FCC Test Report

Report No.:	RF160621C27L
FCC ID:	PY316200341
Test Model:	RBR50
Series Mode:	RBS50, SRR60, SRS60 (refer to item 3.1 for more details)
Received Date:	Jun. 20, 2016
Test Date:	Jul. 21 ~ Dec. 06, 2016
Issued Date:	Jun. 15, 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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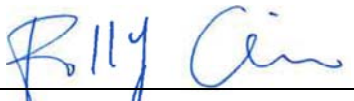
Release Control Record

Issue No.	Description	Date Issued
RF160621C27L	Original release	Aug. 19, 2016
RF160621C27L	This report is prepared for FCC class II permissive change. Added code names, code product names, 5.26GHz to 5.32GHz & 5.50GHz to 5.70GHz by software and 2nd filter	Jun. 15, 2017

1 Certificate of Conformity

Product:	Orbi Router (refer to item 3.1 for more details)
Brand:	NETGEAR
Test Model:	RBR50
Series Mode:	RBS50, SRR60, SRS60 (refer to item 3.1 for more details)
Sample Status:	Engineering sample
Applicant:	NETGEAR, INC.
Test Date:	Jul. 21 ~ Dec. 06, 2016
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:** Jun. 15, 2017

Polly Chien / Specialist

Approved by :  , **Date:** Jun. 15, 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 -15.49dB at 0.15391MHz.
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 -0.4dB at 5350.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(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	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.86 dB
	200MHz ~1000MHz	3.87 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	Orbi Router (Refer to note for more details)
Brand	NETGEAR
Test Model	RBR50
Series Model/Code Name	RBS50, SRR60, SRS60
Model Difference	Refer to note for more details
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.0Mbps
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: 210.708mW 5500 ~ 5700MHz: 207.879mW Beamforming Mode 5260 ~ 5320MHz: 209.728mW 5500 ~ 5700MHz: 128.856mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Adapter
Data Cable Supplied	1.95m RJ45 non-shielded cable w/o core

Note:

1. This report is prepared for FCC class II permissive change. The differences compared with the original report (BV ADT report no.: RF160621C27-1 & RF160621C27M) are adding model names, 5.26GHz to 5.32GHz & 5.50GHz to 5.70GHz by software and removing code names, code product names.
2. All of the RF specifications (include antenna type and location) are identical and the difference between RBR50, RBS50 & SRR60, SRS60 is USB port. (New names are marked in boldface.)

Brand	Model	Product Name	RF module	Difference
NETGEAR	RBR50, **SRR60**	Orbi Router	RF module 1	software firmware: RBR50_V1.1.0.16Master mode only **The housings SRR60 is different with RBR50, and Beehive 3 has no USB port.** **The housings of SRR60 is different with RBS50, and SRR60 has no USB port.**
			RF module 2	
			BT Module	
	RBS50, **SRS60**	Orbi Satellite	RF module 1	software firmware: RBS50_V1.1.0.16Master mode and Client mode for 5.50 ~ 5.70GHz band **The housings of SRS60 is different with RBR50, and SRS60 has no USB port.** **The housings of SRS60 is different with RBS50, and SRS60 has no USB port.**
			RF module 2	
			BT Module	
Note: RF Module 1 support WLAN 2.4GHz band, 5.18 ~ 5.24GHz and 5.26 ~ 5.32GHz band functionally. RF Module 2 WLAN 5.50 ~ 5.70GHz and 5.745 ~ 5.825GHz band functionally.				

*After the pretesting the above model, the Model: RBR50 is worst case for final test.

3. 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	Band 2 (2TX), Band 3 (4TX)
	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 CDD mode is the worst case for final radiated emission and power line conducted emission tests after pretesting CDD mode and beamforming mode.

4. The module 2 card has type C, type D and different gaskets on the following modes. Mode C was the worst case for final test.

Mode	Description
A	Type C on chain 1, 2, 3, and 4. Triangular gaskets on chain 1, 2, 3, and 4.
B	Type C on chain 1, 2, 3, and 4. Triangular gaskets on chain 1, 2, and 3. No gasket on chain 4.
C	Type C on chain 1, 2, 3, and 4. Rectangular gaskets on chain 1, 2, 3, and 4.
D	Type C on chain 1, 2, 3, and 4. Rectangular gaskets on chain 1, 2, and 3. No gasket on chain 4.
E	Type C on chain 1, 2, and 3. Type D on chain 4. Triangular gaskets on chain 1, 2, and 3. No gasket on chain 4.

5. The following filters are provided to this EUT.

RF Module Brand / Model	Filter	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)

6. The following antennas were provided to the EUT.

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

7. The EUT uses following adapters.

Adapter 1	
Brand	NETGEAR
Model	AD2080F20
PN	332-10883-01
Input Power	100-240Vdc, 50/60Hz 1.0A
Output Power	12Vdc, 3.5A
Power Line	1.8m power cable without core attached on adapter

Adapter 2	
Brand	NETGEAR
Model	2ABN042F NA
PN	332-10888-01
Input Power	100-240Vdc, 50/60Hz 1.3A
Output Power	12Vdc, 3.5A
Power Line	1.85m power cable without core attached on adapter

*After pre-testing, adapter 2 is the worst case for the final tests.

8. Spurious emission of the simultaneous operation (2.4GHz and 5GHz) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

For 5260 ~ 5320MHz

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290 MHz

For 5500 ~ 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	
-	√	√	√	√	-

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: The EUT was positioned on the Z-plane during testing.

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

Radiated Emission Test (Below 1GHz):

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

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

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

Power Line Conducted Emission Test:

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

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

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

Antenna Port Conducted Measurement:

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

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	BPSK	13.0
-	802.11ac (VHT40)		54 to 62	54, 62	OFDM	BPSK	27.0
-	802.11ac (VHT80)		58	58	OFDM	BPSK	58.5
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	BPSK	13.0
-	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	BPSK	27.0
-	802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	130.0

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	23deg. C, 60%RH,	120Vac, 60Hz	Alan Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
PLC	25deg. C, 75%RH	120Vac, 60Hz	Matthew Yang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Ted Chang

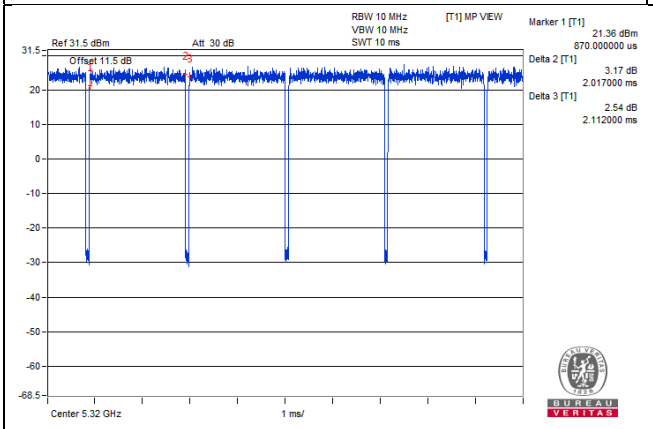
3.3 Duty Cycle of Test Signal

CDD Mode

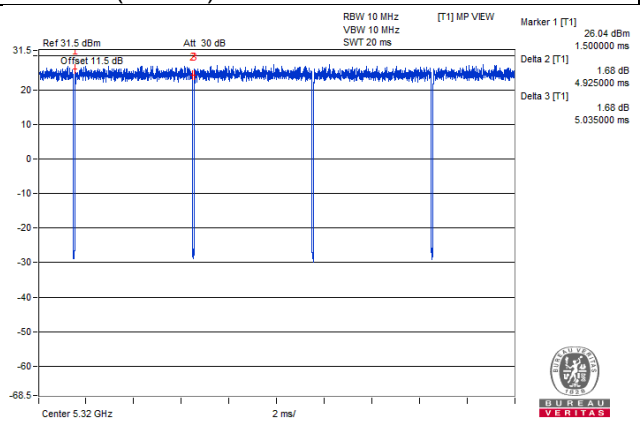
Duty cycle of test signal is > 98%, duty factor is not required.
Duty cycle of test signal is < 98 %, duty factor is required.

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

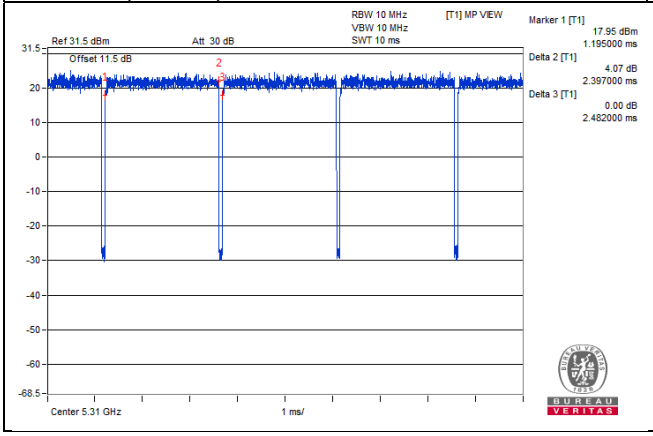
802.11a



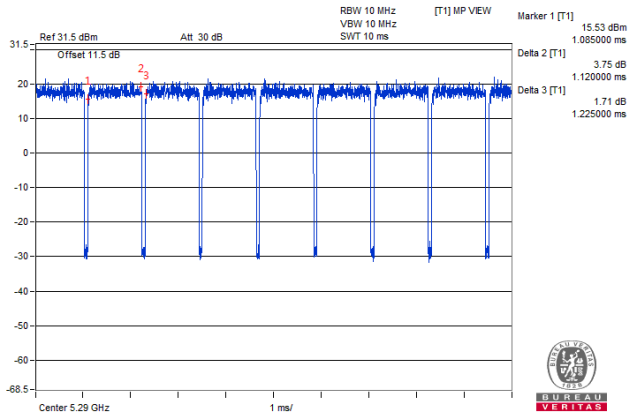
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



