FCC Test Report

Report No.:	RF180109C12A
FCC ID:	PD5-LM-WESA0440A
Test Model:	LM-WESA0440A
Received Date:	Jan. 09, 2018
Test Date:	Feb. 01 ~ Mar. 19, 2018
Issued Date:	May 17, 2018
Applicant:	Delta Networks, Inc.
Address:	No. 252, Shang Ying Rd., Kuei San District, Taoyuan City 33341, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF180109C12A	Original release.	May 17, 2018

1 Certificate of Conformity

Product:	802.11 b/g/n/ac WIFI AP
Test Model:	LM-WESA0440A
Sample Status:	Engineering sample
Applicant:	Delta Networks, Inc.
Test Date:	Feb. 01 ~ Mar. 19, 2018
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen , **Date:** May 17, 2018

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** May 17, 2018

Bruce Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.207 15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -6.11dB at 0.44200MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -3.6dB at 5644.80MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX not a standard connector.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	802.11 b/g/n/ac WIFI AP
Test Model	LM-WESA0440A
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter 42.5Vdc-57Vdc from PoE
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	5180~5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz, 5745~5825MHz
Number of Channel	5180 ~ 5240MHz: 1 for 802.11ac (VHT80+VHT80) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (HT20) , 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80), 802.11ac (VHT80+VHT80) 5500 ~ 5700MHz: 11 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 5 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80), 3 for 802.11ac (VHT80+VHT80) 5745 ~ 5825MHz: 1 for 802.11ac (VHT80+VHT80)
Output Power	CDD Mode: 5180 ~ 5240MHz: 117.752mW 5260 ~ 5320MHz: 245.852mW 5500 ~ 5700MHz: 236.272mW 5745 ~ 5825MHz: 101.439mW Beamforming Mode: 5180 ~ 5240MHz: 66.217mW 5260 ~ 5320MHz: 87.232mW 5500 ~ 5700MHz: 83.833mW 5745 ~ 5825MHz: 57.044mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to the original report no. RF180109C12-1. The difference is adding 5260~5320MHz, 5500~5700MHz band and 5180~5240MHz, 5745MHz~5825MHz 802.11ac(VHT80+VHT80) mode by software. Therefore, all tests had been tested.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

Band	Modulation Mode	Beamforming Mode	TX Function
5GHz	802.11a	Not Support	4TX
	802.11n (HT20)	Support	4TX
	802.11n (HT40)	Support	4TX
	802.11ac (VHT80)	Support	4TX
	802.11ac (VHT80+VHT80)	Support	2TX+2TX

* For 802.11a/b/g, the EUT doesn't support Beamforming mode.
* The modulation and bandwidth are similar for 802.11n mode for HT20/HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)
* For 5GHz band 802.11n and 802.11ac, after pre-tested two modes (with beamforming mode and CDD mode) found CDD mode was the worst, therefore chosen for final test for radiated emission and power line conducted emission test and presented in the test report.

3. The EUT uses following antennas.

Antenna Type	PCB PIFA							
Antenna Connector	I-PEX							
Antenna Gain (dBi)								
	2400	2450	2500	5150	5320	5550	5700	5850
Ant. 1	3.22	3.62	3.56	3.17	3.32	3.47	3.39	3.77
Ant. 2	3.45	3.48	3.32	3.01	3.18	3.31	3.52	3.70
Ant. 3	3.15	3.38	3.08	2.97	2.91	3.36	3.55	3.68
Ant. 4	3.01	3.23	3.15	2.86	3.10	3.39	3.34	3.71

4. The EUT uses following adapter & PoE.

Adapter (Support unit)	
Brand	DELTA
Model	ADP-30HW B
Input Power	100-240Vac~50/60Hz 0.8A
Output Power	12.0Vdc / 2.5A
Power Line	1.45m DC cable without core attached on adapter

PoE (Support unit)	
Brand	ZyXEL
Model	PoE12-HP
Input Power	100-240Vac~,50/60Hz, 1.5A max
Output Power	42.5Vdc-57Vdc, 42.1 Watt max

3.2 Description of Test Modes

5180~5240MHz:

1 channel is provided for 802.11ac (VHT80+VHT80):

Channel	Frequency
42	5210MHz

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), 802.11ac (VHT80+VHT80):

Channel	Frequency
58	5290 MHz

5500~5700MHz

11 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		

5 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		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

3 channels are provided for 802.11ac (VHT80+VHT80):

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

5745~5825MHz

1 channel is provided for 802.11ac (VHT80+VHT80):

Channel	Frequency
155	5775 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter
B	-	√	√	-	Power from PoE

Where **RE≥1G:** Radiated Emission above 1GHz & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
2. "-": 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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
A	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
A	802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	13.5
A	802.11ac (VHT80)		58	58	OFDM	BPSK	117.0
A	802.11ac (VHT80+VHT80)	5180-5240+ 5260-5320	42+58	42+58	OFDM	BPSK	117.0
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
A	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	6.5
A	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	BPSK	13.5
A	802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	BPSK	117.0
A	802.11ac (VHT80+VHT80)		106+122	106+122	OFDM	BPSK	117.0
A	802.11ac (VHT80+VHT80)	5745-5825	138+155	138+155	OFDM	BPSK	117.0

Radiated Emission Test (Below 1GHz):

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11a	5260-5320	52 to 64	100	OFDM	BPSK	6.0
		5500-5700	100 to 140		OFDM	BPSK	6.0

Power Line Conducted Emission Test:

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11a	5260-5320	52 to 64	100	OFDM	BPSK	6.0
		5500-5700	100 to 140		OFDM	BPSK	6.0

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
A	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
A	802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	13.5
A	802.11ac (VHT80)		58	58	OFDM	BPSK	117.0
A	802.11ac (VHT80+VHT80)	5180-5240+ 5260-5320	42+58	42+58	OFDM	BPSK	117.0
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
A	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	6.5
A	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	BPSK	13.5
A	802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	BPSK	117.0
A	802.11ac (VHT80+VHT80)		106+122	106+122	OFDM	BPSK	117.0
A	802.11ac (VHT80+VHT80)	5745-5825	138+155	138+155	OFDM	BPSK	117.0

Test Condition:

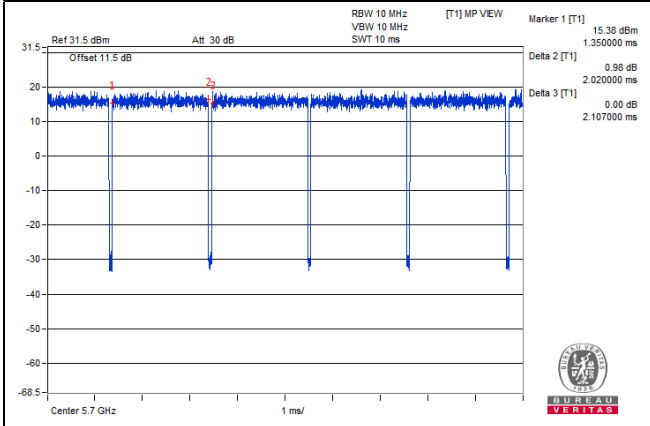
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 70%RH,	120Vac, 60Hz	Luis Lee Matthew Yang
RE<1G	21deg. C, 66%RH	120Vac, 60Hz	Willy Cheng
PLC	19deg. C, 67%RH	120Vac, 60Hz	Willy Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

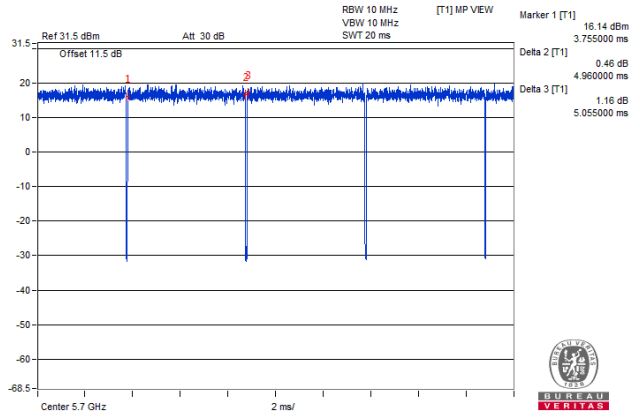
Duty cycle of test signal is ≥ 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 2.02/2.107 = 0.959, Duty factor = 10 * log(1/0.959) = 0.18
802.11n (HT20): Duty cycle = 4.96/5.055 = 0.981
802.11n (HT40): Duty cycle = 2.405/2.488 = 0.967, Duty factor = 10 * log(1/0.967) = 0.15
802.11ac (VHT80): Duty cycle = 1.134/1.207 = 0.940, Duty factor = 10 * log(1/0.940) = 0.27
802.11ac (VHT80+VHT80):
5210MHz: Duty cycle = 1.143/1.214 = 0.942, Duty factor = 10 * log(1/0.942) = 0.26
5290MHz: Duty cycle = 1.144/1.215 = 0.942, Duty factor = 10 * log(1/0.942) = 0.26
5530MHz: Duty cycle = 1.145/1.216 = 0.942, Duty factor = 10 * log(1/0.942) = 0.26
5610MHz: Duty cycle = 1.145/1.211 = 0.945, Duty factor = 10 * log(1/0.945) = 0.24
5690MHz: Duty cycle = 1.143/1.218 = 0.938, Duty factor = 10 * log(1/0.938) = 0.28
5775MHz: Duty cycle = 1.145/1.210 = 0.946, Duty factor = 10 * log(1/0.946) = 0.24

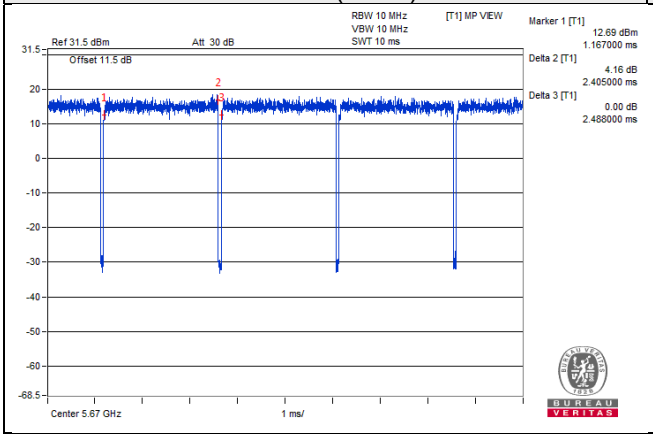
802.11a



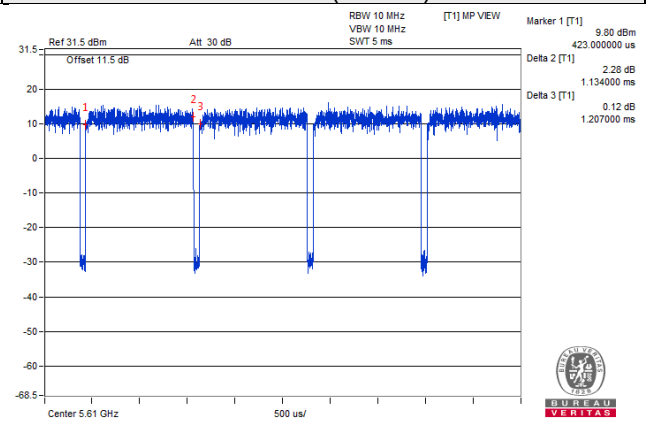
802.11n (HT20)



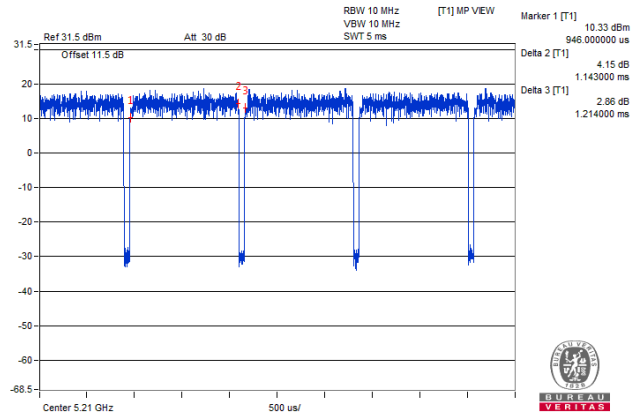
802.11n (HT40)



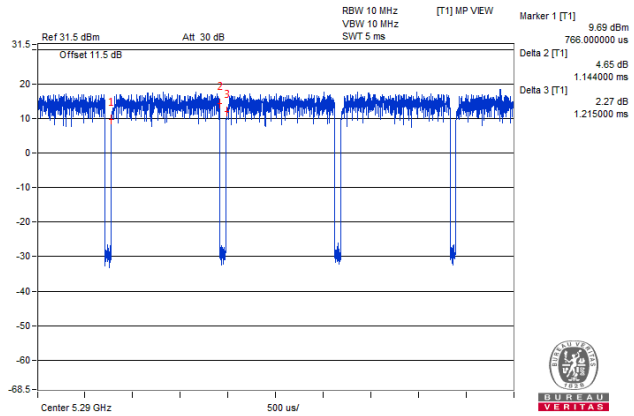
802.11ac (VHT80)



