FCC Test Report

Report No.:	RF191009E01-1
FCC ID:	PBLMLC21AAM
Test Model:	MLC21AAM
Received Date:	Oct. 09, 2019
Test Date:	Oct. 25 to Nov. 19, 2019
Issued Date:	Jan. 20, 2020
Applicant:	AMIT Wireless Inc.
Address:	No.28, Lane 31 , Sec. 1 , Huandong Rd. , Sinshih District , Tainan City 74146 , Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RF191009E01-1	Original release.	Jan. 20, 2020

1 Certificate of Conformity

Product:	Wifi module
Brand:	AMIT
Test Model:	MLC21AAM
Sample Status:	MASS-PRODUCTION
Applicant:	AMIT Wireless Inc.
Test Date:	Oct. 25 to Nov. 19, 2019
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10: 2013

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

Prepared by : _____ , **Date:** Jan. 20, 2020

Claire Kuan / Specialist

Approved by : _____ , **Date:** Jan. 20, 2020

Clark Lin / Technical Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -7.36dB at 0.38438MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement*	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5141.24MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(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 R-SMA not a standard connector.

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

Note:
Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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	1.8 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.0 dB
	30MHz ~ 1GHz	4.8 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.0 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wifi module
Brand	AMIT
Test Model	MLC21AAM
Status of EUT	MASS-PRODUCTION
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462 GHz **5GHz:** 5.18~ 5.24 GHz, 5.745 ~ 5.825 GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**2.412 ~ 2.462GHz:** 793.482 mW **5.18 ~ 5.24GHz:** 58.956 mW **5.745 ~ 5.825GHz:** 134.125 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. 2.4GHz & 5GHz technology can't transmit at same time.
2. The antennas provided to the EUT, please refer to the following table:

Ant. No.	Chain No.	Antenna Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1	Chain 0	3	2.4~2.4835	Dipole	R-SMA
		5	5.15~5.85		
2	Chain 1	3	2.4~2.4835	Dipole	R-SMA
		5	5.15~5.85		

3. The EUT incorporates a MIMO function.

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	1TX Diversity	1RX Diversity
802.11g	1TX Diversity	1RX Diversity
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	1TX Diversity	1RX Diversity
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac VHT20	2TX	2RX
802.11ac VHT40	2TX	2RX
802.11ac VHT80	2TX	2RX

4. The above EUT information is declared by manufacturer and for more detailed features description, please refers 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	5210 MHz

FOR 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

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.

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
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
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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT20)	5180-5240 5745-5825	36 to 48 149 to 165	40	OFDM	BPSK	6.5

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT20)	5180-5240 5745-5825	36 to 48 149 to 165	40	OFDM	BPSK	6.5

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.

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
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
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:

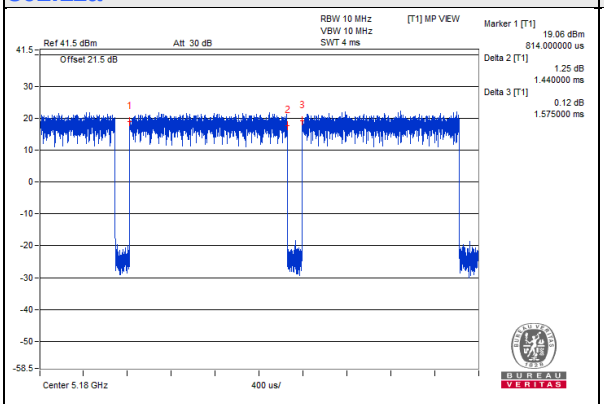
Applicable To	Environmental Conditions	Input Power (System)	Tested By
RE≥1G	23deg. C, 63%RH	120Vac, 60Hz	Jeff Lee
RE<1G	22deg. C, 72%RH	120Vac, 60Hz	Nelson Teng
PLC	24deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

3.3 Duty Cycle of Test Signal

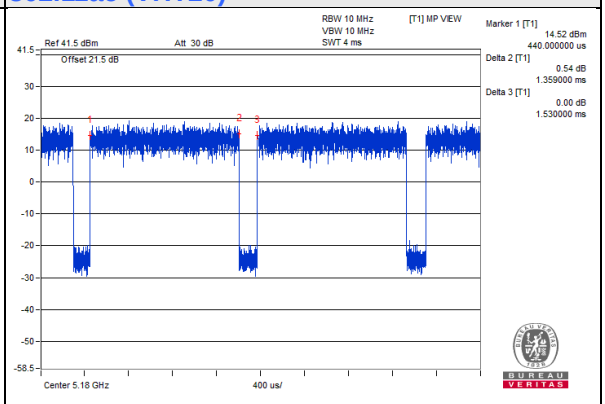
Duty cycle of test signal is < 98 %, duty factor shall be considered.

802.11a: Duty cycle = 1.44/1.575 = 0.914, Duty factor = 10 * log(1/ Duty cycle) = 0.39
802.11ac (VHT20): Duty cycle = 1.359/1.53 = 0.888, Duty factor = 10 * log(1/ Duty cycle) = 0.51
802.11ac (VHT40): Duty cycle = 0.676/0.835 = 0.81, Duty factor = 10 * log(1/ Duty cycle) = 0.92
802.11ac (VHT80): Duty cycle = 0.335/0.46 = 0.728, Duty factor = 10 * log(1/ Duty cycle) = 1.38

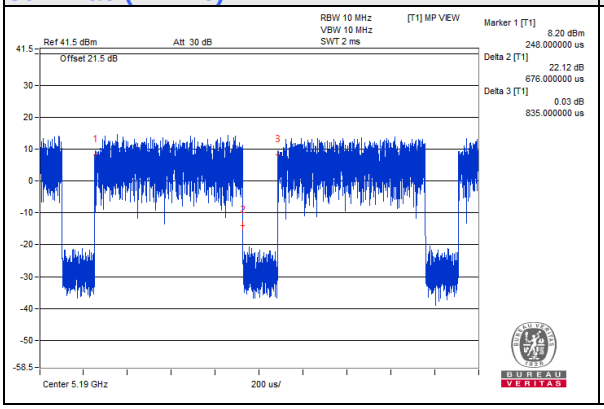
802.11a



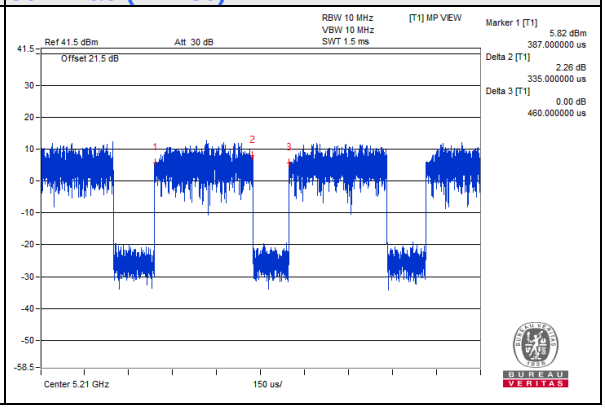
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



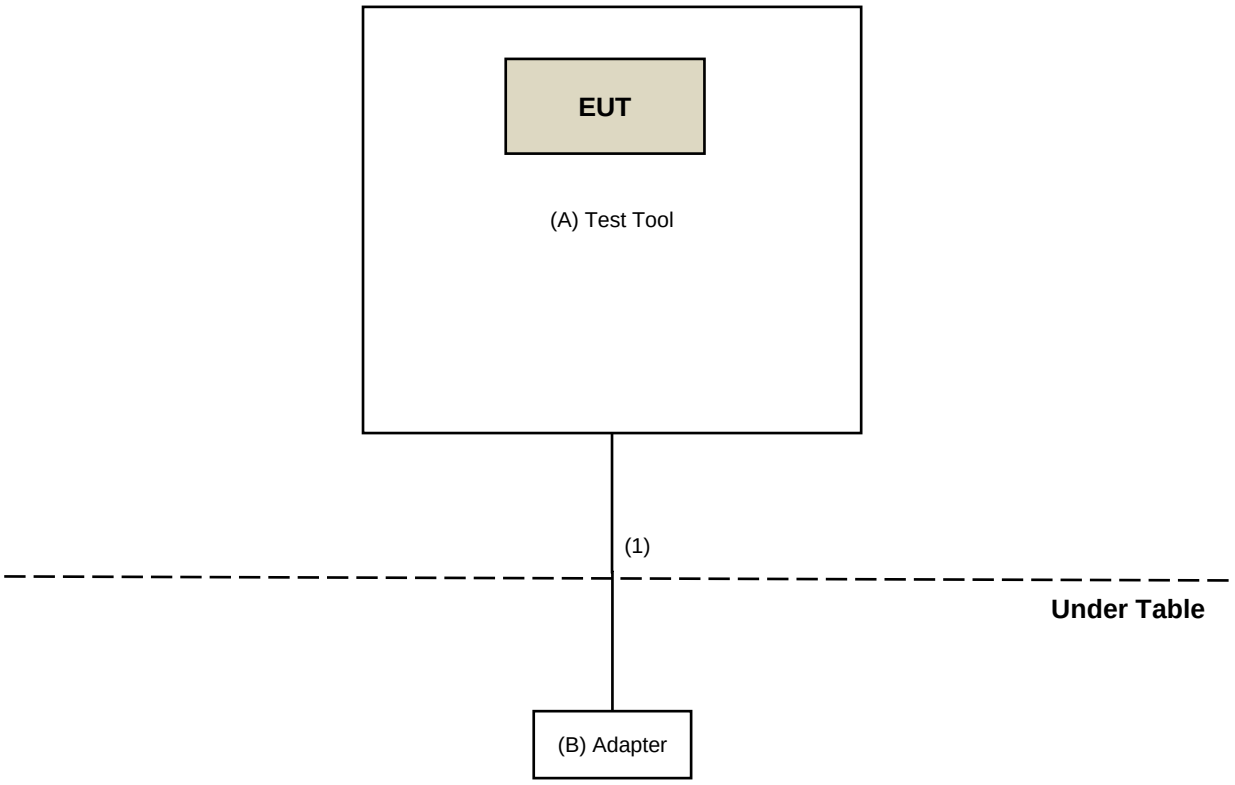
3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Test Tool	AMIT Wireless Inc.	NA	NA	NA	Supplied by client
B.	Adapter	Powertron Electronics	PA1024-120IB200	NA	NA	Supplied by client