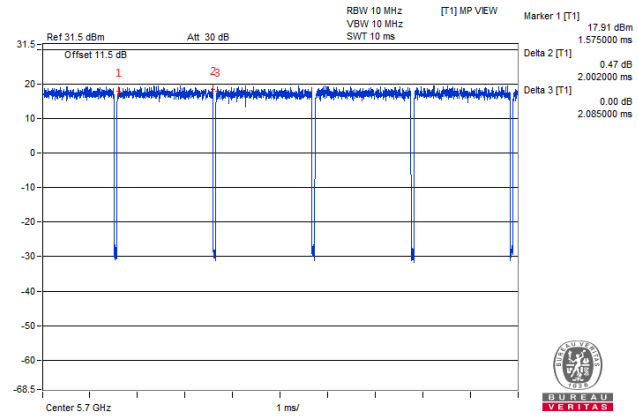
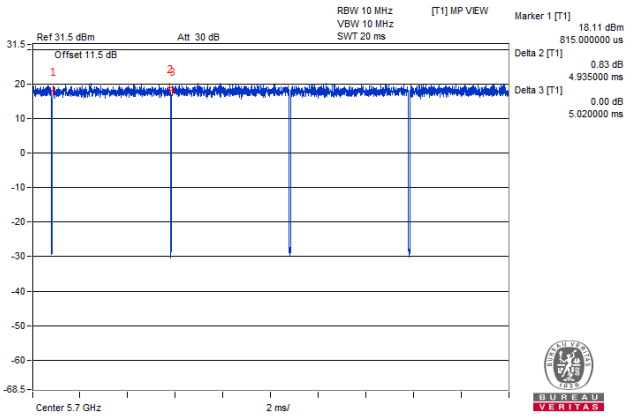
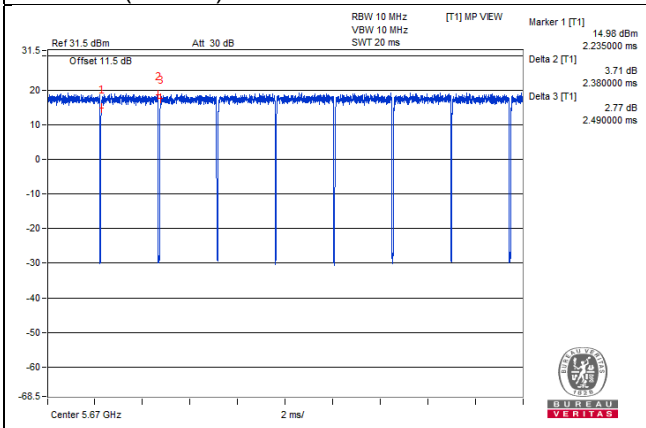
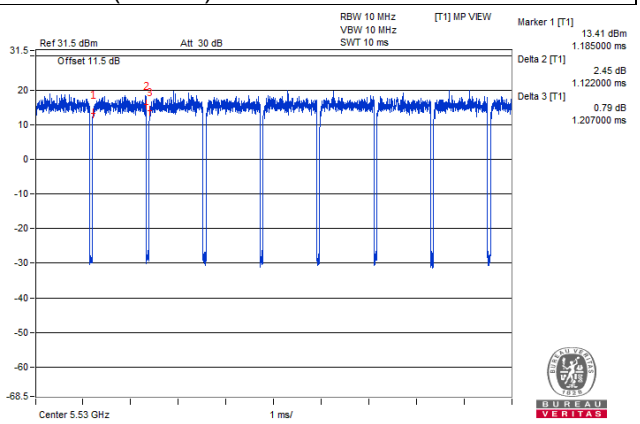
5500 ~ 5700MHz:

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

802.11ac (VHT20): Duty cycle = 4.935/5.002 = 0.983

802.11ac (VHT40): Duty cycle = 2.380/2.490 =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.

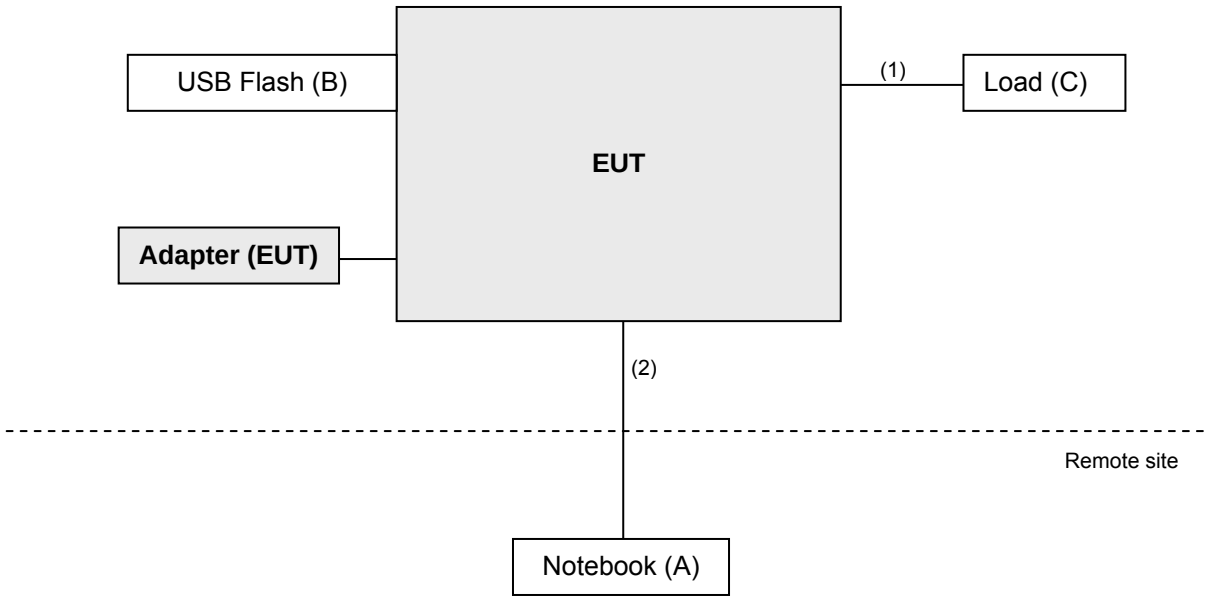
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	6RP2YM1	FCC DoC Approved	-
B.	USB 3.0 Flash	HP	v250W	01	FCC DoC Approved	-
C.	Load	N/A	N/A	N/A	N/A	-

Note:

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

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

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="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.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 12, 2015	Oct. 11, 2016
			Oct. 24, 2016	Oct. 23, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Jul. 08, 2015	Jul. 07, 2016
			Aug. 16, 2016	Aug. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Jan. 08, 2016	Jan. 07, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Loop Antenna	EM-6879	269	Aug. 04, 2015	Aug. 03, 2016
			Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2015	Aug. 08, 2016
			Aug. 09, 2016	Aug. 08, 2017
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2015	Aug. 08, 2016
			Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-02(295012+309220)	Aug. 09, 2015	Aug. 08, 2016
			Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	Aug. 09, 2015	Aug. 08, 2016
			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. 18, 2015	Oct. 17, 2016
			Oct. 17, 2016	Oct. 16, 2017
High Speed Peak Power Meter	ML2495A	0824011	Jul. 09, 2015	Jul. 08, 2016
			Aug. 11, 2016	Aug. 10, 2017
Power Sensor	MA2411B	0738171	Jul. 09, 2015	Jul. 08, 2016
			Aug. 11, 2016	Aug. 10, 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:

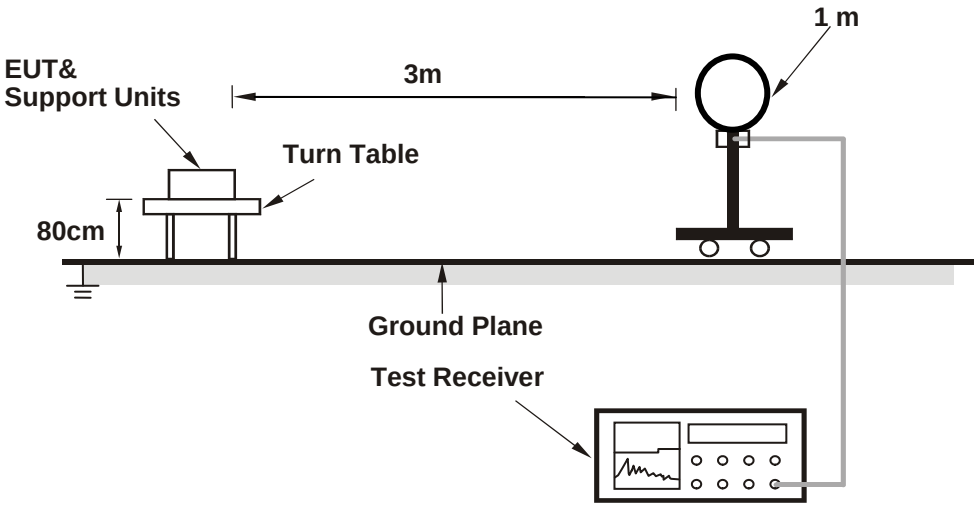
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

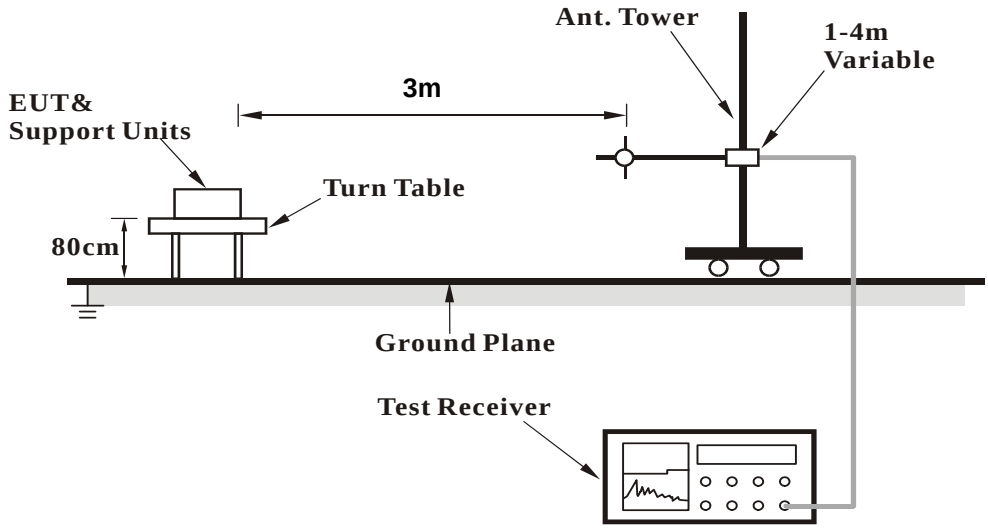
No deviation.

4.1.5 Test Setup

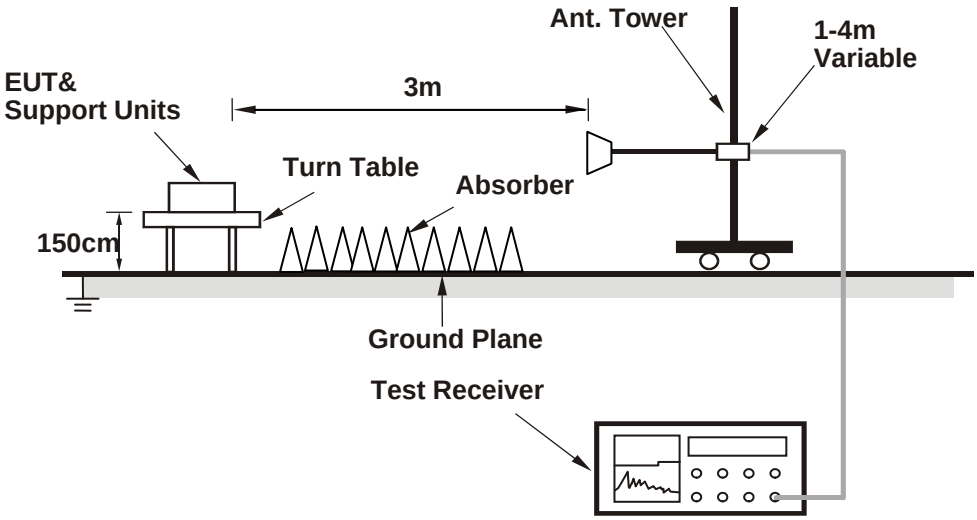
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating 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	55.0 PK	74.0	-19.0	1.65 H	315	49.50	5.50
2	5150.00	45.4 AV	54.0	-8.6	1.65 H	315	39.90	5.50
3	*5260.00	107.0 PK			1.65 H	315	67.40	39.60
4	*5260.00	96.5 AV			1.65 H	315	56.90	39.60
5	#10520.00	58.4 PK	74.0	-15.6	1.00 H	33	40.30	18.10
6	#10520.00	45.1 AV	54.0	-8.9	1.00 H	33	27.00	18.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.5 PK	74.0	-18.5	1.71 V	164	50.00	5.50
2	5150.00	45.9 AV	54.0	-8.1	1.71 V	164	40.40	5.50
3	*5260.00	116.2 PK			1.71 V	164	76.60	39.60
4	*5260.00	105.4 AV			1.71 V	164	65.80	39.60
5	#10520.00	59.2 PK	74.0	-14.8	1.13 V	67	41.10	18.10
6	#10520.00	46.3 AV	54.0	-7.7	1.13 V	67	28.20	18.10

