FCC Test Report (WLAN)

Report No.:	RFBDKG-WTW-P21070273-1
FCC ID:	JNZVR0030
Test Model:	VR0030
Received Date:	2021/7/9
Test Date:	2021/8/3 ~ 2021/8/17
Issued Date:	2021/9/1
Applicant:	LOGITECH FAR EAST LTD.
Address:	7700 Gateway Boulevard Newark California United States
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RFBDKG-WTW-P21070273-1	Original release.	2021/9/1

1 Certificate of Conformity

Product: RoomMate

Brand: logitech

Test Model: VR0030

Sample Status: Engineering sample

Applicant: LOGITECH FAR EAST LTD.

Test Date: 2021/8/3 ~ 2021/8/17

Standard: 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 EMC characteristics under the conditions specified in this report.

Prepared by : Vivian Huang , **Date:** 2021/9/1
Vivian Huang / Specialist

Approved by : , **Date:** 2021/9/1
Clark Lin / Technical Manager

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 -23.18 dB at 22.55859 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 -4.0 dB at 5725.00 MHz, 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)	6dB bandwidth	PASS	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is MHF(I-PEX) not a standard connector.

Note:
1. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.
2. 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.
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	150kHz ~ 30MHz	1.9 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.4 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	RoomMate
Brand	logitech
Test Model	VR0030
Status of EUT	Engineering sample
Power Supply Rating	19 Vdc from power adapter
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	OFDM
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to 300 Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	5.18 ~ 5.24 GHz, 5.26 ~ 5.32 GHz, 5.50 ~ 5.58 GHz & 5.66 ~ 5.72 GHz, 5.745 ~ 5.825 GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20): 22 802.11n (HT40), 802.11ac (VHT40): 10 802.11ac (VHT80): 5
Output Power	**5.18 ~ 5.24 GHz:** 150.35 mW **5.26 ~ 5.32 GHz:** 151.37 mW **5.5 ~ 5.58 GHz & 5.66 ~ 5.72 GHz:** 152.08 mW **5.745 ~ 5.825 GHz:** 282.788 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1; Remote x 1 (FCC ID: JNZRR0016)
Data Cable Supplied	NA

Note:

1. The EUT has below radios as following table:

Radio 1	Radio 2
WLAN (2.4GHz + 5GHz)	Bluetooth

2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN (2.4GHz)	WLAN (5GHz)
2	WLAN (2.4GHz)	Bluetooth
3	WLAN (5GHz)	Bluetooth
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

3. The EUT must be supplied with a power adapter and following below table:

Brand	Model No.	Spec.
logitech	DSA-90PFE-19 3 190474	Input: 100-240 Vac, 1.5 A, 50/60Hz AC power cord (shielded, 0.9 m) Output: 19 Vdc, 4.74 A DC output cable (shielded, 1.5 m, with one core)

4. The antennas provided to the EUT, please refer to the following table:

Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain(dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1	Chain 0	Speed	F-0R-CC-6029-001-00	3.89 3.69 1.96 3.3 2.84	2.4~2.4835 5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.850	Monopole	MHF(I-PEX)
2	Chain 1	Speed	F-0R-CC-6029-002-00	2.1 4.5 3.95 4.59 4.92	2.4~2.4835 5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.850	Monopole	MHF(I-PEX)
Note: 1. The Bluetooth technology will fix transmission on Chain (0).							

5. The EUT incorporates a MIMO function:

5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX
Note: The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore the manufacturer will control the power for 802.11n mode is the same as the 802.11ac or more lower than it and investigated worst case to representative mode in test report. (Final test mode refer to section 3.2.1)		

6. 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.
7. 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.

3.2 Description of Test Modes

FOR 5180 ~ 5240MHz

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210 MHz

FOR 5260 ~ 5320MHz

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290 MHz

FOR 5500 ~ 5580MHz & 5660 ~ 5720MHz

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	132	5660 MHz
104	5520 MHz	136	5680 MHz
108	5540 MHz	140	5700 MHz
112	5560 MHz	144	5720 MHz
116	5580 MHz		

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	134	5670 MHz
110	5550 MHz	142	5710 MHz

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 MHz

FOR 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

Note:
The EUT had been pre-tested on the positioned of laying-flat and wall-mount. The worst case was found when positioned of on laying-flat.

Radiated Emission Test (Above 1GHz):

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

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
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
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
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
802.11a	5500-5580 & 5660-5720	100 to 144	100, 116, 140, 144	OFDM	BPSK	6
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, 138	OFDM	BPSK	29.3
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
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 1GHz):

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

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT40)	5180-5240, 5260-5320, 5500-5580 & 5660-5720, 5745-5825	38 to 46, 54 to 62, 102 to 142, 151 to 159	151	OFDM	BPSK	13.5

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT40)	5180-5240, 5260-5320, 5500-5580 & 5660-5720, 5745-5825	38 to 46, 54 to 62, 102 to 142, 151 to 159	151	OFDM	BPSK	13.5

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
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
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
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
802.11a	5500-5580 & 5660-5720	100 to 144	100, 116, 140, 144	OFDM	BPSK	6
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, 138	OFDM	BPSK	29.3
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
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:

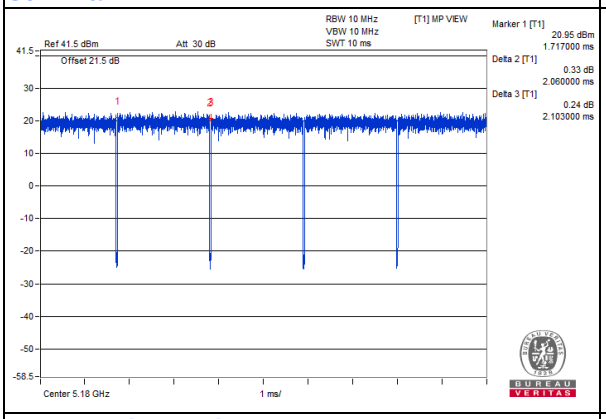
Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	25deg. C, 71%RH	120Vac, 60Hz	Sampson Chen
RE<1G	24deg. C, 70%RH	120Vac, 60Hz	Sampson Chen
PLC	25deg. C, 71%RH	120Vac, 60Hz	Sampson Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Leon Dai

3.3 Duty Cycle of Test Signal

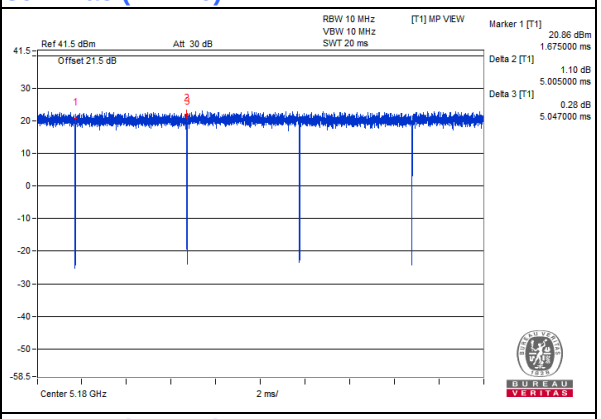
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 2.06 ms/2.103 ms = 0.98
802.11ac (VHT20): Duty cycle = 5.005 ms/5.047 ms = 0.992
802.11ac (VHT40): Duty cycle = 2.44 ms/2.487 ms = 0.981
802.11ac (VHT80): Duty cycle = 1.146 ms/1.199 ms = 0.956, Duty factor = 10 * log (1/Duty cycle) = 0.20 dB

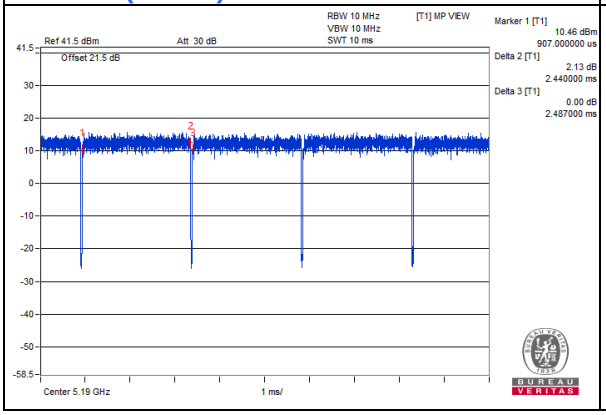
802.11a



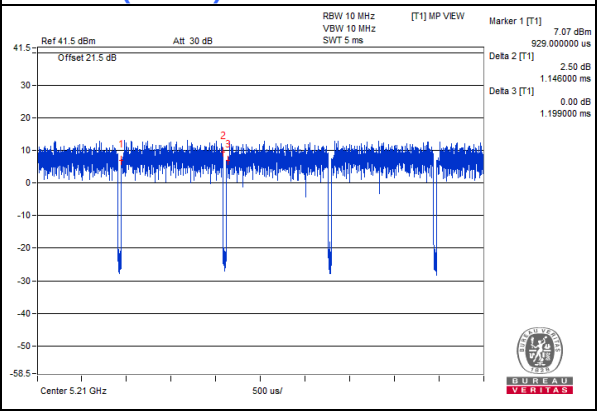
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



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.	Monitor	NEOKA	24NS50	NA	NA	Provided by Lab
B.	Monitor	DELL	P2415Q	CN-0J1P7F-QDC00-85L-13GB-A09	FCC DoC	Provided by Lab
C.	Mouse	Lemel	M857C	NA	NA	Provided by Lab
D.	Keyboard	Logitech	Y-U0009	NA	NA	Provided by Lab
E.	Camera	Logitech	VU0062	NA	NA	Supplied by client
F.	Laptop	Lenovo	20U5S01X00 L14	PF-1ANPYA	FCC DoC	Provided by Lab
G.	Router	ASUS	RT-N12+	NA	NA	Provided by Lab

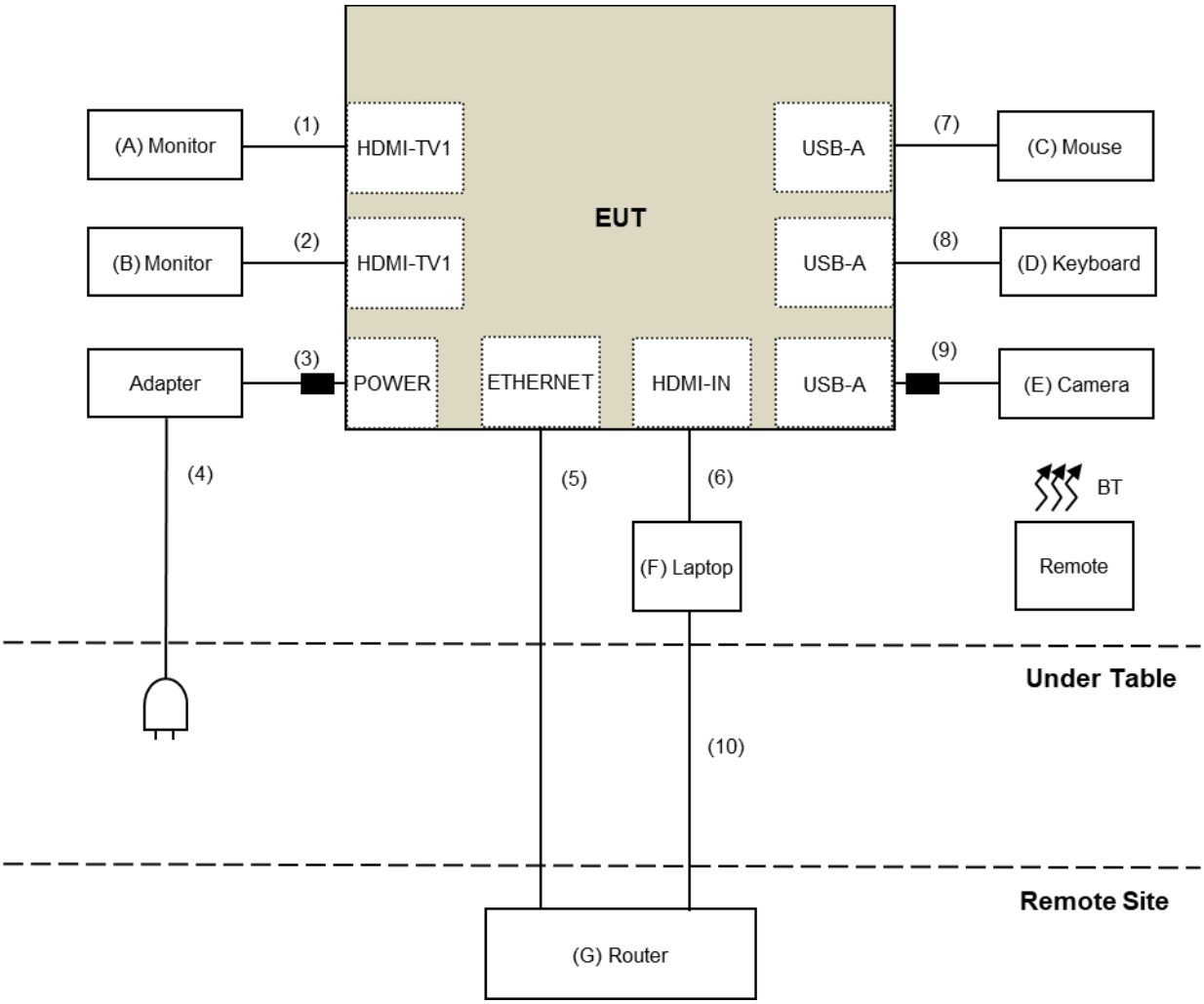
Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	HDMI Cable	1	1.8	Yes	0	Provided by Lab
2.	HDMI Cable	1	3	Yes	0	Provided by Lab
3.	DC Cable	1	1.5	Yes	1	Supplied by client
4.	AC Cable	1	0.9	Yes	0	Supplied by client
5.	RJ-45 Cable	1	10	No	0	Provided by Lab
6.	HDMI Cable	1	1.8	Yes	0	Provided by Lab
7.	USB Cable	1	1.4	Yes	0	Provided by Lab
8.	USB Cable	1	1.5	Yes	0	Provided by Lab
9.	USB Cable	1	1.8	Yes	1	Supplied by client
10.	RJ-45 Cable	1	10	No	0	Provided by Lab

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard and References

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

Test Standard:
FCC Part 15, Subpart E (15.407)
ANSI C63.10-2013

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

References Test Guidance:
KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK:74 (dBµV/m)	AV:54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBµV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	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

*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:

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

4.1.2 Test Instruments

For Radiated Emission, Bandedge and OOBE test:

Description & Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
MXE EMI Receiver(20 Hz to 44 GHz) Keysight	N9038A	MY54450088	2021/7/6	2022/7/5
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Pre_Amplifier EMCI	EMC001340	980142	2021/5/24	2022/5/23
LOOP ANTENNA Electro-Metrics	EM-6879	264	2021/3/5	2022/3/4
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2021/1/7	2022/1/6
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-002	2021/1/7	2022/1/6
Pre_Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	2020/10/20	2021/10/19
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	2020/11/5	2021/11/4
RF Coaxial Cable COMMATE/PEWC	8D	966-3-1	2021/3/16	2022/3/15
RF Coaxial Cable COMMATE/PEWC	8D	966-3-2	2021/3/16	2022/3/15
RF Coaxial Cable COMMATE/PEWC	8D	966-3-3	2021/3/16	2022/3/15
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	2020/9/24	2021/9/23
Horn Antenna Schwarzbeck	BBHA9120-D	9120D-406	2020/11/22	2021/11/21
Pre_Amplifier EMCI	EMC12630SE	980384	2021/1/11	2022/1/10
RF Coaxial Cable EMCI	EMC104-SM-SM-1500	180504	2021/4/26	2022/4/25
RF Coaxial Cable EMCI	EMC104-SM-SM-2000	180601	2021/6/8	2022/6/7
RF Coaxial Cable EMCI	EMC104-SM-SM-6000	210201	2021/5/13	2022/5/12
Fix tool for Boresight antenna tower LIOW GUU	FBA-01	FBA_SIP01	NA	NA
Spectrum Analyzer Keysight	N9030A	MY54490679	2021/7/9	2022/7/8
Pre_Amplifier EMCI	EMC184045SE	980387	2021/1/11	2022/1/10
SHF-EHF Horn Schwarzbeck	BBHA 9170	BBHA9170519	2020/11/22	2021/11/21
RF Cable-Frequency range: 1-40GHz EMCI	EMC102-KM-KM-1200	160924	2021/1/11	2022/1/10
RF cable (40GHz) EMCI	EMC-KM-KM-4000	200214	2021/3/10	2022/3/9

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 966 Chamber No. 3.
3. Tested Date: 2021/8/3 ~ 2021/8/17

For other test items

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	2021/3/8	2022/3/7
Power meter Anritsu	ML2495A	1529002	2021/6/21	2022/6/20
Power sensor Anritsu	MA2411B	1339443	2021/5/31	2022/5/30
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2021/4/13	2022/4/12
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA
AC Power Source GOOD WILL	6905S	1991551	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	2021/1/14	2022/1/13
True RMS Clamp Meter Fluke	325	31130711WS	2021/6/2	2022/6/1

NOTE:
1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: 2021/8/9

4.1.3 Test Procedure

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

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

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

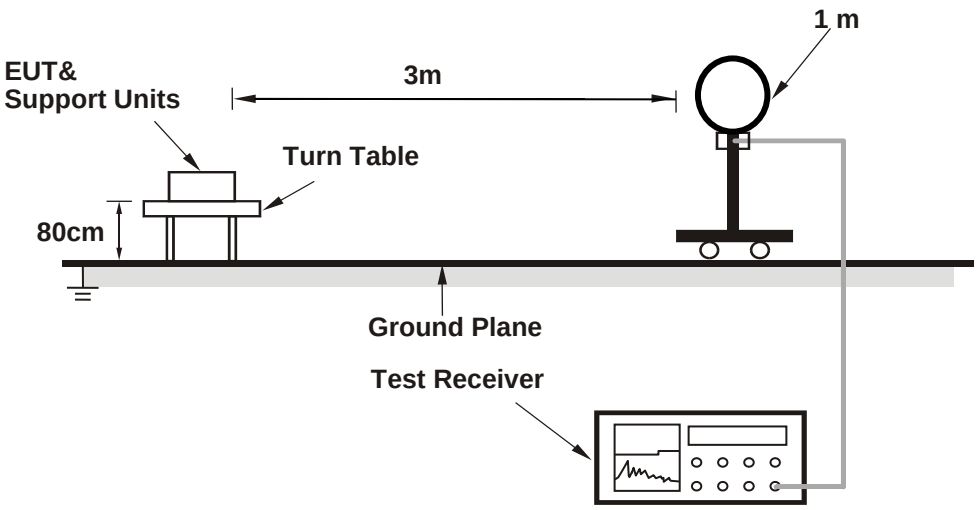
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

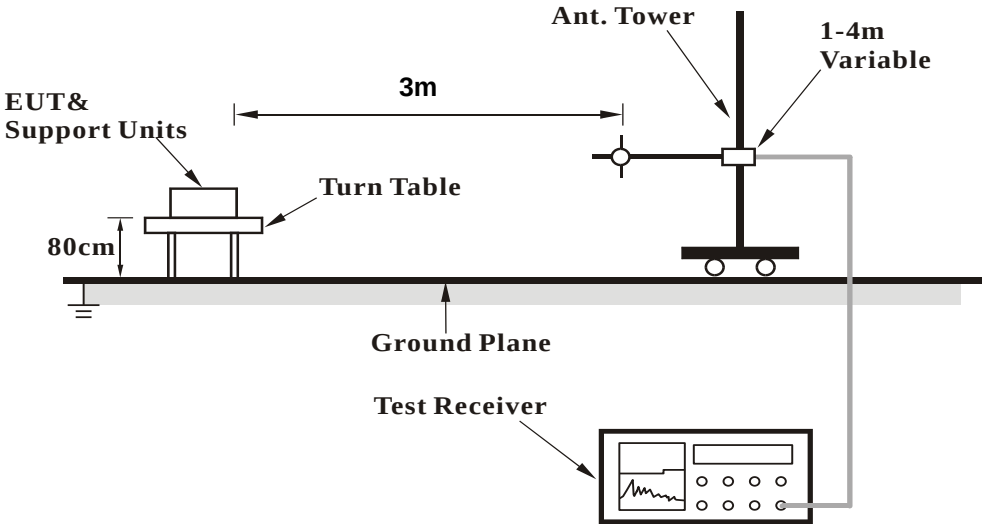
No deviation.

4.1.5 Test Setup

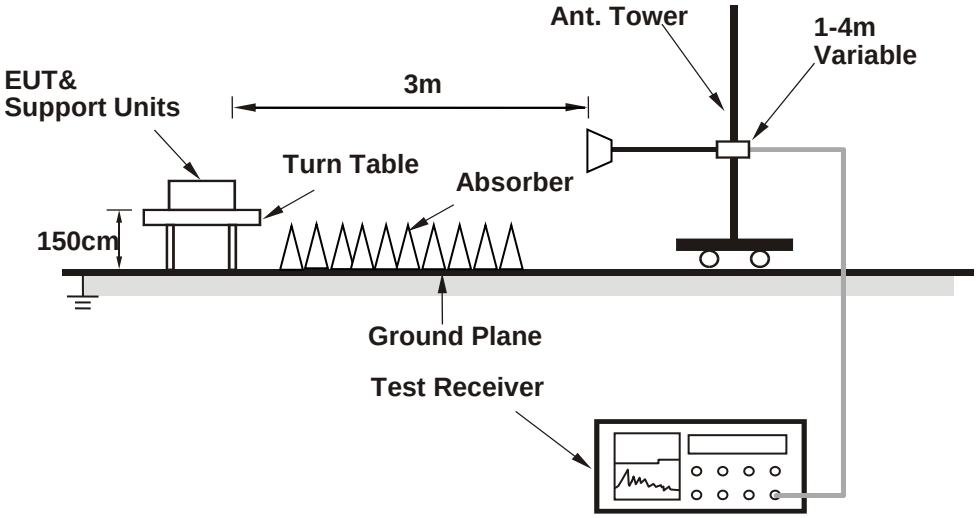
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Condition

a. Placed the EUT on the testing table.
b. Controlling software (qdart.win.4.8_installer_00074.101-30-20_06_01_09) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data:

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	5150.00	65.7 PK	74.0	-8.3	1.03 H	202	61.0	4.7
2	5150.00	49.7 AV	54.0	-4.3	1.03 H	202	45.0	4.7
3	*5180.00	115.8 PK			1.03 H	202	111.2	4.6
4	*5180.00	106.0 AV			1.03 H	202	101.4	4.6
5	#10360.00	50.1 PK	68.2	-18.1	1.00 H	144	36.7	13.4
6	15540.00	47.0 PK	74.0	-27.0	2.06 H	192	32.5	14.5
7	15540.00	34.6 AV	54.0	-19.4	2.06 H	192	20.1	14.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	5150.00	59.0 PK	74.0	-15.0	3.24 V	222	54.3	4.7
2	5150.00	46.7 AV	54.0	-7.3	3.24 V	222	42.0	4.7
3	*5180.00	113.0 PK			3.24 V	222	108.4	4.6
4	*5180.00	102.5 AV			3.24 V	222	97.9	4.6
5	#10360.00	53.0 PK	68.2	-15.2	1.05 V	219	39.6	13.4
6	15540.00	49.5 PK	74.0	-24.5	1.25 V	206	35.0	14.5
7	15540.00	38.0 AV	54.0	-16.0	1.25 V	206	23.5	14.5

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	119.4 PK			2.50 H	208	115.0	4.4
2	*5200.00	109.3 AV			2.50 H	208	104.9	4.4
3	#10400.00	55.6 PK	68.2	-12.6	1.03 H	138	42.0	13.6
4	15600.00	48.7 PK	74.0	-25.3	2.02 H	187	34.2	14.5
5	15600.00	36.5 AV	54.0	-17.5	2.02 H	187	22.0	14.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	116.4 PK			3.19 V	218	112.0	4.4
2	*5200.00	105.2 AV			3.19 V	218	100.8	4.4
3	#10400.00	60.6 PK	68.2	-7.6	1.03 V	220	47.0	13.6
4	15600.00	55.9 PK	74.0	-18.1	1.21 V	205	41.4	14.5
5	15600.00	44.3 AV	54.0	-9.7	1.21 V	205	29.8	14.5

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	117.8 PK			1.02 H	202	113.4	4.4
2	*5240.00	107.6 AV			1.02 H	202	103.2	4.4
3	5350.00	53.4 PK	74.0	-20.6	1.02 H	202	49.1	4.3
4	5350.00	42.0 AV	54.0	-12.0	1.02 H	202	37.7	4.3
5	#10480.00	50.0 PK	68.2	-18.2	1.03 H	138	36.3	13.7
6	15720.00	47.0 PK	74.0	-27.0	2.02 H	187	32.6	14.4
7	15720.00	34.4 AV	54.0	-19.6	2.02 H	187	20.0	14.4
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	*5240.00	113.7 PK			3.27 V	213	109.3	4.4
2	*5240.00	103.2 AV			3.27 V	213	98.8	4.4
3	5350.00	52.2 PK	74.0	-21.8	3.27 V	213	47.9	4.3
4	5350.00	41.8 AV	54.0	-12.2	3.27 V	213	37.5	4.3
5	#10480.00	52.5 PK	68.2	-15.7	1.03 V	220	38.8	13.7
6	15720.00	49.6 PK	74.0	-24.4	1.21 V	205	35.2	14.4
7	15720.00	38.0 AV	54.0	-16.0	1.21 V	205	23.6	14.4