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.5	No	0	Supplied by client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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

FCC Part 15, Subpart E (15.407)
KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

Limits of unwanted emission out of the restricted bands

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

Note:

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

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

4.1.2 Test Instruments

For OOBE test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ESR7 R&S	ESR7	102026	Apr. 24, 2019	Apr. 23, 2020
Spectrum Analyzer Keysight	N9030B	MY57141948	May 25, 2019	May 24, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-1819	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980509	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-1500	180503	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-2000	180501	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-6000	180505	May 03, 2019	May 02, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	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 966 Chamber No. 5.
3. Tested Date: Oct. 25, 2019

For other test ietms:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ESR7 R&S	ESR7	102026	Apr. 24, 2019	Apr. 23, 2020
Spectrum Analyzer Keysight	N9030B	MY57141948	May 25, 2019	May 24, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Loop Antenna Electro-Metrics	EM-6879	264	Jan. 22, 2019	Jan. 21, 2020
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier EMCI	EMC330N	980538	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB9168	9168-0842	Nov. 21, 2018	Nov. 20, 2019
RF Cable	8D	966-5-1	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-2	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-3	May 03, 2019	May 02, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-02	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-1819	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980509	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-1500	180503	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-2000	180501	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-6000	180505	May 03, 2019	May 02, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 04, 2019	June 03, 2020
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

AC Power Source Extech Electronics	6205	1440452	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 09, 2019	Jan. 08, 2020
True RMS Clamp Meter FLUKE	325	31130711WS	May 21, 2019	May 20, 2020

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 966 Chamber No. 5.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Nov. 16 to 19, 2019

4.1.3 Test Procedure

For Radiated emission below 30MHz

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

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

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

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

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

NOTE:

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

For Radiated emission above 30MHz

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

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

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

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

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

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

Note:

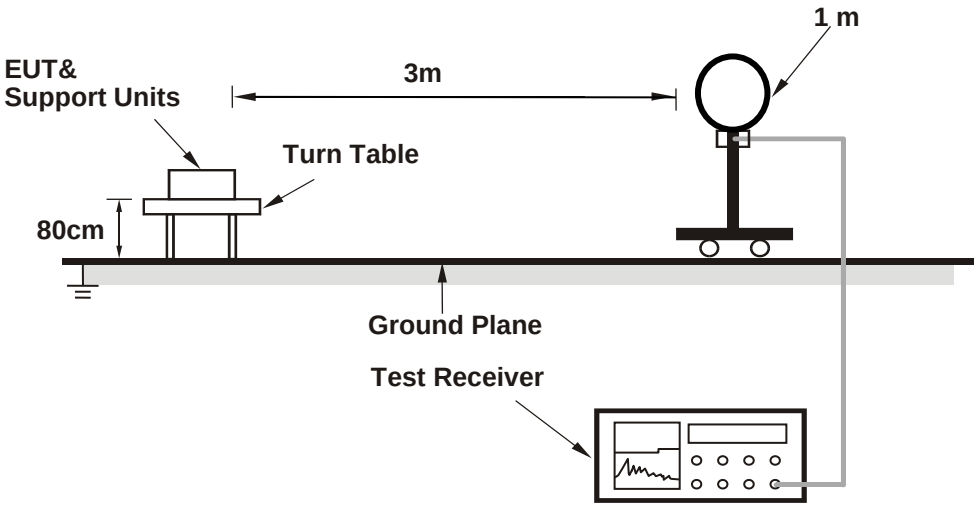
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

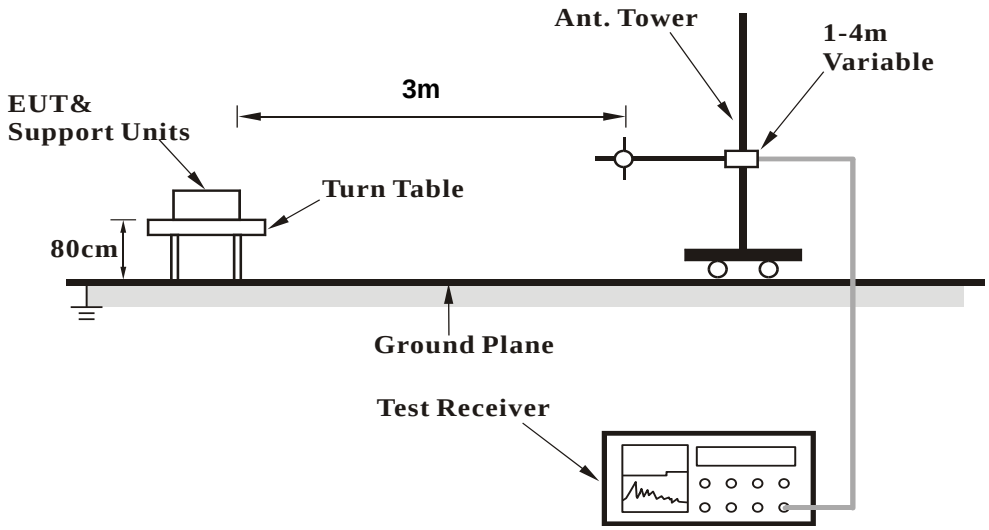
No deviation.

4.1.5 Test Setup

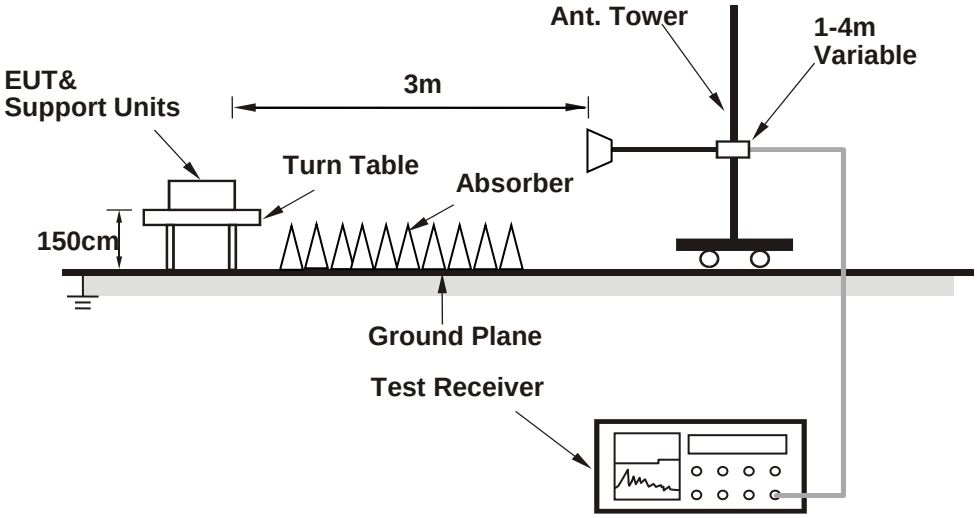
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Condition

a. Placed the EUT on the testing table.

b. Controlling software (MT7662 QA V1.0.3.2) has been activated to set the EUT under transmission condition continuously at specific channel frenquency.

4.1.7 Test Results

Above 1GHz Data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	67.5 PK	74.0	-6.5	2.17 H	244	65.4	2.1
2	5150.00	48.8 AV	54.0	-5.2	2.17 H	244	46.7	2.1
3	*5180.00	100.7 PK			2.17 H	244	98.9	1.8
4	*5180.00	90.9 AV			2.17 H	244	89.1	1.8
5	#10360.00	51.9 PK	68.2	-16.3	1.41 H	252	39.8	12.1
6	15540.00	61.8 PK	74.0	-12.2	1.26 H	320	49.6	12.2
7	15540.00	48.6 AV	54.0	-5.4	1.26 H	320	36.4	12.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	66.8 PK	74.0	-7.2	1.46 V	280	64.7	2.1
2	5150.00	52.2 AV	54.0	-1.8	1.46 V	280	50.1	2.1
3	*5180.00	109.1 PK			1.46 V	280	107.3	1.8
4	*5180.00	100.0 AV			1.46 V	280	98.2	1.8
5	#10360.00	61.1 PK	68.2	-7.1	3.52 V	249	49.0	12.1
6	15540.00	63.1 PK	74.0	-10.9	3.64 V	79	50.9	12.2
7	15540.00	48.5 AV	54.0	-5.5	3.64 V	79	36.3	12.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	100.7 PK			2.23 H	235	99.0	1.7
2	*5200.00	90.5 AV			2.23 H	235	88.8	1.7
3	#10400.00	52.7 PK	68.2	-15.5	1.37 H	264	40.3	12.4
4	15600.00	62.2 PK	74.0	-11.8	1.35 H	297	50.2	12.0
5	15600.00	48.8 AV	54.0	-5.2	1.35 H	297	36.8	12.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	109.9 PK			1.32 V	280	108.2	1.7
2	*5200.00	100.8 AV			1.32 V	280	99.1	1.7
3	#10400.00	61.5 PK	68.2	-6.7	3.51 V	273	49.1	12.4
4	15600.00	63.5 PK	74.0	-10.5	3.71 V	54	51.5	12.0
5	15600.00	48.8 AV	54.0	-5.2	3.71 V	54	36.8	12.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	101.7 PK			2.17 H	243	100.3	1.4
2	*5240.00	91.5 AV			2.17 H	243	90.1	1.4
3	5350.00	51.3 PK	74.0	-22.7	2.19 H	228	49.8	1.5
4	5350.00	39.6 AV	54.0	-14.4	2.19 H	228	38.1	1.5
5	#10480.00	51.9 PK	68.2	-16.3	1.43 H	244	39.1	12.8
6	15720.00	61.5 PK	74.0	-12.5	1.38 H	304	49.9	11.6
7	15720.00	48.3 AV	54.0	-5.7	1.38 H	304	36.7	11.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	109.4 PK			1.50 V	279	108.0	1.4
2	*5240.00	101.2 AV			1.50 V	279	99.8	1.4
3	5350.00	50.5 PK	74.0	-23.5	1.50 V	279	49.0	1.5
4	5350.00	38.8 AV	54.0	-15.2	1.50 V	279	37.3	1.5
5	#10480.00	61.3 PK	68.2	-6.9	3.52 V	247	48.5	12.8
6	15720.00	63.8 PK	74.0	-10.2	3.70 V	57	52.2	11.6
7	15720.00	49.0 AV	54.0	-5.0	3.70 V	57	37.4	11.6

