FCC Test Report

Report No.:	RF180424C01C
FCC ID:	KA2WL8620APA1
Test Model:	DWL-8620AP
Received Date:	Apr. 24, 2018
Test Date:	May. 21 ~ Oct. 01, 2018
Issued Date:	Nov. 26, 2018
Applicant:	D-Link Corporation
Address:	17595 Mt. Herrmann, Fountain Valley, California, United States, 92708
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF180424C01C	Original release.	Nov. 26, 2018

1 Certificate of Conformity

Product: Unified AC Concurrent Dual-Band PoE Access Point

Brand: D-Link Corporation

Test Model: DWL-8620AP

Sample Status: Identical Prototype

Applicant: D-Link Corporation

Test Date: May. 21 ~ Oct. 01, 2018

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

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

Prepared by : _____ , **Date:** Nov. 26, 2018
Polly Chien / Specialist

Approved by : _____ , **Date:** Nov. 26, 2018
Bruce Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -5.73dB at 0.46179MHz.
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 -0.2dB at 5470.00MHz.
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.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 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	Unified AC Concurrent Dual-Band PoE Access Point
Brand	D-Link Corporation
Test Model	DWL-8620AP
Sample Status	Identical Prototype
Power Supply Rating	12Vdc (From adapter) 55Vdc (From PoE)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	5260 ~ 5320MHz, 5500 ~ 5700MHz
Number of Channel	5260 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500 ~ 5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2 For 802.11ac (VHT80+VHT80): 5180~5240MHz & 5260~5320MHz & 5500~5700MHz & 5745~5825MHz: 802.11ac (VHT80+VHT80): 3
Output Power	CDD Mode: 5260 ~ 5320MHz: 184.120mW 5500 ~ 5700MHz: 228.517mW Beamforming Mode: 5260 ~ 5320MHz: 134.000mW 5500 ~ 5700MHz: 166.309mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Antenna
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report (BV CPS report no.: RF180424C01-1) is adding 5.26GHz to 5.32GHz and 5.50GHz to 5.70GHz by software.

2. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

Modulation Mode	Beamforming Mode	TX Function	Available Channel
802.11a	Not Support	4TX	52 ~ 64, 100 ~ 140
802.11n (HT20)	Support	4TX	52 ~ 64, 100 ~ 140
802.11n (HT40)	Support	4TX	54 ~ 62, 110 ~ 134
802.11ac (VHT20)	Support	4TX	52 ~ 64, 100 ~ 140
802.11ac (VHT40)	Support	4TX	54 ~ 62, 110 ~ 134
802.11ac (VHT80)	Support	4TX	42, 106, 122
802.11ac (VHT80+ VHT80)	Not Support	2TX+2TX	42 + 106 58 + 106 58 + 155

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

3. The EUT uses following antennas.

Type	Connector	Gain (dBi)
		5GHz
PIFA	I-PEX	4

4. The EUT consumes power from the following Adapters and PoE.

Adapter 1	
Brand	Channel Well Technology
Model	2ABL030F NJ
Input Power	100-240Vac~, 50/60Hz 1.0A
Output Power	12.0Vdc / 2.5A
Power Cord	1.2m non-shielded power cord without core

Adapter 2	
Brand	Asian Power Devices Inc.
Model	WA-30J12R
Input Power	100-240Vac~, 50-60Hz, 0.9A Max
Output Power	12Vdc / 2.5A
Power Cord	1.2m non-shielded power cord without core

PoE (Support unit)	
Brand	Microsemi
Model	PD-9001GR/AC
Input Power	100-240Vac~, 50/60Hz, 0.67A
Output Power	55Vdc / 0.6A

3.2 Description of Test Modes

5260~5320MHz:

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

5500~5700MHz:

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

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

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

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

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

For 802.11ac (VHT80+VHT80):

5180~5240MHz & 5260~5320MHz & 5500~5700MHz & 5745~5825MHz:

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

Channel	Frequency	Channel	Frequency
42 + 106	5210MHz + 5530MHz	58 + 106	5290 MHz + 5530MHz
58 + 155	5290 MHz + 5775MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

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

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

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

Note:
1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. "-" means no effect.

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	58.5
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	58.5
A	802.11ac (VHT80+VHT80)	5180-5240 5260-5320 5500-5700 5745-5825	42	42+106	OFDM	130.0
			106		OFDM	130.0
			58	58+106	OFDM	130.0
			106		OFDM	130.0
			58	58+155	OFDM	130.0
			155		OFDM	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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C	802.11a	5260-5320	52 to 64	60	OFDM	6.0
	802.11a	5500-5700	100 to 144		OFDM	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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B, C	802.11a	5260-5320	52 to 64	60	OFDM	6.0
	802.11a	5500-5700	100 to 144		OFDM	6.0

Transmit Power 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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
CDD Mode						
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	58.5
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	58.5
A	802.11ac (VHT80+VHT80)	5180-5240 5260-5320 5500-5700 5745-5825	42	42+106	OFDM	130.0
			106		OFDM	130.0
			58	58+106	OFDM	130.0
			106		OFDM	130.0
			58	58+155	OFDM	130.0
			155		OFDM	130.0
Beamforming Mode						
A	802.11n (HT20)	5260-5320	52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	58.5
A	802.11n (HT20)	5500-5700	100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	58.5

Peak Power Spectral Density, Bandwidth and Frequency Stability 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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	58.5
A	802.11a	5500-5700	100 to 144	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	58.5
A	802.11ac (VHT80+VHT80)	5180-5240 5260-5320 5500-5700 5745-5825	42	42+106	OFDM	130.0
			106		OFDM	130.0
			58	58+106	OFDM	130.0
			106		OFDM	130.0
			58	58+155	OFDM	130.0
			155		OFDM	130.0

Test Condition:

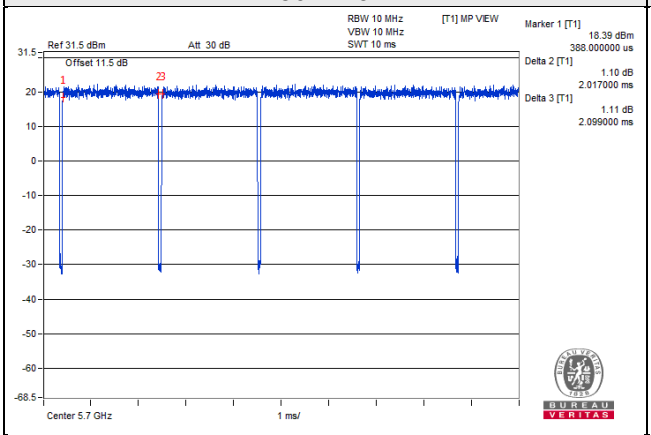
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	24 deg. C, 66% RH	120Vac, 60Hz	Willy Cheng Adair Peng
RE<1G	25 deg. C, 67% RH	120Vac, 60Hz 55Vdc	Willy Cheng
PLC	24 deg. C, 62% RH	120Vac, 60Hz 55Vdc	Willy Cheng
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

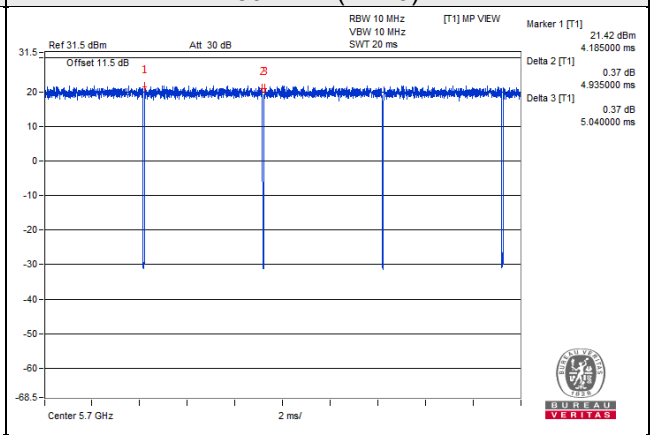
Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = 2.017/2.099 = 0.961, Duty factor = 10 * log(1/0.961) = 0.17
802.11n (HT20): Duty cycle = 4.935/5.040 = 0.9789, Duty factor = 10 * log(1/0.979) = 0.09
802.11n (HT40): Duty cycle = 2.405/2.492 = 0.965, Duty factor = 10 * log(1/0.965) = 0.15
802.11ac (VHT80): Duty cycle = 1.132/1.203 = 0.941, Duty factor = 10 * log(1/0.941) = 0.26
802.11ac (VHT80+VHT80): Duty cycle = 1.144/1.219 = 0.938, Duty factor = 10 * log(1/0.938) = 0.28

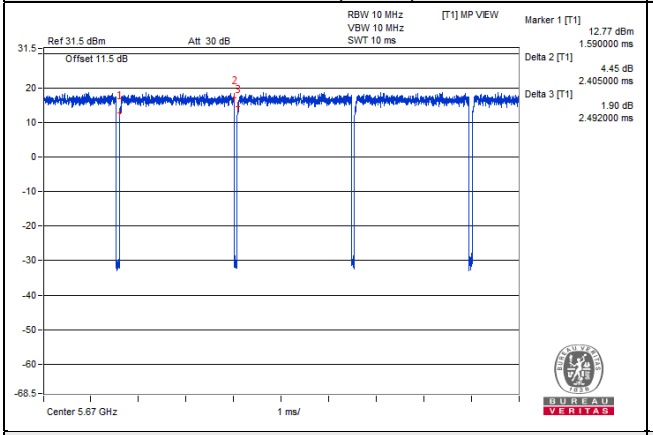
802.11a



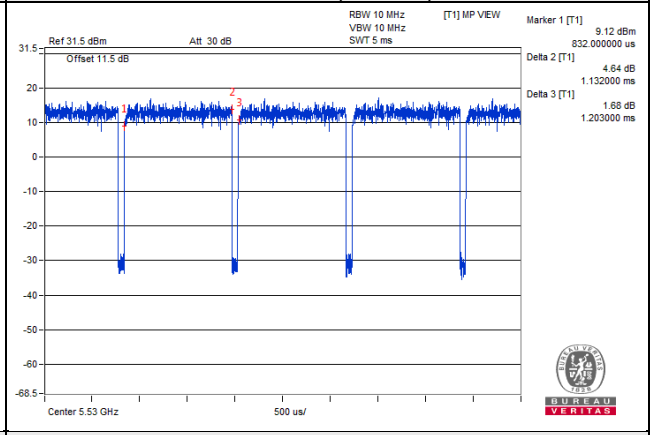
802.11n (HT20)



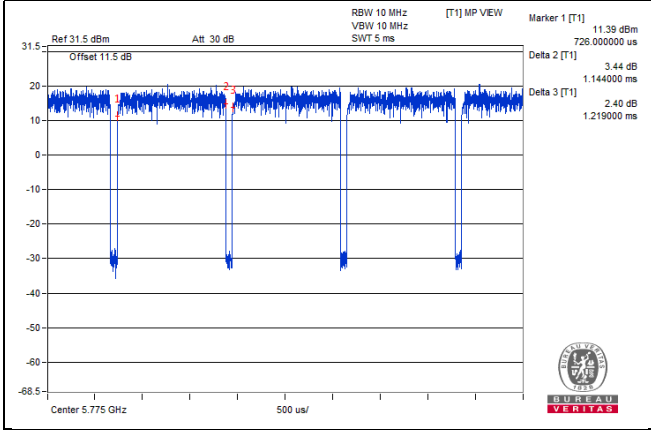
802.11n (HT40)



802.11ac (VHT80)



802.11ac (VHT80+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	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	PoE	Microsemi	PD-9001GR/AC	NA	NA	-

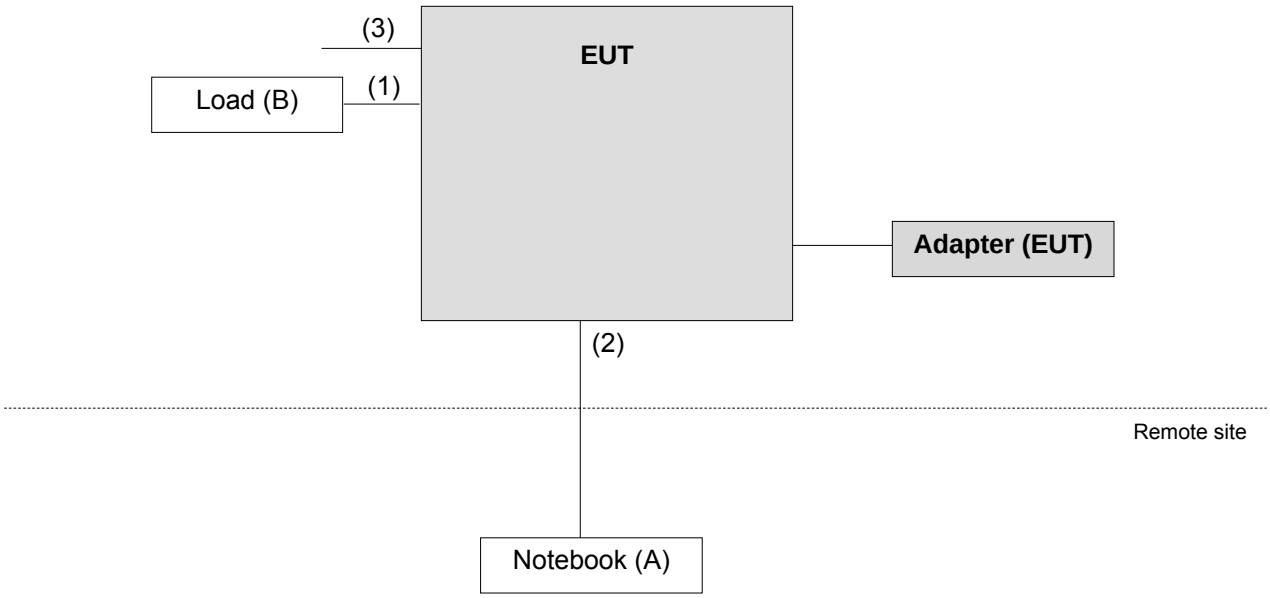
Note:

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

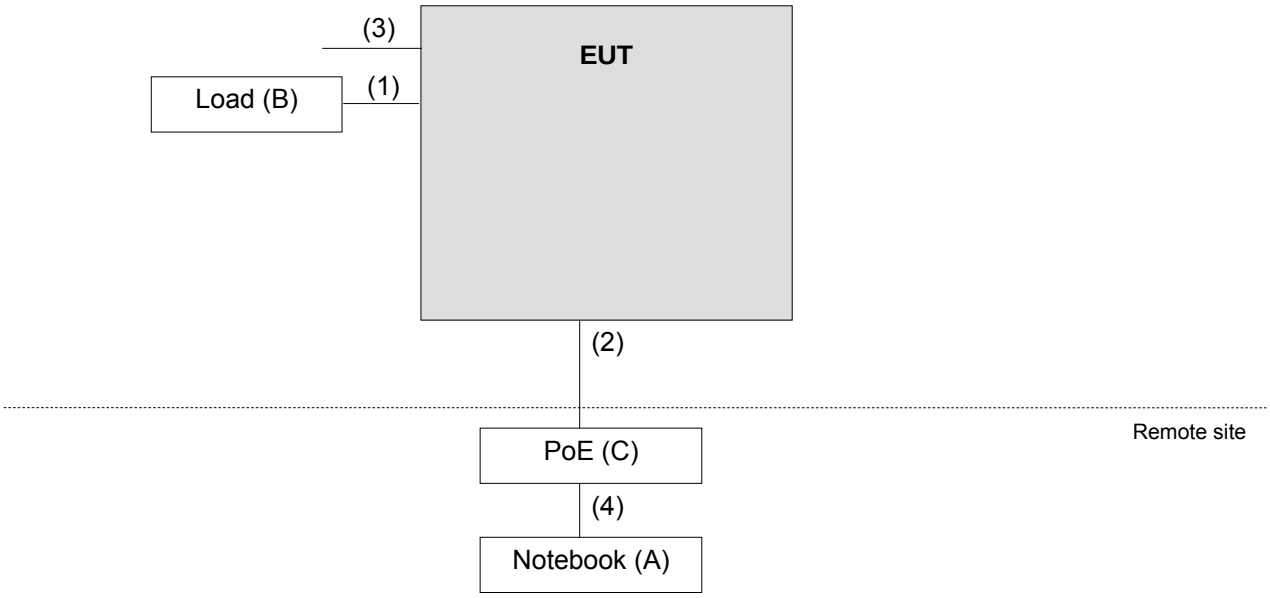
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	1	1.5	N	0	Cat5e
2.	RJ45 cable	1	5	N	0	Cat5e
3.	RJ45 to console cable	1	1.2	N	0	Cat5e
4.	RJ45, Cat5e	1	1.8	N	0	-

3.4.1 Configuration of System under Test

Mode A, B



Mode C



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 v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10:2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

Limits of unwanted emission out of the restricted bands

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

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 17, 2017	Oct. 16, 2018
	ESIB7	100187	May 29, 2018	May 28, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	9120D	209	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2017	Aug. 20, 2018
			Aug. 21, 2018	Aug. 20, 2019
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Apr. 03, 2018	Apr. 02, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
			Aug. 21, 2018	Aug. 20, 2019
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM-8000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
			Aug. 21, 2018	Aug. 20, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
High Speed Peak Power Meter	ML2495A	1232001	Dec. 13, 2017	Dec. 12, 2018
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2017	Nov. 13, 2018

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
5. The IC Site Registration No. is IC 7450F-3.

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. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

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

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

Note:

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

For Radiated emission above 30MHz

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

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

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

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

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

f. The test-receiver system was set to peak and average 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.

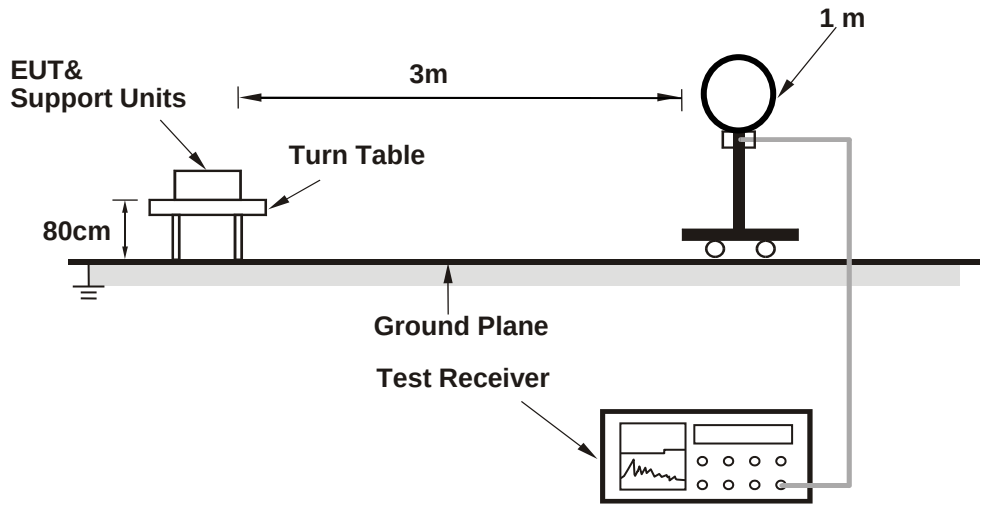
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

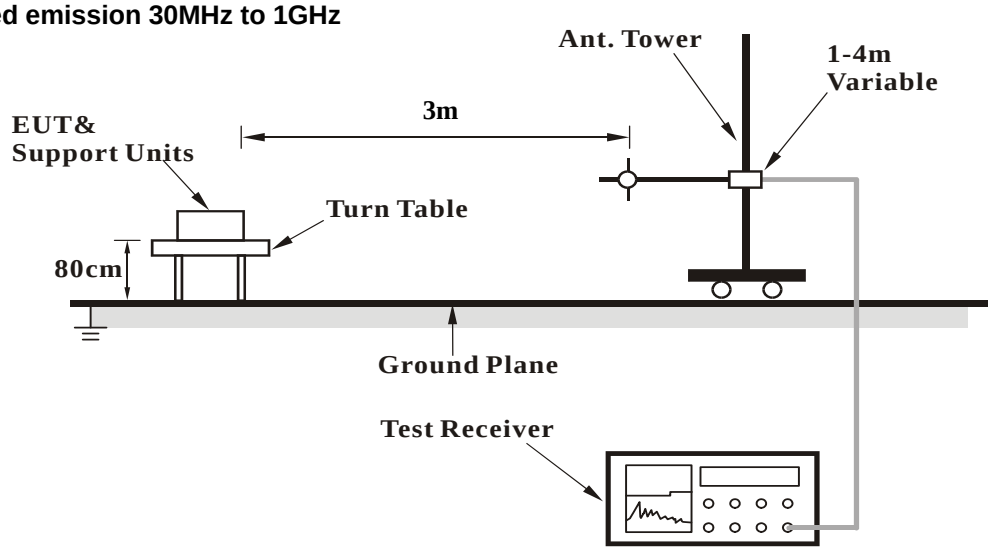
No deviation.

4.1.5 Test Setup

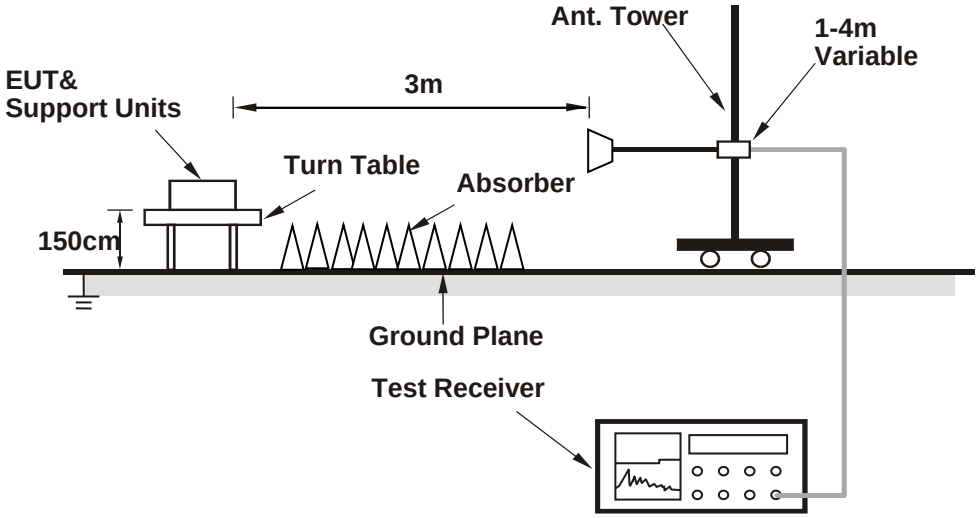
For Radiated emission below 30MHz



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 (QRCT 3.0.239.0) to enable EUT under transmission condition continuously at specific channel frequency.
d. The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	47.2 PK	74.0	-26.8	3.55 H	62	43.3	3.9
2	5150.00	43.6 AV	54.0	-10.4	3.55 H	62	39.7	3.9
3	*5260.00	120.4 PK			3.81 H	52	81.0	39.4
4	*5260.00	109.3 AV			3.81 H	52	69.9	39.4
5	#10520.00	59.7 PK	68.2	-8.5	1.83 H	261	42.9	16.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.1 PK	74.0	-16.9	3.78 V	359	53.2	3.9
2	5150.00	43.5 AV	54.0	-10.5	3.78 V	359	39.6	3.9
3	*5260.00	119.6 PK			3.64 V	341	80.2	39.4
4	*5260.00	108.1 AV			3.64 V	341	68.7	39.4
5	#10520.00	60.0 PK	68.2	-8.2	2.88 V	169	43.2	16.8

Remarks:

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

CHANNEL	TX Channel 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	120.4 PK			3.75 H	53	81.0	39.4
2	*5300.00	109.0 AV			3.75 H	53	69.6	39.4
3	10600.00	60.3 PK	74.0	-13.7	2.88 H	159	43.3	17.0
4	10600.00	46.8 AV	54.0	-7.2	2.88 H	159	29.8	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	118.0 PK			3.97 V	350	78.6	39.4
2	*5300.00	106.8 AV			3.97 V	350	67.4	39.4
3	10600.00	60.0 PK	74.0	-14.0	3.21 V	231	43.0	17.0
4	10600.00	46.4 AV	54.0	-7.6	3.21 V	231	29.4	17.0

Remarks:

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

CHANNEL	TX Channel 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	120.5 PK			1.78 H	58	81.0	39.5
2	*5320.00	109.3 AV			1.78 H	58	69.8	39.5
3	5350.00	67.0 PK	74.0	-7.0	1.43 H	300	63.0	4.0
4	5350.00	51.6 AV	54.0	-2.4	1.43 H	300	47.6	4.0
5	10640.00	60.4 PK	74.0	-13.6	2.18 H	193	43.4	17.0
6	10640.00	46.4 AV	54.0	-7.6	2.18 H	193	29.4	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	117.2 PK			3.98 V	7	77.7	39.5
2	*5320.00	106.2 AV			3.98 V	7	66.7	39.5
3	5350.00	61.3 PK	74.0	-12.7	2.04 V	61	57.3	4.0
4	5350.00	47.4 AV	54.0	-6.6	2.04 V	61	43.4	4.0
5	10640.00	59.8 PK	74.0	-14.2	1.73 V	264	42.8	17.0
6	10640.00	46.1 AV	54.0	-7.9	1.73 V	264	29.1	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.3 PK	74.0	-16.7	1.48 H	287	52.9	4.4
2	5460.00	45.1 AV	54.0	-8.9	1.48 H	287	40.7	4.4
3	#5470.00	62.0 PK	68.2	-6.2	1.32 H	306	57.6	4.4
4	*5500.00	118.9 PK			1.60 H	299	78.8	40.1
5	*5500.00	108.2 AV			1.60 H	299	68.1	40.1
6	11000.00	60.7 PK	74.0	-13.3	1.83 H	261	42.0	18.7
7	11000.00	47.1 AV	54.0	-6.9	1.83 H	261	28.4	18.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.0 PK	74.0	-17.0	2.74 V	359	52.6	4.4
2	5460.00	44.5 AV	54.0	-9.5	2.74 V	359	40.1	4.4
3	#5470.00	60.2 PK	68.2	-8.0	2.99 V	312	55.8	4.4
4	*5500.00	114.9 PK			3.51 V	284	74.8	40.1
5	*5500.00	104.2 AV			3.51 V	284	64.1	40.1
6	11000.00	60.4 PK	74.0	-13.6	2.76 V	189	41.7	18.7
7	11000.00	46.8 AV	54.0	-7.2	2.76 V	189	28.1	18.7

Remarks:

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

CHANNEL	TX Channel 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	119.1 PK			1.72 H	300	79.1	40.0
2	*5580.00	107.8 AV			1.72 H	300	67.8	40.0
3	11160.00	60.5 PK	74.0	-13.5	2.03 H	186	43.0	17.5
4	11160.00	46.9 AV	54.0	-7.1	2.03 H	186	29.4	17.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	115.4 PK			3.43 V	294	75.4	40.0
2	*5580.00	104.5 AV			3.43 V	294	64.5	40.0
3	11160.00	59.6 PK	74.0	-14.4	1.79 V	264	42.1	17.5
4	11160.00	46.2 AV	54.0	-7.8	1.79 V	264	28.7	17.5

Remarks:

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

CHANNEL	TX Channel 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	117.0 PK			1.78 H	304	77.0	40.0
2	*5700.00	106.1 AV			1.78 H	304	66.1	40.0
3	#5725.00	63.7 PK	68.2	-4.5	1.77 H	47	59.3	4.4
4	11400.00	60.3 PK	74.0	-13.7	1.76 H	231	42.9	17.4
5	11400.00	46.9 AV	54.0	-7.1	1.76 H	231	29.5	17.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	114.5 PK			1.64 V	60	74.5	40.0
2	*5700.00	103.5 AV			1.64 V	60	63.5	40.0
3	#5725.00	62.5 PK	68.2	-5.7	1.98 V	121	58.1	4.4
4	11400.00	59.7 PK	74.0	-14.3	2.01 V	203	42.3	17.4
5	11400.00	46.4 AV	54.0	-7.6	2.01 V	203	29.0	17.4

Remarks:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.5 PK	74.0	-16.5	1.64 H	286	53.6	3.9
2	5150.00	43.6 AV	54.0	-10.4	1.64 H	286	39.7	3.9
3	*5260.00	119.8 PK			3.78 H	54	80.4	39.4
4	*5260.00	108.3 AV			3.78 H	54	68.9	39.4
5	#10520.00	59.4 PK	68.2	-8.8	1.88 H	239	42.6	16.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.9 PK	74.0	-17.1	1.77 V	125	53.0	3.9
2	5150.00	43.5 AV	54.0	-10.5	1.77 V	125	39.6	3.9
3	*5260.00	115.2 PK			1.36 V	50	75.8	39.4
4	*5260.00	103.9 AV			1.36 V	50	64.5	39.4
5	#10520.00	58.9 PK	68.2	-9.3	2.30 V	186	42.1	16.8

Remarks:

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

CHANNEL	TX Channel 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	119.7 PK			3.57 H	52	80.3	39.4
2	*5300.00	108.1 AV			3.57 H	52	68.7	39.4
3	10600.00	60.7 PK	74.0	-13.3	2.47 H	174	43.7	17.0
4	10600.00	46.8 AV	54.0	-7.2	2.47 H	174	29.8	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	116.0 PK			2.48 V	8	76.6	39.4
2	*5300.00	104.6 AV			2.48 V	8	65.2	39.4
3	10600.00	59.8 PK	74.0	-14.2	2.04 V	236	42.8	17.0
4	10600.00	46.1 AV	54.0	-7.9	2.04 V	236	29.1	17.0

