1.42 H	30	55.5	3.3
7	11220.00	55.7 PK	74.0	-18.3	1.59 H	162	47.5	8.2
8	11220.00	42.9 AV	54.0	-11.1	1.59 H	162	34.7	8.2

**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	5460.00	57.8 PK	74.0	-16.2	2.25 V	142	55.7	2.1
2	5460.00	45.0 AV	54.0	-9.0	2.25 V	142	42.9	2.1
3	#5470.00	58.1 PK	68.2	-10.1	2.25 V	142	56.0	2.1
4	*5610.00	100.1 PK			2.25 V	142	59.3	40.8
5	*5610.00	90.8 AV			2.25 V	142	50.0	40.8
6	#5725.00	50.3 PK	68.2	-17.9	2.25 V	142	47.0	3.3
7	11220.00	55.2 PK	74.0	-18.8	1.71 V	252	47.0	8.2
8	11220.00	42.4 AV	54.0	-11.6	1.71 V	252	34.2	8.2

**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 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	#5624.80	56.9 PK	68.2	-11.3	2.02 H	35	54.1	2.8
2	#5650.00	58.4 PK	68.2	-9.8	2.02 H	35	55.3	3.1
3	*5775.00	100.2 PK			2.02 H	35	58.7	41.5
4	*5775.00	90.3 AV			2.02 H	35	48.8	41.5
5	#5925.00	59.1 PK	68.2	-9.1	2.02 H	35	55.3	3.8
6	#5940.00	58.5 PK	68.2	-9.7	2.02 H	35	54.8	3.7
7	11550.00	56.5 PK	74.0	-17.5	1.61 H	152	47.8	8.7
8	11550.00	43.4 AV	54.0	-10.6	1.61 H	152	34.7	8.7

**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	#5626.00	57.5 PK	68.2	-10.7	2.32 V	139	54.6	2.9
2	#5650.00	58.7 PK	68.2	-9.5	2.32 V	139	55.6	3.1
3	*5775.00	102.2 PK			2.32 V	139	60.7	41.5
4	*5775.00	92.3 AV			2.32 V	139	50.8	41.5
5	#5925.00	59.1 PK	68.2	-9.1	2.32 V	139	55.3	3.8
6	#5954.00	58.4 PK	68.2	-9.8	2.32 V	139	54.7	3.7
7	11550.00	55.9 PK	74.0	-18.1	1.78 V	265	47.2	8.7
8	11550.00	42.8 AV	54.0	-11.2	1.78 V	265	34.1	8.7

**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.

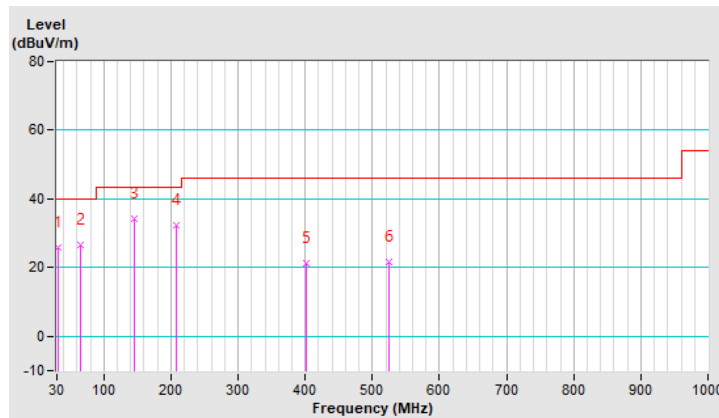
Below 1GHz Worst-Case Data:

RF Mode	TX 802.11ac (VHT20)	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	32.81	26.0 QP	40.0	-14.0	1.49 H	130	45.5	-19.5
2	65.14	26.8 QP	40.0	-13.2	1.49 H	277	46.6	-19.8
3	145.28	34.4 QP	43.5	-9.1	1.49 H	18	52.6	-18.2
4	208.54	32.5 QP	43.5	-11.0	1.00 H	156	54.3	-21.8
5	402.54	21.4 QP	46.0	-24.6	1.00 H	144	36.6	-15.2
6	524.84	21.5 QP	46.0	-24.5	1.49 H	120	33.9	-12.4

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. 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.

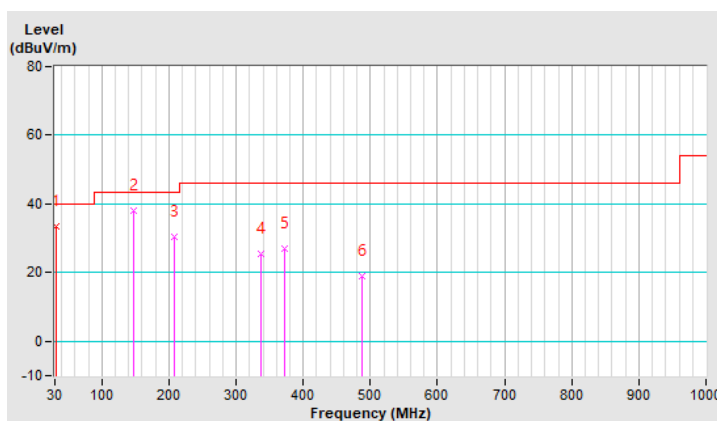


RF Mode	TX 802.11ac (VHT20)	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	32.53	33.5 QP	40.0	-6.5	1.00 V	12	52.9	-19.4
2	146.68	38.1 QP	43.5	-5.4	1.00 V	192	56.2	-18.1
3	207.13	30.3 QP	43.5	-13.2	1.00 V	110	52.1	-21.8
4	337.87	25.3 QP	46.0	-20.7	1.49 V	155	41.9	-16.6
5	371.61	27.1 QP	46.0	-18.9	1.00 V	106	42.9	-15.8
6	488.29	18.8 QP	46.0	-27.2	1.00 V	18	31.9	-13.1

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. 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	ESR3	102783	Dec. 21, 2020	Dec. 20, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2020	Sep. 03, 2021
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 28, 2021	Jan. 27, 2022
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ENV216	101196	Apr. 26, 2021	Apr. 25, 2022
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 2 (Conduction 2).

3. The VCCI Site Registration No. is C-12047.

4. Tested date: Aug. 31, 2021

#### 4.2.3 Test Procedures

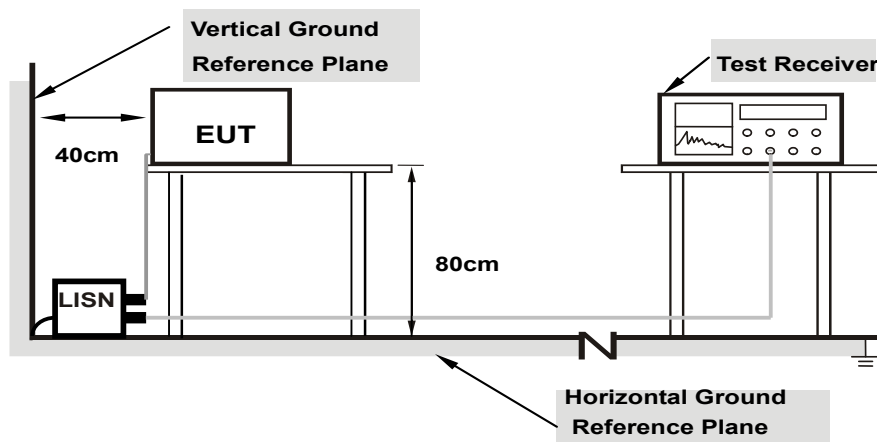
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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:

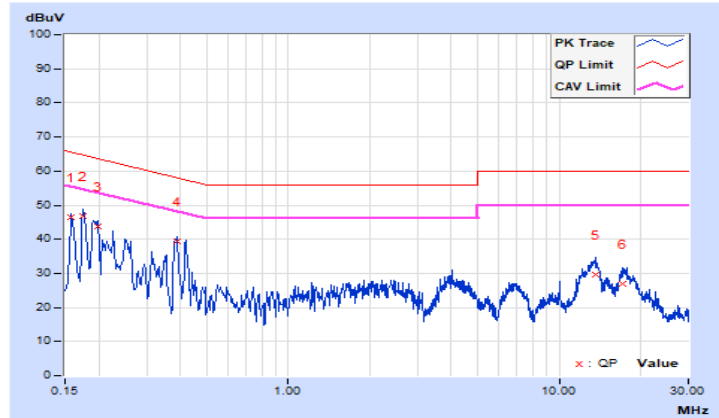
802.11ac (VHT20)

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

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	10.07	36.54	23.22	46.61	33.29	65.57
2	0.17400	10.07	36.60	20.88	46.67	30.95	64.77	54.77	-18.10	-23.82
3	0.19728	10.08	33.61	19.09	43.69	29.17	63.72	53.72	-20.03	-24.55
4	0.39000	10.09	29.29	25.82	39.38	35.91	58.06	48.06	-18.68	-12.15
5	13.61800	10.36	19.41	12.66	29.77	23.02	60.00	50.00	-30.23	-26.98
6	17.25400	10.41	16.68	10.91	27.09	21.32	60.00	50.00	-32.91	-28.68

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.



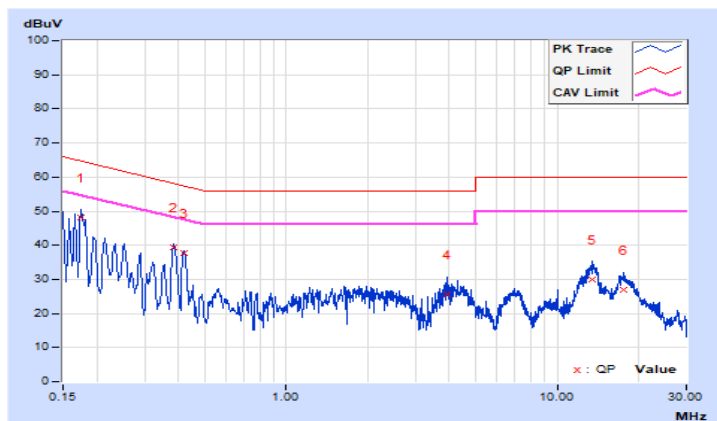


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

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	0.17400	10.08	38.06	22.42	48.14	32.50	64.77
<b>2</b>	<b>0.38600</b>	<b>10.10</b>	<b>29.15</b>	<b>27.12</b>	<b>39.25</b>	<b>37.22</b>	<b>58.15</b>	<b>48.15</b>	<b>-18.90</b>	<b>-10.93</b>
3	0.42200	10.10	27.69	24.31	37.79	34.41	57.41	47.41	-19.62	-13.00
4	3.92200	10.26	15.28	7.27	25.54	17.53	56.00	46.00	-30.46	-28.47
5	13.52600	10.49	19.57	12.92	30.06	23.41	60.00	50.00	-29.94	-26.59
6	17.57800	10.59	16.29	10.61	26.88	21.20	60.00	50.00	-33.12	-28.80

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  $N_{ANT} \leq 4$ ;

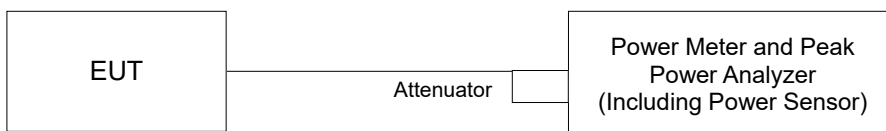
Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  MHz for any  $N_{ANT}$ ;

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

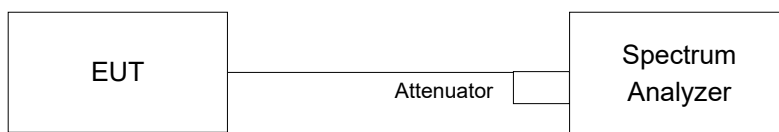
For power measurements on all other devices: Array Gain =  $10 \log(N_{ANT}/N_{SS})$  dB.

#### 4.3.2 Test Setup

For Power Output



For 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.

##### 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%.

#### 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	8.40	8.28	13.648	11.35	24.00	Pass
40	5200	8.39	8.25	13.586	11.33	24.00	Pass
48	5240	8.43	8.21	13.588	11.33	24.00	Pass
52	5260	8.37	8.28	13.600	11.34	24.00	Pass
60	5300	8.40	8.35	13.757	11.39	24.00	Pass
64	5320	8.32	8.27	13.506	11.31	24.00	Pass
100	5500	8.45	8.12	13.485	11.30	24.00	Pass
116	5580	8.43	8.10	13.423	11.28	24.00	Pass
140	5700	8.40	8.07	13.330	11.25	24.00	Pass
149	5745	7.39	7.28	10.828	10.35	30.00	Pass
157	5785	7.36	7.28	10.791	10.33	30.00	Pass
165	5825	7.42	7.36	10.966	10.40	30.00	Pass

Note:

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

Chain 0

1.  $11\text{dBm} + 10\log(23.37) = 24.68 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(23.51) = 24.71 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(22.07) = 24.43 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(22.51) = 24.52 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(23.75) = 24.75 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(23.61) = 24.73 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(24.09) = 24.81 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(22.93) = 24.60 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(22.46) = 24.51 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(22.72) = 24.56 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(23.22) = 24.65 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(23.53) = 24.71 > 24\text{dBm}$

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	8.25	8.17	13.245	11.22	24.00	Pass
40	5200	8.29	8.21	13.367	11.26	24.00	Pass
48	5240	8.30	8.13	13.262	11.23	24.00	Pass
52	5260	8.31	8.23	13.429	11.28	24.00	Pass
60	5300	8.27	8.12	13.201	11.21	24.00	Pass
64	5320	8.28	8.16	13.276	11.23	24.00	Pass
100	5500	8.29	8.02	13.084	11.17	24.00	Pass
116	5580	8.33	8.05	13.190	11.20	24.00	Pass
140	5700	8.26	8.08	13.126	11.18	24.00	Pass
149	5745	7.21	7.13	10.424	10.18	30.00	Pass
157	5785	7.19	7.11	10.376	10.16	30.00	Pass
165	5825	7.20	7.13	10.412	10.18	30.00	Pass

Note:

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

Chain 0

1.  $11\text{dBm} + 10\log(24.36) = 24.86 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(24.80) = 24.94 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(24.61) = 24.91 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(23.74) = 24.75 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(24.64) = 24.91 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(24.88) = 24.95 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(24.87) = 24.95 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(24.85) = 24.95 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(24.14) = 24.82 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(25.05) = 24.98 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(24.45) = 24.88 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(25.07) = 24.99 > 24\text{dBm}$

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	8.37	8.25	13.554	11.32	24.00	Pass
46	5230	8.28	8.15	13.261	11.23	24.00	Pass
54	5270	8.47	8.42	13.981	11.46	24.00	Pass
62	5310	8.43	8.41	13.901	11.43	24.00	Pass
102	5510	8.30	8.12	13.247	11.22	24.00	Pass
110	5550	8.26	8.10	13.155	11.19	24.00	Pass
134	5670	8.28	8.21	13.352	11.26	24.00	Pass
151	5755	7.42	7.23	10.805	10.34	30.00	Pass
159	5795	7.46	7.41	11.080	10.45	30.00	Pass

Note:

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

Chain 0

1.  $11\text{dBm} + 10\log(42.26) = 27.25 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(42.58) = 27.29 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(42.61) = 27.29 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(42.52) = 27.28 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(42.47) = 27.28 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(42.60) = 27.29 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(42.69) = 27.30 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(42.59) = 27.29 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(42.20) = 27.25 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(42.19) = 27.25 > 24\text{dBm}$

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	8.30	8.21	13.383	11.27	24.00	Pass
40	5200	8.31	8.23	13.429	11.28	24.00	Pass
48	5240	8.32	8.16	13.338	11.25	24.00	Pass
52	5260	8.32	8.28	13.522	11.31	24.00	Pass
60	5300	8.29	8.16	13.292	11.24	24.00	Pass
64	5320	8.31	8.20	13.383	11.27	24.00	Pass
100	5500	8.31	8.06	13.174	11.20	24.00	Pass
116	5580	8.35	8.07	13.251	11.22	24.00	Pass
140	5700	8.30	8.10	13.217	11.21	24.00	Pass
149	5745	7.23	7.15	10.472	10.20	30.00	Pass
157	5785	7.20	7.13	10.412	10.18	30.00	Pass
165	5825	7.22	7.14	10.448	10.19	30.00	Pass

Note:

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

Chain 0

1.  $11\text{dBm} + 10\log(24.36) = 24.86 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(24.80) = 24.94 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(24.61) = 24.91 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(23.74) = 24.75 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(24.64) = 24.91 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(24.88) = 24.95 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(24.87) = 24.95 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(24.85) = 24.95 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(24.14) = 24.82 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(25.05) = 24.98 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(24.45) = 24.88 > 24\text{dBm}$
6.  $11\text{dBm} + 10\log(25.07) = 24.99 > 24\text{dBm}$

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	8.41	8.24	13.602	11.34	24.00	Pass
46	5230	8.45	8.32	13.790	11.40	24.00	Pass
54	5270	8.43	8.09	13.408	11.27	24.00	Pass
62	5310	8.46	8.42	13.965	11.45	24.00	Pass
102	5510	8.31	8.15	13.308	11.24	24.00	Pass
110	5550	8.28	8.12	13.216	11.21	24.00	Pass
134	5670	8.31	8.25	<b>13.460</b>	11.29	24.00	Pass
151	5755	7.45	7.31	10.942	10.39	30.00	Pass
159	5795	7.49	7.43	11.144	10.47	30.00	Pass

Note:

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

Chain 0

1.  $11\text{dBm} + 10\log(42.26) = 27.25 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(42.58) = 27.29 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(42.61) = 27.29 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(42.52) = 27.28 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(42.47) = 27.28 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(42.60) = 27.29 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(42.69) = 27.30 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(42.59) = 27.29 > 24\text{dBm}$
4.  $11\text{dBm} + 10\log(42.20) = 27.25 > 24\text{dBm}$
5.  $11\text{dBm} + 10\log(42.19) = 27.25 > 24\text{dBm}$



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	8.49	8.37	<b>13.934</b>	11.44	24.00	Pass
58	5290	8.49	8.45	<b>14.062</b>	11.48	24.00	Pass
106	5530	8.21	8.11	13.094	11.17	24.00	Pass
122	5610	8.19	8.05	12.974	11.13	24.00	Pass
155	5775	7.48	7.46	<b>11.169</b>	10.48	30.00	Pass

Note:

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

Chain 0

1.  $11\text{dBm} + 10\log(85.31) = 30.30 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(84.01) = 30.24 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(84.95) = 30.29 > 24\text{dBm}$

Chain 1

1.  $11\text{dBm} + 10\log(84.41) = 30.26 > 24\text{dBm}$
2.  $11\text{dBm} + 10\log(85.62) = 30.32 > 24\text{dBm}$
3.  $11\text{dBm} + 10\log(85.13) = 30.30 > 24\text{dBm}$

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	24.01	23.68
40	5200	24.02	23.73
48	5240	22.99	23.26
52	5260	23.37	24.09
60	5300	23.51	22.93
64	5320	22.07	22.46
100	5500	22.51	22.72
116	5580	23.75	23.22
140	5700	23.61	23.53

802.11ac (VHT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	23.80	24.46
40	5200	25.09	25.01
48	5240	23.91	24.52
52	5260	24.36	24.87
60	5300	24.80	24.85
64	5320	24.61	24.14
100	5500	23.74	25.05
116	5580	24.64	24.45
140	5700	24.88	25.07

802.11ac (VHT40)

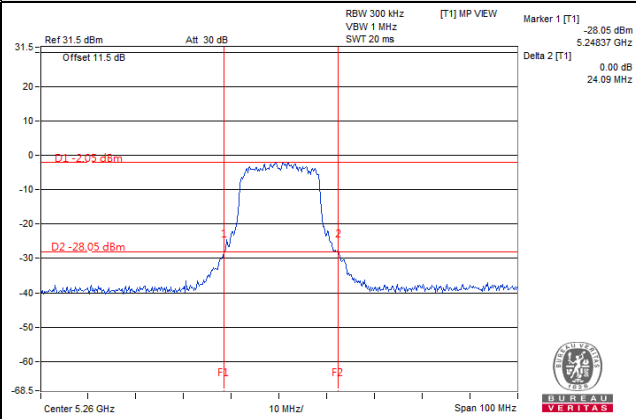
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	42.81	42.69
46	5230	42.40	42.51
54	5270	42.26	42.60
62	5310	42.58	42.69
102	5510	42.61	42.59
110	5550	42.52	42.20
134	5670	42.47	42.19

802.11ac (VHT80)

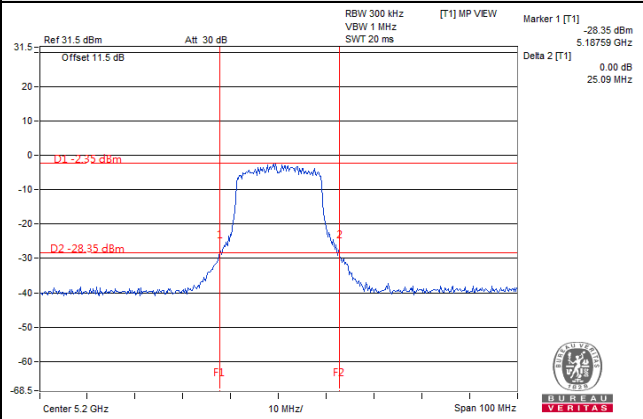
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	85.03	85.22
58	5290	85.31	84.41
106	5530	84.01	85.62
122	5610	84.95	85.13

### Spectrum Plot of Worst Value

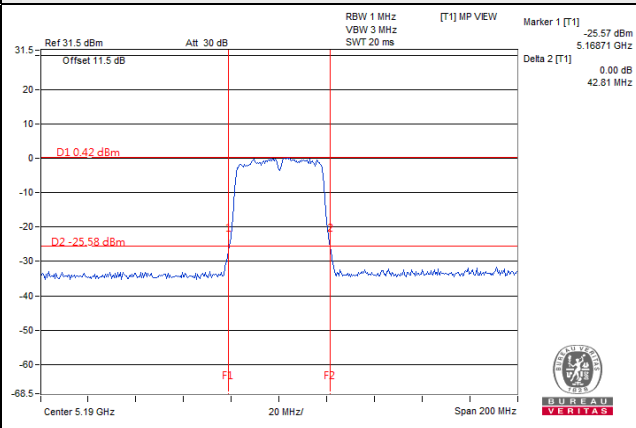
#### 802.11a



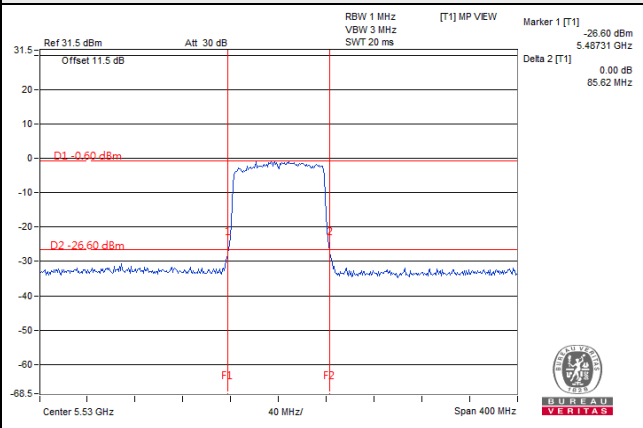
#### 802.11ac (VHT20)



#### 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	13.757	11.39
5470~5725	13.485	11.30

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	13.429	11.28
5470~5725	13.190	11.20

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	13.981	11.46
5470~5725	13.352	11.26

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	13.522	11.31
5470~5725	13.251	11.22

802.11ac (VHT40)

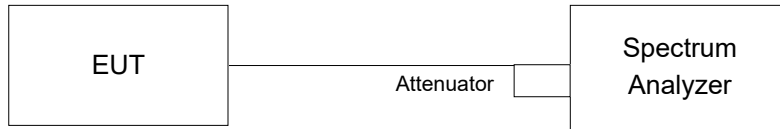
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	13.965	11.45
5470~5725	13.460	11.29

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	14.062	11.48
5470~5725	13.094	11.17

## 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	16.68	16.68
40	5200	16.68	16.68
48	5240	16.68	16.80
52	5260	16.80	16.68
60	5300	16.80	16.68
64	5320	16.68	16.68
100	5500	16.68	16.68
116	5580	16.68	16.68
140	5700	16.68	16.68
149	5745	16.69	16.69
157	5785	16.80	16.80
165	5825	16.80	16.68

##### 802.11ac (VHT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.88	17.88
40	5200	17.88	17.88
48	5240	17.88	18.00
52	5260	17.88	18.00
60	5300	17.88	17.88
64	5320	17.88	17.88
100	5500	17.88	17.88
116	5580	17.88	17.88
140	5700	17.88	17.88
149	5745	17.91	17.91
157	5785	17.88	17.88
165	5825	17.88	17.88

802.11ac (VHT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	37.20	37.20
46	5230	36.72	36.72
54	5270	37.20	37.20
62	5310	36.72	36.72
102	5510	37.20	37.20
110	5550	36.48	36.72
134	5670	36.72	36.48
151	5755	36.69	36.69
159	5795	36.72	36.72

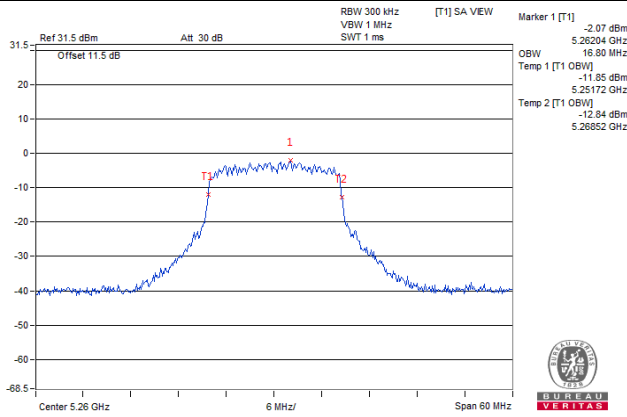
802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	76.32	76.32
58	5290	75.84	75.84
106	5530	75.60	75.60
122	5610	75.60	75.60
155	5775	75.83	75.83

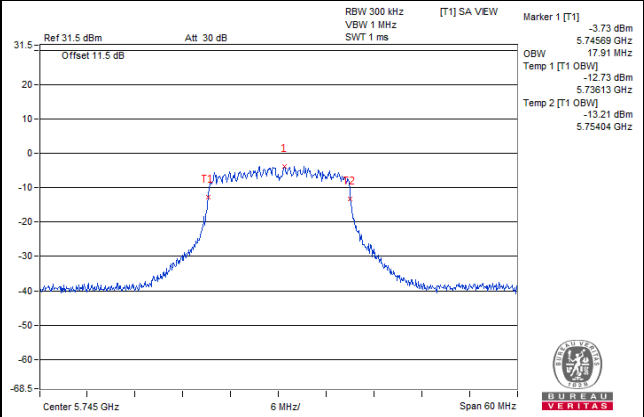


### Spectrum Plot of Worst Value

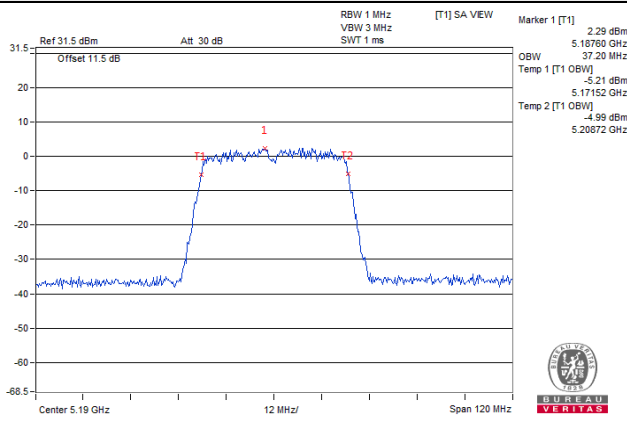
#### 802.11a



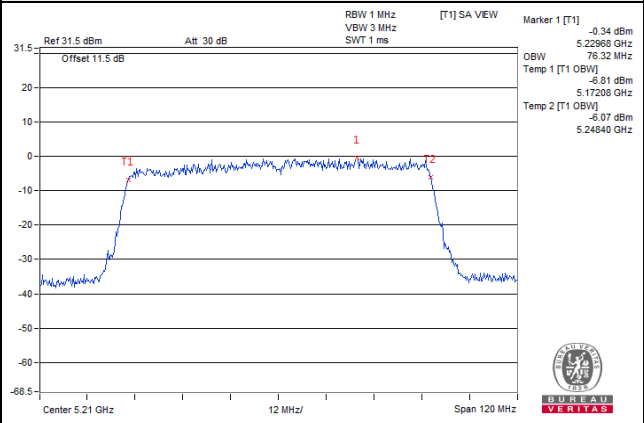
#### 802.11ac (VHT20)



