FCC Test Report (DFS Band)

Report No.:	RF171204E07-5
FCC ID:	Q87-03331
Test Model:	WHW01
Series Model:	VLP01, A01
Received Date:	Dec. 04, 2017
Test Date:	Dec. 09, 2017 to Jan. 12, 2018
Issued Date:	Mar. 13, 2018
Applicant:	Linksys LLC
Address:	121 Theory Drive, Irvine, CA 92617, USA
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

Testing Laboratory
2022

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF171204E07-5	Original release.	Mar. 13, 2018

1 Certificate of Conformity

Product:	Velop
Brand:	Linksys
Test Model:	WHW01
Series Model:	VLP01, A01
Sample Status:	ENGINEERING SAMPLE
Applicant:	Linksys LLC
Test Date:	Dec. 09, 2017 to Jan. 12, 2018
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:** Mar. 13, 2018

Wendy Wu / Specialist

Approved by : _____ , **Date:** Mar. 13, 2018

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 -3.12dB at 0.50075MHz.
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 5350.00MHz, 5465.10MHz.
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.

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	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.53 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.08 dB
	6GHz ~ 18GHz	4.98 dB
	18GHz ~ 40GHz	5.19 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (DFS Band)

Product	Velop
Brand	Linksys
Test Model	WHW01
Series Model	VLP01, A01
Status of EUT	ENGINEERING SAMPLE
Driver version	1.1.2.186306
Power Supply Rating	12Vdc from power adapter
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT (20/40) mode in 2.4GHz
Modulation Technology	OFDM
Transfer Rate	802.11a: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	5.26GHz ~ 5.32GHz, 5.50GHz ~ 5.72GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20): 16 802.11n (HT40), 802.11ac (VHT40): 8 802.11ac (VHT80): 4
Output Power	**CDD Mode:** **5.26 ~ 5.32GHz:** 240.196mW **5.50 ~ 5.72GHz:** 234.449mW **Beamforming Mode:** **5.26 ~ 5.32GHz:** 217.331mW **5.50 ~ 5.72GHz:** 218.159mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the Report No.: RF171204E07-1 as the following:
   - ◆ Add DFS band <5.26 ~ 5.32GHz, 5.5 ~ 5.72GHz>.
   - ◆ Change Driver version
2. According to above condition, all test items need to be performed. And all data weres verified to meet the requirements.
3. There are WLAN and Bluetooth technology used for the EUT.
4. The EUT has below model names, which are identical to each other in all aspects except for the following table:

Brand	Model Name	Different
Linksys	WHW01	For maketing request Color : Black & White
	VLP01	
	A01	

From the above models, model: **WHW01** was selected as representative model for the test and its data was recorded in this report.

5. Simultaneously transmission condition.

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

6. The EUT must be supplied with a power adapter and following different models could be chosen as following table:

No.	Brand	Model No.	Spec.	Plug	Remark
1	APD	WA-12M12R	Input: 100-240Vac, 0.5A, 50-60Hz Output: 12V, 1A Output cable: Unshielded, 1.5m	Universal	Black & White
2	APD	WB-12G12FU	Input: 100-240Vac, 0.3A, 50-60Hz Output: 12V, 1A Output cable: Unshielded, 1.5m	FCC	Black & White
3	Ktec	KSAS0121200100D5	Input: 100-240Vac, 0.4A, 50-60Hz Output: 12V, 1A Output cable: Unshielded, 1.5m	Universal	Black & White
4	Ktec	KSA-12W-120100VU	Input: 100-240Vac, 0.4A, 50/60Hz Output: 12V, 1A Output cable: Unshielded, 1.5m	FCC	Black & White
Note: From the above models, the worst radiated emission test was found in **Adapter 4**. Therefore only the test data of the modes were recorded in this report.					

7. The DDR3 Memory of EUT as following table

Item	Brand	Model No.	Different
Main source	Winbond	W632GU6MB-12	1. For maketing request. 2. DDR3 Memory.
Second source	Nanya	NT5CC128M16IP-DI	
Note: From the above models, the worst case was found in **Main source**. Therefore only the test data of the modes were recorded in this report.			

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

WLAN						
Ant No.	Brand	Model	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type
1	ARISTOTLE	AP571-P11-P2	2.4	2.4~2.4835	PCB	i-pex(MHF)
			3.6	5.15~5.85		
2	ARISTOTLE	AP571-P22-P5	1.36	2.4~2.4835	PCB	i-pex(MHF)
			3.5	5.15~5.85		
Bluetooth						
Ant No.	Brand	Model	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type
1	ARISTOTLE	AP571-BT-1	1.48	2.4~2.4835	PCB	i-pex(MHF)

9. The EUT incorporates a MIMO function.

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

Note:
1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. 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)

10. 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 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	138	5690 MHz
122	5610 MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
1	-	-	√	-	Power from Adapter 1
2	-	-	√	-	Power from Adapter 2
3	-	-	√	-	Power from Adapter 3
4	√	√	√	√	Power from Adapter 4

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

NOTE: "-"means no effect.

Radiated Emission Test (Above 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
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

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)
802.11ac (VHT40)	5260-5320 5500-5720	54 to 62 102 to 142	110	OFDM	BPSK	13.5

Power Line Conducted Emission Test:

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

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT40)	5260-5320 5500-5720	54 to 62 102 to 142	110	OFDM	BPSK	13.5

Antenna Port Conducted Measurement:

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

CDD Mode / Beamforming Mode (Output power only)						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
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

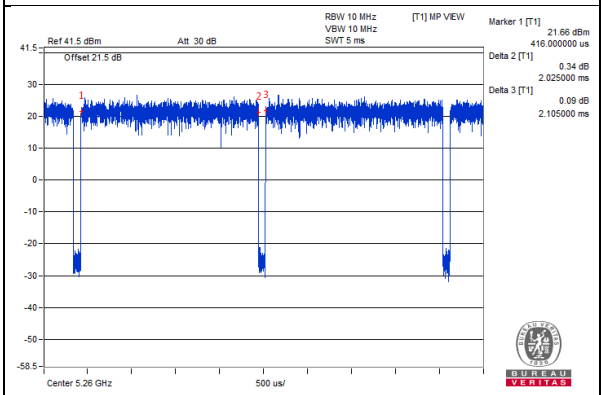
Test Condition:

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

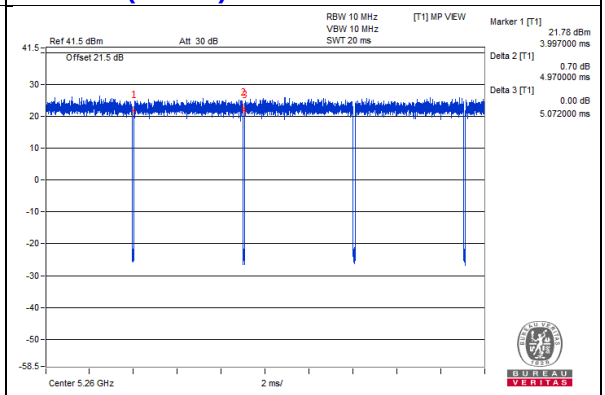
3.3 Duty Cycle of Test Signal

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 = 2.025 ms/2.105 ms = 0.962, Duty factor = 10 * log(1/0.962) = 0.17
802.11ac (VHT20): Duty cycle = 4.97 ms/5.072 ms = 0.98
802.11ac (VHT40): Duty cycle = 2.415 ms/2.503 ms = 0.965, Duty factor = 10 * log(1/0.965) = 0.16
802.11ac (VHT80): Duty cycle = 1.133 ms/1.209 ms = 0.937, Duty factor = 10 * log(1/0.937) = 0.28

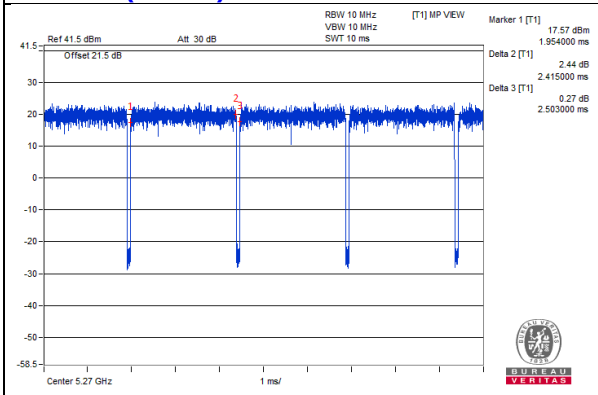
802.11a



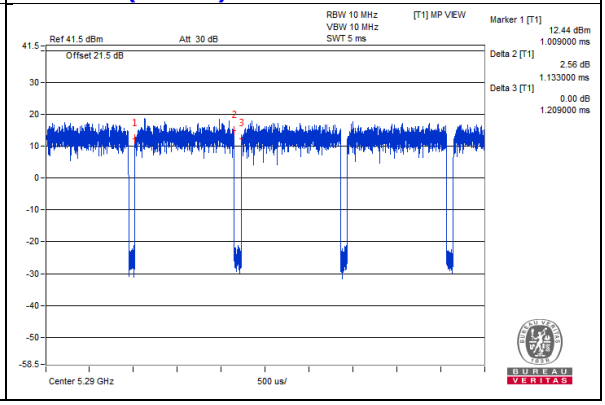
802.11ac (VHT20)



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

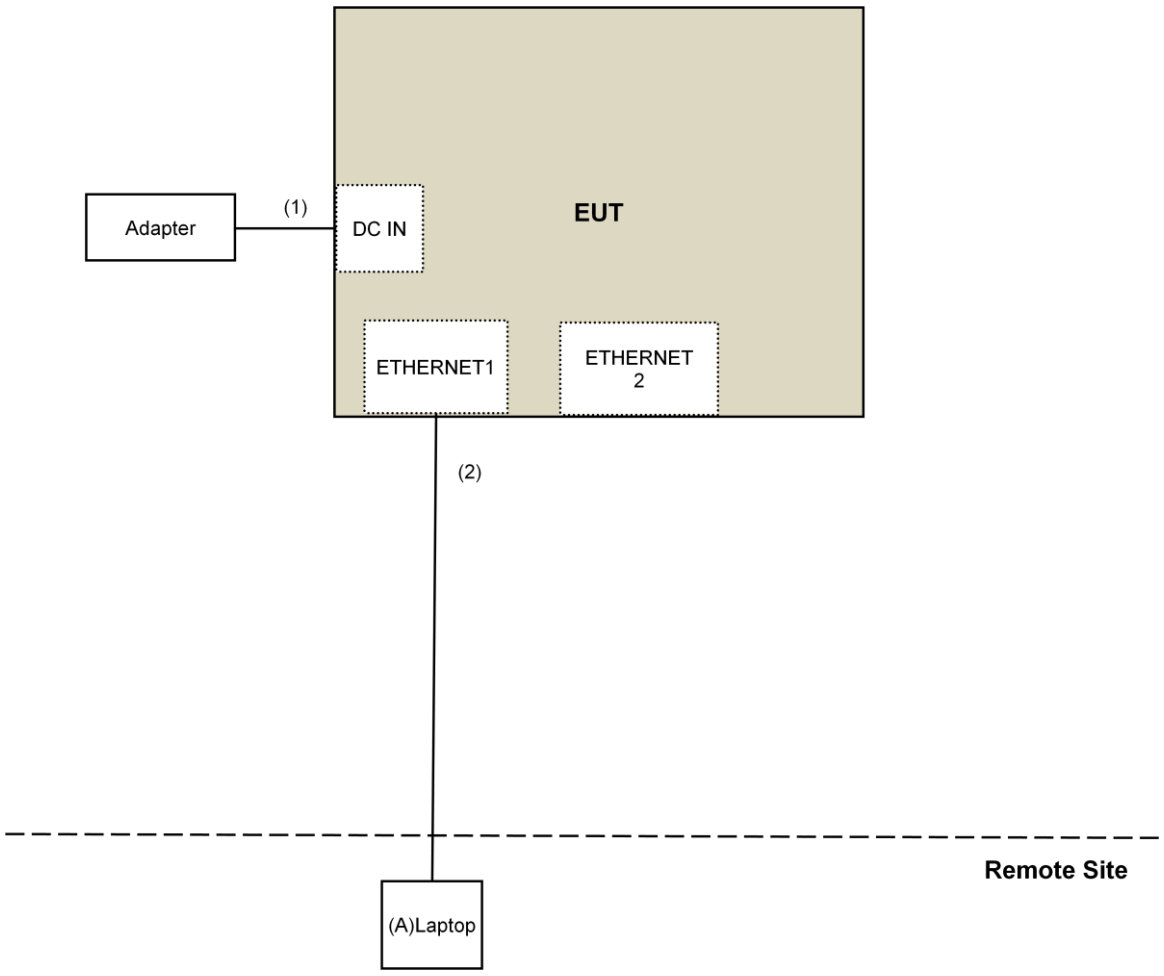
Note:

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.	DC Cable	1	1.5	No	0	Supplied by client
2.	RJ-45 Cable	1	10	No	0	Provided by Lab

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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.

