

FCC Test Report

Report No.: RFBEAD-WTW-P21030489-1 R2

FCC ID: 2AWAYSFCS1

Test Model: SFCS1

Received Date: Mar. 13, 2021

Test Date: Apr. 08 ~ Apr. 22, 2021

Issued Date: Sep. 22, 2021

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Release Control Record

Issue No.	Description	Date Issued
RFBEAD-WTW-P21030489-1	Original Release	May 13, 2021
RFBEAD-WTW-P21030489-1 R1	Updated product, brand, model and applicant.	Aug. 24, 2021
RFBEAD-WTW-P21030489-1 R2	Added manufacturer and MPN on antenna information.	Sep. 22, 2021

1 Certificate of Conformity

Product: BioFire SpotFire

Brand: bioMérieux

Test Model: SFCS1

Sample Status: Engineering Sample

Applicant: BioFire Diagnostics, LLC

Test Date: Apr. 08 ~ Apr. 22, 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:

Sep. 22, 2021

Gina Liu / Specialist

Approved by :



Date:

Sep. 22, 2021

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(8)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -4.81 dB at 0.28200 MHz.
15.407(b) (1/2/3/4(i/ii)/8)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.7 dB at 5350.00 MHz.
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)	6 dB 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 RSMA not a standard connector.

Note:

- 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, 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.
- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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	150 kHz ~ 30 MHz	2.79 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	BioFire SpotFire
Brand	bioMérieux
Test Model	SFCS1
Status of EUT	Engineering Sample
Power Supply Rating	100-240Vac
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to 300.0 Mbps 802.11ac: up to 866.7 Mbps
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5720 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5500 ~ 5720 MHz: 12 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 6 for 802.11n (HT40), 802.11ac (VHT40) 3 for 802.11ac (VHT80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
Output Power	207.999 mW for 5180 ~ 5240 MHz 206.26 mW for 5260 ~ 5320 MHz 207.629 mW for 5500 ~ 5720 MHz 208.731 mW for 5745 ~ 5825 MHz
Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
Accessory Device	1.83m shielded power cable without core
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two 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 modulation, bandwidth and power are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report.
(Final test mode refer section 3.2.1)

2. The following antennas were provided to the EUT.

No.	Antenna Type	Manufacturer	MPN	Connector	Gain (dBi)	
					2.4-2.5GHz	5.150-5.850GHz
1	Dipole	BJTEK NAVIGATION,INC.	BJHOT160000043B00B-B	RP-SMA(M)	2.5	3.0
2	Dipole	Joinsoon Electronics Manufacturing CO., LTD. (JEM)	1510-0237-0041	RSMA	3.74	3.70

*The maximum antenna gain is chosen for final test.

*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.

3. We had pre-tested all modes at 240V/60Hz and 120V/60Hz, test mode at 120V/60Hz was the worst case and only this mode was presented in the report.
4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

For 5180 ~ 5240 MHz

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

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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

For 5260 ~ 5320 MHz

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

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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	62	5310

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
58	5290

For 5500 ~ 5720 MHz

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	124	5620
104	5520	128	5640
108	5540	132	5660
112	5560	136	5680
116	5580	140	5700
120	5600	144	5720

6 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	126	5630
110	5550	134	5670
118	5590	142	5710

3 channels are provided for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	138	5690
122	5610		

For 5745 ~ 5825 MHz:

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

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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

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 1 GHz

RE<1G: Radiated Emission below 1 GHz

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 **Z-plane**.
2. "-" means no effect.

Radiated Emission Test (Above 1 GHz):

- ☒ 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-		802.11ac (VHT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11ac (VHT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11ac (VHT20)	52 to 64	52, 60, 64	OFDM	BPSK	6.5
-		802.11ac (VHT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-		802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-	5500-5720	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11ac (VHT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.5
-		802.11ac (VHT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	13.5
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	29.3
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11ac (VHT40)	151 to 159	151, 159	OFDM	BPSK	13.5
-		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1 GHz):

- ☒ 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5260-5320	802.11ac (VHT20)	52 to 64	64	OFDM	BPSK	6.5

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5260-5320	802.11ac (VHT20)	52 to 64	64	OFDM	BPSK	6.5

Antenna Port Conducted 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-		802.11ac (VHT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11ac (VHT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11ac (VHT20)	52 to 64	52, 60, 64	OFDM	BPSK	6.5
-		802.11ac (VHT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-		802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-	5500-5720	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11ac (VHT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.5
-		802.11ac (VHT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	13.5
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	29.3
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11ac (VHT40)	151 to 159	151, 159	OFDM	BPSK	13.5
-		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 70 % RH	120 Vac, 60 Hz	Noah Chang
RE<1G	19 deg. C, 68 % RH	120 Vac, 60 Hz	Noah Chang
PLC	24 deg. C, 69 % RH	120 Vac, 60 Hz	Edison Lee
APCM	25 deg. C, 60 % RH	120 Vac, 60 Hz	Ivan Tseng

3.3 Duty Cycle of Test Signal

MODULATION TYPE: BPSK

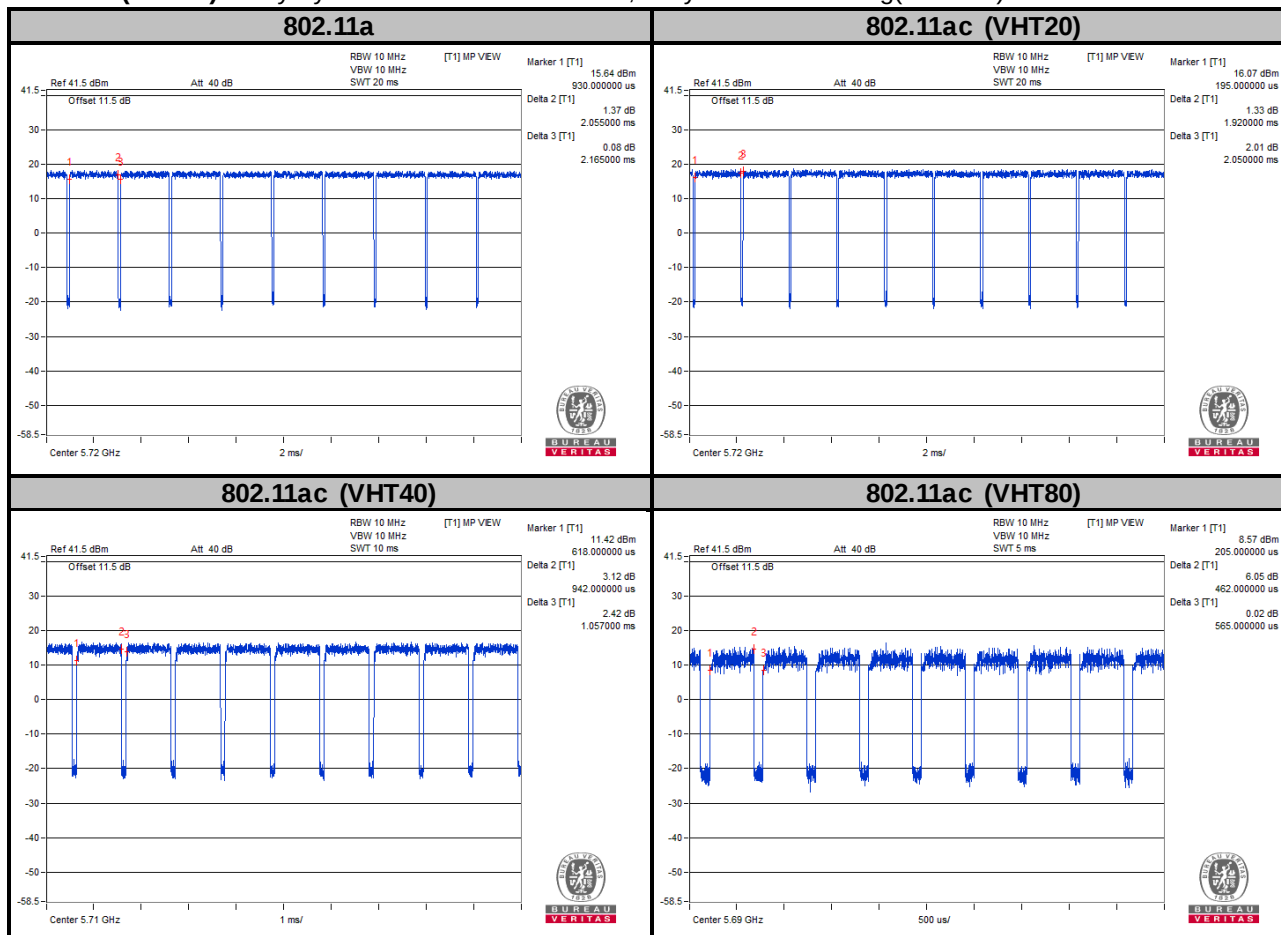
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $2.055/2.165 = 0.949$, Duty factor = $10 * \log(1/0.949) = 0.23$

802.11ac (VHT20): Duty cycle = $1.92/2.05 = 0.937$, Duty factor = $10 * \log(1/0.937) = 0.28$

802.11ac (VHT40): Duty cycle = $0.942/1.057 = 0.891$, Duty factor = $10 * \log(1/0.891) = 0.50$

802.11ac (VHT80): Duty cycle = $0.462/0.565 = 0.818$, Duty factor = $10 * \log(1/0.818) = 0.87$



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.

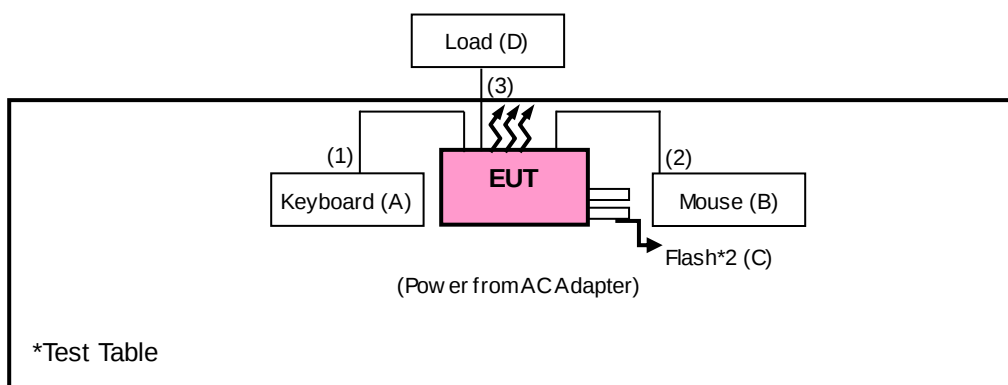
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Keyboard	DELL	RT7D50	CN-0J4624-37172-44T-000M	DOC	--
B.	USB MOUSE	Microsoft	ITE78CJ	N/A	FCC DoC Approved	--
C.	Flash*2	HP	v250W	05 09	N/A	--
D.	Load	N/A	N/A	N/A	N/A	--

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	1.8	N	0	--
2.	USB Cable	1	1.8	N	0	--
3.	LAN Cable	1	1.5	N	0	RJ45

Note:

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

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 Procedures 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 1000 MHz, 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 20 dB under any condition of modulation.

Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v02r01		Field Strength at 3 m	
		PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
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	☒ 15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2 (dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8 (dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
	☐ 15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

^{*1}beyond 75 MHz or more above of the band edge.

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

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

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

Note:

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Dec. 31, 2020	Dec. 30, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 16, 2020	Sep. 15, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 03, 2020	Nov. 02, 2021
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna EMCI	EM-6879	269	Sep. 17, 2020	Sep. 16, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Jun. 08, 2020	Jun. 07, 2021
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jun. 08, 2020	Jun. 07, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH4-01	Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Jun. 08, 2020	Jun. 07, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Jun. 08, 2020	Jun. 07, 2021
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 04, 2020	Sep. 03, 2021
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 13, 2020	Jul. 12, 2021

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

2. The test was performed in HwaYa Chamber 4.

4.1.3 Test Procedures

For Radiated Emission below 30 MHz

- 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 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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 detected 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:

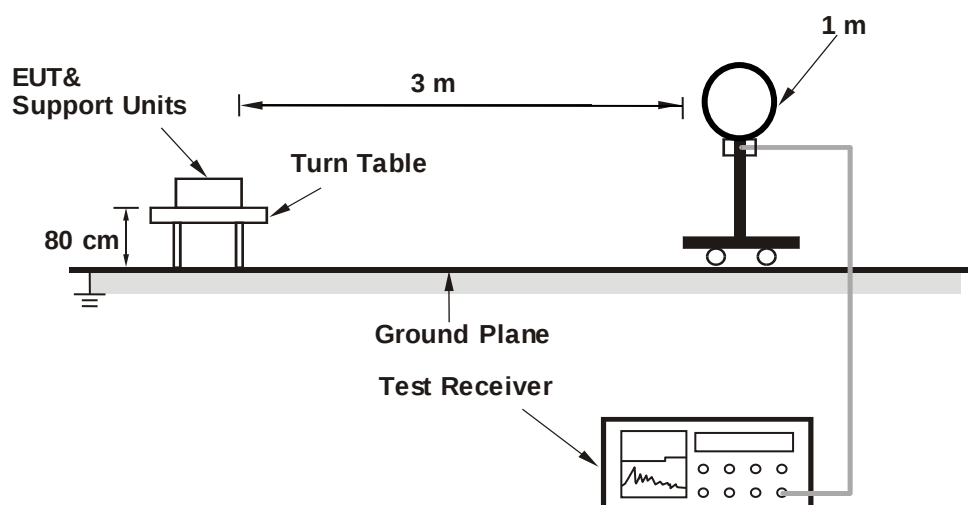
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
(11a: RBW = 1 MHz, VBW = 1 kHz ; 11ac (VHT20): RBW = 1 MHz, VBW = 1 kHz ;
11ac (VHT40): RBW = 1 MHz, VBW = 3 kHz ; 11ac (VHT80): RBW = 1 MHz, VBW = 3 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

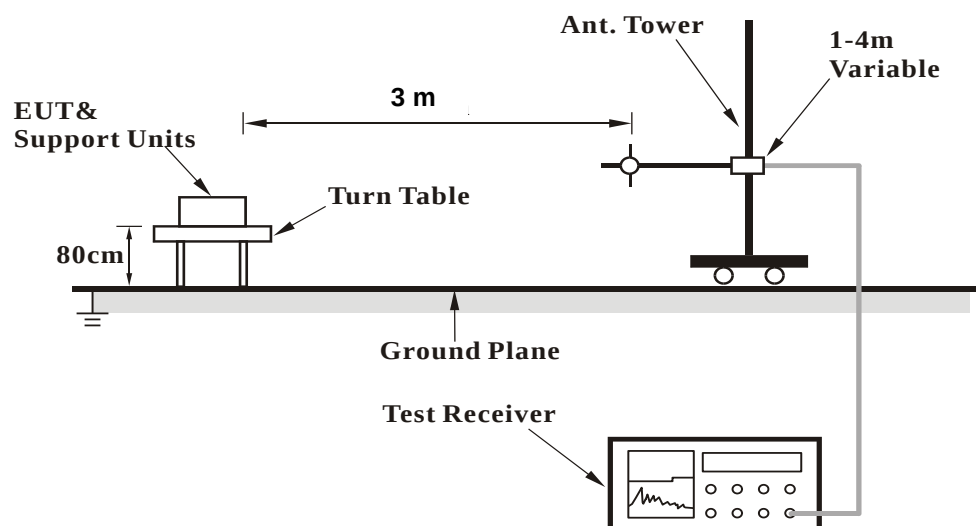
No deviation.

4.1.5 Test Setup

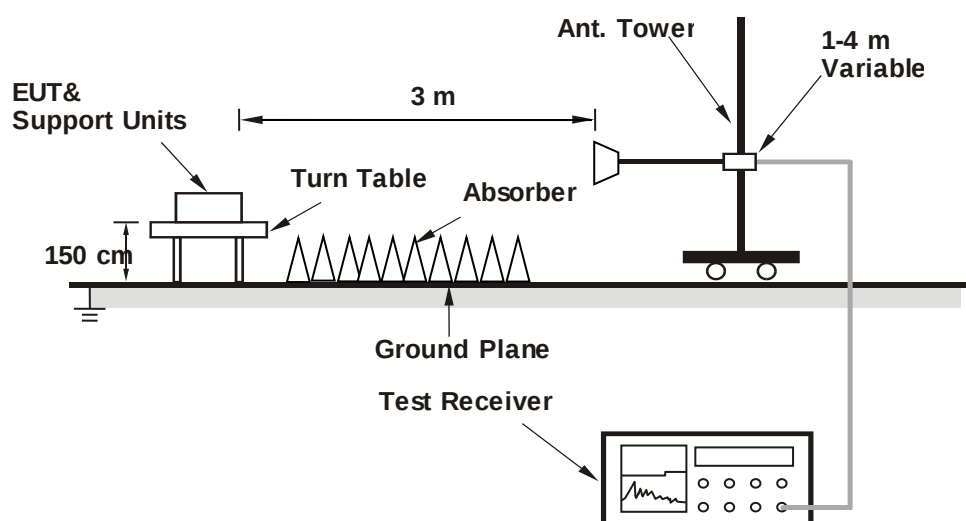
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.6 EUT Operating Conditions

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1 GHz 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	56.9 PK	74.0	-17.1	1.45 H	140	54.1	2.8
2	5150.00	46.1 AV	54.0	-7.9	1.45 H	140	43.3	2.8
3	*5180.00	105.4 PK			1.45 H	140	64.5	40.9
4	*5180.00	96.2 AV			1.45 H	140	55.3	40.9
5	#10360.00	51.1 PK	68.2	-17.1	1.63 H	300	43.0	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	65.2 PK	74.0	-8.8	1.67 V	226	62.4	2.8
2	5150.00	52.8 AV	54.0	-1.2	1.67 V	226	50.0	2.8
3	*5180.00	114.5 PK			1.67 V	226	73.6	40.9
4	*5180.00	105.1 AV			1.67 V	226	64.2	40.9
5	#10360.00	53.8 PK	74.0	-20.2	1.65 V	23	45.7	8.1
6	#10360.00	42.8 AV	54.0	-11.2	1.65 V	23	34.7	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 802.11a	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	108.1 PK			1.65 H	147	67.2	40.9
2	*5200.00	98.5 AV			1.65 H	147	57.6	40.9
3	#10400.00	51.0 PK	68.2	-17.2	1.36 H	205	42.9	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	*5200.00	118.1 PK			1.66 V	226	77.2	40.9
2	*5200.00	108.2 AV			1.66 V	226	67.3	40.9
3	#10400.00	52.8 PK	68.2	-15.4	1.65 V	326	44.7	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 802.11a	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	108.8 PK			1.45 H	144	67.9	40.9
2	*5240.00	100.1 AV			1.45 H	144	59.2	40.9
3	5350.00	56.3 PK	74.0	-17.7	1.45 H	144	53.5	2.8
4	5350.00	44.8 AV	54.0	-9.2	1.45 H	144	42.0	2.8
5	#10480.00	49.0 PK	68.2	-19.2	2.15 H	236	41.1	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	118.3 PK			1.89 V	227	77.4	40.9
2	*5240.00	108.9 AV			1.89 V	227	68.0	40.9
3	5350.00	55.8 PK	74.0	-18.2	1.89 V	227	53.0	2.8
4	5350.00	45.1 AV	54.0	-8.9	1.89 V	227	42.3	2.8
5	#10480.00	51.5 PK	68.2	-16.7	1.33 V	205	43.6	7.9

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	57.3 PK	74.0	-16.7	1.00 H	17	54.5	2.8
2	5150.00	44.8 AV	54.0	-9.2	1.00 H	17	42.0	2.8
3	*5260.00	110.3 PK			1.00 H	17	69.4	40.9
4	*5260.00	100.6 AV			1.00 H	17	59.7	40.9
5	#10520.00	49.0 PK	68.2	-19.2	1.00 H	252	41.0	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	5150.00	57.5 PK	74.0	-16.5	2.04 V	226	54.7	2.8
2	5150.00	45.2 AV	54.0	-8.8	2.04 V	226	42.4	2.8
3	*5260.00	118.8 PK			2.04 V	226	77.9	40.9
4	*5260.00	108.5 AV			2.04 V	226	67.6	40.9
5	#10520.00	50.2 PK	68.2	-18.0	1.51 V	303	42.2	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 802.11a	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	110.2 PK			1.66 H	26	69.3	40.9
2	*5300.00	100.1 AV			1.66 H	26	59.2	40.9
3	10600.00	49.1 PK	74.0	-24.9	1.55 H	266	40.9	8.2
4	10600.00	38.4 AV	54.0	-15.6	1.55 H	266	30.2	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	*5300.00	117.3 PK			1.98 V	226	76.4	40.9
2	*5300.00	108.1 AV			1.98 V	226	67.2	40.9
3	10600.00	50.4 PK	74.0	-23.6	2.15 V	303	42.2	8.2
4	10600.00	39.5 AV	54.0	-14.5	2.15 V	303	31.3	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 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	107.6 PK			1.62 H	19	66.7	40.9
2	*5320.00	98.7 AV			1.62 H	19	57.8	40.9
3	5350.00	58.1 PK	74.0	-15.9	1.62 H	19	55.3	2.8
4	5350.00	47.8 AV	54.0	-6.2	1.62 H	19	45.0	2.8
5	10640.00	49.4 PK	74.0	-24.6	2.52 H	122	41.2	8.2
6	10640.00	38.9 AV	54.0	-15.1	2.52 H	122	30.7	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	*5320.00	114.2 PK			2.02 V	227	73.3	40.9
2	*5320.00	104.8 AV			2.02 V	227	63.9	40.9
3	5350.00	61.4 PK	74.0	-12.6	2.02 V	227	58.6	2.8
4	5350.00	52.4 AV	54.0	-1.6	2.02 V	227	49.6	2.8
5	10640.00	50.4 PK	74.0	-23.6	2.10 V	25	42.2	8.2
6	10640.00	40.0 AV	54.0	-14.0	2.10 V	25	31.8	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.