#### 802.11ac (VHT40)

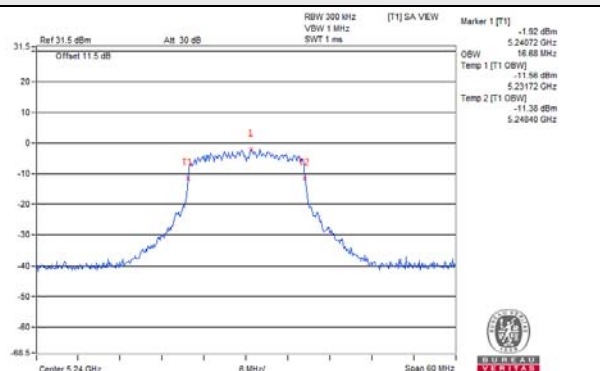


#### 802.11ac (VHT80)

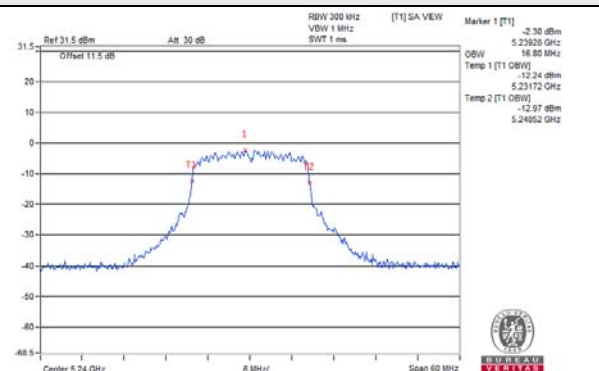


### Spectrum Plot for near By DFS Band

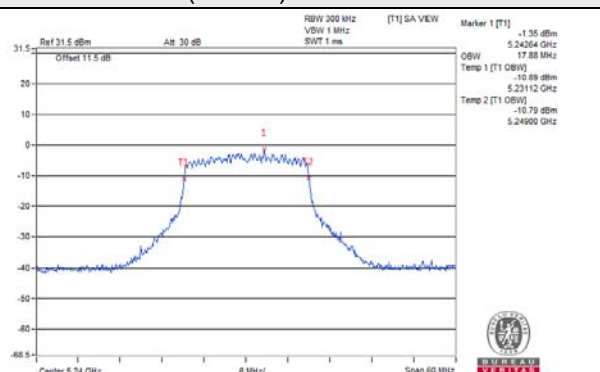
**802.11a / Chain 0 / CH 48**



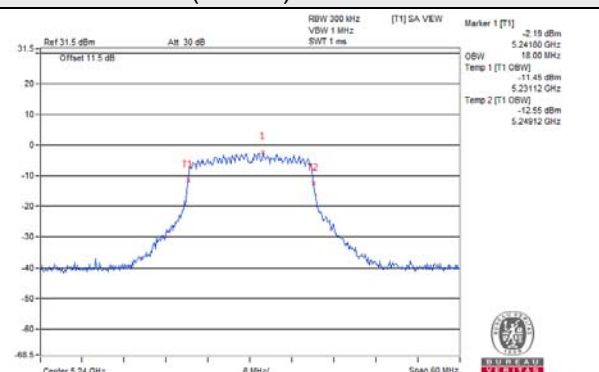
**802.11a / Chain 1 / CH 48**



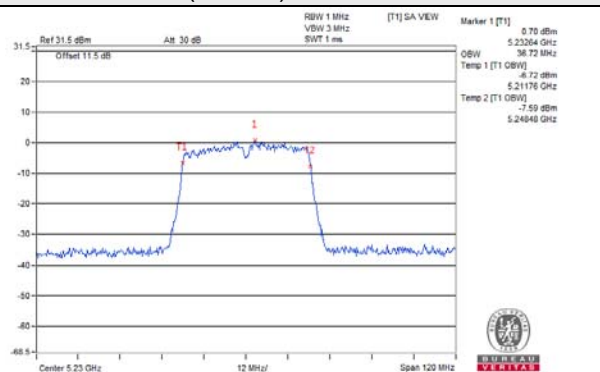
**802.11ac (VHT20) / Chain 0 / CH 48**



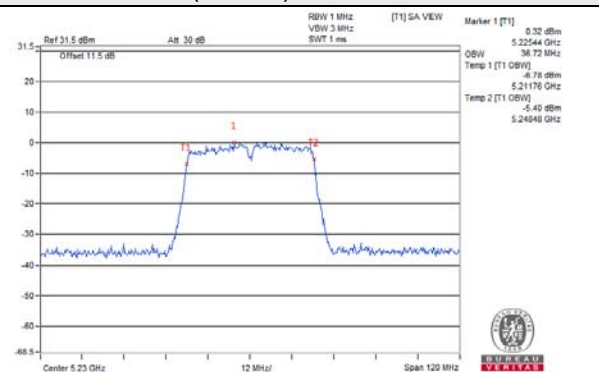
**802.11ac (VHT20) / Chain 1 / CH 48**



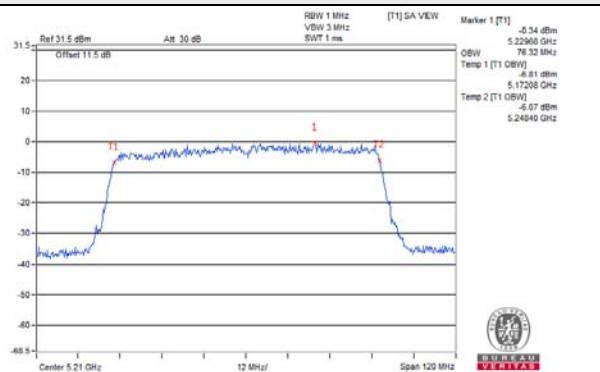
**802.11ac (VHT40) / Chain 0 / CH 46**



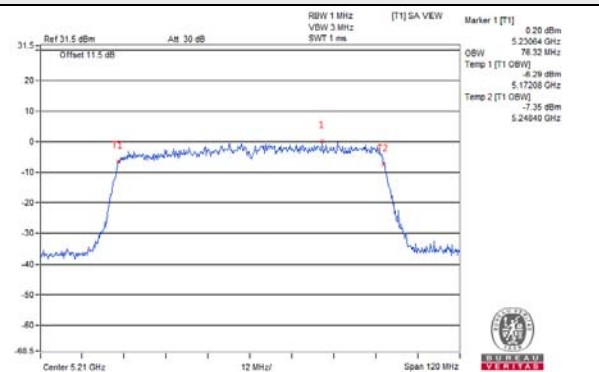
**802.11ac (VHT40) / Chain 1 / CH 46**



**802.11ac (VHT80) / Chain 0 / CH 42**

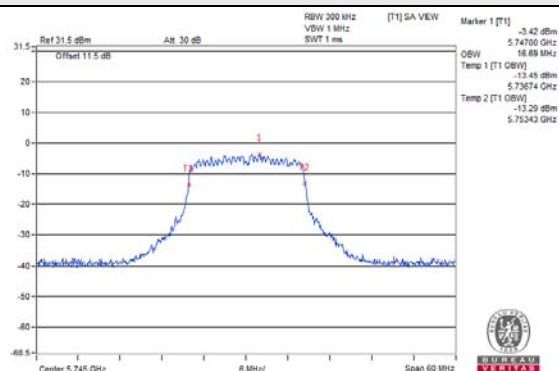


**802.11ac (VHT80) / Chain 1 / CH 42**

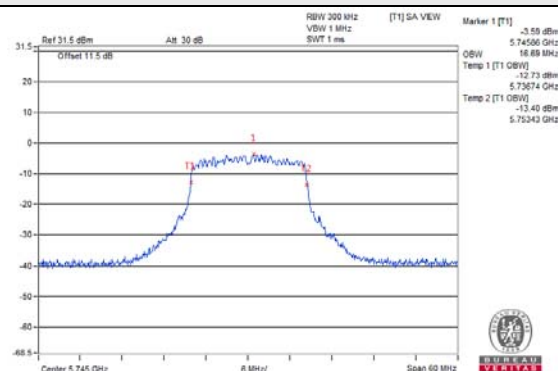


### Spectrum Plot for near By DFS Band

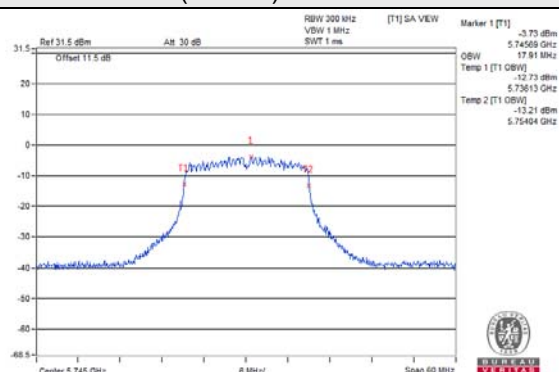
**802.11a / Chain 0 / CH 149**



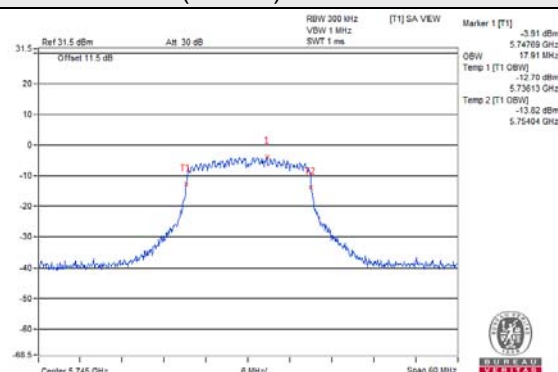
**802.11a / Chain 1 / CH 149**



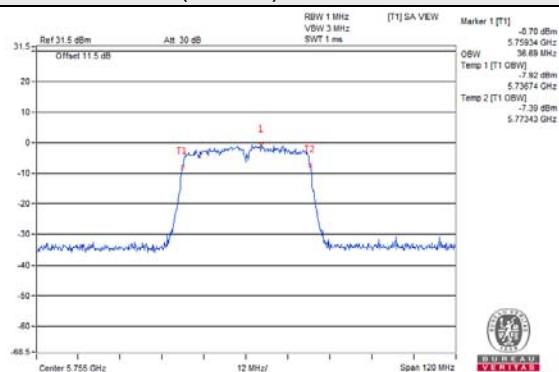
**802.11ac (VHT20) / Chain 0 / CH 149**



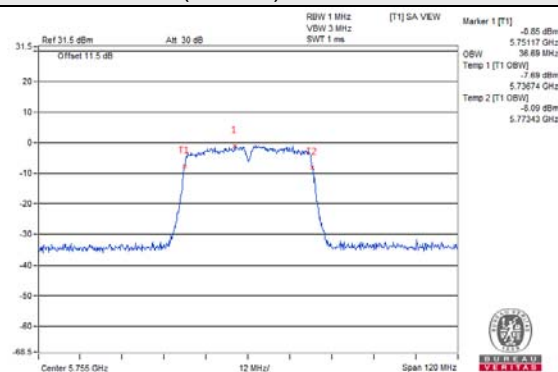
**802.11ac (VHT20) / Chain 1 / CH 149**



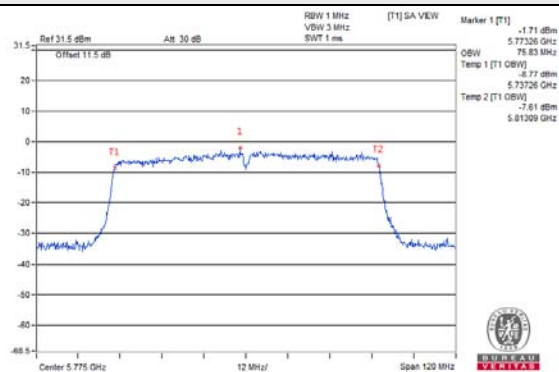
**802.11ac (VHT40) / Chain 0 / CH 151**



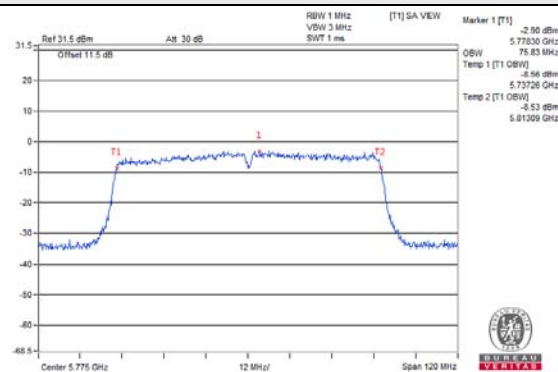
**802.11ac (VHT40) / Chain 1 / CH 151**



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



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

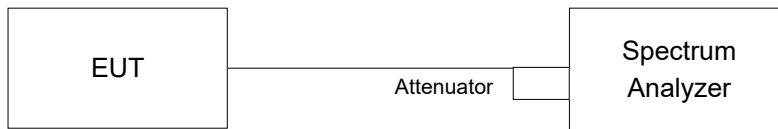


## 4.5 Peak Power Spectral Density Measurement

### 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  $\geq 98\%$

Using method SA-1

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1MHz, Set VBW  $\geq 3$  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.

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  $\geq 3$  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  $10 \log (1/\text{duty cycle})$ .

**For U-NII-3 band:**

Duty cycle  $\geq$  98%

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW  $\geq$  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 (increasing) 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.

Duty cycle  $<$ 98%

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW  $\geq$  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 (increasing) 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  $10 \log (1/\text{duty cycle})$

#### **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)		Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	-4.78	-4.60	-1.68	11.00	Pass
40	5200	-4.68	-4.68	-1.67	11.00	Pass
48	5240	-4.65	-4.78	-1.70	11.00	Pass
52	5260	-4.93	-4.37	-1.63	11.00	Pass
60	5300	-5.49	-4.93	-2.19	11.00	Pass
64	5320	-4.89	-4.75	-1.81	11.00	Pass
100	5500	-4.75	-4.79	-1.76	11.00	Pass
116	5580	-4.75	-4.87	-1.80	11.00	Pass
140	5700	-4.37	-4.85	-1.59	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 =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
5260~5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.81\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
5500~5700MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.06\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	-4.93	-5.20	-2.05	11.00	Pass
40	5200	-5.03	-5.05	-2.03	11.00	Pass
48	5240	-4.82	-4.94	-1.87	11.00	Pass
52	5260	-5.21	-4.56	-1.86	11.00	Pass
60	5300	-4.68	-4.69	-1.67	11.00	Pass
64	5320	-4.33	-4.87	-1.58	11.00	Pass
100	5500	-5.04	-4.66	-1.84	11.00	Pass
116	5580	-4.80	-4.85	-1.81	11.00	Pass
140	5700	-4.87	-4.82	-1.83	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 =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2]$ =5dBi < 6dBi, so the limit is not reduced.  
5260~5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2]$ =4.81dBi < 6dBi, so the limit is not reduced.  
5500~5700MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2]$ =4.06dBi < 6dBi, so the limit is not reduced.

### 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	-8.00	-7.71	0.16	-4.68	11.00	Pass
46	5230	-7.71	-7.45	0.16	-4.41	11.00	Pass
54	5270	-7.54	-7.55	0.16	-4.37	11.00	Pass
62	5310	-7.81	-8.09	0.16	-4.78	11.00	Pass
102	5510	-8.15	-7.70	0.16	-4.75	11.00	Pass
110	5550	-7.76	-7.76	0.16	-4.59	11.00	Pass
134	5670	-7.81	-7.70	0.16	-4.58	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 =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
 5260~5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.81\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
 5500~5700MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.06\text{dBi} < 6\text{dBi}$ , 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	-10.51	-11.04	0.34	-7.42	11.00	Pass
58	5290	-10.38	-10.65	0.34	-7.16	11.00	Pass
106	5530	-10.30	-10.93	0.34	-7.25	11.00	Pass
122	5610	-10.33	-10.86	0.34	-7.24	11.00	Pass

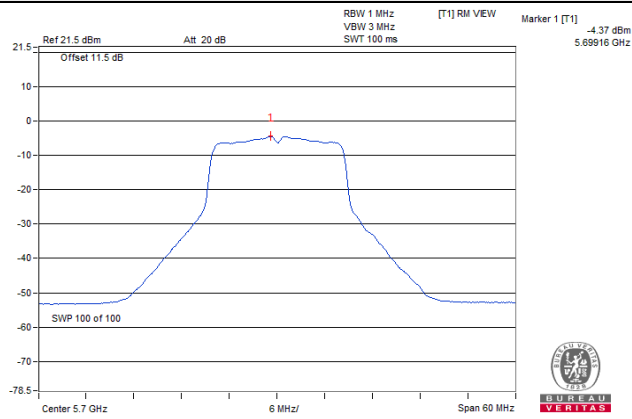
**Note:**

- 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 =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
 5260~5320MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.81\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.  
 5500~5700MHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 4.06\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

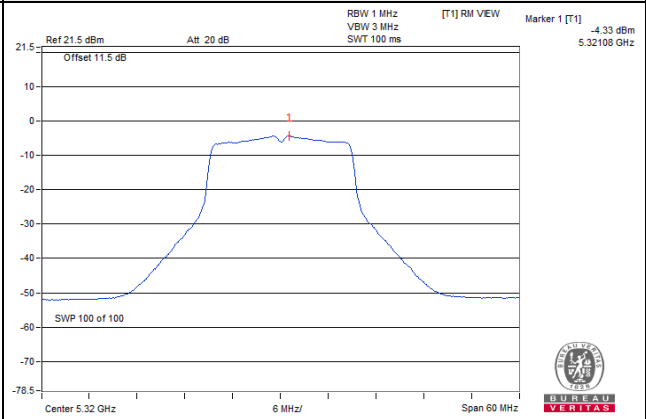


### Spectrum Plot of Worst Value

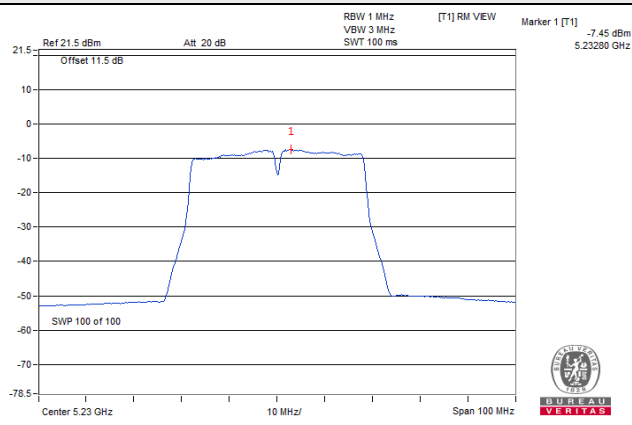
**802.11a / Chain 0 / CH 140**



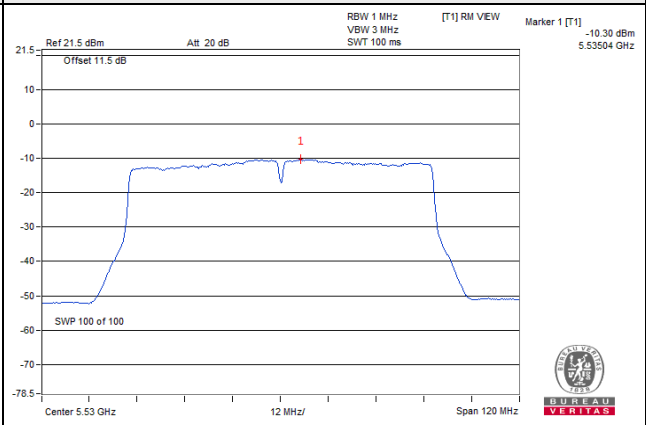
**802.11ac (VHT20) / Chain 0 / CH 64**



**802.11ac (VHT40) / Chain 1 / CH 46**



**802.11ac (VHT80) / Chain 0 / 106**



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-16.28	-14.06	3.01	-11.05	30.00	Pass
	157	5785	-16.62	-14.40	3.01	-11.39	30.00	Pass
	165	5825	-15.93	-13.71	3.01	-10.70	30.00	Pass
1	149	5745	-16.11	-13.89	3.01	-10.88	30.00	Pass
	157	5785	-16.68	-14.46	3.01	-11.45	30.00	Pass
	165	5825	-16.15	-13.93	3.01	-10.92	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 =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 3.82\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.