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	106.5 PK			1.73 H	315	66.90	39.60
2	*5300.00	96.3 AV			1.73 H	315	56.70	39.60
3	10600.00	58.5 PK	74.0	-15.5	1.00 H	31	40.10	18.40
4	10600.00	45.3 AV	54.0	-8.7	1.00 H	31	26.90	18.40
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	115.6 PK			1.18 V	166	76.00	39.60
2	*5300.00	105.1 AV			1.18 V	166	65.50	39.60
3	10600.00	59.6 PK	74.0	-14.4	1.10 V	60	41.20	18.40
4	10600.00	46.6 AV	54.0	-7.4	1.10 V	60	28.20	18.40

Remark:

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

CHANNEL	TX Channel 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	106.1 PK			1.54 H	315	66.40	39.70
2	*5320.00	95.7 AV			1.54 H	315	56.00	39.70
3	5350.00	57.4 PK	74.0	-16.6	1.54 H	315	51.70	5.70
4	5350.00	43.8 AV	54.0	-10.2	1.54 H	315	38.10	5.70
5	10640.00	58.0 PK	74.0	-16.0	1.00 H	38	39.60	18.40
6	10640.00	45.2 AV	54.0	-8.8	1.00 H	38	26.80	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	116.2 PK			1.58 V	138	76.50	39.70
2	*5320.00	105.8 AV			1.58 V	138	66.10	39.70
3	5350.00	67.3 PK	74.0	-6.7	1.58 V	138	61.60	5.70
4	5350.00	49.6 AV	54.0	-4.4	1.58 V	138	43.90	5.70
5	10640.00	59.1 PK	74.0	-14.9	1.10 V	64	40.70	18.40
6	10640.00	46.3 AV	54.0	-7.7	1.10 V	64	27.90	18.40

Remark:

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

CHANNEL	TX Channel 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	58.1 PK	74.0	-15.9	3.34 H	193	52.30	5.80
2	5460.00	43.9 AV	54.0	-10.1	3.34 H	193	38.10	5.80
3	#5470.00	59.4 PK	74.0	-14.6	3.34 H	193	53.50	5.90
4	#5470.00	45.8 AV	54.0	-8.2	3.34 H	193	39.90	5.90
5	*5500.00	110.2 PK			3.34 H	193	70.30	39.90
6	*5500.00	99.3 AV			3.34 H	193	59.40	39.90
7	11000.00	59.5 PK	74.0	-14.5	1.80 H	201	40.60	18.90
8	11000.00	46.4 AV	54.0	-7.6	1.80 H	201	27.50	18.90
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	57.0 PK	74.0	-17.0	1.41 V	101	51.20	5.80
2	5460.00	44.3 AV	54.0	-9.7	1.41 V	101	38.50	5.80
3	#5470.00	58.6 PK	74.0	-15.4	1.41 V	101	52.70	5.90
4	#5470.00	46.5 AV	54.0	-7.5	1.41 V	101	40.60	5.90
5	*5500.00	117.3 PK			1.41 V	101	77.40	39.90
6	*5500.00	106.9 AV			1.41 V	101	67.00	39.90
7	11000.00	59.4 PK	74.0	-14.6	1.00 V	79	40.50	18.90
8	11000.00	46.5 AV	54.0	-7.5	1.00 V	79	27.60	18.90

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	108.2 PK			3.14 H	191	67.70	40.50
2	*5580.00	98.0 AV			3.14 H	191	57.50	40.50
3	11160.00	60.2 PK	74.0	-13.8	1.95 H	181	40.20	20.00
4	11160.00	46.8 AV	54.0	-7.2	1.95 H	181	26.80	20.00
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	116.4 PK			1.51 V	102	76.50	39.90
2	*5580.00	106.3 AV			1.51 V	102	66.40	39.90
3	11160.00	60.2 PK	74.0	-13.8	1.00 V	66	41.00	19.20
4	11160.00	47.7 AV	54.0	-6.3	1.00 V	66	28.50	19.20

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	108.6 PK			1.49 H	127	68.30	40.30
2	*5700.00	97.6 AV			1.49 H	127	57.30	40.30
3	#5725.00	58.7 PK	74.0	-15.3	1.49 H	127	52.40	6.30
4	#5725.00	45.3 AV	54.0	-8.7	1.49 H	127	39.00	6.30
5	11400.00	61.2 PK	74.0	-12.8	1.21 H	103	41.50	19.70
6	11400.00	48.1 AV	54.0	-5.9	1.21 H	103	28.40	19.70
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	117.6 PK			1.99 V	159	77.30	40.30
2	*5700.00	106.8 AV			1.99 V	159	66.50	40.30
3	#5725.00	58.2 PK	74.0	-15.8	1.99 V	159	51.90	6.30
4	#5725.00	46.3 AV	54.0	-7.7	1.99 V	159	40.00	6.30
5	11400.00	61.4 PK	74.0	-12.6	1.05 V	174	41.70	19.70
6	11400.00	48.3 AV	54.0	-5.7	1.05 V	174	28.60	19.70

Remark:

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

802.11ac (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	55.1 PK	74.0	-18.9	1.65 H	314	49.60	5.50
2	5150.00	45.7 AV	54.0	-8.3	1.65 H	314	40.20	5.50
3	*5260.00	106.8 PK			1.65 H	314	67.20	39.60
4	*5260.00	96.5 AV			1.65 H	314	56.90	39.60
5	#10520.00	58.0 PK	74.0	-16.0	1.00 H	32	39.90	18.10
6	#10520.00	44.5 AV	54.0	-9.5	1.00 H	32	26.40	18.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.3 PK	74.0	-17.7	1.55 V	180	50.80	5.50
2	5150.00	46.2 AV	54.0	-7.8	1.55 V	180	40.70	5.50
3	*5260.00	116.4 PK			1.55 V	180	76.80	39.60
4	*5260.00	106.2 AV			1.55 V	180	66.60	39.60
5	#10520.00	59.0 PK	74.0	-15.0	1.12 V	65	40.90	18.10
6	#10520.00	46.2 AV	54.0	-7.8	1.12 V	65	28.10	18.10

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	106.8 PK			1.57 H	314	67.20	39.60
2	*5300.00	95.9 AV			1.57 H	314	56.30	39.60
3	10600.00	58.4 PK	74.0	-15.6	1.00 H	30	40.00	18.40
4	10600.00	44.9 AV	54.0	-9.1	1.00 H	30	26.50	18.40
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	116.1 PK			1.62 V	179	76.50	39.60
2	*5300.00	105.8 AV			1.62 V	179	66.20	39.60
3	10600.00	58.7 PK	74.0	-15.3	1.11 V	63	40.30	18.40
4	10600.00	46.0 AV	54.0	-8.0	1.11 V	63	27.60	18.40

Remark:

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

CHANNEL	TX Channel 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	105.6 PK			1.52 H	317	65.90	39.70
2	*5320.00	95.0 AV			1.52 H	317	55.30	39.70
3	5350.00	56.8 PK	74.0	-17.2	1.52 H	317	51.10	5.70
4	5350.00	43.7 AV	54.0	-10.3	1.52 H	317	38.00	5.70
5	10640.00	58.1 PK	74.0	-15.9	1.00 H	37	39.70	18.40
6	10640.00	44.8 AV	54.0	-9.2	1.00 H	37	26.40	18.40
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	117.0 PK			1.68 V	181	77.30	39.70
2	*5320.00	105.7 AV			1.68 V	181	66.00	39.70
3	5350.00	67.1 PK	74.0	-6.9	1.68 V	181	61.40	5.70
4	5350.00	49.1 AV	54.0	-4.9	1.68 V	181	43.40	5.70
5	10640.00	58.7 PK	74.0	-15.3	1.10 V	65	40.30	18.40
6	10640.00	46.2 AV	54.0	-7.8	1.10 V	65	27.80	18.40

Remark:

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

CHANNEL	TX Channel 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	57.4 PK	74.0	-16.6	3.14 H	188	51.60	5.80
2	5460.00	44.2 AV	54.0	-9.8	3.14 H	188	38.40	5.80
3	#5470.00	58.5 PK	74.0	-15.5	3.14 H	188	52.60	5.90
4	#5470.00	46.5 AV	54.0	-7.5	3.14 H	188	40.60	5.90
5	*5500.00	108.7 PK			3.14 H	188	68.80	39.90
6	*5500.00	98.0 AV			3.14 H	188	58.10	39.90
7	11000.00	59.5 PK	74.0	-14.5	1.76 H	211	40.60	18.90
8	11000.00	46.2 AV	54.0	-7.8	1.76 H	211	27.30	18.90
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	58.0 PK	74.0	-16.0	1.62 V	109	52.20	5.80
2	5460.00	45.1 AV	54.0	-8.9	1.62 V	109	39.30	5.80
3	#5470.00	63.3 PK	74.0	-10.7	1.62 V	109	57.40	5.90
4	#5470.00	48.1 AV	54.0	-5.9	1.62 V	109	42.20	5.90
5	*5500.00	115.5 PK			1.62 V	109	75.60	39.90
6	*5500.00	104.5 AV			1.62 V	109	64.60	39.90
7	11000.00	59.3 PK	74.0	-14.7	1.10 V	74	40.40	18.90
8	11000.00	46.3 AV	54.0	-7.7	1.10 V	74	27.40	18.90

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	106.7 PK			1.47 H	131	66.80	39.90
2	*5580.00	96.0 AV			1.47 H	131	56.10	39.90
3	11160.00	59.8 PK	74.0	-14.2	1.00 H	120	40.60	19.20
4	11160.00	46.5 AV	54.0	-7.5	1.00 H	120	27.30	19.20
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	114.5 PK			1.51 V	110	74.60	39.90
2	*5580.00	104.2 AV			1.51 V	110	64.30	39.90
3	11160.00	61.3 PK	74.0	-12.7	1.10 V	87	42.10	19.20
4	11160.00	47.0 AV	54.0	-7.0	1.10 V	87	27.80	19.20

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	106.8 PK			1.02 H	138	66.50	40.30
2	*5700.00	95.9 AV			1.02 H	138	55.60	40.30
3	#5725.00	58.3 PK	74.0	-15.7	1.02 H	138	52.00	6.30
4	#5725.00	45.0 AV	54.0	-9.0	1.02 H	138	38.70	6.30
5	11400.00	61.4 PK	74.0	-12.6	1.00 H	126	41.70	19.70
6	11400.00	48.1 AV	54.0	-5.9	1.00 H	126	28.40	19.70
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			1.69 V	163	76.30	40.30
2	*5700.00	105.5 AV			1.69 V	163	65.20	40.30
3	#5725.00	58.7 PK	74.0	-15.3	1.69 V	163	52.40	6.30
4	#5725.00	45.5 AV	54.0	-8.5	1.69 V	163	39.20	6.30
5	11400.00	62.0 PK	74.0	-12.0	1.15 V	197	42.30	19.70
6	11400.00	48.4 AV	54.0	-5.6	1.15 V	197	28.70	19.70