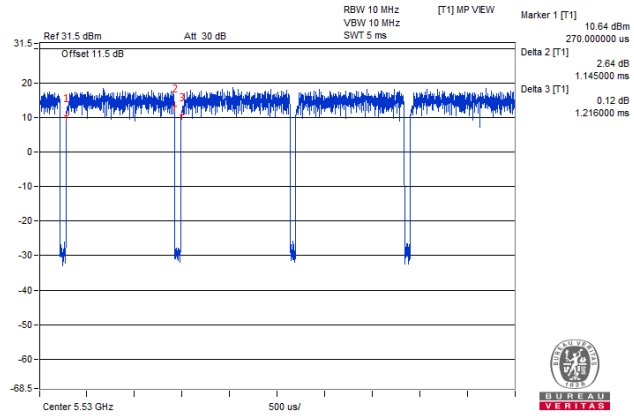
802.11ac (VHT80+VHT80)
5210MHz



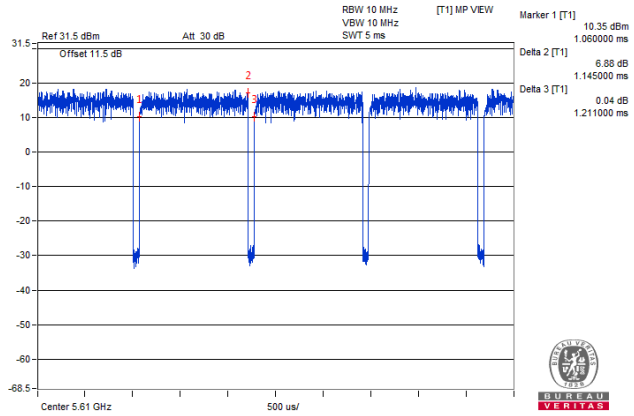
802.11ac (VHT80+VHT80)
5290MHz



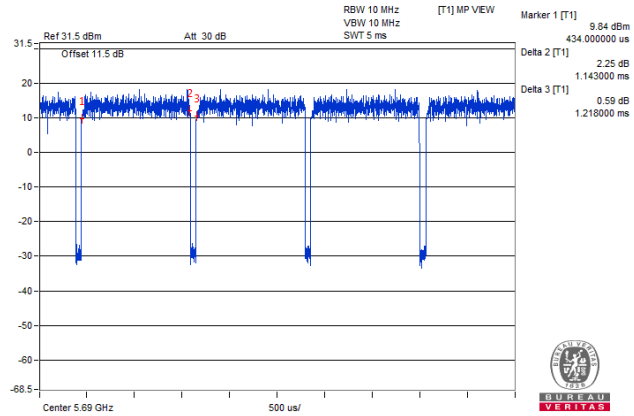
802.11ac (VHT80+VHT80)
5530MHz



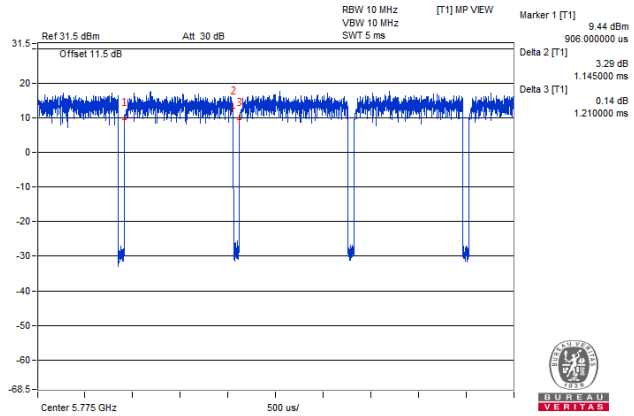
802.11ac (VHT80+VHT80)
5610MHz



802.11ac (VHT80+VHT80)
5690MHz



802.11ac (VHT80+VHT80)
5775MHz



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.	Notebook	DELL	E5410	6RP2YM1	FCC DoC Approved	-
B.	Load	N/A	N/A	N/A	N/A	-

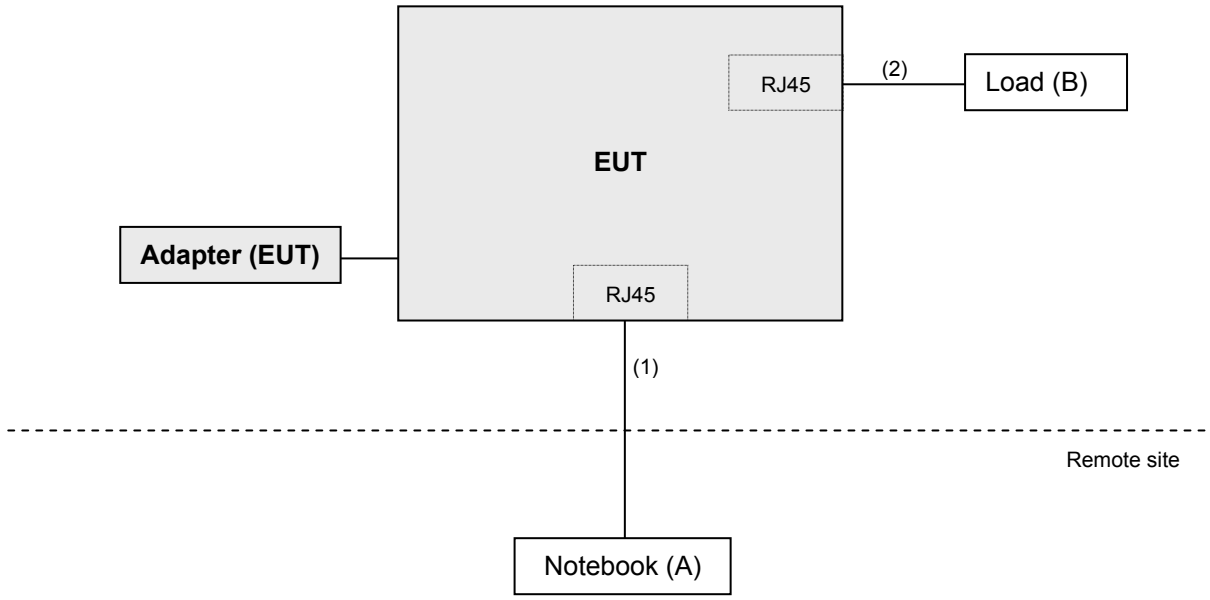
Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

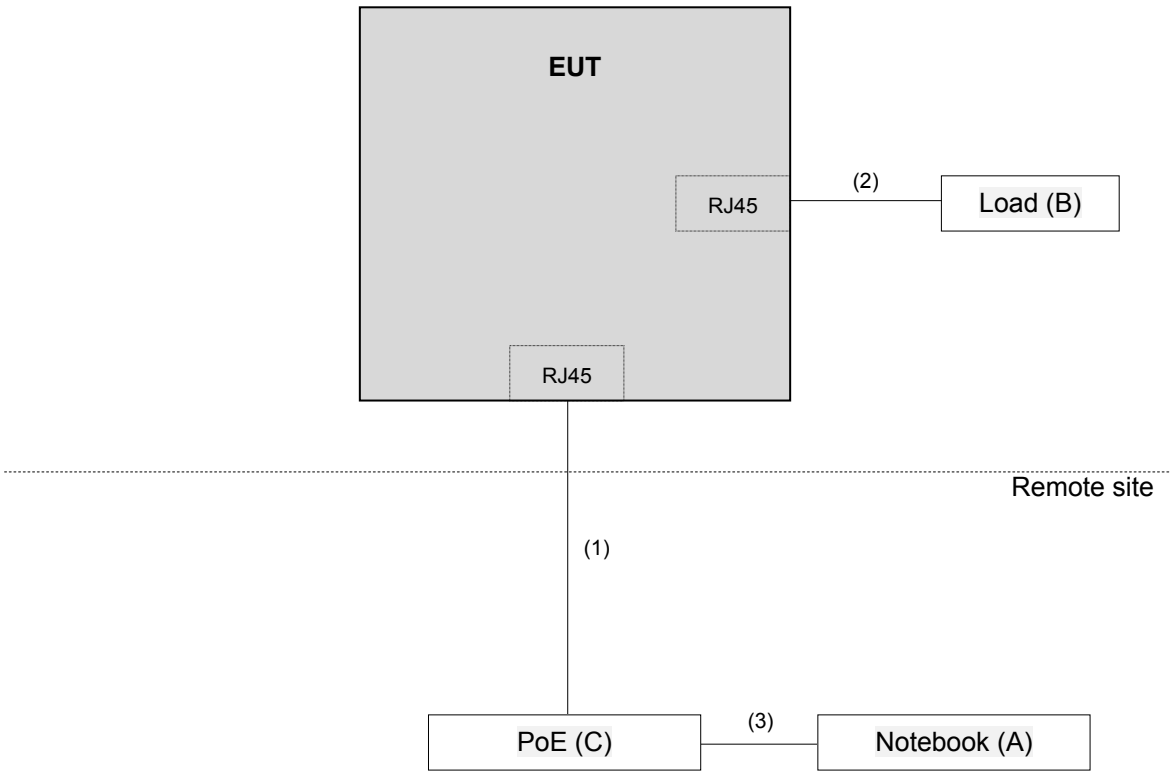
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	1	10	N	0	-
2.	RJ45 cable	4	1.5	N	0	-
3.	RJ45 cable	1	1.8	N	0	-

3.4.1 Configuration of System under Test

Test Mode A



Test Mode B



3.5 General Description of Applied Standards

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 Procedures New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

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

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">KDB 789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK:74 (dBµV/m)</td><td>AV:54 (dBµV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK:-27 (dBm/MHz)</td><td rowspan="3">PK:68.2(dBµV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK:-27 (dBm/MHz) *1
PK:10 (dBm/MHz) *2
PK:15.6 (dBm/MHz) *3
PK:27 (dBm/MHz) *4</td><td>PK: 68.2(dBµV/m) *1
PK:105.2 (dBµV/m) *2
PK: 110.8(dBµV/m) *3
PK:122.2 (dBµV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*1 beyond 75 MHz or more above of the band edge.
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.
*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</td></tr>
</table>

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 17, 2017	Oct. 16, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 18, 2017	Aug. 17, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2017	Aug. 07, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A01960	Aug. 08, 2017	Aug. 07, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2017	Aug. 07, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2017	Aug. 07, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
26GHz ~ 40GHz Amplifier Agilent	8449B	3008A1960	Aug. 08, 2017	Aug. 07, 2018
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-4.

4.1.3 Test Procedures

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

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

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

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

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

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

Note:

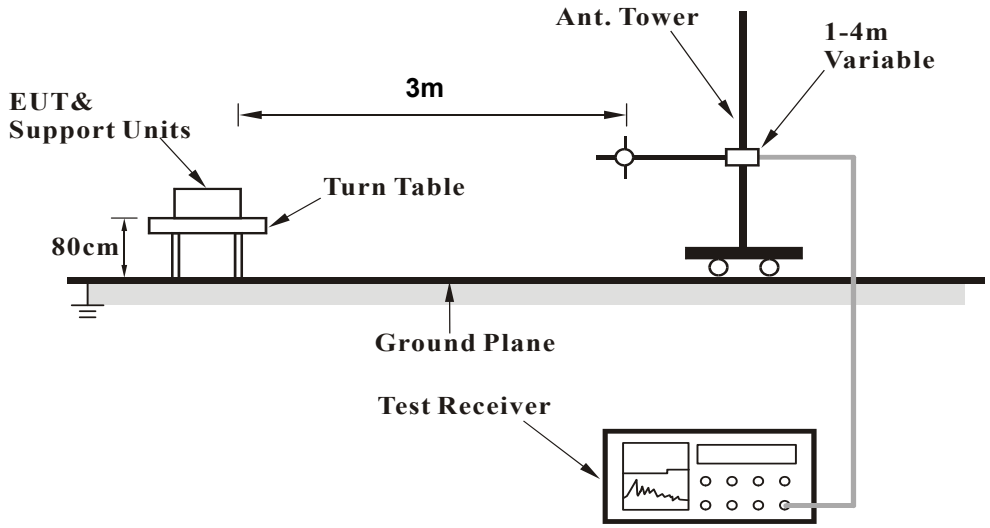
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

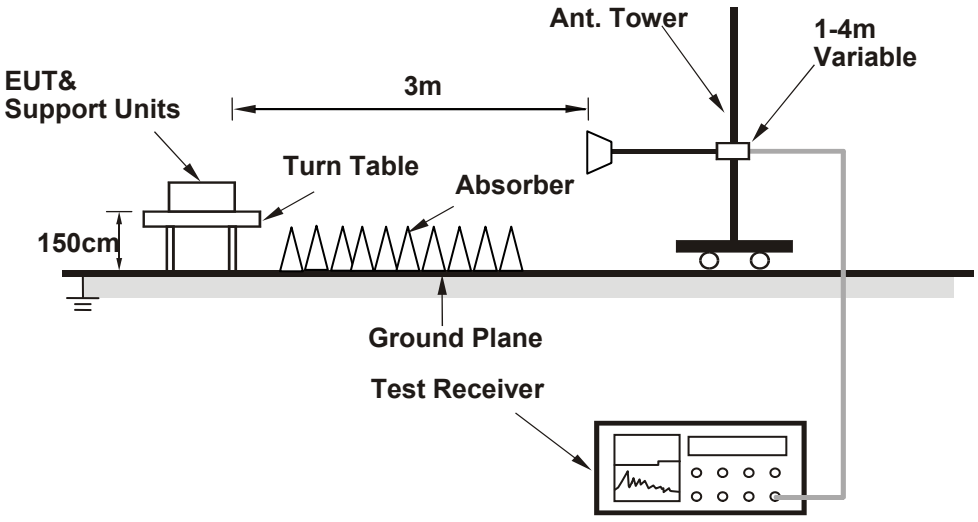
No deviation.

4.1.5 Test Set Up

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

a. Placed the EUT on the testing table.
b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz Worst-Case 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	56.1 PK	74.0	-17.9	2.83 H	22	53.5	2.6
2	5150.00	43.0 AV	54.0	-11.0	2.83 H	22	40.4	2.6
3	*5260.00	114.2 PK			2.88 H	53	73.5	40.7
4	*5260.00	103.7 AV			2.88 H	53	63.0	40.7
5	#10520.00	58.3 PK	74.0	-15.7	1.52 H	332	43.5	14.8
6	#10520.00	45.7 AV	54.0	-8.3	1.52 H	332	30.9	14.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.6 PK	74.0	-18.4	3.54 V	218	53.0	2.6
2	5150.00	42.8 AV	54.0	-11.2	3.54 V	218	40.2	2.6
3	*5260.00	112.1 PK			3.70 V	239	71.4	40.7
4	*5260.00	100.9 AV			3.70 V	239	60.2	40.7
5	#10520.00	57.4 PK	74.0	-16.6	2.44 V	141	42.6	14.8
6	#10520.00	44.9 AV	54.0	-9.1	2.44 V	141	30.1	14.8

Remark:

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	114.2 PK			2.79 H	31	73.6	40.6
2	*5300.00	102.9 AV			2.79 H	31	62.3	40.6
3	10600.00	58.7 PK	74.0	-15.3	1.99 H	356	43.5	15.2
4	10600.00	45.8 AV	54.0	-8.2	1.99 H	356	30.6	15.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	110.8 PK			3.68 V	236	70.2	40.6
2	*5300.00	100.5 AV			3.68 V	236	59.9	40.6
3	10600.00	58.1 PK	74.0	-15.9	2.35 V	134	42.9	15.2
4	10600.00	45.4 AV	54.0	-8.6	2.35 V	134	30.2	15.2

Remark:

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	113.0 PK			2.84 H	51	72.3	40.7
2	*5320.00	102.9 AV			2.84 H	51	62.2	40.7
3	5350.00	58.8 PK	74.0	-15.2	2.94 H	52	56.0	2.8
4	5350.00	46.2 AV	54.0	-7.8	2.94 H	52	43.4	2.8
5	10640.00	59.2 PK	74.0	-14.8	3.26 H	156	43.8	15.4
6	10640.00	45.7 AV	54.0	-8.3	3.26 H	156	30.3	15.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	111.1 PK			3.67 V	245	70.4	40.7
2	*5320.00	100.5 AV			3.67 V	245	59.8	40.7
3	5350.00	56.9 PK	74.0	-17.1	3.60 V	238	54.1	2.8
4	5350.00	45.2 AV	54.0	-8.8	3.60 V	238	42.4	2.8
5	10640.00	58.8 PK	74.0	-15.2	2.52 V	137	43.4	15.4
6	10640.00	45.4 AV	54.0	-8.6	2.52 V	137	30.0	15.4