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	56.9 PK	74.0	-17.1	1.60 H	17	53.8	3.1
2	5460.00	45.4 AV	54.0	-8.6	1.60 H	17	42.3	3.1
3	#5470.00	57.6 PK	68.2	-10.6	1.60 H	17	54.5	3.1
4	*5500.00	105.3 PK			1.60 H	17	63.9	41.4
5	*5500.00	95.9 AV			1.60 H	17	54.5	41.4
6	11000.00	49.8 PK	74.0	-24.2	3.16 H	13	41.3	8.5
7	11000.00	40.1 AV	54.0	-13.9	3.16 H	13	31.6	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	64.7 PK	74.0	-9.3	1.95 V	172	61.6	3.1
2	5460.00	48.6 AV	54.0	-5.4	1.95 V	172	45.5	3.1
3	#5470.00	67.2 PK	68.2	-1.0	1.95 V	172	64.1	3.1
4	*5500.00	118.0 PK			1.95 V	172	76.6	41.4
5	*5500.00	108.7 AV			1.95 V	172	67.3	41.4
6	11000.00	51.1 PK	74.0	-22.9	2.59 V	306	42.6	8.5
7	11000.00	40.6 AV	54.0	-13.4	2.59 V	306	32.1	8.5

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	109.7 PK			1.50 H	20	68.1	41.6
2	*5580.00	99.9 AV			1.50 H	20	58.3	41.6
3	11160.00	50.4 PK	74.0	-23.6	3.06 H	131	41.9	8.5
4	11160.00	39.7 AV	54.0	-14.3	3.06 H	131	31.2	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	121.7 PK			1.87 V	172	80.1	41.6
2	*5580.00	111.6 AV			1.87 V	172	70.0	41.6
3	11160.00	50.8 PK	74.0	-23.2	2.05 V	111	42.3	8.5
4	11160.00	40.2 AV	54.0	-13.8	2.05 V	111	31.7	8.5

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	106.2 PK			1.60 H	15	64.0	42.2
2	*5700.00	96.5 AV			1.60 H	15	54.3	42.2
3	#5725.00	58.8 PK	68.2	-9.4	1.50 H	26	54.7	4.1
4	11400.00	49.6 PK	74.0	-24.4	3.16 H	113	41.0	8.6
5	11400.00	39.7 AV	54.0	-14.3	3.16 H	113	31.1	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	*5700.00	117.8 PK			2.66 V	173	75.6	42.2
2	*5700.00	109.2 AV			2.66 V	173	67.0	42.2
3	#5725.00	66.8 PK	68.2	-1.4	2.66 V	173	62.7	4.1
4	11400.00	50.2 PK	74.0	-23.8	1.36 V	105	41.6	8.6
5	11400.00	40.0 AV	54.0	-14.0	1.36 V	105	31.4	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 144 : 5720 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	*5720.00	109.7 PK			1.33 H	351	67.5	42.2
2	*5720.00	100.1 AV			1.33 H	351	57.9	42.2
3	#5850.00	58.4 PK	68.2	-9.8	1.33 H	351	53.9	4.5
4	11440.00	54.6 PK	74.0	-19.4	2.00 H	313	45.9	8.7
5	11440.00	44.6 AV	54.0	-9.4	2.00 H	313	35.9	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	*5720.00	121.0 PK			2.15 V	151	78.8	42.2
2	*5720.00	111.9 AV			2.15 V	151	69.7	42.2
3	#5850.00	58.5 PK	68.2	-9.7	2.15 V	151	54.0	4.5
4	11440.00	55.2 PK	74.0	-18.8	1.05 V	326	46.5	8.7
5	11440.00	45.4 AV	54.0	-8.6	1.05 V	326	36.7	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 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	*5745.00	110.7 PK			1.10 H	351	68.2	42.5
2	*5745.00	100.5 AV			1.10 H	351	58.0	42.5
3	11490.00	55.0 PK	74.0	-19.0	1.36 H	329	46.2	8.8
4	11490.00	43.8 AV	54.0	-10.2	1.36 H	329	35.0	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	*5745.00	121.0 PK			2.11 V	149	78.5	42.5
2	*5745.00	111.1 AV			2.11 V	149	68.6	42.5
3	11490.00	55.3 PK	74.0	-18.7	1.65 V	326	46.5	8.8
4	11490.00	44.4 AV	54.0	-9.6	1.65 V	326	35.6	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.

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	*5785.00	109.5 PK			1.20 H	359	66.9	42.6
2	*5785.00	99.3 AV			1.20 H	359	56.7	42.6
3	11570.00	55.0 PK	74.0	-19.0	3.13 H	332	46.2	8.8
4	11570.00	44.8 AV	54.0	-9.2	3.13 H	332	36.0	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	*5785.00	120.4 PK			2.39 V	150	77.8	42.6
2	*5785.00	111.1 AV			2.39 V	150	68.5	42.6
3	11570.00	55.3 PK	74.0	-18.7	1.36 V	332	46.5	8.8
4	11570.00	45.1 AV	54.0	-8.9	1.36 V	332	36.3	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.

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	*5825.00	109.9 PK			1.21 H	355	67.2	42.7
2	*5825.00	100.0 AV			1.21 H	355	57.3	42.7
3	11650.00	54.5 PK	74.0	-19.5	3.13 H	205	45.8	8.7
4	11650.00	44.8 AV	54.0	-9.2	3.13 H	205	36.1	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	*5825.00	120.2 PK			2.30 V	150	77.5	42.7
2	*5825.00	110.5 AV			2.30 V	150	67.8	42.7
3	11650.00	55.3 PK	74.0	-18.7	3.02 V	169	46.6	8.7
4	11650.00	45.0 AV	54.0	-9.0	3.02 V	169	36.3	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.

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	57.7 PK	74.0	-16.3	1.50 H	155	54.9	2.8
2	5150.00	46.8 AV	54.0	-7.2	1.50 H	155	44.0	2.8
3	*5180.00	104.5 PK			1.50 H	155	63.6	40.9
4	*5180.00	95.0 AV			1.50 H	155	54.1	40.9
5	#10360.00	49.5 PK	68.2	-18.7	2.05 H	269	41.4	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	65.8 PK	74.0	-8.2	2.00 V	223	63.0	2.8
2	5150.00	52.8 AV	54.0	-1.2	2.00 V	223	50.0	2.8
3	*5180.00	115.1 PK			2.00 V	223	74.2	40.9
4	*5180.00	105.1 AV			2.00 V	223	64.2	40.9
5	#10360.00	50.6 PK	68.2	-17.6	1.36 V	266	42.5	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 (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	110.1 PK			1.50 H	153	69.2	40.9
2	*5200.00	100.0 AV			1.50 H	153	59.1	40.9
3	#10400.00	50.4 PK	68.2	-17.8	1.00 H	213	42.3	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	118.1 PK			1.59 V	220	77.2	40.9
2	*5200.00	108.0 AV			1.59 V	220	67.1	40.9
3	#10400.00	50.2 PK	68.2	-18.0	1.30 V	205	42.1	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	109.1 PK			1.48 H	147	68.2	40.9
2	*5240.00	100.4 AV			1.48 H	147	59.5	40.9
3	5350.00	57.4 PK	74.0	-16.6	1.48 H	147	54.6	2.8
4	5350.00	45.7 AV	54.0	-8.3	1.48 H	147	42.9	2.8
5	#10480.00	48.2 PK	68.2	-20.0	1.05 H	313	40.3	7.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	117.4 PK			1.94 V	224	76.5	40.9
2	*5240.00	108.6 AV			1.94 V	224	67.7	40.9
3	5350.00	57.1 PK	74.0	-16.9	1.94 V	224	54.3	2.8
4	5350.00	45.7 AV	54.0	-8.3	1.94 V	224	42.9	2.8
5	#10480.00	49.6 PK	68.2	-18.6	3.16 V	266	41.7	7.9

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 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	57.0 PK	74.0	-17.0	1.58 H	18	54.2	2.8
2	5150.00	44.9 AV	54.0	-9.1	1.58 H	18	42.1	2.8
3	*5260.00	112.0 PK			1.58 H	18	71.1	40.9
4	*5260.00	102.8 AV			1.58 H	18	61.9	40.9
5	#10520.00	49.9 PK	68.2	-18.3	2.69 H	142	41.9	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	5150.00	57.6 PK	74.0	-16.4	1.99 V	225	54.8	2.8
2	5150.00	45.4 AV	54.0	-8.6	1.99 V	225	42.6	2.8
3	*5260.00	120.3 PK			1.99 V	225	79.4	40.9
4	*5260.00	110.7 AV			1.99 V	225	69.8	40.9
5	#10520.00	50.5 PK	68.2	-17.7	1.53 V	300	42.5	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 (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	110.7 PK			1.59 H	18	69.8	40.9
2	*5300.00	101.1 AV			1.59 H	18	60.2	40.9
3	10600.00	49.9 PK	74.0	-24.1	2.49 H	117	41.7	8.2
4	10600.00	39.2 AV	54.0	-14.8	2.49 H	117	31.0	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	*5300.00	118.2 PK			2.12 V	225	77.3	40.9
2	*5300.00	108.0 AV			2.12 V	225	67.1	40.9
3	10600.00	50.6 PK	74.0	-23.4	2.26 V	305	42.4	8.2
4	10600.00	39.4 AV	54.0	-14.6	2.26 V	305	31.2	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.

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	107.2 PK			1.60 H	19	66.3	40.9
2	*5320.00	97.9 AV			1.60 H	19	57.0	40.9
3	5350.00	58.8 PK	74.0	-15.2	1.60 H	19	56.0	2.8
4	5350.00	48.7 AV	54.0	-5.3	1.60 H	19	45.9	2.8
5	10640.00	49.7 PK	74.0	-24.3	2.55 H	136	41.5	8.2
6	10640.00	39.4 AV	54.0	-14.6	2.55 H	136	31.2	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	*5320.00	114.8 PK			1.94 V	226	73.9	40.9
2	*5320.00	104.8 AV			1.94 V	226	63.9	40.9
3	5350.00	64.9 PK	74.0	-9.1	1.94 V	226	62.1	2.8
4	5350.00	53.3 AV	54.0	-0.7	1.94 V	226	50.5	2.8
5	10640.00	50.5 PK	74.0	-23.5	2.10 V	298	42.3	8.2
6	10640.00	39.8 AV	54.0	-14.2	2.10 V	298	31.6	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 (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	55.9 PK	74.0	-18.1	1.60 H	19	52.8	3.1
2	5460.00	45.5 AV	54.0	-8.5	1.60 H	19	42.4	3.1
3	#5470.00	57.1 PK	68.2	-11.1	1.60 H	19	54.0	3.1
4	*5500.00	104.9 PK			1.60 H	19	63.5	41.4
5	*5500.00	95.7 AV			1.60 H	19	54.3	41.4
6	11000.00	50.1 PK	74.0	-23.9	1.36 H	333	41.6	8.5
7	11000.00	39.7 AV	54.0	-14.3	1.36 H	333	31.2	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	59.2 PK	74.0	-14.8	2.59 V	164	56.1	3.1
2	5460.00	48.9 AV	54.0	-5.1	2.59 V	164	45.8	3.1
3	#5470.00	67.2 PK	68.2	-1.0	2.59 V	164	64.1	3.1
4	*5500.00	119.6 PK			2.59 V	164	78.2	41.4
5	*5500.00	110.8 AV			2.59 V	164	69.4	41.4
6	11000.00	51.1 PK	74.0	-22.9	1.33 V	321	42.6	8.5
7	11000.00	40.8 AV	54.0	-13.2	1.33 V	321	32.3	8.5

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 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	109.6 PK			1.31 H	17	68.0	41.6
2	*5580.00	100.8 AV			1.31 H	17	59.2	41.6
3	11160.00	49.5 PK	74.0	-24.5	1.31 H	313	41.0	8.5
4	11160.00	39.4 AV	54.0	-14.6	1.31 H	313	30.9	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	121.6 PK			2.83 V	165	80.0	41.6
2	*5580.00	112.7 AV			2.83 V	165	71.1	41.6
3	11160.00	49.9 PK	74.0	-24.1	2.31 V	188	41.4	8.5
4	11160.00	39.5 AV	54.0	-14.5	2.31 V	188	31.0	8.5

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 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	106.2 PK			1.60 H	17	64.0	42.2
2	*5700.00	97.1 AV			1.60 H	17	54.9	42.2
3	#5725.00	59.5 PK	68.2	-8.7	1.60 H	17	55.4	4.1
4	11400.00	50.3 PK	74.0	-23.7	2.16 H	323	41.7	8.6
5	11400.00	40.3 AV	54.0	-13.7	2.16 H	323	31.7	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	*5700.00	118.6 PK			2.57 V	171	76.4	42.2
2	*5700.00	109.1 AV			2.57 V	171	66.9	42.2
3	#5725.00	67.1 PK	68.2	-1.1	2.57 V	171	63.0	4.1
4	11400.00	50.7 PK	74.0	-23.3	1.33 V	329	42.1	8.6
5	11400.00	41.2 AV	54.0	-12.8	1.33 V	329	32.6	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 802.11ac (VHT20)	Channel	CH 144 : 5720 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	*5720.00	111.2 PK			1.30 H	350	69.0	42.2
2	*5720.00	101.1 AV			1.30 H	350	58.9	42.2
3	#5850.00	58.6 PK	68.2	-9.6	1.30 H	350	54.1	4.5
4	11440.00	54.7 PK	74.0	-19.3	1.30 H	33	46.0	8.7
5	11440.00	44.6 AV	54.0	-9.4	1.30 H	33	35.9	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	*5720.00	121.3 PK			2.05 V	151	79.1	42.2
2	*5720.00	112.0 AV			2.05 V	151	69.8	42.2
3	#5850.00	59.1 PK	68.2	-9.1	2.00 V	150	54.6	4.5
4	11440.00	54.9 PK	74.0	-19.1	1.63 V	300	46.2	8.7
5	11440.00	44.9 AV	54.0	-9.1	1.63 V	300	36.2	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 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	*5745.00	111.9 PK			1.25 H	355	69.4	42.5
2	*5745.00	102.1 AV			1.25 H	355	59.6	42.5
3	11490.00	54.9 PK	74.0	-19.1	1.00 H	33	46.1	8.8
4	11490.00	44.7 AV	54.0	-9.3	1.00 H	33	35.9	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	*5745.00	121.8 PK			2.61 V	152	79.3	42.5
2	*5745.00	112.5 AV			2.61 V	152	70.0	42.5
3	11490.00	55.1 PK	74.0	-18.9	1.63 V	329	46.3	8.8
4	11490.00	45.1 AV	54.0	-8.9	1.63 V	329	36.3	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.

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	*5785.00	110.1 PK			1.20 H	358	67.5	42.6
2	*5785.00	101.1 AV			1.20 H	358	58.5	42.6
3	11570.00	54.7 PK	74.0	-19.3	1.33 H	263	45.9	8.8
4	11570.00	44.1 AV	54.0	-9.9	1.33 H	263	35.3	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	*5785.00	119.8 PK			2.68 V	153	77.2	42.6
2	*5785.00	110.9 AV			2.68 V	153	68.3	42.6
3	11570.00	55.0 PK	74.0	-19.0	1.35 V	326	46.2	8.8
4	11570.00	44.8 AV	54.0	-9.2	1.35 V	326	36.0	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.

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	*5825.00	109.8 PK			1.18 H	356	67.1	42.7
2	*5825.00	99.9 AV			1.18 H	356	57.2	42.7
3	11650.00	54.8 PK	74.0	-19.2	2.00 H	212	46.1	8.7
4	11650.00	44.6 AV	54.0	-9.4	2.00 H	212	35.9	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	*5825.00	120.0 PK			2.32 V	151	77.3	42.7
2	*5825.00	110.4 AV			2.32 V	151	67.7	42.7
3	11650.00	54.9 PK	74.0	-19.1	3.13 V	288	46.2	8.7
4	11650.00	44.7 AV	54.0	-9.3	3.13 V	288	36.0	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.

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	58.3 PK	74.0	-15.7	1.62 H	19	55.5	2.8
2	5150.00	47.2 AV	54.0	-6.8	1.62 H	19	44.4	2.8
3	*5190.00	100.7 PK			1.62 H	19	59.8	40.9
4	*5190.00	91.2 AV			1.62 H	19	50.3	40.9
5	#10380.00	49.5 PK	68.2	-18.7	1.96 H	200	41.4	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	62.6 PK	74.0	-11.4	2.05 V	225	59.8	2.8
2	5150.00	53.0 AV	54.0	-1.0	2.05 V	225	50.2	2.8
3	*5190.00	108.6 PK			2.25 V	205	67.7	40.9
4	*5190.00	100.0 AV			2.25 V	205	59.1	40.9
5	#10380.00	50.7 PK	68.2	-17.5	1.05 V	152	42.6	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 (VHT40)	Channel	CH 46 : 5230 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	57.9 PK	74.0	-16.1	1.66 H	26	55.1	2.8
2	5150.00	47.0 AV	54.0	-7.0	1.66 H	26	44.2	2.8
3	*5230.00	107.1 PK			1.66 H	26	66.2	40.9
4	*5230.00	97.5 AV			1.66 H	26	56.6	40.9
5	#10460.00	49.2 PK	68.2	-19.0	1.33 H	305	41.2	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	5150.00	63.8 PK	74.0	-10.2	1.95 V	224	61.0	2.8
2	5150.00	52.8 AV	54.0	-1.2	1.95 V	224	50.0	2.8
3	*5230.00	115.2 PK			1.95 V	224	74.3	40.9
4	*5230.00	105.5 AV			1.95 V	224	64.6	40.9
5	#10460.00	49.6 PK	68.2	-18.6	1.59 V	100	41.6	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	107.0 PK			1.58 H	18	66.1	40.9
2	*5270.00	98.1 AV			1.58 H	18	57.2	40.9
3	5350.00	60.1 PK	74.0	-13.9	1.58 H	18	57.3	2.8
4	5350.00	49.3 AV	54.0	-4.7	1.58 H	18	46.5	2.8
5	#10540.00	49.6 PK	68.2	-18.6	2.61 H	136	41.6	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	*5270.00	115.8 PK			1.96 V	225	74.9	40.9
2	*5270.00	105.7 AV			1.96 V	225	64.8	40.9
3	5350.00	64.9 PK	74.0	-9.1	1.96 V	225	62.1	2.8
4	5350.00	53.1 AV	54.0	-0.9	1.96 V	225	50.3	2.8
5	#10540.00	50.1 PK	68.2	-18.1	2.11 V	316	42.1	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 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	100.2 PK			1.55 H	20	59.4	40.8
2	*5310.00	91.9 AV			1.55 H	20	51.1	40.8
3	5350.00	58.1 PK	74.0	-15.9	1.55 H	20	55.3	2.8
4	5350.00	47.8 AV	54.0	-6.2	1.55 H	20	45.0	2.8
5	10620.00	49.7 PK	74.0	-24.3	2.41 H	116	41.5	8.2
6	10620.00	39.6 AV	54.0	-14.4	2.41 H	116	31.4	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	*5310.00	108.0 PK			2.26 V	226	67.2	40.8
2	*5310.00	100.0 AV			2.26 V	226	59.2	40.8
3	5350.00	64.2 PK	74.0	-9.8	2.26 V	226	61.4	2.8
4	5350.00	53.1 AV	54.0	-0.9	2.26 V	226	50.3	2.8
5	10620.00	50.0 PK	74.0	-24.0	2.01 V	297	41.8	8.2
6	10620.00	39.8 AV	54.0	-14.2	2.01 V	297	31.6	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 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	56.9 PK	74.0	-17.1	1.39 H	17	53.8	3.1
2	5460.00	45.3 AV	54.0	-8.7	1.39 H	17	42.2	3.1
3	#5470.00	59.0 PK	68.2	-9.2	1.39 H	17	55.9	3.1
4	*5510.00	99.8 PK			1.39 H	17	58.4	41.4
5	*5510.00	91.2 AV			1.39 H	17	49.8	41.4
6	11020.00	50.3 PK	74.0	-23.7	2.56 H	139	41.9	8.4
7	11020.00	39.7 AV	54.0	-14.3	2.56 H	139	31.3	8.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	60.6 PK	74.0	-13.4	2.62 V	166	57.5	3.1
2	5460.00	51.0 AV	54.0	-3.0	2.62 V	166	47.9	3.1
3	#5470.00	67.1 PK	68.2	-1.1	2.62 V	166	64.0	3.1
4	*5510.00	111.4 PK			2.62 V	166	70.0	41.4
5	*5510.00	103.9 AV			2.62 V	166	62.5	41.4
6	11020.00	51.1 PK	74.0	-22.9	2.13 V	322	42.7	8.4
7	11020.00	40.8 AV	54.0	-13.2	2.13 V	322	32.4	8.4

Remarks:

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

RF Mode	TX 802.11ac (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	5460.00	58.0 PK	74.0	-16.0	1.30 H	15	54.9	3.1
2	5460.00	45.4 AV	54.0	-8.6	1.30 H	15	42.3	3.1
3	#5470.00	57.2 PK	68.2	-11.0	1.30 H	15	54.1	3.1
4	*5550.00	105.8 PK			1.30 H	15	64.2	41.6
5	*5550.00	96.9 AV			1.30 H	15	55.3	41.6
6	11100.00	50.6 PK	74.0	-23.4	3.03 H	133	42.1	8.5
7	11100.00	40.1 AV	54.0	-13.9	3.03 H	133	31.6	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	61.7 PK	74.0	-12.3	2.60 V	164	58.6	3.1
2	5460.00	50.8 AV	54.0	-3.2	2.60 V	164	47.7	3.1
3	#5470.00	66.8 PK	68.2	-1.4	2.62 V	166	63.7	3.1
4	*5550.00	116.9 PK			2.62 V	166	75.3	41.6
5	*5550.00	108.3 AV			2.62 V	166	66.7	41.6
6	11100.00	50.5 PK	74.0	-23.5	2.00 V	269	42.0	8.5
7	11100.00	41.3 AV	54.0	-12.7	2.00 V	269	32.8	8.5

Remarks:

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

RF Mode	TX 802.11ac (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	103.1 PK			1.50 H	15	61.1	42.0
2	*5670.00	94.5 AV			1.50 H	15	52.5	42.0
3	#5725.00	58.1 PK	68.2	-10.1	1.50 H	15	54.0	4.1
4	11340.00	50.3 PK	74.0	-23.7	1.69 H	212	41.7	8.6
5	11340.00	39.9 AV	54.0	-14.1	1.69 H	212	31.3	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	116.3 PK			2.50 V	172	74.3	42.0
2	*5670.00	107.5 AV			2.50 V	172	65.5	42.0
3	#5725.00	67.1 PK	68.2	-1.1	2.50 V	172	63.0	4.1
4	11340.00	50.5 PK	74.0	-23.5	3.16 V	333	41.9	8.6
5	11340.00	40.8 AV	54.0	-13.2	3.16 V	333	32.2	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 (VHT40)	Channel	CH 142 : 5710 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	*5710.00	108.4 PK			1.30 H	351	66.2	42.2
2	*5710.00	98.9 AV			1.30 H	351	56.7	42.2
3	#5850.00	59.5 PK	68.2	-8.7	1.30 H	351	55.0	4.5
4	11420.00	54.7 PK	74.0	-19.3	3.13 H	22	46.0	8.7
5	11420.00	44.8 AV	54.0	-9.2	3.13 H	22	36.1	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	*5710.00	118.6 PK			2.13 V	159	76.4	42.2
2	*5710.00	109.1 AV			2.13 V	159	66.9	42.2
3	#5850.00	59.7 PK	68.2	-8.5	2.13 V	159	55.2	4.5
4	11420.00	55.0 PK	74.0	-19.0	1.33 V	321	46.3	8.7
5	11420.00	45.6 AV	54.0	-8.4	1.33 V	321	36.9	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 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	*5755.00	109.4 PK			1.20 H	350	66.9	42.5
2	*5755.00	99.1 AV			1.20 H	350	56.6	42.5
3	11510.00	54.3 PK	74.0	-19.7	2.13 H	326	45.5	8.8
4	11510.00	43.9 AV	54.0	-10.1	2.13 H	326	35.1	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	*5755.00	119.4 PK			2.31 V	151	76.9	42.5
2	*5755.00	109.1 AV			2.31 V	151	66.6	42.5
3	11510.00	55.6 PK	74.0	-18.4	1.31 V	302	46.8	8.8
4	11510.00	45.1 AV	54.0	-8.9	1.31 V	302	36.3	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.