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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="2">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="2" 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="4">*1 beyond 75 MHz or more above of the band edge.
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.
*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 12, 2017	July 11, 2018
Loop Antenna(*) TESEQ	HLA 6121	45745	May 19, 2017	May 18, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	May 06, 2017	May 05, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 29, 2017	Nov. 28, 2018
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Oct. 03, 2017	Oct. 02, 2018
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Dec. 28, 2016	Dec. 27, 2017
Pre-Amplifier EMCI	EMC12630SE	980384	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM-SM-1200 EMC104-SM-SM-2000 EMC104-SM-SM-5000	160922 150317 150322	Feb. 02, 2017 Mar. 29, 2017 Mar. 29, 2017	Feb. 01, 2018 Mar. 28, 2018 Mar. 28, 2018
Spectrum Analyzer Keysight	N9030A	MY54490679	July 25, 2017	July 24, 2018
Pre-Amplifier EMCI	EMC184045SE	980386	Feb. 02, 2017	Feb. 01, 2018
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 15, 2016	Dec. 14, 2017
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 15, 2017	Jan. 14, 2018
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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 3.
4. The CANADA Site Registration No. is 20331-1
5. Loop antenna was used for all emissions below 30 MHz.
6. Tested Date: Dec. 09 to 12, 2017

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. Both X and Y axes 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:

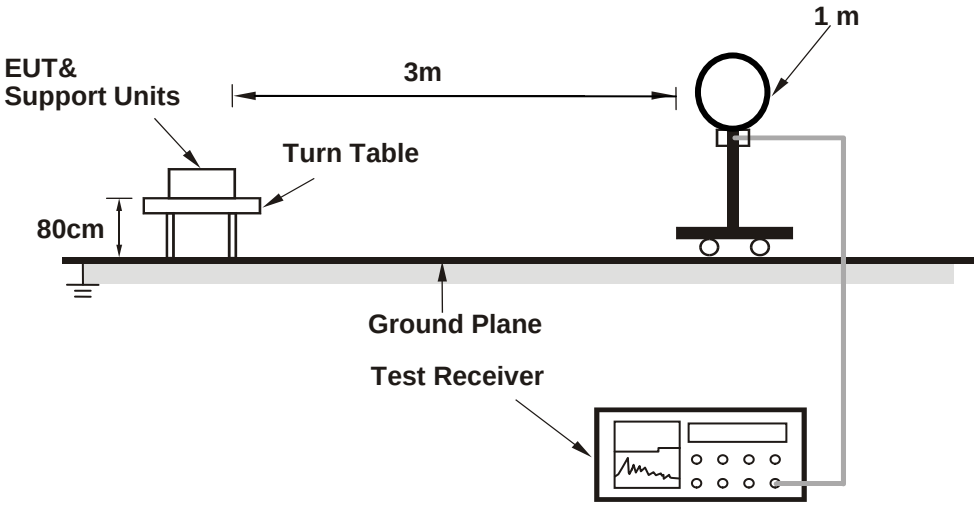
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

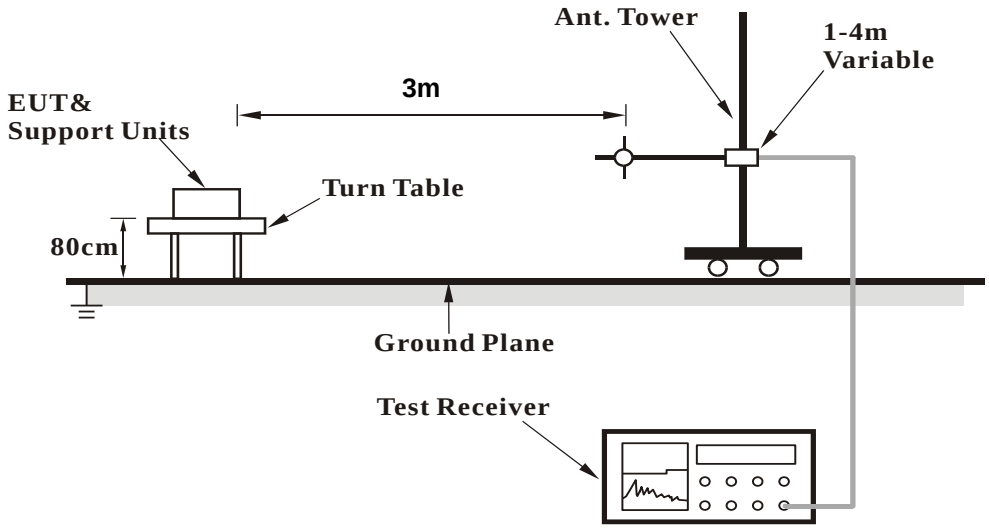
No deviation.

4.1.5 Test Setup

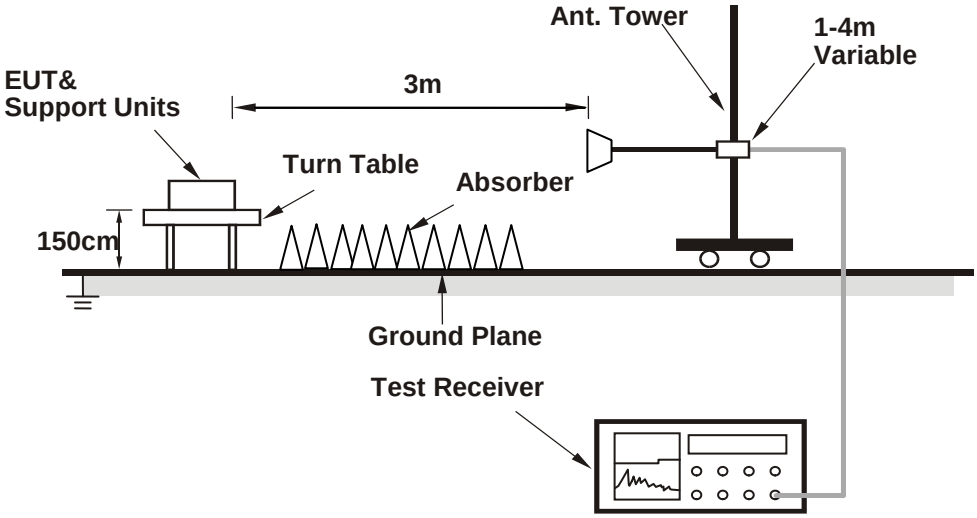
For Radiated emission below 30MHz



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 (QARCT.exe V3.0.210.0) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data:

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	50.6 PK	74.0	-23.4	2.62 H	238	46.9	3.7
2	5150.00	39.3 AV	54.0	-14.7	2.62 H	238	35.6	3.7
3	*5260.00	110.9 PK			2.62 H	238	106.9	4.0
4	*5260.00	100.0 AV			2.62 H	238	96.0	4.0
5	5350.00	50.1 PK	74.0	-23.9	2.62 H	238	46.0	4.1
6	5350.00	37.4 AV	54.0	-16.6	2.62 H	238	33.3	4.1
7	#10520.00	46.4 PK	74.0	-27.6	2.21 H	292	33.2	13.2
8	#10520.00	33.7 AV	54.0	-20.3	2.21 H	292	20.5	13.2
9	15780.00	55.3 PK	74.0	-18.7	1.68 H	164	41.7	13.6
10	15780.00	42.6 AV	54.0	-11.4	1.68 H	164	29.0	13.6
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	53.7 PK	74.0	-20.3	1.83 V	16	50.0	3.7
2	5150.00	39.9 AV	54.0	-14.1	1.83 V	16	36.2	3.7
3	*5260.00	115.2 PK			1.83 V	16	111.2	4.0
4	*5260.00	105.8 AV			1.83 V	16	101.8	4.0
5	5350.00	53.2 PK	74.0	-20.8	1.83 V	16	49.1	4.1
6	5350.00	38.5 AV	54.0	-15.5	1.83 V	16	34.4	4.1
7	#10520.00	46.0 PK	74.0	-28.0	1.58 V	309	32.8	13.2
8	#10520.00	33.5 AV	54.0	-20.5	1.58 V	309	20.3	13.2
9	15780.00	57.8 PK	74.0	-16.2	1.73 V	301	44.2	13.6
10	15780.00	45.8 AV	54.0	-8.2	1.73 V	301	32.2	13.6

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 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	111.4 PK			2.66 H	237	107.3	4.1
2	*5300.00	100.3 AV			2.66 H	237	96.2	4.1
3	5350.00	47.0 PK	74.0	-27.0	2.66 H	237	42.9	4.1
4	5350.00	38.3 AV	54.0	-15.7	2.66 H	237	34.2	4.1
5	10600.00	45.4 PK	74.0	-28.6	2.26 H	293	31.9	13.5
6	10600.00	32.9 AV	54.0	-21.1	2.26 H	293	19.4	13.5
7	15900.00	54.7 PK	74.0	-19.3	1.64 H	177	41.8	12.9
8	15900.00	41.7 AV	54.0	-12.3	1.64 H	177	28.8	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	*5300.00	115.7 PK			1.88 V	16	111.6	4.1
2	*5300.00	106.1 AV			1.88 V	16	102.0	4.1
3	5350.00	57.0 PK	74.0	-17.0	1.88 V	16	52.9	4.1
4	5350.00	46.3 AV	54.0	-7.7	1.88 V	16	42.2	4.1
5	10600.00	46.3 PK	74.0	-27.7	1.61 V	326	32.8	13.5
6	10600.00	34.0 AV	54.0	-20.0	1.61 V	326	20.5	13.5
7	15900.00	57.6 PK	74.0	-16.4	1.72 V	289	44.7	12.9
8	15900.00	46.1 AV	54.0	-7.9	1.72 V	289	33.2	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.

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	111.6 PK			2.64 H	249	107.5	4.1
2	*5320.00	99.8 AV			2.64 H	249	95.7	4.1
3	5350.00	63.2 PK	74.0	-10.8	2.64 H	249	59.1	4.1
4	5350.00	45.9 AV	54.0	-8.1	2.64 H	249	41.8	4.1
5	10640.00	45.9 PK	74.0	-28.1	2.22 H	302	32.4	13.5
6	10640.00	33.4 AV	54.0	-20.6	2.22 H	302	19.9	13.5
7	15960.00	55.0 PK	74.0	-19.0	1.68 H	173	42.1	12.9
8	15960.00	41.9 AV	54.0	-12.1	1.68 H	173	29.0	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	*5320.00	115.9 PK			1.88 V	22	111.8	4.1
2	*5320.00	105.6 AV			1.88 V	22	101.5	4.1
3	5350.00	71.2 PK	74.0	-2.8	1.88 V	22	67.1	4.1
4	**5350.00**	**53.9 AV**	**54.0**	**-0.1**	**1.88 V**	**22**	**49.8**	**4.1**
5	10640.00	45.9 PK	74.0	-28.1	1.65 V	314	32.4	13.5
6	10640.00	33.2 AV	54.0	-20.8	1.65 V	314	19.7	13.5
7	15960.00	56.6 PK	74.0	-17.4	1.63 V	301	43.7	12.9
8	15960.00	45.1 AV	54.0	-8.9	1.63 V	301	32.2	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.

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	#5470.00	63.4 PK	74.0	-10.6	2.63 H	246	59.2	4.2
2	#5470.00	44.9 AV	54.0	-9.1	2.63 H	246	40.7	4.2
3	*5500.00	112.8 PK			2.63 H	246	108.6	4.2
4	*5500.00	100.5 AV			2.63 H	246	96.3	4.2
5	11000.00	46.1 PK	74.0	-27.9	2.22 H	315	32.0	14.1
6	11000.00	33.7 AV	54.0	-20.3	2.22 H	315	19.6	14.1
7	#16500.00	55.2 PK	74.0	-18.8	1.71 H	192	40.7	14.5
8	#16500.00	42.1 AV	54.0	-11.9	1.71 H	192	27.6	14.5
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	71.5 PK	74.0	-2.5	2.12 V	360	67.3	4.2
2	#5470.00	52.9 AV	54.0	-1.1	2.12 V	360	48.7	4.2
3	*5500.00	117.1 PK			2.12 V	360	112.9	4.2
4	*5500.00	106.3 AV			2.12 V	360	102.1	4.2
5	11000.00	46.2 PK	74.0	-27.8	1.64 V	300	32.1	14.1
6	11000.00	33.9 AV	54.0	-20.1	1.64 V	300	19.8	14.1
7	#16500.00	57.2 PK	74.0	-16.8	1.69 V	288	42.7	14.5
8	#16500.00	45.7 AV	54.0	-8.3	1.69 V	288	31.2	14.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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	#5470.00	49.8 PK	74.0	-24.2	2.59 H	239	45.6	4.2
2	#5470.00	37.2 AV	54.0	-16.8	2.59 H	239	33.0	4.2
3	*5580.00	111.6 PK			2.59 H	239	107.4	4.2
4	*5580.00	101.1 AV			2.59 H	239	96.9	4.2
5	#5725.00	48.7 PK	74.0	-25.3	2.59 H	239	44.3	4.4
6	#5725.00	37.3 AV	54.0	-16.7	2.59 H	239	32.9	4.4
7	11160.00	49.5 PK	74.0	-24.5	1.64 H	247	35.8	13.7
8	11160.00	37.7 AV	54.0	-16.3	1.64 H	247	24.0	13.7
9	#16740.00	63.9 PK	74.0	-10.1	1.65 H	120	48.2	15.7
10	#16740.00	51.0 AV	54.0	-3.0	1.65 H	120	35.3	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	#5470.00	50.9 PK	74.0	-23.1	1.98 V	350	46.7	4.2
2	#5470.00	37.4 AV	54.0	-16.6	1.98 V	350	33.2	4.2
3	*5580.00	115.9 PK			1.98 V	350	111.7	4.2
4	*5580.00	106.9 AV			1.98 V	350	102.7	4.2
5	#5725.00	49.9 PK	74.0	-24.1	1.98 V	350	45.5	4.4
6	#5725.00	37.5 AV	54.0	-16.5	1.98 V	350	33.1	4.4
7	11160.00	52.6 PK	74.0	-21.4	2.52 V	53	38.9	13.7
8	11160.00	40.1 AV	54.0	-13.9	2.52 V	53	26.4	13.7
9	#16740.00	56.2 PK	74.0	-17.8	1.59 V	193	40.5	15.7
10	#16740.00	43.6 AV	54.0	-10.4	1.59 V	193	27.9	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.

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

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	110.9 PK			2.62 H	254	106.4	4.5
2	*5700.00	98.8 AV			2.62 H	254	94.3	4.5
3	#5725.00	59.4 PK	74.0	-14.6	2.62 H	254	55.0	4.4
4	#5725.00	45.2 AV	54.0	-8.8	2.62 H	254	40.8	4.4
5	11400.00	49.7 PK	74.0	-24.3	1.66 H	236	36.1	13.6
6	11400.00	37.8 AV	54.0	-16.2	1.66 H	236	24.2	13.6
7	#17100.00	64.1 PK	74.0	-9.9	1.61 H	129	46.7	17.4
8	#17100.00	51.2 AV	54.0	-2.8	1.61 H	129	33.8	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	*5700.00	115.2 PK			1.70 V	332	110.7	4.5
2	*5700.00	104.6 AV			1.70 V	332	100.1	4.5
3	#5725.00	69.2 PK	74.0	-4.8	1.70 V	332	64.8	4.4
4	#5725.00	53.6 AV	54.0	-0.4	1.70 V	332	49.2	4.4
5	11400.00	53.2 PK	74.0	-20.8	2.55 V	33	39.6	13.6
6	11400.00	40.6 AV	54.0	-13.4	2.55 V	33	27.0	13.6
7	#17100.00	56.2 PK	74.0	-17.8	1.49 V	192	38.8	17.4
8	#17100.00	43.9 AV	54.0	-10.1	1.49 V	192	26.5	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.

