FCC Test Report

Report No.:	RF181102E08-1
FCC ID:	2AHKM-CHITA
Test Model:	CHITA
Received Date:	Nov. 06, 2018
Test Date:	Nov. 29, 2018 to Apr. 29, 2019
Issued Date:	June 05, 2019
Applicant:	Hitron Technologies Inc.
Address:	No. 1-8,Li-Hsin 1st Rd.,Hsinchu Science Park, HSINCHU,30078,Taiwan
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 R.O.C.
Test Location :	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF181102E08-1	Original release.	June 05, 2019

1 Certificate of Conformity

Product:	Cable modem
Brand:	Hitron
Test Model:	CHITA
Sample Status:	ENGINEERING SAMPLE
Applicant:	Hitron Technologies Inc.
Test Date:	Nov. 29, 2018 to Apr. 29, 2019
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 : _____ , **Date:** June 05, 2019

Claire Kuan / Specialist

Approved by : _____ , **Date:** June 05, 2019

May Chen / 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)(6)	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -9.67dB at 2.02344MHz, 2.02431MHz
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement*	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5150.00MHz and 5452.70MHz
15.407(a)(1/2/3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(e)	6dB bandwidth	PASS	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

*For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.

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	1.8 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.5 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.1 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.1 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Cable modem
Brand	Hitron
Test Model	CHITA
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 12V from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT (20/40) mode in 2.4GHz
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.72GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 25 802.11n (HT40), 802.11ac (VHT40): 12 802.11ac (VHT80): 6
Output Power	**CDD Mode:** **2.4GHz:** 783.792mW **5.18GHz ~ 5.24GHz:** 706.685mW **5.26 ~ 5.32GHz:** 249.121mW **5.50 ~ 5.72GHz:** 241.757mW **5.745GHz ~ 5.825GHz:** 948.464mW **Beamforming Mode:** **2.4GHz:** 635.588mW **5.18GHz ~ 5.24GHz:** 385.348mW **5.26 ~ 5.32GHz:** 98.256mW **5.50 ~ 5.72GHz:** 98.466mW **5.745GHz ~ 5.825GHz:** 388.918mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	RJ45 cable x 1 (Unshielded, 1.4m)

Note:

1. Simultaneously transmission condition.

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

2. The EUT could be supplied with a power adapter as the following table:

Brand	Model	Specification
AOEM	A0505T8-120040	Input: 100-240V, 50-60Hz, 1.4A AC intput cable: Unshielded, 1.4m Output: 12V, 4.0A DC output cable: Unshielded, 1.5m

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

Antenna No.	Chain No.	Model	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length (mm)
1	5G Chain 0	393000022328	3.32	5.15~5.85GHz	PCB	i-pex(MHF)	190
2	2G Chain 0	393000022428	2.61	2.4~2.4835GHz	PCB	i-pex(MHF)	71
	5G Chain 1		4.25	5.15~5.85GHz			
3	2G Chain 1	393000022528	3.25	2.4~2.4835GHz	PCB	i-pex(MHF)	61
	5G Chain 2		3.71	5.15~5.85GHz			
4	2G Chain 2	393000022628	3.54	2.4~2.4835GHz	PCB	i-pex(MHF)	75
	5G Chain 3		4.79	5.15~5.85GHz			

4. The EUT incorporates a MIMO function:

2.4GHz			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	3TX	3RX
802.11g	6 ~ 54Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
VHT20	MCS0~8 Nss=1	3TX	3RX
	MCS0~8 Nss=2	3TX	3RX
	MCS0~9 Nss=3	3TX	3RX
VHT40	MCS0~9 Nss=1	3TX	3RX
	MCS0~9 Nss=2	3TX	3RX
	MCS0~9 Nss=3	3TX	3RX
5GHz			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	4TX	4RX
802.11n (HT20)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
802.11n (HT40)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
802.11ac (VHT20)	MCS0~8 Nss=1	4TX	4RX
	MCS0~8 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~8 Nss=4	4TX	4RX
802.11ac (VHT40)	MCS0~9 Nss=1	4TX	4RX
	MCS0~9 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~9 Nss=4	4TX	4RX
802.11ac (VHT80)	MCS0~9 Nss=1	4TX	4RX
	MCS0~9 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~9 Nss=4	4TX	4RX

Note:
1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

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 ~ 5720MHz

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

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

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

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

3 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 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

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.

CDD Mode						
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	5500-5720	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, 122, 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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240 5260-5320 5500-5720 5745-5825	36 to 48 52 to 64 100 to 144 149 to 165	149	OFDM	BPSK	6.5

Power Line Conducted Emission Test:

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

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240 5260-5320 5500-5720 5745-5825	36 to 48 52 to 64 100 to 144 149 to 165	149	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

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

CDD Mode						
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	5500-5720	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, 122, 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

Beamforming Mode (Only for Transmit Power)						
Mode	**FREQ. Band (MHz)**	**Available Channel**	**Tested Channel**	**Modulation Technology**	**Modulation Type**	**Data Rate (Mbps)**
802.11ac (VHT20)	5180-5240	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
802.11ac (VHT20)	5260-5320	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
802.11ac (VHT20)	5500-5720	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.5
802.11ac (VHT40)		102 to 142	102, 110, 134, 142	OFDM	BPSK	13.5
802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	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

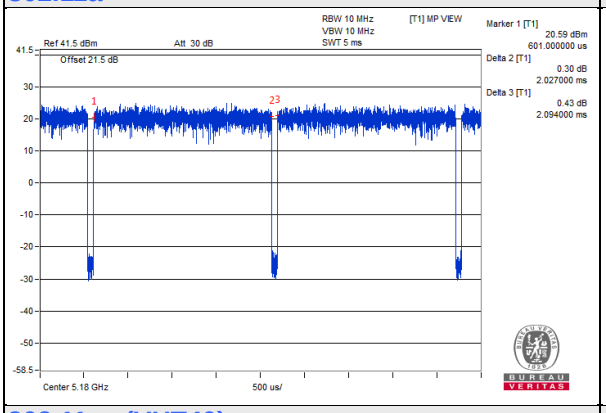
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	23deg. C, 68%RH 21deg. C, 65%RH	120Vac, 60Hz	Frank Chuang Rey Chen
RE<1G	22deg. C, 63%RH	120Vac, 60Hz	Andy Ho
PLC	25deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

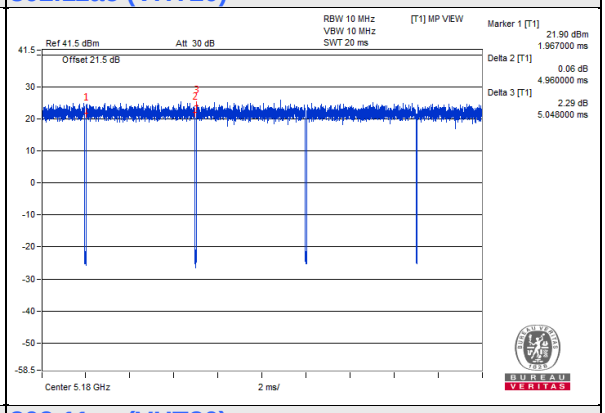
3.3 Duty Cycle of Test Signal

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 = 2.027/2.094 = 0.968, Duty factor = 10 * log(1/0.968) = 0.14
802.11ac (VHT20): Duty cycle = 4.96/5.048 = 0.983
802.11ac (VHT40): Duty cycle = 2.406/2.484 = 0.969, Duty factor = 10 * log(1/0.969) = 0.14
802.11ac (VHT80): Duty cycle = 1.135/1.206 = 0.941, Duty factor = 10 * log(1/0.941) = 0.26

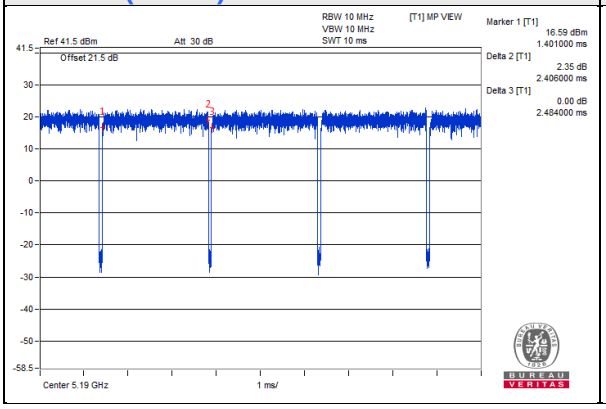
802.11a



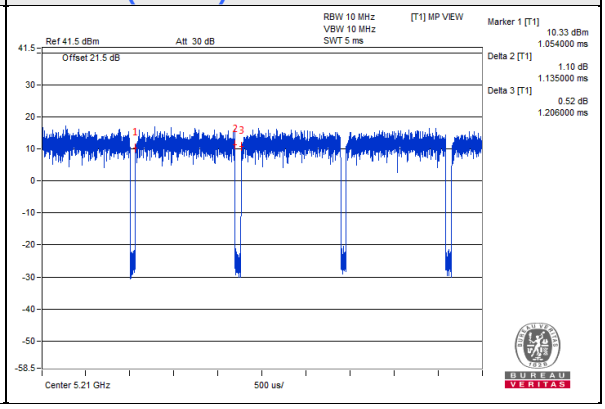
802.11ac (VHT20)



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.

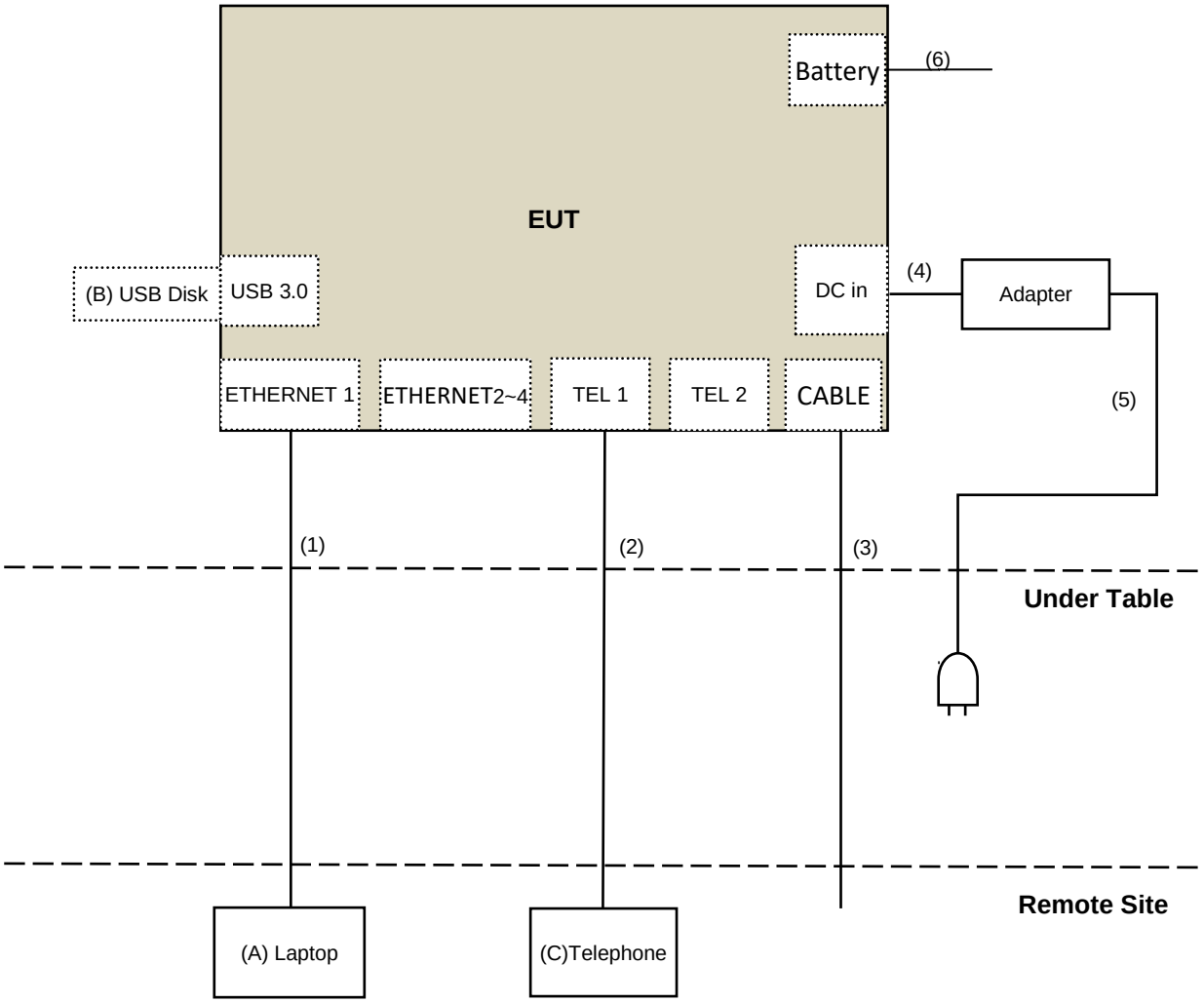
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
B.	USB Disk 3.0	Transcend	16GB	NA	NA	Provided by Lab
C.	Telephone	WONDER	WD-303	7C17KA04011	NA	Provided by Lab

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.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	RJ-11 Cable	1	10	No	0	Provided by Lab
3.	Coaxial Cable	1	10	Yes	0	Provided by Lab
4.	DC Cable	1	1.5	No	0	Supplied by client
5.	AC Cable	1	1.4	No	0	Supplied by client
6.	Audio Cable	1	1.6	No	0	Supplied by client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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

FCC Part 15, Subpart E (15.407)
KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

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

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK:74 (dBµV/m)</td><td>AV:54 (dBµV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK:-27 (dBm/MHz)</td><td rowspan="3">PK:68.2(dBµV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK:-27 (dBm/MHz) *1
PK:10 (dBm/MHz) *2
PK:15.6 (dBm/MHz) *3
PK:27 (dBm/MHz) *4</td><td>PK: 68.2(dBµV/m) *1
PK:105.2 (dBµV/m) *2
PK: 110.8(dBµV/m) *3
PK:122.2 (dBµV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*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.</td></tr>
</table>

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 below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 12, 2018	July 11, 2019
Pre-Amplifier EMCI	EMC001340	980142	Jan. 25, 2019	Jan. 24, 2020
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	May 05, 2018	May 04, 2019
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 22, 2018	Nov. 21, 2019
RF Cable	8D	966-3-1	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-2	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-3	Mar. 18, 2019	Mar. 17, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 27, 2018	Sep. 26, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Apr. 29, 2019

For U-NII-1, U-NII-3 band:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 12, 2018	July 11, 2019
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Dec. 12, 2017	Dec. 11, 2018
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-1200	160922	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-2000	150317	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-5000	150322	Jan. 29, 2018	Jan. 28, 2019
Spectrum Analyzer Keysight	N9030A	MY54490679	July 23, 2018	July 22, 2019
Pre-Amplifier EMCI	EMC184045SE	980386	Jan. 29, 2018	Jan. 28, 2019
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 14, 2017	Dec. 13, 2018
RF Cable	EMC102-KM-KM-1200	160924	Jan. 29, 2018	Jan. 28, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 20, 2018	June 19, 2019
Power meter Anritsu	ML2495A	1014008	May 09, 2018	May 08, 2019
Power sensor Anritsu	MA2411B	0917122	May 09, 2018	May 08, 2019
AC Power Source Extech Electronics	6205	1440452	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 10, 2018	Jan. 09, 2019
True RMS Clamp Meter FLUKE	325	31130711WS	May 22, 2018	May 21, 2019

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: Nov. 29 to Dec. 03, 2018

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 12, 2018	July 11, 2019
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-1200	160922	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-2000	150317	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-5000	150322	Jan. 29, 2018	Jan. 28, 2019
Spectrum Analyzer Keysight	N9030A	MY54490679	July 23, 2018	July 22, 2019
Pre-Amplifier EMCI	EMC184045SE	980386	Jan. 29, 2018	Jan. 28, 2019
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 29, 2018	Jan. 28, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 20, 2018	June 19, 2019
Power meter Anritsu	ML2495A	1014008	May 09, 2018	May 08, 2019
Power sensor Anritsu	MA2411B	0917122	May 09, 2018	May 08, 2019

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: Dec. 14 to 21, 2018

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:

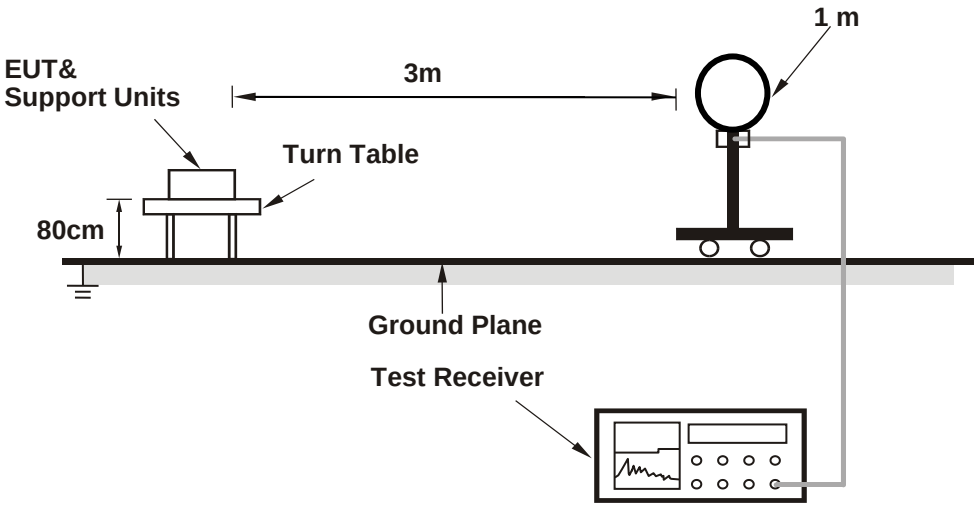
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

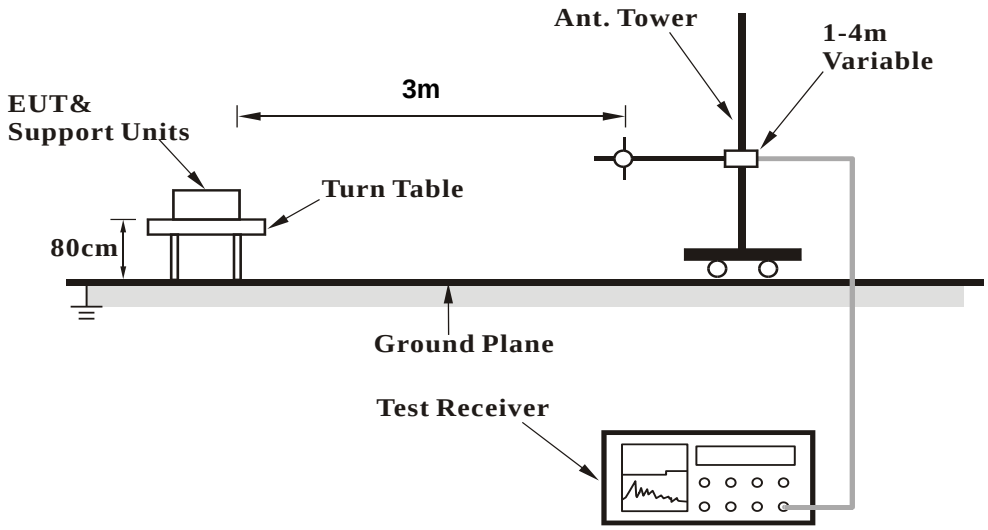
No deviation.