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5602.09	59.7 PK	68.2	-8.5	2.20 H	223	57.6	2.1
2	*5745.00	100.5 PK			2.20 H	223	98.2	2.3
3	*5745.00	90.7 AV			2.20 H	223	88.4	2.3
4	#6006.40	60.8 PK	68.2	-7.4	2.20 H	223	57.9	2.9
5	11490.00	52.6 PK	74.0	-21.4	1.41 H	257	38.5	14.1
6	11490.00	41.2 AV	54.0	-12.8	1.41 H	257	27.1	14.1
7	#17235.00	61.5 PK	68.2	-6.7	1.37 H	307	43.8	17.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5577.94	59.5 PK	68.2	-8.7	2.07 V	254	57.4	2.1
2	*5745.00	109.9 PK			2.07 V	254	107.6	2.3
3	*5745.00	99.6 AV			2.07 V	254	97.3	2.3
4	#5990.15	61.0 PK	68.2	-7.2	2.07 V	254	58.1	2.9
5	11490.00	59.9 PK	74.0	-14.1	3.60 V	274	45.8	14.1
6	11490.00	48.2 AV	54.0	-5.8	3.60 V	274	34.1	14.1
7	#17235.00	63.0 PK	68.2	-5.2	3.60 V	68	45.3	17.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5570.92	59.7 PK	68.2	-8.5	2.21 H	227	57.6	2.1
2	*5785.00	101.0 PK			2.21 H	227	98.6	2.4
3	*5785.00	91.1 AV			2.21 H	227	88.7	2.4
4	#5964.74	60.1 PK	68.2	-8.1	2.21 H	227	57.2	2.9
5	11570.00	52.9 PK	74.0	-21.1	1.43 H	241	38.8	14.1
6	11570.00	41.2 AV	54.0	-12.8	1.43 H	241	27.1	14.1
7	#17355.00	62.1 PK	68.2	-6.1	1.26 H	293	43.8	18.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5587.10	59.5 PK	68.2	-8.7	2.01 V	251	57.4	2.1
2	*5785.00	109.3 PK			2.01 V	251	106.9	2.4
3	*5785.00	99.5 AV			2.01 V	251	97.1	2.4
4	#5973.79	59.9 PK	68.2	-8.3	2.01 V	251	57.0	2.9
5	11570.00	60.9 PK	74.0	-13.1	3.63 V	242	46.8	14.1
6	11570.00	49.0 AV	54.0	-5.0	3.63 V	242	34.9	14.1
7	#17355.00	63.4 PK	68.2	-4.8	3.61 V	61	45.1	18.3

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5562.67	58.2 PK	68.2	-10.0	2.20 H	187	56.2	2.0
2	*5825.00	99.8 PK			2.20 H	189	97.3	2.5
3	*5825.00	90.1 AV			2.20 H	189	87.6	2.5
4	#5973.14	60.4 PK	68.2	-7.8	2.20 H	187	57.5	2.9
5	11650.00	53.5 PK	74.0	-20.5	1.32 H	265	39.6	13.9
6	11650.00	41.8 AV	54.0	-12.2	1.32 H	265	27.9	13.9
7	#17475.00	62.5 PK	68.2	-5.7	1.31 H	310	43.0	19.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5588.55	58.3 PK	68.2	-9.9	1.99 V	239	56.2	2.1
2	*5825.00	109.8 PK			1.99 V	239	107.3	2.5
3	*5825.00	99.8 AV			1.99 V	239	97.3	2.5
4	#5938.18	59.9 PK	68.2	-8.3	1.99 V	239	57.1	2.8
5	11650.00	59.6 PK	74.0	-14.4	3.65 V	268	45.7	13.9
6	11650.00	48.1 AV	54.0	-5.9	3.65 V	268	34.2	13.9
7	#17475.00	62.9 PK	68.2	-5.3	3.62 V	58	43.4	19.5

REMARKS:

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

802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.1 PK	74.0	-5.9	2.16 H	235	66.0	2.1
2	5150.00	49.1 AV	54.0	-4.9	2.16 H	235	47.0	2.1
3	*5180.00	103.2 PK			2.16 H	235	101.4	1.8
4	*5180.00	93.2 AV			2.16 H	235	91.4	1.8
5	#10360.00	52.2 PK	68.2	-16.0	1.41 H	252	40.1	12.1
6	15540.00	61.7 PK	74.0	-12.3	1.29 H	314	49.5	12.2
7	15540.00	48.5 AV	54.0	-5.5	1.29 H	314	36.3	12.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	72.2 PK	74.0	-1.8	1.50 V	267	70.1	2.1
2	5150.00	53.5 AV	54.0	-0.5	1.50 V	267	51.4	2.1
3	*5180.00	113.2 PK			1.50 V	267	111.4	1.8
4	*5180.00	104.2 AV			1.50 V	267	102.4	1.8
5	#10360.00	61.4 PK	68.2	-6.8	3.54 V	258	49.3	12.1
6	15540.00	63.3 PK	74.0	-10.7	3.67 V	64	51.1	12.2
7	15540.00	48.5 AV	54.0	-5.5	3.67 V	64	36.3	12.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	102.7 PK			2.23 H	222	101.0	1.7
2	*5200.00	92.7 AV			2.23 H	222	91.0	1.7
3	#10400.00	52.4 PK	68.2	-15.8	1.39 H	250	40.0	12.4
4	15600.00	61.7 PK	74.0	-12.3	1.36 H	301	49.7	12.0
5	15600.00	48.4 AV	54.0	-5.6	1.36 H	301	36.4	12.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	115.7 PK			1.40 V	270	114.0	1.7
2	*5200.00	106.9 AV			1.40 V	270	105.2	1.7
3	#10400.00	61.5 PK	68.2	-6.7	3.52 V	270	49.1	12.4
4	15600.00	63.1 PK	74.0	-10.9	3.67 V	65	51.1	12.0
5	15600.00	48.6 AV	54.0	-5.4	3.67 V	65	36.6	12.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.2 PK			2.16 H	235	101.8	1.4
2	*5240.00	93.0 AV			2.16 H	235	91.6	1.4
3	5350.00	51.3 PK	74.0	-22.7	2.16 H	235	49.8	1.5
4	5350.00	39.4 AV	54.0	-14.6	2.16 H	235	37.9	1.5
5	#10480.00	52.5 PK	68.2	-15.7	1.43 H	236	39.7	12.8
6	15720.00	61.9 PK	74.0	-12.1	1.31 H	306	50.3	11.6
7	15720.00	48.5 AV	54.0	-5.5	1.31 H	306	36.9	11.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	114.2 PK			1.41 V	271	112.8	1.4
2	*5240.00	105.5 AV			1.41 V	271	104.1	1.4
3	5350.00	51.5 PK	74.0	-22.5	1.41 V	271	50.0	1.5
4	5350.00	39.5 AV	54.0	-14.5	1.41 V	271	38.0	1.5
5	#10480.00	61.1 PK	68.2	-7.1	3.56 V	259	48.3	12.8
6	15720.00	63.3 PK	74.0	-10.7	3.64 V	71	51.7	11.6
7	15720.00	48.8 AV	54.0	-5.2	3.64 V	71	37.2	11.6

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5623.84	58.6 PK	68.2	-9.6	2.17 H	223	56.5	2.1
2	*5745.00	102.7 PK			2.17 H	223	100.4	2.3
3	*5745.00	92.8 AV			2.17 H	223	90.5	2.3
4	#5989.78	60.1 PK	68.2	-8.1	2.17 H	223	57.2	2.9
5	11490.00	53.2 PK	74.0	-20.8	1.38 H	250	39.1	14.1
6	11490.00	41.6 AV	54.0	-12.4	1.38 H	250	27.5	14.1
7	#17235.00	61.7 PK	68.2	-6.5	1.31 H	295	44.0	17.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5645.62	59.3 PK	68.2	-8.9	2.04 V	255	57.3	2.0
2	*5745.00	114.5 PK			2.04 V	255	112.2	2.3
3	*5745.00	105.0 AV			2.04 V	255	102.7	2.3
4	#5959.48	60.3 PK	68.2	-7.9	2.04 V	255	57.4	2.9
5	11490.00	60.3 PK	74.0	-13.7	3.63 V	258	46.2	14.1
6	11490.00	48.5 AV	54.0	-5.5	3.63 V	258	34.4	14.1
7	#17235.00	62.9 PK	68.2	-5.3	3.61 V	64	45.2	17.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5576.22	58.5 PK	68.2	-9.7	2.19 H	209	56.4	2.1
2	*5785.00	103.1 PK			2.19 H	209	100.7	2.4
3	*5785.00	93.0 AV			2.19 H	209	90.6	2.4
4	#5926.34	61.1 PK	68.2	-7.1	2.19 H	209	58.4	2.7
5	11570.00	52.7 PK	74.0	-21.3	1.32 H	251	38.6	14.1
6	11570.00	41.4 AV	54.0	-12.6	1.32 H	251	27.3	14.1
7	#17355.00	62.3 PK	68.2	-5.9	1.34 H	282	44.0	18.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5621.07	58.7 PK	68.2	-9.5	2.08 V	263	56.6	2.1
2	*5785.00	114.5 PK			2.08 V	263	112.1	2.4
3	*5785.00	104.9 AV			2.08 V	263	102.5	2.4
4	#6024.87	60.0 PK	68.2	-8.2	2.08 V	263	57.2	2.8
5	11570.00	60.1 PK	74.0	-13.9	3.60 V	249	46.0	14.1
6	11570.00	48.4 AV	54.0	-5.6	3.60 V	249	34.3	14.1
7	#17355.00	62.3 PK	68.2	-5.9	3.59 V	78	44.0	18.3