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

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	49.9 PK	74.0	-24.1	2.66 H	244	45.7	4.2
2	#5470.00	37.3 AV	54.0	-16.7	2.66 H	244	33.1	4.2
3	*5720.00	112.1 PK			2.66 H	244	107.7	4.4
4	*5720.00	100.8 AV			2.66 H	244	96.4	4.4
5	#5850.00	51.8 PK	74.0	-22.2	2.66 H	244	47.3	4.5
6	#5850.00	37.5 AV	54.0	-16.5	2.66 H	244	33.0	4.5
7	11440.00	49.1 PK	74.0	-24.9	1.73 H	238	35.6	13.5
8	11440.00	37.4 AV	54.0	-16.6	1.73 H	238	23.9	13.5
9	#17160.00	63.8 PK	74.0	-10.2	1.66 H	113	46.5	17.3
10	#17160.00	51.0 AV	54.0	-3.0	1.66 H	113	33.7	17.3
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	50.4 PK	74.0	-23.6	1.46 V	360	46.2	4.2
2	#5470.00	37.5 AV	54.0	-16.5	1.46 V	360	33.3	4.2
3	*5720.00	116.4 PK			1.46 V	360	112.0	4.4
4	*5720.00	106.6 AV			1.46 V	360	102.2	4.4
5	#5850.00	53.4 PK	74.0	-20.6	1.46 V	360	48.9	4.5
6	#5850.00	38.9 AV	54.0	-15.1	1.46 V	360	34.4	4.5
7	11440.00	52.5 PK	74.0	-21.5	2.56 V	32	39.0	13.5
8	11440.00	39.7 AV	54.0	-14.3	2.56 V	32	26.2	13.5
9	#17160.00	56.1 PK	74.0	-17.9	1.56 V	186	38.8	17.3
10	#17160.00	43.8 AV	54.0	-10.2	1.56 V	186	26.5	17.3

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 (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	51.4 PK	74.0	-22.6	2.62 H	227	47.7	3.7
2	5150.00	37.6 AV	54.0	-16.4	2.62 H	227	33.9	3.7
3	*5260.00	111.5 PK			2.62 H	227	107.5	4.0
4	*5260.00	99.1 AV			2.62 H	227	95.1	4.0
5	5350.00	49.8 PK	74.0	-24.2	2.62 H	227	45.7	4.1
6	5350.00	37.3 AV	54.0	-16.7	2.62 H	227	33.2	4.1
7	#10520.00	46.2 PK	74.0	-27.8	2.17 H	301	33.0	13.2
8	#10520.00	33.6 AV	54.0	-20.4	2.17 H	301	20.4	13.2
9	15780.00	46.1 PK	74.0	-27.9	1.52 H	360	32.5	13.6
10	15780.00	36.5 AV	54.0	-17.5	1.52 H	360	22.9	13.6
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	52.2 PK	74.0	-21.8	1.33 V	24	48.5	3.7
2	5150.00	38.5 AV	54.0	-15.5	1.33 V	24	34.8	3.7
3	*5260.00	115.8 PK			1.33 V	24	111.8	4.0
4	*5260.00	104.9 AV			1.33 V	24	100.9	4.0
5	5350.00	51.0 PK	74.0	-23.0	1.33 V	24	46.9	4.1
6	5350.00	37.4 AV	54.0	-16.6	1.33 V	24	33.3	4.1
7	#10520.00	46.6 PK	74.0	-27.4	1.77 V	324	33.4	13.2
8	#10520.00	33.9 AV	54.0	-20.1	1.77 V	324	20.7	13.2
9	15780.00	45.9 PK	74.0	-28.1	1.31 V	253	32.3	13.6
10	15780.00	34.1 AV	54.0	-19.9	1.31 V	253	20.5	13.6

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 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	111.4 PK			2.66 H	240	107.3	4.1
2	*5300.00	98.3 AV			2.66 H	240	94.2	4.1
3	5350.00	54.5 PK	74.0	-19.5	2.66 H	240	50.4	4.1
4	5350.00	40.9 AV	54.0	-13.1	2.66 H	240	36.8	4.1
5	10600.00	45.8 PK	74.0	-28.2	2.12 H	296	32.3	13.5
6	10600.00	33.3 AV	54.0	-20.7	2.12 H	296	19.8	13.5
7	15900.00	46.3 PK	74.0	-27.7	1.52 H	357	33.4	12.9
8	15900.00	36.8 AV	54.0	-17.2	1.52 H	357	23.9	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	*5300.00	115.7 PK			1.30 V	24	111.6	4.1
2	*5300.00	104.1 AV			1.30 V	24	100.0	4.1
3	5350.00	64.9 PK	74.0	-9.1	1.30 V	24	60.8	4.1
4	5350.00	49.4 AV	54.0	-4.6	1.30 V	24	45.3	4.1
5	10600.00	46.3 PK	74.0	-27.7	1.68 V	311	32.8	13.5
6	10600.00	33.8 AV	54.0	-20.2	1.68 V	311	20.3	13.5
7	15900.00	46.4 PK	74.0	-27.6	1.22 V	250	33.5	12.9
8	15900.00	34.1 AV	54.0	-19.9	1.22 V	250	21.2	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.

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	111.9 PK			2.69 H	245	107.8	4.1
2	*5320.00	99.2 AV			2.69 H	245	95.1	4.1
3	5355.70	60.8 PK	74.0	-13.2	2.69 H	245	56.7	4.1
4	5355.70	43.6 AV	54.0	-10.4	2.69 H	245	39.5	4.1
5	10640.00	45.9 PK	74.0	-28.1	2.14 H	310	32.4	13.5
6	10640.00	33.2 AV	54.0	-20.8	2.14 H	310	19.7	13.5
7	15960.00	46.3 PK	74.0	-27.7	1.47 H	360	33.4	12.9
8	15960.00	36.6 AV	54.0	-17.4	1.47 H	360	23.7	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	*5320.00	116.2 PK			1.74 V	7	112.1	4.1
2	*5320.00	105.0 AV			1.74 V	7	100.9	4.1
3	5355.70	71.2 PK	74.0	-2.8	1.74 V	7	67.1	4.1
4	5355.70	52.1 AV	54.0	-1.9	1.74 V	7	48.0	4.1
5	10640.00	46.6 PK	74.0	-27.4	1.67 V	315	33.1	13.5
6	10640.00	34.1 AV	54.0	-19.9	1.67 V	315	20.6	13.5
7	15960.00	47.2 PK	74.0	-26.8	1.24 V	264	34.3	12.9
8	15960.00	35.6 AV	54.0	-18.4	1.24 V	264	22.7	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.

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	#5463.20	60.3 PK	74.0	-13.7	2.72 H	239	56.1	4.2
2	#5463.20	43.4 AV	54.0	-10.6	2.72 H	239	39.2	4.2
3	*5500.00	112.0 PK			2.72 H	239	107.8	4.2
4	*5500.00	99.3 AV			2.72 H	239	95.1	4.2
5	11000.00	45.9 PK	74.0	-28.1	2.21 H	314	31.8	14.1
6	11000.00	33.2 AV	54.0	-20.8	2.21 H	314	19.1	14.1
7	#16500.00	46.4 PK	74.0	-27.6	1.57 H	360	31.9	14.5
8	#16500.00	37.0 AV	54.0	-17.0	1.57 H	360	22.5	14.5
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	#5463.20	70.7 PK	74.0	-3.3	1.80 V	10	66.5	4.2
2	#5463.20	51.9 AV	54.0	-2.1	1.80 V	10	47.7	4.2
3	*5500.00	116.3 PK			1.80 V	10	112.1	4.2
4	*5500.00	105.1 AV			1.80 V	10	100.9	4.2
5	11000.00	46.8 PK	74.0	-27.2	1.75 V	311	32.7	14.1
6	11000.00	33.9 AV	54.0	-20.1	1.75 V	311	19.8	14.1
7	#16500.00	47.6 PK	74.0	-26.4	1.31 V	257	33.1	14.5
8	#16500.00	35.1 AV	54.0	-18.9	1.31 V	257	20.6	14.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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	#5470.00	54.5 PK	74.0	-19.5	2.78 H	246	50.3	4.2
2	#5470.00	39.0 AV	54.0	-15.0	2.78 H	246	34.8	4.2
3	*5580.00	111.4 PK			2.78 H	246	107.2	4.2
4	*5580.00	99.6 AV			2.78 H	246	95.4	4.2
5	#5725.00	49.5 PK	74.0	-24.5	2.78 H	246	45.1	4.4
6	#5725.00	37.4 AV	54.0	-16.6	2.78 H	246	33.0	4.4
7	11160.00	50.0 PK	74.0	-24.0	1.68 H	240	36.3	13.7
8	11160.00	38.0 AV	54.0	-16.0	1.68 H	240	24.3	13.7
9	#16740.00	65.2 PK	74.0	-8.8	1.74 H	129	49.5	15.7
10	#16740.00	51.8 AV	54.0	-2.2	1.74 H	129	36.1	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	#5470.00	57.5 PK	74.0	-16.5	1.50 V	360	53.3	4.2
2	#5470.00	42.0 AV	54.0	-12.0	1.50 V	360	37.8	4.2
3	*5580.00	115.7 PK			1.50 V	360	111.5	4.2
4	*5580.00	105.4 AV			1.50 V	360	101.2	4.2
5	#5725.00	50.8 PK	74.0	-23.2	1.50 V	360	46.4	4.4
6	#5725.00	38.7 AV	54.0	-15.3	1.50 V	360	34.3	4.4
7	11160.00	52.9 PK	74.0	-21.1	2.54 V	61	39.2	13.7
8	11160.00	40.4 AV	54.0	-13.6	2.54 V	61	26.7	13.7
9	#16740.00	57.3 PK	74.0	-16.7	1.47 V	173	41.6	15.7
10	#16740.00	44.9 AV	54.0	-9.1	1.47 V	173	29.2	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.

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	110.8 PK			2.74 H	253	106.3	4.5
2	*5700.00	97.8 AV			2.74 H	253	93.3	4.5
3	#5725.00	59.4 PK	74.0	-14.6	2.74 H	253	55.0	4.4
4	#5725.00	45.4 AV	54.0	-8.6	2.74 H	253	41.0	4.4
5	11400.00	49.5 PK	74.0	-24.5	1.74 H	236	35.9	13.6
6	11400.00	37.4 AV	54.0	-16.6	1.74 H	236	23.8	13.6
7	#17100.00	64.3 PK	74.0	-9.7	1.68 H	99	46.9	17.4
8	#17100.00	51.4 AV	54.0	-2.6	1.68 H	99	34.0	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	*5700.00	115.1 PK			1.50 V	346	110.6	4.5
2	*5700.00	103.6 AV			1.50 V	346	99.1	4.5
3	#5725.00	69.7 PK	74.0	-4.3	1.50 V	346	65.3	4.4
4	#5725.00	53.8 AV	54.0	-0.2	1.50 V	346	49.4	4.4
5	11400.00	52.8 PK	74.0	-21.2	2.58 V	48	39.2	13.6
6	11400.00	39.9 AV	54.0	-14.1	2.58 V	48	26.3	13.6
7	#17100.00	56.7 PK	74.0	-17.3	1.47 V	163	39.3	17.4
8	#17100.00	44.3 AV	54.0	-9.7	1.47 V	163	26.9	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.

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	49.8 PK	74.0	-24.2	2.81 H	238	45.6	4.2
2	#5470.00	37.6 AV	54.0	-16.4	2.81 H	238	33.4	4.2
3	*5720.00	111.3 PK			2.81 H	238	106.9	4.4
4	*5720.00	99.0 AV			2.81 H	238	94.6	4.4
5	#5850.00	49.4 PK	74.0	-24.6	2.81 H	238	44.9	4.5
6	#5850.00	37.3 AV	54.0	-16.7	2.81 H	238	32.8	4.5
7	11440.00	50.2 PK	74.0	-23.8	1.75 H	218	36.7	13.5
8	11440.00	38.1 AV	54.0	-15.9	1.75 H	218	24.6	13.5
9	#17160.00	64.8 PK	74.0	-9.2	1.70 H	102	47.5	17.3
10	#17160.00	51.8 AV	54.0	-2.2	1.70 H	102	34.5	17.3
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	51.2 PK	74.0	-22.8	1.50 V	360	47.0	4.2
2	#5470.00	39.1 AV	54.0	-14.9	1.50 V	360	34.9	4.2
3	*5720.00	115.6 PK			1.50 V	360	111.2	4.4
4	*5720.00	104.8 AV			1.50 V	360	100.4	4.4
5	#5850.00	51.4 PK	74.0	-22.6	1.50 V	360	46.9	4.5
6	#5850.00	39.0 AV	54.0	-15.0	1.50 V	360	34.5	4.5
7	11440.00	53.0 PK	74.0	-21.0	2.59 V	57	39.5	13.5
8	11440.00	40.1 AV	54.0	-13.9	2.59 V	57	26.6	13.5
9	#17160.00	57.3 PK	74.0	-16.7	1.44 V	165	40.0	17.3
10	#17160.00	44.6 AV	54.0	-9.4	1.44 V	165	27.3	17.3

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 (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	45.2 PK	74.0	-28.8	2.61 H	226	41.5	3.7
2	5150.00	37.3 AV	54.0	-16.7	2.61 H	226	33.6	3.7
3	*5270.00	108.8 PK			2.61 H	226	104.8	4.0
4	*5270.00	98.1 AV			2.61 H	226	94.1	4.0
5	5350.00	55.6 PK	74.0	-18.4	2.61 H	226	51.5	4.1
6	5350.00	43.6 AV	54.0	-10.4	2.61 H	226	39.5	4.1
7	#10540.00	46.2 PK	74.0	-27.8	2.21 H	327	32.9	13.3
8	#10540.00	33.6 AV	54.0	-20.4	2.21 H	327	20.3	13.3
9	15810.00	48.4 PK	74.0	-25.6	1.47 H	360	35.0	13.4
10	15810.00	35.5 AV	54.0	-18.5	1.47 H	360	22.1	13.4
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	55.3 PK	74.0	-18.7	1.95 V	14	51.6	3.7
2	5150.00	41.8 AV	54.0	-12.2	1.95 V	14	38.1	3.7
3	*5270.00	113.1 PK			1.95 V	14	109.1	4.0
4	*5270.00	103.9 AV			1.95 V	14	99.9	4.0
5	5350.00	65.9 PK	74.0	-8.1	1.95 V	14	61.8	4.1
6	5350.00	52.0 AV	54.0	-2.0	1.95 V	14	47.9	4.1
7	#10540.00	46.9 PK	74.0	-27.1	1.67 V	300	33.6	13.3
8	#10540.00	33.9 AV	54.0	-20.1	1.67 V	300	20.6	13.3
9	15810.00	47.2 PK	74.0	-26.8	1.27 V	257	33.8	13.4
10	15810.00	34.4 AV	54.0	-19.6	1.27 V	257	21.0	13.4

