

FCC Test Report

Report No.: RF160421C16-1

FCC ID: GZ5NVG4XX

Test Model: NVG448B

Series Model: NVG443B

Received Date: Apr. 21, 2016

Test Date: Apr. 23 ~ May 25, 2016

Issued Date: Jun. 01, 2016

Applicant: ARRIS GROUP, INC.

Address: 2500 Walsh Ave. Santa Clara, CA 95051, United States

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Test Location(1): No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

Test Location(2): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.



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Release Control Record

Issue No.	Description	Date Issued
RF160421C16-1	Original release	Jun. 01, 2016

1 Certificate of Conformity

Product: ARRIS Gateway

Brand: ARRIS

Test Model: NVG448B

Series Model: NVG443B

Sample Status: Engineering sample

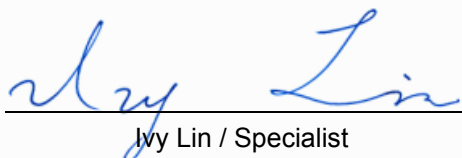
Applicant: ARRIS GROUP, INC.

Test Date: Apr. 23 ~ May 25, 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 :


Ivy Lin / Specialist

Date:

Jun. 01, 2016

Approved by :


Ken Liu / Senior Manager

Date:

Jun. 01, 2016

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -9.62dB at 0.63875MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5150.00MHz, 5408.00MHz, 5993.00MHz.
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(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex(MHF) not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	ARRIS Gateway
Brand	ARRIS
Test Model	NVG448B
Series Model	NVG443B
Model Difference	Refer to Note
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 600.0Mbps 802.11ac: up to 1300Mbps
Operating Frequency	5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
Output Power	CDD Mode: 5180 ~ 5240MHz: 252.836mW 5745 ~ 5825MHz: 268.049mW Beamforming Mode: 5180 ~ 5240MHz: 216.583mW 5745 ~ 5825MHz: 233.446mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter, Stand (Band: FOXCONN, Model: 447.00105.005)
Data Cable Supplied	4.5m non-shielded RJ14 cable without core 1.95m non-shielded Ethernet cable without core

Note:

1. All models are listed as below. Model name NVG448B is the representative for final test.

Brand	Model	Optional function
ARRIS	NVG448B	With VoIP
	NVG443B	Without VoIP

2. The EUT incorporates a MIMO function. Physically, the EUT provides 3 completed transmitters and 3 receivers.

Modulation Mode	TX FUNCTION	Beamforming mode
802.11a	3TX	Not support
802.11n (HT20)	3TX	Support
802.11n (HT40)	3TX	Support
802.11ac (VHT20)	3TX	Support
802.11ac (VHT40)	3TX	Support
802.11ac (VHT80)	3TX	Support

* The modulation and bandwidth are similar for 802.11n mode for 20MHz / 40MHz and 802.11ac mode for 20MHz / 40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n and 802.11ac, CDD mode is the worst case for final radiated emission below 1GHz and power line conducted emission tests after pretesting CDD mode and beamforming mode.

3. The EUT consumes power from the following adapter.

Brand	Ktec
Model	KSAS0361200250HU
Input Power	100-120Vac, 50/60Hz, 1.0A
Output Power	12Vdc, 2.5A
Power Line	1.8m cable without core attached on adapter

4. The following antennas were provided to the EUT.

Antenna Type	Dipole	
Antenna Connector	i-pex (MHF)	
Gain (dBi)	Frequency (MHz)	
	2400-2500	5150-5850
Ant. 1	4.48	-
Ant. 2	2.52	-
Ant. 3	-	3.97
Ant. 4	-	3.18
Ant. 5	-	4.56

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

For 5180 ~ 5240MHz

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

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

For 5745 ~ 5825MHz:

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

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

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 was positioned on the z-plane during testing.

Radiated Emission Test (Above 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
-	802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
-	802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
-	802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
-	802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

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	5180-5240	36 to 48	149	OFDM	BPSK	6.0
	802.11a	5745-5825	149 to 165		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	5180-5240	36 to 48	149	OFDM	BPSK	6.0
	802.11a	5745-5825	149 to 165		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	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
-	802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
-	802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
-	802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
-	802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE _≥ 1G	20deg. C, 69%RH	120Vac, 60Hz	Tank Wu, Bayu Chen
RE _{<} 1G	16deg. C, 70%RH	120Vac, 60Hz	Jones Chang
PLC	16deg. C, 70%RH	120Vac, 60Hz	Nick Hsu
APCM	24deg. C, 67%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

CDD Mode

Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

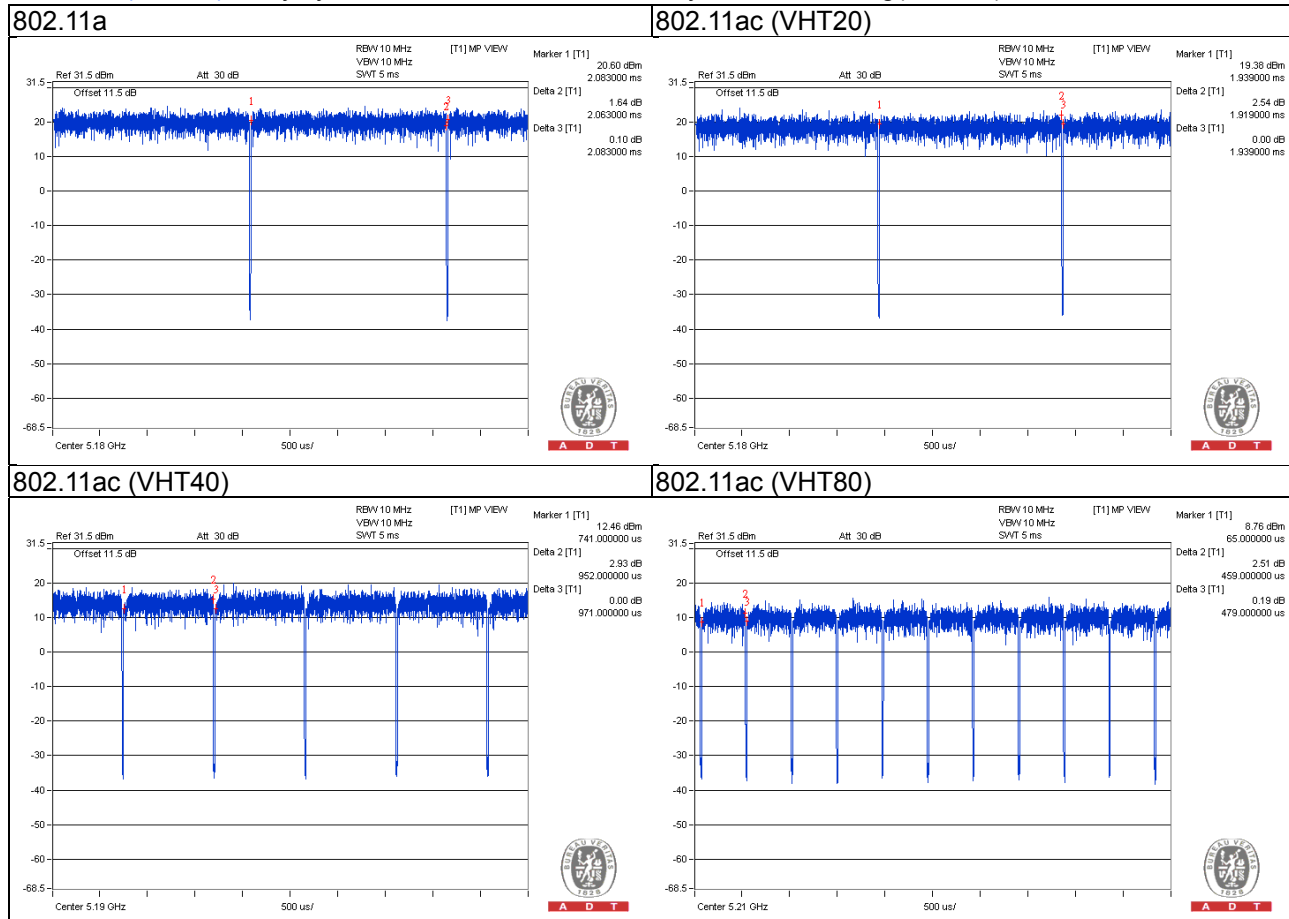
Duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11a: Duty cycle = $2.063/2.083 = 0.990$

802.11ac (VHT20): Duty cycle = $1.919/1.939 = 0.990$

802.11ac (VHT40): Duty cycle = $0.952/0.971 = 0.980$

802.11ac (VHT80): Duty cycle = $0.459/0.479 = 0.958$, Duty factor = $10 * \log(1/0.958) = 0.19$



Beamforming Mode

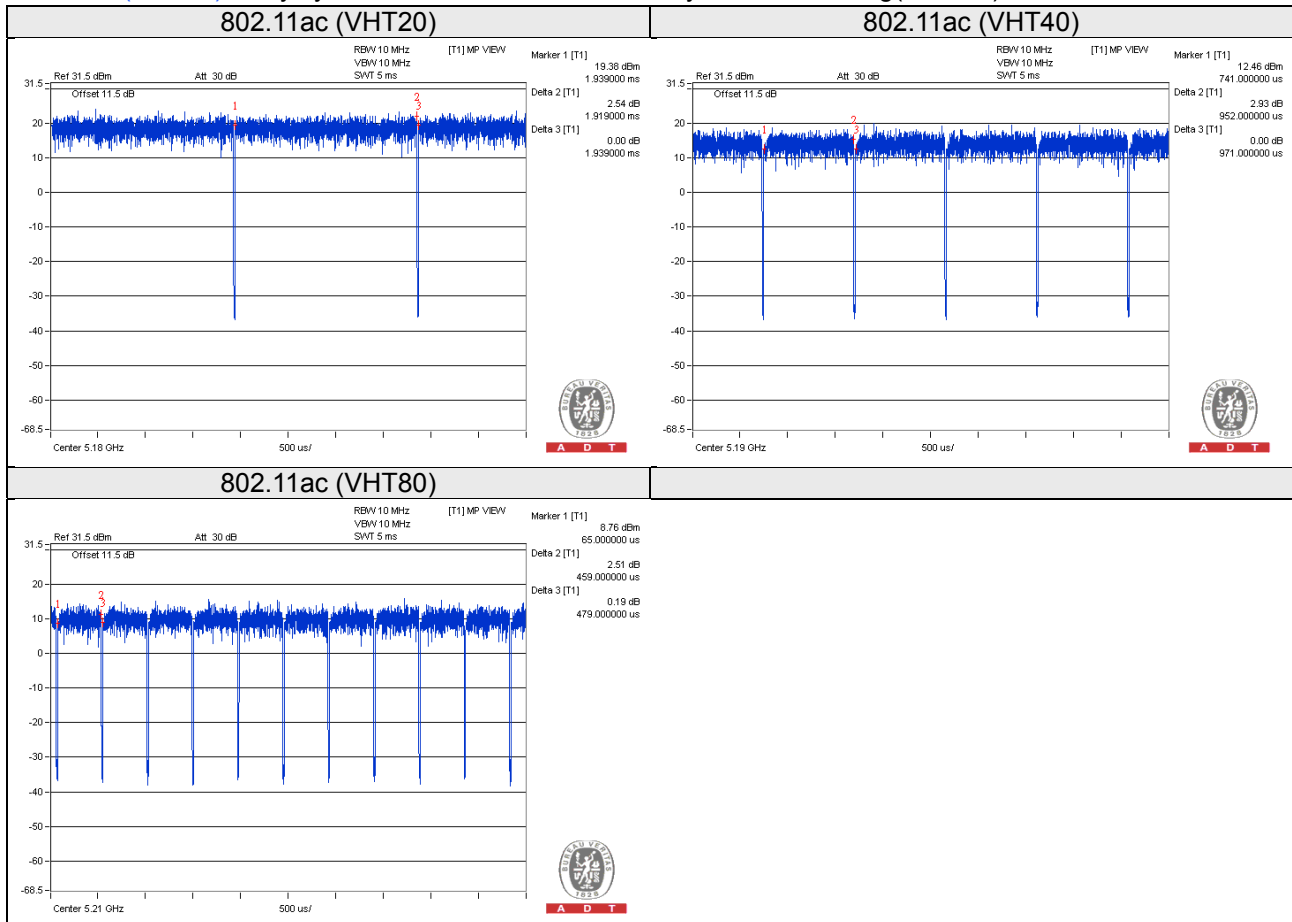
Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

Duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11ac (VHT20): Duty cycle = $1.919/1.939 = 0.990$

802.11ac (VHT40): Duty cycle = $0.952/0.971 = 0.980$

802.11ac (VHT80): Duty cycle = $0.459/0.479 = 0.958$, Duty factor = $10 * \log(1/0.958) = 0.19$



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.

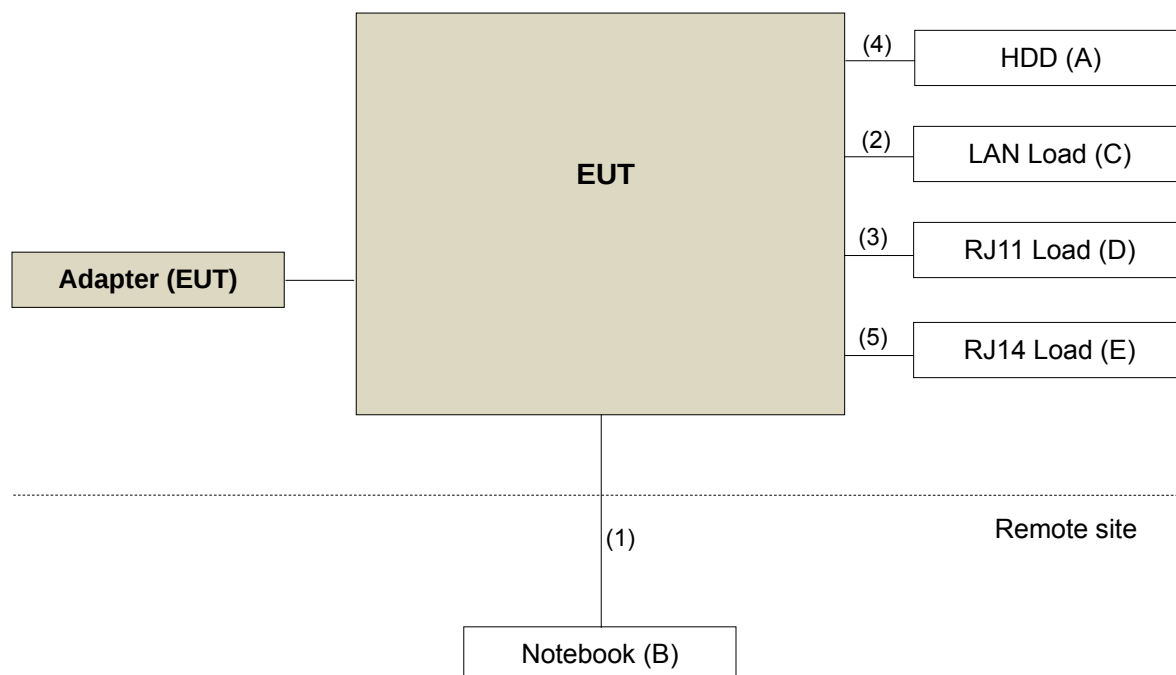
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	External Hard Disk	WD	WDBACY5000ABL-01	WXS1CC1D3606	FCC DoC Approved	-
B.	Notebook	DELL	E5520	8Y4DMQ1	FCC DoC Approved	-
C.	LAN Load	NA	NA	NA	NA	-
D.	RJ11 Load	NA	NA	NA	NA	-
E.	RJ14 Load	NA	NA	NA	NA	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	1	10	N	0	-
2.	RJ45 cable	4	1.8	N	0	-
3.	RJ11 cable	1	1.8	N	0	-
4.	USB cable	1	1	N	0	-
5.	RJ14 cable	1	4.5	N	0	Provided by the manufacturer

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

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)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2(dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8(dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
15.407(b)(4)(ii)	FIELD STRENGTH at 3m / § 15.247(d),	
	PK:74 (dBμV/m)	AV:54 (dBμV/m)
^{*1} beyond 75 MHz or more above of the band edge. ^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.		
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

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

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

4.1.2 Test Instruments

Test date: Apr. 23 ~ May 05, 2016 (Radiated Emission test)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 23, 2015	Dec. 22, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Apr. 19, 2016	Apr. 18, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Jan. 18, 2016	Jan. 17, 2017
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Jan. 08, 2016	Jan. 07, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Preamplifier Agilent	8449B	3008A01911	Aug. 09, 2015	Aug. 08, 2016
Preamplifier Agilent	8447D	2944A10638	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-02(309222 +248780)	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-03(274092)	Aug. 09, 2015	Aug. 08, 2016
RF signal cable Woken	8D-FB	Cable-CH9-01	Aug. 11, 2015	Aug. 10, 2016
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 18, 2015	Oct. 17, 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 9.
 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 215374.
 5. The IC Site Registration No. is IC 7450F-9.