802.11ac (VHT20)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-16.59	-14.37	3.01	-11.36	30.00	Pass
	157	5785	-16.98	-14.76	3.01	-11.75	30.00	Pass
	165	5825	-16.35	-14.13	3.01	-11.12	30.00	Pass
1	149	5745	-16.55	-14.33	3.01	-11.32	30.00	Pass
	157	5785	-16.89	-14.67	3.01	-11.66	30.00	Pass
	165	5825	-16.16	-13.94	3.01	-10.93	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 =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 3.82\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.

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	-19.66	-17.44	3.01	0.16	-14.27	30.00	Pass
	159	5795	-19.94	-17.72	3.01	0.16	-14.55	30.00	Pass
1	151	5755	-19.62	-17.40	3.01	0.16	-14.23	30.00	Pass
	159	5795	-19.99	-17.77	3.01	0.16	-14.60	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 =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 3.82\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

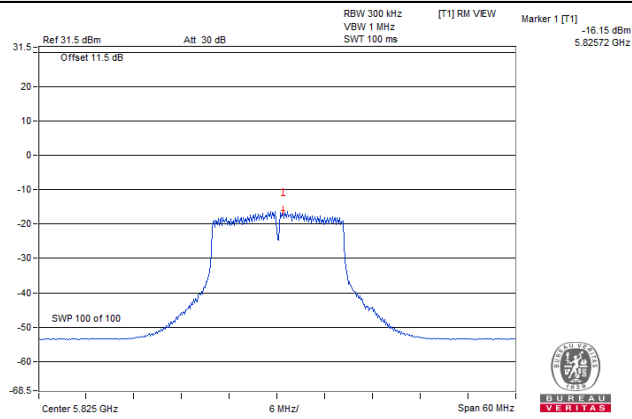
TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-22.61	-20.39	3.01	0.34	-17.04	30.00	Pass
1	155	5775	-22.66	-20.44	3.01	0.34	-17.09	30.00	Pass

Note:

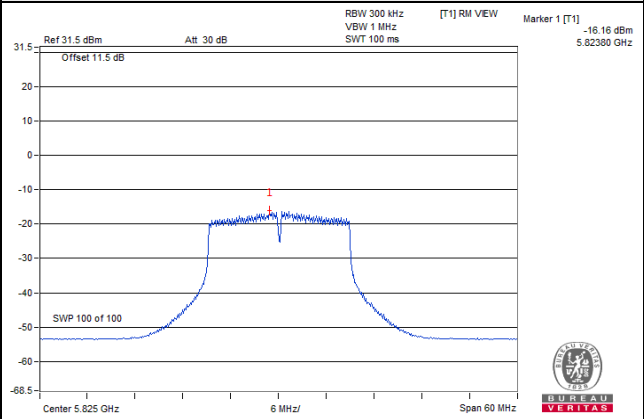
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add  $10 \log (N_{ANT})$  dB.
2. Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 3.82\text{dBi} < 6\text{dBi}$ , so the limit is not reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

### Spectrum Plot of Worst Value

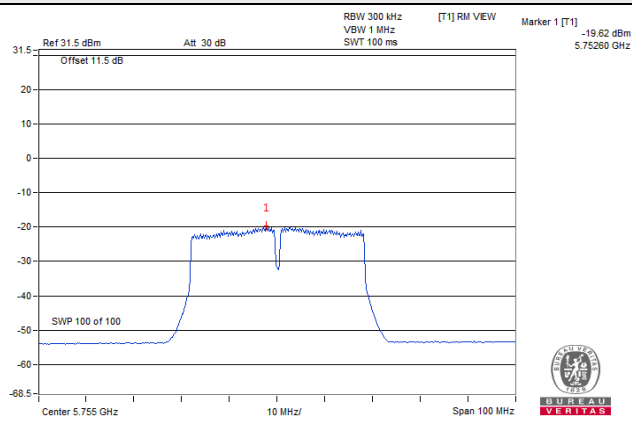
#### 802.11a



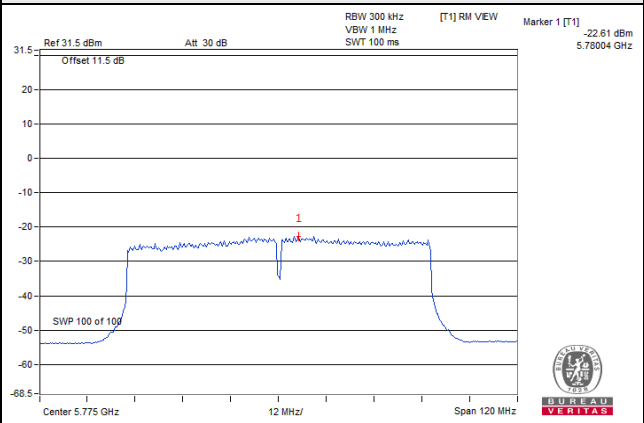
#### 802.11ac (VHT20)



#### 802.11ac (VHT40)



#### 802.11ac (VHT80)

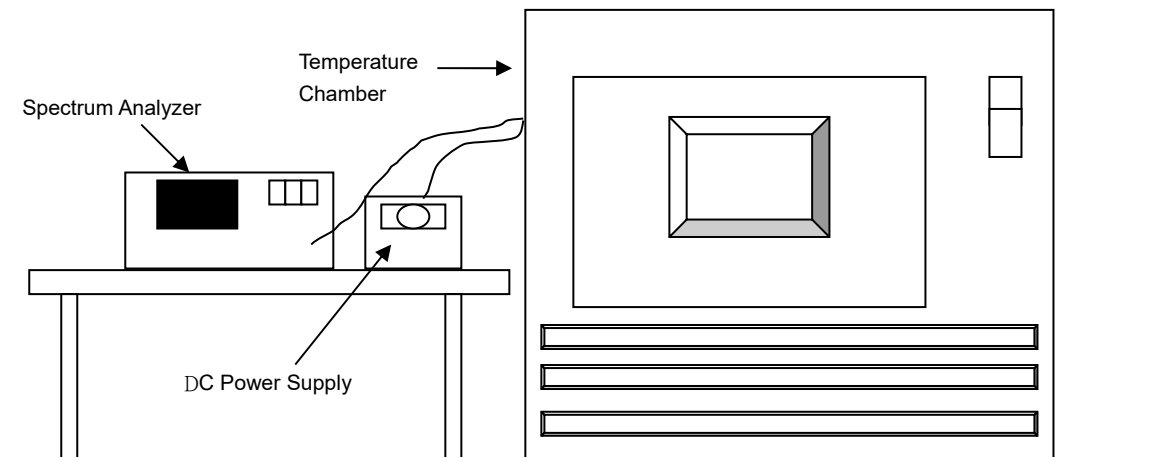


## 4.6 Frequency Stability

### 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

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 15, 2021	Sep. 14, 2022
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.  
2. Test Date: Nov. 08, 2021

#### 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
40	3.84	5179.9808	PASS	5179.9837	PASS	5179.9847	PASS	5179.9825	PASS
30	3.84	5179.9872	PASS	5179.989	PASS	5179.9851	PASS	5179.9867	PASS
20	3.84	5180.007	PASS	5180.0084	PASS	5180.0056	PASS	5180.0054	PASS
10	3.84	5180.0167	PASS	5180.0159	PASS	5180.0206	PASS	5180.0174	PASS
0	3.84	5180.0046	PASS	5180.0041	PASS	5180.0023	PASS	5180.0052	PASS

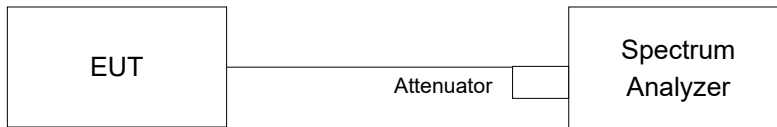
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	4.416	5180.007	PASS	5180.008	PASS	5180.0052	PASS	5180.0045	PASS
	3.84	5180.007	PASS	5180.0084	PASS	5180.0056	PASS	5180.0054	PASS
	3.264	5180.0061	PASS	5180.0079	PASS	5180.0061	PASS	5180.006	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	15.68	15.49	0.5	Pass
157	5785	15.55	15.51	0.5	Pass
165	5825	15.51	16.05	0.5	Pass

##### 802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.94	16.95	0.5	Pass
157	5785	16.97	17.22	0.5	Pass
165	5825	16.96	17.20	0.5	Pass

##### 802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	36.42	36.42	0.5	Pass
159	5795	36.43	36.42	0.5	Pass

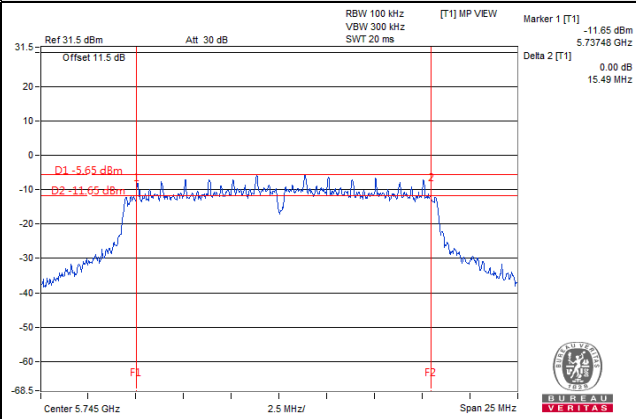
##### 802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.39	75.41	0.5	Pass

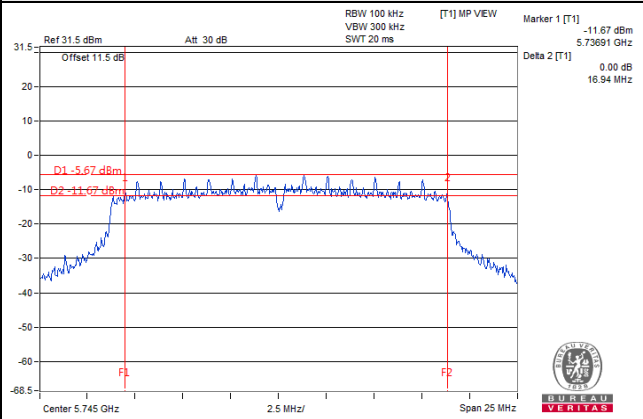


### Spectrum Plot of Worst Value

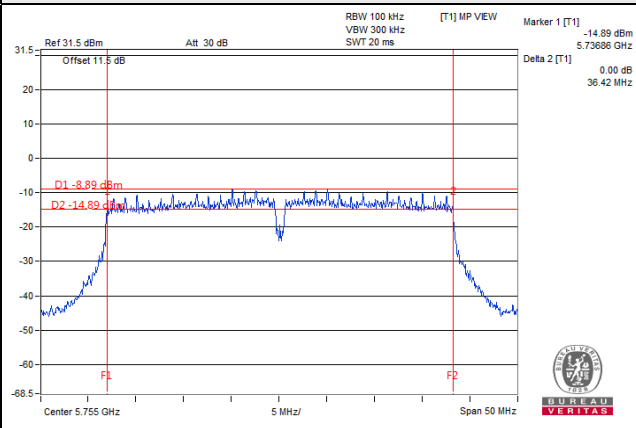
#### 802.11a



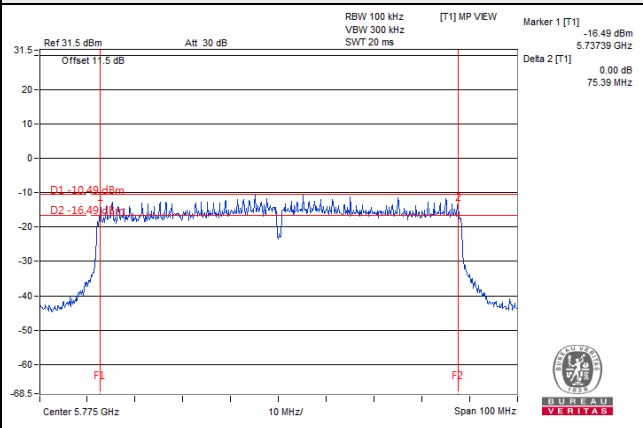
#### 802.11ac (VHT20)