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 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	106.1 PK			2.57 H	240	102.0	4.1
2	*5310.00	95.6 AV			2.57 H	240	91.5	4.1
3	5350.00	57.5 PK	74.0	-16.5	2.57 H	240	53.4	4.1
4	5350.00	45.3 AV	54.0	-8.7	2.57 H	240	41.2	4.1
5	10620.00	46.9 PK	74.0	-27.1	2.16 H	303	33.4	13.5
6	10620.00	34.2 AV	54.0	-19.8	2.16 H	303	20.7	13.5
7	15930.00	48.1 PK	74.0	-25.9	1.45 H	360	35.3	12.8
8	15930.00	35.2 AV	54.0	-18.8	1.45 H	360	22.4	12.8
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	110.4 PK			2.00 V	11	106.3	4.1
2	*5310.00	101.4 AV			2.00 V	11	97.3	4.1
3	5350.00	67.8 PK	74.0	-6.2	2.00 V	11	63.7	4.1
4	5350.00	53.7 AV	54.0	-0.3	2.00 V	11	49.6	4.1
5	10620.00	45.9 PK	74.0	-28.1	1.70 V	305	32.4	13.5
6	10620.00	33.2 AV	54.0	-20.8	1.70 V	305	19.7	13.5
7	15930.00	47.4 PK	74.0	-26.6	1.33 V	258	34.6	12.8
8	15930.00	34.7 AV	54.0	-19.3	1.33 V	258	21.9	12.8

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	#5464.70	61.7 PK	74.0	-12.3	2.54 H	255	57.5	4.2
2	#5464.70	45.5 AV	54.0	-8.5	2.54 H	255	41.3	4.2
3	*5510.00	106.9 PK			2.54 H	255	102.7	4.2
4	*5510.00	96.2 AV			2.54 H	255	92.0	4.2
5	11020.00	46.6 PK	74.0	-27.4	2.18 H	308	32.6	14.0
6	11020.00	34.2 AV	54.0	-19.8	2.18 H	308	20.2	14.0
7	#16530.00	47.9 PK	74.0	-26.1	1.43 H	360	33.0	14.9
8	#16530.00	35.0 AV	54.0	-19.0	1.43 H	360	20.1	14.9
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	#5464.70	72.0 PK	74.0	-2.0	1.50 V	5	67.8	4.2
2	#5464.70	53.8 AV	54.0	-0.2	1.50 V	5	49.6	4.2
3	*5510.00	111.2 PK			1.50 V	5	107.0	4.2
4	*5510.00	102.0 AV			1.50 V	5	97.8	4.2
5	11020.00	46.2 PK	74.0	-27.8	1.71 V	326	32.2	14.0
6	11020.00	33.3 AV	54.0	-20.7	1.71 V	326	19.3	14.0
7	#16530.00	47.1 PK	74.0	-26.9	1.34 V	248	32.2	14.9
8	#16530.00	34.2 AV	54.0	-19.8	1.34 V	248	19.3	14.9

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 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	#5465.00	55.9 PK	74.0	-18.1	2.58 H	246	51.7	4.2
2	#5465.00	42.7 AV	54.0	-11.3	2.58 H	246	38.5	4.2
3	*5550.00	109.2 PK			2.58 H	246	105.0	4.2
4	*5550.00	97.5 AV			2.58 H	246	93.3	4.2
5	#5725.00	47.8 PK	74.0	-26.2	2.58 H	246	43.4	4.4
6	#5725.00	37.3 AV	54.0	-16.7	2.58 H	246	32.9	4.4
7	11100.00	50.3 PK	74.0	-23.7	1.80 H	221	36.5	13.8
8	11100.00	38.5 AV	54.0	-15.5	1.80 H	221	24.7	13.8
9	#16650.00	64.7 PK	74.0	-9.3	1.67 H	117	49.1	15.6
10	#16650.00	51.9 AV	54.0	-2.1	1.67 H	117	36.3	15.6
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	#5465.00	66.2 PK	74.0	-7.8	1.88 V	7	62.0	4.2
2	#5465.00	51.1 AV	54.0	-2.9	1.88 V	7	46.9	4.2
3	*5550.00	113.5 PK			1.88 V	7	109.3	4.2
4	*5550.00	103.3 AV			1.88 V	7	99.1	4.2
5	#5725.00	48.9 PK	74.0	-25.1	1.88 V	7	44.5	4.4
6	#5725.00	37.5 AV	54.0	-16.5	1.88 V	7	33.1	4.4
7	11100.00	52.3 PK	74.0	-21.7	2.57 V	37	38.5	13.8
8	11100.00	39.4 AV	54.0	-14.6	2.57 V	37	25.6	13.8
9	#16650.00	56.1 PK	74.0	-17.9	1.47 V	203	40.5	15.6
10	#16650.00	44.0 AV	54.0	-10.0	1.47 V	203	28.4	15.6

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 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	108.0 PK			2.55 H	261	103.7	4.3
2	*5670.00	95.3 AV			2.55 H	261	91.0	4.3
3	#5725.00	58.0 PK	74.0	-16.0	2.55 H	261	53.6	4.4
4	#5725.00	45.3 AV	54.0	-8.7	2.55 H	261	40.9	4.4
5	11340.00	50.2 PK	74.0	-23.8	1.74 H	212	36.6	13.6
6	11340.00	38.3 AV	54.0	-15.7	1.74 H	212	24.7	13.6
7	#17010.00	64.6 PK	74.0	-9.4	1.68 H	104	47.5	17.1
8	#17010.00	51.9 AV	54.0	-2.1	1.68 H	104	34.8	17.1
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	*5670.00	112.3 PK			1.50 V	2	108.0	4.3
2	*5670.00	101.1 AV			1.50 V	2	96.8	4.3
3	#5725.00	68.4 PK	74.0	-5.6	1.50 V	2	64.0	4.4
4	#5725.00	53.7 AV	54.0	-0.3	1.50 V	2	49.3	4.4
5	11340.00	52.8 PK	74.0	-21.2	2.56 V	36	39.2	13.6
6	11340.00	39.9 AV	54.0	-14.1	2.56 V	36	26.3	13.6
7	#17010.00	56.2 PK	74.0	-17.8	1.46 V	188	39.1	17.1
8	#17010.00	44.0 AV	54.0	-10.0	1.46 V	188	26.9	17.1

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.

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

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	48.5 PK	74.0	-25.5	2.56 H	251	44.3	4.2
2	#5470.00	37.3 AV	54.0	-16.7	2.56 H	251	33.1	4.2
3	*5710.00	110.0 PK			2.56 H	251	105.5	4.5
4	*5710.00	97.3 AV			2.56 H	251	92.8	4.5
5	#5850.00	53.1 PK	74.0	-20.9	2.56 H	251	48.6	4.5
6	#5850.00	39.2 AV	54.0	-14.8	2.56 H	251	34.7	4.5
7	11420.00	50.1 PK	74.0	-23.9	1.69 H	229	36.5	13.6
8	11420.00	37.9 AV	54.0	-16.1	1.69 H	229	24.3	13.6
9	#17130.00	64.2 PK	74.0	-9.8	1.69 H	94	46.8	17.4
10	#17130.00	51.3 AV	54.0	-2.7	1.69 H	94	33.9	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	#5470.00	48.6 PK	74.0	-25.4	1.58 V	32	44.4	4.2
2	#5470.00	37.4 AV	54.0	-16.6	1.58 V	32	33.2	4.2
3	*5710.00	114.3 PK			1.58 V	32	109.8	4.5
4	*5710.00	103.1 AV			1.58 V	32	98.6	4.5
5	#5850.00	55.2 PK	74.0	-18.8	1.58 V	32	50.7	4.5
6	#5850.00	40.5 AV	54.0	-13.5	1.58 V	32	36.0	4.5
7	11420.00	52.6 PK	74.0	-21.4	2.60 V	32	39.0	13.6
8	11420.00	39.7 AV	54.0	-14.3	2.60 V	32	26.1	13.6
9	#17130.00	56.7 PK	74.0	-17.3	1.48 V	186	39.3	17.4
10	#17130.00	44.5 AV	54.0	-9.5	1.48 V	186	27.1	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 (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	49.9 PK	74.0	-24.1	2.58 H	238	46.2	3.7
2	5150.00	37.4 AV	54.0	-16.6	2.58 H	238	33.7	3.7
3	*5290.00	102.8 PK			2.58 H	238	98.7	4.1
4	*5290.00	90.3 AV			2.58 H	238	86.2	4.1
5	5366.20	61.0 PK	74.0	-13.0	2.58 H	238	56.9	4.1
6	5366.20	45.3 AV	54.0	-8.7	2.58 H	238	41.2	4.1
7	#10580.00	45.4 PK	74.0	-28.6	2.20 H	291	32.0	13.4
8	#10580.00	33.0 AV	54.0	-21.0	2.20 H	291	19.6	13.4
9	15870.00	48.8 PK	74.0	-25.2	1.55 H	355	35.8	13.0
10	15870.00	37.0 AV	54.0	-17.0	1.55 H	355	24.0	13.0
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	55.9 PK	74.0	-18.1	1.50 V	10	52.2	3.7
2	5150.00	43.2 AV	54.0	-10.8	1.50 V	10	39.5	3.7
3	*5290.00	107.1 PK			1.50 V	10	103.0	4.1
4	*5290.00	96.1 AV			1.50 V	10	92.0	4.1
5	5366.20	71.1 PK	74.0	-2.9	1.50 V	10	67.0	4.1
6	5366.20	53.7 AV	54.0	-0.3	1.50 V	10	49.6	4.1
7	#10580.00	46.4 PK	74.0	-27.6	1.70 V	322	33.0	13.4
8	#10580.00	34.4 AV	54.0	-19.6	1.70 V	322	21.0	13.4
9	15870.00	47.8 PK	74.0	-26.2	1.24 V	241	34.8	13.0
10	15870.00	35.4 AV	54.0	-18.6	1.24 V	241	22.4	13.0

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

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	#5465.10	61.5 PK	74.0	-12.5	2.54 H	253	57.3	4.2
2	#5465.10	45.5 AV	54.0	-8.5	2.54 H	253	41.3	4.2
3	*5530.00	103.6 PK			2.54 H	253	99.4	4.2
4	*5530.00	91.5 AV			2.54 H	253	87.3	4.2
5	#5725.00	48.1 PK	74.0	-25.9	2.54 H	253	43.7	4.4
6	#5725.00	37.4 AV	54.0	-16.6	2.54 H	253	33.0	4.4
7	11060.00	45.7 PK	74.0	-28.3	2.17 H	278	31.8	13.9
8	11060.00	33.1 AV	54.0	-20.9	2.17 H	278	19.2	13.9
9	#16590.00	48.3 PK	74.0	-25.7	1.55 H	339	32.7	15.6
10	#16590.00	36.8 AV	54.0	-17.2	1.55 H	339	21.2	15.6
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	#5465.10	71.8 PK	74.0	-2.2	1.50 V	5	67.6	4.2
2	**#5465.10**	**53.9 AV**	**54.0**	**-0.1**	**1.50 V**	**5**	**49.7**	**4.2**
3	*5530.00	107.9 PK			1.50 V	5	103.7	4.2
4	*5530.00	97.3 AV			1.50 V	5	93.1	4.2
5	#5725.00	51.1 PK	74.0	-22.9	1.50 V	5	46.7	4.4
6	#5725.00	40.1 AV	54.0	-13.9	1.50 V	5	35.7	4.4
7	11060.00	46.1 PK	74.0	-27.9	1.72 V	332	32.2	13.9
8	11060.00	34.1 AV	54.0	-19.9	1.72 V	332	20.2	13.9
9	#16590.00	47.9 PK	74.0	-26.1	1.30 V	251	32.3	15.6
10	#16590.00	35.2 AV	54.0	-18.8	1.30 V	251	19.6	15.6

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 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	106.0 PK			2.53 H	256	101.6	4.4
2	*5610.00	92.8 AV			2.53 H	256	88.4	4.4
3	#5725.00	58.2 PK	74.0	-15.8	2.53 H	256	53.8	4.4
4	#5725.00	45.4 AV	54.0	-8.6	2.53 H	256	41.0	4.4
5	11220.00	49.3 PK	74.0	-24.7	1.71 H	221	35.6	13.7
6	11220.00	37.0 AV	54.0	-17.0	1.71 H	221	23.3	13.7
7	#16830.00	65.2 PK	74.0	-8.8	1.72 H	89	49.3	15.9
8	#16830.00	52.0 AV	54.0	-2.0	1.72 H	89	36.1	15.9
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	*5610.00	110.3 PK			1.80 V	0	105.9	4.4
2	*5610.00	98.6 AV			1.80 V	0	94.2	4.4
3	#5725.00	68.4 PK	74.0	-5.6	1.80 V	0	64.0	4.4
4	#5725.00	53.7 AV	54.0	-0.3	1.80 V	0	49.3	4.4
5	11220.00	52.4 PK	74.0	-21.6	2.48 V	73	38.7	13.7
6	11220.00	39.5 AV	54.0	-14.5	2.48 V	73	25.8	13.7
7	#16830.00	56.7 PK	74.0	-17.3	1.41 V	175	40.8	15.9
8	#16830.00	44.1 AV	54.0	-9.9	1.41 V	175	28.2	15.9

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	49.8 PK	74.0	-24.2	2.57 H	238	45.6	4.2
2	#5470.00	37.4 AV	54.0	-16.6	2.57 H	238	33.2	4.2
3	*5690.00	105.3 PK			2.57 H	238	100.8	4.5
4	*5690.00	92.8 AV			2.57 H	238	88.3	4.5
5	#5853.40	59.0 PK	74.0	-15.0	2.57 H	238	54.5	4.5
6	#5853.40	44.1 AV	54.0	-9.9	2.57 H	238	39.6	4.5
7	11380.00	48.9 PK	74.0	-25.1	1.78 H	215	35.3	13.6
8	11380.00	36.7 AV	54.0	-17.3	1.78 H	215	23.1	13.6
9	#17070.00	65.3 PK	74.0	-8.7	1.75 H	88	48.0	17.3
10	#17070.00	51.9 AV	54.0	-2.1	1.75 H	88	34.6	17.3
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	51.2 PK	74.0	-22.8	1.80 V	36	47.0	4.2
2	#5470.00	39.7 AV	54.0	-14.3	1.80 V	36	35.5	4.2
3	*5690.00	109.6 PK			1.80 V	36	105.1	4.5
4	*5690.00	98.6 AV			1.80 V	36	94.1	4.5
5	#5853.40	67.1 PK	74.0	-6.9	1.80 V	36	62.6	4.5
6	#5853.40	52.1 AV	54.0	-1.9	1.80 V	36	47.6	4.5
7	11380.00	52.7 PK	74.0	-21.3	2.55 V	73	39.1	13.6
8	11380.00	39.9 AV	54.0	-14.1	2.55 V	73	26.3	13.6
9	#17070.00	56.4 PK	74.0	-17.6	1.38 V	156	39.1	17.3
10	#17070.00	44.1 AV	54.0	-9.9	1.38 V	156	26.8	17.3

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.

