FCC Test Report

Report No.:	RF170301C16-3
FCC ID:	PY317100372
Test Model:	EX8000
Received Date:	Mar. 01, 2017
Test Date:	Mar. 20 ~ Apr. 21, 2017
Issued Date:	Apr. 13, 2017
Applicant:	NETGEAR, INC.
Address:	350 East Plumeria Drive San Jose, CA 95134
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.)

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Release Control Record

Issue No.	Description	Date Issued
RF170301C16-3	Original release.	Apr. 13, 2017

1 Certificate of Conformity

Product:	Nighthawk X6S AC3000 Tri-Band WiFi Range Extender
Brand:	NETGEAR
Test Model:	EX8000
Sample Status:	Engineering sample
Applicant:	NETGEAR, INC.
Test Date:	Mar. 20 ~ Apr. 21, 2017
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 EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Apr. 13, 2017

Suntee Liu / Specialist

Approved by : _____ , **Date:** Apr. 13, 2017

Ken Liu / Senior Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -15.91dB at 0.36600MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5470.00, 730.38MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(e)	6dB bandwidth	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	3.63 dB
	200MHz ~1000MHz	3.64 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	Nighthawk X6S AC3000 Tri-Band WiFi Range Extender
Brand	NETGEAR
Test Model	EX8000
Sample Status	Engineering sample
Power Supply Rating	12Vdc (adapter)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
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	5260~5320MHz, 5500~5700MHz
Number of Channel	5260~5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500~5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2
Output Power	CDD Mode: 5260~5320MHz: 211.852mW 5500~5700MHz: 207.409mW Beamforming Mode: 5260~5320MHz: 211.852mW 5500~5700MHz: 130.081mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of the original report no.: RF170301C16-1. The difference compared with the original report is adding 5.26GHz to 5.32GHz and 5.50GHz to 5.70GHz by software.
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	2TX (Band 2), 4TX (Band 3)
	802.11n (HT20)	Support (CDD / NSS=1)	
	802.11n (HT40)	Support (CDD / NSS=1)	
	802.11ac (VHT20)	Support (CDD / NSS=1)	
	802.11ac (VHT40)	Support (CDD / NSS=1)	
	802.11ac (VHT80)	Support (CDD / NSS=1)	

* The modulation and bandwidth are similar for 802.11n mode for 20MHz/40MHz and 802.11ac mode for 20MHz/40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)
* For 802.11n and 802.11ac, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

3. The EUT uses following antennas.

Ant. Type	Dipole	
Connecter Type	I-PEX (WLAN)	
Directional Antenna Gain (dBi)		
Item	5G Band 2	5G Band 3
-	4.18	7.76

4. The following filters are provided to this EUT.

RF Module	Filter	Filter No.	Position	Gasket	Remark
Module 1	1st	Filter 1	TFL1 ,TFL2	With TFL1, TFL2 gasket	passive filter (pin to pin & Same design)
	2nd	Filter 2	TFL1 ,TFL2	Without TFL1, TFL2 gasket	passive filter (pin to pin & Same design)
Module 2	1st	Filter 3	BHPF1 ,BHPF2 BHPF3 ,BHPF4	With BHPF1, BHPF2, BHPF3, BHPF4 gasket	passive filter (pin to pin & Same design)
	2nd	Filter 4	BHPF1 ,BHPF2 BHPF3 ,BHPF4	Without BHPF1, BHPF2, BHPF3, BHPF4 gasket	passive filter (pin to pin & Same design)
Note: The 1st Filter is the worst case for final test. RF Module 1 (2TX) supports WLAN 2.4GHz band & 5GHz band 2 functionally. RF Module 2 (4TX) supports WLAN 5GHz band 3 functionally.					

5. The following options are provided to this EUT.

Option 1	Original Heat sink without gasket
Option 2	New Heat sink with gasket

* Option 1 was worse case for final test.

6. The EUT uses following adapters.

Adapter 1 (US)	
Brand	NETGEAR
Model	2ABN042F NA (PN:332-10761-01)
Input Power	100-240Vac, 50/60Hz, 1.3A
Output Power	12Vdc, 3.5A
Power Line	1.85m DC cable without core attached on adapter

Adapter 2 (US)	
Brand	NETGEAR
Model	AD2080F20 (PN:332-10876-01)
Input Power	100-240Vac, 50/60Hz, 1.0A
Output Power	12Vdc, 3.5A
Power Line	1.8m DC cable without core attached on adapter

7. 2.4GHz & 5GHz band 4 technologies can transmit at same time.
   2.4GHz & 5GHz band 3 technologies can transmit at same time.
   5GHz band 1 & 5GHz band 3 technologies can transmit at same time.
   5GHz band 1 & 5GHz band 4 technologies can transmit at same time.
   5GHz band 2 & 5GHz band 3 technologies can transmit at same time.
   5GHz band 2 & 5GHz band 4 technologies can transmit at same time.
8. Spurious emission of the simultaneous operation (refer to above operation) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

5260~5320MHz:

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

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	5530MHz	122	5610 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter 1
B	-	√	√	-	Power from adapter 2

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 Z-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)	Remark
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0	2TX
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	BPSK	13.0	2TX
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	BPSK	27.0	2TX
	802.11ac (VHT80)		58	58	OFDM	BPSK	58.5	2TX
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0	4TX
	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	BPSK	13.0	4TX
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	BPSK	27.0	4TX
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	130.0	4TX

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)	Remark
A, B	802.11a	5260-5320	52 to 64	52	OFDM	BPSK	6.0	2TX
		5500-5700	100 to 140		OFDM	BPSK	6.0	4TX

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)	Remark
A, B	802.11a	5260-5320	52 to 64	52	OFDM	BPSK	6.0	2TX
		5500-5700	100 to 140		OFDM	BPSK	6.0	4TX

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)	Remark
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0	2TX
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	BPSK	13.0	2TX
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	BPSK	27.0	2TX
	802.11ac (VHT80)		58	58	OFDM	BPSK	58.5	2TX
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0	4TX
	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	BPSK	13.0	4TX
	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	BPSK	27.0	4TX
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	130.0	4TX

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65% RH 25 deg. C, 69% RH 25 deg. C, 70% RH	120Vac, 60Hz	Matthew Yang Tank Wu Chris Lin
RE<1G	25 deg. C, 70% RH	120Vac, 60Hz	Chris Lin
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Chris Lin
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Frank Liu Leo Tsai

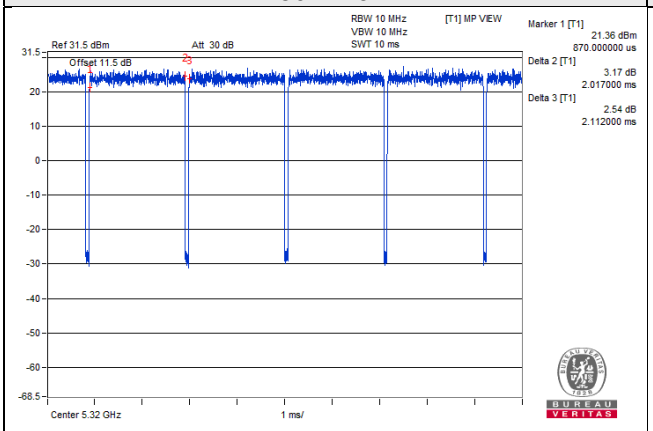
3.3 Duty Cycle of Test Signal

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

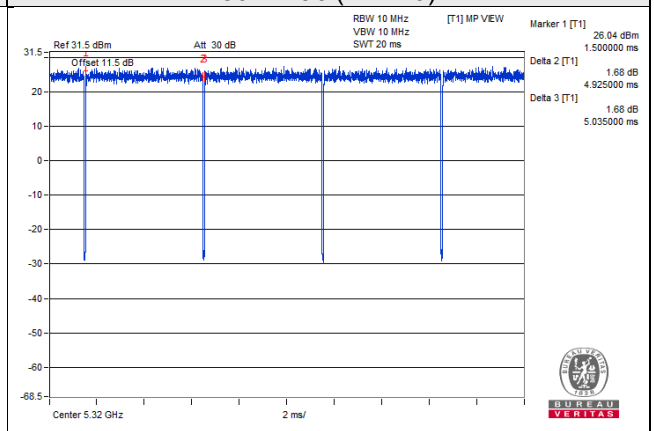
For 5260~5320MHz

802.11a: Duty cycle = 2.017/2.112 = 0.955, Duty factor = 10 * log(1/0.955) = 0.20
802.11ac (VHT20): Duty cycle = 4.925/5.035 = 0.978, Duty factor = 10 * log(1/0.978) = 0.10
802.11ac (VHT40): Duty cycle = 2.397/2.482 = 0.966, Duty factor = 10 * log(1/0.966) = 0.15
802.11ac (VHT80): Duty cycle = 1.120/1.225 = 0.914, Duty factor = 10 * log(1/0.914) = 0.39

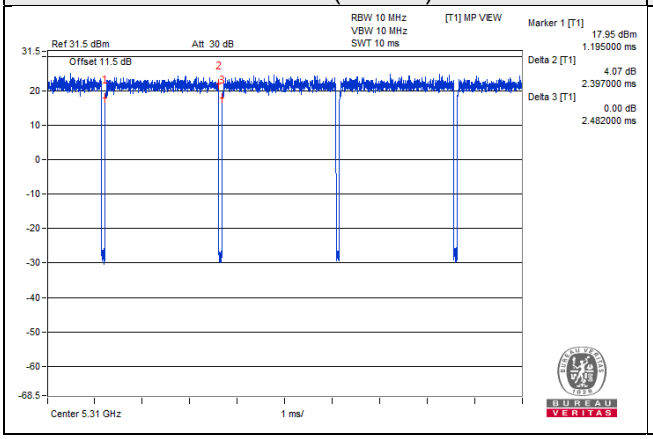
802.11a



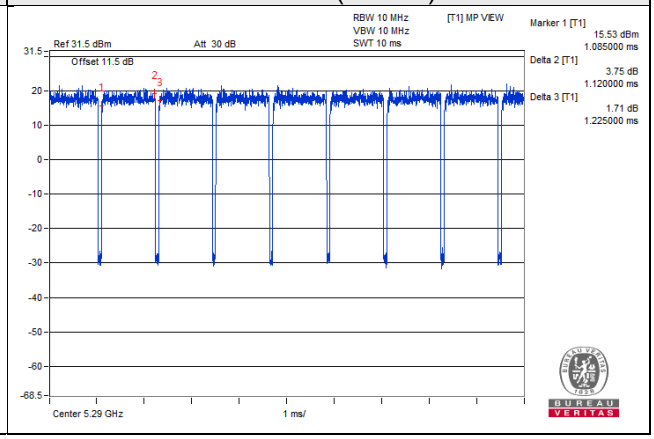
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



For 5500~5700MHz

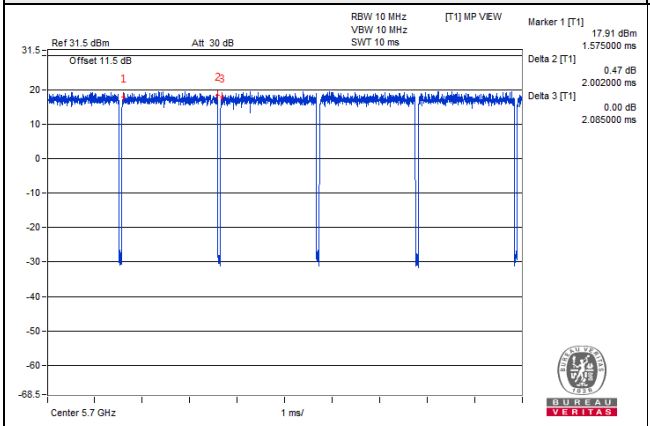
802.11a: Duty cycle = 2.002/2.085 = 0.960, Duty factor = 10 * log(1/0.960) = 0.18