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	53.4 PK	74.0	-20.6	1.10 H	202	48.7	4.7
2	5150.00	40.8 AV	54.0	-13.2	1.10 H	202	36.1	4.7
3	*5260.00	117.3 PK			1.10 H	202	113.0	4.3
4	*5260.00	107.1 AV			1.10 H	202	102.8	4.3
5	#10520.00	50.5 PK	68.2	-17.7	1.04 H	142	36.7	13.8
6	15780.00	46.5 PK	74.0	-27.5	2.05 H	192	32.2	14.3
7	15780.00	34.1 AV	54.0	-19.9	2.05 H	192	19.8	14.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.0 PK	74.0	-22.0	3.21 V	203	47.3	4.7
2	5150.00	41.4 AV	54.0	-12.6	3.21 V	203	36.7	4.7
3	*5260.00	113.3 PK			3.21 V	203	109.0	4.3
4	*5260.00	103.0 AV			3.21 V	203	98.7	4.3
5	#10520.00	52.4 PK	68.2	-15.8	1.11 V	211	38.6	13.8
6	15780.00	49.2 PK	74.0	-24.8	1.20 V	206	34.9	14.3
7	15780.00	37.6 AV	54.0	-16.4	1.20 V	206	23.3	14.3

Remarks:

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

RF Mode	TX 802.11a	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	117.2 PK			2.51 H	213	112.9	4.3
2	*5300.00	107.3 AV			2.51 H	213	103.0	4.3
3	10600.00	50.1 PK	74.0	-23.9	1.02 H	140	36.5	13.6
4	10600.00	38.7 AV	54.0	-15.3	1.02 H	140	25.1	13.6
5	15900.00	47.2 PK	74.0	-26.8	1.96 H	193	33.1	14.1
6	15900.00	34.5 AV	54.0	-19.5	1.96 H	193	20.4	14.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	113.6 PK			3.21 V	201	109.3	4.3
2	*5300.00	103.3 AV			3.21 V	201	99.0	4.3
3	10600.00	52.6 PK	74.0	-21.4	1.04 V	225	39.0	13.6
4	10600.00	40.5 AV	54.0	-13.5	1.04 V	225	26.9	13.6
5	15900.00	49.4 PK	74.0	-24.6	1.20 V	203	35.3	14.1
6	15900.00	38.1 AV	54.0	-15.9	1.20 V	203	24.0	14.1

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	114.3 PK			1.03 H	201	110.0	4.3
2	*5320.00	104.8 AV			1.03 H	201	100.5	4.3
3	5350.00	59.9 PK	74.0	-14.1	1.03 H	201	55.6	4.3
4	5350.00	49.0 AV	54.0	-5.0	1.03 H	201	44.7	4.3
5	10640.00	50.3 PK	74.0	-23.7	1.07 H	122	36.6	13.7
6	10640.00	39.2 AV	54.0	-14.8	1.07 H	122	25.5	13.7
7	15960.00	47.1 PK	74.0	-26.9	2.03 H	196	33.0	14.1
8	15960.00	34.5 AV	54.0	-19.5	2.03 H	196	20.4	14.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	109.5 PK			3.25 V	223	105.2	4.3
2	*5320.00	99.5 AV			3.25 V	223	95.2	4.3
3	5350.00	54.6 PK	74.0	-19.4	3.25 V	223	50.3	4.3
4	5350.00	43.7 AV	54.0	-10.3	3.25 V	223	39.4	4.3
5	10640.00	52.2 PK	74.0	-21.8	1.01 V	215	38.5	13.7
6	10640.00	40.1 AV	54.0	-13.9	1.01 V	215	26.4	13.7
7	15960.00	49.6 PK	74.0	-24.4	1.22 V	209	35.5	14.1
8	15960.00	38.1 AV	54.0	-15.9	1.22 V	209	24.0	14.1

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	58.7 PK	74.0	-15.3	2.49 H	215	54.3	4.4
2	5460.00	45.1 AV	54.0	-8.9	2.49 H	215	40.7	4.4
3	#5470.00	61.8 PK	68.2	-6.4	2.49 H	215	57.3	4.5
4	*5500.00	116.0 PK			2.49 H	215	111.3	4.7
5	*5500.00	105.6 AV			2.49 H	215	100.9	4.7
6	11000.00	49.9 PK	74.0	-24.1	1.02 H	143	35.6	14.3
7	11000.00	38.7 AV	54.0	-15.3	1.02 H	143	24.4	14.3
8	#16500.00	47.4 PK	68.2	-20.8	2.02 H	172	31.6	15.8
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	5460.00	52.0 PK	74.0	-22.0	2.90 V	214	47.6	4.4
2	5460.00	41.6 AV	54.0	-12.4	2.90 V	214	37.2	4.4
3	#5470.00	53.9 PK	68.2	-14.3	2.90 V	214	49.4	4.5
4	*5500.00	107.7 PK			2.90 V	214	103.0	4.7
5	*5500.00	97.8 AV			2.90 V	214	93.1	4.7
6	11000.00	52.2 PK	74.0	-21.8	1.09 V	224	37.9	14.3
7	11000.00	39.9 AV	54.0	-14.1	1.09 V	224	25.6	14.3
8	#16500.00	50.0 PK	68.2	-18.2	1.19 V	213	34.2	15.8

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	116.9 PK			2.47 H	215	112.4	4.5
2	*5580.00	106.3 AV			2.47 H	215	101.8	4.5
3	11160.00	50.1 PK	74.0	-23.9	1.08 H	131	36.0	14.1
4	11160.00	39.0 AV	54.0	-15.0	1.08 H	131	24.9	14.1
5	#16740.00	47.0 PK	68.2	-21.2	2.04 H	195	30.2	16.8
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	*5580.00	113.9 PK			3.22 V	195	109.4	4.5
2	*5580.00	103.4 AV			3.22 V	195	98.9	4.5
3	11160.00	52.5 PK	74.0	-21.5	1.08 V	208	38.4	14.1
4	11160.00	40.4 AV	54.0	-13.6	1.08 V	208	26.3	14.1
5	#16740.00	49.7 PK	68.2	-18.5	1.17 V	211	32.9	16.8

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	115.0 PK			2.61 H	224	110.4	4.6
2	*5700.00	104.7 AV			2.61 H	224	100.1	4.6
3	#5725.00	63.4 PK	68.2	-4.8	2.61 H	224	58.7	4.7
4	11400.00	49.5 PK	74.0	-24.5	1.04 H	152	35.0	14.5
5	11400.00	38.4 AV	54.0	-15.6	1.04 H	152	23.9	14.5
6	#17100.00	47.0 PK	68.2	-21.2	1.99 H	185	29.2	17.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	107.6 PK			3.40 V	304	103.0	4.6
2	*5700.00	97.7 AV			3.40 V	304	93.1	4.6
3	#5725.00	54.8 PK	68.2	-13.4	3.40 V	304	50.1	4.7
4	11400.00	53.2 PK	74.0	-20.8	1.05 V	212	38.7	14.5
5	11400.00	40.7 AV	54.0	-13.3	1.05 V	212	26.2	14.5
6	#17100.00	49.0 PK	68.2	-19.2	1.19 V	212	31.2	17.8

Remarks:

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

RF Mode	TX 802.11a	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	5460.00	52.2 PK	74.0	-21.8	2.46 H	215	47.8	4.4
2	5460.00	39.1 AV	54.0	-14.9	2.46 H	215	34.7	4.4
3	#5470.00	51.7 PK	68.2	-16.5	2.46 H	215	47.2	4.5
4	*5720.00	116.1 PK			2.46 H	215	111.4	4.7
5	*5720.00	105.5 AV			2.46 H	215	100.8	4.7
6	#5850.00	52.6 PK	68.2	-15.6	2.46 H	215	47.6	5.0
7	11440.00	49.7 PK	74.0	-24.3	1.07 H	131	35.1	14.6
8	11440.00	38.6 AV	54.0	-15.4	1.07 H	131	24.0	14.6
9	#17160.00	46.8 PK	68.2	-21.4	1.98 H	175	29.0	17.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	52.5 PK	74.0	-21.5	3.40 V	289	48.1	4.4
2	5460.00	39.3 AV	54.0	-14.7	3.40 V	289	34.9	4.4
3	#5470.00	52.2 PK	68.2	-16.0	3.40 V	289	47.7	4.5
4	*5720.00	107.4 PK			3.40 V	289	102.7	4.7
5	*5720.00	97.7 AV			3.40 V	289	93.0	4.7
6	#5850.00	52.3 PK	68.2	-15.9	3.40 V	289	47.3	5.0
7	11440.00	53.1 PK	74.0	-20.9	1.02 V	223	38.5	14.6
8	11440.00	40.6 AV	54.0	-13.4	1.02 V	223	26.0	14.6
9	#17160.00	49.2 PK	68.2	-19.0	1.21 V	191	31.4	17.8

Remarks:

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

RF Mode	TX 802.11a	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	#5573.85	51.7 PK	68.2	-16.5	1.20 H	199	49.6	2.1
2	*5745.00	117.3 PK			1.20 H	199	112.3	5.0
3	*5745.00	107.4 AV			1.20 H	199	102.4	5.0
4	#5962.40	51.9 PK	68.2	-16.3	1.20 H	199	49.0	2.9
5	11490.00	56.0 PK	74.0	-18.0	1.00 H	141	41.4	14.6
6	11490.00	43.6 AV	54.0	-10.4	1.00 H	141	29.0	14.6
7	#17235.00	48.9 PK	68.2	-19.3	2.08 H	202	30.9	18.0
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	#5550.95	51.5 PK	68.2	-16.7	1.40 V	302	49.4	2.1
2	*5745.00	111.2 PK			1.40 V	302	106.2	5.0
3	*5745.00	101.1 AV			1.40 V	302	96.1	5.0
4	#5957.50	52.2 PK	68.2	-16.0	1.40 V	302	49.3	2.9
5	11490.00	60.6 PK	74.0	-13.4	1.03 V	220	46.0	14.6
6	11490.00	47.8 AV	54.0	-6.2	1.03 V	220	33.2	14.6
7	#17235.00	55.9 PK	68.2	-12.3	1.21 V	205	37.9	18.0

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 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	#5595.65	52.5 PK	68.2	-15.7	1.14 H	204	50.4	2.1
2	*5785.00	116.9 PK			1.14 H	204	111.8	5.1
3	*5785.00	107.2 AV			1.14 H	204	102.1	5.1
4	#5930.71	53.6 PK	68.2	-14.6	1.14 H	204	50.7	2.9
5	11570.00	55.6 PK	74.0	-18.4	1.02 H	140	41.0	14.6
6	11570.00	43.2 AV	54.0	-10.8	1.02 H	140	28.6	14.6
7	#17355.00	49.0 PK	68.2	-19.2	2.01 H	192	30.8	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5641.44	51.5 PK	68.2	-16.7	1.39 V	293	49.2	2.3
2	*5785.00	111.2 PK			1.39 V	293	106.1	5.1
3	*5785.00	101.2 AV			1.39 V	293	96.1	5.1
4	#5993.84	52.4 PK	68.2	-15.8	1.39 V	293	49.5	2.9
5	11570.00	60.6 PK	74.0	-13.4	1.03 V	220	46.0	14.6
6	11570.00	47.8 AV	54.0	-6.2	1.03 V	220	33.2	14.6
7	#17355.00	55.9 PK	68.2	-12.3	1.21 V	205	37.7	18.2

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5638.92	51.5 PK	68.2	-16.7	1.19 H	195	49.2	2.3
2	*5825.00	116.7 PK			1.19 H	195	111.7	5.0
3	*5825.00	107.1 AV			1.19 H	195	102.1	5.0
4	#5995.65	52.4 PK	68.2	-15.8	1.19 H	195	49.5	2.9
5	11650.00	55.8 PK	74.0	-18.2	1.03 H	135	41.4	14.4
6	11650.00	43.4 AV	54.0	-10.6	1.03 H	135	29.0	14.4
7	#17475.00	48.9 PK	68.2	-19.3	2.06 H	181	30.1	18.8
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	#5565.86	51.2 PK	68.2	-17.0	1.35 V	300	49.1	2.1
2	*5825.00	110.9 PK			1.35 V	300	105.9	5.0
3	*5825.00	101.0 AV			1.35 V	300	96.0	5.0
4	#5931.52	53.0 PK	68.2	-15.2	1.35 V	300	50.1	2.9
5	11650.00	60.6 PK	74.0	-13.4	1.03 V	220	46.2	14.4
6	11650.00	47.8 AV	54.0	-6.2	1.03 V	220	33.4	14.4
7	#17475.00	55.9 PK	68.2	-12.3	1.21 V	205	37.1	18.8

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 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	61.5 PK	74.0	-12.5	1.00 H	203	56.8	4.7
2	5150.00	49.6 AV	54.0	-4.4	1.00 H	203	44.9	4.7
3	*5180.00	118.5 PK			1.00 H	203	113.9	4.6
4	*5180.00	108.1 AV			1.00 H	203	103.5	4.6
5	#10360.00	50.1 PK	68.2	-18.1	1.05 H	139	36.7	13.4
6	15540.00	47.6 PK	74.0	-26.4	2.02 H	173	33.1	14.5
7	15540.00	34.7 AV	54.0	-19.3	2.02 H	173	20.2	14.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.6 PK	74.0	-14.4	2.81 V	130	54.9	4.7
2	5150.00	45.6 AV	54.0	-8.4	2.81 V	130	40.9	4.7
3	*5180.00	110.5 PK			2.81 V	130	105.9	4.6
4	*5180.00	100.7 AV			2.81 V	130	96.1	4.6
5	#10360.00	52.9 PK	68.2	-15.3	1.07 V	210	39.5	13.4
6	15540.00	49.1 PK	74.0	-24.9	1.27 V	192	34.6	14.5
7	15540.00	37.8 AV	54.0	-16.2	1.27 V	192	23.3	14.5

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	120.3 PK			2.62 H	215	115.9	4.4
2	*5200.00	110.2 AV			2.62 H	215	105.8	4.4
3	#10400.00	55.6 PK	68.2	-12.6	1.08 H	151	42.0	13.6
4	15600.00	48.3 PK	74.0	-25.7	2.10 H	181	33.8	14.5
5	15600.00	36.5 AV	54.0	-17.5	2.10 H	181	22.0	14.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	113.6 PK			3.18 V	233	109.2	4.4
2	*5200.00	102.3 AV			3.18 V	233	97.9	4.4
3	#10400.00	60.9 PK	68.2	-7.3	1.02 V	218	47.3	13.6
4	15600.00	55.7 PK	74.0	-18.3	1.16 V	207	41.2	14.5
5	15600.00	44.2 AV	54.0	-9.8	1.16 V	207	29.7	14.5

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	117.3 PK			2.62 H	208	112.9	4.4
2	*5240.00	107.2 AV			2.62 H	208	102.8	4.4
3	5350.00	52.6 PK	74.0	-21.4	2.62 H	208	48.3	4.3
4	5350.00	41.4 AV	54.0	-12.6	2.62 H	208	37.1	4.3
5	#10480.00	50.2 PK	68.2	-18.0	1.01 H	145	36.5	13.7
6	15720.00	47.2 PK	74.0	-26.8	2.00 H	183	32.8	14.4
7	15720.00	34.7 AV	54.0	-19.3	2.00 H	183	20.3	14.4
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	*5240.00	110.7 PK			2.76 V	135	106.3	4.4
2	*5240.00	100.9 AV			2.76 V	135	96.5	4.4
3	5350.00	51.6 PK	74.0	-22.4	2.76 V	135	47.3	4.3
4	5350.00	41.0 AV	54.0	-13.0	2.76 V	135	36.7	4.3
5	#10480.00	53.4 PK	68.2	-14.8	1.11 V	215	39.7	13.7
6	15720.00	49.8 PK	74.0	-24.2	1.27 V	204	35.4	14.4
7	15720.00	38.1 AV	54.0	-15.9	1.27 V	204	23.7	14.4

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 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	51.9 PK	74.0	-22.1	2.61 H	217	47.2	4.7
2	5150.00	41.3 AV	54.0	-12.7	2.61 H	217	36.6	4.7
3	*5260.00	116.2 PK			2.61 H	217	111.9	4.3
4	*5260.00	106.4 AV			2.61 H	217	102.1	4.3
5	#10520.00	49.6 PK	68.2	-18.6	1.02 H	140	35.8	13.8
6	15780.00	47.1 PK	74.0	-26.9	2.05 H	196	32.8	14.3
7	15780.00	34.3 AV	54.0	-19.7	2.05 H	196	20.0	14.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.3 PK	74.0	-21.7	2.75 V	128	47.6	4.7
2	5150.00	40.4 AV	54.0	-13.6	2.75 V	128	35.7	4.7
3	*5260.00	110.8 PK			2.70 V	127	106.5	4.3
4	*5260.00	101.1 AV			2.70 V	127	96.8	4.3
5	#10520.00	53.3 PK	68.2	-14.9	1.03 V	211	39.5	13.8
6	15780.00	49.2 PK	74.0	-24.8	1.31 V	191	34.9	14.3
7	15780.00	37.9 AV	54.0	-16.1	1.31 V	191	23.6	14.3

Remarks:

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

RF Mode	TX 802.11ac (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	116.9 PK			2.57 H	209	112.6	4.3
2	*5300.00	107.0 AV			2.57 H	209	102.7	4.3
3	10600.00	49.7 PK	74.0	-24.3	1.00 H	141	36.1	13.6
4	10600.00	38.7 AV	54.0	-15.3	1.00 H	141	25.1	13.6
5	15900.00	47.5 PK	74.0	-26.5	1.99 H	177	33.4	14.1
6	15900.00	34.8 AV	54.0	-19.2	1.99 H	177	20.7	14.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	108.0 PK			3.34 V	134	103.7	4.3
2	*5300.00	98.3 AV			3.34 V	134	94.0	4.3
3	10600.00	52.1 PK	74.0	-21.9	1.08 V	211	38.5	13.6
4	10600.00	39.8 AV	54.0	-14.2	1.08 V	211	26.2	13.6
5	15900.00	49.4 PK	74.0	-24.6	1.25 V	191	35.3	14.1
6	15900.00	37.9 AV	54.0	-16.1	1.25 V	191	23.8	14.1

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	118.3 PK			1.07 H	199	114.0	4.3
2	*5320.00	108.4 AV			1.07 H	199	104.1	4.3
3	5350.00	59.1 PK	74.0	-14.9	1.07 H	199	54.8	4.3
4	5350.00	49.2 AV	54.0	-4.8	1.07 H	199	44.9	4.3
5	10640.00	50.7 PK	74.0	-23.3	1.00 H	143	37.0	13.7
6	10640.00	39.3 AV	54.0	-14.7	1.00 H	143	25.6	13.7
7	15960.00	47.1 PK	74.0	-26.9	2.00 H	196	33.0	14.1
8	15960.00	34.2 AV	54.0	-19.8	2.00 H	196	20.1	14.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	109.8 PK			3.37 V	127	105.5	4.3
2	*5320.00	99.9 AV			3.37 V	127	95.6	4.3
3	5350.00	53.8 PK	74.0	-20.2	3.37 V	127	49.5	4.3
4	5350.00	42.8 AV	54.0	-11.2	3.37 V	127	38.5	4.3
5	10640.00	53.2 PK	74.0	-20.8	1.05 V	220	39.5	13.7
6	10640.00	40.6 AV	54.0	-13.4	1.05 V	220	26.9	13.7
7	15960.00	49.3 PK	74.0	-24.7	1.22 V	209	35.2	14.1
8	15960.00	37.8 AV	54.0	-16.2	1.22 V	209	23.7	14.1

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	58.0 PK	74.0	-16.0	2.50 H	208	53.6	4.4
2	5460.00	45.3 AV	54.0	-8.7	2.50 H	208	40.9	4.4
3	#5470.00	61.3 PK	68.2	-6.9	2.50 H	208	56.8	4.5
4	*5500.00	120.0 PK			2.50 H	208	115.3	4.7
5	*5500.00	109.2 AV			2.50 H	208	104.5	4.7
6	11000.00	49.8 PK	74.0	-24.2	1.01 H	130	35.5	14.3
7	11000.00	38.9 AV	54.0	-15.1	1.01 H	130	24.6	14.3
8	#16500.00	46.9 PK	68.2	-21.3	2.06 H	200	31.1	15.8
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	5460.00	52.5 PK	74.0	-21.5	3.61 V	219	48.1	4.4
2	5460.00	40.6 AV	54.0	-13.4	3.61 V	219	36.2	4.4
3	#5470.00	55.9 PK	68.2	-12.3	3.61 V	219	51.4	4.5
4	*5500.00	107.3 PK			3.61 V	219	102.6	4.7
5	*5500.00	97.4 AV			3.61 V	219	92.7	4.7
6	11000.00	52.7 PK	74.0	-21.3	1.00 V	204	38.4	14.3
7	11000.00	40.2 AV	54.0	-13.8	1.00 V	204	25.9	14.3
8	#16500.00	49.3 PK	68.2	-18.9	1.22 V	219	33.5	15.8

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 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	117.1 PK			2.58 H	206	112.6	4.5
2	*5580.00	107.4 AV			2.58 H	206	102.9	4.5
3	11160.00	49.7 PK	74.0	-24.3	1.04 H	144	35.6	14.1
4	11160.00	38.6 AV	54.0	-15.4	1.04 H	144	24.5	14.1
5	#16740.00	46.5 PK	68.2	-21.7	1.99 H	178	29.7	16.8
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	*5580.00	108.3 PK			3.45 V	7	103.8	4.5
2	*5580.00	98.7 AV			3.45 V	7	94.2	4.5
3	11160.00	52.4 PK	74.0	-21.6	1.07 V	228	38.3	14.1
4	11160.00	40.0 AV	54.0	-14.0	1.07 V	228	25.9	14.1
5	#16740.00	49.7 PK	68.2	-18.5	1.17 V	203	32.9	16.8

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 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	117.2 PK			2.47 H	219	112.6	4.6
2	*5700.00	106.1 AV			2.47 H	219	101.5	4.6
3	**#5725.00**	**64.2 PK**	**68.2**	**-4.0**	**2.47 H**	**219**	**59.5**	**4.7**
4	11400.00	49.6 PK	74.0	-24.4	1.08 H	137	35.1	14.5
5	11400.00	38.5 AV	54.0	-15.5	1.08 H	137	24.0	14.5
6	#17100.00	47.5 PK	68.2	-20.7	2.05 H	198	29.7	17.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	107.3 PK			3.38 V	210	102.7	4.6
2	*5700.00	97.3 AV			3.38 V	210	92.7	4.6
3	#5725.00	54.4 PK	68.2	-13.8	3.38 V	210	49.7	4.7
4	11400.00	52.7 PK	74.0	-21.3	1.00 V	215	38.2	14.5
5	11400.00	40.4 AV	54.0	-13.6	1.00 V	215	25.9	14.5
6	#17100.00	49.9 PK	68.2	-18.3	1.20 V	212	32.1	17.8

Remarks:

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

RF Mode	TX 802.11ac (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	5460.00	52.6 PK	74.0	-21.4	2.43 H	202	48.2	4.4
2	5460.00	39.4 AV	54.0	-14.6	2.43 H	202	35.0	4.4
3	#5470.00	51.3 PK	68.2	-16.9	2.43 H	202	46.8	4.5
4	*5720.00	116.2 PK			2.43 H	202	111.5	4.7
5	*5720.00	105.8 AV			2.43 H	202	101.1	4.7
6	#5850.00	52.0 PK	68.2	-16.2	2.43 H	202	47.0	5.0
7	11440.00	49.8 PK	74.0	-24.2	1.00 H	131	35.2	14.6
8	11440.00	38.5 AV	54.0	-15.5	1.00 H	131	23.9	14.6
9	#17160.00	46.5 PK	68.2	-21.7	1.98 H	186	28.7	17.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	52.0 PK	74.0	-22.0	3.43 V	4	47.6	4.4
2	5460.00	38.3 AV	54.0	-15.7	3.43 V	4	33.9	4.4
3	#5470.00	52.9 PK	68.2	-15.3	3.43 V	4	48.4	4.5
4	*5720.00	108.2 PK			3.43 V	4	103.5	4.7
5	*5720.00	98.3 AV			3.43 V	4	93.6	4.7
6	#5850.00	52.8 PK	68.2	-15.4	3.43 V	4	47.8	5.0
7	11440.00	51.9 PK	74.0	-22.1	1.04 V	231	37.3	14.6
8	11440.00	39.9 AV	54.0	-14.1	1.04 V	231	25.3	14.6
9	#17160.00	49.4 PK	68.2	-18.8	1.25 V	212	31.6	17.8

Remarks:

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

RF Mode	TX 802.11ac (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	#5634.79	52.0 PK	68.2	-16.2	1.19 H	204	49.7	2.3
2	*5745.00	117.6 PK			1.19 H	204	112.6	5.0
3	*5745.00	107.3 AV			1.19 H	204	102.3	5.0
4	#5991.89	53.0 PK	68.2	-15.2	1.19 H	204	50.1	2.9
5	11490.00	56.2 PK	74.0	-17.8	1.08 H	165	41.6	14.6
6	11490.00	44.3 AV	54.0	-9.7	1.08 H	165	29.7	14.6
7	#17235.00	48.6 PK	68.2	-19.6	2.06 H	173	30.6	18.0
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	#5648.32	52.1 PK	68.2	-16.1	1.41 V	301	49.8	2.3
2	*5745.00	110.5 PK			1.41 V	301	105.5	5.0
3	*5745.00	100.2 AV			1.41 V	301	95.2	5.0
4	#5965.96	53.4 PK	68.2	-14.8	1.41 V	301	50.5	2.9
5	11490.00	60.3 PK	74.0	-13.7	1.06 V	224	45.7	14.6
6	11490.00	47.5 AV	54.0	-6.5	1.06 V	224	32.9	14.6
7	#17235.00	56.4 PK	68.2	-11.8	1.26 V	215	38.4	18.0

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 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	#5611.99	52.6 PK	68.2	-15.6	1.16 H	200	50.5	2.1
2	*5785.00	117.5 PK			1.16 H	200	112.4	5.1
3	*5785.00	107.0 AV			1.16 H	200	101.9	5.1
4	#5976.27	53.3 PK	68.2	-14.9	1.16 H	200	50.4	2.9
5	11570.00	55.5 PK	74.0	-18.5	1.13 H	143	40.9	14.6
6	11570.00	43.7 AV	54.0	-10.3	1.13 H	143	29.1	14.6
7	#17355.00	48.8 PK	68.2	-19.4	2.15 H	193	30.6	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5593.89	51.4 PK	68.2	-16.8	1.47 V	289	49.3	2.1
2	*5785.00	110.1 PK			1.47 V	289	105.0	5.1
3	*5785.00	99.8 AV			1.47 V	289	94.7	5.1
4	#5929.48	52.5 PK	68.2	-15.7	1.47 V	289	49.6	2.9
5	11570.00	61.0 PK	74.0	-13.0	1.01 V	228	46.4	14.6
6	11570.00	48.0 AV	54.0	-6.0	1.01 V	228	33.4	14.6
7	#17355.00	55.9 PK	68.2	-12.3	1.18 V	220	37.7	18.2

Remarks:

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

RF Mode	TX 802.11ac (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	#5617.45	51.6 PK	68.2	-16.6	1.21 H	199	49.5	2.1
2	*5825.00	117.4 PK			1.21 H	199	112.4	5.0
3	*5825.00	106.8 AV			1.21 H	199	101.8	5.0
4	#5974.46	52.9 PK	68.2	-15.3	1.21 H	199	50.0	2.9
5	11650.00	55.3 PK	74.0	-18.7	1.12 H	162	40.9	14.4
6	11650.00	43.7 AV	54.0	-10.3	1.12 H	162	29.3	14.4
7	#17475.00	48.3 PK	68.2	-19.9	2.15 H	189	29.5	18.8
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	#5609.99	52.2 PK	68.2	-16.0	1.35 V	304	50.1	2.1
2	*5825.00	110.2 PK			1.35 V	304	105.2	5.0
3	*5825.00	99.9 AV			1.35 V	304	94.9	5.0
4	#5926.58	52.5 PK	68.2	-15.7	1.35 V	304	49.6	2.9
5	11650.00	60.8 PK	74.0	-13.2	1.07 V	213	46.4	14.4
6	11650.00	48.1 AV	54.0	-5.9	1.07 V	213	33.7	14.4
7	#17475.00	56.1 PK	68.2	-12.1	1.25 V	215	37.3	18.8

Remarks:

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

RF Mode	TX 802.11ac (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	5147.14	61.6 PK	74.0	-12.4	2.58 H	210	56.8	4.8
2	5147.14	49.7 AV	54.0	-4.3	2.58 H	210	44.9	4.8
3	*5190.00	107.5 PK			2.58 H	210	103.0	4.5
4	*5190.00	97.9 AV			2.58 H	210	93.4	4.5
5	#10380.00	50.1 PK	68.2	-18.1	1.01 H	144	36.7	13.4
6	15570.00	47.4 PK	74.0	-26.6	1.98 H	183	32.8	14.6
7	15570.00	34.8 AV	54.0	-19.2	1.98 H	183	20.2	14.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.1 PK	74.0	-15.9	2.74 V	135	53.4	4.7
2	5150.00	46.8 AV	54.0	-7.2	2.74 V	135	42.1	4.7
3	*5190.00	103.8 PK			2.74 V	135	99.3	4.5
4	*5190.00	93.9 AV			2.74 V	135	89.4	4.5
5	#10380.00	52.1 PK	68.2	-16.1	1.02 V	223	38.7	13.4
6	15570.00	49.5 PK	74.0	-24.5	1.21 V	190	34.9	14.6
7	15570.00	37.9 AV	54.0	-16.1	1.21 V	190	23.3	14.6

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5230.00	114.2 PK			2.57 H	208	109.8	4.4
2	*5230.00	104.6 AV			2.57 H	208	100.2	4.4
3	5452.56	61.3 PK	74.0	-12.7	2.57 H	208	56.9	4.4
4	5452.56	49.9 AV	54.0	-4.1	2.57 H	208	45.5	4.4
5	#10460.00	49.5 PK	68.2	-18.7	1.05 H	144	35.9	13.6
6	15690.00	47.4 PK	74.0	-26.6	2.02 H	196	32.9	14.5
7	15690.00	34.6 AV	54.0	-19.4	2.02 H	196	20.1	14.5
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	*5230.00	109.9 PK			3.35 V	127	105.5	4.4
2	*5230.00	100.1 AV			3.35 V	127	95.7	4.4
3	5452.57	54.1 PK	74.0	-19.9	3.35 V	127	49.7	4.4
4	5452.57	43.9 AV	54.0	-10.1	3.35 V	127	39.5	4.4
5	#10460.00	52.4 PK	68.2	-15.8	1.06 V	234	38.8	13.6
6	15690.00	49.4 PK	74.0	-24.6	1.23 V	207	34.9	14.5
7	15690.00	37.8 AV	54.0	-16.2	1.23 V	207	23.3	14.5

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 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	5047.62	55.4 PK	74.0	-18.6	2.68 H	215	51.0	4.4
2	5047.62	44.3 AV	54.0	-9.7	2.68 H	215	39.9	4.4
3	*5270.00	114.0 PK			2.68 H	215	109.7	4.3
4	*5270.00	104.2 AV			2.68 H	215	99.9	4.3
5	#10540.00	49.8 PK	68.2	-18.4	1.04 H	141	36.1	13.7
6	15810.00	47.1 PK	74.0	-26.9	1.98 H	186	32.9	14.2
7	15810.00	34.5 AV	54.0	-19.5	1.98 H	186	20.3	14.2
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	5047.56	53.1 PK	74.0	-20.9	3.48 V	128	48.7	4.4
2	5047.56	42.4 AV	54.0	-11.6	3.48 V	128	38.0	4.4
3	*5270.00	109.4 PK			3.48 V	128	105.1	4.3
4	*5270.00	99.2 AV			3.48 V	128	94.9	4.3
5	#10540.00	52.5 PK	68.2	-15.7	1.07 V	205	38.8	13.7
6	15810.00	50.1 PK	74.0	-23.9	1.18 V	203	35.9	14.2
7	15810.00	38.4 AV	54.0	-15.6	1.18 V	203	24.2	14.2

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	109.2 PK			1.19 H	202	104.9	4.3
2	*5310.00	97.6 AV			1.19 H	202	93.3	4.3
3	5350.00	61.1 PK	74.0	-12.9	1.19 H	202	56.8	4.3
4	5350.00	49.8 AV	54.0	-4.2	1.19 H	202	45.5	4.3
5	10620.00	49.7 PK	74.0	-24.3	1.07 H	137	36.0	13.7
6	10620.00	38.7 AV	54.0	-15.3	1.07 H	137	25.0	13.7
7	15930.00	47.3 PK	74.0	-26.7	2.06 H	172	33.2	14.1
8	15930.00	34.7 AV	54.0	-19.3	2.06 H	172	20.6	14.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	101.9 PK			2.70 V	130	97.6	4.3
2	*5310.00	92.3 AV			2.70 V	130	88.0	4.3
3	5350.00	55.2 PK	74.0	-18.8	2.70 V	130	50.9	4.3
4	5350.00	44.6 AV	54.0	-9.4	2.70 V	130	40.3	4.3
5	10620.00	52.1 PK	74.0	-21.9	1.08 V	207	38.4	13.7
6	10620.00	39.8 AV	54.0	-14.2	1.08 V	207	26.1	13.7
7	15930.00	49.1 PK	74.0	-24.9	1.20 V	200	35.0	14.1
8	15930.00	37.5 AV	54.0	-16.5	1.20 V	200	23.4	14.1

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5456.15	61.5 PK	74.0	-12.5	2.40 H	209	57.1	4.4
2	5456.15	48.5 AV	54.0	-5.5	2.40 H	209	44.1	4.4
3	#5470.00	63.4 PK	68.2	-4.8	2.40 H	209	58.9	4.5
4	*5510.00	111.8 PK			2.40 H	209	107.1	4.7
5	*5510.00	100.8 AV			2.40 H	209	96.1	4.7
6	11020.00	50.0 PK	74.0	-24.0	1.06 H	141	35.8	14.2
7	11020.00	38.9 AV	54.0	-15.1	1.06 H	141	24.7	14.2
8	#16530.00	47.2 PK	68.2	-21.0	2.07 H	181	31.3	15.9
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	5460.00	55.4 PK	74.0	-18.6	3.27 V	211	51.0	4.4
2	5460.00	43.5 AV	54.0	-10.5	3.27 V	211	39.1	4.4
3	#5470.00	57.5 PK	68.2	-10.7	3.27 V	211	53.0	4.5
4	*5510.00	102.7 PK			3.27 V	211	98.0	4.7
5	*5510.00	92.8 AV			3.27 V	211	88.1	4.7
6	11020.00	52.5 PK	74.0	-21.5	1.08 V	217	38.3	14.2
7	11020.00	40.4 AV	54.0	-13.6	1.08 V	217	26.2	14.2
8	#16530.00	49.1 PK	68.2	-19.1	1.20 V	211	33.2	15.9

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	114.2 PK			2.52 H	216	109.7	4.5
2	*5550.00	103.5 AV			2.52 H	216	99.0	4.5
3	#5772.14	58.4 PK	68.2	-9.8	2.52 H	216	53.4	5.0
4	11100.00	49.4 PK	74.0	-24.6	1.04 H	146	35.5	13.9
5	11100.00	38.4 AV	54.0	-15.6	1.04 H	146	24.5	13.9
6	#16650.00	47.5 PK	68.2	-20.7	1.98 H	199	31.1	16.4
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	*5550.00	105.4 PK			3.32 V	330	100.9	4.5
2	*5550.00	95.2 AV			3.32 V	330	90.7	4.5
3	#5725.00	51.8 PK	68.2	-16.4	3.32 V	330	47.1	4.7
4	11100.00	52.3 PK	74.0	-21.7	1.04 V	213	38.4	13.9
5	11100.00	40.1 AV	54.0	-13.9	1.04 V	213	26.2	13.9
6	#16650.00	49.9 PK	68.2	-18.3	1.21 V	213	33.5	16.4

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 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	112.4 PK			2.43 H	212	107.9	4.5
2	*5670.00	101.4 AV			2.43 H	212	96.9	4.5
3	#5725.00	63.8 PK	68.2	-4.4	2.43 H	212	59.1	4.7
4	11340.00	50.1 PK	74.0	-23.9	1.17 H	132	35.7	14.4
5	11340.00	39.1 AV	54.0	-14.9	1.17 H	132	24.7	14.4
6	#17010.00	47.3 PK	68.2	-20.9	1.98 H	194	29.5	17.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	103.5 PK			3.46 V	332	99.0	4.5
2	*5670.00	93.2 AV			3.46 V	332	88.7	4.5
3	#5725.00	52.4 PK	68.2	-15.8	3.46 V	332	47.7	4.7
4	11340.00	52.4 PK	74.0	-21.6	1.05 V	234	38.0	14.4
5	11340.00	39.8 AV	54.0	-14.2	1.05 V	234	25.4	14.4
6	#17010.00	49.6 PK	68.2	-18.6	1.19 V	195	31.8	17.8

Remarks:

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

RF Mode	TX 802.11ac (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	5454.75	53.3 PK	74.0	-20.7	2.48 H	216	48.9	4.4
2	5454.75	42.3 AV	54.0	-11.7	2.48 H	216	37.9	4.4
3	#5470.00	52.9 PK	68.2	-15.3	2.48 H	216	48.4	4.5
4	*5710.00	112.9 PK			2.48 H	216	108.2	4.7
5	*5710.00	102.4 AV			2.48 H	216	97.7	4.7
6	#5850.00	53.5 PK	68.2	-14.7	2.48 H	216	48.5	5.0
7	11420.00	50.1 PK	74.0	-23.9	1.02 H	129	35.6	14.5
8	11420.00	39.0 AV	54.0	-15.0	1.02 H	129	24.5	14.5
9	#17130.00	47.2 PK	68.2	-21.0	2.04 H	194	29.5	17.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	51.0 PK	74.0	-23.0	2.73 V	209	46.6	4.4
2	5460.00	39.1 AV	54.0	-14.9	2.73 V	209	34.7	4.4
3	#5470.00	51.7 PK	68.2	-16.5	2.73 V	209	47.2	4.5
4	*5710.00	104.9 PK			2.73 V	209	100.2	4.7
5	*5710.00	94.7 AV			2.73 V	209	90.0	4.7
6	#5850.00	52.4 PK	68.2	-15.8	2.73 V	209	47.4	5.0
7	11420.00	52.8 PK	74.0	-21.2	1.06 V	232	38.3	14.5
8	11420.00	40.6 AV	54.0	-13.4	1.06 V	232	26.1	14.5
9	#17130.00	49.8 PK	68.2	-18.4	1.20 V	195	32.1	17.7

Remarks:

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

RF Mode	TX 802.11ac (VHT40)	Channel	CH 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	#5576.36	52.5 PK	68.2	-15.7	1.07 H	200	50.4	2.1
2	*5755.00	113.0 PK			1.07 H	200	108.0	5.0
3	*5755.00	102.9 AV			1.07 H	200	97.9	5.0
4	#5986.10	53.0 PK	68.2	-15.2	1.07 H	200	50.1	2.9
5	11510.00	49.8 PK	74.0	-24.2	1.08 H	126	35.2	14.6
6	11510.00	38.6 AV	54.0	-15.4	1.08 H	126	24.0	14.6
7	#17265.00	46.4 PK	68.2	-21.8	2.07 H	201	28.5	17.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5578.31	51.4 PK	68.2	-16.8	1.15 V	168	49.3	2.1
2	*5755.00	108.2 PK			1.15 V	168	103.2	5.0
3	*5755.00	96.4 AV			1.15 V	168	91.4	5.0
4	#5940.64	52.5 PK	68.2	-15.7	1.15 V	168	49.6	2.9
5	11510.00	53.1 PK	74.0	-20.9	1.19 V	206	38.5	14.6
6	11510.00	40.6 AV	54.0	-13.4	1.19 V	206	26.0	14.6
7	#17265.00	49.8 PK	68.2	-18.4	1.20 V	215	31.9	17.9

Remarks:

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

RF Mode	TX 802.11ac (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	#5572.47	56.7 PK	68.2	-11.5	1.11 H	209	54.6	2.1
2	*5795.00	112.6 PK			1.11 H	209	107.5	5.1
3	*5795.00	102.4 AV			1.11 H	209	97.3	5.1
4	#6019.02	54.9 PK	68.2	-13.3	1.11 H	209	52.0	2.9
5	11590.00	50.0 PK	74.0	-24.0	1.18 H	136	35.4	14.6
6	11590.00	38.6 AV	54.0	-15.4	1.18 H	136	24.0	14.6
7	#17385.00	47.4 PK	68.2	-20.8	2.02 H	196	29.1	18.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5569.48	52.3 PK	68.2	-15.9	1.12 V	162	50.2	2.1
2	*5795.00	108.6 PK			1.12 V	162	103.5	5.1
3	*5795.00	96.6 AV			1.12 V	162	91.5	5.1
4	#5941.02	53.3 PK	68.2	-14.9	1.12 V	162	50.4	2.9
5	11590.00	52.5 PK	74.0	-21.5	1.08 V	204	37.9	14.6
6	11590.00	40.1 AV	54.0	-13.9	1.08 V	204	25.5	14.6
7	#17385.00	49.6 PK	68.2	-18.6	1.15 V	208	31.3	18.3

Remarks:

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

RF Mode	TX 802.11ac (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	5147.81	60.8 PK	74.0	-13.2	2.60 H	213	56.0	4.8
2	5147.81	49.8 AV	54.0	-4.2	2.60 H	213	45.0	4.8
3	*5210.00	105.3 PK			2.60 H	213	100.9	4.4
4	*5210.00	94.8 AV			2.60 H	213	90.4	4.4
5	5350.00	53.0 PK	74.0	-21.0	2.60 H	213	48.7	4.3
6	5350.00	41.5 AV	54.0	-12.5	2.60 H	213	37.2	4.3
7	#10420.00	49.9 PK	68.2	-18.3	1.29 H	126	36.4	13.5
8	15630.00	46.9 PK	74.0	-27.1	2.02 H	179	32.3	14.6
9	15630.00	34.5 AV	54.0	-19.5	2.02 H	179	19.9	14.6
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	5147.53	57.2 PK	74.0	-16.8	3.20 V	133	52.4	4.8
2	5147.53	47.0 AV	54.0	-7.0	3.20 V	133	42.2	4.8
3	*5210.00	99.8 PK			3.20 V	133	95.4	4.4
4	*5210.00	90.6 AV			3.20 V	133	86.2	4.4
5	5350.00	52.1 PK	74.0	-21.9	3.20 V	133	47.8	4.3
6	5350.00	39.6 AV	54.0	-14.4	3.20 V	133	35.3	4.3
7	#10420.00	53.0 PK	68.2	-15.2	1.06 V	214	39.5	13.5
8	15630.00	49.4 PK	74.0	-24.6	1.18 V	213	34.8	14.6
9	15630.00	37.8 AV	54.0	-16.2	1.18 V	213	23.2	14.6

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	53.9 PK	74.0	-20.1	2.60 H	212	49.2	4.7
2	5150.00	40.9 AV	54.0	-13.1	2.60 H	212	36.2	4.7
3	*5290.00	102.7 PK			2.60 H	212	98.4	4.3
4	*5290.00	94.4 AV			2.60 H	212	90.1	4.3
5	5350.00	60.2 PK	74.0	-13.8	2.60 H	212	55.9	4.3
6	**5350.00**	**50.0 AV**	**54.0**	**-4.0**	**2.60 H**	**212**	**45.7**	**4.3**
7	#10580.00	50.5 PK	68.2	-17.7	1.08 H	127	36.8	13.7
8	15870.00	46.7 PK	74.0	-27.3	1.99 H	183	32.5	14.2
9	15870.00	34.3 AV	54.0	-19.7	1.99 H	183	20.1	14.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.1 PK	74.0	-21.9	3.19 V	132	47.4	4.7
2	5150.00	40.7 AV	54.0	-13.3	3.19 V	132	36.0	4.7
3	*5290.00	96.1 PK			3.19 V	132	91.8	4.3
4	*5290.00	87.5 AV			3.19 V	132	83.2	4.3
5	5350.00	52.8 PK	74.0	-21.2	3.19 V	132	48.5	4.3
6	5350.00	43.1 AV	54.0	-10.9	3.19 V	132	38.8	4.3
7	#10580.00	53.1 PK	68.2	-15.1	1.02 V	230	39.4	13.7
8	15870.00	49.5 PK	74.0	-24.5	1.15 V	219	35.3	14.2
9	15870.00	37.6 AV	54.0	-16.4	1.15 V	219	23.4	14.2

Remarks:

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

RF Mode	TX 802.11ac (VHT80)	Channel	CH 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	5458.01	61.2 PK	74.0	-12.8	2.59 H	214	56.8	4.4
2	5458.01	49.9 AV	54.0	-4.1	2.59 H	214	45.5	4.4
3	#5470.00	59.2 PK	68.2	-9.0	2.59 H	214	54.7	4.5
4	*5530.00	108.0 PK			2.59 H	214	103.4	4.6
5	*5530.00	97.5 AV			2.59 H	214	92.9	4.6
6	#5725.00	53.6 PK	68.2	-14.6	2.59 H	214	48.9	4.7
7	11060.00	50.1 PK	74.0	-23.9	1.00 H	135	36.0	14.1
8	11060.00	38.8 AV	54.0	-15.2	1.00 H	135	24.7	14.1
9	#16590.00	47.7 PK	68.2	-20.5	1.93 H	164	31.6	16.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	54.5 PK	74.0	-19.5	3.41 V	360	50.1	4.4
2	5460.00	42.8 AV	54.0	-11.2	3.41 V	360	38.4	4.4
3	#5470.00	55.5 PK	68.2	-12.7	3.41 V	360	51.0	4.5
4	*5530.00	97.5 PK			3.41 V	360	92.9	4.6
5	*5530.00	89.3 AV			3.41 V	360	84.7	4.6
6	#5725.00	52.1 PK	68.2	-16.1	3.41 V	360	47.4	4.7
7	11060.00	52.2 PK	74.0	-21.8	1.00 V	211	38.1	14.1
8	11060.00	39.7 AV	54.0	-14.3	1.00 V	211	25.6	14.1
9	#16590.00	50.3 PK	68.2	-17.9	1.23 V	212	34.2	16.1

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 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	5460.00	51.5 PK	74.0	-22.5	2.50 H	214	47.1	4.4
2	5460.00	40.2 AV	54.0	-13.8	2.50 H	214	35.8	4.4
3	#5470.00	52.2 PK	68.2	-16.0	2.50 H	214	47.7	4.5
4	*5690.00	110.2 PK			2.50 H	214	105.7	4.5
5	*5690.00	100.7 AV			2.50 H	214	96.2	4.5
6	#5850.00	53.6 PK	68.2	-14.6	1.00 H	0	48.6	5.0
7	11380.00	50.0 PK	74.0	-24.0	1.08 H	136	35.5	14.5
8	11380.00	38.9 AV	54.0	-15.1	1.08 H	136	24.4	14.5
9	#17070.00	46.8 PK	68.2	-21.4	1.96 H	176	28.9	17.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	51.0 PK	74.0	-23.0	1.15 V	169	46.6	4.4
2	5460.00	39.8 AV	54.0	-14.2	1.15 V	169	35.4	4.4
3	#5470.00	52.4 PK	68.2	-15.8	1.15 V	169	47.9	4.5
4	*5690.00	102.4 PK			1.15 V	169	97.9	4.5
5	*5690.00	92.7 AV			1.15 V	169	88.2	4.5
6	#5850.00	53.5 PK	68.2	-14.7	1.15 V	169	48.5	5.0
7	11380.00	52.5 PK	74.0	-21.5	1.00 V	213	38.0	14.5
8	11380.00	40.1 AV	54.0	-13.9	1.00 V	213	25.6	14.5
9	#17070.00	49.5 PK	68.2	-18.7	1.26 V	221	31.6	17.9

Remarks:

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

RF Mode	TX 802.11ac (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	#5641.68	62.8 PK	68.2	-5.4	2.48 H	228	60.5	2.3
2	*5775.00	111.6 PK			2.48 H	228	106.5	5.1
3	*5775.00	101.5 AV			2.48 H	228	96.4	5.1
4	#5939.93	56.6 PK	68.2	-11.6	2.48 H	228	53.7	2.9
5	11550.00	49.7 PK	74.0	-24.3	1.02 H	143	35.1	14.6
6	11550.00	38.4 AV	54.0	-15.6	1.02 H	143	23.8	14.6
7	#17325.00	46.8 PK	68.2	-21.4	2.05 H	182	28.7	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5642.44	56.4 PK	68.2	-11.8	1.10 V	151	54.1	2.3
2	*5775.00	103.5 PK			1.10 V	151	98.4	5.1
3	*5775.00	93.7 AV			1.10 V	151	88.6	5.1
4	#5957.74	52.7 PK	68.2	-15.5	1.10 V	151	49.8	2.9
5	11550.00	52.2 PK	74.0	-21.8	1.05 V	213	37.6	14.6
6	11550.00	39.9 AV	54.0	-14.1	1.05 V	213	25.3	14.6
7	#17325.00	49.5 PK	68.2	-18.7	1.24 V	209	31.4	18.1

Remarks:

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

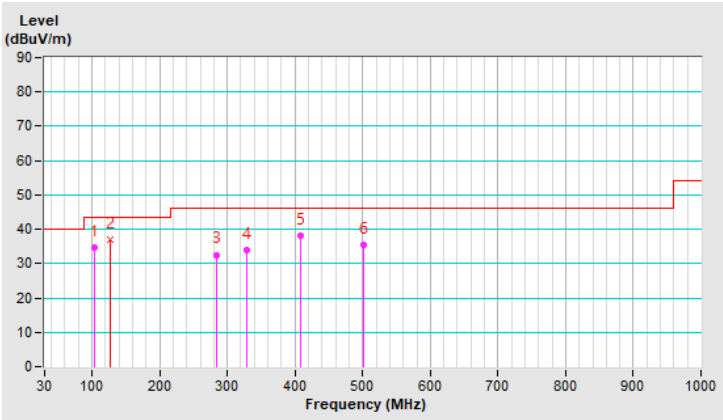
Below 1GHz Data:

RF Mode	TX 802.11ac (VHT40)	Channel	CH 151：5755 MHz
Frequency Range	9kHz ~ 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	104.47	34.7 QP	43.5	-8.8	3.00 H	85	46.2	-11.5
2	127.76	37.0 QP	43.5	-6.5	1.00 H	65	46.0	-9.0
3	284.24	32.6 QP	46.0	-13.4	1.00 H	105	39.8	-7.2
4	328.82	33.9 QP	46.0	-12.1	1.00 H	312	39.4	-5.5
5	408.50	38.1 QP	46.0	-7.9	1.00 H	18	41.6	-3.5
6	500.52	35.5 QP	46.0	-10.5	1.50 H	65	36.5	-1.0

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 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.