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	*5795.00	107.9 PK			1.50 H	355	65.2	42.7
2	*5795.00	98.0 AV			1.50 H	355	55.3	42.7
3	11590.00	54.7 PK	74.0	-19.3	1.33 H	25	45.9	8.8
4	11590.00	44.4 AV	54.0	-9.6	1.33 H	25	35.6	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	*5795.00	118.0 PK			2.52 V	151	75.3	42.7
2	*5795.00	107.8 AV			2.52 V	151	65.1	42.7
3	11590.00	55.1 PK	74.0	-18.9	1.03 V	22	46.3	8.8
4	11590.00	45.1 AV	54.0	-8.9	1.03 V	22	36.3	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.

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	59.6 PK	74.0	-14.4	1.66 H	19	56.8	2.8
2	5150.00	46.6 AV	54.0	-7.4	1.66 H	19	43.8	2.8
3	*5210.00	97.0 PK			1.66 H	19	56.1	40.9
4	*5210.00	86.7 AV			1.66 H	19	45.8	40.9
5	#10420.00	50.4 PK	68.2	-17.8	1.69 H	333	42.3	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	62.5 PK	74.0	-11.5	1.90 V	225	59.7	2.8
2	5150.00	53.1 AV	54.0	-0.9	1.90 V	225	50.3	2.8
3	*5210.00	104.9 PK			1.90 V	225	64.0	40.9
4	*5210.00	94.4 AV			1.90 V	225	53.5	40.9
5	#10420.00	49.3 PK	68.2	-18.9	2.52 V	102	41.2	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	*5290.00	97.1 PK			1.56 H	19	56.2	40.9
2	*5290.00	88.9 AV			1.56 H	19	48.0	40.9
3	5350.00	60.8 PK	74.0	-13.2	1.56 H	19	58.0	2.8
4	5350.00	49.3 AV	54.0	-4.7	1.56 H	19	46.5	2.8
5	#10580.00	49.2 PK	68.2	-19.0	2.58 H	123	41.1	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	*5290.00	105.1 PK			2.18 V	224	64.2	40.9
2	*5290.00	96.1 AV			2.18 V	224	55.2	40.9
3	5350.00	63.3 PK	74.0	-10.7	2.18 V	224	60.5	2.8
4	5350.00	53.2 AV	54.0	-0.8	2.18 V	224	50.4	2.8
5	#10580.00	49.3 PK	68.2	-18.9	1.98 V	286	41.2	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	57.2 PK	74.0	-16.8	1.39 H	17	54.1	3.1
2	5460.00	46.0 AV	54.0	-8.0	1.39 H	17	42.9	3.1
3	#5470.00	58.3 PK	68.2	-9.9	1.39 H	17	55.2	3.1
4	*5530.00	95.1 PK			1.39 H	17	53.6	41.5
5	*5530.00	86.9 AV			1.39 H	17	45.4	41.5
6	11060.00	49.6 PK	74.0	-24.4	3.13 H	333	41.2	8.4
7	11060.00	39.6 AV	54.0	-14.4	3.13 H	333	31.2	8.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	62.4 PK	74.0	-11.6	2.56 V	164	59.3	3.1
2	5460.00	53.1 AV	54.0	-0.9	2.56 V	164	50.0	3.1
3	#5470.00	64.3 PK	68.2	-3.9	2.56 V	164	61.2	3.1
4	*5530.00	107.0 PK			2.56 V	164	65.5	41.5
5	*5530.00	99.3 AV			2.56 V	164	57.8	41.5
6	11060.00	50.4 PK	74.0	-23.6	1.36 V	258	42.0	8.4
7	11060.00	40.3 AV	54.0	-13.7	1.36 V	258	31.9	8.4

Remarks:

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

RF Mode	TX 802.11ac (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	*5610.00	103.8 PK			1.38 H	357	62.1	41.7
2	*5610.00	96.2 AV			1.38 H	357	54.5	41.7
3	#5725.00	60.8 PK	68.2	-7.4	1.38 H	357	56.7	4.1
4	11220.00	50.1 PK	74.0	-23.9	3.13 H	200	41.6	8.5
5	11220.00	40.0 AV	54.0	-14.0	3.13 H	200	31.5	8.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5610.00	115.7 PK			2.52 V	175	74.0	41.7
2	*5610.00	104.8 AV			2.52 V	175	63.1	41.7
3	#5725.00	66.8 PK	68.2	-1.4	2.52 V	175	62.7	4.1
4	11220.00	51.3 PK	74.0	-22.7	1.33 V	315	42.8	8.5
5	11220.00	41.4 AV	54.0	-12.6	1.33 V	315	32.9	8.5

Remarks:

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

RF Mode	TX 802.11ac (VHT80)	Channel	CH 138 : 5690 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	*5690.00	105.4 PK			1.37 H	355	63.3	42.1
2	*5690.00	97.0 AV			1.37 H	355	54.9	42.1
3	#5850.00	60.2 PK	68.2	-8.0	1.37 H	355	55.7	4.5
4	11380.00	54.6 PK	74.0	-19.4	1.05 H	105	45.9	8.7
5	11380.00	44.7 AV	54.0	-9.3	1.05 H	105	36.0	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	*5690.00	115.0 PK			2.13 V	159	72.9	42.1
2	*5690.00	107.2 AV			2.13 V	159	65.1	42.1
3	#5850.00	67.0 PK	68.2	-1.2	2.13 V	159	62.5	4.5
4	11380.00	54.7 PK	74.0	-19.3	2.00 V	213	46.0	8.7
5	11380.00	44.8 AV	54.0	-9.2	2.00 V	213	36.1	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.

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	*5775.00	103.9 PK			1.18 H	356	61.3	42.6
2	*5775.00	94.4 AV			1.18 H	356	51.8	42.6
3	11550.00	55.4 PK	74.0	-18.6	1.35 H	326	46.6	8.8
4	11550.00	45.5 AV	54.0	-8.5	1.35 H	326	36.7	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	*5775.00	113.5 PK			2.56 V	163	70.9	42.6
2	*5775.00	104.6 AV			2.56 V	163	62.0	42.6
3	11550.00	54.8 PK	74.0	-19.2	1.33 V	269	46.0	8.8
4	11550.00	45.1 AV	54.0	-8.9	1.33 V	269	36.3	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.

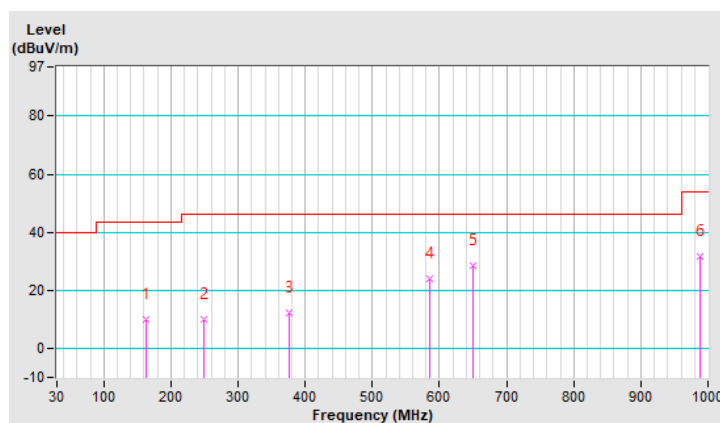
9 kHz ~ 1 GHz Worst-Case Data:

RF Mode	TX 802.11ac (VHT20)	Channel	CH 64 : 5320 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	163.86	10.1 QP	43.5	-33.4	1.01 H	290	28.4	-18.3
2	249.22	9.9 QP	46.0	-36.1	1.01 H	55	29.7	-19.8
3	375.32	12.2 QP	46.0	-33.8	1.01 H	125	28.3	-16.1
4	584.84	23.8 QP	46.0	-22.2	1.01 H	1	35.4	-11.6
5	649.83	28.4 QP	46.0	-17.6	1.01 H	214	38.8	-10.4
6	987.39	31.9 QP	54.0	-22.1	1.01 H	241	37.5	-5.6

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 of frequency range 30MHz~1000MHz.
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.

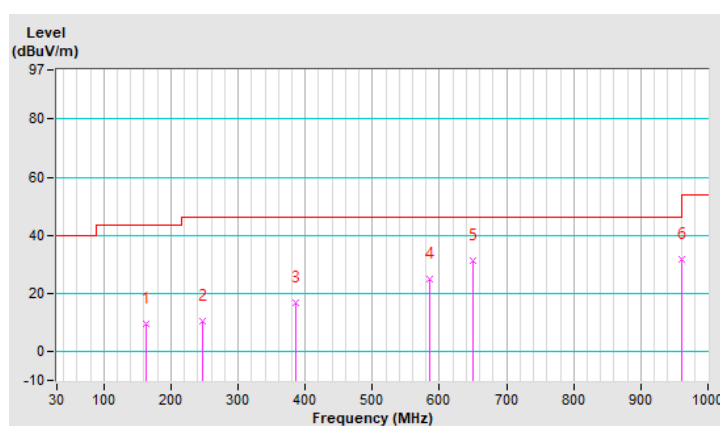


RF Mode	TX 802.11ac (VHT20)	Channel	CH 64 : 5320 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	162.89	9.7 QP	43.5	-33.8	1.50 V	280	28.1	-18.4
2	246.31	10.3 QP	46.0	-35.7	1.01 V	247	30.2	-19.9
3	385.99	16.9 QP	46.0	-29.1	1.01 V	124	32.8	-15.9
4	584.84	24.9 QP	46.0	-21.1	1.01 V	16	36.5	-11.6
5	650.80	31.1 QP	46.0	-14.9	1.01 V	191	41.5	-10.4
6	960.23	31.6 QP	54.0	-22.4	1.50 V	39	37.8	-6.2

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 of frequency range 30MHz~1000MHz.
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 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Jan. 16, 2021	Jan. 15, 2022
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 25, 2021	Feb. 24, 2022
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1 (Conduction 1).
 3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

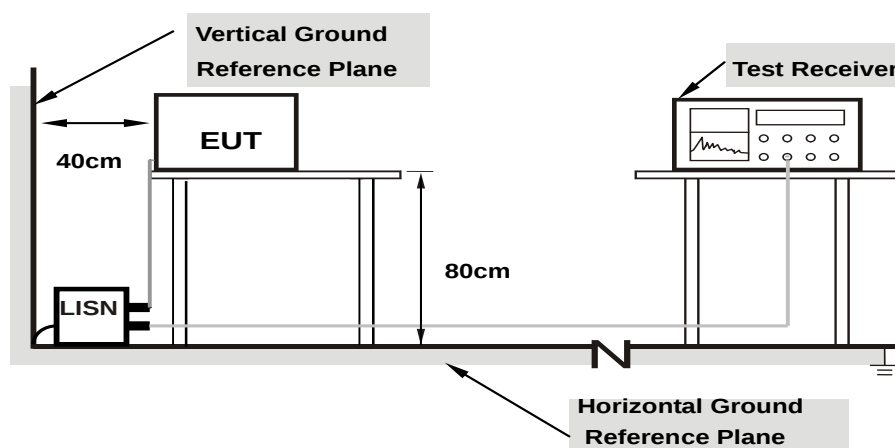
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

Note: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



- Note:**
- Support units were connected to second LISN.
 - Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT Operating Conditions

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

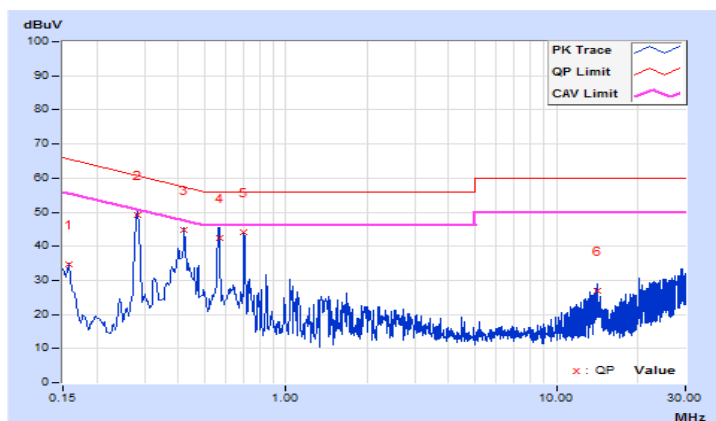
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 75%RH
Tested by	Edison Lee	Test Date	2021/4/21

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	9.71	24.81	17.04	34.52	26.75	65.57	55.57	-31.05	-28.82
2	0.28200	9.72	39.39	35.82	49.11	45.54	60.76	50.76	-11.65	-5.22
3	0.42200	9.73	34.93	31.55	44.66	41.28	57.41	47.41	-12.75	-6.13
4	0.56591	9.74	32.72	27.56	42.46	37.30	56.00	46.00	-13.54	-8.70
5	0.70200	9.75	34.22	31.08	43.97	40.83	56.00	46.00	-12.03	-5.17
6	14.21000	9.83	17.04	10.31	26.87	20.14	60.00	50.00	-33.13	-29.86

Remarks:

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

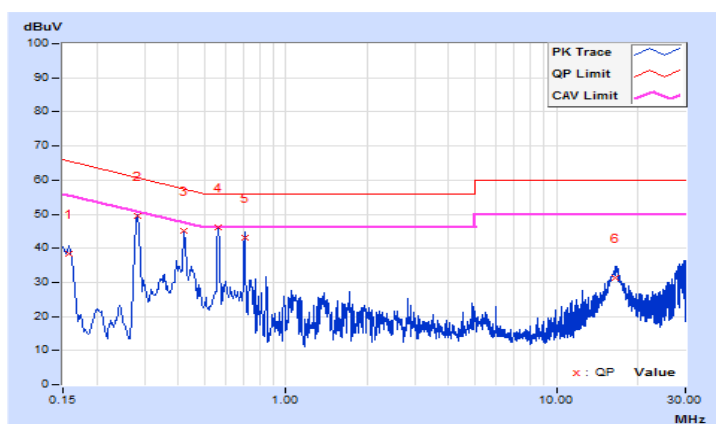


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	24°C, 69%RH
Tested by	Edison Lee	Test Date	2021/4/17

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15770	9.81	28.48	19.41	38.29	29.22	65.58	55.58	-27.29	-26.36
2	0.28200	9.86	39.55	36.09	49.41	45.95	60.76	50.76	-11.35	-4.81
3	0.42200	9.90	35.24	32.00	45.14	41.90	57.41	47.41	-12.27	-5.51
4	0.56200	9.92	36.08	30.95	46.00	40.87	56.00	46.00	-10.00	-5.13
5	0.70600	9.93	33.29	30.09	43.22	40.02	56.00	46.00	-12.78	-5.98
6	16.52600	10.22	21.14	8.46	31.36	18.68	60.00	50.00	-28.64	-31.32

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 $\leq$ 125 mW (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	250 mW (24 dBm)
U-NII-2A	√		250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-2C	√		250 mW (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 $N_{ANT} \leq 4$;

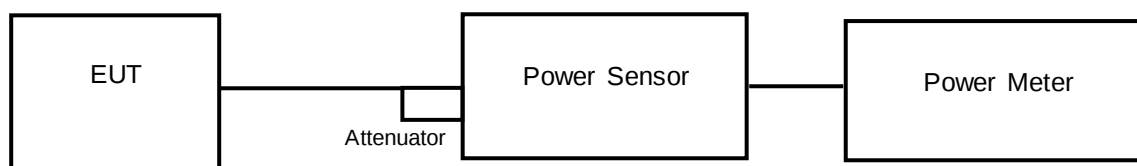
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

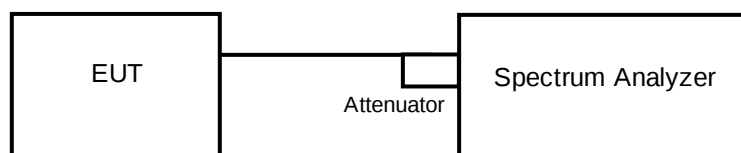
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

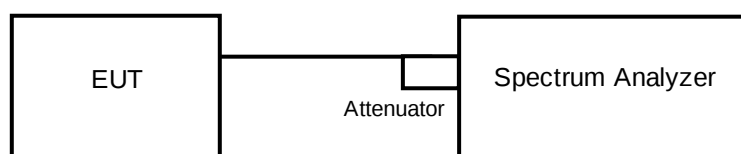
<Power Output Measurement>



or



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

<802.11a, 802.11ac (VHT20), 802.11ac (VHT40)>

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

<802.11ac (VHT80)>

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

26 dB Bandwidth

- Set RBW = approximately 1 % of the emission bandwidth.
- Set the VBW $\geq$ 3 x RBW.
- Detector = Peak.
- Trace mode = max hold.
- 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 Results

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	17.25	18.07	117.209	20.69	24	Pass
40	5200	19.71	20.47	204.97	23.12	24	Pass
48	5240	16.78	17.29	101.223	20.05	24	Pass
52	5260	19.12	20.25	187.584	22.73	24	Pass
60	5300	19.39	20.72	204.928	23.12	24	Pass
64	5320	17.60	17.34	111.744	20.48	24	Pass
100	5500	17.19	17.58	109.64	20.40	24	Pass
116	5580	20.01	20.31	207.629	23.17	24	Pass
140	5700	17.80	17.13	111.898	20.49	24	Pass
144	5720 (U-NII-2C)	18.91	19.15	160.028	22.04	24	Pass
144	5720 (U-NII-3)	10.75	11.04	24.591	13.91	30	Pass
149	5745	19.79	20.34	203.423	23.08	30	Pass
157	5785	19.43	20.08	189.559	22.78	30	Pass
165	5825	19.80	20.32	203.146	23.08	30	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(39.93) = 27.01 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(41.73) = 27.20 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(24.30) = 24.85 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(23.81) = 24.76 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(38.98) = 26.90 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(23.68) = 24.74 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5700.13) = 24.95 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(41.63) = 27.19 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(42.62) = 27.29 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(23.56) = 24.72 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(23.90) = 24.78 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(39.86) = 27.00 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(24.25) = 24.84 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5700.12) = 24.95 > 24\text{dBm}$

802.11ac (VHT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	17.36	17.77	114.291	20.58	24	Pass
40	5200	19.95	20.38	207.999	23.18	24	Pass
48	5240	18.72	19.10	155.756	21.92	24	Pass
52	5260	19.81	20.15	199.234	22.99	24	Pass
60	5300	19.71	20.52	206.26	23.14	24	Pass
64	5320	18.01	18.23	129.769	21.13	24	Pass
100	5500	16.69	16.56	91.956	19.64	24	Pass
116	5580	20.21	20.03	205.647	23.13	24	Pass
140	5700	18.23	18.61	139.138	21.43	24	Pass
144	5720 (U-NII-2C)	19.67	19.69	185.794	22.69	24	Pass
144	5720 (U-NII-3)	11.79	11.65	29.723	14.73	30	Pass
149	5745	19.42	20.14	190.775	22.81	30	Pass
157	5785	19.36	19.95	185.153	22.68	30	Pass
165	5825	19.30	19.64	177.159	22.48	30	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(45.42) = 27.57 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(42.75) = 27.30 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(23.00) = 24.61 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.49) = 24.11 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(41.61) = 27.19 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(21.81) = 24.38 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5700.19) = 24.94 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(45.68) = 27.59 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(43.66) = 27.40 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(23.06) = 24.62 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.65) = 24.14 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(41.13) = 27.14 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(22.18) = 24.45 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5699.45) = 25.07 > 24\text{dBm}$

802.11ac (VHT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	15.47	15.31	69.2	18.40	24	Pass
46	5230	18.39	19.01	148.64	21.72	24	Pass
54	5270	19.78	20.23	200.499	23.02	24	Pass
62	5310	15.00	15.49	67.023	18.26	24	Pass
102	5510	13.33	13.79	45.461	16.58	24	Pass
110	5550	19.08	19.49	169.83	22.30	24	Pass
134	5670	18.43	18.73	144.308	21.59	24	Pass
142	5710 (U-NII-2C)	18.77	19.92	173.510	22.39	24	Pass
142	5710 (U-NII-3)	6.33	7.03	9.342	9.70	30	Pass
151	5755	19.96	20.40	208.731	23.20	30	Pass
159	5795	19.33	19.78	180.764	22.57	30	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(80.56) = 30.06 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(42.76) = 27.31 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(42.34) = 27.26 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(42.89) = 27.32 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(44.06) = 27.44 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5667.48) = 28.59 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(86.32) = 30.36 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(42.29) = 27.26 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(42.05) = 27.23 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(42.31) = 27.26 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(44.69) = 27.50 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5669.55) = 28.43 > 24\text{dBm}$