802.11ac (VHT20): Duty cycle = 4.935/5.020 = 0.980

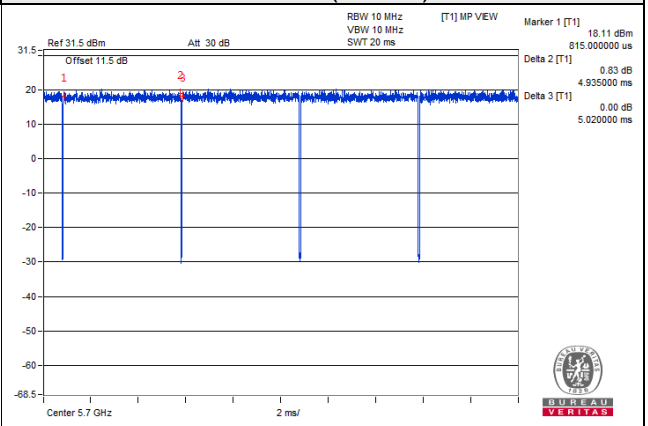
802.11ac (VHT40): Duty cycle = 2.38/2.49 = 0.956, Duty factor = 10 * log(1/0.956) = 0.20

802.11ac (VHT80): Duty cycle = 1.122/1.207 = 0.930, Duty factor = 10 * log(1/0.930) = 0.32

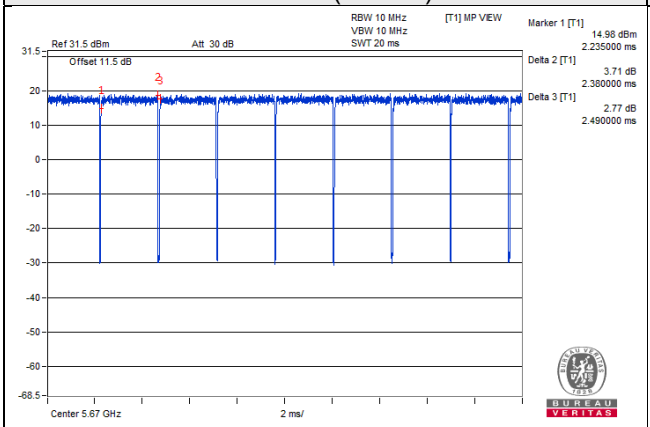
802.11a



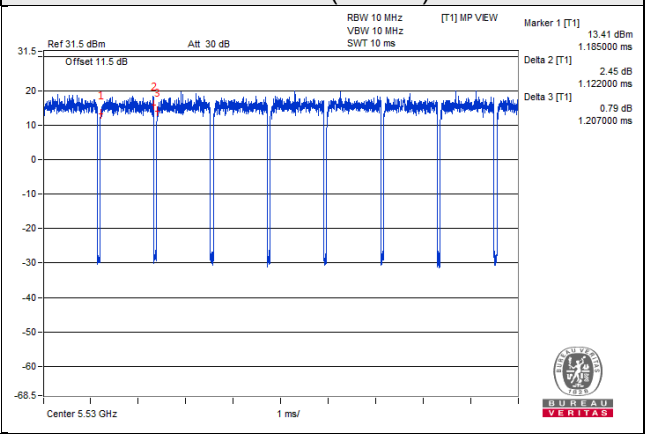
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

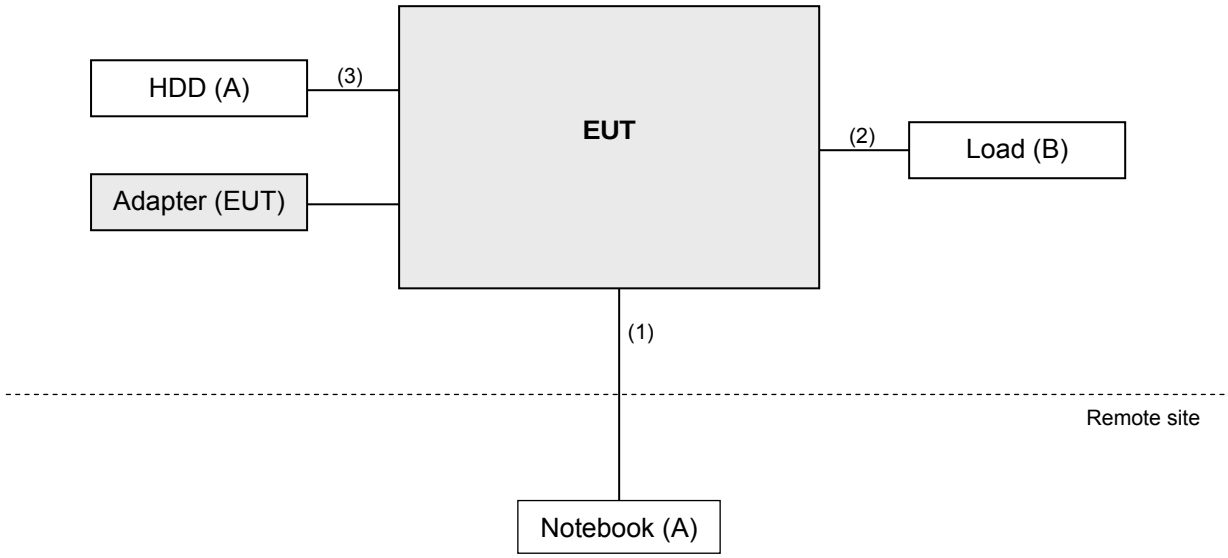
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	6RP2YM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	HDD	Toshiba	DTB305	X4RKCMV0T3ZB	FCC DoC Approved	-

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	1	10	N	0	-
2.	RJ45	3	1.8	N	0	-
3.	USB	1	0.5	Y	0	-

3.4.1 Configuration of System under Test



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 Procedure New Rules v01r04
662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10:2013

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v01r04</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. 24, 2016	Oct. 23, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 16, 2016	Aug. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-151	Dec. 16, 2016	Dec. 15, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 15, 2016	Dec. 14, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 14, 2016	Dec. 13, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2016	Aug. 08, 2017
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 09, 2016	Aug. 08, 2017
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	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	EM26400	815221	Oct. 17, 2016	Oct. 16, 2017
High Speed Peak Power Meter	ML2495A	0824012	Aug. 11, 2016	Aug. 10, 2017
Power Sensor	MA2411B	0738171	Aug. 11, 2016	Aug. 10, 2017
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 08, 2016	Jun. 07, 2017

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 horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 460141.
5. The IC Site Registration No. is IC7450F-4.

4.1.3 Test Procedures

For Radiated emission below 30MHz

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

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

c. Both X and Y axes of the antenna are set to make the measurement.

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

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

Note:

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

For Radiated emission above 30MHz

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

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

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

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

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

f. The test-receiver system was set to peak and average 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 ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.

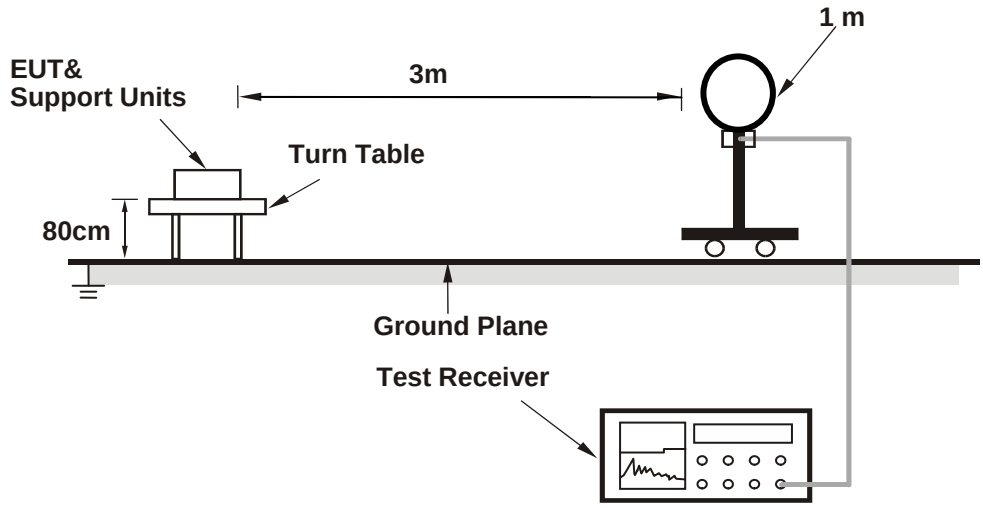
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

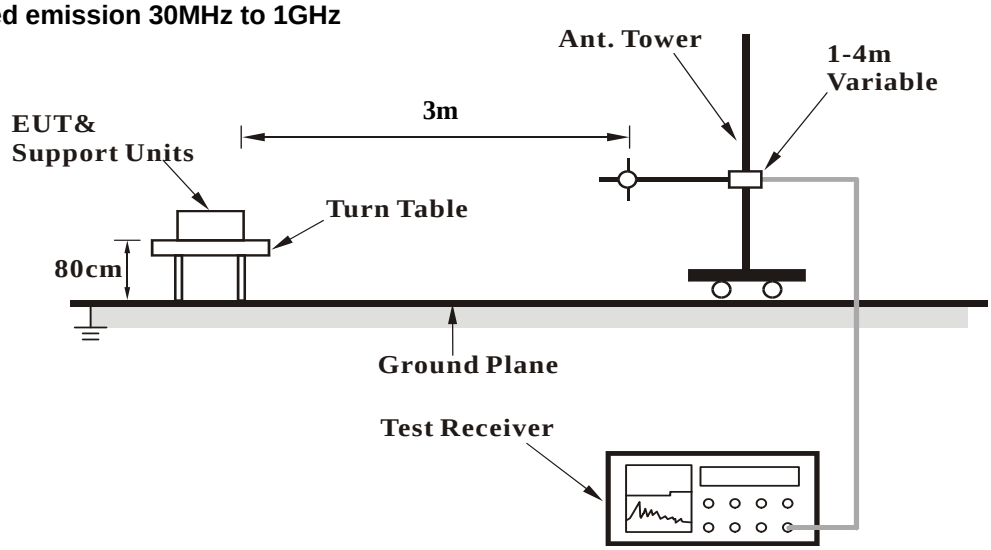
No deviation.