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.8 PK	74.0	-17.2	1.64 H	315	51.30	5.50
2	5150.00	44.3 AV	54.0	-9.7	1.64 H	315	38.80	5.50
3	*5270.00	103.8 PK			1.64 H	315	64.20	39.60
4	*5270.00	94.3 AV			1.64 H	315	54.70	39.60
5	#10540.00	57.6 PK	74.0	-16.4	1.00 H	34	39.50	18.10
6	#10540.00	44.1 AV	54.0	-9.9	1.00 H	34	26.00	18.10
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	57.1 PK	74.0	-16.9	1.11 V	161	51.60	5.50
2	5150.00	44.4 AV	54.0	-9.6	1.11 V	161	38.90	5.50
3	*5270.00	114.0 PK			1.11 V	161	74.40	39.60
4	*5270.00	104.1 AV			1.11 V	161	64.50	39.60
5	#10540.00	58.8 PK	74.0	-15.2	1.11 V	63	40.70	18.10
6	#10540.00	45.9 AV	54.0	-8.1	1.11 V	63	27.80	18.10

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	102.6 PK			1.56 H	314	63.00	39.60
2	*5310.00	92.8 AV			1.56 H	314	53.20	39.60
3	5350.00	60.6 PK	74.0	-13.4	1.56 H	314	54.90	5.70
4	5350.00	47.5 AV	54.0	-6.5	1.56 H	314	41.80	5.70
5	10620.00	57.3 PK	74.0	-16.7	1.00 H	32	39.00	18.30
6	10620.00	44.0 AV	54.0	-10.0	1.00 H	32	25.70	18.30
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			1.61 V	172	73.80	39.60
2	*5310.00	102.9 AV			1.61 V	172	63.30	39.60
3	5350.00	68.2 PK	74.0	-5.8	1.61 V	172	62.50	5.70
4	**5350.00**	**53.6 AV**	**54.0**	**-0.4**	**1.61 V**	**172**	**47.90**	**5.70**
5	10620.00	58.2 PK	74.0	-15.8	1.14 V	60	39.90	18.30
6	10620.00	45.6 AV	54.0	-8.4	1.14 V	60	27.30	18.30

Remark:

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

CHANNEL	TX Channel 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	57.2 PK	74.0	-16.8	1.92 H	212	51.40	5.80
2	5460.00	44.8 AV	54.0	-9.2	1.92 H	212	39.00	5.80
3	#5470.00	58.2 PK	74.0	-15.8	1.92 H	212	52.30	5.90
4	#5470.00	45.2 AV	54.0	-8.8	1.92 H	212	39.30	5.90
5	*5510.00	106.1 PK			1.92 H	212	66.20	39.90
6	*5510.00	95.4 AV			1.92 H	212	55.50	39.90
7	11020.00	59.8 PK	74.0	-14.2	1.00 H	122	40.80	19.00
8	11020.00	46.0 AV	54.0	-8.0	1.00 H	122	27.00	19.00
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	58.3 PK	74.0	-15.7	1.61 V	104	52.50	5.80
2	5460.00	45.4 AV	54.0	-8.6	1.61 V	104	39.60	5.80
3	#5470.00	60.6 PK	74.0	-13.4	1.61 V	104	54.70	5.90
4	#5470.00	48.7 AV	54.0	-5.3	1.61 V	104	42.80	5.90
5	*5510.00	114.2 PK			1.61 V	104	74.30	39.90
6	*5510.00	104.6 AV			1.61 V	104	64.70	39.90
7	11020.00	60.1 PK	74.0	-13.9	1.00 V	113	41.10	19.00
8	11020.00	46.6 AV	54.0	-7.4	1.00 V	113	27.60	19.00

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	106.4 PK			1.90 H	213	66.40	40.00
2	*5550.00	96.2 AV			1.90 H	213	56.20	40.00
3	11100.00	60.8 PK	74.0	-13.2	1.00 H	125	41.20	19.60
4	11100.00	47.4 AV	54.0	-6.6	1.00 H	125	27.80	19.60
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	113.4 PK			1.11 V	166	73.40	40.00
2	*5550.00	103.1 AV			1.11 V	166	63.10	40.00
3	11100.00	61.0 PK	74.0	-13.0	1.00 V	151	41.40	19.60
4	11100.00	47.9 AV	54.0	-6.1	1.00 V	151	28.30	19.60

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	106.2 PK			1.92 H	244	66.00	40.20
2	*5670.00	96.5 AV			1.92 H	244	56.30	40.20
3	#5725.00	58.0 PK	74.0	-16.0	1.92 H	244	51.70	6.30
4	#5725.00	45.2 AV	54.0	-8.8	1.92 H	244	38.90	6.30
5	11340.00	61.2 PK	74.0	-12.8	1.00 H	120	41.50	19.70
6	11340.00	47.8 AV	54.0	-6.2	1.00 H	120	28.10	19.70
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	113.2 PK			1.56 V	170	73.00	40.20
2	*5670.00	102.8 AV			1.56 V	170	62.60	40.20
3	#5725.00	60.5 PK	74.0	-13.5	1.56 V	170	54.20	6.30
4	#5725.00	47.5 AV	54.0	-6.5	1.56 V	170	41.20	6.30
5	11340.00	61.4 PK	74.0	-12.6	1.10 V	196	41.70	19.70
6	11340.00	48.3 AV	54.0	-5.7	1.10 V	196	28.60	19.70

Remark:

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

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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	*5290.00	99.3 PK			1.65 H	315	59.10	40.20
2	*5290.00	88.9 AV			1.65 H	315	48.70	40.20
3	5350.00	59.2 PK	74.0	-14.8	1.65 H	315	53.00	6.20
4	5350.00	45.9 AV	54.0	-8.1	1.65 H	315	39.70	6.20
5	#10580.00	57.2 PK	74.0	-16.8	1.00 H	38	38.60	18.60
6	#10580.00	43.7 AV	54.0	-10.3	1.00 H	38	25.10	18.60
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	*5290.00	109.7 PK			1.62 V	183	70.10	39.60
2	*5290.00	99.6 AV			1.62 V	183	60.00	39.60
3	5350.00	66.8 PK	74.0	-7.2	1.62 V	183	61.10	5.70
4	**5350.00**	**53.6 AV**	**54.0**	**-0.4**	**1.62 V**	**183**	**47.90**	**5.70**
5	#10580.00	57.8 PK	74.0	-16.2	1.12 V	64	39.50	18.30
6	#10580.00	45.0 AV	54.0	-9.0	1.12 V	64	26.70	18.30

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.0 PK	74.0	-18.0	1.77 H	209	50.20	5.80
2	5460.00	44.8 AV	54.0	-9.2	1.77 H	209	39.00	5.80
3	#5470.00	57.4 PK	74.0	-16.6	1.77 H	209	51.50	5.90
4	#5470.00	45.4 AV	54.0	-8.6	1.77 H	209	39.50	5.90
5	*5530.00	102.6 PK			1.77 H	209	62.70	39.90
6	*5530.00	92.3 AV			1.77 H	209	52.40	39.90
7	11060.00	60.3 PK	74.0	-13.7	1.00 H	124	41.10	19.20
8	11060.00	46.5 AV	54.0	-7.5	1.00 H	124	27.30	19.20
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	60.5 PK	74.0	-13.5	1.56 V	102	54.70	5.80
2	5460.00	48.9 AV	54.0	-5.1	1.56 V	102	43.10	5.80
3	#5470.00	63.3 PK	74.0	-10.7	1.56 V	102	57.40	5.90
4	#5470.00	49.9 AV	54.0	-4.1	1.56 V	102	44.00	5.90
5	*5530.00	111.2 PK			1.56 V	102	71.30	39.90
6	*5530.00	101.1 AV			1.56 V	102	61.20	39.90
7	11060.00	60.6 PK	74.0	-13.4	1.00 V	74	41.40	19.20
8	11060.00	47.9 AV	54.0	-6.1	1.00 V	74	28.70	19.20

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.4 PK	74.0	-18.6	1.48 H	41	49.10	6.30
2	5460.00	45.1 AV	54.0	-8.9	1.48 H	41	38.80	6.30
3	#5470.00	58.0 PK	74.0	-16.0	1.48 H	41	51.70	6.30
4	#5470.00	45.5 AV	54.0	-8.5	1.48 H	41	39.20	6.30
5	*5610.00	104.6 PK			1.48 H	41	64.10	40.50
6	*5610.00	94.8 AV			1.48 H	41	54.30	40.50
7	#5725.00	56.7 PK	74.0	-17.3	1.48 H	41	50.00	6.70
8	#5725.00	46.0 AV	54.0	-8.0	1.48 H	41	39.30	6.70
9	11220.00	61.1 PK	74.0	-12.9	1.05 H	89	41.00	20.10
10	11220.00	48.0 AV	54.0	-6.0	1.05 H	89	27.90	20.10
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	58.0 PK	74.0	-16.0	1.56 V	217	51.70	6.30
2	5460.00	46.5 AV	54.0	-7.5	1.56 V	217	40.20	6.30
3	#5470.00	59.4 PK	74.0	-14.6	1.56 V	217	53.10	6.30
4	#5470.00	48.2 AV	54.0	-5.8	1.56 V	217	41.90	6.30
5	*5610.00	112.9 PK			1.56 V	217	72.40	40.50
6	*5610.00	103.0 AV			1.56 V	217	62.50	40.50
7	#5725.00	62.1 PK	74.0	-11.9	1.56 V	217	55.40	6.70
8	#5725.00	50.4 AV	54.0	-3.6	1.56 V	217	43.70	6.70
9	11220.00	61.6 PK	74.0	-12.4	1.00 V	113	41.50	20.10
10	11220.00	48.5 AV	54.0	-5.5	1.00 V	113	28.40	20.10

Remark:

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

Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	113.34	29.4 QP	43.5	-14.1	1.51 H	270	46.00	-16.60
2	179.31	31.9 QP	43.5	-11.6	1.01 H	261	46.90	-15.00
3	249.17	35.7 QP	46.0	-10.3	1.01 H	129	49.90	-14.20
4	443.21	33.5 QP	46.0	-12.5	2.00 H	136	42.90	-9.40
5	751.73	40.0 QP	46.0	-6.0	1.01 H	157	42.90	-2.90
6	951.59	39.2 QP	46.0	-6.8	1.51 H	154	39.00	0.20
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	62.89	31.6 QP	40.0	-8.4	1.00 V	278	46.40	-14.80
2	249.17	28.4 QP	46.0	-17.6	2.00 V	19	42.60	-14.20
3	431.56	43.3 QP	46.0	-2.7	2.00 V	326	52.90	-9.60
4	571.27	29.4 QP	46.0	-16.6	1.00 V	7	36.70	-7.30
5	755.61	34.5 QP	46.0	-11.5	2.00 V	168	37.30	-2.80
6	951.59	42.1 QP	46.0	-3.9	2.00 V	188	41.90	0.20

Remarks:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Tested date: Aug, 19, 2016

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 23, 2015	Dec. 22, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 11, 2016	Jan. 10, 2017
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 26, 2016	Jul. 25, 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 2.
3. The VCCI Site Registration No. is C-2047.