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	14.02	14.21	51.598	17.13	24	Pass
58	5290	14.22	14.45	54.285	17.35	24	Pass
106	5530	11.81	12.35	32.35	15.10	24	Pass
122	5610	19.80	20.12	198.301	22.97	24	Pass
138	5690 (U-NII-2C)	18.23	19.75	160.933	22.07	24	Pass
138	5690 (U-NII-3)	1.91	3.14	3.613	5.58	30	Pass
155	5775	19.34	19.79	181.181	22.58	30	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log (84.01) = 30.24 > 24\text{dBm}$
2. $11\text{dBm} + 10\log (83.49) = 30.21 > 24\text{dBm}$
3. $11\text{dBm} + 10\log (151.93) = 32.81 > 24\text{dBm}$
4. $11\text{dBm} + 10\log (5725.00 - 5609.10) = 31.64 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log (84.00) = 30.24 > 24\text{dBm}$
2. $11\text{dBm} + 10\log (84.31) = 30.25 > 24\text{dBm}$
3. $11\text{dBm} + 10\log (157.44) = 32.97 > 24\text{dBm}$
4. $11\text{dBm} + 10\log (5725.00 - 5608.85) = 31.65 > 24\text{dBm}$

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	28.75	30.88
40	5200	40.18	40.77
48	5240	36.64	34.24
52	5260	39.93	41.63
60	5300	41.73	42.62
64	5320	24.30	23.56
100	5500	23.81	23.90
116	5580	38.98	39.86
140	5700	23.68	24.25
144	5720 (U-NII-2C)	24.87	24.88
144	5720 (U-NII-3)	15.35	15.21

802.11ac (VHT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	22.69	22.48
40	5200	42.76	42.02
48	5240	36.57	36.73
52	5260	45.42	45.68
60	5300	42.75	43.66
64	5320	23.00	23.06
100	5500	20.49	20.65
116	5580	41.61	41.13
140	5700	21.81	22.18
144	5720 (U-NII-2C)	24.81	25.55
144	5720 (U-NII-3)	15.84	15.82

802.11ac (VHT40)

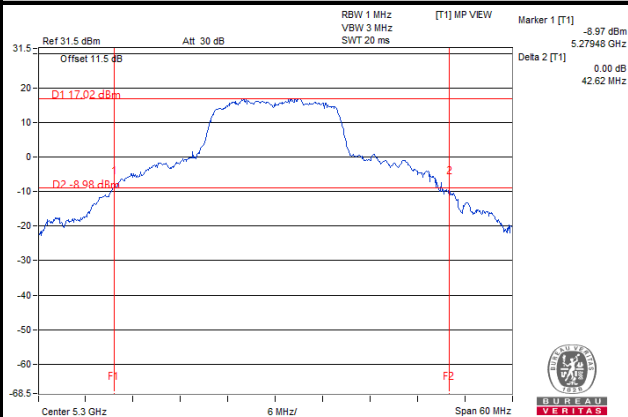
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	42.11	42.25
46	5230	76.86	84.77
54	5270	80.56	86.32
62	5310	42.76	42.29
102	5510	42.34	42.05
110	5550	42.89	42.31
134	5670	44.06	44.69
142	5710 (U-NII-2C)	57.52	55.45
142	5710 (U-NII-3)	25.38	25.06

802.11ac (VHT80)

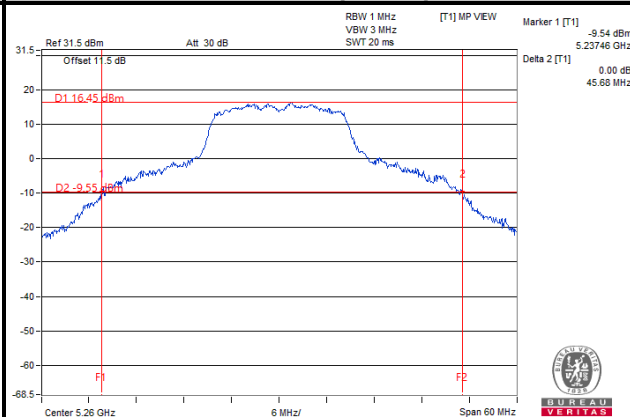
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	83.92	83.43
58	5290	84.01	84.00
106	5530	83.49	84.31
122	5610	151.93	157.44
138	5690 (U-NII-2C)	115.90	116.15
138	5690 (U-NII-3)	43.15	44.88

Spectrum Plot of Worst Value

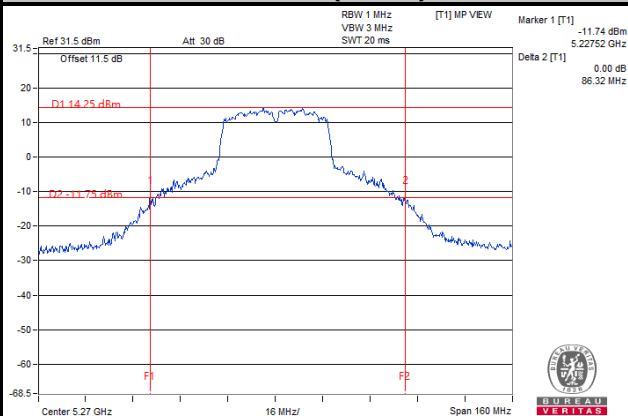
802.11a



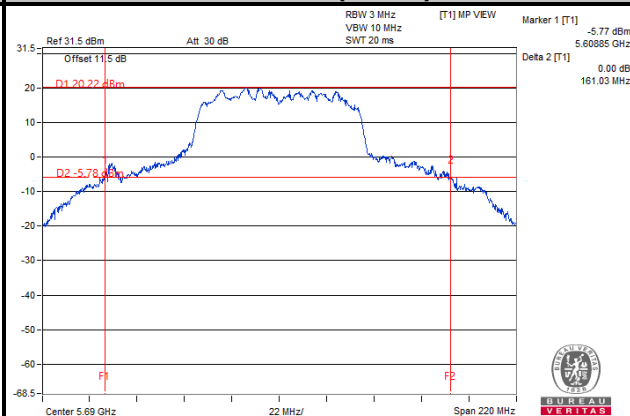
802.11ac (VHT20)



802.11ac (VHT40)

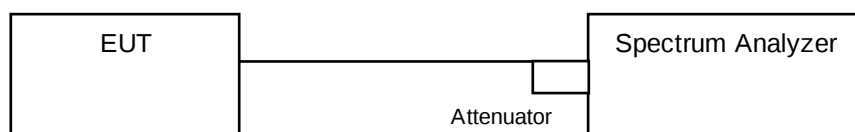


802.11ac (VHT80)



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 SAMPLE. 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 Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.65	17.83
40	5200	23.52	24.36
48	5240	19.44	19.20
52	5260	23.76	24.00
60	5300	23.28	24.52
64	5320	16.56	16.44
100	5500	16.44	16.44
116	5580	22.56	22.08
140	5700	16.44	16.44
144	5720 (U-NII-2C)	16.64	16.40
144	5720 (U-NII-3)	6.76	6.40
149	5745	23.64	23.52
157	5785	24.48	24.84
165	5825	24.36	24.72

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.64	17.64
40	5200	24.43	24.70
48	5240	19.32	19.20
52	5260	27.84	27.36
60	5300	28.26	28.09
64	5320	18.12	17.88
100	5500	17.40	17.40
116	5580	22.08	22.08
140	5700	18.12	17.52
144	5720 (U-NII-2C)	16.04	17.24
144	5720 (U-NII-3)	6.16	7.36
149	5745	23.40	23.88
157	5785	24.96	25.32
165	5825	24.72	24.96

802.11ac (VHT40)

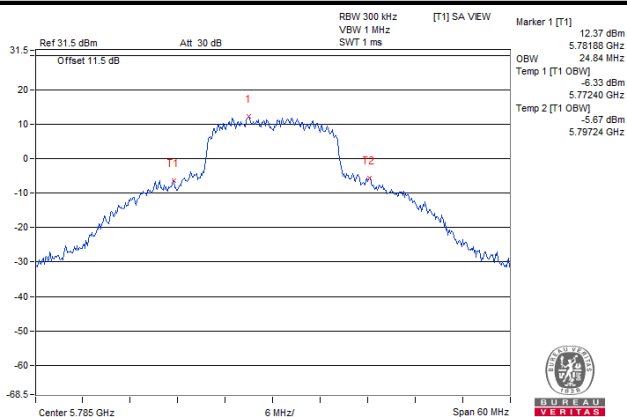
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.00	36.00
46	5230	38.16	38.28
54	5270	37.32	40.68
62	5310	36.00	36.00
102	5510	36.12	36.00
110	5550	36.36	36.36
134	5670	36.12	36.12
142	5710 (U-NII-2C)	34.56	34.20
142	5710 (U-NII-3)	4.68	4.20
151	5755	38.04	38.76
159	5795	39.60	40.92

802.11ac (VHT80)

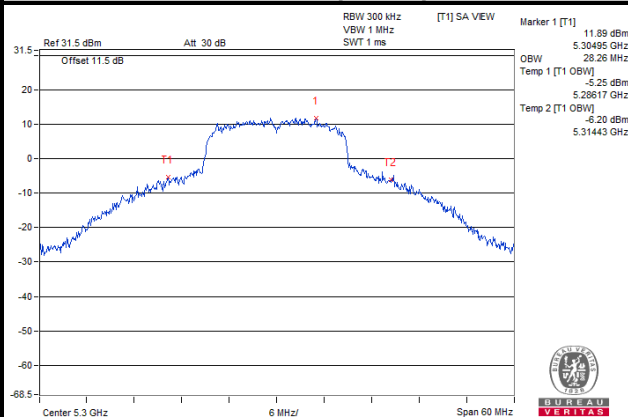
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.12	75.12
58	5290	75.36	75.36
106	5530	75.12	75.12
122	5610	76.56	77.04
138	5690 (U-NII-2C)	76.52	74.12
138	5690 (U-NII-3)	7.24	4.84
155	5775	76.56	76.32

Spectrum Plot of Worst Value

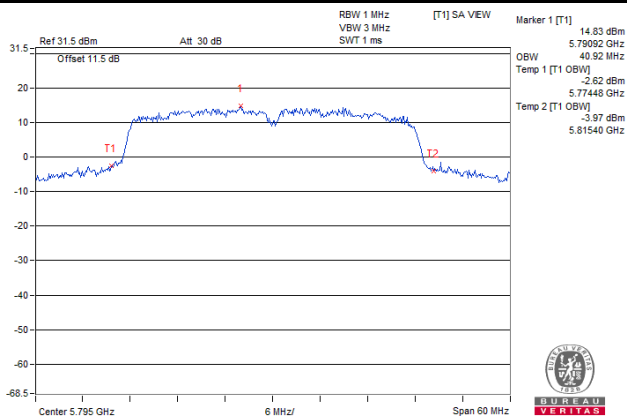
802.11a



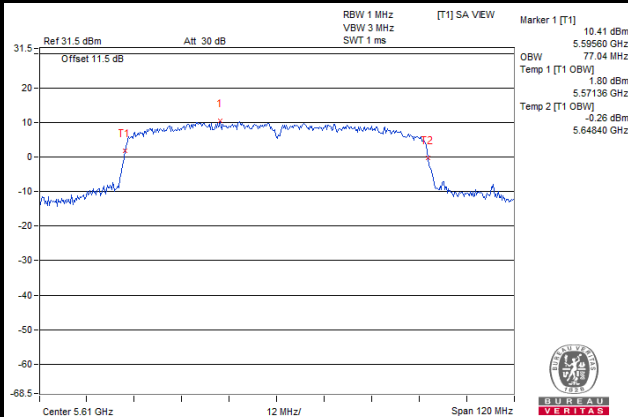
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



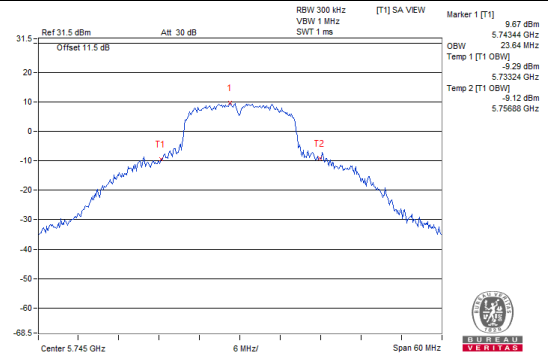
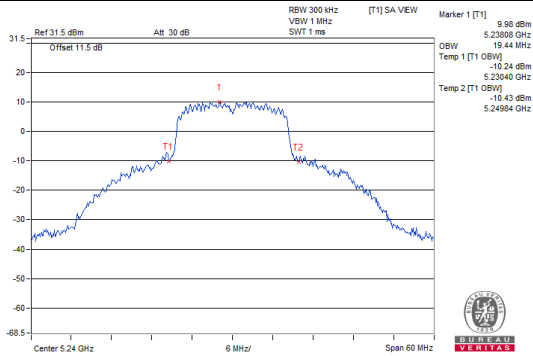
Chain 0

Spectrum Plot for Nearby DFS Band

802.11a

Ch 48 (5240 MHz)

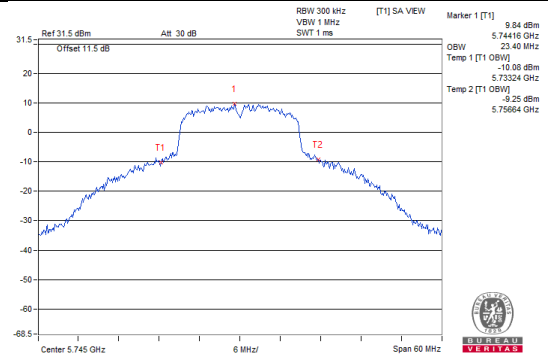
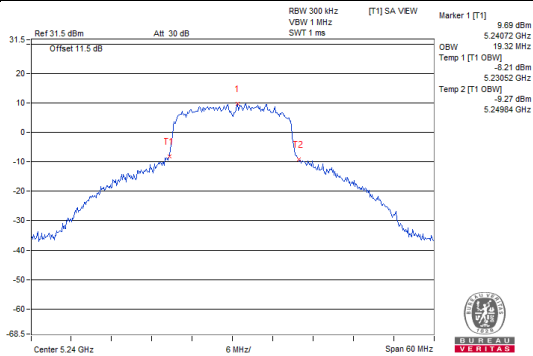
Ch 149 (5745 MHz)



802.11ac (VHT20)

Ch 48 (5240 MHz)

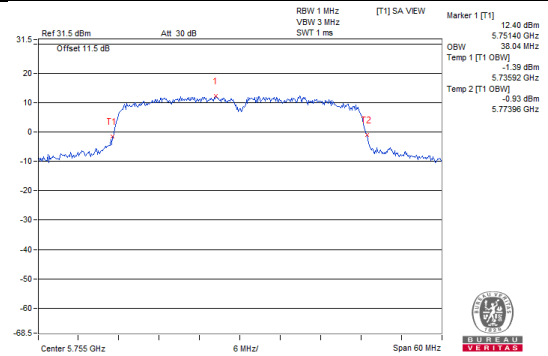
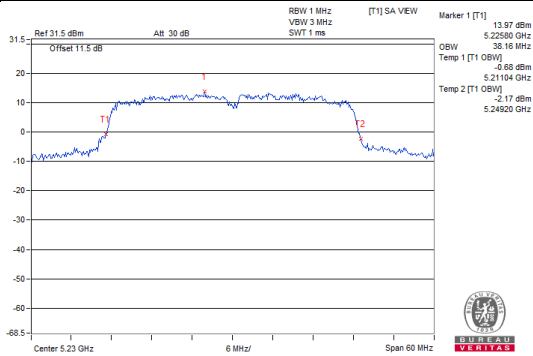
Ch 149 (5745 MHz)



802.11ac (VHT40)

Ch 46 (5230 MHz)

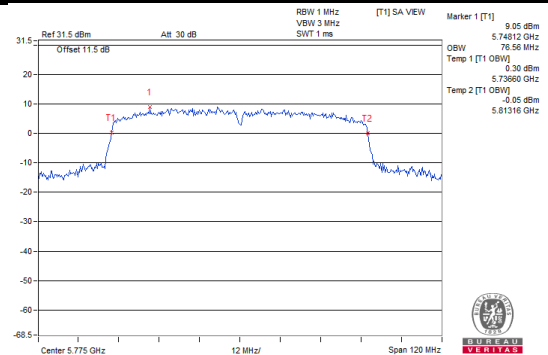
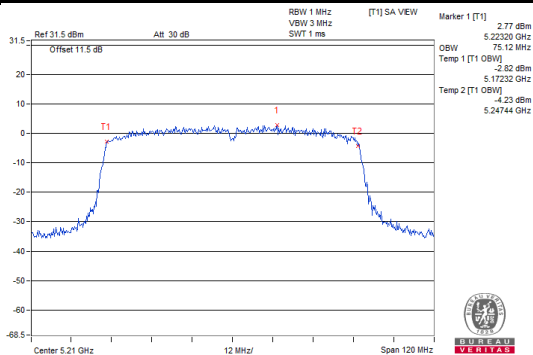
Ch 151 (5755 MHz)



802.11ac (VHT80)

Ch 42 (5210 MHz)

Ch 155 (5775 MHz)

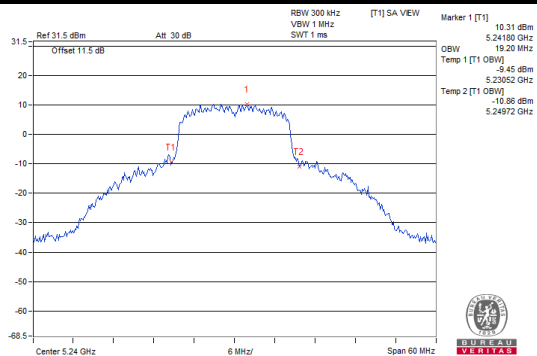


Chain 1

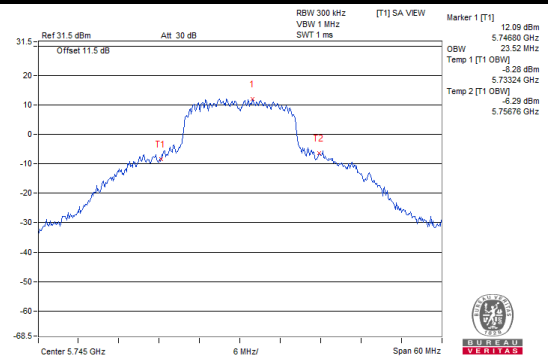
Spectrum Plot for Nearby DFS Band

802.11a

Ch 48 (5240 MHz)

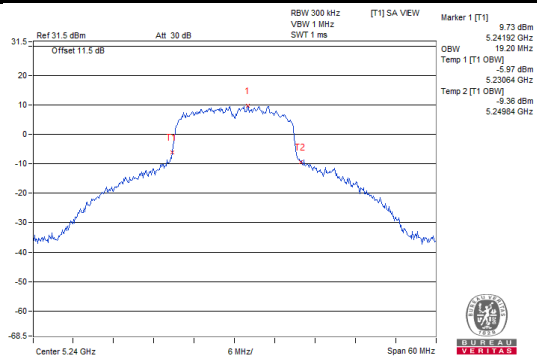


Ch 149 (5745 MHz)

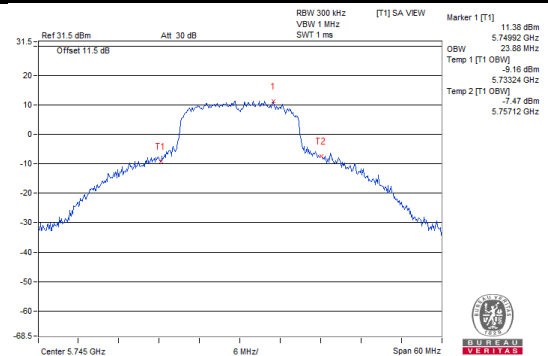


802.11ac (VHT20)

Ch 48 (5240 MHz)

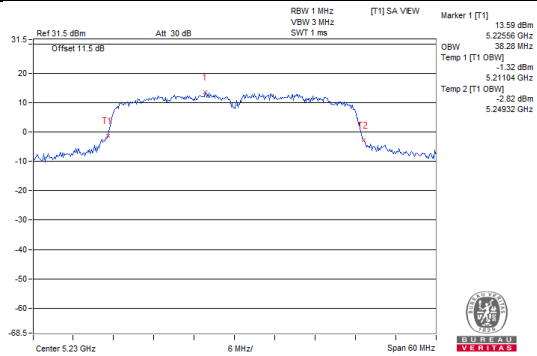


Ch 149 (5745 MHz)

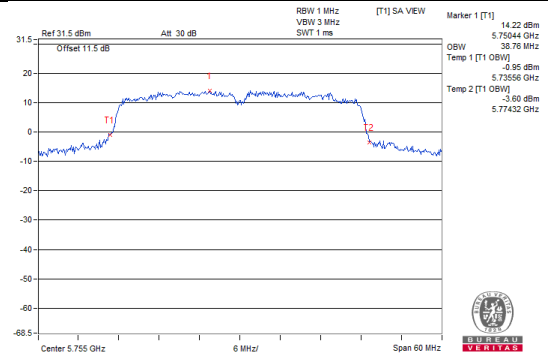


802.11ac (VHT40)

Ch 46 (5230 MHz)

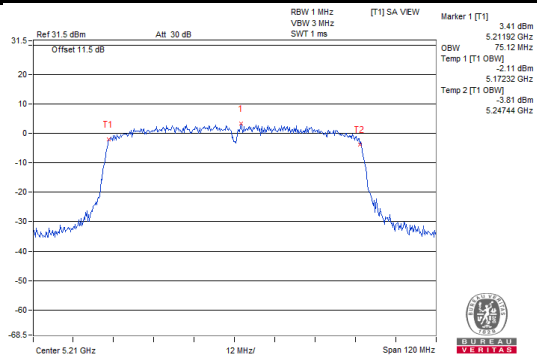


Ch 151 (5755 MHz)