Below 1GHz Data:

802.11ac (VHT40)

CHANNEL	TX Channel 110	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	125.01	35.4 QP	43.5	-8.1	1.50 H	78	45.1	-9.7
2	143.34	30.2 QP	43.5	-13.3	2.00 H	87	38.4	-8.2
3	250.02	28.3 QP	46.0	-17.7	1.00 H	61	37.8	-9.5
4	356.70	31.7 QP	46.0	-14.3	1.00 H	104	38.1	-6.4
5	447.44	26.5 QP	46.0	-19.5	2.00 H	72	30.2	-3.7
6	649.73	29.3 QP	46.0	-16.7	1.00 H	343	29.4	-0.1
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	50.43	35.7 QP	40.0	-4.3	1.00 V	319	44.0	-8.3
2	104.71	34.7 QP	43.5	-8.8	1.00 V	253	46.5	-11.8
3	125.01	40.2 QP	43.5	-3.3	1.00 V	227	49.9	-9.7
4	250.02	28.5 QP	46.0	-17.5	1.00 V	360	38.0	-9.5
5	356.72	31.5 QP	46.0	-14.5	1.00 V	154	37.9	-6.4
6	644.37	31.3 QP	46.0	-14.7	2.00 V	350	31.5	-0.2

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

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	Nov. 01, 2017	Oct. 31, 2018
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Nov. 15, 2017	Nov. 14, 2018
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 03, 2017	June 02, 2018
50 ohms Terminator	N/A	EMC-02	Sep. 22, 2017	Sep. 21, 2018
RF Cable	5D-FB	COCCAB-001	Sep. 29, 2017	Sep. 28, 2018
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 18, 2017	June 17, 2018
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 Shielded Room No. 1.
3 Tested Date: Dec. 12, 2017

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.

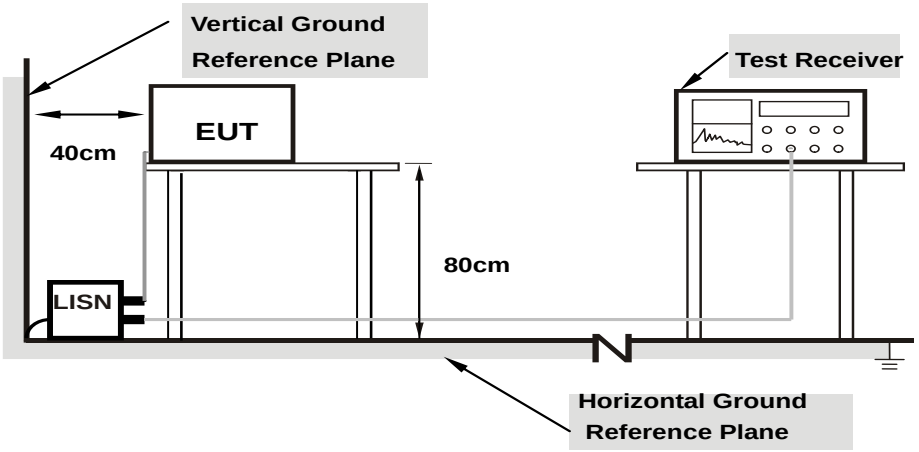
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

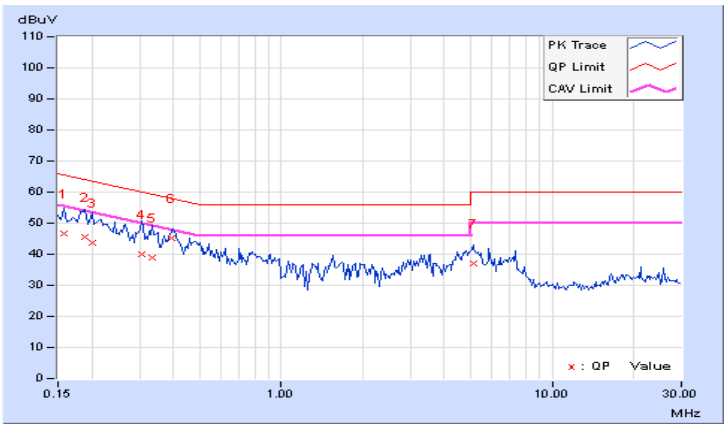
4.2.7 Test Results (Mode 1)

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	0.15781	10.08	36.45	26.38	46.53	36.46	65.58	55.58	-19.05	-19.12
2	0.18906	10.07	35.35	20.94	45.42	31.01	64.08	54.08	-18.66	-23.07
3	0.20078	10.07	33.67	21.54	43.74	31.61	63.58	53.58	-19.84	-21.97
4	0.30625	10.10	29.75	16.95	39.85	27.05	60.07	50.07	-20.22	-23.02
5	0.33359	10.10	28.80	16.70	38.90	26.80	59.36	49.36	-20.46	-22.56
6	0.39609	10.12	34.95	26.02	45.07	36.14	57.93	47.93	-12.86	-11.79
7	5.15234	10.44	26.63	18.28	37.07	28.72	60.00	50.00	-22.93	-21.28

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.

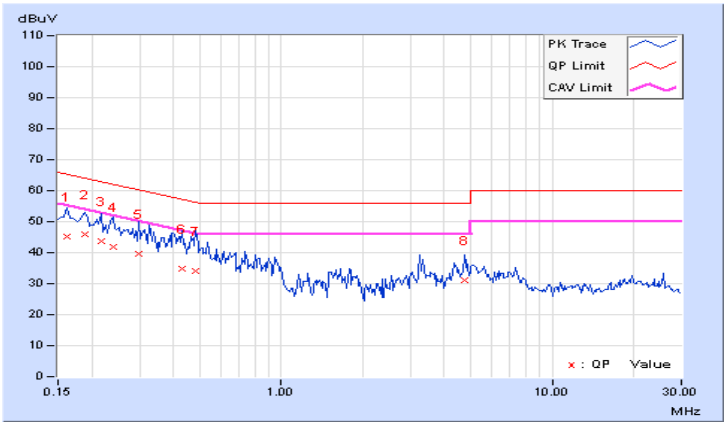


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.16172	10.07	34.95	21.28	45.02	31.35	65.38	55.38	-20.36	-24.03
2	0.18906	10.05	35.75	20.56	45.80	30.61	64.08	54.08	-18.28	-23.47
3	0.21641	10.05	33.59	20.38	43.64	30.43	62.96	52.96	-19.32	-22.53
4	0.23984	10.06	31.70	20.71	41.76	30.77	62.10	52.10	-20.34	-21.33
5	0.29844	10.08	29.63	16.79	39.71	26.87	60.29	50.29	-20.58	-23.42
6	0.43125	10.12	24.73	9.49	34.85	19.61	57.23	47.23	-22.38	-27.62
7	0.48203	10.12	24.12	12.98	34.24	23.10	56.30	46.30	-22.06	-23.20
8	4.74219	10.32	20.73	12.69	31.05	23.01	56.00	46.00	-24.95	-22.99

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.



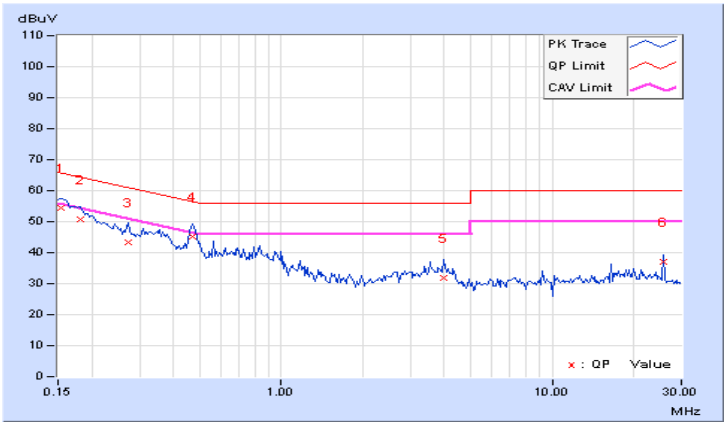
4.2.8 Test Results (Mode 2)

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	0.15391	10.08	44.21	32.54	54.29	42.62	65.79	55.79	-11.50	-13.17
2	0.18125	10.08	40.58	28.06	50.66	38.14	64.43	54.43	-13.77	-16.29
3	0.27109	10.09	33.17	23.14	43.26	33.23	61.08	51.08	-17.82	-17.85
4	0.47031	10.13	35.24	29.65	45.37	39.78	56.51	46.51	-11.14	-6.73
5	3.98438	10.36	21.51	15.31	31.87	25.67	56.00	46.00	-24.13	-20.33
6	25.87500	11.67	25.36	21.61	37.03	33.28	60.00	50.00	-22.97	-16.72

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.

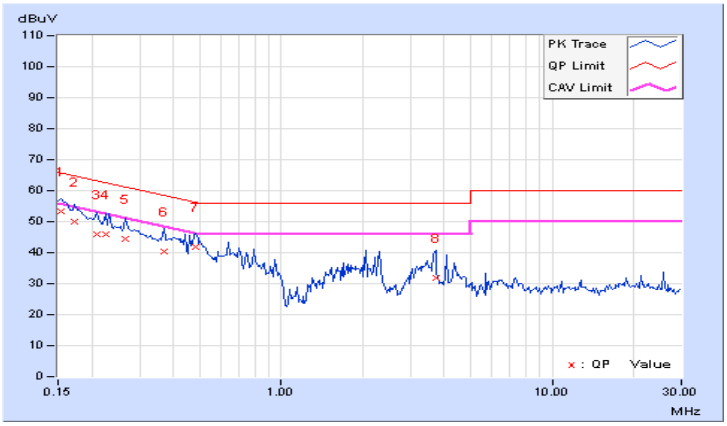


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	10.07	43.39	31.64	53.46	41.71	65.79	55.79	-12.33	-14.08
2	0.17344	10.06	39.99	27.14	50.05	37.20	64.79	54.79	-14.74	-17.59
3	0.20859	10.04	35.95	22.19	45.99	32.23	63.26	53.26	-17.27	-21.03
4	0.22422	10.05	35.72	21.86	45.77	31.91	62.66	52.66	-16.89	-20.75
5	0.26719	10.07	34.19	19.79	44.26	29.86	61.20	51.20	-16.94	-21.34
6	0.36875	10.11	30.42	14.94	40.53	25.05	58.53	48.53	-18.00	-23.48
7	0.48203	10.12	31.59	20.40	41.71	30.52	56.30	46.30	-14.59	-15.78
8	3.74219	10.25	21.66	10.84	31.91	21.09	56.00	46.00	-24.09	-24.91

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.



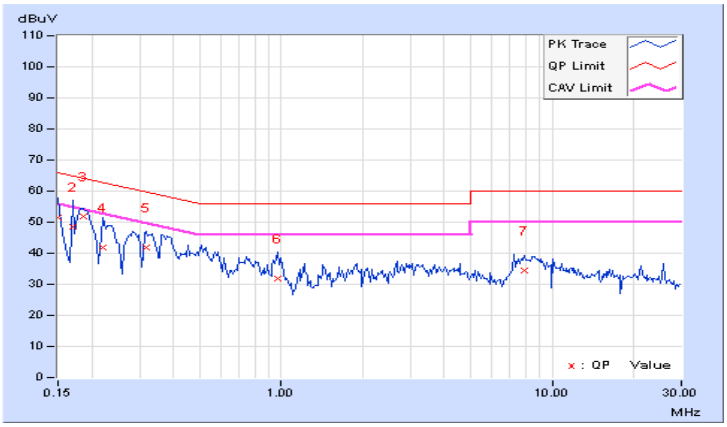
4.2.9 Test Results (Mode 3)

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	10.09	41.46	26.48	51.55	36.57	66.00	56.00	-14.45	-19.43
2	0.16953	10.08	38.26	15.17	48.34	25.25	64.98	54.98	-16.64	-29.73
3	0.18516	10.07	41.67	29.62	51.74	39.69	64.25	54.25	-12.51	-14.56
4	0.22031	10.08	31.64	13.88	41.72	23.96	62.81	52.81	-21.09	-28.85
5	0.31797	10.10	31.82	19.24	41.92	29.34	59.76	49.76	-17.84	-20.42
6	0.96641	10.17	21.55	16.35	31.72	26.52	56.00	46.00	-24.28	-19.48
7	7.89844	10.64	23.93	16.54	34.57	27.18	60.00	50.00	-25.43	-22.82

REMARKS:

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

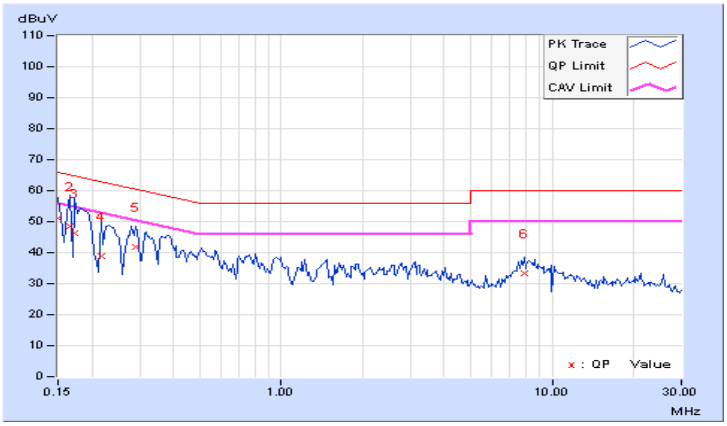


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15000	10.08	41.14	26.08	51.22	36.16	66.00	56.00	-14.78	-19.84
2	0.16562	10.06	38.46	14.44	48.52	24.50	65.18	55.18	-16.66	-30.68
3	0.17344	10.06	36.14	17.89	46.20	27.95	64.79	54.79	-18.59	-26.84
4	0.21641	10.05	28.69	10.39	38.74	20.44	62.96	52.96	-24.22	-32.52
5	0.29063	10.08	31.76	23.11	41.84	33.19	60.51	50.51	-18.67	-17.32
6	7.89063	10.55	22.77	16.36	33.32	26.91	60.00	50.00	-26.68	-23.09

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.