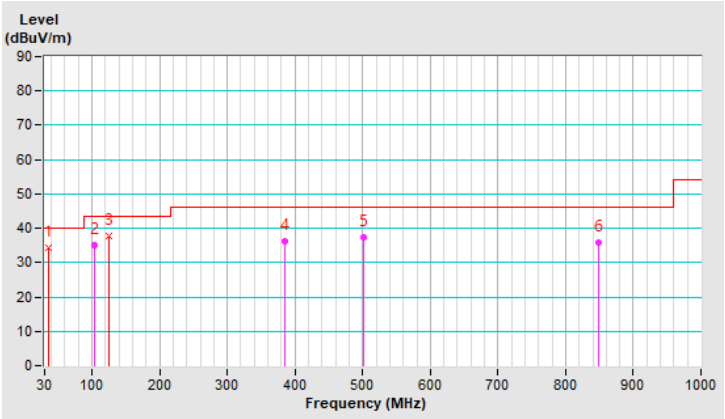


RF Mode	TX 802.11ac (VHT40)	Channel	CH 151：5755 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	34.98	34.3 QP	40.0	-5.7	1.00 V	312	43.6	-9.3
2	103.83	35.1 QP	43.5	-8.4	1.00 V	15	46.7	-11.6
3	125.61	37.7 QP	43.5	-5.8	1.00 V	43	46.9	-9.2
4	384.80	36.3 QP	46.0	-9.7	1.50 V	223	40.5	-4.2
5	500.48	37.2 QP	46.0	-8.8	1.50 V	4	38.2	-1.0
6	848.02	35.7 QP	46.0	-10.3	3.00 V	215	29.8	5.9

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 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 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	2020/10/20	2021/10/19
LISN R&S	ESH3-Z5	848773/004	2020/10/27	2021/10/26
LISN R & S	ESH3-Z5	835239/001	2021/3/26	2022/3/25
50 ohms Terminator	50	3	2020/10/26	2021/10/25
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2020/9/26	2021/9/25
Fixed attenuator STI	STI02-2200-10	005	2020/8/29	2021/8/28
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
3 Tested Date: 2021/8/9

4.2.3 Test Procedure

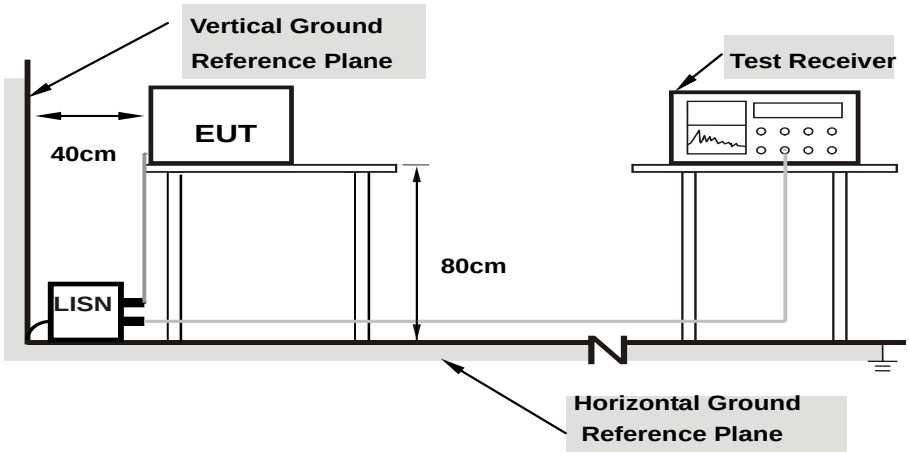
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) 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: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Condition

Same as 4.1.6.

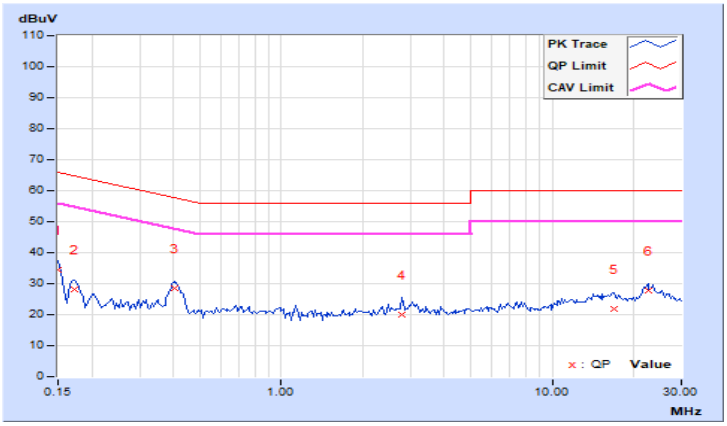
4.2.7 Test Results

RF Mode	TX 802.11ac (VHT40)	Channel	CH 151：5755 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

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	0.15000	9.95	24.34	15.66	34.29	25.61	66.00	56.00	-31.71	-30.39
2	0.17344	9.96	18.37	10.93	28.33	20.89	64.79	54.79	-36.46	-33.90
3	0.40391	9.99	18.65	11.02	28.64	21.01	57.77	47.77	-29.13	-26.76
4	2.78516	10.11	9.94	-1.85	20.05	8.26	56.00	46.00	-35.95	-37.74
5	16.97266	10.94	10.77	5.78	21.71	16.72	60.00	50.00	-38.29	-33.28
6	**22.55859**	**11.18**	**16.63**	**15.64**	**27.81**	**26.82**	**60.00**	**50.00**	**-32.19**	**-23.18**

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

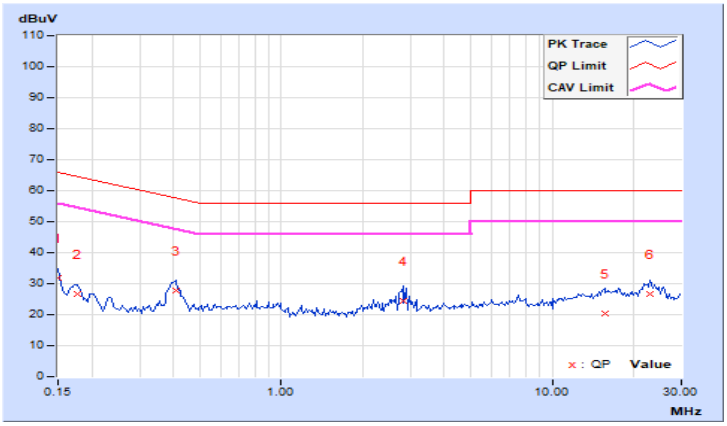


RF Mode	TX 802.11ac (VHT40)	Channel	CH 151：5755 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

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	0.15000	9.92	21.85	14.51	31.77	24.43	66.00	56.00	-34.23	-31.57
2	0.17734	9.94	16.62	9.11	26.56	19.05	64.61	54.61	-38.05	-35.56
3	0.40781	9.96	17.94	10.12	27.90	20.08	57.69	47.69	-29.79	-27.61
4	2.83594	10.07	14.51	1.53	24.58	11.60	56.00	46.00	-31.42	-34.40
5	15.60156	10.66	9.83	4.79	20.49	15.45	60.00	50.00	-39.51	-34.55
6	23.03906	10.88	15.89	13.22	26.77	24.10	60.00	50.00	-33.23	-25.90

Remarks:

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



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 ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Client device	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

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

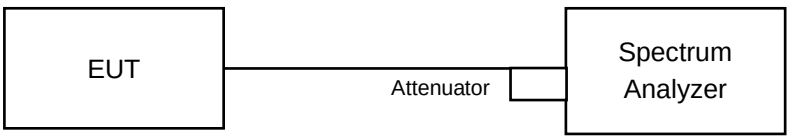
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.3.2 Test Setup

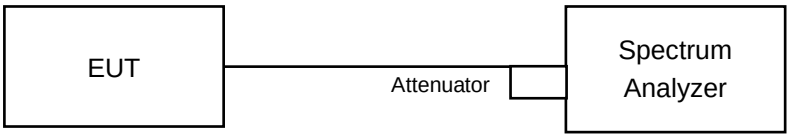
FOR POWER OUTPUT MEASUREMENT

For channel straddling 5725MHz:



For other channels:

FOR 26dB OCCUPIED BANDWIDTH



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

FOR POWER OUTPUT MEASUREMENT

For channel straddling 5725MHz:

For 802.11a, 802.11ac (VHT20), 802.11ac (VHT40)

Follow FCC KDB 789033 UNII test procedure:
Method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW =1MHz.
3. Set the VBW ≥ 3 x RBW.
4. Number of points in sweep ≥ 2 Span / RBW.
5. Sweep time = auto.
6. Set trigger to free run (duty cycle ≥ 98 percent)
7. Detector = RMS.
8. Trace average at least 100 traces in power averaging mode
9. Compute power by integrating the spectrum across the 26 dB EBW of the signal.

For 802.11ac (VHT80)

Follow FCC KDB 789033 UNII test procedure:
Method SA-2

1. Set span to encompass the emission bandwidth (EBW) of the signal.
2. Set RBW =1MHz.
3. Set the VBW ≥ 3 x RBW.
4. Number of points in sweep ≥ 2 Span / RBW.
5. Sweep time = auto.
6. Detector = RMS.
7. Trace average at least 100 traces in power averaging mode
8. Compute power by integrating the spectrum across the 26 dB EBW of the signal.
9. Duty factor need added to measured value (duty cycle < 98 percent).

For other channels:

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.

FOR 26dB OCCUPIED BANDWIDTH

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. 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 Condition

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

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.38	18.13	133.878	21.27	24	Pass
40	5200	17.88	17.87	122.611	20.89	24	Pass
48	5240	18.01	17.11	114.646	20.59	24	Pass
52	5260	18.63	18.45	142.93	21.55	24	Pass
60	5300	18.42	18.50	140.297	21.47	24	Pass
64	5320	17.93	17.95	124.46	20.95	24	Pass
100	5500	16.60	17.24	98.675	19.94	24	Pass
116	5580	17.49	17.38	110.806	20.45	24	Pass
140	5700	17.09	17.86	112.262	20.50	24	Pass
*144 (U-NII-2C Band)	5720	16.76	17.39	102.252	20.10	23.1	Pass
*144 (U-NII-3 Band)	5720	9.99	10.69	21.699	13.36	30	Pass
149	5745	20.75	21.44	258.166	24.12	30	Pass
157	5785	20.38	21.17	240.062	23.80	30	Pass
165	5825	20.06	20.93	225.271	23.53	30	Pass

Note: * Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.

1. For U-NII-1: The max. gain is 4.5 dBi < 6 dBi, so the power limit shall not be reduced.
2. For U-NII-2A: The max. gain is 3.95 dBi < 6 dBi, so the power limit shall not be reduced.
3. For U-NII-2C: The max. gain is 4.59 dBi < 6 dBi, so the power limit shall not be reduced.
4. For U-NII-3: The max. gain is 4.92 dBi < 6 dBi, so the power limit shall not be reduced.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	22.74	24.56 > 24
60	5300	22.64	24.54 > 24
64	5320	22.63	24.54 > 24
100	5500	21.93	24.41 > 24
116	5580	22.04	24.43 > 24
140	5700	21.84	24.39 > 24
144 (U-NII-2C Band)	5720	16.23	23.1 < 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	17.93	18.20	128.156	21.08	24	Pass
40	5200	18.39	18.29	136.477	21.35	24	Pass
48	5240	17.52	17.73	115.786	20.64	24	Pass
52	5260	18.24	18.28	133.978	21.27	24	Pass
60	5300	18.15	18.37	134.02	21.27	24	Pass
64	5320	17.02	17.08	101.401	20.06	24	Pass
100	5500	17.29	17.80	113.836	20.56	24	Pass
116	5580	17.18	17.65	110.45	20.43	24	Pass
140	5700	17.47	17.85	116.801	20.67	24	Pass
*144 (U-NII-2C Band)	5720	16.59	17.47	101.451	20.06	23.14	Pass
*144 (U-NII-3 Band)	5720	10.33	11.57	25.144	14.00	30	Pass
149	5745	20.52	21.37	249.808	23.98	30	Pass
157	5785	20.21	20.88	227.416	23.57	30	Pass
165	5825	19.80	20.64	211.377	23.25	30	Pass

Note: * Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.

1. For U-NII-1: The max. gain is 4.5 dBi < 6 dBi, so the power limit shall not be reduced.
2. For U-NII-2A: The max. gain is 3.95 dBi < 6 dBi, so the power limit shall not be reduced.
3. For U-NII-2C: The max. gain is 4.59 dBi < 6 dBi, so the power limit shall not be reduced.
4. For U-NII-3: The max. gain is 4.92 dBi < 6 dBi, so the power limit shall not be reduced.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	23.35	24.68 > 24
60	5300	23.5	24.71 > 24
64	5320	23.66	24.74 > 24
100	5500	23.87	24.77 > 24
116	5580	23.36	24.68 > 24
140	5700	23.39	24.69 > 24
144 (U-NII-2C Band)	5720	16.38	23.14 < 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	14.13	13.98	50.886	17.07	24	Pass
46	5230	18.68	18.84	150.35	21.77	24	Pass
54	5270	18.76	18.82	151.37	21.80	24	Pass
62	5310	13.31	13.55	44.075	16.44	24	Pass
102	5510	16.94	17.26	102.642	20.11	24	Pass
110	5550	18.87	18.75	152.08	21.82	24	Pass
134	5670	17.34	17.60	111.744	20.48	24	Pass
*142 (U-NII-2C Band)	5710	17.10	18.04	114.966	20.61	24	Pass
*142 (U-NII-3 Band)	5710	6.51	7.16	9.677	9.86	30	Pass
151	5755	21.02	21.94	282.788	24.51	30	Pass
159	5795	20.65	21.57	259.694	24.14	30	Pass

Note: * Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.

1. For U-NII-1: The max. gain is 4.5 dBi < 6 dBi, so the power limit shall not be reduced.
2. For U-NII-2A: The max. gain is 3.95 dBi < 6 dBi, so the power limit shall not be reduced.
3. For U-NII-2C: The max. gain is 4.59 dBi < 6 dBi, so the power limit shall not be reduced.
4. For U-NII-3: The max. gain is 4.92 dBi < 6 dBi, so the power limit shall not be reduced.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	42.22	27.25 > 24
62	5310	42.38	27.27 > 24
102	5510	42.19	27.25 > 24
110	5550	42.47	27.28 > 24
134	5670	42.53	27.28 > 24
142 (U-NII-2C Band)	5710	35.92	26.55 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	12.49	12.12	34.035	15.32	24	Pass
58	5290	10.93	10.90	24.691	13.93	24	Pass
106	5530	15.11	15.44	67.428	18.29	24	Pass
*138 (U-NII-2C Band)	5690	17.25	17.53	114.786	20.60	24	Pass
*138 (U-NII-3 Band)	5690	3.44	3.86	4.855	6.86	30	Pass
155	5775	18.82	19.72	169.964	22.30	30	Pass

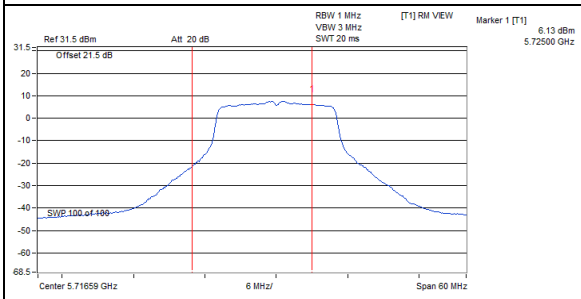
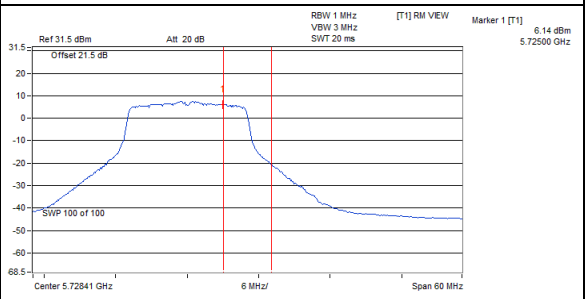
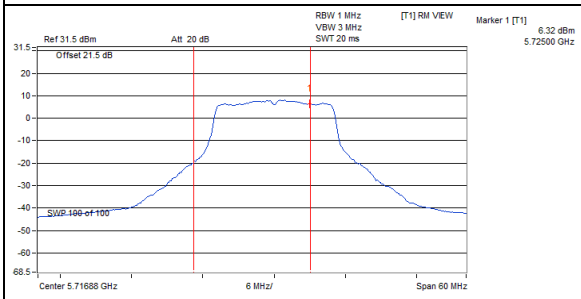
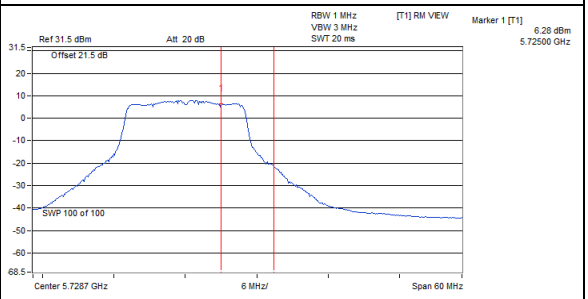
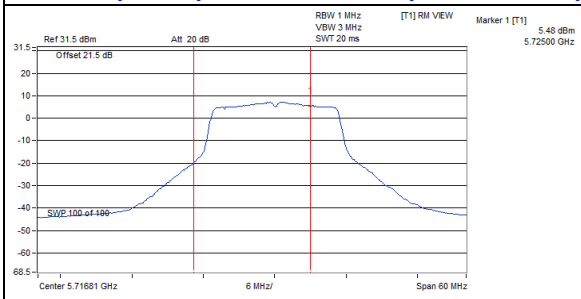
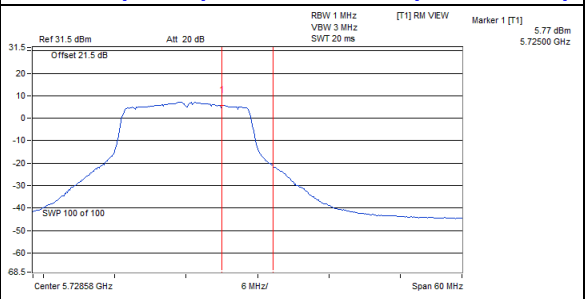
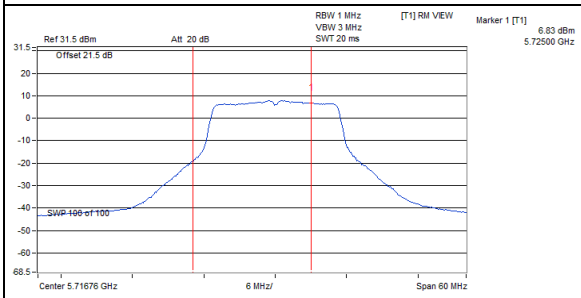
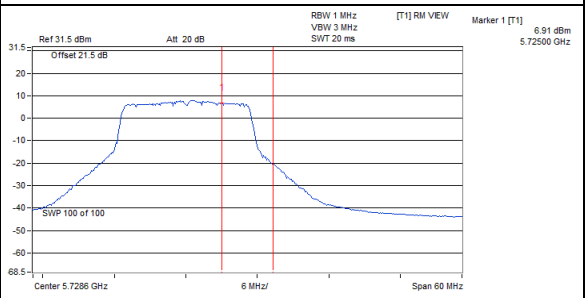
Note: * Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test. The duty factor was included in the total power.

1. For U-NII-1: The max. gain is 4.5 dBi < 6 dBi, so the power limit shall not be reduced.
2. For U-NII-2A: The max. gain is 3.95 dBi < 6 dBi, so the power limit shall not be reduced.
3. For U-NII-2C: The max. gain is 4.59 dBi < 6 dBi, so the power limit shall not be reduced.
4. For U-NII-3: The max. gain is 4.92 dBi < 6 dBi, so the power limit shall not be reduced.

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	85.75	30.33 > 24
106	5530	83.95	30.24 > 24
138 (U-NII-2C Band)	5690	76.37	29.82 > 24

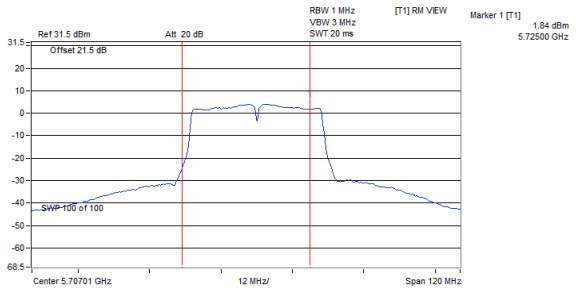
Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

For channel straddling 5725MHz of Power

Spectrum Plot Value of Power	
802.11a_Chain 0 / CH144 (U-NII-2C Band)	**802.11a_Chain 0 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 16.82 MHz Power 16.76 dBm	 TX Channel Bandwidth 6.83 MHz Power 9.99 dBm
802.11a_Chain 1 / CH144 (U-NII-2C Band)	**802.11a_Chain 1 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 16.23 MHz Power 17.39 dBm	 TX Channel Bandwidth 7.41 MHz Power 10.69 dBm
802.11ac (VHT20)_Chain 0 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 0 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 16.38 MHz Power 16.59 dBm	 TX Channel Bandwidth 7.16 MHz Power 10.33 dBm
802.11ac (VHT20)_Chain 1 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 1 / CH144 (U-NII-3 Band)**
 TX Channel Bandwidth 16.48 MHz Power 17.47 dBm	 TX Channel Bandwidth 7.21 MHz Power 11.57 dBm

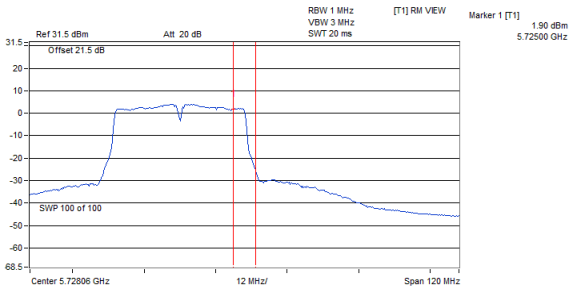
Spectrum Plot Value of Power

802.11ac (VHT40)_Chain 0 / CH142 (U-NII-2C Band)



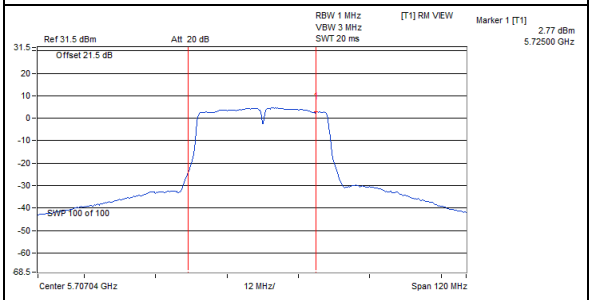
TX Channel Bandwidth 35.97 MHz Power 17.1 dBm

802.11ac (VHT40)_Chain 0 / CH142 (U-NII-3 Band)



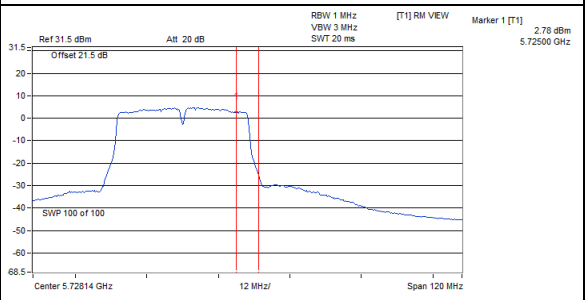
TX Channel Bandwidth 6.13 MHz Power 6.51 dBm

802.11ac (VHT40)_Chain 1 / CH142 (U-NII-2C Band)



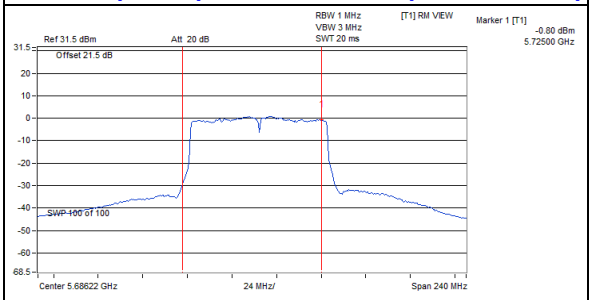
TX Channel Bandwidth 35.92 MHz Power 18.04 dBm