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.3 PK	74.0	-19.7	3.08 H	235	51.1	3.2
2	5460.00	43.3 AV	54.0	-10.7	3.08 H	235	40.1	3.2
3	#5470.00	55.8 PK	74.0	-18.2	2.95 H	220	52.6	3.2
4	#5470.00	44.8 AV	54.0	-9.2	2.95 H	220	41.6	3.2
5	*5500.00	114.9 PK			3.04 H	227	73.4	41.5
6	*5500.00	104.6 AV			3.04 H	227	63.1	41.5
7	11000.00	58.1 PK	74.0	-15.9	1.97 H	16	42.1	16.0
8	11000.00	45.2 AV	54.0	-8.8	1.97 H	16	29.2	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.0 PK	74.0	-20.0	3.57 V	142	50.8	3.2
2	5460.00	43.4 AV	54.0	-10.6	3.57 V	142	40.2	3.2
3	#5470.00	45.4 PK	74.0	-28.6	3.63 V	154	42.2	3.2
4	#5470.00	44.5 AV	54.0	-9.5	3.63 V	154	41.3	3.2
5	*5500.00	111.8 PK			3.62 V	148	70.3	41.5
6	*5500.00	100.6 AV			3.62 V	148	59.1	41.5
7	11000.00	57.8 PK	74.0	-16.2	3.14 V	285	41.8	16.0
8	11000.00	45.0 AV	54.0	-9.0	3.14 V	285	29.0	16.0

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	114.5 PK			2.76 H	208	72.6	41.9
2	*5580.00	104.3 AV			2.76 H	208	62.4	41.9
3	11160.00	58.1 PK	74.0	-15.9	1.94 H	21	42.4	15.7
4	11160.00	45.3 AV	54.0	-8.7	1.94 H	21	29.6	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	*5580.00	111.8 PK			3.62 V	150	69.9	41.9
2	*5580.00	101.1 AV			3.62 V	150	59.2	41.9
3	11160.00	57.7 PK	74.0	-16.3	3.21 V	289	42.0	15.7
4	11160.00	44.9 AV	54.0	-9.1	3.21 V	289	29.2	15.7

Remark:

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	114.4 PK			2.69 H	208	72.3	42.1
2	*5700.00	104.0 AV			2.69 H	208	61.9	42.1
3	#5725.00	57.8 PK	74.0	-16.2	2.78 H	196	54.1	3.7
4	#5725.00	45.8 AV	54.0	-8.2	2.78 H	196	42.1	3.7
5	11400.00	58.5 PK	74.0	-15.5	1.91 H	12	42.5	16.0
6	11400.00	45.6 AV	54.0	-8.4	1.91 H	12	29.6	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	111.8 PK			3.66 V	153	69.7	42.1
2	*5700.00	101.4 AV			3.66 V	153	59.3	42.1
3	#5725.00	56.5 PK	74.0	-17.5	3.57 V	145	52.8	3.7
4	#5725.00	44.9 AV	54.0	-9.1	3.57 V	145	41.2	3.7
5	11400.00	58.2 PK	74.0	-15.8	3.13 V	275	42.2	16.0
6	11400.00	45.1 AV	54.0	-8.9	3.13 V	275	29.1	16.0

Remark:

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.

802.11n (HT20)

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	55.4 PK	74.0	-18.6	2.84 H	89	52.8	2.6
2	5150.00	42.6 AV	54.0	-11.4	2.84 H	89	40.0	2.6
3	*5260.00	114.2 PK			2.90 H	53	73.5	40.7
4	*5260.00	103.7 AV			2.90 H	53	63.0	40.7
5	#10520.00	58.9 PK	74.0	-15.1	1.75 H	299	44.1	14.8
6	#10520.00	46.1 AV	54.0	-7.9	1.75 H	299	31.3	14.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.0 PK	74.0	-19.0	3.71 V	229	52.4	2.6
2	5150.00	43.0 AV	54.0	-11.0	3.71 V	229	40.4	2.6
3	*5260.00	110.4 PK			3.68 V	239	69.7	40.7
4	*5260.00	100.0 AV			3.68 V	239	59.3	40.7
5	#10520.00	58.2 PK	74.0	-15.8	2.29 V	165	43.4	14.8
6	#10520.00	45.6 AV	54.0	-8.4	2.29 V	165	30.8	14.8

Remark:

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	113.8 PK			3.03 H	52	73.2	40.6
2	*5300.00	103.0 AV			3.03 H	52	62.4	40.6
3	10600.00	59.8 PK	74.0	-14.2	2.36 H	155	44.6	15.2
4	10600.00	46.0 AV	54.0	-8.0	2.36 H	155	30.8	15.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	110.8 PK			3.72 V	238	70.2	40.6
2	*5300.00	100.2 AV			3.72 V	238	59.6	40.6
3	10600.00	59.2 PK	74.0	-14.8	2.20 V	161	44.0	15.2
4	10600.00	45.7 AV	54.0	-8.3	2.20 V	161	30.5	15.2

Remark:

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	113.3 PK			3.07 H	85	72.6	40.7
2	*5320.00	102.2 AV			3.07 H	85	61.5	40.7
3	5350.00	59.0 PK	74.0	-15.0	2.95 H	77	56.2	2.8
4	5350.00	46.4 AV	54.0	-7.6	2.95 H	77	43.6	2.8
5	10640.00	59.1 PK	74.0	-14.9	3.32 H	177	43.7	15.4
6	10640.00	45.9 AV	54.0	-8.1	3.32 H	177	30.5	15.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	111.2 PK			3.50 V	245	70.5	40.7
2	*5320.00	100.4 AV			3.50 V	245	59.7	40.7
3	5350.00	56.9 PK	74.0	-17.1	2.56 V	252	54.1	2.8
4	5350.00	44.7 AV	54.0	-9.3	2.56 V	252	41.9	2.8
5	10640.00	58.7 PK	74.0	-15.3	2.09 V	160	43.3	15.4
6	10640.00	45.6 AV	54.0	-8.4	2.09 V	160	30.2	15.4

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.4 PK	74.0	-18.6	2.40 H	199	52.2	3.2
2	5460.00	43.6 AV	54.0	-10.4	2.40 H	199	40.4	3.2
3	#5470.00	57.0 PK	74.0	-17.0	2.59 H	212	53.8	3.2
4	#5470.00	45.4 AV	54.0	-8.6	2.59 H	212	42.2	3.2
5	*5500.00	113.6 PK			2.47 H	207	72.1	41.5
6	*5500.00	102.6 AV			2.47 H	207	61.1	41.5
7	11000.00	58.6 PK	74.0	-15.4	2.02 H	33	42.6	16.0
8	11000.00	45.5 AV	54.0	-8.5	2.02 H	33	29.5	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.6 PK	74.0	-19.4	3.66 V	159	51.4	3.2
2	5460.00	43.4 AV	54.0	-10.6	3.66 V	159	40.2	3.2
3	#5470.00	56.4 PK	74.0	-17.6	3.55 V	138	53.2	3.2
4	#5470.00	45.1 AV	54.0	-8.9	3.55 V	138	41.9	3.2
5	*5500.00	111.4 PK			3.59 V	143	69.9	41.5
6	*5500.00	100.4 AV			3.59 V	143	58.9	41.5
7	11000.00	58.3 PK	74.0	-15.7	3.20 V	267	42.3	16.0
8	11000.00	45.1 AV	54.0	-8.9	3.20 V	267	29.1	16.0

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	113.7 PK			2.77 H	209	71.8	41.9
2	*5580.00	103.1 AV			2.77 H	209	61.2	41.9
3	11160.00	58.5 PK	74.0	-15.5	2.05 H	38	42.8	15.7
4	11160.00	45.3 AV	54.0	-8.7	2.05 H	38	29.6	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	*5580.00	111.5 PK			3.46 V	147	69.6	41.9
2	*5580.00	101.0 AV			3.46 V	147	59.1	41.9
3	11160.00	58.1 PK	74.0	-15.9	3.23 V	263	42.4	15.7
4	11160.00	44.7 AV	54.0	-9.3	3.23 V	263	29.0	15.7

Remark:

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	113.4 PK			2.76 H	207	71.3	42.1
2	*5700.00	102.7 AV			2.76 H	207	60.6	42.1
3	#5725.00	58.0 PK	74.0	-16.0	2.88 H	230	54.3	3.7
4	#5725.00	46.3 AV	54.0	-7.7	2.88 H	230	42.6	3.7
5	11400.00	59.0 PK	74.0	-15.0	2.11 H	42	43.0	16.0
6	11400.00	45.4 AV	54.0	-8.6	2.11 H	42	29.4	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	111.6 PK			3.50 V	143	69.5	42.1
2	*5700.00	101.1 AV			3.50 V	143	59.0	42.1
3	#5725.00	57.0 PK	74.0	-17.0	3.61 V	162	53.3	3.7
4	#5725.00	45.1 AV	54.0	-8.9	3.61 V	162	41.4	3.7
5	11400.00	58.6 PK	74.0	-15.4	3.08 V	257	42.6	16.0
6	11400.00	45.1 AV	54.0	-8.9	3.08 V	257	29.1	16.0

Remark:

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.

802.11n (HT40)

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	56.0 PK	74.0	-18.0	2.56 H	43	53.4	2.6
2	5150.00	42.9 AV	54.0	-11.1	2.56 H	43	40.3	2.6
3	*5270.00	110.2 PK			2.77 H	53	69.6	40.6
4	*5270.00	100.3 AV			2.77 H	53	59.7	40.6
5	#10540.00	59.1 PK	74.0	-14.9	1.22 H	336	44.2	14.9
6	#10540.00	46.1 AV	54.0	-7.9	1.22 H	336	31.2	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	5150.00	55.6 PK	74.0	-18.4	3.41 V	228	53.0	2.6
2	5150.00	42.8 AV	54.0	-11.2	3.41 V	228	40.2	2.6
3	*5270.00	107.4 PK			3.52 V	245	66.8	40.6
4	*5270.00	97.7 AV			3.52 V	245	57.1	40.6
5	#10540.00	58.5 PK	74.0	-15.5	2.69 V	112	43.6	14.9
6	#10540.00	45.7 AV	54.0	-8.3	2.69 V	112	30.8	14.9

Remark:

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	110.2 PK			3.02 H	53	69.6	40.6
2	*5310.00	100.2 AV			3.02 H	53	59.6	40.6
3	5350.00	59.6 PK	74.0	-14.4	2.88 H	52	56.8	2.8
4	5350.00	47.7 AV	54.0	-6.3	2.88 H	52	44.9	2.8
5	10620.00	59.8 PK	74.0	-14.2	2.78 H	152	44.5	15.3
6	10620.00	46.9 AV	54.0	-7.1	2.78 H	152	31.6	15.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	107.1 PK			3.65 V	243	66.5	40.6
2	*5310.00	96.8 AV			3.65 V	243	56.2	40.6
3	5350.00	58.4 PK	74.0	-15.6	3.40 V	258	55.6	2.8
4	5350.00	45.9 AV	54.0	-8.1	3.40 V	258	43.1	2.8
5	10620.00	59.2 PK	74.0	-14.8	2.75 V	104	43.9	15.3
6	10620.00	46.5 AV	54.0	-7.5	2.75 V	104	31.2	15.3

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.5 PK	74.0	-19.5	3.01 H	231	51.3	3.2
2	5460.00	43.5 AV	54.0	-10.5	3.01 H	231	40.3	3.2
3	#5470.00	55.6 PK	74.0	-18.4	2.88 H	230	52.4	3.2
4	#5470.00	44.4 AV	54.0	-9.6	2.88 H	230	41.2	3.2
5	*5510.00	111.0 PK			2.96 H	225	69.4	41.6
6	*5510.00	101.3 AV			2.96 H	225	59.7	41.6
7	11020.00	57.8 PK	74.0	-16.2	1.81 H	45	42.0	15.8
8	11020.00	44.7 AV	54.0	-9.3	1.81 H	45	28.9	15.8
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	5460.00	54.2 PK	74.0	-19.8	3.54 V	179	51.0	3.2
2	5460.00	43.3 AV	54.0	-10.7	3.54 V	179	40.1	3.2
3	#5470.00	55.3 PK	74.0	-18.7	3.58 V	166	52.1	3.2
4	#5470.00	44.1 AV	54.0	-9.9	3.58 V	166	40.9	3.2
5	*5510.00	108.7 PK			3.71 V	160	67.1	41.6
6	*5510.00	98.5 AV			3.71 V	160	56.9	41.6
7	11020.00	58.0 PK	74.0	-16.0	2.99 V	305	42.2	15.8
8	11020.00	44.5 AV	54.0	-9.5	2.99 V	305	28.7	15.8

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	111.3 PK			3.08 H	224	69.5	41.8
2	*5550.00	101.2 AV			3.08 H	224	59.4	41.8
3	11100.00	57.9 PK	74.0	-16.1	1.86 H	52	42.2	15.7
4	11100.00	44.8 AV	54.0	-9.2	1.86 H	52	29.1	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	*5550.00	109.1 PK			3.69 V	161	67.3	41.8
2	*5550.00	98.8 AV			3.69 V	161	57.0	41.8
3	11100.00	57.7 PK	74.0	-16.3	2.96 V	312	42.0	15.7
4	11100.00	44.3 AV	54.0	-9.7	2.96 V	312	28.6	15.7

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	110.0 PK			2.96 H	228	68.2	41.8
2	*5670.00	100.4 AV			2.96 H	228	58.6	41.8
3	#5725.00	55.7 PK	74.0	-18.3	3.10 H	241	52.0	3.7
4	#5725.00	44.2 AV	54.0	-9.8	3.10 H	241	40.5	3.7
5	11340.00	57.9 PK	74.0	-16.1	1.94 H	38	41.9	16.0
6	11340.00	44.8 AV	54.0	-9.2	1.94 H	38	28.8	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	108.7 PK			3.62 V	154	66.9	41.8
2	*5670.00	98.6 AV			3.62 V	154	56.8	41.8
3	#5725.00	55.1 PK	74.0	-18.9	3.68 V	135	51.4	3.7
4	#5725.00	44.0 AV	54.0	-10.0	3.68 V	135	40.3	3.7
5	11340.00	58.0 PK	74.0	-16.0	2.90 V	319	42.0	16.0
6	11340.00	44.6 AV	54.0	-9.4	2.90 V	319	28.6	16.0

Remark:

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	56.6 PK	74.0	-17.4	2.86 H	48	54.0	2.6
2	5150.00	43.6 AV	54.0	-10.4	2.86 H	48	41.0	2.6
3	*5290.00	106.6 PK			2.89 H	52	66.0	40.6
4	*5290.00	96.7 AV			2.89 H	52	56.1	40.6
5	5350.00	60.8 PK	74.0	-13.2	2.63 H	87	58.0	2.8
6	5350.00	49.0 AV	54.0	-5.0	2.63 H	87	46.2	2.8
7	#10580.00	59.3 PK	74.0	-14.7	1.25 H	332	44.2	15.1
8	#10580.00	46.6 AV	54.0	-7.4	1.25 H	332	31.5	15.1
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	5150.00	56.1 PK	74.0	-17.9	3.64 V	229	53.5	2.6
2	5150.00	43.1 AV	54.0	-10.9	3.64 V	229	40.5	2.6
3	*5290.00	104.2 PK			3.60 V	221	63.6	40.6
4	*5290.00	94.6 AV			3.60 V	221	54.0	40.6
5	5350.00	59.2 PK	74.0	-14.8	3.51 V	214	56.4	2.8
6	5350.00	47.2 AV	54.0	-6.8	3.51 V	214	44.4	2.8
7	#10580.00	58.9 PK	74.0	-15.1	2.77 V	92	43.8	15.1
8	#10580.00	46.3 AV	54.0	-7.7	2.77 V	92	31.2	15.1

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.0 PK	74.0	-17.0	2.93 H	222	53.8	3.2
2	5460.00	44.8 AV	54.0	-9.2	2.93 H	222	41.6	3.2
3	#5470.00	57.8 PK	74.0	-16.2	3.00 H	238	54.6	3.2
4	#5470.00	45.7 AV	54.0	-8.3	3.00 H	238	42.5	3.2
5	*5530.00	107.4 PK			2.97 H	227	65.6	41.8
6	*5530.00	97.8 AV			2.97 H	227	56.0	41.8
7	#5725.00	56.3 PK	74.0	-17.7	3.22 H	201	52.6	3.7
8	#5725.00	44.0 AV	54.0	-10.0	3.22 H	201	40.3	3.7
9	11060.00	58.0 PK	74.0	-16.0	2.15 H	77	42.3	15.7
10	11060.00	44.8 AV	54.0	-9.2	2.15 H	77	29.1	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	5460.00	56.4 PK	74.0	-17.6	3.41 V	152	53.2	3.2
2	5460.00	44.7 AV	54.0	-9.3	3.41 V	152	41.5	3.2
3	#5470.00	57.1 PK	74.0	-16.9	3.46 V	143	53.9	3.2
4	#5470.00	45.5 AV	54.0	-8.5	3.46 V	143	42.3	3.2
5	*5530.00	104.9 PK			3.52 V	149	63.1	41.8
6	*5530.00	95.7 AV			3.52 V	149	53.9	41.8
7	#5725.00	56.1 PK	74.0	-17.9	3.55 V	158	52.4	3.7
8	#5725.00	43.8 AV	54.0	-10.2	3.55 V	158	40.1	3.7
9	11060.00	57.7 PK	74.0	-16.3	2.81 V	331	42.0	15.7
10	11060.00	44.6 AV	54.0	-9.4	2.81 V	331	28.9	15.7

Remark:

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	5460.00	56.0 PK	74.0	-18.0	3.27 H	240	52.8	3.2
2	5460.00	43.0 AV	54.0	-11.0	3.27 H	240	39.8	3.2
3	#5470.00	56.6 PK	74.0	-17.4	3.18 H	231	53.4	3.2
4	#5470.00	43.3 AV	54.0	-10.7	3.18 H	231	40.1	3.2
5	*5610.00	107.4 PK			3.22 H	225	65.6	41.8
6	*5610.00	97.4 AV			3.22 H	225	55.6	41.8
7	#5725.00	58.0 PK	74.0	-16.0	3.14 H	210	54.3	3.7
8	#5725.00	45.3 AV	54.0	-8.7	3.14 H	210	41.6	3.7
9	11220.00	58.4 PK	74.0	-15.6	2.22 H	84	42.5	15.9
10	11220.00	44.9 AV	54.0	-9.1	2.22 H	84	29.0	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	5460.00	55.3 PK	74.0	-18.7	3.41 V	139	52.1	3.2
2	5460.00	42.7 AV	54.0	-11.3	3.41 V	139	39.5	3.2
3	#5470.00	56.2 PK	74.0	-17.8	3.59 V	164	53.0	3.2
4	#5470.00	43.2 AV	54.0	-10.8	3.59 V	164	40.0	3.2
5	*5610.00	105.1 PK			3.48 V	148	63.3	41.8
6	*5610.00	95.5 AV			3.48 V	148	53.7	41.8
7	#5725.00	57.2 PK	74.0	-16.8	3.40 V	130	53.5	3.7
8	#5725.00	44.8 AV	54.0	-9.2	3.40 V	130	41.1	3.7
9	11220.00	58.2 PK	74.0	-15.8	3.33 V	335	42.3	15.9
10	11220.00	44.6 AV	54.0	-9.4	3.33 V	335	28.7	15.9

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	56.3 PK	74.0	-17.7	1.22 H	198	53.1	3.2
2	#5470.00	43.0 AV	54.0	-11.0	1.22 H	198	39.8	3.2
3	*5690.00	107.5 PK			1.54 H	211	65.5	42.0
4	*5690.00	97.2 AV			1.54 H	211	55.2	42.0
5	#5850.00	58.2 PK	74.0	-15.8	1.33 H	256	53.6	4.6
6	#5850.00	44.8 AV	54.0	-9.2	1.33 H	256	40.2	4.6
7	11380.00	59.1 PK	74.0	-14.9	1.33 H	56	43.1	16.0
8	11380.00	45.3 AV	54.0	-8.7	1.33 H	56	29.3	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	56.6 PK	74.0	-17.4	3.00 V	255	53.4	3.2
2	#5470.00	43.2 AV	54.0	-10.8	3.00 V	255	40.0	3.2
3	*5690.00	103.4 PK			3.81 V	353	61.4	42.0
4	*5690.00	94.2 AV			3.81 V	353	52.2	42.0
5	#5850.00	57.7 PK	74.0	-16.3	3.56 V	302	53.1	4.6
6	#5850.00	44.7 AV	54.0	-9.3	3.56 V	302	40.1	4.6
7	11380.00	58.9 PK	74.0	-15.1	1.52 V	36	42.9	16.0
8	11380.00	44.9 AV	54.0	-9.1	1.52 V	36	28.9	16.0

Remark:

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+VHT80)

CHANNEL	TX Channel 42+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	57.0 PK	74.0	-17.0	1.23 H	178	54.4	2.6
2	5150.00	44.3 AV	54.0	-9.7	1.23 H	178	41.7	2.6
3	*5210.00	102.7 PK			1.02 H	159	61.9	40.8
4	*5210.00	92.5 AV			1.02 H	159	51.7	40.8
5	*5290.00	101.5 PK			1.43 H	306	60.9	40.6
6	*5290.00	91.6 AV			1.43 H	306	51.0	40.6
7	5350.00	59.2 PK	74.0	-14.8	1.69 H	311	56.4	2.8
8	5350.00	46.3 AV	54.0	-7.7	1.69 H	311	43.5	2.8
9	#10420.00	58.1 PK	74.0	-15.9	2.25 H	153	43.3	14.8
10	#10420.00	44.6 AV	54.0	-9.4	2.25 H	153	29.8	14.8
11	#10580.00	58.8 PK	74.0	-15.2	2.65 H	220	43.7	15.1
12	#10580.00	44.7 AV	54.0	-9.3	2.65 H	220	29.6	15.1
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	5150.00	58.5 PK	74.0	-15.5	2.99 V	172	52.7	5.8
2	5150.00	44.6 AV	54.0	-9.4	2.99 V	172	38.8	5.8
3	*5210.00	100.3 PK			3.24 V	356	59.5	40.8
4	*5210.00	89.9 AV			3.24 V	356	49.1	40.8
5	*5290.00	101.2 PK			3.37 V	148	60.6	40.6
6	*5290.00	90.5 AV			3.37 V	148	49.9	40.6
7	5350.00	58.7 PK	74.0	-15.3	3.00 V	308	52.8	5.9
8	5350.00	45.9 AV	54.0	-8.1	3.00 V	308	40.0	5.9
9	#10420.00	60.6 PK	74.0	-13.4	1.53 V	98	42.3	18.3
10	#10420.00	44.6 AV	54.0	-9.4	1.53 V	98	26.3	18.3
11	#10580.00	60.4 PK	74.0	-13.6	2.65 V	32	41.8	18.6
12	#10580.00	44.8 AV	54.0	-9.2	2.65 V	32	26.2	18.6

Remark:

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+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	#5470.00	58.4 PK	74.0	-15.6	2.00 H	318	55.2	3.2
2	#5470.00	44.0 AV	54.0	-10.0	2.00 H	318	40.8	3.2
3	*5530.00	102.8 PK			1.08 H	117	61.0	41.8
4	*5530.00	92.7 AV			1.08 H	117	50.9	41.8
5	*5610.00	102.8 PK			1.31 H	294	61.0	41.8
6	*5610.00	92.6 AV			1.31 H	294	50.8	41.8
7	#5725.00	57.8 PK	74.0	-16.2	1.59 H	144	54.1	3.7
8	#5725.00	44.8 AV	54.0	-9.2	1.59 H	144	41.1	3.7
9	11060.00	59.0 PK	74.0	-15.0	2.65 H	33	43.3	15.7
10	11060.00	45.6 AV	54.0	-8.4	2.65 H	33	29.9	15.7
11	11220.00	58.9 PK	74.0	-15.1	2.65 H	99	43.0	15.9
12	11220.00	45.4 AV	54.0	-8.6	2.65 H	99	29.5	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	#5470.00	58.0 PK	74.0	-16.0	3.06 V	105	51.6	6.4
2	#5470.00	44.8 AV	54.0	-9.2	3.06 V	105	38.4	6.4
3	*5530.00	100.6 PK			3.79 V	152	58.8	41.8
4	*5530.00	90.2 AV			3.79 V	152	48.4	41.8
5	*5610.00	99.4 PK			3.01 V	127	57.6	41.8
6	*5610.00	89.8 AV			3.01 V	127	48.0	41.8
7	#5725.00	59.0 PK	74.0	-15.0	2.50 V	198	52.1	6.9
8	#5725.00	44.2 AV	54.0	-9.8	2.50 V	198	37.3	6.9
9	11060.00	60.8 PK	74.0	-13.2	1.52 V	32	41.6	19.2
10	11060.00	45.8 AV	54.0	-8.2	1.52 V	32	26.6	19.2
11	11220.00	61.0 PK	74.0	-13.0	2.50 V	68	41.6	19.4
12	11220.00	45.7 AV	54.0	-8.3	2.50 V	68	26.3	19.4

Remark:

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+155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	57.0 PK	74.0	-17.0	1.67 H	223	53.8	3.2
2	#5470.00	43.7 AV	54.0	-10.3	1.67 H	223	40.5	3.2
3	**#5644.80**	**64.6 PK**	**68.2**	**-3.6**	**1.68 H**	**335**	**58.1**	**6.5**
4	*5690.00	101.8 PK			1.26 H	118	59.8	42.0
5	*5690.00	92.2 AV			1.26 H	118	50.2	42.0
6	*5775.00	102.7 PK			1.68 H	335	60.3	42.4
7	*5775.00	92.9 AV			1.68 H	335	50.5	42.4
8	#5850.00	60.2 PK	74.0	-13.8	3.38 H	273	55.6	4.6
9	#5850.00	49.8 AV	54.0	-4.2	3.38 H	273	45.2	4.6
10	#5960.80	61.5 PK	68.2	-6.7	1.68 H	335	53.6	7.9
11	11380.00	59.6 PK	74.0	-14.4	1.66 H	32	43.6	16.0
12	11380.00	45.8 AV	54.0	-8.2	1.66 H	32	29.8	16.0
13	11550.00	59.3 PK	74.0	-14.7	1.52 H	86	43.3	16.0
14	11550.00	45.6 AV	54.0	-8.4	1.52 H	86	29.6	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	56.9 PK	74.0	-17.1	3.20 V	250	53.7	3.2
2	#5470.00	44.3 AV	54.0	-9.7	3.20 V	250	41.1	3.2
3	#5644.80	61.4 PK	68.2	-6.8	3.40 V	242	54.9	6.5
4	*5690.00	101.0 PK			3.40 V	135	59.0	42.0
5	*5690.00	90.6 AV			3.40 V	135	48.6	42.0
6	*5775.00	101.1 PK			3.40 V	242	58.7	42.4
7	*5775.00	91.1 AV			3.40 V	242	48.7	42.4
8	#5850.00	59.9 PK	74.0	-14.1	2.83 V	266	55.3	4.6
9	#5850.00	47.7 AV	54.0	-6.3	2.83 V	266	43.1	4.6
10	#5971.20	60.6 PK	68.2	-7.6	3.40 V	242	52.8	7.8
11	11380.00	59.7 PK	74.0	-14.3	1.25 V	332	43.7	16.0
12	11380.00	46.1 AV	54.0	-7.9	1.25 V	332	30.1	16.0
13	11550.00	59.5 PK	74.0	-14.5	1.55 V	256	43.5	16.0
14	11550.00	46.0 AV	54.0	-8.0	1.55 V	256	30.0	16.0

Remark:

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 worst-case data: 802.11a

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	A

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	57.12	26.6 QP	40.0	-13.4	2.00 H	12	41.0	-14.4
2	70.73	24.8 QP	40.0	-15.2	2.00 H	312	41.0	-16.2
3	235.99	32.4 QP	46.0	-13.6	1.50 H	294	48.0	-15.6
4	283.13	38.4 QP	46.0	-7.6	1.00 H	0	51.5	-13.1
5	477.09	37.6 QP	46.0	-8.4	2.00 H	12	47.3	-9.7
6	624.85	28.8 QP	46.0	-17.2	1.50 H	206	35.6	-6.8
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	57.12	26.1 QP	40.0	-13.9	1.00 V	324	40.5	-14.4
2	125.17	23.7 QP	43.5	-19.8	1.49 V	244	39.6	-15.9
3	235.99	32.9 QP	46.0	-13.1	1.00 V	237	48.5	-15.6
4	282.66	30.2 QP	46.0	-15.8	1.00 V	70	43.3	-13.1
5	374.04	28.0 QP	46.0	-18.0	1.00 V	252	39.6	-11.6
6	469.31	30.9 QP	46.0	-15.1	1.00 V	246	40.7	-9.8

Remark:

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

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE	B

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	57.12	26.4 QP	40.0	-13.6	1.99 H	1	40.8	-14.4
2	131.00	24.5 QP	43.5	-19.0	1.99 H	331	39.8	-15.3
3	283.51	38.2 QP	46.0	-7.8	1.00 H	4	51.3	-13.1
4	374.04	30.4 QP	46.0	-15.6	1.00 H	15	42.0	-11.6
5	451.81	35.3 QP	46.0	-10.7	1.99 H	21	45.4	-10.1
6	624.85	28.1 QP	46.0	-17.9	1.49 H	29	34.9	-6.8
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	31.84	25.1 QP	40.0	-14.9	1.00 V	174	41.1	-16.0
2	101.84	24.7 QP	43.5	-18.8	1.00 V	113	43.0	-18.3
3	282.66	30.3 QP	46.0	-15.7	1.00 V	134	43.4	-13.1
4	374.04	29.1 QP	46.0	-16.9	1.50 V	293	40.7	-11.6
5	473.20	31.3 QP	46.0	-14.7	1.00 V	249	41.0	-9.7
6	624.85	29.1 QP	46.0	-16.9	1.00 V	344	35.9	-6.8

Remark:

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.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
			Mar. 06, 2018	Mar. 05, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

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.