4.2.3 Test Procedures

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

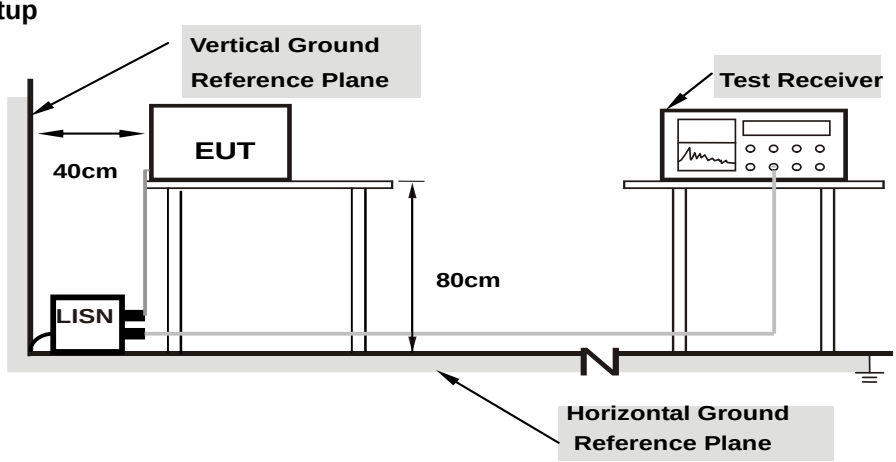
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

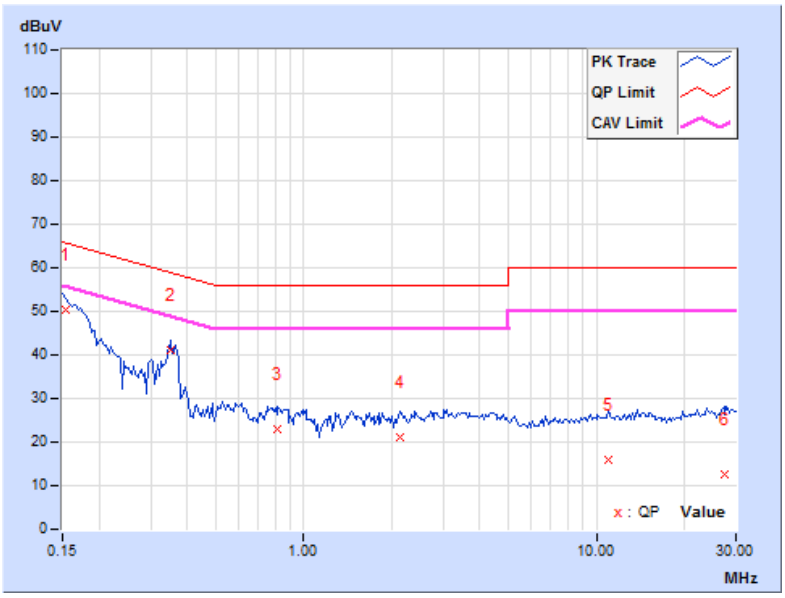
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15391**	**10.17**	**40.13**	**22.16**	**50.30**	**32.33**	**65.79**	**55.79**	**-15.49**	**-23.46**
2	0.35313	10.20	30.87	21.27	41.07	31.47	58.89	48.89	-17.82	-17.42
3	0.81797	10.26	12.67	7.41	22.93	17.67	56.00	46.00	-33.07	-28.33
4	2.14844	10.36	10.78	4.04	21.14	14.40	56.00	46.00	-34.86	-31.60
5	11.05859	10.84	5.03	0.72	15.87	11.56	60.00	50.00	-44.13	-38.44
6	27.32813	11.90	0.75	-2.59	12.65	9.31	60.00	50.00	-47.35	-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.

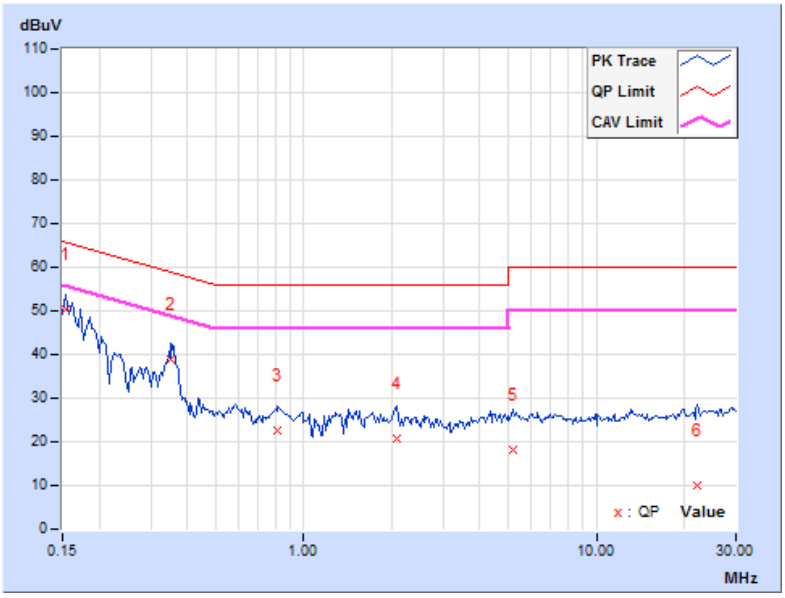


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.18	40.03	22.48	50.21	32.66	65.79	55.79	-15.58	-23.13
2	0.34922	10.25	28.58	19.59	38.83	29.84	58.98	48.98	-20.15	-19.14
3	0.81797	10.28	12.18	9.05	22.46	19.33	56.00	46.00	-33.54	-26.67
4	2.08594	10.39	10.24	5.62	20.63	16.01	56.00	46.00	-35.37	-29.99
5	5.16797	10.59	7.74	1.84	18.33	12.43	60.00	50.00	-41.67	-37.57
6	22.16797	11.73	-1.61	-4.17	10.12	7.56	60.00	50.00	-49.88	-42.44

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 Measurment

4.3.1 Limits of Transmit Power Measurement

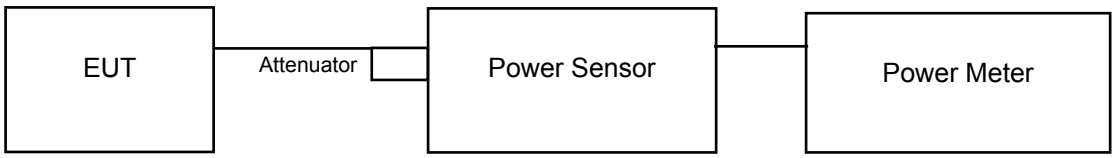
Operation Band	EUT Category		LIMIT
U-NII-1	---	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	---	Fixed point-to-point Access Point	1 Watt (30 dBm)
	---	Indoor Access Point	1 Watt (30 dBm)
	---	Mobile and Portable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

*B is the 26 dB emission bandwidth in megahertz

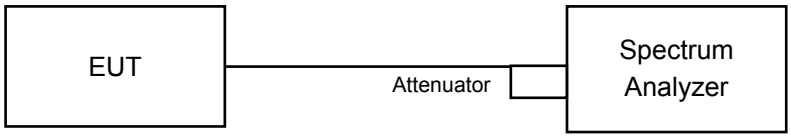
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

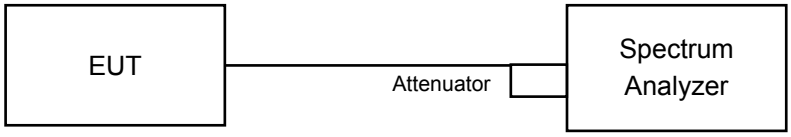
For Power Output Measurement
802.11a, 802.11ac (VHT20), 802.11ac (VHT40)



802.11ac (VHT80)



For 26dB 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 fromTest 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

U-NII-2A:

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	19.92	20.46	209.348	23.21	23.85	Pass
60	5300	20.11	20.34	**210.708**	23.24	23.84	Pass
64	5320	20.08	20.32	209.506	23.21	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

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	20.31	209.728	23.22	24	Pass
60	5300	20.12	20.26	208.972	23.20	24	Pass
64	5320	20.21	20.19	209.426	23.21	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

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	19.98	20.41	209.442	23.21	24	Pass
62	5310	20.02	20.35	208.855	23.20	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

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	20.33	20.07	209.520	23.21	24	Pass

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

U-NII-2C:

802.11a

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	17.00	16.83	17.36	17.10	204.050	23.10	24.00	Pass
116	5580	17.39	16.75	17.29	16.90	204.701	23.11	23.96	Pass
140	5700	17.33	16.82	17.20	16.70	201.414	23.04	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) = 23.99 < 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	Chain 2	Chain 3				
100	5500	17.02	17.09	17.08	16.87	201.209	23.04	24.00	Pass
116	5580	17.02	17.05	17.03	16.87	200.156	23.01	24.00	Pass
140	5700	17.18	17.09	17.20	16.82	203.973	23.10	24.00	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	Chain 2	Chain 3				
102	5510	17.19	17.02	17.06	17.21	206.128	23.14	24.00	Pass
110	5550	17.21	17.04	16.94	16.82	200.699	23.03	24.00	Pass
134	5670	17.21	16.84	17.19	16.83	201.463	23.04	24.00	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	Chain 2	Chain 3				
106	5530	17.25	16.93	17.32	17.12	**207.879**	23.18	24.00	Pass
122	5610	17.22	16.76	17.33	16.66	200.567	23.02	24.00	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

U-NII-2A:

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	20.31	**209.728**	23.22	24.00	Pass
60	5300	20.12	20.26	208.972	23.20	24.00	Pass
64	5320	20.21	20.19	209.426	23.21	24.00	Pass

* Directional gain = 4.18dBi < 6dBi, so the power limit is not reduced.
Note:
Chain 0
1. 11dBm + 10log (20.45) = 24.11 > 24.00dBm
2. 11dBm + 10log (20.73) = 24.17 > 24.00dBm
3. 11dBm + 10log (20.50) = 24.12 > 24.00dBm
Chain 1
1. 11dBm + 10log (20.46) = 24.11 > 24.00dBm
2. 11dBm + 10log (20.46) = 24.11 > 24.00dBm
3. 11dBm + 10log (20.53) = 24.12 > 24.00dBm

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	19.98	20.41	209.442	23.21	24.00	Pass
62	5310	20.02	20.35	208.855	23.20	24.00	Pass

* Directional gain = 4.18dBi < 6dBi, so the power limit is not reduced.
Note:
Chain 0
1. 11dBm + 10log (40.65) = 27.09 > 24.00dBm
2. 11dBm + 10log (40.64) = 27.09 > 24.00dBm
Chain 1
1. 11dBm + 10log (40.50) = 27.07 > 24.00dBm
2. 11dBm + 10log (40.51) = 27.08 > 24.00dBm

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	19.87	19.78	192.111	22.84	24.00	Pass

* Directional gain = 4.18dBi < 6dBi, so the power limit is not reduced.
Note:
Chain 0
1. 11dBm + 10log (84.50) = 30.27 > 24.00dBm
Chain 1
1. 11dBm + 10log (83.97) = 30.24 > 24.00dBm

U-NII-2C:

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	Chain 2	Chain 3				
100	5500	14.96	15.04	15.16	14.96	127.391	21.05	22.24	Pass
116	5580	15.07	15.13	15.05	14.76	126.633	21.03	22.24	Pass
140	5700	15.23	14.99	15.23	14.86	**128.856**	21.10	22.24	Pass

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

Note:

Chain 0

1. 11dBm + 10log (21.15) = 24.25 > 22.57dBm
2. 11dBm + 10log (20.91) = 24.20 > 22.57dBm
3. 11dBm + 10log (20.98) = 24.22 > 22.57dBm