4.1.5 Test Set Up

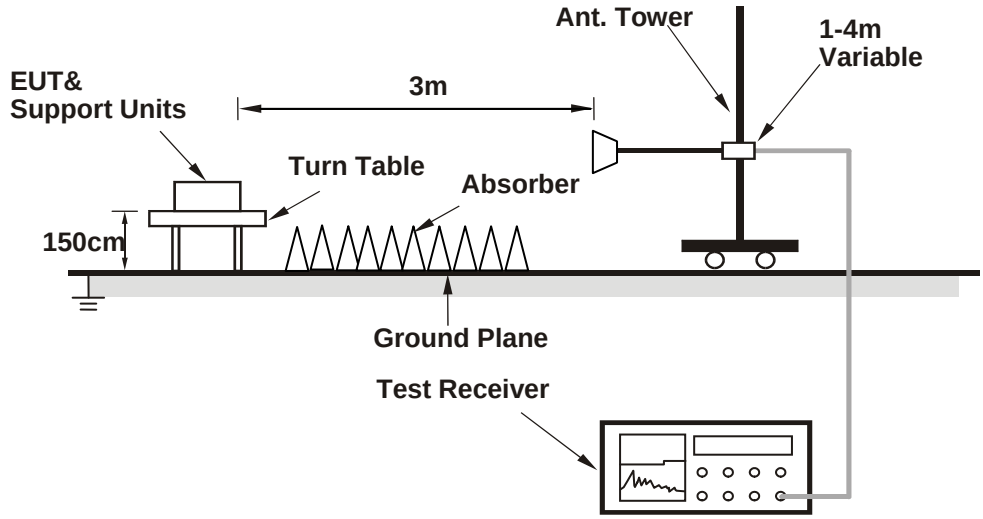
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating 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	57.3 PK	74.0	-16.7	2.05 H	205	51.2	6.1
2	5150.00	44.8 AV	54.0	-9.2	2.05 H	205	38.7	6.1
3	*5260.00	111.2 PK			2.05 H	205	70.8	40.4
4	*5260.00	100.0 AV			2.05 H	205	59.6	40.4
5	#10520.00	58.5 PK	74.0	-15.5	1.33 H	228	40.1	18.4
6	#10520.00	46.8 AV	54.0	-7.2	1.33 H	228	28.4	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.2 PK	74.0	-15.8	1.00 V	147	52.1	6.1
2	5150.00	45.7 AV	54.0	-8.3	1.00 V	147	39.6	6.1
3	*5260.00	116.8 PK			1.00 V	147	76.4	40.4
4	*5260.00	106.0 AV			1.00 V	147	65.6	40.4
5	#10520.00	59.8 PK	74.0	-14.2	1.08 V	89	41.4	18.4
6	#10520.00	47.5 AV	54.0	-6.5	1.08 V	89	29.1	18.4

Remarks:

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

CHANNEL	TX Channel 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	109.0 PK			2.05 H	205	68.5	40.5
2	*5300.00	98.9 AV			2.05 H	205	58.4	40.5
3	10600.00	59.3 PK	74.0	-14.7	1.33 H	225	40.5	18.8
4	10600.00	47.2 AV	54.0	-6.8	1.33 H	225	28.4	18.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	116.3 PK			1.02 V	148	75.8	40.5
2	*5300.00	105.7 AV			1.02 V	148	65.2	40.5
3	10600.00	60.0 PK	74.0	-14.0	1.12 V	86	41.2	18.8
4	10600.00	47.7 AV	54.0	-6.3	1.12 V	86	28.9	18.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	110.1 PK			2.01 H	205	69.6	40.5
2	*5320.00	99.9 AV			2.01 H	205	59.4	40.5
3	5350.00	58.4 PK	74.0	-15.6	2.01 H	205	51.9	6.5
4	5350.00	45.0 AV	54.0	-9.0	2.01 H	205	38.5	6.5
5	10640.00	58.4 PK	74.0	-15.6	1.07 H	44	39.4	19.0
6	10640.00	46.2 AV	54.0	-7.8	1.07 H	44	27.2	19.0
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	*5320.00	117.4 PK			1.00 V	10	76.9	40.5
2	*5320.00	107.3 AV			1.00 V	10	66.8	40.5
3	5350.00	65.5 PK	74.0	-8.5	1.00 V	10	59.0	6.5
4	5350.00	50.0 AV	54.0	-4.0	1.00 V	10	43.5	6.5
5	10640.00	60.6 PK	74.0	-13.4	1.10 V	97	41.6	19.0
6	10640.00	47.2 AV	54.0	-6.8	1.10 V	97	28.2	19.0

Remarks:

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

CHANNEL	TX Channel 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	57.7 PK	74.0	-16.3	1.41 H	188	51.0	6.7
2	5460.00	44.6 AV	54.0	-9.4	1.41 H	188	37.9	6.7
3	#5470.00	57.9 PK	74.0	-16.1	1.41 H	188	51.2	6.7
4	#5470.00	47.2 AV	54.0	-6.8	1.41 H	188	40.5	6.7
5	*5500.00	109.4 PK			1.41 H	188	68.5	40.9
6	*5500.00	98.6 AV			1.41 H	188	57.7	40.9
7	11000.00	59.8 PK	74.0	-14.2	1.25 H	78	40.5	19.3
8	11000.00	48.1 AV	54.0	-5.9	1.25 H	78	28.8	19.3
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	5460.00	59.8 PK	74.0	-14.2	1.94 V	188	53.1	6.7
2	5460.00	45.9 AV	54.0	-8.1	1.94 V	188	39.2	6.7
3	#5470.00	61.2 PK	74.0	-12.8	1.94 V	188	54.5	6.7
4	#5470.00	46.9 AV	54.0	-7.1	1.94 V	188	40.2	6.7
5	*5500.00	116.3 PK			1.94 V	188	75.4	40.9
6	*5500.00	106.1 AV			1.94 V	188	65.2	40.9
7	11000.00	60.5 PK	74.0	-13.5	1.28 V	69	41.2	19.3
8	11000.00	47.7 AV	54.0	-6.3	1.28 V	69	28.4	19.3

Remarks:

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

CHANNEL	TX Channel 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	108.5 PK			1.01 H	35	67.5	41.0
2	*5580.00	98.5 AV			1.01 H	35	57.5	41.0
3	11160.00	60.7 PK	74.0	-13.3	1.39 H	65	40.9	19.8
4	11160.00	48.8 AV	54.0	-5.2	1.39 H	65	29.0	19.8
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	*5580.00	116.7 PK			1.92 V	174	75.7	41.0
2	*5580.00	105.7 AV			1.92 V	174	64.7	41.0
3	11160.00	61.2 PK	74.0	-12.8	1.23 V	72	41.4	19.8
4	11160.00	48.4 AV	54.0	-5.6	1.23 V	72	28.6	19.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	110.5 PK			2.09 H	211	69.0	41.5
2	*5700.00	99.9 AV			2.09 H	211	58.4	41.5
3	#5725.00	59.3 PK	74.0	-14.7	2.09 H	211	52.0	7.3
4	#5725.00	47.8 AV	54.0	-6.2	2.09 H	211	40.5	7.3
5	11400.00	61.2 PK	74.0	-12.8	1.17 H	126	40.8	20.4
6	11400.00	49.1 AV	54.0	-4.9	1.17 H	126	28.7	20.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	116.6 PK			1.71 V	196	75.1	41.5
2	*5700.00	106.5 AV			1.71 V	196	65.0	41.5
3	#5725.00	58.9 PK	74.0	-15.1	1.71 V	196	51.6	7.3
4	#5725.00	48.5 AV	54.0	-5.5	1.71 V	196	41.2	7.3
5	11400.00	61.7 PK	74.0	-12.3	1.25 V	73	41.3	20.4
6	11400.00	48.7 AV	54.0	-5.3	1.25 V	73	28.3	20.4

Remarks:

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

802.11ac (VHT20)

CHANNEL	TX Channel 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	58.7 PK	74.0	-15.3	2.04 H	206	52.6	6.1
2	5150.00	46.6 AV	54.0	-7.4	2.04 H	206	40.5	6.1
3	*5260.00	111.2 PK			2.04 H	206	70.8	40.4
4	*5260.00	100.4 AV			2.04 H	206	60.0	40.4
5	#10520.00	58.9 PK	74.0	-15.1	1.32 H	96	40.5	18.4
6	#10520.00	46.2 AV	54.0	-7.8	1.32 H	96	27.8	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.2 PK	74.0	-16.8	1.03 V	12	51.1	6.1
2	5150.00	44.6 AV	54.0	-9.4	1.03 V	12	38.5	6.1
3	*5260.00	116.4 PK			1.03 V	12	76.0	40.4
4	*5260.00	106.5 AV			1.03 V	12	66.1	40.4
5	#10520.00	59.8 PK	74.0	-14.2	1.09 V	115	41.4	18.4
6	#10520.00	46.8 AV	54.0	-7.2	1.09 V	115	28.4	18.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	110.4 PK			1.99 H	205	69.9	40.5
2	*5300.00	99.5 AV			1.99 H	205	59.0	40.5
3	10600.00	59.4 PK	74.0	-14.6	1.52 H	78	40.6	18.8
4	10600.00	47.5 AV	54.0	-6.5	1.52 H	78	28.7	18.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	115.9 PK			1.00 V	149	75.4	40.5
2	*5300.00	105.7 AV			1.00 V	149	65.2	40.5
3	10600.00	60.1 PK	74.0	-13.9	1.07 V	104	41.3	18.8
4	10600.00	47.6 AV	54.0	-6.4	1.07 V	104	28.8	18.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	110.2 PK			1.37 H	294	69.7	40.5
2	*5320.00	99.2 AV			1.37 H	294	58.7	40.5
3	5350.00	58.2 PK	74.0	-15.8	1.37 H	294	51.7	6.5
4	5350.00	45.3 AV	54.0	-8.7	1.37 H	294	38.8	6.5
5	10640.00	59.5 PK	74.0	-14.5	1.36 H	98	40.5	19.0
6	10640.00	47.7 AV	54.0	-6.3	1.36 H	98	28.7	19.0
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	*5320.00	115.7 PK			1.16 V	159	75.2	40.5
2	*5320.00	105.5 AV			1.16 V	159	65.0	40.5
3	5350.00	59.4 PK	74.0	-14.6	1.16 V	159	52.9	6.5
4	5350.00	46.8 AV	54.0	-7.2	1.16 V	159	40.3	6.5
5	10640.00	60.1 PK	74.0	-13.9	1.15 V	100	41.1	19.0
6	10640.00	47.9 AV	54.0	-6.1	1.15 V	100	28.9	19.0

Remarks:

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

CHANNEL	TX Channel 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	57.6 PK	74.0	-16.4	1.88 H	180	50.9	6.7
2	5460.00	45.8 AV	54.0	-8.2	1.88 H	180	39.1	6.7
3	#5470.00	58.5 PK	74.0	-15.5	1.88 H	180	51.8	6.7
4	#5470.00	46.9 AV	54.0	-7.1	1.88 H	180	40.2	6.7
5	*5500.00	109.4 PK			1.88 H	180	68.5	40.9
6	*5500.00	98.7 AV			1.88 H	180	57.8	40.9
7	11000.00	59.9 PK	74.0	-14.1	1.28 H	74	40.6	19.3
8	11000.00	47.7 AV	54.0	-6.3	1.28 H	74	28.4	19.3
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	5460.00	60.0 PK	74.0	-14.0	1.76 V	181	53.3	6.7
2	5460.00	46.7 AV	54.0	-7.3	1.76 V	181	40.0	6.7
3	#5470.00	59.1 PK	74.0	-14.9	1.76 V	181	52.4	6.7
4	#5470.00	47.7 AV	54.0	-6.3	1.76 V	181	41.0	6.7
5	*5500.00	117.1 PK			1.76 V	181	76.2	40.9
6	*5500.00	106.0 AV			1.76 V	181	65.1	40.9
7	11000.00	60.7 PK	74.0	-13.3	1.27 V	76	41.4	19.3
8	11000.00	47.8 AV	54.0	-6.2	1.27 V	76	28.5	19.3

Remarks:

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

CHANNEL	TX Channel 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	108.8 PK			1.00 H	156	67.8	41.0
2	*5580.00	98.5 AV			1.00 H	156	57.5	41.0
3	11160.00	60.7 PK	74.0	-13.3	1.33 H	226	40.9	19.8
4	11160.00	48.3 AV	54.0	-5.7	1.33 H	226	28.5	19.8
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	*5580.00	116.2 PK			1.91 V	204	75.2	41.0
2	*5580.00	105.3 AV			1.91 V	204	64.3	41.0
3	11160.00	61.3 PK	74.0	-12.7	1.30 V	59	41.5	19.8
4	11160.00	48.5 AV	54.0	-5.5	1.30 V	59	28.7	19.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	110.3 PK			1.95 H	213	68.8	41.5
2	*5700.00	99.5 AV			1.95 H	213	58.0	41.5
3	#5725.00	59.2 PK	74.0	-14.8	1.95 H	213	51.9	7.3
4	#5725.00	48.2 AV	54.0	-5.8	1.95 H	213	40.9	7.3
5	11400.00	61.0 PK	74.0	-13.0	1.05 H	87	40.6	20.4
6	11400.00	49.0 AV	54.0	-5.0	1.05 H	87	28.6	20.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	116.3 PK			1.77 V	177	74.8	41.5
2	*5700.00	105.7 AV			1.77 V	177	64.2	41.5
3	#5725.00	59.3 PK	74.0	-14.7	1.77 V	177	52.0	7.3
4	#5725.00	47.7 AV	54.0	-6.3	1.77 V	177	40.4	7.3
5	11400.00	62.0 PK	74.0	-12.0	1.31 V	57	41.6	20.4
6	11400.00	49.0 AV	54.0	-5.0	1.31 V	57	28.6	20.4