4.1.5 Test Setup

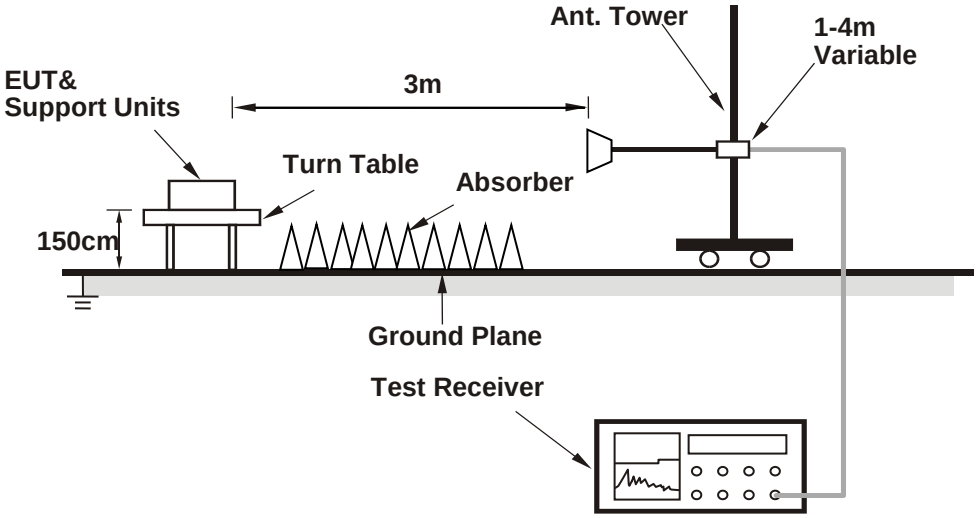
For Radiated emission below 30MHz



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. Connected the EUT with the Laptop which is placed on remote site.
b. Controlling software (QDART_1.0.39) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data:

For U-NII-1, U-NII-3 band:

802.11a

CHANNEL	TX Channel 36	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	65.8 PK	74.0	-8.2	1.34 H	155	63.2	2.6
2	5150.00	53.5 AV	54.0	-0.5	1.34 H	155	50.9	2.6
3	*5180.00	120.7 PK			1.34 H	155	118.2	2.5
4	*5180.00	109.7 AV			1.34 H	155	107.2	2.5
5	#10360.00	52.4 PK	68.2	-15.8	1.58 H	191	40.5	11.9
6	15540.00	49.4 PK	74.0	-24.6	1.30 H	33	37.0	12.4
7	15540.00	37.9 AV	54.0	-16.1	1.30 H	33	25.5	12.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	67.1 PK	74.0	-6.9	2.37 V	241	64.5	2.6
2	5150.00	53.6 AV	54.0	-0.4	2.37 V	241	51.0	2.6
3	*5180.00	122.2 PK			2.37 V	241	119.7	2.5
4	*5180.00	110.5 AV			2.37 V	241	108.0	2.5
5	#10360.00	53.2 PK	68.2	-15.0	1.39 V	82	41.3	11.9
6	15540.00	44.6 PK	74.0	-29.4	1.59 V	89	32.2	12.4
7	15540.00	34.8 AV	54.0	-19.2	1.59 V	89	22.4	12.4

REMARKS:

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

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	119.8 PK			1.33 H	149	117.4	2.4
2	*5200.00	108.7 AV			1.33 H	149	106.3	2.4
3	#10400.00	52.8 PK	68.2	-15.4	1.64 H	176	40.6	12.2
4	15600.00	49.5 PK	74.0	-24.5	1.30 H	26	36.6	12.9
5	15600.00	37.5 AV	54.0	-16.5	1.30 H	26	24.6	12.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	121.3 PK			2.38 V	251	118.9	2.4
2	*5200.00	109.5 AV			2.38 V	251	107.1	2.4
3	#10400.00	54.0 PK	68.2	-14.2	1.45 V	66	41.8	12.2
4	15600.00	44.9 PK	74.0	-29.1	1.63 V	101	32.0	12.9
5	15600.00	35.1 AV	54.0	-18.9	1.63 V	101	22.2	12.9

REMARKS:

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

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	119.3 PK			1.34 H	155	117.1	2.2
2	*5240.00	108.5 AV			1.34 H	155	106.3	2.2
3	5350.00	49.3 PK	74.0	-24.7	1.34 H	155	47.0	2.3
4	5350.00	38.2 AV	54.0	-15.8	1.34 H	155	35.9	2.3
5	#10480.00	52.3 PK	68.2	-15.9	1.59 H	184	39.9	12.4
6	15720.00	49.2 PK	74.0	-24.8	1.33 H	30	37.2	12.0
7	15720.00	37.5 AV	54.0	-16.5	1.33 H	30	25.5	12.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	120.8 PK			2.40 V	247	118.6	2.2
2	*5240.00	109.3 AV			2.40 V	247	107.1	2.2
3	5350.00	50.6 PK	74.0	-23.4	2.40 V	247	48.3	2.3
4	5350.00	38.4 AV	54.0	-15.6	2.40 V	247	36.1	2.3
5	#10480.00	53.5 PK	68.2	-14.7	1.44 V	70	41.1	12.4
6	15720.00	45.2 PK	74.0	-28.8	1.65 V	88	33.2	12.0
7	15720.00	35.2 AV	54.0	-18.8	1.65 V	88	23.2	12.0

REMARKS:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	52.6 PK	68.2	-15.6	1.44 H	169	49.9	2.7
2	*5745.00	120.1 PK			1.44 H	169	117.2	2.9
3	*5745.00	112.1 AV			1.44 H	169	109.2	2.9
4	#5987.95	51.8 PK	68.2	-16.4	1.44 H	169	48.6	3.2
5	11490.00	56.8 PK	74.0	-17.2	1.65 H	199	44.5	12.3
6	11490.00	45.1 AV	54.0	-8.9	1.65 H	199	32.8	12.3
7	#17235.00	54.6 PK	68.2	-13.6	1.29 H	40	39.3	15.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5645.00	52.5 PK	68.2	-15.7	2.69 V	248	49.8	2.7
2	*5745.00	118.7 PK			2.69 V	248	115.8	2.9
3	*5745.00	107.6 AV			2.69 V	248	104.7	2.9
4	#5975.12	52.2 PK	68.2	-16.0	2.69 V	248	49.0	3.2
5	11490.00	55.8 PK	74.0	-18.2	1.44 V	62	43.5	12.3
6	11490.00	43.7 AV	54.0	-10.3	1.44 V	62	31.4	12.3
7	#17235.00	50.0 PK	68.2	-18.2	1.48 V	60	34.7	15.3

REMARKS:

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

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5637.87	52.6 PK	68.2	-15.6	1.41 H	170	49.9	2.7
2	*5785.00	121.3 PK			1.41 H	170	118.2	3.1
3	*5785.00	112.4 AV			1.41 H	170	109.3	3.1
4	#5939.50	53.4 PK	68.2	-14.8	1.41 H	170	50.0	3.4
5	11570.00	57.1 PK	74.0	-16.9	1.57 H	172	44.7	12.4
6	11570.00	45.5 AV	54.0	-8.5	1.57 H	172	33.1	12.4
7	#17355.00	55.4 PK	68.2	-12.8	1.35 H	30	39.4	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5642.15	49.9 PK	68.2	-18.3	2.60 V	241	47.2	2.7
2	*5785.00	118.1 PK			2.60 V	241	115.0	3.1
3	*5785.00	107.3 AV			2.60 V	241	104.2	3.1
4	#5955.65	52.2 PK	68.2	-16.0	2.60 V	241	49.0	3.2
5	11570.00	56.8 PK	74.0	-17.2	1.40 V	47	44.4	12.4
6	11570.00	44.5 AV	54.0	-9.5	1.40 V	47	32.1	12.4
7	#17355.00	50.1 PK	68.2	-18.1	1.44 V	43	34.1	16.0

REMARKS:

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

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5632.18	51.9 PK	68.2	-16.3	1.40 H	180	49.1	2.8
2	*5825.00	120.9 PK			1.40 H	180	117.7	3.2
3	*5825.00	111.8 AV			1.40 H	180	108.6	3.2
4	#5964.68	53.5 PK	68.2	-14.7	1.40 H	180	50.2	3.3
5	11650.00	57.0 PK	74.0	-17.0	1.59 H	190	44.6	12.4
6	11650.00	45.4 AV	54.0	-8.6	1.59 H	190	33.0	12.4
7	#17475.00	55.2 PK	68.2	-13.0	1.31 H	24	37.8	17.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5613.18	51.4 PK	68.2	-16.8	2.70 V	249	48.6	2.8
2	*5825.00	117.9 PK			2.70 V	249	114.7	3.2
3	*5825.00	107.5 AV			2.70 V	249	104.3	3.2
4	#5980.82	52.7 PK	68.2	-15.5	2.70 V	249	49.5	3.2
5	11650.00	56.4 PK	74.0	-17.6	1.45 V	52	44.0	12.4
6	11650.00	44.1 AV	54.0	-9.9	1.45 V	52	31.7	12.4
7	#17475.00	49.8 PK	68.2	-18.4	1.45 V	52	32.4	17.4

REMARKS:

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

802.11ac (VHT20)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.8 PK	74.0	-10.2	1.10 H	158	61.2	2.6
2	5150.00	52.9 AV	54.0	-1.1	1.10 H	158	50.3	2.6
3	*5180.00	119.9 PK			1.10 H	158	117.4	2.5
4	*5180.00	110.1 AV			1.10 H	158	107.6	2.5
5	#10360.00	52.2 PK	68.2	-16.0	1.63 H	178	40.3	11.9
6	15540.00	49.4 PK	74.0	-24.6	1.32 H	19	37.0	12.4
7	15540.00	37.8 AV	54.0	-16.2	1.32 H	19	25.4	12.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	65.1 PK	74.0	-8.9	2.37 V	243	62.5	2.6
2	5150.00	53.7 AV	54.0	-0.3	2.37 V	243	51.1	2.6
3	*5180.00	121.4 PK			2.37 V	243	118.9	2.5
4	*5180.00	110.9 AV			2.37 V	243	108.4	2.5
5	#10360.00	54.0 PK	68.2	-14.2	1.45 V	84	42.1	11.9
6	15540.00	45.7 PK	74.0	-28.3	1.67 V	75	33.3	12.4
7	15540.00	35.7 AV	54.0	-18.3	1.67 V	75	23.3	12.4

REMARKS:

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

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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			1.04 H	163	117.9	2.4
2	*5200.00	109.5 AV			1.04 H	163	107.1	2.4
3	#10400.00	52.4 PK	68.2	-15.8	1.53 H	181	40.2	12.2
4	15600.00	49.1 PK	74.0	-24.9	1.30 H	41	36.2	12.9
5	15600.00	37.4 AV	54.0	-16.6	1.30 H	41	24.5	12.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	121.8 PK			2.33 V	256	119.4	2.4
2	*5200.00	110.3 AV			2.33 V	256	107.9	2.4
3	#10400.00	53.6 PK	68.2	-14.6	1.43 V	58	41.4	12.2
4	15600.00	45.4 PK	74.0	-28.6	1.62 V	76	32.5	12.9
5	15600.00	35.5 AV	54.0	-18.5	1.62 V	76	22.6	12.9

REMARKS:

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

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	120.1 PK			1.07 H	166	117.9	2.2
2	*5240.00	109.5 AV			1.07 H	166	107.3	2.2
3	5350.00	48.7 PK	74.0	-25.3	1.07 H	166	46.4	2.3
4	5350.00	37.2 AV	54.0	-16.8	1.07 H	166	34.9	2.3
5	#10480.00	52.0 PK	68.2	-16.2	1.58 H	182	39.6	12.4
6	15720.00	48.7 PK	74.0	-25.3	1.34 H	21	36.7	12.0
7	15720.00	37.2 AV	54.0	-16.8	1.34 H	21	25.2	12.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	121.6 PK			2.35 V	241	119.4	2.2
2	*5240.00	110.3 AV			2.35 V	241	108.1	2.2
3	5350.00	50.0 PK	74.0	-24.0	2.35 V	241	47.7	2.3
4	5350.00	38.0 AV	54.0	-16.0	2.35 V	241	35.7	2.3
5	#10480.00	53.2 PK	68.2	-15.0	1.41 V	61	40.8	12.4
6	15720.00	45.3 PK	74.0	-28.7	1.64 V	103	33.3	12.0
7	15720.00	35.5 AV	54.0	-18.5	1.64 V	103	23.5	12.0

REMARKS:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5636.45	58.7 PK	68.2	-9.5	1.39 H	179	56.0	2.7
2	*5745.00	121.6 PK			1.39 H	179	118.7	2.9
3	*5745.00	112.6 AV			1.39 H	179	109.7	2.9
4	#5946.62	60.7 PK	68.2	-7.5	1.39 H	179	57.5	3.2
5	11490.00	57.2 PK	74.0	-16.8	1.59 H	173	44.9	12.3
6	11490.00	45.7 AV	54.0	-8.3	1.59 H	173	33.4	12.3
7	#17235.00	55.3 PK	68.2	-12.9	1.29 H	44	40.0	15.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5644.52	52.1 PK	68.2	-16.1	2.71 V	236	49.4	2.7
2	*5745.00	117.2 PK			2.71 V	236	114.3	2.9
3	*5745.00	108.4 AV			2.71 V	236	105.5	2.9
4	#5954.70	53.4 PK	68.2	-14.8	2.71 V	236	50.2	3.2
5	11490.00	57.1 PK	74.0	-16.9	1.36 V	60	44.8	12.3
6	11490.00	44.6 AV	54.0	-9.4	1.36 V	60	32.3	12.3
7	#17235.00	49.7 PK	68.2	-18.5	1.49 V	43	34.4	15.3

REMARKS:

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

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5637.87	52.6 PK	68.2	-15.6	1.49 H	163	49.9	2.7
2	*5785.00	121.5 PK			1.49 H	163	118.4	3.1
3	*5785.00	112.5 AV			1.49 H	163	109.4	3.1
4	#5953.75	53.0 PK	68.2	-15.2	1.49 H	163	49.8	3.2
5	11570.00	57.3 PK	74.0	-16.7	1.58 H	194	44.9	12.4
6	11570.00	45.8 AV	54.0	-8.2	1.58 H	194	33.4	12.4
7	#17355.00	54.8 PK	68.2	-13.4	1.38 H	38	38.8	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5640.25	50.8 PK	68.2	-17.4	2.72 V	245	48.1	2.7
2	*5785.00	117.9 PK			2.72 V	245	114.8	3.1
3	*5785.00	108.6 AV			2.72 V	245	105.5	3.1
4	#5963.25	53.0 PK	68.2	-15.2	2.72 V	245	49.7	3.3
5	11570.00	56.6 PK	74.0	-17.4	1.38 V	56	44.2	12.4
6	11570.00	44.5 AV	54.0	-9.5	1.38 V	56	32.1	12.4
7	#17355.00	50.0 PK	68.2	-18.2	1.40 V	47	34.0	16.0

REMARKS:

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

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5646.43	52.1 PK	68.2	-16.1	1.46 H	174	49.4	2.7
2	*5825.00	121.0 PK			1.46 H	174	117.8	3.2
3	*5825.00	112.1 AV			1.46 H	174	108.9	3.2
4	#5990.32	53.6 PK	68.2	-14.6	1.46 H	174	50.4	3.2
5	11650.00	56.7 PK	74.0	-17.3	1.61 H	175	44.3	12.4
6	11650.00	45.3 AV	54.0	-8.7	1.61 H	175	32.9	12.4
7	#17475.00	54.9 PK	68.2	-13.3	1.35 H	31	37.5	17.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5632.65	51.9 PK	68.2	-16.3	2.75 V	264	49.1	2.8
2	*5825.00	117.4 PK			2.75 V	264	114.2	3.2
3	*5825.00	108.2 AV			2.75 V	264	105.0	3.2
4	#5974.18	52.3 PK	68.2	-15.9	2.75 V	264	49.1	3.2
5	11650.00	56.5 PK	74.0	-17.5	1.40 V	60	44.1	12.4
6	11650.00	44.0 AV	54.0	-10.0	1.40 V	60	31.6	12.4
7	#17475.00	49.5 PK	68.2	-18.7	1.47 V	46	32.1	17.4

REMARKS:

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

802.11ac (VHT40)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.9 PK	74.0	-7.1	1.10 H	158	64.3	2.6
2	5150.00	52.9 AV	54.0	-1.1	1.10 H	158	50.3	2.6
3	*5190.00	116.1 PK			1.10 H	158	113.6	2.5
4	*5190.00	105.3 AV			1.10 H	158	102.8	2.5
5	5350.00	50.0 PK	74.0	-24.0	1.10 H	158	47.7	2.3
6	5350.00	38.0 AV	54.0	-16.0	1.10 H	158	35.7	2.3
7	#10380.00	52.8 PK	68.2	-15.4	1.57 H	168	40.8	12.0
8	15570.00	48.8 PK	74.0	-25.2	1.29 H	27	36.2	12.6
9	15570.00	37.4 AV	54.0	-16.6	1.29 H	27	24.8	12.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.2 PK	74.0	-6.8	2.37 V	243	64.6	2.6
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**2.37 V**	**243**	**51.3**	**2.6**
3	*5190.00	116.3 PK			2.37 V	243	113.8	2.5
4	*5190.00	105.2 AV			2.37 V	243	102.7	2.5
5	5350.00	51.0 PK	74.0	-23.0	2.37 V	243	48.7	2.3
6	5350.00	38.8 AV	54.0	-15.2	2.37 V	243	36.5	2.3
7	#10380.00	54.1 PK	68.2	-14.1	1.41 V	94	42.1	12.0
8	15570.00	45.7 PK	74.0	-28.3	1.66 V	73	33.1	12.6
9	15570.00	35.8 AV	54.0	-18.2	1.66 V	73	23.2	12.6

REMARKS:

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

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.2 PK	74.0	-9.8	1.08 H	146	61.6	2.6
2	5150.00	52.2 AV	54.0	-1.8	1.08 H	146	49.6	2.6
3	*5230.00	116.7 PK			1.08 H	146	114.5	2.2
4	*5230.00	106.5 AV			1.08 H	146	104.3	2.2
5	5350.00	50.5 PK	74.0	-23.5	1.08 H	146	48.2	2.3
6	5350.00	38.5 AV	54.0	-15.5	1.08 H	146	36.2	2.3
7	#10460.00	57.6 PK	68.2	-10.6	1.57 H	175	45.2	12.4
8	15690.00	54.9 PK	74.0	-19.1	1.32 H	44	42.7	12.2
9	15690.00	42.3 AV	54.0	-11.7	1.32 H	44	30.1	12.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.5 PK	74.0	-9.5	2.36 V	244	61.9	2.6
2	5150.00	53.2 AV	54.0	-0.8	2.36 V	244	50.6	2.6
3	*5230.00	118.2 PK			2.36 V	244	116.0	2.2
4	*5230.00	107.3 AV			2.36 V	244	105.1	2.2
5	5350.00	51.8 PK	74.0	-22.2	2.36 V	244	49.5	2.3
6	5350.00	39.3 AV	54.0	-14.7	2.36 V	244	37.0	2.3
7	#10460.00	56.5 PK	68.2	-11.7	1.33 V	40	44.1	12.4
8	15690.00	50.0 PK	74.0	-24.0	1.43 V	61	37.8	12.2
9	15690.00	38.9 AV	54.0	-15.1	1.43 V	61	26.7	12.2

REMARKS:

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

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5649.75	53.1 PK	68.2	-15.1	1.40 H	161	50.4	2.7
2	*5755.00	118.2 PK			1.40 H	161	115.2	3.0
3	*5755.00	109.4 AV			1.40 H	161	106.4	3.0
4	#5984.15	52.6 PK	68.2	-15.6	1.40 H	161	49.4	3.2
5	11510.00	56.9 PK	74.0	-17.1	1.61 H	177	44.6	12.3
6	11510.00	45.4 AV	54.0	-8.6	1.61 H	177	33.1	12.3
7	#17265.00	54.8 PK	68.2	-13.4	1.31 H	36	39.4	15.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5645.95	52.5 PK	68.2	-15.7	2.70 V	250	49.8	2.7
2	*5755.00	115.2 PK			2.70 V	250	112.2	3.0
3	*5755.00	106.3 AV			2.70 V	250	103.3	3.0
4	#5949.00	52.1 PK	68.2	-16.1	2.70 V	250	48.9	3.2
5	11510.00	56.9 PK	74.0	-17.1	1.41 V	55	44.6	12.3
6	11510.00	44.8 AV	54.0	-9.2	1.41 V	55	32.5	12.3
7	#17265.00	50.3 PK	68.2	-17.9	1.40 V	60	34.9	15.4

REMARKS:

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

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5639.30	52.9 PK	68.2	-15.3	1.43 H	155	50.2	2.7
2	*5795.00	118.9 PK			1.43 H	155	115.9	3.0
3	*5795.00	109.9 AV			1.43 H	155	106.9	3.0
4	#5933.80	53.8 PK	68.2	-14.4	1.43 H	155	50.4	3.4
5	11590.00	56.9 PK	74.0	-17.1	1.53 H	182	44.5	12.4
6	11590.00	45.6 AV	54.0	-8.4	1.53 H	182	33.2	12.4
7	#17385.00	54.2 PK	68.2	-14.0	1.29 H	18	38.0	16.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5644.05	51.7 PK	68.2	-16.5	1.43 V	155	49.0	2.7
2	*5795.00	115.6 PK			2.72 V	241	112.6	3.0
3	*5795.00	106.2 AV			2.72 V	241	103.2	3.0
4	#5930.95	52.5 PK	68.2	-15.7	1.43 V	155	49.1	3.4
5	11590.00	56.4 PK	74.0	-17.6	1.40 V	55	44.0	12.4
6	11590.00	44.0 AV	54.0	-10.0	1.40 V	55	31.6	12.4
7	#17385.00	50.3 PK	68.2	-17.9	1.37 V	54	34.1	16.2

REMARKS:

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

802.11ac (VHT80)

CHANNEL	TX Channel 42	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.9 PK	74.0	-7.1	1.13 H	155	64.3	2.6
2	5150.00	52.9 AV	54.0	-1.1	1.13 H	155	50.3	2.6
3	*5210.00	107.6 PK			1.13 H	155	105.2	2.4
4	*5210.00	98.9 AV			1.13 H	155	96.5	2.4
5	5350.00	48.8 PK	74.0	-25.2	1.13 H	155	46.5	2.3
6	5350.00	39.2 AV	54.0	-14.8	1.13 H	155	36.9	2.3
7	#10420.00	52.3 PK	68.2	-15.9	1.69 H	169	40.1	12.2
8	15630.00	48.8 PK	74.0	-25.2	1.28 H	27	36.1	12.7
9	15630.00	37.4 AV	54.0	-16.6	1.28 H	27	24.7	12.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.2 PK	74.0	-6.8	2.38 V	243	64.6	2.6
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**2.38 V**	**243**	**51.3**	**2.6**
3	*5210.00	109.1 PK			2.38 V	243	106.7	2.4
4	*5210.00	99.7 AV			2.38 V	243	97.3	2.4
5	5350.00	50.1 PK	74.0	-23.9	2.38 V	243	47.8	2.3
6	5350.00	40.0 AV	54.0	-14.0	2.38 V	243	37.7	2.3
7	#10420.00	54.5 PK	68.2	-13.7	1.47 V	68	42.3	12.2
8	15630.00	46.3 PK	74.0	-27.7	1.70 V	86	33.6	12.7
9	15630.00	36.1 AV	54.0	-17.9	1.70 V	86	23.4	12.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5632.65	67.5 PK	68.2	-0.7	1.00 H	249	64.7	2.8
2	*5775.00	114.4 PK			1.39 H	163	111.4	3.0
3	*5775.00	105.5 AV			1.39 H	163	102.5	3.0
4	#5929.52	63.4 PK	68.2	-4.8	2.69 H	249	60.0	3.4
5	11550.00	52.2 PK	74.0	-21.8	1.55 H	174	39.8	12.4
6	11550.00	45.5 AV	54.0	-8.5	1.55 H	174	33.1	12.4
7	#17325.00	49.7 PK	68.2	-18.5	1.30 H	42	34.0	15.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5651.65	68.1 PK	69.4	-1.3	2.69 V	249	65.3	2.8
2	*5775.00	109.8 PK			2.69 V	249	106.8	3.0
3	*5775.00	101.0 AV			2.69 V	249	98.0	3.0
4	#5930.95	63.3 PK	68.2	-4.9	2.69 V	249	59.9	3.4
5	11550.00	53.4 PK	74.0	-20.6	1.43 V	79	41.0	12.4
6	11550.00	41.2 AV	54.0	-12.8	1.43 V	79	28.8	12.4
7	#17325.00	45.4 PK	68.2	-22.8	1.68 V	60	29.7	15.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

802.11a

CHANNEL	TX Channel 52	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (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	47.1 PK	74.0	-26.9	1.09 H	174	44.2	2.9
2	5150.00	36.4 AV	54.0	-17.6	1.09 H	174	33.5	2.9
3	*5260.00	110.9 PK			1.09 H	174	108.5	2.4
4	*5260.00	99.3 AV			1.09 H	174	96.9	2.4
5	#10520.00	52.4 PK	68.2	-15.8	1.63 H	191	40.1	12.3
6	15780.00	44.8 PK	74.0	-29.2	1.33 H	25	32.8	12.0
7	15780.00	34.9 AV	54.0	-19.1	1.33 H	25	22.9	12.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (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	47.3 PK	74.0	-26.7	1.42 V	270	44.4	2.9
2	5150.00	36.5 AV	54.0	-17.5	1.42 V	270	33.6	2.9
3	*5260.00	112.4 PK			1.42 V	270	110.0	2.4
4	*5260.00	100.7 AV			1.42 V	270	98.3	2.4
5	#10520.00	54.3 PK	68.2	-13.9	1.39 V	67	42.0	12.3
6	15780.00	45.0 PK	74.0	-29.0	1.60 V	103	33.0	12.0
7	15780.00	35.1 AV	54.0	-18.9	1.60 V	103	23.1	12.0