802.11ac (VHT40)_Chain 1 / CH142 (U-NII-3 Band)



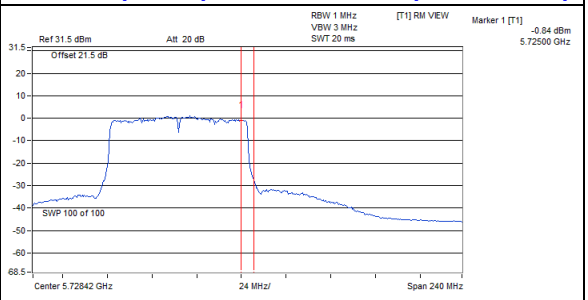
TX Channel Bandwidth 6.28 MHz Power 7.16 dBm

802.11ac (VHT80)_Chain 0 / CH138 (U-NII-2C Band)



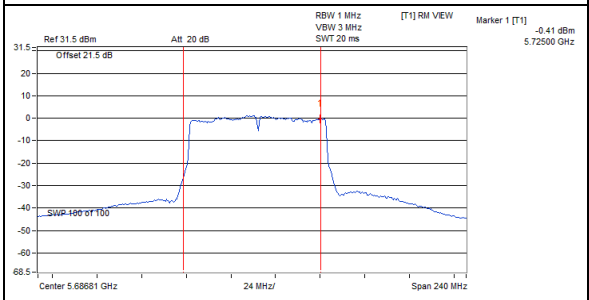
TX Channel Bandwidth 77.56 MHz Power 17.25 dBm

802.11ac (VHT80)_Chain 0 / CH138 (U-NII-3 Band)



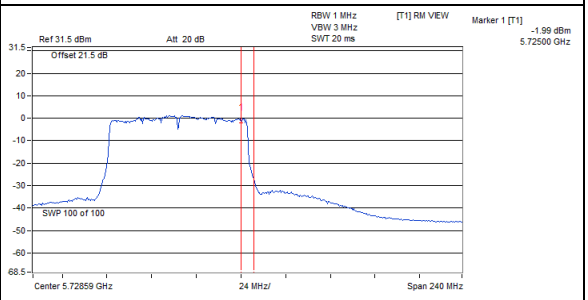
TX Channel Bandwidth 6.84 MHz Power 3.44 dBm

802.11ac (VHT80)_Chain 1 / CH138 (U-NII-2C Band)



TX Channel Bandwidth 76.37 MHz Power 17.53 dBm

802.11ac (VHT80)_Chain 1 / CH138 (U-NII-3 Band)



TX Channel Bandwidth 7.18 MHz Power 3.86 dBm

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	22.92	22.74
60	5300	23.6	22.64
64	5320	23.63	22.63
100	5500	22.77	21.93
116	5580	23.75	22.04
140	5700	22.57	21.84
144 (U-NII-2C Band)	5720	16.82	16.23

802.11ac (VHT20)

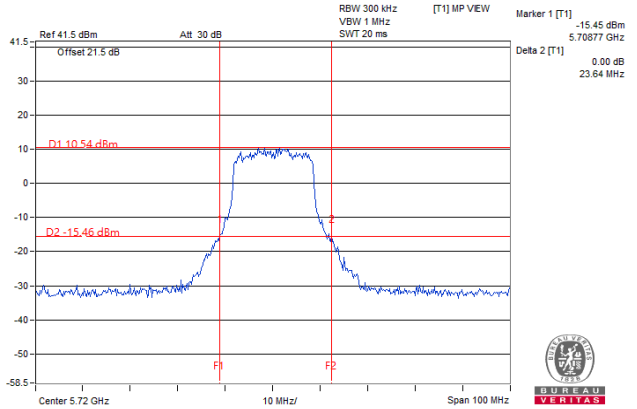
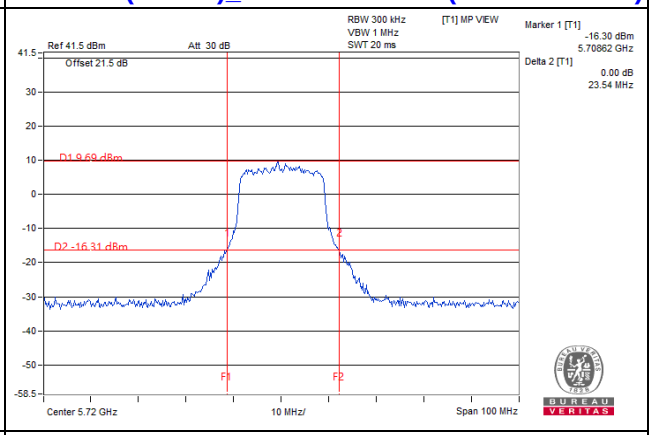
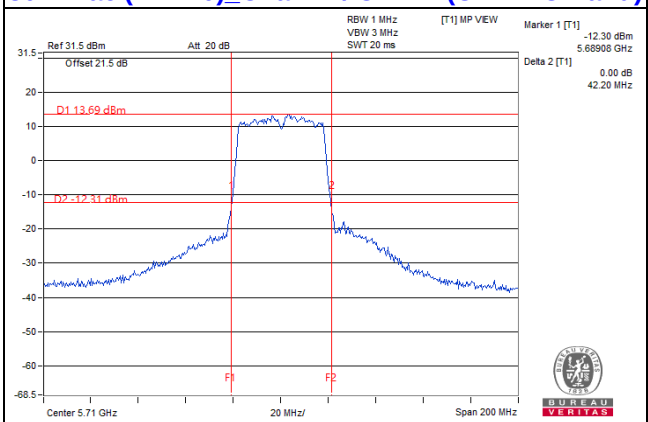
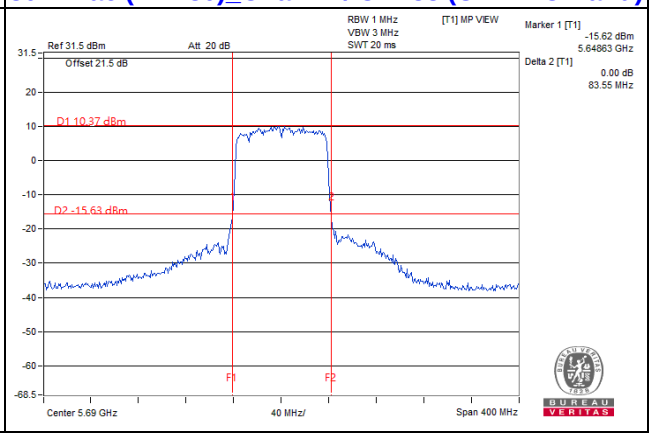
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	23.54	23.35
60	5300	24.14	23.5
64	5320	23.73	23.66
100	5500	23.87	23.89
116	5580	23.73	23.36
140	5700	23.69	23.39
144 (U-NII-2C Band)	5720	16.38	16.48

802.11ac (VHT40)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	42.25	42.22
62	5310	42.38	42.54
102	5510	42.19	42.59
110	5550	42.51	42.47
134	5670	42.53	42.67
142 (U-NII-2C Band)	5710	35.97	35.92

802.11ac (VHT80)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	85.75	85.82
106	5530	84.98	83.95
138 (U-NII-2C Band)	5690	77.56	76.37

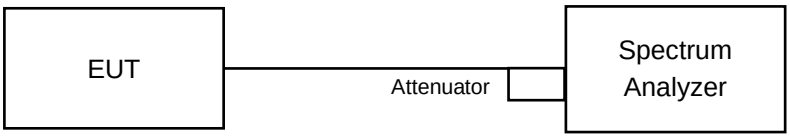
Spectrum Plot of Worst Value	
802.11a_Chain 1 / CH144 (U-NII-2C Band)	**802.11ac (VHT20)_Chain 0 / CH144 (U-NII-2C Band)**
	
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-2C Band)	**802.11ac (VHT80)_Chain 1 / CH138 (U-NII-2C Band)**
	

Note:

For CH144 (U-NII-2C) = 5725MHz - Marker 1
For CH142 (U-NII-2C) = 5725MHz - Marker 1
For CH138 (U-NII-2C) = 5725MHz - Marker 1

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	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.68	16.68
40	5200	16.68	16.68
48	5240	16.68	16.56
52	5260	16.8	16.68
60	5300	16.68	16.56
64	5320	16.68	16.56
100	5500	16.68	16.68
116	5580	16.68	16.68
140	5700	16.68	16.8
144 (U-NII-2C Band)	5720	13.28	13.28
144 (U-NII-3 Band)	5720	3.4	3.4
149	5745	20.04	17.64
157	5785	19.8	19.8
165	5825	18	17.04

802.11ac (VHT20)

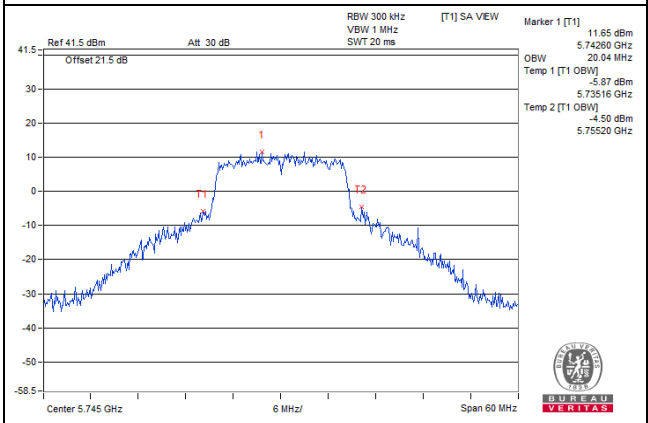
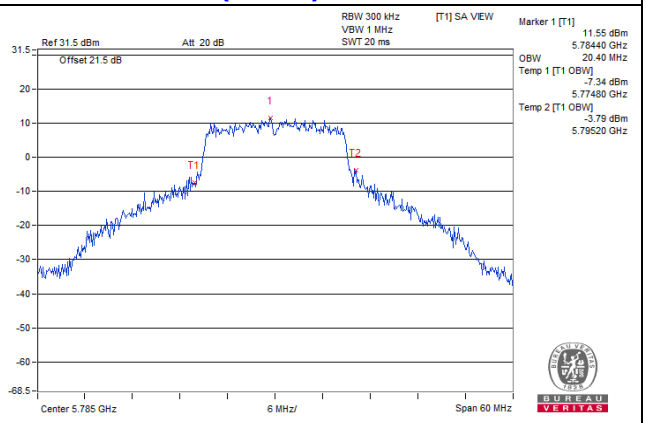
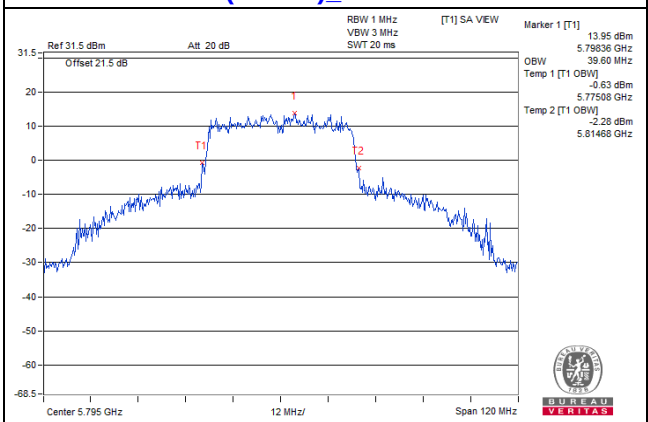
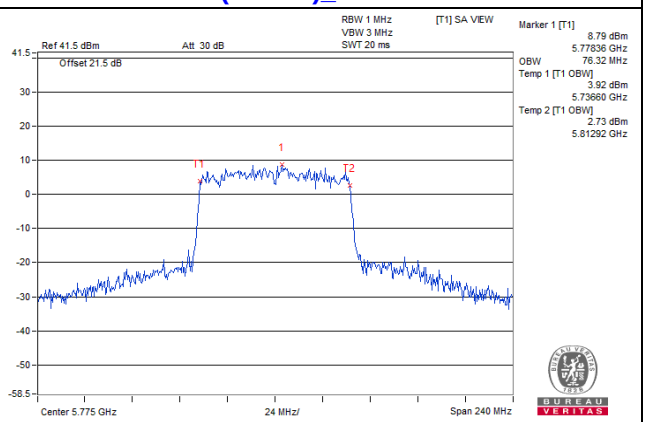
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.76	17.88
40	5200	17.88	17.88
48	5240	17.76	17.76
52	5260	18	17.88
60	5300	17.88	17.76
64	5320	17.88	17.88
100	5500	17.88	17.88
116	5580	17.88	17.88
140	5700	17.88	17.76
144 (U-NII-2C Band)	5720	13.88	13.88
144 (U-NII-3 Band)	5720	4	4
149	5745	20.28	18.36
157	5785	19.56	20.4
165	5825	18.72	18.24

802.11ac (VHT40)

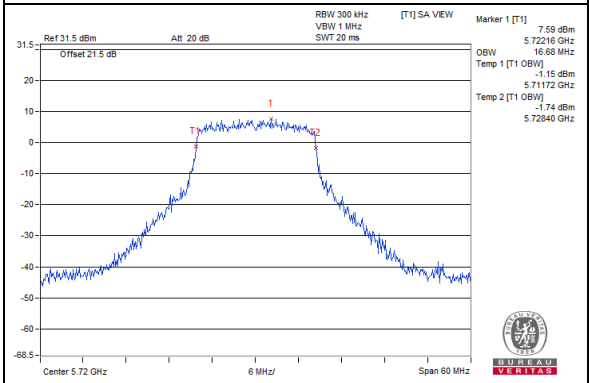
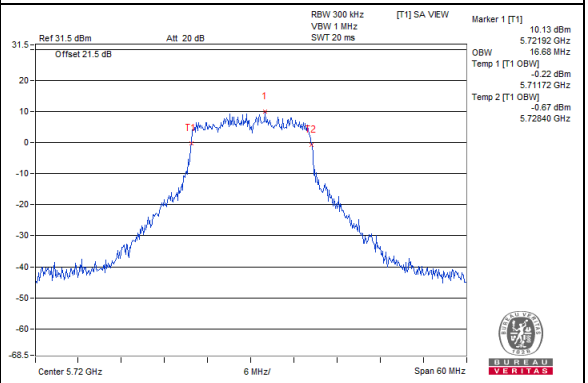
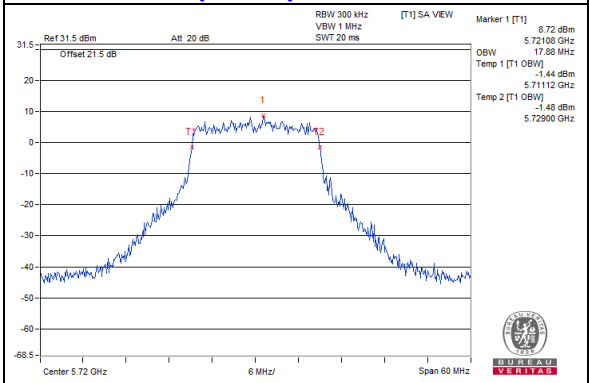
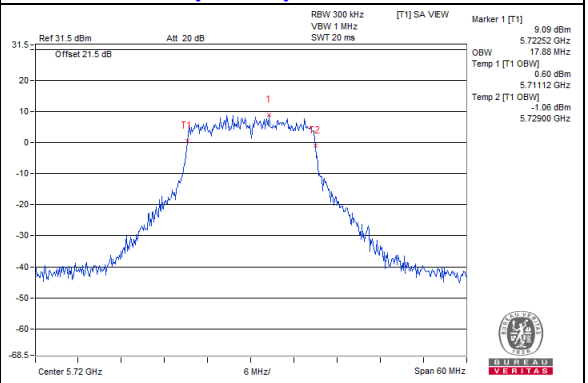
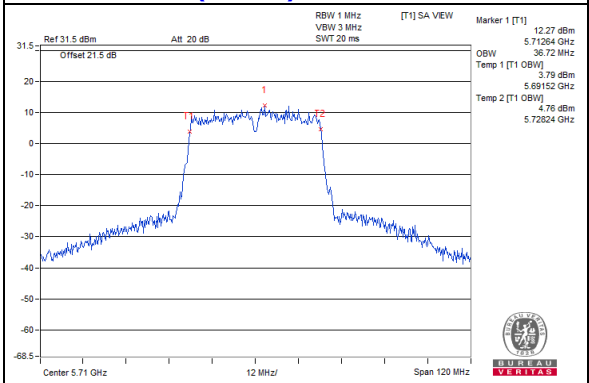
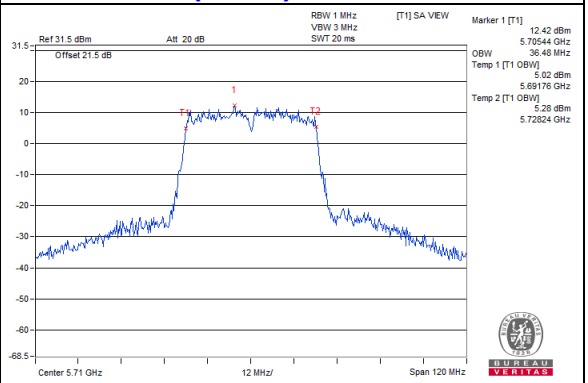
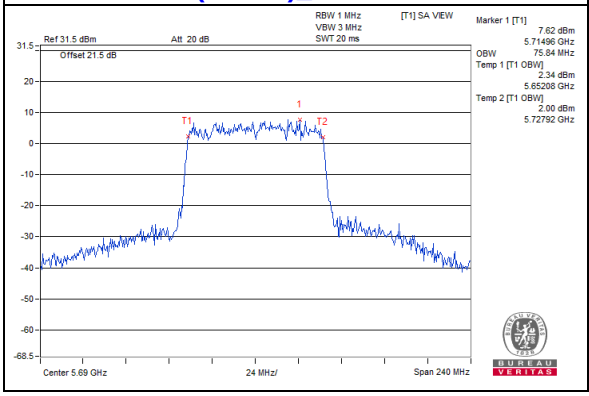
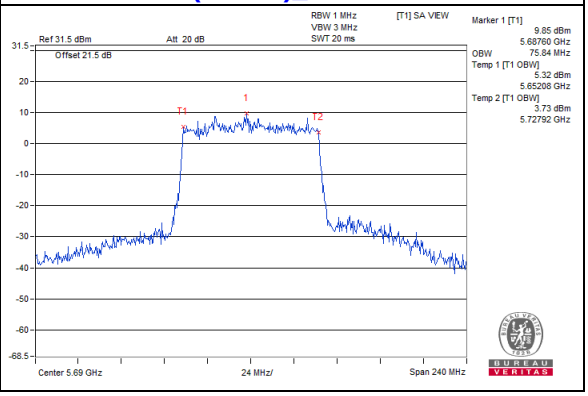
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.72	36.48
46	5230	36.48	36.72
54	5270	36.48	36.48
62	5310	36.48	36.48
102	5510	36.48	36.48
110	5550	36.72	36.48
134	5670	36.72	36.72
142 (U-NII-2C Band)	5710	33.48	33.24
142 (U-NII-3 Band)	5710	3.24	3.24
151	5755	37.44	37.44
159	5795	39.6	37.44

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.84	76.32
58	5290	75.84	75.84
106	5530	75.84	75.84
138 (U-NII-2C Band)	5690	72.92	72.92
138 (U-NII-3 Band)	5690	2.92	2.92
155	5775	76.32	75.84

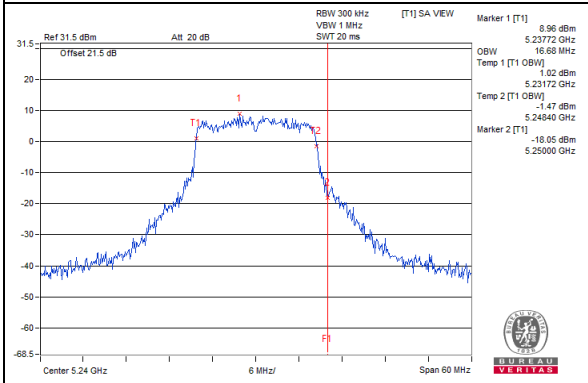
Spectrum Plot of Max. Value	
802.11a_Chain 0 / CH149	**802.11ac (VHT20)_Chain 1 / CH157**
	
802.11ac (VHT40)_Chain 0 / CH159	**802.11ac (VHT80)_Chain 0 / CH155**
	

For channel straddling 5725MHz of OCP99% BW

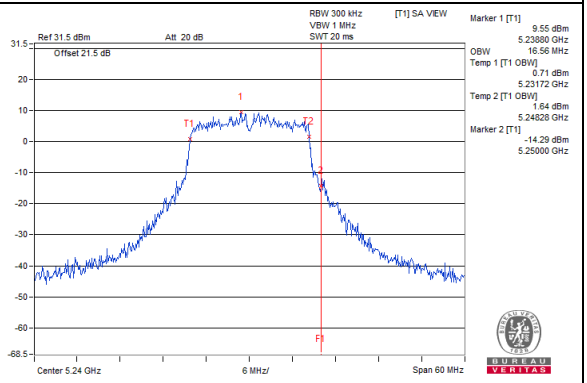
Spectrum Plot Value of OCP99% BW	
802.11a_Chain 0 / CH144	**802.11a_Chain 1 / CH144**
	