Remarks:

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

CHANNEL	TX Channel 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	120.0 PK			1.90 H	62	80.5	39.5
2	*5320.00	108.9 AV			1.90 H	62	69.4	39.5
3	5350.00	65.0 PK	74.0	-9.0	1.41 H	301	61.0	4.0
4	5350.00	50.6 AV	54.0	-3.4	1.41 H	301	46.6	4.0
5	10640.00	61.2 PK	74.0	-12.8	2.67 H	201	44.2	17.0
6	10640.00	46.2 AV	54.0	-7.8	2.67 H	201	29.2	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	117.8 PK			3.73 V	355	78.3	39.5
2	*5320.00	106.4 AV			3.73 V	355	66.9	39.5
3	5350.00	62.3 PK	74.0	-11.7	2.41 V	79	58.3	4.0
4	5350.00	46.8 AV	54.0	-7.2	2.41 V	79	42.8	4.0
5	10640.00	60.9 PK	74.0	-13.1	2.96 V	234	43.9	17.0
6	10640.00	45.7 AV	54.0	-8.3	2.96 V	234	28.7	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.4 PK	74.0	-15.6	1.98 H	101	54.0	4.4
2	5460.00	46.7 AV	54.0	-7.3	1.98 H	101	42.3	4.4
3	#5470.00	62.7 PK	68.2	-5.5	1.78 H	52	58.3	4.4
4	*5500.00	118.7 PK			1.88 H	305	78.6	40.1
5	*5500.00	107.4 AV			1.88 H	305	67.3	40.1
6	11000.00	60.0 PK	74.0	-14.0	1.83 H	251	41.3	18.7
7	11000.00	47.3 AV	54.0	-6.7	1.83 H	251	28.6	18.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.3 PK	74.0	-17.7	3.18 V	264	51.9	4.4
2	5460.00	45.2 AV	54.0	-8.8	3.18 V	264	40.8	4.4
3	#5470.00	60.3 PK	68.2	-7.9	3.51 V	288	55.9	4.4
4	*5500.00	116.6 PK			3.83 V	291	76.5	40.1
5	*5500.00	105.3 AV			3.83 V	291	65.2	40.1
6	11000.00	59.6 PK	74.0	-14.4	2.31 V	284	40.9	18.7
7	11000.00	46.8 AV	54.0	-7.2	2.31 V	284	28.1	18.7

Remarks:

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

CHANNEL	TX Channel 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	118.4 PK			1.52 H	295	78.4	40.0
2	*5580.00	107.3 AV			1.52 H	295	67.3	40.0
3	11160.00	60.0 PK	74.0	-14.0	2.83 H	161	42.5	17.5
4	11160.00	46.6 AV	54.0	-7.4	2.83 H	161	29.1	17.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	116.5 PK			3.77 V	334	76.5	40.0
2	*5580.00	105.0 AV			3.77 V	334	65.0	40.0
3	11160.00	59.2 PK	74.0	-14.8	2.54 V	231	41.7	17.5
4	11160.00	45.8 AV	54.0	-8.2	2.54 V	231	28.3	17.5

Remarks:

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

CHANNEL	TX Channel 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	117.9 PK			1.82 H	304	77.9	40.0
2	*5700.00	106.4 AV			1.82 H	304	66.4	40.0
3	#5725.00	65.4 PK	68.2	-2.8	1.74 H	48	61.0	4.4
4	11400.00	59.9 PK	74.0	-14.1	2.23 H	184	42.5	17.4
5	11400.00	46.8 AV	54.0	-7.2	2.23 H	184	29.4	17.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	117.0 PK			3.75 V	347	77.0	40.0
2	*5700.00	105.5 AV			3.75 V	347	65.5	40.0
3	#5725.00	63.0 PK	68.2	-5.2	3.26 V	84	58.6	4.4
4	11400.00	58.5 PK	74.0	-15.5	1.73 V	262	41.1	17.4
5	11400.00	46.1 AV	54.0	-7.9	1.73 V	262	28.7	17.4

Remarks:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.4 PK	74.0	-17.6	1.53 H	289	52.5	3.9
2	5150.00	43.5 AV	54.0	-10.5	1.53 H	289	39.6	3.9
3	*5270.00	116.3 PK			3.77 H	51	76.9	39.4
4	*5270.00	105.8 AV			3.77 H	51	66.4	39.4
5	#10540.00	59.9 PK	68.2	-8.3	2.81 H	169	43.0	16.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.0 PK	74.0	-18.0	2.18 V	144	52.1	3.9
2	5150.00	43.6 AV	54.0	-10.4	2.18 V	144	39.7	3.9
3	*5270.00	112.3 PK			1.46 V	45	72.9	39.4
4	*5270.00	101.0 AV			1.46 V	45	61.6	39.4
5	#10540.00	59.1 PK	68.2	-9.1	2.01 V	179	42.2	16.9

Remarks:

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

CHANNEL	TX Channel 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	116.0 PK			1.90 H	58	76.6	39.4
2	*5310.00	104.8 AV			1.90 H	58	65.4	39.4
3	5350.00	65.3 PK	74.0	-8.7	1.96 H	284	61.3	4.0
4	5350.00	52.7 AV	54.0	-1.3	1.96 H	284	48.7	4.0
5	10620.00	59.8 PK	74.0	-14.2	2.18 H	184	42.7	17.1
6	10620.00	46.7 AV	54.0	-7.3	2.18 H	184	29.6	17.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	111.5 PK			1.66 V	52	72.1	39.4
2	*5310.00	101.0 AV			1.66 V	52	61.6	39.4
3	5350.00	62.7 PK	74.0	-11.3	2.41 V	355	58.7	4.0
4	5350.00	48.1 AV	54.0	-5.9	2.41 V	355	44.1	4.0
5	10620.00	59.3 PK	74.0	-14.7	2.96 V	277	42.2	17.1
6	10620.00	46.2 AV	54.0	-7.8	2.96 V	277	29.1	17.1

Remarks:

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

CHANNEL	TX Channel 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	58.5 PK	74.0	-15.5	1.59 H	76	54.1	4.4
2	5460.00	46.7 AV	54.0	-7.3	1.59 H	76	42.3	4.4
3	#5470.00	66.1 PK	68.2	-2.1	1.89 H	53	61.7	4.4
4	*5510.00	114.8 PK			1.81 H	303	74.7	40.1
5	*5510.00	104.4 AV			1.81 H	303	64.3	40.1
6	11020.00	60.4 PK	74.0	-13.6	2.38 H	166	42.0	18.4
7	11020.00	47.5 AV	54.0	-6.5	2.38 H	166	29.1	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.2 PK	74.0	-16.8	3.94 V	327	52.8	4.4
2	5460.00	45.3 AV	54.0	-8.7	3.94 V	327	40.9	4.4
3	#5470.00	63.0 PK	68.2	-5.2	3.18 V	299	58.6	4.4
4	*5510.00	112.6 PK			3.76 V	315	72.5	40.1
5	*5510.00	102.0 AV			3.76 V	315	61.9	40.1
6	11020.00	59.2 PK	74.0	-14.8	2.71 V	267	40.8	18.4
7	11020.00	47.1 AV	54.0	-6.9	2.71 V	267	28.7	18.4

Remarks:

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

CHANNEL	TX Channel 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	115.5 PK			1.49 H	295	75.5	40.0
2	*5550.00	105.0 AV			1.49 H	295	65.0	40.0
3	11100.00	60.2 PK	74.0	-13.8	2.38 H	174	42.7	17.5
4	11100.00	46.9 AV	54.0	-7.1	2.38 H	174	29.4	17.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	114.3 PK			2.99 V	348	74.3	40.0
2	*5550.00	103.4 AV			2.99 V	348	63.4	40.0
3	11100.00	58.8 PK	74.0	-15.2	2.63 V	319	41.3	17.5
4	11100.00	46.2 AV	54.0	-7.8	2.63 V	319	28.7	17.5

Remarks:

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

CHANNEL	TX Channel 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	114.5 PK			3.35 H	293	74.4	40.1
2	*5670.00	104.0 AV			3.35 H	293	63.9	40.1
3	#5725.00	60.8 PK	68.2	-7.4	1.68 H	312	56.4	4.4
4	11340.00	60.3 PK	74.0	-13.7	2.83 H	174	42.5	17.8
5	11340.00	46.9 AV	54.0	-7.1	2.83 H	174	29.1	17.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	114.0 PK			3.80 V	345	73.9	40.1
2	*5670.00	103.0 AV			3.80 V	345	62.9	40.1
3	#5725.00	57.6 PK	68.2	-10.6	2.94 V	71	53.2	4.4
4	11340.00	59.1 PK	74.0	-14.9	1.76 V	236	41.3	17.8
5	11340.00	46.2 AV	54.0	-7.8	1.76 V	236	28.4	17.8

Remarks:

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

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.0 PK	74.0	-17.0	1.61 H	312	53.1	3.9
2	5150.00	44.6 AV	54.0	-9.4	1.61 H	312	40.7	3.9
3	*5290.00	111.0 PK			3.72 H	52	71.6	39.4
4	*5290.00	100.3 AV			3.72 H	52	60.9	39.4
5	5350.00	67.3 PK	74.0	-6.7	1.48 H	292	63.3	4.0
6	5350.00	52.8 AV	54.0	-1.2	1.48 H	292	48.8	4.0
7	#10580.00	60.9 PK	68.2	-7.3	2.37 H	241	43.8	17.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.4 PK	74.0	-17.6	2.33 V	299	52.5	3.9
2	5150.00	43.7 AV	54.0	-10.3	2.33 V	299	39.8	3.9
3	*5290.00	105.9 PK			1.65 V	56	66.5	39.4
4	*5290.00	95.6 AV			1.65 V	56	56.2	39.4
5	5350.00	64.3 PK	74.0	-9.7	1.87 V	89	60.3	4.0
6	5350.00	48.6 AV	54.0	-5.4	1.87 V	89	44.6	4.0
7	#10580.00	59.2 PK	68.2	-9.0	2.63 V	184	42.1	17.1

Remarks:

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

CHANNEL	TX Channel 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	66.7 PK	74.0	-7.3	3.51 H	74	62.3	4.4
2	5460.00	51.0 AV	54.0	-3.0	3.51 H	74	46.6	4.4
3	**#5470.00**	**68.0 PK**	**68.2**	**-0.2**	**3.85 H**	**51**	**63.6**	**4.4**
4	*5530.00	112.1 PK			3.68 H	289	72.0	40.1
5	*5530.00	101.6 AV			3.68 H	289	61.5	40.1
6	#5725.00	58.1 PK	68.2	-10.1	2.89 H	294	53.7	4.4
7	11060.00	60.2 PK	74.0	-13.8	2.94 H	183	42.3	17.9
8	11060.00	47.1 AV	54.0	-6.9	2.94 H	183	29.2	17.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	64.1 PK	74.0	-9.9	2.94 V	356	59.7	4.4
2	5460.00	46.2 AV	54.0	-7.8	2.94 V	356	41.8	4.4
3	#5470.00	64.5 PK	68.2	-3.7	3.14 V	295	60.1	4.4
4	*5530.00	110.4 PK			3.94 V	347	70.3	40.1
5	*5530.00	99.8 AV			3.94 V	347	59.7	40.1
6	#5725.00	57.1 PK	68.2	-11.1	3.46 V	347	52.7	4.4
7	11060.00	59.1 PK	74.0	-14.9	2.17 V	263	41.2	17.9
8	11060.00	46.7 AV	54.0	-7.3	2.17 V	263	28.8	17.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.9 PK	74.0	-16.1	3.66 H	66	53.5	4.4
2	5460.00	44.5 AV	54.0	-9.5	3.66 H	66	40.1	4.4
3	#5470.00	57.9 PK	68.2	-10.3	3.44 H	51	53.5	4.4
4	*5610.00	112.3 PK			3.68 H	283	72.2	40.1
5	*5610.00	102.1 AV			3.68 H	283	62.0	40.1
6	#5725.00	62.3 PK	68.2	-5.9	3.37 H	292	57.9	4.4
7	11220.00	59.8 PK	74.0	-14.2	3.13 H	203	42.1	17.7
8	11220.00	47.0 AV	54.0	-7.0	3.13 H	203	29.3	17.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.3 PK	74.0	-16.7	3.33 V	339	52.9	4.4
2	5460.00	45.1 AV	54.0	-8.9	3.12 V	323	40.7	4.4
3	#5470.00	57.5 PK	68.2	-10.7	3.12 V	323	53.1	4.4
4	*5610.00	110.6 PK			3.77 V	350	70.5	40.1
5	*5610.00	100.4 AV			3.77 V	350	60.3	40.1
6	#5725.00	60.9 PK	68.2	-7.3	3.53 V	359	56.5	4.4
7	11220.00	59.6 PK	74.0	-14.4	2.38 V	293	41.9	17.7
8	11220.00	46.7 AV	54.0	-7.3	2.38 V	293	29.0	17.7

Remarks:

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

802.11ac (VHT80+VHT 80)

CHANNEL	TX Channel 42+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	5150.00	67.2 PK	74.0	-6.8	3.54 H	276	63.3	3.9
2	5150.00	50.2 AV	54.0	-3.8	3.54 H	276	46.3	3.9
3	*5210.00	109.7 PK			2.03 H	132	70.2	39.5
4	*5210.00	99.6 AV			2.03 H	132	60.1	39.5
5	5350.00	56.2 PK	74.0	-17.8	2.79 H	288	52.2	4.0
6	5350.00	44.1 AV	54.0	-9.9	2.79 H	288	40.1	4.0
7	5460.00	64.1 PK	74.0	-9.9	2.83 H	257	59.7	4.4
8	5460.00	47.3 AV	54.0	-6.7	2.83 H	257	42.9	4.4
9	#5470.00	66.1 PK	68.2	-2.1	1.96 H	234	61.7	4.4
10	*5530.00	109.4 PK			3.16 H	271	69.3	40.1
11	*5530.00	98.8 AV			3.16 H	271	58.7	40.1
12	#5725.00	57.9 PK	68.2	-10.3	3.19 H	287	53.5	4.4
13	#10420.00	58.7 PK	68.2	-9.5	2.91 H	233	42.7	16.0
14	11060.00	59.0 PK	74.0	-15.0	2.47 H	164	41.1	17.9
15	11060.00	46.6 AV	54.0	-7.4	2.47 H	164	28.7	17.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.4 PK	74.0	-13.6	2.72 V	234	56.5	3.9
2	5150.00	47.7 AV	54.0	-6.3	2.72 V	234	43.8	3.9
3	*5210.00	103.0 PK			3.01 V	274	63.5	39.5
4	*5210.00	93.0 AV			3.01 V	274	53.5	39.5
5	5350.00	56.9 PK	74.0	-17.1	1.78 V	301	52.9	4.0
6	5350.00	42.7 AV	54.0	-11.3	1.78 V	301	38.7	4.0
7	5460.00	62.2 PK	74.0	-11.8	2.23 V	196	57.8	4.4
8	5460.00	44.3 AV	54.0	-9.7	2.23 V	196	39.9	4.4
9	#5470.00	62.2 PK	68.2	-6.0	1.98 V	264	57.8	4.4
10	*5530.00	107.6 PK			1.76 V	249	67.5	40.1
11	*5530.00	97.3 AV			1.76 V	249	57.2	40.1
12	#5725.00	56.2 PK	68.2	-12.0	2.96 V	253	51.8	4.4
13	#10420.00	59.1 PK	68.2	-9.1	1.96 V	164	43.1	16.0
14	11060.00	58.7 PK	74.0	-15.3	1.79 V	231	40.8	17.9
15	11060.00	46.0 AV	54.0	-8.0	1.79 V	231	28.1	17.9