REMARKS:

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

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	110.7 PK			1.16 H	162	108.1	2.6
2	*5300.00	99.0 AV			1.16 H	162	96.4	2.6
3	10600.00	53.2 PK	74.0	-20.8	1.56 H	181	41.1	12.1
4	10600.00	41.1 AV	54.0	-12.9	1.56 H	181	29.0	12.1
5	15900.00	44.9 PK	74.0	-29.1	1.30 H	48	33.1	11.8
6	15900.00	34.8 AV	54.0	-19.2	1.30 H	48	23.0	11.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	112.7 PK			1.41 V	248	110.1	2.6
2	*5300.00	100.7 AV			1.41 V	248	98.1	2.6
3	10600.00	54.0 PK	74.0	-20.0	1.43 V	72	41.9	12.1
4	10600.00	41.9 AV	54.0	-12.1	1.43 V	72	29.8	12.1
5	15900.00	44.7 PK	74.0	-29.3	1.61 V	106	32.9	11.8
6	15900.00	35.0 AV	54.0	-19.0	1.61 V	106	23.2	11.8

REMARKS:

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

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.4 PK			1.11 H	167	107.8	2.6
2	*5320.00	98.8 AV			1.11 H	167	96.2	2.6
3	5350.00	50.6 PK	74.0	-23.4	1.11 H	167	47.9	2.7
4	5350.00	39.0 AV	54.0	-15.0	1.11 H	167	36.3	2.7
5	10640.00	52.8 PK	74.0	-21.2	1.54 H	191	40.9	11.9
6	10640.00	40.9 AV	54.0	-13.1	1.54 H	191	29.0	11.9
7	15960.00	45.5 PK	74.0	-28.5	1.28 H	18	33.4	12.1
8	15960.00	35.2 AV	54.0	-18.8	1.28 H	18	23.1	12.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	112.2 PK			1.38 V	262	109.6	2.6
2	*5320.00	100.3 AV			1.38 V	262	97.7	2.6
3	5350.00	51.5 PK	74.0	-22.5	1.38 V	262	48.8	2.7
4	5350.00	39.9 AV	54.0	-14.1	1.38 V	262	37.2	2.7
5	10640.00	53.7 PK	74.0	-20.3	1.44 V	76	41.8	11.9
6	10640.00	41.7 AV	54.0	-12.3	1.44 V	76	29.8	11.9
7	15960.00	45.5 PK	74.0	-28.5	1.60 V	105	33.4	12.1
8	15960.00	35.4 AV	54.0	-18.6	1.60 V	105	23.3	12.1

REMARKS:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	50.2 PK	74.0	-23.8	1.16 H	162	47.2	3.0
2	5460.00	38.9 AV	54.0	-15.1	1.16 H	162	35.9	3.0
3	#5470.00	51.2 PK	68.2	-17.0	1.16 H	162	48.2	3.0
4	*5500.00	110.8 PK			1.16 H	162	107.9	2.9
5	*5500.00	99.0 AV			1.16 H	162	96.1	2.9
6	11000.00	53.2 PK	74.0	-20.8	1.53 H	182	40.4	12.8
7	11000.00	40.9 AV	54.0	-13.1	1.53 H	182	28.1	12.8
8	#16500.00	44.5 PK	68.2	-23.7	1.34 H	24	30.1	14.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	52.3 PK	74.0	-21.7	1.58 V	248	49.3	3.0
2	5460.00	39.8 AV	54.0	-14.2	1.58 V	248	36.8	3.0
3	#5470.00	52.7 PK	68.2	-15.5	1.58 V	248	49.7	3.0
4	*5500.00	112.2 PK			1.58 V	248	109.3	2.9
5	*5500.00	100.3 AV			1.58 V	248	97.4	2.9
6	11000.00	53.5 PK	74.0	-20.5	1.40 V	59	40.7	12.8
7	11000.00	41.7 AV	54.0	-12.3	1.40 V	59	28.9	12.8
8	#16500.00	44.7 PK	68.2	-23.5	1.68 V	114	30.3	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	111.2 PK			1.07 H	148	108.2	3.0
2	*5580.00	99.4 AV			1.07 H	148	96.4	3.0
3	11160.00	53.5 PK	74.0	-20.5	1.54 H	183	41.2	12.3
4	11160.00	41.1 AV	54.0	-12.9	1.54 H	183	28.8	12.3
5	#16740.00	44.4 PK	68.2	-23.8	1.26 H	30	29.7	14.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	112.3 PK			1.41 V	252	109.3	3.0
2	*5580.00	100.2 AV			1.41 V	252	97.2	3.0
3	11160.00	54.0 PK	74.0	-20.0	1.39 V	72	41.7	12.3
4	11160.00	42.0 AV	54.0	-12.0	1.39 V	72	29.7	12.3
5	#16740.00	44.4 PK	68.2	-23.8	1.59 V	116	29.7	14.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.2 PK			1.11 H	163	107.0	3.2
2	*5700.00	98.7 AV			1.11 H	163	95.5	3.2
3	#5725.00	51.8 PK	68.2	-16.4	1.11 H	163	48.6	3.2
4	11400.00	52.8 PK	74.0	-21.2	1.62 H	185	39.8	13.0
5	11400.00	40.8 AV	54.0	-13.2	1.62 H	185	27.8	13.0
6	#17100.00	45.2 PK	68.2	-23.0	1.32 H	40	28.7	16.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	111.9 PK			1.35 V	252	108.7	3.2
2	*5700.00	100.2 AV			1.35 V	252	97.0	3.2
3	#5725.00	52.8 PK	68.2	-15.4	1.35 V	252	49.6	3.2
4	11400.00	53.3 PK	74.0	-20.7	1.50 V	67	40.3	13.0
5	11400.00	41.5 AV	54.0	-12.5	1.50 V	67	28.5	13.0
6	#17100.00	44.9 PK	68.2	-23.3	1.69 V	91	28.4	16.5

REMARKS:

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

CHANNEL	TX Channel 144	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	51.4 PK	68.2	-16.8	1.07 H	150	48.4	3.0
2	*5720.00	111.1 PK			1.07 H	150	107.9	3.2
3	*5720.00	98.9 AV			1.07 H	150	95.7	3.2
4	#5850.00	50.4 PK	68.2	-17.8	1.07 H	150	46.8	3.6
5	11440.00	52.5 PK	74.0	-21.5	1.55 H	182	39.6	12.9
6	11440.00	40.7 AV	54.0	-13.3	1.55 H	182	27.8	12.9
7	#17160.00	45.0 PK	68.2	-23.2	1.28 H	22	28.9	16.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	53.0 PK	68.2	-15.2	1.39 V	241	50.0	3.0
2	*5720.00	112.4 PK			1.39 V	241	109.2	3.2
3	*5720.00	100.6 AV			1.39 V	241	97.4	3.2
4	#5850.00	52.3 PK	68.2	-15.9	1.39 V	241	48.7	3.6
5	11440.00	54.2 PK	74.0	-19.8	1.48 V	79	41.3	12.9
6	11440.00	42.0 AV	54.0	-12.0	1.48 V	79	29.1	12.9
7	#17160.00	44.5 PK	68.2	-23.7	1.68 V	114	28.4	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT20)

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	47.3 PK	74.0	-26.7	1.08 H	169	44.4	2.9
2	5150.00	36.4 AV	54.0	-17.6	1.08 H	169	33.5	2.9
3	*5260.00	111.0 PK			1.08 H	169	108.6	2.4
4	*5260.00	99.1 AV			1.08 H	169	96.7	2.4
5	#10520.00	53.5 PK	68.2	-14.7	1.63 H	179	41.2	12.3
6	15780.00	45.0 PK	74.0	-29.0	1.28 H	23	33.0	12.0
7	15780.00	35.0 AV	54.0	-19.0	1.28 H	23	23.0	12.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	47.8 PK	74.0	-26.2	1.37 V	273	44.9	2.9
2	5150.00	37.0 AV	54.0	-17.0	1.37 V	273	34.1	2.9
3	*5260.00	112.2 PK			1.37 V	273	109.8	2.4
4	*5260.00	100.4 AV			1.37 V	273	98.0	2.4
5	#10520.00	53.7 PK	68.2	-14.5	1.41 V	82	41.4	12.3
6	15780.00	44.8 PK	74.0	-29.2	1.65 V	105	32.8	12.0
7	15780.00	34.9 AV	54.0	-19.1	1.65 V	105	22.9	12.0

REMARKS:

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

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	110.8 PK			1.11 H	164	108.2	2.6
2	*5300.00	99.1 AV			1.11 H	164	96.5	2.6
3	10600.00	53.0 PK	74.0	-21.0	1.55 H	200	40.9	12.1
4	10600.00	40.7 AV	54.0	-13.3	1.55 H	200	28.6	12.1
5	15900.00	44.5 PK	74.0	-29.5	1.30 H	48	32.7	11.8
6	15900.00	34.4 AV	54.0	-19.6	1.30 H	48	22.6	11.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	112.2 PK			1.44 V	261	109.6	2.6
2	*5300.00	100.5 AV			1.44 V	261	97.9	2.6
3	10600.00	53.3 PK	74.0	-20.7	1.49 V	73	41.2	12.1
4	10600.00	41.4 AV	54.0	-12.6	1.49 V	73	29.3	12.1
5	15900.00	45.3 PK	74.0	-28.7	1.61 V	109	33.5	11.8
6	15900.00	35.5 AV	54.0	-18.5	1.61 V	109	23.7	11.8

REMARKS:

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

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.4 PK			1.08 H	179	107.8	2.6
2	*5320.00	98.7 AV			1.08 H	179	96.1	2.6
3	5350.00	50.3 PK	74.0	-23.7	1.08 H	179	47.6	2.7
4	5350.00	38.8 AV	54.0	-15.2	1.08 H	179	36.1	2.7
5	10640.00	52.8 PK	74.0	-21.2	1.53 H	202	40.9	11.9
6	10640.00	40.7 AV	54.0	-13.3	1.53 H	202	28.8	11.9
7	15960.00	45.3 PK	74.0	-28.7	1.28 H	56	33.2	12.1
8	15960.00	35.3 AV	54.0	-18.7	1.28 H	56	23.2	12.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	111.9 PK			1.44 V	267	109.3	2.6
2	*5320.00	100.2 AV			1.44 V	267	97.6	2.6
3	5350.00	51.2 PK	74.0	-22.8	1.44 V	267	48.5	2.7
4	5350.00	39.5 AV	54.0	-14.5	1.44 V	267	36.8	2.7
5	10640.00	53.4 PK	74.0	-20.6	1.48 V	60	41.5	11.9
6	10640.00	41.5 AV	54.0	-12.5	1.48 V	60	29.6	11.9
7	15960.00	45.3 PK	74.0	-28.7	1.61 V	112	33.2	12.1
8	15960.00	35.4 AV	54.0	-18.6	1.61 V	112	23.3	12.1

REMARKS:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	50.6 PK	74.0	-23.4	1.08 H	155	47.6	3.0
2	5460.00	39.1 AV	54.0	-14.9	1.08 H	155	36.1	3.0
3	#5470.00	51.7 PK	68.2	-16.5	1.08 H	155	48.7	3.0
4	*5500.00	111.8 PK			1.08 H	155	108.9	2.9
5	*5500.00	99.6 AV			1.08 H	155	96.7	2.9
6	11000.00	53.3 PK	74.0	-20.7	1.53 H	201	40.5	12.8
7	11000.00	41.1 AV	54.0	-12.9	1.53 H	201	28.3	12.8
8	#16500.00	45.5 PK	68.2	-22.7	1.34 H	34	31.1	14.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	52.1 PK	74.0	-21.9	1.40 V	258	49.1	3.0
2	5460.00	39.7 AV	54.0	-14.3	1.40 V	258	36.7	3.0
3	#5470.00	52.3 PK	68.2	-15.9	1.40 V	258	49.3	3.0
4	*5500.00	112.2 PK			1.40 V	258	109.3	2.9
5	*5500.00	100.2 AV			1.40 V	258	97.3	2.9
6	11000.00	53.9 PK	74.0	-20.1	1.51 V	52	41.1	12.8
7	11000.00	41.6 AV	54.0	-12.4	1.51 V	52	28.8	12.8
8	#16500.00	45.2 PK	68.2	-23.0	1.60 V	91	30.8	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	111.1 PK			1.11 H	162	108.1	3.0
2	*5580.00	98.5 AV			1.11 H	162	95.5	3.0
3	11160.00	53.7 PK	74.0	-20.3	1.52 H	196	41.4	12.3
4	11160.00	41.3 AV	54.0	-12.7	1.52 H	196	29.0	12.3
5	#16740.00	44.7 PK	68.2	-23.5	1.28 H	51	30.0	14.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	112.1 PK			1.36 V	268	109.1	3.0
2	*5580.00	99.9 AV			1.36 V	268	96.9	3.0
3	11160.00	53.4 PK	74.0	-20.6	1.43 V	79	41.1	12.3
4	11160.00	41.4 AV	54.0	-12.6	1.43 V	79	29.1	12.3
5	#16740.00	44.4 PK	68.2	-23.8	1.59 V	99	29.7	14.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.5 PK			1.15 H	173	107.3	3.2
2	*5700.00	98.8 AV			1.15 H	173	95.6	3.2
3	#5725.00	50.6 PK	68.2	-17.6	1.15 H	173	47.4	3.2
4	11400.00	53.4 PK	74.0	-20.6	1.54 H	211	40.4	13.0
5	11400.00	41.5 AV	54.0	-12.5	1.54 H	211	28.5	13.0
6	#17100.00	44.7 PK	68.2	-23.5	1.35 H	54	28.2	16.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	112.6 PK			1.35 V	250	109.4	3.2
2	*5700.00	100.7 AV			1.35 V	250	97.5	3.2
3	#5725.00	51.1 PK	68.2	-17.1	1.35 V	250	47.9	3.2
4	11400.00	53.3 PK	74.0	-20.7	1.40 V	89	40.3	13.0
5	11400.00	41.5 AV	54.0	-12.5	1.40 V	89	28.5	13.0
6	#17100.00	44.5 PK	68.2	-23.7	1.54 V	97	28.0	16.5

REMARKS:

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

CHANNEL	TX Channel 144	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	51.0 PK	68.2	-17.2	1.10 H	153	48.0	3.0
2	*5720.00	110.5 PK			1.10 H	153	107.3	3.2
3	*5720.00	98.6 AV			1.10 H	153	95.4	3.2
4	#5850.00	49.6 PK	68.2	-18.6	1.10 H	153	46.0	3.6
5	11440.00	53.1 PK	74.0	-20.9	1.60 H	186	40.2	12.9
6	11440.00	40.9 AV	54.0	-13.1	1.60 H	186	28.0	12.9
7	#17160.00	45.0 PK	68.2	-23.2	1.29 H	44	28.9	16.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	52.2 PK	68.2	-16.0	1.36 V	272	49.2	3.0
2	*5720.00	112.0 PK			1.36 V	272	108.8	3.2
3	*5720.00	99.9 AV			1.36 V	272	96.7	3.2
4	#5850.00	52.8 PK	68.2	-15.4	1.36 V	272	49.2	3.6
5	11440.00	54.1 PK	74.0	-19.9	1.40 V	52	41.2	12.9
6	11440.00	41.7 AV	54.0	-12.3	1.40 V	52	28.8	12.9
7	#17160.00	45.1 PK	68.2	-23.1	1.63 V	117	29.0	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT40)

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	47.8 PK	74.0	-26.2	1.12 H	160	44.9	2.9
2	5150.00	36.9 AV	54.0	-17.1	1.12 H	160	34.0	2.9
3	*5270.00	111.1 PK			1.12 H	160	108.7	2.4
4	*5270.00	99.2 AV			1.12 H	160	96.8	2.4
5	#10540.00	53.2 PK	68.2	-15.0	1.55 H	201	41.0	12.2
6	15810.00	44.7 PK	74.0	-29.3	1.25 H	37	32.9	11.8
7	15810.00	34.7 AV	54.0	-19.3	1.25 H	37	22.9	11.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	47.7 PK	74.0	-26.3	1.32 V	275	44.8	2.9
2	5150.00	36.9 AV	54.0	-17.1	1.32 V	275	34.0	2.9
3	*5270.00	112.4 PK			1.32 V	275	110.0	2.4
4	*5270.00	100.7 AV			1.32 V	275	98.3	2.4
5	#10540.00	54.0 PK	68.2	-14.2	1.50 V	54	41.8	12.2
6	15810.00	44.4 PK	74.0	-29.6	1.63 V	86	32.6	11.8
7	15810.00	34.6 AV	54.0	-19.4	1.63 V	86	22.8	11.8

REMARKS:

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

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	100.9 PK			1.07 H	158	98.3	2.6
2	*5310.00	99.1 AV			1.07 H	158	96.5	2.6
3	5350.00	53.7 PK	74.0	-20.3	1.07 H	158	51.0	2.7
4	5350.00	41.4 AV	54.0	-12.6	1.07 H	158	38.7	2.7
5	10620.00	53.4 PK	74.0	-20.6	1.56 H	196	41.4	12.0
6	10620.00	41.2 AV	54.0	-12.8	1.56 H	196	29.2	12.0
7	15930.00	45.6 PK	74.0	-28.4	1.31 H	55	33.8	11.8
8	15930.00	35.3 AV	54.0	-18.7	1.31 H	55	23.5	11.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	112.1 PK			1.54 V	261	109.5	2.6
2	*5310.00	100.5 AV			1.54 V	261	97.9	2.6
3	5350.00	55.1 PK	74.0	-18.9	1.54 V	261	52.4	2.7
4	5350.00	42.8 AV	54.0	-11.2	1.54 V	261	40.1	2.7
5	10620.00	54.6 PK	74.0	-19.4	1.39 V	77	42.6	12.0
6	10620.00	42.4 AV	54.0	-11.6	1.39 V	77	30.4	12.0
7	15930.00	45.5 PK	74.0	-28.5	1.61 V	104	33.7	11.8
8	15930.00	35.4 AV	54.0	-18.6	1.61 V	104	23.6	11.8

REMARKS:

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

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	49.5 PK	74.0	-24.5	1.11 H	156	46.5	3.0
2	5460.00	38.4 AV	54.0	-15.6	1.11 H	156	35.4	3.0
3	#5470.00	51.7 PK	68.2	-16.5	1.11 H	156	48.7	3.0
4	*5510.00	110.8 PK			1.11 H	156	107.9	2.9
5	*5510.00	98.9 AV			1.11 H	156	96.0	2.9
6	11020.00	53.2 PK	74.0	-20.8	1.55 H	202	40.4	12.8
7	11020.00	41.1 AV	54.0	-12.9	1.55 H	202	28.3	12.8
8	#16530.00	44.5 PK	68.2	-23.7	1.34 H	45	29.9	14.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.7 PK	74.0	-17.3	1.55 V	249	53.7	3.0
2	5460.00	42.7 AV	54.0	-11.3	1.55 V	249	39.7	3.0
3	#5470.00	61.7 PK	68.2	-6.5	1.55 V	249	58.7	3.0
4	*5510.00	111.8 PK			1.55 V	249	108.9	2.9
5	*5510.00	100.9 AV			1.55 V	249	98.0	2.9
6	11020.00	54.1 PK	74.0	-19.9	1.49 V	79	41.3	12.8
7	11020.00	41.8 AV	54.0	-12.2	1.49 V	79	29.0	12.8
8	#16530.00	44.4 PK	68.2	-23.8	1.62 V	116	29.8	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 110	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.6 PK			1.12 H	173	107.6	3.0
2	*5550.00	98.7 AV			1.12 H	173	95.7	3.0
3	11100.00	53.6 PK	74.0	-20.4	1.59 H	211	41.3	12.3
4	11100.00	41.2 AV	54.0	-12.8	1.59 H	211	28.9	12.3
5	#16650.00	44.8 PK	68.2	-23.4	1.26 H	39	30.1	14.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	112.6 PK			1.43 V	270	109.6	3.0
2	*5550.00	100.5 AV			1.43 V	270	97.5	3.0
3	11100.00	54.2 PK	74.0	-19.8	1.45 V	62	41.9	12.3
4	11100.00	42.0 AV	54.0	-12.0	1.45 V	62	29.7	12.3
5	#16650.00	44.4 PK	68.2	-23.8	1.58 V	107	29.7	14.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.9 PK			1.11 H	178	107.7	3.2
2	*5670.00	98.9 AV			1.11 H	178	95.7	3.2
3	#5725.00	54.8 PK	68.2	-13.4	1.11 H	178	51.6	3.2
4	11340.00	53.0 PK	74.0	-21.0	1.51 H	205	39.9	13.1
5	11340.00	40.8 AV	54.0	-13.2	1.51 H	205	27.7	13.1
6	#17010.00	44.2 PK	68.2	-24.0	1.31 H	53	27.8	16.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	112.8 PK			1.44 V	273	109.6	3.2
2	*5670.00	100.7 AV			1.44 V	273	97.5	3.2
3	#5725.00	55.6 PK	68.2	-12.6	1.44 V	273	52.4	3.2
4	11340.00	54.2 PK	74.0	-19.8	1.44 V	70	41.1	13.1
5	11340.00	42.4 AV	54.0	-11.6	1.44 V	70	29.3	13.1
6	#17010.00	44.9 PK	68.2	-23.3	1.62 V	104	28.5	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 142	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	51.4 PK	68.2	-16.8	1.13 H	167	48.4	3.0
2	*5710.00	111.0 PK			1.13 H	167	107.7	3.3
3	*5710.00	99.3 AV			1.13 H	167	96.0	3.3
4	#5850.00	50.1 PK	68.2	-18.1	1.13 H	167	46.5	3.6
5	11420.00	53.4 PK	74.0	-20.6	1.53 H	195	40.4	13.0
6	11420.00	41.2 AV	54.0	-12.8	1.53 H	195	28.2	13.0
7	#17130.00	45.0 PK	68.2	-23.2	1.24 H	63	28.7	16.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	52.7 PK	68.2	-15.5	1.37 V	268	49.7	3.0
2	*5710.00	112.6 PK			1.37 V	268	109.3	3.3
3	*5710.00	100.6 AV			1.37 V	268	97.3	3.3
4	#5850.00	52.2 PK	68.2	-16.0	1.37 V	268	48.6	3.6
5	11420.00	54.5 PK	74.0	-19.5	1.51 V	53	41.5	13.0
6	11420.00	42.2 AV	54.0	-11.8	1.51 V	53	29.2	13.0
7	#17130.00	44.4 PK	68.2	-23.8	1.64 V	110	28.1	16.3