Test date: May 25, 2016 (Antenna Port Conducted Measurement)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer R&S	FSP40	100060	May 11, 2016	May 10, 2017
Spectrum Analyzer Agilent	E4446A	MY48250253	Dec. 22, 2015	Dec. 21, 2016
Power meter Anritsu	ML2495A	1014008	May 5, 2016	May 4, 2017
Power sensor Anritsu	MA2411B	0917122	May 5, 2016	May 4, 2017
AC Power Source Extech Electronics	6205	1440452	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 15, 2016	Jan. 14, 2017
ESG Vector signal generator Agilent	E4438C	MY45094468/005 506 602 UK6 UNJ	Dec. 01, 2015	Nov. 30, 2016
Mech Switch Absorptive Mini-Circuits	MSP4TA-18+	0140	Mar. 19, 2016	Mar. 18, 2017
FXD ATTEN Mini-Circuits	BW-S3W2+	MN71981	Mar. 19, 2016	Mar. 18, 2017
Software	ADT_RF Test Software V6.6.5.3	NA	NA	NA

Note: 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

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:

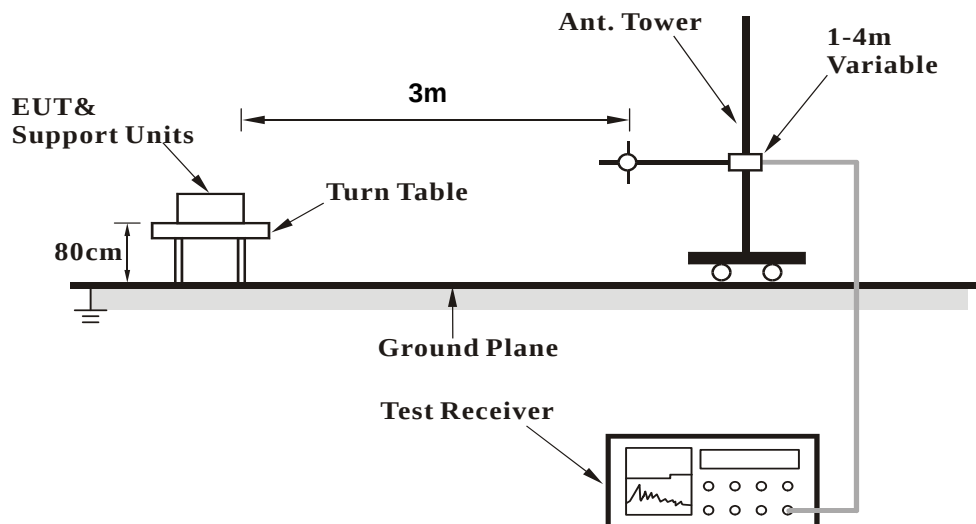
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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 ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) 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

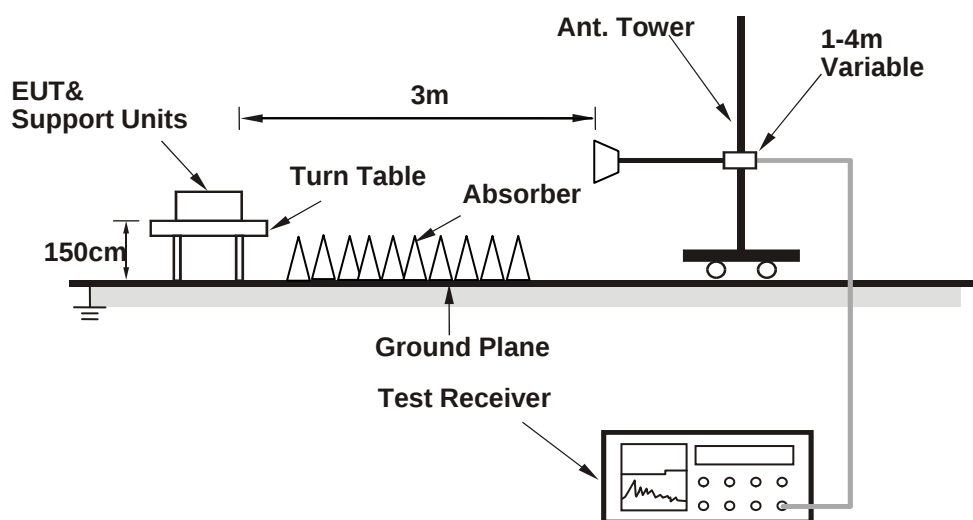
No deviation.

4.1.5 Test Setup

<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

- Placed the EUT on the testing table.
- Prepared notebook to act as communication partner and placed it outside of testing area.
- 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.
- The communication partner sent data to EUT by command "PING".

4.1.7 Test Results

CDD Mode

Above 1GHz Data:

802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	5100.00	63.7 PK	74.0	-10.3	1.78 H	256	59.20	4.50
2	5100.00	48.9 AV	54.0	-5.1	1.78 H	256	44.40	4.50
3	*5180.00	110.3 PK			1.57 H	311	68.10	42.20
4	*5180.00	100.8 AV			1.57 H	311	58.60	42.20
5	#6906.00	56.4 PK	68.2	-11.8	1.06 H	2	47.30	9.10
6	#10360.00	59.9 PK	74.0	-14.1	2.12 H	178	44.10	15.80
7	#10360.00	46.8 AV	54.0	-7.2	2.12 H	178	31.00	15.80
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	5100.00	62.9 PK	74.0	-11.1	1.22 V	233	58.40	4.50
2	5100.00	48.8 AV	54.0	-5.2	1.22 V	233	44.30	4.50
3	*5180.00	111.5 PK			4.00 V	231	69.30	42.20
4	*5180.00	101.7 AV			4.00 V	231	59.50	42.20
5	#6906.00	58.2 PK	68.2	-10.0	1.62 V	20	49.10	9.10
6	#10360.00	59.6 PK	74.0	-14.4	1.36 V	146	43.80	15.80
7	#10360.00	47.1 AV	54.0	-6.9	1.36 V	146	31.30	15.80

Remarks:

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

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

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	*5200.00	111.2 PK			1.52 H	308	69.00	42.20
2	*5200.00	101.6 AV			1.52 H	308	59.40	42.20
3	#10400.00	60.4 PK	74.0	-13.6	1.86 H	188	44.50	15.90
4	#10400.00	46.1 AV	54.0	-7.9	1.86 H	188	30.20	15.90
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	*5200.00	111.9 PK			4.00 V	230	69.70	42.20
2	*5200.00	102.3 AV			4.00 V	230	60.10	42.20
3	#10400.00	60.0 PK	74.0	-14.0	1.25 V	158	44.10	15.90
4	#10400.00	46.2 AV	54.0	-7.8	1.25 V	158	30.30	15.90

Remarks:

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

CHANNEL	TX Channel 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5240.00	111.3 PK			1.62 H	315	69.00	42.30
2	*5240.00	101.6 AV			1.62 H	315	59.30	42.30
3	5400.00	61.3 PK	74.0	-12.7	1.72 H	286	56.30	5.00
4	5400.00	49.0 AV	54.0	-5.0	1.72 H	286	44.00	5.00
5	#10480.00	60.4 PK	74.0	-13.6	1.72 H	193	44.20	16.20
6	#10480.00	46.3 AV	54.0	-7.7	1.72 H	193	30.10	16.20
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	*5240.00	111.6 PK			4.00 V	227	69.30	42.30
2	*5240.00	101.9 AV			4.00 V	227	59.60	42.30
3	5400.00	61.6 PK	74.0	-12.4	1.44 V	178	56.60	5.00
4	5400.00	49.2 AV	54.0	-4.8	1.44 V	178	44.20	5.00
5	#10480.00	60.7 PK	74.0	-13.3	1.35 V	161	44.50	16.20
6	#10480.00	46.6 AV	54.0	-7.4	1.35 V	161	30.40	16.20

Remarks:

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

CHANNEL	TX Channel 149	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5612.00	59.8 PK	68.2	-8.4	1.09 H	79	54.90	4.90
2	*5745.00	111.5 PK			1.09 H	79	68.70	42.80
3	*5745.00	102.1 AV			1.09 H	79	59.30	42.80
4	#5986.40	59.8 PK	68.2	-8.4	1.09 H	79	54.60	5.20
5	11490.00	66.1 PK	74.0	-7.9	1.48 H	98	50.30	15.80
6	11490.00	51.9 AV	54.0	-2.1	1.48 H	98	36.10	15.80
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	#5624.80	50.3 PK	68.2	-17.9	1.75 V	12	45.40	4.90
2	*5745.00	110.7 PK			1.75 V	12	67.90	42.80
3	*5745.00	101.1 AV			1.75 V	12	58.30	42.80
4	#5936.80	49.7 PK	68.2	-18.5	1.75 V	12	44.50	5.20
5	11490.00	63.7 PK	74.0	-10.3	1.33 V	188	47.90	15.80
6	11490.00	49.1 AV	54.0	-4.9	1.33 V	188	33.30	15.80

Remarks:

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

CHANNEL	TX Channel 157	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5785.00	110.5 PK			1.00 H	81	67.70	42.80
2	*5785.00	101.6 AV			1.00 H	81	58.80	42.80
3	11570.00	62.0 PK	74.0	-12.0	1.01 H	90	46.50	15.50
4	11570.00	48.7 AV	54.0	-5.3	1.01 H	90	33.20	15.50
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	*5785.00	110.6 PK			1.30 V	10	67.80	42.80
2	*5785.00	101.0 AV			1.30 V	10	58.20	42.80
3	11570.00	64.6 PK	74.0	-9.4	1.06 V	188	49.10	15.50
4	11570.00	49.8 AV	54.0	-4.2	1.06 V	188	34.30	15.50

Remarks:

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

CHANNEL	TX Channel 165	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5637.60	57.8 PK	68.2	-10.4	1.00 H	74	52.80	5.00
2	*5825.00	110.0 PK			1.00 H	74	67.20	42.80
3	*5825.00	100.6 AV			1.00 H	74	57.80	42.80
4	#5980.80	61.8 PK	68.2	-6.4	1.00 H	74	56.60	5.20
5	#6310.00	54.1 PK	74.0	-19.9	2.63 H	4	45.70	8.40
6	#6310.00	44.2 AV	54.0	-9.8	2.63 H	4	35.80	8.40
7	11650.00	63.7 PK	74.0	-10.3	1.00 H	347	47.90	15.80
8	11650.00	49.5 AV	54.0	-4.5	1.00 H	347	33.70	15.80
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	#5605.60	47.9 PK	68.2	-20.3	1.42 V	13	43.00	4.90
2	*5825.00	110.9 PK			1.42 V	13	68.10	42.80
3	*5825.00	101.1 AV			1.42 V	13	58.30	42.80
4	#5984.80	51.1 PK	68.2	-17.1	1.42 V	13	45.90	5.20
5	#6310.00	54.4 PK	74.0	-19.6	1.39 V	42	46.00	8.40
6	#6310.00	45.3 AV	54.0	-8.7	1.39 V	42	36.90	8.40
7	11650.00	67.0 PK	74.0	-7.0	2.07 V	274	51.20	15.80
8	11650.00	52.4 AV	54.0	-1.6	2.07 V	274	36.60	15.80

Remarks:

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

802.11ac (VHT20)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	5100.00	58.8 PK	74.0	-15.2	1.23 H	25	54.30	4.50
2	5100.00	47.1 AV	54.0	-6.9	1.23 H	25	42.60	4.50
3	*5180.00	108.1 PK			1.16 H	0	65.90	42.20
4	*5180.00	98.6 AV			1.16 H	0	56.40	42.20
5	#6908.00	56.5 PK	68.2	-11.7	1.12 H	3	47.30	9.20
6	#10380.00	60.5 PK	74.0	-13.5	1.35 H	246	44.60	15.90
7	#10380.00	46.8 AV	54.0	-7.2	1.35 H	246	30.90	15.90
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	5100.00	63.4 PK	74.0	-10.6	2.00 V	225	58.90	4.50
2	5100.00	48.7 AV	54.0	-5.3	2.00 V	225	44.20	4.50
3	*5180.00	109.2 PK			3.63 V	163	67.00	42.20
4	*5180.00	98.5 AV			3.63 V	163	56.30	42.20
5	#6908.00	58.5 PK	68.2	-9.7	1.15 V	265	49.30	9.20
6	#10380.00	60.5 PK	74.0	-13.5	1.82 V	316	44.60	15.90
7	#10380.00	46.9 AV	54.0	-7.1	1.82 V	316	31.00	15.90

Remarks:

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

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

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	*5200.00	109.2 PK			1.23 H	20	67.00	42.20
2	*5200.00	98.5 AV			1.23 H	20	56.30	42.20
3	#10400.00	60.2 PK	74.0	-13.8	1.43 H	251	44.30	15.90
4	#10400.00	47.1 AV	54.0	-6.9	1.43 H	251	31.20	15.90
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	*5200.00	109.9 PK			1.31 V	231	67.70	42.20
2	*5200.00	99.0 AV			1.31 V	231	56.80	42.20
3	#10400.00	60.5 PK	74.0	-13.5	1.76 V	300	44.60	15.90
4	#10400.00	47.3 AV	54.0	-6.7	1.76 V	300	31.40	15.90

Remarks:

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

CHANNEL	TX Channel 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5240.00	111.1 PK			1.18 H	16	68.80	42.30
2	*5240.00	99.7 AV			1.18 H	16	57.40	42.30
3	5395.00	60.6 PK	74.0	-13.4	1.32 H	21	55.70	4.90
4	5395.00	48.3 AV	54.0	-5.7	1.32 H	21	43.40	4.90
5	#10480.00	60.6 PK	74.0	-13.4	1.52 H	243	44.40	16.20
6	#10480.00	47.2 AV	54.0	-6.8	1.52 H	243	31.00	16.20
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	*5240.00	111.4 PK			2.18 V	232	69.10	42.30
2	*5240.00	100.2 AV			2.18 V	232	57.90	42.30
3	5395.00	61.0 PK	74.0	-13.0	2.41 V	163	56.10	4.90
4	5395.00	48.7 AV	54.0	-5.3	2.41 V	163	43.80	4.90
5	#10480.00	61.0 PK	74.0	-13.0	1.83 V	295	44.80	16.20
6	#10480.00	47.4 AV	54.0	-6.6	1.83 V	295	31.20	16.20

Remarks:

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

CHANNEL	TX Channel 149	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5628.00	57.9 PK	68.2	-10.3	1.12 H	353	52.90	5.00
2	*5745.00	109.9 PK			1.12 H	353	67.10	42.80
3	*5745.00	100.3 AV			1.12 H	353	57.50	42.80
4	#5947.20	58.4 PK	68.2	-9.8	1.12 H	353	53.20	5.20
5	11490.00	64.1 PK	74.0	-9.9	1.59 H	2	48.30	15.80
6	11490.00	50.0 AV	54.0	-4.0	1.59 H	2	34.20	15.80
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	#5629.60	58.3 PK	68.2	-9.9	1.55 V	278	53.30	5.00
2	*5745.00	108.4 PK			1.55 V	278	65.60	42.80
3	*5745.00	97.4 AV			1.55 V	278	54.60	42.80
4	#5977.60	59.1 PK	68.2	-9.1	1.55 V	278	53.90	5.20
5	11490.00	62.9 PK	74.0	-11.1	1.29 V	190	47.10	15.80
6	11490.00	49.1 AV	54.0	-4.9	1.29 V	190	33.30	15.80

Remarks:

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

CHANNEL	TX Channel 157	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5785.00	109.5 PK			1.23 H	340	66.70	42.80
2	*5785.00	99.8 AV			1.23 H	340	57.00	42.80
3	11570.00	62.6 PK	74.0	-11.4	1.69 H	2	47.10	15.50
4	11570.00	49.8 AV	54.0	-4.2	1.69 H	2	34.30	15.50
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	*5785.00	108.8 PK			1.71 V	277	66.00	42.80
2	*5785.00	98.1 AV			1.71 V	277	55.30	42.80
3	11570.00	65.1 PK	74.0	-8.9	1.75 V	184	49.60	15.50
4	11570.00	52.4 AV	54.0	-1.6	1.75 V	184	36.90	15.50

Remarks:

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

CHANNEL	TX Channel 165	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5627.20	57.2 PK	68.2	-11.0	1.15 H	342	52.30	4.90
2	*5825.00	109.8 PK			1.15 H	342	67.00	42.80
3	*5825.00	99.5 AV			1.15 H	342	56.70	42.80
4	#5984.80	61.0 PK	68.2	-7.2	1.15 H	342	55.80	5.20
5	#6310.00	53.2 PK	74.0	-20.8	1.35 H	256	44.80	8.40
6	#6310.00	42.6 AV	54.0	-11.4	1.35 H	256	34.20	8.40
7	11650.00	64.4 PK	74.0	-9.6	1.49 H	3	48.60	15.80
8	11650.00	51.1 AV	54.0	-2.9	1.49 H	3	35.30	15.80
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	#5610.40	57.7 PK	68.2	-10.5	1.67 V	275	52.80	4.90
2	*5825.00	109.2 PK			1.67 V	275	66.40	42.80
3	*5825.00	98.4 AV			1.67 V	275	55.60	42.80
4	#5980.80	60.3 PK	68.2	-7.9	1.67 V	275	55.10	5.20
5	#6310.00	54.6 PK	74.0	-19.4	1.68 V	223	46.20	8.40
6	#6310.00	44.8 AV	54.0	-9.2	1.68 V	223	36.40	8.40
7	11650.00	66.6 PK	74.0	-7.4	1.91 V	184	50.80	15.80
8	11650.00	52.8 AV	54.0	-1.2	1.91 V	184	37.00	15.80