Remarks:

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

802.11ac (VHT40)

CHANNEL	TX Channel 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	*5270.00	108.3 PK			2.03 H	205	67.9	40.4
2	*5270.00	97.7 AV			2.03 H	205	57.3	40.4
3	5350.00	58.4 PK	74.0	-15.6	2.03 H	205	51.9	6.5
4	5350.00	45.3 AV	54.0	-8.7	2.03 H	205	38.8	6.5
5	#10540.00	59.2 PK	74.0	-14.8	1.44 H	78	40.6	18.6
6	#10540.00	47.3 AV	54.0	-6.7	1.44 H	78	28.7	18.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5270.00	113.9 PK			1.01 V	12	73.5	40.4
2	*5270.00	104.6 AV			1.01 V	12	64.2	40.4
3	5350.00	58.1 PK	74.0	-15.9	1.01 V	12	51.6	6.5
4	5350.00	46.4 AV	54.0	-7.6	1.01 V	12	39.9	6.5
5	#10540.00	59.9 PK	74.0	-14.1	1.07 V	142	41.3	18.6
6	#10540.00	46.9 AV	54.0	-7.1	1.07 V	142	28.3	18.6

Remarks:

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

CHANNEL	TX Channel 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	108.4 PK			2.01 H	203	67.9	40.5
2	*5310.00	97.2 AV			2.01 H	203	56.7	40.5
3	5350.00	60.2 PK	74.0	-13.8	2.01 H	203	53.7	6.5
4	5350.00	48.0 AV	54.0	-6.0	2.01 H	203	41.5	6.5
5	10620.00	59.5 PK	74.0	-14.5	1.08 H	72	40.6	18.9
6	10620.00	47.6 AV	54.0	-6.4	1.08 H	72	28.7	18.9
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	*5310.00	113.4 PK			1.00 V	146	72.9	40.5
2	*5310.00	103.8 AV			1.00 V	146	63.3	40.5
3	5350.00	66.8 PK	74.0	-7.2	1.00 V	146	60.3	6.5
4	5350.00	50.4 AV	54.0	-3.6	1.00 V	146	43.9	6.5
5	10620.00	59.9 PK	74.0	-14.1	1.11 V	107	41.0	18.9
6	10620.00	47.4 AV	54.0	-6.6	1.11 V	107	28.5	18.9

Remarks:

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

CHANNEL	TX Channel 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	57.9 PK	74.0	-16.1	1.00 H	156	51.2	6.7
2	5460.00	46.3 AV	54.0	-7.7	1.00 H	156	39.6	6.7
3	#5470.00	57.8 PK	74.0	-16.2	1.00 H	156	51.1	6.7
4	#5470.00	46.7 AV	54.0	-7.3	1.00 H	156	40.0	6.7
5	*5510.00	108.1 PK			1.00 H	156	67.2	40.9
6	*5510.00	97.6 AV			1.00 H	156	56.7	40.9
7	11020.00	60.1 PK	74.0	-13.9	1.25 H	64	40.8	19.3
8	11020.00	47.9 AV	54.0	-6.1	1.25 H	64	28.6	19.3
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	5460.00	62.2 PK	74.0	-11.8	1.73 V	183	55.5	6.7
2	5460.00	50.1 AV	54.0	-3.9	1.73 V	183	43.4	6.7
3	#5470.00	65.2 PK	74.0	-8.8	1.73 V	183	58.5	6.7
4	**#5470.00**	**53.9 AV**	**54.0**	**-0.1**	**1.73 V**	**183**	**47.2**	**6.7**
5	*5510.00	115.8 PK			1.73 V	183	74.9	40.9
6	*5510.00	105.7 AV			1.73 V	183	64.8	40.9
7	11020.00	60.7 PK	74.0	-13.3	1.19 V	70	41.4	19.3
8	11020.00	47.9 AV	54.0	-6.1	1.19 V	70	28.6	19.3

Remarks:

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

CHANNEL	TX Channel 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	107.5 PK			1.02 H	154	66.5	41.0
2	*5550.00	97.8 AV			1.02 H	154	56.8	41.0
3	11100.00	60.8 PK	74.0	-13.2	1.05 H	24	41.0	19.8
4	11100.00	48.4 AV	54.0	-5.6	1.05 H	24	28.6	19.8
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	*5550.00	114.3 PK			1.80 V	183	73.3	41.0
2	*5550.00	104.3 AV			1.80 V	183	63.3	41.0
3	11100.00	61.0 PK	74.0	-13.0	1.25 V	60	41.2	19.8
4	11100.00	48.1 AV	54.0	-5.9	1.25 V	60	28.3	19.8

Remarks:

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

CHANNEL	TX Channel 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	109.1 PK			2.03 H	213	67.8	41.3
2	*5670.00	98.0 AV			2.03 H	213	56.7	41.3
3	#5725.00	47.6 PK	74.0	-26.4	1.07 H	96	40.3	7.3
4	#5725.00	35.7 AV	54.0	-18.3	1.07 H	96	28.4	7.3
5	11340.00	60.5 PK	74.0	-13.5	1.32 H	96	40.3	20.2
6	11340.00	48.9 AV	54.0	-5.1	1.32 H	96	28.7	20.2
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	*5670.00	114.6 PK			1.55 V	177	73.3	41.3
2	*5670.00	104.5 AV			1.55 V	177	63.2	41.3
3	#5725.00	59.1 PK	74.0	-14.9	1.55 V	177	51.8	7.3
4	#5725.00	48.4 AV	54.0	-5.6	1.55 V	177	41.1	7.3
5	11340.00	61.3 PK	74.0	-12.7	1.28 V	59	41.1	20.2
6	11340.00	48.9 AV	54.0	-5.1	1.28 V	59	28.7	20.2

Remarks:

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

802.11ac (VHT80)

CHANNEL	TX Channel 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	57.3 PK	74.0	-16.7	2.04 H	205	51.2	6.1
2	5150.00	46.1 AV	54.0	-7.9	2.04 H	205	40.0	6.1
3	*5290.00	104.0 PK			2.04 H	205	63.6	40.4
4	*5290.00	93.9 AV			2.04 H	205	53.5	40.4
5	5350.00	59.5 PK	74.0	-14.5	2.04 H	205	53.0	6.5
6	5350.00	47.4 AV	54.0	-6.6	2.04 H	205	40.9	6.5
7	#10580.00	59.2 PK	74.0	-14.8	1.32 H	58	40.5	18.7
8	#10580.00	47.3 AV	54.0	-6.7	1.32 H	58	28.6	18.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.3 PK	74.0	-13.7	1.00 V	11	54.2	6.1
2	5150.00	47.7 AV	54.0	-6.3	1.00 V	11	41.6	6.1
3	*5290.00	112.9 PK			1.00 V	11	72.5	40.4
4	*5290.00	102.1 AV			1.00 V	11	61.7	40.4
5	5350.00	66.4 PK	74.0	-7.6	1.00 V	11	59.9	6.5
6	5350.00	53.6 AV	54.0	-0.4	1.00 V	11	47.1	6.5
7	#10580.00	59.8 PK	74.0	-14.2	1.08 V	139	41.1	18.7
8	#10580.00	47.2 AV	54.0	-6.8	1.08 V	139	28.5	18.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.4 PK	74.0	-16.6	1.00 H	179	50.7	6.7
2	5460.00	45.7 AV	54.0	-8.3	1.00 H	179	39.0	6.7
3	#5470.00	58.7 PK	74.0	-15.3	1.00 H	179	52.0	6.7
4	#5470.00	46.8 AV	54.0	-7.2	1.00 H	179	40.1	6.7
5	*5530.00	103.8 PK			1.00 H	179	62.9	40.9
6	*5530.00	93.6 AV			1.00 H	179	52.7	40.9
7	#5725.00	58.9 PK	74.0	-15.1	1.00 H	179	51.6	7.3
8	#5725.00	47.8 AV	54.0	-6.2	1.00 H	179	40.5	7.3
9	11060.00	60.1 PK	74.0	-13.9	1.36 H	85	40.5	19.6
10	11060.00	48.2 AV	54.0	-5.8	1.36 H	85	28.6	19.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	64.6 PK	74.0	-9.4	1.00 V	171	57.9	6.7
2	5460.00	53.0 AV	54.0	-1.0	1.00 V	171	46.3	6.7
3	#5470.00	68.1 PK	74.0	-5.9	1.00 V	171	61.4	6.7
4	**#5470.00**	**53.9 AV**	**54.0**	**-0.1**	**1.00 V**	**171**	**47.2**	**6.7**
5	*5530.00	111.6 PK			1.00 V	171	70.7	40.9
6	*5530.00	101.7 AV			1.00 V	171	60.8	40.9
7	#5725.00	58.6 PK	74.0	-15.4	1.00 V	171	51.3	7.3
8	#5725.00	46.2 AV	54.0	-7.8	1.00 V	171	38.9	7.3
9	11060.00	61.2 PK	74.0	-12.8	1.05 V	53	41.6	19.6
10	11060.00	47.8 AV	54.0	-6.2	1.05 V	53	28.2	19.6

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.9 PK	74.0	-16.1	1.97 H	213	51.2	6.7
2	5460.00	46.1 AV	54.0	-7.9	1.97 H	213	39.4	6.7
3	#5470.00	58.2 PK	74.0	-15.8	1.97 H	213	51.5	6.7
4	#5470.00	46.7 AV	54.0	-7.3	1.97 H	213	40.0	6.7
5	*5610.00	104.6 PK			1.97 H	213	63.5	41.1
6	*5610.00	94.3 AV			1.97 H	213	53.2	41.1
7	#5725.00	58.6 PK	74.0	-15.4	1.97 H	213	51.3	7.3
8	#5725.00	47.6 AV	54.0	-6.4	1.97 H	213	40.3	7.3
9	11220.00	60.4 PK	74.0	-13.6	1.32 H	69	40.5	19.9
10	11220.00	48.5 AV	54.0	-5.5	1.32 H	69	28.6	19.9
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	57.3 PK	74.0	-16.7	1.82 V	176	50.6	6.7
2	5460.00	45.9 AV	54.0	-8.1	1.82 V	176	39.2	6.7
3	#5470.00	59.5 PK	74.0	-14.5	1.82 V	176	52.8	6.7
4	#5470.00	46.9 AV	54.0	-7.1	1.82 V	176	40.2	6.7
5	*5610.00	111.6 PK			1.82 V	176	70.5	41.1
6	*5610.00	101.4 AV			1.82 V	176	60.3	41.1
7	#5725.00	61.1 PK	74.0	-12.9	1.82 V	176	53.8	7.3
8	#5725.00	48.8 AV	54.0	-5.2	1.82 V	176	41.5	7.3
9	11220.00	61.3 PK	74.0	-12.7	1.19 V	62	41.4	19.9
10	11220.00	48.0 AV	54.0	-6.0	1.19 V	62	28.1	19.9

Remarks:

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

Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	163.79	38.5 QP	43.5	-5.0	1.26 H	255	52.2	-13.7
2	373.35	30.7 QP	46.0	-15.3	1.01 H	234	41.6	-10.9
3	528.58	26.4 QP	46.0	-19.6	1.50 H	193	34.4	-8.0
4	613.96	29.5 QP	46.0	-16.5	1.26 H	32	35.2	-5.7
5	747.85	40.8 QP	46.0	-5.2	1.50 H	212	43.8	-3.0
6	938.01	35.9 QP	46.0	-10.1	1.26 H	7	36.1	-0.2
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	179.31	37.6 QP	43.5	-5.9	1.00 V	18	52.5	-14.9
2	373.35	26.7 QP	46.0	-19.3	1.49 V	268	37.6	-10.9
3	551.87	25.1 QP	46.0	-20.9	1.00 V	60	32.8	-7.7
4	621.72	29.8 QP	46.0	-16.2	1.00 V	174	35.4	-5.6
5	**730.38**	**45.9 QP**	**46.0**	**-0.1**	**1.24 V**	**42**	**49.5**	**-3.6**
6	885.62	32.1 QP	46.0	-13.9	1.99 V	13	33.3	-1.2

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)
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 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	173.49	35.9 QP	43.5	-7.6	1.24 H	259	50.1	-14.2
2	379.17	31.5 QP	46.0	-14.5	1.00 H	229	42.2	-10.7
3	472.31	27.1 QP	46.0	-18.9	1.50 H	6	36.1	-9.0
4	613.96	32.0 QP	46.0	-14.0	1.50 H	14	37.7	-5.7
5	755.61	34.5 QP	46.0	-11.5	1.24 H	356	37.3	-2.8
6	934.13	36.0 QP	46.0	-10.0	1.50 H	6	36.3	-0.3
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	115.28	32.9 QP	43.5	-10.6	1.00 V	247	49.4	-16.5
2	179.31	32.0 QP	43.5	-11.5	1.51 V	82	46.9	-14.9
3	379.17	26.6 QP	46.0	-19.4	1.26 V	286	37.3	-10.7
4	600.38	29.3 QP	46.0	-16.7	1.00 V	271	35.5	-6.2
5	763.37	30.8 QP	46.0	-15.2	1.26 V	318	33.4	-2.6
6	936.07	34.9 QP	46.0	-11.1	1.26 V	148	35.2	-0.3

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)
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.

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.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 22, 2016	Dec. 21, 2017
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Cond_ V7.3.7.3	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.

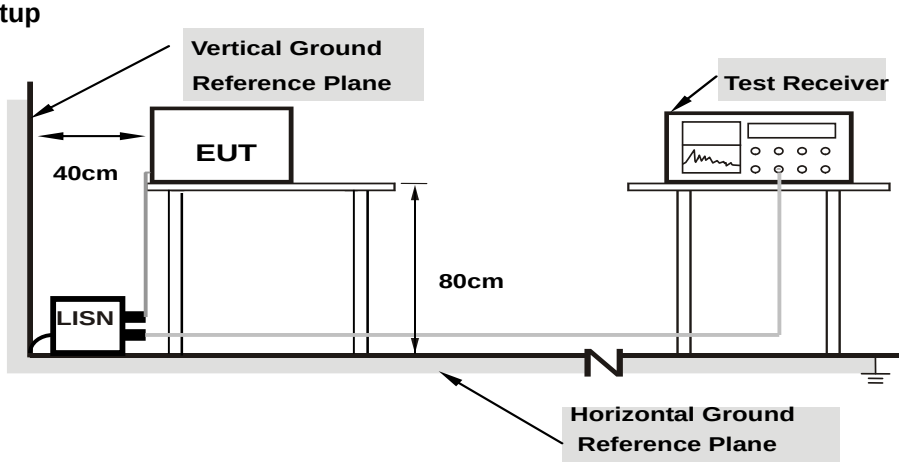
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

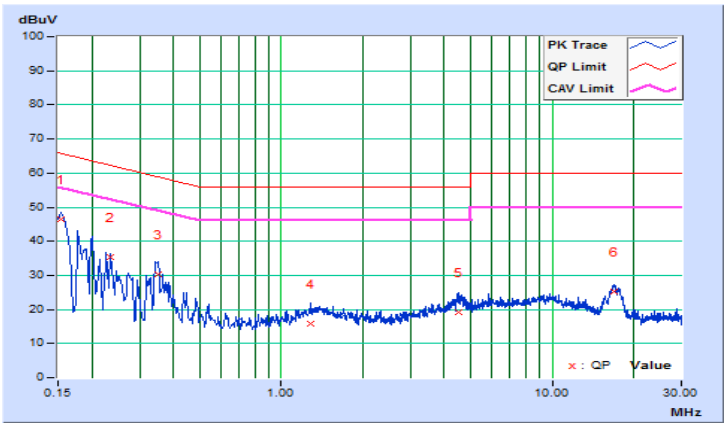
Worst-case data: 802.11a

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

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	0.15400	10.35	36.10	19.26	46.45	29.61	65.78	55.78	-19.33	-26.17
2	0.23412	10.38	24.82	10.13	35.20	20.51	62.30	52.30	-27.10	-31.79
3	0.34943	10.39	19.99	8.34	30.38	18.73	58.98	48.98	-28.60	-30.25
4	1.29000	10.42	5.53	2.27	15.95	12.69	56.00	46.00	-40.05	-33.31
5	4.54600	10.59	8.54	2.92	19.13	13.51	56.00	46.00	-36.87	-32.49
6	17.03000	11.20	14.00	9.15	25.20	20.35	60.00	50.00	-34.80	-29.65

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.

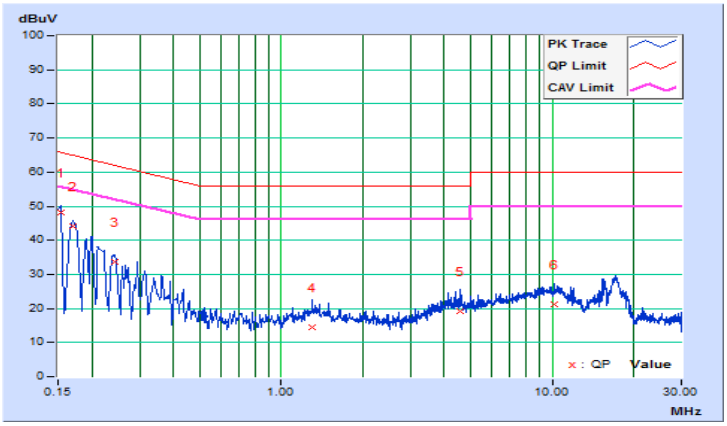


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		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	0.15400	10.11	37.92	21.84	48.03	31.95	65.78	55.78	-17.75	-23.83
2	0.16977	10.12	33.97	15.97	44.09	26.09	64.97	54.97	-20.88	-28.88
3	0.24164	10.14	23.51	8.14	33.65	18.28	62.04	52.04	-28.39	-33.76
4	1.30200	10.19	4.23	1.30	14.42	11.49	56.00	46.00	-41.58	-34.51
5	4.59800	10.36	8.86	1.70	19.22	12.06	56.00	46.00	-36.78	-33.94
6	10.23800	10.56	10.55	5.56	21.11	16.12	60.00	50.00	-38.89	-33.88

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.

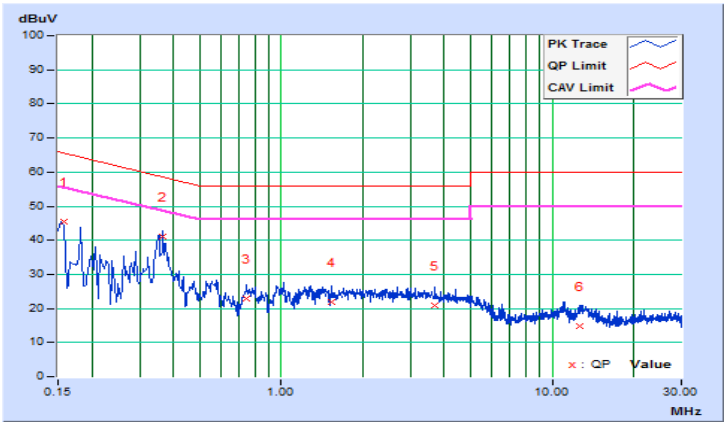


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.15800	10.35	35.11	18.28	45.46	28.63	65.57	55.57	-20.11	-26.94
2	**0.36600**	**10.39**	**30.53**	**22.29**	**40.92**	**32.68**	**58.59**	**48.59**	**-17.67**	**-15.91**
3	0.74600	10.40	12.61	5.44	23.01	15.84	56.00	46.00	-32.99	-30.16
4	1.53800	10.43	11.40	2.94	21.83	13.37	56.00	46.00	-34.17	-32.63
5	3.69400	10.55	10.41	4.07	20.96	14.62	56.00	46.00	-35.04	-31.38
6	12.65400	10.97	3.78	-1.66	14.75	9.31	60.00	50.00	-45.25	-40.69

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.

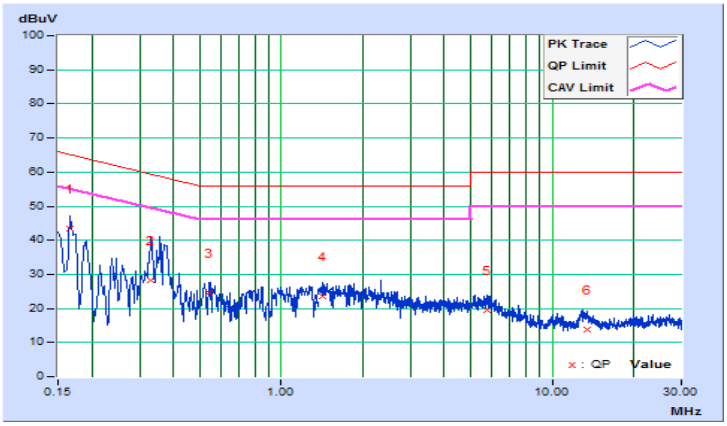


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		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	0.16600	10.12	33.41	18.40	43.53	28.52	65.16	55.16	-21.63	-26.64
2	0.33000	10.15	18.13	7.56	28.28	17.71	59.45	49.45	-31.17	-31.74
3	0.54255	10.16	14.31	7.44	24.47	17.60	56.00	46.00	-31.53	-28.40
4	1.41800	10.20	13.51	6.10	23.71	16.30	56.00	46.00	-32.29	-29.70
5	5.75800	10.40	9.08	2.97	19.48	13.37	60.00	50.00	-40.52	-36.63
6	13.45400	10.69	3.02	-1.98	13.71	8.71	60.00	50.00	-46.29	-41.29

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

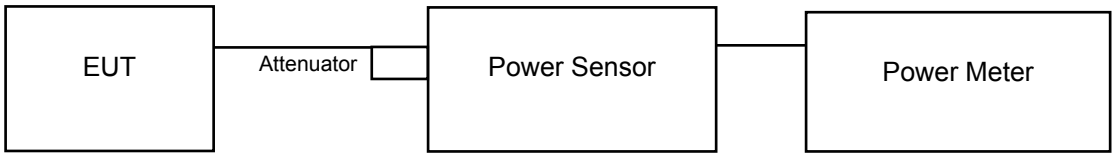
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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 $N_{ANT} \geq 5$.