Chain 1

1. 11dBm + 10log (20.75) = 24.17 > 22.57dBm
2. 11dBm + 10log (20.98) = 24.22 > 22.57dBm
3. 11dBm + 10log (20.95) = 24.21 > 22.57dBm

Chain 2

1. 11dBm + 10log (20.88) = 24.20 > 22.57dBm
2. 11dBm + 10log (20.77) = 24.17 > 22.57dBm
3. 11dBm + 10log (20.81) = 24.18 > 22.57dBm

Chain 3

1. 11dBm + 10log (20.58) = 24.13 > 22.57dBm
2. 11dBm + 10log (20.65) = 24.15 > 22.57dBm
3. 11dBm + 10log (20.52) = 24.12 > 22.57dBm

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	Chain 2	Chain 3				
102	5510	13.52	13.23	13.55	13.89	90.666	19.57	22.24	Pass
110	5550	15.10	15.01	15.02	14.95	127.085	21.04	22.24	Pass
134	5670	15.10	15.04	15.11	14.97	128.113	21.08	22.24	Pass

* Directional gain = 7.76dBi > 6dBi, so the power limit shall be reduced to 24-(7.76-6) = 22.24dBm.
Note:
Chain 0
1. 11dBm + 10log (40.78) = 27.10 > 22.57dBm
2. 11dBm + 10log (40.98) = 27.13 > 22.57dBm
3. 11dBm + 10log (41.03) = 27.13 > 22.57dBm
Chain 1
1. 11dBm + 10log (40.79) = 27.11 > 22.57dBm
2. 11dBm + 10log (40.66) = 27.09 > 22.57dBm
3. 11dBm + 10log (40.53) = 27.08 > 22.57dBm
Chain 2
1. 11dBm + 10log (40.57) = 27.08 > 22.57dBm
2. 11dBm + 10log (40.40) = 27.06 > 22.57dBm
3. 11dBm + 10log (40.89) = 27.12 > 22.57dBm
Chain 3
1. 11dBm + 10log (40.56) = 27.08 > 22.57dBm
2. 11dBm + 10log (40.40) = 27.06 > 22.57dBm
3. 11dBm + 10log (40.61) = 27.09 > 22.57dBm

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	Chain 2	Chain 3				
106	5530	15.24	14.82	15.29	15.06	129.628	21.13	22.24	Pass
122	5610	15.24	14.68	15.36	14.70	126.664	21.03	22.24	Pass

* Directional gain = 7.76dBi > 6dBi, so the power limit shall be reduced to 24-(7.76-6) = 22.24dBm.
Note:
Chain 0
1. 11dBm + 10log (84.53) = 30.27 > 22.57dBm
2. 11dBm + 10log (84.15) = 30.25 > 22.57dBm
Chain 1
1. 11dBm + 10log (83.67) = 30.23 > 22.57dBm
2. 11dBm + 10log (83.87) = 30.24 > 22.57dBm
Chain 2
1. 11dBm + 10log (83.48) = 30.22 > 22.57dBm
2. 11dBm + 10log (83.40) = 30.21 > 22.57dBm
Chain 3
1. 11dBm + 10log (83.47) = 30.22 > 22.57dBm
2. 11dBm + 10log (83.57) = 30.22 > 22.57dBm

26dB Bandwidth:

CDD Mode

U-NII-2A:

802.11a

Chan.	Freq. (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

802.11ac (VHT20)

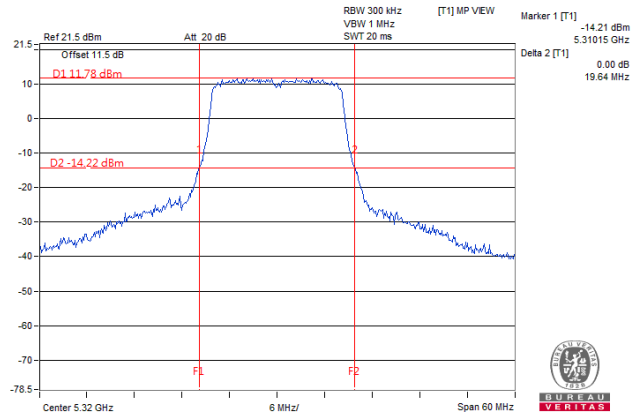
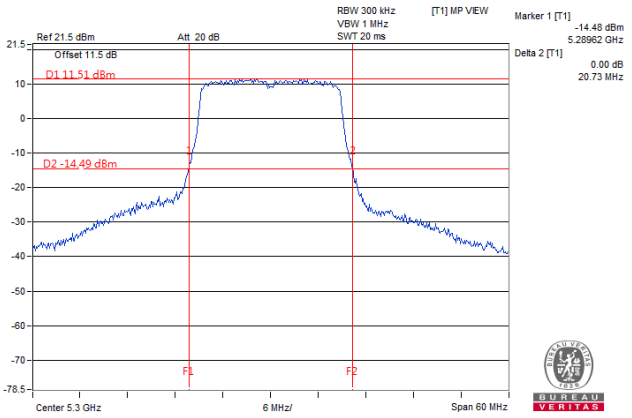
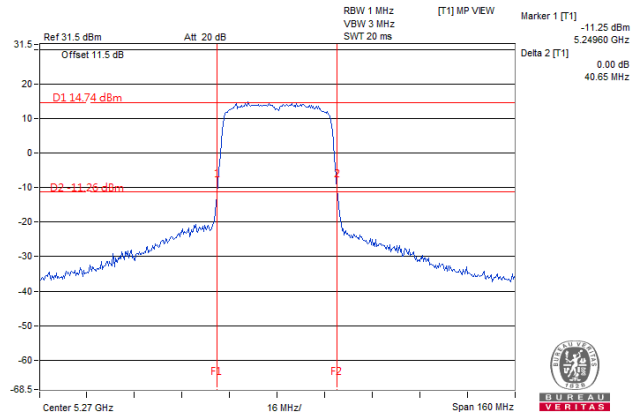
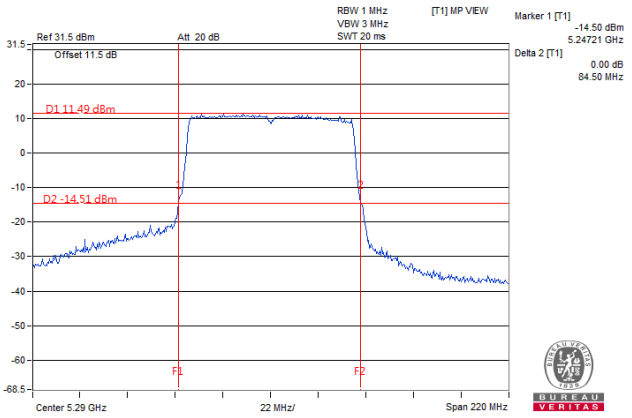
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.45	20.46
60	5300	20.73	20.46
64	5320	20.50	20.53

802.11ac (VHT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	40.65	40.50
62	5310	40.64	40.51

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	84.50	83.97

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

U-NII-2C:

802.11a

Chan.	Freq. (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)

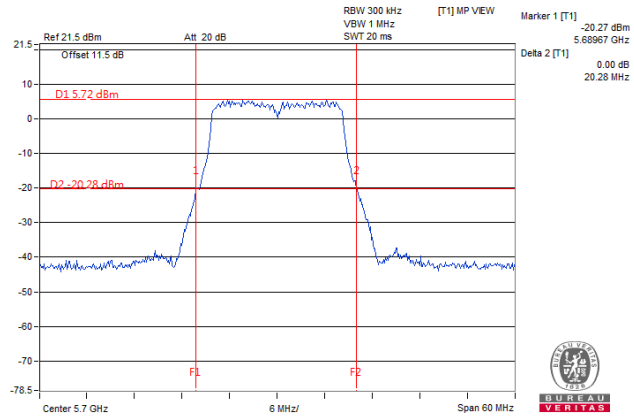
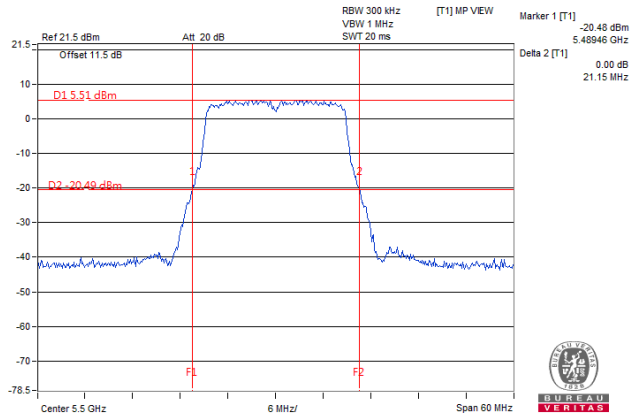
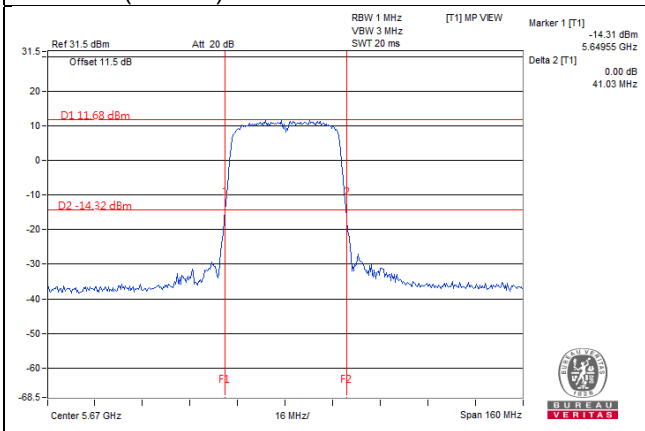
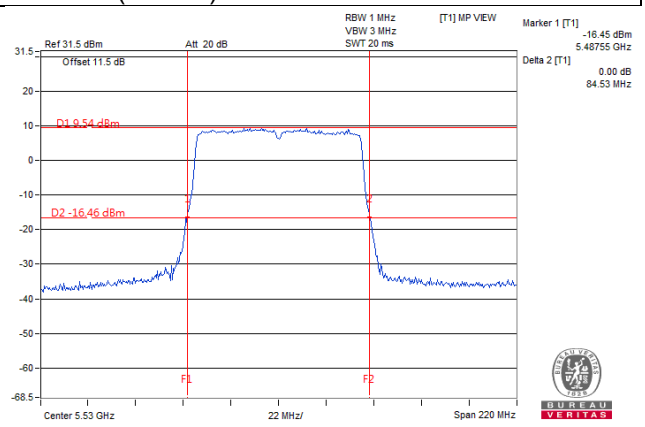
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	21.15	20.75	20.88	20.58
116	5580	20.91	20.98	20.77	20.65
140	5700	20.98	20.95	20.81	20.52

802.11ac (VHT40)

Chan.	Freq. (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

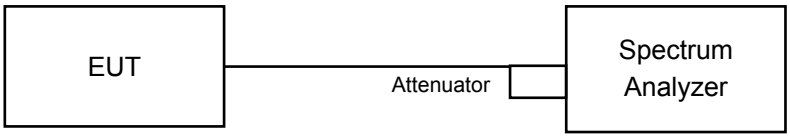
802.11ac (VHT80)

Chan.	Freq. (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)
	

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Result

CDD Mode

U-NII-2A:

802.11a

Chan.	Freq. (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

802.11ac (VHT20)