REMARKS:

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

802.11ac (VHT80)

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	54.2 PK	74.0	-19.8	1.12 H	171	51.3	2.9
2	5150.00	42.1 AV	54.0	-11.9	1.12 H	171	39.2	2.9
3	*5290.00	106.1 PK			1.12 H	171	103.7	2.4
4	*5290.00	97.6 AV			1.12 H	171	95.2	2.4
5	5350.00	56.8 PK	74.0	-17.2	1.12 H	171	54.1	2.7
6	5350.00	45.1 AV	54.0	-8.9	1.12 H	171	42.4	2.7
7	#10580.00	53.6 PK	68.2	-14.6	1.51 H	193	41.5	12.1
8	15870.00	45.0 PK	74.0	-29.0	1.32 H	37	33.3	11.7
9	15870.00	34.9 AV	54.0	-19.1	1.32 H	37	23.2	11.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	55.1 PK	74.0	-18.9	1.47 V	261	52.2	2.9
2	5150.00	43.2 AV	54.0	-10.8	1.47 V	261	40.3	2.9
3	*5290.00	107.6 PK			1.47 V	261	105.2	2.4
4	*5290.00	99.0 AV			1.47 V	261	96.6	2.4
5	5350.00	58.1 PK	74.0	-15.9	1.47 V	261	55.4	2.7
6	5350.00	46.8 AV	54.0	-7.2	1.47 V	261	44.1	2.7
7	#10580.00	54.2 PK	68.2	-14.0	1.44 V	62	42.1	12.1
8	15870.00	45.1 PK	74.0	-28.9	1.63 V	87	33.4	11.7
9	15870.00	35.4 AV	54.0	-18.6	1.63 V	87	23.7	11.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5452.70	64.9 PK	74.0	-9.1	1.13 H	186	61.9	3.0
2	5452.70	52.8 AV	54.0	-1.2	1.13 H	186	49.8	3.0
3	#5470.00	63.9 PK	68.2	-4.3	1.13 H	186	60.9	3.0
4	*5530.00	104.9 PK			1.13 H	186	102.0	2.9
5	*5530.00	96.8 AV			1.13 H	186	93.9	2.9
6	11060.00	53.0 PK	74.0	-21.0	1.55 H	213	40.5	12.5
7	11060.00	40.7 AV	54.0	-13.3	1.55 H	213	28.2	12.5
8	#16590.00	44.6 PK	68.2	-23.6	1.36 H	40	29.9	14.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5452.70	66.2 PK	74.0	-7.8	1.56 V	297	63.2	3.0
2	**5452.70**	**53.9 AV**	**54.0**	**-0.1**	**1.56 V**	**297**	**50.9**	**3.0**
3	#5470.00	64.9 PK	68.2	-3.3	1.56 V	297	61.9	3.0
4	*5530.00	106.4 PK			1.56 V	297	103.5	2.9
5	*5530.00	98.2 AV			1.56 V	297	95.3	2.9
6	11060.00	54.1 PK	74.0	-19.9	1.45 V	75	41.6	12.5
7	11060.00	41.9 AV	54.0	-12.1	1.45 V	75	29.4	12.5
8	#16590.00	44.3 PK	68.2	-23.9	1.65 V	86	29.6	14.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 122	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5610.00	106.4 PK			1.07 H	185	103.4	3.0
2	*5610.00	97.6 AV			1.07 H	185	94.6	3.0
3	#5725.00	60.2 PK	68.2	-8.0	1.07 H	185	57.0	3.2
4	11220.00	52.9 PK	74.0	-21.1	1.61 H	189	40.4	12.5
5	11220.00	46.1 AV	54.0	-7.9	1.61 H	189	33.6	12.5
6	#16830.00	48.7 PK	68.2	-19.5	1.32 H	54	33.7	15.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5610.00	107.7 PK			1.42 V	273	104.7	3.0
2	*5610.00	99.4 AV			1.42 V	273	96.4	3.0
3	#5725.00	63.2 PK	68.2	-5.0	1.55 V	298	60.0	3.2
4	11220.00	53.5 PK	74.0	-20.5	1.41 V	57	41.0	12.5
5	11220.00	41.7 AV	54.0	-12.3	1.41 V	57	29.2	12.5
6	#16830.00	44.3 PK	68.2	-23.9	1.60 V	102	29.3	15.0

REMARKS:

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

CHANNEL	TX Channel 138	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	50.7 PK	68.2	-17.5	1.16 H	168	47.7	3.0
2	*5690.00	106.3 PK			1.16 H	168	103.1	3.2
3	*5690.00	98.0 AV			1.16 H	168	94.8	3.2
4	#5850.00	50.0 PK	68.2	-18.2	1.16 H	168	46.4	3.6
5	11380.00	53.2 PK	74.0	-20.8	1.56 H	205	40.2	13.0
6	11380.00	40.9 AV	54.0	-13.1	1.56 H	205	27.9	13.0
7	#17070.00	44.6 PK	68.2	-23.6	1.27 H	33	28.1	16.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	52.6 PK	68.2	-15.6	1.45 V	268	49.6	3.0
2	*5690.00	107.8 PK			1.45 V	268	104.6	3.2
3	*5690.00	99.3 AV			1.45 V	268	96.1	3.2
4	#5850.00	52.6 PK	68.2	-15.6	1.45 V	268	49.0	3.6
5	11380.00	54.3 PK	74.0	-19.7	1.47 V	79	41.3	13.0
6	11380.00	42.2 AV	54.0	-11.8	1.47 V	79	29.2	13.0
7	#17070.00	44.7 PK	68.2	-23.5	1.67 V	91	28.2	16.5

REMARKS:

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

Below 1GHz Data:

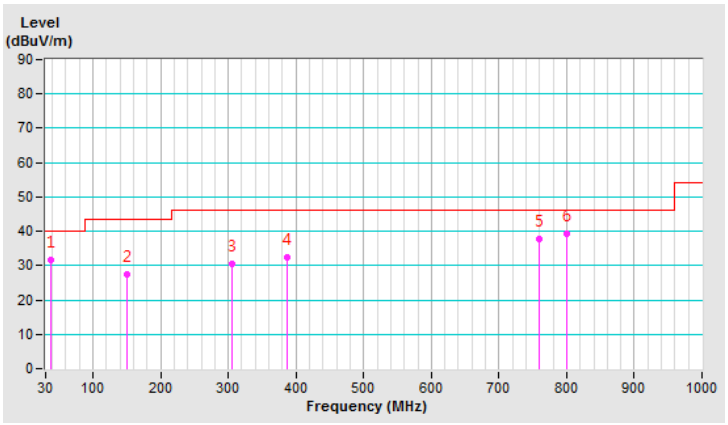
802.11a

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	37.75	31.6 QP	40.0	-8.4	2.00 H	119	41.1	-9.5
2	149.80	27.5 QP	43.5	-16.0	2.50 H	146	35.2	-7.7
3	304.70	30.6 QP	46.0	-15.4	1.50 H	318	37.2	-6.6
4	386.40	32.5 QP	46.0	-13.5	2.00 H	247	37.0	-4.5
5	759.37	37.9 QP	46.0	-8.1	1.00 H	149	34.6	3.3
6	800.01	39.4 QP	46.0	-6.6	1.50 H	238	35.8	3.6

REMARKS:

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

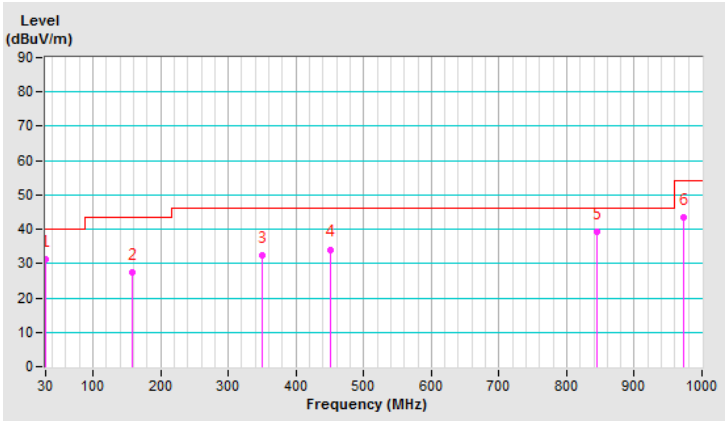


CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	30.20	31.4 QP	40.0	-8.6	1.00 V	115	40.8	-9.4
2	158.50	27.3 QP	43.5	-16.2	1.00 V	264	35.2	-7.9
3	349.98	32.3 QP	46.0	-13.7	2.50 V	269	37.9	-5.6
4	450.01	34.1 QP	46.0	-11.9	1.00 V	189	37.3	-3.2
5	844.25	39.3 QP	46.0	-6.7	1.60 V	238	34.7	4.6
6	973.52	43.3 QP	54.0	-10.7	1.19 V	241	36.9	6.4

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 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	Oct. 24, 2018	Oct. 23, 2019
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 22, 2018	Oct. 21, 2019
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	N/A	3	Oct. 22, 2018	Oct. 21, 2019
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 14, 2019	Mar. 13, 2020
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: Apr. 29, 2019

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.

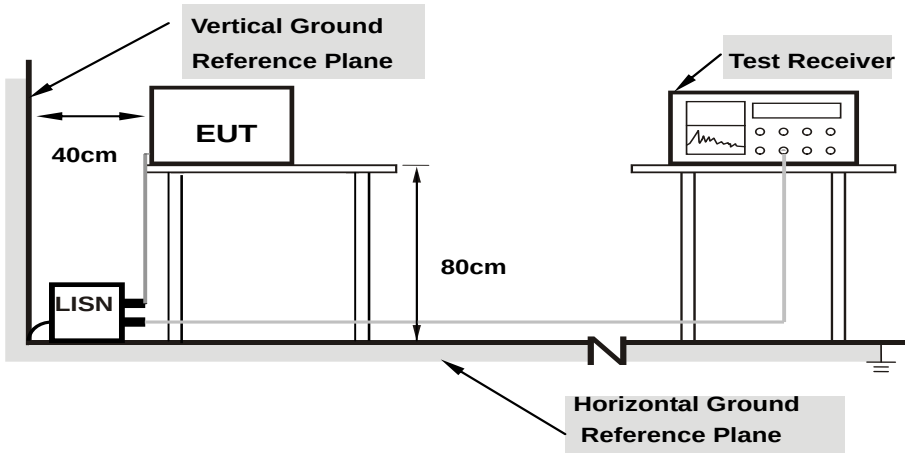
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

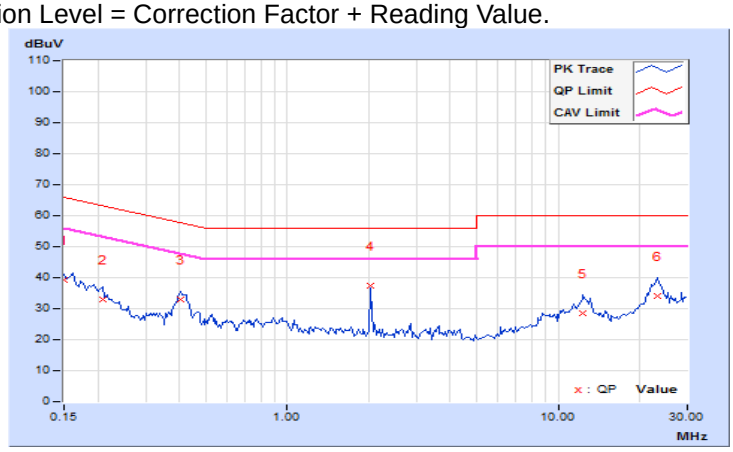
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.03	29.17	13.12	39.20	23.15	66.00	56.00	-26.80	-32.85
2	0.20859	10.05	22.83	11.49	32.88	21.54	63.26	53.26	-30.38	-31.72
3	0.40391	10.08	22.93	17.24	33.01	27.32	57.77	47.77	-24.76	-20.45
4	**2.02344**	**10.19**	**27.11**	**26.14**	**37.30**	**36.33**	**56.00**	**46.00**	**-18.70**	**-9.67**
5	12.39063	10.86	17.74	12.39	28.60	23.25	60.00	50.00	-31.40	-26.75
6	23.26563	11.44	22.50	17.03	33.94	28.47	60.00	50.00	-26.06	-21.53

REMARKS:

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

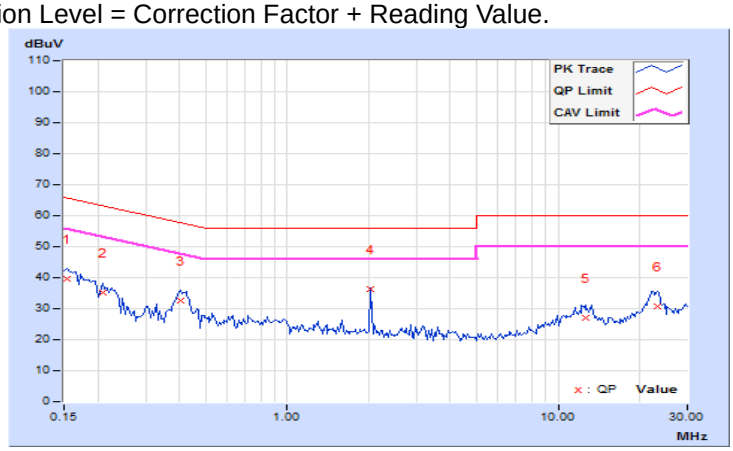


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.94	29.51	14.85	39.45	24.79	65.79	55.79	-26.34	-31.00
2	0.20859	9.95	25.18	12.38	35.13	22.33	63.26	53.26	-28.13	-30.93
3	0.40391	9.98	22.75	17.32	32.73	27.30	57.77	47.77	-25.04	-20.47
4	**2.02431**	**10.07**	**26.33**	**26.26**	**36.40**	**36.33**	**56.00**	**46.00**	**-19.60**	**-9.67**
5	12.64063	10.69	16.29	10.96	26.98	21.65	60.00	50.00	-33.02	-28.35
6	23.28906	11.19	19.69	14.13	30.88	25.32	60.00	50.00	-29.12	-24.68

REMARKS:

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



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,

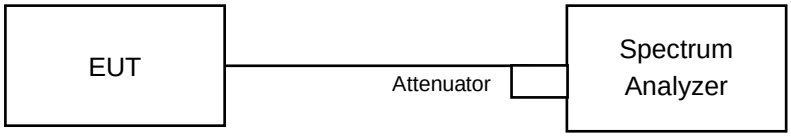
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.3.2 Test Setup

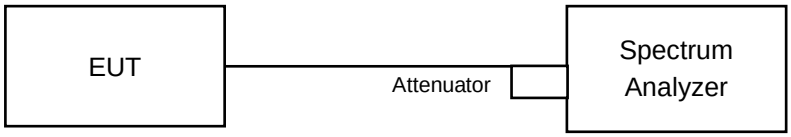
FOR POWER OUTPUT MEASUREMENT

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

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 Result

For U-NII-1, U-NII-3 band:

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	19.11	18.98	20.29	19.61	358.854	25.55	30.00	Pass
40	5200	19.30	19.21	20.49	19.85	377.031	25.76	30.00	Pass
48	5240	19.41	19.06	20.34	19.86	372.806	25.71	30.00	Pass
149	5745	23.79	23.00	24.43	23.66	948.464	29.77	30.00	Pass
157	5785	24.02	22.94	24.32	23.19	927.982	29.68	30.00	Pass
165	5825	23.88	22.95	24.13	23.07	903.174	29.56	30.00	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	19.17	19.15	20.17	19.77	363.662	25.61	30.00	Pass
40	5200	19.60	18.96	20.06	19.52	360.833	25.57	30.00	Pass
48	5240	19.64	19.15	20.42	20.04	385.348	25.86	30.00	Pass
149	5745	23.62	22.80	24.22	23.43	905.224	29.57	30.00	Pass
157	5785	23.92	22.76	24.12	23.12	898.745	29.54	30.00	Pass
165	5825	23.97	22.82	24.08	23.16	903.758	29.56	30.00	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	20.30	19.85	20.85	20.28	432.036	26.36	30.00	Pass
46	5230	22.60	21.79	23.00	22.41	706.685	28.49	30.00	Pass
151	5755	23.91	23.06	24.11	23.31	920.26	29.64	30.00	Pass
159	5795	23.89	22.93	24.22	22.93	901.819	29.55	30.00	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	17.22	16.83	17.96	17.33	217.51	23.37	30.00	Pass
155	5775	20.54	19.56	21.25	20.22	442.153	26.46	30.00	Pass

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	19.17	19.15	20.17	19.77	363.662	25.61	25.94	Pass
40	5200	19.60	18.96	20.06	19.52	360.833	25.57	25.94	Pass
48	5240	19.64	19.15	20.42	20.04	385.348	25.86	25.94	Pass
149	5745	19.56	18.79	20.12	19.63	360.683	25.57	25.94	Pass
157	5785	19.80	18.72	20.06	19.43	359.063	25.55	25.94	Pass
165	5825	20.04	18.90	20.11	19.28	365.838	25.63	25.94	Pass

Note: 1. Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$)^2 / 4] = 10.06dBi > 6dBi , so the power limit shall be reduced to 30-(10.06-6) = 25.94dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	19.76	19.31	20.30	19.82	383.026	25.83	25.94	Pass
46	5230	19.65	18.86	20.06	19.75	364.967	25.62	25.94	Pass
151	5755	19.94	19.13	20.16	19.51	373.558	25.72	25.94	Pass
159	5795	19.90	18.99	20.30	19.07	364.85	25.62	25.94	Pass

Note: 1. Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$)^2 / 4] = 10.06dBi > 6dBi , so the power limit shall be reduced to 30-(10.06-6) = 25.94dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	17.22	16.83	17.96	17.33	217.51	23.37	25.94	Pass
155	5775	19.97	19.00	20.70	19.67	388.918	25.90	25.94	Pass

Note: 1. Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$)^2 / 4] = 10.06dBi > 6dBi , so the power limit shall be reduced to 30-(10.06-6) = 25.94dBm.

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

CDD Mode

802.11a

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	13.97	13.85	14.19	13.61	98.415	19.93	23.94	Pass
60	5300	13.83	13.86	13.94	13.82	97.35	19.88	23.88	Pass
64	5320	13.76	13.70	13.77	13.57	93.784	19.72	23.92	Pass
100	5500	13.70	13.87	13.92	13.91	97.084	19.87	23.92	Pass
116	5580	13.16	13.59	13.75	13.90	91.818	19.63	23.89	Pass
140	5700	13.31	13.29	14.07	13.56	90.985	19.59	23.89	Pass
*144 (U-NII-2C Band)	5720	9.08	9.17	9.96	9.22	35.759	15.53	22.69	Pass
*144 (U-NII-3 Band)	5720	2.97	3.16	3.40	3.09	8.551	9.32	30.00	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 Total Power for the straddle channel:

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
144	5720	44.31	16.47
Note: The total power was calculated through formula and record the value for reference only.			

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	20.07	19.72	19.81	19.83
60	5300	20.19	19.42	19.85	19.71
64	5320	20.08	19.60	19.95	19.67
100	5500	19.83	19.88	19.68	19.59
116	5580	19.90	19.68	19.46	19.54
140	5700	19.64	19.95	19.48	19.66
144 (U-NII-2C Band)	5720	14.89	14.91	14.78	15.02

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	19.72	23.94 < 24
60	5300	19.42	23.88 < 24
64	5320	19.60	23.92 < 24
100	5500	19.59	23.92 < 24
116	5580	19.46	23.89 < 24
140	5700	19.48	23.89 < 24
144 (U-NII-2C Band)	5720	14.78	22.69 < 24

802.11ac (VHT20)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	13.67	13.79	14.23	13.77	97.522	19.89	24.00	Pass
60	5300	13.78	13.70	13.96	13.48	94.493	19.75	24.00	Pass
64	5320	13.99	13.91	13.90	13.81	98.256	19.92	24.00	Pass
100	5500	13.67	13.96	14.03	13.98	98.466	19.93	24.00	Pass
116	5580	13.51	13.72	13.81	14.06	95.501	19.80	24.00	Pass
140	5700	13.36	13.27	14.12	13.72	92.282	19.65	24.00	Pass
*144 (U-NII-2C Band)	5720	9.52	9.55	10.50	9.85	38.851	15.89	22.86	Pass
*144 (U-NII-3 Band)	5720	4.03	4.09	4.59	4.37	10.705	10.30	30.00	Pass

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

The Total Power for the straddle channel:

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
144	5720	49.556	16.95
Note: The total power was calculated through formula and record the value for reference only.			

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	21.21	20.63	20.69	20.65
60	5300	20.72	20.51	21.13	20.53
64	5320	20.95	20.62	20.82	20.54
100	5500	20.46	20.66	20.69	20.55
116	5580	20.65	20.60	20.68	20.52
140	5700	20.92	20.85	20.75	20.56
144 (U-NII-2C Band)	5720	15.46	15.42	15.39	15.36

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.63	24.14 > 24
60	5300	20.51	24.11 > 24
64	5320	20.54	24.12 > 24
100	5500	20.46	24.1 > 24
116	5580	20.52	24.12 > 24
140	5700	20.56	24.13 > 24
144 (U-NII-2C Band)	5720	15.36	22.86 < 24

802.11ac (VHT40)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	16.71	16.77	16.91	16.67	189.958	22.79	24.00	Pass
62	5310	16.52	16.57	16.56	16.41	179.311	22.54	24.00	Pass
102	5510	16.63	16.61	16.57	16.55	182.42	22.61	24.00	Pass
110	5550	16.53	16.55	16.25	16.64	178.466	22.52	24.00	Pass
134	5670	16.41	16.34	17.03	16.94	186.702	22.71	24.00	Pass
*142 (U-NII-2C Band)	5710	13.23	12.62	13.53	13.14	85.14	19.30	24.00	Pass
*142 (U-NII-3 Band)	5710	1.99	1.35	2.77	1.65	6.504	8.13	30.00	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 Total Power for the straddle channel:

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
142	5710	91.644	19.62
Note: The total power was calculated through formula and record the value for reference only.			