802.11ac (VHT20)_Chain 0 / CH144	**802.11ac (VHT20)_Chain 1 / CH144**
	
802.11ac (VHT40)_Chain 0 / CH142	**802.11ac (VHT40)_Chain 1 / CH142**
	
802.11ac (VHT80)_Chain 0 / CH138	**802.11ac (VHT80)_Chain 1 / CH138**
	

Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

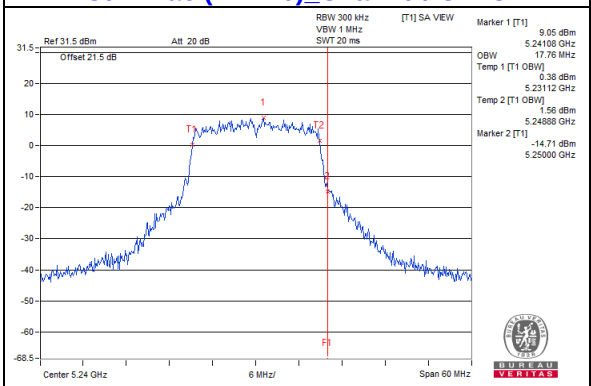
802.11a_Chain 0 / CH48



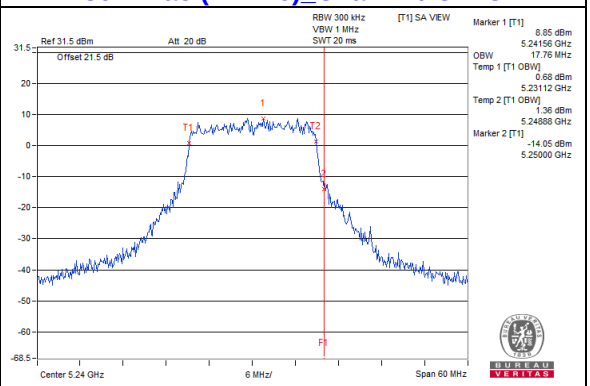
802.11a_Chain 1 / CH48



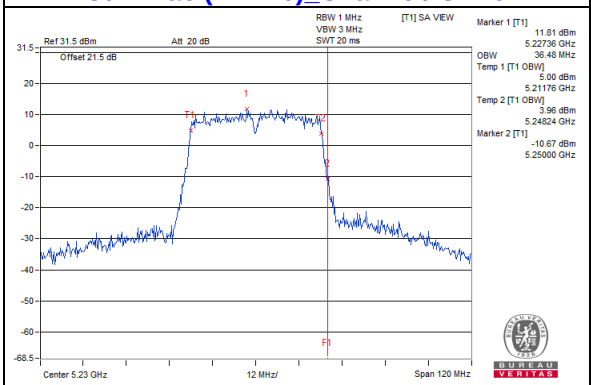
802.11ac (VHT20)_Chain 0 / CH48



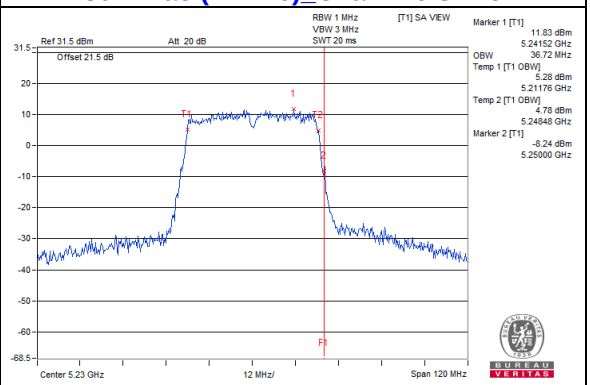
802.11ac (VHT20)_Chain 1 / CH48



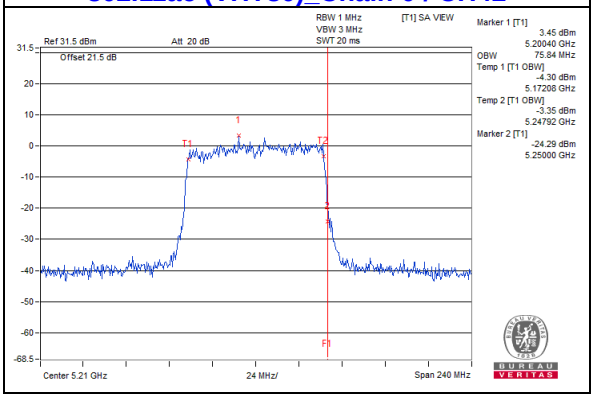
802.11ac (VHT40)_Chain 0 / CH46



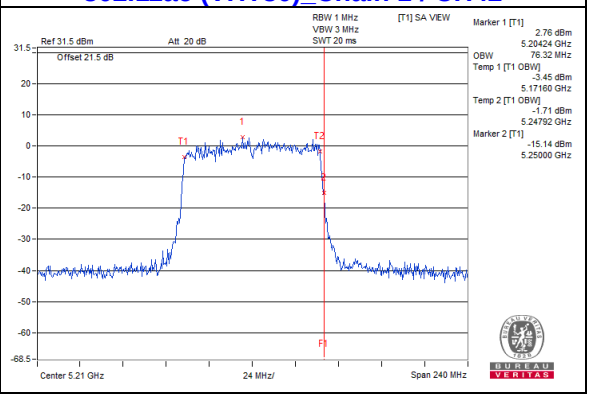
802.11ac (VHT40)_Chain 1 / CH46



802.11ac (VHT80)_Chain 0 / CH42

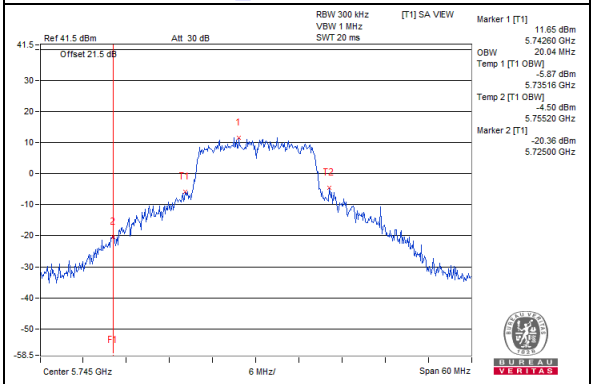


802.11ac (VHT80)_Chain 1 / CH42

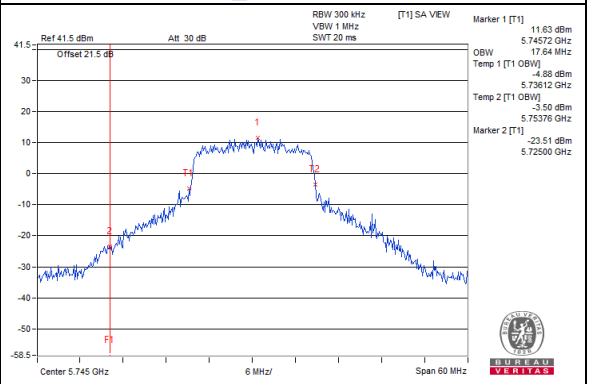


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

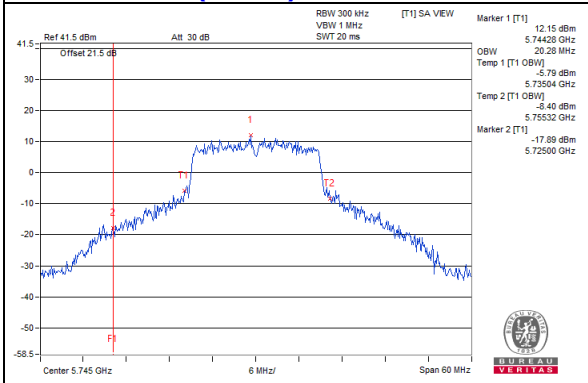
802.11a_Chain 0 / CH149



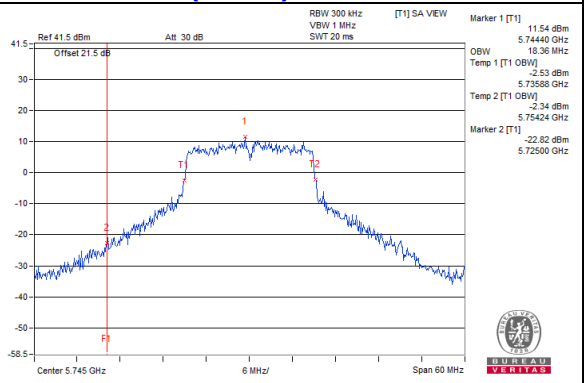
802.11a_Chain 1 / CH149



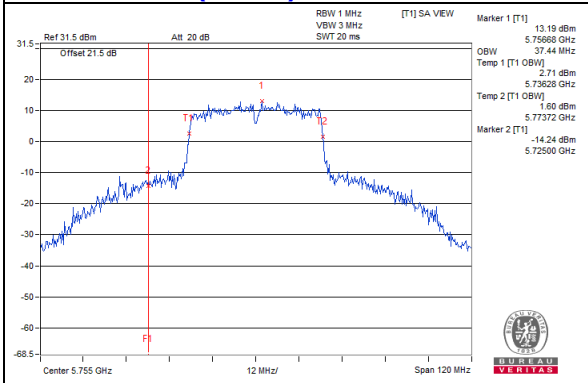
802.11ac (VHT20)_Chain 0 / CH149



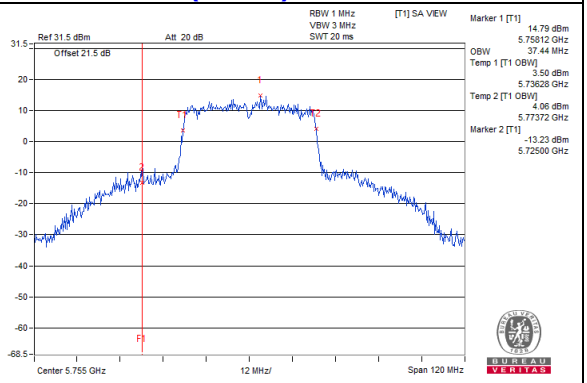
802.11ac (VHT20)_Chain 1 / CH149



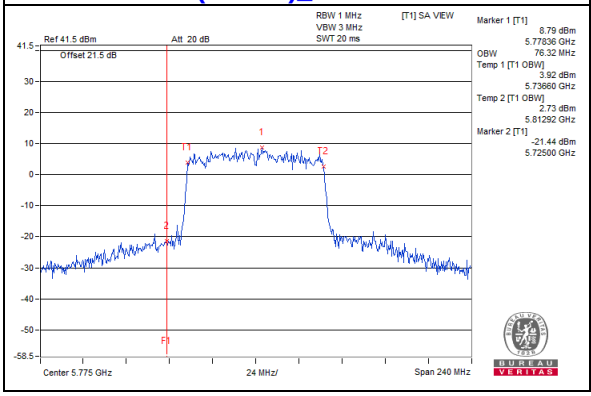
802.11ac (VHT40)_Chain 0 / CH151



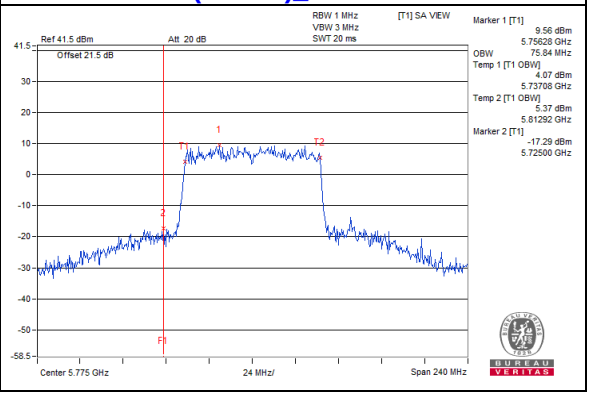
802.11ac (VHT40)_Chain 1 / CH151



802.11ac (VHT80)_Chain 0 / CH155



802.11ac (VHT80)_Chain 1 / CH155

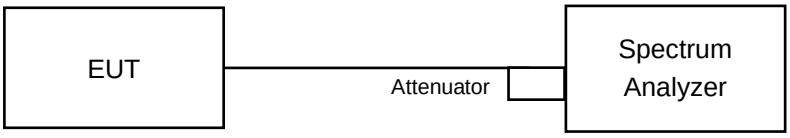


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

For 802.11a, 802.11ac (VHT20), 802.11ac (VHT40)

Using method SA-1

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

For 802.11ac (VHT80)

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, 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 band:

For 802.11a, 802.11ac (VHT20), 802.11ac (VHT40)

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500kHz/300kHz)
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

For 802.11ac (VHT80)

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500kHz/300kHz)
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 Condition

Same as Item 4.3.6.

4.5.7 Test Results

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

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	4.50	4.56	7.54	9.89	Pass
40	5200	4.45	4.28	7.38	9.89	Pass
48	5240	4.67	4.77	7.73	9.89	Pass
52	5260	5.36	5.72	8.55	10.98	Pass
60	5300	5.40	6.05	8.75	10.98	Pass
64	5320	5.16	5.77	8.49	10.98	Pass
100	5500	4.27	4.18	7.24	10.02	Pass
116	5580	3.88	4.73	7.34	10.02	Pass
140	5700	3.98	4.91	7.48	10.02	Pass
144 (U-NII-2C Band)	5720	4.42	5.29	7.89	10.02	Pass

Note: 1. Method 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.

2. For U-NII-1: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.11 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(7.11-6) = 9.89 dBm.

3. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.02 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(6.02-6) = 10.98 dBm.

4. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.98 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(6.98-6) = 10.02 dBm.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	3.63	3.94	6.80	9.89	Pass
40	5200	4.44	4.55	7.51	9.89	Pass
48	5240	4.30	4.20	7.26	9.89	Pass
52	5260	4.83	5.27	8.07	10.98	Pass
60	5300	5.45	5.58	8.53	10.98	Pass
64	5320	4.33	4.53	7.44	10.98	Pass
100	5500	4.68	4.76	7.73	10.02	Pass
116	5580	3.66	3.68	6.68	10.02	Pass
140	5700	4.41	4.78	7.61	10.02	Pass
144 (U-NII-2C Band)	5720	3.60	5.00	7.37	10.02	Pass

Note: 1. Method 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.

2. For U-NII-1: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.11 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(7.11-6) = 9.89 dBm.

3. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.02 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(6.02-6) = 10.98 dBm.

4. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.98 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(6.98-6) = 10.02 dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
38	5190	-2.59	-2.50	0.47	9.89	Pass
46	5230	2.24	2.41	5.34	9.89	Pass
54	5270	2.70	2.79	5.76	10.98	Pass
62	5310	-3.21	-2.41	0.22	10.98	Pass
102	5510	1.33	1.32	4.34	10.02	Pass
110	5550	3.61	3.28	6.46	10.02	Pass
134	5670	1.09	1.21	4.16	10.02	Pass
142 (U-NII-2C Band)	5710	1.98	2.65	5.34	10.02	Pass

Note: 1. Method 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.

2. For U-NII-1: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.11 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(7.11-6) = 9.89 dBm.
3. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.02 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(6.02-6) = 10.98 dBm.
4. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.98 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(6.98-6) = 10.02 dBm.

802.11ac (VHT80)

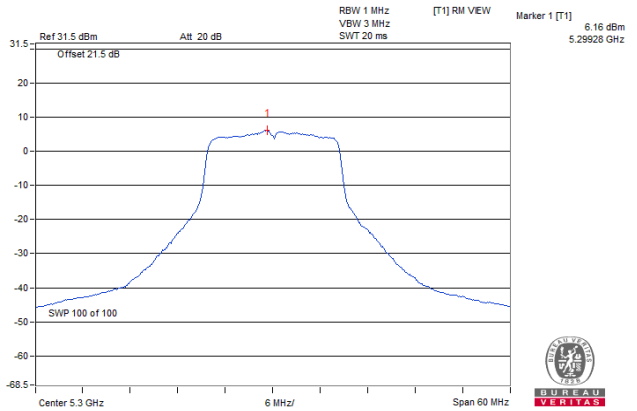
Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-7.18	-7.03	0.20	-3.90	9.89	Pass
58	5290	-8.37	-8.16	0.20	-5.06	10.98	Pass
106	5530	-3.34	-3.43	0.20	-0.18	10.02	Pass
138 (U-NII-2C Band)	5690	-0.97	-0.86	0.20	2.29	10.02	Pass

Note: 1. Method 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.

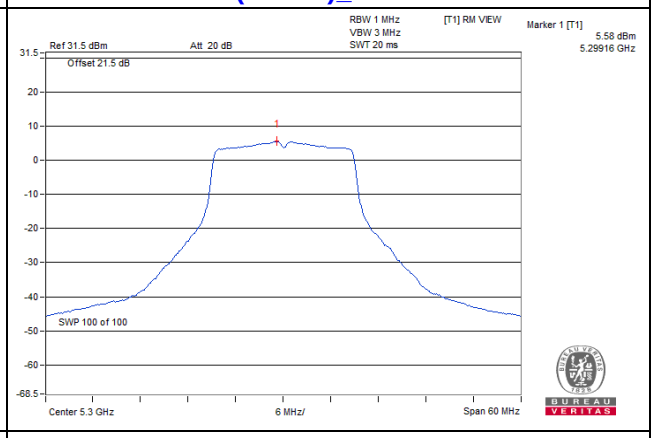
2. For U-NII-1: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.11 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(7.11-6) = 9.89 dBm.
3. For U-NII-2A: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.02 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(6.02-6) = 10.98 dBm.
4. For U-NII-2C: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.98 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(6.98-6) = 10.02 dBm.
5. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

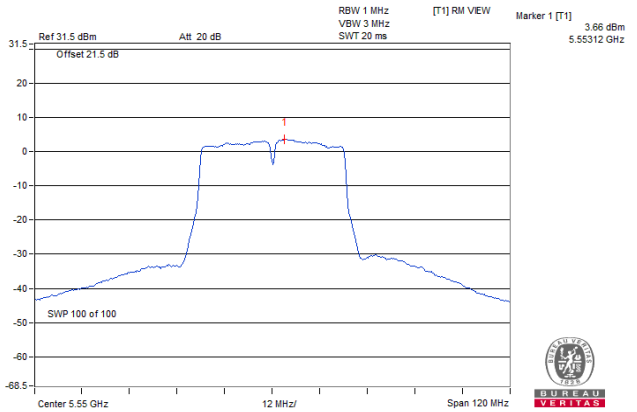
802.11a_Chain 1 / CH60



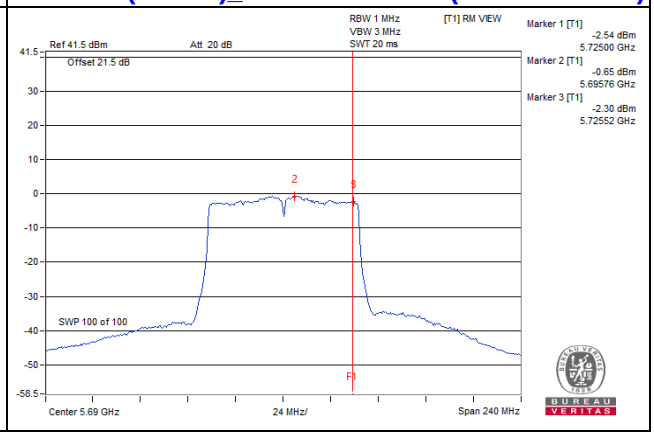
802.11ac (VHT20)_Chain 1 / CH60



802.11ac (VHT40)_Chain 0 / CH110



802.11ac (VHT80)_Chain 1 / CH138 (U-NII-2C Band)



For U-NII-3 band:

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)		Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1				
144 (U-NII-3 Band)	5720	-5.06	-4.53	-1.78	0.44	29.05	Pass
149	5745	0.46	0.60	3.54	5.76	29.05	Pass
157	5785	-0.29	-0.07	2.83	5.05	29.05	Pass
165	5825	-0.69	0.24	2.81	5.03	29.05	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.95 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 30-(6.95-6) = 29.05 dBm.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)		Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1				
144 (U-NII-3 Band)	5720	-5.58	-4.97	-2.25	-0.03	29.05	Pass
149	5745	-0.30	-0.02	2.85	5.07	29.05	Pass
157	5785	-1.15	-0.71	2.09	4.31	29.05	Pass
165	5825	-1.17	-0.45	2.22	4.44	29.05	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.95 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 30-(6.95-6) = 29.05 dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)		Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1				
142 (U-NII-3 Band)	5710	-8.25	-8.00	-5.11	-2.89	29.05	Pass
151	5755	-4.32	-3.98	-1.14	1.08	29.05	Pass
159	5795	-4.42	-3.71	-1.04	1.18	29.05	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.95 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 30-(6.95-6) = 29.05 dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1					
138 (U-NII-3 Band)	5690	-11.96	-11.58	0.20	-8.56	-6.34	29.05	Pass
155	5775	-9.17	-8.14	0.20	-5.42	-3.20	29.05	Pass

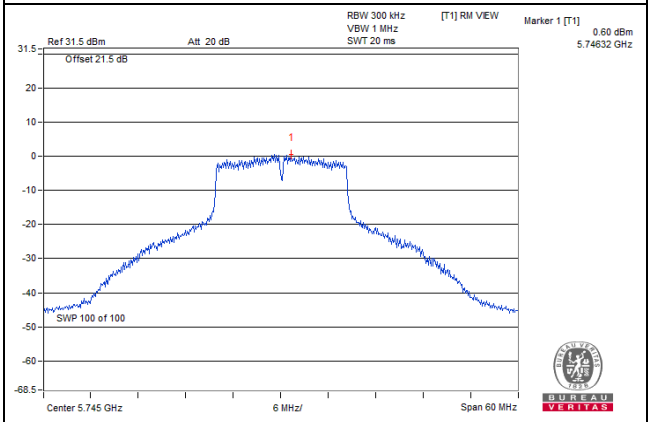
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.95 dBi > 6 dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 30-(6.95-6) = 29.05 dBm.

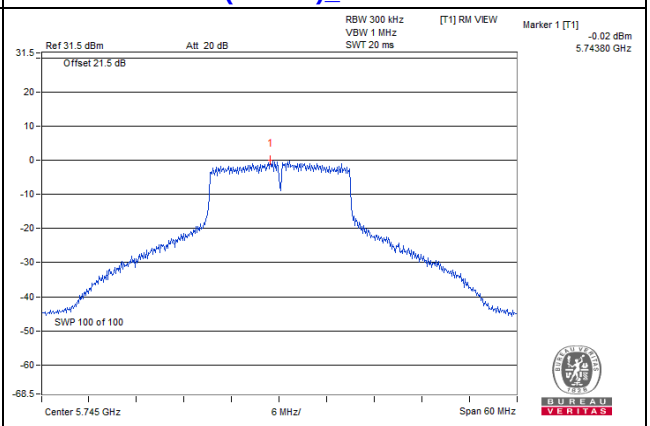
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

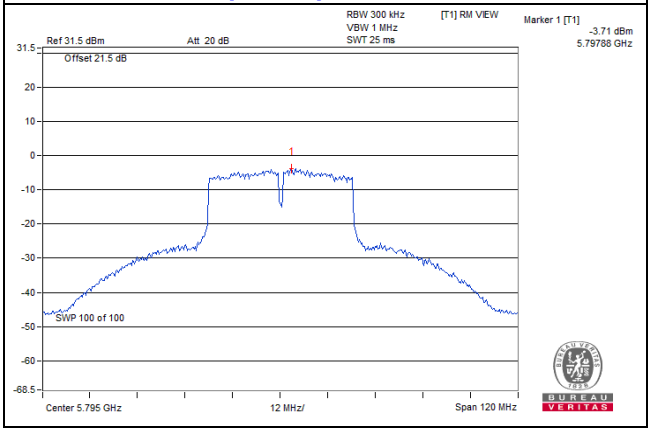
802.11a_Chain 1 / CH149



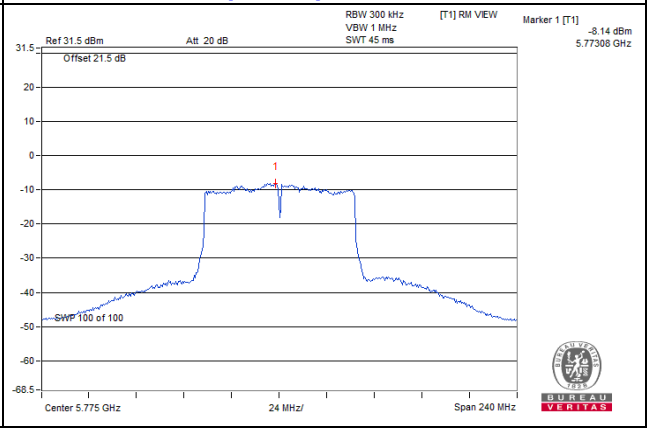
802.11ac (VHT20)_Chain 1 / CH149



802.11ac (VHT40)_Chain 1 / CH159



802.11ac (VHT80)_Chain 1 / CH155

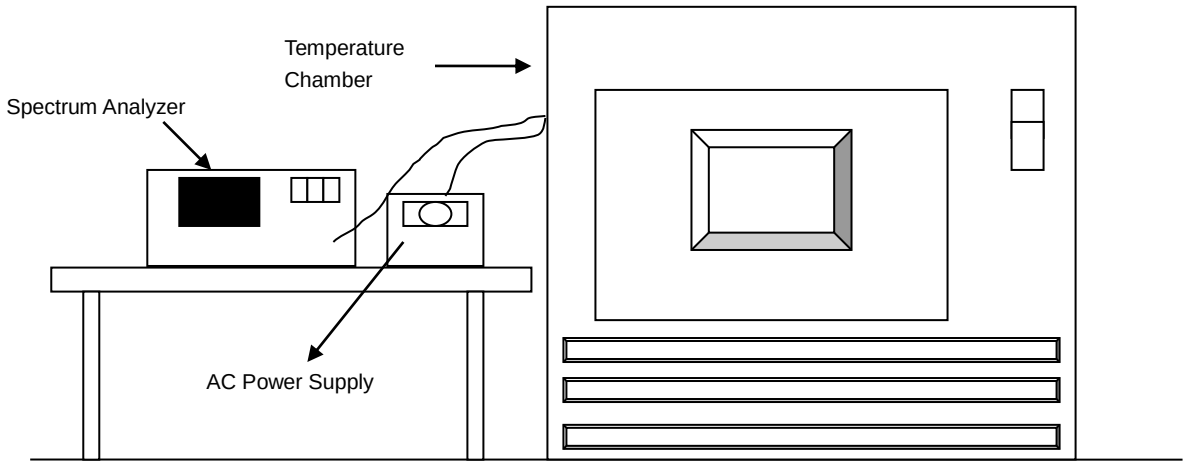


4.6 Frequency Stability Measurement

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. 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.

e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.

f. 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. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
40	120	5180.0239	Pass	5180.0228	Pass	5180.0237	Pass	5180.0267	Pass
30	120	5180.0171	Pass	5180.0206	Pass	5180.0217	Pass	5180.0195	Pass
20	120	5179.9843	Pass	5179.9838	Pass	5179.9878	Pass	5179.9852	Pass
10	120	5180.0167	Pass	5180.0163	Pass	5180.017	Pass	5180.0138	Pass
0	120	5180.0001	Pass	5179.9969	Pass	5179.9965	Pass	5180.0001	Pass

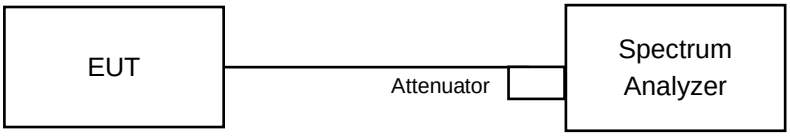
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5179.984	Pass	5179.9846	Pass	5179.987	Pass	5179.985	Pass
	120	5179.9843	Pass	5179.9838	Pass	5179.9878	Pass	5179.9852	Pass
	102	5179.9853	Pass	5179.9844	Pass	5179.9871	Pass	5179.9849	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144 (U-NII-3 Band)	5720	2.86	2.95	0.5	Pass
149	5745	15.22	15.21	0.5	Pass
157	5785	15.39	15.21	0.5	Pass
165	5825	15.38	15.22	0.5	Pass

802.11ac (VHT20)