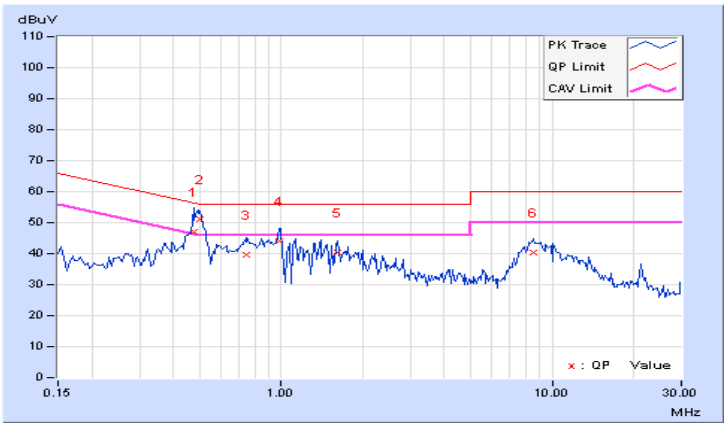
4.2.10 Test Results (Mode 4)

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	0.47422	10.13	36.80	28.55	46.93	38.68	56.44	46.44	-9.51	-7.76
2	**0.50075**	**10.13**	**40.88**	**32.75**	**51.01**	**42.88**	**56.00**	**46.00**	**-4.99**	**-3.12**
3	0.73984	10.15	29.43	18.68	39.58	28.83	56.00	46.00	-16.42	-17.17
4	0.97966	10.17	33.80	22.40	43.97	32.57	56.00	46.00	-12.03	-13.43
5	1.61719	10.17	30.20	20.65	40.37	30.82	56.00	46.00	-15.63	-15.18
6	8.53125	10.68	29.86	19.94	40.54	30.62	60.00	50.00	-19.46	-19.38

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.

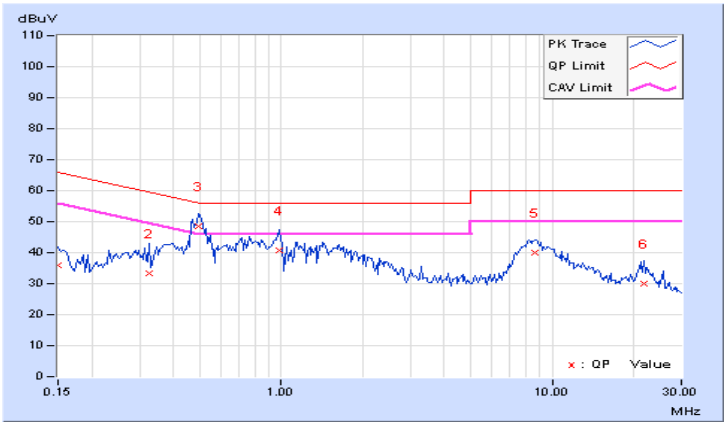


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15000	10.08	25.91	14.65	35.99	24.73	66.00	56.00	-30.01	-31.27
2	0.32578	10.09	23.14	10.83	33.23	20.92	59.56	49.56	-26.33	-28.64
3	0.49450	10.12	38.55	27.19	48.67	37.31	56.09	46.09	-7.42	-8.78
4	0.98203	10.13	30.48	18.67	40.61	28.80	56.00	46.00	-15.39	-17.20
5	8.64063	10.61	29.53	18.68	40.14	29.29	60.00	50.00	-19.86	-20.71
6	21.92578	11.28	18.71	5.72	29.99	17.00	60.00	50.00	-30.01	-33.00

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,

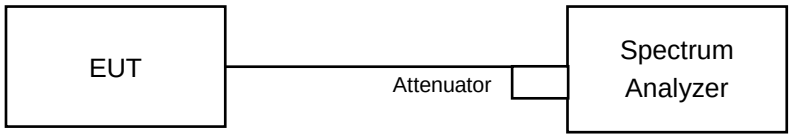
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

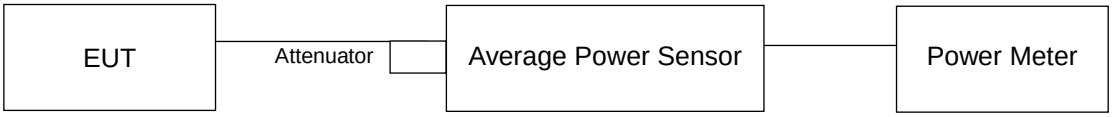
4.3.2 Test Setup

FOR POWER OUTPUT MEASUREMENT

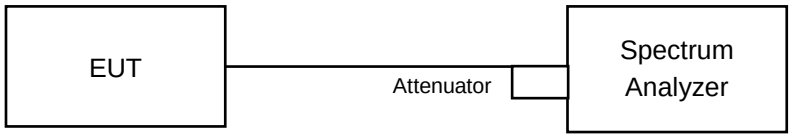
For channel straddling 5725MHz:



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 Average Power Measurement

For channel straddling 5725MHz:

802.11ac (VHT20)

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.

Other Modulation mode

Method SA-2

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

For other channels:

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

FOR 26dB OCCUPIED BANDWIDTH

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Condition

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

4.3.7 Test Result

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				
52	5260	20.34	20.07	209.768	23.22	24.00	Pass
60	5300	20.38	20.04	210.069	23.22	23.92	Pass
64	5320	20.31	20.09	209.493	23.21	23.97	Pass
100	5500	20.15	20.10	205.843	23.14	23.91	Pass
116	5580	20.50	20.30	219.354	23.41	23.88	Pass
140	5700	17.92	17.87	123.179	20.91	23.86	Pass
*144 (UNII-2C Band)	5720	16.35	16.00	86.157	19.35	22.66	Pass
*144 (UNII-3 Band)	5720	10.24	10.37	22.283	13.48	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	108.44	20.35
Note: The total power was calculated through formula and record the value for reference only.			

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.15	20.03
60	5300	20.31	19.63
64	5320	19.86	19.82
100	5500	20.37	19.56
116	5580	20.81	19.41
140	5700	19.49	19.34
144 (UNII-2C Band)	5720	15.14	14.66

Note: For U_NII-2A, U_NII-2C Band output power limitation is determined based on 26dBc bandwidt

Power Limit = 11dBm + 10logB < U_NII-2A, U_NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.03	24.01 > 24
60	5300	19.63	23.92 < 24
64	5320	19.82	23.97 < 24
100	5500	19.56	23.91 < 24
116	5580	19.41	23.88 < 24
140	5700	19.34	23.86 < 24
144 (UNII-2C Band)	5720	14.66	22.66 < 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				
52	5260	20.24	20.13	208.721	23.20	24.00	Pass
60	5300	20.27	20.10	208.743	23.20	24.00	Pass
64	5320	20.20	20.16	208.466	23.19	24.00	Pass
100	5500	20.52	20.23	218.159	23.39	24.00	Pass
116	5580	20.50	20.02	212.664	23.28	24.00	Pass
140	5700	17.85	17.64	119.03	20.76	24.00	Pass
*144 (UNII-2C Band)	5720	16.81	15.87	86.61	19.38	22.83	Pass
*144 (UNII-3 Band)	5720	11.40	12.16	30.248	14.81	30.00	Pass

Note: 1. * 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	116.858	20.68
Note: The total power was calculated through formula and record the value for reference only.			

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.68	20.67
60	5300	20.65	20.43
64	5320	20.58	20.58
100	5500	20.95	20.61
116	5580	20.76	20.75
140	5700	20.43	20.54
144 (UNII-2C Band)	5720	15.27	15.28

Note: For U_NII-2A, U_NII-2C Band output power limitation is determined based on 26dBc bandwidt

Power Limit = 11dBm + 10logB < U_NII-2A, U_NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.67	24.15 > 24
60	5300	20.43	24.1 > 24
64	5320	20.58	24.13 > 24
100	5500	20.61	24.14 > 24
116	5580	20.75	24.17 > 24
140	5700	20.43	24.1 > 24
144 (UNII-2C Band)	5720	15.27	22.83 < 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				
54	5270	20.85	20.74	240.196	23.81	24.00	Pass
62	5310	18.51	18.23	137.485	21.38	24.00	Pass
102	5510	18.92	18.68	151.773	21.81	24.00	Pass
110	5550	20.73	20.65	234.449	23.70	24.00	Pass
134	5670	19.50	19.38	175.821	22.45	24.00	Pass
*142 (UNII-2C Band)	5710	17.66	17.69	121.463	20.84	24.00	Pass
*142 (UNII-3 Band)	5710	6.42	3.96	7.13	8.53	30.00	Pass

Note: 1. * 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	128.593	21.09
Note: The total power was calculated through formula and record the value for reference only.			

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	41.50	47.30
62	5310	41.18	41.13
102	5510	41.06	40.35
110	5550	41.48	40.42
134	5670	41.08	40.03
142 (UNII-2C Band)	5710	41.86	41.23

Note: For U_NII-2A, U_NII-2C Band output power limitation is determined based on 26dBc bandwidtl

Power Limit = 11dBm + 10logB < U_NII-2A, U_NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	41.50	27.18 > 24
62	5310	41.13	27.14 > 24
102	5510	40.35	27.05 > 24
110	5550	40.42	27.06 > 24
134	5670	40.03	27.02 > 24
142 (UNII-2C Band)	5710	41.23	27.15 > 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				
58	5290	18.32	18.10	132.485	21.22	24.00	Pass
106	5530	18.73	18.40	143.828	21.58	24.00	Pass
122	5610	20.31	20.24	213.081	23.29	24.00	Pass
*138 (UNII-2C Band)	5690	16.84	16.82	103.354	20.14	24.00	Pass
*138 (UNII-3 Band)	5690	4.10	0.34	3.915	5.93	30.00	Pass

Note: 1. * 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	107.269	20.3
Note: The total power was calculated through formula and record the value for reference only.			

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	84.15	85.67
106	5530	84.65	82.84
122	5610	84.58	83.25
138 (UNII-2C Band)	5690	76.29	76.88

Note: For U_NII-2A, U_NII-2C Band output power limitation is determined based on 26dBc bandwidtl

Power Limit = 11dBm + 10logB < U_NII-2A, U_NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	84.15	30.25 > 24
106	5530	82.84	30.18 > 24
122	5610	83.25	30.2 > 24
138 (UNII-2C Band)	5690	76.29	29.82 > 24

Beamforming Mode

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				
52	5260	20.24	20.13	208.721	23.20	23.44	Pass
60	5300	20.27	20.10	208.743	23.20	23.44	Pass
64	5320	20.20	20.16	208.466	23.19	23.44	Pass
100	5500	20.52	20.23	218.159	23.39	23.44	Pass
116	5580	20.50	20.02	212.664	23.28	23.44	Pass
140	5700	17.85	17.64	119.03	20.76	23.44	Pass
*144 (UNII-2C Band)	5720	16.81	15.87	86.61	19.38	22.27	Pass
*144 (UNII-3 Band)	5720	11.40	12.16	30.248	14.81	29.44	Pass

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

2. For UNII-2A, UNII-2C: Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power limit shall be reduced to “Determined Conducted Limit” -(6.56-6).

3. For UNII-3: Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power limit shall be reduced to 30-(6.56-6) = 29.44dBm.

The Total Power for the straddle channel:

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
144	5720	116.858	20.68
Note: The total power was calculated through formula and record the value for reference only.			

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.68	20.67
60	5300	20.65	20.43
64	5320	20.58	20.58
100	5500	20.95	20.61
116	5580	20.76	20.75
140	5700	20.43	20.54
144 (UNII-2C Band)	5720	15.27	15.28

Note: For U_NII-2A, U_NII-2C Band output power limitation is determined based on 26dBc bandwidt

Power Limit = 11dBm + 10logB < U_NII-2A, U_NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.67	24.15 > 24
60	5300	20.43	24.1 > 24
64	5320	20.58	24.13 > 24
100	5500	20.61	24.14 > 24
116	5580	20.75	24.17 > 24
140	5700	20.43	24.1 > 24
144 (UNII-2C Band)	5720	15.27	22.83 < 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				
54	5270	20.45	20.27	217.331	23.37	23.44	Pass
62	5310	18.51	18.23	137.485	21.38	23.44	Pass
102	5510	18.92	18.68	151.773	21.81	23.44	Pass
110	5550	20.23	20.12	208.241	23.19	23.44	Pass
134	5670	19.50	19.38	175.821	22.45	23.44	Pass
*142 (UNII-2C Band)	5710	17.11	17.20	107.761	20.32	23.44	Pass
*142 (UNII-3 Band)	5710	5.67	3.48	6.139	7.88	29.44	Pass

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

2. For UNII-2A, UNII-2C: Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power limit shall be reduced to “Determined Conducted Limit” -(6.56-6).

3. For UNII-3: Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power limit shall be reduced to 30-(6.56-6) = 29.44dBm.

The Total Power for the straddle channel:

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
142	5710	113.9	20.57
Note: The total power was calculated through formula and record the value for reference only.			

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	41.50	47.30
62	5310	41.18	41.13
102	5510	41.06	40.35
110	5550	41.48	40.42
134	5670	41.08	40.03
142 (UNII-2C Band)	5710	41.86	41.23

Note: For U_NII-2A, U_NII-2C Band output power limitation is determined based on 26dBc bandwidtl

Power Limit = 11dBm + 10logB < U_NII-2A, U_NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	41.50	27.18 > 24
62	5310	41.13	27.14 > 24
102	5510	40.35	27.05 > 24
110	5550	40.42	27.06 > 24
134	5670	40.03	27.02 > 24
142 (UNII-2C Band)	5710	41.23	27.15 > 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				
58	5290	18.32	18.10	132.485	21.22	23.44	Pass
106	5530	18.73	18.40	143.828	21.58	23.44	Pass
122	5610	20.31	20.24	213.081	23.29	23.44	Pass
*138 (UNII-2C Band)	5690	16.35	16.19	90.865	19.58	23.44	Pass
*138 (UNII-3 Band)	5690	2.56	0.05	3.018	4.80	29.44	Pass

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

2. For UNII-2A, UNII-2C: Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 6.56dBi > 6dBi , so the power limit shall be reduced to “Determined Conducted Limit” -(6.56-6).

3. For UNII-3: Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 6.56dBi > 6dBi , so the power limit shall be reduced to 30-(6.56-6) = 29.44dBm.