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	40.90	40.82	40.70	40.66
62	5310	41.05	40.72	40.73	40.92
102	5510	40.95	41.09	40.86	40.79
110	5550	41.19	40.76	40.82	40.45
134	5670	41.11	40.71	40.88	40.82
142 (U-NII-2C Band)	5710	35.43	35.27	35.45	35.43

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	40.66	27.09 > 24
62	5310	40.72	27.09 > 24
102	5510	40.79	27.1 > 24
110	5550	40.45	27.06 > 24
134	5670	40.71	27.09 > 24
142 (U-NII-2C Band)	5710	35.27	26.47 > 24

802.11ac (VHT80)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	18.06	17.81	17.99	17.91	249.121	23.96	24.00	Pass
106	5530	17.87	17.73	17.59	18.02	241.327	23.83	24.00	Pass
122	5610	17.52	17.56	18.03	18.11	241.757	23.83	24.00	Pass
*138 (U-NII-2C Band)	5690	13.94	13.40	14.32	14.08	105.488	20.23	24.00	Pass
*138 (U-NII-3 Band)	5690	1.06	-0.44	0.19	-0.45	4.3844	6.42	30.00	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 Total Power for the straddle channel:

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
138	5690	109.8724	20.41
Note: The total power was calculated through formula and record the value for reference only.			

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	84.05	83.54	83.05	83.93
106	5530	83.54	84.19	83.45	83.72
122	5610	84.47	84.34	83.42	83.07
138 (U-NII-2C Band)	5690	76.64	76.28	76.46	76.98

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	83.05	30.19 > 24
106	5530	83.45	30.21 > 24
122	5610	83.07	30.19 > 24
138 (U-NII-2C Band)	5690	76.28	29.82 > 24

Beamforming Mode

802.11ac (HT20)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	13.67	13.79	14.23	13.77	97.522	19.89	19.94	Pass
60	5300	13.78	13.70	13.96	13.48	94.493	19.75	19.94	Pass
64	5320	13.99	13.91	13.90	13.81	98.256	19.92	19.94	Pass
100	5500	13.67	13.96	14.03	13.98	98.466	19.93	19.94	Pass
116	5580	13.51	13.72	13.81	14.06	95.501	19.80	19.94	Pass
140	5700	13.36	13.27	14.12	13.72	92.282	19.65	19.94	Pass
*144 (U-NII-2C Band)	5720	9.52	9.55	10.50	9.85	38.851	15.89	18.80	Pass
*144 (U-NII-3 Band)	5720	4.03	4.09	4.59	4.37	10.705	10.30	25.94	Pass

Note: 1. The directional gain is 10.06dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.06-6)”.

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

The Total Power for the straddle channel:

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
144	5720	49.556	16.95
Note: The total power was calculated through formula and record the value for reference only.			

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	21.21	20.63	20.69	20.65
60	5300	20.72	20.51	21.13	20.53
64	5320	20.95	20.62	20.82	20.54
100	5500	20.46	20.66	20.69	20.55
116	5580	20.65	20.60	20.68	20.52
140	5700	20.92	20.85	20.75	20.56
144 (U-NII-2C Band)	5720	15.46	15.42	15.39	15.36

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.63	24.14 > 24
60	5300	20.51	24.11 > 24
64	5320	20.54	24.12 > 24
100	5500	20.46	24.1 > 24
116	5580	20.52	24.12 > 24
140	5700	20.56	24.13 > 24
144 (U-NII-2C Band)	5720	15.36	22.86 < 24

802.11ac (VHT40)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	13.76	13.90	13.99	13.77	97.199	19.88	19.94	Pass
62	5310	13.81	13.74	13.77	13.45	93.657	19.72	19.94	Pass
102	5510	13.72	13.76	13.76	13.66	94.313	19.75	19.94	Pass
110	5550	13.54	13.52	13.49	13.72	90.971	19.59	19.94	Pass
134	5670	13.48	13.40	14.22	14.11	96.349	19.84	19.94	Pass
*142 (U-NII-2C Band)	5710	10.14	9.72	10.74	10.11	43.175	16.35	19.94	Pass
*142 (U-NII-3 Band)	5710	-0.49	-1.39	-0.25	-1.26	3.4191	5.34	25.94	Pass

Note: 1. The directional gain is 10.06dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.06-6)”.

* Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

The Total Power for the straddle channel:

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
142	5710	46.5941	16.68
Note: The total power was calculated through formula and record the value for reference only.			

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	40.90	40.82	40.70	40.66
62	5310	41.05	40.72	40.73	40.92
102	5510	40.95	41.09	40.86	40.79
110	5550	41.19	40.76	40.82	40.45
134	5670	41.11	40.71	40.88	40.82
142 (U-NII-2C Band)	5710	35.43	35.27	35.45	35.43

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	40.66	27.09 > 24
62	5310	40.72	27.09 > 24
102	5510	40.79	27.1 > 24
110	5550	40.45	27.06 > 24
134	5670	40.71	27.09 > 24
142 (U-NII-2C Band)	5710	35.27	26.47 > 24

802.11ac (VHT80)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	13.61	13.85	14.22	13.78	97.529	19.89	19.94	Pass
106	5530	13.96	13.92	13.83	13.91	98.308	19.93	19.94	Pass
122	5610	13.31	13.52	13.86	13.93	92.959	19.68	19.94	Pass
*138 (U-NII-2C Band)	5690	10.08	9.26	10.55	10.33	43.308	16.37	19.94	Pass
*138 (U-NII-3 Band)	5690	-2.93	-4.01	-2.83	-3.40	2.0027	3.02	25.94	Pass

Note: 1. The directional gain is 10.06dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to “Determined Conducted Limit-(10.06-6)”.

* Test was performed in accordance with Measurement follow FCC KDB 789033 UNII test procedure Method SA-2 and use spectrum analyzer test.

The Total Power for the straddle channel:

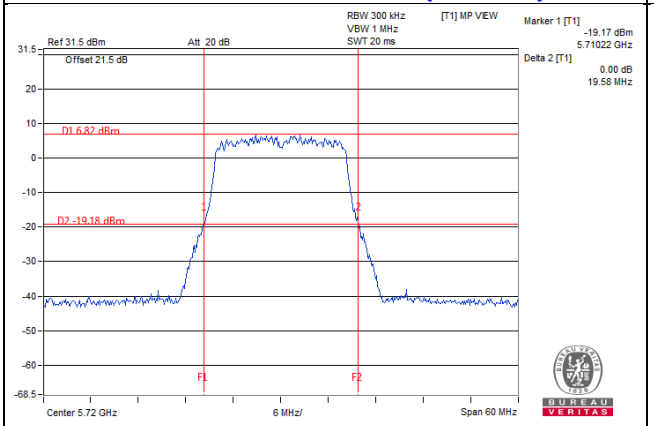
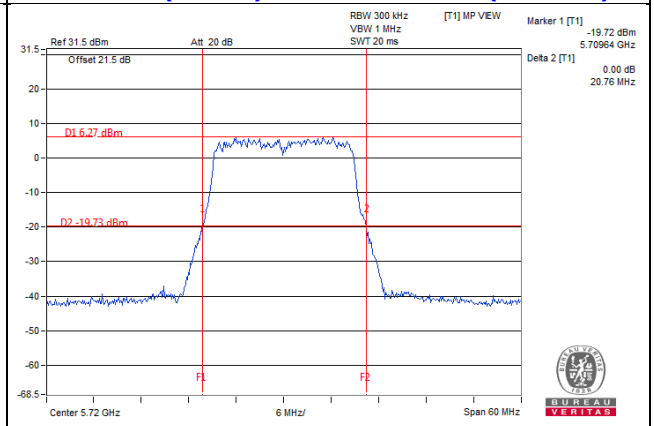
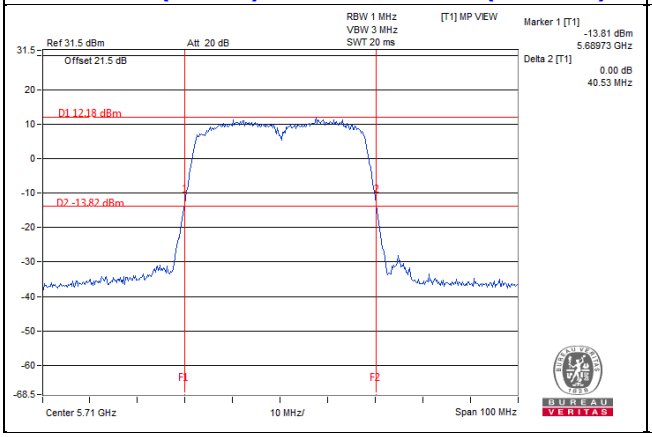
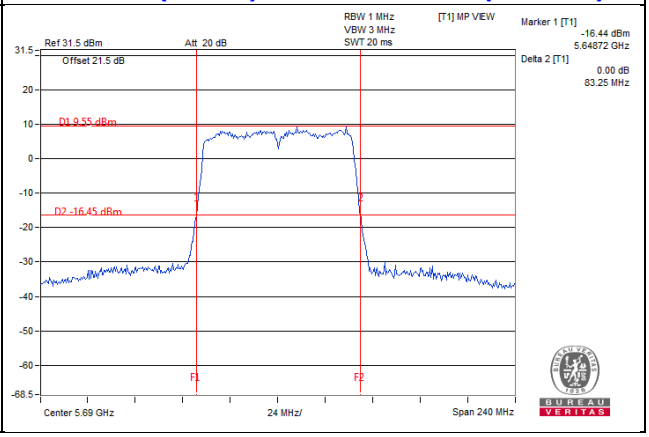
Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
138	5690	45.3107	16.56
Note: The total power was calculated through formula and record the value for reference only.			

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	84.05	83.54	83.05	83.93
106	5530	83.54	84.19	83.45	83.72
122	5610	84.47	84.34	83.42	83.07
138 (U-NII-2C Band)	5690	76.64	76.28	76.46	76.98

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

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	83.05	30.19 > 24
106	5530	83.45	30.21 > 24
122	5610	83.07	30.19 > 24
138 (U-NII-2C Band)	5690	76.28	29.82 > 24

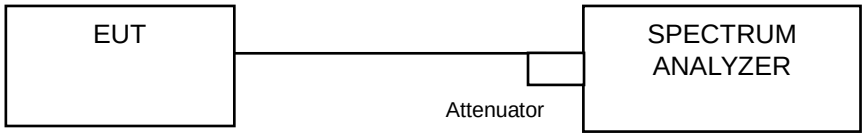
Spectrum Plot of Worst Value	
802.11a_Chain 2 / CH144 (U-NII-2C)	**802.11ac (VHT20)_Chain 3 / CH144 (U-NII-2C)**
	
802.11ac (VHT40)_Chain 1 / CH142 (U-NII-2C)	**802.11ac (VHT80)_Chain 1 / CH138 (U-NII-2C)**
	

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

For U-NII-1, U-NII-3 band:

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	16.56	16.56	16.44	16.56
40	5200	16.56	16.44	16.44	16.56
48	5240	16.56	16.44	16.56	16.56
149	5745	16.56	16.68	17.04	16.68
157	5785	16.56	16.56	17.28	16.92
165	5825	16.68	16.56	16.92	16.80

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	17.76	17.64	17.64	17.76
40	5200	17.76	17.76	17.64	17.76
48	5240	17.64	17.76	17.64	17.76
149	5745	17.76	17.76	17.76	17.76
157	5785	17.76	17.76	17.88	17.76
165	5825	17.76	17.76	18.12	18.00

802.11ac (VHT40)

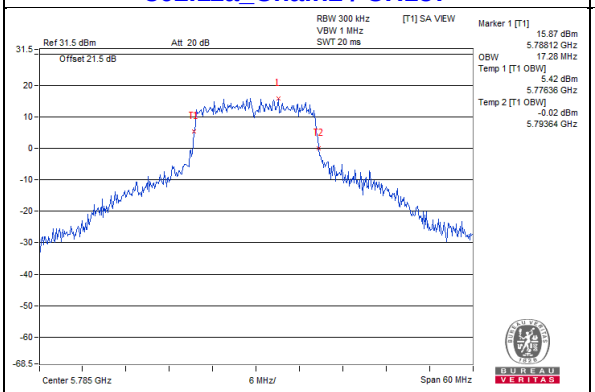
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
38	5190	36.24	36.24	36.24	36.24
46	5230	36.24	36.24	36.24	36.24
151	5755	36.48	36.48	36.96	36.48
159	5795	36.24	36.24	36.72	36.48

802.11ac (VHT80)

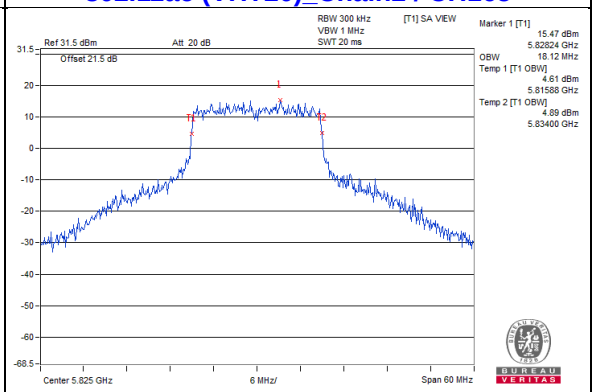
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	76.32	75.84	76.32	75.36
155	5775	76.32	76.32	76.32	76.32