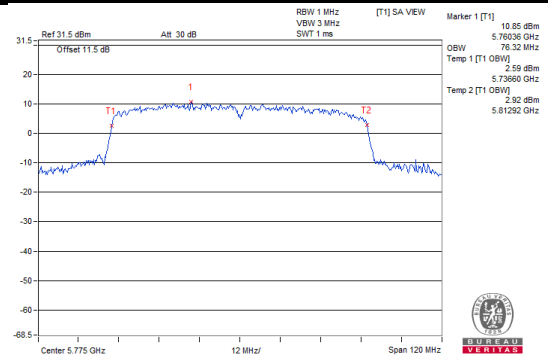


802.11ac (VHT80)

Ch 42 (5210 MHz)



Ch 155 (5775 MHz)

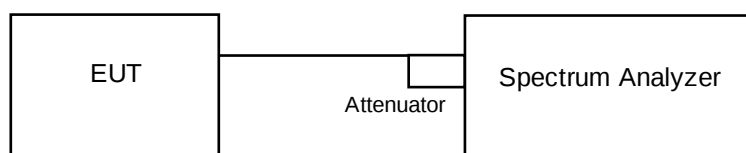


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

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, U-NII-2C band:

Using method SA-2 Duty cycle <98%

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

※ For U-NII-3: with duty cycle & Duty cycle <98 %

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 RBW, 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/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

For U-NII-1, U-NII-2A, U-NII-2C Band 802.11a

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	4.72	5.09	0.23	8.15	10.29	Pass
40	5200	6.29	6.83	0.23	9.81	10.29	Pass
48	5240	5.53	5.57	0.23	8.79	10.29	Pass
52	5260	5.97	6.97	0.23	9.74	10.29	Pass
60	5300	6.02	7.18	0.23	9.88	10.29	Pass
64	5320	4.59	4.42	0.23	7.74	10.29	Pass
100	5500	4.13	4.17	0.23	7.39	10.29	Pass
116	5580	6.10	6.99	0.23	9.80	10.29	Pass
140	5700	4.33	4.19	0.23	7.50	10.29	Pass
144	5720 (U-NII-2C)	6.68	6.92	0.23	10.04	10.29	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.
- Directional gain = $3.70 \text{ dBi} + 10\log(2) = 6.71 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11-(6.71-6) = 10.29 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	4.08	4.33	0.28	7.50	10.29	Pass
40	5200	5.84	6.40	0.28	9.42	10.29	Pass
48	5240	5.14	5.10	0.28	8.41	10.29	Pass
52	5260	5.41	6.49	0.28	9.28	10.29	Pass
60	5300	6.17	6.67	0.28	9.72	10.29	Pass
64	5320	5.00	5.34	0.28	8.47	10.29	Pass
100	5500	3.14	3.04	0.28	6.38	10.29	Pass
116	5580	6.58	6.47	0.28	9.82	10.29	Pass
140	5700	5.08	5.46	0.28	8.57	10.29	Pass
144	5720 (U-NII-2C)	5.69	6.93	0.28	9.65	10.29	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.
- Directional gain = $3.70 \text{ dBi} + 10\log(2) = 6.71 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11-(6.71-6) = 10.29 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-1.45	-1.45	0.50	2.06	10.29	Pass
46	5230	2.45	2.47	0.50	5.97	10.29	Pass
54	5270	3.28	3.33	0.50	6.82	10.29	Pass
62	5310	-1.10	-0.79	0.50	2.57	10.29	Pass
102	5510	-3.68	-3.59	0.50	-0.12	10.29	Pass
110	5550	3.26	3.49	0.50	6.89	10.29	Pass
134	5670	2.10	2.15	0.50	5.64	10.29	Pass
142	5710 (U-NII-2C)	3.69	3.71	0.50	7.21	10.29	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.
- Directional gain = $3.70 \text{ dBi} + 10\log(2) = 6.71 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.71 - 6) = 10.29 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

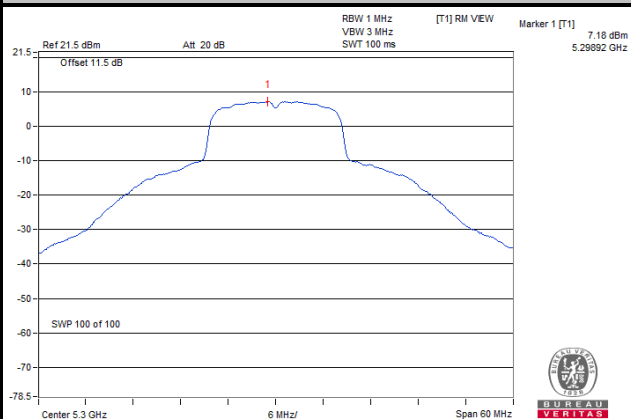
Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-4.98	-4.70	0.87	-0.95	10.29	Pass
58	5290	-5.27	-4.74	0.87	-1.11	10.29	Pass
106	5530	-7.51	-7.07	0.87	-3.40	10.29	Pass
122	5610	-1.86	-2.55	0.87	1.69	10.29	Pass
138	5690 (U-NII-2C)	0.13	0.77	0.87	4.35	10.29	Pass

Note:

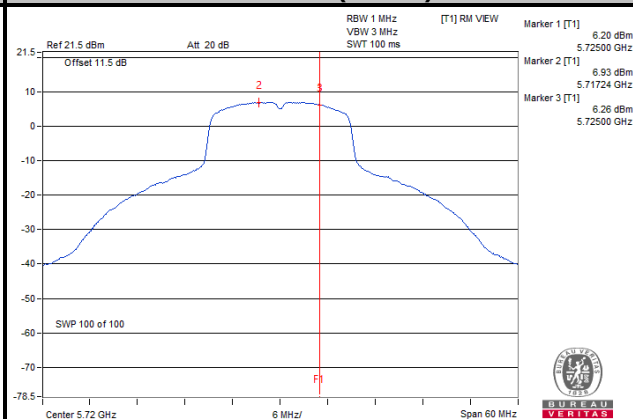
- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $3.70 \text{ dBi} + 10\log(2) = 6.71 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.71 - 6) = 10.29 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

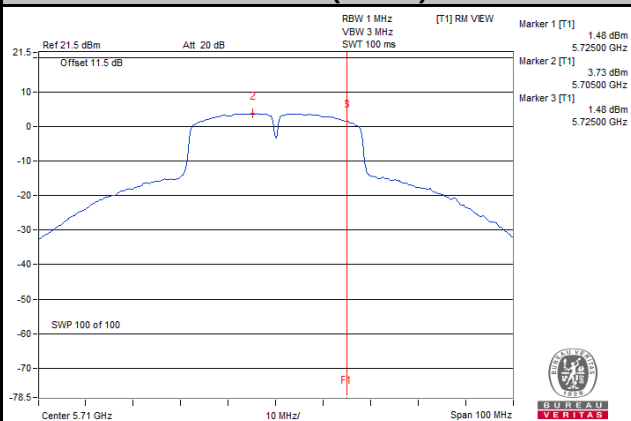
802.11a



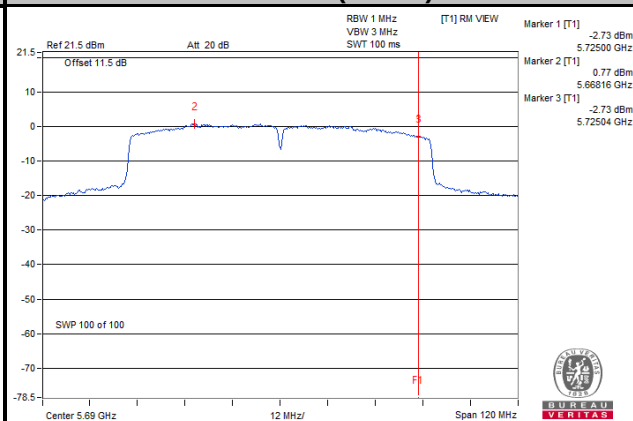
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



For U-NII-3 Band
802.11a

TX Chain	Channel	Frequency (MHz)	PSD w/o Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	144	5720 (U-NII-3)	-2.17	0.05	3.01	0.23	3.29	29.29	Pass
	149	5745	-3	-0.78	3.01	0.23	2.46	29.29	Pass
	157	5785	-2.64	-0.42	3.01	0.23	2.82	29.29	Pass
	165	5825	-2.78	-0.56	3.01	0.23	2.68	29.29	Pass
1	144	5720 (U-NII-3)	-1.88	0.34	3.01	0.23	3.58	29.29	Pass
	149	5745	-1.17	1.05	3.01	0.23	4.29	29.29	Pass
	157	5785	-1.15	1.07	3.01	0.23	4.31	29.29	Pass
	165	5825	-1.43	0.79	3.01	0.23	4.03	29.29	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 3.70 dBi + 10log(2) = 6.71 dBi > 6 dBi , so the power density limit shall be reduced to 30-(6.71-6) = 29.29 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	144	5720 (U-NII-3)	-3.51	-1.29	3.01	0.28	2	29.29	Pass
	149	5745	-3.43	-1.21	3.01	0.28	2.08	29.29	Pass
	157	5785	-3.08	-0.86	3.01	0.28	2.43	29.29	Pass
	165	5825	-2.9	-0.68	3.01	0.28	2.61	29.29	Pass
1	144	5720 (U-NII-3)	-2.2	0.02	3.01	0.28	3.31	29.29	Pass
	149	5745	-1.4	0.82	3.01	0.28	4.11	29.29	Pass
	157	5785	-1.71	0.51	3.01	0.28	3.8	29.29	Pass
	165	5825	-1.69	0.53	3.01	0.28	3.82	29.29	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 3.70 dBi + 10log(2) = 6.71 dBi > 6 dBi , so the power density limit shall be reduced to 30-(6.71-6) = 29.29 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	142	5710 (U-NII-3)	-9.97	-7.75	3.01	0.5	-4.24	29.29	Pass
	151	5755	-7.02	-4.8	3.01	0.5	-1.29	29.29	Pass
	159	5795	-6.75	-4.53	3.01	0.5	-1.02	29.29	Pass
1	142	5710 (U-NII-3)	-7.15	-4.93	3.01	0.5	-1.42	29.29	Pass
	151	5755	-5.2	-2.98	3.01	0.5	0.53	29.29	Pass
	159	5795	-4.97	-2.75	3.01	0.5	0.76	29.29	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 3.70 dBi + 10log(2) = 6.71 dBi > 6 dBi , so the power density limit shall be reduced to 30-(6.71-6) = 29.29 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

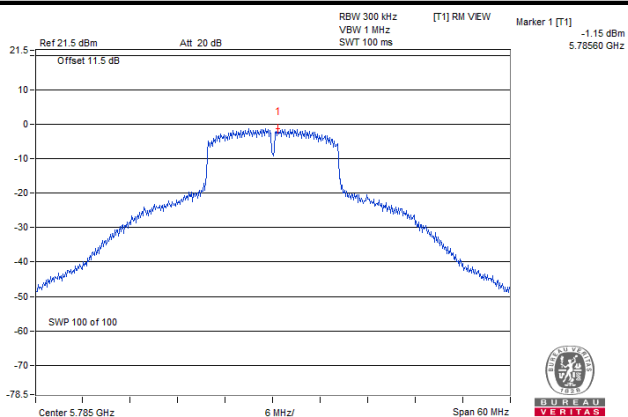
TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	138	5690 (U-NII-3)	-14.86	-12.64	3.01	0.87	-8.76	29.29	Pass
	155	5775	-11.11	-8.89	3.01	0.87	-5.01	29.29	Pass
1	138	5690 (U-NII-3)	-11.83	-9.61	3.01	0.87	-5.73	29.29	Pass
	155	5775	-9.14	-6.92	3.01	0.87	-3.04	29.29	Pass

Note:

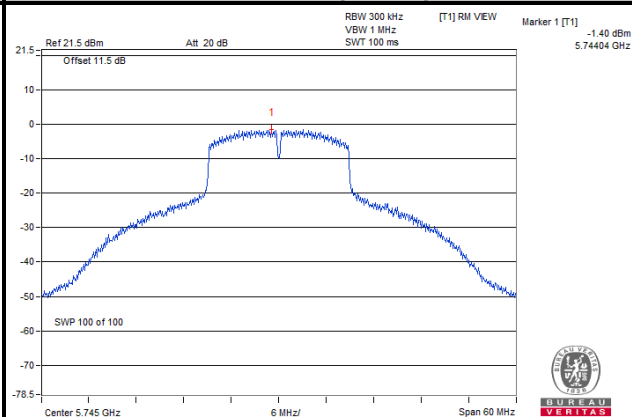
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 3.70 dBi + 10log(2) = 6.71 dBi > 6 dBi , so the power density limit shall be reduced to 30-(6.71-6) = 29.29 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

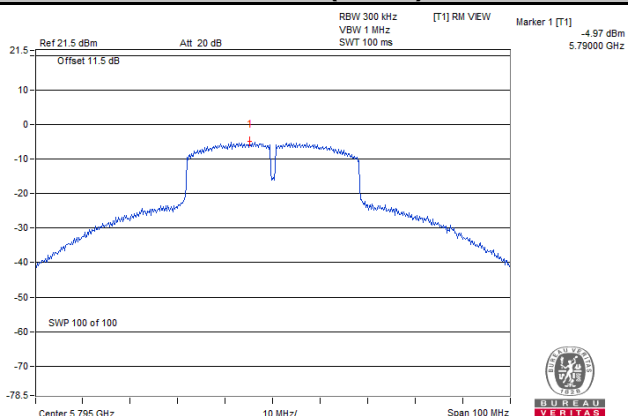
802.11a



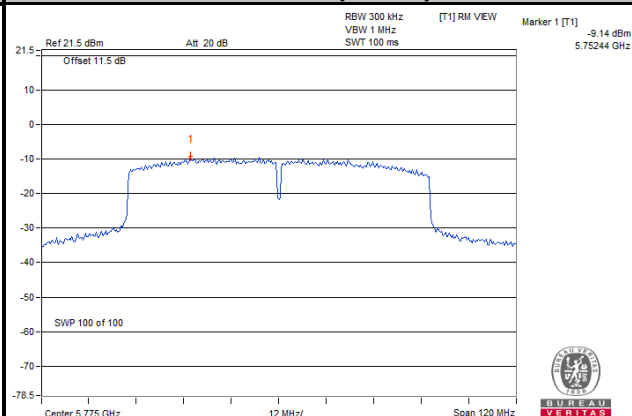
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)

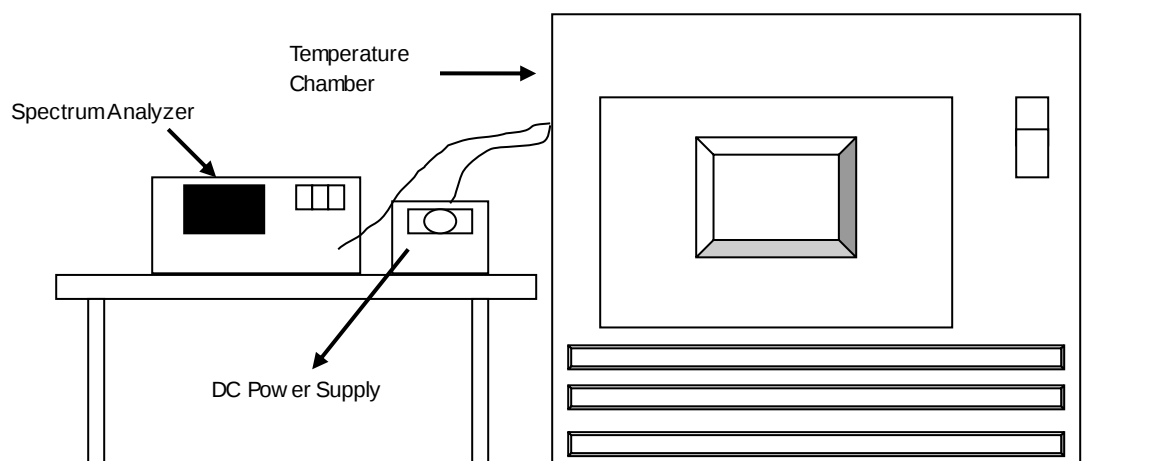


4.6 Frequency Stability

4.6.1 Limit 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

Refer to section 4.1.2 to get information of above instrument.

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: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Reading (MHz)	Result	Reading (MHz)	Result	Reading (MHz)	Result	Reading (MHz)	Result
30	120	5180.0084	PASS	5180.0097	PASS	5180.0052	PASS	5180.009	PASS
20	120	5179.9838	PASS	5179.9799	PASS	5179.9829	PASS	5179.9792	PASS
15	120	5179.9801	PASS	5179.9842	PASS	5179.9836	PASS	5179.9821	PASS

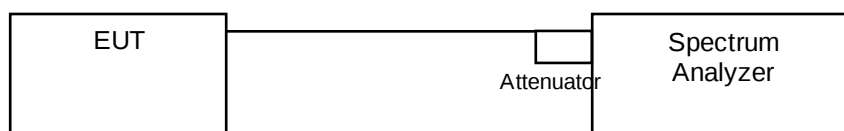
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Reading (MHz)	Result	Reading (MHz)	Result	Reading (MHz)	Result	Reading (MHz)	Result
20	138	5179.9842	PASS	5179.9798	PASS	5179.9837	PASS	5179.9788	PASS
	120	5179.9838	PASS	5179.9799	PASS	5179.9829	PASS	5179.9792	PASS
	102	5179.9843	PASS	5179.9805	PASS	5179.9819	PASS	5179.9789	PASS

4.7 6 dB Bandwidth Measurement

4.7.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

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

MEASUREMENT PROCEDURE REF

- Set resolution bandwidth (RBW) = 100 kHz
- 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)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 (U-NII-3)	2.53	2.53	0.5	Pass
149	5745	15.15	15.15	0.5	Pass
157	5785	15.16	15.14	0.5	Pass
165	5825	15.13	15.14	0.5	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 (U-NII-3)	2.54	2.54	0.5	Pass
149	5745	15.14	15.34	0.5	Pass
157	5785	15.15	15.17	0.5	Pass
165	5825	15.14	15.14	0.5	Pass

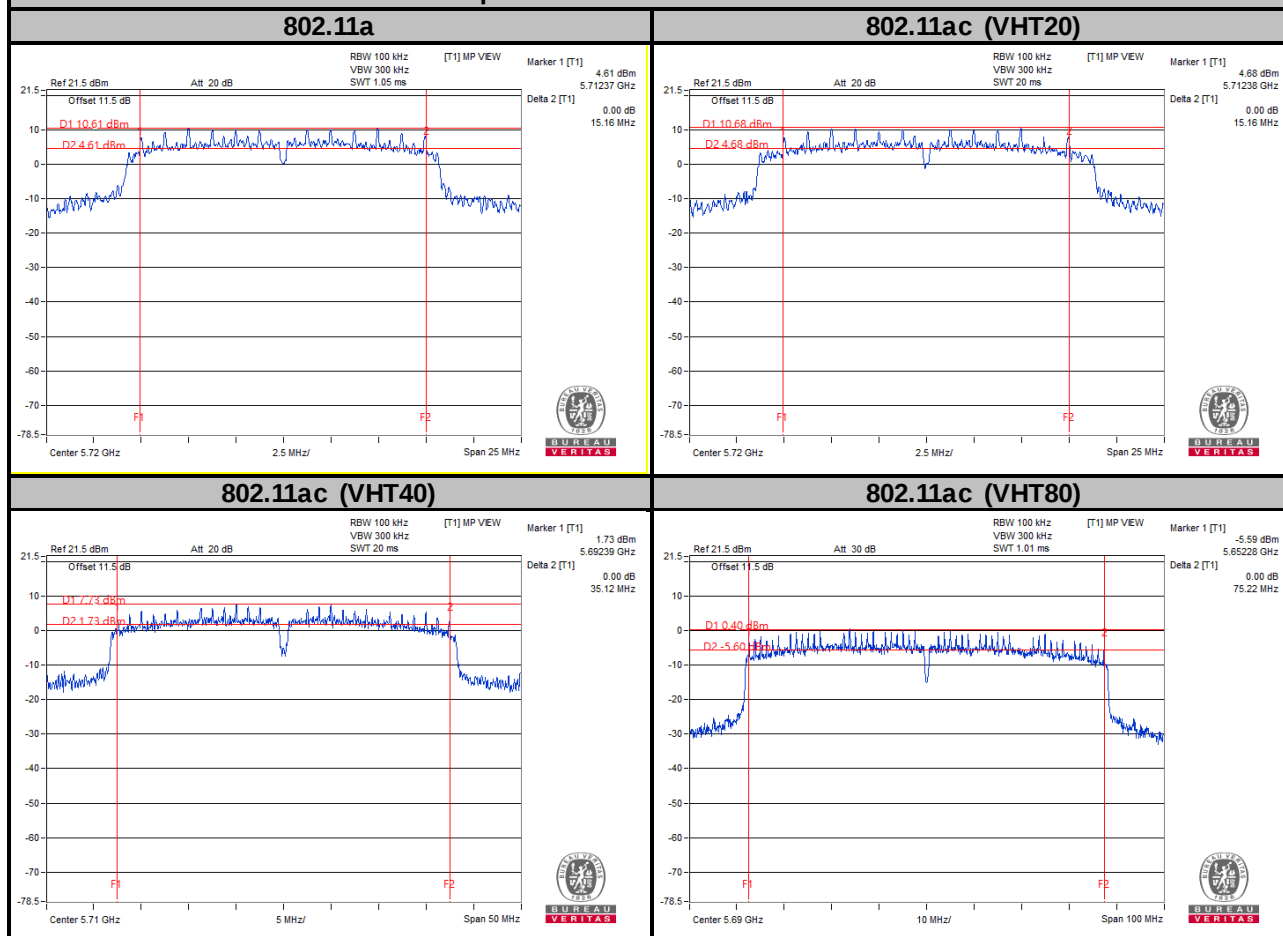
802.11ac (VHT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710 (U-NII-3)	2.51	2.51	0.5	Pass
151	5755	35.11	35.11	0.5	Pass
159	5795	35.11	35.09	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 (U-NII-3)	2.50	2.50	0.5	Pass
155	5775	72.69	72.68	0.5	Pass

Spectrum Plot of Worst Value



Note:

For Ch138 (UNII-3 Band): The 6 dB bandwidth above 5725 MHz = Marker 1 + Delta 2 – 5725 MHz
 For Ch144 (UNII-3 Band): The 6 dB bandwidth above 5725 MHz = Marker 1 + Delta 2 – 5725 MHz
 For Ch142 (UNII-3 Band): The 6 dB bandwidth above 5725 MHz = Marker 1 + Delta 2 – 5725 MHz

5 Pictures of Test Arrangements

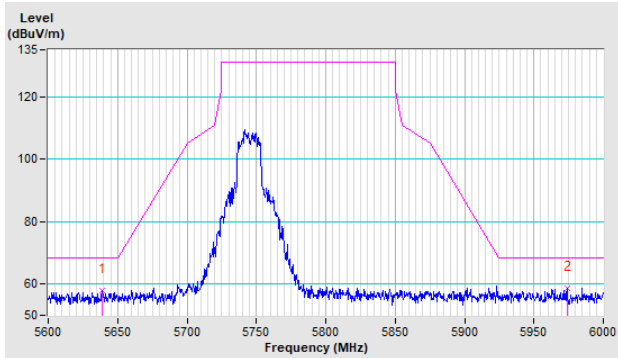
Please refer to the attached file (Test Setup Photo).