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5573.37	58.7 PK	68.2	-9.5	2.17 H	222	56.6	2.1
2	*5825.00	103.4 PK			2.17 H	222	100.9	2.5
3	*5825.00	93.2 AV			2.17 H	222	90.7	2.5
4	#5939.46	60.5 PK	68.2	-7.7	2.17 H	222	57.7	2.8
5	11650.00	52.9 PK	74.0	-21.1	1.37 H	244	39.0	13.9
6	11650.00	41.5 AV	54.0	-12.5	1.37 H	244	27.6	13.9
7	#17475.00	62.5 PK	68.2	-5.7	1.31 H	285	43.0	19.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5597.33	59.1 PK	68.2	-9.1	2.07 V	256	57.0	2.1
2	*5825.00	114.2 PK			2.07 V	256	111.7	2.5
3	*5825.00	104.6 AV			2.07 V	256	102.1	2.5
4	#5959.58	59.5 PK	68.2	-8.7	2.07 V	256	56.6	2.9
5	11650.00	60.0 PK	74.0	-14.0	3.61 V	270	46.1	13.9
6	11650.00	48.4 AV	54.0	-5.6	3.61 V	270	34.5	13.9
7	#17475.00	63.1 PK	68.2	-5.1	3.56 V	59	43.6	19.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.1 PK	74.0	-5.9	2.18 H	223	66.0	2.1
2	5150.00	49.1 AV	54.0	-4.9	2.18 H	223	47.0	2.1
3	*5190.00	98.2 PK			2.18 H	223	96.4	1.8
4	*5190.00	87.4 AV			2.18 H	223	85.6	1.8
5	#10380.00	53.1 PK	68.2	-15.1	1.46 H	251	40.8	12.3
6	15570.00	61.9 PK	74.0	-12.1	1.27 H	301	49.7	12.2
7	15570.00	48.4 AV	54.0	-5.6	1.27 H	301	36.2	12.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.2 PK	74.0	-9.8	1.19 V	271	62.1	2.1
2	5150.00	53.2 AV	54.0	-0.8	1.19 V	271	51.1	2.1
3	*5190.00	105.8 PK			1.19 V	271	104.0	1.8
4	*5190.00	97.9 AV			1.19 V	271	96.1	1.8
5	#10380.00	61.0 PK	68.2	-7.2	3.50 V	254	48.7	12.3
6	15570.00	63.6 PK	74.0	-10.4	3.69 V	54	51.4	12.2
7	15570.00	49.0 AV	54.0	-5.0	3.69 V	54	36.8	12.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	99.5 PK			2.22 H	211	98.0	1.5
2	*5230.00	90.9 AV			2.22 H	211	89.4	1.5
3	5350.00	50.8 PK	74.0	-23.2	2.22 H	211	49.3	1.5
4	5350.00	40.7 AV	54.0	-13.3	2.22 H	211	39.2	1.5
5	#10460.00	51.8 PK	68.2	-16.4	1.46 H	238	39.1	12.7
6	15690.00	61.6 PK	74.0	-12.4	1.34 H	298	50.0	11.6
7	15690.00	48.1 AV	54.0	-5.9	1.34 H	298	36.5	11.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	111.3 PK			1.65 V	272	109.8	1.5
2	*5230.00	103.4 AV			1.65 V	272	101.9	1.5
3	5350.00	51.6 PK	74.0	-22.4	1.65 V	272	50.1	1.5
4	5350.00	41.2 AV	54.0	-12.8	1.65 V	272	39.7	1.5
5	#10460.00	61.4 PK	68.2	-6.8	3.50 V	266	48.7	12.7
6	15690.00	62.9 PK	74.0	-11.1	3.65 V	64	51.3	11.6
7	15690.00	48.4 AV	54.0	-5.6	3.65 V	64	36.8	11.6

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5611.42	59.1 PK	68.2	-9.1	2.22 H	223	57.0	2.1
2	*5755.00	99.1 PK			2.22 H	223	96.8	2.3
3	*5755.00	90.7 AV			2.22 H	223	88.4	2.3
4	#5989.92	60.3 PK	68.2	-7.9	2.22 H	223	57.4	2.9
5	11510.00	53.4 PK	74.0	-20.6	1.35 H	248	39.3	14.1
6	11510.00	42.0 AV	54.0	-12.0	1.35 H	248	27.9	14.1
7	#17265.00	62.7 PK	68.2	-5.5	1.32 H	294	44.9	17.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5648.02	63.9 PK	68.2	-4.3	2.03 V	254	61.9	2.0
2	*5755.00	111.1 PK			2.03 V	254	108.8	2.3
3	*5755.00	102.5 AV			2.03 V	254	100.2	2.3
4	#6011.07	60.9 PK	68.2	-7.3	2.03 V	254	58.0	2.9
5	11510.00	59.8 PK	74.0	-14.2	3.60 V	277	45.7	14.1
6	11510.00	48.4 AV	54.0	-5.6	3.60 V	277	34.3	14.1
7	#17265.00	63.8 PK	68.2	-4.4	3.62 V	52	46.0	17.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5598.84	58.6 PK	68.2	-9.6	2.14 H	198	56.5	2.1
2	*5795.00	98.3 PK			2.14 H	198	95.8	2.5
3	*5795.00	89.7 AV			2.14 H	198	87.2	2.5
4	#5958.93	60.0 PK	68.2	-8.2	2.14 H	198	57.1	2.9
5	11590.00	53.0 PK	74.0	-21.0	1.35 H	237	38.9	14.1
6	11590.00	41.5 AV	54.0	-12.5	1.35 H	237	27.4	14.1
7	#17385.00	63.0 PK	68.2	-5.2	1.25 H	293	44.5	18.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5595.65	59.4 PK	68.2	-8.8	1.95 V	240	57.3	2.1
2	*5795.00	112.0 PK			1.95 V	240	109.5	2.5
3	*5795.00	102.3 AV			1.95 V	240	99.8	2.5
4	#5935.78	60.6 PK	68.2	-7.6	1.95 V	240	57.8	2.8
5	11590.00	60.5 PK	74.0	-13.5	3.60 V	264	46.4	14.1
6	11590.00	48.7 AV	54.0	-5.3	3.60 V	264	34.6	14.1
7	#17385.00	62.4 PK	68.2	-5.8	3.61 V	48	43.9	18.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5141.24	68.1 PK	74.0	-5.9	2.18 H	242	66.0	2.1
2	5141.24	49.2 AV	54.0	-4.8	2.18 H	242	47.1	2.1
3	*5210.00	92.8 PK			2.18 H	242	91.2	1.6
4	*5210.00	83.0 AV			2.18 H	242	81.4	1.6
5	#10420.00	52.6 PK	68.2	-15.6	1.48 H	233	40.2	12.4
6	15630.00	61.6 PK	74.0	-12.4	1.48 H	233	49.8	11.8
7	15630.00	48.3 AV	54.0	-5.7	1.48 H	233	36.5	11.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5141.24	64.2 PK	74.0	-9.8	1.55 V	268	62.1	2.1
2	**5141.24**	**53.9 AV**	**54.0**	**-0.1**	**1.55 V**	**268**	**51.8**	**2.1**
3	*5210.00	103.0 PK			1.55 V	268	101.4	1.6
4	*5210.00	93.9 AV			1.55 V	268	92.3	1.6
5	5350.00	49.7 PK	74.0	-24.3	1.55 V	268	48.2	1.5
6	5350.00	38.7 AV	54.0	-15.3	1.55 V	268	37.2	1.5
7	#10420.00	61.3 PK	68.2	-6.9	3.55 V	247	48.9	12.4
8	15630.00	62.9 PK	74.0	-11.1	3.68 V	53	51.1	11.8
9	15630.00	48.3 AV	54.0	-5.7	3.68 V	53	36.5	11.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5605.75	60.1 PK	68.2	-8.1	1.90 H	197	58.0	2.1
2	*5775.00	93.8 PK			1.90 H	197	91.4	2.4
3	*5775.00	84.2 AV			1.90 H	197	81.8	2.4
4	#5981.51	60.1 PK	68.2	-8.1	1.90 H	197	57.2	2.9
5	11550.00	53.0 PK	74.0	-21.0	1.35 H	251	38.8	14.2
6	11550.00	41.8 AV	54.0	-12.2	1.35 H	251	27.6	14.2
7	#17325.00	62.4 PK	68.2	-5.8	1.32 H	298	44.3	18.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5644.18	65.7 PK	68.2	-2.5	2.33 V	283	63.7	2.0
2	*5775.00	107.9 PK			2.33 V	283	105.5	2.4
3	*5775.00	98.2 AV			2.33 V	283	95.8	2.4
4	#6008.61	61.2 PK	68.2	-7.0	2.33 V	283	58.3	2.9
5	11550.00	60.1 PK	74.0	-13.9	3.67 V	269	45.9	14.2
6	11550.00	48.3 AV	54.0	-5.7	3.67 V	269	34.1	14.2
7	#17325.00	63.1 PK	68.2	-5.1	3.50 V	46	45.0	18.1

REMARKS:

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

Below 1GHz Data:

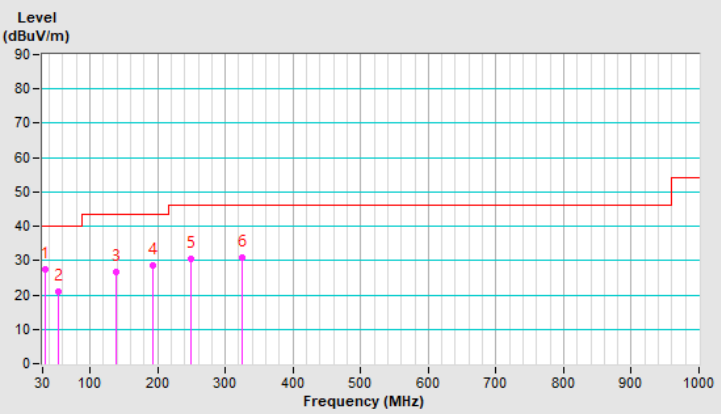
802.11ac (VHT20)