Spectrum Plot of Worst Value

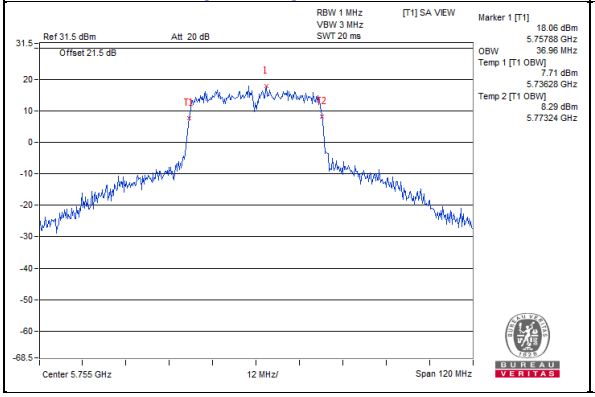
802.11a_Chain2 / CH157



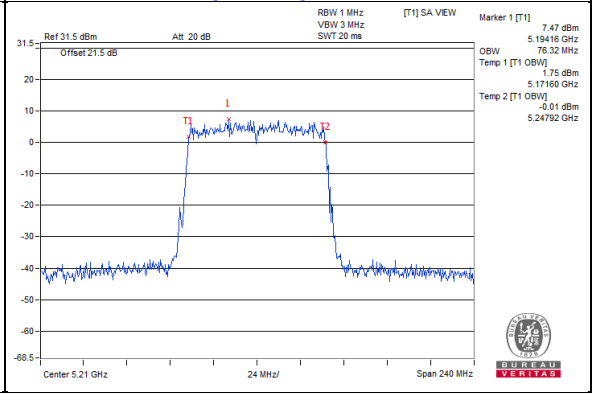
802.11ac (VHT20)_Chain2 / CH165



802.11ac (VHT40)_Chain2 / CH151

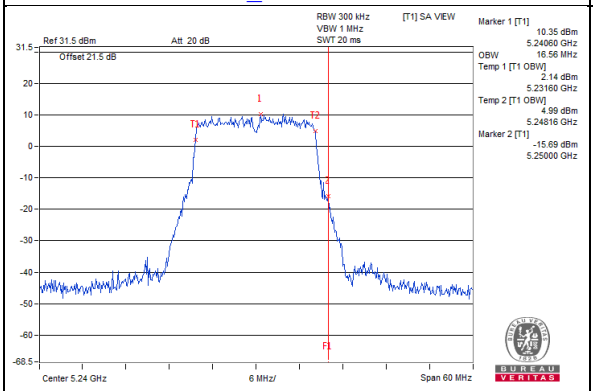


802.11ac (VHT80)_Chain0 / CH42

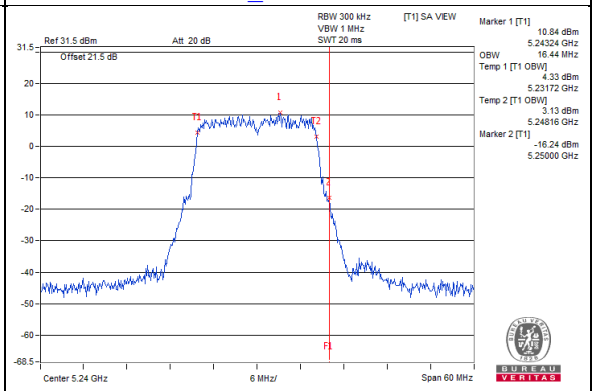


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

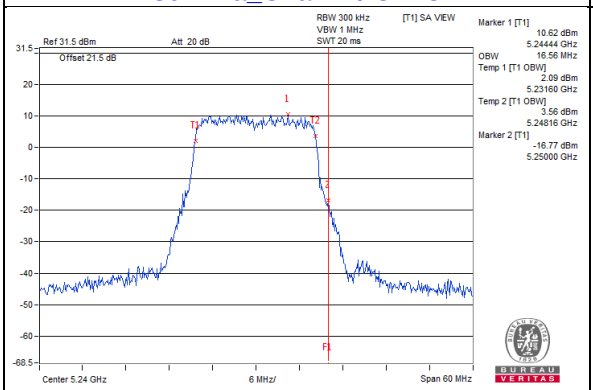
802.11a_Chain0 / CH48



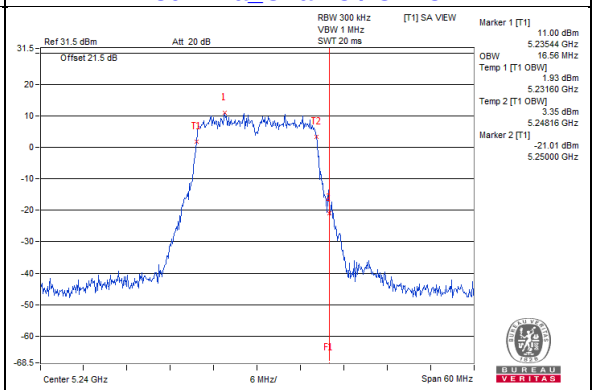
802.11a_Chain1 / CH48



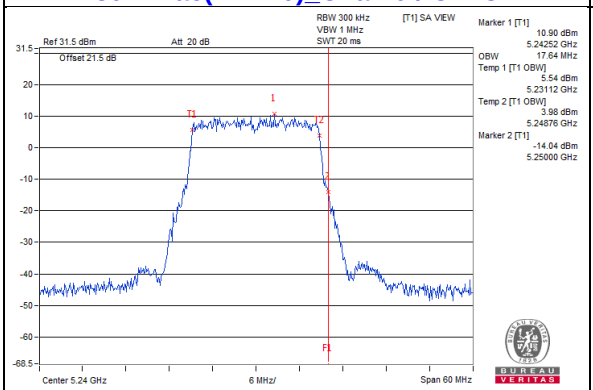
802.11a_Chain2 / CH48



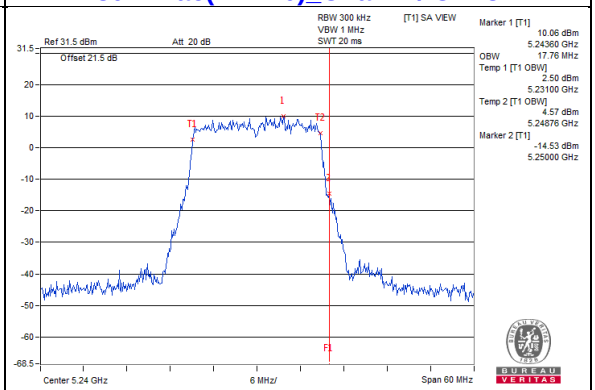
802.11a_Chain3 / CH48



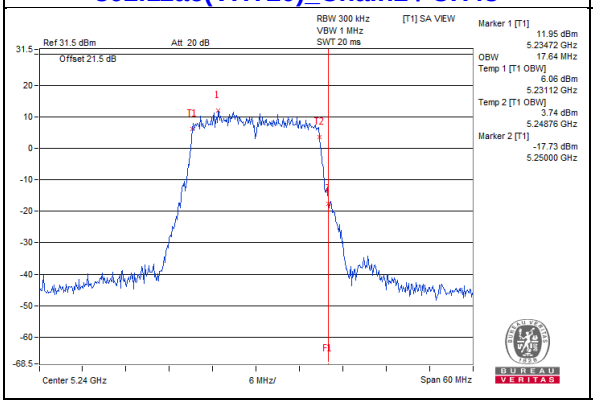
802.11ac(VHT20)_Chain0 / CH48



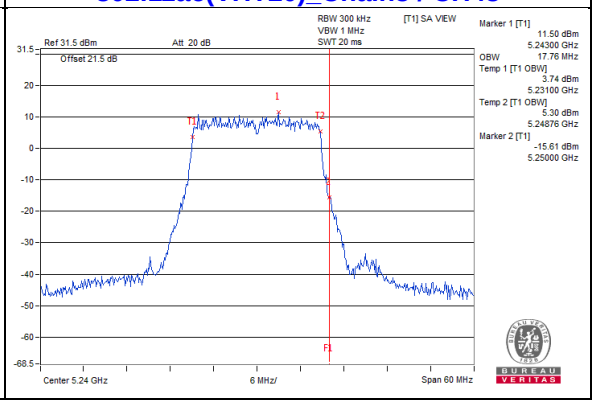
802.11ac(VHT20)_Chain1 / CH48



802.11ac(VHT20)_Chain2 / CH48

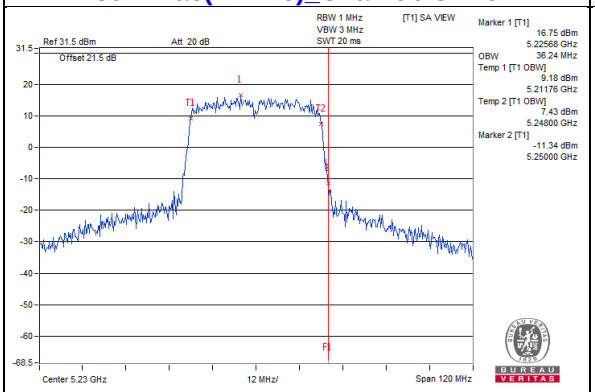


802.11ac(VHT20)_Chain3 / CH48

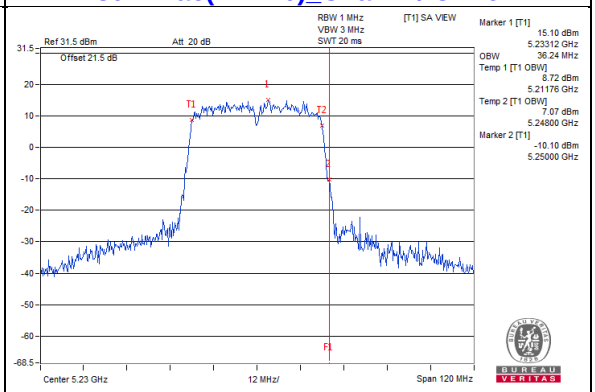


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

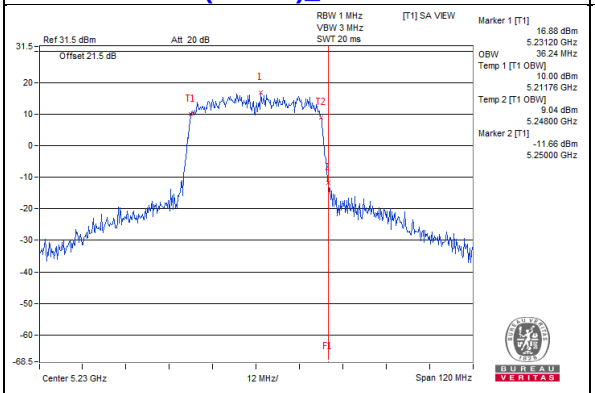
802.11ac(VHT40)_Chain0 / CH46



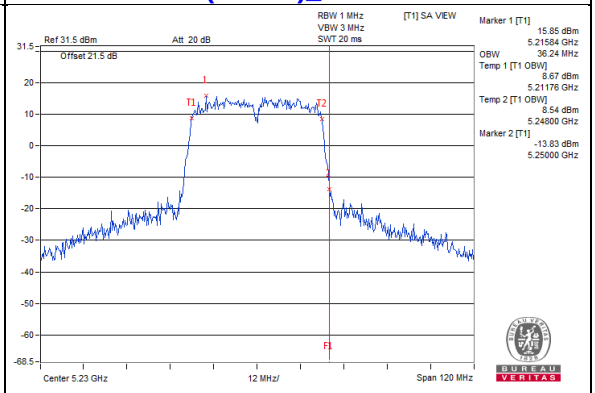
802.11ac(VHT40)_Chain1 / CH46



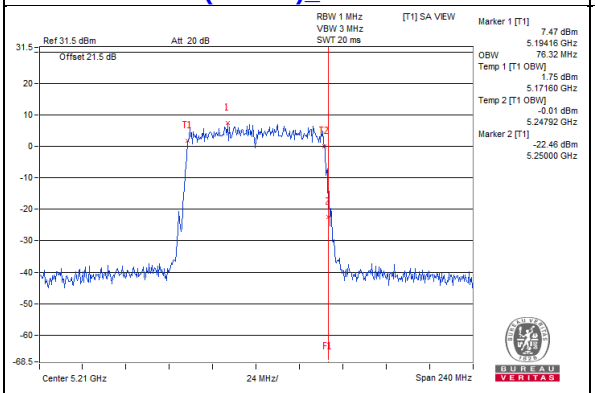
802.11ac(VHT40)_Chain2 / CH46



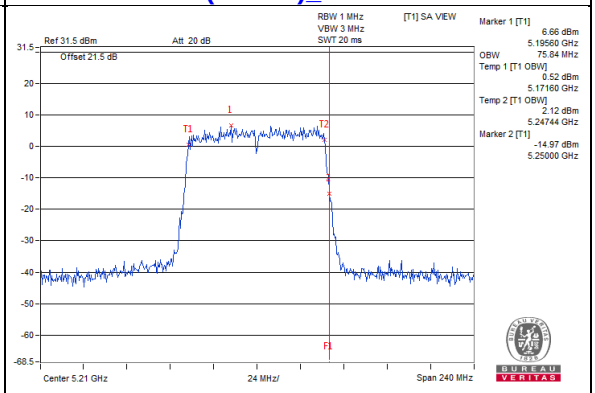
802.11ac(VHT40)_Chain3 / CH46



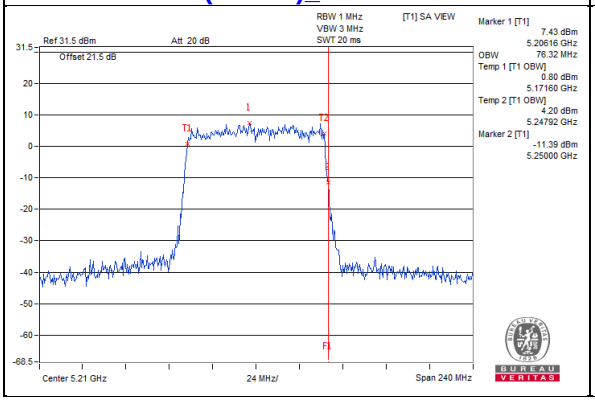
802.11ac(VHT80)_Chain0 / CH42



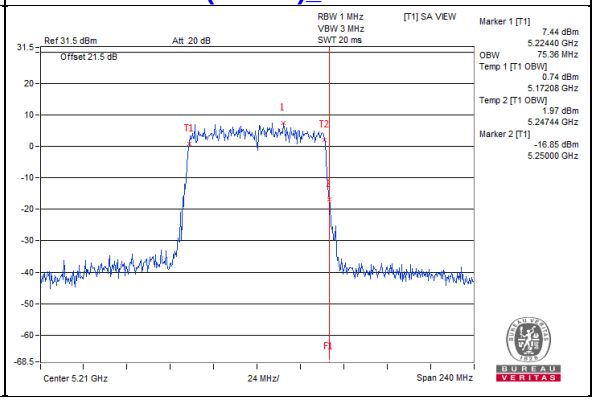
802.11ac(VHT80)_Chain1 / CH42



802.11ac(VHT80)_Chain2 / CH42

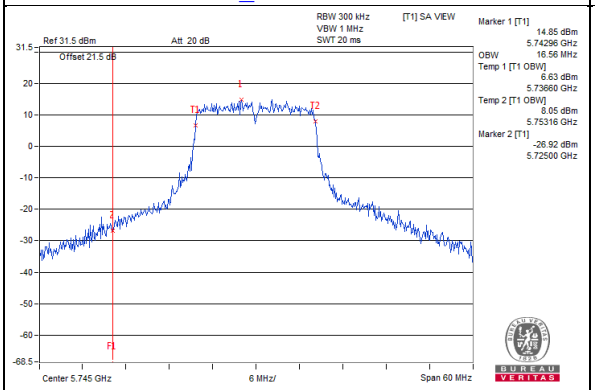


802.11ac(VHT80)_Chain3 / CH42

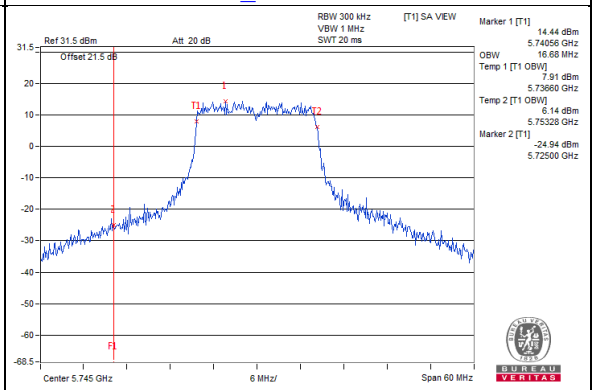


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

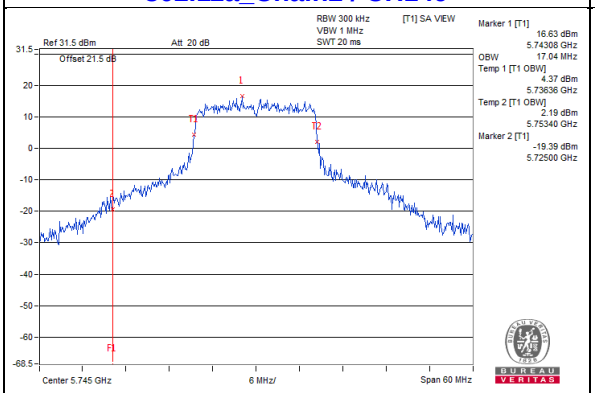
802.11a_Chain0 / CH149



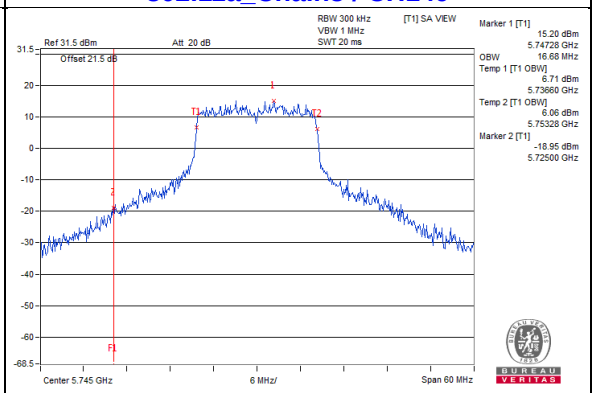
802.11a_Chain1 / CH149



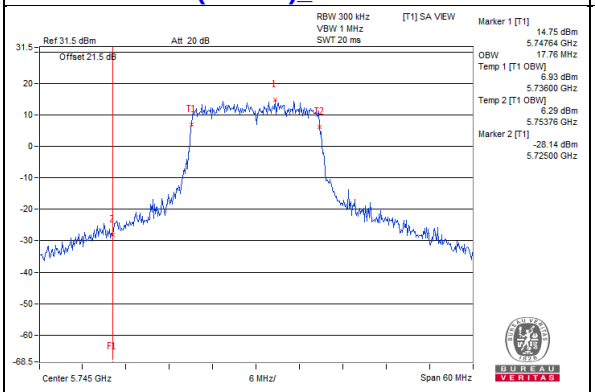
802.11a_Chain2 / CH149



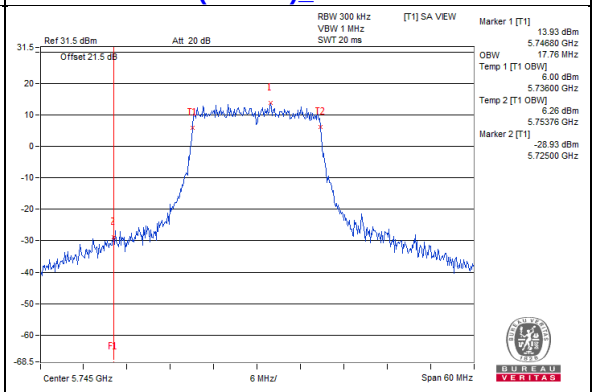
802.11a_Chain3 / CH149



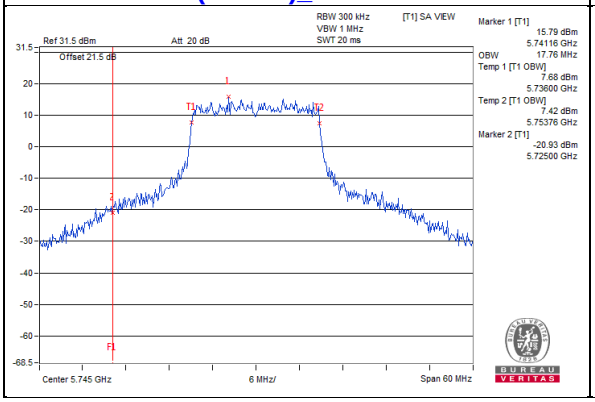
802.11ac(VHT20)_Chain0 / CH149



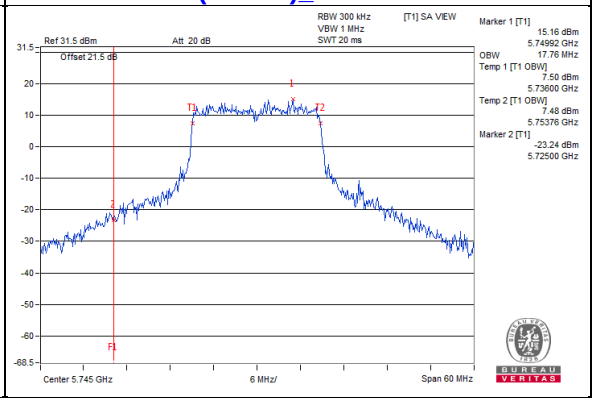
802.11ac(VHT20)_Chain1 / CH149



802.11ac(VHT20)_Chain2 / CH149

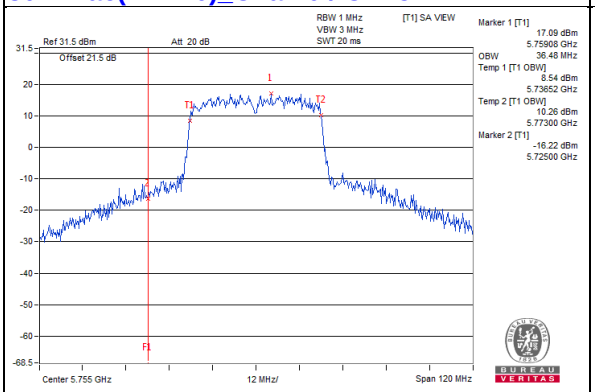


802.11ac(VHT20)_Chain3 / CH149

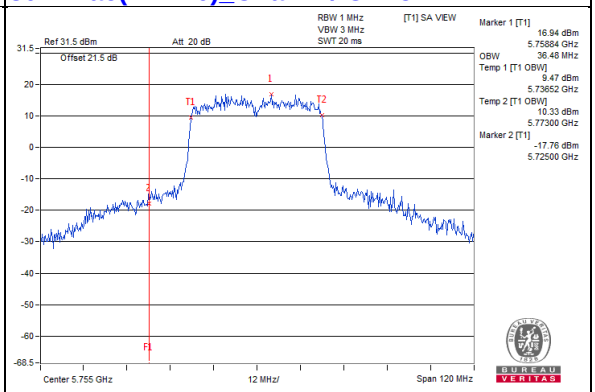


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

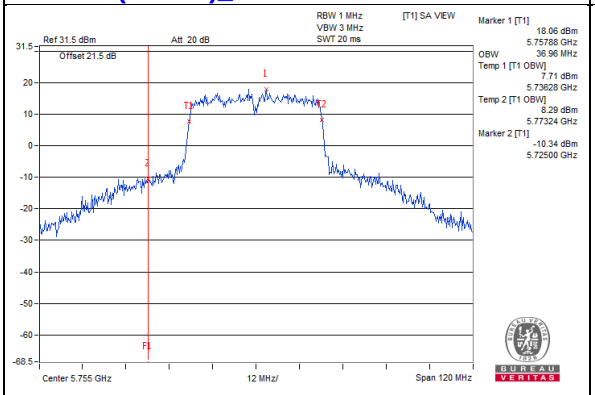
802.11ac(VHT40)_Chain0 / CH151



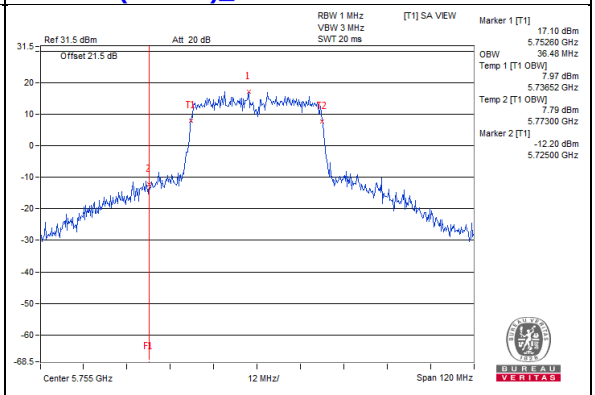
802.11ac(VHT40)_Chain1 / CH151



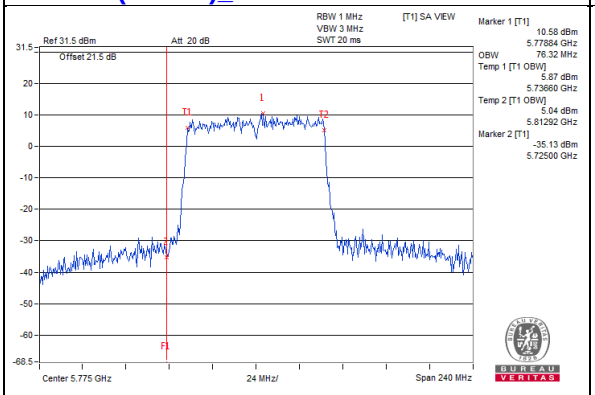
802.11ac(VHT40)_Chain2 / CH151



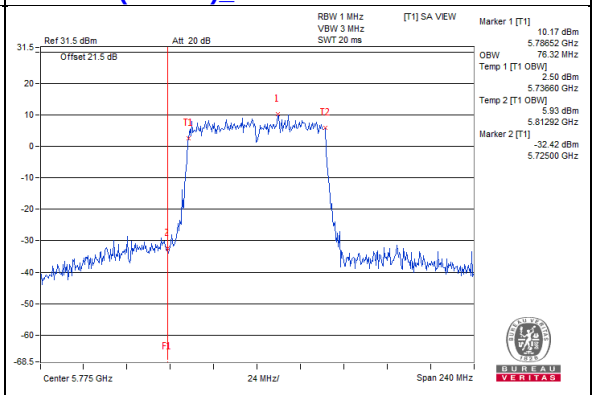
802.11ac(VHT40)_Chain3 / CH151



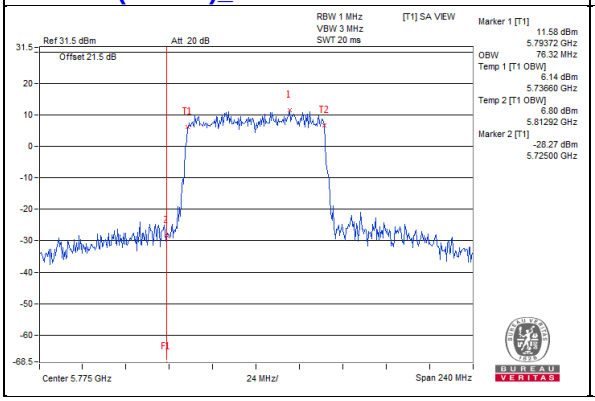
802.11ac(VHT80)_Chain0 / CH155



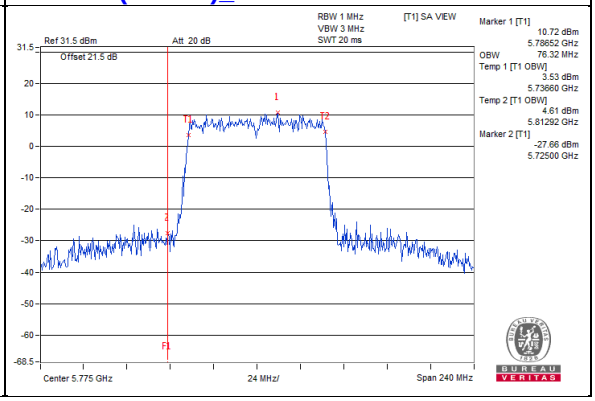
802.11ac(VHT80)_Chain1 / CH155



802.11ac(VHT80)_Chain2 / CH155



802.11ac(VHT80)_Chain3 / CH155



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

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	16.44	16.56	16.56	16.56
60	5300	16.56	16.44	16.56	16.56
64	5320	16.56	16.56	16.56	16.44
100	5500	16.44	16.56	16.56	16.56
116	5580	16.44	16.56	16.56	16.44
140	5700	16.56	16.56	16.56	16.44
144 (U-NII-2C Band)	5720	13.40	13.40	13.28	13.28
144 (U-NII-3 Band)	5720	3.28	3.28	3.16	3.16

802.11ac (VHT20)

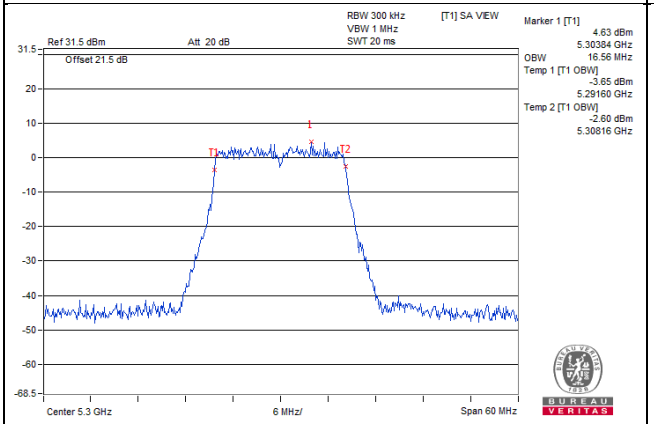
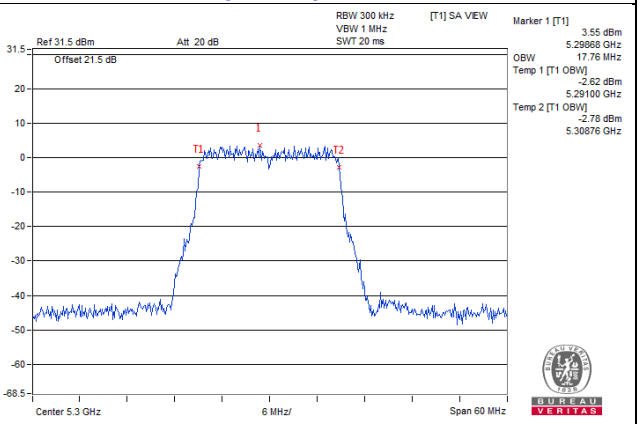
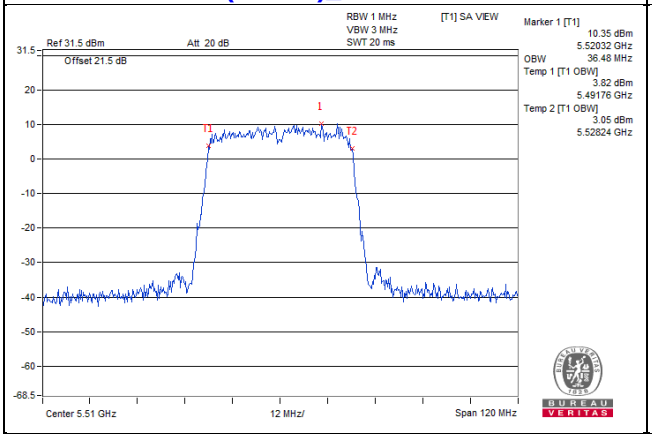
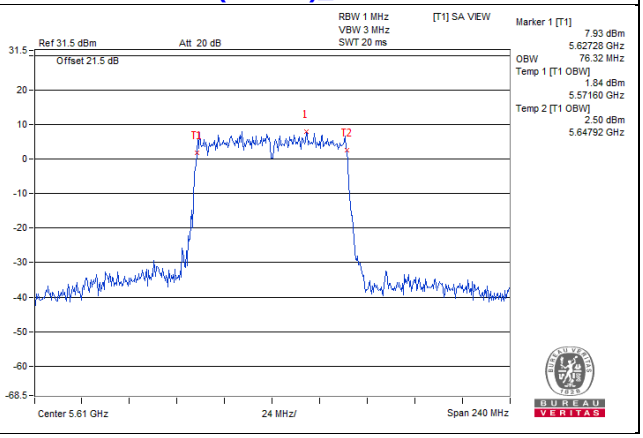
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	17.64	17.64	17.76	17.76
60	5300	17.76	17.64	17.76	17.64
64	5320	17.76	17.76	17.76	17.76
100	5500	17.64	17.64	17.64	17.64
116	5580	17.64	17.76	17.76	17.76
140	5700	17.76	17.76	17.64	17.76
144 (U-NII-2C Band)	5720	13.88	14.00	13.88	14.00
144 (U-NII-3 Band)	5720	3.76	3.76	3.76	3.76