Remarks:

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

802.11ac (VHT40)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	5148.00	65.0 PK	74.0	-9.0	1.94 H	16	60.40	4.60
2	5148.00	48.7 AV	54.0	-5.3	1.94 H	16	44.10	4.60
3	*5190.00	102.8 PK			1.90 H	225	60.60	42.20
4	*5190.00	93.1 AV			1.90 H	225	50.90	42.20
5	#6920.00	56.2 PK	68.2	-12.0	1.93 H	12	46.90	9.30
6	#10380.00	60.5 PK	74.0	-13.5	1.00 H	215	44.60	15.90
7	#10380.00	46.9 AV	54.0	-7.1	1.00 H	215	31.00	15.90
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	5148.00	73.0 PK	74.0	-1.0	3.86 V	222	68.40	4.60
2	5148.00	51.6 AV	54.0	-2.4	3.86 V	222	47.00	4.60
3	*5190.00	103.6 PK			1.88 V	161	61.40	42.20
4	*5190.00	92.5 AV			1.88 V	161	50.30	42.20
5	#6920.00	57.9 PK	68.2	-10.3	1.39 V	19	48.60	9.30
6	#10380.00	60.8 PK	74.0	-13.2	1.42 V	321	44.90	15.90
7	#10380.00	47.0 AV	54.0	-7.0	1.42 V	321	31.10	15.90

Remarks:

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

CHANNEL	TX Channel 46	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5230.00	106.6 PK			1.88 H	23	64.30	42.30
2	*5230.00	95.6 AV			1.88 H	23	53.30	42.30
3	5385.00	61.5 PK	74.0	-12.5	1.90 H	38	56.60	4.90
4	5385.00	48.4 AV	54.0	-5.6	1.90 H	38	43.50	4.90
5	#10460.00	60.5 PK	74.0	-13.5	1.07 H	223	44.60	15.90
6	#10460.00	47.1 AV	54.0	-6.9	1.07 H	223	31.20	15.90
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	*5230.00	107.5 PK			3.25 V	160	65.20	42.30
2	*5230.00	96.8 AV			3.25 V	160	54.50	42.30
3	5385.00	62.0 PK	74.0	-12.0	2.89 V	143	57.10	4.90
4	5385.00	48.7 AV	54.0	-5.3	2.89 V	143	43.80	4.90
5	#10460.00	60.9 PK	74.0	-13.1	1.37 V	294	45.00	15.90
6	#10460.00	47.3 AV	54.0	-6.7	1.37 V	294	31.40	15.90

Remarks:

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

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5600.80	57.9 PK	68.2	-10.3	1.34 H	344	53.00	4.90
2	*5755.00	106.1 PK			1.34 H	344	63.30	42.80
3	*5755.00	96.6 AV			1.34 H	344	53.80	42.80
4	#5930.40	58.7 PK	68.2	-9.5	1.34 H	344	53.50	5.20
5	#6714.00	53.3 PK	74.0	-20.7	1.66 H	144	44.50	8.80
6	#6714.00	42.2 AV	54.0	-11.8	1.66 H	144	33.40	8.80
7	11510.00	61.6 PK	74.0	-12.4	1.47 H	3	46.00	15.60
8	11510.00	48.3 AV	54.0	-5.7	1.47 H	3	32.70	15.60
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	#5601.60	59.4 PK	68.2	-8.8	1.75 V	279	54.50	4.90
2	*5755.00	106.0 PK			1.75 V	279	63.20	42.80
3	*5755.00	94.4 AV			1.75 V	279	51.60	42.80
4	#5955.20	59.2 PK	68.2	-9.0	1.75 V	279	54.00	5.20
5	#6714.00	53.5 PK	74.0	-20.5	1.69 V	315	44.70	8.80
6	#6714.00	42.9 AV	54.0	-11.1	1.69 V	315	34.10	8.80
7	11510.00	62.1 PK	74.0	-11.9	2.03 V	189	46.50	15.60
8	11510.00	49.0 AV	54.0	-5.0	2.03 V	189	33.40	15.60

Remarks:

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

CHANNEL	TX Channel 159	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5648.00	58.7 PK	68.2	-9.5	1.28 H	342	53.70	5.00
2	*5795.00	106.8 PK			1.28 H	342	64.00	42.80
3	*5795.00	97.2 AV			1.28 H	342	54.40	42.80
4	#5954.40	59.9 PK	68.2	-8.3	1.28 H	342	54.70	5.20
5	#6760.00	53.8 PK	74.0	-20.2	1.07 H	143	44.80	9.00
6	#6760.00	42.4 AV	54.0	-11.6	1.07 H	143	33.40	9.00
7	11590.00	61.4 PK	74.0	-12.6	1.85 H	15	45.90	15.50
8	11590.00	47.5 AV	54.0	-6.5	1.85 H	15	32.00	15.50
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	#5626.40	58.6 PK	68.2	-9.6	1.89 V	236	53.70	4.90
2	*5795.00	107.0 PK			1.89 V	236	64.20	42.80
3	*5795.00	96.5 AV			1.89 V	236	53.70	42.80
4	#5951.20	60.2 PK	68.2	-8.0	1.89 V	236	55.00	5.20
5	#6760.00	55.0 PK	74.0	-19.0	1.25 V	185	46.00	9.00
6	#6760.00	44.2 AV	54.0	-9.8	1.25 V	185	35.20	9.00
7	11590.00	63.7 PK	74.0	-10.3	1.99 V	184	48.20	15.50
8	11590.00	49.4 AV	54.0	-4.6	1.99 V	184	33.90	15.50

Remarks:

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

802.11ac (VHT80)

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

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	69.0 PK	74.0	-5.0	3.42 H	48	64.40	4.60
2	5150.00	51.4 AV	54.0	-2.6	3.42 H	48	46.80	4.60
3	*5210.00	102.1 PK			3.60 H	39	59.80	42.30
4	*5210.00	91.5 AV			3.60 H	39	49.20	42.30
5	#6946.00	65.8 PK	68.2	-2.4	1.33 H	5	56.50	9.30
6	#10420.00	60.4 PK	74.0	-13.6	1.63 H	248	44.40	16.00
7	#10420.00	47.0 AV	54.0	-7.0	1.63 H	248	31.00	16.00
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	5150.00	70.8 PK	74.0	-3.2	3.95 V	249	66.20	4.60
2	5150.00	53.0 AV	54.0	-1.0	3.95 V	249	48.40	4.60
3	*5210.00	104.1 PK			3.96 V	242	61.80	42.30
4	*5210.00	93.8 AV			3.96 V	242	51.50	42.30
5	#6946.00	57.3 PK	68.2	-10.9	1.67 V	270	48.00	9.30
6	#10420.00	60.8 PK	74.0	-13.2	1.82 V	43	44.80	16.00
7	#10420.00	47.2 AV	54.0	-6.8	1.82 V	43	31.20	16.00

Remarks:

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

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

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	#5627.20	59.1 PK	68.2	-9.1	1.14 H	357	54.20	4.90
2	*5775.00	103.5 PK			1.14 H	357	60.70	42.80
3	*5775.00	93.5 AV			1.14 H	357	50.70	42.80
4	#5942.40	59.1 PK	68.2	-9.1	1.14 H	357	53.90	5.20
5	#6416.00	52.3 PK	74.0	-21.7	1.79 H	2	44.20	8.10
6	#6416.00	40.8 AV	54.0	-13.2	1.79 H	2	32.70	8.10
7	11550.00	61.4 PK	74.0	-12.6	1.48 H	2	45.90	15.50
8	11550.00	47.0 AV	54.0	-7.0	1.48 H	2	31.50	15.50
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	#5624.00	59.2 PK	68.2	-9.0	1.68 V	281	54.30	4.90
2	*5775.00	103.8 PK			1.68 V	281	61.00	42.80
3	*5775.00	92.9 AV			1.68 V	281	50.10	42.80
4	#5927.20	59.1 PK	68.2	-9.1	1.68 V	281	53.90	5.20
5	#6416.00	53.4 PK	74.0	-20.6	1.60 V	311	45.30	8.10
6	#6416.00	42.1 AV	54.0	-11.9	1.60 V	311	34.00	8.10
7	11550.00	61.7 PK	74.0	-12.3	1.94 V	189	46.20	15.50
8	11550.00	47.9 AV	54.0	-6.1	1.94 V	189	32.40	15.50

Remarks:

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

Beamforming Mode

Above 1GHz Data:

802.11ac (VHT20)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	5108.00	64.0 PK	74.0	-10.0	1.44 H	45	59.50	4.50
2	5108.00	52.5 AV	54.0	-1.5	1.44 H	45	48.00	4.50
3	*5180.00	114.2 PK			1.44 H	43	72.00	42.20
4	*5180.00	105.4 AV			1.44 H	43	63.20	42.20
5	#6906.00	57.3 PK	68.2	-10.9	2.29 H	105	48.20	9.10
6	#10360.00	60.7 PK	74.0	-13.3	1.02 H	251	44.90	15.80
7	#10360.00	46.5 AV	54.0	-7.5	1.02 H	251	30.70	15.80
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	5108.00	60.6 PK	74.0	-13.4	1.83 V	46	56.10	4.50
2	5108.00	48.9 AV	54.0	-5.1	1.83 V	46	44.40	4.50
3	*5180.00	111.5 PK			1.96 V	35	69.30	42.20
4	*5180.00	100.5 AV			1.96 V	35	58.30	42.20
5	#6906.00	58.9 PK	68.2	-9.3	1.85 V	358	49.80	9.10
6	#10360.00	60.5 PK	74.0	-13.5	1.43 V	152	44.70	15.80
7	#10360.00	46.5 AV	54.0	-7.5	1.43 V	152	30.70	15.80

Remarks:

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

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

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	*5200.00	112.7 PK			1.67 H	48	70.50	42.20
2	*5200.00	103.3 AV			1.67 H	48	61.10	42.20
3	5367.00	64.5 PK	74.0	-9.5	1.47 H	230	59.60	4.90
4	5367.00	52.9 AV	54.0	-1.1	1.47 H	230	48.00	4.90
5	#10400.00	61.0 PK	74.0	-13.0	1.00 H	263	45.10	15.90
6	#10400.00	46.9 AV	54.0	-7.1	1.00 H	263	31.00	15.90
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	*5200.00	109.7 PK			1.88 V	53	67.50	42.20
2	*5200.00	100.5 AV			1.88 V	53	58.30	42.20
3	5367.00	62.4 PK	74.0	-11.6	1.74 V	68	57.50	4.90
4	5367.00	50.7 AV	54.0	-3.3	1.74 V	68	45.80	4.90
5	#10400.00	60.6 PK	74.0	-13.4	1.48 V	162	44.70	15.90
6	#10400.00	46.6 AV	54.0	-7.4	1.48 V	162	30.70	15.90

Remarks:

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

CHANNEL	TX Channel 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5240.00	111.9 PK			1.44 H	114	69.60	42.30
2	*5240.00	102.7 AV			1.44 H	114	60.40	42.30
3	5408.00	65.5 PK	74.0	-8.5	1.44 H	88	60.60	4.90
4	5408.00	53.0 AV	54.0	-1.0	1.44 H	88	48.10	4.90
5	#10480.00	61.5 PK	74.0	-12.5	1.07 H	258	45.30	16.20
6	#10480.00	47.1 AV	54.0	-6.9	1.07 H	258	30.90	16.20
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	*5240.00	110.3 PK			1.62 V	42	68.00	42.30
2	*5240.00	101.2 AV			1.62 V	42	58.90	42.30
3	5408.00	62.0 PK	74.0	-12.0	1.53 V	34	57.10	4.90
4	5408.00	50.6 AV	54.0	-3.4	1.53 V	34	45.70	4.90
5	#10480.00	61.0 PK	74.0	-13.0	1.59 V	168	44.80	16.20
6	#10480.00	46.9 AV	54.0	-7.1	1.59 V	168	30.70	16.20

Remarks:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5602.40	61.2 PK	68.2	-7.0	1.22 H	69	56.30	4.90
2	*5745.00	115.6 PK			1.22 H	69	72.80	42.80
3	*5745.00	106.0 AV			1.22 H	69	63.20	42.80
4	#5978.40	60.8 PK	68.2	-7.4	1.22 H	69	55.60	5.20
5	11490.00	65.1 PK	74.0	-8.9	1.33 H	94	49.30	15.80
6	11490.00	51.8 AV	54.0	-2.2	1.33 H	94	36.00	15.80
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	#5618.40	60.5 PK	68.2	-7.7	2.36 V	261	55.60	4.90
2	*5745.00	112.8 PK			2.36 V	261	70.00	42.80
3	*5745.00	102.7 AV			2.36 V	261	59.90	42.80
4	#5940.00	59.5 PK	68.2	-8.7	2.36 V	261	54.30	5.20
5	11490.00	63.4 PK	74.0	-10.6	1.83 V	252	47.60	15.80
6	11490.00	50.1 AV	54.0	-3.9	1.83 V	252	34.30	15.80

Remarks:

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

CHANNEL	TX Channel 157	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5631.20	60.5 PK	68.2	-7.7	1.58 H	280	55.50	5.00
2	*5785.00	112.8 PK			1.58 H	280	70.00	42.80
3	*5785.00	104.0 AV			1.58 H	280	61.20	42.80
4	#5952.00	62.5 PK	68.2	-5.7	1.58 H	280	57.30	5.20
5	11570.00	63.6 PK	74.0	-10.4	1.57 H	69	48.10	15.50
6	11570.00	50.2 AV	54.0	-3.8	1.57 H	69	34.70	15.50
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	#5621.60	63.2 PK	68.2	-5.0	1.47 V	11	58.30	4.90
2	*5785.00	112.1 PK			1.47 V	11	69.30	42.80
3	*5785.00	102.0 AV			1.47 V	11	59.20	42.80
4	#5938.40	64.0 PK	68.2	-4.2	1.47 V	11	58.80	5.20
5	11570.00	63.3 PK	74.0	-10.7	1.00 V	190	47.80	15.50
6	11570.00	50.0 AV	54.0	-4.0	1.00 V	190	34.50	15.50

Remarks:

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

CHANNEL	TX Channel 165	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5640.00	61.2 PK	68.2	-7.0	3.04 H	115	56.20	5.00
2	*5825.00	113.6 PK			3.04 H	115	70.80	42.80
3	*5825.00	104.9 AV			3.04 H	115	62.10	42.80
4	#5993.00	67.2 PK	68.2	-1.0	1.46 H	138	62.00	5.20
5	11650.00	63.8 PK	74.0	-10.2	1.74 H	73	48.00	15.80
6	11650.00	51.1 AV	54.0	-2.9	1.74 H	73	35.30	15.80
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	#5604.00	58.3 PK	68.2	-9.9	1.84 V	258	53.40	4.90
2	*5825.00	112.5 PK			1.84 V	258	69.70	42.80
3	*5825.00	103.4 AV			1.84 V	258	60.60	42.80
4	#5993.60	63.8 PK	68.2	-4.4	1.84 V	258	58.60	5.20
5	11650.00	65.6 PK	74.0	-8.4	1.85 V	271	49.80	15.80
6	11650.00	51.8 AV	54.0	-2.2	1.85 V	271	36.00	15.80

Remarks:

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

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CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	69.5 PK	74.0	-4.5	1.53 H	105	64.90	4.60
2	5150.00	52.9 AV	54.0	-1.1	1.53 H	105	48.30	4.60
3	*5190.00	109.5 PK			1.64 H	318	67.30	42.20
4	*5190.00	99.7 AV			1.64 H	318	57.50	42.20
5	#6920.00	57.3 PK	68.2	-10.9	2.26 H	108	48.00	9.30
6	#10380.00	61.0 PK	74.0	-13.0	1.05 H	236	45.10	15.90
7	#10380.00	47.3 AV	54.0	-6.7	1.05 H	236	31.40	15.90
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	5150.00	61.7 PK	74.0	-12.3	1.81 V	46	57.10	4.60
2	5150.00	48.3 AV	54.0	-5.7	1.81 V	46	43.70	4.60
3	*5190.00	106.8 PK			1.97 V	36	64.60	42.20
4	*5190.00	95.5 AV			1.97 V	36	53.30	42.20
5	#6920.00	60.1 PK	68.2	-8.1	1.59 V	113	50.80	9.30
6	#10380.00	60.7 PK	74.0	-13.3	1.37 V	164	44.80	15.90
7	#10380.00	47.3 AV	54.0	-6.7	1.37 V	164	31.40	15.90

Remarks:

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

CHANNEL	TX Channel 46	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5230.00	112.5 PK			1.55 H	83	70.20	42.30
2	*5230.00	102.1 AV			1.55 H	83	59.80	42.30
3	5394.00	63.0 PK	74.0	-11.0	1.15 H	43	58.10	4.90
4	5394.00	50.3 AV	54.0	-3.7	1.15 H	43	45.40	4.90
5	#10460.00	61.2 PK	74.0	-12.8	1.00 H	243	45.30	15.90
6	#10460.00	47.5 AV	54.0	-6.5	1.00 H	243	31.60	15.90
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	*5230.00	109.8 PK			1.99 V	41	67.50	42.30
2	*5230.00	99.3 AV			1.99 V	41	57.00	42.30
3	5394.00	59.9 PK	74.0	-14.1	1.76 V	62	55.00	4.90
4	5394.00	47.7 AV	54.0	-6.3	1.76 V	62	42.80	4.90
5	#10460.00	60.8 PK	74.0	-13.2	1.43 V	157	44.90	15.90
6	#10460.00	47.2 AV	54.0	-6.8	1.43 V	157	31.30	15.90

Remarks:

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

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5609.60	59.5 PK	68.2	-8.7	2.24 H	304	54.60	4.90
2	*5755.00	113.6 PK			2.24 H	304	70.80	42.80
3	*5755.00	104.7 AV			2.24 H	304	61.90	42.80
4	#5924.00	60.4 PK	68.2	-7.8	2.24 H	304	55.20	5.20
5	11510.00	62.8 PK	74.0	-11.2	1.28 H	99	47.20	15.60
6	11510.00	49.4 AV	54.0	-4.6	1.28 H	99	33.80	15.60
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	#5606.40	61.8 PK	68.2	-6.4	1.55 V	335	56.90	4.90
2	*5755.00	108.9 PK			1.55 V	335	66.10	42.80
3	*5755.00	98.6 AV			1.55 V	335	55.80	42.80
4	#5930.40	61.2 PK	68.2	-7.0	1.55 V	335	56.00	5.20
5	11510.00	62.5 PK	74.0	-11.5	2.11 V	278	46.90	15.60
6	11510.00	48.0 AV	54.0	-6.0	2.11 V	278	32.40	15.60

Remarks:

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

CHANNEL	TX Channel 159	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5620.00	60.4 PK	68.2	-7.8	1.25 H	285	55.50	4.90
2	*5795.00	114.0 PK			1.25 H	285	71.20	42.80
3	*5795.00	105.0 AV			1.25 H	285	62.20	42.80
4	#5939.20	63.9 PK	68.2	-4.3	1.25 H	285	58.70	5.20
5	11590.00	61.7 PK	74.0	-12.3	1.83 H	78	46.20	15.50
6	11590.00	48.9 AV	54.0	-5.1	1.83 H	78	33.40	15.50
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	#5638.40	60.9 PK	68.2	-7.3	1.81 V	258	55.90	5.00
2	*5795.00	110.5 PK			1.81 V	258	67.70	42.80
3	*5795.00	100.1 AV			1.81 V	258	57.30	42.80
4	#5965.60	61.8 PK	68.2	-6.4	1.81 V	258	56.60	5.20
5	11590.00	60.8 PK	74.0	-13.2	2.09 V	283	45.30	15.50
6	11590.00	47.3 AV	54.0	-6.7	2.09 V	283	31.80	15.50

Remarks:

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

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

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	69.0 PK	74.0	-5.0	1.56 H	117	64.40	4.60
2	5150.00	52.8 AV	54.0	-1.2	1.56 H	117	48.20	4.60
3	*5210.00	107.0 PK			1.57 H	312	64.70	42.30
4	*5210.00	97.5 AV			1.57 H	312	55.20	42.30
5	#6946.00	57.1 PK	68.2	-11.1	1.23 H	100	47.80	9.30
6	#10420.00	60.5 PK	74.0	-13.5	1.08 H	223	44.50	16.00
7	#10420.00	46.8 AV	54.0	-7.2	1.08 H	223	30.80	16.00
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	5150.00	68.1 PK	74.0	-5.9	1.86 V	43	63.50	4.60
2	5150.00	50.1 AV	54.0	-3.9	1.86 V	43	45.50	4.60
3	*5210.00	106.6 PK			2.13 V	33	64.30	42.30
4	*5210.00	92.6 AV			2.13 V	33	50.30	42.30
5	#6946.00	58.6 PK	68.2	-9.6	1.50 V	357	49.30	9.30
6	#10420.00	60.4 PK	74.0	-13.6	1.29 V	175	44.40	16.00
7	#10420.00	46.7 AV	54.0	-7.3	1.29 V	175	30.70	16.00

Remarks:

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

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

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	#5634.40	61.6 PK	68.2	-6.6	1.27 H	318	56.60	5.00
2	*5775.00	111.6 PK			1.27 H	318	68.80	42.80
3	*5775.00	102.8 AV			1.27 H	318	60.00	42.80
4	#5928.80	62.5 PK	68.2	-5.7	1.27 H	318	57.30	5.20
5	11550.00	60.6 PK	74.0	-13.4	1.13 H	258	45.10	15.50
6	11550.00	47.7 AV	54.0	-6.3	1.13 H	258	32.20	15.50
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	#5649.60	62.9 PK	68.2	-5.3	2.43 V	260	57.90	5.00
2	*5775.00	113.3 PK			2.43 V	260	70.50	42.80
3	*5775.00	98.0 AV			2.43 V	260	55.20	42.80
4	#5924.80	61.5 PK	68.2	-6.7	2.43 V	260	56.30	5.20
5	11550.00	60.4 PK	74.0	-13.6	1.63 V	175	44.90	15.50
6	11550.00	46.6 AV	54.0	-7.4	1.63 V	175	31.10	15.50

Remarks:

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

Below 1GHz Worst-Case Data:

802.11a

CHANNEL	TX Channel 149	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	57.12	29.8 QP	40.0	-10.2	1.99 H	310	44.40	-14.60
2	270.99	34.6 QP	46.0	-11.4	1.00 H	215	47.70	-13.10
3	352.65	32.8 QP	46.0	-13.2	1.00 H	249	44.00	-11.20
4	525.69	31.4 QP	46.0	-14.6	1.49 H	275	39.20	-7.80
5	700.68	30.3 QP	46.0	-15.7	1.00 H	182	34.40	-4.10
6	1000.00	32.9 QP	54.0	-21.1	1.49 H	286	31.80	1.10
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	53.23	29.9 QP	40.0	-10.1	1.01 V	318	44.10	-14.20
2	272.94	28.3 QP	46.0	-17.7	1.01 V	35	41.30	-13.00
3	389.59	30.6 QP	46.0	-15.4	1.50 V	6	41.00	-10.40
4	533.47	28.9 QP	46.0	-17.1	1.01 V	104	36.60	-7.70
5	593.74	27.7 QP	46.0	-18.3	1.01 V	225	33.70	-6.00
6	823.17	26.9 QP	46.0	-19.1	2.00 V	54	28.50	-1.60

Remarks:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Test date: May 03, 2016 (Power Line Conducted Emission test)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
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, 2016	Feb. 25, 2017
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

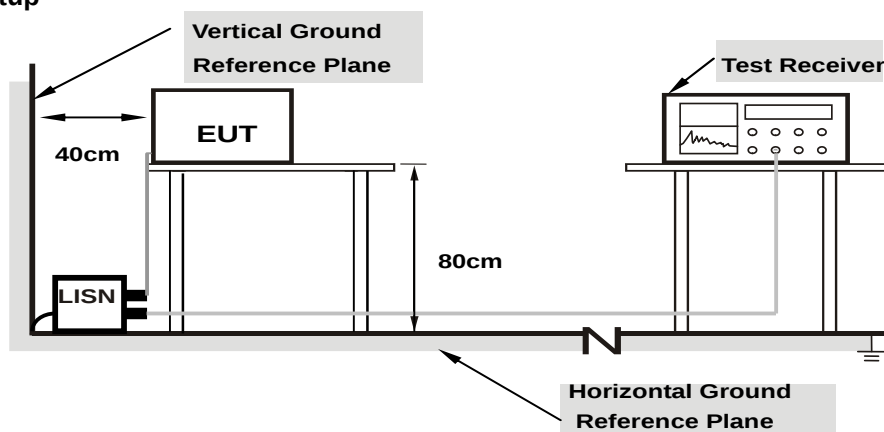
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

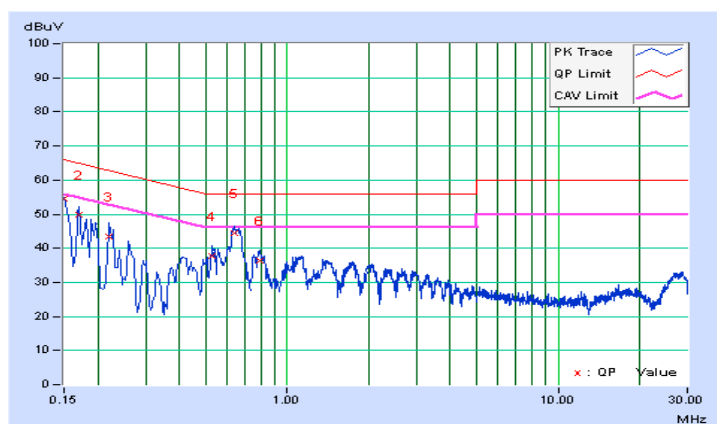
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.01	44.44	33.82	54.45	43.83	66.00	56.00	-11.55	-12.17
2	0.16955	10.02	39.86	27.49	49.88	37.51	64.98	54.98	-15.10	-17.47
3	0.22038	10.04	33.40	21.56	43.44	31.60	62.80	52.80	-19.37	-21.21
4	0.52927	10.14	27.46	20.91	37.60	31.05	56.00	46.00	-18.40	-14.95
5	0.63875	10.15	34.25	26.23	44.40	36.38	56.00	46.00	-11.60	-9.62
6	0.78840	10.17	26.10	18.88	36.27	29.05	56.00	46.00	-19.73	-16.95

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.

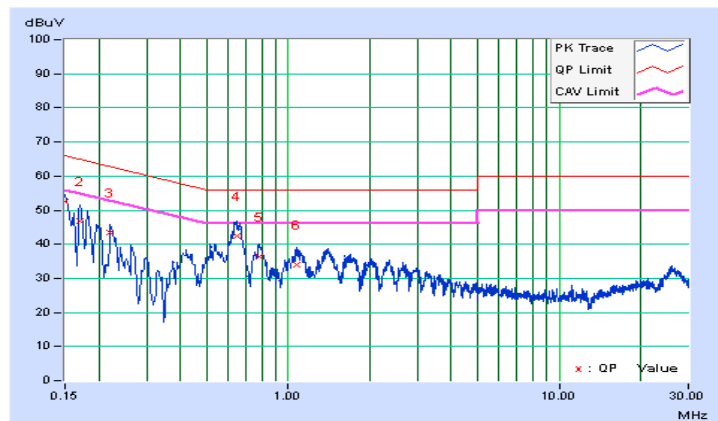


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.03	42.62	32.87	52.65	42.90	66.00	56.00	-13.35	-13.10
2	0.16955	10.03	36.86	22.21	46.89	32.24	64.98	54.98	-18.09	-22.74
3	0.22024	10.05	33.32	19.97	43.37	30.02	62.81	52.81	-19.44	-22.79
4	0.64266	10.16	32.32	21.08	42.48	31.24	56.00	46.00	-13.52	-14.76
5	0.78219	10.18	26.08	18.66	36.26	28.84	56.00	46.00	-19.74	-17.16
6	1.06885	10.21	23.68	16.00	33.89	26.21	56.00	46.00	-22.11	-19.79

REMARKS:

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



4.3 Transmit Power Measurement

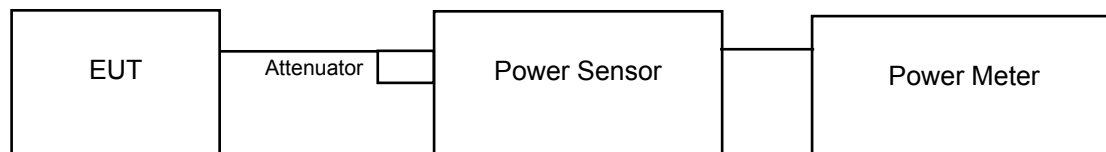
4.3.1 Limits of Transmit Power Measurement

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)

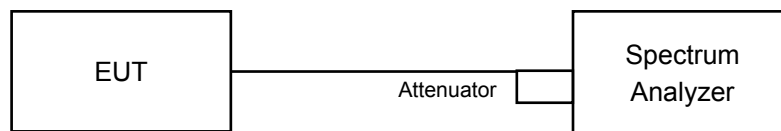
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

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



For 802.11ac (VHT80)



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

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

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

For 802.11ac (VHT80)

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

CDD Mode

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	19.18	19.15	19.22	248.578	23.95	30.00	Pass
40	5200	19.01	19.09	19.26	245.045	23.89	30.00	Pass
48	5240	19.14	19.11	19.51	252.836	24.03	30.00	Pass
149	5745	19.42	19.24	19.85	268.049	24.28	30.00	Pass
157	5785	19.27	19.05	19.78	259.941	24.15	30.00	Pass
165	5825	19.30	19.03	19.83	261.258	24.17	30.00	Pass

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				
36	5180	18.12	18.05	18.06	192.662	22.85	30.00	Pass
40	5200	18.13	18.20	18.32	199.002	22.99	30.00	Pass
48	5240	18.24	18.30	18.50	205.084	23.12	30.00	Pass
149	5745	18.50	18.27	18.40	207.121	23.16	30.00	Pass
157	5785	18.39	18.06	18.83	209.381	23.21	30.00	Pass
165	5825	18.13	18.10	18.98	208.646	23.19	30.00	Pass

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				
38	5190	16.95	16.49	16.85	142.528	21.54	30.00	Pass
46	5230	18.31	18.11	18.16	197.942	22.97	30.00	Pass
151	5755	18.18	18.08	18.51	200.993	23.03	30.00	Pass
159	5795	18.38	18.33	18.89	214.388	23.31	30.00	Pass

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				
42	5210	15.88	15.70	16.03	115.967	20.64	30.00	Pass
155	5775	18.32	18.19	18.62	206.615	23.15	30.00	Pass

Beamforming 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				
36	5180	18.08	18.22	18.27	197.786	22.96	27.31	Pass
40	5200	18.48	18.39	18.87	216.583	23.36	27.31	Pass
48	5240	17.10	17.02	17.21	154.238	21.88	27.31	Pass
149	5745	18.81	18.21	19.01	221.871	23.46	27.31	Pass
157	5785	18.88	18.31	19.14	227.067	23.56	27.31	Pass
165	5825	18.78	18.38	19.10	225.657	23.53	27.31	Pass

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.69 - 6) = 27.31\text{dBm}$.

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				
38	5190	14.72	14.91	15.16	93.432	19.70	27.31	Pass
46	5230	18.49	18.21	18.37	205.561	23.13	27.31	Pass
151	5755	18.54	18.29	19.01	218.519	23.39	27.31	Pass
159	5795	19.09	18.65	18.98	233.446	23.68	27.31	Pass

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.69 - 6) = 27.31\text{dBm}$.

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				
42	5210	14.97	15.17	15.51	99.853	19.99	27.31	Pass
155	5775	18.98	18.40	18.70	222.382	23.47	27.31	Pass

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.69 - 6) = 27.31\text{dBm}$.