CHANNEL	TX Channel 40	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	34.26	27.3 QP	40.0	-12.7	1.50 H	114	41.3	-14.0
2	53.57	20.8 QP	40.0	-19.2	1.45 H	130	34.0	-13.2
3	139.08	26.8 QP	43.5	-16.7	2.45 H	237	40.2	-13.4
4	192.24	28.7 QP	43.5	-14.8	1.45 H	360	44.2	-15.5
5	249.96	30.5 QP	46.0	-15.5	4.00 H	142	44.4	-13.9
6	324.99	30.8 QP	46.0	-15.2	1.00 H	218	42.3	-11.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

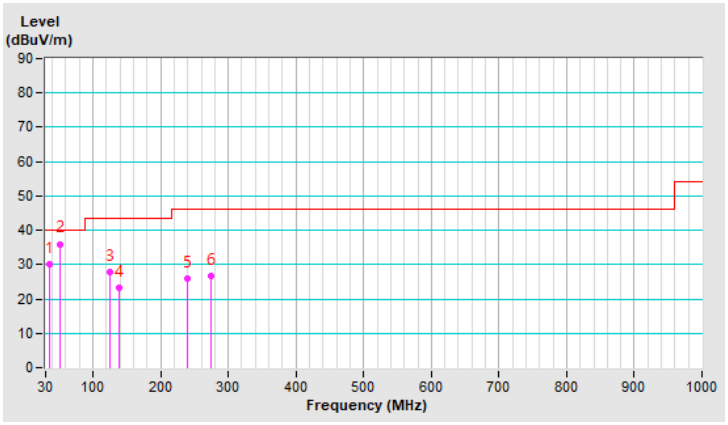


CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	35.35	30.1 QP	40.0	-9.9	2.00 V	51	44.2	-14.1
2	51.96	36.0 QP	40.0	-4.0	1.50 V	210	49.1	-13.1
3	125.04	27.8 QP	43.5	-15.7	1.00 V	0	42.4	-14.6
4	139.42	23.4 QP	43.5	-20.1	1.00 V	181	36.8	-13.4
5	239.77	25.9 QP	46.0	-20.1	1.45 V	231	40.1	-14.2
6	274.65	26.8 QP	46.0	-19.2	2.00 V	211	39.8	-13.0

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	N/A	3	Oct. 23, 2019	Oct. 22, 2020
RF Cable	5D-FB	COCCAB-001	Sep. 27, 2019	Sep. 26, 2020
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 14, 2019	Mar. 13, 2020
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
3. Tested Date: Oct. 25, 2019

4.2.3 Test Procedure

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

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

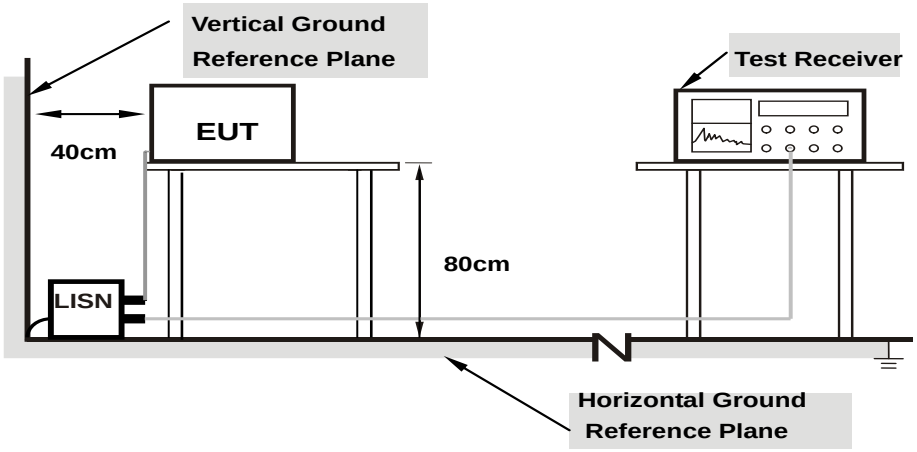
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

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 Condition

Same as 4.1.6.

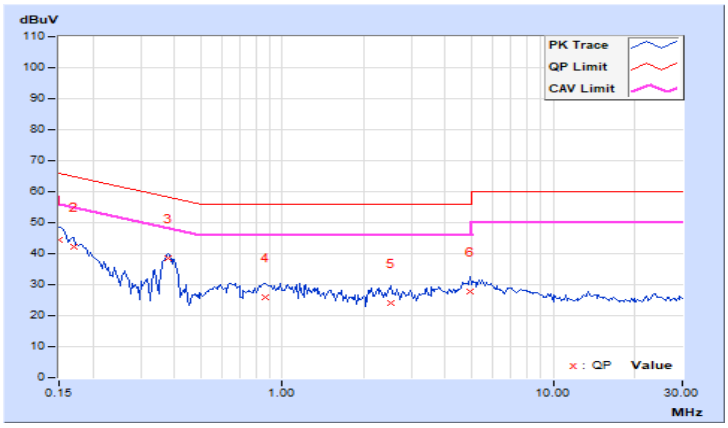
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.01	34.56	20.35	44.57	30.36	66.00	56.00	-21.43	-25.64
2	0.16953	10.01	32.09	18.43	42.10	28.44	64.98	54.98	-22.88	-26.54
3	0.38047	10.02	28.33	25.35	38.35	35.37	58.27	48.27	-19.92	-12.90
4	0.86094	10.06	15.72	9.24	25.78	19.30	56.00	46.00	-30.22	-26.70
5	2.51953	10.18	13.88	6.64	24.06	16.82	56.00	46.00	-31.94	-29.18
6	4.92969	10.35	17.31	9.59	27.66	19.94	56.00	46.00	-28.34	-26.06

REMARKS:

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

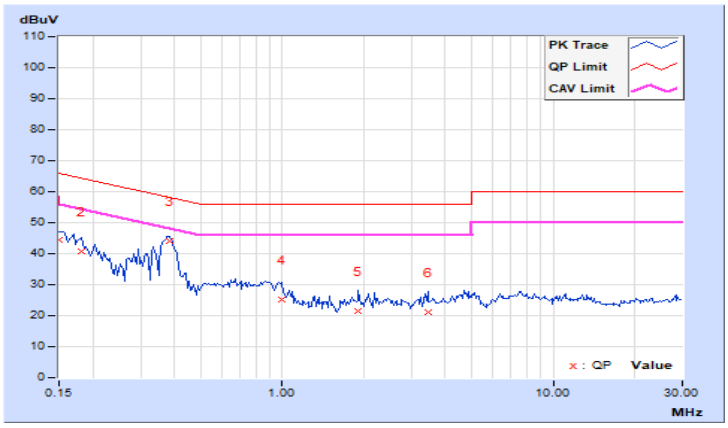


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.99	34.62	21.81	44.61	31.80	66.00	56.00	-21.39	-24.20
2	0.18125	9.99	30.86	21.05	40.85	31.04	64.43	54.43	-23.58	-23.39
3	**0.38438**	**10.01**	**34.00**	**30.81**	**44.01**	**40.82**	**58.18**	**48.18**	**-14.17**	**-7.36**
4	0.99766	10.05	15.22	4.86	25.27	14.91	56.00	46.00	-30.73	-31.09
5	1.91406	10.11	11.22	2.10	21.33	12.21	56.00	46.00	-34.67	-33.79
6	3.45703	10.19	10.90	3.36	21.09	13.55	56.00	46.00	-34.91	-32.45

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)
	√	Client device	250mW (24 dBm)
U-NII-2A	---		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	---		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

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

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

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

4.3.2 Test Setup

4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Condition

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

4.3.7 Test Result

802.11a

Channel	Channel Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass/Fail
36	5180	52	17.16	24	Pass
40	5200	53.951	17.32	24	Pass
48	5240	53.703	17.30	24	Pass
149	5745	65.313	18.15	30	Pass
157	5785	65.917	18.19	30	Pass
165	5825	58.21	17.65	30	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	11.78	11.71	29.891	14.76	24	Pass
40	5200	11.55	11.72	29.148	14.65	24	Pass
48	5240	11.78	12.04	31.062	14.92	24	Pass
149	5745	17.19	17.56	109.376	20.39	30	Pass
157	5785	16.84	17.46	104.025	20.17	30	Pass
165	5825	17.30	17.32	107.654	20.32	30	Pass

802.11ac (VHT40)

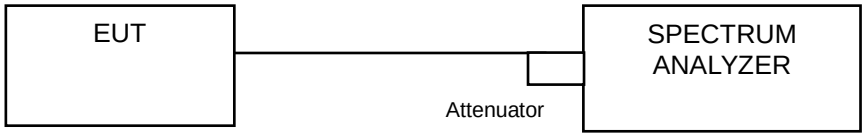
Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	12.14	12.18	32.888	15.17	24	Pass
46	5230	14.70	14.69	58.956	17.71	24	Pass
151	5755	18.66	17.83	134.125	21.28	30	Pass
159	5795	17.45	17.56	112.606	20.52	30	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	10.18	10.34	21.237	13.27	24	Pass
155	5775	15.74	15.15	70.231	18.47	30	Pass

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.04
40	5200	17.04
48	5240	16.92
149	5745	21.84
157	5785	22.68
165	5825	17.88

802.11ac (VHT20)