802.11ac (VHT40)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	36.24	36.24	36.24	36.24
62	5310	36.24	36.48	36.24	36.24
102	5510	36.48	36.24	36.24	36.24
110	5550	36.24	36.24	36.24	36.24
134	5670	36.24	36.00	36.24	36.24
142 (U-NII-2C Band)	5710	33.40	33.20	33.20	33.20
142 (U-NII-3 Band)	5710	3.00	3.00	3.00	3.00

802.11ac (VHT80)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	75.84	76.32	75.84	75.84
106	5530	75.84	76.32	75.84	75.36
122	5610	76.32	75.84	75.84	76.32
138 (U-NII-2C Band)	5690	73.40	72.92	73.40	73.40
138 (U-NII-3 Band)	5690	2.92	2.44	2.92	2.92

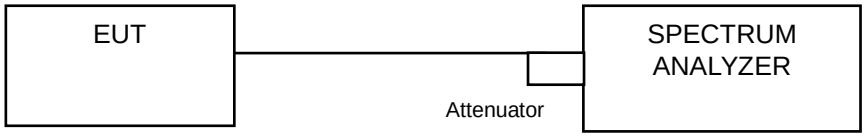
Spectrum Plot of Max Value	
802.11a_Chain 0 / CH60	**802.11ac (VHT20)_Chain 0 / CH60**
	
802.11ac (VHT40)_Chain 0 / CH102	**802.11ac (VHT80)_Chain 0 / CH122**
	

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 and UNII-2C band:
For 802.11ac (VHT20):
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 other Modulation test:
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:
For 802.11ac (VHT20):

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 (reducing) 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 other Modulation test:

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 (reducing) 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

CDD Mode

For U-NII-1:

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	4.43	5.17	6.91	5.53	0.14	11.77	12.94	Pass
40	5200	5.09	5.76	6.94	6.14	0.14	12.19	12.94	Pass
48	5240	5.67	5.46	6.73	5.89	0.14	12.13	12.94	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. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 17-(10.06-6) = 12.94dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total Power Density (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
36	5180	5.58	5.29	6.45	6.01	11.88	12.94	Pass
40	5200	6.15	5.09	6.49	5.50	11.86	12.94	Pass
48	5240	5.96	4.75	6.75	5.87	11.91	12.94	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. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 17-(10.06-6) = 12.94dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	3.46	3.37	3.70	3.81	0.14	9.75	12.94	Pass
46	5230	6.22	4.88	6.40	5.03	0.14	11.85	12.94	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. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 17-(10.06-6) = 12.94dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

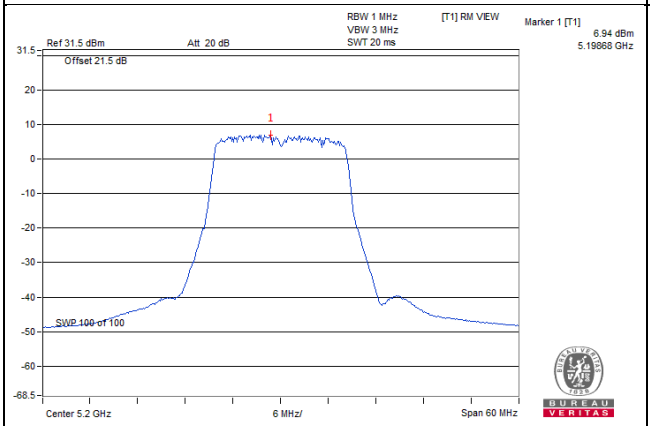
802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-2.68	-3.52	-2.79	-3.89	0.26	3.09	12.94	Pass

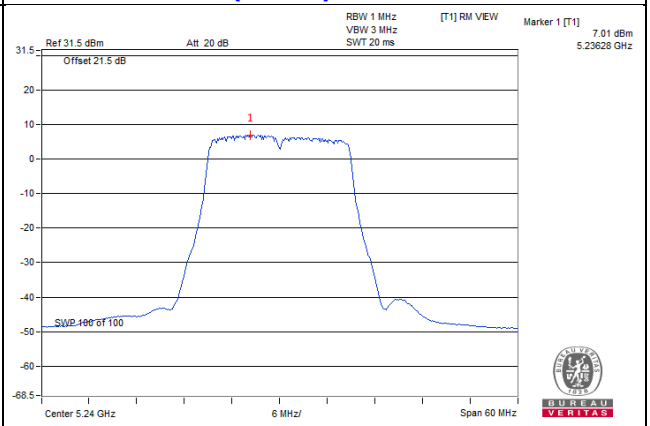
Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 17-(10.06-6) = 12.94dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

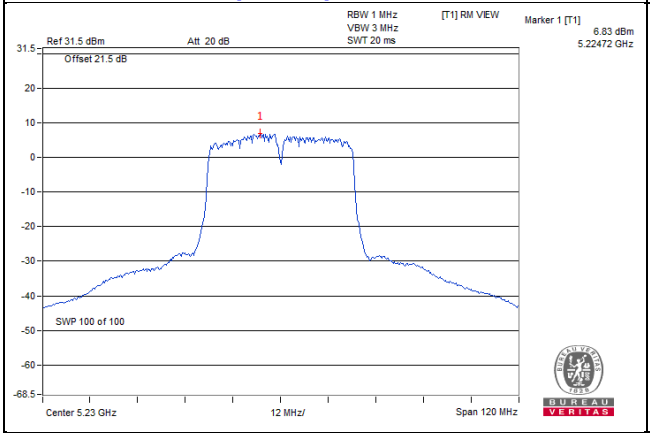
802.11a_Chain 2 / CH40



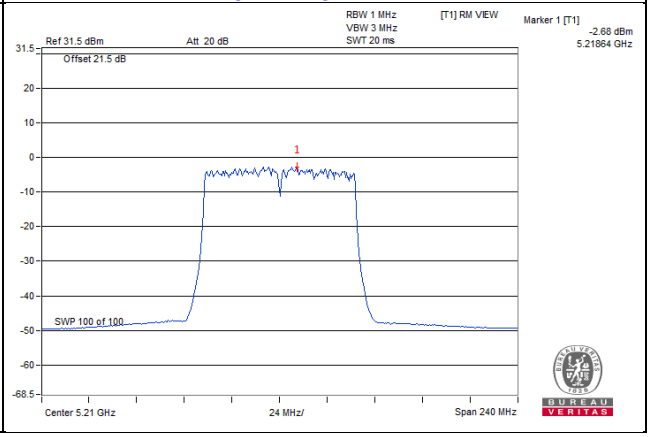
802.11ac (VHT20)_Chain 2 / CH48



802.11ac (VHT40)_Chain 2 / CH46



802.11ac (VHT80)_Chain 0 / CH42



For U-NII-3:

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD With Duty Factor		Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3		mW/300kHz	dBm/300kHz			
149	5745	2.14	1.74	3.36	1.80	0.14	7.036	8.47	10.69	25.94	Pass
157	5785	2.26	1.20	3.09	2.07	0.14	6.8684	8.37	10.59	25.94	Pass
165	5825	2.52	1.63	3.17	1.53	0.14	6.9619	8.43	10.65	25.94	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 30-(10.06-6) = 25.94dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD (dBm/300kHz)				Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz			
149	5745	1.83	0.89	2.58	1.66	6.0284	7.80	10.02	25.94	Pass
157	5785	2.08	0.81	2.74	1.43	6.0887	7.85	10.07	25.94	Pass
165	5825	2.03	1.06	2.33	1.57	6.0178	7.79	10.01	25.94	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 30-(10.06-6) = 25.94dBm.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD With Duty Factor		Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3		mW/300kHz	dBm/300kHz			
151	5755	-1.25	-1.65	-0.92	-1.70	0.14	3.0136	4.79	7.01	25.94	Pass
159	5795	-0.90	-2.38	-0.84	-1.93	0.14	2.9489	4.70	6.92	25.94	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 30-(10.066) = 25.94dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)				Duty Factor (dB)	Total PSD With Duty Factor		Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3		mW/300kHz	dBm/300kHz			
155	5775	-8.04	-9.09	-7.07	-8.32	0.26	0.6629	-1.79	0.43	25.94	Pass

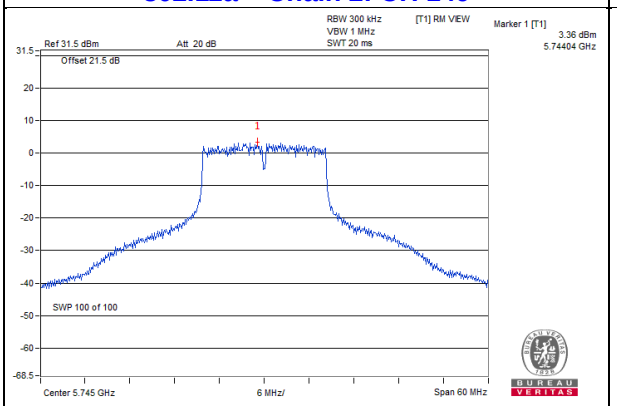
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. Directional gain = 10 log[(10$^{G0/20}$ + 10$^{G1/20}$ + 10$^{G2/20}$ + 10$^{G3/20}$)^2 / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 30-(10.06-6) = 25.94dBm.

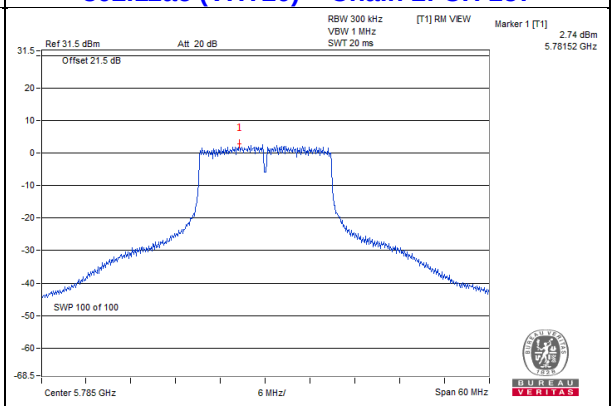
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

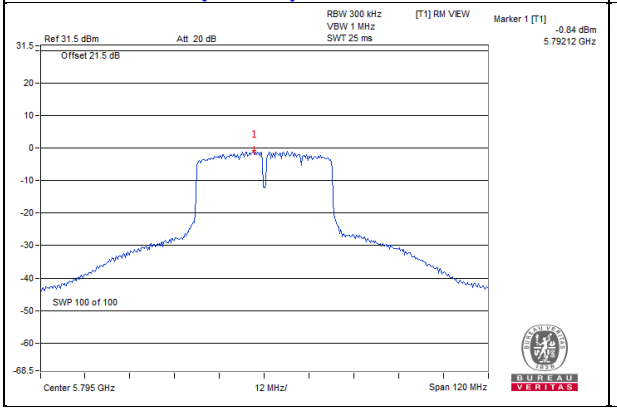
802.11a – Chain 2: CH 149



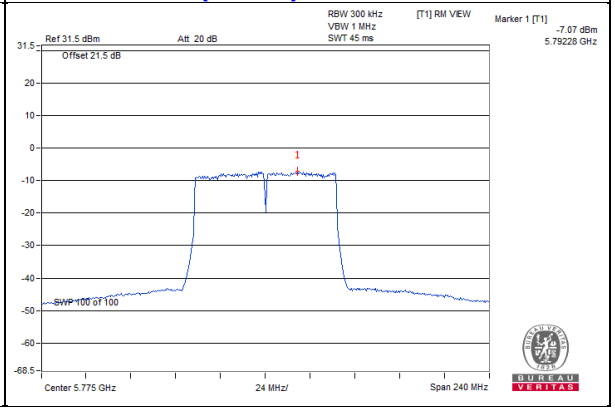
802.11ac (VHT20) – Chain 2: CH 157



802.11ac (VHT40) – Chain 2: CH 159



802.11ac (VHT80) – Chain 2: CH 155



For UNII-2A & UNII-2C:

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	-0.89	-0.78	0.34	-0.33	0.14	5.77	6.94	Pass
60	5300	-1.14	0.49	0.12	-0.26	0.14	6.00	6.94	Pass
64	5320	-0.79	0.33	-1.05	-0.42	0.14	5.71	6.94	Pass
100	5500	-0.77	0.51	0.32	0.35	0.14	6.29	6.94	Pass
116	5580	0.00	0.26	0.43	0.68	0.14	6.51	6.94	Pass
140	5700	-1.24	-1.18	0.19	-1.67	0.14	5.24	6.94	Pass
144 (UNII-2C Band)	5720	-0.74	-1.11	0.42	-0.73	0.14	5.66	6.94	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. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 11-(10.06-6) = 6.94dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total Power Density (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
52	5260	-1.20	0.49	0.03	-0.07	5.88	6.94	Pass
60	5300	-1.04	0.19	-0.42	-0.51	5.60	6.94	Pass
64	5320	-0.26	-0.83	-0.04	-0.31	5.67	6.94	Pass
100	5500	0.54	0.45	0.31	0.03	6.36	6.94	Pass
116	5580	-0.11	-0.17	0.59	0.90	6.35	6.94	Pass
140	5700	-1.02	-1.63	0.13	-0.35	5.35	6.94	Pass
144 (UNII-2C Band)	5720	-0.37	-1.30	0.40	-0.20	5.70	6.94	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. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 11-(10.06-6) = 6.94dBm.

802.11ac (VHT40)

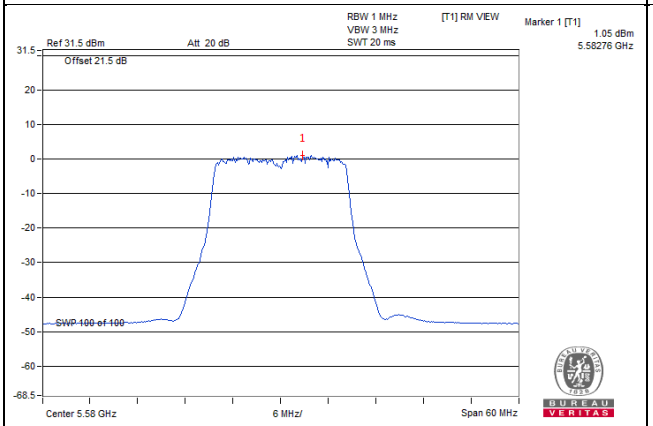
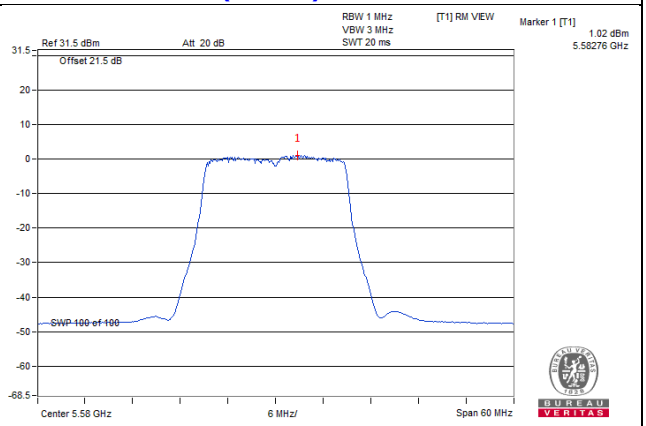
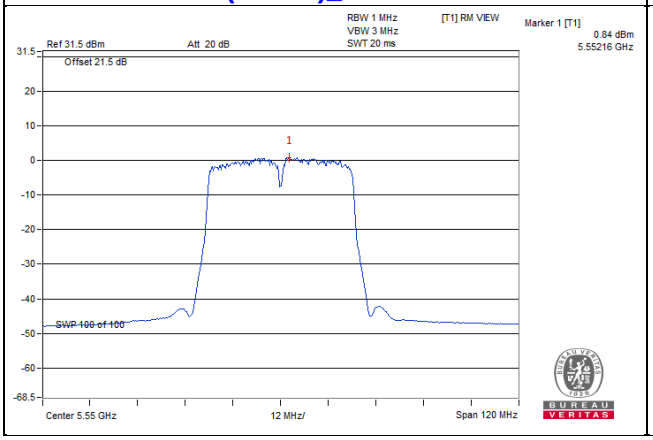
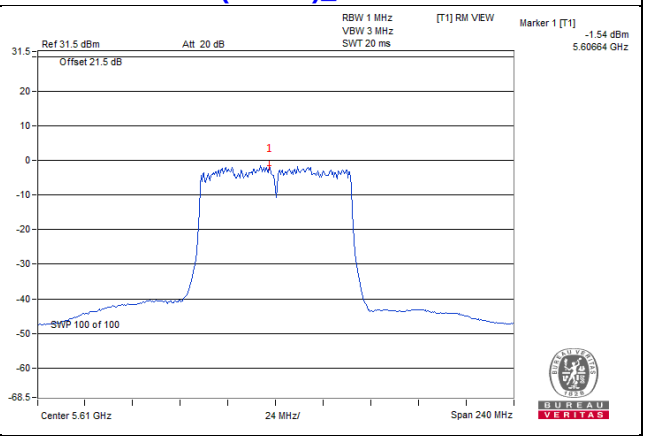
Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	-0.17	0.53	-0.97	-0.64	0.14	5.89	6.94	Pass
62	5310	-0.56	0.00	-1.31	-1.06	0.14	5.46	6.94	Pass
102	5510	0.38	0.14	0.12	-0.37	0.14	6.24	6.94	Pass
110	5550	-0.07	-0.25	0.23	0.57	0.14	6.29	6.94	Pass
134	5670	-0.56	-0.79	-0.07	0.11	0.14	5.85	6.94	Pass
142 (UNII-2C Band)	5710	-0.19	-0.60	0.09	-0.07	0.14	5.98	6.94	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. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 11-(10.06-6) = 6.94dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	-3.02	-3.32	-2.45	-2.82	0.26	3.39	6.94	Pass
106	5530	-2.35	-1.77	-2.47	-1.71	0.26	4.22	6.94	Pass
122	5610	-3.94	-1.54	-2.12	-2.17	0.26	3.93	6.94	Pass
138 (UNII-2C Band)	5690	-2.78	-4.02	-2.49	-2.55	0.26	3.36	6.94	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. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 11-(10.06-6) = 6.94dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a_Chain 3 / CH116	**802.11ac (VHT20)_Chain 3 / CH116**
	
802.11ac (VHT40)_Chain 3 / CH110	**802.11ac (VHT80)_Chain 1 / CH122**
	

For UNII-3:

802.11a

Chan.	Freq. (MHz)	PSD (dBm/300kHz)				Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz			
144 (UNII-3 Band)	5720	-8.72	-8.57	-8.28	-8.51	0.5814	-2.36	-0.14	25.94	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 30-(10.06-6) = 25.94dBm.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD (dBm/300kHz)				Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz			
144 (UNII-3 Band)	5720	-8.97	-8.68	-8.20	-8.04	0.5707	-2.44	-0.22	25.94	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 30-(10.06-6) = 25.94dBm.

802.11ac (VHT40)

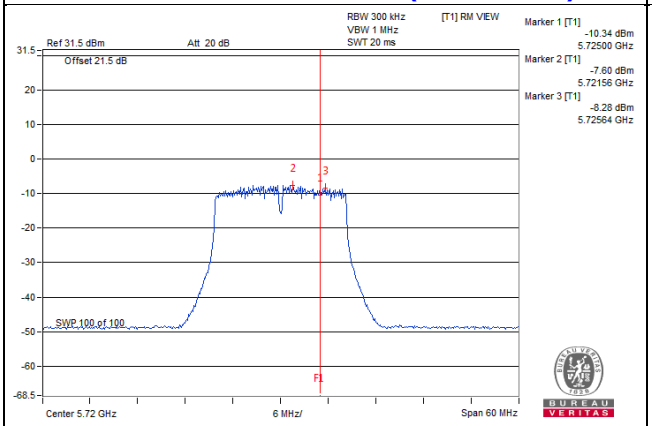
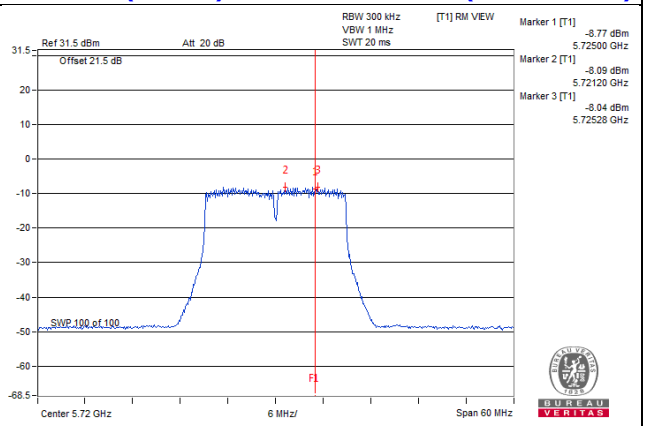
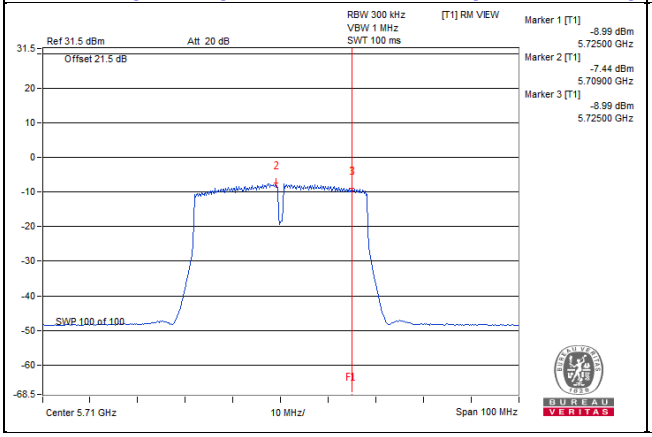
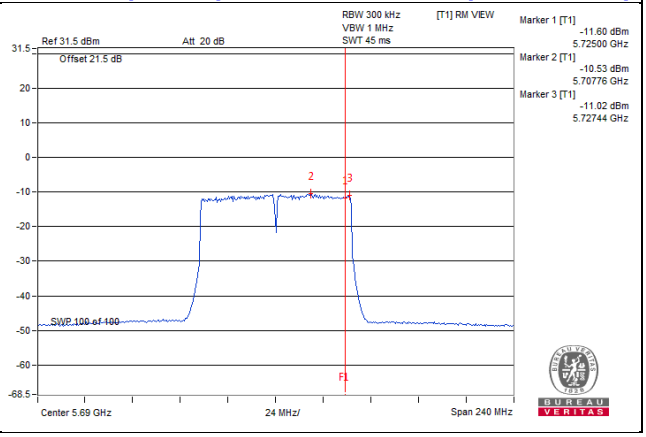
Chan.	Freq. (MHz)	PSD (dBm/300kHz)				Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz			
142 (UNII-3 Band)	5710	-9.19	-9.75	-8.99	-9.22	0.4876	-3.12	-0.90	25.94	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 30-(10.06-6) = 25.94dBm.