#### 802.11ac (VHT40)

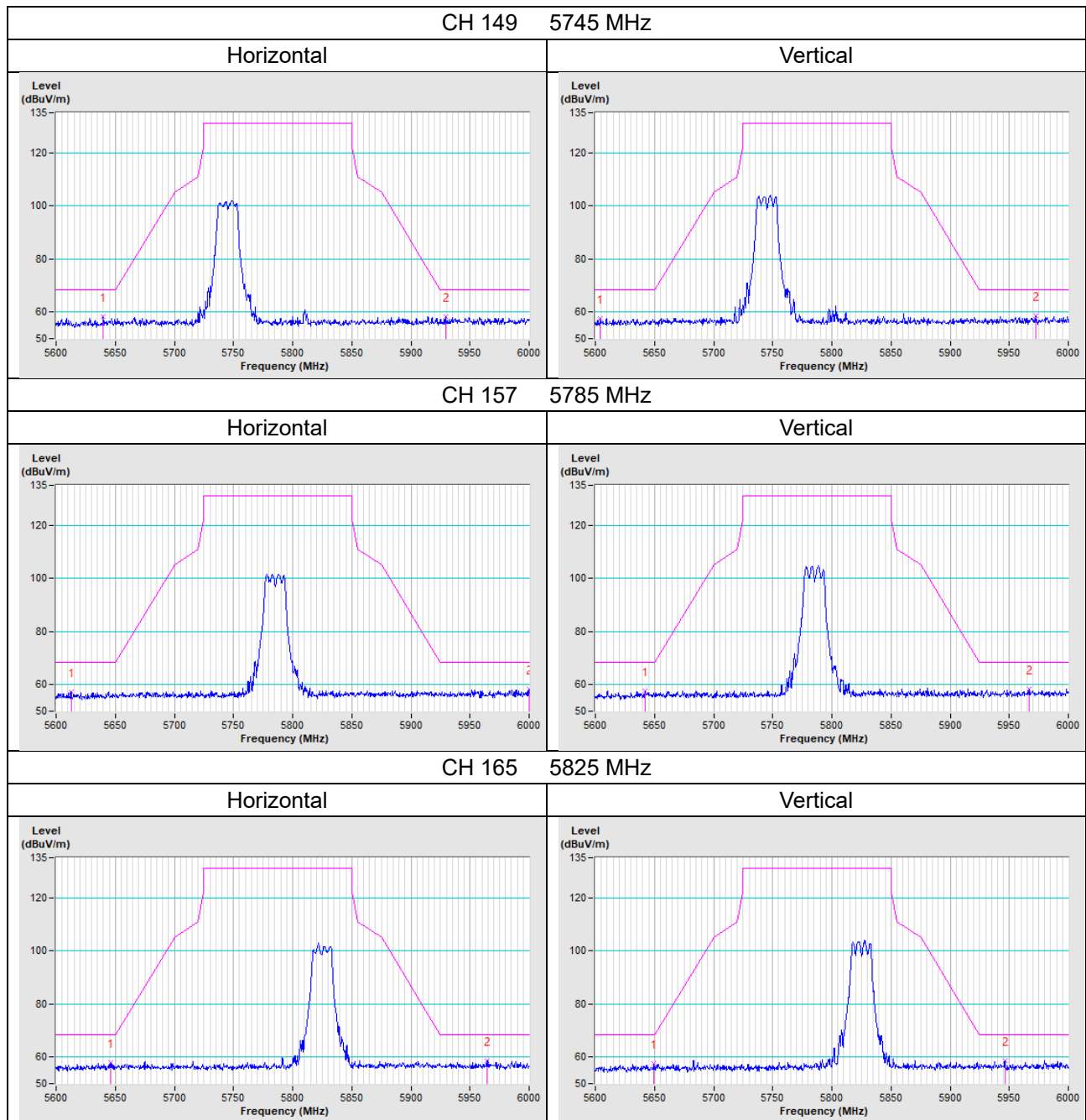


#### 802.11ac (VHT80)

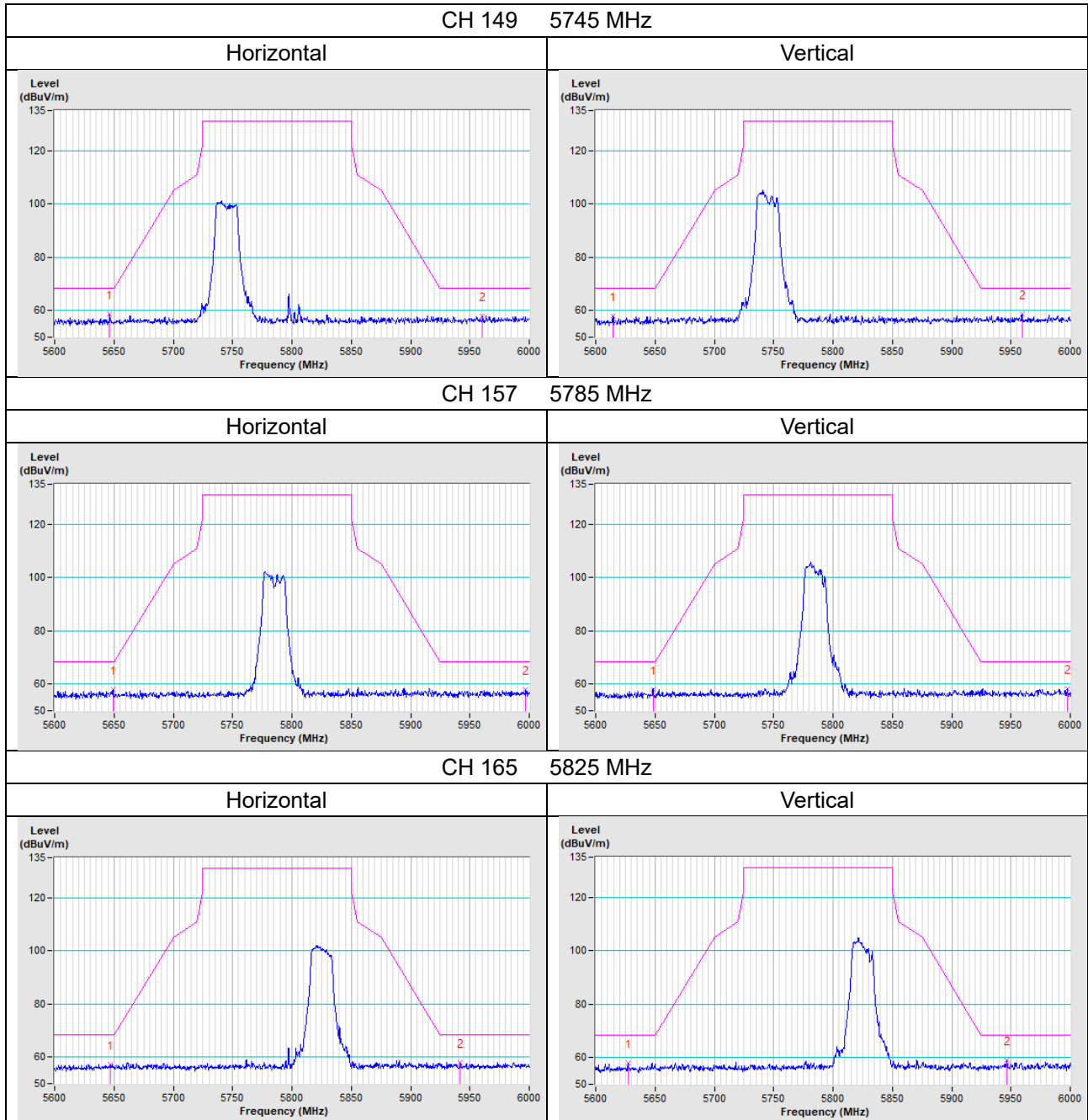


### Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

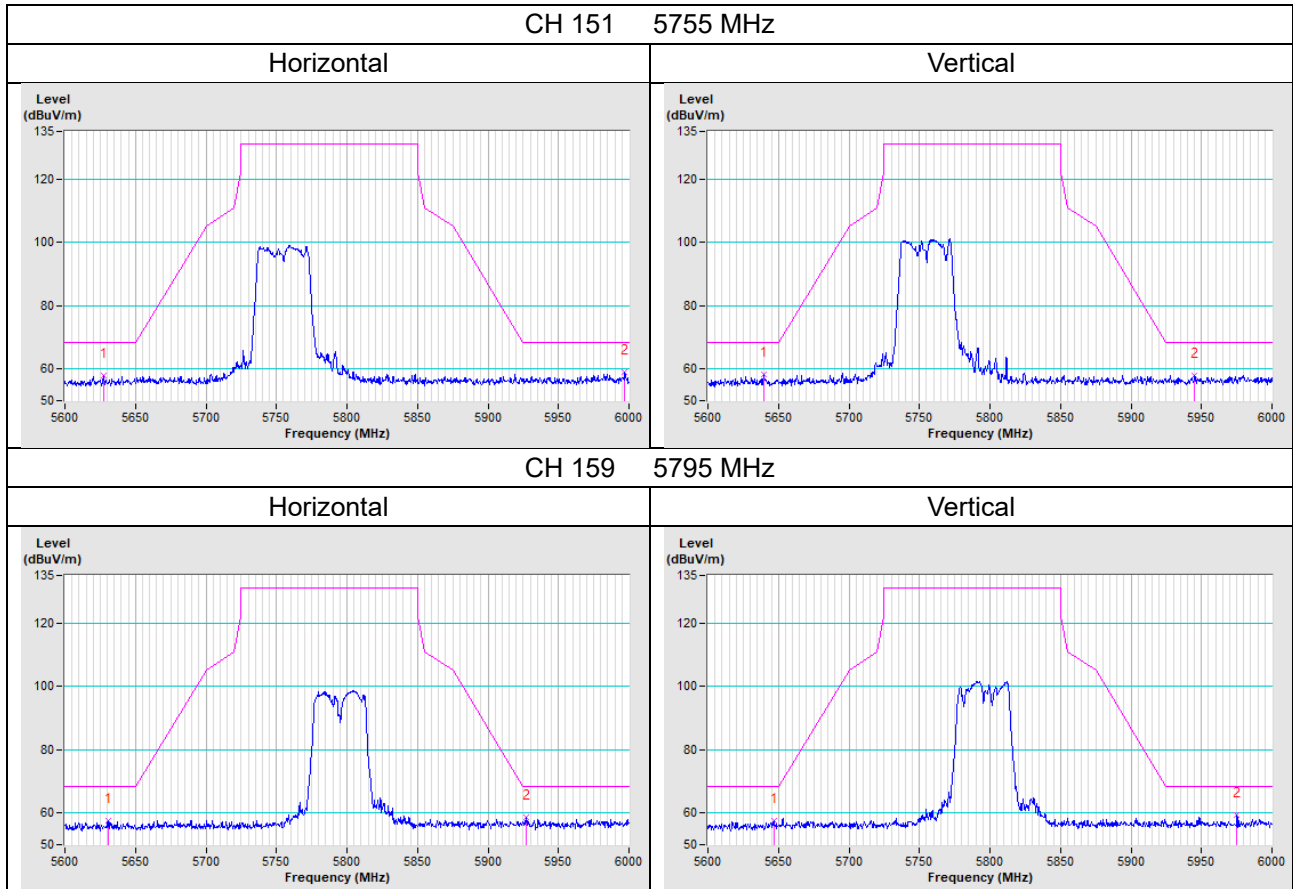
802.11a



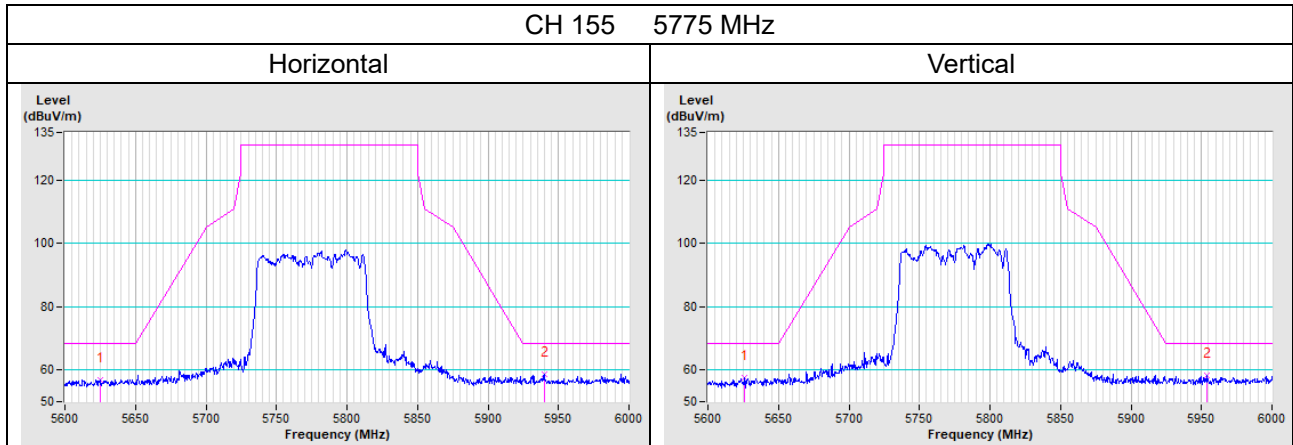
802.11ac (VHT20)



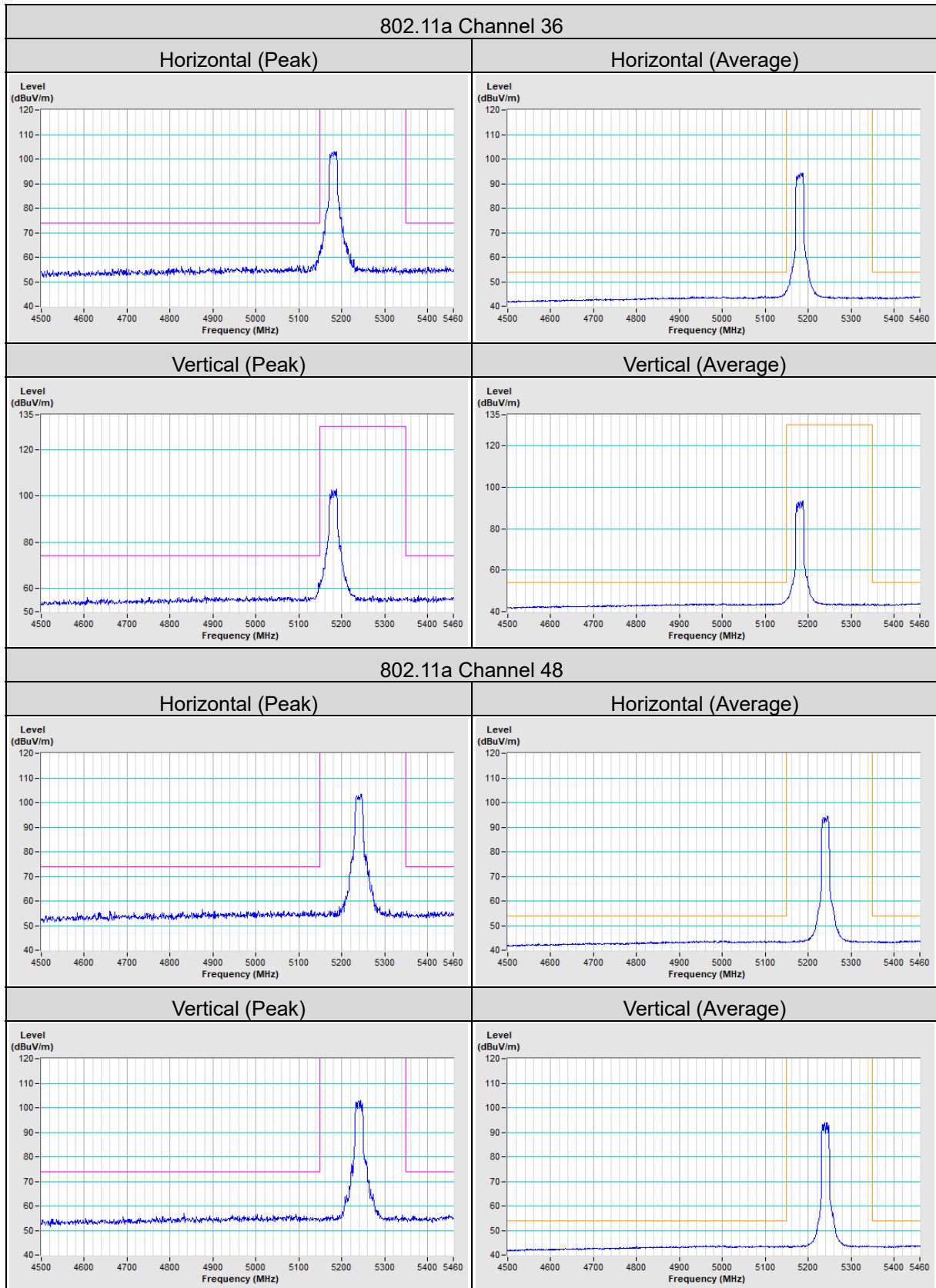
802.11ac (VHT40)



802.11ac (VHT80)

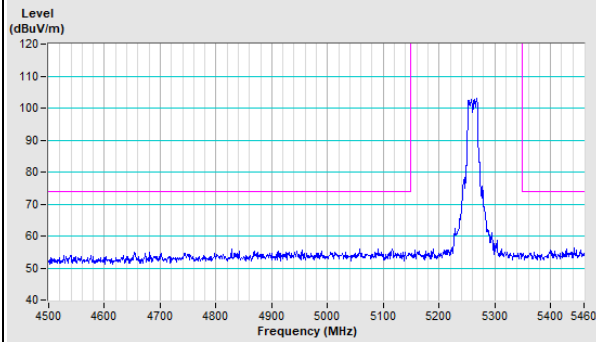


## Annex B- Band Edge Measurement

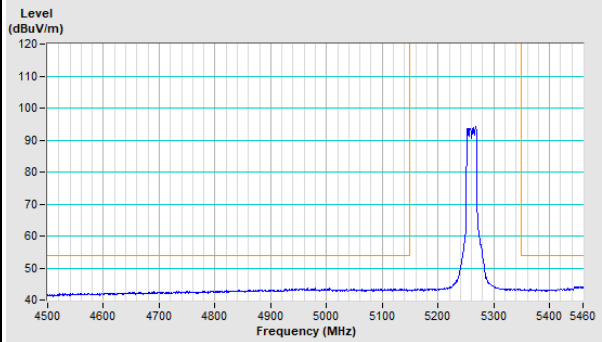


### 802.11a Channel 52

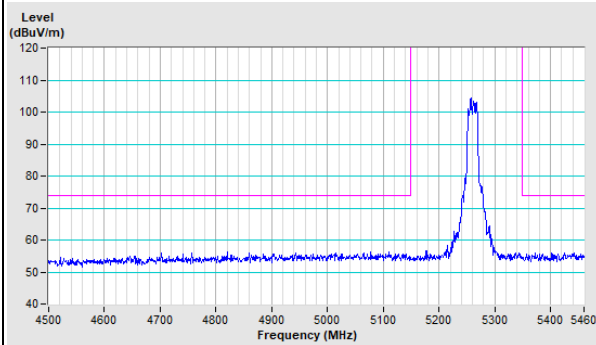
Horizontal (Peak)



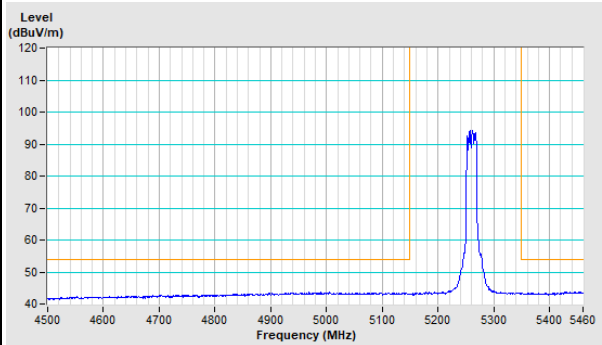
Horizontal (Average)



Vertical (Peak)

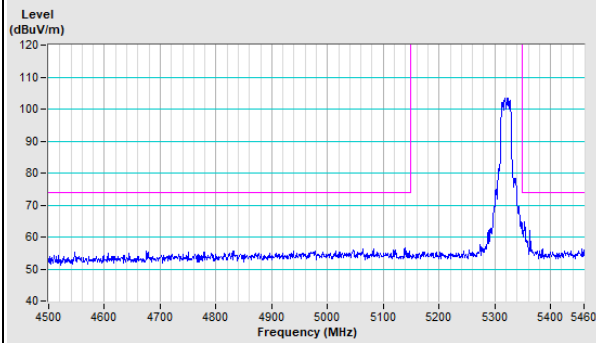


Vertical (Average)