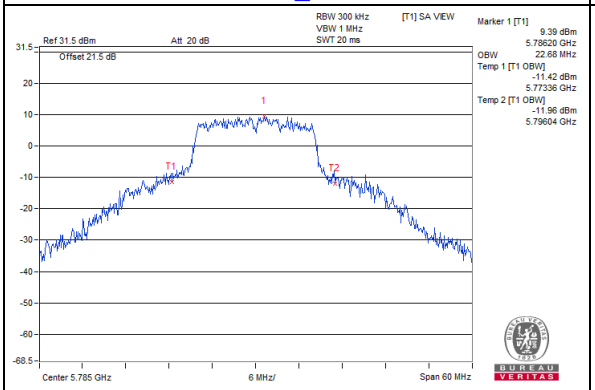
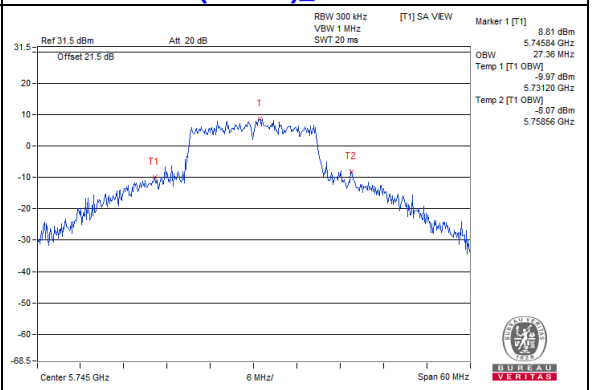
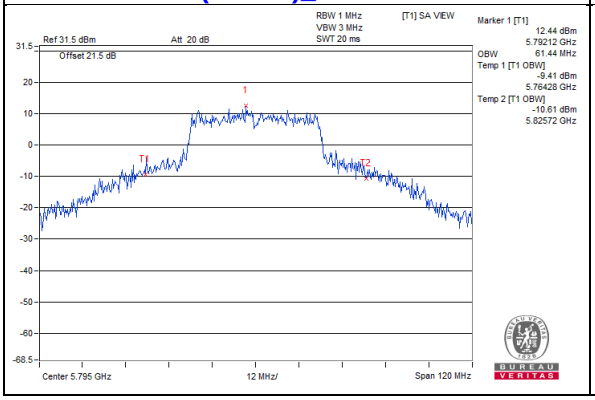
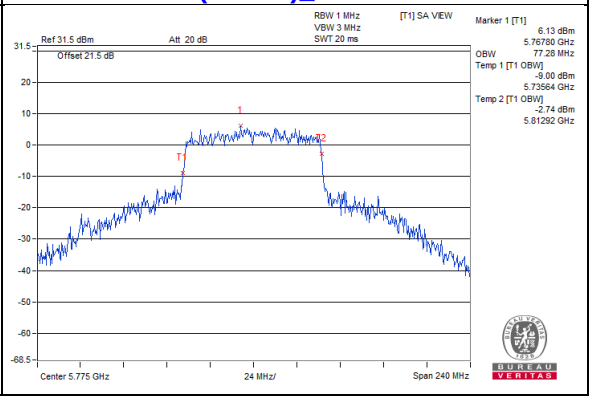
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.76	17.64
40	5200	17.64	17.64
48	5240	17.64	17.76
149	5745	18.60	27.36
157	5785	18.48	21.24
165	5825	20.16	22.92

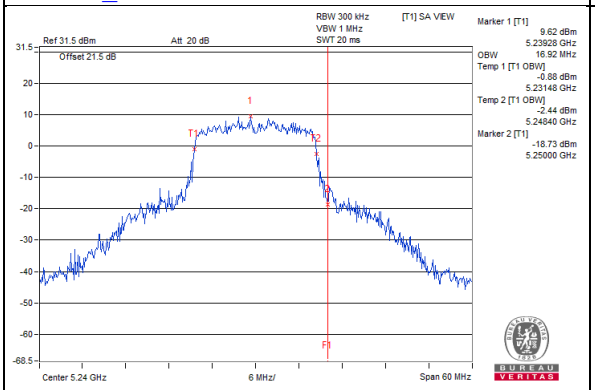
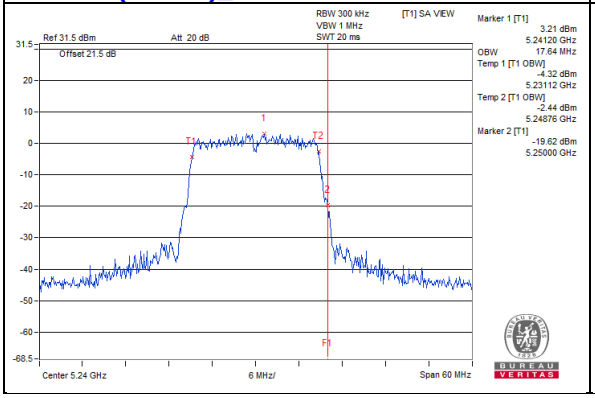
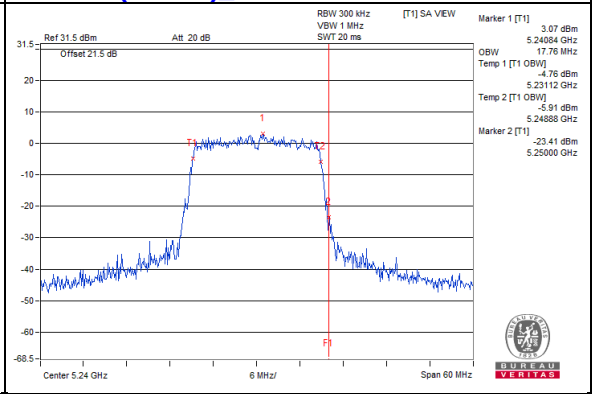
802.11ac (VHT40)

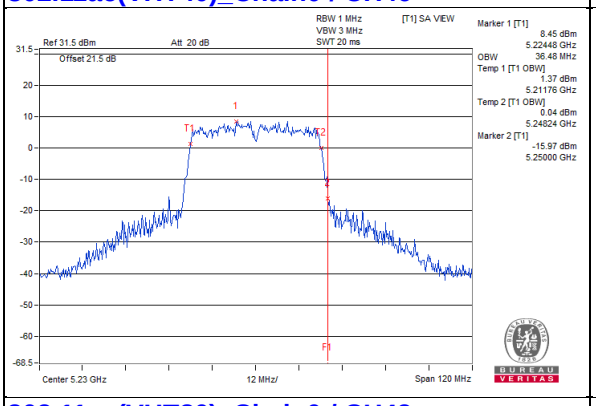
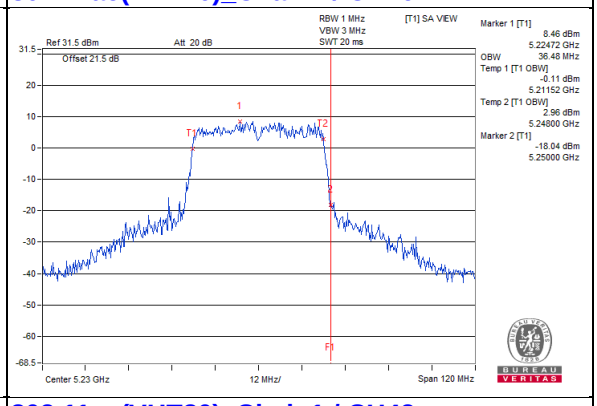
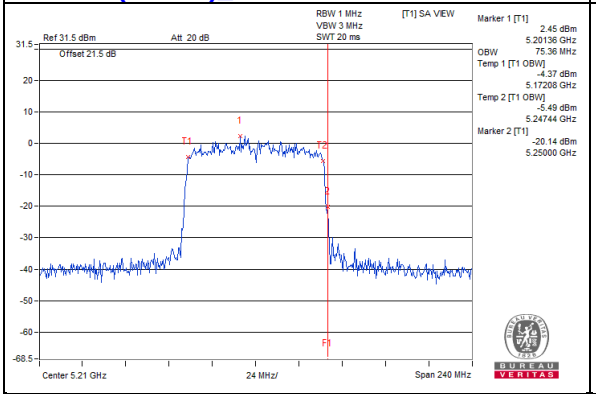
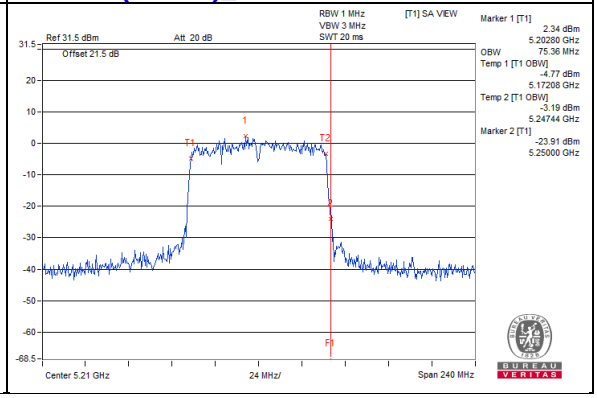
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.24	36.48
46	5230	36.48	36.48
151	5755	48.72	60.00
159	5795	42.24	61.44

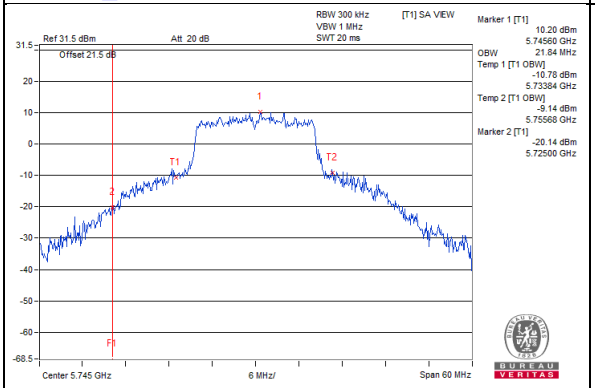
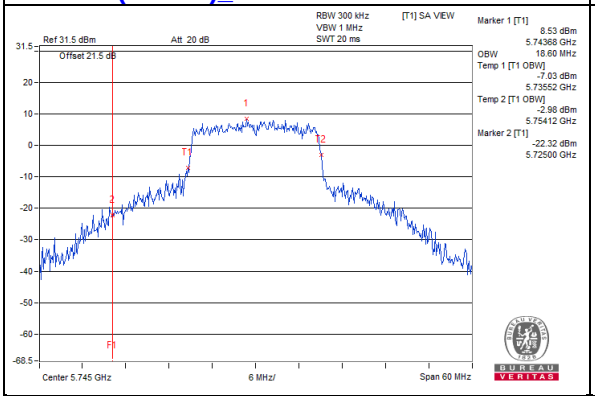
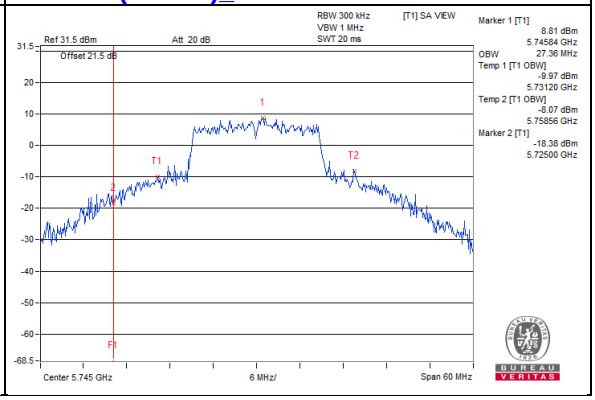
802.11ac (VHT80)