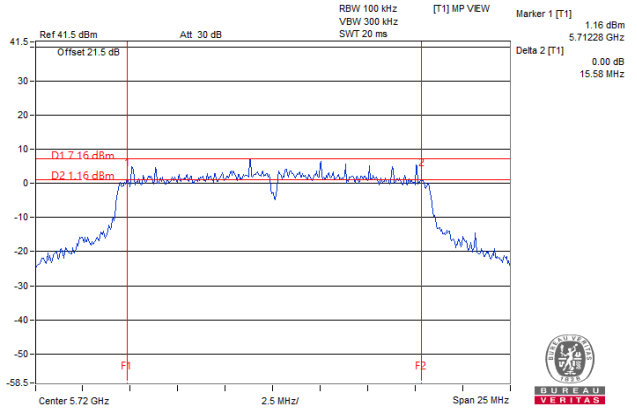
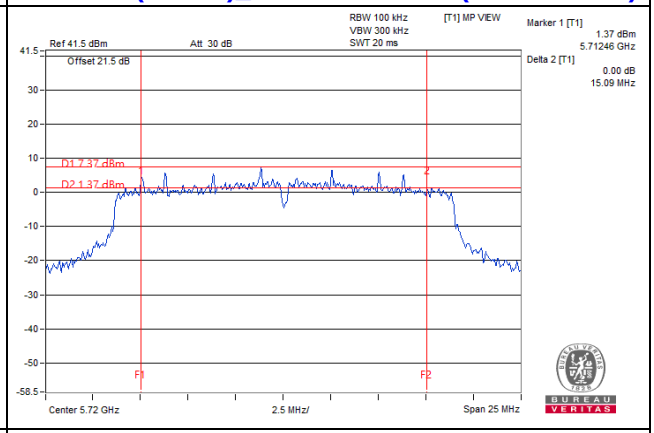
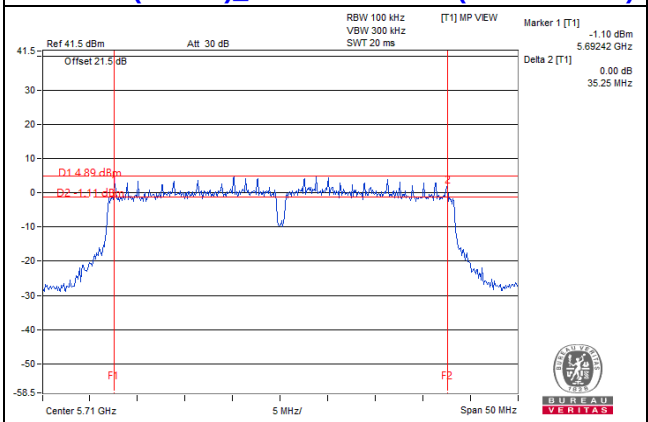
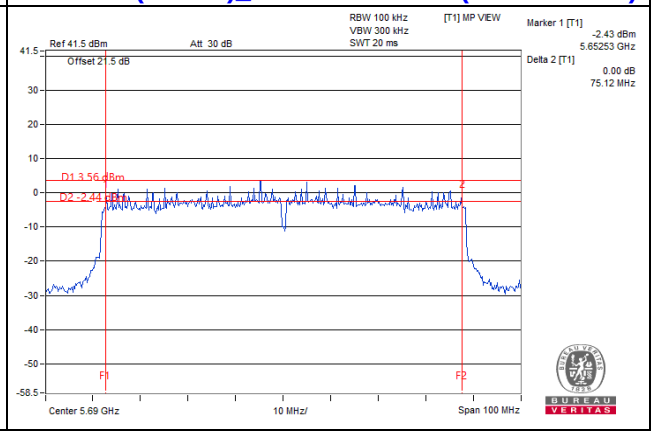
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144 (U-NII-3 Band)	5720	2.55	2.63	0.5	Pass
149	5745	16.57	16.56	0.5	Pass
157	5785	16.57	16.91	0.5	Pass
165	5825	16.81	16.52	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142 (U-NII-3 Band)	5710	3.2	2.67	0.5	Pass
151	5755	35.14	35.65	0.5	Pass
159	5795	35.18	35.25	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138 (U-NII-3 Band)	5690	2.7	2.65	0.5	Pass
155	5775	75.37	75.5	0.5	Pass

Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH144 (U-NII-3 Band)	**802.11ac (VHT20)_Chain 0 / CH144 (U-NII-3 Band)**
	
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-3 Band)	**802.11ac (VHT80)_Chain 1 / CH138 (U-NII-3 Band)**
	

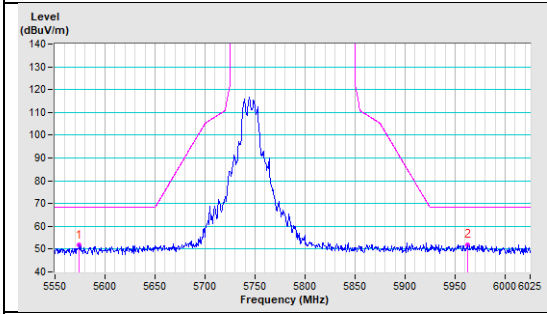
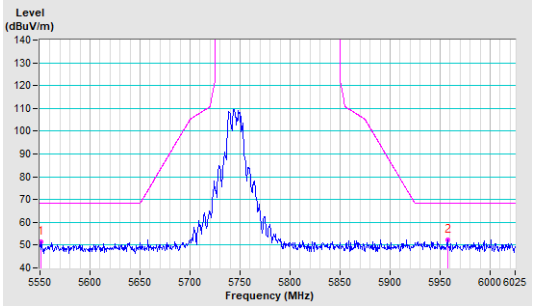
Note: The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

5 Pictures of Test Arrangements

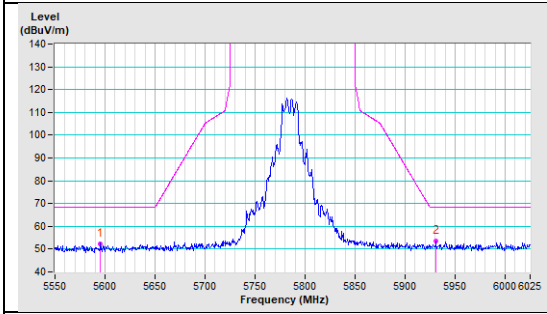
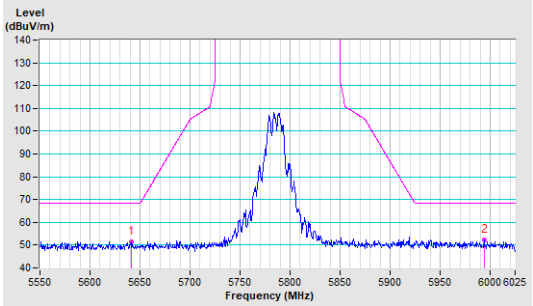
Please refer to the attached file (Test Setup Photo).

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

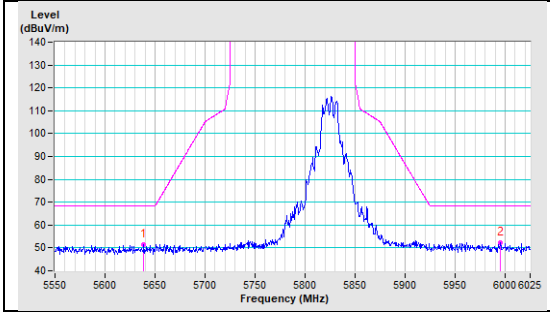
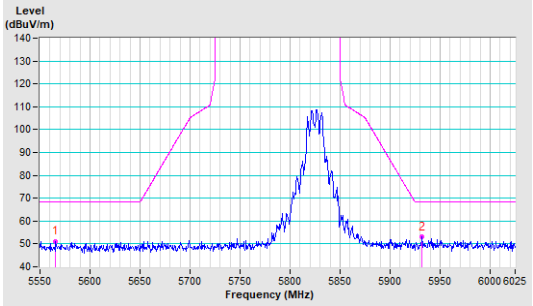
802.11a CH 149：5745 MHz

Horizontal	Vertical
	

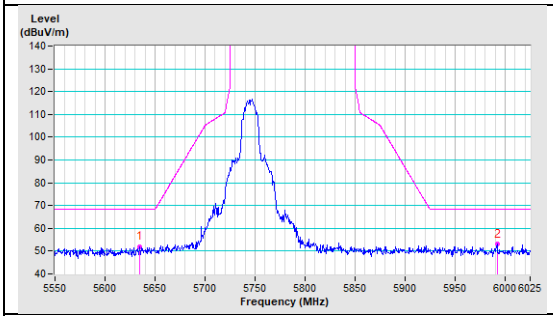
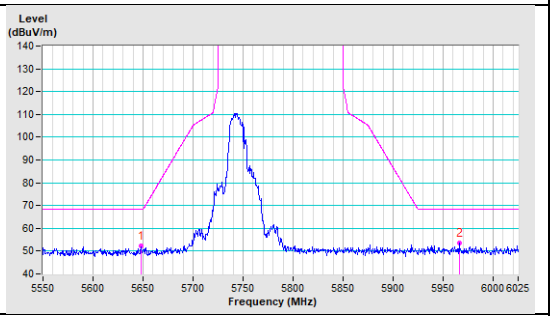
802.11a CH 157：5785 MHz

Horizontal	Vertical
	

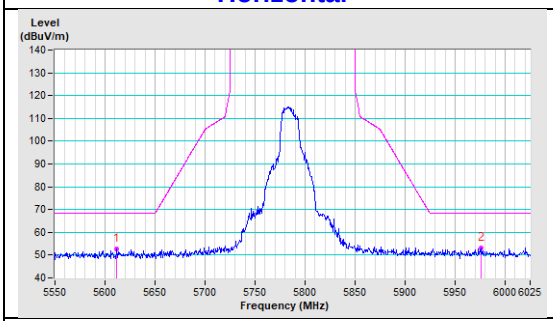
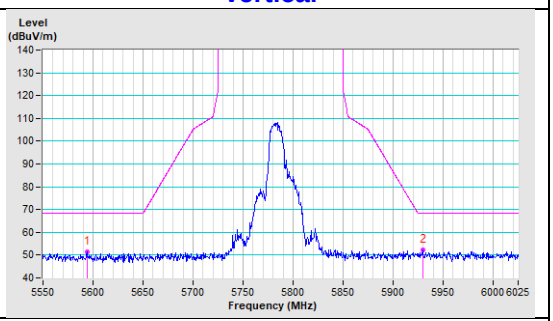
802.11a CH 165：5825 MHz

Horizontal	Vertical
	

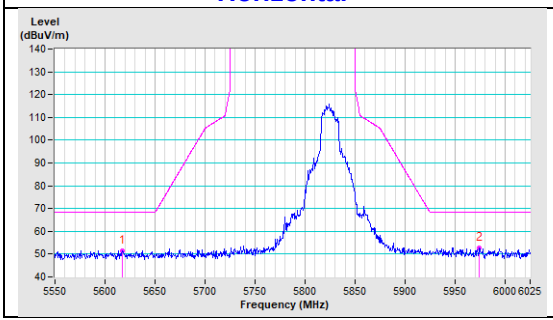
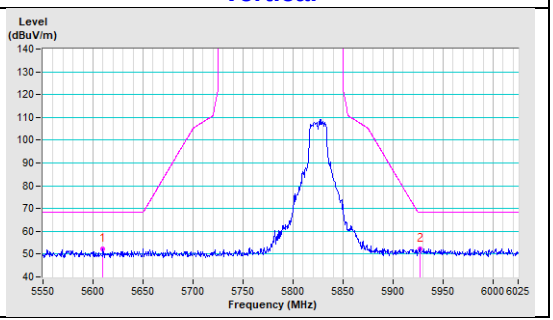
802.11ac (VHT20) CH 149：5745 MHz

Horizontal	Vertical
	

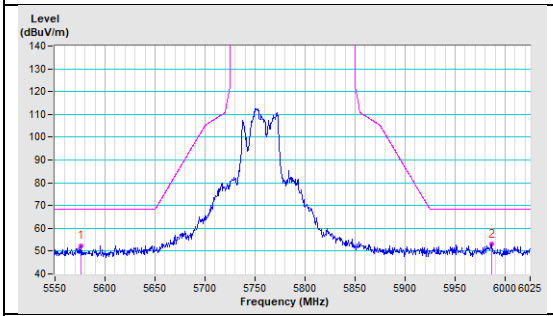
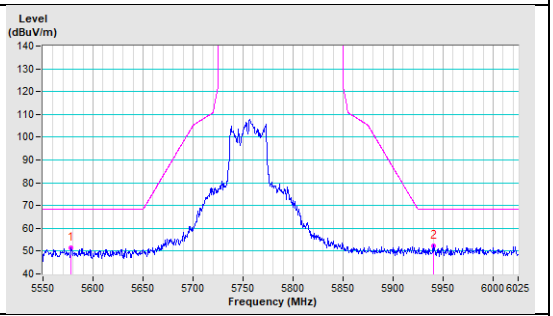
802.11ac (VHT20) CH 157：5785 MHz

Horizontal	Vertical
	

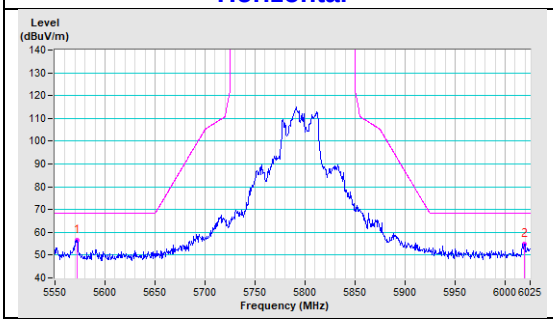
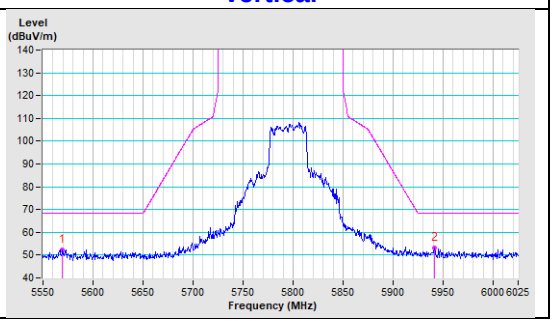
802.11ac (VHT20) CH 165：5825 MHz

Horizontal	Vertical
	

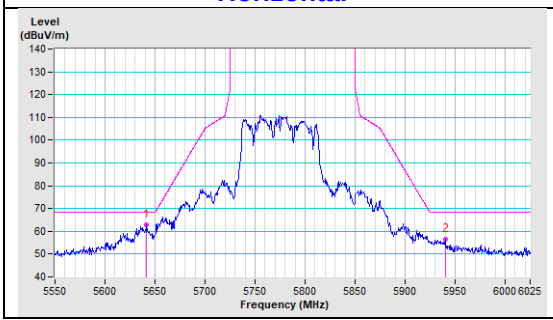
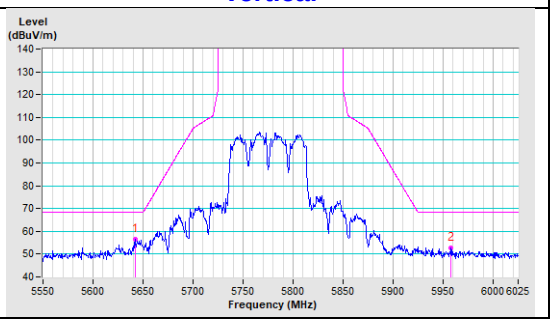
802.11ac (VHT40) CH 151：5755 MHz

Horizontal	Vertical
	

802.11ac (VHT40) CH 159：5795 MHz

Horizontal	Vertical
	

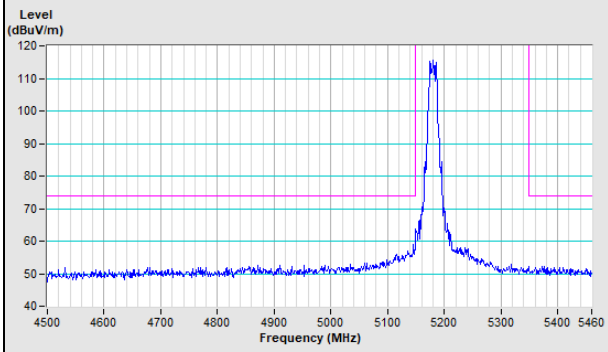
802.11ac (VHT80) CH 155：5775 MHz

Horizontal	Vertical
	

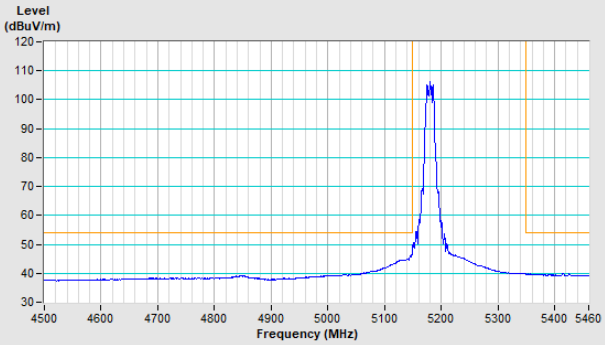
Annex B - Band-Edge Measurement (For U-NII-1, U-NII-2A, U-NII-2C band)

802.11a Channel 36

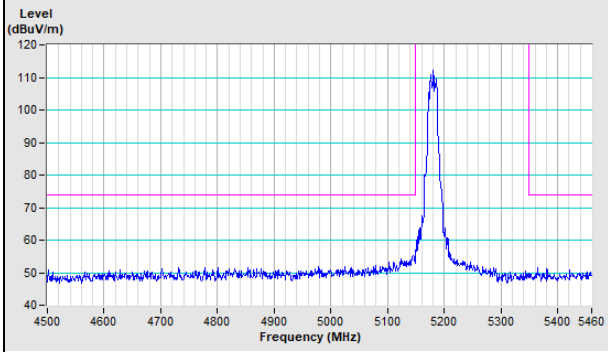
Horizontal (Peak)



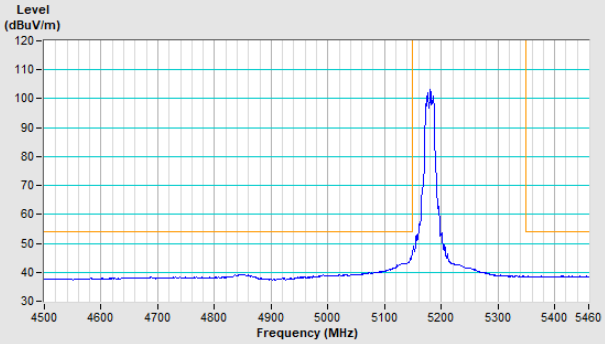
Horizontal (Average)



Vertical (Peak)

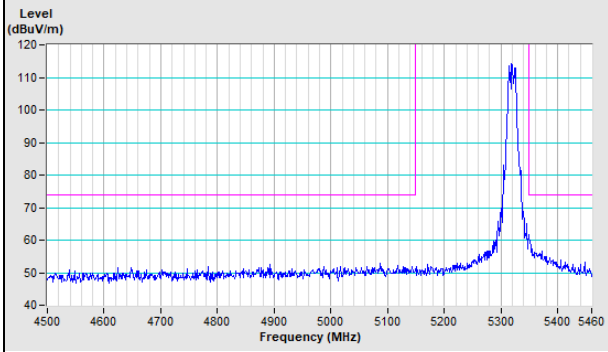


Vertical (Average)

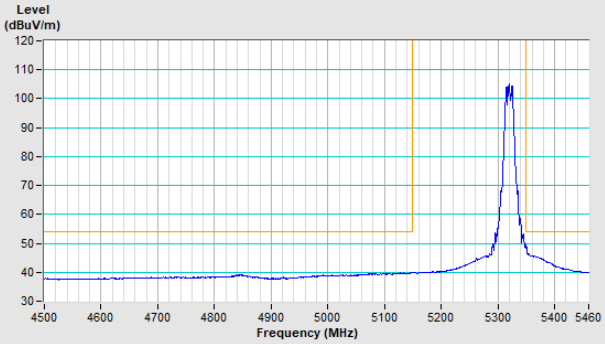


802.11a Channel 64

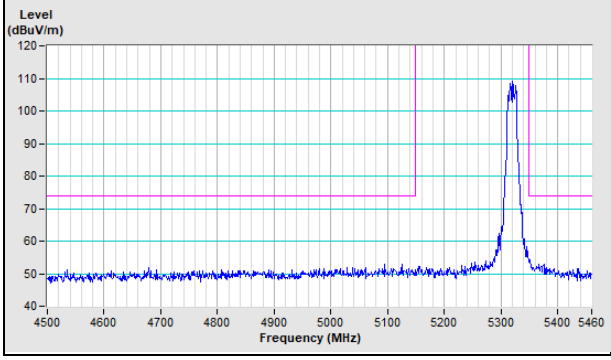
Horizontal (Peak)



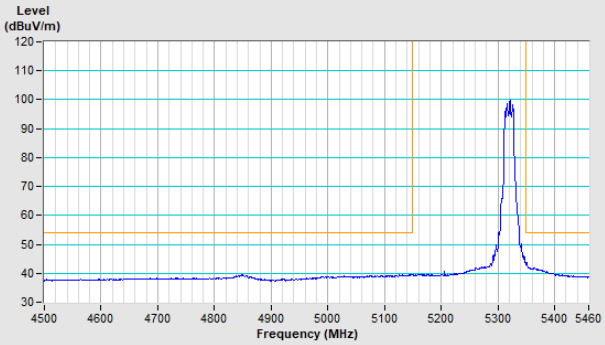
Horizontal (Average)



Vertical (Peak)

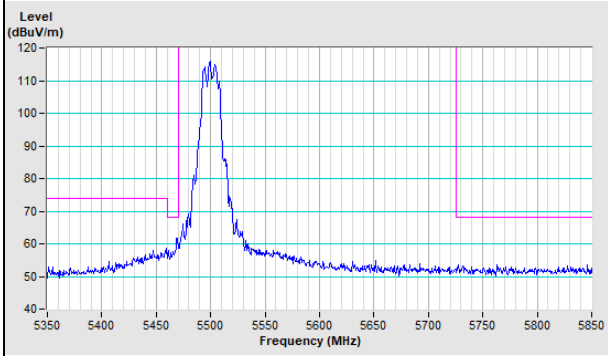


Vertical (Average)

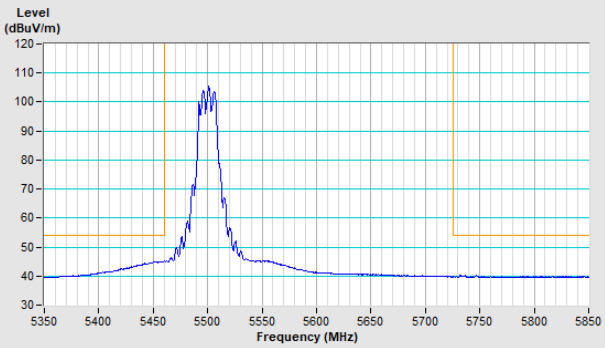


802.11a Channel 100

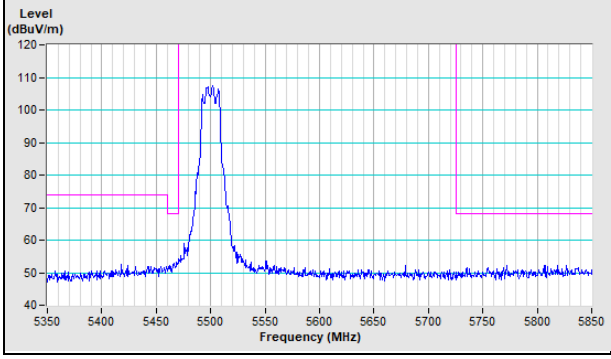
Horizontal (Peak)



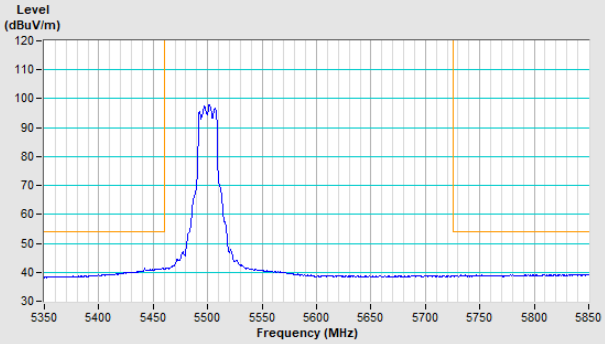
Horizontal (Average)



Vertical (Peak)

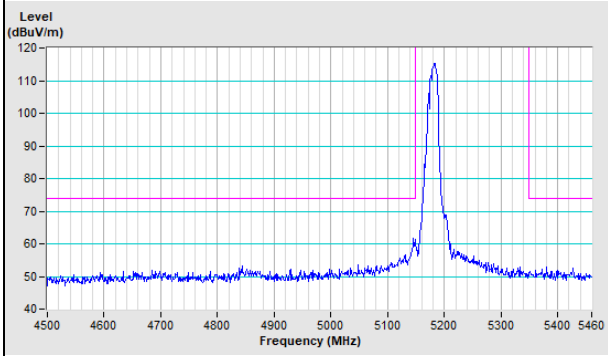


Vertical (Average)