26dB Bandwidth:

CDD Mode

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
36	5180	22.79	21.71	21.01	Pass
40	5200	23.69	21.78	21.38	Pass
48	5240	21.76	21.34	21.71	Pass

802.11ac (VHT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
36	5180	21.63	21.23	21.43	Pass
40	5200	21.79	21.38	21.50	Pass
48	5240	24.25	21.93	21.97	Pass

802.11ac (VHT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
38	5190	43.77	41.36	41.42	Pass
46	5230	48.80	45.13	41.45	Pass

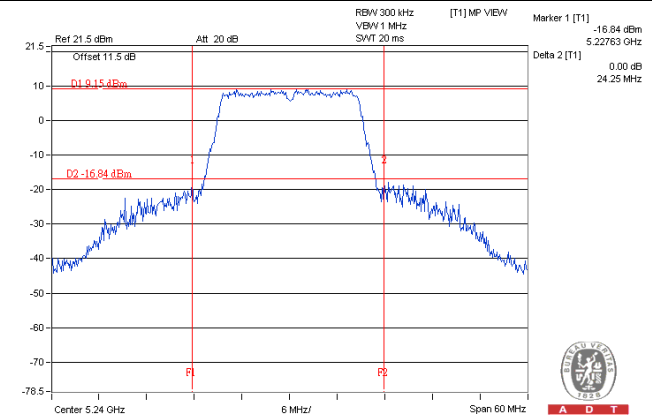
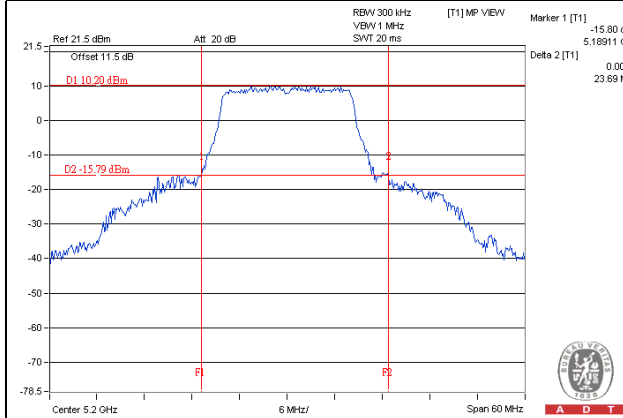
802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
42	5210	82.76	82.28	82.31	Pass

Spectrum Plot of Worst Value

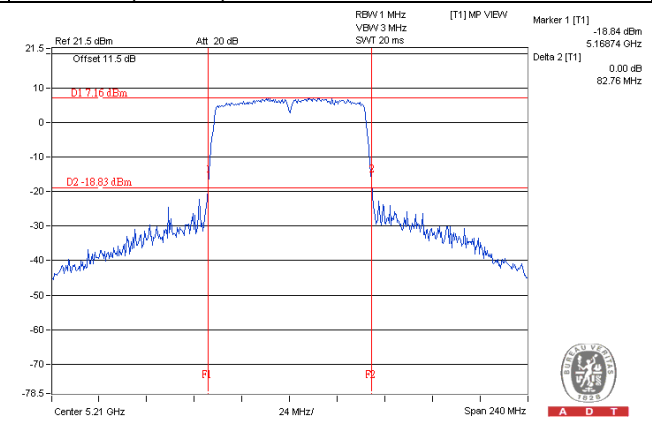
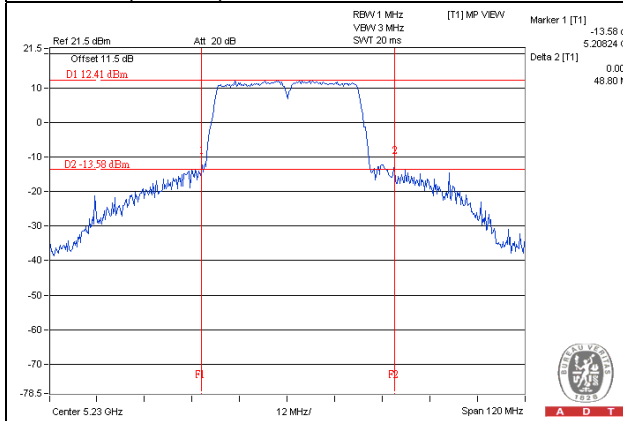
802.11a

802.11ac (VHT20)



802.11ac (VHT40)

802.11ac (VHT80)



Beamforming Mode

802.11ac (VHT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
36	5180	24.29	21.17	21.53	Pass
40	5200	23.19	21.72	21.92	Pass
48	5240	21.32	21.27	21.35	Pass

802.11ac (VHT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
38	5190	42.13	41.40	41.36	Pass
46	5230	49.75	46.66	49.97	Pass

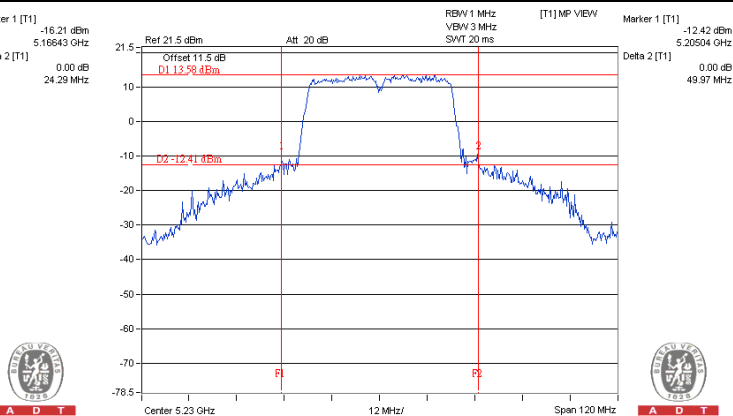
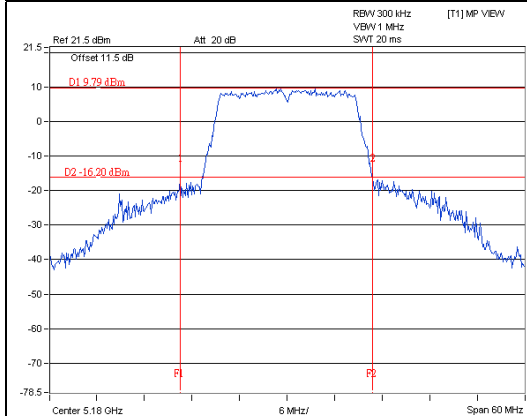
802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
42	5210	82.64	82.30	81.94	Pass

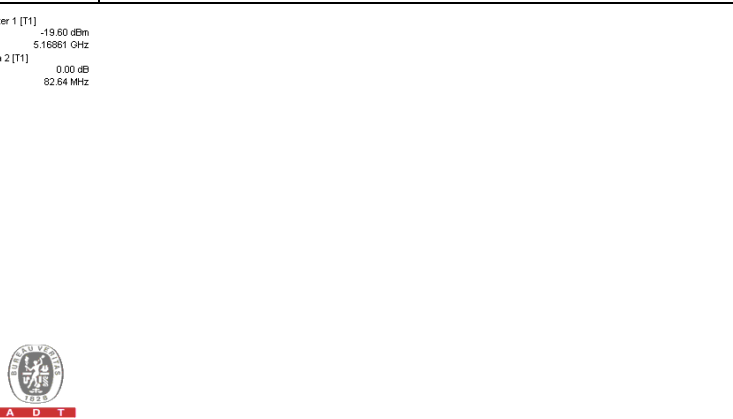
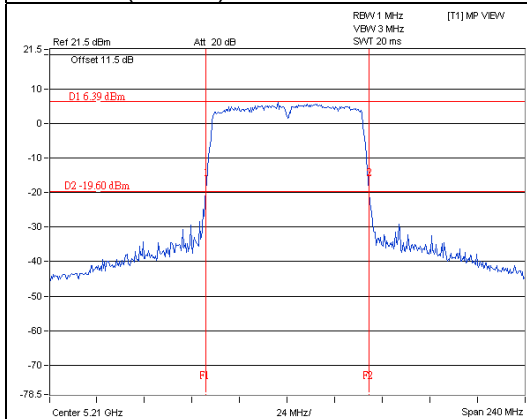
Spectrum Plot of Worst Value

802.11ac (VHT20)

802.11ac (VHT40)



802.11ac (VHT80)



Occupied Bandwidth:

CDD Mode

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
36	5180	17.04	17.04	16.80
40	5200	16.92	16.80	16.80
48	5240	16.92	16.80	16.92
149	5745	16.92	16.92	16.92
157	5785	17.04	16.80	17.04
165	5825	17.04	16.80	16.92

802.11ac (VHT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
36	5180	17.88	18.00	17.88
40	5200	18.00	17.88	17.88
48	5240	17.88	17.88	18.00
149	5745	18.00	18.00	17.88
157	5785	18.12	17.88	18.00
165	5825	18.12	18.00	17.88

802.11ac (VHT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
38	5190	36.72	36.72	36.96
46	5230	36.72	36.72	36.48
151	5755	36.72	36.72	36.72
159	5795	36.96	36.72	36.72

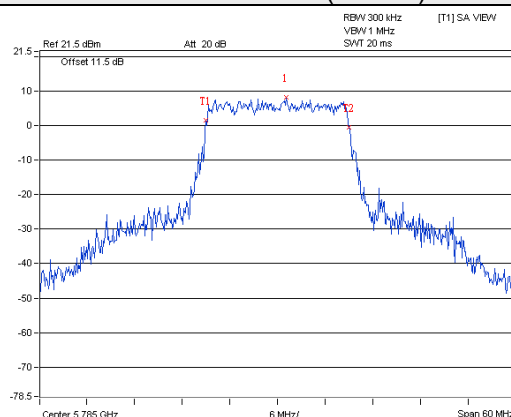
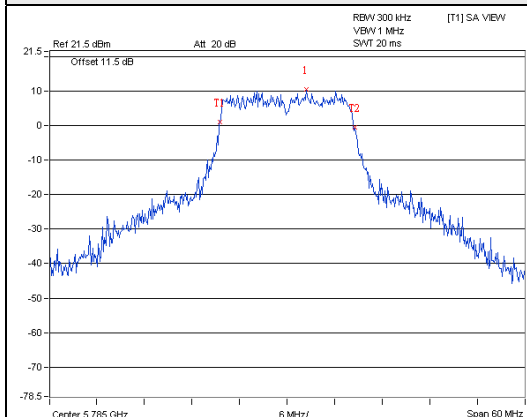
802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
42	5210	75.84	75.84	76.32
155	5775	75.36	76.32	76.32

Spectrum Plot of Worst Value

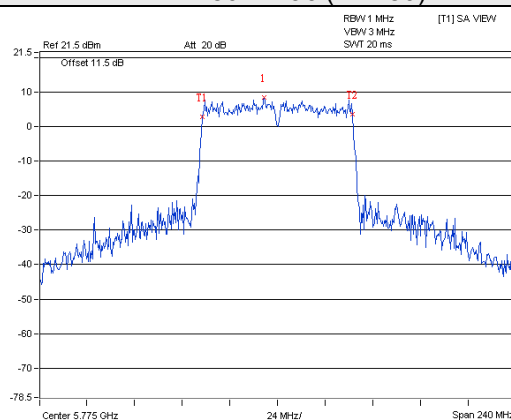
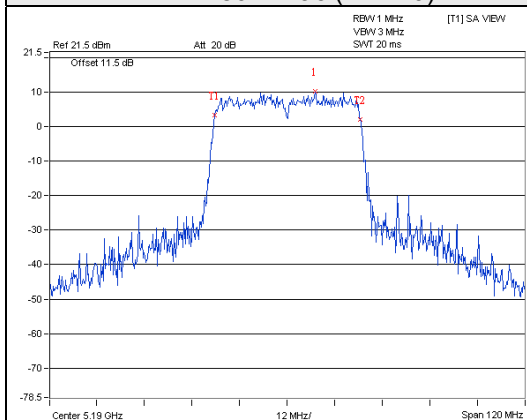
802.11a

802.11ac (VHT20)



802.11ac (VHT40)

802.11ac (VHT80)



Beamforming Mode

802.11ac (VHT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
36	5180	17.88	18.00	17.88
40	5200	17.88	18.00	18.00
48	5240	18.00	17.88	18.00
149	5745	17.88	17.88	18.12
157	5785	18.12	17.88	18.00
165	5825	17.88	18.00	18.12

802.11ac (VHT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
38	5190	36.72	36.72	36.72
46	5230	36.72	36.72	36.72
151	5755	36.72	36.48	36.96
159	5795	37.20	36.72	36.72

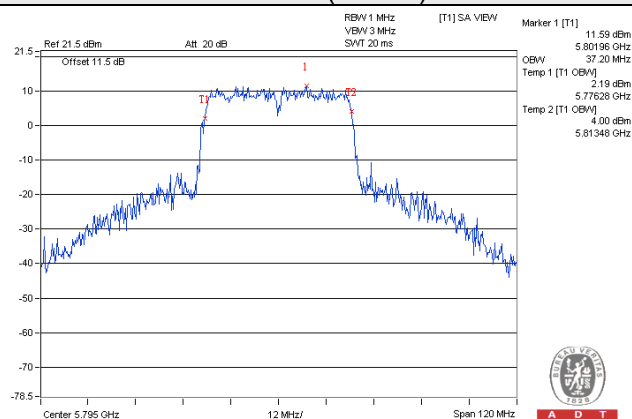
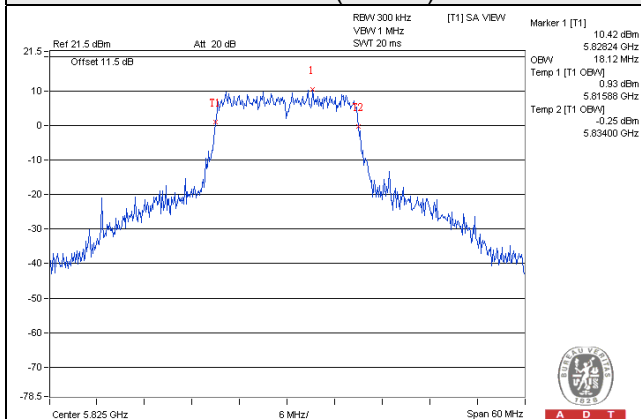
802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
42	5210	76.32	75.84	76.32
155	5775	76.32	76.32	76.32

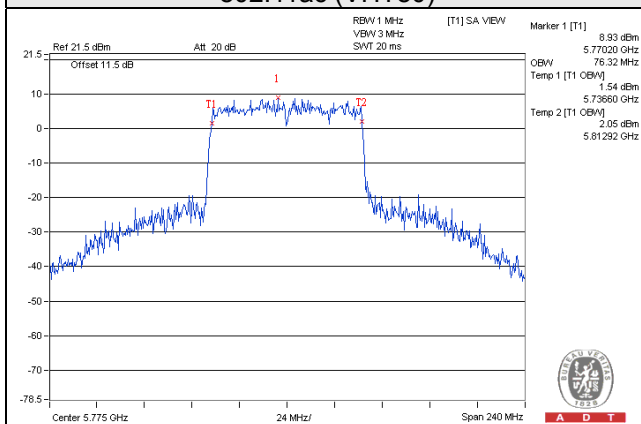
Spectrum Plot of Worst Value

802.11ac (VHT20)

802.11ac (VHT40)



802.11ac (VHT80)

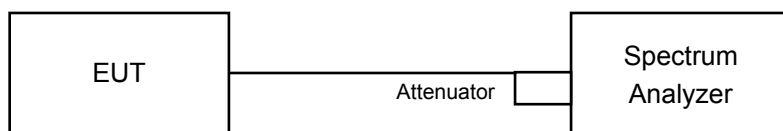


4.4 Peak Power Spectral Density Measurement

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	11dBm/ MHz
		Mobile and Portable client device	
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 band:

Duty cycle of test signal is > 98 %

Using method SA-1

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

Duty cycle of test signal is < 98 %

Using method SA-2

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

For U-NII-3 band:

Duty cycle of test signal is > 98 %

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 300 kHz, Set VBW $\geq$ 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 $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$
- e. Sweep time = auto, trigger set to "free run".
- f. Trace average at least 100 traces in power averaging mode.
- g. Record the max value

Duty cycle of test signal is < 98 %

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 300 kHz, Set VBW $\geq$ 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 $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$
- e. Sweep time = auto, trigger set to "free run".
- f. Trace average at least 100 traces in power averaging mode.
- g. Record the max value and add $10 \log (1/\text{duty cycle})$

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 Band

CDD Mode

802.11a

Chan.	Freq. (MHz)	PSD (dBm)			Total PSD (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
36	5180	5.81	5.74	5.75	10.54	14.31	Pass
40	5200	5.33	5.70	5.96	10.44	14.31	Pass
48	5240	5.89	5.62	6.11	10.65	14.31	Pass

Note:

- 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.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $17-(8.69-6) = 14.31\text{dBm}$.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD (dBm)			Total PSD (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
36	5180	4.10	4.47	4.92	9.28	14.31	Pass
40	5200	4.29	4.90	4.70	9.41	14.31	Pass
48	5240	4.37	5.05	5.03	9.60	14.31	Pass

Note:

- 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.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $17-(8.69-6) = 14.31\text{dBm}$.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD (dBm)			Total PSD (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
38	5190	0.07	-0.04	0.16	4.84	14.31	Pass
46	5230	1.41	0.84	1.56	6.05	14.31	Pass

Note:

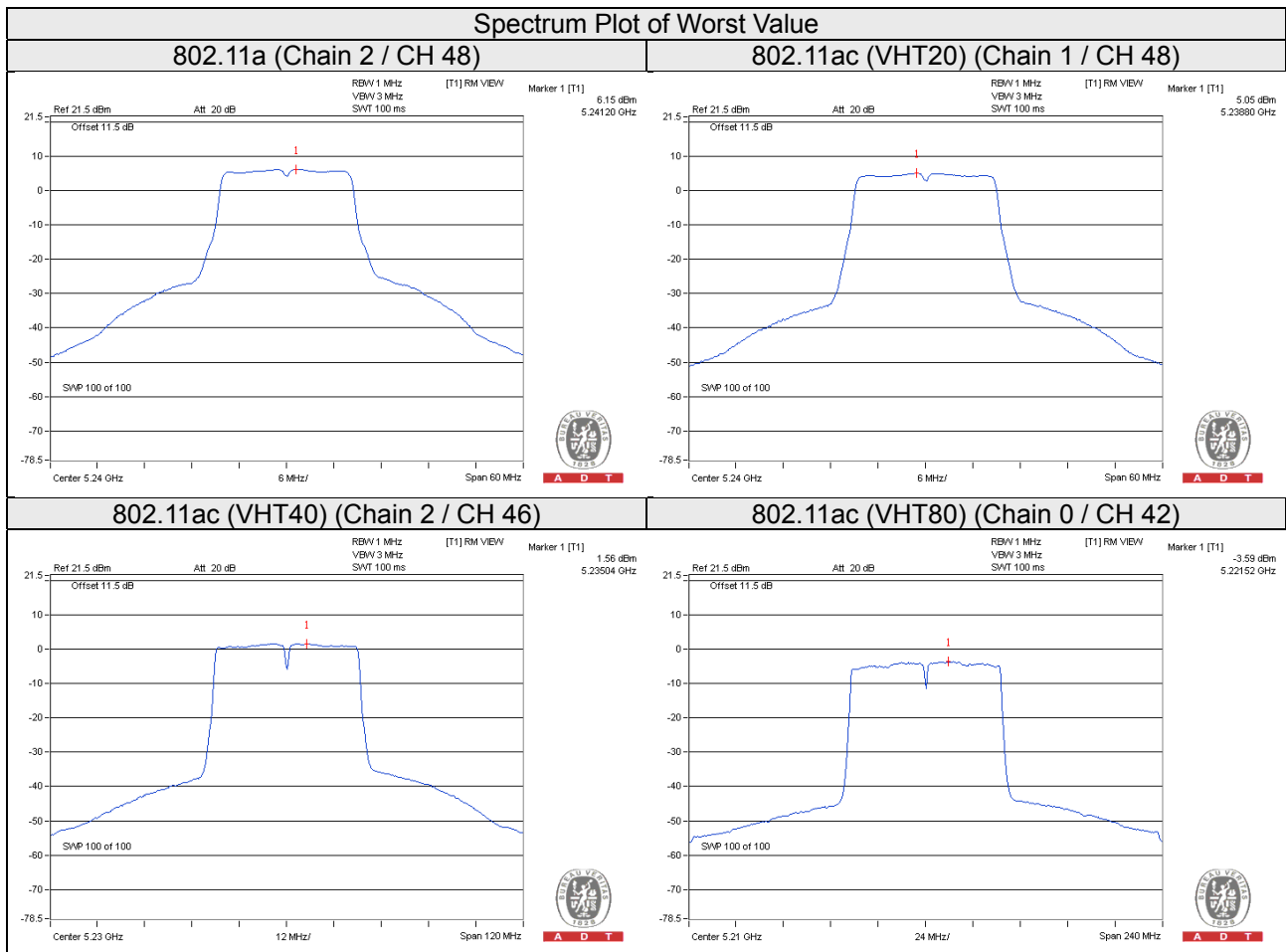
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $17-(8.69-6) = 14.31\text{dBm}$.