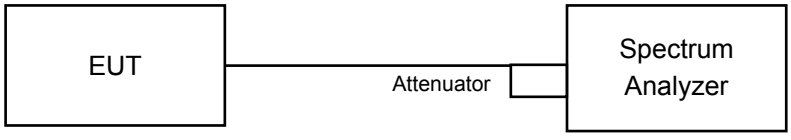
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

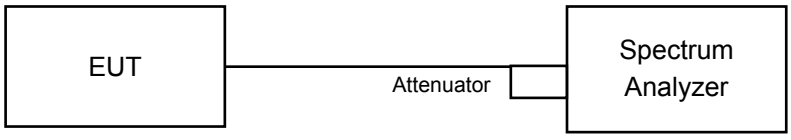
For Power Output
802.11a, 802.11ac (VHT20), 802.11ac (VHT40)



802.11ac (VHT80)



For 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, 802.11ac (VHT20), 802.11ac (VHT40)
Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

For 802.11ac (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. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
h. Detector = RMS
i. Trace mode = max hold
j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
k. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.03	20.44	211.356	23.25	23.85	Pass
60	5300	20.12	20.35	211.195	23.25	23.84	Pass
64	5320	20.09	20.34	210.237	23.23	23.81	Pass

Note:
Chain 0
1. 11dBm + 10log (19.59) = 23.92 < 24dBm
2. 11dBm + 10log (19.61) = 23.92 < 24dBm
3. 11dBm + 10log (19.64) = 23.93 < 24dBm

Chain 1
1. 11dBm + 10log (19.26) = 23.85 < 24dBm
2. 11dBm + 10log (19.22) = 23.84 < 24dBm
3. 11dBm + 10log (19.10) = 23.81 < 24dBm

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	17.01	16.85	17.32	17.08	203.652	23.09	24	Pass
116	5580	17.41	16.79	17.25	16.97	205.696	23.13	23.96	Pass
140	5700	17.32	16.90	17.16	16.74	202.135	23.06	23.95	Pass

Note:
Chain 0
1. 11dBm + 10log (20.21) = 24.06 > 24dBm
2. 11dBm + 10log (20.34) = 24.08 > 24dBm
3. 11dBm + 10log (20.15) = 24.04 > 24dBm

Chain 1
1. 11dBm + 10log (20.00) = 24.01 > 24dBm
2. 11dBm + 10log (19.81) = 23.97 < 24dBm
3. 11dBm + 10log (20.28) = 24.07 > 24dBm

Chain 2
1. 11dBm + 10log (20.09) = 24.03 > 24dBm
2. 11dBm + 10log (19.78) = 23.96 < 24dBm
3. 11dBm + 10log (20.09) = 24.03 > 24dBm

Chain 3
1. 11dBm + 10log (20.17) = 24.05 > 24dBm
2. 11dBm + 10log (19.95) = 24.00 > 24dBm
3. 11dBm + 10log (19.73) = 23.95 < 24dBm

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.10	20.36	210.972	23.24	24	Pass
60	5300	20.17	20.24	209.674	23.22	24	Pass
64	5320	20.24	20.26	**211.852**	23.26	24	Pass

Note:
Chain 0
1. 11dBm + 10log (20.45) = 24.11 > 24dBm
2. 11dBm + 10log (20.73) = 24.17 > 24dBm
3. 11dBm + 10log (20.50) = 24.12 > 24dBm

Chain 1
1. 11dBm + 10log (20.46) = 24.11 > 24dBm
2. 11dBm + 10log (20.46) = 24.11 > 24dBm
3. 11dBm + 10log (20.53) = 24.12 > 24dBm

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	17.03	17.16	17.10	16.85	202.169	23.06	24	Pass
116	5580	17.01	17.01	17.12	16.89	200.856	23.03	24	Pass
140	5700	17.23	17.15	17.18	16.87	205.606	23.13	24	Pass

Note:
Chain 0
1. 11dBm + 10log (21.15) = 24.25 > 24dBm
2. 11dBm + 10log (20.91) = 24.20 > 24dBm
3. 11dBm + 10log (20.98) = 24.22 > 24dBm

Chain 1
1. 11dBm + 10log (20.75) = 24.17 > 24dBm
2. 11dBm + 10log (20.98) = 24.22 > 24dBm
3. 11dBm + 10log (20.95) = 24.21 > 24dBm

Chain 2
1. 11dBm + 10log (20.88) = 24.20 > 24dBm
2. 11dBm + 10log (20.77) = 24.17 > 24dBm
3. 11dBm + 10log (20.81) = 24.18 > 24dBm

Chain 3
1. 11dBm + 10log (20.58) = 24.13 > 24dBm
2. 11dBm + 10log (20.65) = 24.15 > 24dBm
3. 11dBm + 10log (20.52) = 24.12 > 24dBm

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.02	20.46	211.635	23.26	24	Pass
62	5310	20.07	20.35	210.018	23.22	24	Pass

Note:
Chain 0
1. 11dBm + 10log (40.65) = 27.09 > 24dBm
2. 11dBm + 10log (40.64) = 27.09 > 24dBm

Chain 1
1. 11dBm + 10log (40.50) = 27.07 > 24dBm
2. 11dBm + 10log (40.51) = 27.08 > 24dBm

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	17.17	17.10	17.12	17.20	**207.409**	23.17	24	Pass
110	5550	17.19	17.07	16.97	16.80	200.930	23.03	24	Pass
134	5670	17.23	16.86	17.15	16.85	201.671	23.05	24	Pass

Note:
Chain 0
1. 11dBm + 10log (40.78) = 27.10 > 24dBm
2. 11dBm + 10log (40.98) = 27.13 > 24dBm
3. 11dBm + 10log (41.03) = 27.13 > 24dBm

Chain 1
1. 11dBm + 10log (40.79) = 27.11 > 24dBm
2. 11dBm + 10log (40.66) = 27.09 > 24dBm
3. 11dBm + 10log (40.53) = 27.08 > 24dBm

Chain 2
1. 11dBm + 10log (40.57) = 27.08 > 24dBm
2. 11dBm + 10log (40.40) = 27.06 > 24dBm
3. 11dBm + 10log (40.89) = 27.12 > 24dBm

Chain 3
1. 11dBm + 10log (40.56) = 27.08 > 24dBm
2. 11dBm + 10log (40.40) = 27.06 > 24dBm
3. 11dBm + 10log (40.61) = 27.09 > 24dBm

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	20.35	20.09	210.487	23.23	24	Pass

Note:
Chain 0
1. 11dBm + 10log (84.50) = 30.27 > 24dBm
Chain 1
1. 11dBm + 10log (83.97) = 30.24 > 24dBm

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
106	5530	17.30	16.90	17.29	17.07	207.194	23.16	24	Pass
122	5610	17.25	16.75	17.38	16.62	201.025	23.03	24	Pass

Note:
Chain 0
1. 11dBm + 10log (84.53) = 30.27 > 24dBm
2. 11dBm + 10log (84.15) = 30.25 > 24dBm
Chain 1
1. 11dBm + 10log (83.67) = 30.23 > 24dBm
2. 11dBm + 10log (83.87) = 30.24 > 24dBm
Chain 2
1. 11dBm + 10log (83.48) = 30.22 > 24dBm
2. 11dBm + 10log (83.40) = 30.21 > 24dBm
Chain 3
1. 11dBm + 10log (83.47) = 30.22 > 24dBm
2. 11dBm + 10log (83.57) = 30.22 > 24dBm

Beamforming Mode

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.10	20.36	210.972	23.24	24	Pass
60	5300	20.17	20.24	209.674	23.22	24	Pass
64	5320	20.24	20.26	**211.852**	23.26	24	Pass

Note:

* 5260~5320MHz Directional gain = 4.18dBi < 6dBi, so the power limit no need to reduced.

Chain 0

1. 11dBm + 10log (20.45) = 24.11 > 24dBm
2. 11dBm + 10log (20.73) = 24.17 > 24dBm
3. 11dBm + 10log (20.50) = 24.12 > 24dBm

Chain 1

1. 11dBm + 10log (20.46) = 24.11 > 24dBm
2. 11dBm + 10log (20.46) = 24.11 > 24dBm
3. 11dBm + 10log (20.53) = 24.12 > 24dBm

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	15.01	15.02	15.13	14.95	127.309	21.05	22.24	Pass
116	5580	15.03	15.18	15.03	14.74	126.430	21.02	22.24	Pass
140	5700	15.25	15.04	15.30	14.87	129.987	21.14	22.24	Pass

Note:

* 5500~5700MHz Directional gain = 7.76dBi > 6dBi, so the limit shall be reduced to 24-(7.76-6) = 22.24dBm.

Chain 0

1. 11dBm + 10log (21.15) = 24.25 > 24dBm
2. 11dBm + 10log (20.91) = 24.20 > 24dBm
3. 11dBm + 10log (20.98) = 24.22 > 24dBm

Chain 1

1. 11dBm + 10log (20.75) = 24.17 > 24dBm
2. 11dBm + 10log (20.98) = 24.22 > 24dBm
3. 11dBm + 10log (20.95) = 24.21 > 24dBm

Chain 2

1. 11dBm + 10log (20.88) = 24.20 > 24dBm
2. 11dBm + 10log (20.77) = 24.17 > 24dBm
3. 11dBm + 10log (20.81) = 24.18 > 24dBm

Chain 3

1. 11dBm + 10log (20.58) = 24.13 > 24dBm
2. 11dBm + 10log (20.65) = 24.15 > 24dBm
3. 11dBm + 10log (20.52) = 24.12 > 24dBm

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.02	20.46	211.635	23.26	24	Pass
62	5310	20.07	20.35	210.018	23.22	24	Pass

Note:
* 5260~5320MHz Directional gain = 4.18dBi < 6dBi, so the power limit no need to reduced.
Chain 0
1. 11dBm + 10log (40.65) = 27.09 > 24dBm
2. 11dBm + 10log (40.64) = 27.09 > 24dBm
Chain 1
1. 11dBm + 10log (40.50) = 27.07 > 24dBm
2. 11dBm + 10log (40.51) = 27.08 > 24dBm

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	13.49	13.29	13.52	13.93	90.874	19.58	22.24	Pass
110	5550	15.10	14.98	15.04	14.94	126.941	21.04	22.24	Pass
134	5670	15.11	15.04	15.12	14.98	128.336	21.08	22.24	Pass

Note:
* 5500~5700MHz Directional gain = 7.76dBi > 6dBi, so the limit shall be reduced to 24-(7.76-6) = 22.24dBm.
Chain 0
1. 11dBm + 10log (40.78) = 27.10 > 24dBm
2. 11dBm + 10log (40.98) = 27.13 > 24dBm
3. 11dBm + 10log (41.03) = 27.13 > 24dBm
Chain 1
1. 11dBm + 10log (40.79) = 27.11 > 24dBm
2. 11dBm + 10log (40.66) = 27.09 > 24dBm
3. 11dBm + 10log (40.53) = 27.08 > 24dBm
Chain 2
1. 11dBm + 10log (40.57) = 27.08 > 24dBm
2. 11dBm + 10log (40.40) = 27.06 > 24dBm
3. 11dBm + 10log (40.89) = 27.12 > 24dBm
Chain 3
1. 11dBm + 10log (40.56) = 27.08 > 24dBm
2. 11dBm + 10log (40.40) = 27.06 > 24dBm
3. 11dBm + 10log (40.61) = 27.09 > 24dBm

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	19.75	19.79	189.686	22.78	24	Pass

Note:
* 5260~5320MHz Directional gain = 4.18dBi < 6dBi, so the power limit no need to reduced.
Chain 0
1. 11dBm + 10log (84.50) = 30.27 > 24dBm
Chain 1
1. 11dBm + 10log (83.97) = 30.24 > 24dBm

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
106	5530	15.27	14.83	15.30	15.07	**130.081**	21.14	22.24	Pass
122	5610	15.30	14.76	15.32	14.71	127.428	21.05	22.24	Pass

Note:
* 5500~5700MHz Directional gain = 7.76dBi > 6dBi, so the limit shall be reduced to 24-(7.76-6) = 22.24dBm.
Chain 0
1. 11dBm + 10log (84.53) = 30.27 > 24dBm
2. 11dBm + 10log (84.15) = 30.25 > 24dBm
Chain 1
1. 11dBm + 10log (83.67) = 30.23 > 24dBm
2. 11dBm + 10log (83.87) = 30.24 > 24dBm
Chain 2
1. 11dBm + 10log (83.48) = 30.22 > 24dBm
2. 11dBm + 10log (83.40) = 30.21 > 24dBm
Chain 3
1. 11dBm + 10log (83.47) = 30.22 > 24dBm
2. 11dBm + 10log (83.57) = 30.22 > 24dBm

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	19.59	19.26
60	5300	19.61	19.22
64	5320	19.64	19.10