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD (dBm/300kHz)				Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1	Chain 2	Chain 3	mW/ 300kHz	dBm/ 300kHz			
138 (UNII-3 Band)	5690	-11.60	-12.27	-11.02	-11.75	0.29154	-5.35	-3.13	25.94	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 4] = 10.06dBi > 6dBi , so the power density limit shall be reduced to 30-(10.06-6) = 25.94dBm.

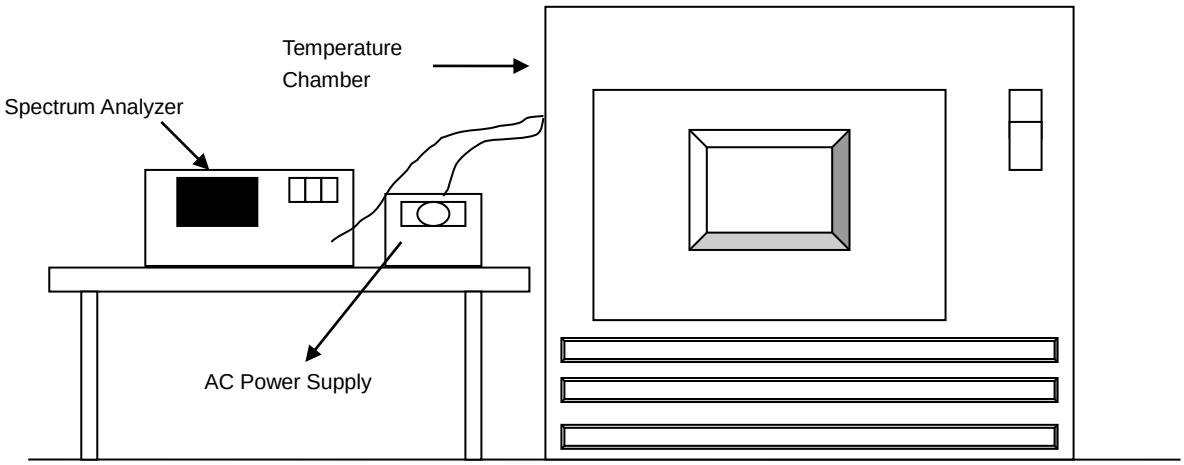
Spectrum Plot of Worst Value	
802.11a / Chain 2 – CH144 (UNII-3 Band)	**802.11ac (VHT20) / Chain 3 – CH144 (UNII-3 Band)**
	
802.11ac (VHT40) / Chain 2 – CH142 (UNII-3 Band)	**802.11ac (VHT80) / Chain 2 – CH138 (UNII-3 Band)**
	

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 2 and 3 with the temperature chamber set to the lowest temperature.
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
50	120	5179.9781	PASS	5179.9778	PASS	5179.9775	PASS	5179.9802	PASS
40	120	5179.9887	PASS	5179.9871	PASS	5179.989	PASS	5179.9911	PASS
30	120	5179.9989	PASS	5180.0018	PASS	5180.0022	PASS	5180.0013	PASS
20	120	5180.001	PASS	5179.9998	PASS	5179.9988	PASS	5179.9968	PASS
10	120	5180.0254	PASS	5180.0214	PASS	5180.0247	PASS	5180.0234	PASS
0	120	5179.979	PASS	5179.9776	PASS	5179.9812	PASS	5179.9771	PASS
-10	120	5180.0136	PASS	5180.0125	PASS	5180.0112	PASS	5180.0143	PASS
-20	120	5180.0185	PASS	5180.0149	PASS	5180.0196	PASS	5180.016	PASS
-30	120	5179.9763	PASS	5179.9732	PASS	5179.9738	PASS	5179.9757	PASS

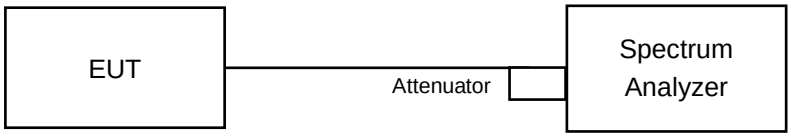
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5180.0006	PASS	5180.0001	PASS	5179.9997	PASS	5179.9975	PASS
	120	5180.001	PASS	5179.9998	PASS	5179.9988	PASS	5179.9968	PASS
	102	5180.002	PASS	5179.9995	PASS	5179.9985	PASS	5179.9975	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

CDD Mode

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
144 (UNII-3 Band)	5720	3.16	3.13	3.12	3.12	0.5	Pass
149	5745	16.39	16.38	16.35	16.37	0.5	Pass
157	5785	16.36	16.41	16.33	16.40	0.5	Pass
165	5825	16.36	16.40	16.37	16.38	0.5	Pass

802.11ac (VHT20)

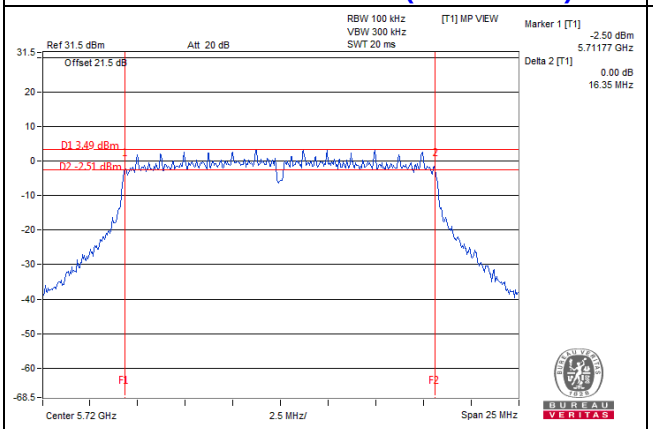
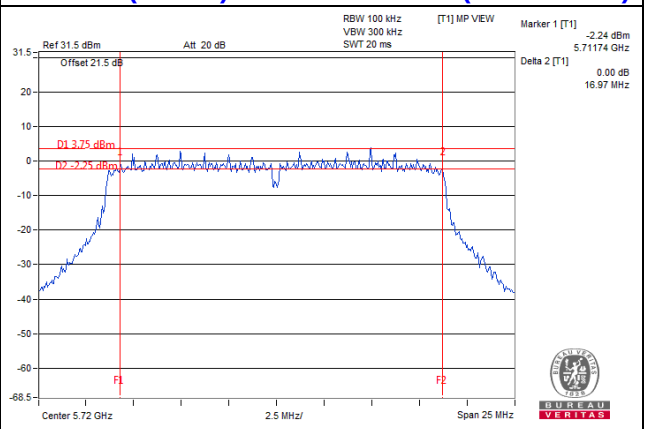
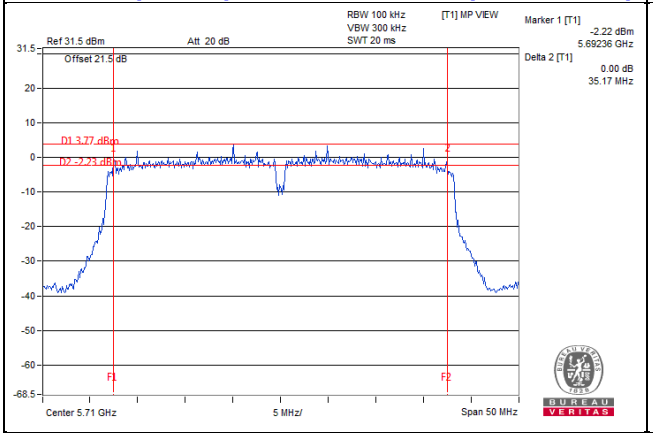
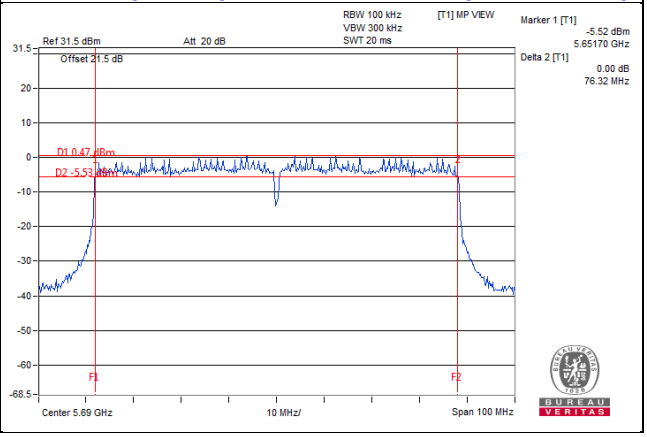
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
144 (UNII-3 Band)	5720	3.75	3.77	3.75	3.71	0.5	Pass
149	5745	17.62	17.63	17.61	17.60	0.5	Pass
157	5785	17.61	17.61	17.61	17.21	0.5	Pass
165	5825	17.61	17.61	17.57	17.58	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
142 (UNII-3 Band)	5710	2.57	2.56	3.12	2.53	0.5	Pass
151	5755	35.06	35.20	35.20	35.17	0.5	Pass
159	5795	35.20	35.72	35.12	35.18	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
138 (UNII-3 Band)	5690	3.24	3.21	3.26	3.02	0.5	Pass
155	5775	76.45	75.99	76.43	76.49	0.5	Pass

Spectrum Plot of Worst Value	
802.11a / Chain 2 - CH144 (UNII-3 Band)	**802.11ac (VHT20) / Chain 3 - CH144 (UNII-3 Band)**
	
802.11ac (VHT40) / Chain 3 - CH142 (UNII-3 Band)	**802.11ac (VHT80) / Chain 3 - CH138 (UNII-3 Band)**
	

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

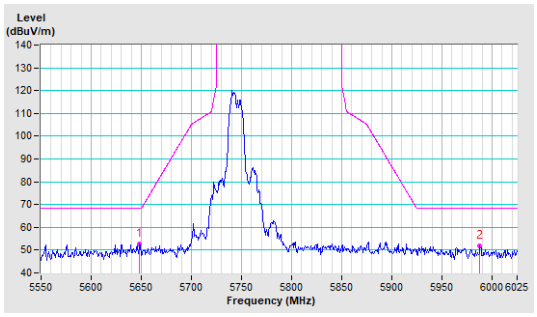
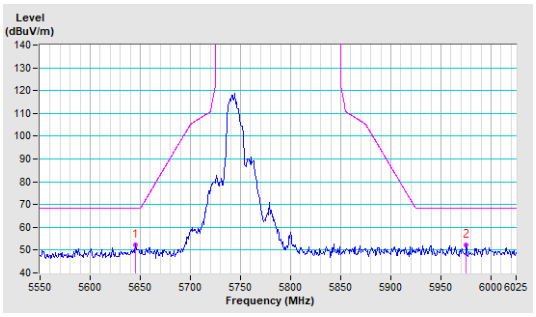
5 Pictures of Test Arrangements

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

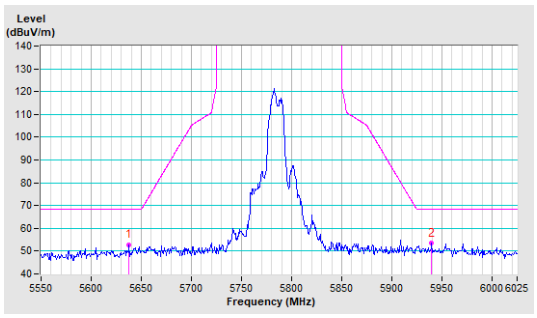
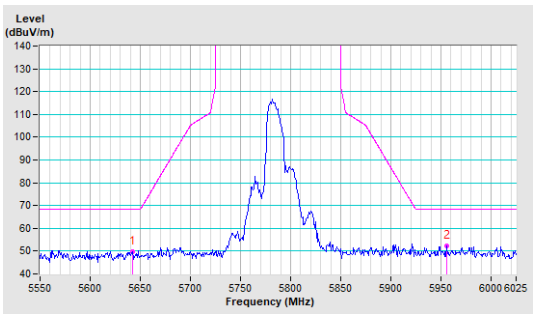
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

802.11a

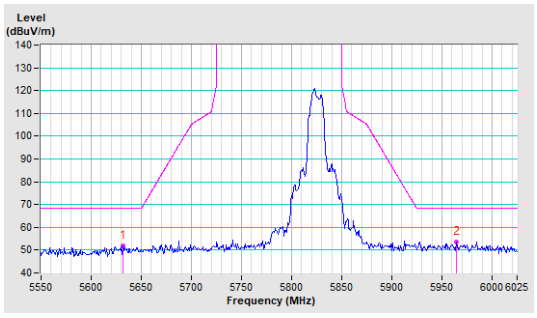
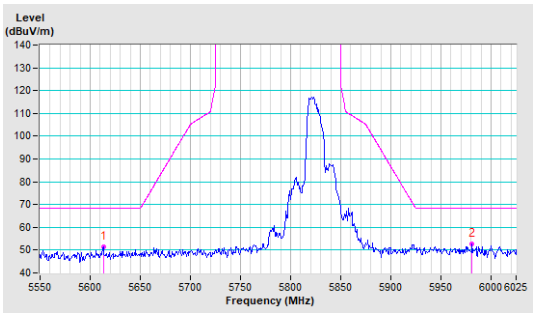
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

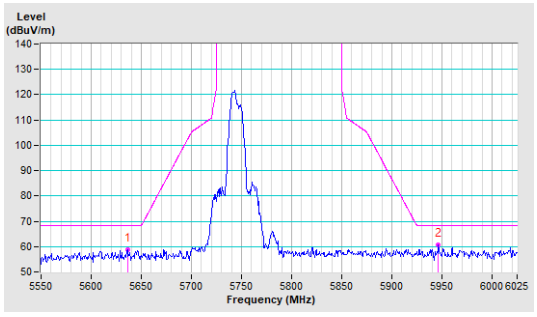
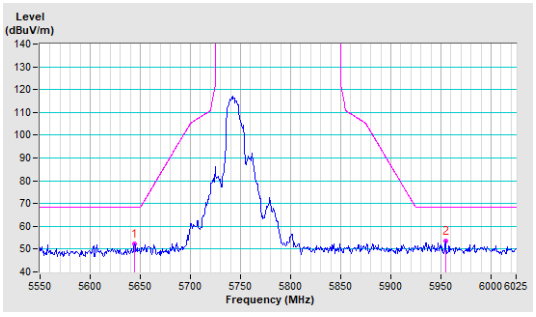
Horizontal	Vertical
	

CH 165 5825 MHz

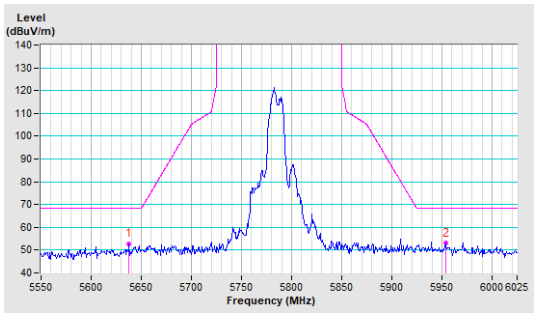
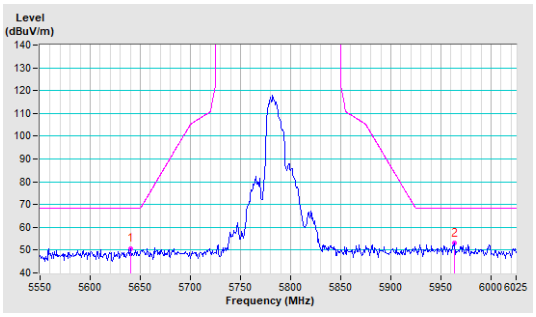
Horizontal	Vertical
	

802.11ac (VHT20)

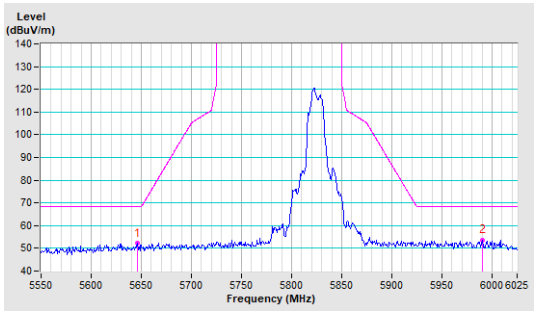
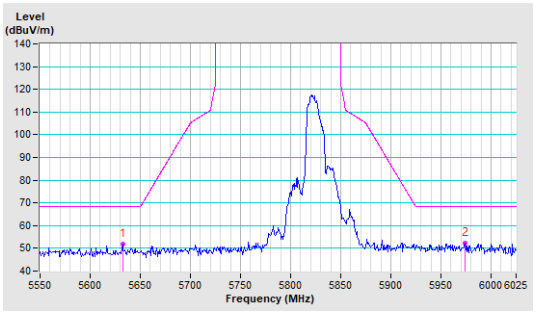
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

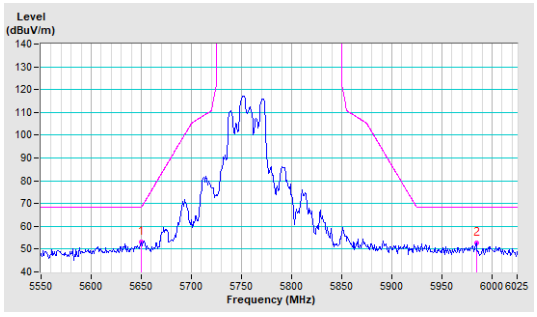
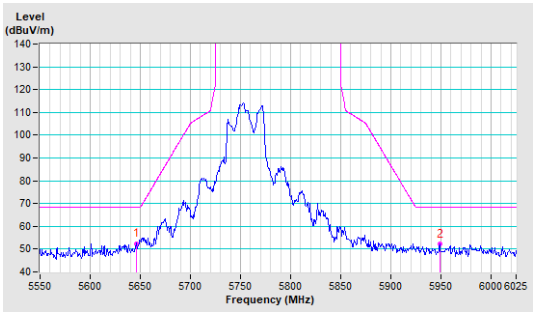
Horizontal	Vertical
	

CH 165 5825 MHz

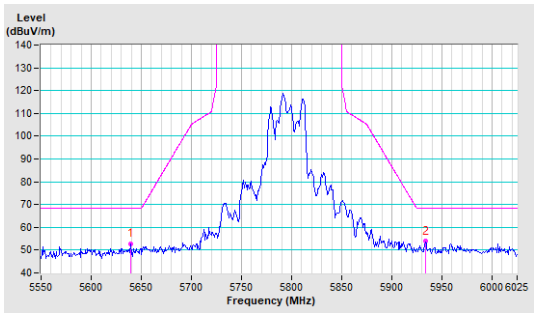
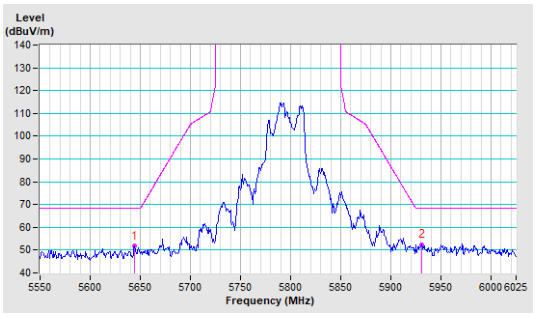
Horizontal	Vertical
	

802.11ac (VHT40)

CH 151 5755 MHz

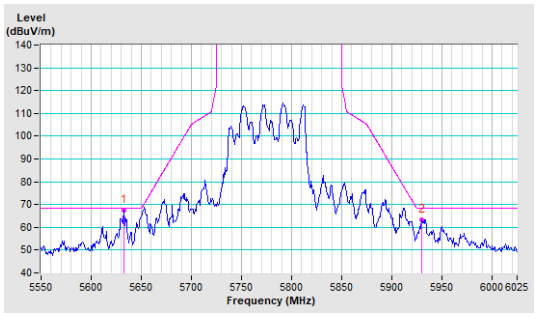
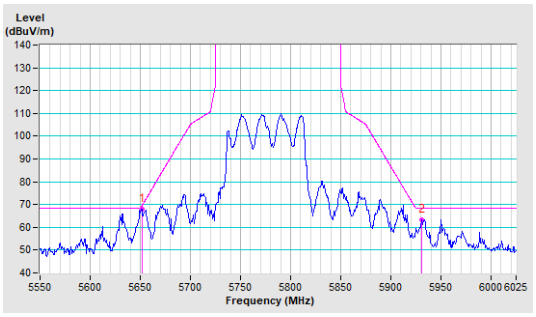
Horizontal	Vertical
	

CH 159 5795 MHz

Horizontal	Vertical
	

802.11ac (VHT80)

CH 155 5775 MHz

Horizontal	Vertical
	

Appendix – Information of the Testing Laboratories

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

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

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

--- END ---