802.11ac (VHT80)

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					
42	5210	-3.59	-3.94	-4.02	0.92	0.19	1.11	14.31	Pass

Note:

- 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.
- Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $17 - (8.69 - 6) = 14.31\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.



Beamforming Mode

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD (dBm)			Total PSD (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
36	5180	4.75	4.41	4.47	9.32	14.31	Pass
40	5200	4.60	4.51	5.41	9.63	14.31	Pass
48	5240	3.16	3.34	3.72	8.18	14.31	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $17-(8.69-6) = 14.31\text{dBm}$.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD (dBm)			Total PSD (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
38	5190	-1.71	-1.70	-1.67	3.08	14.31	Pass
46	5230	1.42	1.47	1.99	6.41	14.31	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $17-(8.69-6) = 14.31\text{dBm}$.

802.11ac (VHT80)

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					
42	5210	-4.96	-4.47	-4.29	0.20	0.19	0.39	14.31	Pass

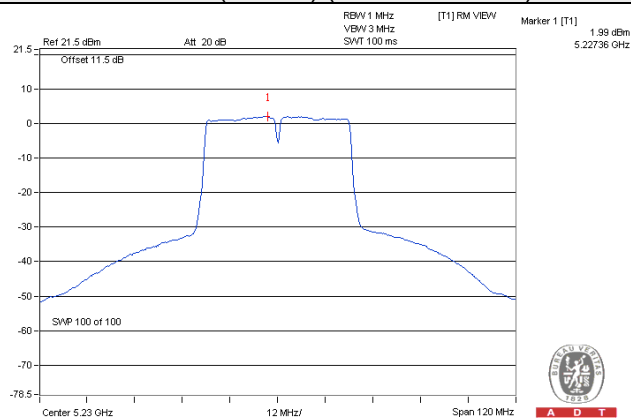
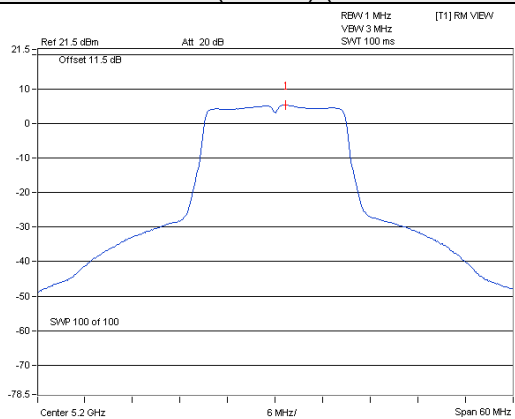
Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $17-(8.69-6) = 14.31\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

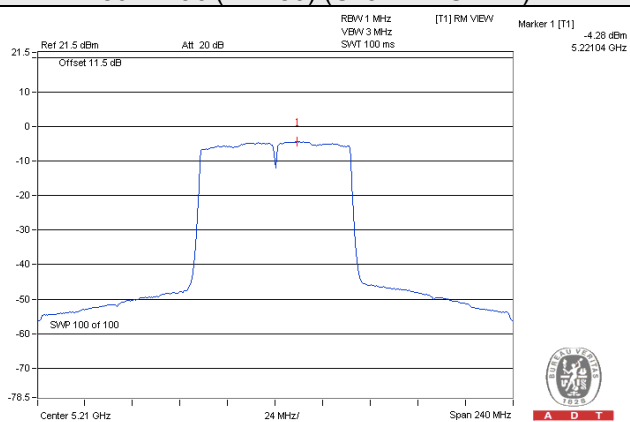
Spectrum Plot of Worst Value

802.11ac (VHT20) (Chain 2 / CH 40)

802.11ac (VHT40) (Chain 2 / CH 46)



802.11ac (VHT80) (Chain 2 / CH 42)



For U-NII-3 Band

CDD Mode

802.11a

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	149	5745	-1.61	0.61	4.77	5.38	27.31	Pass
	157	5785	-2.03	0.19	4.77	4.96	27.31	Pass
	165	5825	-1.78	0.44	4.77	5.21	27.31	Pass
1	149	5745	-2.04	0.18	4.77	4.95	27.31	Pass
	157	5785	-2.26	-0.04	4.77	4.73	27.31	Pass
	165	5825	-1.88	0.34	4.77	5.11	27.31	Pass
2	149	5745	-2.09	0.13	4.77	4.90	27.31	Pass
	157	5785	-1.98	0.24	4.77	5.01	27.31	Pass
	165	5825	-0.89	1.33	4.77	6.10	27.31	Pass

Note:

- 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.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $30-(8.69-6) = 27.31\text{dBm}$.

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	149	5745	-2.92	-0.70	4.77	4.07	27.31	Pass
	157	5785	-3.01	-0.79	4.77	3.98	27.31	Pass
	165	5825	-2.25	-0.03	4.77	4.74	27.31	Pass
1	149	5745	-3.49	-1.27	4.77	3.50	27.31	Pass
	157	5785	-3.21	-0.99	4.77	3.78	27.31	Pass
	165	5825	-2.97	-0.75	4.77	4.02	27.31	Pass
2	149	5745	-3.22	-1.00	4.77	3.77	27.31	Pass
	157	5785	-3.08	-0.86	4.77	3.91	27.31	Pass
	165	5825	-2.90	-0.68	4.77	4.09	27.31	Pass

Note:

- 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.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $30-(8.69-6) = 27.31\text{dBm}$.

802.11ac (VHT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	151	5755	-6.86	-4.64	4.77	0.13	27.31	Pass
	159	5795	-6.44	-4.22	4.77	0.55	27.31	Pass
1	151	5755	-8.04	-5.82	4.77	-1.05	27.31	Pass
	159	5795	-6.99	-4.77	4.77	0.00	27.31	Pass
2	151	5755	-7.26	-5.04	4.77	-0.27	27.31	Pass
	159	5795	-6.78	-4.56	4.77	0.21	27.31	Pass

Note:

- 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.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $30-(8.69-6) = 27.31\text{dBm}$.

802.11ac (VHT80)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Duty factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	155	5775	-9.92	-7.70	4.77	0.19	-2.74	27.31	Pass
1	155	5775	-10.22	-8.00	4.77	0.19	-3.04	27.31	Pass
2	155	5775	-9.91	-7.69	4.77	0.19	-2.73	27.31	Pass

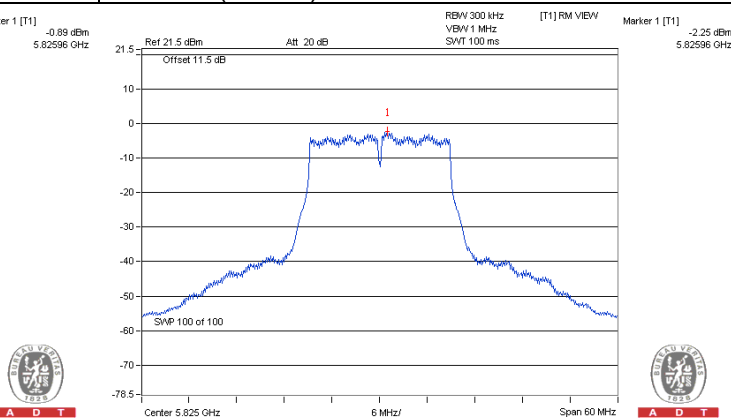
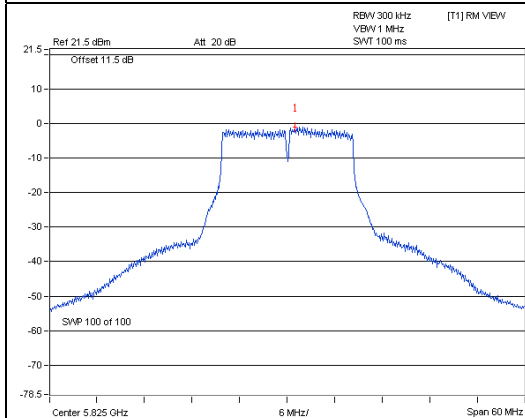
Note:

- 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.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $30-(8.69-6) = 27.31\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

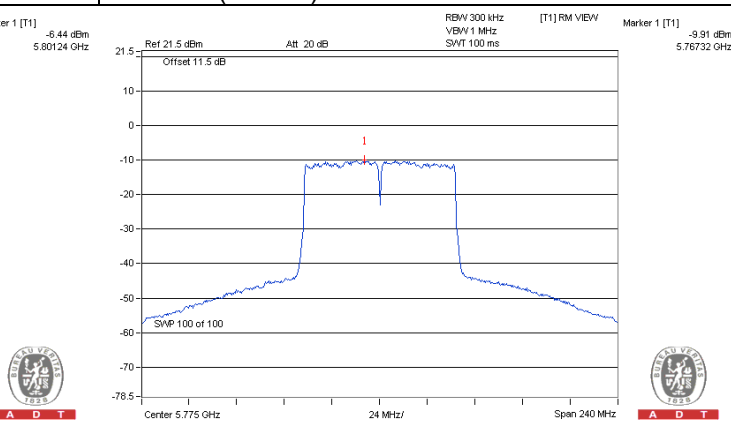
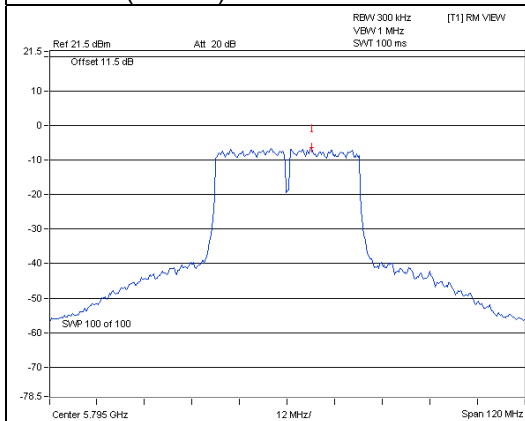
802.11a

802.11ac (VHT20)



802.11ac (VHT40)

802.11ac (VHT80)



Beamforming Mode

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	149	5745	-3.06	-0.84	4.77	3.93	27.31	Pass
	157	5785	-3.02	-0.80	4.77	3.97	27.31	Pass
	165	5825	-2.52	-0.30	4.77	4.47	27.31	Pass
1	149	5745	-4.05	-1.83	4.77	2.94	27.31	Pass
	157	5785	-3.37	-1.15	4.77	3.62	27.31	Pass
	165	5825	-2.96	-0.74	4.77	4.03	27.31	Pass
2	149	5745	-2.72	-0.50	4.77	4.27	27.31	Pass
	157	5785	-2.68	-0.46	4.77	4.31	27.31	Pass
	165	5825	-2.55	-0.33	4.77	4.44	27.31	Pass

Note:

- 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.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $30 - (8.69 - 6) = 27.31\text{dBm}$.

802.11ac (VHT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	151	5755	-6.81	-4.59	4.77	0.18	27.31	Pass
	159	5795	-6.11	-3.89	4.77	0.88	27.31	Pass
1	151	5755	-6.58	-4.36	4.77	0.41	27.31	Pass
	159	5795	-6.54	-4.32	4.77	0.45	27.31	Pass
2	151	5755	-6.59	-4.37	4.77	0.40	27.31	Pass
	159	5795	-6.51	-4.29	4.77	0.48	27.31	Pass

Note:

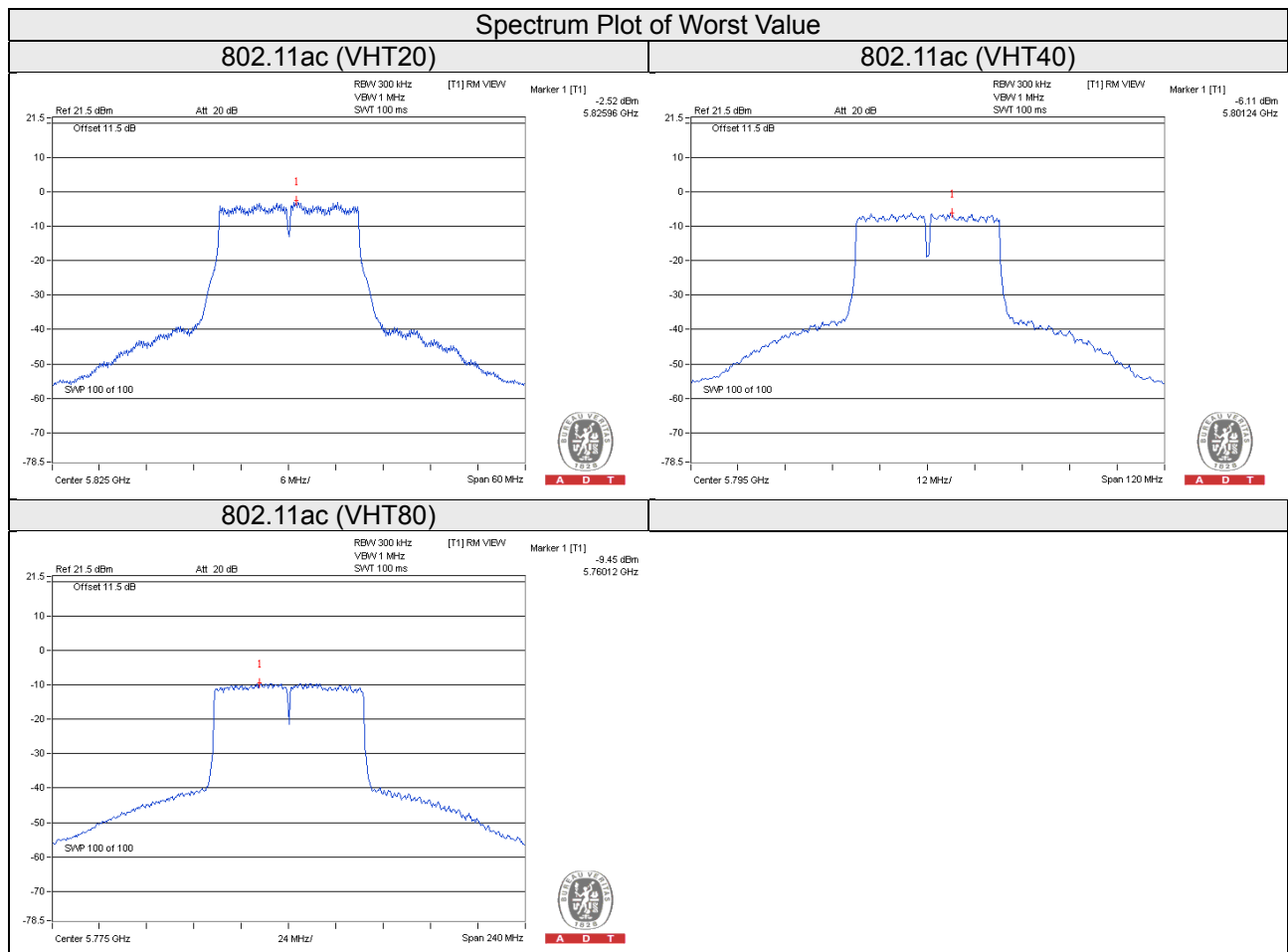
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $30 - (8.69 - 6) = 27.31\text{dBm}$.