The Total Power for the straddle channel:

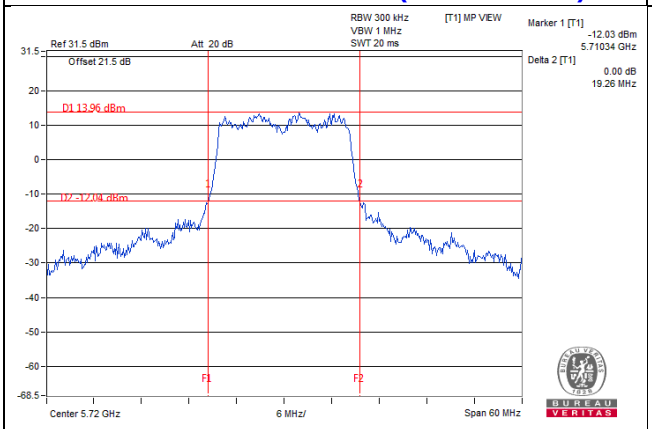
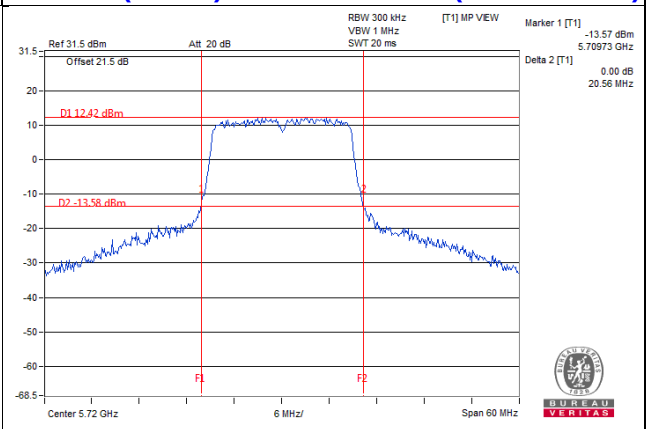
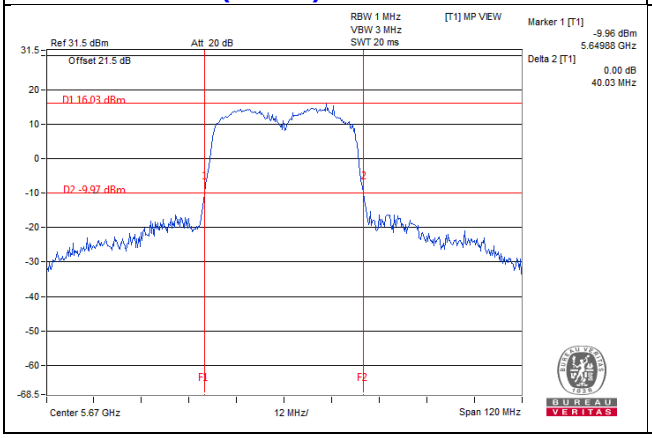
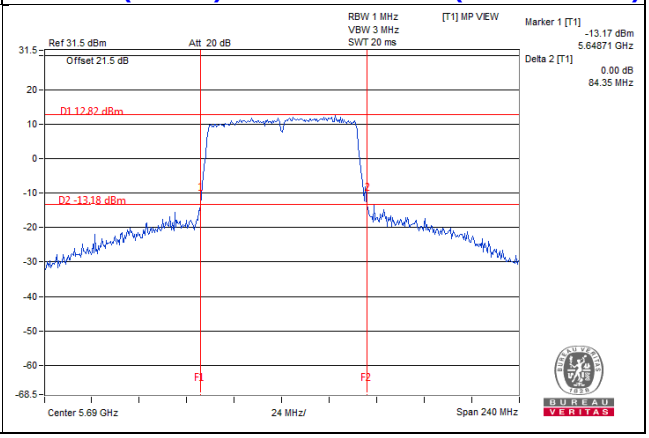
Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
138	5690	93.883	19.73
Note: The total power was calculated through formula and record the value for reference only.			

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	84.15	85.67
106	5530	84.65	82.84
122	5610	84.58	83.25
138 (UNII-2C Band)	5690	76.29	76.88

Note: For U_NII-2A, U_NII-2C Band output power limitation is determined based on 26dBc bandwidt

Power Limit = 11dBm + 10logB < U_NII-2A, U_NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	84.15	30.25 > 24
106	5530	82.84	30.18 > 24
122	5610	83.25	30.2 > 24
138 (UNII-2C Band)	5690	76.29	29.82 > 24

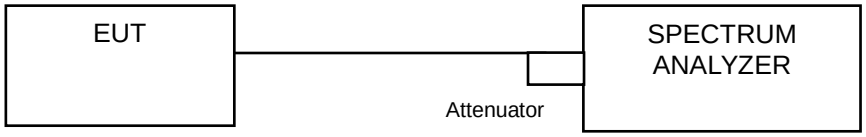
Spectrum Plot of Worst Value	
802.11a / Chain 1 – CH144 (UNII-2C Band)	**802.11ac (VHT20) / Chain 0 - CH144 (UNII-2C Band)**
	
802.11ac (VHT40) / Chain 1 - CH134	**802.11ac (VHT80) / Chain 0 - CH138 (UNII-2C Band)**
	

NOTE:

For CH144 (UNII-2C Band) = 5725MHz - Marker 1
For CH142 (UNII-2C Band) = 5725MHz - Marker 1
For CH138 (UNII-2C Band) = 5725MHz - Marker 1

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.56	16.44
60	5300	16.44	16.44
64	5320	16.68	16.56
100	5500	16.68	16.56
116	5580	16.56	16.68
140	5700	16.44	16.68
144 (UNII-2C Band)	5720	13.28	13.40
144 (UNII-3 Band)	5720	3.28	3.28

802.11ac (VHT20)

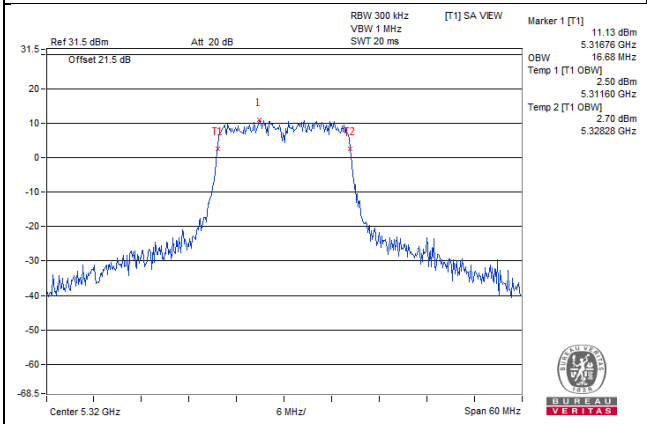
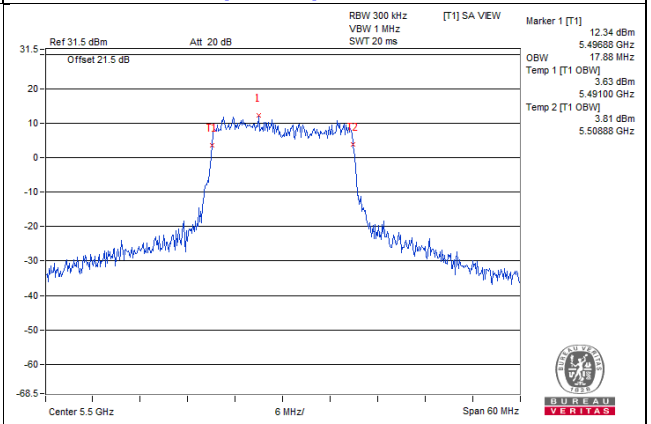
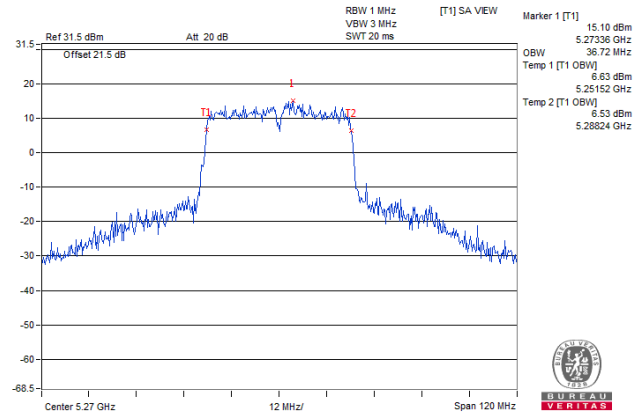
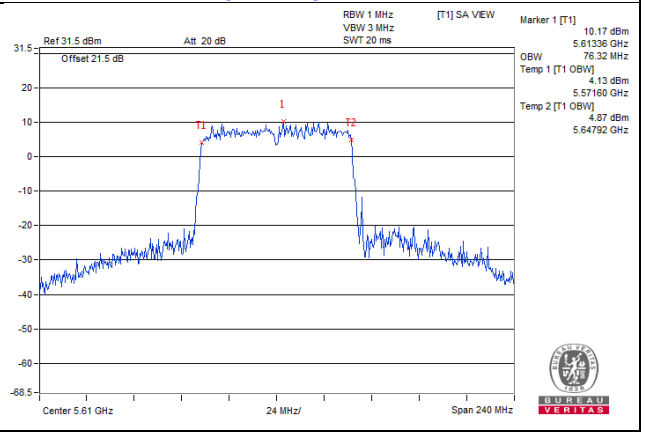
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.64	17.64
60	5300	17.76	17.64
64	5320	17.76	17.64
100	5500	17.76	17.88
116	5580	17.64	17.88
140	5700	17.64	17.88
144 (UNII-2C Band)	5720	14.00	14.00
144 (UNII-3 Band)	5720	3.76	3.88

802.11ac (VHT40)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.24	36.72
62	5310	36.24	36.48
102	5510	36.24	36.00
110	5550	36.24	36.24
134	5670	36.24	36.00
142 (UNII-2C Band)	5710	33.20	33.20
142 (UNII-3 Band)	5710	3.00	2.80

802.11ac (VHT80)

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

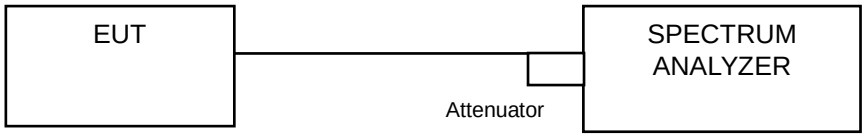
Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH64	**802.11ac (VHT20)_ Chain 1 / CH100**
	
802.11ac (VHT40) _Chain 1 / CH54	**802.11ac (VHT80) _Chain 0 / CH58**
	

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

802.11ac (VHT20)

For U-NII-1:

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 U-NII-3:

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(500 kHz/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

802.11a, 802.11ac (VHT40), 802.11ac (VHT80)

For U-NII-1:

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:

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(500 kHz/300kHz)
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

4.5.7 Test Results

For 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				
52	5260	6.72	6.38	0.17	9.73	10.44	Pass
60	5300	6.09	7.17	0.17	9.84	10.44	Pass
64	5320	6.09	7.67	0.17	10.13	10.44	Pass
100	5500	6.52	7.01	0.17	9.95	10.44	Pass
116	5580	7.12	7.32	0.17	10.40	10.44	Pass
140	5700	4.31	5.07	0.17	7.88	10.44	Pass
144 (UNII-2C Band)	5720	6.56	7.82	0.17	10.41	10.44	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[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power density limit shall be reduced to 11-(6.56-6) = 10.44dBm.
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			
52	5260	6.29	6.88	9.61	10.44	Pass
60	5300	6.52	7.30	9.94	10.44	Pass
64	5320	6.49	7.39	9.97	10.44	Pass
100	5500	6.78	7.21	10.01	10.44	Pass
116	5580	6.69	7.18	9.95	10.44	Pass
140	5700	3.87	5.06	7.52	10.44	Pass
144 (UNII-2C Band)	5720	6.27	7.45	9.91	10.44	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[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power density limit shall be reduced to 11-(6.56-6) = 10.44dBm.

802.11ac (VHT40)

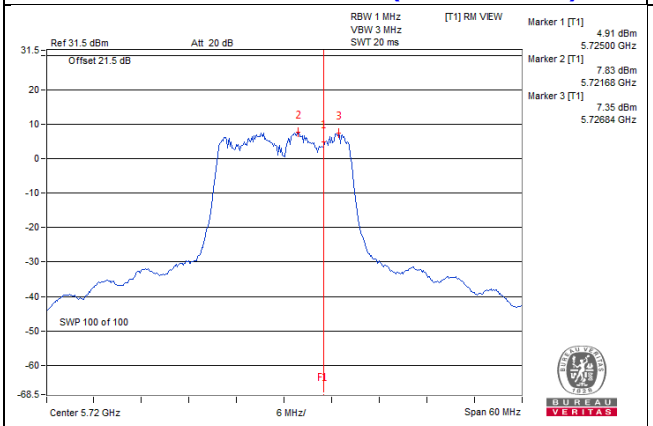
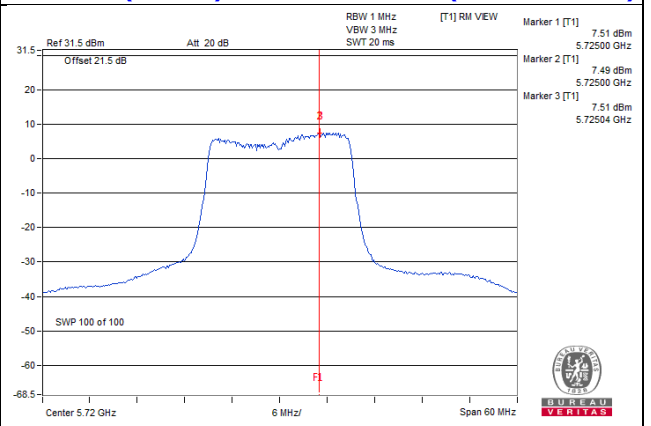
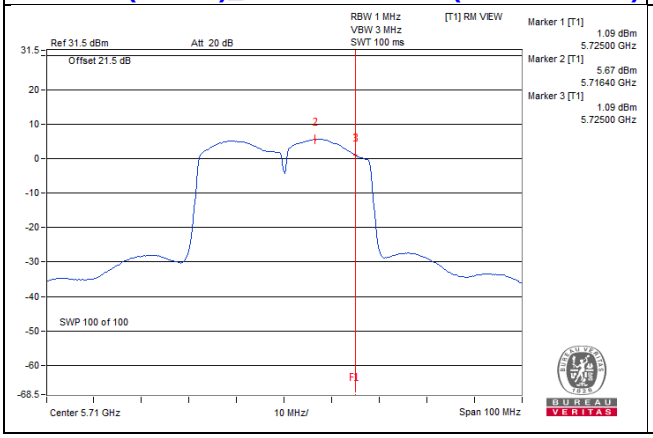
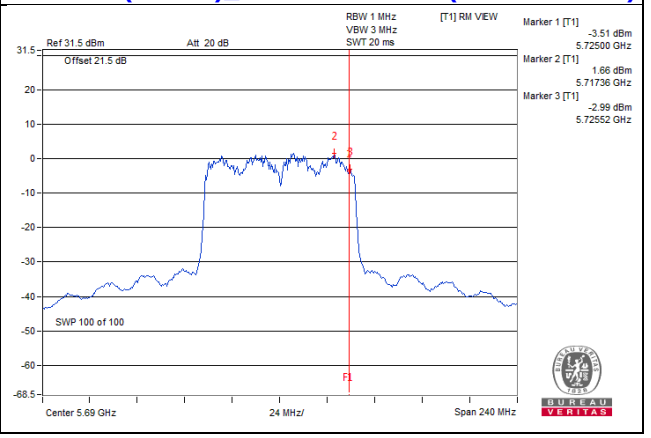
Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
54	5270	4.02	4.72	0.16	7.55	10.44	Pass
62	5310	1.77	2.56	0.16	5.35	10.44	Pass
102	5510	2.41	3.36	0.16	6.08	10.44	Pass
110	5550	4.74	5.01	0.16	8.05	10.44	Pass
134	5670	2.24	3.81	0.16	6.26	10.44	Pass
142 (UNII-2C Band)	5710	4.56	5.67	0.16	8.32	10.44	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[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power density limit shall be reduced to 11-(6.56-6) = 10.44dBm.
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				
58	5290	-2.60	-1.86	0.28	1.08	10.44	Pass
106	5530	-1.32	-0.40	0.28	2.46	10.44	Pass
122	5610	-0.68	0.61	0.28	3.31	10.44	Pass
138 (UNII-2C Band)	5690	-0.26	1.66	0.28	4.10	10.44	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[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power density limit shall be reduced to 11-(6.56-6) = 10.44dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

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

For UNII-3:

802.11a

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	144 (UNII-3 Band)	5720	-2.39	-0.17	3.01	0.17	3.01	29.44	Pass
1	144 (UNII-3 Band)	5720	-1.35	0.87	3.01	0.17	4.05	29.44	Pass

Note: 1. Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 6.56dBi > 6dBi , so the power density limit shall be reduced to 30-(6.56-6) = 29.44dBm.