Remarks:

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

CHANNEL	TX Channel 58+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	5150.00	55.8 PK	74.0	-18.2	2.48 H	159	51.9	3.9
2	5150.00	43.0 AV	54.0	-11.0	2.48 H	159	39.1	3.9
3	*5290.00	107.5 PK			1.23 H	279	68.1	39.4
4	*5290.00	96.8 AV			1.23 H	279	57.4	39.4
5	5350.00	64.1 PK	74.0	-9.9	1.67 H	248	60.1	4.0
6	5350.00	50.4 AV	54.0	-3.6	1.67 H	248	46.4	4.0
7	5460.00	63.6 PK	74.0	-10.4	2.79 H	266	59.2	4.4
8	5460.00	46.5 AV	54.0	-7.5	2.79 H	266	42.1	4.4
9	#5470.00	64.6 PK	68.2	-3.6	1.99 H	212	60.2	4.4
10	*5530.00	108.3 PK			3.04 H	283	68.2	40.1
11	*5530.00	97.2 AV			3.04 H	283	57.1	40.1
12	#5725.00	57.0 PK	68.2	-11.2	3.07 H	279	52.6	4.4
13	#10580.00	59.3 PK	68.2	-8.9	2.51 H	313	42.2	17.1
14	11060.00	58.6 PK	74.0	-15.4	2.58 H	157	40.7	17.9
15	11060.00	45.8 AV	54.0	-8.2	2.58 H	157	27.9	17.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.8 PK	74.0	-18.2	1.43 V	296	51.9	3.9
2	5150.00	42.9 AV	54.0	-11.1	1.43 V	296	39.0	3.9
3	*5290.00	102.3 PK			1.32 V	318	62.9	39.4
4	*5290.00	92.3 AV			1.32 V	318	52.9	39.4
5	5350.00	62.1 PK	74.0	-11.9	1.97 V	311	58.1	4.0
6	5350.00	45.3 AV	54.0	-8.7	1.97 V	311	41.3	4.0
7	5460.00	60.4 PK	74.0	-13.6	2.39 V	199	56.0	4.4
8	5460.00	43.1 AV	54.0	-10.9	2.39 V	199	38.7	4.4
9	#5470.00	60.3 PK	68.2	-7.9	2.03 V	271	55.9	4.4
10	*5530.00	105.9 PK			1.87 V	269	65.8	40.1
11	*5530.00	95.9 AV			1.87 V	269	55.8	40.1
12	#5725.00	55.6 PK	68.2	-12.6	3.18 V	264	51.2	4.4
13	#10580.00	58.5 PK	68.2	-9.7	3.56 V	299	41.4	17.1
14	11060.00	58.2 PK	74.0	-15.8	1.53 V	277	40.3	17.9
15	11060.00	45.9 AV	54.0	-8.1	1.53 V	277	28.0	17.9

Remarks:

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

CHANNEL	TX Channel 58+155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.6 PK	74.0	-18.4	2.51 H	155	51.7	3.9
2	5150.00	43.2 AV	54.0	-10.8	2.51 H	155	39.3	3.9
3	*5290.00	107.7 PK			1.39 H	276	68.3	39.4
4	*5290.00	97.0 AV			1.39 H	276	57.6	39.4
5	5350.00	64.4 PK	74.0	-9.6	1.69 H	258	60.4	4.0
6	5350.00	50.9 AV	54.0	-3.1	1.69 H	258	46.9	4.0
7	#5645.60	57.5 PK	68.2	-10.7	1.96 H	257	52.9	4.6
8	#5650.00	61.3 PK	68.2	-6.9	2.53 H	243	56.7	4.6
9	*5775.00	107.3 PK			1.96 H	257	67.1	40.2
10	*5775.00	97.2 AV			1.96 H	257	57.0	40.2
11	#5925.00	59.5 PK	68.2	-8.7	2.78 H	263	54.3	5.2
12	#5987.20	57.8 PK	68.2	-10.4	1.96 H	257	52.5	5.3
13	#10580.00	58.8 PK	68.2	-9.4	2.86 H	344	41.7	17.1
14	11550.00	59.1 PK	74.0	-14.9	2.81 H	193	41.3	17.8
15	11550.00	46.5 AV	54.0	-7.5	2.81 H	193	28.7	17.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.5 PK	74.0	-18.5	1.52 V	284	51.6	3.9
2	5150.00	43.1 AV	54.0	-10.9	1.52 V	284	39.2	3.9
3	*5290.00	102.1 PK			1.41 V	319	62.7	39.4
4	*5290.00	92.0 AV			1.41 V	319	52.6	39.4
5	5350.00	62.3 PK	74.0	-11.7	1.96 V	302	58.3	4.0
6	5350.00	45.1 AV	54.0	-8.9	1.96 V	302	41.1	4.0
7	#5647.20	57.2 PK	68.2	-11.0	3.49 V	131	52.6	4.6
8	#5650.00	55.9 PK	68.2	-12.3	3.84 V	168	51.3	4.6
9	*5775.00	105.3 PK			3.49 V	131	65.1	40.2
10	*5775.00	95.2 AV			3.49 V	131	55.0	40.2
11	#5925.00	56.3 PK	68.2	-11.9	2.29 V	97	51.1	5.2
12	#5934.40	56.7 PK	68.2	-11.5	3.49 V	131	51.5	5.2
13	#10580.00	58.3 PK	68.2	-9.9	3.42 V	283	41.2	17.1
14	11550.00	58.5 PK	74.0	-15.5	1.76 V	214	40.7	17.8
15	11550.00	46.0 AV	54.0	-8.0	1.76 V	214	28.2	17.8

Remarks:

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

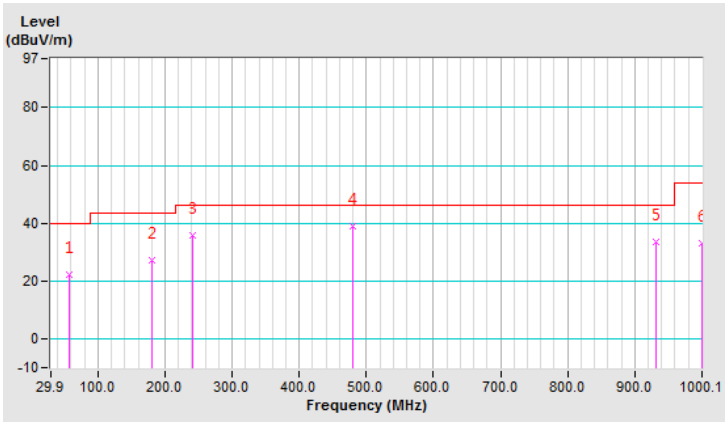
Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	22.3 QP	40.0	-17.7	1.99 H	335	36.8	-14.5
2	179.61	27.3 QP	43.5	-16.2	1.49 H	227	42.2	-14.9
3	241.83	35.9 QP	46.0	-10.1	1.00 H	13	50.3	-14.4
4	479.03	38.8 QP	46.0	-7.2	1.49 H	35	47.2	-8.4
5	932.05	33.4 QP	46.0	-12.6	1.99 H	166	32.6	0.8
6	1000.00	32.9 QP	54.0	-21.1	1.00 H	148	30.9	2.0

Remarks:

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

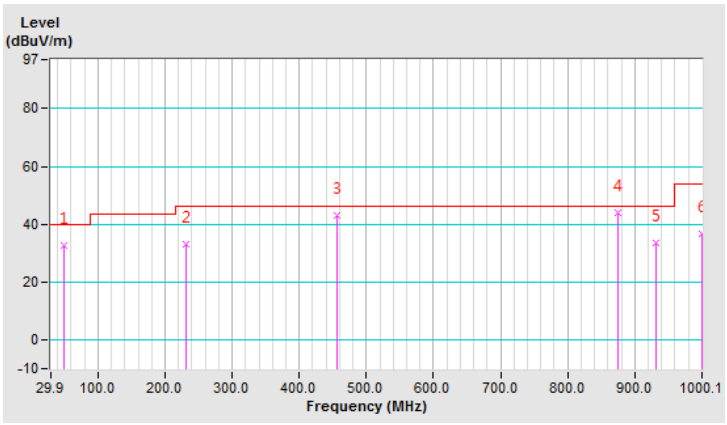


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	49.34	32.5 QP	40.0	-7.5	1.00 V	35	46.8	-14.3
2	232.11	32.9 QP	46.0	-13.1	1.00 V	79	48.5	-15.6
3	455.70	42.9 QP	46.0	-3.1	1.00 V	37	51.7	-8.8
4	875.67	44.1 QP	46.0	-1.9	1.00 V	153	44.2	-0.1
5	932.05	33.3 QP	46.0	-12.7	1.99 V	331	32.5	0.8
6	1000.00	36.6 QP	54.0	-17.4	1.50 V	98	34.6	2.0

Remarks:

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

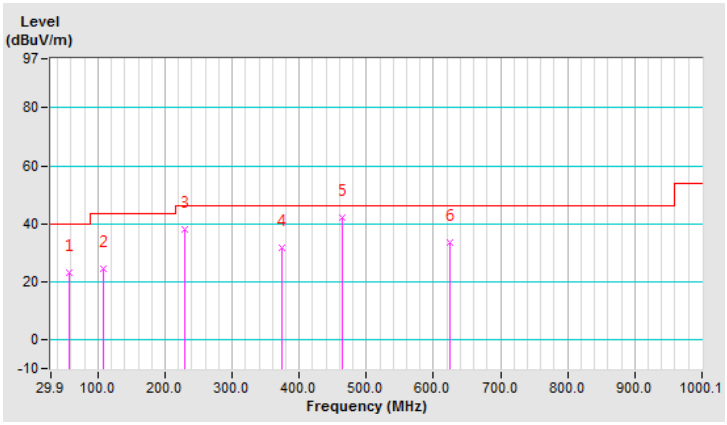


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	23.0 QP	40.0	-17.0	1.99 H	125	37.5	-14.5
2	107.67	24.6 QP	43.5	-18.9	1.49 H	267	42.3	-17.7
3	230.16	37.9 QP	46.0	-8.1	1.00 H	238	53.7	-15.8
4	374.04	31.9 QP	46.0	-14.1	1.99 H	72	42.6	-10.7
5	463.48	42.1 QP	46.0	-3.9	1.99 H	14	50.9	-8.8
6	624.85	33.7 QP	46.0	-12.3	1.00 H	219	38.6	-4.9

Remarks:

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

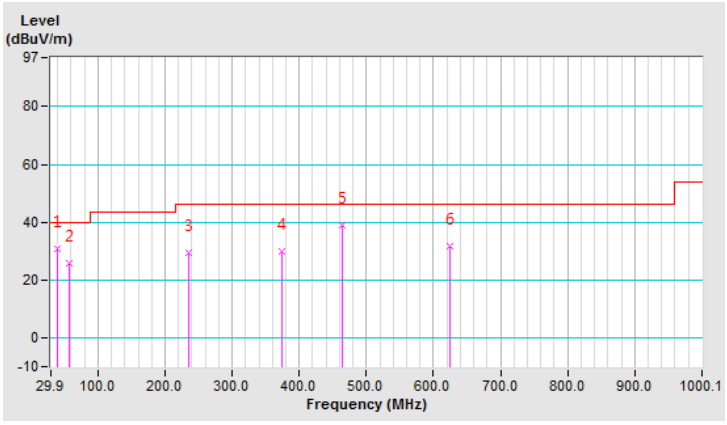


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	39.62	30.8 QP	40.0	-9.2	1.00 V	357	45.9	-15.1
2	57.12	26.0 QP	40.0	-14.0	1.00 V	347	40.5	-14.5
3	235.99	29.4 QP	46.0	-16.6	1.00 V	172	44.6	-15.2
4	374.04	29.7 QP	46.0	-16.3	1.00 V	213	40.4	-10.7
5	463.48	39.0 QP	46.0	-7.0	1.00 V	35	47.8	-8.8
6	624.85	31.7 QP	46.0	-14.3	1.00 V	17	36.6	-4.9

Remarks:

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

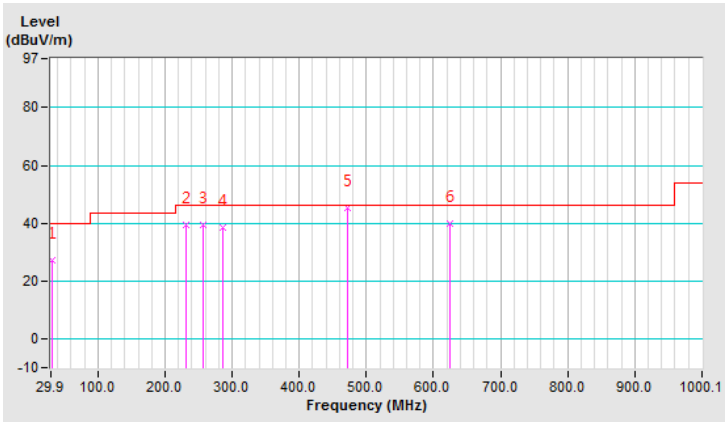


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	C		

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	31.84	27.2 QP	40.0	-12.8	1.99 H	114	43.2	-16.0
2	232.11	39.4 QP	46.0	-6.6	1.00 H	114	55.0	-15.6
3	257.38	39.5 QP	46.0	-6.5	1.00 H	128	53.4	-13.9
4	286.55	38.4 QP	46.0	-7.6	1.00 H	112	50.9	-12.5
5	471.25	45.4 QP	46.0	-0.6	1.49 H	50	53.9	-8.5
6	624.23	39.9 QP	46.0	-6.1	1.00 H	217	44.9	-5.0

Remarks:

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

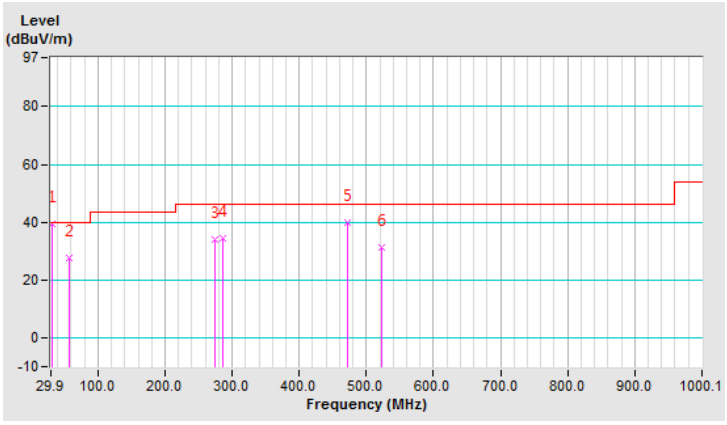


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	C		

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	32.07	39.3 QP	40.0	-0.7	1.01 V	204	55.3	-16.0
2	57.12	27.6 QP	40.0	-12.4	1.01 V	16	42.1	-14.5
3	274.88	34.0 QP	46.0	-12.0	1.50 V	108	46.9	-12.9
4	286.55	34.3 QP	46.0	-11.7	1.50 V	220	46.8	-12.5
5	471.25	39.8 QP	46.0	-6.2	1.01 V	16	48.3	-8.5
6	523.75	31.2 QP	46.0	-14.8	1.01 V	338	38.8	-7.6

Remarks:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Tested date: May 30 ~ Jul. 08, 2018

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

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

4.2.3 Test Procedures

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

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

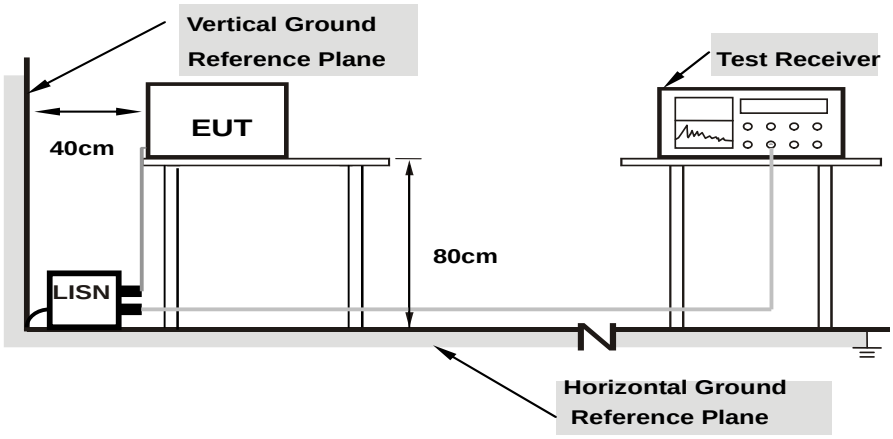
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

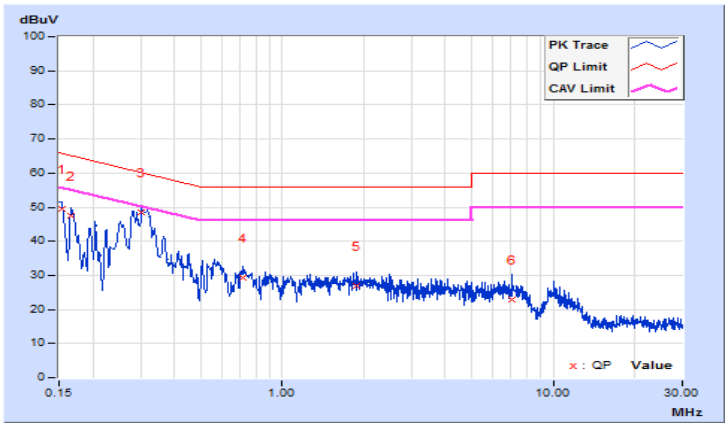
Worst-case data: 802.11a

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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.16	39.50	28.24	49.66	38.40	65.79	55.79	-16.13	-17.39
2	0.16569	10.16	37.27	23.48	47.43	33.64	65.17	55.17	-17.74	-21.53
3	0.30294	10.18	38.38	30.97	48.56	41.15	60.16	50.16	-11.60	-9.01
4	0.71328	10.19	19.15	13.89	29.34	24.08	56.00	46.00	-26.66	-21.92
5	1.87431	10.24	16.61	10.73	26.85	20.97	56.00	46.00	-29.15	-25.03
6	7.07461	10.50	12.45	6.71	22.95	17.21	60.00	50.00	-37.05	-32.79

Remarks:

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

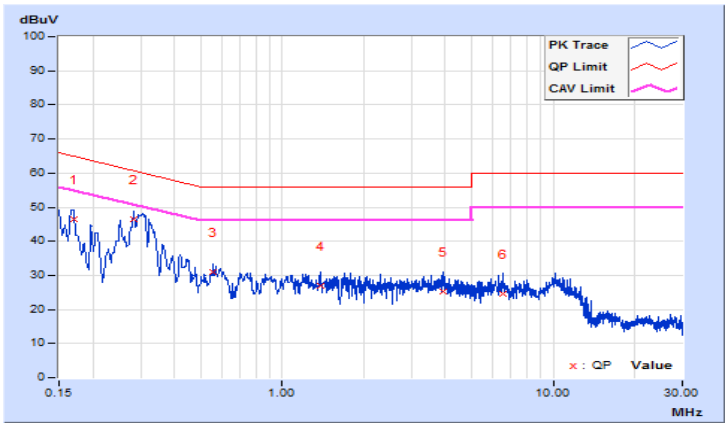


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16955	10.15	36.42	24.13	46.57	34.28	64.98	54.98	-18.41	-20.70
2	0.28288	10.18	36.45	29.63	46.63	39.81	60.73	50.73	-14.10	-10.92
3	0.55664	10.20	20.69	14.83	30.89	25.03	56.00	46.00	-25.11	-20.97
4	1.37774	10.21	16.88	11.94	27.09	22.15	56.00	46.00	-28.91	-23.85
5	3.93097	10.34	15.00	9.12	25.34	19.46	56.00	46.00	-30.66	-26.54
6	6.50375	10.44	14.04	7.44	24.48	17.88	60.00	50.00	-35.52	-32.12

Remarks:

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

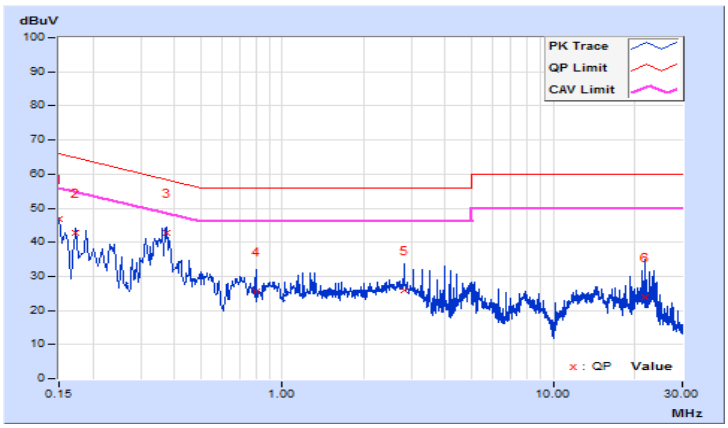


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.73	37.13	26.79	46.86	36.52	66.00	56.00	-19.14	-19.48
2	0.17346	9.73	33.17	23.44	42.90	33.17	64.79	54.79	-21.89	-21.62
3	0.37287	9.75	33.13	26.33	42.88	36.08	58.44	48.44	-15.56	-12.36
4	0.79906	9.73	15.76	8.78	25.49	18.51	56.00	46.00	-30.51	-27.49
5	2.80880	9.79	16.28	11.77	26.07	21.56	56.00	46.00	-29.93	-24.44
6	21.69801	9.99	13.96	2.91	23.95	12.90	60.00	50.00	-36.05	-37.10

Remarks:

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

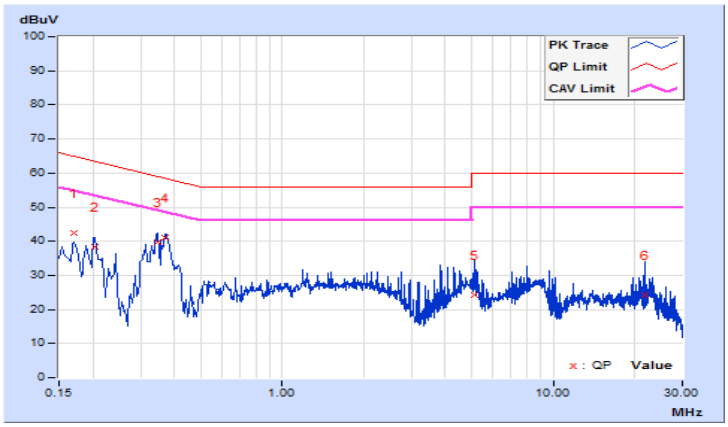


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16967	9.73	32.68	22.45	42.41	32.18	64.98	54.98	-22.57	-22.80
2	0.20474	9.74	28.58	18.45	38.32	28.19	63.42	53.42	-25.10	-25.23
3	0.34550	9.75	29.91	21.67	39.66	31.42	59.07	49.07	-19.41	-17.65
4	0.36913	9.75	31.37	24.57	41.12	34.32	58.52	48.52	-17.40	-14.20
5	5.11570	9.85	14.47	6.06	24.32	15.91	60.00	50.00	-35.68	-34.09
6	21.83486	10.14	14.19	2.65	24.33	12.79	60.00	50.00	-35.67	-37.21

Remarks:

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

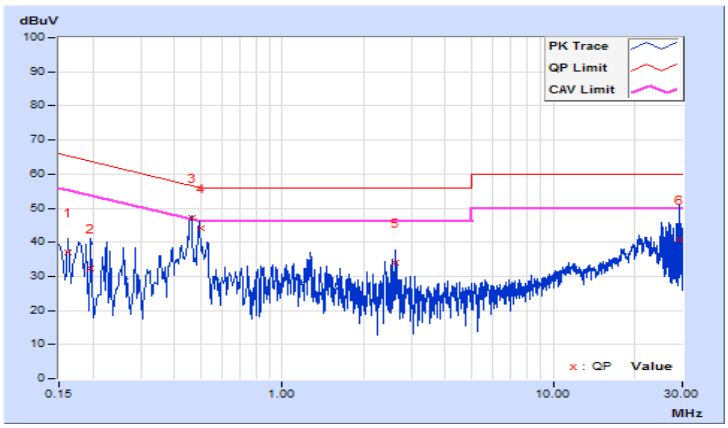


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16173	9.67	27.43	6.83	37.10	16.50	65.37	55.37	-28.27	-38.87
2	0.19692	9.67	22.53	1.26	32.20	10.93	63.74	53.74	-31.54	-42.81
3	**0.46179**	**9.67**	**37.53**	**31.26**	**47.20**	**40.93**	**56.66**	**46.66**	**-9.46**	**-5.73**
4	0.50000	9.67	34.29	26.97	43.96	36.64	56.00	46.00	-12.04	-9.36
5	2.61721	9.73	24.29	9.66	34.02	19.39	56.00	46.00	-21.98	-26.61
6	29.08400	9.98	30.89	10.65	40.87	20.63	60.00	50.00	-19.13	-29.37

Remarks:

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

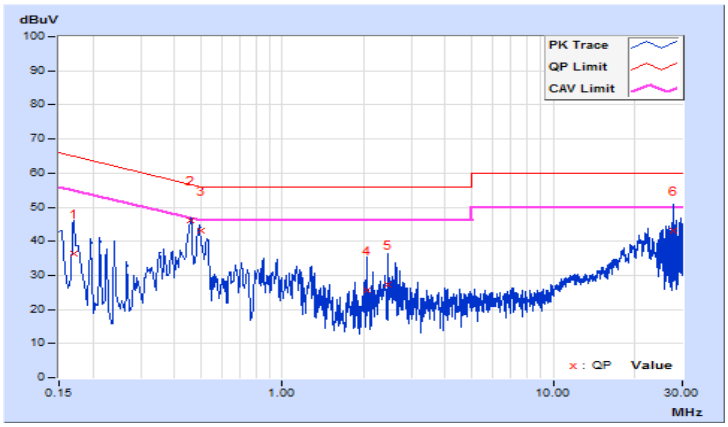


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16967	9.68	26.56	10.97	36.24	20.65	64.98	54.98	-28.74	-34.33
2	0.45937	9.68	36.52	30.40	46.20	40.08	56.70	46.70	-10.50	-6.62
3	0.50000	9.68	33.33	26.08	43.01	35.76	56.00	46.00	-12.99	-10.24
4	2.04639	9.71	15.72	2.30	25.43	12.01	56.00	46.00	-30.57	-33.99
5	2.46863	9.72	17.48	1.42	27.20	11.14	56.00	46.00	-28.80	-34.86
6	27.80934	10.10	32.85	10.73	42.95	20.83	60.00	50.00	-17.05	-29.17

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

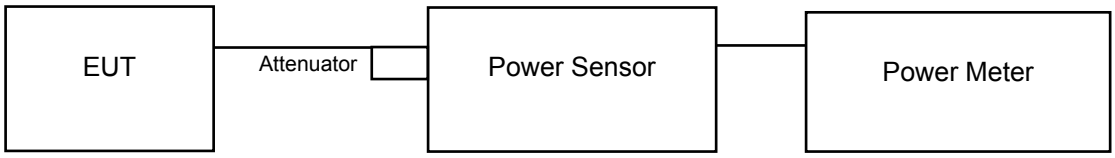
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

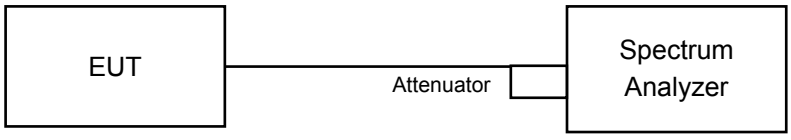
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

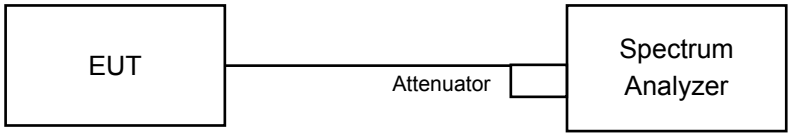
For Power Output
802.11a, 802.11n (HT20), 802.11n (HT40)



802.11ac (VHT80), 802.11ac (VHT80+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, 802.11n (HT20), 802.11n (HT40)

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

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

a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
b. Set sweep trigger to “free run”.
c. Set RBW = 1 MHz
d. Set VBW ≥ 3 MHz
e. Number of points in sweep ≥ 2 Span / RBW
f. Sweep time ≤ (number of points in sweep) * T
g. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
h. Detector = RMS
i. Trace mode = max hold
j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
k. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