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	20.21	20.00	20.09	20.17
116	5580	20.34	19.81	19.78	19.95
140	5700	20.15	20.28	20.09	19.73

802.11ac (VHT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.45	20.46
60	5300	20.73	20.46
64	5320	20.50	20.53

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	21.15	20.75	20.88	20.58
116	5580	20.91	20.98	20.77	20.65
140	5700	20.98	20.95	20.81	20.52

802.11ac (VHT40)

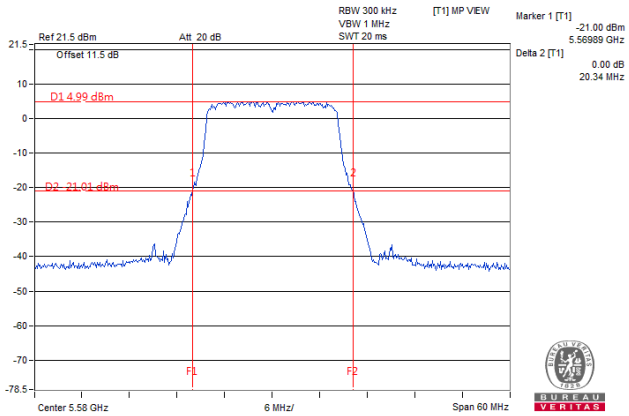
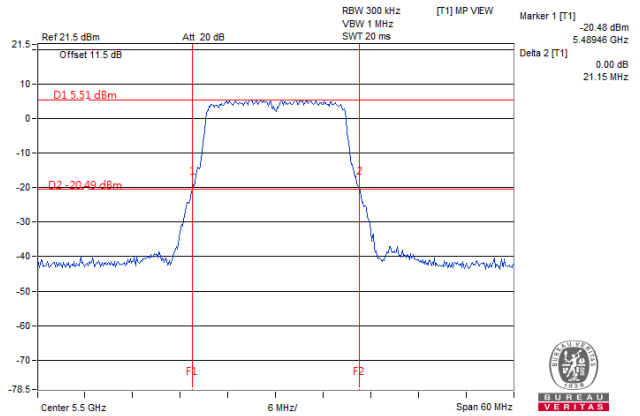
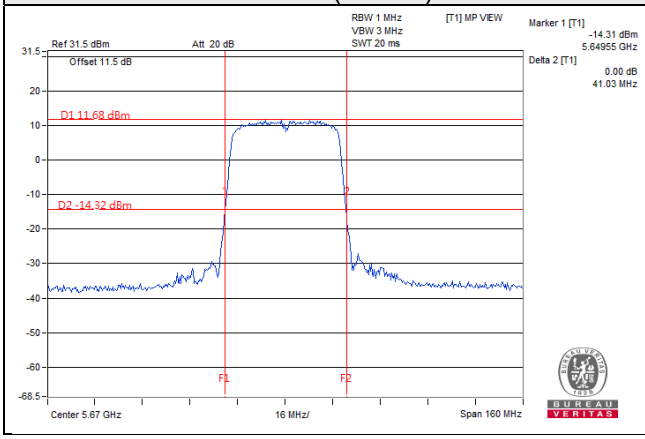
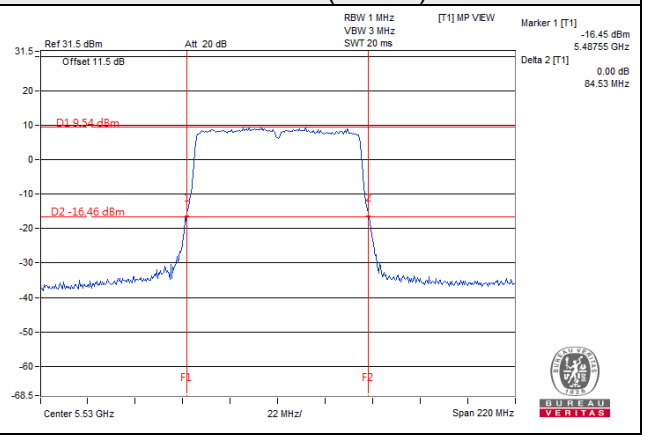
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	40.65	40.50
62	5310	40.64	40.51

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
102	5510	40.78	40.79	40.57	40.56
110	5550	40.98	40.66	40.40	40.40
134	5670	41.03	40.53	40.89	40.61

802.11ac (VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	84.50	83.97

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
106	5530	84.53	83.67	83.48	83.47
122	5610	84.15	83.87	83.40	83.57

Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

EUT Maximum Conducted Power

CDD Mode

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	211.356	23.25
5470~5725	205.696	23.13

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

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	211.852	23.26
5470~5725	205.606	23.13

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

802.11ac (VHT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	211.635	23.26
5470~5725	207.409	23.17

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	210.487	23.23
5470~5725	207.194	23.16

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

Beamforming Mode

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	211.852	23.26
5470~5725	129.987	21.14

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

802.11ac (VHT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	211.635	23.26
5470~5725	128.336	21.08

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

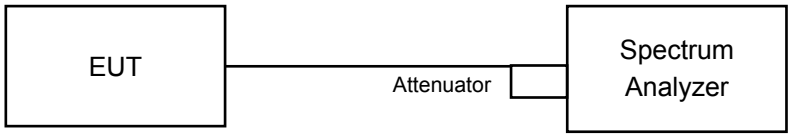
802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	189.686	22.78
5470~5725	130.081	21.14

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

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Result

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.84	16.84
60	5300	16.84	16.84
64	5320	16.84	16.84

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	16.44	16.44	16.44	16.44
116	5580	16.56	16.44	16.44	16.44
140	5700	16.56	16.56	16.56	16.44

802.11ac (VHT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.64	17.64
60	5300	17.64	17.64
64	5320	17.64	17.64

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	17.94	17.94	17.94	17.94
116	5580	17.94	17.94	17.94	17.94
140	5700	17.94	17.94	17.94	17.94

802.11ac (VHT40)

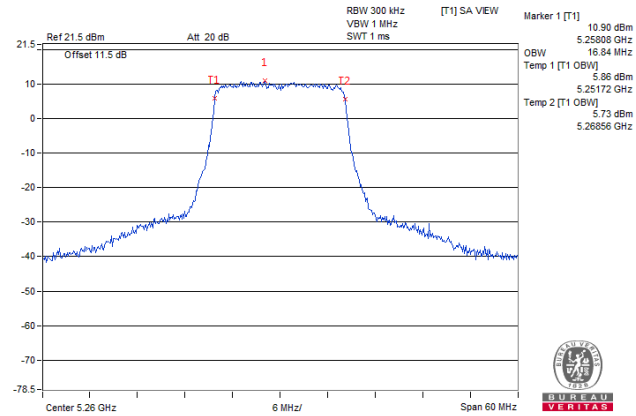
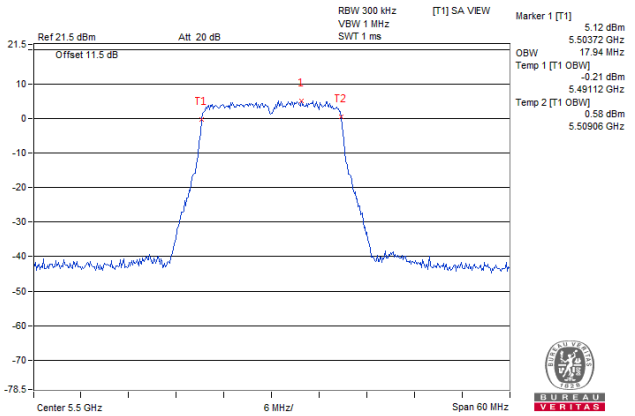
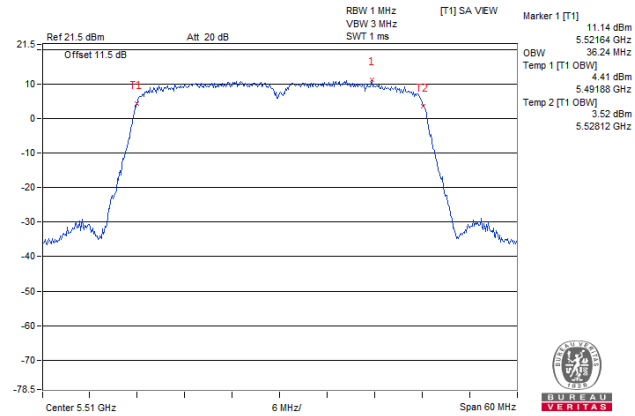
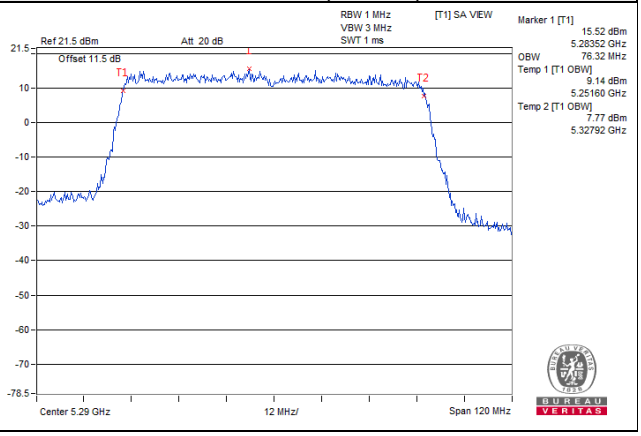
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.12	36.24
62	5310	36.12	36.12

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
102	5510	36.24	36.12	36.12	36.12
110	5550	36.24	36.12	36.12	36.12
134	5670	36.24	36.00	36.00	36.24

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	76.32	75.84

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
106	5530	75.84	75.84	76.08	75.60
122	5610	76.32	75.84	75.84	75.84

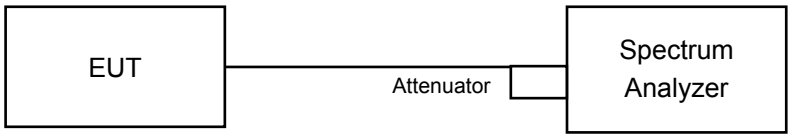
Spectrum Plot of Worst Value	
802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	802.11ac (VHT80)
	

4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For 5260~5320MHz, 5500~5700MHz
Duty cycle of test signal is ≥ 98%
Using method SA-1
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value

Duty cycle of test signal is < 98%
Using method SA-2
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For 5260~5320MHz

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	6.83	6.95	0.20	10.10	11	Pass
60	5300	6.90	6.65	0.20	9.99	11	Pass
64	5320	6.53	6.13	0.20	9.54	11	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. Directional gain = 4.18dBi < 6dBi, so the power limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	6.58	6.96	0.10	9.88	11	Pass
60	5300	6.75	6.62	0.10	9.79	11	Pass
64	5320	6.49	6.03	0.10	9.37	11	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. Directional gain = 4.18dBi < 6dBi, so the power limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
54	5270	3.83	4.33	0.15	7.25	11	Pass
62	5310	4.16	3.48	0.15	6.99	11	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. Directional gain = 4.18dBi < 6dBi, so the power limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

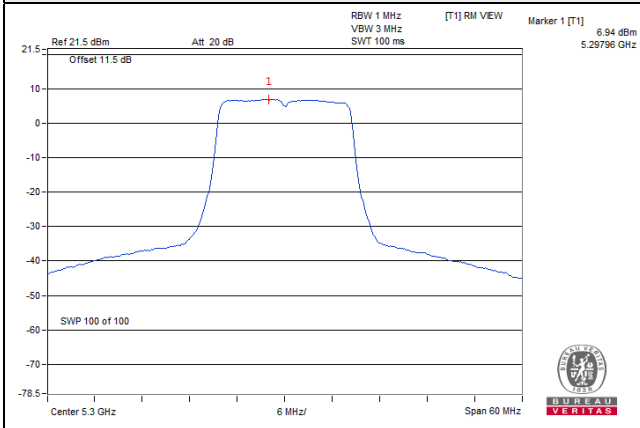
802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	0.51	0.29	0.39	3.80	11	Pass

