FCC Test Report

Report No.:	RF150826C05A
FCC ID:	PY315100319
Test Model:	R7800
Received Date:	Aug. 21, 2015
Test Date:	Dec. 23, 2015 ~ May 26, 2016
Issued Date:	Jun. 04, 2016
Applicant:	NETGEAR INC.
Address:	350 East Plumeria Drive, San Jose, CA 95134, USA
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.)

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF150826C05A	Original release.	Jun. 04, 2016

1 Certificate of Conformity

Product:	Nighthawk X4S AC2600 Smart WiFi Router
Brand:	NETGEAR
Test Model:	R7800
Sample Status:	Engineering sample
Applicant:	NETGEAR INC.
Test Date:	Dec. 23, 2015 ~ May 26, 2016
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10:2013

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

Prepared by : _____ , **Date:** Jun. 04, 2016

Polly Chien / Specialist

Approved by : _____ , **Date:** Jun. 04, 2016

Ken Liu / Senior Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.207 15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -13.47dB at 0.15000MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5360.00MHz & 5470.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is RSMA not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Nighthawk X4S AC2600 Smart WiFi Router
Brand	NETGEAR
Test Model	R7800
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 800.0Mbps 802.11ac: up to 1733.0Mbps
Operating Frequency	5180~5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz, 5745~5825MHz
Number of Channel	5180 ~ 5240MHz: 802.11ac (80MHz+80MHz): 1 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (HT20) , 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80), 802.11ac (80MHz+80MHz) 5500 ~ 5700MHz: 11 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 5 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80), 3 for 802.11ac (80MHz+80MHz) 5745 ~ 5825MHz: 802.11ac (80MHz+80MHz): 1
Output Power	CDD Mode: 5180 ~ 5240MHz: 190.250mW 5260 ~ 5320MHz: 242.860mW 5500 ~ 5700MHz: 242.952mW 5745 ~ 5825MHz: 111.966mW Beamforming_NSS1 Mode: 5180 ~ 5240MHz: 191.569mW 5260 ~ 5320MHz: 192.576mW 5500 ~ 5700MHz: 190.858mW 5745 ~ 5825MHz: 105.355mW Beamforming_NSS2 Mode: 5260 ~ 5320MHz: 242.332mW 5500 ~ 5700MHz: 243.506mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Data Cable Supplied	1.45m shielded RJ45 cable w/o core

Note:

1. This report is prepared for FCC class II permissive change.
2. This report is issued as a supplementary report of BV ADT report no.: RF150826C05. The difference compared with the original report is adding 5.26GHz to 5.32GHz and 5.50GHz to 5.70GHz to the EUT by software. Therefore, all tests had been tested and U-NII-1 & U-NII-3 band on 802.11ac (80MHz+80MHz) mode had been re-tested in this report.
3. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

Band	Modulation Mode	Beamforming Mode	TX Function	Available Channel
5GHz	802.11a	Not Support	4TX	52 ~ 64, 100 ~140
	802.11n (20MHz)	Support (CDD / Nss=1 / Nss=2)	4TX	52 ~ 64, 100 ~140
	802.11n (40MHz)	Support (CDD / Nss=1 / Nss=2)	4TX	54 ~ 62, 110 ~134
	802.11ac (80MHz)	Support (CDD / Nss=1 / Nss=2)	4TX	58, 106 ~ 122
	802.11ac (80MHz+80MHz)	Support (CDD / Nss=1)	2TX+2TX	42 + 58, 106 +122, 138 +155

* For 802.11a, the EUT doesn't support Beamforming mode.
* The modulation and bandwidth are similar for 802.11n mode for 20MHz / 40MHz and 802.11ac mode for V20MHz / V40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)
* For 5GHz band 802.11n and 802.11ac, after pre-tested two modes (with beamforming mode Nss=1 / 2 and CDD mode) found CDD mode was the worst, therefore chosen for final test for radiated emission and power line conducted emission test and presented in the test report.

4. The EUT uses following antennas.

Ant. Type	Connecter Type	Antenna Gain (dBi)				
		5180MHz	5190MHz	5200MHz	5210MHz	5230MHz
Dipole	RSMA	0.61	0.71	0.71	0.81	0.91
		5260MHz	5270MHz	5290MHz	5300MHz	5320MHz
		0.91	1.01	1.11	1.11	1.11
		5500MHz	5510MHz	5530MHz	5550MHz	5580MHz
		1.51	1.61	1.61	1.61	1.51
		5610MHz	5670MHz	5690MHz	5700MHz	5775MHz
		1.51	1.61	1.51	1.51	1.51

5. The EUT consumes power from the following adapters.

Adapter 1	
Brand	NETGEAR (LEI)
Model	MU42-3120350-A1
Part No.	332-10762-01
Input Power	100-240Vac, 50/60Hz, 1.5A
Output Power	12Vdc, 3.5A
Power Line	1.8m cable without core attached on adapter

Adapter 2	
Brand	NETGEAR (CWT)
Model	2ABN042F NA
Part No.	332-10761-01
Input Power	100-240Vac, 50/60Hz, 1.3A
Output Power	12Vdc, 3.5A
Power Line	1.85m cable without core attached on adapter

**After pre-tested two of adapters found adapter 2 was the worst case, therefore chosen for final tests and presented in the test report.

3.2 Description of Test Modes

5180~5240MHz:

1 channel is provided for 802.11ac (80MHz+80MHz):

Channel	Frequency
42	5210MHz

5260 ~ 5320MHz

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ac (80MHz+80MHz):

Channel	Frequency
58	5290 MHz

5500 ~ 5700MHz

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

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

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

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

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530MHz	122	5610 MHz

3 channels are provided for 802.11ac (80MHz+80MHz):

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

5745~5825MHz

1 channel is provided for 802.11ac (80MHz+80MHz):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

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

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

Radiated Emission Test (Above 1GHz):

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
-	802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	15.0
-	802.11ac (VHT80)		58	58	OFDM	BPSK	130.0
-	802.11ac (VHT80+ VHT80)	5180-5240+ 5260-5320	42 + 58	42 + 58	OFDM	BPSK	130.0
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	7.2
-	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	BPSK	15.0
-	802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	130.0
-	802.11ac (VHT80+ VHT80)		106 to 122	106, 122	OFDM	BPSK	130.0
-	802.11ac (VHT80+ VHT80)	5745-5825	138 + 155	138 + 155	OFDM	BPSK	130.0

Radiated Emission Test (Below 1GHz):

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

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

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

Power Line Conducted Emission Test:

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

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

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

Antenna Port Conducted Measurement:

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

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
-	802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	15.0
-	802.11ac (VHT80)		58	58	OFDM	BPSK	130.0
-	802.11ac (VHT80+ VHT80)	5180-5240+ 5260-5320	42 + 58	42 + 58	OFDM	BPSK	130.0
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	7.2
-	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	BPSK	15.0
-	802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	130.0
-	802.11ac (VHT80+ VHT80)		106 to 122	106, 122	OFDM	BPSK	130.0
-	802.11ac (VHT80+ VHT80)	5745-5825	138 + 155	138 + 155	OFDM	BPSK	130.0

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	24deg. C, 62%RH,	120Vac, 60Hz	Alan Wu, Chris Lin
	23deg. C, 66%RH		Alan Wu
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Chris Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Leo Hsu

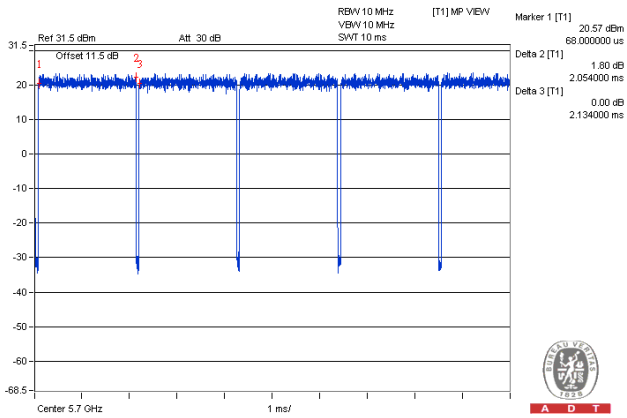
3.3 Duty Cycle of Test Signal

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

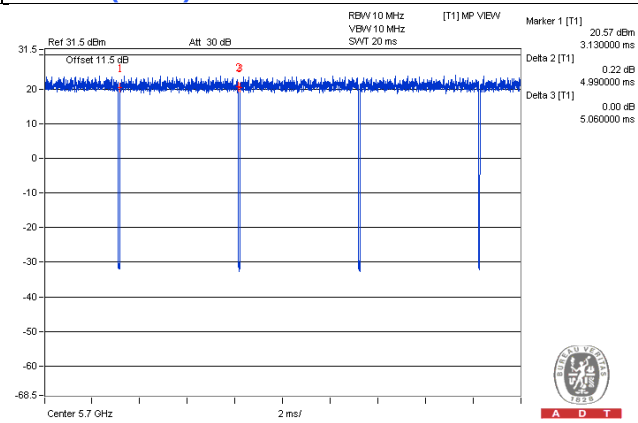
CDD Mode

802.11a: Duty cycle = 2.054/2.134 = 0.962, Duty factor = 10 * log(1/0.962) = 0.17
802.11n (HT20): Duty cycle = 4.99/5.060 = 0.986
802.11n (HT40): Duty cycle = 2.417/2.502 = 0.966, Duty factor = 10 * log(1/0.966) = 0.15
802.11ac (VHT80): Duty cycle = 1.137/1.222 = 0.930, Duty factor = 10 * log(1/0.930) = 0.32

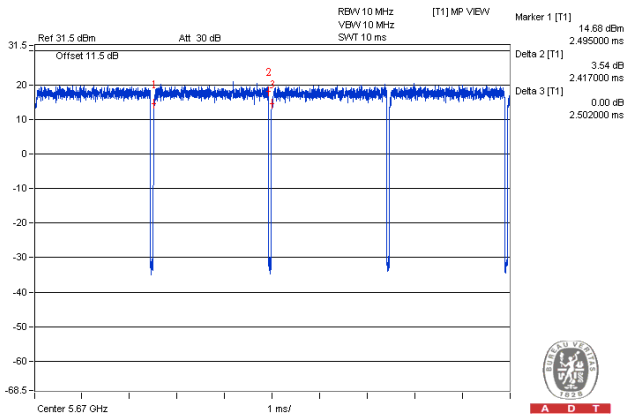
802.11a



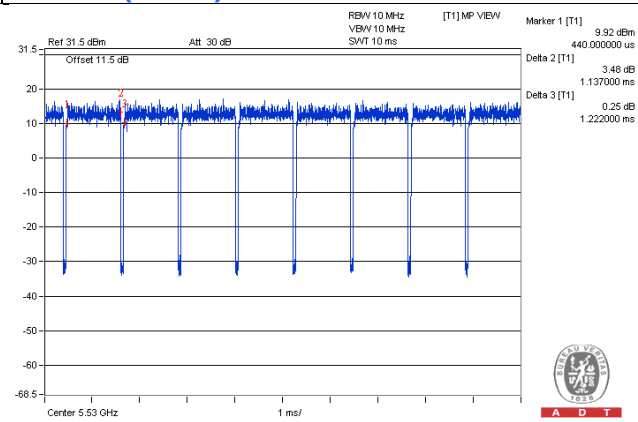
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



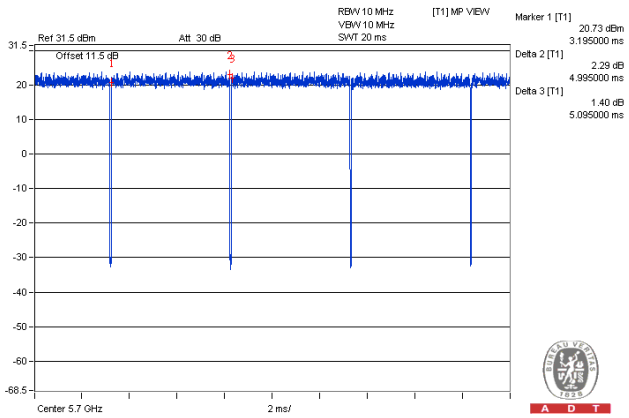
Beamforming_NSS1 Mode

802.11n (HT20): Duty cycle = 4.995/5.095 = 0.9803

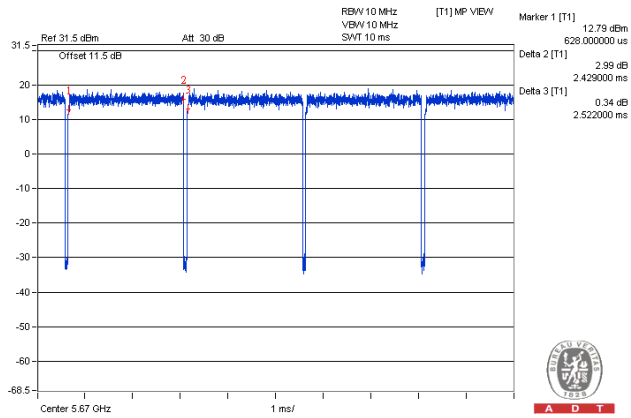
802.11n (HT40): Duty cycle = 2.429/2.522 = 0.963, Duty factor = 10 * log(1/0.963) = 0.16

802.11ac (VHT80): Duty cycle = 1.135/1.215 = 0.934, Duty factor = 10 * log(1/0.934) = 0.30

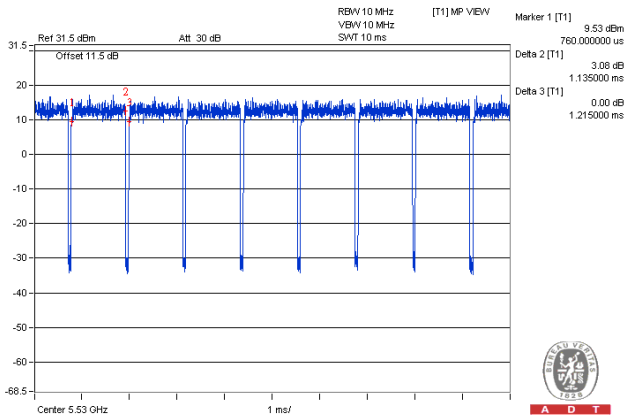
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



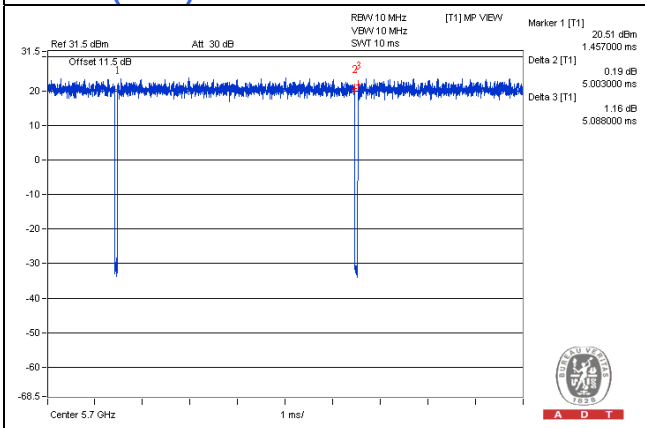
Beamforming_NSS2 Mode

802.11n (HT20): Duty cycle = 5.003/5.088 = 0.983

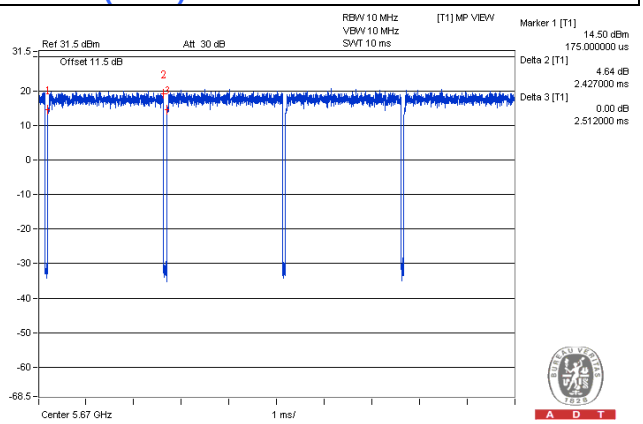
802.11n (HT40): Duty cycle = 2.427/2.512 = 0.966, Duty factor = 10 * log(1/0.966) = 0.15

802.11ac (VHT80): Duty cycle = 1.132/1.210 = 0.936, Duty factor = 10 * log(1/0.936) = 0.29

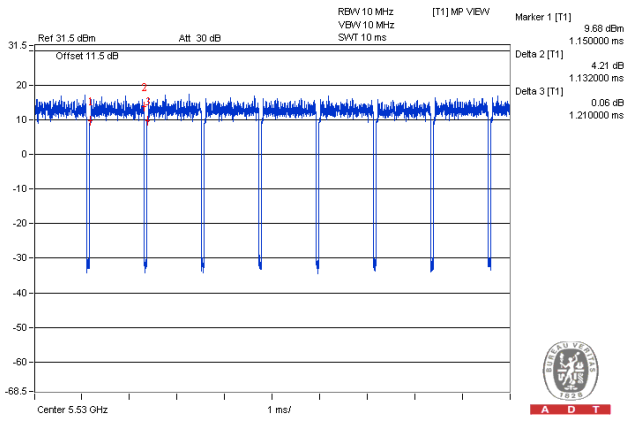
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