For 26dB Bandwidth

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	13.86	13.85	13.34	13.60	93.074	19.69	23.92	Pass
60	5300	13.81	13.48	13.19	13.16	87.874	19.44	23.95	Pass
64	5320	13.61	13.12	12.93	13.26	84.291	19.26	23.96	Pass
100	5500	13.92	13.15	13.18	13.57	88.862	19.49	23.90	Pass
116	5580	13.62	12.63	13.01	13.06	81.566	19.12	23.89	Pass
140	5700	13.47	12.85	13.18	12.75	81.141	19.09	23.93	Pass

Note: 5260~5320MHz, 5500~5700MHz Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(19.83) = 23.97dBm < 24dBm
2. 11dBm + 10log(19.73) = 23.95dBm < 24dBm
3. 11dBm + 10log(19.83) = 23.97dBm < 24dBm
4. 11dBm + 10log(19.85) = 23.98dBm < 24dBm
5. 11dBm + 10log(20.05) = 24.02dBm > 24dBm
6. 11dBm + 10log(20.18) = 24.05dBm > 24dBm
Chain 1
1. 11dBm + 10log(19.63) = 23.92dBm < 24dBm
2. 11dBm + 10log(19.75) = 23.96dBm < 24dBm
3. 11dBm + 10log(19.78) = 23.96dBm < 24dBm
4. 11dBm + 10log(19.54) = 23.90dBm < 24dBm
5. 11dBm + 10log(19.57) = 23.92dBm < 24dBm
6. 11dBm + 10log(19.68) = 23.94dBm < 24dBm
Chain 3
1. 11dBm + 10log(20.00) = 24.01 dBm > 24dBm
2. 11dBm + 10log(19.90) = 23.99 dBm < 24dBm
3. 11dBm + 10log(19.95) = 24.00 dBm = 24dBm
4. 11dBm + 10log(19.61) = 23.92 dBm < 24dBm
5. 11dBm + 10log(19.46) = 23.89 dBm < 24dBm
6. 11dBm + 10log(19.66) = 23.93 dBm < 24dBm
Chain 4
1. 11dBm + 10log(20.16) = 24.04 dBm > 24dBm
2. 11dBm + 10log(20.08) = 24.03 dBm > 24dBm
3. 11dBm + 10log(20.10) = 24.03 dBm > 24dBm
4. 11dBm + 10log(19.93) = 24.00 dBm = 24dBm
5. 11dBm + 10log(20.03) = 24.02 dBm > 24dBm
6. 11dBm + 10log(19.94) = 24.00 dBm = 24dBm

802.11n (HT20)

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				
52	5260	14.49	14.29	14.05	14.19	106.624	20.28	24.00	Pass
60	5300	14.02	13.82	13.41	13.48	93.546	19.71	24.00	Pass
64	5320	13.91	13.40	13.64	13.39	91.430	19.61	24.00	Pass
100	5500	14.42	14.20	14.15	14.24	106.520	20.27	24.00	Pass
116	5580	13.64	12.92	13.07	13.24	84.072	19.25	24.00	Pass
140	5700	13.67	12.90	13.19	12.91	83.167	19.20	24.00	Pass

Note: 5260~5320MHz, 5500~5700MHz Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(20.56) = 24.13 dBm > 24dBm
2. 11dBm + 10log(20.59) = 24.14 dBm > 24dBm
3. 11dBm + 10log(20.60) = 24.14 dBm > 24dBm
4. 11dBm + 10log(20.62) = 24.14 dBm > 24dBm
5. 11dBm + 10log(20.58) = 24.13 dBm > 24dBm
6. 11dBm + 10log(20.62) = 24.14 dBm > 24dBm
Chain 1
1. 11dBm + 10log(20.65) = 24.15 dBm > 24dBm
2. 11dBm + 10log(20.82) = 24.18 dBm > 24dBm
3. 11dBm + 10log(20.70) = 24.16 dBm > 24dBm
4. 11dBm + 10log(20.64) = 24.15 dBm > 24dBm
5. 11dBm + 10log(20.61) = 24.14 dBm > 24dBm
6. 11dBm + 10log(20.73) = 24.17 dBm > 24dBm
Chain 3
1. 11dBm + 10log(20.59) = 24.14 dBm > 24dBm
2. 11dBm + 10log(20.72) = 24.16 dBm > 24dBm
3. 11dBm + 10log(20.96) = 24.21 dBm > 24dBm
4. 11dBm + 10log(20.59) = 24.14 dBm > 24dBm
5. 11dBm + 10log(20.49) = 24.12 dBm > 24dBm
6. 11dBm + 10log(20.51) = 24.12 dBm > 24dBm
Chain 4
1. 11dBm + 10log(20.56) = 24.13dBm > 24dBm
2. 11dBm + 10log(20.74) = 24.17dBm > 24dBm
3. 11dBm + 10log(20.63) = 24.14dBm > 24dBm
4. 11dBm + 10log(20.71) = 24.16dBm > 24dBm
5. 11dBm + 10log(20.65) = 24.15dBm > 24dBm
6. 11dBm + 10log(20.74) = 24.17dBm > 24dBm

802.11n (HT40)

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				
54	5270	16.96	16.83	16.18	16.51	**184.120**	22.65	24.00	Pass
62	5310	16.45	16.12	15.91	16.15	165.287	22.18	24.00	Pass
102	5510	17.52	16.82	16.78	17.12	203.744	23.09	24.00	Pass
110	5550	17.05	16.35	16.37	16.71	184.083	22.65	24.00	Pass
134	5670	16.49	15.74	16.02	16.06	162.422	22.11	24.00	Pass

Note: 5260~5320MHz, 5500~5700MHz Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(40.53) = 27.08 dBm > 24dBm
2. 11dBm + 10log(40.70) = 27.06 dBm > 24dBm
3. 11dBm + 10log(40.69) = 27.08 dBm > 24dBm
4. 11dBm + 10log(40.75) = 27.06 dBm > 24dBm
5. 11dBm + 10log(40.76) = 27.07 dBm > 24dBm
Chain 1
1. 11dBm + 10log(40.47) = 27.07 dBm > 24dBm
2. 11dBm + 10log(40.59) = 27.08 dBm > 24dBm
3. 11dBm + 10log(40.72) = 27.10 dBm > 24dBm
4. 11dBm + 10log(40.69) = 27.09 dBm > 24dBm
5. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm
Chain 2
1. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm
2. 11dBm + 10log(40.69) = 27.09 dBm > 24dBm
3. 11dBm + 10log(40.80) = 27.11 dBm > 24dBm
4. 11dBm + 10log(41.02) = 27.13 dBm > 24dBm
5. 11dBm + 10log(41.00) = 27.13 dBm > 24dBm
Chain 3
1. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm
2. 11dBm + 10log(40.78) = 27.10 dBm > 24dBm
3. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm
4. 11dBm + 10log(40.86) = 27.11 dBm > 24dBm
5. 11dBm + 10log(40.90) = 27.12 dBm > 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				
58	5290	15.47	15.04	15.02	15.12	131.430	21.19	24.00	Pass
106	5530	18.04	17.29	17.29	17.61	**228.517**	23.59	24.00	Pass
122	5610	17.66	17.02	17.05	17.13	211.036	23.24	24.00	Pass

Note: 5260~5320MHz, 5500~5700MHz Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(83.55) = 30.22 dBm > 24dBm
2. 11dBm + 10log(83.69) = 30.23 dBm > 24dBm
3. 11dBm + 10log(82.93) = 30.19 dBm > 24dBm
Chain 1
1. 11dBm + 10log(84.20) = 30.25 dBm > 24dBm
2. 11dBm + 10log(84.30) = 30.26 dBm > 24dBm
3. 11dBm + 10log(84.34) = 30.26 dBm > 24dBm
Chain 2
1. 11dBm + 10log(83.77) = 30.23 dBm > 24dBm
2. 11dBm + 10log(84.08) = 30.25 dBm > 24dBm
3. 11dBm + 10log(83.80) = 30.23 dBm > 24dBm
Chain 3
1. 11dBm + 10log(84.03) = 30.24 dBm > 24dBm
2. 11dBm + 10log(84.20) = 30.25 dBm > 24dBm
3. 11dBm + 10log(84.02) = 30.24 dBm > 24dBm

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42+106	5210	16.33	16.32	-	-	85.809	19.34	24.00	Pass
	5530	-	-	16.84	16.93	97.623	19.90	24.00	Pass
58+106	5290	15.46	15.86	-	-	73.704	18.67	24.00	Pass
	5530	-	-	16.11	15.82	79.026	18.98	24.00	Pass
58+155	5290	15.46	15.86	-	-	73.704	18.67	24.00	Pass
	5775	-	-	15.31	15.67	70.861	18.50	30.00	Pass

Note: 5260~5320MHz, 5500~5700MHz Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(84.71) = 30.28 dBm > 24dBm.
2. 11dBm + 10log(84.32) = 30.26 dBm > 24dBm.
3. 11dBm + 10log(84.32) = 30.26 dBm > 24dBm.
Chain 1
1. 11dBm + 10log(84.53) = 30.27 dBm > 24dBm.
2. 11dBm + 10log(84.99) = 30.29 dBm > 24dBm.
3. 11dBm + 10log(84.99) = 30.29 dBm > 24dBm.
Chain 2
1. 11dBm + 10log(85.35) = 30.31 dBm > 24dBm.
2. 11dBm + 10log(85.27) = 30.31 dBm > 24dBm.
3. 11dBm + 10log(75.60) = 29.79 dBm > 24dBm.
Chain 3
1. 11dBm + 10log(84.23) = 30.25 dBm > 24dBm.
2. 11dBm + 10log(84.71) = 30.28 dBm > 24dBm.
3. 11dBm + 10log(75.84) = 29.80 dBm > 24dBm.

Beamforming Mode

802.11n (HT20)

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				
52	5260	13.11	12.91	12.67	12.81	77.599	18.90	24.00	Pass
60	5300	12.64	12.44	12.03	12.10	68.081	18.33	24.00	Pass
64	5320	12.53	12.02	12.26	12.01	66.540	18.23	24.00	Pass
100	5500	13.04	12.82	12.77	12.86	77.523	18.89	24.00	Pass
116	5580	12.26	11.54	11.69	11.86	61.186	17.87	24.00	Pass
140	5700	12.29	11.52	11.81	11.53	60.528	17.82	24.00	Pass

Note: 5260~5320MHz, 5500~5700MHz: Directional Gain = 5.38dBi < 6dBi, so the limit no need to be reduced.

For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(20.56) = 24.13 dBm > 24dBm
2. 11dBm + 10log(20.59) = 24.14 dBm > 24dBm
3. 11dBm + 10log(20.60) = 24.14 dBm > 24dBm
4. 11dBm + 10log(20.62) = 24.14 dBm > 24dBm
5. 11dBm + 10log(20.58) = 24.13 dBm > 24dBm
6. 11dBm + 10log(20.62) = 24.14 dBm > 24dBm
Chain 1
1. 11dBm + 10log(20.65) = 24.15 dBm > 24dBm
2. 11dBm + 10log(20.82) = 24.18 dBm > 24dBm
3. 11dBm + 10log(20.70) = 24.16 dBm > 24dBm
4. 11dBm + 10log(20.64) = 24.15 dBm > 24dBm
5. 11dBm + 10log(20.61) = 24.14 dBm > 24dBm
6. 11dBm + 10log(20.73) = 24.17 dBm > 24dBm
Chain 3
1. 11dBm + 10log(20.59) = 24.14 dBm > 24dBm
2. 11dBm + 10log(20.72) = 24.16 dBm > 24dBm
3. 11dBm + 10log(20.96) = 24.21 dBm > 24dBm
4. 11dBm + 10log(20.59) = 24.14 dBm > 24dBm
5. 11dBm + 10log(20.49) = 24.12 dBm > 24dBm
6. 11dBm + 10log(20.51) = 24.12 dBm > 24dBm
Chain 4
1. 11dBm + 10log(20.56) = 24.13dBm > 24dBm
2. 11dBm + 10log(20.74) = 24.17dBm > 24dBm
3. 11dBm + 10log(20.63) = 24.14dBm > 24dBm
4. 11dBm + 10log(20.71) = 24.16dBm > 24dBm
5. 11dBm + 10log(20.65) = 24.15dBm > 24dBm
6. 11dBm + 10log(20.74) = 24.17dBm > 24dBm

802.11n (HT40)

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				
54	5270	15.58	15.45	14.80	15.13	**134.000**	21.27	24.00	Pass
62	5310	15.07	14.74	14.53	14.77	120.293	20.80	24.00	Pass
102	5510	16.14	15.44	15.40	15.74	148.281	21.71	24.00	Pass
110	5550	15.67	14.97	14.99	15.33	133.972	21.27	24.00	Pass
134	5670	15.11	14.36	14.64	14.68	118.207	20.73	24.00	Pass

Note: 5260~5320MHz, 5500~5700MHz: Directional Gain = 5.38dBi < 6dBi, so the limit no need to be reduced.

For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(40.53) = 27.08 dBm > 24dBm
2. 11dBm + 10log(40.70) = 27.06 dBm > 24dBm
3. 11dBm + 10log(40.69) = 27.08 dBm > 24dBm
4. 11dBm + 10log(40.75) = 27.06 dBm > 24dBm
5. 11dBm + 10log(40.76) = 27.07 dBm > 24dBm
Chain 1
1. 11dBm + 10log(40.47) = 27.07 dBm > 24dBm
2. 11dBm + 10log(40.59) = 27.08 dBm > 24dBm
3. 11dBm + 10log(40.72) = 27.10 dBm > 24dBm
4. 11dBm + 10log(40.69) = 27.09 dBm > 24dBm
5. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm
Chain 2
1. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm
2. 11dBm + 10log(40.69) = 27.09 dBm > 24dBm
3. 11dBm + 10log(40.80) = 27.11 dBm > 24dBm
4. 11dBm + 10log(41.02) = 27.13 dBm > 24dBm
5. 11dBm + 10log(41.00) = 27.13 dBm > 24dBm
Chain 3
1. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm
2. 11dBm + 10log(40.78) = 27.10 dBm > 24dBm
3. 11dBm + 10log(40.73) = 27.10 dBm > 24dBm
4. 11dBm + 10log(40.86) = 27.11 dBm > 24dBm
5. 11dBm + 10log(40.90) = 27.12 dBm > 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				
58	5290	14.09	13.66	13.64	13.74	95.652	19.81	24.00	Pass
106	5530	16.66	15.91	15.91	16.23	**166.309**	22.21	24.00	Pass
122	5610	16.28	15.64	15.67	15.75	153.588	21.86	24.00	Pass

Note: 5260~5320MHz, 5500~5700MHz: Directional Gain = 5.38dBi < 6dBi, so the limit no need to be reduced.