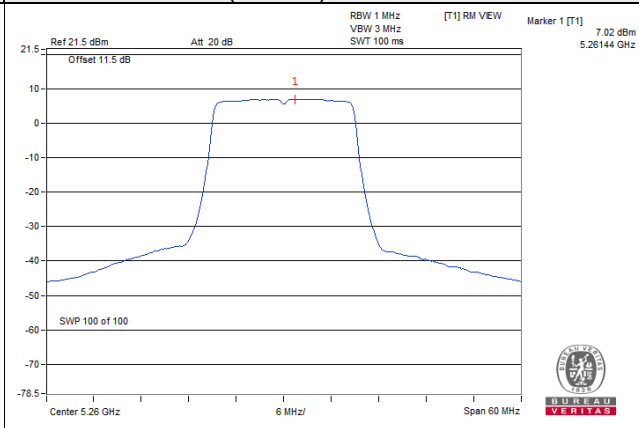
Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 4.18dBi < 6dBi, so the power limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

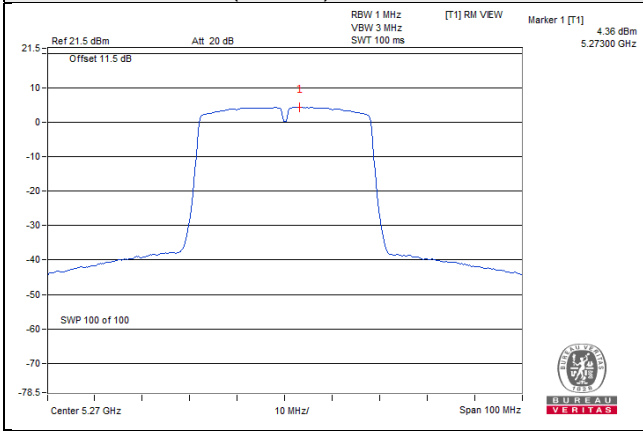
802.11a / Chain 0 / CH 60



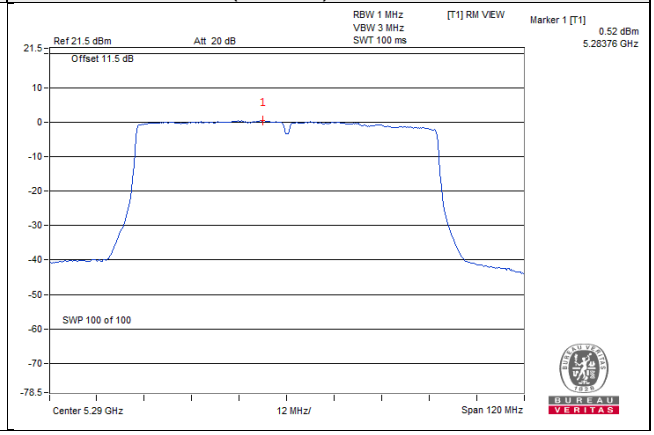
802.11ac (VHT20) / Chain 1 / CH 52



802.11ac (VHT40)/ Chain 1 / CH 54



802.11ac (VHT80) / Chain 0 / CH 58



For 5500~5700MHz

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
100	5500	1.42	2.10	1.81	2.64	0.18	8.21	9.24	Pass
116	5580	1.34	1.90	2.06	1.82	0.18	7.99	9.24	Pass
140	5700	2.44	2.02	2.38	2.62	0.18	8.57	9.24	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. Directional gain = 7.76dBi > 6dBi, so the limit shall be reduced to 11-(7.76-6) = 9.24dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)				Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
100	5500	2.36	2.85	2.63	2.12	8.52	9.24	Pass
116	5580	1.38	1.33	1.56	1.29	7.41	9.24	Pass
140	5700	1.81	1.58	2.05	2.11	7.91	9.24	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. Directional gain = 7.76dBi > 6dBi, so the limit shall be reduced to 11-(7.76-6) = 9.24dBm.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	0.76	1.12	1.04	0.43	0.20	7.06	9.24	Pass
110	5550	0.97	1.09	1.73	0.86	0.20	7.39	9.24	Pass
134	5670	-0.16	0.37	0.93	0.13	0.20	6.55	9.24	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. Directional gain = 7.76dBi > 6dBi, so the limit shall be reduced to 11-(7.76-6) = 9.24dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

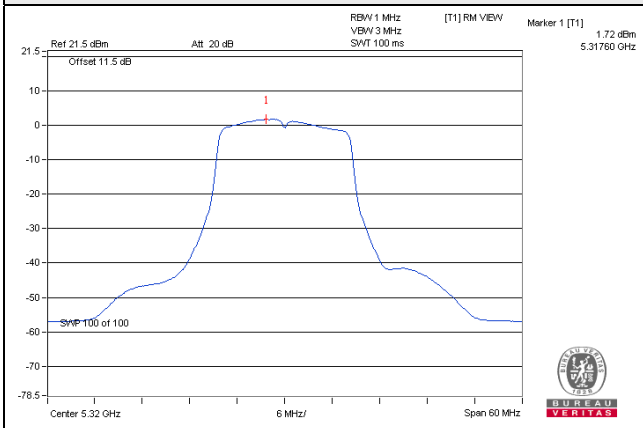
802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
106	5530	-2.41	-2.62	-2.17	-3.05	0.32	3.79	9.24	Pass
122	5610	-3.45	-2.72	-2.56	-3.62	0.32	3.27	9.24	Pass

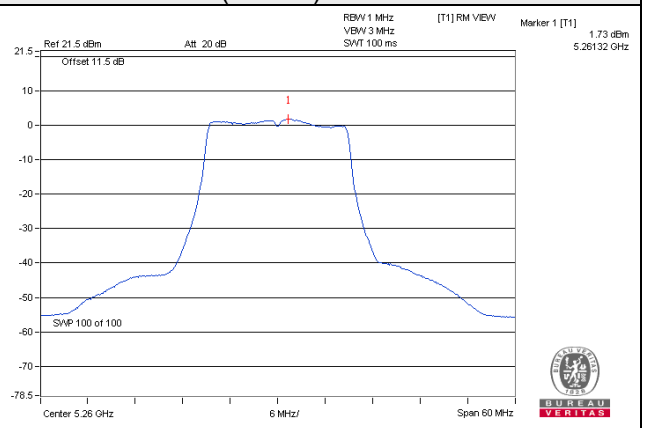
Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 7.76dBi > 6dBi, so the limit shall be reduced to 11-(7.76-6) = 9.24dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

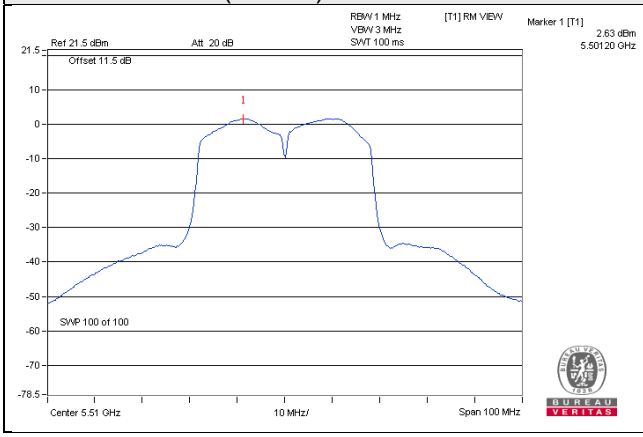
802.11a / Chain 0 / CH 64



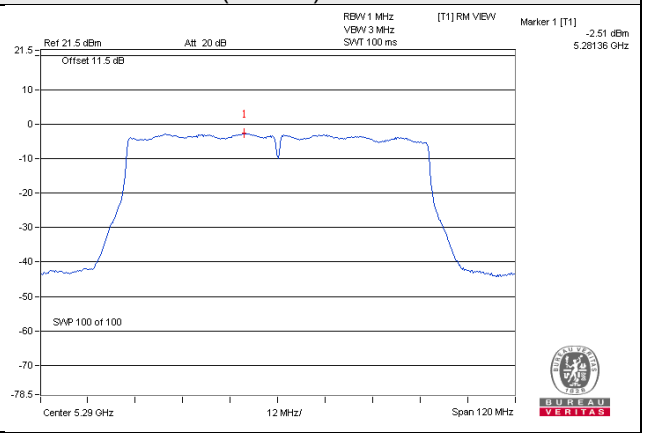
802.11ac (VHT20) / Chain 0 / CH 52



802.11ac (VHT40)/ Chain 0 / CH 102



802.11ac (VHT80) / Chain 1 / CH 58

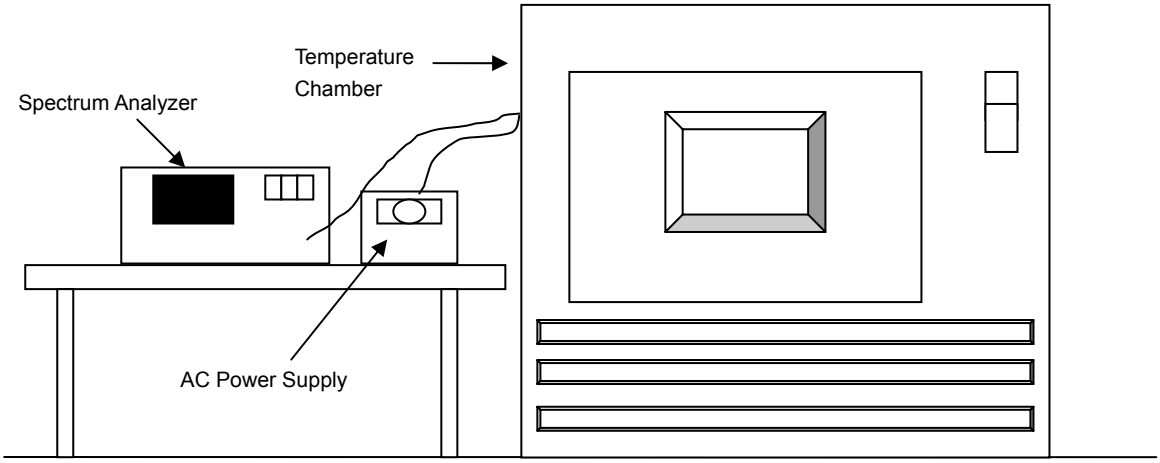


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5259.9959	-0.00008	5259.9992	-0.00002	5259.9982	-0.00003	5259.9986	-0.00003
40	120	5260.02	0.00038	5260.0178	0.00034	5260.0227	0.00043	5260.0183	0.00035
30	120	5259.9764	-0.00045	5259.9782	-0.00041	5259.9736	-0.00050	5259.9754	-0.00047
20	120	5260.0012	0.00002	5260.0021	0.00004	5260.0038	0.00007	5260.0038	0.00007
10	120	5259.9931	-0.00013	5259.9897	-0.00020	5259.991	-0.00017	5259.9917	-0.00016
0	120	5259.9926	-0.00014	5259.9896	-0.00020	5259.9885	-0.00022	5259.9906	-0.00018
-10	120	5259.9833	-0.00032	5259.9862	-0.00026	5259.9858	-0.00027	5259.9842	-0.00030
-20	120	5259.9979	-0.00004	5259.9996	-0.00001	5259.9971	-0.00006	5259.999	-0.00002
-30	120	5260.0008	0.00002	5260.0003	0.00001	5259.9976	-0.00005	5260.0002	0.00000

Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5260.0007	0.00001	5260.002	0.00004	5260.0043	0.00008	5260.0043	0.00008
	120	5260.0012	0.00002	5260.0021	0.00004	5260.0038	0.00007	5260.0038	0.00007
	102	5260.0011	0.00002	5260.0018	0.00003	5260.0039	0.00007	5260.0044	0.00008

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are 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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The address and road map of all our labs can be found in our web site also.

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