802.11ac (VHT80)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Duty factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	155	5775	-9.45	-7.23	4.77	0.19	-2.27	27.31	Pass
1	155	5775	-10.21	-7.99	4.77	0.19	-3.03	27.31	Pass
2	155	5775	-9.61	-7.39	4.77	0.19	-2.43	27.31	Pass

Note:

- 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.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 8.69\text{dBi} > 6\text{dBi}$, therefore the limit shall be reduced to $30 - (8.69 - 6) = 27.31\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

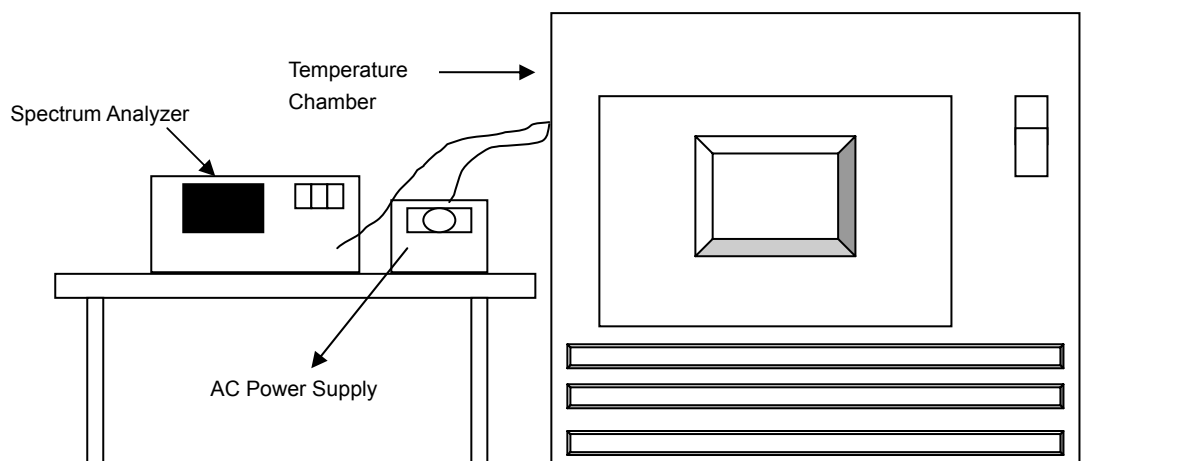


4.5 Frequency Stability

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

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- 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: 5180MHz									
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	5179.9854	-0.00028	5179.983	-0.00033	5179.9843	-0.00030	5179.9812	-0.00036
40	120	5179.9882	-0.00023	5179.9875	-0.00024	5179.9912	-0.00017	5179.9906	-0.00018
30	120	5180.0248	0.00048	5180.0281	0.00054	5180.0248	0.00048	5180.0261	0.00050
20	120	5179.9800	-0.00039	5179.9818	-0.00035	5179.9841	-0.00031	5179.9828	-0.00033
10	120	5180.0073	0.00014	5180.0072	0.00014	5180.0096	0.00019	5180.0101	0.00019
0	120	5180.0091	0.00018	5180.0132	0.00025	5180.0099	0.00019	5180.0087	0.00017
-10	120	5179.9883	-0.00023	5179.9897	-0.00020	5179.989	-0.00021	5179.9918	-0.00016
-20	120	5179.9876	-0.00024	5179.9912	-0.00017	5179.9913	-0.00017	5179.9862	-0.00027
-30	120	5179.9964	-0.00007	5179.9955	-0.00009	5179.995	-0.00010	5179.9943	-0.00011

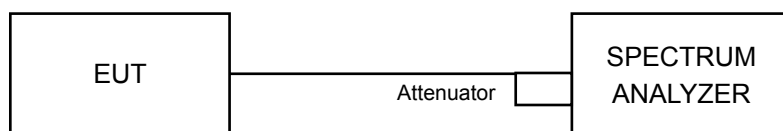
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. ()	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5179.9792	-0.00040	5179.9812	-0.00036	5179.9837	-0.00031	5179.9824	-0.00034
	120	5179.9800	-0.00039	5179.9818	-0.00035	5179.9841	-0.00031	5179.9828	-0.00033
	102	5179.9808	-0.00037	5179.9824	-0.00034	5179.9836	-0.00032	5179.9824	-0.00034

4.6 6dB Bandwidth Measurement

4.6.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

CDD Mode

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.11	16.37	16.42	0.5	Pass
157	5785	16.14	16.38	16.41	0.5	Pass
165	5825	16.09	16.38	16.38	0.5	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	17.63	17.63	17.66	0.5	Pass
157	5785	17.62	17.61	17.66	0.5	Pass
165	5825	17.60	17.64	17.65	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
151	5755	36.33	36.44	36.42	0.5	Pass
159	5795	36.06	36.46	36.48	0.5	Pass

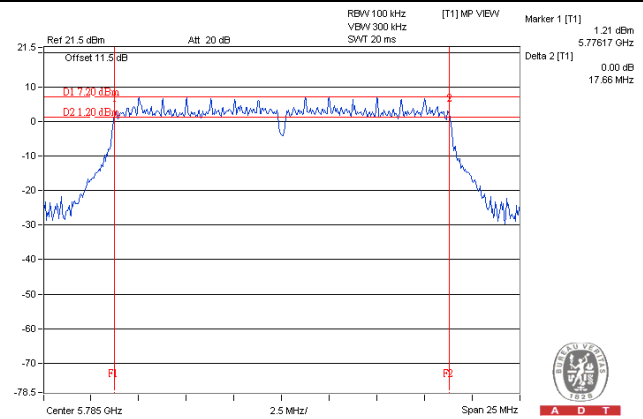
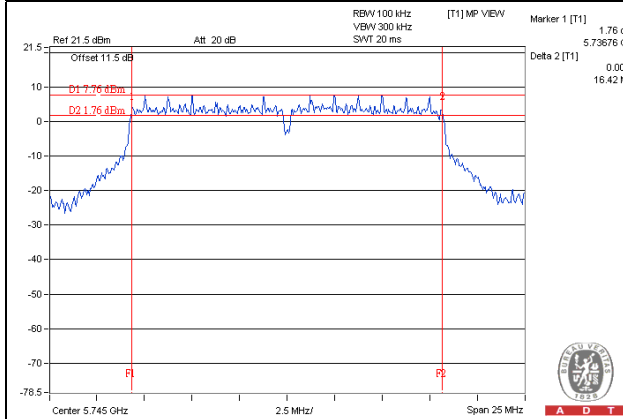
802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
155	5775	75.54	76.01	75.64	0.5	Pass

Spectrum Plot of Worst Value

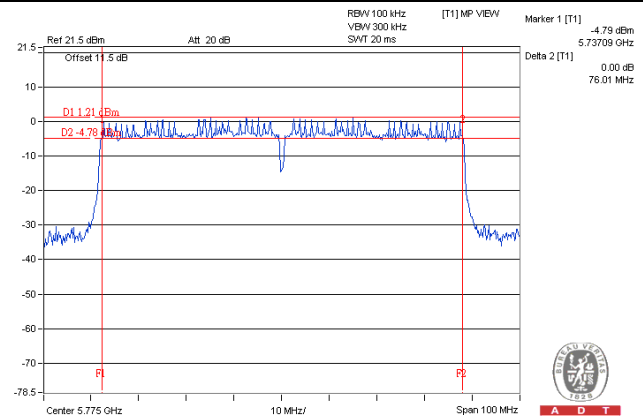
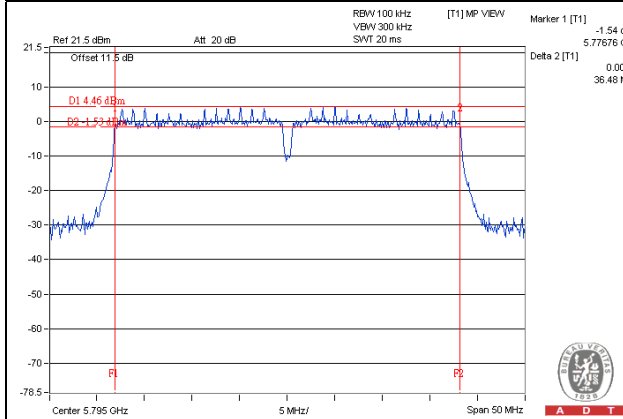
802.11a

802.11ac (VHT20)



802.11ac (VHT40)

802.11ac (VHT80)



Beamforming Mode

802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	17.60	17.65	17.65	0.5	Pass
157	5785	17.62	17.67	17.64	0.5	Pass
165	5825	17.61	17.65	17.63	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
151	5755	36.23	36.43	36.45	0.5	Pass
159	5795	35.89	36.45	36.42	0.5	Pass

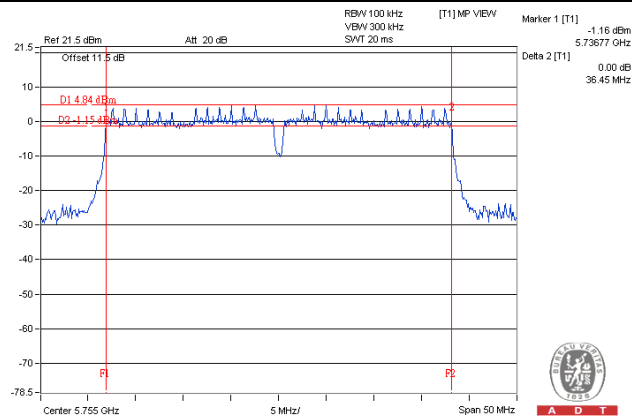
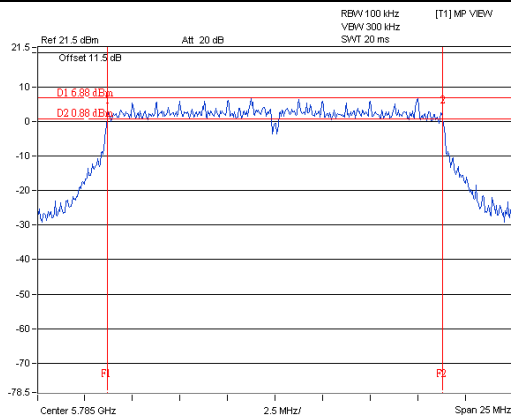
802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
155	5775	75.62	76.13	75.62	0.5	Pass

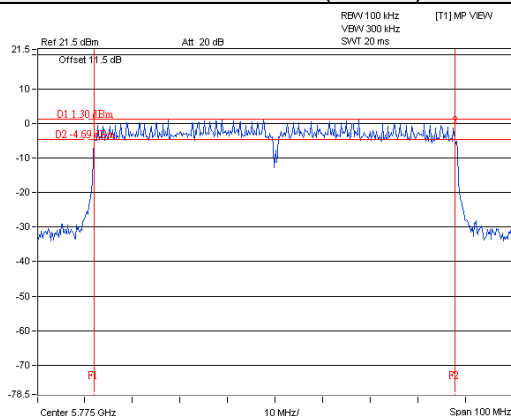
Spectrum Plot of Worst Value

802.11ac (VHT20)

802.11ac (VHT40)



802.11ac (VHT80)



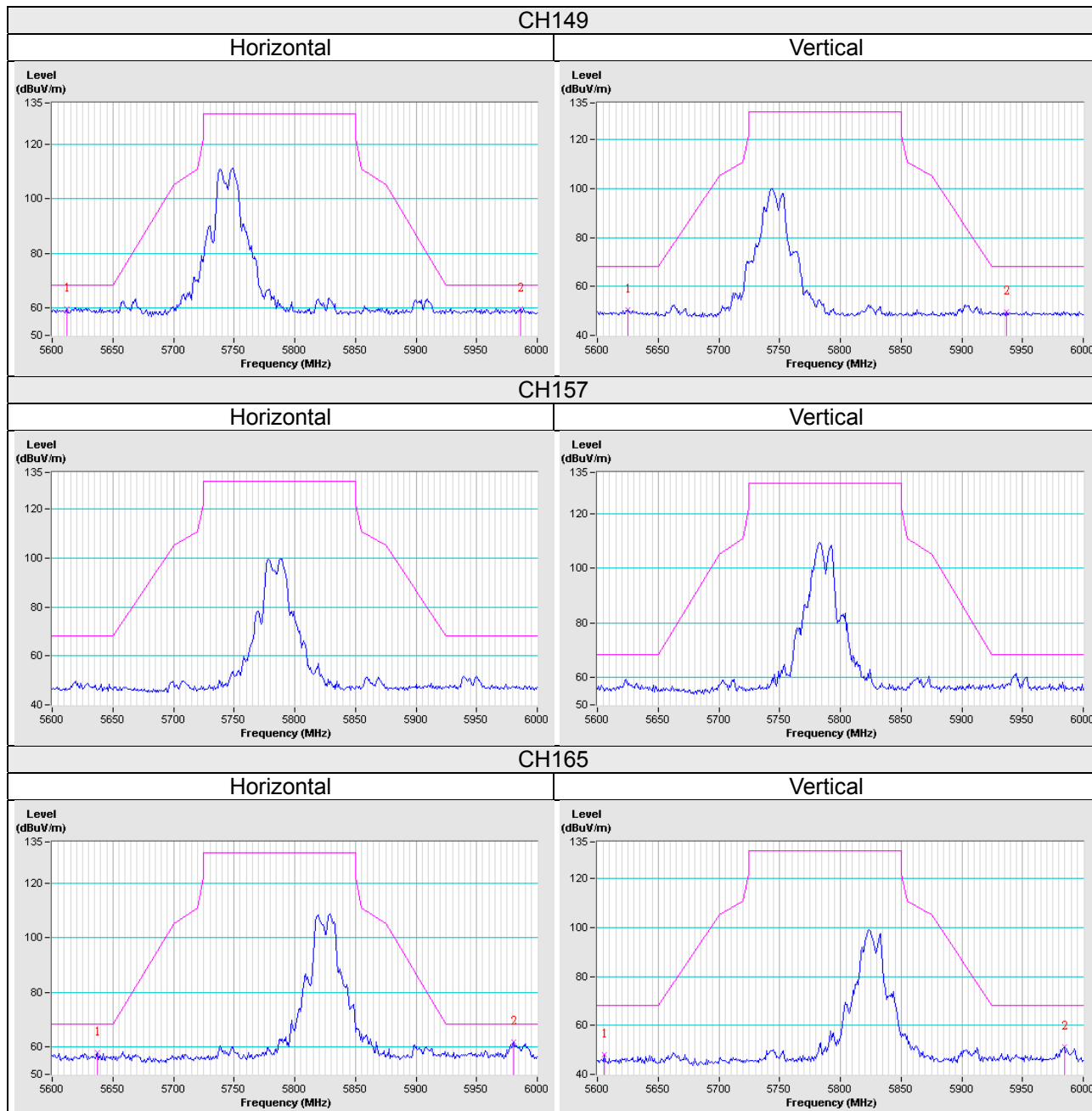
5 Pictures of Test Arrangements

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

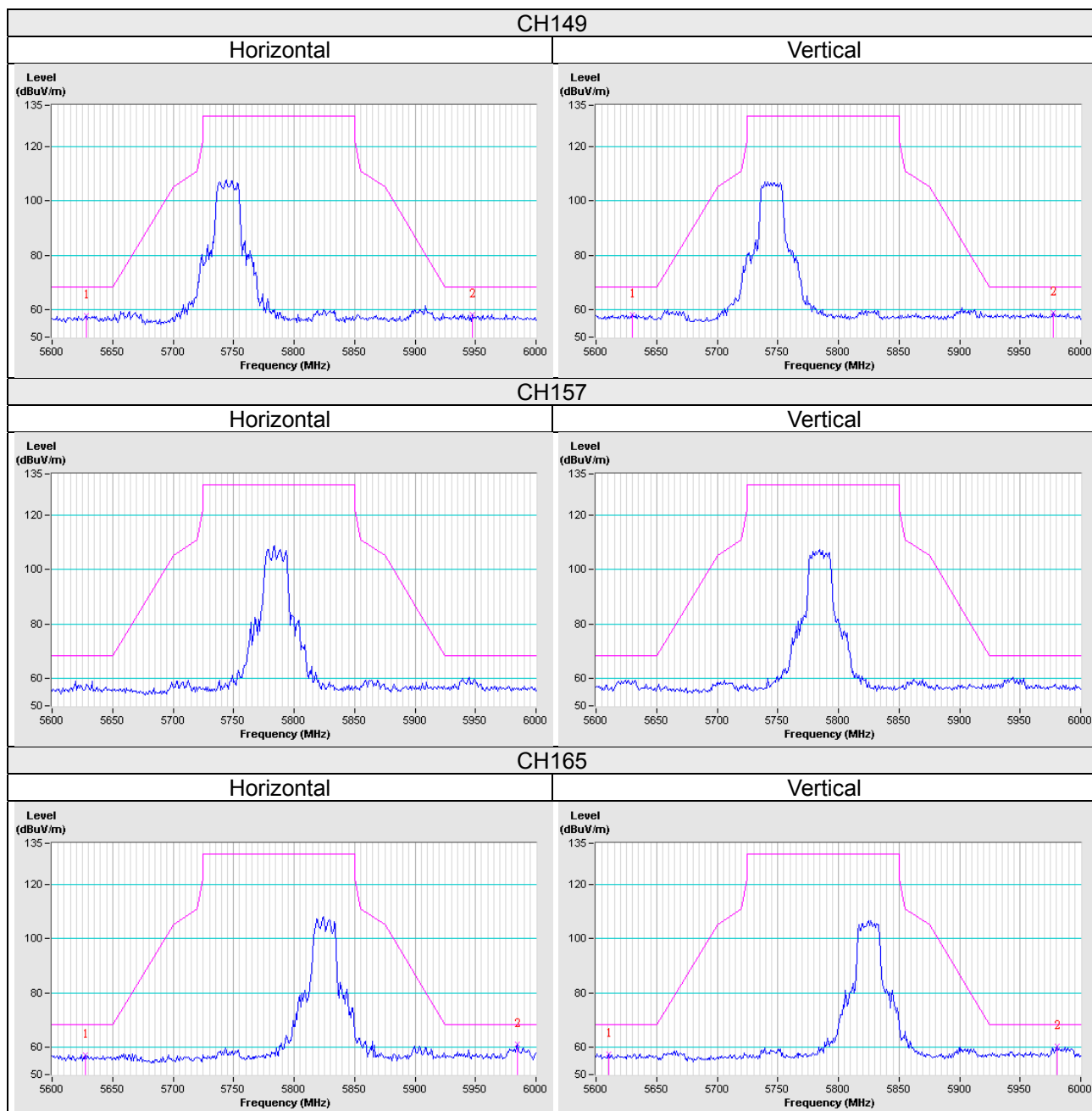
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