3.4 Description of Support Units

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

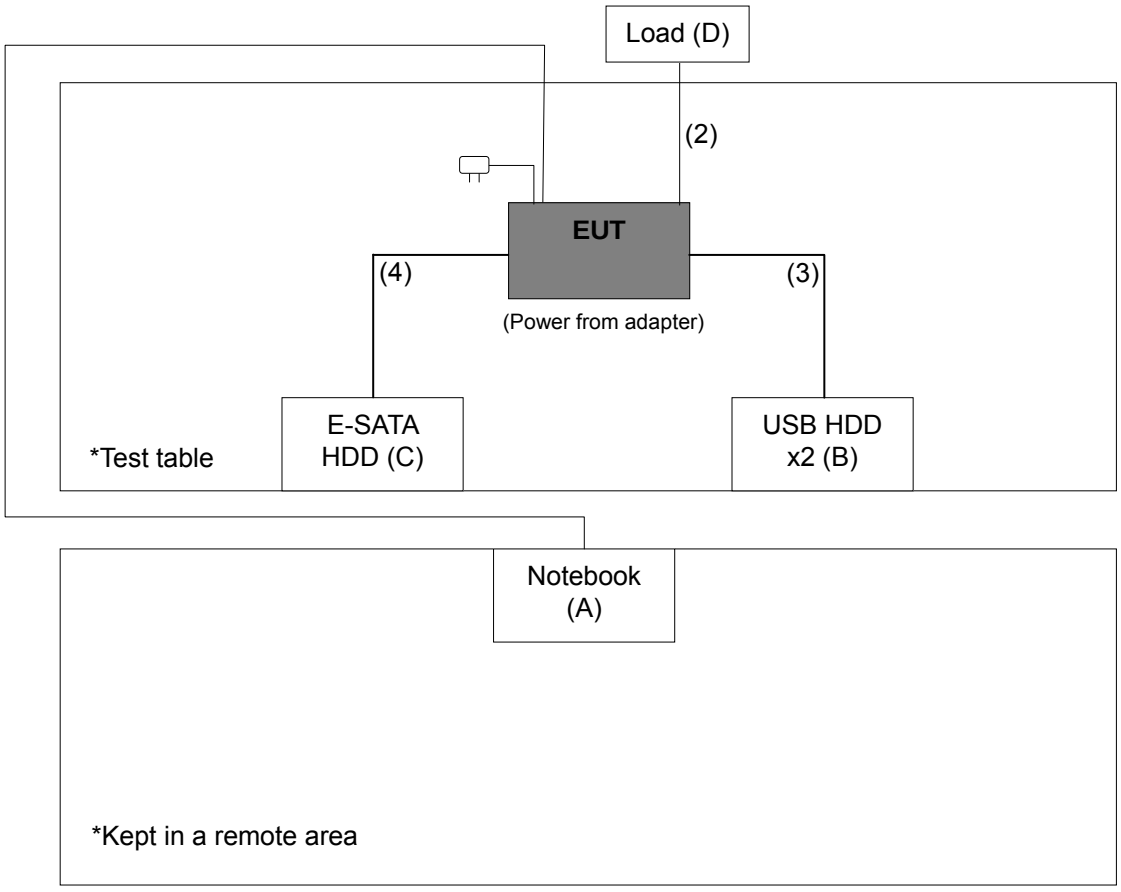
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5420	BPQ7MQ1	FCC DoC Approved	-
B.	USB HDD x 2	TOSHIBA	v63700-G-1.5G	13GUTE2ZTTV2	FCC DoC Approved	-
		TOSHIBA	v63700-G-1.5G	3F8PBV6ZTTV2	FCC DoC Approved	-
C.	E-SATA HDD	Sarotech	FHD-354US	E80P048380919	FCC DoC Approved	-
D.	Load	NA	NA	NA	NA	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ 45	1	3	N	0	-
2.	RJ 45	4	1.8	N	0	-
3.	USB	2	1.8	Y	0	-
4.	E-SATA	1	0.5	Y	0	-

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)
KDB 789033 D02 General UNII Test Procedure New Rules v01r02
KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules v01r02	FIELD STRENGTH AT 3m	
	PK:74 (dBμV/m)	AV:54 (dBμV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK:-27 (dBm/MHz) [*1] PK:-17 (dBm/MHz) [*2]	PK: 68.2(dBμV/m) [*1] PK:78.2 (dBμV/m) [*2]

NOTE: [*1] beyond 10MHz of the band edge [*2] within 10 MHz of band edge

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 12, 2015	Oct. 11, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Jul. 08, 2015	Jul. 07, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 06, 2015	Feb. 05, 2016
			Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Feb. 05, 2015	Feb. 04, 2016
			Jan. 08, 2016	Jan. 07, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 09, 2015	Feb. 08, 2016
			Jan. 18, 2016	Jan. 17, 2017
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2015	Aug. 08, 2016
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-02(295012+309220)	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	Aug. 09, 2015	Aug. 08, 2016
Software BV ADT	ADT_Radiated_V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021703	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 18, 2015	Oct. 17, 2016
High Speed Peak Power Meter	ML2495A	0824011	Jul. 09, 2015	Jul. 08, 2016
Power Sensor	MA2411B	0738171	Jul. 09, 2015	Jul. 08, 2016
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 08, 2015	Jun. 07, 2016

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 460141.
5. The IC Site Registration No. is IC7450F-4.

4.1.3 Test Procedures

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

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

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

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

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

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

Note:

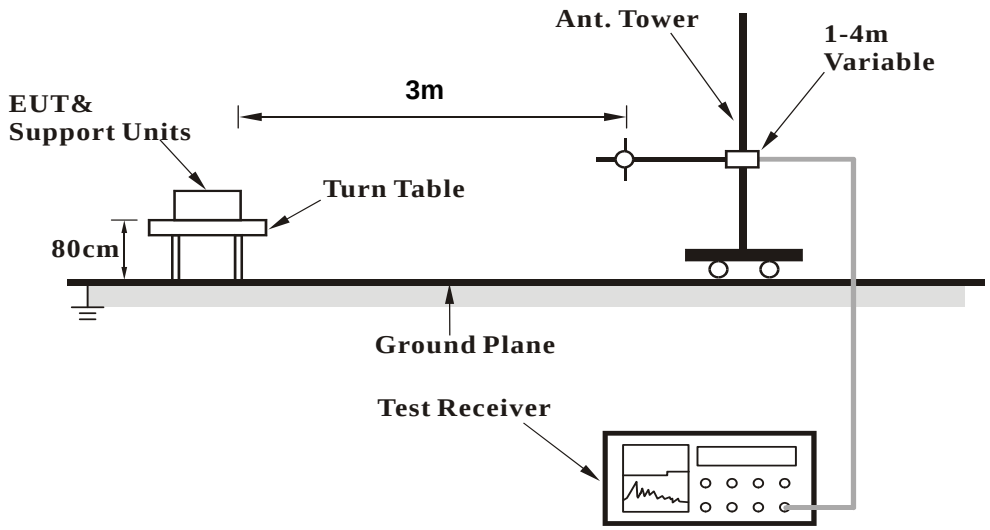
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

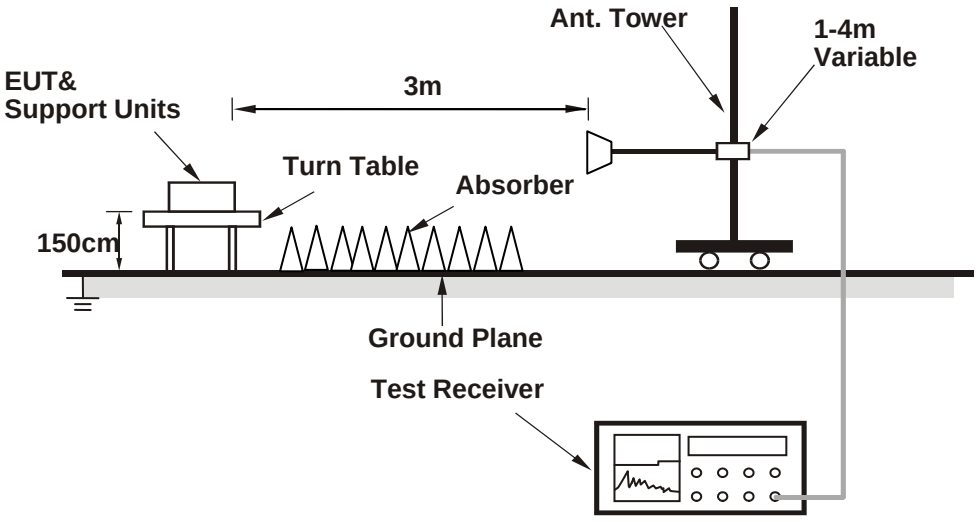
No deviation.

4.1.5 Test Set Up

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

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

4.1.7 Test Results

Above 1GHz Worst-Case Data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.6 PK	74.0	-16.4	2.27 H	213	52.60	5.00
2	5150.00	45.7 AV	54.0	-8.3	2.27 H	213	40.70	5.00
3	*5260.00	106.1 PK			2.27 H	213	66.90	39.20
4	*5260.00	95.9 AV			2.27 H	213	56.70	39.20
5	#10520.00	59.0 PK	74.0	-15.0	1.00 H	353	41.70	17.30
6	#10520.00	46.3 AV	54.0	-7.7	1.00 H	353	29.00	17.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.3 PK	74.0	-15.7	1.78 V	4	53.30	5.00
2	5150.00	46.1 AV	54.0	-7.9	1.78 V	4	41.10	5.00
3	*5260.00	122.3 PK			1.78 V	4	83.10	39.20
4	*5260.00	111.8 AV			1.78 V	4	72.60	39.20
5	#10520.00	59.5 PK	74.0	-14.5	1.00 V	14	42.20	17.30
6	#10520.00	46.9 AV	54.0	-7.1	1.00 V	14	29.60	17.30

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	106.9 PK			1.47 H	224	67.60	39.30
2	*5300.00	96.4 AV			1.47 H	224	57.10	39.30
3	10600.00	59.3 PK	74.0	-14.7	1.00 H	359	41.50	17.80
4	10600.00	46.5 AV	54.0	-7.5	1.00 H	359	28.70	17.80
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	122.6 PK			1.70 V	4	83.30	39.30
2	*5300.00	112.1 AV			1.70 V	4	72.80	39.30
3	10600.00	59.7 PK	74.0	-14.3	1.00 V	10	41.90	17.80
4	10600.00	47.1 AV	54.0	-6.9	1.00 V	10	47.10	17.80

Remark:

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

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	106.4 PK			2.42 H	214	67.00	39.40
2	*5320.00	96.1 AV			2.42 H	214	56.70	39.40
3	5350.00	57.4 PK	74.0	-16.6	2.42 H	214	52.00	5.40
4	5350.00	44.2 AV	54.0	-9.8	2.42 H	214	38.80	5.40
5	10640.00	58.7 PK	74.0	-15.3	1.00 H	355	41.20	17.50
6	10640.00	45.8 AV	54.0	-8.2	1.00 H	355	28.30	17.50
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	121.8 PK			1.76 V	5	82.40	39.40
2	*5320.00	111.3 AV			1.76 V	5	71.90	39.40
3	5350.00	60.8 PK	74.0	-13.2	1.76 V	5	55.40	5.40
4	5350.00	49.9 AV	54.0	-4.1	1.76 V	5	44.50	5.40
5	10640.00	59.2 PK	74.0	-14.8	1.00 V	11	41.70	17.50
6	10640.00	46.4 AV	54.0	-7.6	1.00 V	11	28.90	17.50

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.0 PK	74.0	-16.0	2.27 H	222	52.40	5.60
2	5460.00	44.6 AV	54.0	-9.4	2.27 H	222	39.00	5.60
3	#5470.00	58.2 PK	74.0	-15.8	2.27 H	222	52.50	5.70
4	#5470.00	45.1 AV	54.0	-8.9	2.27 H	222	39.40	5.70
5	*5500.00	105.0 PK			2.27 H	222	65.30	39.70
6	*5500.00	94.6 AV			2.27 H	222	54.90	39.70
7	11000.00	58.8 PK	74.0	-15.2	1.00 H	356	40.30	18.50
8	11000.00	46.0 AV	54.0	-8.0	1.00 H	356	27.50	18.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.0 PK	74.0	-14.0	1.70 V	4	54.40	5.60
2	5460.00	46.6 AV	54.0	-7.4	1.70 V	4	41.00	5.60
3	#5470.00	64.0 PK	74.0	-10.0	1.70 V	4	58.30	5.70
4	#5470.00	51.0 AV	54.0	-3.0	1.70 V	4	45.30	5.70
5	*5500.00	121.1 PK			1.70 V	4	81.40	39.70
6	*5500.00	110.6 AV			1.70 V	4	70.90	39.70
7	11000.00	59.2 PK	74.0	-14.8	1.00 V	11	40.70	18.50
8	11000.00	46.5 AV	54.0	-7.5	1.00 V	11	28.00	18.50

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	104.6 PK			2.28 H	67	64.90	39.70
2	*5580.00	94.3 AV			2.28 H	67	54.60	39.70
3	11160.00	59.5 PK	74.0	-14.5	1.00 H	353	41.50	18.00
4	11160.00	46.7 AV	54.0	-7.3	1.00 H	353	28.70	18.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	120.3 PK			1.69 V	51	80.60	39.70
2	*5580.00	110.1 AV			1.69 V	51	70.40	39.70
3	11160.00	59.9 PK	74.0	-14.1	1.00 V	6	41.90	18.00
4	11160.00	47.4 AV	54.0	-6.6	1.00 V	6	29.40	18.00

Remark:

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

CHANNEL	TX Channel 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	105.1 PK			2.26 H	209	65.00	40.10
2	*5700.00	94.6 AV			2.26 H	209	54.50	40.10
3	#5725.00	58.3 PK	74.0	-15.7	2.26 H	209	52.20	6.10
4	#5725.00	44.6 AV	54.0	-9.4	2.26 H	209	38.50	6.10
5	11400.00	59.1 PK	74.0	-14.9	1.00 H	351	40.90	18.20
6	11400.00	46.1 AV	54.0	-7.9	1.00 H	351	27.90	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	120.2 PK			1.71 V	359	80.10	40.10
2	*5700.00	109.8 AV			1.71 V	359	69.70	40.10
3	#5725.00	68.2 PK	74.0	-5.8	1.71 V	359	62.10	6.10
4	#5725.00	53.6 AV	54.0	-0.4	1.71 V	359	47.50	6.10
5	11400.00	59.3 PK	74.0	-14.7	1.00 V	14	41.10	18.20
6	11400.00	46.7 AV	54.0	-7.3	1.00 V	14	28.50	18.20

Remark:

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

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	2.27 H	215	52.50	5.00
2	5150.00	45.4 AV	54.0	-8.6	2.27 H	215	40.40	5.00
3	*5260.00	107.3 PK			2.27 H	215	68.10	39.20
4	*5260.00	96.5 AV			2.27 H	215	57.30	39.20
5	#10520.00	58.4 PK	74.0	-15.6	1.00 H	357	41.10	17.30
6	#10520.00	46.1 AV	54.0	-7.9	1.00 H	357	28.80	17.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.2 PK	74.0	-15.8	1.78 V	5	53.20	5.00
2	5150.00	45.7 AV	54.0	-8.3	1.78 V	5	40.70	5.00
3	*5260.00	121.9 PK			1.78 V	5	82.70	39.20
4	*5260.00	111.2 AV			1.78 V	5	72.00	39.20
5	#10520.00	59.0 PK	74.0	-15.0	1.00 V	13	41.70	17.30
6	#10520.00	46.3 AV	54.0	-7.7	1.00 V	13	29.00	17.30

Remark:

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

CHANNEL	TX Channel 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	107.1 PK			2.23 H	215	67.80	39.30
2	*5300.00	95.7 AV			2.23 H	215	56.40	39.30
3	10600.00	58.9 PK	74.0	-15.1	1.00 H	352	41.10	17.80
4	10600.00	46.2 AV	54.0	-7.8	1.00 H	352	28.40	17.80
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	121.3 PK			1.92 V	4	82.00	39.30
2	*5300.00	110.6 AV			1.92 V	4	71.30	39.30
3	10600.00	59.4 PK	74.0	-14.6	1.00 V	14	41.60	17.80
4	10600.00	46.9 AV	54.0	-7.1	1.00 V	14	29.10	17.80

Remark:

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

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	106.8 PK			2.43 H	213	67.40	39.40
2	*5320.00	95.9 AV			2.43 H	213	56.50	39.40
3	5350.00	57.0 PK	74.0	-17.0	2.43 H	213	51.60	5.40
4	5350.00	43.6 AV	54.0	-10.4	2.43 H	213	38.20	5.40
5	10640.00	58.4 PK	74.0	-15.6	1.00 H	356	40.90	17.50
6	10640.00	45.4 AV	54.0	-8.6	1.00 H	356	27.90	17.50
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	122.1 PK			1.77 V	4	82.70	39.40
2	*5320.00	111.4 AV			1.77 V	4	72.00	39.40
3	5350.00	60.9 PK	74.0	-13.1	1.77 V	4	55.50	5.40
4	5350.00	49.5 AV	54.0	-4.5	1.77 V	4	44.10	5.40
5	10640.00	58.9 PK	74.0	-15.1	1.00 V	12	41.40	17.50
6	10640.00	46.2 AV	54.0	-7.8	1.00 V	12	28.70	17.50

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.6 PK	74.0	-16.4	2.27 H	222	52.00	5.60
2	5460.00	43.9 AV	54.0	-10.1	2.27 H	222	38.30	5.60
3	#5470.00	57.9 PK	74.0	-16.1	2.27 H	222	52.20	5.70
4	#5470.00	44.3 AV	54.0	-9.7	2.27 H	222	38.60	5.70
5	*5500.00	104.6 PK			2.27 H	222	64.90	39.70
6	*5500.00	94.2 AV			2.27 H	222	54.50	39.70
7	11000.00	58.5 PK	74.0	-15.5	1.00 H	351	40.00	18.50
8	11000.00	45.9 AV	54.0	-8.1	1.00 H	351	27.40	18.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.5 PK	74.0	-15.5	1.69 V	4	52.90	5.60
2	5460.00	46.3 AV	54.0	-7.7	1.69 V	4	40.70	5.60
3	#5470.00	62.8 PK	74.0	-11.2	1.69 V	4	57.10	5.70
4	#5470.00	50.5 AV	54.0	-3.5	1.69 V	4	44.80	5.70
5	*5500.00	120.9 PK			1.69 V	4	81.20	39.70
6	*5500.00	109.9 AV			1.69 V	4	70.20	39.70
7	11000.00	59.1 PK	74.0	-14.9	1.00 V	18	40.60	18.50
8	11000.00	46.2 AV	54.0	-7.8	1.00 V	18	27.70	18.50

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	103.6 PK			1.04 H	133	63.90	39.70
2	*5580.00	92.9 AV			1.04 H	133	53.20	39.70
3	11160.00	59.2 PK	74.0	-14.8	1.00 H	356	41.20	18.00
4	11160.00	46.5 AV	54.0	-7.5	1.00 H	356	28.50	18.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	121.6 PK			1.67 V	3	81.90	39.70
2	*5580.00	110.9 AV			1.67 V	3	71.20	39.70
3	11160.00	59.7 PK	74.0	-14.3	1.00 V	8	41.70	18.00
4	11160.00	46.9 AV	54.0	-7.1	1.00 V	8	28.90	18.00

Remark:

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

CHANNEL	TX Channel 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	103.7 PK			1.05 H	144	63.60	40.10
2	*5700.00	93.4 AV			1.05 H	144	53.30	40.10
3	#5725.00	58.3 PK	74.0	-15.7	1.05 H	144	52.20	6.10
4	#5725.00	44.9 AV	54.0	-9.1	1.05 H	144	38.80	6.10
5	11400.00	58.9 PK	74.0	-15.1	1.00 H	355	40.70	18.20
6	11400.00	45.7 AV	54.0	-8.3	1.00 H	355	27.50	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	121.1 PK			1.63 V	5	81.00	40.10
2	*5700.00	110.3 AV			1.63 V	5	70.20	40.10
3	#5725.00	68.7 PK	74.0	-5.3	1.63 V	5	62.60	6.10
4	#5725.00	53.8 AV	54.0	-0.2	1.63 V	5	47.70	6.10
5	11400.00	59.2 PK	74.0	-14.8	1.00 V	7	41.00	18.20
6	11400.00	46.5 AV	54.0	-7.5	1.00 V	7	28.30	18.20

Remark:

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

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	59.6 PK	74.0	-14.4	2.07 H	235	54.60	5.00
2	5150.00	45.8 AV	54.0	-8.2	2.07 H	235	40.80	5.00
3	*5270.00	104.5 PK			2.07 H	235	65.30	39.20
4	*5270.00	95.0 AV			2.07 H	235	55.80	39.20
5	#10540.00	57.9 PK	74.0	-16.1	1.00 H	353	40.40	17.50
6	#10540.00	45.8 AV	54.0	-8.2	1.00 H	353	28.30	17.50
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	60.1 PK	74.0	-13.9	1.71 V	2	55.10	5.00
2	5150.00	46.2 AV	54.0	-7.8	1.71 V	2	41.20	5.00
3	*5270.00	118.7 PK			1.71 V	2	79.50	39.20
4	*5270.00	109.1 AV			1.71 V	2	69.90	39.20
5	#10540.00	58.5 PK	74.0	-15.5	1.00 V	11	41.00	17.50
6	#10540.00	46.0 AV	54.0	-8.0	1.00 V	11	28.50	17.50

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	104.1 PK			2.11 H	235	64.80	39.30
2	*5310.00	94.4 AV			2.11 H	235	55.10	39.30
3	5355.00	58.4 PK	74.0	-15.6	2.11 H	235	53.10	5.30
4	5355.00	45.5 AV	54.0	-8.5	2.11 H	235	40.20	5.30
5	10620.00	58.2 PK	74.0	-15.8	1.00 H	352	40.50	17.70
6	10620.00	44.8 AV	54.0	-9.2	1.00 H	352	27.10	17.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	119.0 PK			1.77 V	3	79.70	39.30
2	*5310.00	109.6 AV			1.77 V	3	70.30	39.30
3	5355.00	67.0 PK	74.0	-7.0	1.77 V	3	61.70	5.30
4	5355.00	53.6 AV	54.0	-0.4	1.77 V	3	48.30	5.30
5	10620.00	58.7 PK	74.0	-15.3	1.00 V	18	41.00	17.70
6	10620.00	45.9 AV	54.0	-8.1	1.00 V	18	28.20	17.70

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.5 PK	74.0	-16.5	1.99 H	215	51.90	5.60
2	5460.00	44.9 AV	54.0	-9.1	1.99 H	215	39.30	5.60
3	#5470.00	57.8 PK	74.0	-16.2	1.99 H	215	52.10	5.70
4	#5470.00	45.3 AV	54.0	-8.7	1.99 H	215	39.60	5.70
5	*5510.00	102.7 PK			1.99 H	215	63.00	39.70
6	*5510.00	93.0 AV			1.99 H	215	53.30	39.70
7	11020.00	58.3 PK	74.0	-15.7	1.00 H	358	39.80	18.50
8	11020.00	45.6 AV	54.0	-8.4	1.00 H	358	27.10	18.50
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	63.3 PK	74.0	-10.7	1.61 V	4	57.70	5.60
2	5460.00	49.3 AV	54.0	-4.7	1.61 V	4	43.70	5.60
3	#5470.00	67.5 PK	74.0	-6.5	1.61 V	4	61.80	5.70
4	#5470.00	52.1 AV	54.0	-1.9	1.61 V	4	46.40	5.70
5	*5510.00	118.8 PK			1.61 V	4	79.10	39.70
6	*5510.00	109.2 AV			1.61 V	4	69.50	39.70
7	11020.00	58.9 PK	74.0	-15.1	1.00 V	10	40.40	18.50
8	11020.00	46.1 AV	54.0	-7.9	1.00 V	10	27.60	18.50

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	103.3 PK			2.21 H	236	63.50	39.80
2	*5550.00	93.2 AV			2.21 H	236	53.40	39.80
3	11100.00	58.6 PK	74.0	-15.4	1.00 H	351	40.20	18.40
4	11100.00	45.7 AV	54.0	-8.3	1.00 H	351	27.30	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	118.7 PK			1.61 V	3	78.90	39.80
2	*5550.00	108.7 AV			1.61 V	3	68.90	39.80
3	11100.00	58.7 PK	74.0	-15.3	1.00 V	12	40.30	18.40
4	11100.00	46.5 AV	54.0	-7.5	1.00 V	12	28.10	18.40

Remark:

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

CHANNEL	TX Channel 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	103.1 PK			1.99 H	234	63.00	40.10
2	*5670.00	92.8 AV			1.99 H	234	52.70	40.10
3	#5725.00	58.6 PK	74.0	-15.4	1.99 H	234	52.50	6.10
4	#5725.00	45.1 AV	54.0	-8.9	1.99 H	234	39.00	6.10
5	11340.00	58.4 PK	74.0	-15.6	1.00 H	350	39.80	18.60
6	11340.00	45.5 AV	54.0	-8.5	1.00 H	350	26.90	18.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	117.6 PK			1.79 V	5	77.50	40.10
2	*5670.00	107.7 AV			1.79 V	5	67.60	40.10
3	#5725.00	61.5 PK	74.0	-12.5	1.79 V	5	55.40	6.10
4	#5725.00	49.2 AV	54.0	-4.8	1.79 V	5	43.10	6.10
5	11340.00	59.1 PK	74.0	-14.9	1.00 V	5	40.50	18.60
6	11340.00	46.3 AV	54.0	-7.7	1.00 V	5	27.70	18.60

Remark:

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

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	*5290.00	96.9 PK			2.02 H	232	57.70	39.20
2	*5290.00	87.2 AV			2.02 H	232	48.00	39.20
3	5360.00	59.9 PK	74.0	-14.1	2.02 H	232	54.60	5.30
4	5360.00	45.2 AV	54.0	-8.8	2.02 H	232	39.90	5.30
5	#10580.00	57.6 PK	74.0	-16.4	1.00 H	358	40.00	17.60
6	#10580.00	44.2 AV	54.0	-9.8	1.00 H	358	26.60	17.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5290.00	110.4 PK			1.74 V	21	71.20	39.20
2	*5290.00	100.8 AV			1.74 V	21	61.60	39.20
3	5360.00	71.5 PK	74.0	-2.5	1.74 V	21	66.20	5.30
4	**5360.00**	**53.9 AV**	**54.0**	**-0.1**	**1.74 V**	**21**	**48.60**	**5.30**
5	#10580.00	58.6 PK	74.0	-15.4	1.00 V	13	41.00	17.60
6	#10580.00	45.8 AV	54.0	-8.2	1.00 V	13	28.20	17.60

Remark:

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

CHANNEL	TX Channel 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	5449.00	59.1 PK	74.0	-14.9	2.19 H	235	53.50	5.60
2	5449.00	46.3 AV	54.0	-7.7	2.19 H	235	40.70	5.60
3	#5468.00	59.5 PK	74.0	-14.5	2.19 H	235	53.80	5.70
4	#5468.00	46.5 AV	54.0	-7.5	2.19 H	235	40.80	5.70
5	*5530.00	98.3 PK			2.19 H	235	58.50	39.80
6	*5530.00	88.2 AV			2.19 H	235	48.40	39.80
7	11060.00	58.1 PK	74.0	-15.9	1.00 H	351	39.70	18.40
8	11060.00	45.0 AV	54.0	-9.0	1.00 H	351	26.60	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5449.00	68.5 PK	74.0	-5.5	1.68 V	4	62.90	5.60
2	5449.00	52.7 AV	54.0	-1.3	1.68 V	4	47.10	5.60
3	#5468.00	71.8 PK	74.0	-2.2	1.68 V	4	66.10	5.70
4	#5468.00	53.7 AV	54.0	-0.3	1.68 V	4	48.00	5.70
5	*5530.00	113.4 PK			1.68 V	4	73.60	39.80
6	*5530.00	103.7 AV			1.68 V	4	63.90	39.80
7	11060.00	58.7 PK	74.0	-15.3	1.00 V	2	40.30	18.40
8	11060.00	46.0 AV	54.0	-8.0	1.00 V	2	27.60	18.40

Remark:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	57.1 PK	74.0	-16.9	2.64 H	314	51.20	5.90
2	#5470.00	44.9 AV	54.0	-9.1	2.64 H	314	39.00	5.90
3	*5610.00	96.7 PK			2.64 H	314	56.70	40.00
4	*5610.00	86.8 AV			2.64 H	314	46.80	40.00
5	#5725.00	60.1 PK	74.0	-13.9	2.64 H	314	53.80	6.30
6	#5725.00	46.8 AV	54.0	-7.2	2.64 H	314	40.50	6.30
7	11220.00	57.4 PK	74.0	-16.6	1.00 H	359	38.20	19.20
8	11220.00	44.6 AV	54.0	-9.4	1.00 H	359	25.40	19.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	58.0 PK	74.0	-16.0	1.72 V	8	52.10	5.90
2	#5470.00	45.4 AV	54.0	-8.6	1.72 V	8	39.50	5.90
3	*5610.00	110.3 PK			1.72 V	8	70.30	40.00
4	*5610.00	100.6 AV			1.72 V	8	60.60	40.00
5	#5725.00	60.7 PK	74.0	-13.3	1.72 V	8	54.40	6.30
6	#5725.00	47.1 AV	54.0	-6.9	1.72 V	8	40.80	6.30
7	11220.00	58.6 PK	74.0	-15.4	1.00 V	10	39.40	19.20
8	11220.00	45.6 AV	54.0	-8.4	1.00 V	10	26.40	19.20

Remark:

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

802.11ac (VHT80+ VHT80)

CHANNEL	TX Channel 42+58	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.6 PK	74.0	-16.4	1.01 H	155	52.60	5.00
2	5150.00	45.4 AV	54.0	-8.6	1.01 H	155	40.40	5.00
3	*5210.00	98.3 PK			1.01 H	155	59.10	39.20
4	*5210.00	88.1 AV			1.01 H	155	48.90	39.20
5	#10420.00	57.6 PK	74.0	-16.4	1.07 H	44	40.30	17.30
6	#10420.00	46.0 AV	54.0	-8.0	1.07 H	44	28.70	17.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.9 PK	74.0	-5.1	1.83 V	326	63.90	5.00
2	5150.00	53.2 AV	54.0	-0.8	1.83 V	326	48.20	5.00
3	*5210.00	110.6 PK			1.83 V	326	71.40	39.20
4	*5210.00	99.9 AV			1.83 V	326	60.70	39.20
5	#10420.00	59.9 PK	74.0	-14.1	1.47 V	85	42.60	17.30
6	#10420.00	47.0 AV	54.0	-7.0	1.47 V	85	29.70	17.30

Remark:

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

CHANNEL	TX Channel 42+58	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5290.00	97.8 PK			1.03 H	238	58.60	39.20
2	*5290.00	89.0 AV			1.03 H	238	49.80	39.20
3	5350.00	57.0 PK	74.0	-17.0	1.03 H	238	51.60	5.40
4	5350.00	45.5 AV	54.0	-8.5	1.03 H	238	40.10	5.40
5	#10580.00	57.6 PK	74.0	-16.4	1.08 H	55	40.00	17.60
6	#10580.00	45.4 AV	54.0	-8.6	1.08 H	55	27.80	17.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5290.00	107.3 PK			1.00 V	226	68.10	39.20
2	*5290.00	97.8 AV			1.00 V	226	58.60	39.20
3	5350.00	64.8 PK	74.0	-9.2	1.00 V	226	59.40	5.40
4	5350.00	48.8 AV	54.0	-5.2	1.00 V	226	43.40	5.40
5	#10580.00	58.8 PK	74.0	-15.2	1.57 V	41	41.20	17.60
6	#10580.00	47.3 AV	54.0	-6.7	1.57 V	41	29.70	17.60

Remark:

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

CHANNEL	TX Channel 106+122	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.6 PK	74.0	-17.4	1.98 H	142	51.00	5.60
2	5460.00	45.3 AV	54.0	-8.7	1.98 H	142	39.70	5.60
3	#5470.00	60.5 PK	74.0	-13.5	1.98 H	142	54.80	5.70
4	#5470.00	47.2 AV	54.0	-6.8	1.98 H	142	41.50	5.70
5	*5530.00	96.2 PK			1.98 H	142	56.40	39.80
6	*5530.00	86.5 AV			1.98 H	142	46.70	39.80
7	11060.00	58.4 PK	74.0	-15.6	1.25 H	97	40.00	18.40
8	11060.00	46.9 AV	54.0	-7.1	1.25 H	97	28.50	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	68.0 PK	74.0	-6.0	1.81 V	321	62.40	5.60
2	5460.00	52.0 AV	54.0	-2.0	1.81 V	321	46.40	5.60
3	#5470.00	67.9 PK	74.0	-6.1	1.81 V	321	62.20	5.70
4	**#5470.00**	**53.9 AV**	**54.0**	**-0.1**	**1.81 V**	**321**	**48.20**	**5.70**
5	*5530.00	109.1 PK			1.81 V	321	69.30	39.80
6	*5530.00	99.4 AV			1.81 V	321	59.60	39.80
7	11060.00	60.0 PK	74.0	-14.0	1.52 V	69	41.60	18.40
8	11060.00	47.1 AV	54.0	-6.9	1.52 V	69	28.70	18.40

Remark:

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

CHANNEL	TX Channel 106+122	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	56.4 PK	74.0	-17.6	1.23 H	289	50.70	5.70
2	#5470.00	44.7 AV	54.0	-9.3	1.23 H	289	39.00	5.70
3	*5610.00	94.1 PK			1.23 H	289	54.20	39.90
4	*5610.00	84.4 AV			1.23 H	289	44.50	39.90
5	11220.00	58.2 PK	74.0	-15.8	1.08 H	54	40.30	17.90
6	11220.00	45.4 AV	54.0	-8.6	1.08 H	54	27.50	17.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	70.8 PK	74.0	-3.2	1.60 V	3	65.10	5.70
2	**#5470.00**	**53.9 AV**	**54.0**	**-0.1**	**1.60 V**	**3**	**48.20**	**5.70**
3	*5610.00	107.3 PK			1.60 V	3	67.40	39.90
4	*5610.00	96.9 AV			1.60 V	3	57.00	39.90
5	11220.00	59.4 PK	74.0	-14.6	1.52 V	69	41.50	17.90
6	11220.00	46.4 AV	54.0	-7.6	1.52 V	69	28.50	17.90

Remark:

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

CHANNEL	TX Channel 138+155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	55.6 PK	74.0	-18.4	1.03 H	145	49.90	5.70
2	#5470.00	43.8 AV	54.0	-10.2	1.03 H	145	38.10	5.70
3	*5690.00	98.9 PK			1.03 H	145	58.80	40.10
4	*5690.00	88.5 AV			1.03 H	145	48.40	40.10
5	#5861.00	58.3 PK	74.0	-15.7	1.03 H	145	51.90	6.40
6	#5861.00	46.4 AV	54.0	-7.6	1.03 H	145	40.00	6.40
7	11380.00	58.3 PK	74.0	-15.7	1.63 H	98	40.00	18.30
8	11380.00	45.4 AV	54.0	-8.6	1.63 H	98	27.10	18.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	57.7 PK	74.0	-16.3	2.07 V	236	52.00	5.70
2	#5470.00	46.3 AV	54.0	-7.7	2.07 V	236	40.60	5.70
3	*5690.00	110.1 PK			2.07 V	236	70.00	40.10
4	*5690.00	100.7 AV			2.07 V	236	60.60	40.10
5	#5861.00	65.7 PK	74.0	-8.3	2.07 V	236	59.30	6.40
6	#5861.00	52.1 AV	54.0	-1.9	2.07 V	236	45.70	6.40
7	11380.00	59.8 PK	74.0	-14.2	1.25 V	87	41.50	18.30
8	11380.00	47.0 AV	54.0	-7.0	1.25 V	87	28.70	18.30

Remark:

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

CHANNEL	TX Channel 138+155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5775.00	98.2 PK			1.00 H	2	57.90	40.30
2	*5775.00	88.6 AV			1.00 H	2	48.30	40.30
3	#5850.00	53.4 PK	78.2	-24.8	1.00 H	2	47.00	6.40
4	#5853.00	58.4 PK	78.2	-19.8	1.00 H	2	52.00	6.40
5	#5861.00	57.9 PK	74.0	-16.1	1.00 H	2	51.50	6.40
6	#5861.00	46.3 AV	54.0	-7.7	1.00 H	2	39.90	6.40
7	11550.00	57.4 PK	74.0	-16.6	1.26 H	98	40.00	17.40
8	11550.00	44.5 AV	54.0	-9.5	1.26 H	98	27.10	17.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5775.00	110.8 PK			1.53 V	3	70.50	40.30
2	*5775.00	101.1 AV			1.53 V	3	60.80	40.30
3	#5850.00	61.3 PK	78.2	-16.9	1.53 V	3	54.90	6.40
4	#5853.00	67.1 PK	78.2	-11.1	1.53 V	3	60.70	6.40
5	#5861.00	68.4 PK	74.0	-5.6	1.53 V	3	62.00	6.40
6	#5861.00	53.5 AV	54.0	-0.5	1.53 V	3	47.10	6.40
7	11550.00	58.4 PK	74.0	-15.6	1.07 V	85	41.00	17.40
8	11550.00	46.1 AV	54.0	-7.9	1.07 V	85	28.70	17.40

Remark:

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

Below 1GHz worst-case data: 802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	125.17	30.6 QP	43.5	-12.9	1.99 H	256	46.50	-15.90
2	237.94	36.4 QP	46.0	-9.6	1.00 H	276	51.60	-15.20
3	375.98	37.6 QP	46.0	-8.4	1.00 H	6	49.00	-11.40
4	624.85	33.3 QP	46.0	-12.7	1.26 H	204	39.80	-6.50
5	794.01	32.0 QP	46.0	-14.0	1.26 H	229	35.10	-3.10
6	875.67	33.0 QP	46.0	-13.0	1.00 H	102	35.10	-2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	51.29	37.0 QP	40.0	-3.0	1.00 V	7	50.90	-13.90
2	204.89	30.3 QP	43.5	-13.2	1.00 V	258	46.80	-16.50
3	407.09	35.6 QP	46.0	-10.4	1.00 V	145	46.60	-11.00
4	795.95	31.0 QP	46.0	-15.0	1.00 V	7	34.00	-3.00
5	875.67	34.4 QP	46.0	-11.6	1.24 V	168	36.50	-2.10
6	974.82	31.6 QP	54.0	-22.4	1.00 V	83	31.90	-0.30

Remark:

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

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: Jan. 07, 2016

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 16, 2015	Nov. 15, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2015	Feb. 25, 2016
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 24, 2015	Jul. 23, 2016
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

4.2.3 Test Procedures

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

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

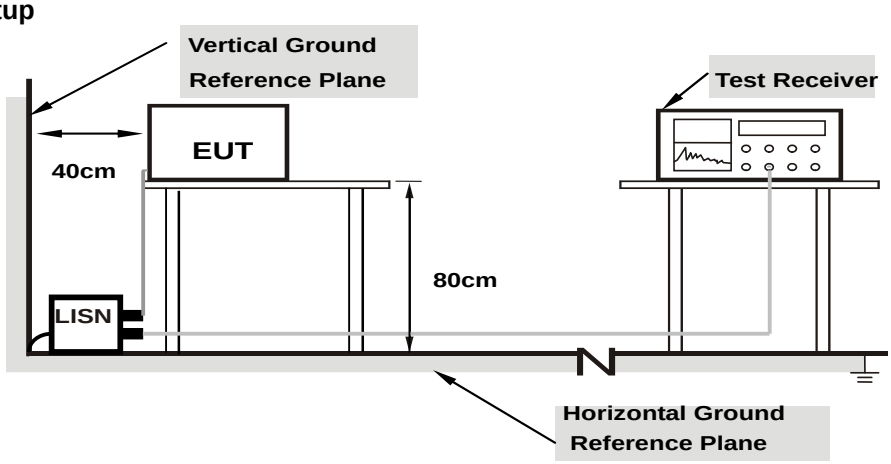
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

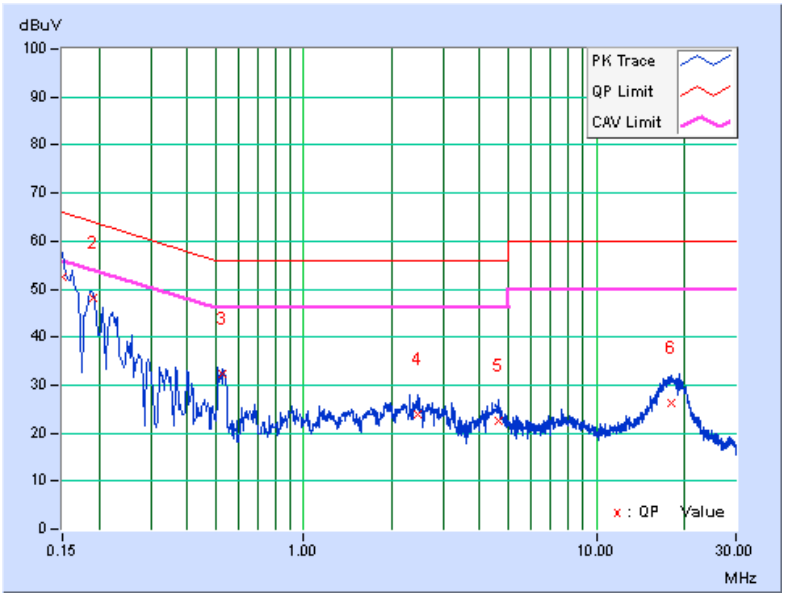
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15000**	**9.95**	**42.58**	**27.44**	**52.53**	**37.39**	**66.00**	**56.00**	**-13.47**	**-18.61**
2	0.19000	10.04	38.11	22.38	48.15	32.42	64.04	54.04	-15.89	-21.62
3	0.53000	10.09	22.25	12.93	32.34	23.02	56.00	46.00	-23.66	-22.98
4	2.44214	10.24	13.67	6.77	23.91	17.01	56.00	46.00	-32.09	-28.99
5	4.64200	10.39	12.24	4.40	22.63	14.79	56.00	46.00	-33.37	-31.21
6	17.97400	11.00	15.25	7.88	26.25	18.88	60.00	50.00	-33.75	-31.12

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.

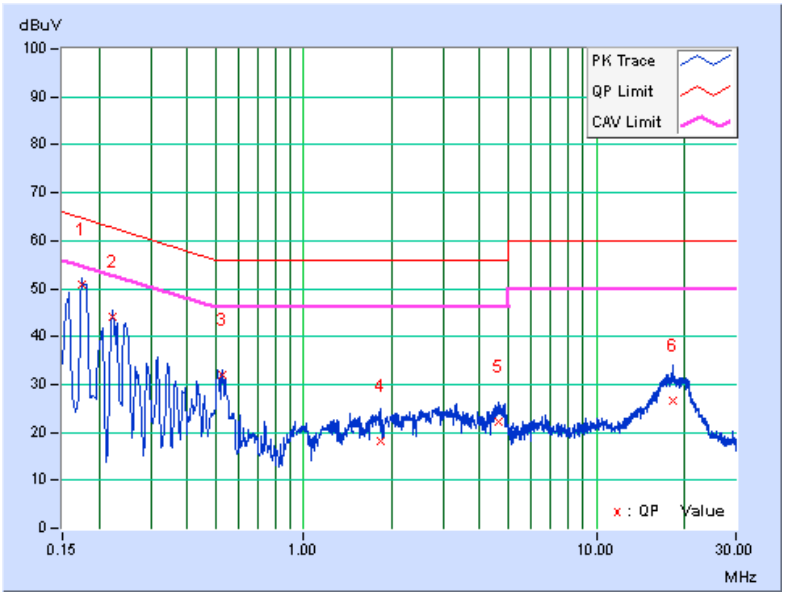


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17430	9.98	40.76	21.33	50.74	31.31	64.75	54.75	-14.01	-23.44
2	0.22200	10.01	34.07	18.13	44.08	28.14	62.74	52.74	-18.66	-24.60
3	0.52600	10.13	21.87	13.74	32.00	23.87	56.00	46.00	-24.00	-22.13
4	1.84200	10.24	7.78	1.51	18.02	11.75	56.00	46.00	-37.98	-34.25
5	4.65000	10.46	11.74	2.51	22.20	12.97	56.00	46.00	-33.80	-33.03
6	18.22600	10.92	15.54	8.40	26.46	19.32	60.00	50.00	-33.54	-30.68

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

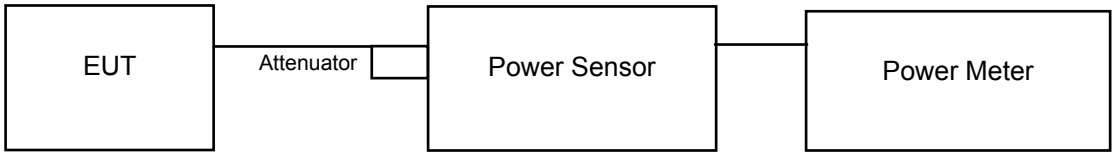
Operation Band	EUT Category		LIMIT
U-NII-1	---	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	---	Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
	---	Mobile and Portable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

*B is the 26 dB emission bandwidth in megahertz

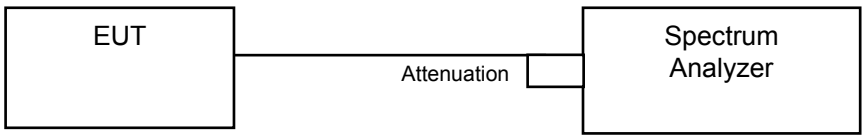
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz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

4.3.2 Test Setup

For Power Output Measurement



For 26dB and Occupied Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

FOR AVERAGE POWER MEASUREMENT

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

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

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

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

For Occupied Bandwidth

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300 kHz RBW and 1MHz VBW. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

CDD Mode

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	17.12	16.82	16.68	16.62	192.086	22.83	23.91	Pass
60	5300	16.94	16.79	16.92	16.67	192.840	22.85	23.86	Pass
64	5320	16.61	16.84	16.91	16.65	189.449	22.77	23.92	Pass
100	5500	16.51	16.95	16.94	16.94	193.178	22.86	23.85	Pass
116	5580	16.94	16.50	16.80	16.53	186.940	22.72	23.90	Pass
140	5700	16.52	16.61	16.88	16.82	187.526	22.73	23.88	Pass

Note:

Chain 0

1. 11dBm + 10log(19.84) = 23.98 dBm < 24dBm.
2. 11dBm + 10log(19.88) = 23.98 dBm < 24dBm.
3. 11dBm + 10log(19.99) = 24.01 dBm > 24dBm.
4. 11dBm + 10log(20.09) = 24.03 dBm > 24dBm.
5. 11dBm + 10log(19.83) = 23.97 dBm < 24dBm.
6. 11dBm + 10log(19.83) = 23.97 dBm < 24dBm.

Chain 1

1. 11dBm + 10log(19.55) = 23.91 dBm < 24dBm.
2. 11dBm + 10log(19.64) = 23.93 dBm < 24dBm.
3. 11dBm + 10log(19.63) = 23.93 dBm < 24dBm.
4. 11dBm + 10log(19.67) = 23.94 dBm < 24dBm.
5. 11dBm + 10log(19.67) = 23.94 dBm < 24dBm.
6. 11dBm + 10log(19.63) = 23.93 dBm < 24dBm.

Chain 2

1. 11dBm + 10log(19.74) = 23.95 dBm < 24dBm.
2. 11dBm + 10log(19.34) = 23.86 dBm < 24dBm.
3. 11dBm + 10log(19.58) = 23.92 dBm < 24dBm.
4. 11dBm + 10log(19.29) = 23.85 dBm < 24dBm.
5. 11dBm + 10log(19.52) = 23.90 dBm < 24dBm.
6. 11dBm + 10log(19.43) = 23.88 dBm < 24dBm.

Chain 3

1. 11dBm + 10log(19.67) = 23.94 dBm < 24dBm.
2. 11dBm + 10log(19.77) = 23.96 dBm < 24dBm.
3. 11dBm + 10log(19.93) = 23.99 dBm < 24dBm.
4. 11dBm + 10log(19.83) = 23.97 dBm < 24dBm.
5. 11dBm + 10log(19.71) = 23.95 dBm < 24dBm.
6. 11dBm + 10log(19.70) = 23.94 dBm < 24dBm.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	17.02	16.52	16.51	16.58	185.495	22.68	24.00	Pass
60	5300	16.77	16.60	16.82	16.53	186.305	22.70	24.00	Pass
64	5320	16.51	16.85	16.61	16.88	187.755	22.74	24.00	Pass
100	5500	16.64	16.99	16.92	17.24	198.305	22.97	24.00	Pass
116	5580	16.86	16.50	16.62	16.52	183.992	22.65	24.00	Pass
140	5700	16.53	16.63	16.84	16.63	185.336	22.68	24.00	Pass

Note:

Chain 0

1. 11dBm + 10log(20.65) = 24.15 dBm > 24dBm.
2. 11dBm + 10log(20.62) = 24.14 dBm > 24dBm.
3. 11dBm + 10log(20.70) = 24.16 dBm > 24dBm.
4. 11dBm + 10log(20.63) = 24.14 dBm > 24dBm.
5. 11dBm + 10log(20.64) = 24.15 dBm > 24dBm.
6. 11dBm + 10log(20.69) = 24.16 dBm > 24dBm.

Chain 1

1. 11dBm + 10log(20.57) = 24.13 dBm > 24dBm.
2. 11dBm + 10log(20.67) = 24.15 dBm > 24dBm.
3. 11dBm + 10log(20.77) = 24.17 dBm > 24dBm.
4. 11dBm + 10log(20.65) = 24.15 dBm > 24dBm.
5. 11dBm + 10log(20.81) = 24.18 dBm > 24dBm.
6. 11dBm + 10log(20.67) = 24.15 dBm > 24dBm.

Chain 2

1. 11dBm + 10log(20.63) = 24.14 dBm > 24dBm.
2. 11dBm + 10log(20.50) = 24.12 dBm > 24dBm.
3. 11dBm + 10log(20.69) = 24.16 dBm > 24dBm.
4. 11dBm + 10log(20.67) = 24.15 dBm > 24dBm.
5. 11dBm + 10log(20.50) = 24.12 dBm > 24dBm.
6. 11dBm + 10log(20.68) = 24.16 dBm > 24dBm.

Chain 3

1. 11dBm + 10log(20.57) = 24.13 dBm > 24dBm.
2. 11dBm + 10log(20.47) = 24.11 dBm > 24dBm.
3. 11dBm + 10log(20.54) = 24.13 dBm > 24dBm.
4. 11dBm + 10log(20.61) = 24.14 dBm > 24dBm.
5. 11dBm + 10log(20.38) = 24.09 dBm > 24dBm.
6. 11dBm + 10log(20.41) = 24.10 dBm > 24dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	17.71	17.50	17.61	17.51	229.295	23.60	24.00	Pass
62	5310	17.73	17.84	17.89	17.87	**242.860**	23.85	24.00	Pass
102	5510	17.61	17.96	17.92	17.84	**242.952**	23.86	24.00	Pass
110	5550	17.94	17.69	17.92	17.57	240.071	23.80	24.00	Pass
134	5670	17.81	17.98	17.62	17.73	240.304	23.81	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log(41.19) = 27.15 dBm > 24dBm.
2. 11dBm + 10log(41.26) = 27.16 dBm > 24dBm.
3. 11dBm + 10log(41.20) = 27.15 dBm > 24dBm.
4. 11dBm + 10log(41.16) = 27.14 dBm > 24dBm.
5. 11dBm + 10log(41.17) = 27.15 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(40.84) = 27.11 dBm > 24dBm.
2. 11dBm + 10log(41.28) = 27.16 dBm > 24dBm.
3. 11dBm + 10log(40.99) = 27.13 dBm > 24dBm.
4. 11dBm + 10log(41.26) = 27.16 dBm > 24dBm.
5. 11dBm + 10log(41.16) = 27.14 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(40.76) = 27.10 dBm > 24dBm.
2. 11dBm + 10log(41.04) = 27.13 dBm > 24dBm.
3. 11dBm + 10log(41.07) = 27.14 dBm > 24dBm.
4. 11dBm + 10log(41.17) = 27.15 dBm > 24dBm.
5. 11dBm + 10log(41.01) = 27.13 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(40.86) = 27.11 dBm > 24dBm.
2. 11dBm + 10log(41.03) = 27.13 dBm > 24dBm.
3. 11dBm + 10log(40.99) = 27.13 dBm > 24dBm.
4. 11dBm + 10log(41.03) = 27.13 dBm > 24dBm.
5. 11dBm + 10log(41.09) = 27.14 dBm > 24dBm.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	14.38	14.48	14.42	14.47	111.129	20.46	24.00	Pass
106	5530	16.14	16.42	16.43	16.41	172.674	22.37	24.00	Pass
122	5610	17.65	17.78	17.69	17.64	235.014	23.71	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log(81.12) = 30.09 dBm > 24dBm.
2. 11dBm + 10log(80.98) = 30.08 dBm > 24dBm.
3. 11dBm + 10log(80.98) = 30.08 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(80.96) = 30.08 dBm > 24dBm.
2. 11dBm + 10log(80.98) = 30.08 dBm > 24dBm.
3. 11dBm + 10log(80.79) = 30.07 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(81.00) = 30.08 dBm > 24dBm.
2. 11dBm + 10log(81.17) = 30.09 dBm > 24dBm.
3. 11dBm + 10log(80.89) = 30.08 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(81.00) = 30.08 dBm > 24dBm.
2. 11dBm + 10log(81.08) = 30.09 dBm > 24dBm.
3. 11dBm + 10log(80.80) = 30.07 dBm > 24dBm.

802.11ac (VHT80+ VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	19.62	19.94	-	-	**190.250**	22.79	30.00	Pass
58	5290	-	-	19.93	19.69	191.512	22.82	24.00	Pass
106	5530	17.52	17.63	-	-	228.274	23.58	24.00	Pass
122	5610	-	-	17.21	17.87				
2c-138	5690	14.62	13.85	-	-	57.246	17.58	24.00	Pass
3-138	5690	2.20	0.70	-	-	3.048	4.840	30.00	Pass
155	5775	-	-	17.41	17.55	**111.966**	20.49	30.00	Pass

**The total power of Channel 106 Chain 0 & 1 and Channel 122 Chain 2 & 3 is 23.58dBm.

Note:

Chain 0
1. 11dBm + 10log(81.05) = 30.09 dBm > 24dBm.
2. 11dBm + 10log(80.98) = 30.08 dBm > 24dBm.
3. 11dBm + 10log(75.50) = 29.78 dBm > 24dBm.

Chain 1
1. 11dBm + 10log(81.11) = 30.09 dBm > 24dBm.
2. 11dBm + 10log(81.03) = 30.09 dBm > 24dBm.
3. 11dBm + 10log(75.37) = 29.77 dBm > 24dBm.

Chain 2
1. 11dBm + 10log(81.10) = 30.09 dBm > 24dBm.
2. 11dBm + 10log(81.14) = 30.09 dBm > 24dBm.

Chain 3
1. 11dBm + 10log(81.05) = 30.09 dBm > 24dBm.
2. 11dBm + 10log(81.10) = 30.09 dBm > 24dBm.

For Reference only – Power meter value
The power value was measured by power meter with average sensor.

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2	Chain 3		
138	5690	17.46	17.53	-	-	112.343	20.51
Note: The total power was calculated through formula and records the value for reference only.							