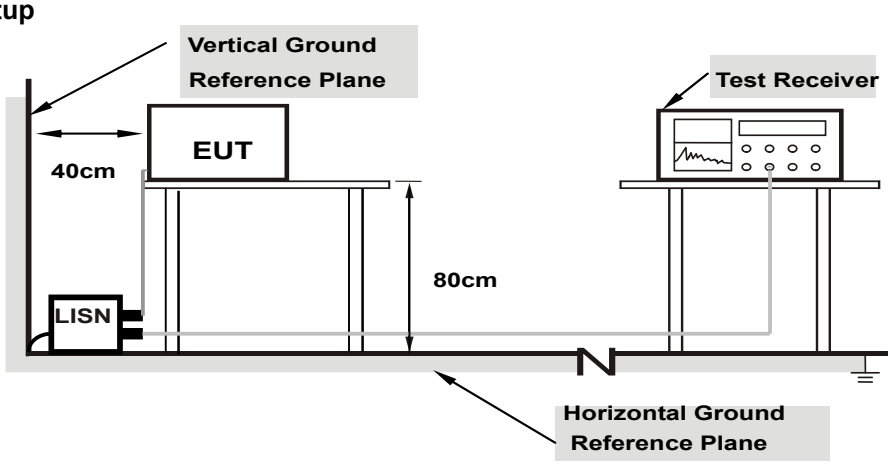
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

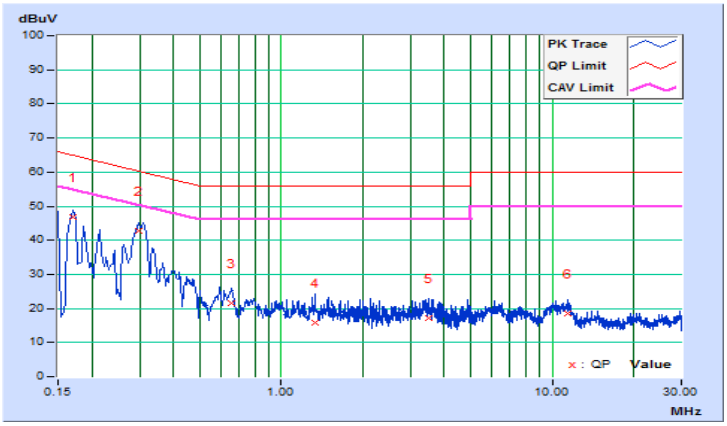
4.2.7 Test Results

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

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	0.17000	10.10	36.55	22.52	46.65	32.62	64.96	54.96	-18.31	-22.34
2	0.29800	10.11	32.52	22.30	42.63	32.41	60.30	50.30	-17.67	-17.89
3	0.65800	10.13	11.30	6.60	21.43	16.73	56.00	46.00	-34.57	-29.27
4	1.33000	10.16	5.77	1.19	15.93	11.35	56.00	46.00	-40.07	-34.65
5	3.52218	10.26	6.99	0.77	17.25	11.03	56.00	46.00	-38.75	-34.97
6	11.37000	10.70	7.81	3.09	18.51	13.79	60.00	50.00	-41.49	-36.21

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.

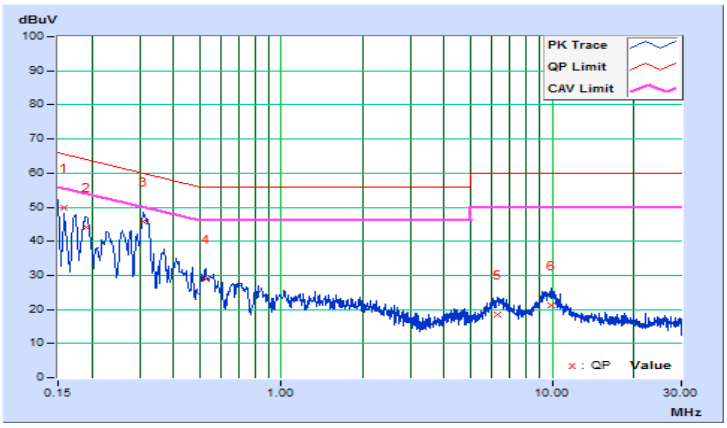


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

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	0.15800	10.10	39.78	22.69	49.88	32.79	65.57	55.57	-15.69	-22.78
2	0.19013	10.10	33.97	19.56	44.07	29.66	64.03	54.03	-19.96	-24.37
3	0.31000	10.11	35.77	28.86	45.88	38.97	59.97	49.97	-14.09	-11.00
4	0.52567	10.12	18.86	13.12	28.98	23.24	56.00	46.00	-27.02	-22.76
5	6.25800	10.36	8.17	1.54	18.53	11.90	60.00	50.00	-41.47	-38.10
6	9.87400	10.51	10.59	5.99	21.10	16.50	60.00	50.00	-38.90	-33.50

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.

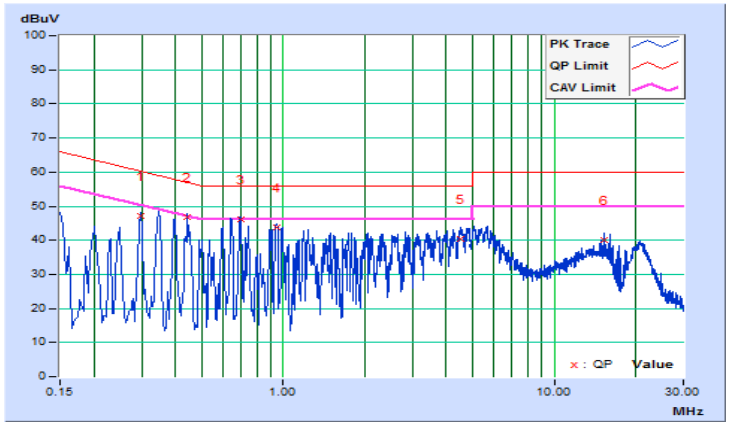


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.29800	10.11	36.91	33.81	47.02	43.92	60.30	50.30	-13.28	-6.38
2	0.44200	10.12	36.77	30.33	46.89	40.45	57.02	47.02	-10.13	-6.57
3	0.69502	10.13	35.98	29.66	46.11	39.79	56.00	46.00	-9.89	-6.21
4	0.94594	10.14	33.79	27.15	43.93	37.29	56.00	46.00	-12.07	-8.71
5	4.50600	10.31	30.14	23.03	40.45	33.34	56.00	46.00	-15.55	-12.66
6	15.22600	10.93	29.05	26.23	39.98	37.16	60.00	50.00	-20.02	-12.84

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.

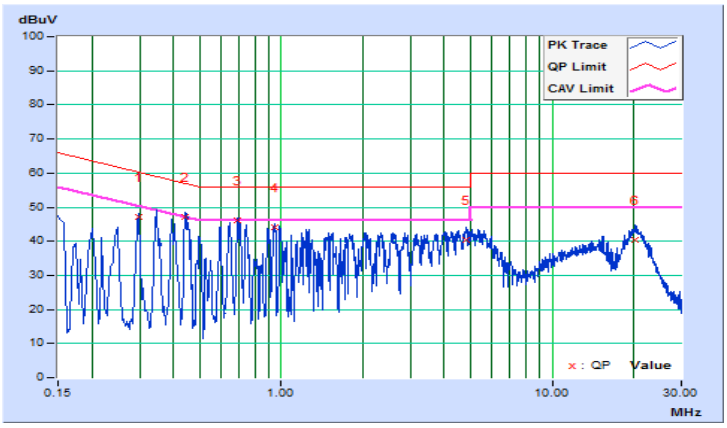


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.29800	10.11	37.13	33.96	47.24	44.07	60.30	50.30	-13.06	-6.23
2	**0.44200**	**10.12**	**37.16**	**30.79**	**47.28**	**40.91**	**57.02**	**47.02**	**-9.74**	**-6.11**
3	0.69136	10.12	36.15	29.47	46.27	39.59	56.00	46.00	-9.73	-6.41
4	0.94594	10.13	34.05	27.72	44.18	37.85	56.00	46.00	-11.82	-8.15
5	4.79000	10.30	30.02	23.10	40.32	33.40	56.00	46.00	-15.68	-12.60
6	20.15000	10.94	29.60	24.52	40.54	35.46	60.00	50.00	-19.46	-14.54

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

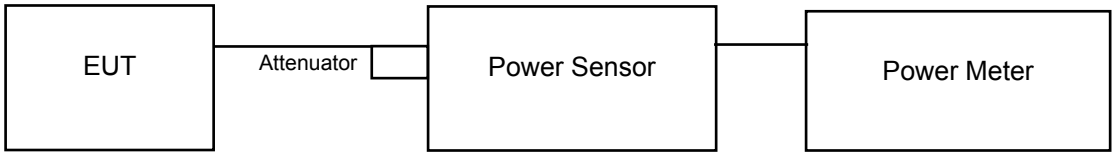
Operation Band	EUT Category		LIMIT
U-NII-1	---	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	---	Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
	---	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

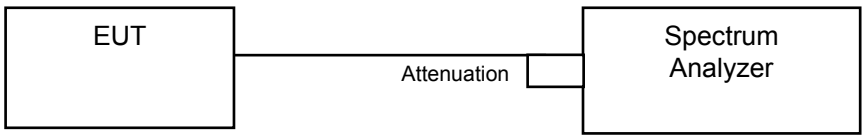
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz 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 26dB and 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 802.11a, 802.11n (HT20), 802.11n (HT40)

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 802.11ac (VHT80), 802.11ac (VHT80+VHT80)

a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
b. Set sweep trigger to “free run”.
c. Set RBW = 1 MHz.
d. Set VBW ≥ 3 MHz
e. Number of points in sweep ≥ 2 Span / RBW.
f. Sweep time ≤ (number of points in sweep) * T
g. Detector = RMS.
h. Trace mode = max hold.
i. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

For Occupied Bandwidth

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300 kHz RBW and 1MHz VBW. 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.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

CDD Mode

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	15.79	15.92	15.92	15.88	154.825	21.90	23.91	Pass
60	5300	15.81	15.97	15.90	15.83	154.831	21.90	23.91	Pass
64	5320	15.75	15.93	15.97	15.84	154.666	21.89	23.92	Pass
100	5500	14.41	14.47	14.40	14.33	110.240	20.42	23.88	Pass
116	5580	14.45	14.33	14.46	14.48	110.942	20.45	23.91	Pass
140	5700	14.48	14.53	14.49	14.43	112.285	20.50	23.98	Pass

Note:

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

Chain 0

1. 11dBm + 10log(19.97) = 24.00 dBm = 24dBm.
2. 11dBm + 10log(19.93) = 24.00 dBm = 24dBm.
3. 11dBm + 10log(19.81) = 23.97 dBm < 24dBm.
4. 11dBm + 10log(19.83) = 23.97 dBm < 24dBm.
5. 11dBm + 10log(19.77) = 23.96 dBm < 24dBm.
6. 11dBm + 10log(20.04) = 24.02 dBm > 24dBm.

Chain 1

1. 11dBm + 10log(20.05) = 24.02 dBm > 24dBm.
2. 11dBm + 10log(19.91) = 23.99 dBm < 24dBm.
3. 11dBm + 10log(19.96) = 24.00 dBm = 24dBm.
4. 11dBm + 10log(20.02) = 24.01 dBm > 24dBm.
5. 11dBm + 10log(19.57) = 23.91 dBm < 24dBm.
6. 11dBm + 10log(20.13) = 24.04 dBm > 24dBm.

Chain 2

1. 11dBm + 10log(19.78) = 23.96 dBm < 24dBm.
2. 11dBm + 10log(19.95) = 24.00 dBm > 24dBm.
3. 11dBm + 10log(20.03) = 24.02 dBm > 24dBm.
4. 11dBm + 10log(19.42) = 23.88 dBm < 24dBm.
5. 11dBm + 10log(19.92) = 23.99 dBm < 24dBm.
6. 11dBm + 10log(20.12) = 24.04 dBm > 24dBm.