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

802.11ac (VHT20)

TX chain	Chan.	Chan. Freq. (MHz)	PSD		10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	144 (UNII-3 Band)	5720	-1.77	0.45	3.01	3.46	29.44	Pass
1	144 (UNII-3 Band)	5720	-0.51	1.71	3.01	4.72	29.44	Pass

Note: 1. Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 6.56dBi > 6dBi , so the power density limit shall be reduced to 30-(6.56-6) = 29.44dBm.

802.11ac (VHT40)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	142 (UNII-3 Band)	5710	-4.96	-2.74	3.01	0.16	0.43	29.44	Pass
1	142 (UNII-3 Band)	5710	-7.23	-5.01	3.01	0.16	-1.84	29.44	Pass

Note: 1. Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 6.56dBi > 6dBi , so the power density limit shall be reduced to 30-(6.56-6) = 29.44dBm.

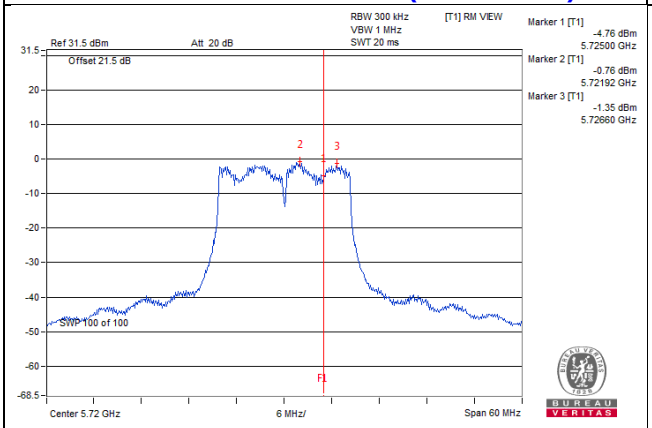
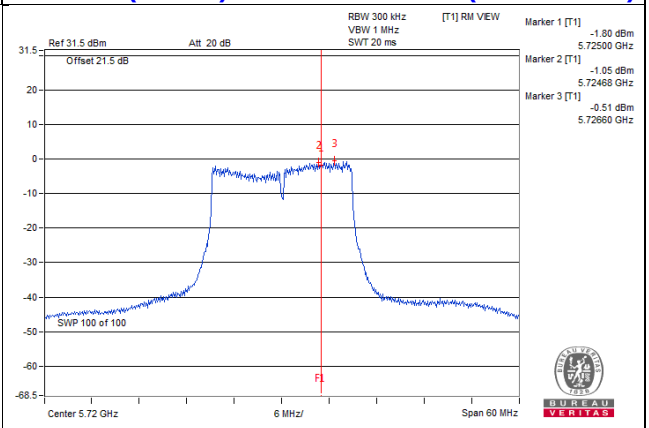
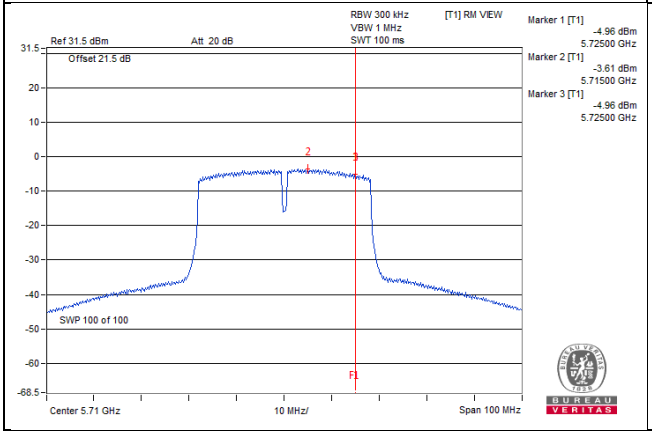
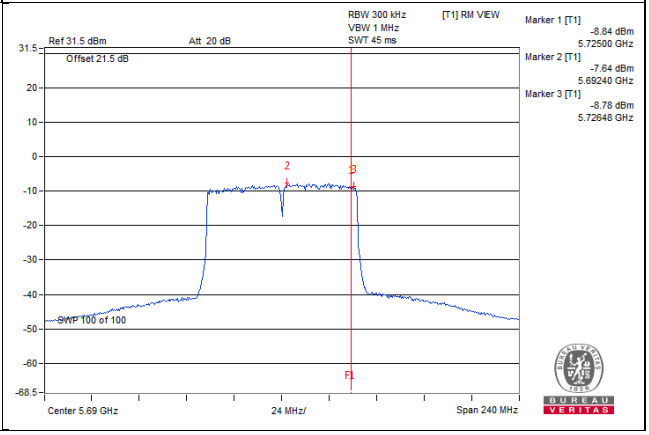
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	138 (UNII-3 Band)	5690	-8.78	-6.56	3.01	0.28	-3.27	29.44	Pass
1	138 (UNII-3 Band)	5690	-11.15	-8.93	3.01	0.28	-5.64	29.44	Pass

Note: 1. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.56dBi > 6dBi , so the power density limit shall be reduced to 30-(6.56-6) = 29.44dBm.

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

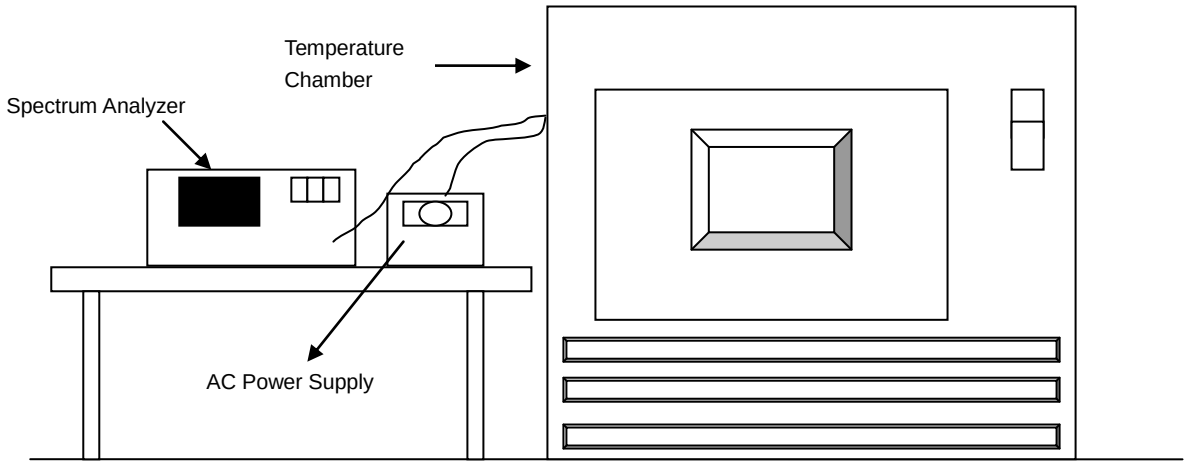
Spectrum Plot of Worst Value	
802.11a / Chain 1 – CH144 (UNII-3 Band)	**802.11ac (VHT20) / Chain 1 – CH144 (UNII-3 Band)**
	
802.11ac (VHT40) / Chain 0 – CH142 (UNII-3 Band)	**802.11ac (VHT80) / Chain 0 – CH138 (UNII-3 Band)**
	

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: 5260 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	5260.0023	PASS	5260.0032	PASS	5260.0044	PASS	5260.004	PASS
40	120	5259.9844	PASS	5259.9872	PASS	5259.9861	PASS	5259.9837	PASS
30	120	5259.9867	PASS	5259.9829	PASS	5259.9856	PASS	5259.9853	PASS
20	120	5259.9839	PASS	5259.9801	PASS	5259.9801	PASS	5259.9813	PASS
10	120	5260.0204	PASS	5260.0191	PASS	5260.019	PASS	5260.0209	PASS
0	120	5260.018	PASS	5260.0209	PASS	5260.021	PASS	5260.0219	PASS
-10	120	5259.9775	PASS	5259.9754	PASS	5259.9741	PASS	5259.9769	PASS
-20	120	5260.0067	PASS	5260.0033	PASS	5260.0037	PASS	5260.0043	PASS
-30	120	5260.0176	PASS	5260.0173	PASS	5260.0192	PASS	5260.0209	PASS

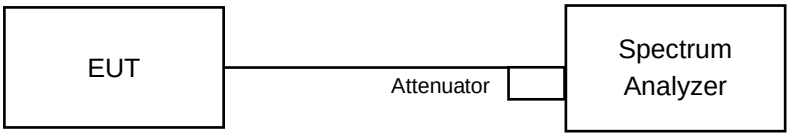
Frequency Stability Versus Voltage									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5259.9842	PASS	5259.9799	PASS	5259.9791	PASS	5259.9822	PASS
	120	5259.9839	PASS	5259.9801	PASS	5259.9801	PASS	5259.9813	PASS
	102	5259.984	PASS	5259.981	PASS	5259.9795	PASS	5259.9817	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144 (UNII-3 Band)	5720	3.17	3.16	0.5	Pass

802.11ac (VHT20)

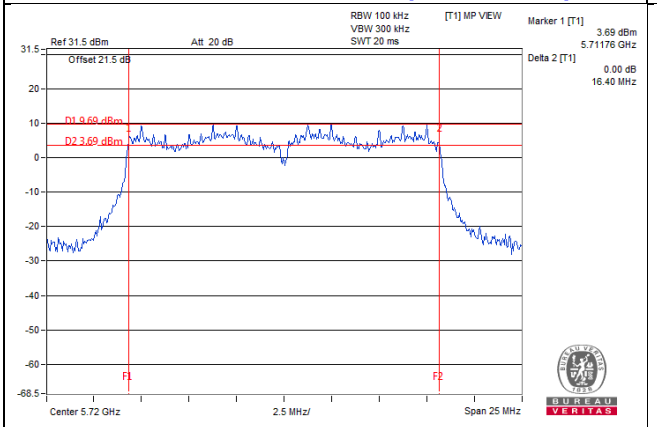
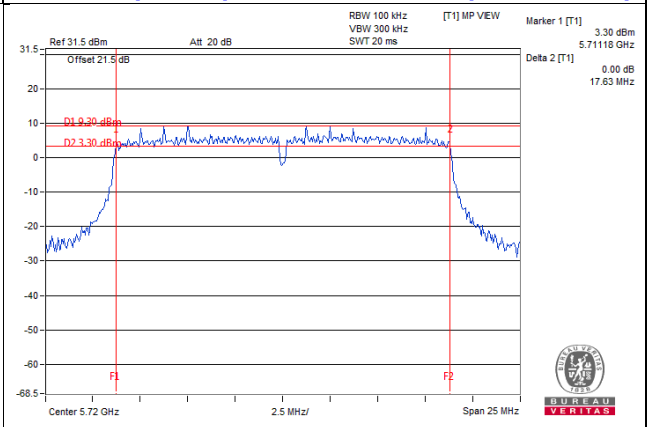
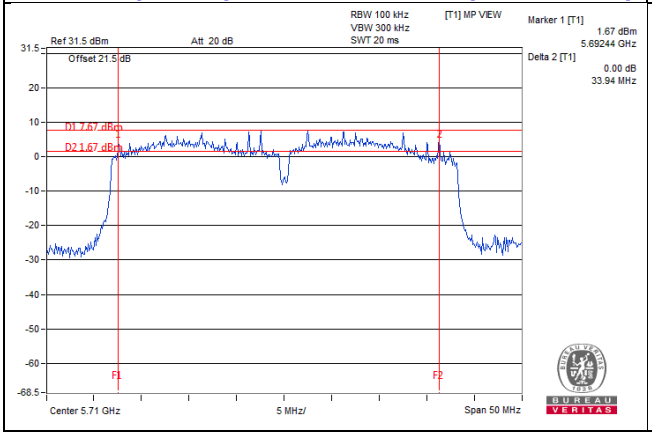
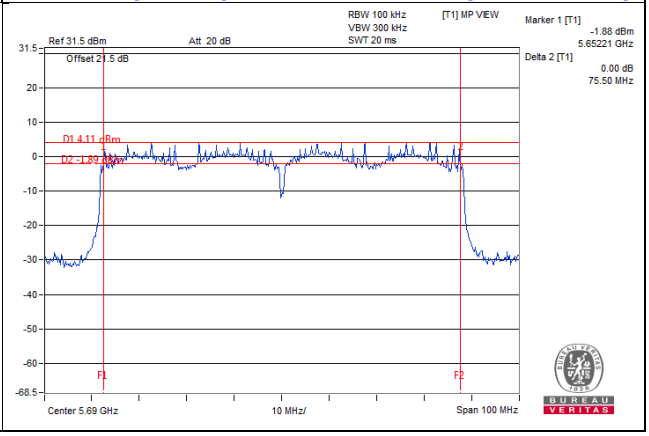
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144 (UNII-3 Band)	5720	3.81	3.81	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142 (UNII-3 Band)	5710	2.80	1.38	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138 (UNII-3 Band)	5690	3.22	2.71	0.5	Pass

Spectrum Plot of Worst Value	
802.11a / Chain 1 - CH144 (UNII-3 Band)	**802.11ac (VHT20) / Chain 0 - CH144 (UNII-3 Band)**
	
802.11ac (VHT40) / Chain 1 - CH142 (UNII-3 Band)	**802.11ac (VHT80) / Chain 1 - 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).

Appendix – Information on 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:

Linkou 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.

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