Beamforming NSS1 Mode

802.11ac (VHT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	16.87	16.51	16.54	16.58	183.993	22.65	23.07	Pass
60	5300	16.76	16.62	16.79	16.55	186.283	22.70	22.87	Pass
64	5320	16.52	16.82	16.60	16.84	186.974	22.72	22.87	Pass
100	5500	16.12	16.49	16.44	16.45	173.704	22.40	22.47	Pass
116	5580	16.43	16.21	16.16	16.06	167.407	22.24	22.47	Pass
140	5700	16.01	16.13	16.48	16.18	166.880	22.22	22.47	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log (20.65) = 24.15 > 23.07dBm
2. 11dBm + 10log (20.54) = 24.13 > 22.87dBm
3. 11dBm + 10log (21.04) = 24.23 > 22.87dBm
4. 11dBm + 10log (21.03) = 24.23 > 22.47dBm
5. 11dBm + 10log (20.77) = 24.17 > 22.47dBm
6. 11dBm + 10log (20.64) = 24.15 > 22.47dBm

Chain 1
1. 11dBm + 10log (20.54) = 24.13 > 23.07dBm
2. 11dBm + 10log (20.75) = 24.17 > 22.87dBm
3. 11dBm + 10log (20.69) = 24.16 > 22.87dBm
4. 11dBm + 10log (20.72) = 24.16 > 22.47dBm
5. 11dBm + 10log (20.61) = 24.14 > 22.47dBm
6. 11dBm + 10log (20.62) = 24.14 > 22.47dBm

Chain 2
1. 11dBm + 10log (20.69) = 24.16 > 23.07dBm
2. 11dBm + 10log (20.65) = 24.15 > 22.87dBm
3. 11dBm + 10log (20.61) = 24.14 > 22.87dBm
4. 11dBm + 10log (20.58) = 24.13 > 22.47dBm
5. 11dBm + 10log (20.64) = 24.15 > 22.47dBm
6. 11dBm + 10log (20.66) = 24.15 > 22.47dBm

Chain 3
1. 11dBm + 10log (20.57) = 24.13 > 23.07dBm
2. 11dBm + 10log (20.52) = 24.12 > 22.87dBm
3. 11dBm + 10log (20.66) = 24.15 > 22.87dBm
4. 11dBm + 10log (20.56) = 24.13 > 22.47dBm
5. 11dBm + 10log (20.55) = 24.13 > 22.47dBm
6. 11dBm + 10log (20.44) = 24.10 > 22.47dBm

*U-NII-2A:

5260MHz: Directional gain = 0.91dBi + 10log(4) = 6.93dBi > 6dBi, so the power limit shall be reduced to 24-(6.93-6) = 23.07dBm.

5300MHz & 5320MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power limit shall be reduced to 24-(7.13-6) = 22.87dBm.

*U-NII-2C: Directional gain = 1.51dBi + 10log(4) = 7.53dBi > 6dBi, so the power limit shall be reduced to 24-(7.53-6) = 22.47dBm.

802.11ac (VHT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	16.92	16.52	16.59	16.53	184.661	22.66	22.97	Pass
62	5310	16.72	16.85	16.87	16.86	**192.576**	22.85	22.87	Pass
102	5510	16.12	16.41	16.37	16.37	171.380	22.34	22.37	Pass
110	5550	16.45	16.19	16.41	16.11	170.332	22.31	22.37	Pass
134	5670	16.33	16.45	16.15	16.34	171.374	22.34	22.37	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log (41.06) = 27.13 > 22.97dBm
2. 11dBm + 10log (41.19) = 27.15 > 22.87dBm
3. 11dBm + 10log (41.17) = 27.15 > 22.37dBm
4. 11dBm + 10log (41.16) = 27.14 > 22.37dBm
5. 11dBm + 10log (41.31) = 27.16 > 22.37dBm
Chain 1
1. 11dBm + 10log (41.12) = 27.14 > 22.97dBm
2. 11dBm + 10log (41.26) = 27.16 > 22.87dBm
3. 11dBm + 10log (41.38) = 27.17 > 22.37dBm
4. 11dBm + 10log (41.29) = 27.16 > 22.37dBm
5. 11dBm + 10log (41.16) = 27.14 > 22.37dBm
Chain 2
1. 11dBm + 10log (41.02) = 27.13 > 22.97dBm
2. 11dBm + 10log (40.87) = 27.11 > 22.87dBm
3. 11dBm + 10log (41.11) = 27.14 > 22.37dBm
4. 11dBm + 10log (41.13) = 27.14 > 22.37dBm
5. 11dBm + 10log (41.02) = 27.13 > 22.37dBm
Chain 3
1. 11dBm + 10log (40.98) = 27.13 > 22.97dBm
2. 11dBm + 10log (40.97) = 27.12 > 22.87dBm
3. 11dBm + 10log (41.04) = 27.13 > 22.37dBm
4. 11dBm + 10log (40.90) = 27.12 > 22.37dBm
5. 11dBm + 10log (40.88) = 27.12 > 22.37dBm

*U-NII-2A:

5270MHz: Directional gain = 1.01dBi + 10log(4) = 7.03dBi > 6dBi, so the power limit shall be reduced to 24-(7.03-6) = 22.97dBm.

5310MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power limit shall be reduced to 24-(7.13-6) = 22.87dBm.

*U-NII-2C: Directional gain = 1.61dBi + 10log(4) = 7.63i > 6dBi, so the power limit shall be reduced to 24-(7.63-6) = 22.37dBm.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	14.38	14.46	14.44	14.49	111.257	20.46	22.87	Pass
106	5530	16.16	16.32	16.37	16.31	170.267	22.31	22.37	Pass
122	5610	16.19	16.24	16.22	16.15	166.753	22.22	22.47	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log (81.14) = 30.09 > 22.87dBm
2. 11dBm + 10log (80.91) = 30.08 > 22.37dBm
3. 11dBm + 10log (80.90) = 30.08 > 22.47dBm
Chain 1
1. 11dBm + 10log (80.98) = 30.08 > 22.87dBm
2. 11dBm + 10log (80.91) = 30.08 > 22.37dBm
3. 11dBm + 10log (80.87) = 30.08 > 22.47dBm
Chain 2
1. 11dBm + 10log (81.03) = 30.09 > 22.87dBm
2. 11dBm + 10log (81.13) = 30.09 > 22.37dBm
3. 11dBm + 10log (80.85) = 30.08 > 22.47dBm
Chain 3
1. 11dBm + 10log (80.83) = 30.08 > 22.87dBm
2. 11dBm + 10log (81.04) = 30.09 > 22.37dBm
3. 11dBm + 10log (80.77) = 30.07 > 22.47dBm

*U-NII-2A:

5290MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power limit shall be reduced to 24-(7.13-6) = 22.87dBm.

*U-NII-2C:

5530MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi > 6dBi, so the power limit shall be reduced to 24-(7.63-6) = 22.37dBm.

5610MHz: Directional gain = 1.51dBi + 10log(4) = 7.53dBi > 6dBi, so the power limit shall be reduced to 24-(7.53-6) = 22.47dBm.

802.11ac (VHT80+ VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	19.65	19.97	-	-	**191.569**	22.82	30.00	Pass
58	5290	-	-	19.92	19.67	**190.858**	22.81	24.00	Pass
106	5530	16.01	16.43	-	-	167.602	22.24	22.42	Pass
122	5610	-	-	16.02	16.41				
2c-138	5690	14.70	13.93	-	-	58.061	17.64	24.00	Pass
3-138	5690	1.69	1.15	-	-	2.9750	4.73	24.00	Pass
155	5775	-	-	17.11	17.32	**105.355**	20.23	24.00	Pass

**The total power of Channel 106 Chain 0 & 1 and Channel 122 Chain 2 & 3 is 22.24dBm.
Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log (81.13) = 30.09 > 22.42dBm
2. 11dBm + 10log (81.10) = 30.09 > 22.42dBm
3. 11dBm + 10log (75.43) = 29.78 > 24.00dBm
Chain 1
1. 11dBm + 10log (81.06) = 30.09 > 22.42dBm
2. 11dBm + 10log (80.87) = 30.08 > 22.42dBm
3. 11dBm + 10log (75.42) = 29.77 > 24.00dBm
Chain 2
1. 11dBm + 10log (81.06) = 30.09 > 24.00dBm
2. 11dBm + 10log (80.94) = 30.08 > 22.42dBm
Chain 3
1. 11dBm + 10log (81.04) = 30.09 > 24.00dBm
2. 11dBm + 10log (80.96) = 30.08 > 22.42dBm

*U-NII-1:

5210MHz: Directional gain = 0.81dBi + 10log(4/2) = 3.82dBi < 6dBi, so the power limit no need to reduced.

5290MHz: Directional gain = 1.11dBi + 10log(4/2) = 4.12dBi < 6dBi, so the power limit no need to reduced.

*U-NII-2C:

5530MHz+5610MHz: Directional gain = (1.61+1.51)/2=1.56dBi + 10log(4) = 7.58dBi > 6dBi, so the power density limit shall be reduced to 24-(7.58-6) = 22.42dBm.

5690MHz: Directional gain = 1.51dBi + 10log(4/2) = 4.52dBi < 6dBi, so the power limit no need to reduced.

*U-NII-3: Directional gain = 1.51dBi + 10log(4/2) = 4.52dBi < 6dBi, so the power limit no need to reduced.

For Reference only – Power meter value
The power value was measured by power meter with average sensor.

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2	Chain 3		
138	5690	17.09	17.15	-	-	103.048	20.13
Note: The total power was calculated through formula and records the value for reference only.							

Beamforming NSS2 Mode

802.11ac (VHT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	16.96	16.54	16.52	16.56	184.906	22.67	24.00	Pass
60	5300	16.75	16.61	16.81	16.53	186.080	22.70	23.94	Pass
64	5320	16.53	16.83	16.63	16.84	187.505	22.73	24.00	Pass
100	5500	16.61	16.99	16.94	16.75	192.563	22.85	24.00	Pass
116	5580	16.91	16.50	16.60	16.56	184.758	22.67	24.00	Pass
140	5700	16.51	16.63	17.42	16.68	192.564	22.85	24.00	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log (20.63) = 24.14 > 24.00dBm
2. 11dBm + 10log (20.67) = 24.15 > 24.00dBm
3. 11dBm + 10log (20.69) = 24.16 > 24.00dBm
4. 11dBm + 10log (20.75) = 24.17 > 24.00dBm
5. 11dBm + 10log (20.88) = 24.20 > 24.00dBm
6. 11dBm + 10log (20.64) = 24.15 > 24.00dBm
Chain 1
1. 11dBm + 10log (20.63) = 24.14 > 24.00dBm
2. 11dBm + 10log (19.69) = 23.94 < 24.00dBm
3. 11dBm + 10log (20.77) = 24.17 > 24.00dBm
4. 11dBm + 10log (20.65) = 24.15 > 24.00dBm
5. 11dBm + 10log (20.64) = 24.15 > 24.00dBm
6. 11dBm + 10log (20.70) = 24.16 > 24.00dBm
Chain 2
1. 11dBm + 10log (20.63) = 24.14 > 24.00dBm
2. 11dBm + 10log (20.52) = 24.12 > 24.00dBm
3. 11dBm + 10log (20.58) = 24.13 > 24.00dBm
4. 11dBm + 10log (20.60) = 24.14 > 24.00dBm
5. 11dBm + 10log (20.64) = 24.15 > 24.00dBm
6. 11dBm + 10log (20.72) = 24.16 > 24.00dBm
Chain 3
1. 11dBm + 10log (20.52) = 24.12 > 24.00dBm
2. 11dBm + 10log (20.59) = 24.14 > 24.00dBm
3. 11dBm + 10log (20.72) = 24.16 > 24.00dBm
4. 11dBm + 10log (20.52) = 24.12 > 24.00dBm
5. 11dBm + 10log (20.45) = 24.11 > 24.00dBm
6. 11dBm + 10log (20.44) = 24.10 > 24.00dBm

*U-NII-2A:

5260MHz: Directional gain = 0.91dBi + 10log(4/2) = 3.92dBi < 6dBi, so the power limit no need to reduced.

5300MHz & 5320MHz: Directional gain = 1.11dBi + 10log(4/2) = 4.12dBi < 6dBi, so the power limit no need to reduced.

*U-NII-2C: Directional gain = 1.51dBi + 10log(4/2) = 4.52dBi < 6dBi, so the power limit no need to reduced.

802.11ac (VHT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	17.88	17.51	17.61	17.53	232.041	23.66	24.00	Pass
62	5310	17.71	17.95	17.76	17.87	**242.332**	23.84	24.00	Pass
102	5510	17.62	17.96	17.92	17.87	**243.506**	23.87	24.00	Pass
110	5550	17.95	17.69	17.83	17.55	238.681	23.78	24.00	Pass
134	5670	17.82	17.98	17.65	17.71	240.570	23.81	24.00	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log (41.05) = 27.13 > 24.00dBm
2. 11dBm + 10log (41.25) = 27.15 > 24.00dBm
3. 11dBm + 10log (40.99) = 27.13 > 24.00dBm
4. 11dBm + 10log (41.10) = 27.14 > 24.00dBm
5. 11dBm + 10log (41.26) = 27.16 > 24.00dBm
Chain 1
1. 11dBm + 10log (41.17) = 27.15 > 24.00dBm
2. 11dBm + 10log (41.28) = 27.16 > 24.00dBm
3. 11dBm + 10log (41.11) = 27.14 > 24.00dBm
4. 11dBm + 10log (41.10) = 27.14 > 24.00dBm
5. 11dBm + 10log (41.24) = 27.15 > 24.00dBm
Chain 2
1. 11dBm + 10log (40.99) = 27.13 > 24.00dBm
2. 11dBm + 10log (40.92) = 27.12 > 24.00dBm
3. 11dBm + 10log (40.90) = 27.12 > 24.00dBm
4. 11dBm + 10log (41.09) = 27.14 > 24.00dBm
5. 11dBm + 10log (41.02) = 27.13 > 24.00dBm
Chain 3
1. 11dBm + 10log (40.93) = 27.12 > 24.00dBm
2. 11dBm + 10log (40.96) = 27.12 > 24.00dBm
3. 11dBm + 10log (41.00) = 27.13 > 24.00dBm
4. 11dBm + 10log (40.97) = 27.12 > 24.00dBm
5. 11dBm + 10log (40.97) = 27.12 > 24.00dBm

*U-NII-2A:

5270MHz: Directional gain = 1.01dBi + 10log(4/2) = 4.02dBi < 6dBi, so the power limit no need to reduced.

5310MHz: Directional gain = 1.11dBi + 10log(4/2) = 4.12dBi < 6dBi, so the power limit no need to reduced.

*U-NII-2C: Directional gain = 1.61dBi + 10log(4/2) = 4.62dBi < 6dBi, so the power limit no need to reduced.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	14.37	14.46	14.45	14.44	110.936	20.45	24.00	Pass
106	5530	16.16	16.42	16.44	16.42	173.066	22.38	24.00	Pass
122	5610	17.67	17.75	17.68	17.56	233.675	23.69	24.00	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0
1. 11dBm + 10log (81.08) = 30.09 > 24.00dBm
2. 11dBm + 10log (81.09) = 30.09 > 24.00dBm
3. 11dBm + 10log (81.05) = 30.09 > 24.00dBm
Chain 1
1. 11dBm + 10log (80.99) = 30.08 > 24.00dBm
2. 11dBm + 10log (80.86) = 30.08 > 24.00dBm
3. 11dBm + 10log (80.80) = 30.07 > 24.00dBm
Chain 2
1. 11dBm + 10log (80.90) = 30.08 > 24.00dBm
2. 11dBm + 10log (81.16) = 30.09 > 24.00dBm
3. 11dBm + 10log (80.87) = 30.08 > 24.00dBm
Chain 3
1. 11dBm + 10log (80.83) = 30.08 > 24.00dBm
2. 11dBm + 10log (80.98) = 30.08 > 24.00dBm
3. 11dBm + 10log (80.82) = 30.08 > 24.00dBm

*U-NII-2A:

5290MHz: Directional gain = 1.11dBi + 10log(4/2) = 4.12dBi < 6dBi, so the power limit no need to reduced.

*U-NII-2C:
5530MHz: Directional gain = 1.61dBi + 10log(4/2) = 4.62dBi < 6dBi, so the power limit no need to reduced.
5610MHz: Directional gain = 1.51dBi + 10log(4/2) = 4.52dBi < 6dBi, so the power limit no need to reduced.