CDD Mode

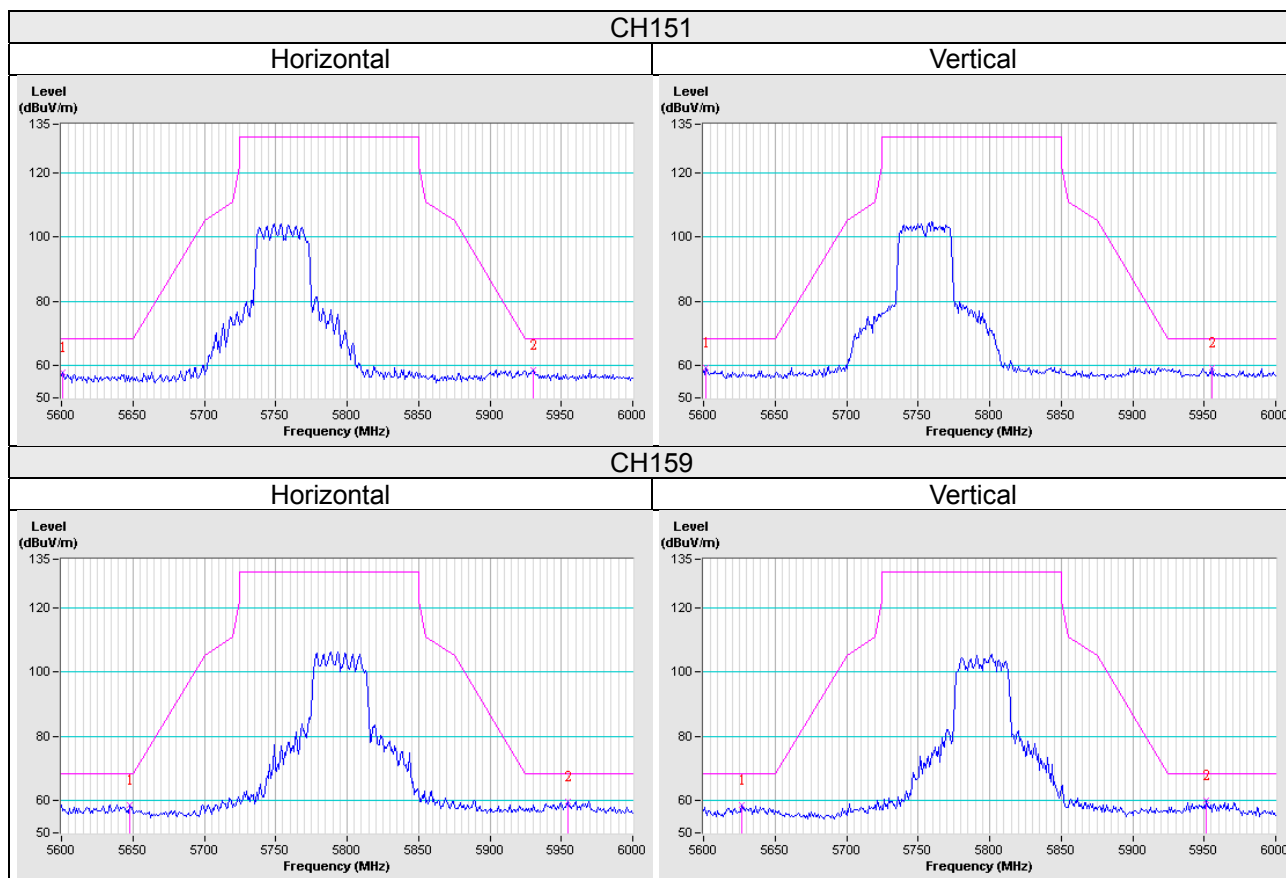
802.11a



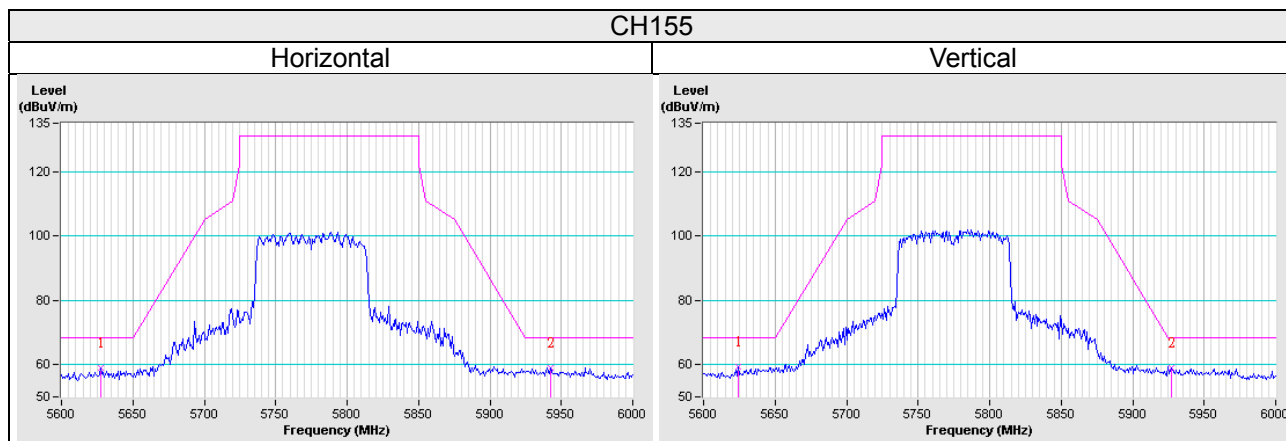
802.11ac (VHT20)



802.11ac (VHT40)

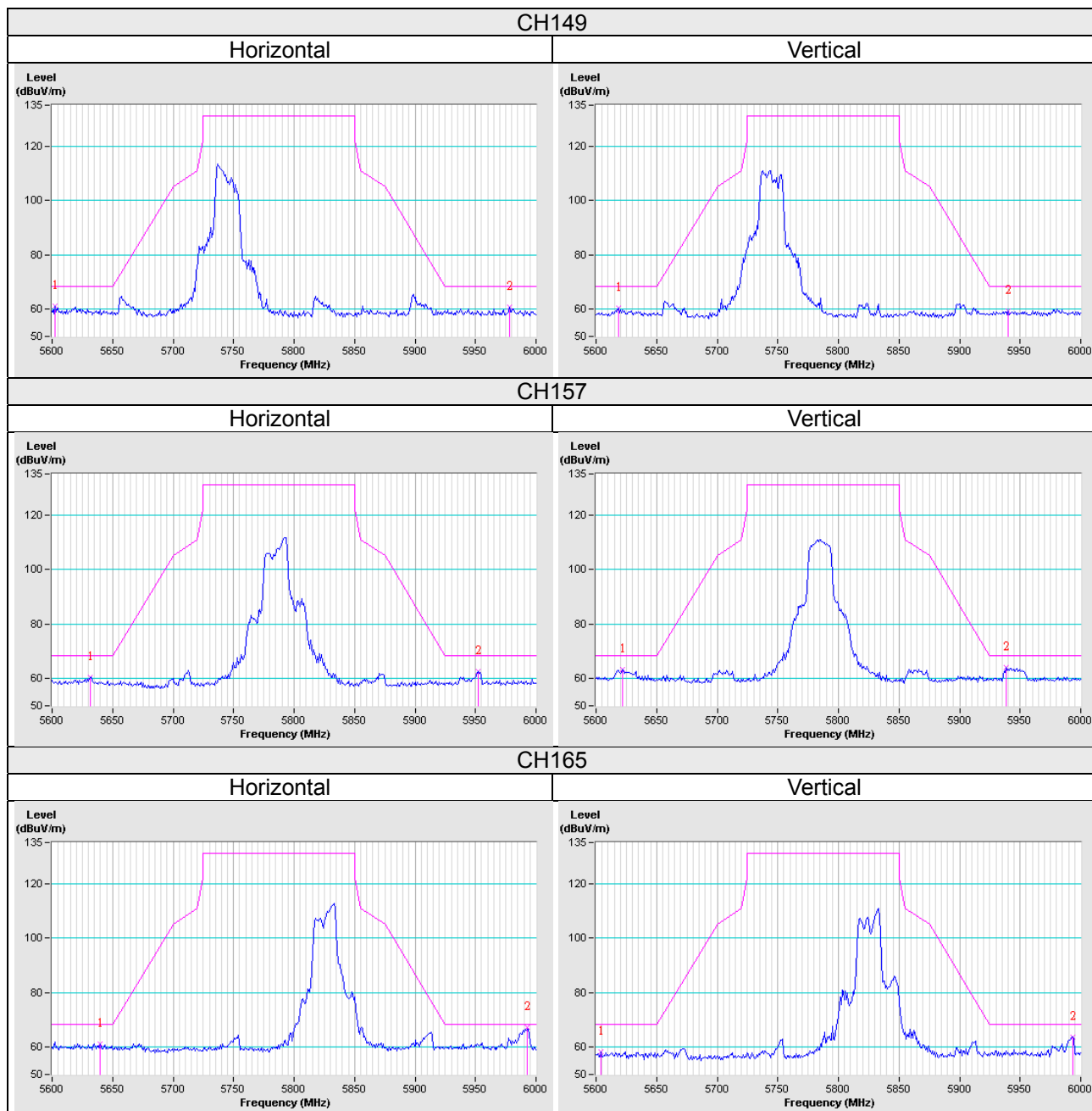


802.11ac (VHT80)

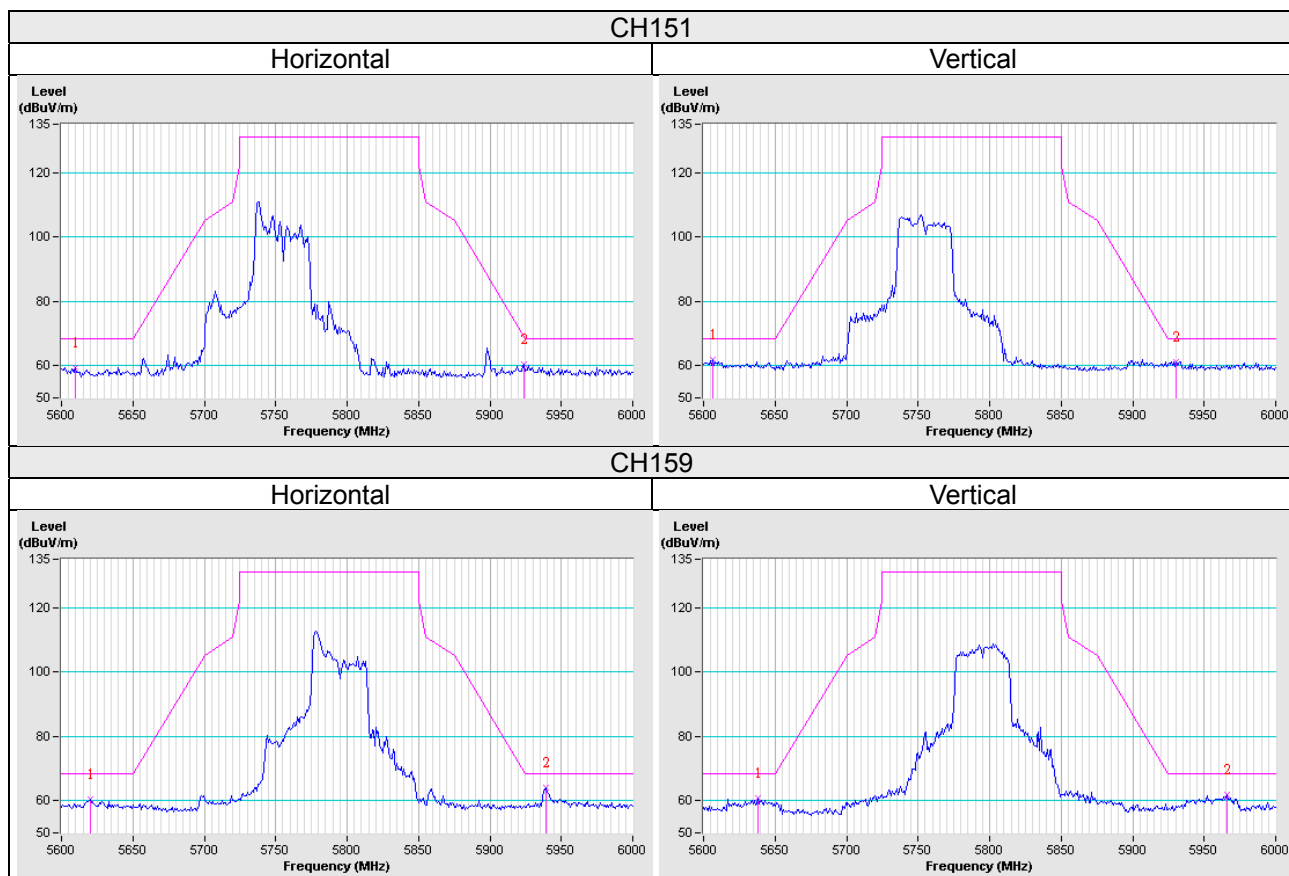


Beamforming Mode

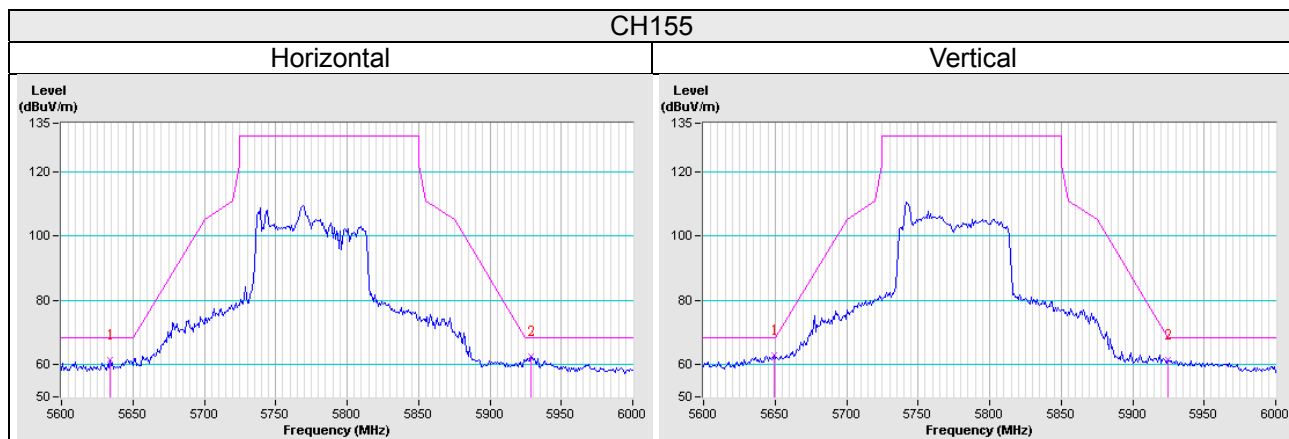
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



Appendix – Information on the Testing Laboratories

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

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

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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