For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log(83.55) = 30.22 dBm > 24dBm
2. 11dBm + 10log(83.69) = 30.23 dBm > 24dBm
3. 11dBm + 10log(82.93) = 30.19 dBm > 24dBm
Chain 1
1. 11dBm + 10log(84.20) = 30.25 dBm > 24dBm
2. 11dBm + 10log(84.30) = 30.26 dBm > 24dBm
3. 11dBm + 10log(84.34) = 30.26 dBm > 24dBm
Chain 2
1. 11dBm + 10log(83.77) = 30.23 dBm > 24dBm
2. 11dBm + 10log(84.08) = 30.25 dBm > 24dBm
3. 11dBm + 10log(83.80) = 30.23 dBm > 24dBm
Chain 3
1. 11dBm + 10log(84.03) = 30.24 dBm > 24dBm
2. 11dBm + 10log(84.20) = 30.25 dBm > 24dBm
3. 11dBm + 10log(84.02) = 30.24 dBm > 24dBm

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	19.83	19.63	20.00	20.16
60	5300	19.73	19.75	19.90	20.08
64	5320	19.83	19.78	19.95	20.10
100	5500	19.85	19.54	19.61	19.93
116	5580	20.05	19.57	19.46	20.03
140	5700	20.18	19.68	19.66	19.94

802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	20.56	20.65	20.59	20.56
60	5300	20.59	20.82	20.72	20.74
64	5320	20.60	20.70	20.96	20.63
100	5500	20.62	20.64	20.59	20.71
116	5580	20.58	20.61	20.49	20.65
140	5700	20.62	20.73	20.51	20.74

802.11n (HT40)

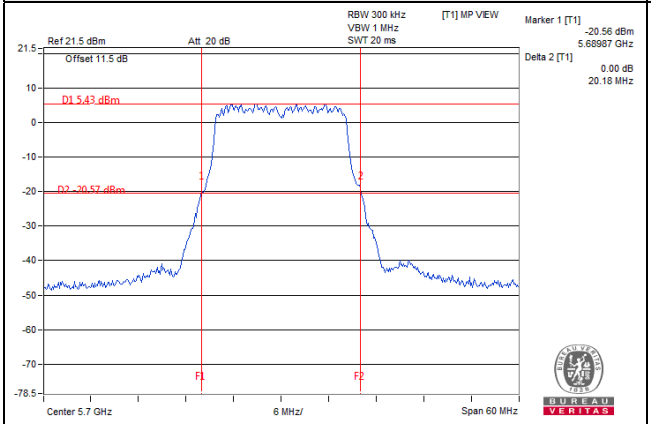
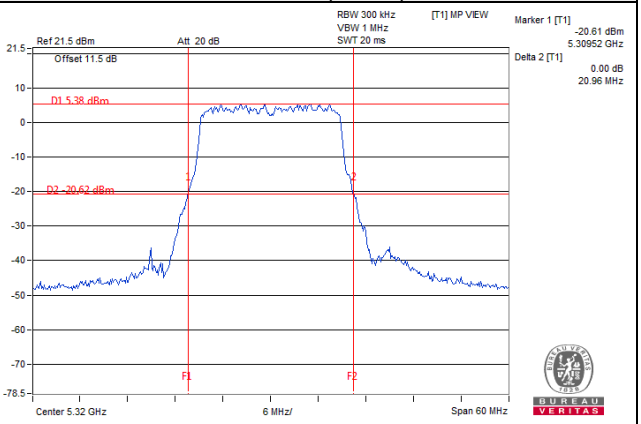
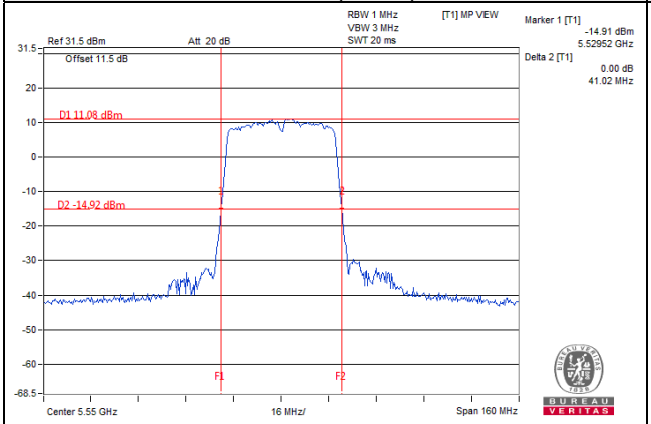
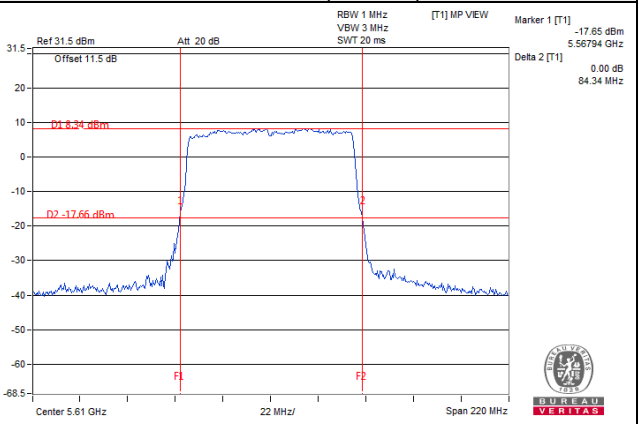
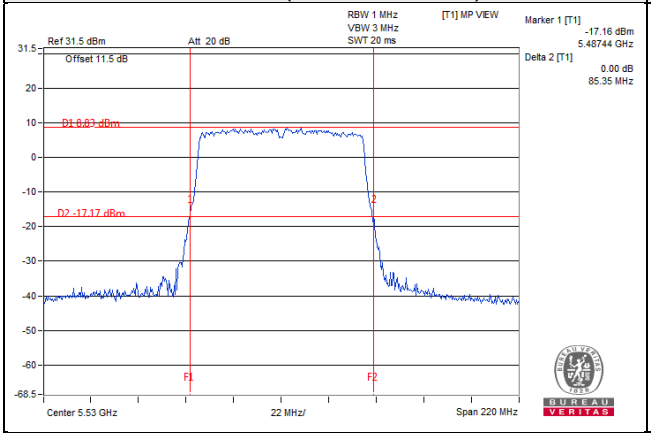
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	40.53	40.47	40.73	40.73
62	5310	40.41	40.59	40.69	40.78
102	5510	40.57	40.72	40.80	40.73
110	5550	40.36	40.69	41.02	40.86
134	5670	40.46	40.73	41.00	40.90

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	83.55	84.20	83.77	84.03
106	5530	83.69	84.30	84.08	84.20
122	5610	82.93	84.34	83.80	84.02

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42+106	5210	84.71	84.53	-	-
	5530	-	-	85.35	84.23
58+106	5290	84.32	84.99	-	-
	5530	-	-	85.27	84.71
58+155	5290	84.32	84.99	-	-
	5530	-	-	75.60	75.84

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

EUT Maximum Conducted Power

CDD Mode

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	93.074	19.69
5470~5725	88.862	19.49

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	106.624	20.28
5470~5725	106.520	20.27

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	184.120	22.65
5470~5725	203.744	23.09

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	131.430	21.19
5470~5725	228.517	23.59

802.11ac (VHT80+VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	85.809	19.34
5470~5725	97.623	19.90

Beamforming Mode

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	77.599	18.90
5470~5725	77.523	18.89

802.11n (HT40)

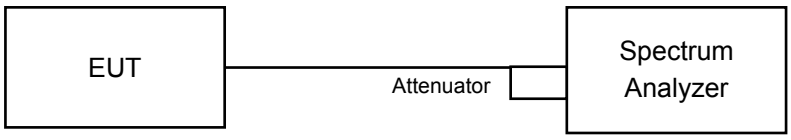
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	134.000	21.27
5470~5725	148.281	21.71

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	95.652	19.81
5470~5725	166.309	22.21

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Result

802.11a

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

802.11n (HT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	17.64	17.64	17.64	17.64
60	5300	17.64	17.64	17.64	17.64
64	5320	17.64	17.64	17.64	17.64
100	5500	17.64	17.64	17.64	17.64
116	5580	17.64	17.64	17.52	17.64
140	5700	17.64	17.64	17.52	17.64

802.11n (HT40)

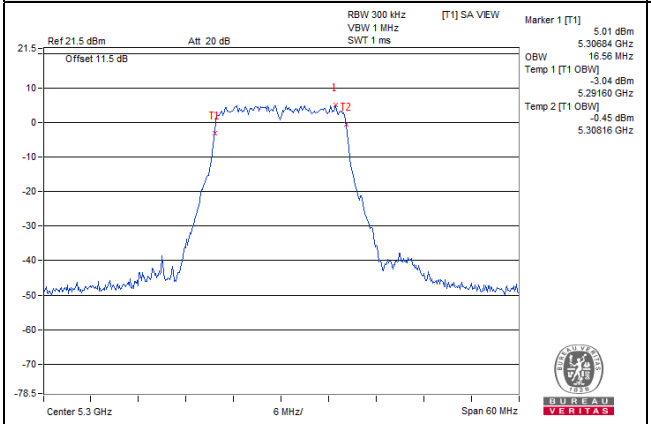
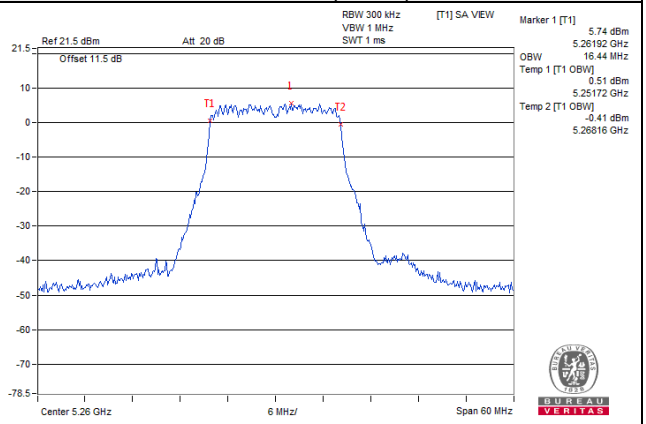
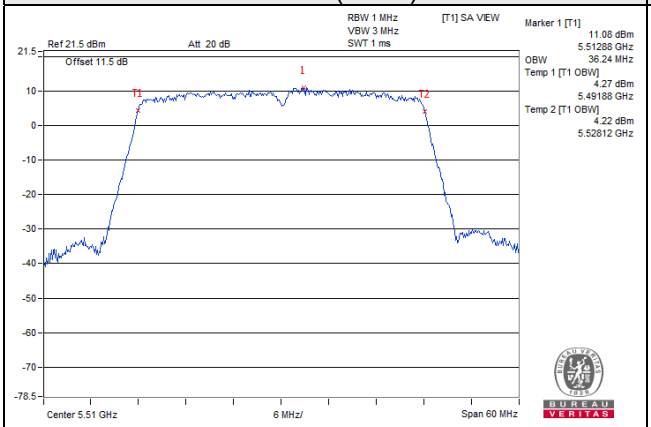
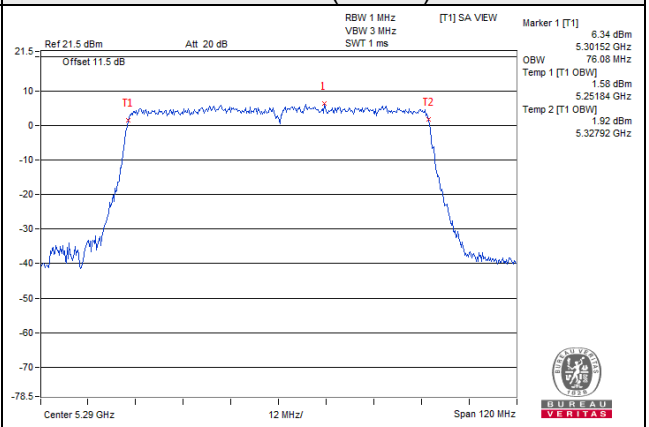
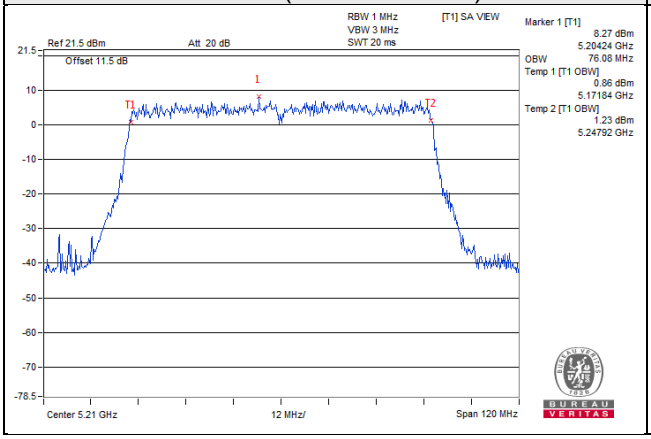
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	36.00	36.12	36.00	36.00
62	5310	36.00	36.12	36.00	36.00
102	5510	36.00	36.12	36.24	36.12
110	5550	36.00	36.12	36.24	36.12
134	5670	36.00	36.12	36.12	36.00

802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	75.84	76.08	75.84	75.84
106	5530	75.84	76.08	75.84	75.84
122	5610	75.84	75.84	76.08	75.84

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42+106	5210	75.84	76.08	-	-
	5530	-	-	76.08	75.84
58+106	5290	76.08	76.08	-	-
	5530	-	-	75.84	75.84
58+155	5290	76.08	76.08	-	-
	5530	-	-	75.60	75.84

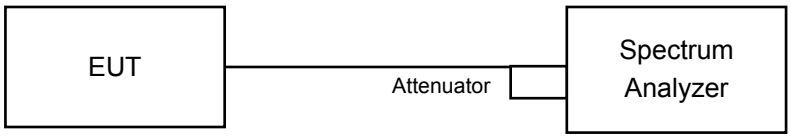
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	
802.11ac (VHT80+VHT80)	
	

4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

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

Duty cycle of test signal is > 98%

Using method SA-1

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

Duty cycle of test signal is < 98%

Using method SA-2

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

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

c. Set Channel power measure = 1MHz

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

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

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

For U-NII-3 band:

Duty cycle of test signal is > 98%

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

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

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

d. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300kHz)

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

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

g. Record the max value

Duty cycle of test signal is < 98%

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

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

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

d. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300 kHz)