26dB Bandwidth:

CDD Mode

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
52	5260	19.84	19.55	19.74	19.67	Pass
60	5300	19.88	19.64	19.34	19.77	Pass
64	5320	19.99	19.63	19.58	19.93	Pass
100	5500	20.09	19.67	19.29	19.83	Pass
116	5580	19.83	19.67	19.52	19.71	Pass
140	5700	19.83	19.63	19.43	19.70	Pass

802.11n (HT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
52	5260	20.65	20.57	20.63	20.57	Pass
60	5300	20.62	20.67	20.50	20.47	Pass
64	5320	20.70	20.77	20.69	20.54	Pass
100	5500	20.63	20.65	20.67	20.61	Pass
116	5580	20.64	20.81	20.50	20.38	Pass
140	5700	20.69	20.67	20.68	20.41	Pass

802.11n (HT40)

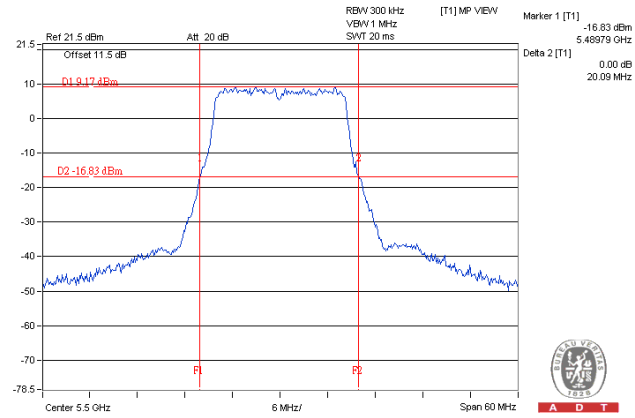
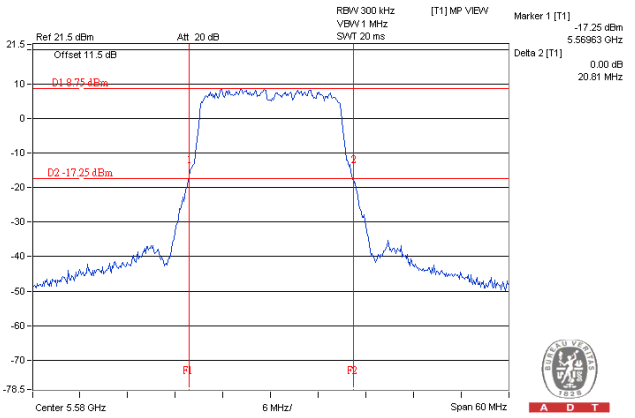
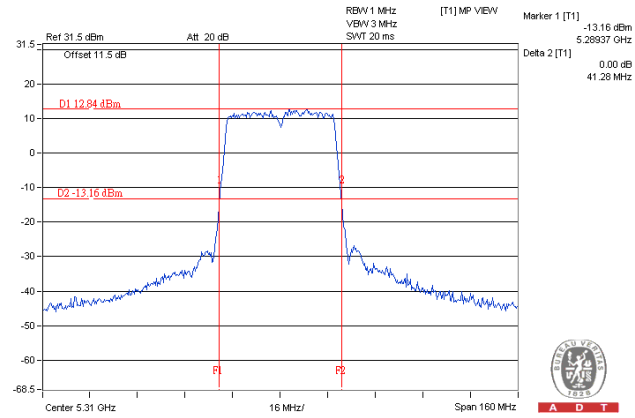
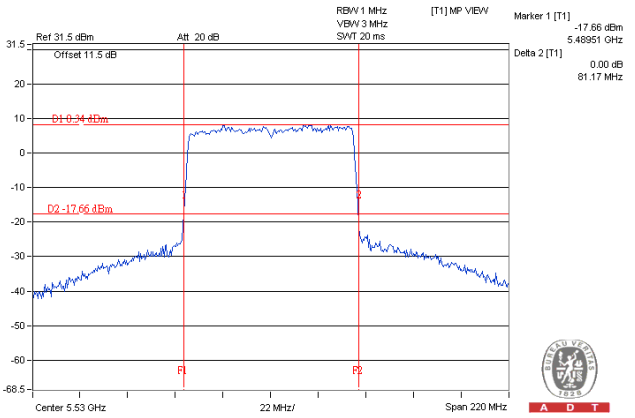
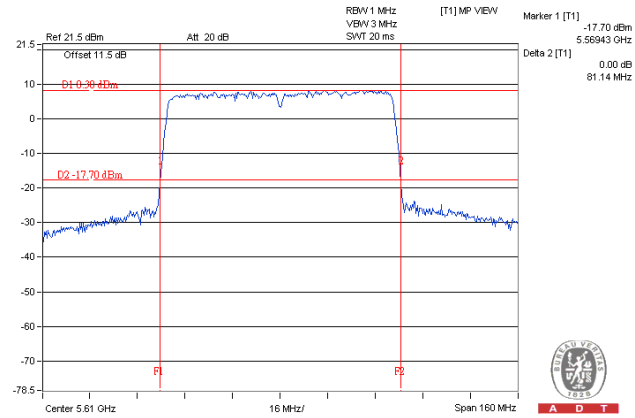
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
54	5270	41.19	40.84	40.76	40.86	Pass
62	5310	41.26	41.28	41.04	41.03	Pass
102	5510	41.20	40.99	41.07	40.99	Pass
110	5550	41.16	41.26	41.17	41.03	Pass
134	5670	41.17	41.16	41.01	41.09	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
58	5290	81.12	80.96	81.00	81.00	Pass
106	5530	80.98	80.98	81.17	81.08	Pass
122	5610	80.98	80.79	80.89	80.80	Pass

802.11ac (VHT80+ VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
42	5210	81.05	81.11			Pass
58	5290			81.10	81.05	Pass
106	5530	80.98	81.03			Pass
122	5610			81.14	81.10	Pass
2c-138	5690	75.50	75.37			Pass

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

Beamforming_NSS1 Mode

802.11n (HT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
52	5260	20.65	20.54	20.69	20.57	Pass
60	5300	20.54	20.75	20.65	20.52	Pass
64	5320	21.04	20.69	20.61	20.66	Pass
100	5500	21.03	20.72	20.58	20.56	Pass
116	5580	20.77	20.61	20.64	20.55	Pass
140	5700	20.64	20.62	20.66	20.44	Pass

802.11n (HT40)

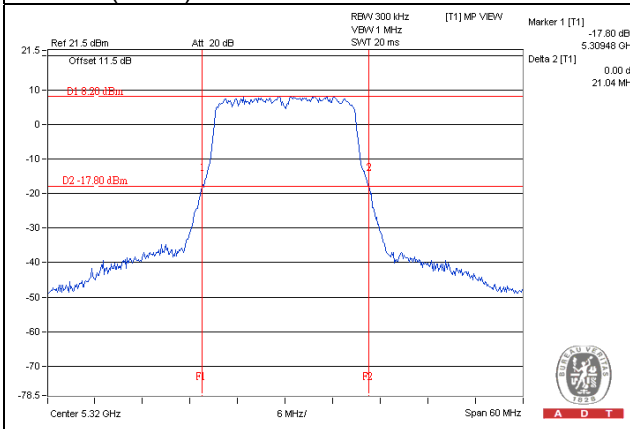
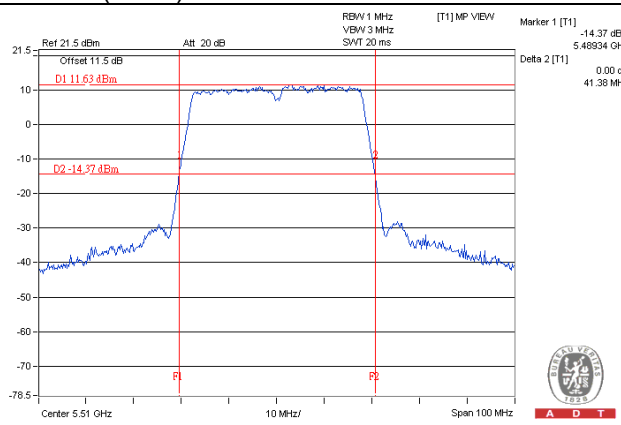
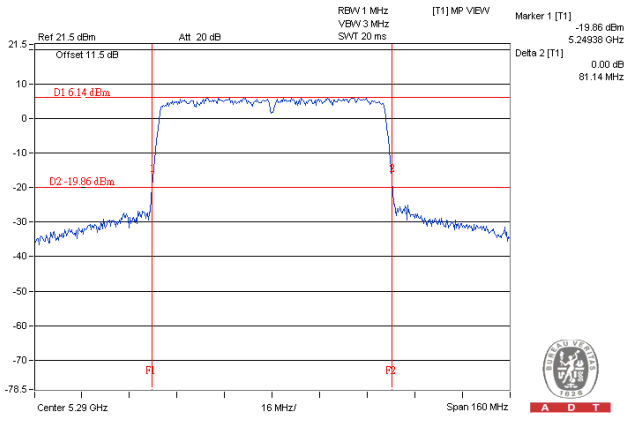
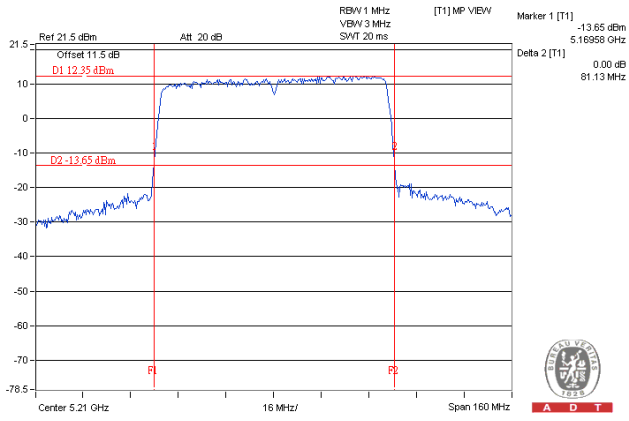
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
54	5270	41.06	41.12	41.02	40.98	Pass
62	5310	41.19	41.26	40.87	40.97	Pass
102	5510	41.17	41.38	41.11	41.04	Pass
110	5550	41.16	41.29	41.13	40.90	Pass
134	5670	41.31	41.16	41.02	40.88	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
58	5290	81.14	80.98	81.03	80.83	Pass
106	5530	80.91	80.91	81.13	81.04	Pass
122	5610	80.90	80.87	80.85	80.77	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
42	5210	81.13	81.06	-	-	Pass
58	5290	-	-	81.06	81.04	Pass
106	5530	81.10	80.87	-	-	Pass
122	5610	-	-	80.94	80.96	Pass
2c-138	5690	75.43	75.42	-	-	Pass

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

Beamforming_NSS2 Mode

802.11n (HT20)

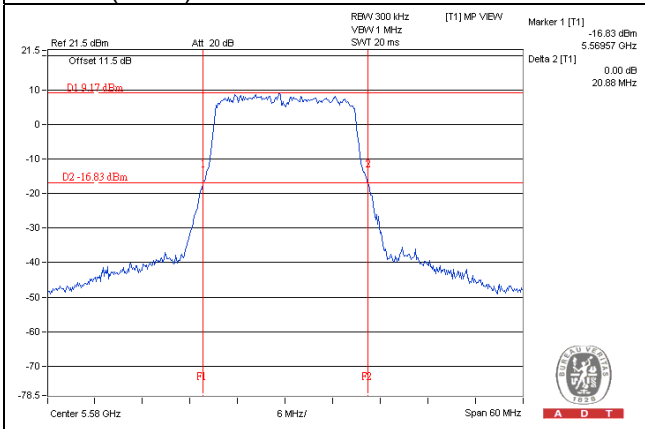
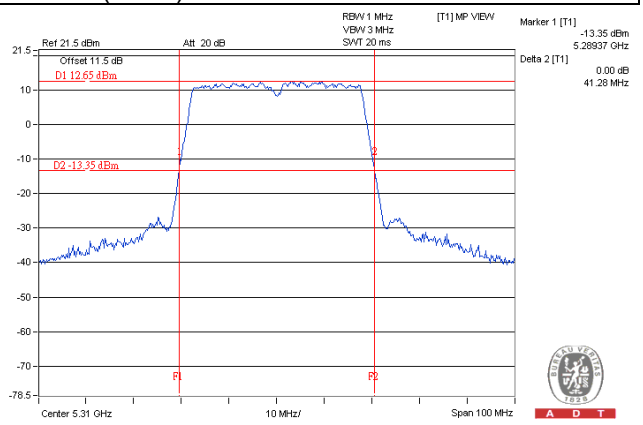
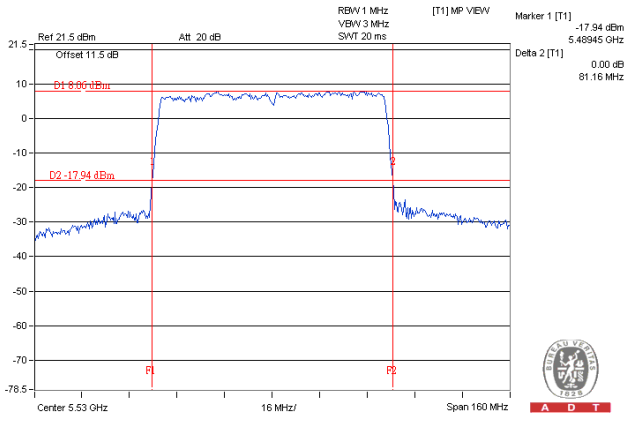
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
52	5260	20.63	20.63	20.63	20.52	Pass
60	5300	20.67	19.69	20.52	20.59	Pass
64	5320	20.69	20.77	20.58	20.72	Pass
100	5500	20.75	20.65	20.60	20.52	Pass
116	5580	20.88	20.64	20.64	20.45	Pass
140	5700	20.64	20.70	20.72	20.44	Pass

802.11n (HT40)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
54	5270	41.05	41.17	40.99	40.93	Pass
62	5310	41.25	41.28	40.92	40.96	Pass
102	5510	40.99	41.11	40.90	41.00	Pass
110	5550	41.10	41.10	41.09	40.97	Pass
134	5670	41.26	41.24	41.02	40.97	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
58	5290	81.08	80.99	80.90	80.83	Pass
106	5530	81.09	80.86	81.16	80.98	Pass
122	5610	81.05	80.80	80.87	80.82	Pass

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

Occupied Bandwidth:

CDD Mode

802.11a

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

802.11n (HT20)

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

802.11n (HT40)

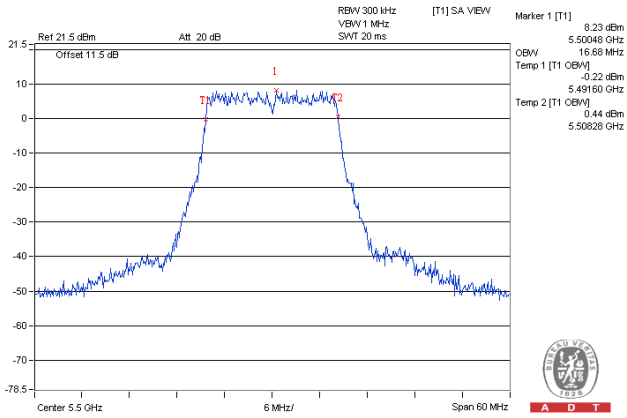
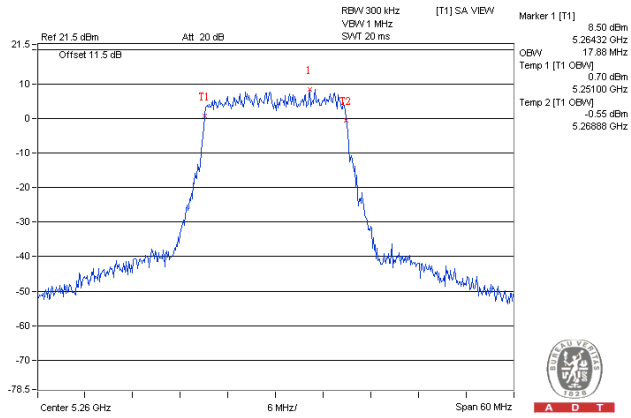
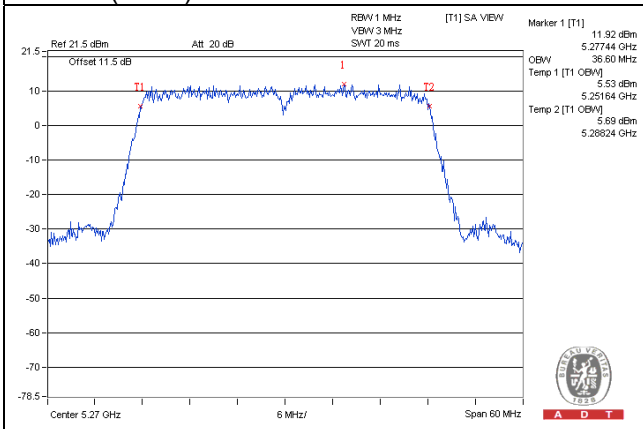
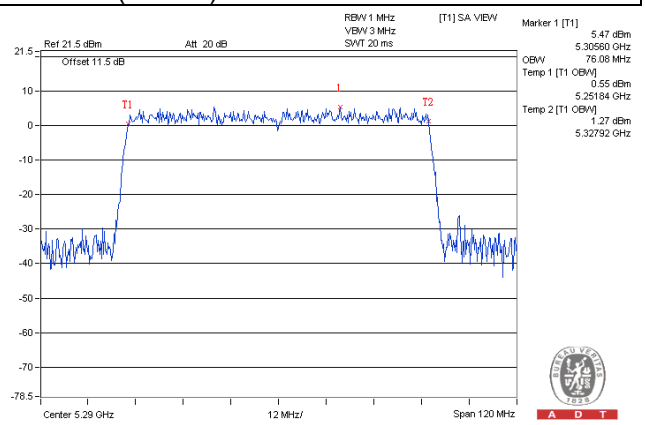
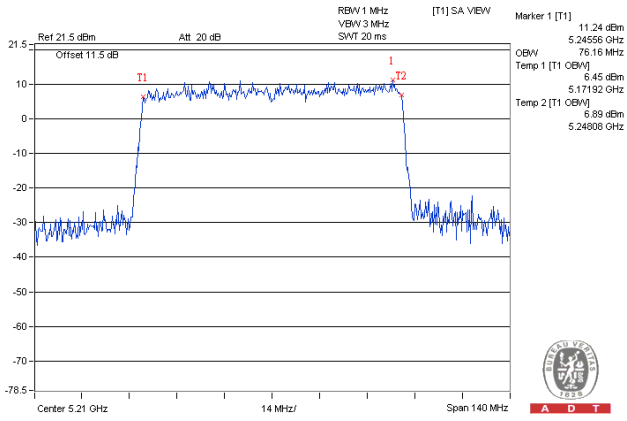
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	36.60	36.60	36.48	36.48
62	5310	36.60	36.60	36.36	36.48
102	5510	36.48	36.48	36.60	36.48
110	5550	36.48	36.60	36.48	36.60
134	5670	36.60	36.48	36.48	36.48

802.11ac (VHT80)

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

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	76.16	75.88	-	-
58	5290	-	-	75.88	76.16
106	5530	76.16	76.16	-	-
122	5610	-	-	75.88	75.88
2c-138	5690	73.16	72.92	-	-
3-138	5690	3.16	2.92	-	-
155	5775	-	-	75.88	75.88

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

Beamforming_NSS1 Mode

802.11n (HT20)

Channel	Frequency (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	17.76	17.64	17.64
64	5320	17.64	17.64	17.76	17.76
100	5500	17.76	17.64	17.64	17.64
116	5580	17.64	17.64	17.64	17.64
140	5700	17.64	17.64	17.64	17.64

802.11n (HT40)