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

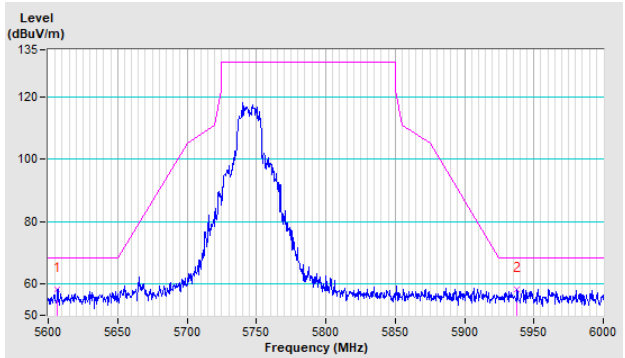
802.11a

CH 149 5745 MHz

Horizontal

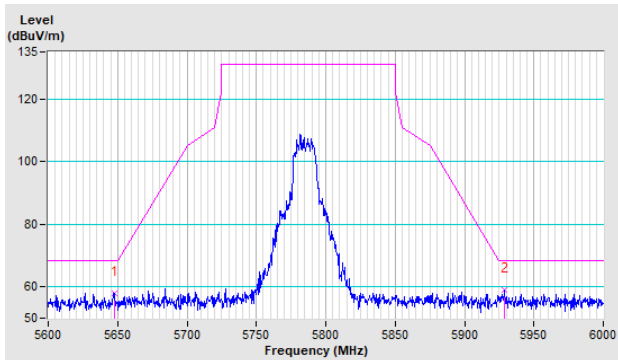


Vertical

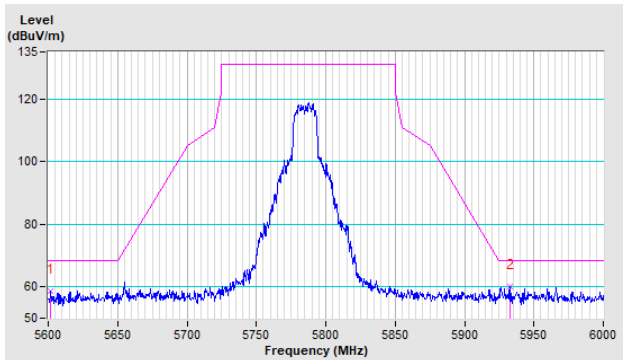


CH 157 5785 MHz

Horizontal

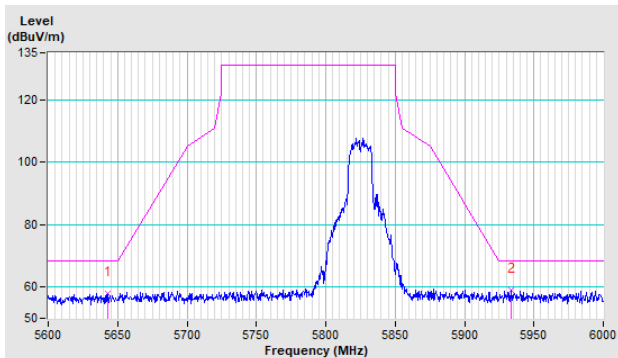


Vertical

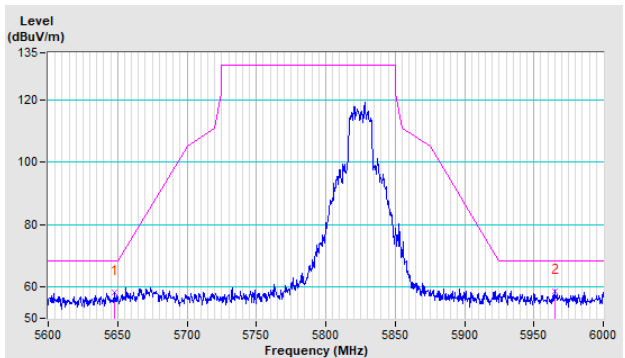


CH 165 5825 MHz

Horizontal



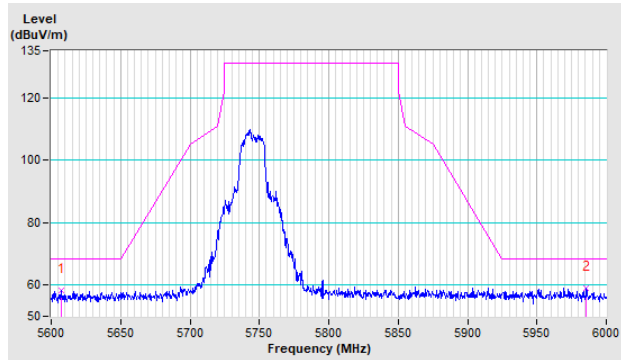
Vertical



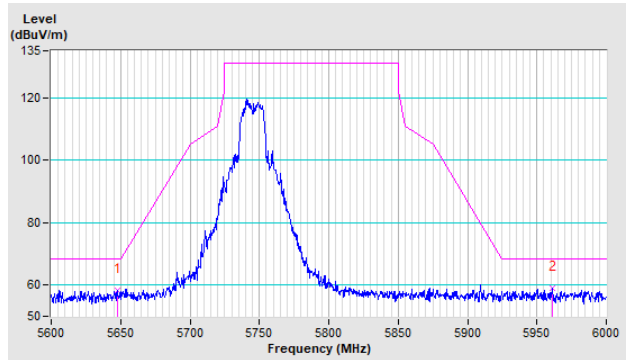
802.11ac (VHT20)

CH 149 5745 MHz

Horizontal

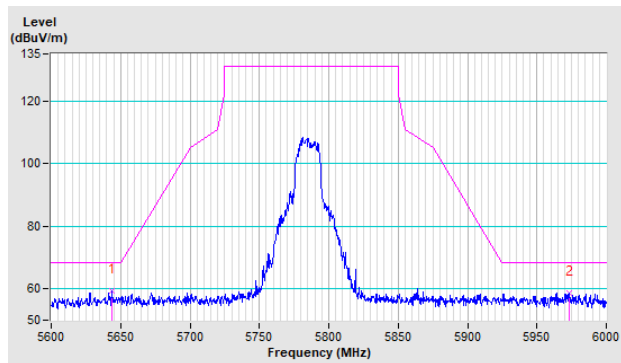


Vertical

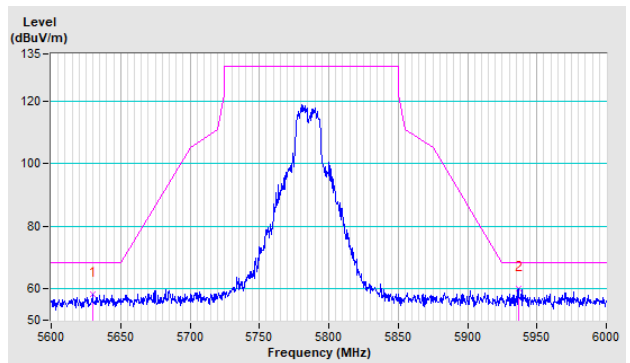


CH 157 5785 MHz

Horizontal

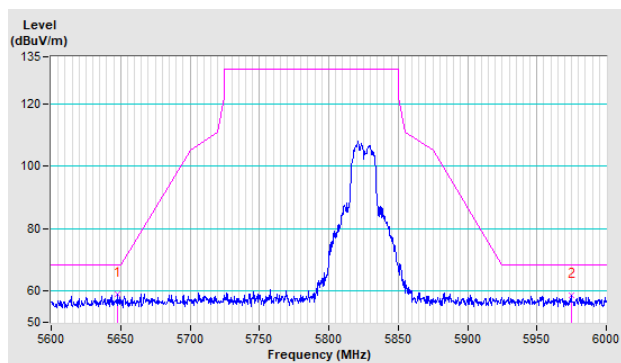


Vertical

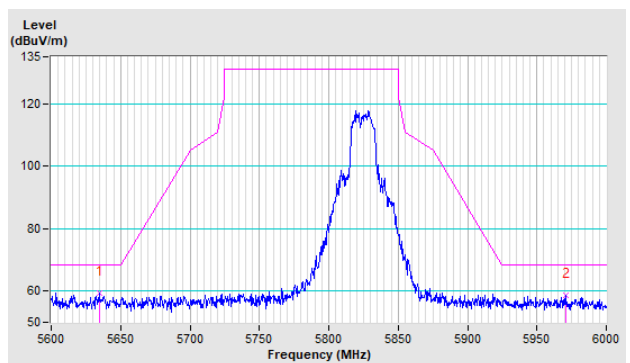


CH 165 5825 MHz

Horizontal



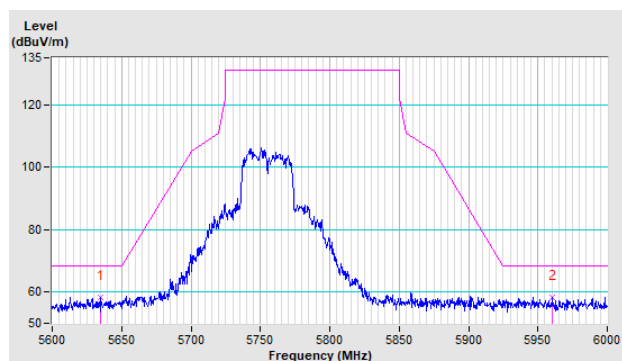
Vertical



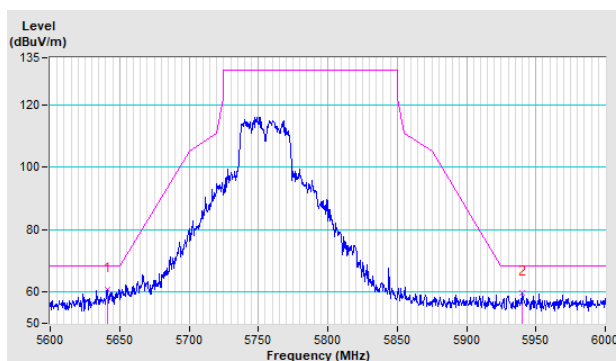
802.11ac (VHT40)

CH 151 5755 MHz

Horizontal

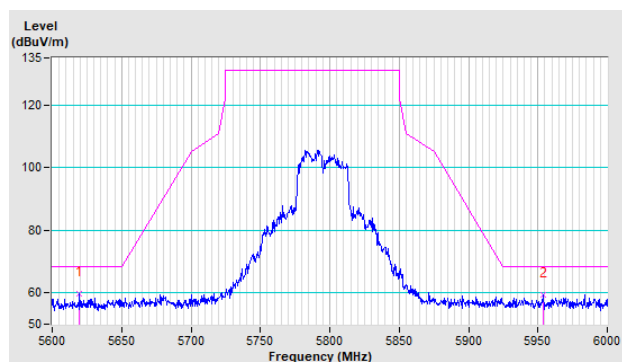


Vertical

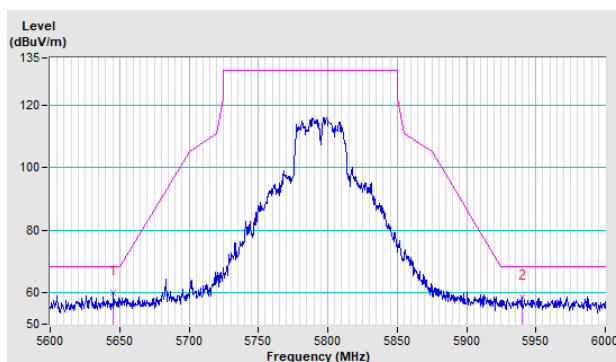


CH 159 5795 MHz

Horizontal



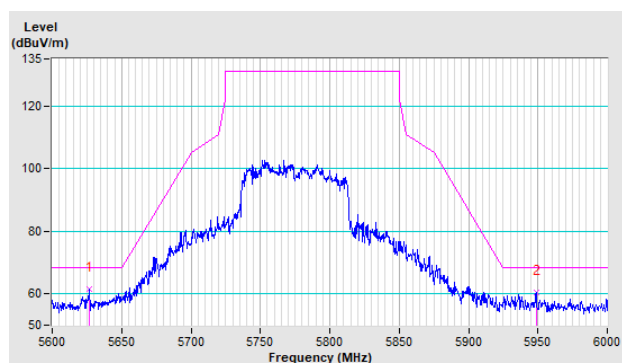
Vertical



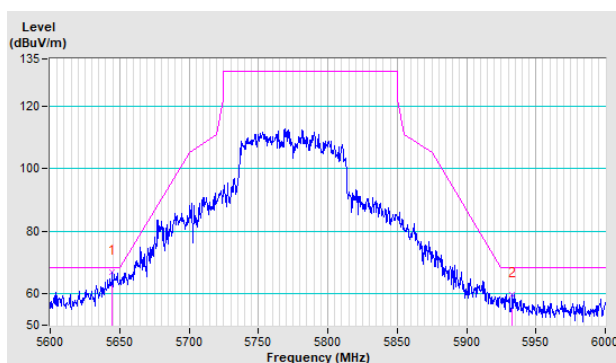
802.11ac (VHT80)