Chain 3

1. 11dBm + 10log(19.55) = 23.91 dBm < 24dBm.
2. 11dBm + 10log(19.57) = 23.91 dBm < 24dBm.
3. 11dBm + 10log(19.59) = 23.92 dBm < 24dBm.
4. 11dBm + 10log(19.65) = 23.93 dBm < 24dBm.
5. 11dBm + 10log(19.65) = 23.93 dBm < 24dBm.
6. 11dBm + 10log(19.89) = 23.98 dBm < 24dBm.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	16.45	16.14	16.19	16.20	168.550	22.27	23.92	Pass
60	5300	16.16	16.23	16.28	16.25	167.913	22.25	24.00	Pass
64	5320	16.03	16.17	16.22	16.28	165.828	22.20	24.00	Pass
100	5500	15.38	15.48	15.20	15.22	136.211	21.34	24.00	Pass
116	5580	15.27	15.45	15.36	15.16	135.892	21.33	24.00	Pass
140	5700	15.47	15.57	15.44	15.27	139.941	21.46	24.00	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(21.12) = 24.25 dBm > 24dBm.
2. 11dBm + 10log(20.85) = 24.19 dBm > 24dBm.
3. 11dBm + 10log(20.97) = 24.22 dBm > 24dBm.
4. 11dBm + 10log(20.67) = 24.15 dBm > 24dBm.
5. 11dBm + 10log(20.96) = 24.21 dBm > 24dBm.
6. 11dBm + 10log(20.81) = 24.18 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(20.86) = 24.19 dBm > 24dBm.
2. 11dBm + 10log(20.57) = 24.13 dBm > 24dBm.
3. 11dBm + 10log(20.91) = 24.20 dBm > 24dBm.
4. 11dBm + 10log(20.88) = 24.20 dBm > 24dBm.
5. 11dBm + 10log(20.64) = 24.15 dBm > 24dBm.
6. 11dBm + 10log(20.63) = 24.14 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(19.60) = 23.92 dBm < 24dBm.
2. 11dBm + 10log(20.62) = 24.14 dBm > 24dBm.
3. 11dBm + 10log(20.70) = 24.16 dBm > 24dBm.
4. 11dBm + 10log(20.67) = 24.15 dBm > 24dBm.
5. 11dBm + 10log(20.83) = 24.19 dBm > 24dBm.
6. 11dBm + 10log(20.88) = 24.20 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(20.49) = 24.12 dBm > 24dBm.
2. 11dBm + 10log(20.65) = 24.15 dBm > 24dBm.
3. 11dBm + 10log(20.43) = 24.10 dBm > 24dBm.
4. 11dBm + 10log(20.78) = 24.18 dBm > 24dBm.
5. 11dBm + 10log(20.70) = 24.16 dBm > 24dBm.
6. 11dBm + 10log(20.54) = 24.13 dBm > 24dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	17.73	17.68	17.96	17.80	240.680	23.81	24.00	Pass
62	5310	17.70	17.72	17.94	17.77	240.111	23.80	24.00	Pass
102	5510	17.53	17.46	17.47	17.10	219.476	23.41	24.00	Pass
110	5550	17.55	17.44	17.48	17.09	219.492	23.41	24.00	Pass
134	5670	17.51	17.42	17.45	17.04	217.744	23.38	24.00	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(41.41) = 27.17 dBm > 24dBm.
2. 11dBm + 10log(41.17) = 27.15 dBm > 24dBm.
3. 11dBm + 10log(41.05) = 27.13 dBm > 24dBm.
4. 11dBm + 10log(40.85) = 27.11 dBm > 24dBm.
5. 11dBm + 10log(40.90) = 27.12 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(40.64) = 27.09 dBm > 24dBm.
2. 11dBm + 10log(41.07) = 27.14 dBm > 24dBm.
3. 11dBm + 10log(40.75) = 27.10 dBm > 24dBm.
4. 11dBm + 10log(40.83) = 27.11 dBm > 24dBm.
5. 11dBm + 10log(40.88) = 27.12 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(40.72) = 27.10 dBm > 24dBm.
2. 11dBm + 10log(40.91) = 27.12 dBm > 24dBm.
3. 11dBm + 10log(41.11) = 27.14 dBm > 24dBm.
4. 11dBm + 10log(41.06) = 27.13 dBm > 24dBm.
5. 11dBm + 10log(40.95) = 27.12 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(40.82) = 27.11 dBm > 24dBm.
2. 11dBm + 10log(40.88) = 27.12 dBm > 24dBm.
3. 11dBm + 10log(40.86) = 27.11 dBm > 24dBm.
4. 11dBm + 10log(40.68) = 27.09 dBm > 24dBm.
5. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	17.75	17.83	17.97	17.99	**245.852**	23.91	24.00	Pass
106	5530	17.83	17.75	17.70	17.57	**236.272**	23.73	24.00	Pass
122	5610	17.80	17.71	17.66	17.60	235.165	23.71	24.00	Pass
U-NII-2C -138	5690	17.45	17.36	17.32	17.29	231.577	23.65	24.00	Pass
U-NII-3 -138	5690	6.83	7.05	6.68	6.63	20.381	13.09	30.00	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(84.27) = 30.26 dBm > 24dBm.
2. 11dBm + 10log(84.12) = 30.25 dBm > 24dBm.
3. 11dBm + 10log(83.66) = 30.23 dBm > 24dBm.
4. 11dBm + 10log(77.23) = 29.88 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(83.59) = 30.22 dBm > 24dBm.
2. 11dBm + 10log(83.44) = 30.21 dBm > 24dBm.
3. 11dBm + 10log(83.70) = 30.23 dBm > 24dBm.
4. 11dBm + 10log(76.68) = 29.85 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(83.23) = 30.20 dBm > 24dBm.
2. 11dBm + 10log(83.76) = 30.23 dBm > 24dBm.
3. 11dBm + 10log(83.59) = 30.22 dBm > 24dBm.
4. 11dBm + 10log(76.32) = 29.83 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(83.54) = 30.22 dBm > 24dBm.
2. 11dBm + 10log(83.35) = 30.21 dBm > 24dBm.
3. 11dBm + 10log(83.48) = 30.22 dBm > 24dBm.
4. 11dBm + 10log(77.29) = 29.88 dBm > 24dBm.

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	17.89	17.50	-	-	**117.752**	20.71	30.00	Pass
58	5290	-	-	17.73	17.45	114.883	20.60	24.00	Pass
106	5530	17.41	17.13	-	-	106.723	20.28	24.00	Pass
122	5610	-	-	17.34	17.27	107.533	20.32	24.00	Pass
U-NII-2C -138	5690	16.77	16.65	-	-	99.925	20.00	24.00	Pass
U-NII-3 -138	5690	6.51	6.38	-	-	9.401	9.73	30.00	Pass
155	5775	-	-	17.36	16.72	**101.439**	20.06	30.00	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(83.96) = 30.24 dBm > 24dBm.
2. 11dBm + 10log(83.83) = 30.23 dBm > 24dBm.
3. 11dBm + 10log(77.02) = 29.87 dBm > 24dBm.
Chain 1
1. 11dBm + 10log(83.95) = 30.24 dBm > 24dBm.
2. 11dBm + 10log(84.11) = 30.25 dBm > 24dBm.
3. 11dBm + 10log(76.70) = 29.85 dBm > 24dBm.
Chain 2
1. 11dBm + 10log(84.11) = 30.25 dBm > 24dBm.
2. 11dBm + 10log(84.36) = 30.26 dBm > 24dBm.
Chain 3
1. 11dBm + 10log(83.94) = 30.24 dBm > 24dBm.
2. 11dBm + 10log(83.57) = 30.22 dBm > 24dBm.

Beamforming Mode

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	11.95	11.64	11.69	11.70	59.804	17.77	20.77	Pass
60	5300	11.66	11.73	11.78	11.75	59.577	17.75	20.85	Pass
64	5320	11.53	11.67	11.72	11.78	58.837	17.70	20.85	Pass
100	5500	10.88	10.98	10.70	10.72	48.329	16.84	20.50	Pass
116	5580	10.77	10.95	10.86	10.66	48.216	16.83	20.50	Pass
140	5700	10.97	11.07	10.94	10.77	49.654	16.96	20.50	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(21.12) = 24.25 dBm > 24dBm.
2. 11dBm + 10log(20.85) = 24.19 dBm > 24dBm.
3. 11dBm + 10log(20.97) = 24.22 dBm > 24dBm.
4. 11dBm + 10log(20.67) = 24.15 dBm > 24dBm.
5. 11dBm + 10log(20.96) = 24.21 dBm > 24dBm.
6. 11dBm + 10log(20.81) = 24.18 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(20.86) = 24.19 dBm > 24dBm.
2. 11dBm + 10log(20.57) = 24.13 dBm > 24dBm.
3. 11dBm + 10log(20.91) = 24.20 dBm > 24dBm.
4. 11dBm + 10log(20.88) = 24.20 dBm > 24dBm.
5. 11dBm + 10log(20.64) = 24.15 dBm > 24dBm.
6. 11dBm + 10log(20.63) = 24.14 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(19.60) = 23.92 dBm < 24dBm.
2. 11dBm + 10log(20.62) = 24.14 dBm > 24dBm.
3. 11dBm + 10log(20.70) = 24.16 dBm > 24dBm.
4. 11dBm + 10log(20.67) = 24.15 dBm > 24dBm.
5. 11dBm + 10log(20.83) = 24.19 dBm > 24dBm.
6. 11dBm + 10log(20.88) = 24.20 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(20.49) = 24.12 dBm > 24dBm.
2. 11dBm + 10log(20.65) = 24.15 dBm > 24dBm.
3. 11dBm + 10log(20.43) = 24.10 dBm > 24dBm.
4. 11dBm + 10log(20.78) = 24.18 dBm > 24dBm.
5. 11dBm + 10log(20.70) = 24.16 dBm > 24dBm.
6. 11dBm + 10log(20.54) = 24.13 dBm > 24dBm.

*U-NII-2A:

5260MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.15dBi > 6dBi, so the limit shall be reduced to 23.92-(9.15-6) = 20.77dBm.

5300MHz & 5320MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.15dBi > 6dBi, so the limit shall be reduced to 24-(9.15-6) = 20.85dBm.

*U-NII-2C: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.50dBi > 6dBi, so the limit shall be reduced to 24-(9.50-6) = 20.50dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	13.23	13.18	13.46	13.30	85.397	19.31	20.85	Pass
62	5310	13.20	13.22	13.44	13.27	85.194	19.30	20.85	Pass
102	5510	13.03	12.96	12.97	12.60	77.873	18.91	20.50	Pass
110	5550	13.05	12.94	12.98	12.59	77.879	18.91	20.50	Pass
134	5670	13.01	12.92	12.95	12.54	77.258	18.88	20.50	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(41.41) = 27.17 dBm > 24dBm.
2. 11dBm + 10log(41.17) = 27.15 dBm > 24dBm.
3. 11dBm + 10log(41.05) = 27.13 dBm > 24dBm.
4. 11dBm + 10log(40.85) = 27.11 dBm > 24dBm.
5. 11dBm + 10log(40.90) = 27.12 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(40.64) = 27.09 dBm > 24dBm.
2. 11dBm + 10log(41.07) = 27.14 dBm > 24dBm.
3. 11dBm + 10log(40.75) = 27.10 dBm > 24dBm.
4. 11dBm + 10log(40.83) = 27.11 dBm > 24dBm.
5. 11dBm + 10log(40.88) = 27.12 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(40.72) = 27.10 dBm > 24dBm.
2. 11dBm + 10log(40.91) = 27.12 dBm > 24dBm.
3. 11dBm + 10log(41.11) = 27.14 dBm > 24dBm.
4. 11dBm + 10log(41.06) = 27.13 dBm > 24dBm.
5. 11dBm + 10log(40.95) = 27.12 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(40.82) = 27.11 dBm > 24dBm.
2. 11dBm + 10log(40.88) = 27.12 dBm > 24dBm.
3. 11dBm + 10log(40.86) = 27.11 dBm > 24dBm.
4. 11dBm + 10log(40.68) = 27.09 dBm > 24dBm.
5. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm.

*U-NII-2A: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.15dBi > 6dBi, so the limit shall be reduced to 24-(9.15-6) = 20.85dBm.
*U-NII-2C: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.50dBi > 6dBi, so the limit shall be reduced to 24-(9.50-6) = 20.50dBm.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	13.25	13.33	13.47	13.49	**87.232**	19.41	20.85	Pass
106	5530	13.33	13.25	13.20	13.07	**83.833**	19.23	20.50	Pass
122	5610	13.30	13.21	13.16	13.10	83.439	19.21	20.50	Pass
U-NII-2C -138	5690	12.95	12.86	12.82	12.79	82.168	19.15	20.50	Pass
U-NII-3 -138	5690	2.33	2.55	2.18	2.13	7.231	8.59	26.26	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(84.27) = 30.26 dBm > 24dBm.
2. 11dBm + 10log(84.12) = 30.25 dBm > 24dBm.
3. 11dBm + 10log(83.66) = 30.23 dBm > 24dBm.
4. 11dBm + 10log(77.23) = 29.88 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(83.59) = 30.22 dBm > 24dBm.
2. 11dBm + 10log(83.44) = 30.21 dBm > 24dBm.
3. 11dBm + 10log(83.70) = 30.23 dBm > 24dBm.
4. 11dBm + 10log(76.68) = 29.85 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(83.23) = 30.20 dBm > 24dBm.
2. 11dBm + 10log(83.76) = 30.23 dBm > 24dBm.
3. 11dBm + 10log(83.59) = 30.22 dBm > 24dBm.
4. 11dBm + 10log(76.32) = 29.83 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(83.54) = 30.22 dBm > 24dBm.
2. 11dBm + 10log(83.35) = 30.21 dBm > 24dBm.
3. 11dBm + 10log(83.48) = 30.22 dBm > 24dBm.
4. 11dBm + 10log(77.29) = 29.88 dBm > 24dBm.

*U-NII-2A: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.15dBi > 6dBi, so the limit shall be reduced to 24-(9.15-6) = 20.85dBm.

*U-NII-2C: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.50dBi > 6dBi, so the limit shall be reduced to 24-(9.50-6) = 20.50dBm.

*U-NII-3: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.74dBi > 6dBi, so the limit shall be reduced to 30-(9.74-6) = 26.26dBm.

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	15.39	15.00	-	-	**66.217**	18.21	29.90	Pass
58	5290	-	-	15.23	15.20	66.456	18.23	23.98	Pass
106	5530	14.91	14.63	-	-	60.014	17.78	23.49	Pass
122	5610	-	-	14.84	14.77	60.471	17.82	23.52	Pass
U-NII-2C -138	5690	14.27	14.15	-	-	56.192	17.50	23.49	Pass
U-NII-3 -138	5690	4.01	3.88	-	-	5.287	7.23	29.25	Pass
155	5775	-	-	14.86	14.22	**57.044**	17.56	29.29	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(83.96) = 30.24 dBm > 24dBm.
2. 11dBm + 10log(83.83) = 30.23 dBm > 24dBm.
3. 11dBm + 10log(77.02) = 29.87 dBm > 24dBm.
Chain 1
1. 11dBm + 10log(83.95) = 30.24 dBm > 24dBm.
2. 11dBm + 10log(84.11) = 30.25 dBm > 24dBm.
3. 11dBm + 10log(76.70) = 29.85 dBm > 24dBm.
Chain 2
1. 11dBm + 10log(84.11) = 30.25 dBm > 24dBm.
2. 11dBm + 10log(84.36) = 30.26 dBm > 24dBm.
Chain 3
1. 11dBm + 10log(83.94) = 30.24 dBm > 24dBm.
2. 11dBm + 10log(83.57) = 30.22 dBm > 24dBm.

U-NII-1:
*5210MHz: Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$ + ... + 10$^{GN/20}$)^2/2]= 6.10dBi > 6dBi, so the limit shall be reduced to 30-(6.10-6) = 29.90dBm.

U-NII-2A:
*5290MHz: Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$ + ... + 10$^{GN/20}$)^2/2]= 6.02dBi > 6dBi, so the limit shall be reduced to 24-(6.02-6) = 23.98dBm.