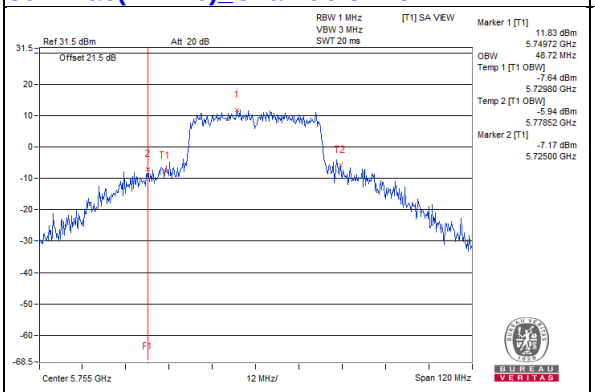
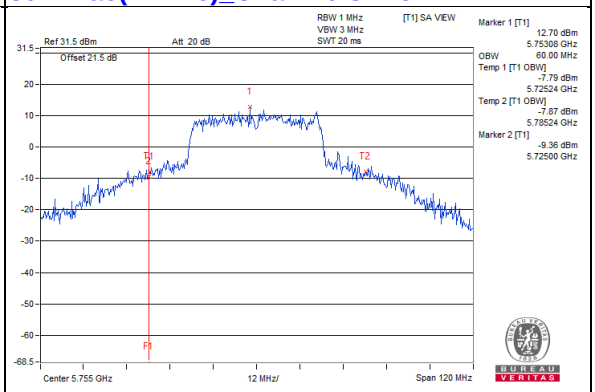
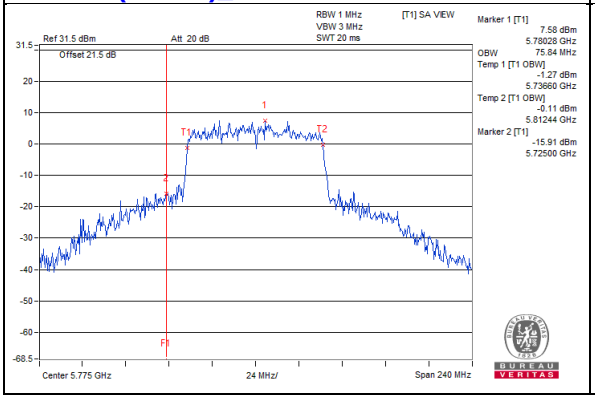
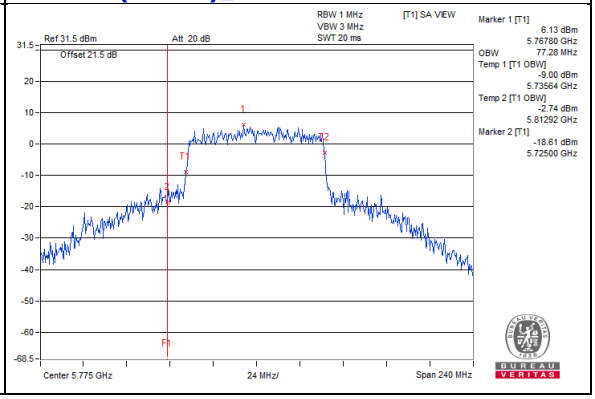
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.36	75.36
155	5775	75.84	77.28

Spectrum Plot of Max Value	
802.11a_CH157	802.11ac (VHT20)_Chain1 / CH149
	
802.11ac (VHT40)_Chain1 / CH159	802.11ac (VHT80)_Chain1 / CH155
	

Spectrum Plot for near by DFS band (DFS is required, if 99% OCP straddle into U-NII-2A band)	
802.11a_CH48	
	
802.11ac(VHT20)_Chain0 / CH48	**802.11ac(VHT20)_Chain1 / CH48**
	

Spectrum Plot for near by DFS band (DFS is required, if 99% OCP straddle into U-NII-2A band)	
802.11ac(VHT40)_Chain0 / CH46	802.11ac(VHT40)_Chain1 / CH46
	
802.11ac(VHT80)_Chain0 / CH42	802.11ac(VHT80)_Chain1 / CH42
	

Spectrum Plot for near by DFS band (DFS is required, if 99% OCP straddle into U-NII-2C band)	
802.11a_Chain0 / CH149	
	
802.11ac(VHT20)_Chain0 / CH149	**802.11ac(VHT20)_Chain1 / CH149**
	

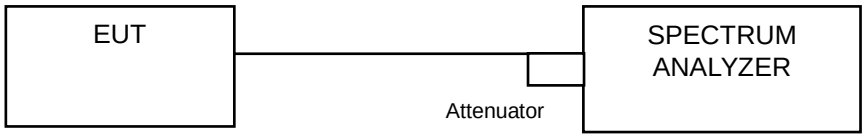
Spectrum Plot for near by DFS band (DFS is required, if 99% OCP straddle into U-NII-2C band)	
802.11ac(VHT40)_Chain0 / CH151	802.11ac(VHT40)_Chain1 / CH151
	
802.11ac(VHT80)_Chain0 / CH155	802.11ac(VHT80)_Chain1 / CH155
	

4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For U-NII-1:

Using method SA-2

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

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300kHz)
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

4.5.7 Test Results

For U-NII-1:

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
36	5180	3.59	0.39	3.98	11	Pass
40	5200	3.65	0.39	4.04	11	Pass
48	5240	4.00	0.39	4.39	11	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	-0.55	-2.91	0.51	1.95	8.99	Pass
40	5200	-2.14	-2.80	0.51	1.06	8.99	Pass
48	5240	-1.99	-1.54	0.51	1.76	8.99	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 11-(8.01-6) = 8.99dBm.

3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-7.29	-5.71	0.92	-2.50	8.99	Pass
46	5230	-2.47	-2.35	0.92	1.52	8.99	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 11-(8.01-6) = 8.99dBm.

3. Refer to section 3.3 for duty cycle spectrum plot.

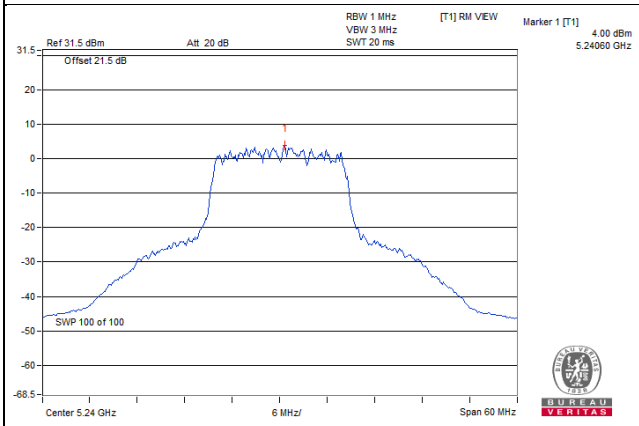
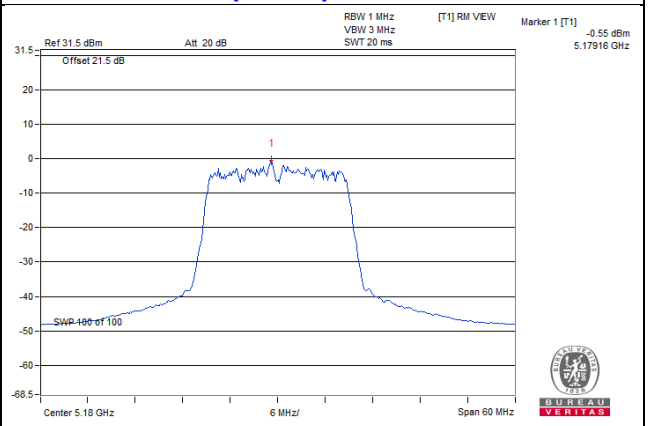
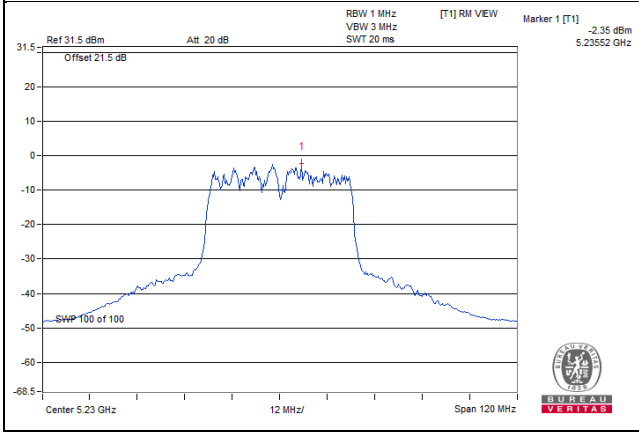
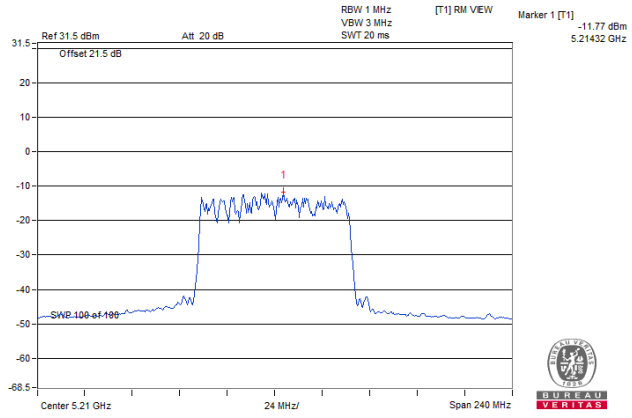
802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-12.39	-12.13	1.38	-7.87	8.99	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 11-(8.01-6) = 8.99dBm.