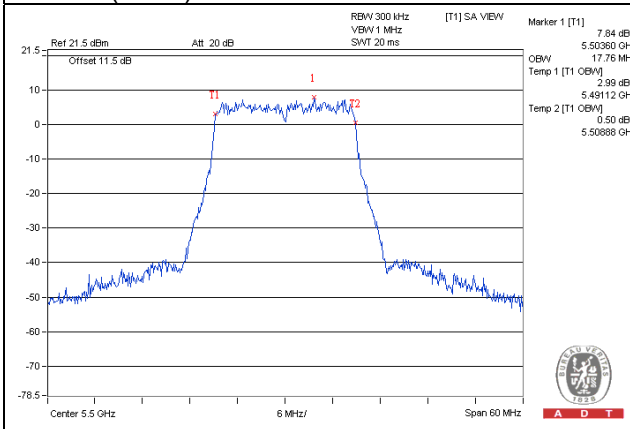
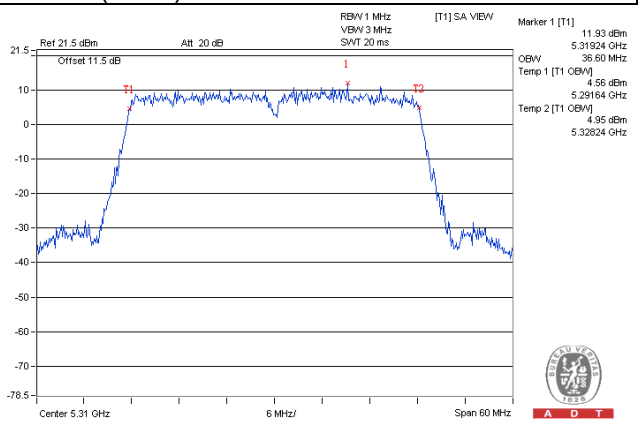
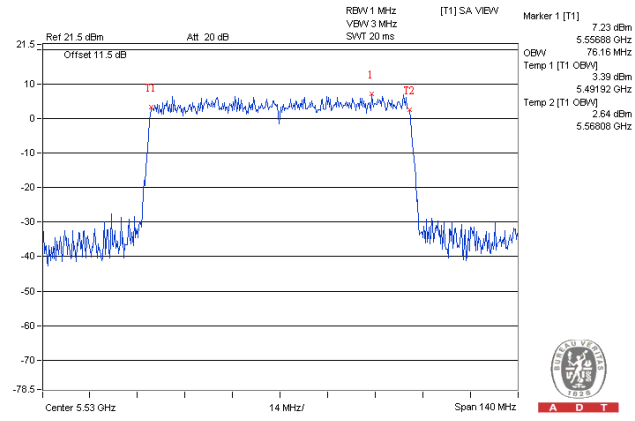
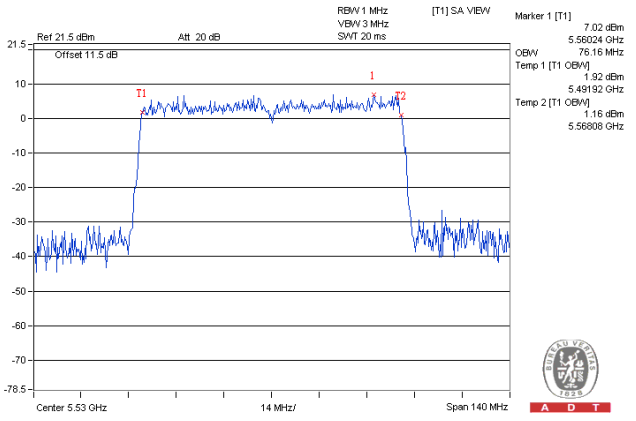
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	36.48	36.36	36.36	36.60
62	5310	36.60	36.60	36.48	36.48
102	5510	36.48	36.48	36.60	36.60
110	5550	36.48	36.60	36.48	36.48
134	5670	36.48	36.48	36.36	36.48

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	75.88	75.88	75.88	76.16
106	5530	75.88	75.88	76.16	75.88
122	5610	75.84	75.84	75.84	75.84

802.11ac (VHT80+VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	75.88	75.88	-	-
58	5290	-	-	75.88	75.88
106	5530	76.16	76.16	-	-
122	5610	-	-	76.16	75.88
2c-138	5690	72.92	73.16	-	-
3-138	5690	2.92	2.92	-	-
155	5775	-	-	75.88	75.88

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

Beamforming_NSS2 Mode

802.11n (HT20)

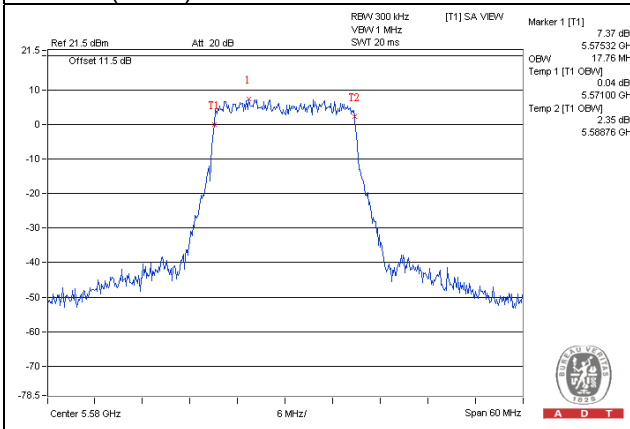
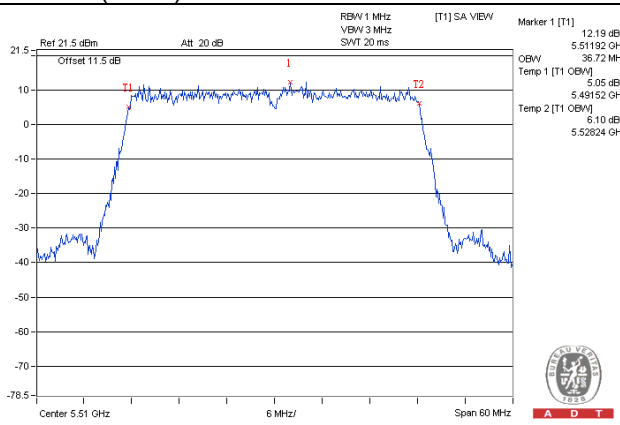
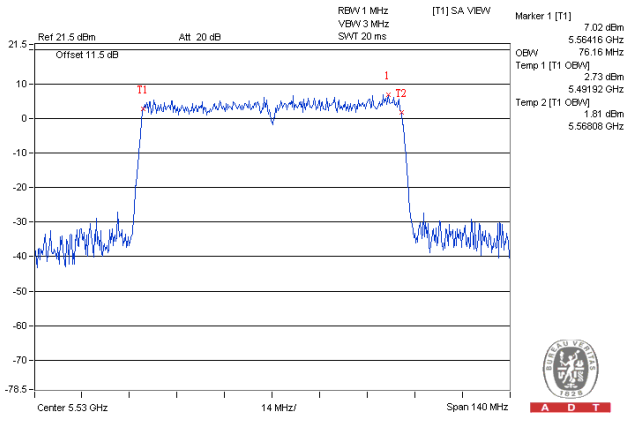
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	17.64	17.76	17.64	17.64
60	5300	17.64	16.56	17.64	17.64
64	5320	17.64	17.76	17.64	17.76
100	5500	17.64	17.64	17.64	17.64
116	5580	17.76	17.76	17.64	17.64
140	5700	17.64	17.76	17.64	17.76

802.11n (HT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	36.48	36.48	36.48	36.48
62	5310	36.60	36.60	36.36	36.48
102	5510	36.48	36.48	36.72	36.36
110	5550	36.48	36.36	36.60	36.48
134	5670	36.60	36.48	36.48	36.48

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	75.88	75.88	75.88	76.16
106	5530	76.16	75.88	75.88	76.16
122	5610	75.84	75.84	75.84	75.84

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

EUT MAXIMUM CONDUCTED POWER

CDD Mode

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	192.840	22.85
5470~5725	193.178	22.86

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

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	187.755	22.74
5470~5725	198.305	22.97

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

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	242.860	23.85
5470~5725	242.952	23.86

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

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	111.129	20.46
5470~5725	235.014	23.71

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

802.11ac (VHT80+VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	191.512	22.82
5470~5725	228.274	23.58

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

Beamforming_NSS1 Mode

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	186.974	22.72
5470~5725	173.704	22.40

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

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	192.576	22.85
5470~5725	171.380	22.34

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

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	111.257	20.46
5470~5725	170.267	22.31

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

802.11ac (VHT80+VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	190.858	22.81
5470~5725	167.602	22.24

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

Beamforming_NSS2 Mode

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	187.505	22.73
5470~5725	192.564	22.85

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

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	242.332	23.84
5470~5725	243.506	23.87

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

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	110.936	20.45
5470~5725	233.675	23.69

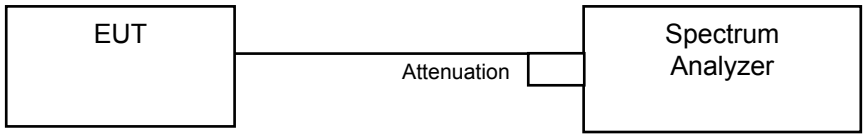
NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

4.4 Peak Power Spectral Density Measurement

4.4.1 Limits of Peak Power Spectral Density Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

Using method SA-1

Duty cycle >98%

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

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

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

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

e. Record the max value

Using method SA-2

Duty cycle <98%

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

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

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

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

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

For U-NII-3 band:

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

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

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

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

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

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

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

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

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
52	5260	4.58	3.52	3.45	2.99	9.69	0.17	9.86	10.07	Pass
60	5300	4.12	3.61	3.84	2.76	9.63	0.17	9.80	9.87	Pass
64	5320	3.81	3.39	4.09	2.99	9.60	0.17	9.77	9.87	Pass
100	5500	3.16	3.45	3.39	2.92	9.25	0.17	9.42	9.47	Pass
116	5580	3.53	3.18	3.56	2.54	9.24	0.17	9.41	9.47	Pass
140	5700	4.51	2.64	2.67	2.96	9.28	0.17	9.45	9.47	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5260MHz: Directional gain = 0.91dBi + 10log(4) = 6.93dBi > 6dBi, so the power density limit shall be reduced to 11-(6.93-6) = 10.07dBm.
   5300MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   5320MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   U-NII-2C: Directional gain = 1.51dBi + 10log(4) = 7.53dBi > 6dBi, so the power density limit shall be reduced to 11-(7.53-6) = 9.47dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
52	5260	4.04	3.28	3.23	3.25	9.48	10.07	Pass
60	5300	3.67	3.01	4.04	2.48	9.36	9.87	Pass
64	5320	2.67	3.32	3.85	2.45	9.13	9.87	Pass
100	5500	2.68	3.30	3.86	2.44	9.13	9.47	Pass
116	5580	3.22	2.99	3.35	2.40	9.03	9.47	Pass
140	5700	4.01	2.44	2.89	2.71	9.08	9.47	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5260MHz: Directional gain = 0.91dBi + 10log(4) = 6.93dBi > 6dBi, so the power density limit shall be reduced to 11-(6.93-6) = 10.07dBm.
   5300MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   5320MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   U-NII-2C: Directional gain = 1.51dBi + 10log(4) = 7.53dBi > 6dBi, so the power density limit shall be reduced to 11-(7.53-6) = 9.47dBm.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
54	5270	1.97	1.27	1.86	0.54	7.47	0.15	7.62	9.97	Pass
62	5310	1.64	0.96	1.64	0.33	7.20	0.15	7.35	9.87	Pass
102	5510	0.34	1.44	2.07	0.30	7.12	0.15	7.27	9.37	Pass
110	5550	1.28	1.31	0.98	0.37	7.02	0.15	7.17	9.37	Pass
134	5670	1.34	0.66	0.69	0.66	6.87	0.15	7.02	9.37	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5270MHz: Directional gain = 1.01dBi + 10log(4) = 7.03dBi > 6dBi, so the power density limit shall be reduced to 11-(7.03-6) = 9.97dBm.
   5310MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   U-NII-2C: Directional gain = 1.61dBi + 10log(4) = 7.63dBi > 6dBi, so the power density limit shall be reduced to 11-(7.63-6) = 9.37dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

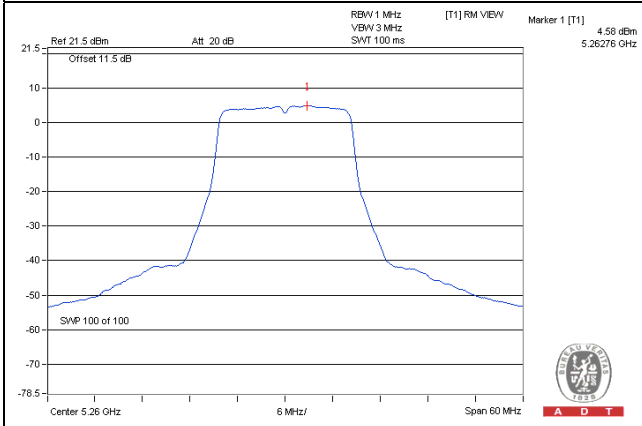
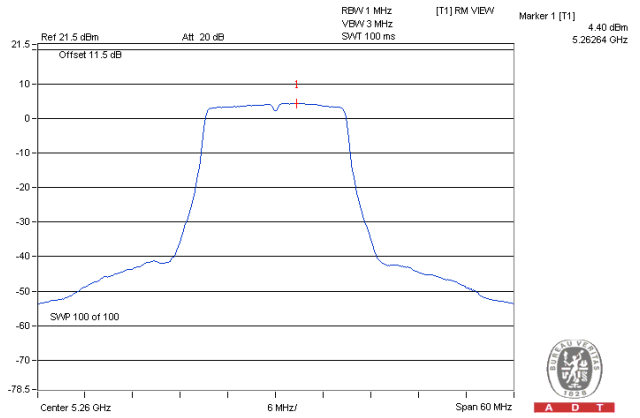
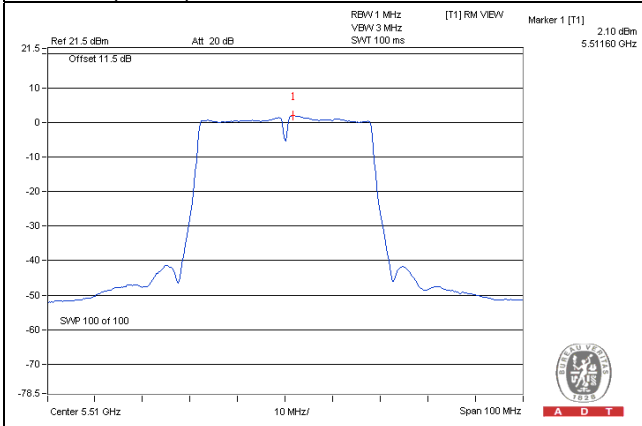
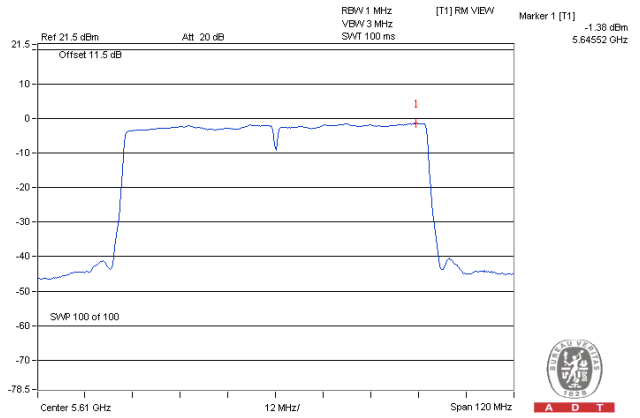
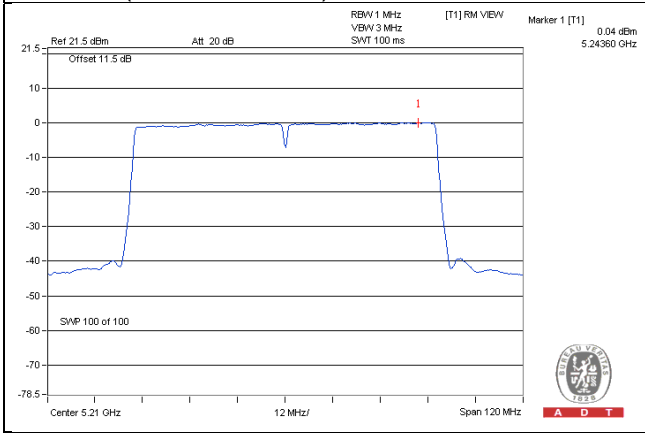
Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
58	5290	-5.37	-5.99	-5.65	-5.49	0.41	0.32	0.73	9.87	Pass
106	5530	-3.12	-3.01	-3.02	-4.29	2.70	0.32	3.02	9.37	Pass
122	5610	-1.48	-2.55	-2.38	-3.03	3.70	0.32	4.02	9.47	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5210MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   U-NII-2C:
   5530MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi > 6dBi, so the power density limit shall be reduced to 11-(7.63-6) = 9.37dBm.
   5610MHz: Directional gain = 1.51dBi + 10log(4) = 7.53dBi > 6dBi, so the power density limit shall be reduced to 11-(7.53-6) = 9.47dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80+VHT80)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
42	5210	1.19	0	-	-	3.65	0.32	3.97	17.00	Pass
58	5290	-	-	-0.38	-0.15	2.75	0.32	3.07	11.00	Pass
106	5530	-1.59	-1.76	-	-	3.70	0.32	4.02	9.42	Pass
122	5610	-	-	-2.86	-2.91					Pass
2c-138	5690	-1.48	-2.33	-	-	5.19	0.32	5.51	11.00	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-1:
   5210MHz: Directional gain = 0.81dBi + 10log(2) = 3.82dBi < 6dBi, so the power density limit no need to reduced.
   U-NII-2A:
   5290MHz: Directional gain = 1.11dBi + 10log(2) = 4.12dBi < 6dBi, so the power density limit no need to reduced.
   U-NII-2C:
   5530MHz+5610MHz: Directional gain = (1.61+1.51)/2=1.56dBi + 10log(4) = 7.58dBi > 6dBi, so the power density limit shall be reduced to 11-(7.58-6) = 9.42dBm.
   5690MHz: Directional gain = 1.51dBi + 10log(2) = 4.52dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / Chain 0 / Ch 52	802.11n (HT20) / Chain 0 / Ch 52
	
802.11n (HT40) / Chain 2 / Ch 102	802.11ac (VHT80) / Chain 0 / Ch 122
	
802.11ac (VHT80+ VHT80) / Chain 0 / Ch 42	
	

Beamforming_NSS1 Mode

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
52	5260	4.03	3.42	3.32	3.42	9.58	10.07	Pass
60	5300	3.81	3.17	4.22	2.57	9.51	9.87	Pass
64	5320	3.23	3.40	3.92	2.89	9.40	9.87	Pass
100	5500	2.69	3.41	3.89	2.60	9.20	9.47	Pass
116	5580	3.19	3.15	3.43	2.46	9.09	9.47	Pass
140	5700	4.00	2.44	2.94	2.93	9.14	9.47	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5260MHz: Directional gain = 0.91dBi + 10log(4) = 6.93dBi > 6dBi, so the power density limit shall be reduced to 11-(6.93-6) = 10.07dBm.
   5300MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   5320MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   U-NII-2C: Directional gain = 1.51dBi + 10log(4) = 7.53dBi > 6dBi, so the power density limit shall be reduced to 11-(7.53-6) = 9.47dBm.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
54	5270	0.85	0.24	0.68	-0.58	6.36	0.16	6.52	9.97	Pass
62	5310	0.55	0.18	0.71	-0.68	6.25	0.16	6.41	9.87	Pass
102	5510	-0.61	-0.29	-0.44	-0.92	5.47	0.16	5.63	9.37	Pass
110	5550	-0.39	-0.22	-0.58	-1.22	5.44	0.16	5.60	9.37	Pass
134	5670	-0.29	-1.20	-1.04	-0.51	5.28	0.16	5.44	9.37	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5270MHz: Directional gain = 1.01dBi + 10log(4) = 7.03dBi > 6dBi, so the power density limit shall be reduced to 11-(7.03-6) = 9.97dBm.
   5310MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   U-NII-2C: Directional gain = 1.61dBi + 10log(4) = 7.63dBi > 6dBi, so the power density limit shall be reduced to 11-(7.63-6) = 9.37dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