U-NII-2C:
*5530MHz, U-NII-2C-5690MHz: Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$ + ... + 10$^{GN/20}$)^2/2]= 6.51dBi > 6dBi, so the limit shall be reduced to 24-(6.51-6) = 23.49dBm.
*5610MHz: Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$ + ... + 10$^{GN/20}$)^2/2]= 6.48dBi > 6dBi, so the limit shall be reduced to 24-(6.48-6) = 23.52dBm.

U-NII-3:
*U-NII-3-5690MHz: Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$ + ... + 10$^{GN/20}$)^2/2]= 6.75dBi > 6dBi, so the limit shall be reduced to 30-(6.75-6) = 29.25dBm.
*5775MHz: Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$ + ... + 10$^{GN/20}$)^2/2]= 6.71dBi > 6dBi, so the limit shall be reduced to 30-(6.71-6) = 29.29dBm.

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
52	5260	19.97	20.05	19.78	19.55	Pass
60	5300	19.93	19.91	19.95	19.57	Pass
64	5320	19.81	19.96	20.03	19.59	Pass
100	5500	19.83	20.02	19.42	19.65	Pass
116	5580	19.77	19.57	19.92	19.65	Pass
140	5700	20.04	20.13	20.12	19.89	Pass

802.11n (HT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
52	5260	21.12	20.86	19.60	20.49	Pass
60	5300	20.85	20.57	20.62	20.65	Pass
64	5320	20.97	20.91	20.70	20.43	Pass
100	5500	20.67	20.88	20.67	20.78	Pass
116	5580	20.96	20.64	20.83	20.70	Pass
140	5700	20.81	20.63	20.88	20.54	Pass

802.11n (HT40)

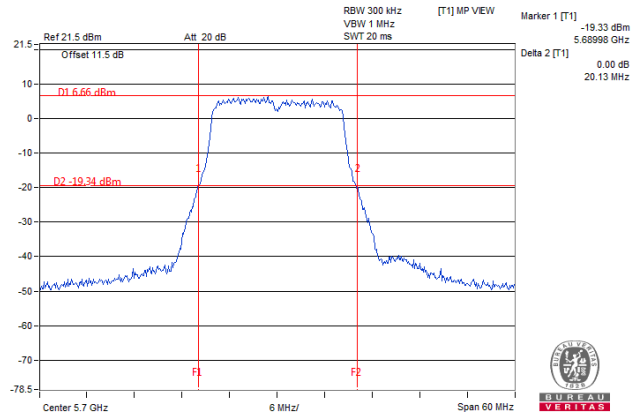
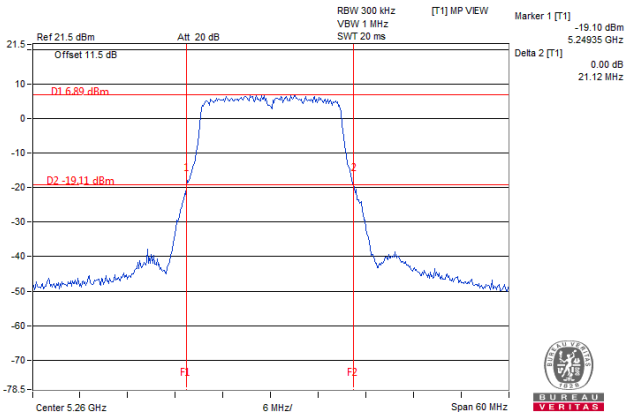
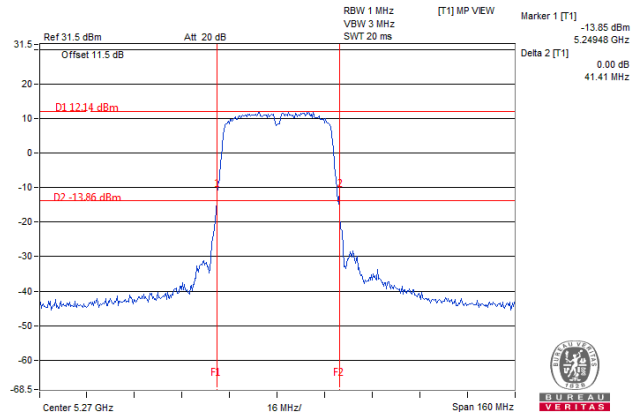
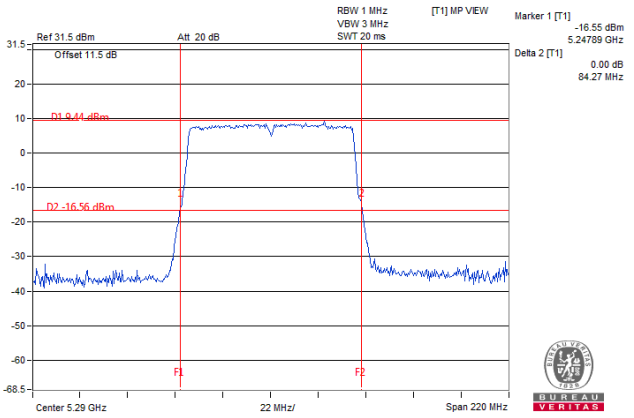
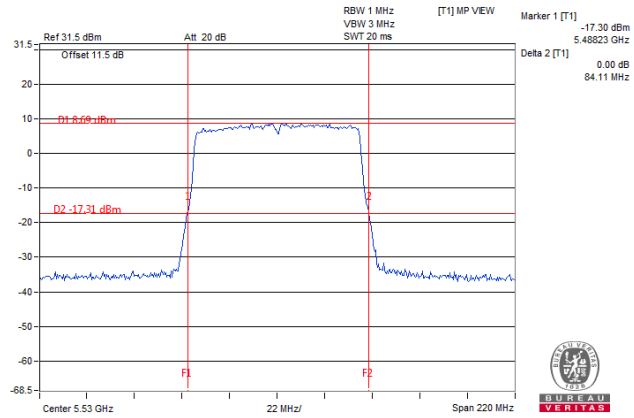
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
54	5270	41.41	40.64	40.72	40.82	Pass
62	5310	41.17	41.07	40.91	40.88	Pass
102	5510	41.05	40.75	41.11	40.86	Pass
110	5550	40.85	40.83	41.06	40.68	Pass
134	5670	40.90	40.88	40.95	40.73	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
58	5290	84.27	83.59	83.23	83.54	Pass
106	5530	84.12	83.44	83.76	83.35	Pass
122	5610	83.66	83.70	83.59	83.48	Pass
138	5690	77.23	76.68	76.32	77.29	Pass

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
42	5210	83.96	83.95	-	-	Pass
58	5290	-	-	84.11	83.94	Pass
106	5530	83.83	84.11	-	-	Pass
122	5610	-	-	84.36	83.57	Pass
U-NII-2C-138	5690	77.02	76.70	-	-	Pass
U-NII-3-138	5690	7.26	7.21	-	-	Pass

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	
802.11ac (VHT80+VHT80)	
	

Occupied Bandwidth:

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	16.68	16.44	16.44	16.44
60	5300	16.56	16.56	16.44	16.44
64	5320	16.56	16.56	16.44	16.44
100	5500	16.56	16.44	16.56	16.44
116	5580	16.56	16.56	16.56	16.56
140	5700	16.56	16.56	16.56	16.56

802.11n (HT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	17.76	17.76	16.44	17.64
60	5300	17.76	17.76	17.64	17.64
64	5320	17.64	17.76	17.76	17.64
100	5500	17.76	17.76	17.64	17.76
116	5580	17.76	17.64	17.88	17.64
140	5700	17.64	17.76	17.76	17.64

802.11n (HT40)

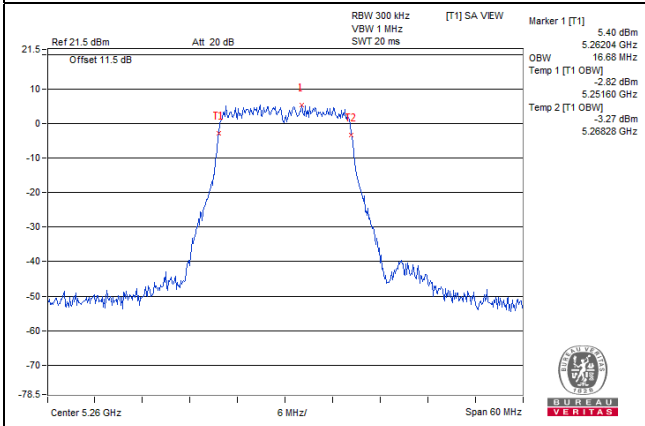
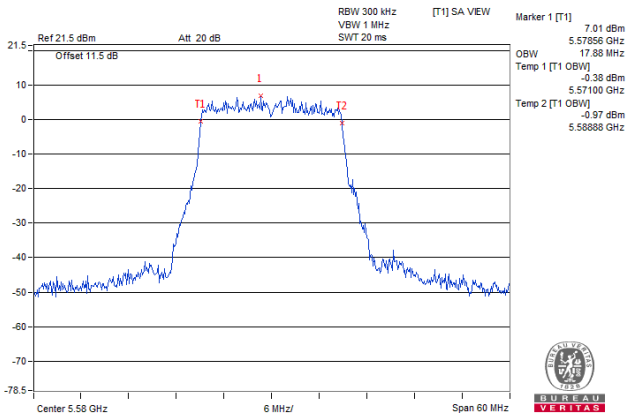
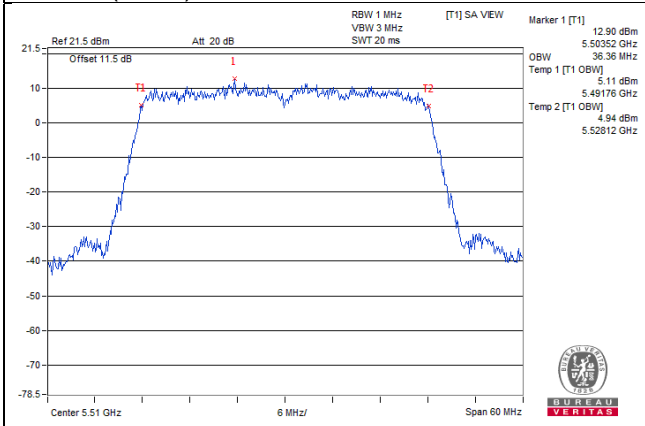
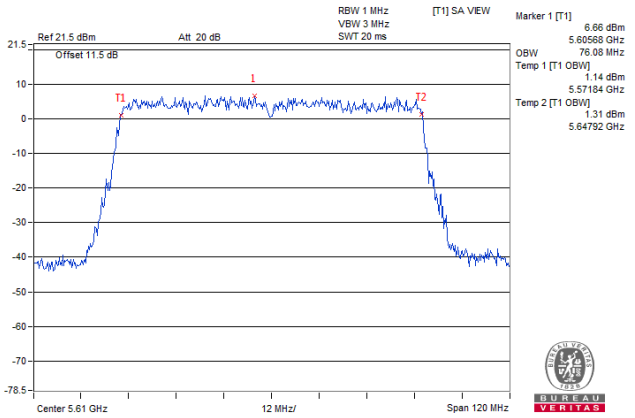
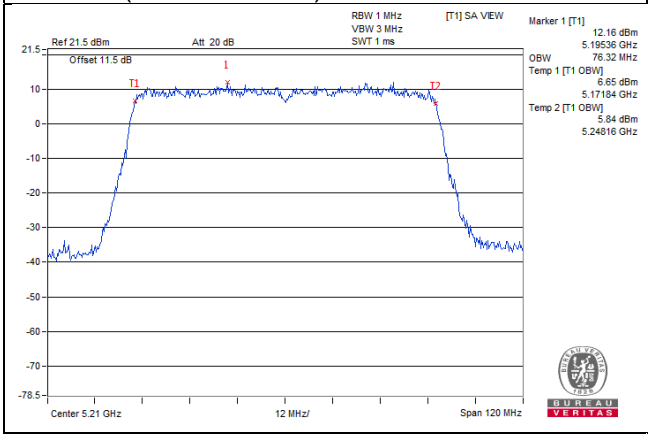
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	36.36	36.12	36.24	36.24
62	5310	36.24	36.24	36.24	36.12
102	5510	36.12	36.24	36.36	36.24
110	5550	36.24	36.24	36.24	36.24
134	5670	36.24	36.24	36.24	36.24

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	75.84	76.08	76.08	76.08
106	5530	75.84	75.84	76.08	76.08
122	5610	76.08	76.08	76.08	75.84
138	5690	73.16	73.16	73.16	73.16

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	76.32	75.84	-	-
58	5290	-	-	76.32	76.32
106	5530	75.84	75.84	-	-
122	5610	-	-	76.08	75.84
U-NII-2C-138	5690	72.92	72.92	-	-
U-NII-3-138	5690	2.92	2.92	-	-
155	5775	-	-	75.82	75.83

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	
802.11ac (VHT80+VHT80)	
	

EUT MAXIMUM CONDUCTED POWER

CDD Mode

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	154.831	21.90
5470~5725	112.285	20.50

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	168.550	22.27
5470~5725	139.941	21.46

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	240.680	23.81
5470~5725	219.492	23.41

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	245.852	23.91
5470~5725	236.272	23.73

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (VHT80+VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	114.883	20.60
5470~5725	107.533	20.32

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

Beamforming Mode

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	59.804	17.77
5470~5725	49.654	16.96

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	85.397	19.31
5470~5725	77.879	18.91

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	87.232	19.41
5470~5725	83.833	19.23

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (VHT80+VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	66.456	18.23
5470~5725	60.471	17.82

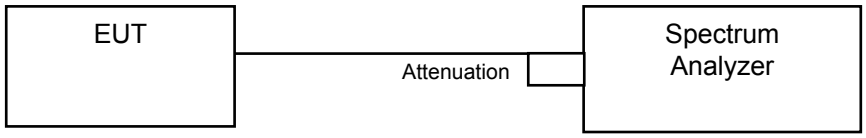
NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

4.4 Peak Power Spectral Density Measurement

4.4.1 Limits of Peak Power Spectral Density Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

Using method SA-1

Duty cycle >98%

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Sweep time = auto, trigger set to “free run”.

d. Trace average at least 100 traces in power averaging mode.

e. Record the max value

Using method SA-2

Duty cycle <98%

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Sweep time = auto, trigger set to “free run”.

d. Trace average at least 100 traces in power averaging mode.

e. Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS

c. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.

d. 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)

e. Sweep time = auto, trigger set to “free run”.

f. Trace average at least 100 traces in power averaging mode.

g. Record the max value and add 10 log (1/duty cycle)