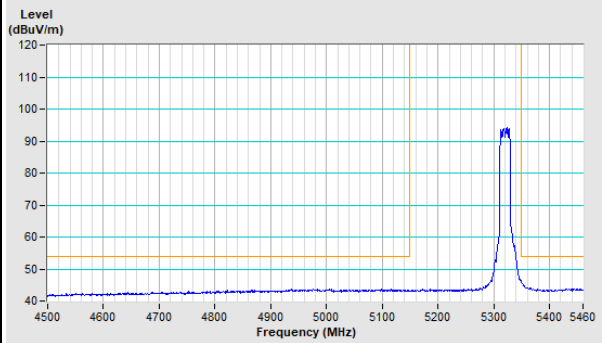


### 802.11a Channel 64

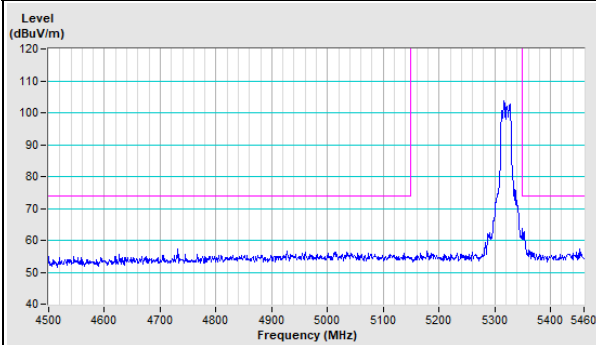
Horizontal (Peak)



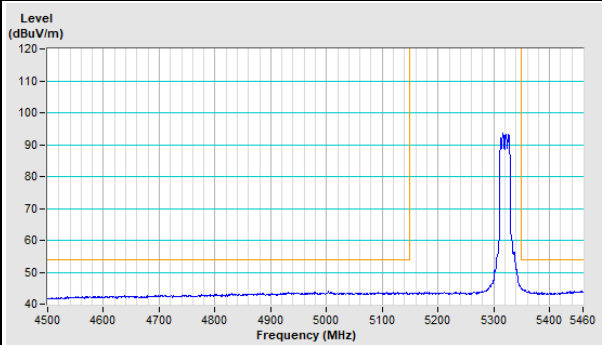
Horizontal (Average)



Vertical (Peak)

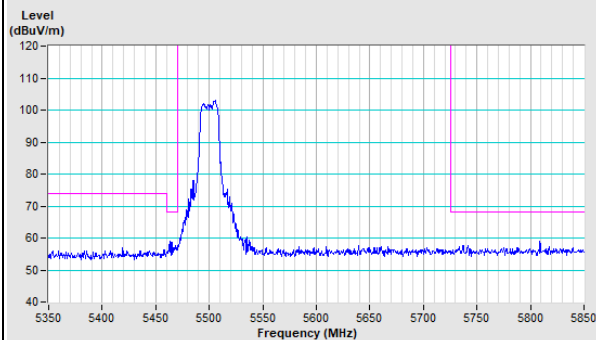


Vertical (Average)

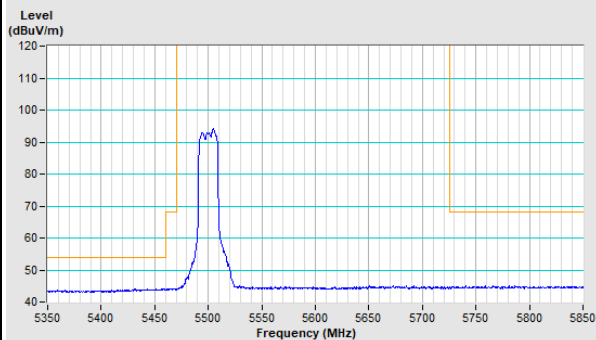


### 802.11a Channel 100

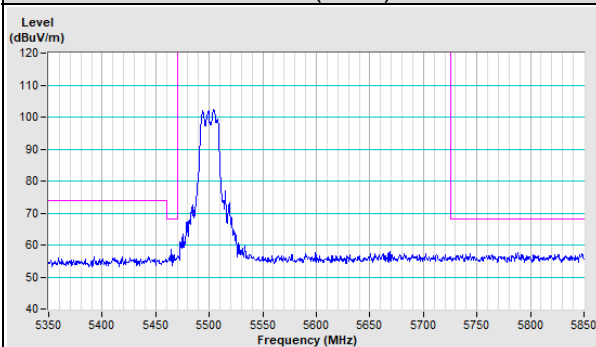
Horizontal (Peak)



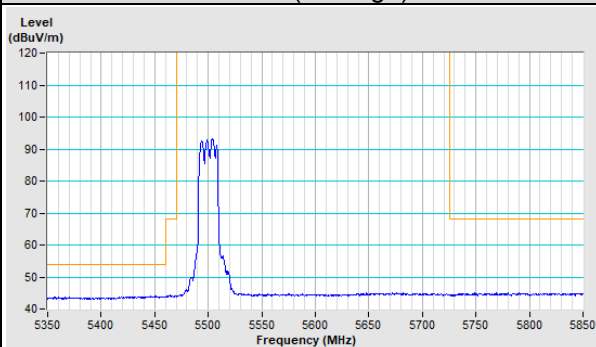
Horizontal (Average)



Vertical (Peak)

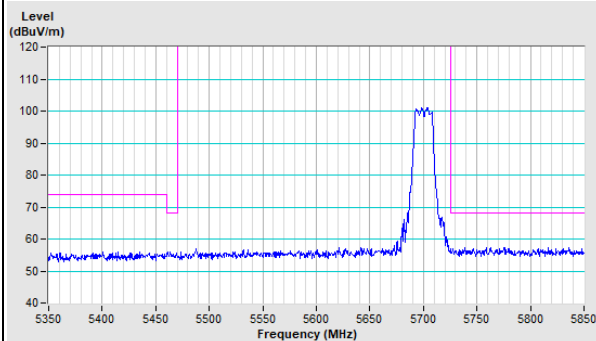


Vertical (Average)

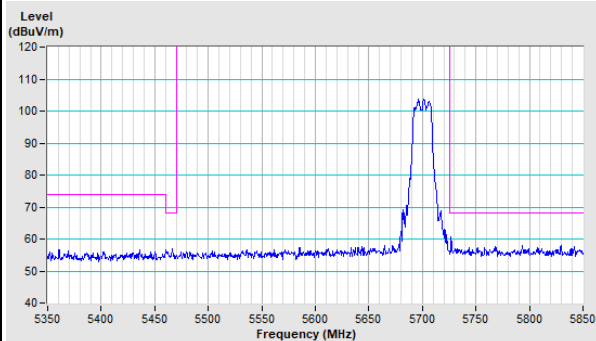


### 802.11a Channel 140

Horizontal (Peak)

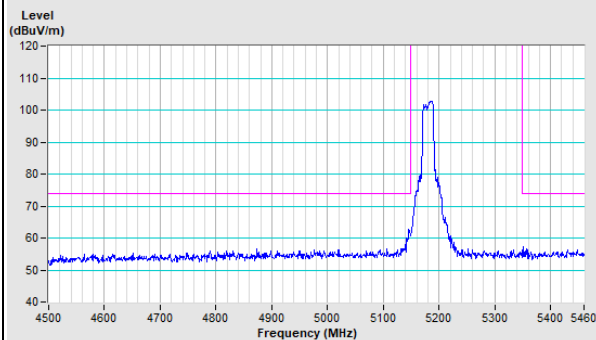


Vertical (Peak)

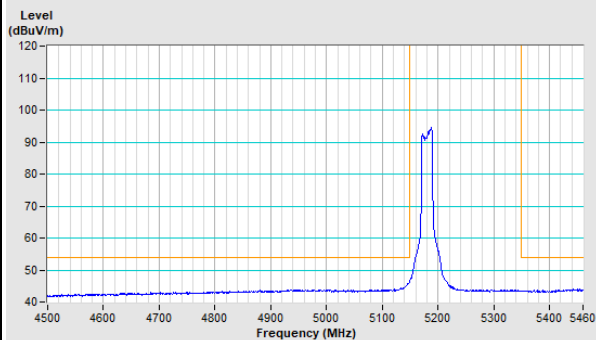


### 802.11ac (VHT20) Channel 36

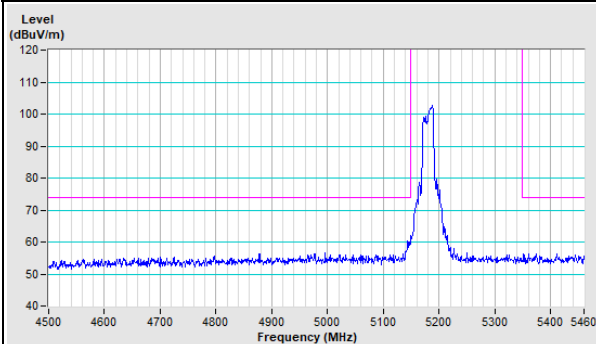
Horizontal (Peak)



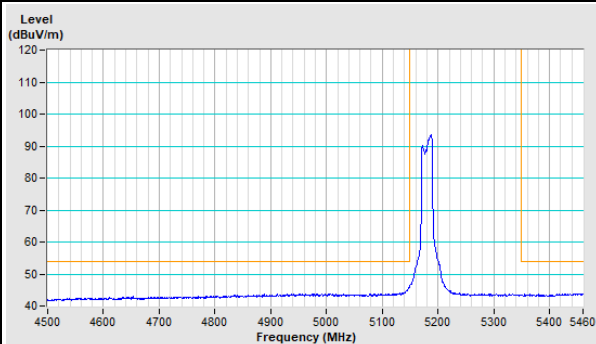
Horizontal (Average)



Vertical (Peak)

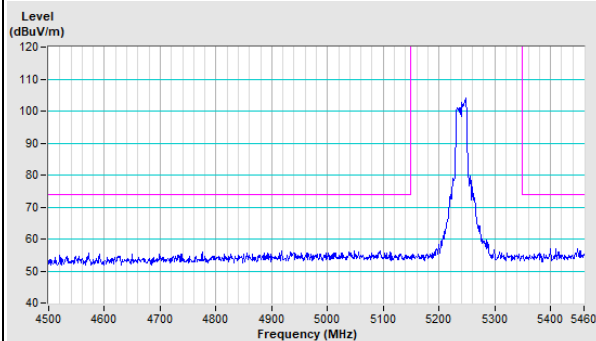


Vertical (Average)

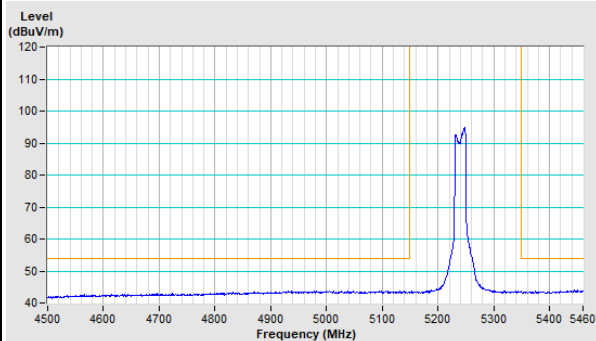


### 802.11ac (VHT20) Channel 48

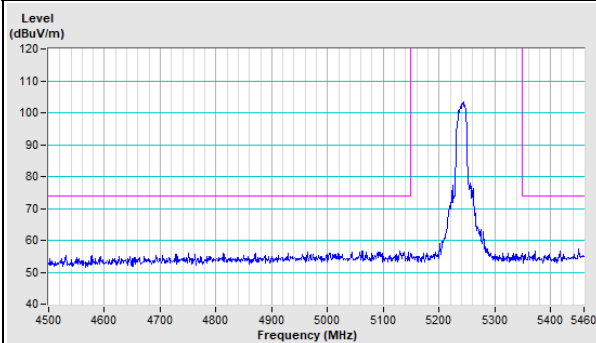
Horizontal (Peak)



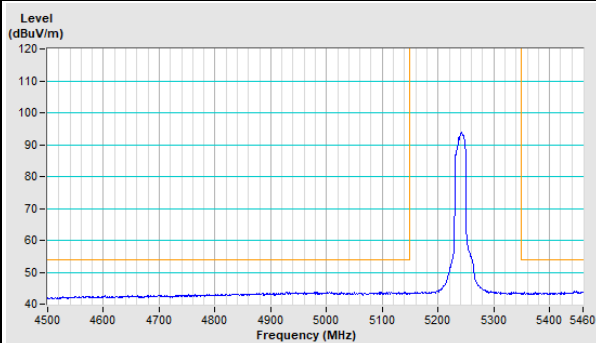
Horizontal (Average)



Vertical (Peak)



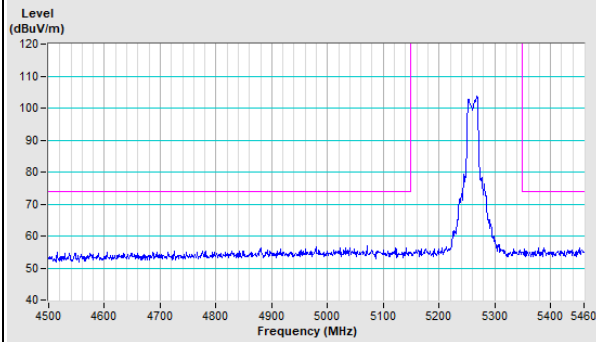
Vertical (Average)



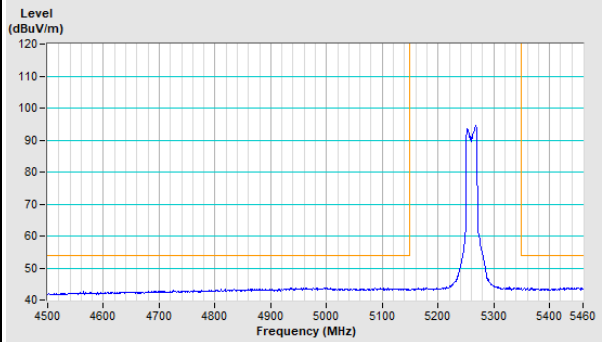


### 802.11ac (VHT20) Channel 52

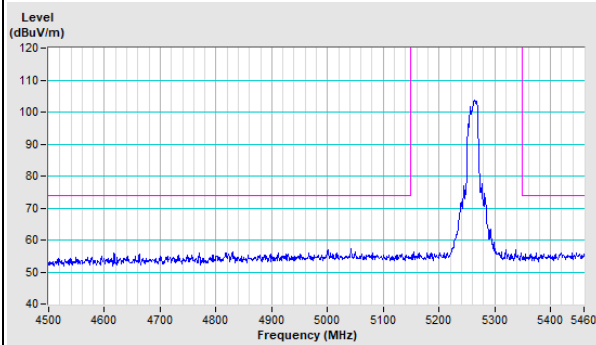
Horizontal (Peak)



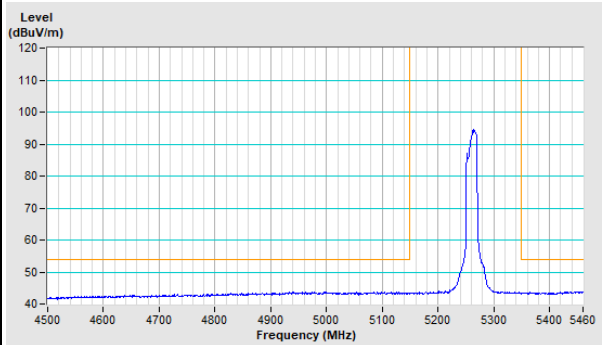
Horizontal (Average)



Vertical (Peak)

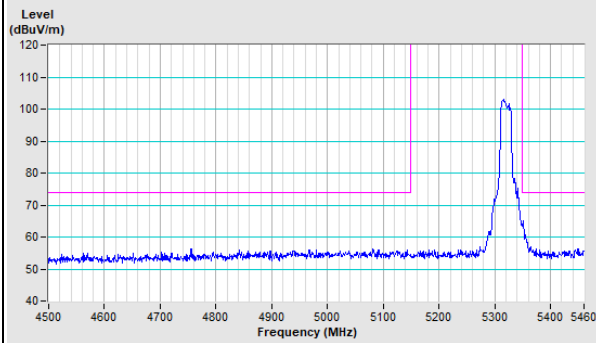


Vertical (Average)