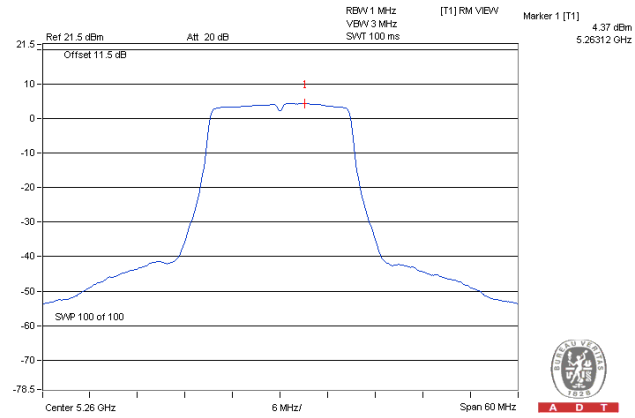
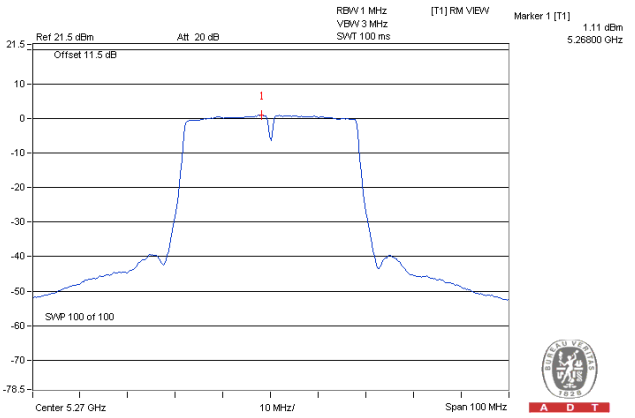
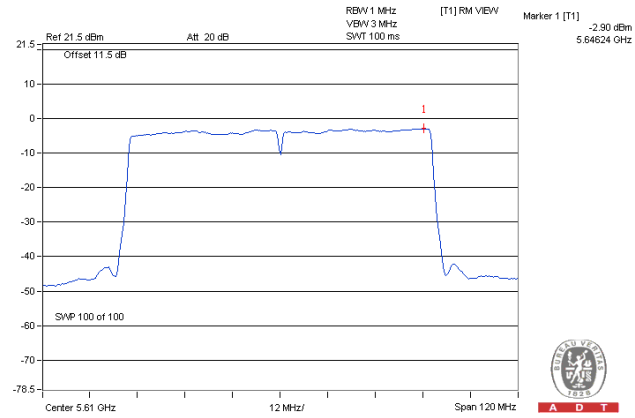
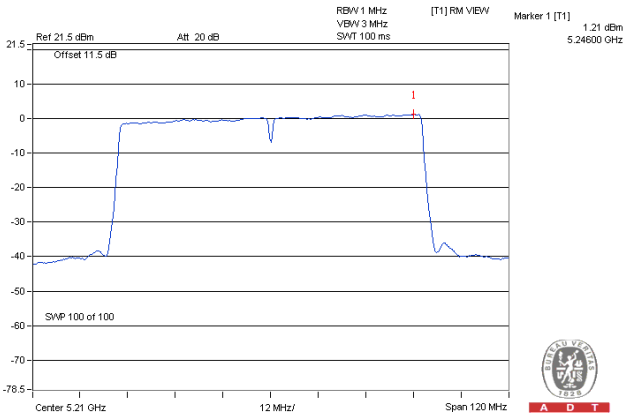
Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
58	5290	-5.64	-5.81	-5.71	-5.66	0.31	0.30	0.61	9.87	Pass
106	5530	-3.41	-3.24	-3.03	-4.61	2.49	0.30	2.79	9.37	Pass
122	5610	-3.01	-4.12	-3.88	-4.43	2.19	0.30	2.49	9.47	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5210MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi > 6dBi, so the power density limit shall be reduced to 11-(7.13-6) = 9.87dBm.
   U-NII-2C:
   5530MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi > 6dBi, so the power density limit shall be reduced to 11-(7.63-6) = 9.37dBm.
   5610MHz: Directional gain = 1.51dBi + 10log(4) = 7.53dBi > 6dBi, so the power density limit shall be reduced to 11-(7.53-6) = 9.47dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80+ VHT80)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
42	5210	1.21	-0.10	-	-	3.60	0.30	3.91	17.00	Pass
58	5290	-	-	-0.09	-0.41	2.76	0.30	3.06	11.00	Pass
106	5530	-3.01	-3.31	-	-	2.31	0.30	2.61	9.42	Pass
122	5610	-	-	-4.22	-4.47					Pass
2c-138	5690	-1.49	-2.15	-	-	5.21	0.30	5.51	11.00	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-1:
   5210MHz: Directional gain = 0.81dBi + 10log(2) = 3.82dBi < 6dBi, so the power density limit no need to reduced.
   U-NII-2A:
   5210MHz: Directional gain = 1.11dBi + 10log(4) = 7.13dBi < 6dBi, so the power density limit no need to reduced.
   U-NII-2C:
   5530MHz+5610MHz: Directional gain = (1.61+1.51)/2=1.56dBi + 10log(4) = 7.58dBi > 6dBi, so the power density limit shall be reduced to 11-(7.58-6) = 9.42dBm.
   5690MHz: Directional gain = 1.51dBi + 10log(2) = 4.52dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11n (HT20) / Chain 0 / Ch 52	802.11n (HT40) / Chain 0 / Ch 54
	
802.11ac (VHT80) / Chain 0 / Ch 122	802.11ac (VHT80+ VHT80) / Chain 0 / Ch 42
	

Beamforming_NSS2 Mode

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
52	5260	4.16	3.52	3.34	3.42	9.64	11.00	Pass
60	5300	3.91	3.36	3.81	2.73	9.50	11.00	Pass
64	5320	3.54	3.22	3.88	2.85	9.41	11.00	Pass
100	5500	2.79	3.51	3.98	2.66	9.29	11.00	Pass
116	5580	3.38	3.17	3.75	2.46	9.24	11.00	Pass
140	5700	4.13	2.52	2.88	3.08	9.22	11.00	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5260MHz: Directional gain = 0.91dBi + 10log(4/2) = 3.92dBi < 6dBi, so the power density limit no need to reduced.
   5300MHz & 5320MHz: Directional gain = 1.11dBi + 10log(4/2) = 4.12dBi < 6dBi, so the power density limit no need to reduced.
   U-NII-2C: Directional gain = 1.51dBi + 10log(4/2) = 4.52dBi < 6dBi, so the power density limit no need to reduced.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
54	5270	2.06	1.16	1.80	0.55	7.45	0.15	7.60	11.00	Pass
62	5310	1.77	1.00	1.61	0.49	7.27	0.15	7.42	11.00	Pass
102	5510	0.70	1.33	1.86	0.42	7.13	0.15	7.28	11.00	Pass
110	5550	1.31	1.01	0.84	0.38	6.92	0.15	7.07	11.00	Pass
134	5670	1.46	0.27	0.43	1.01	6.84	0.15	6.99	11.00	Pass

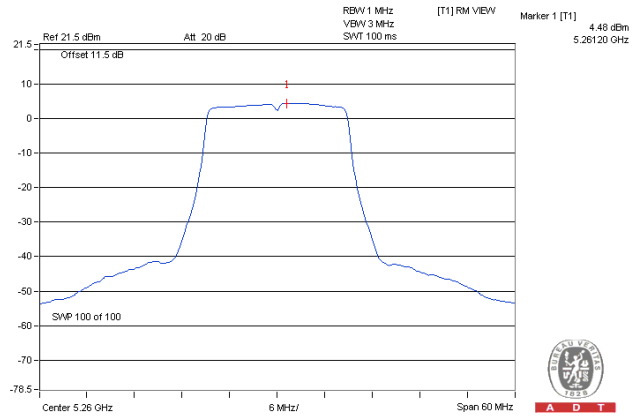
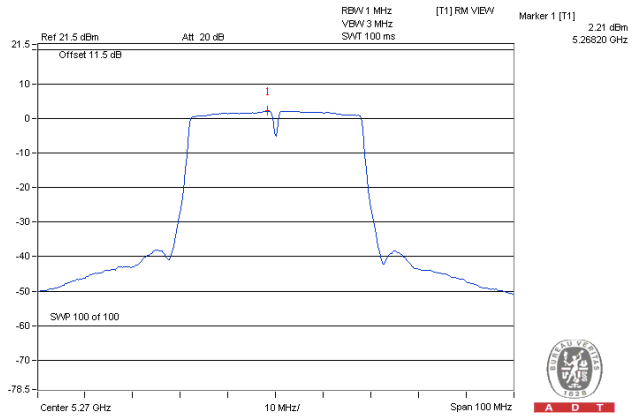
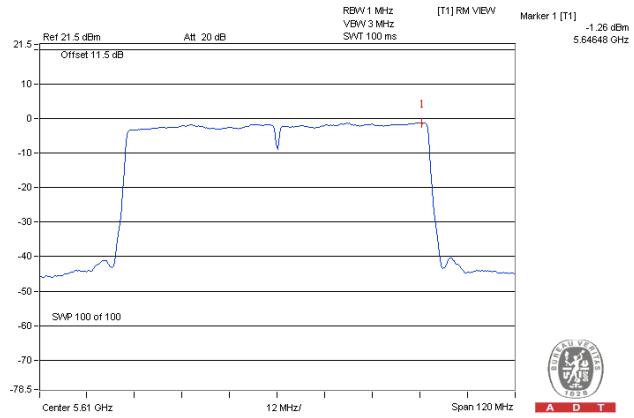
Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5270MHz: Directional gain = 1.01dBi + 10log(4/2) = 4.02dBi < 6dBi, so the power density limit no need to reduced.
   5310MHz: Directional gain = 1.11dBi + 10log(4/2) = 4.12dBi < 6dBi, so the power density limit no need to reduced.
   U-NII-2C: Directional gain = 1.61dBi + 10log(4/2) = 4.62dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Total PSD W/O Duty Factor (dBm)	Duty Factor	Total PSD With Duty Factor (dBm)	Max. Limit (dBm)	Pass/ Fail
		Chain 0	Chain 1	Chain 2	Chain 3					
58	5290	-5.19	-5.83	-5.97	-5.54	0.40	0.29	0.69	11.00	Pass
106	5530	-3.07	-3.29	-3.62	-4.29	2.47	0.29	2.76	11.00	Pass
122	5610	-1.40	-2.56	-2.32	-3.03	3.73	0.29	4.02	11.00	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. U-NII-2A:
   5210MHz: Directional gain = 1.11dBi + 10log(4/2) = 4.12dBi < 6dBi, so the power density limit no need to reduced.
   U-NII-2C:
   5530MHz: Directional gain = 1.61dBi + 10log(4/2) = 4.62dBi < 6dBi, so the power density limit no need to reduced.
   5610MHz: Directional gain = 1.51dBi + 10log(4/2) = 4.52dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11n (HT20) / Chain 0 / Ch 52	802.11n (HT40) / Chain 0 / Ch 54
	
802.11ac (VHT80) / Chain 0 / Ch 122	
	

For U-NII-3 Band:

CDD Mode

802.11ac (VHT80+ VHT80)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	3-138	5690	-10.11	-7.89	3.01	0.32	-1.56	11.00	Pass
1	3-138	5690	-10.96	-8.74	3.01	0.32	-2.41	11.00	Pass
2	155	5775	-11.43	-9.21	3.01	0.32	-2.88	30.00	Pass
3	155	5775	-11.30	-9.08	3.01	0.32	-2.75	30.00	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5690MHz: Directional gain = 1.51dBi + 10log(4/2) = 4.52dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

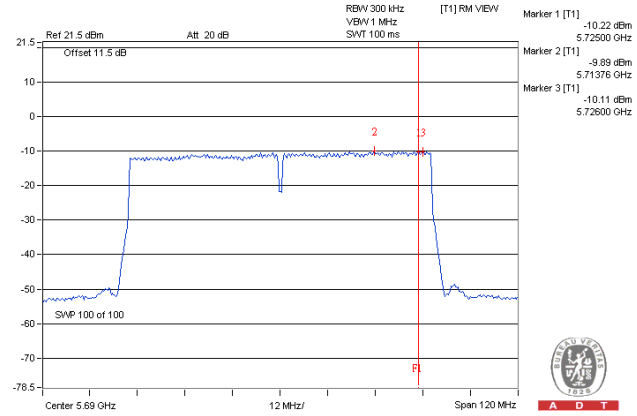
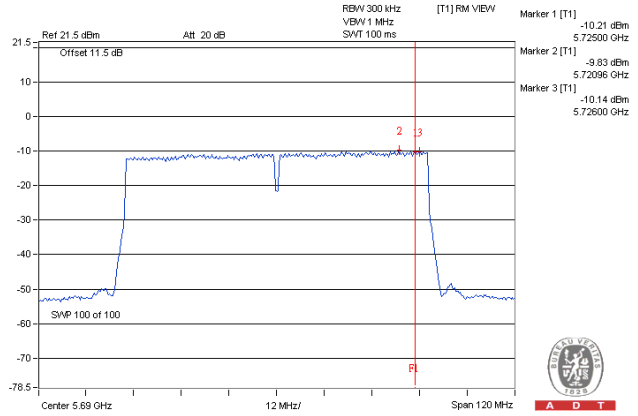
Beamforming_NSS1 Mode

802.11ac (VHT80+ VHT80)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	3-138	5690	-10.14	-7.92	3.01	0.30	-1.60	11.00	Pass
1	3-138	5690	-10.94	-8.72	3.01	0.30	-2.40	11.00	Pass
2	155	5775	-11.59	-9.37	3.01	0.30	-3.05	30.00	Pass
3	155	5775	-11.36	-9.14	3.01	0.30	-2.82	30.00	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5690MHz: Directional gain = 1.51dBi + 10log(4/2) = 4.52dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

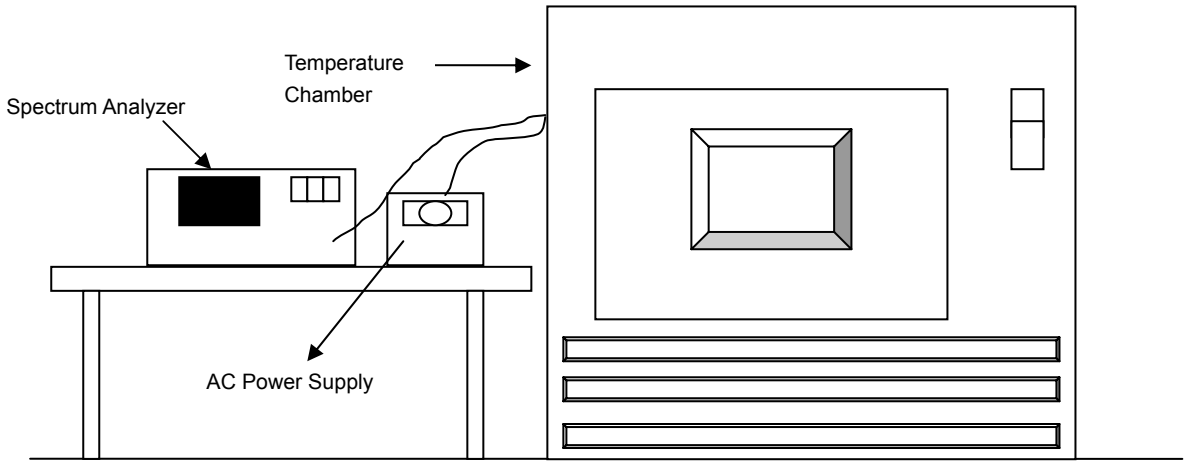
Spectrum Plot of Worst Value	
CDD Mode: 802.11ac (VHT80+ VHT80) / Chain 0 / Ch 3-138	Beamforming_NSS1 Mode: 802.11ac (VHT80+ VHT80) / Chain 0 / Ch 3-138
	

4.5 Frequency Stability

4.5.1 Limits of Frequency Stability Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

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

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

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

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

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

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

4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5259.9795	-0.00039	5259.9796	-0.00039	5259.9794	-0.00039	5259.9796	-0.00039
40	120	5259.9815	-0.00035	5259.9814	-0.00035	5259.9798	-0.00038	5259.9802	-0.00038
30	120	5259.9855	-0.00028	5259.9844	-0.00030	5259.9856	-0.00027	5259.9856	-0.00027
20	120	5260.0182	0.00035	5260.0171	0.00033	5260.0209	0.00040	5260.0171	0.00033
10	120	5260.0210	0.00040	5260.0236	0.00045	5260.0236	0.00045	5260.0211	0.00040
0	120	5259.9965	-0.00007	5259.9945	-0.00010	5259.9948	-0.00010	5259.9966	-0.00006
-10	120	5260.0057	0.00011	5260.0072	0.00014	5260.0069	0.00013	5260.0025	0.00005
-20	120	5259.9863	-0.00026	5259.9870	-0.00025	5259.9868	-0.00025	5259.9854	-0.00028
-30	120	5259.9936	-0.00012	5259.9956	-0.00008	5259.9918	-0.00016	5259.9911	-0.00017

Frequency Stability Versus Voltage.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5260.0184	0.00035	5260.0181	0.00034	5260.0218	0.00041	5260.0162	0.00031
	120	5260.0182	0.00035	5260.0171	0.00033	5260.0209	0.00040	5260.0171	0.00033
	102	5260.0189	0.00036	5260.0180	0.00034	5260.0213	0.00040	5260.0181	0.00034

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

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

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

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

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

--- END ---