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

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

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	1.52	1.62	1.73	1.30	0.18	7.75	7.85	Pass
60	5300	1.80	0.96	1.87	1.42	0.18	7.73	7.85	Pass
64	5320	1.87	1.42	1.87	1.24	0.18	7.81	7.85	Pass
100	5500	1.39	1.03	1.30	0.63	0.18	7.30	7.50	Pass
116	5580	1.18	1.40	1.09	0.95	0.18	7.36	7.50	Pass
140	5700	1.39	1.65	1.15	0.59	0.18	7.42	7.50	Pass

Note:

1. Method 1 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. U-NII-2A: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.15dBi > 6dBi, so the power density limit shall be reduced to 11-(9.15-6) = 7.85dBm.
   U-NII-2C: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.50dBi > 6dBi, so the power density limit shall be reduced to 11-(9.50-6) = 7.50dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
52	5260	1.02	1.28	2.14	1.50	7.53	7.85	Pass
60	5300	1.26	1.46	1.80	1.50	7.53	7.85	Pass
64	5320	1.23	1.31	1.69	1.42	7.44	7.85	Pass
100	5500	1.32	1.17	1.61	1.29	7.37	7.50	Pass
116	5580	1.11	1.30	1.68	1.21	7.35	7.50	Pass
140	5700	1.38	1.58	1.23	0.48	7.21	7.50	Pass

Note:

1. Method 1 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. U-NII-2A: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.15dBi > 6dBi, so the power density limit shall be reduced to 11-(9.15-6) = 7.85dBm.
   U-NII-2C: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 9.50dBi > 6dBi, so the power density limit shall be reduced to 11-(9.50-6) = 7.50dBm.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	0.30	0.18	0.44	0.34	0.15	6.48	7.85	Pass
62	5310	0.67	0.27	0.66	0.51	0.15	6.70	7.85	Pass
102	5510	0.45	0.60	0.81	0.81	0.15	6.84	7.50	Pass
110	5550	0.33	0.70	0.69	0.71	0.15	6.78	7.50	Pass
134	5670	-0.47	-0.41	-0.51	-0.64	0.15	5.66	7.50	Pass

Note:
1. Method 1 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. U-NII-2A: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 9.15dBi > 6dBi, so the power density limit shall be reduced to 11-(9.15-6) = 7.85dBm.
   U-NII-2C: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 9.50dBi > 6dBi, so the power density limit shall be reduced to 11-(9.50-6) = 7.50dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	-2.82	-2.98	-2.80	-3.51	0.27	3.27	7.85	Pass
106	5530	-2.78	-2.91	-2.36	-2.83	0.27	3.58	7.50	Pass
122	5610	-3.25	-3.12	-2.96	-2.55	0.27	3.33	7.50	Pass
U-NII-2C -138	5690	-4.14	-3.40	-3.95	-4.15	0.27	2.39	7.50	Pass

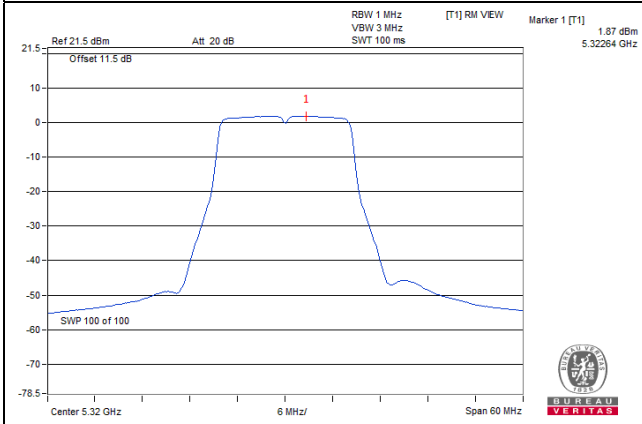
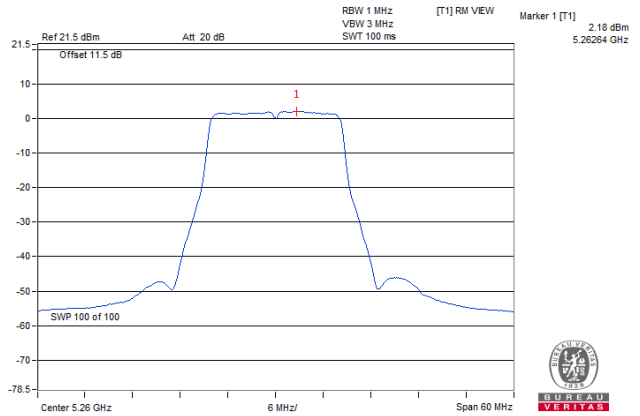
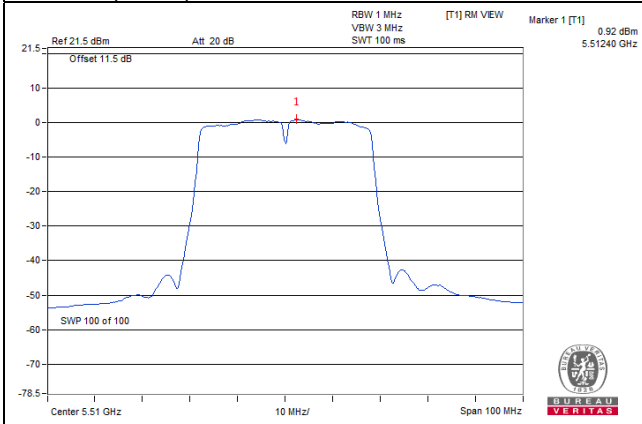
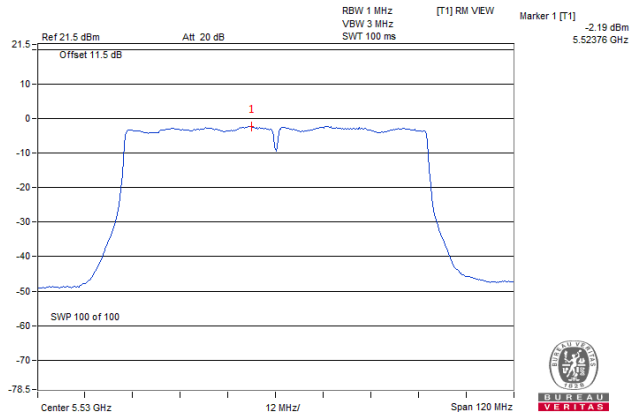
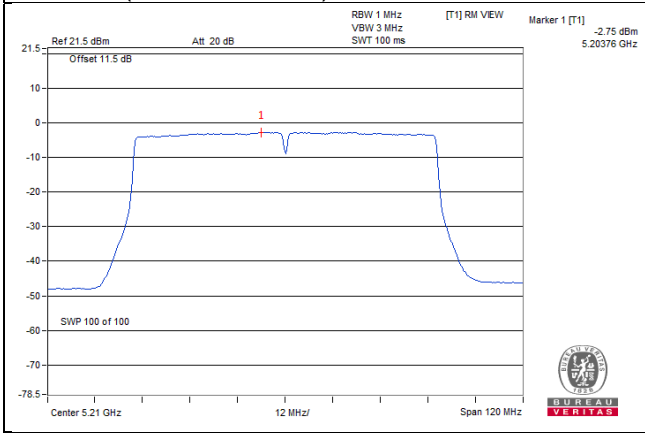
Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 9.15dBi > 6dBi, so the power density limit shall be reduced to 11-(9.15-6) = 7.85dBm.
   U-NII-2C: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 9.50dBi > 6dBi, so the power density limit shall be reduced to 11-(9.50-6) = 7.50dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80+VHT80)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-1.17	-0.76	-	-	0.26	0.50	16.90	Pass
58	5290	-	-	-2.38	-2.85	0.26	0.66	10.98	Pass
106	5530	-2.05	-2.06	-	-	0.26	1.22	10.49	Pass
122	5610	-	-	-2.47	-2.42	0.24	0.81	10.52	Pass
U-NII-2C -138	5690	-3.54	-3.07	-	-	0.28	-0.01	10.49	Pass

Note:

1. Method 1 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. U-NII-1:
   5210MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]= 6.10dBi > 6dBi, so the limit shall be reduced to 17-(6.10-6) = 16.90dBm.
   U-NII-2A:
   5290MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]= 6.02dBi > 6dBi, so the limit shall be reduced to 11-(6.02-6) = 10.98dBm.
   U-NII-2C:
   5530MHz, U-NII-2C-5690MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]= 6.51dBi > 6dBi, so the limit shall be reduced to 11-(6.51-6) = 10.49dBm.
   5610MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]= 6.48dBi > 6dBi, so the limit shall be reduced to 11-(6.48-6) = 10.52dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / Chain 0 / Ch 64	802.11n (HT20) / Chain 2 / Ch 52
	
802.11n (HT40) / Chain 2 / Ch 102	802.11ac (VHT80) / Chain 2 / Ch 106
	
802.11ac (VHT80+ VHT80) / Chain 1 / Ch 42	
	

For U-NII-3 Band:

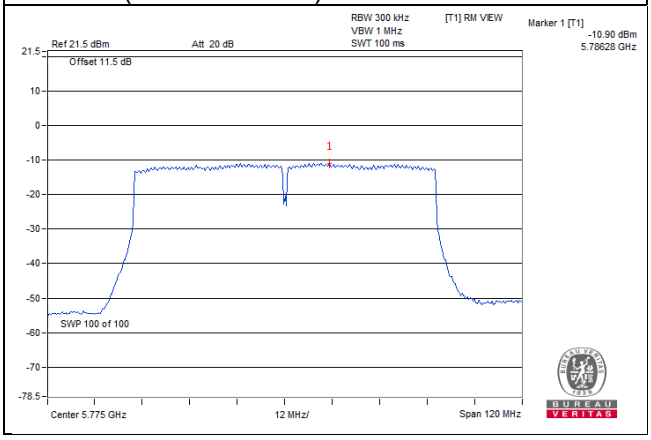
802.11ac (VHT80+VHT80)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	U-NII-3 -138	5690	-13.48	-11.26	3.01	0.28	-7.97	29.25	Pass
1	U-NII-3 -138	5690	-12.58	-10.36	3.01	0.28	-7.07	29.25	Pass
2	155	5775	-10.90	-8.68	3.01	0.24	-5.43	29.29	Pass
3	155	5775	-11.99	-9.77	3.01	0.24	-6.52	29.29	Pass

Note:

1. Method 1 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. U-NII-3-5690MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]= 6.75dBi > 6dBi, so the limit shall be reduced to 30-(6.75-6) = 29.25dBm.
   5775MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]= 6.71dBi > 6dBi, so the limit shall be reduced to 30-(6.71-6) = 29.29dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value
802.11ac (VHT80+VHT80) / Chain 2 / Ch 155

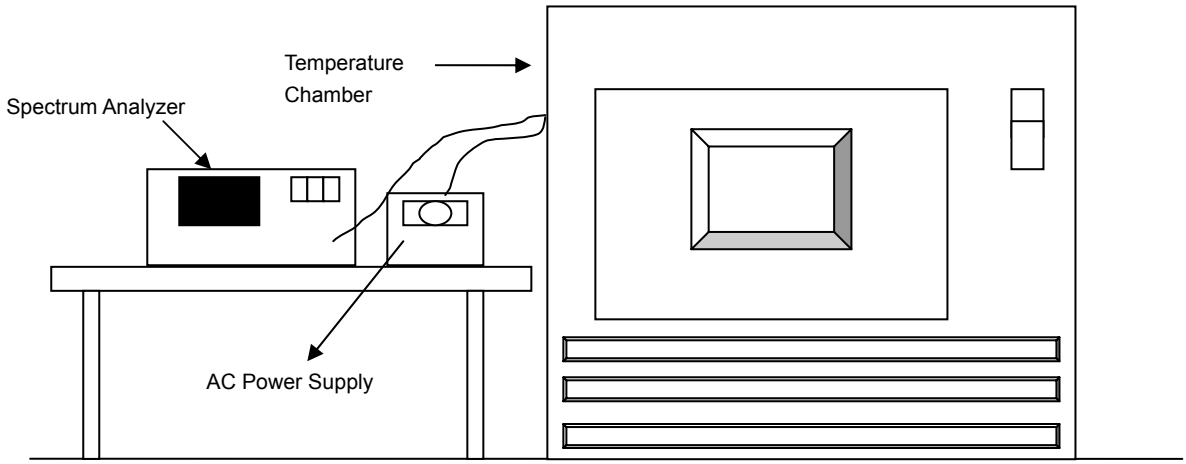


4.5 Frequency Stability

4.5.1 Limits of Frequency Stability Measurement

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

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

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.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
40	120	5259.9932	Pass	5259.9913	Pass	5259.9918	Pass	5259.9883	Pass
30	120	5259.9821	Pass	5259.9848	Pass	5259.9858	Pass	5259.9813	Pass
20	120	5260.0063	Pass	5260.0061	Pass	5260.0065	Pass	5260.0069	Pass
10	120	5259.9751	Pass	5259.9770	Pass	5259.9788	Pass	5259.9749	Pass
0	120	5259.9809	Pass	5259.9815	Pass	5259.9827	Pass	5259.9788	Pass

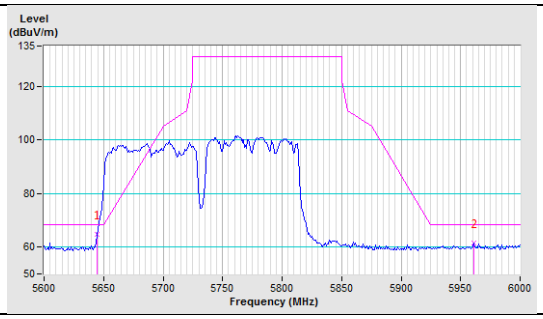
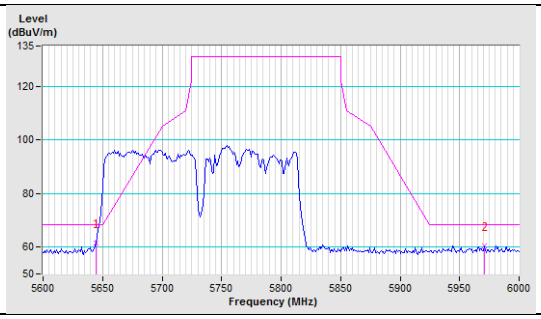
Frequency Stability Versus Voltage.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5260.0060	Pass	5260.0053	Pass	5260.0066	Pass	5260.0069	Pass
	120	5260.0063	Pass	5260.0061	Pass	5260.0065	Pass	5260.0069	Pass
	102	5260.0054	Pass	5260.0054	Pass	5260.0075	Pass	5260.0060	Pass

5 Pictures of Test Arrangements

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

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

802.11ac (VHT80+VHT80)

CH 138+155 5690+5775MHz	
Horizontal	Vertical
	

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 and approved according to ISO/IEC 17025.

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

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

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

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