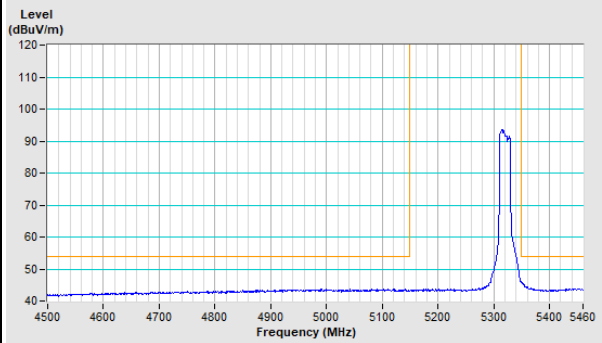


### 802.11ac (VHT20) Channel 64

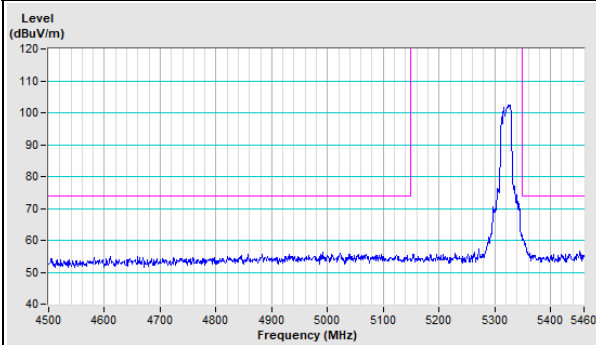
Horizontal (Peak)



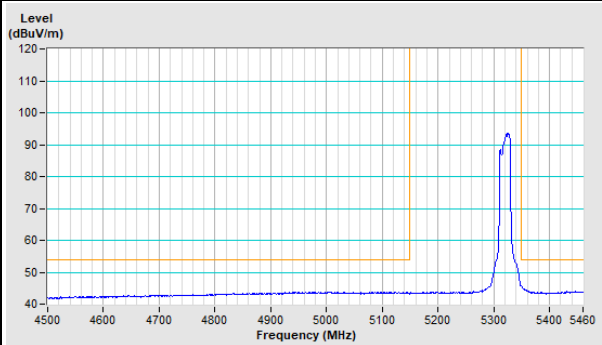
Horizontal (Average)

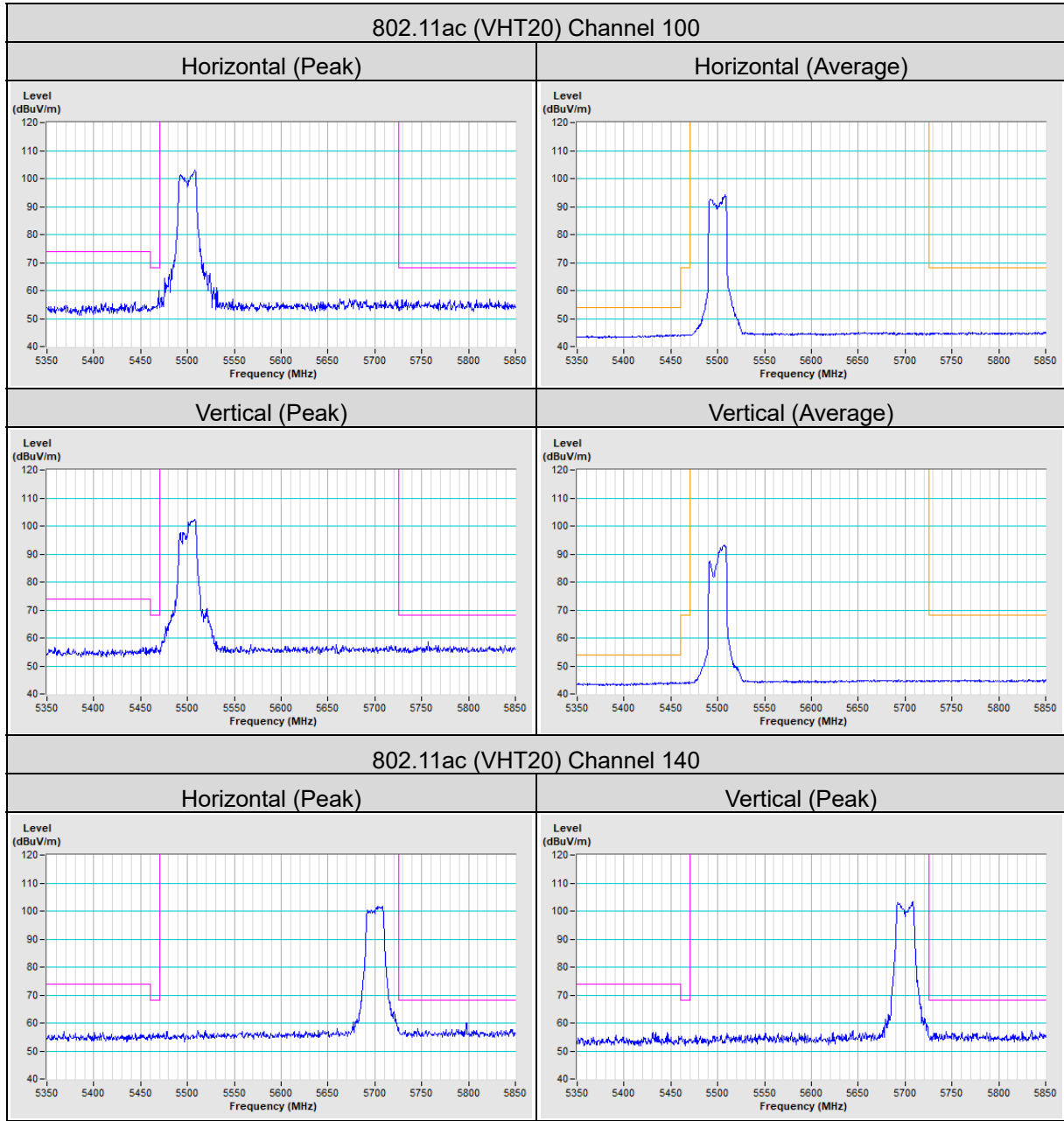


Vertical (Peak)



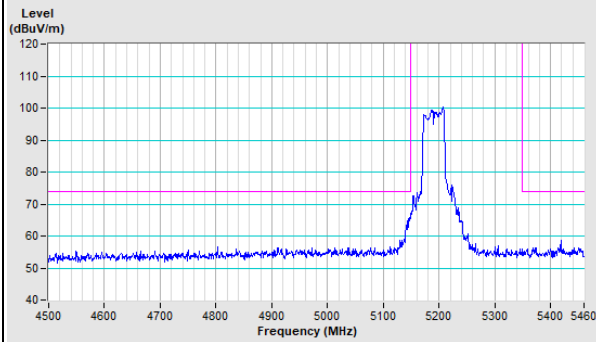
Vertical (Average)



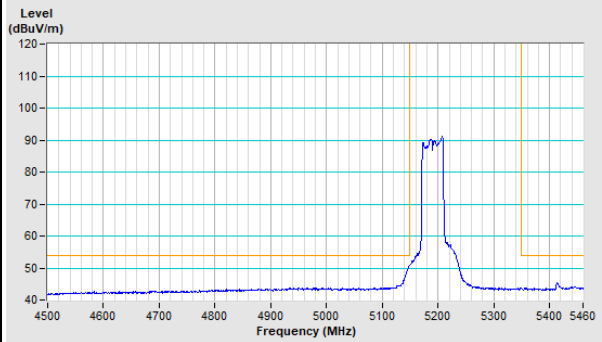


### 802.11ac (VHT40) Channel 38

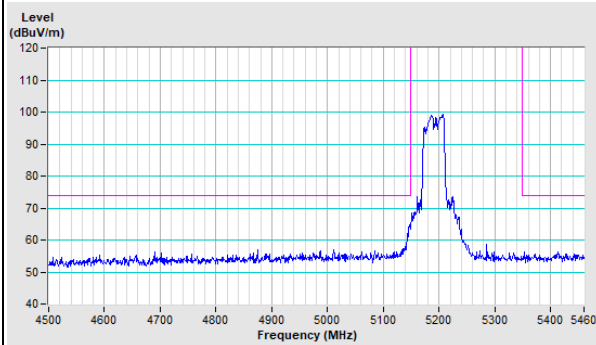
Horizontal (Peak)



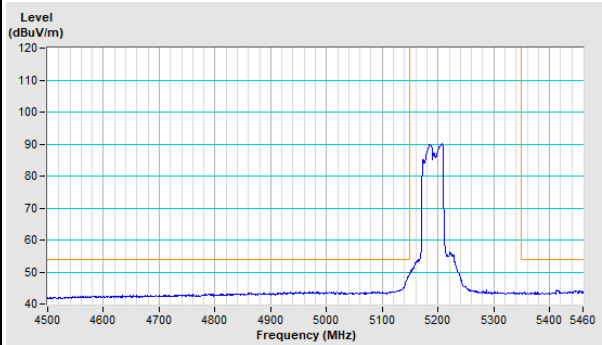
Horizontal (Average)



Vertical (Peak)

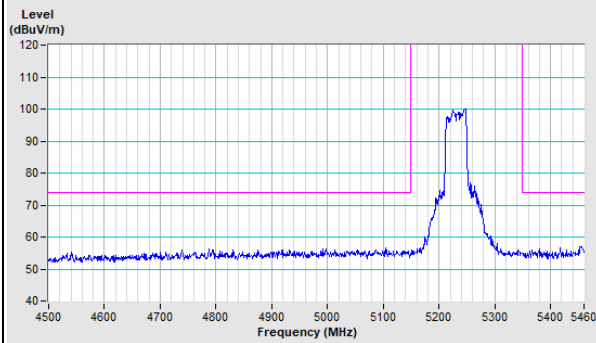


Vertical (Average)

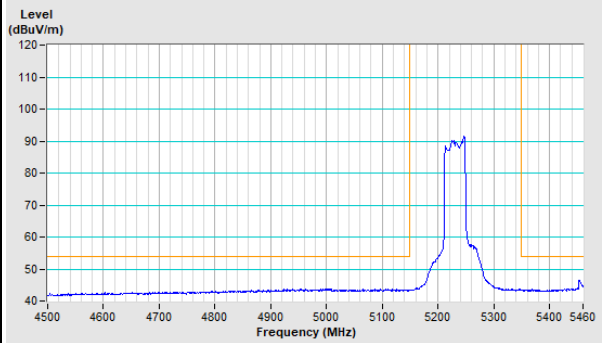


### 802.11ac (VHT40) Channel 46

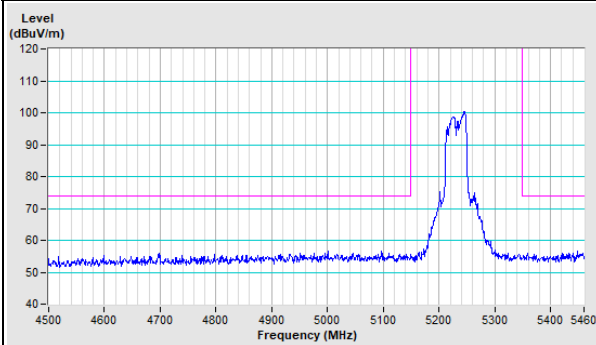
Horizontal (Peak)



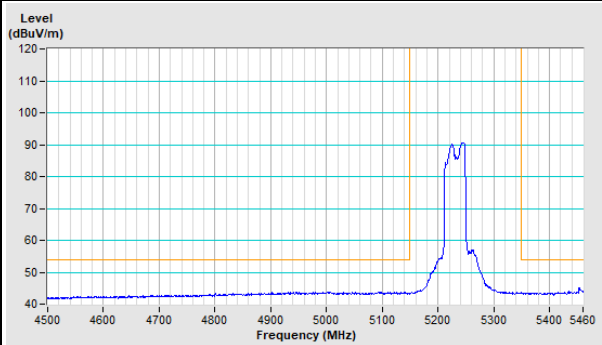
Horizontal (Average)



Vertical (Peak)

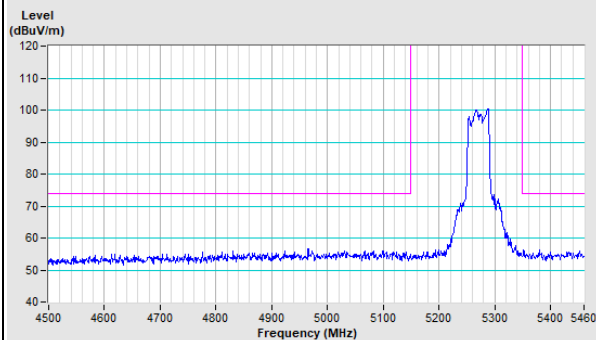


Vertical (Average)

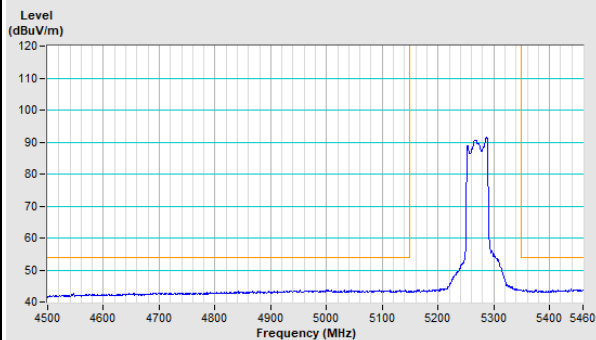


### 802.11ac (VHT40) Channel 54

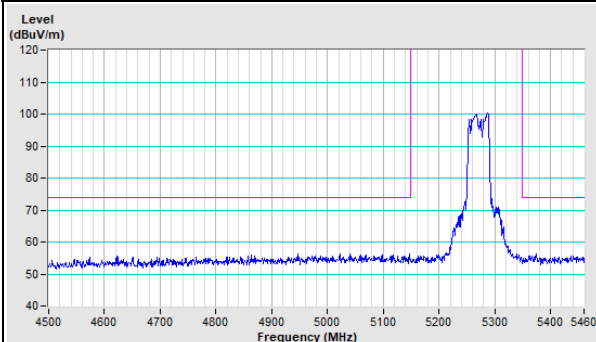
Horizontal (Peak)



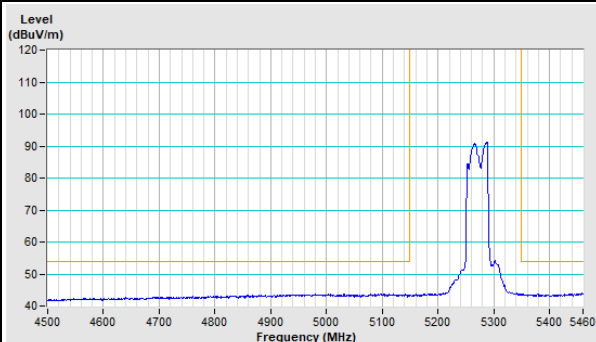
Horizontal (Average)



Vertical (Peak)

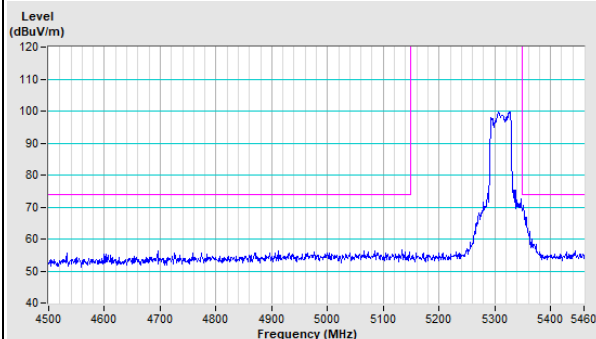


Vertical (Average)

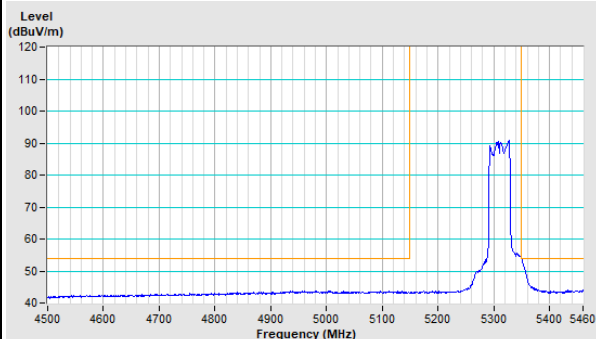


### 802.11ac (VHT40) Channel 62

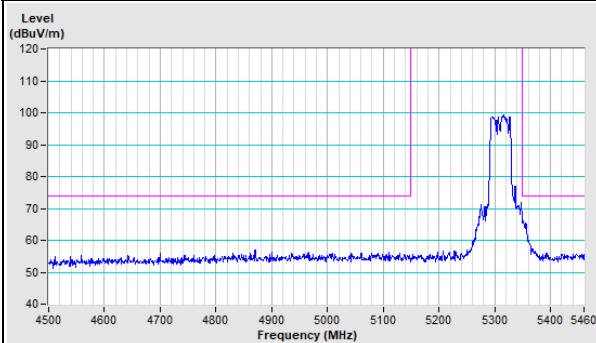
Horizontal (Peak)