CH 155 5775 MHz

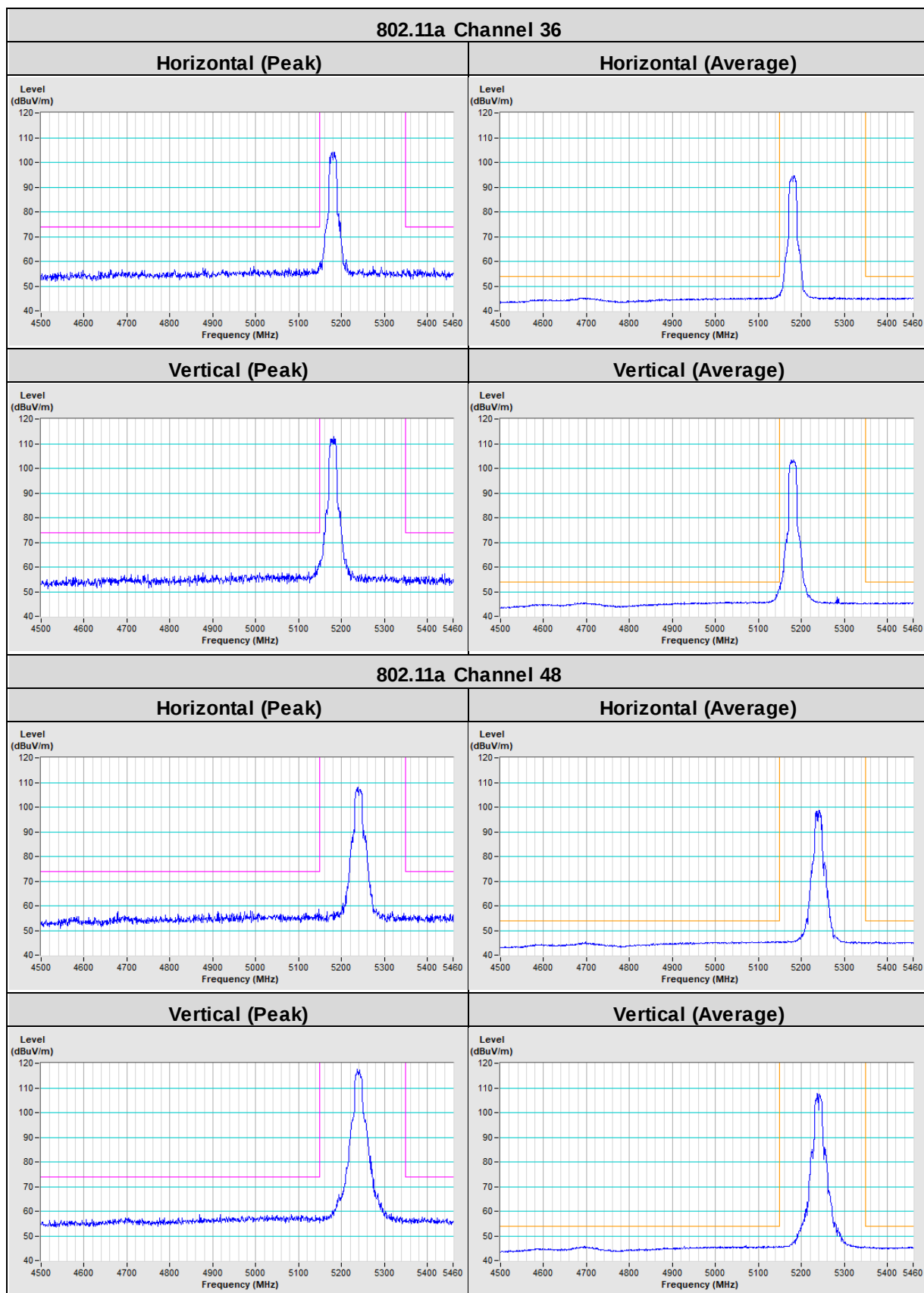
Horizontal

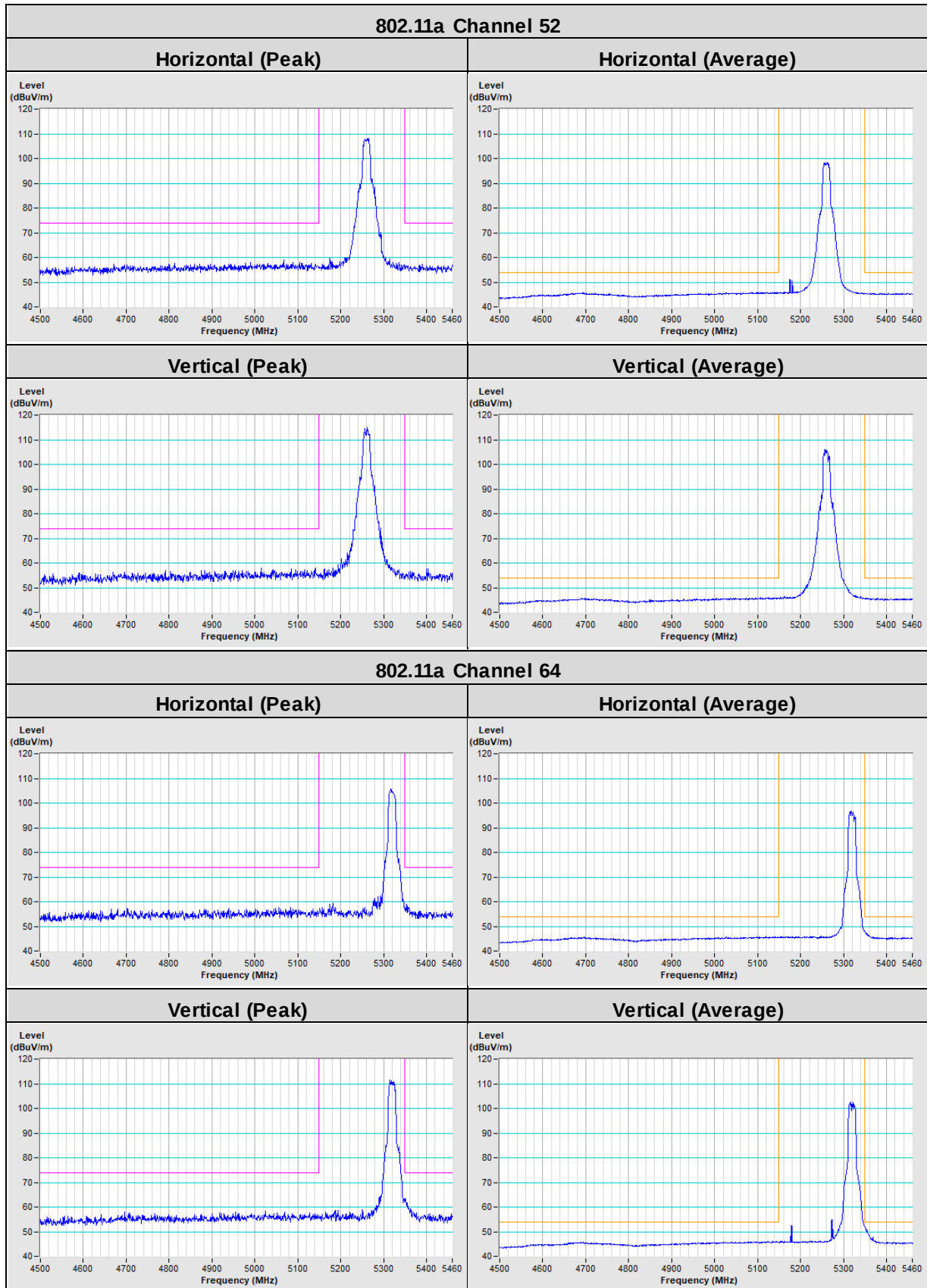


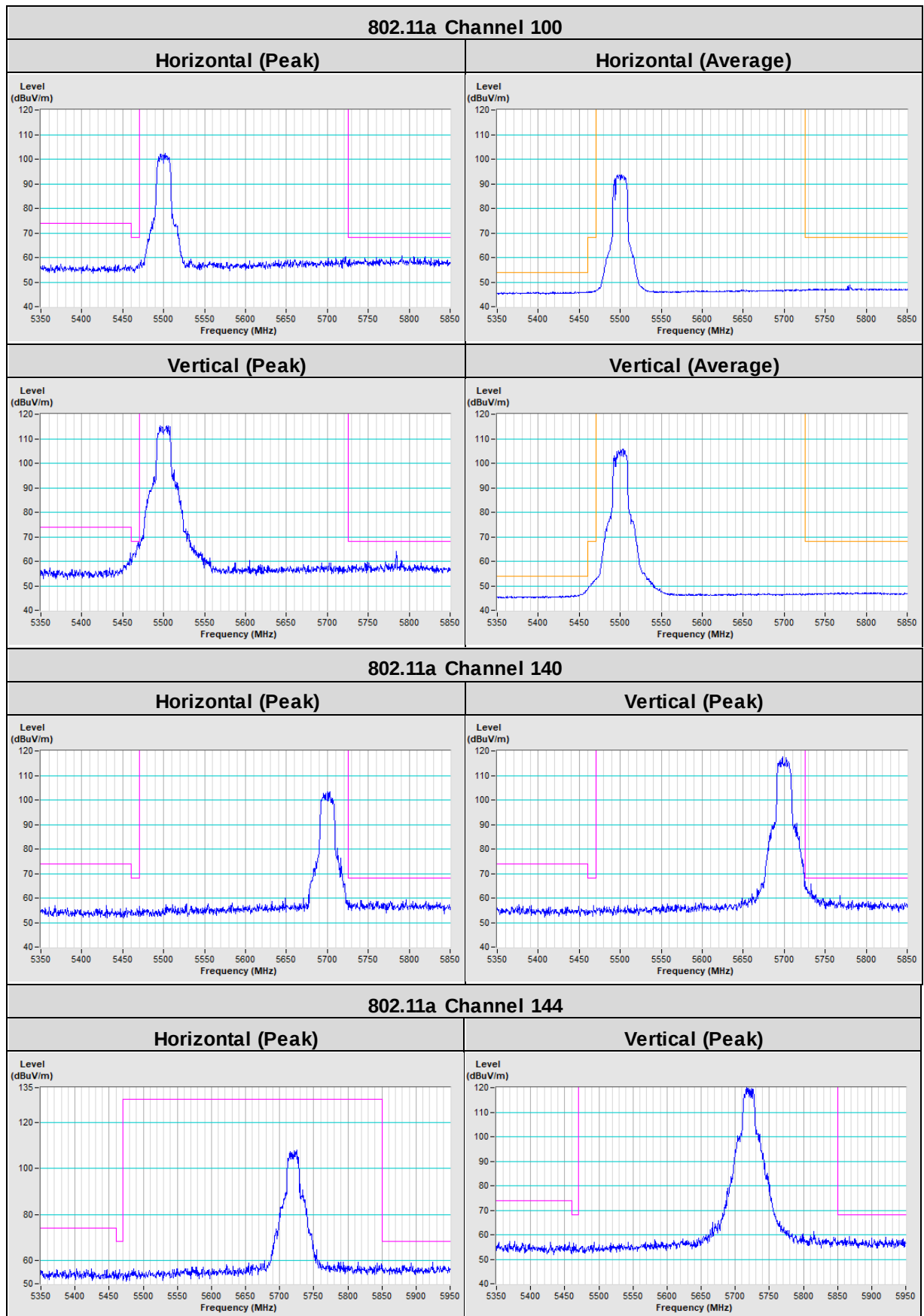
Vertical



Annex B-Band Edge Measurement

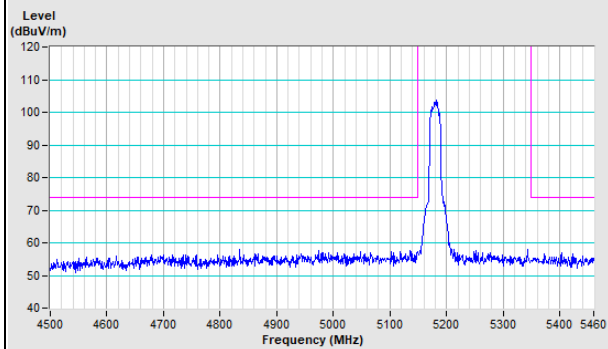




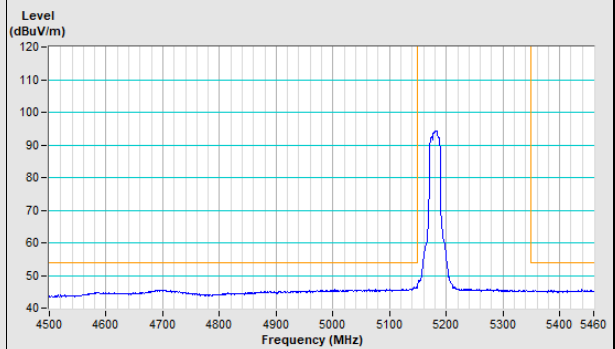


802.11ac (VHT20) Channel 36

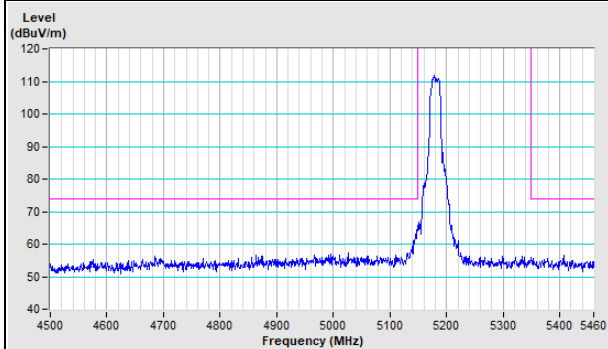
Horizontal (Peak)



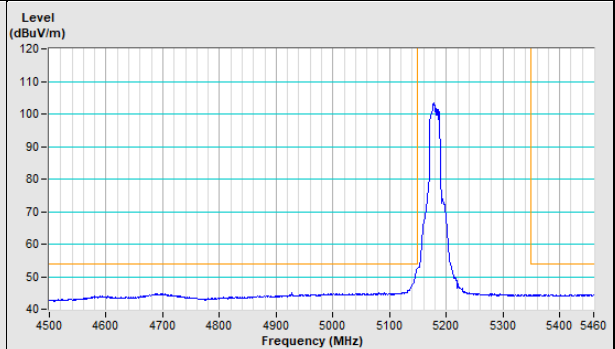
Horizontal (Average)



Vertical (Peak)

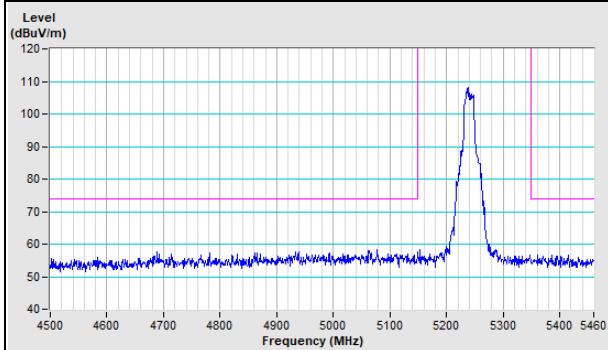


Vertical (Average)

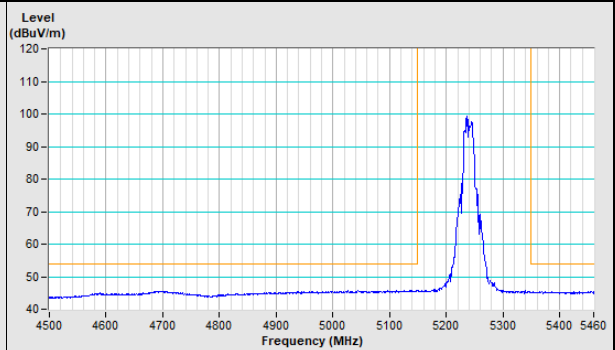


802.11ac (VHT20) Channel 48

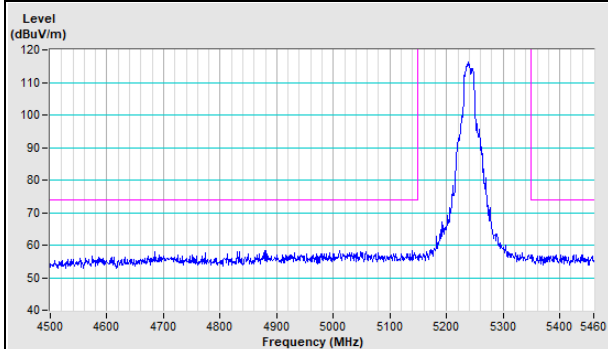
Horizontal (Peak)



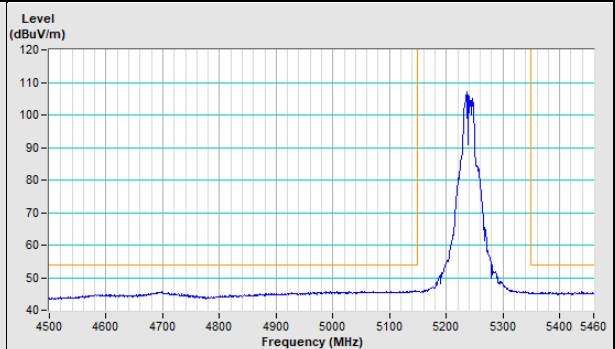
Horizontal (Average)

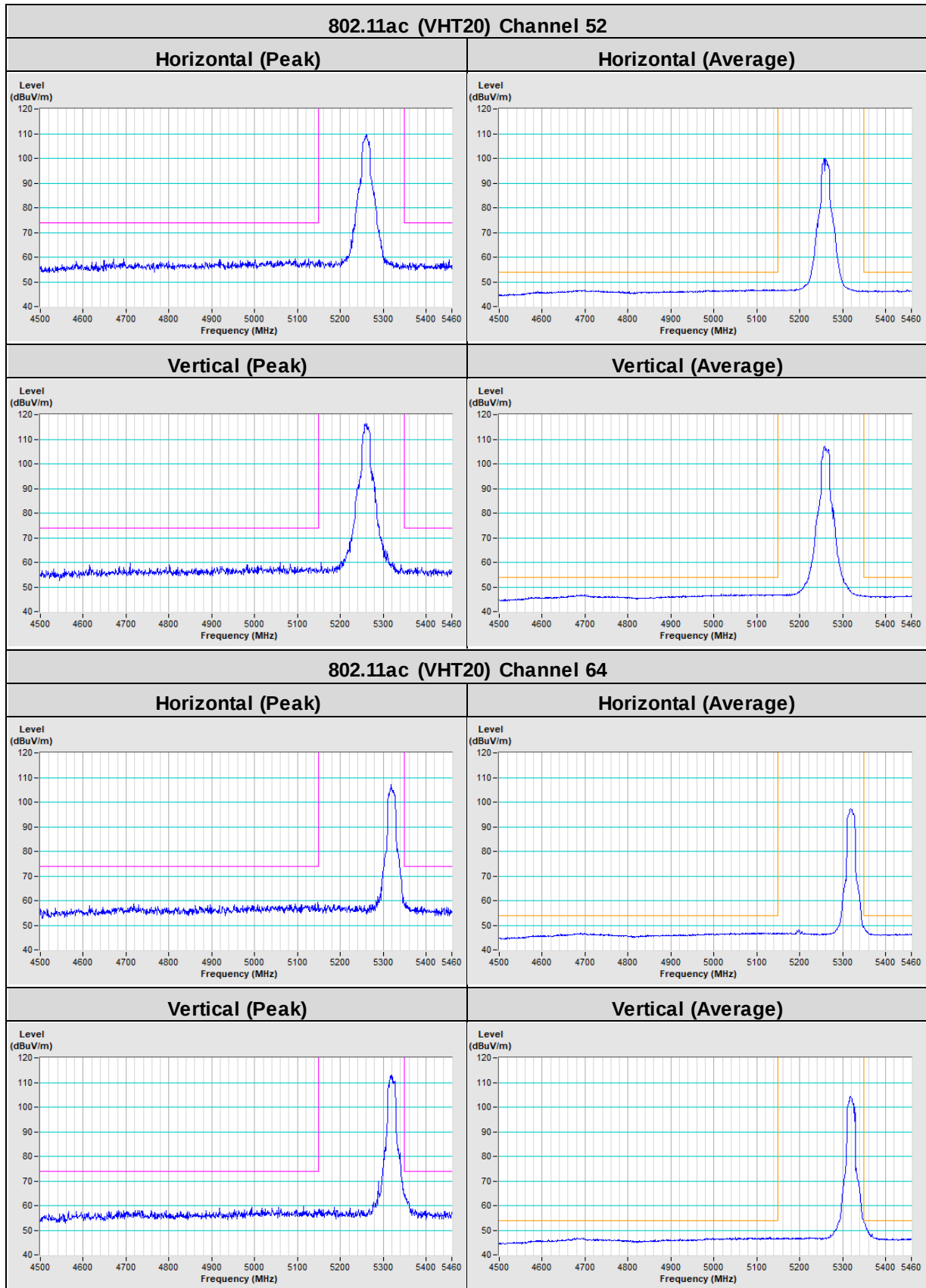


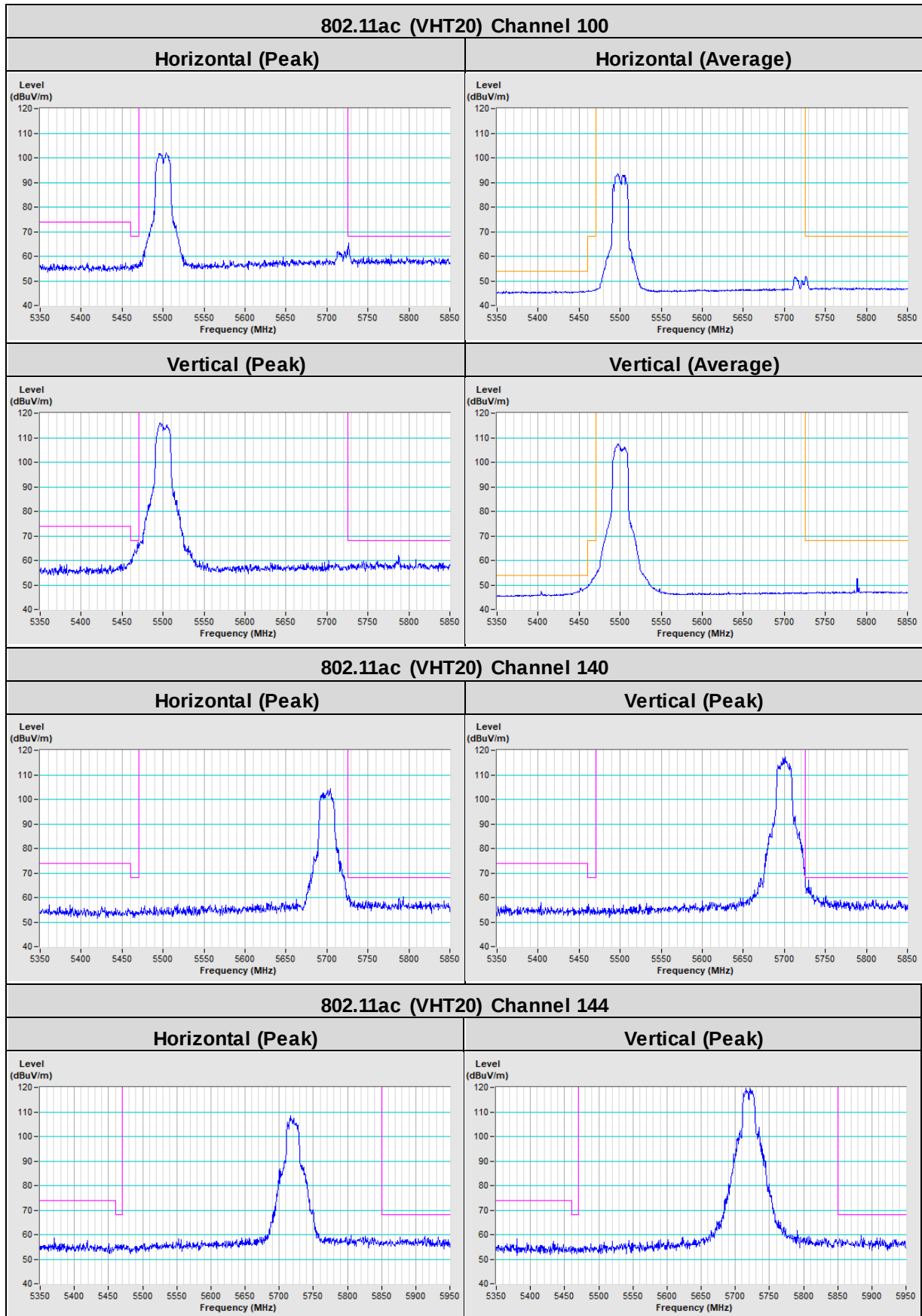
Vertical (Peak)

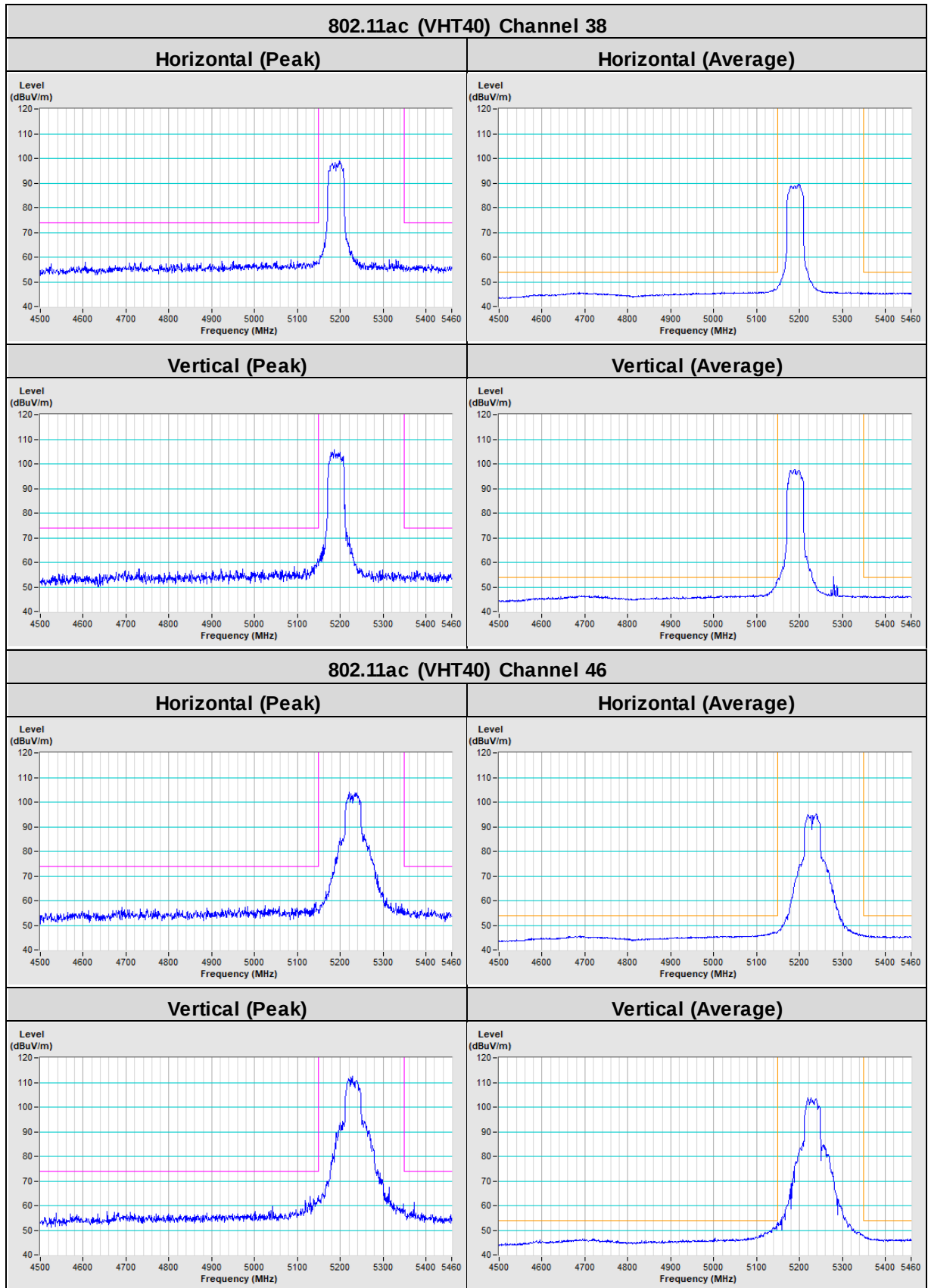


Vertical (Average)



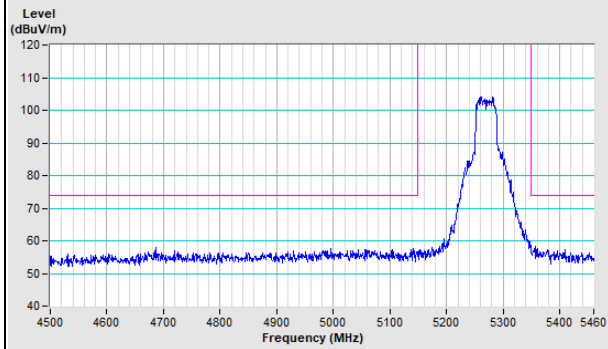




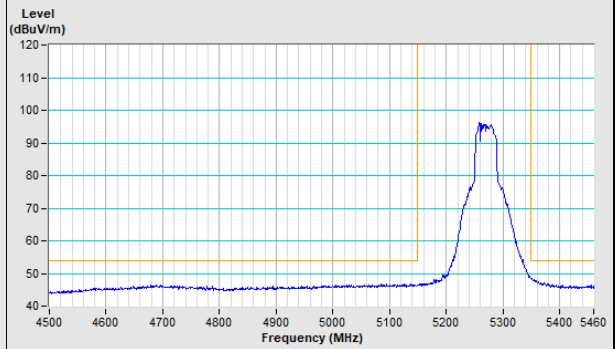


802.11ac (VHT40) Channel 54

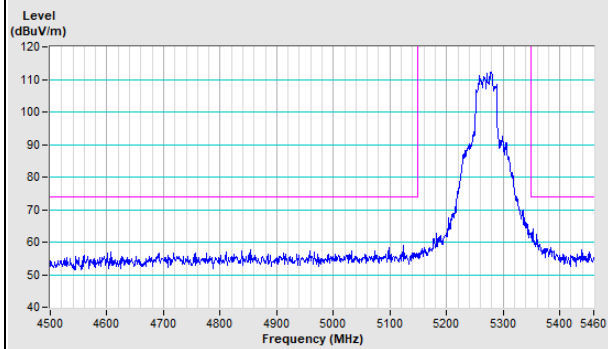
Horizontal (Peak)