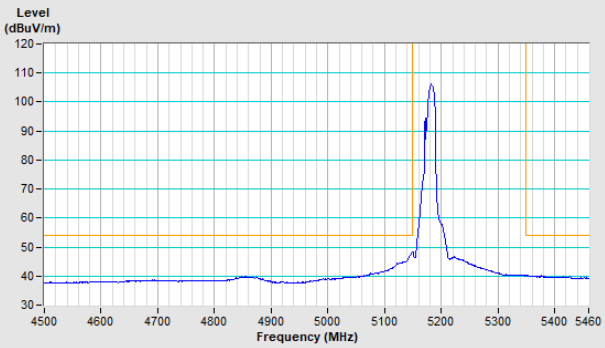


802.11ac (VHT20) Channel 36

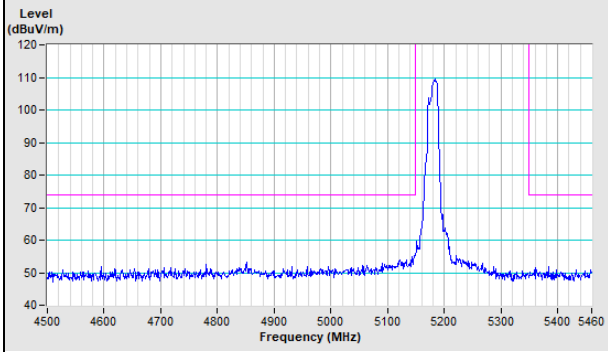
Horizontal (Peak)



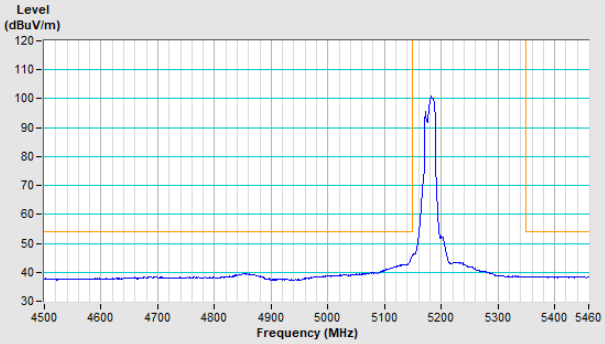
Horizontal (Average)



Vertical (Peak)

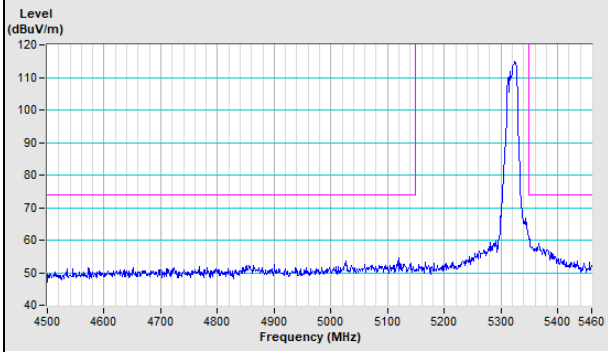


Vertical (Average)

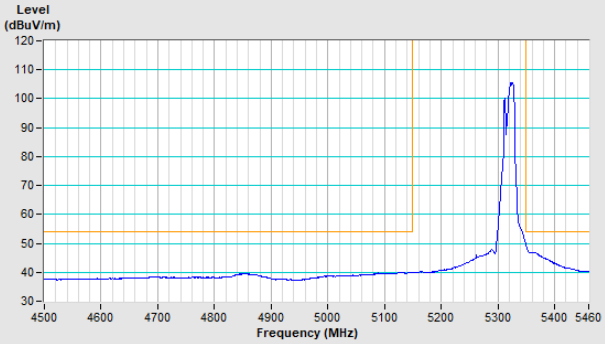


802.11ac (VHT20) Channel 64

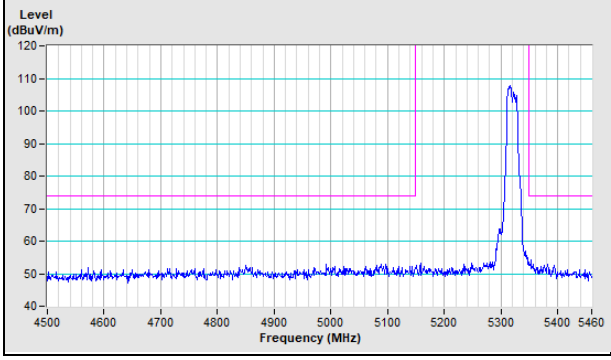
Horizontal (Peak)



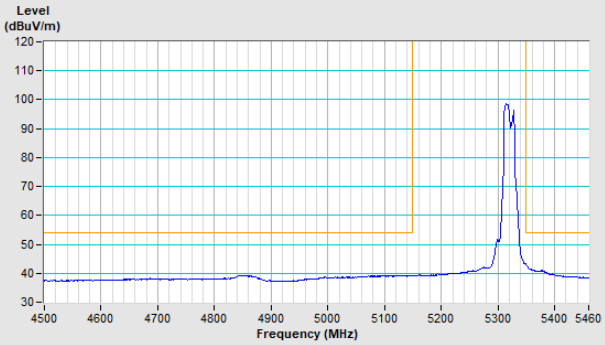
Horizontal (Average)

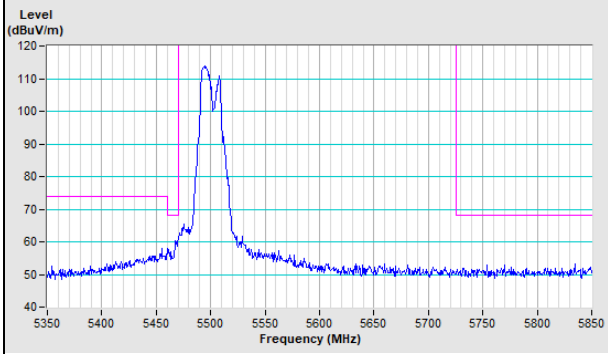
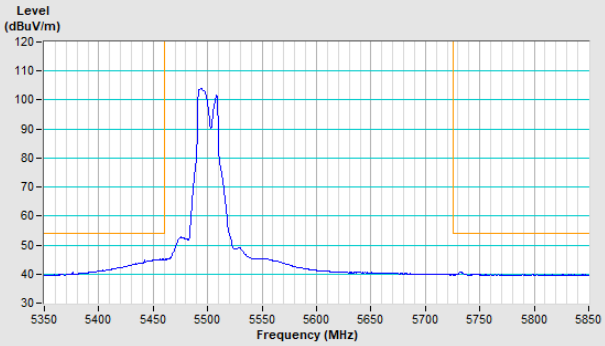
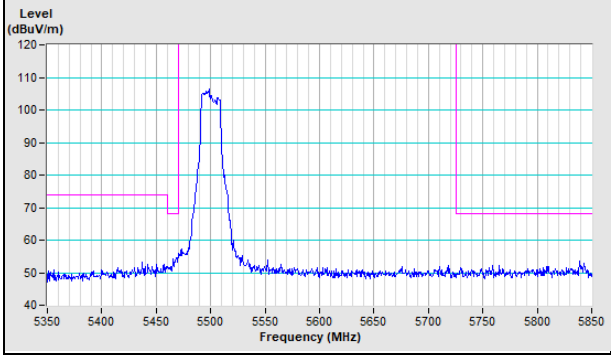
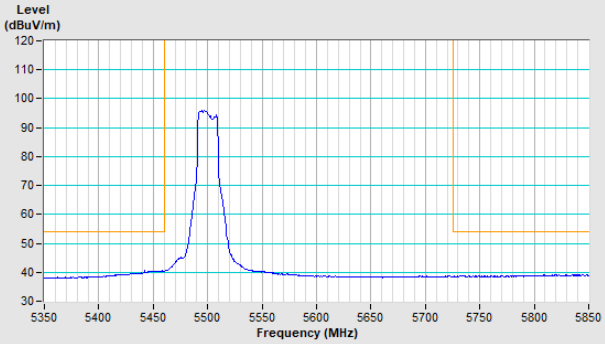


Vertical (Peak)



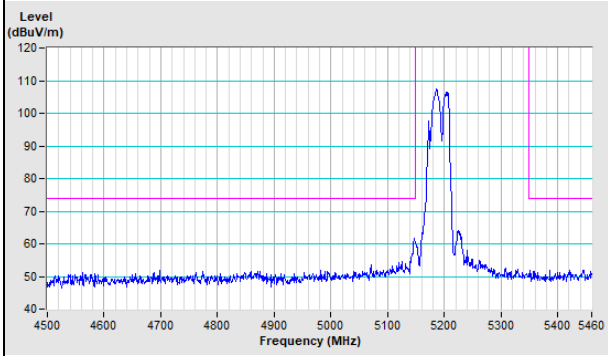
Vertical (Average)



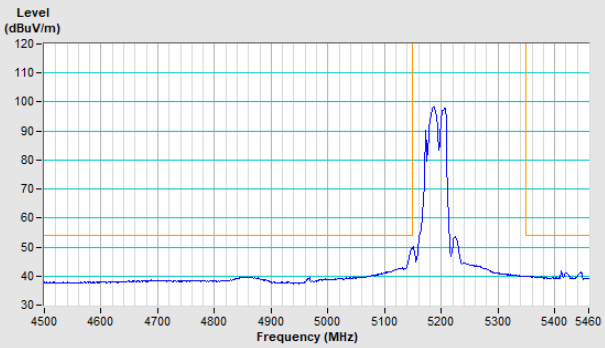
802.11ac (VHT20) Channel 100	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11ac (VHT40) Channel 38

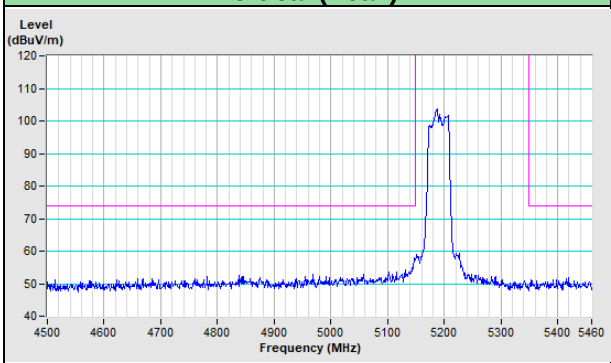
Horizontal (Peak)



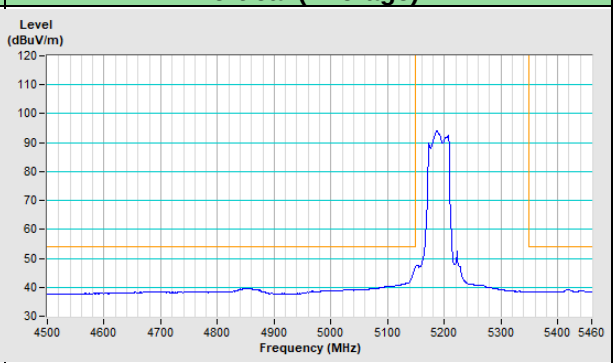
Horizontal (Average)



Vertical (Peak)

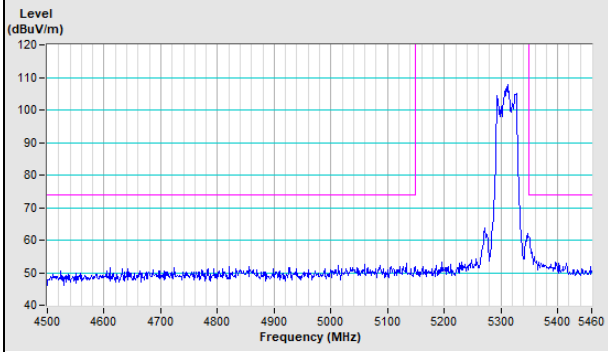


Vertical (Average)

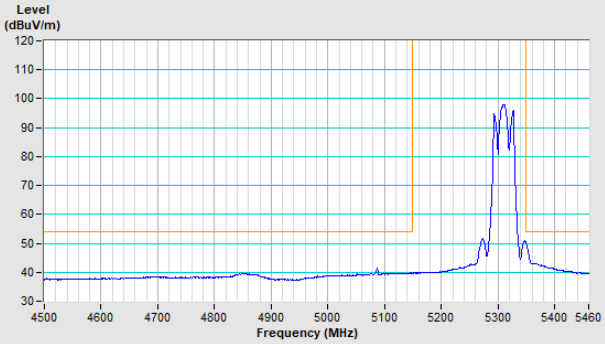


802.11ac (VHT40) Channel 62

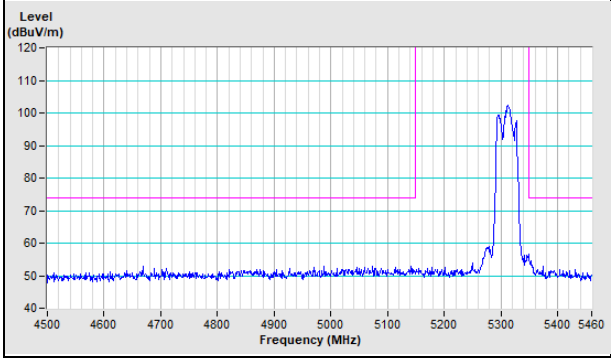
Horizontal (Peak)



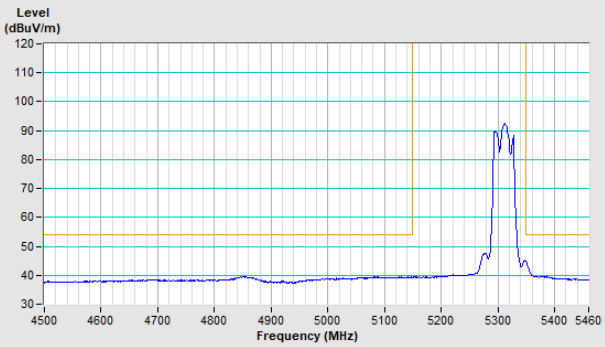
Horizontal (Average)



Vertical (Peak)

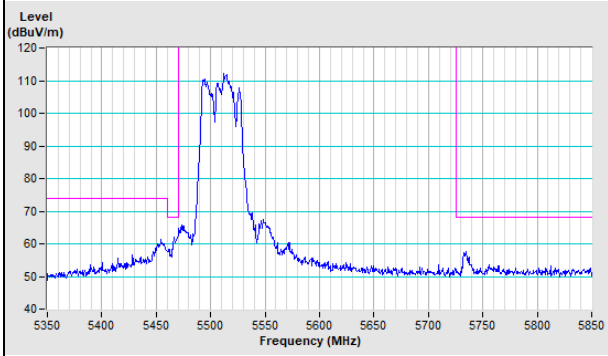


Vertical (Average)

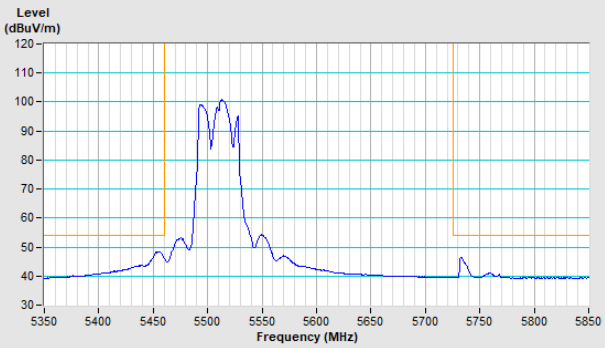


802.11ac (VHT40) Channel 102

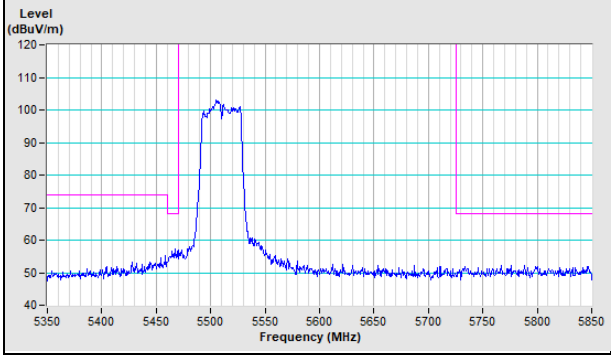
Horizontal (Peak)



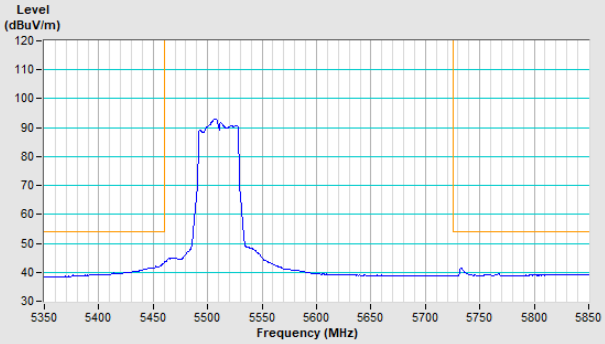
Horizontal (Average)



Vertical (Peak)

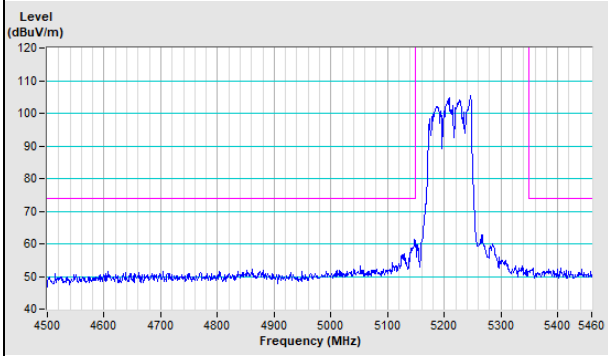


Vertical (Average)

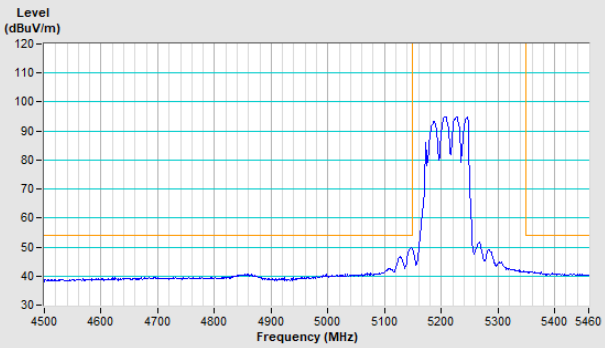


802.11ac (VHT80) Channel 42

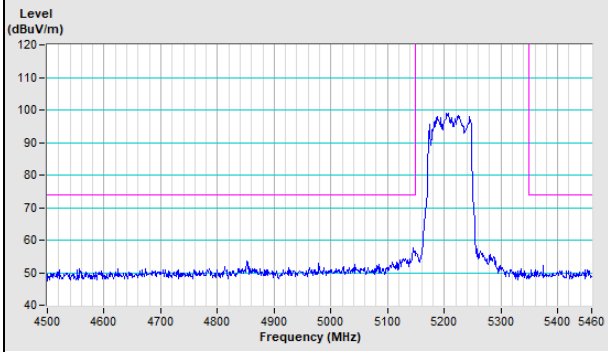
Horizontal (Peak)



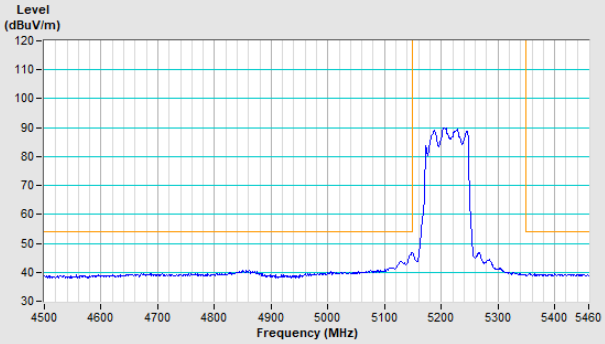
Horizontal (Average)



Vertical (Peak)

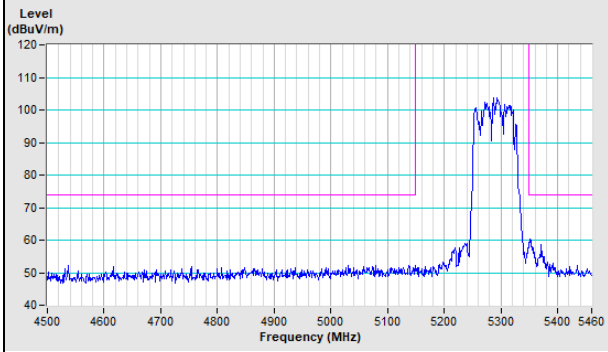


Vertical (Average)

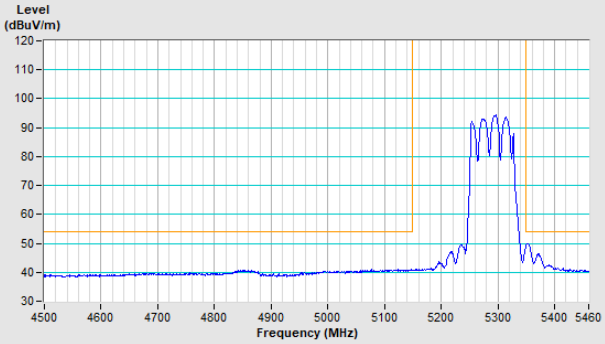


802.11ac (VHT80) Channel 58

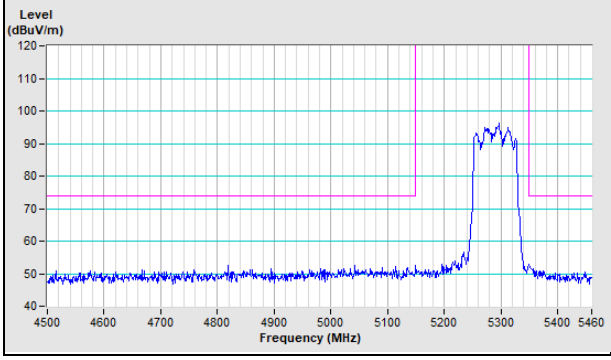
Horizontal (Peak)



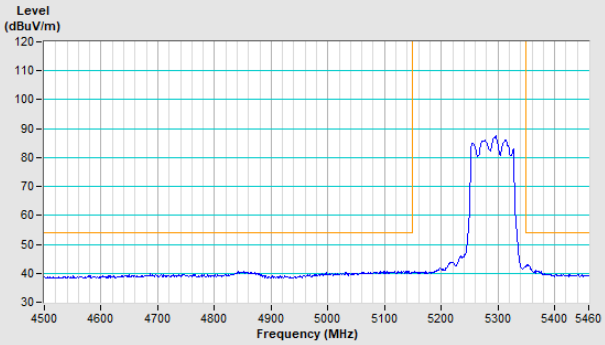
Horizontal (Average)

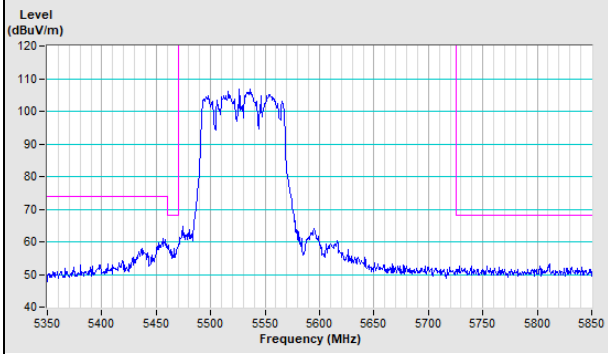
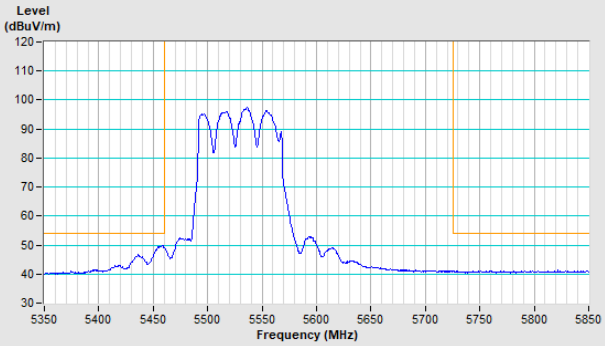
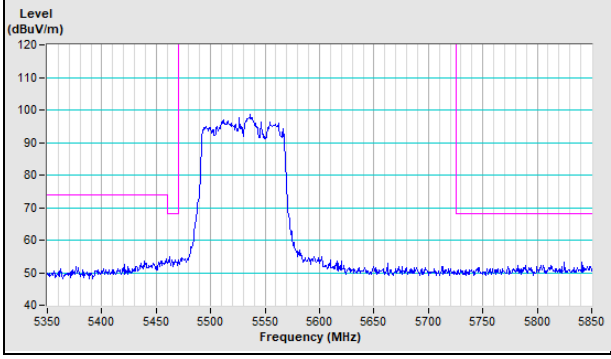
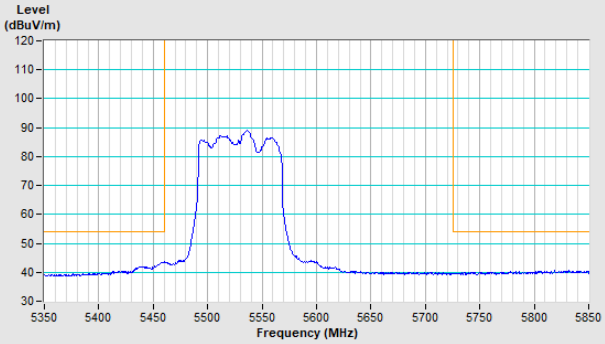


Vertical (Peak)



Vertical (Average)



802.11ac (VHT80) Channel 106	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

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.

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

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