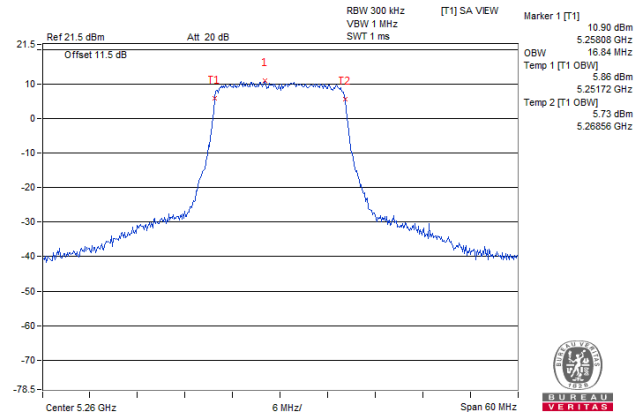
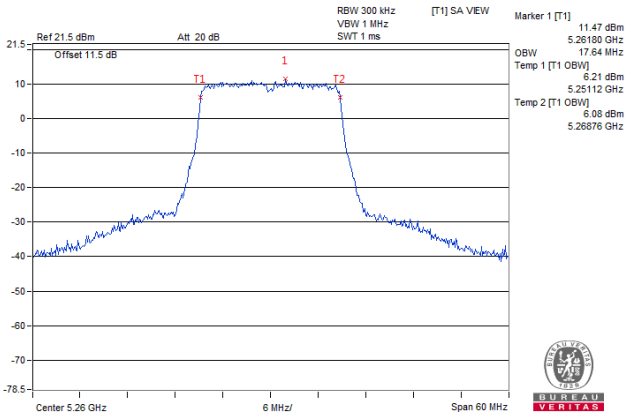
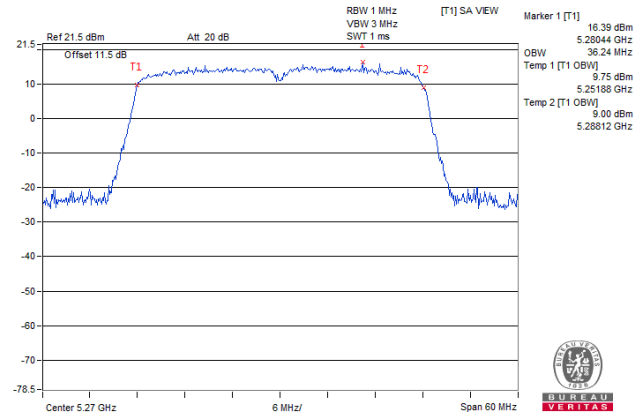
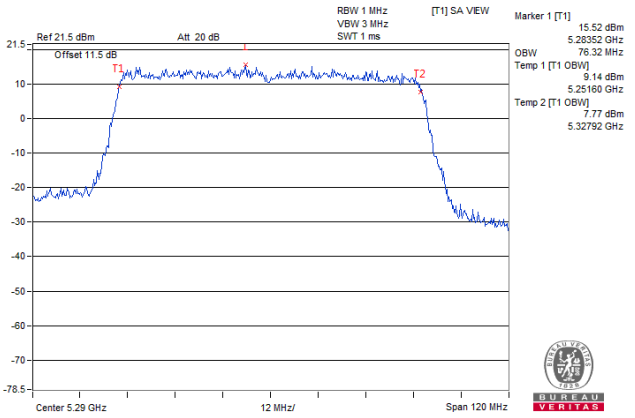
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.64	17.64
60	5300	17.64	17.64
64	5320	17.64	17.64

802.11ac (VHT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.12	36.24
62	5310	36.12	36.12

802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	76.32	75.84

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

U-NII-2C:

802.11a

Chan.	Freq. (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)

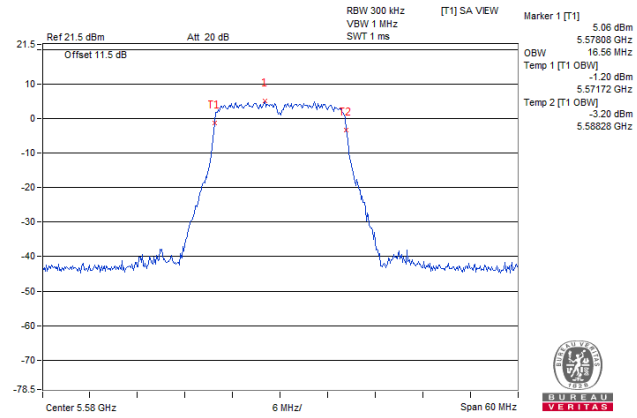
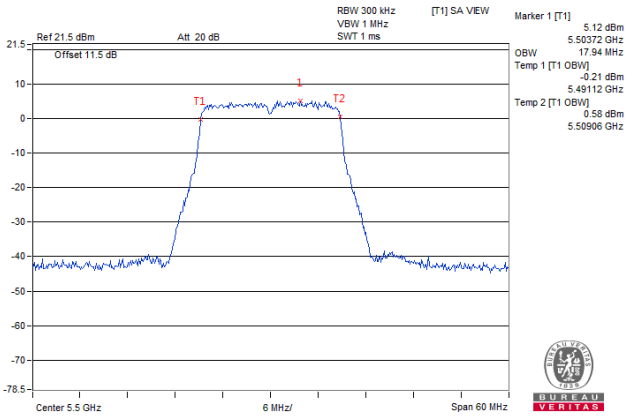
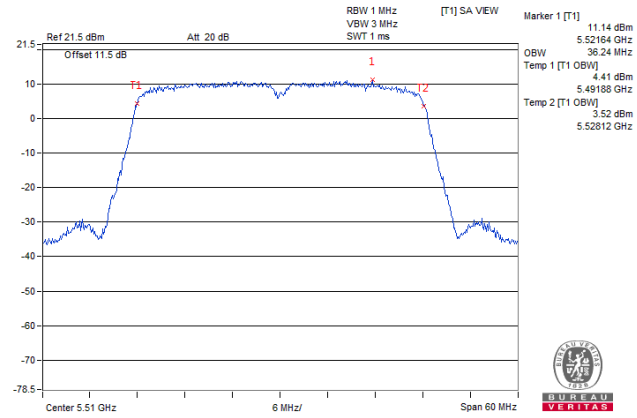
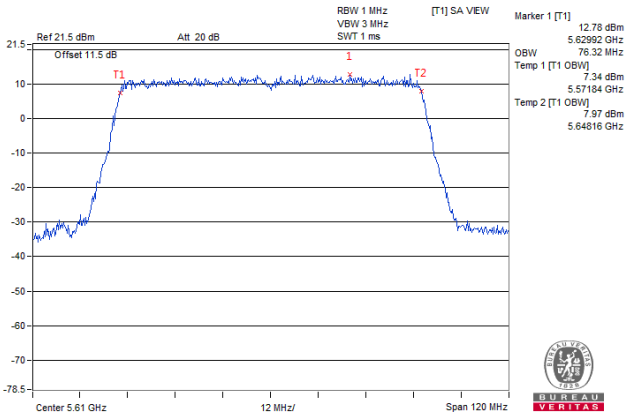
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
100	5500	17.94	17.94	17.94	17.94
116	5580	17.94	17.94	17.94	17.94
140	5700	17.94	17.94	17.94	17.94

802.11ac (VHT40)

Chan.	Freq. (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)

Chan.	Freq. (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)
	

EUT MAXIMUM CONDUCTED POWER

CDD Mode

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	210.708	23.24
5470~5725	204.701	23.11

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	209.728	23.22
5470~5725	203.973	23.10

802.11ac (VHT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	209.442	23.21
5470~5725	206.128	23.14

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	209.52	23.21
5470~5725	207.879	23.18

Beamforming Mode

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	209.728	23.22
5470~5725	128.856	21.10

802.11ac (VHT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	209.442	23.21
5470~5725	128.113	21.08

802.11ac (VHT80)

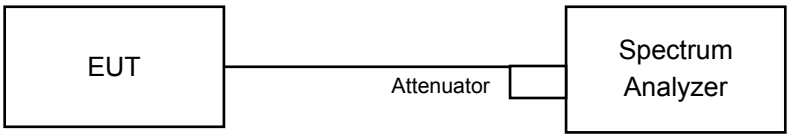
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	192.111	22.84
5470~5725	129.628	21.13

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

Using method SA-1, Duty cycle >98%:

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
c. Sweep time = auto, trigger set to “free run”.
d. Trace average at least 100 traces in power averaging mode.
e. Record the max value

Using method SA-2, Duty cycle <98%

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
c. Sweep time = auto, trigger set to “free run”.
d. Trace average at least 100 traces in power averaging mode.
e. Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as Item 4.3.6.

4.5.7 Test Results

CDD Mode

U-NII-2A:

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	6.83	6.95	0.20	10.10	11.00	Pass
60	5300	6.90	6.65	0.20	9.99	11.00	Pass
64	5320	6.53	6.13	0.20	9.54	11.00	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 = 4.18 < 6dBi, so the power density 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)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	6.58	6.96	0.10	9.88	11.00	Pass
60	5300	6.75	6.62	0.10	9.79	11.00	Pass
64	5320	6.49	6.03	0.10	9.37	11.00	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 = 4.18 < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

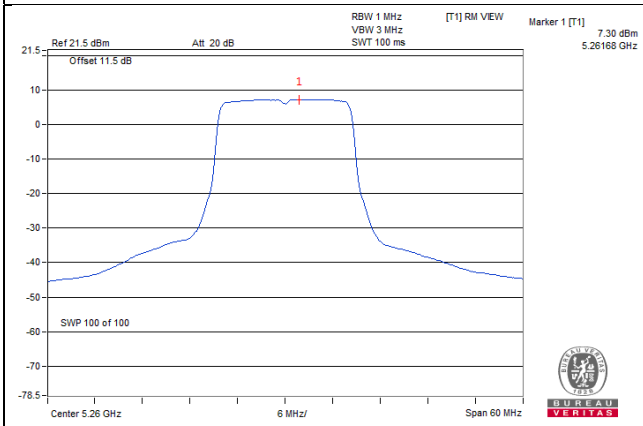
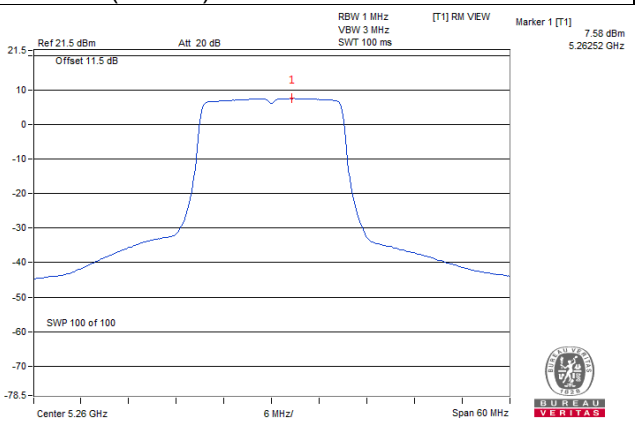
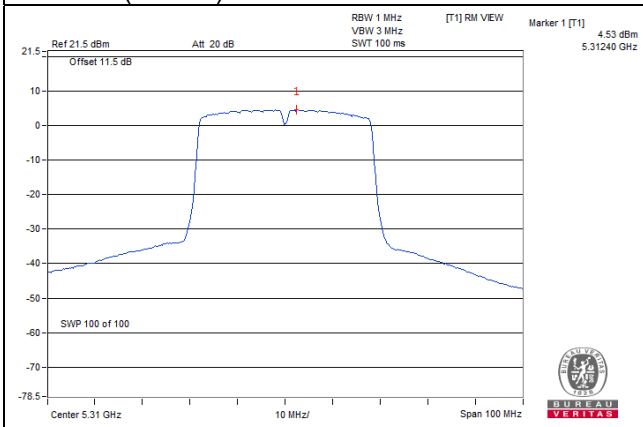
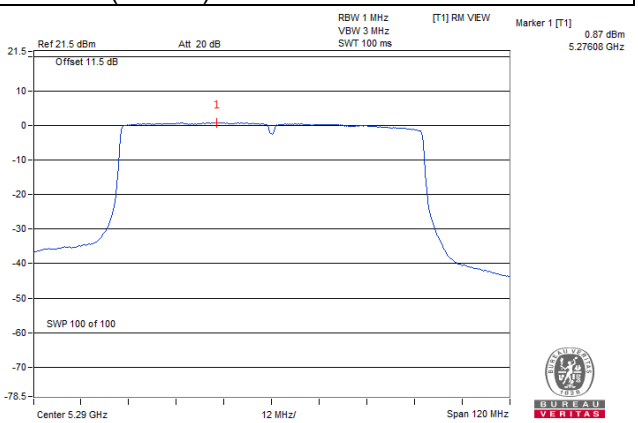
Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	3.83	4.33	0.15	7.25	11.00	Pass
62	5310	4.16	3.48	0.15	6.99	11.00	Pass