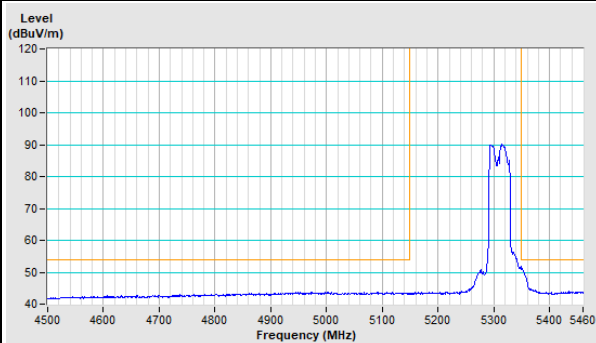
Horizontal (Average)

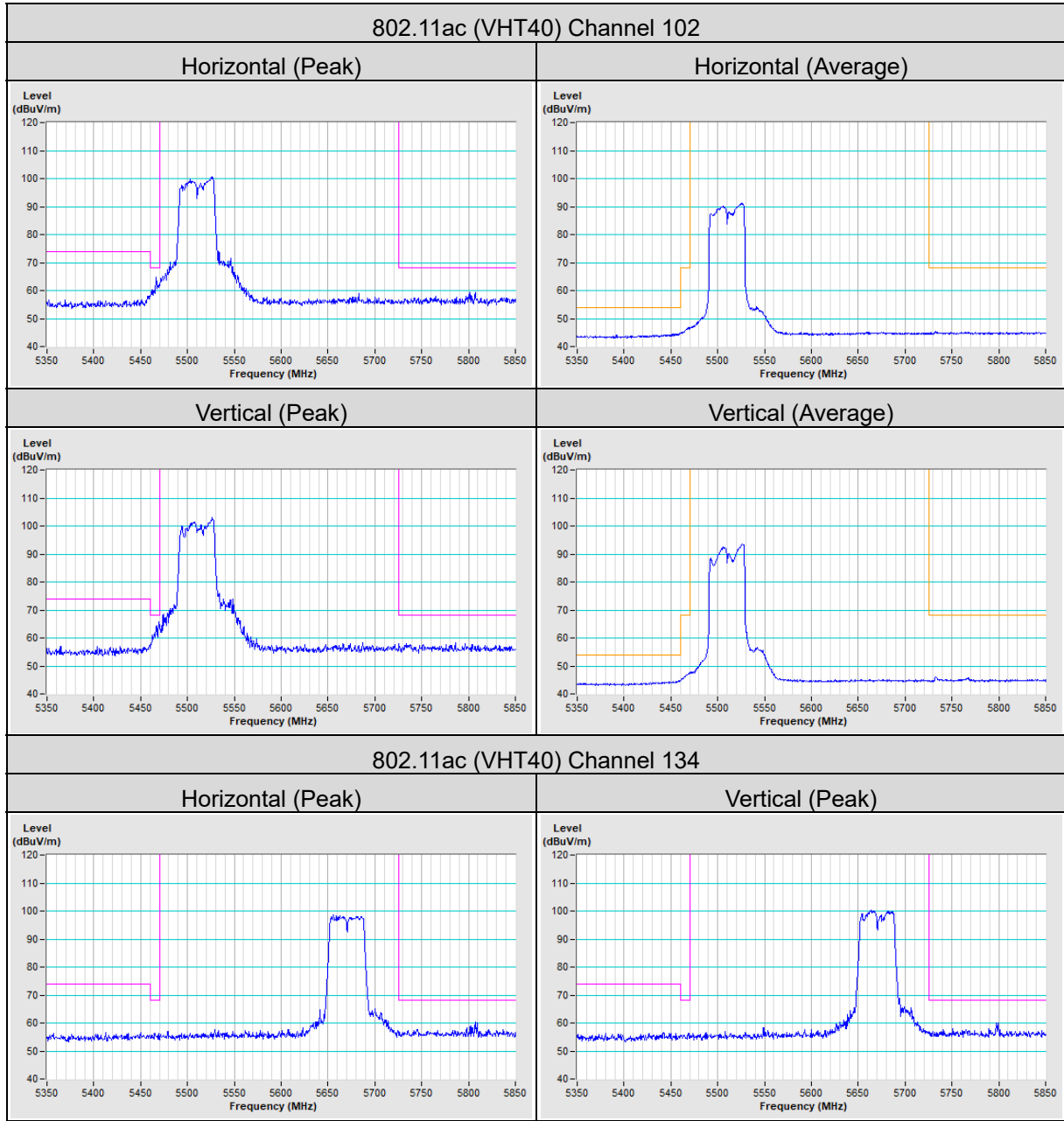


Vertical (Peak)



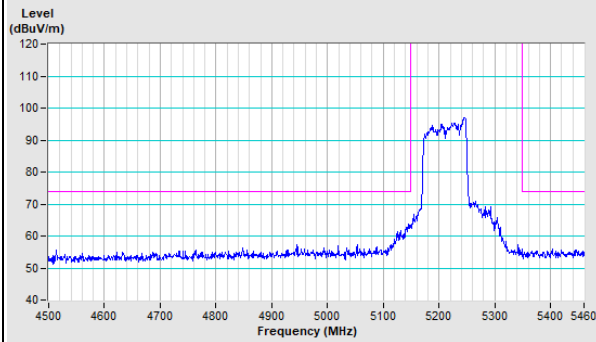
Vertical (Average)



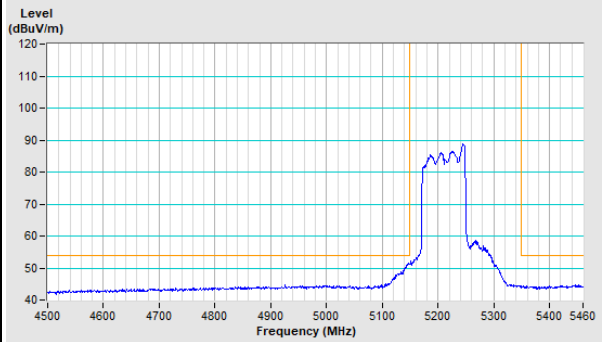


### 802.11ac (VHT80) Channel 42

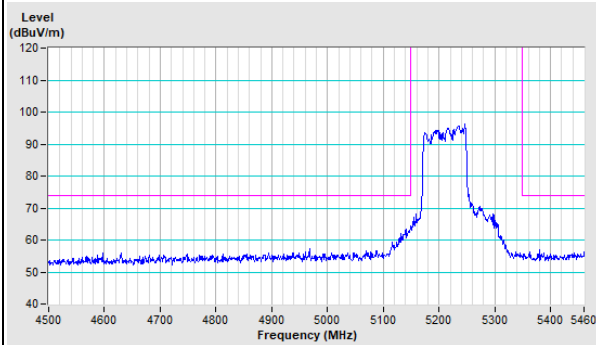
Horizontal (Peak)



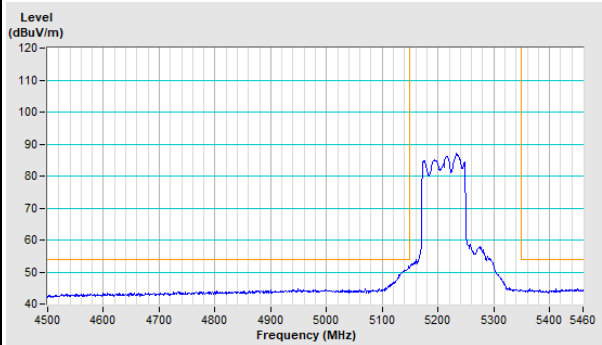
Horizontal (Average)



Vertical (Peak)

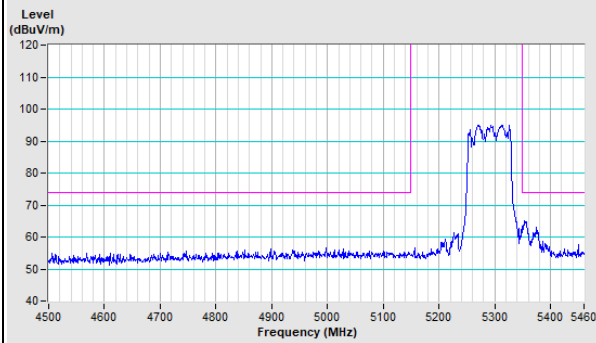


Vertical (Average)

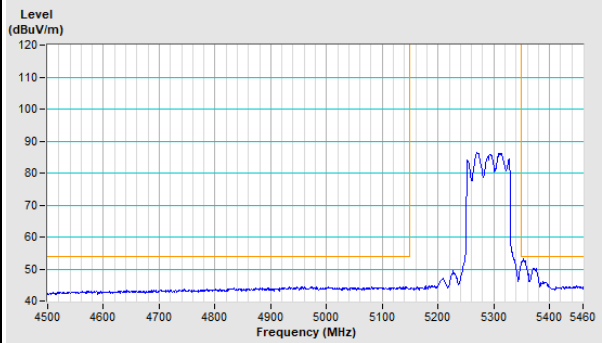


### 802.11ac (VHT80) Channel 58

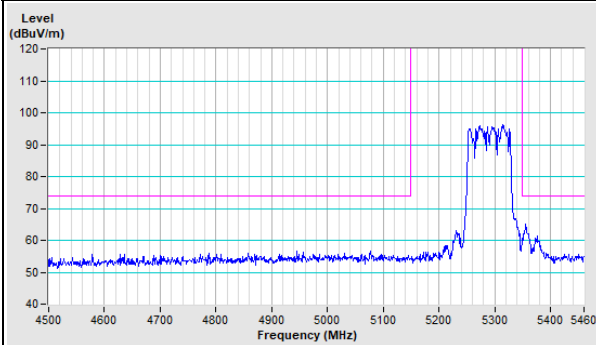
Horizontal (Peak)



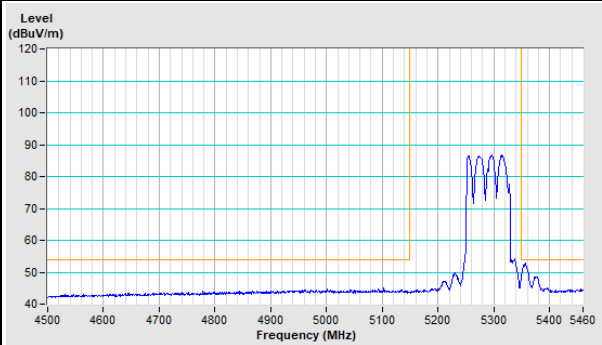
Horizontal (Average)



Vertical (Peak)

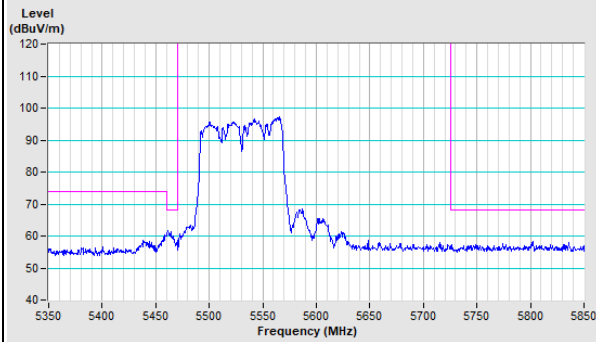


Vertical (Average)

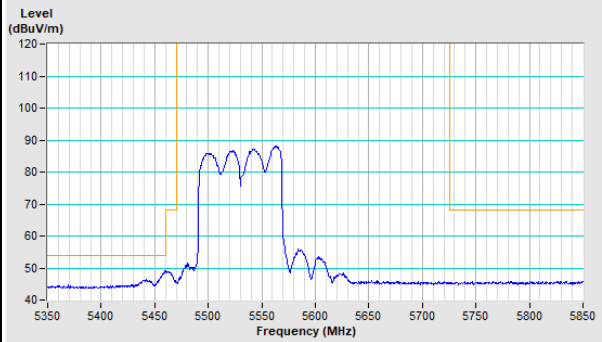


### 802.11ac (VHT80) Channel 106

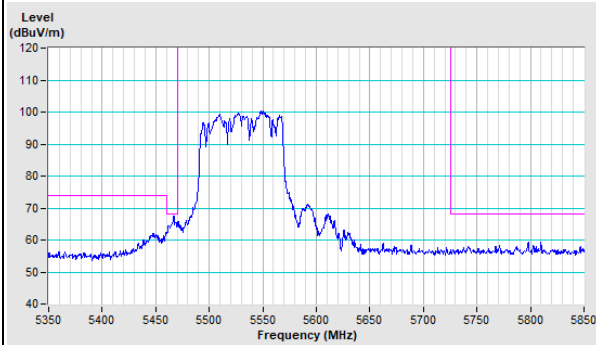
Horizontal (Peak)



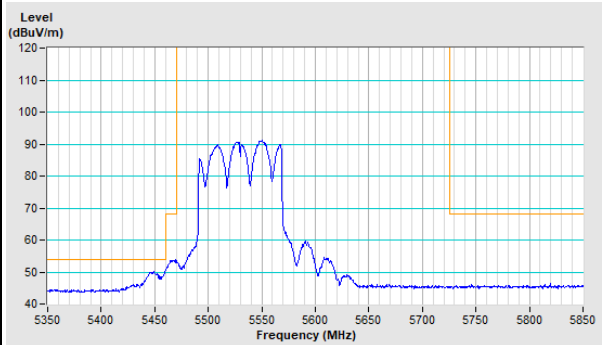
Horizontal (Average)



Vertical (Peak)

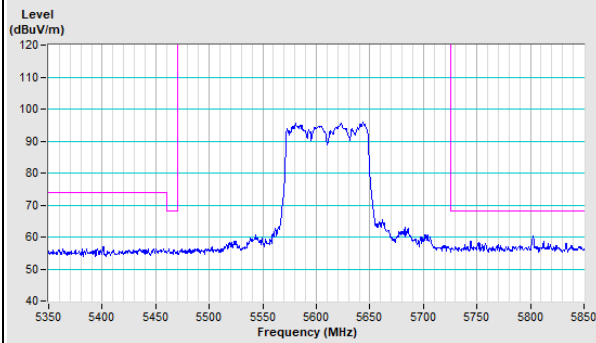


Vertical (Average)

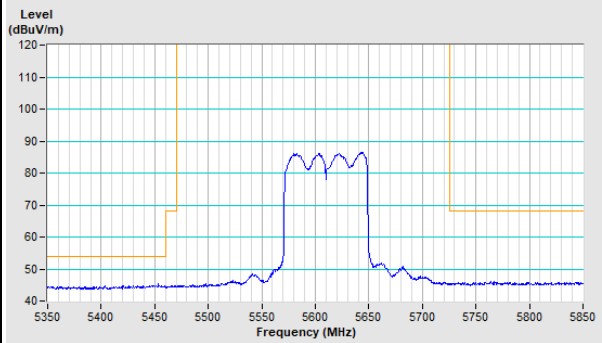


### 802.11ac (VHT80) Channel 122

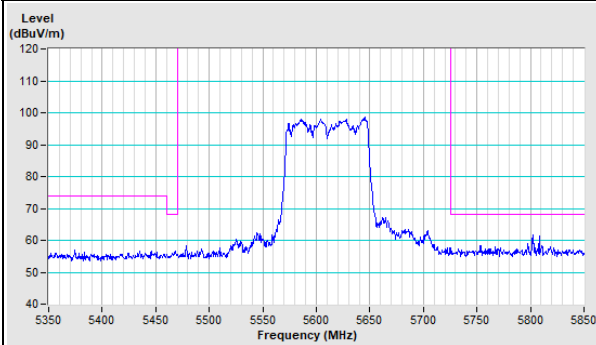
Horizontal (Peak)



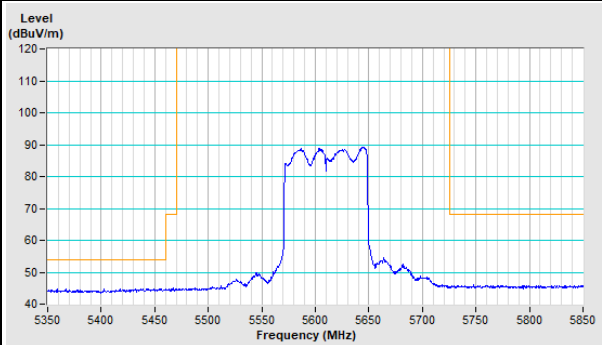
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



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

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