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

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

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

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

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD Wth Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	0.86	1.00	0.18	0.74	0.17	6.90	6.98	Pass
60	5300	0.53	0.89	0.20	0.61	0.17	6.76	6.98	Pass
64	5320	0.94	0.88	0.47	0.66	0.17	6.94	6.98	Pass
100	5500	0.63	0.28	0.36	0.54	0.17	6.65	6.98	Pass
116	5580	0.40	0.38	0.11	0.30	0.17	6.49	6.98	Pass
140	5700	0.00	0.66	0.56	0.57	0.17	6.65	6.98	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional Gain = 4 + 10log(4) = 10.02dBi > 6dBi, so the limit shall be reduced to 11-(10.02-6) = 6.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD Wth Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	0.83	0.93	0.20	0.62	0.09	6.77	6.98	Pass
60	5300	0.60	0.81	0.39	0.44	0.09	6.68	6.98	Pass
64	5320	0.91	0.97	0.67	0.45	0.09	6.87	6.98	Pass
100	5500	0.95	0.76	0.74	0.85	0.09	6.94	6.98	Pass
116	5580	0.16	0.18	0.34	0.43	0.09	6.39	6.98	Pass
140	5700	0.29	0.71	0.82	0.52	0.09	6.70	6.98	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional Gain = 4 + 10log(4) = 10.02dBi > 6dBi, so the limit shall be reduced to 11-(10.02-6) = 6.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD Wth Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	0.45	0.71	0.51	0.73	0.15	6.78	6.98	Pass
62	5310	0.25	0.61	0.55	0.53	0.15	6.66	6.98	Pass
102	5510	0.62	0.59	0.62	0.82	0.15	6.84	6.98	Pass
110	5550	0.16	0.24	0.76	0.68	0.15	6.64	6.98	Pass
134	5670	-0.31	0.55	0.18	0.13	0.15	6.32	6.98	Pass

Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional Gain = 4 + 10log(4) = 10.02dBi > 6dBi, so the limit shall be reduced to 11-(10.02-6) = 6.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD Wth Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	-4.27	-4.09	-4.10	-4.07	0.26	2.15	6.98	Pass
106	5530	-2.46	-2.40	-2.49	-2.19	0.26	3.90	6.98	Pass
122	5610	-2.75	-2.13	-2.44	-2.48	0.26	3.84	6.98	Pass

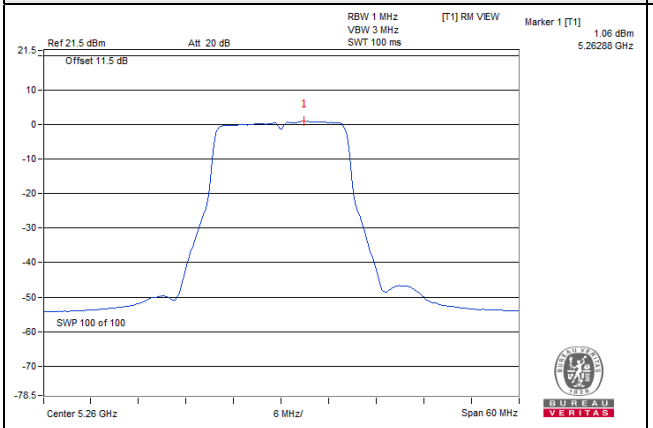
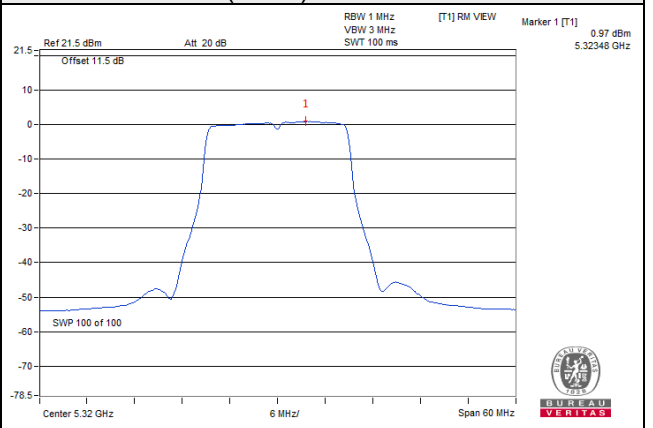
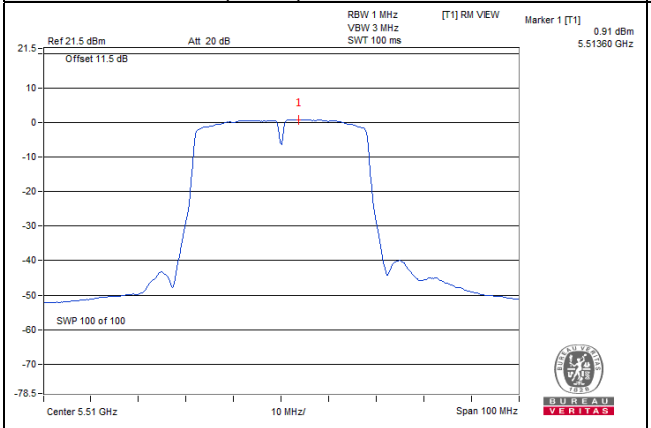
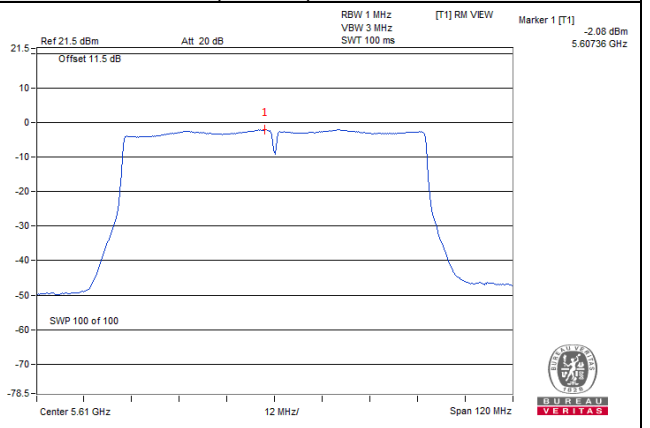
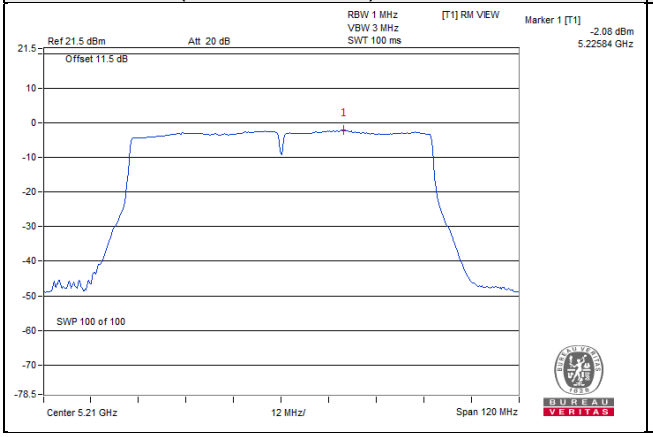
Note:
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional Gain = 4 + 10log(4) = 10.02dBi > 6dBi, so the limit shall be reduced to 11-(10.02-6) = 6.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80+VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42+106	5210	-2.44	-2.08	-	-	0.28	1.03	15.99	Pass
	5530	-	-	-2.36	-2.70	0.28	0.76	9.99	Pass
58+106	5290	-3.66	-3.58	-	-	0.28	-0.33	9.99	Pass
	5530	-	-	-3.50	-3.65	0.28	-0.29	9.99	Pass
58	5290	-3.66	-3.58	-	-	0.28	-0.33	9.99	Pass

Note:

1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5210MHz: Directional Gain = 4 + 10log(4/2) = 7.01dBi > 6dBi, so the limit shall be reduced to 17-(7.01-6) =15.99dBm.
   5260-5320MHz & 5500-5700MHz: Directional Gain = 4 + 10log(4/2) = 7.01dBi > 6dBi, so the limit shall be reduced to 11-(7.01-6) =9.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / Chain 1 / CH 52	802.11n (HT20) / Chain 1 / CH 64
	
802.11n (HT40) / Chain 3 / CH 102	802.11ac (VHT80) / Chain 1 / CH 122
	
802.11ac (VHT80+VHT80) / Chain 1 / CH 42	
	

For U-NII-3 band:

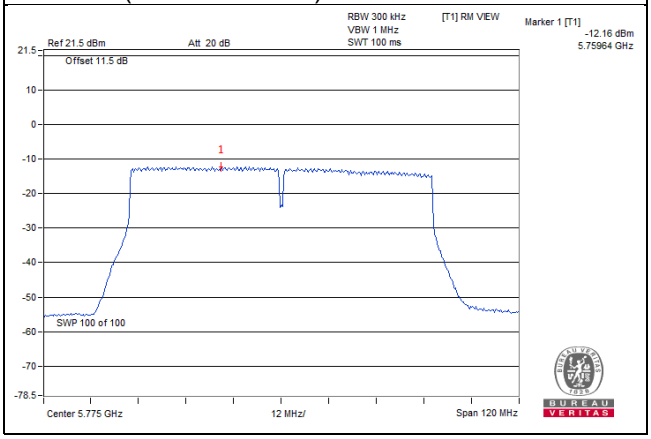
802.11ac (VHT80+VHT80)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
CH58+155									
2	155	5775	-12.20	-9.98	3.01	0.28	-6.69	28.99	Pass
3	155	5775	-12.16	-9.94	3.01	0.28	-6.65	28.99	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 + 10log(4/2) = 7.01dBi > 6dBi, so the limit shall be reduced to 30-(7.01-6) = 28.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value
802.11ac (VHT80+VHT80) / Chain 3 / Ch 155

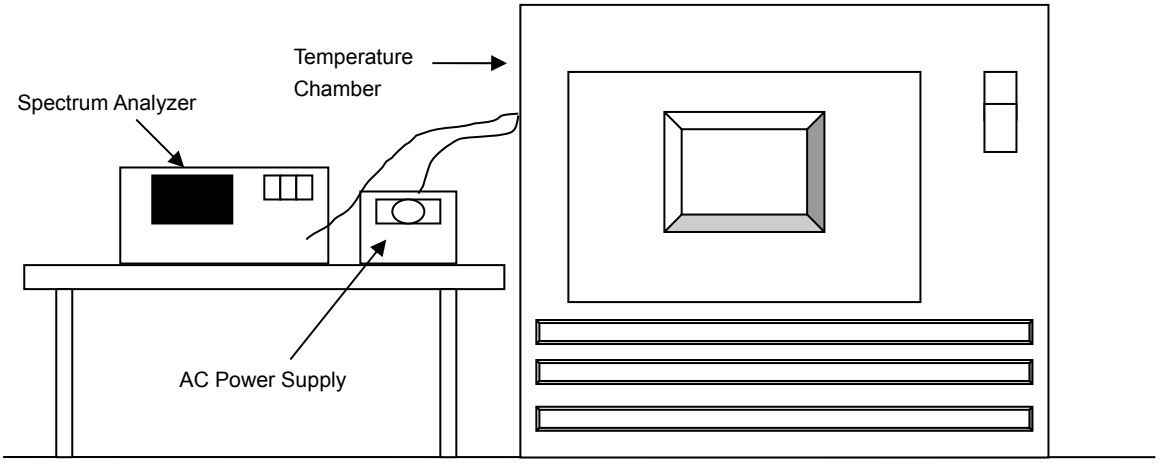


4.6 Frequency Stability

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

Tested date: Sep. 17, 2018

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019
AC Power Supply Extech	CFW-105	E000603	NA	NA

4.6.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
40	120	5259.9840	PASS	5259.9856	PASS	5259.9845	PASS	5259.9853	PASS
30	120	5259.9886	PASS	5259.9866	PASS	5259.9911	PASS	5259.9877	PASS
20	120	5260.0054	PASS	5260.0100	PASS	5260.0074	PASS	5260.0086	PASS
10	120	5259.9820	PASS	5259.9792	PASS	5259.9814	PASS	5259.9797	PASS
0	120	5260.0207	PASS	5260.0230	PASS	5260.0228	PASS	5260.0228	PASS

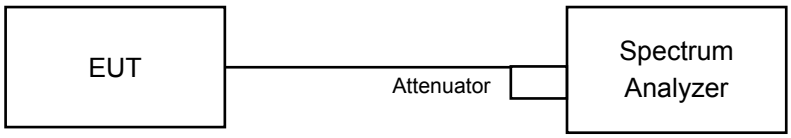
Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5260.0063	PASS	5260.0093	PASS	5260.0072	PASS	5260.0091	PASS
	120	5260.0054	PASS	5260.01	PASS	5260.0074	PASS	5260.0086	PASS
	102	5260.0049	PASS	5260.0099	PASS	5260.0074	PASS	5260.0078	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

Measurement Procedure REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

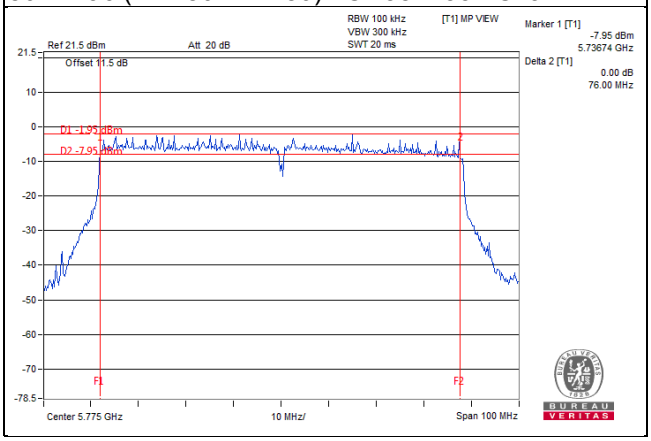
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.7.7 Test Results

802.11ac (VHT80+VHT80)

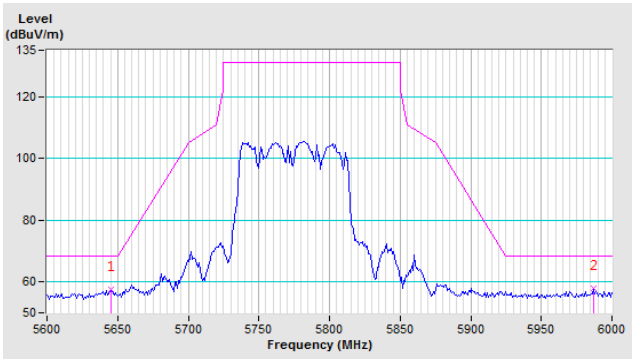
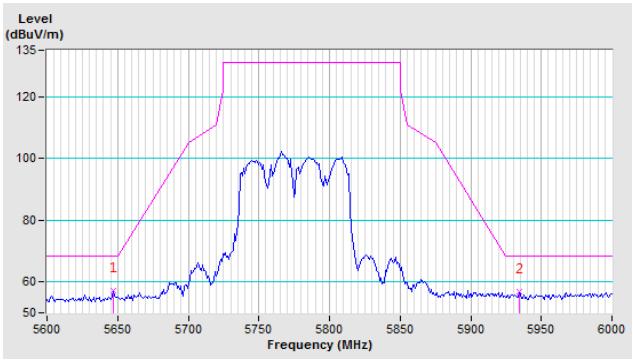
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
CH58+155							
155	5775	-	-	76.00	76.04	0.5	Pass

Spectrum Plot of Worst Value
802.11ac (VHT80+VHT80) / CH58+155 / Chain 2



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

802.11ac (VHT80+ VHT 80)

CH 58 + 155	
Horizontal	Vertical
	

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

Linko EMC/RF Lab
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Fax: 886-2-26051924

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

Hwa Ya EMC/RF/Safety
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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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