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 = 4.18 < 6dBi, so the power density 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)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	0.51	0.29	0.39	3.80	11.00	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 = 4.18 < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / Chain 1 / CH 52	802.11ac (VHT20) / Chain 1 / CH 52
	
802.11ac (VHT40)/ Chain 1 / CH 62	802.11ac (VHT80) / Chain 0 / CH 58
	

U-NII-2C:

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)				Duty Factor (dB)	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	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 = 7.76 > 6dBi, so the power density 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.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)				PSD (dBm)	Max. Limit (dBm)	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 = 7.76 > 6dBi, so the power density limit shall be reduced to 11-(7.76-6) = 9.24dBm.

802.11ac (VHT40)

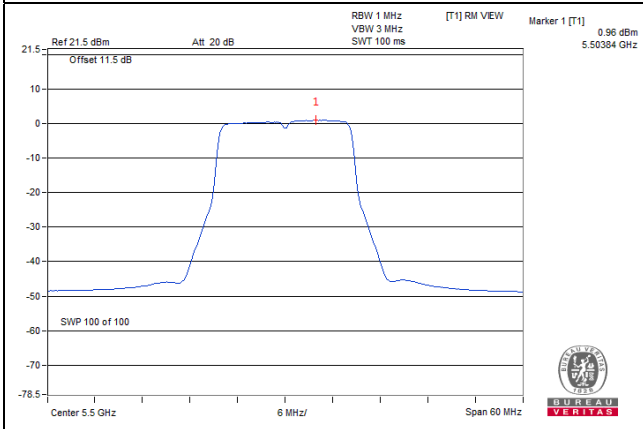
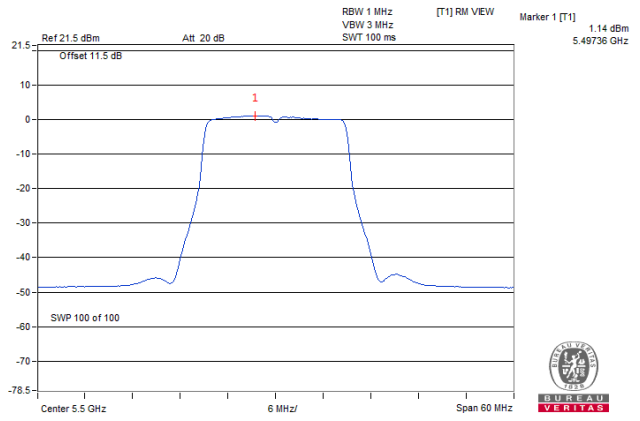
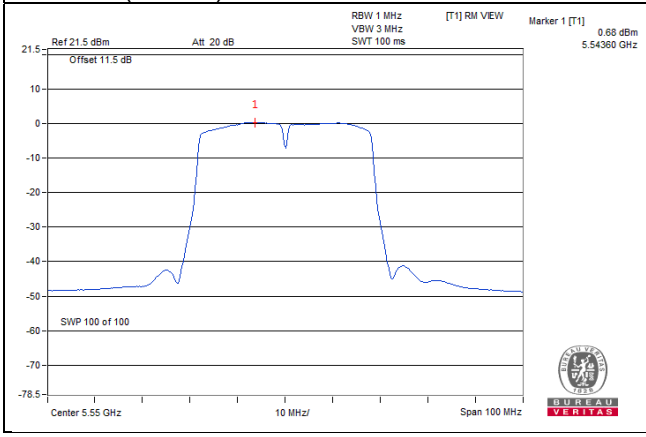
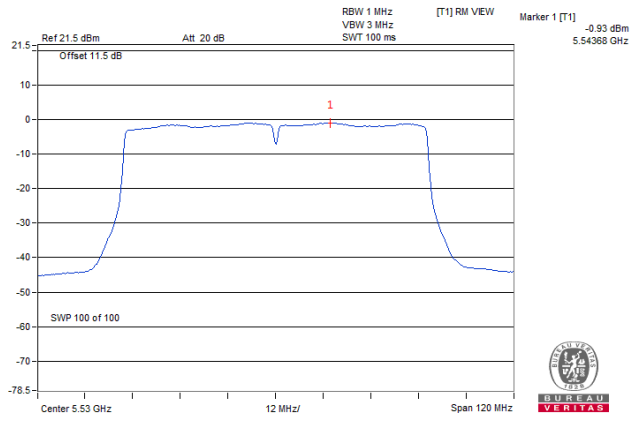
Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)				Duty Factor (dB)	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
102	5510	0.76	1.12	1.04	0.43	0.20	7.06	9.24	Pass
110	5550	0.97	1.09	1.73	0.86	0.20	7.39	9.24	Pass
134	5670	-0.16	0.37	0.93	0.13	0.20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

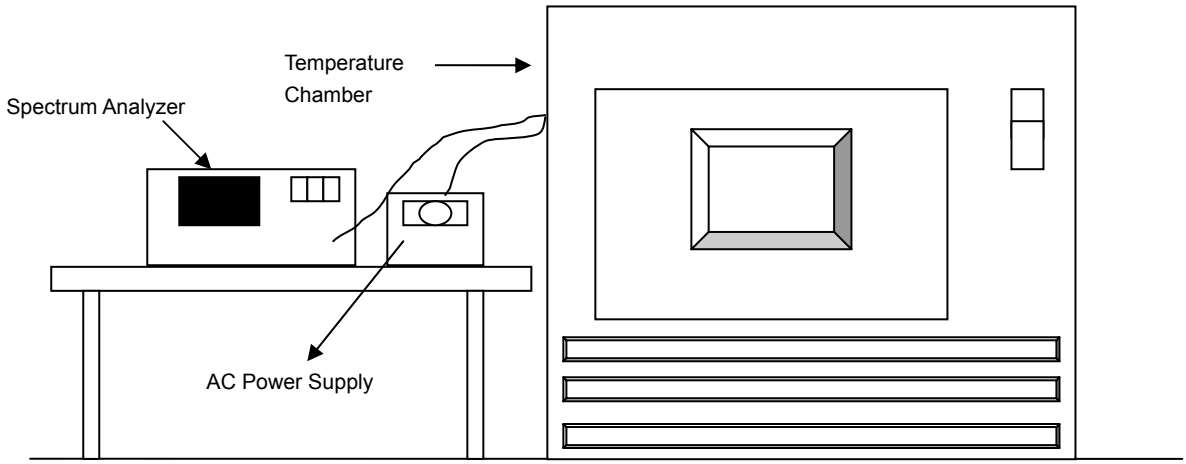
Spectrum Plot of Worst Value	
802.11a / Chain 3 / Ch 100	802.11ac (VHT20) / Chain 1 / Ch 100
	
802.11ac (VHT40) / Chain 2 / Ch 110	802.11ac (VHT80) / Chain 2 / Ch 106
	

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: 5320MHz									
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	5320.0077	0.00014	5320.0059	0.00011	5320.007	0.00013	5320.0039	0.00007
40	120	5320.0151	0.00028	5320.0161	0.00030	5320.0141	0.00027	5320.0171	0.00032
30	120	5320.0195	0.00037	5320.0236	0.00044	5320.02	0.00038	5320.0216	0.00041
20	120	5319.9905	-0.00018	5319.9905	-0.00018	5319.9922	-0.00015	5319.9895	-0.00020
10	120	5319.977	-0.00043	5319.9758	-0.00045	5319.9782	-0.00041	5319.9731	-0.00051
0	120	5320.0088	0.00017	5320.0099	0.00019	5320.0095	0.00018	5320.0118	0.00022
-10	120	5319.9827	-0.00033	5319.9844	-0.00029	5319.9797	-0.00038	5319.9832	-0.00032
-20	120	5319.9799	-0.00038	5319.9827	-0.00033	5319.985	-0.00028	5319.9805	-0.00037
-30	120	5320.0257	0.00048	5320.0264	0.00050	5320.0283	0.00053	5320.0249	0.00047

Frequency Stability Versus Voltage									
Operating Frequency: 5320MHz									
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	5319.9909	-0.00017	5319.9907	-0.00017	5319.992	-0.00015	5319.9885	-0.00022
	120	5319.9905	-0.00018	5319.9905	-0.00018	5319.9922	-0.00015	5319.9895	-0.00020
	102	5319.9911	-0.00017	5319.9905	-0.00018	5319.9915	-0.00016	5319.9896	-0.00020

Frequency Stability Versus Temp.									
Operating Frequency: 5700MHz									
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	5700.0171	0.00030	5700.0148	0.00026	5700.02	0.00035	5700.0198	0.00035
40	120	5700.0219	0.00038	5700.0181	0.00032	5700.0172	0.00030	5700.0219	0.00038
30	120	5699.9989	-0.00002	5699.9991	-0.00002	5699.9961	-0.00007	5699.9959	-0.00007
20	120	5700.0000	0.00000	5700.0044	0.00008	5699.9999	0.00000	5700.0014	0.00002
10	120	5700.0003	0.00001	5699.9982	-0.00003	5700.0001	0.00000	5700.0004	0.00001
0	120	5700.0049	0.00009	5700.0037	0.00006	5700.0031	0.00005	5700.0059	0.00010
-10	120	5700.0263	0.00046	5700.0226	0.00040	5700.0224	0.00039	5700.024	0.00042
-20	120	5700.0026	0.00005	5700.0059	0.00010	5700.0028	0.00005	5700.0059	0.00010
-30	120	5699.9872	-0.00022	5699.9873	-0.00022	5699.988	-0.00021	5699.9867	-0.00023

Frequency Stability Versus Voltage									
Operating Frequency: 5700MHz									
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	5699.9994	-0.00001	5700.0046	0.00008	5699.9998	0.00000	5700.001	0.00002
	120	5700.0000	0.00000	5700.0044	0.00008	5699.9999	0.00000	5700.0014	0.00002
	102	5699.9995	-0.00001	5700.0053	0.00009	5699.9996	-0.00001	5700.0006	0.00001

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

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

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