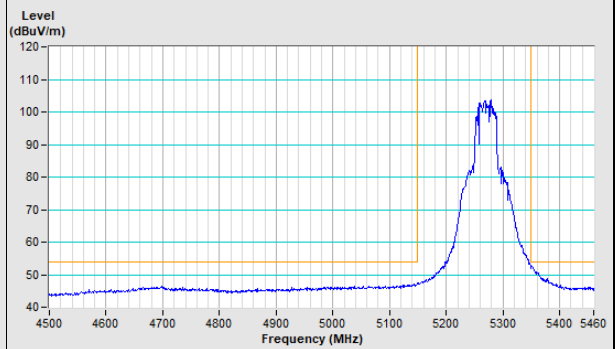
Horizontal (Average)



Vertical (Peak)

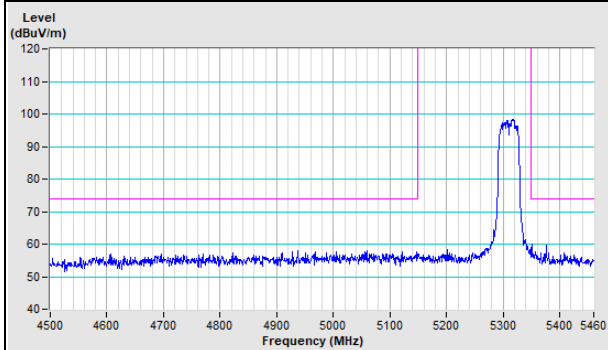


Vertical (Average)

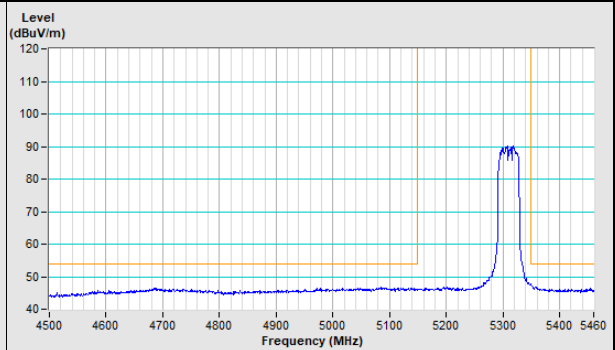


802.11ac (VHT40) Channel 62

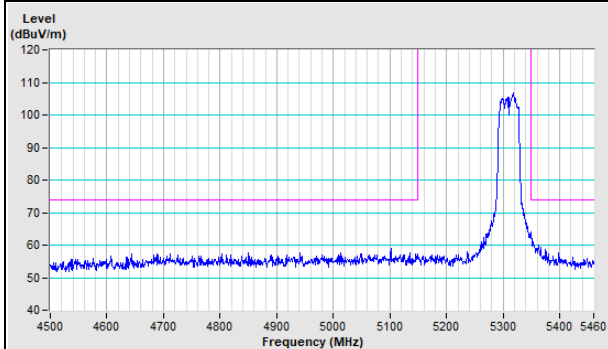
Horizontal (Peak)



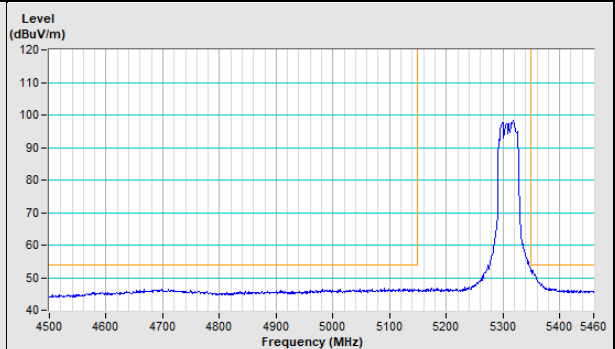
Horizontal (Average)



Vertical (Peak)

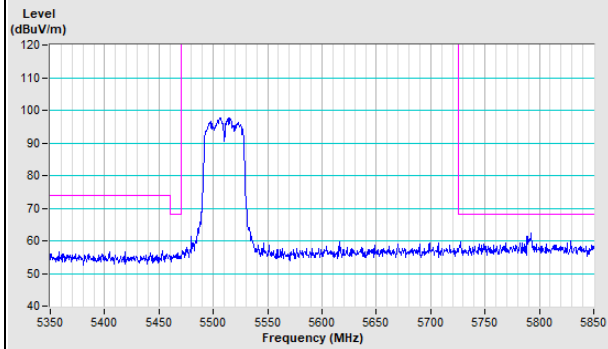


Vertical (Average)

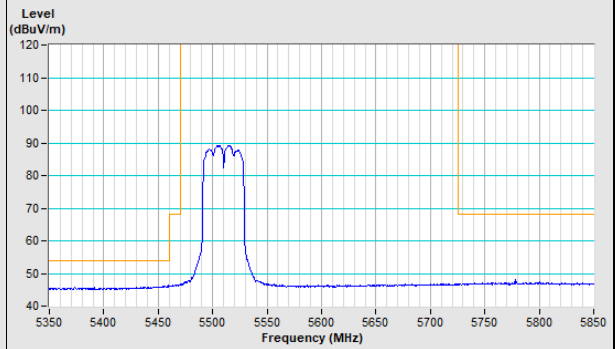


802.11ac (VHT40) Channel 102

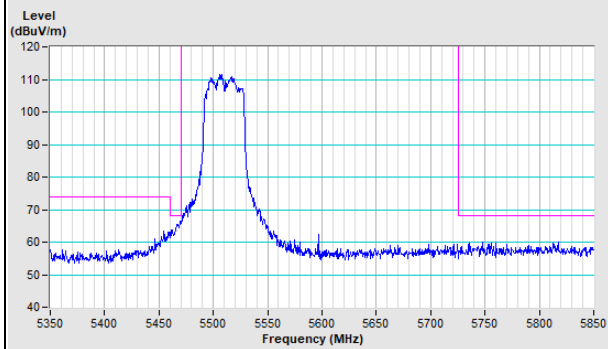
Horizontal (Peak)



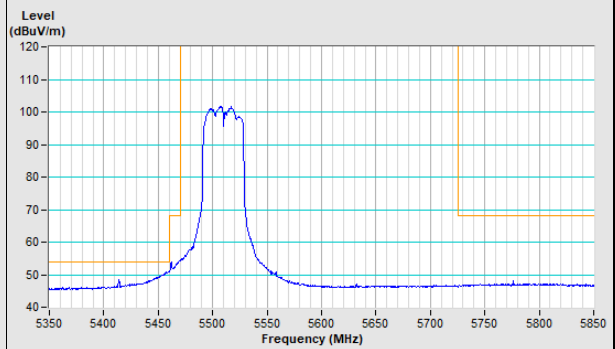
Horizontal (Average)



Vertical (Peak)

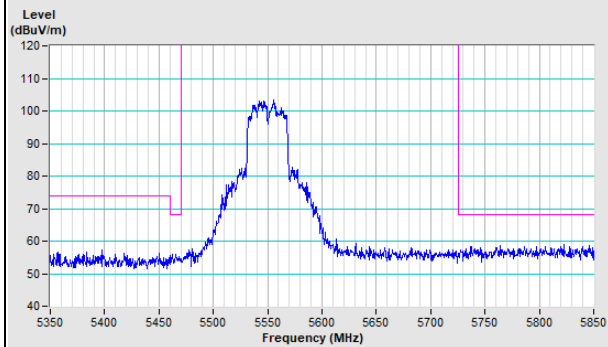


Vertical (Average)

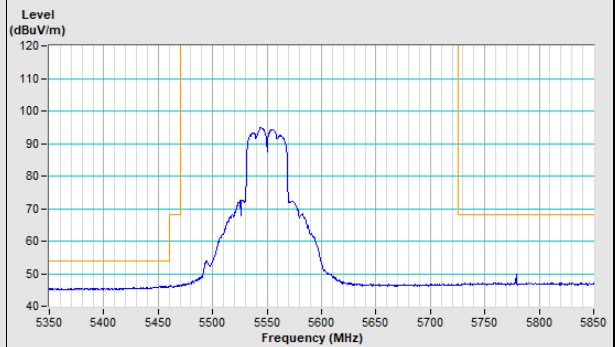


802.11ac (VHT40) Channel 110

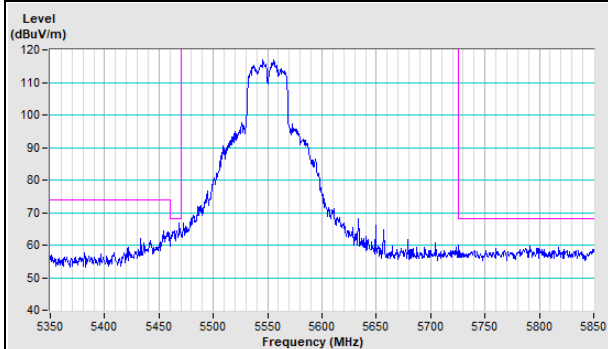
Horizontal (Peak)



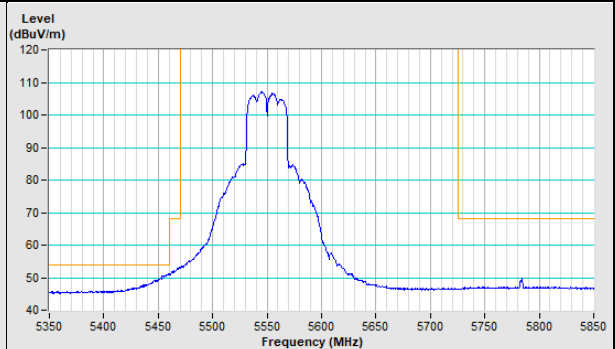
Horizontal (Average)



Vertical (Peak)

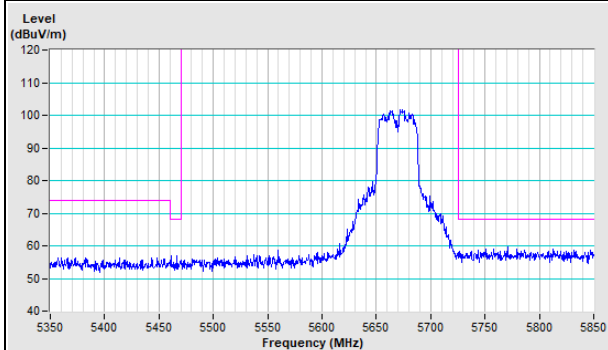


Vertical (Average)

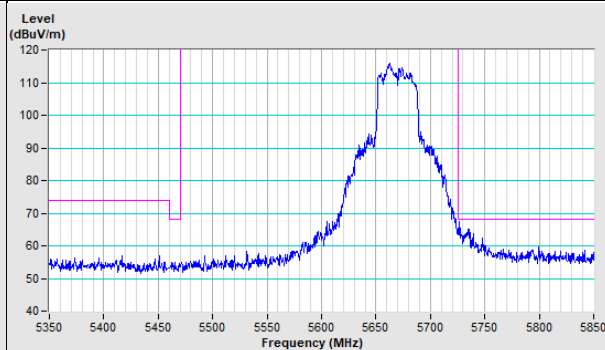


802.11ac (VHT40) Channel 134

Horizontal (Peak)

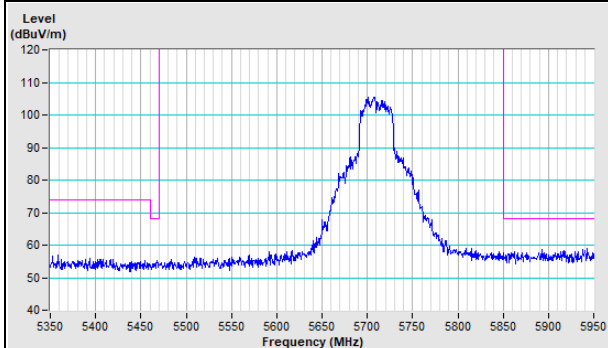


Vertical (Peak)

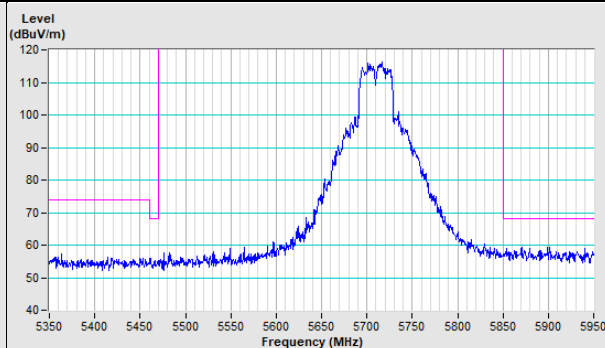


802.11ac (VHT40) Channel 142

Horizontal (Peak)

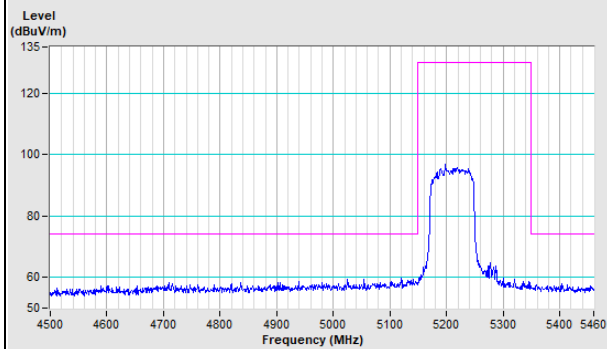


Vertical (Peak)

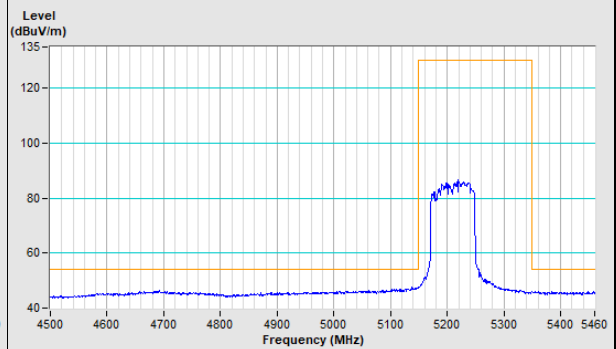


802.11ac (VHT80) Channel 42

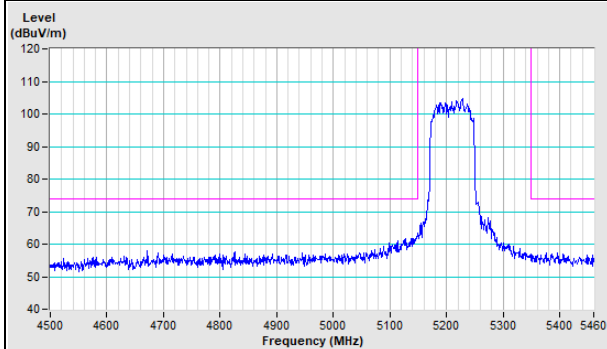
Horizontal (Peak)



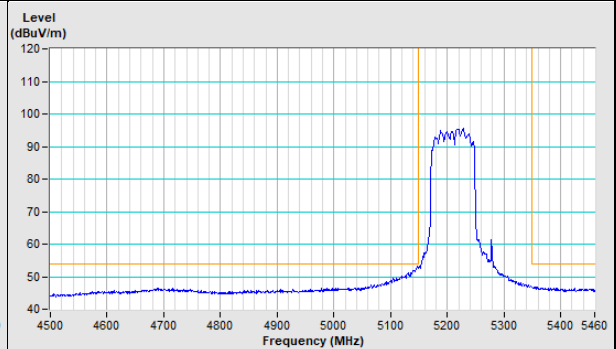
Horizontal (Average)



Vertical (Peak)

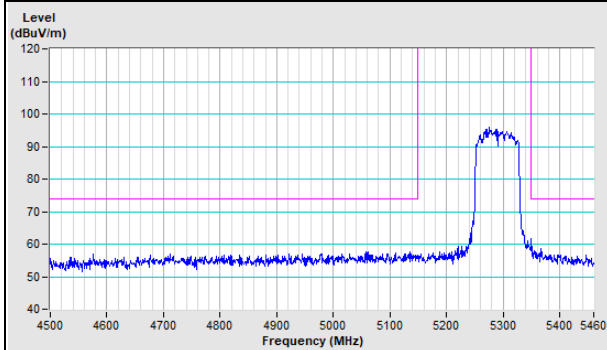


Vertical (Average)

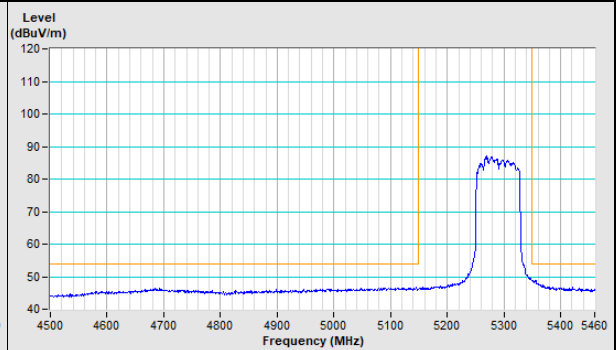


802.11ac (VHT80) Channel 58

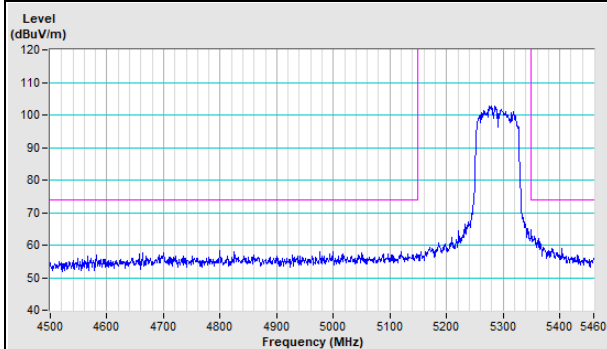
Horizontal (Peak)



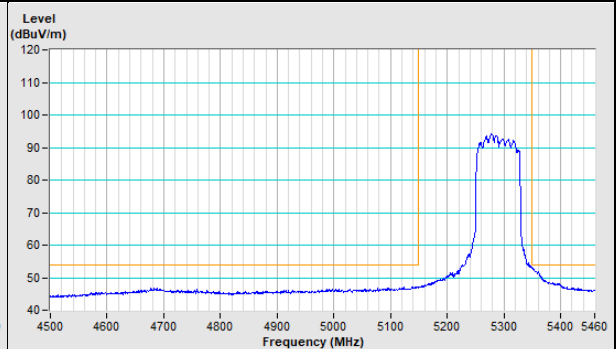
Horizontal (Average)

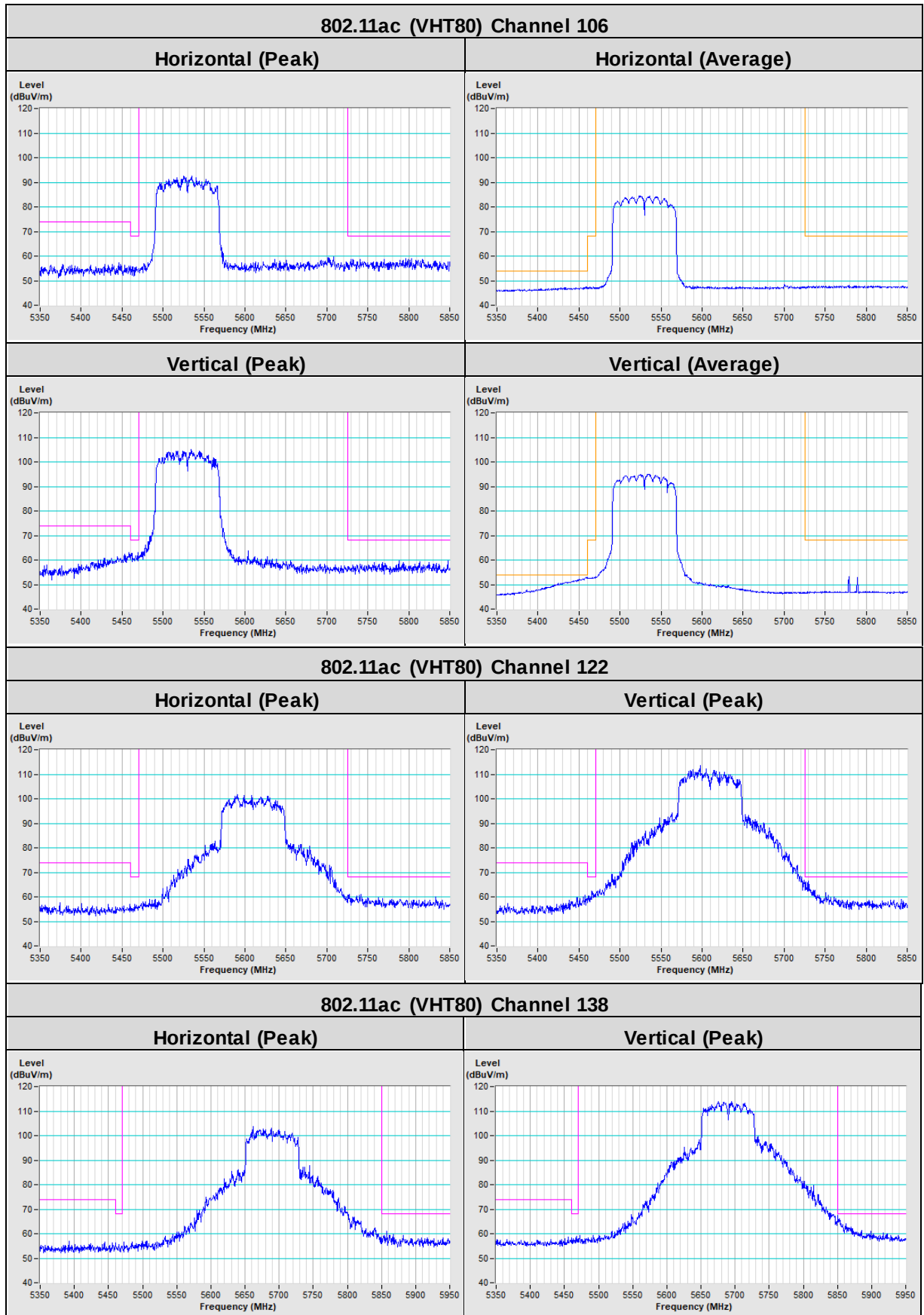


Vertical (Peak)



Vertical (Average)





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 according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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