3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a_CH48	**802.11ac (VHT20)_Chain 0 / CH36**
	
802.11ac (VHT40)_Chain 1 / CH46	**802.11ac (VHT80)_Chain 1 / CH42**
	

For U-NII-3:

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
149	5745	-3.19	0.39	-2.80	-0.58	30	Pass
157	5785	-3.06	0.39	-2.67	-0.45	30	Pass
165	5825	-3.91	0.39	-3.52	-1.30	30	Pass

Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD (dBm/300kHz)		Duty Factor (dB)	Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1		mW/ 300kHz	dBm/ 300kHz			
149	5745	-5.53	-4.73	0.51	0.694	-1.59	0.63	27.99	Pass
157	5785	-5.13	-5.12	0.51	0.6918	-1.60	0.62	27.99	Pass
165	5825	-4.88	-5.07	0.51	0.7163	-1.45	0.77	27.99	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 30-(8.01-6) = 27.99dBm.

3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD (dBm/300kHz)		Duty Factor (dB)	Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1		mW/ 300kHz	dBm/ 300kHz			
151	5755	-7.62	-7.78	0.92	0.4196	-3.77	-1.55	27.99	Pass
159	5795	-8.82	-8.63	0.92	0.3314	-4.80	-2.58	27.99	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 30-(8.01-6) = 27.99dBm.

3. Refer to section 3.3 for duty cycle spectrum plot.

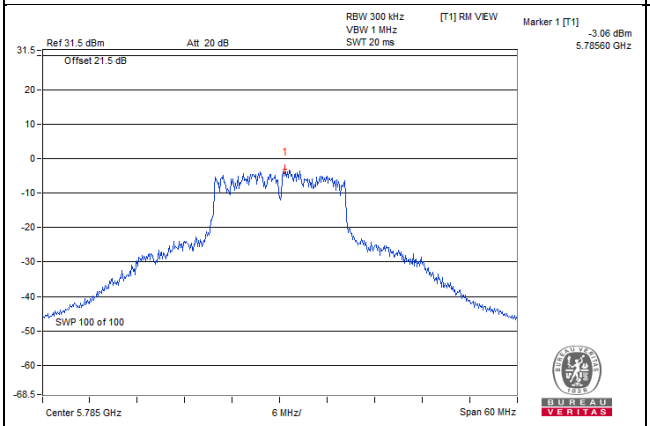
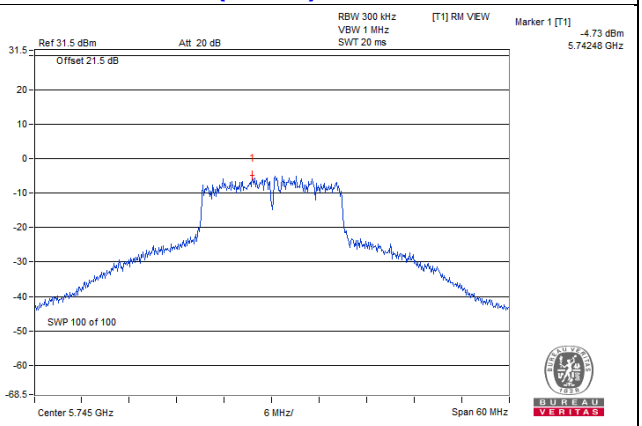
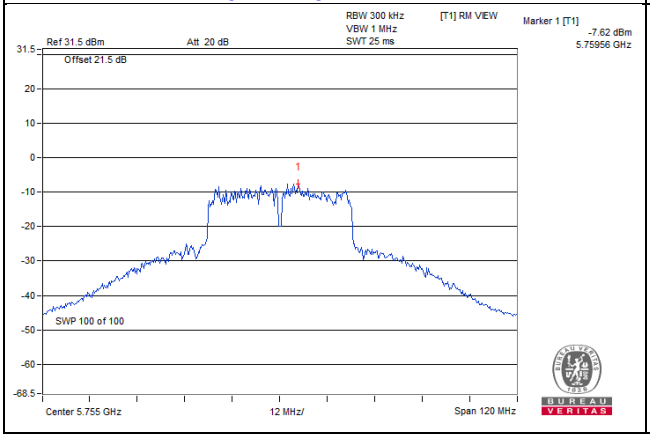
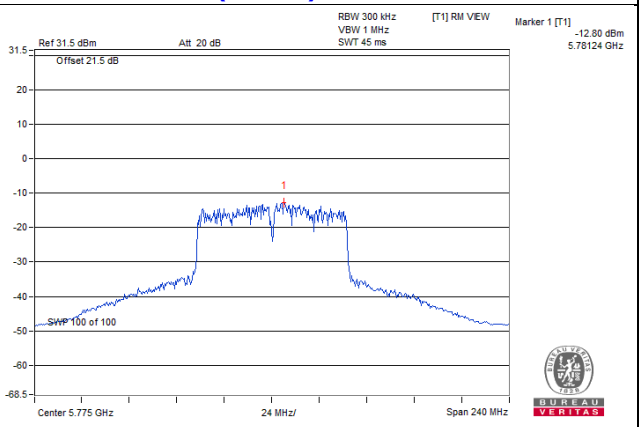
802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD (dBm/300kHz)		Duty Factor (dB)	Total PSD		Total PSD (dBm/500kHz)	Limit (dBm/ 500kHz)	Pass /Fail
		Chain 0	Chain 1		mW/ 300kHz	dBm/ 300kHz			
155	5775	-12.80	-13.73	1.38	0.13023	-8.85	-6.63	27.99	Pass

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 30-(8.01-6) = 27.99dBm.

3. Refer to section 3.3 for duty cycle spectrum plot.

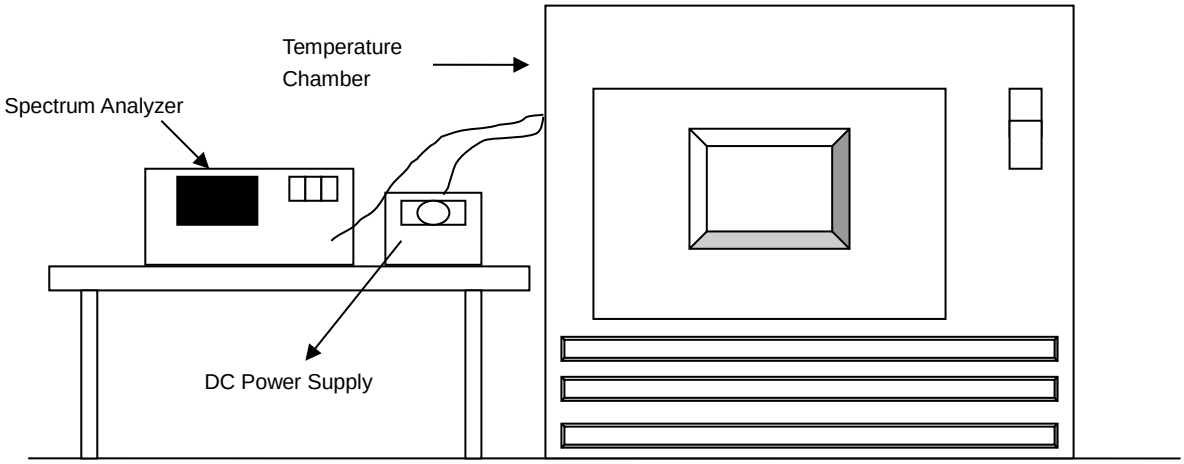
Spectrum Plot of Worst Value	
802.11a_CH157	**802.11ac (VHT20)_Chain 1 / CH149**
	
802.11ac (VHT40)_Chain 0 / CH151	**802.11ac (VHT80)_Chain 0 / CH155**
	

4.6 Frequency Stability Measurement

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
70	3.3	5180.0133	PASS	5180.0099	PASS	5180.0141	PASS	5180.0124	Pass
60	3.3	5179.989	PASS	5179.9898	PASS	5179.9921	PASS	5179.992	Pass
50	3.3	5179.9788	PASS	5179.9794	PASS	5179.9787	PASS	5179.9781	Pass
40	3.3	5179.9966	PASS	5179.9997	PASS	5179.9962	PASS	5179.9967	Pass
30	3.3	5180.0042	PASS	5180.0022	PASS	5180.0053	PASS	5180.0027	Pass
20	3.3	5180.0128	PASS	5180.0137	PASS	5180.0104	PASS	5180.0112	Pass
10	3.3	5179.9913	PASS	5179.9936	PASS	5179.9897	PASS	5179.9934	Pass
0	3.3	5180.0127	PASS	5180.0131	PASS	5180.016	PASS	5180.0129	Pass
-10	3.3	5179.9882	PASS	5179.9879	PASS	5179.9902	PASS	5179.9883	Pass
-20	3.3	5179.9973	PASS	5179.9984	PASS	5180.001	PASS	5180.0013	Pass
-30	3.3	5179.9925	PASS	5179.9901	PASS	5179.9919	PASS	5179.9932	Pass

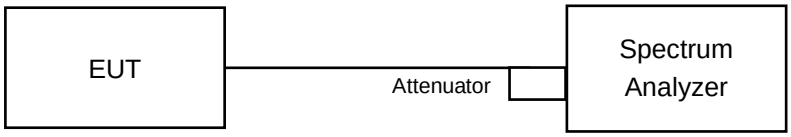
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	3.795	5180.013	PASS	5180.0135	PASS	5180.0096	PASS	5180.011	Pass
	3.3	5180.0128	PASS	5180.0137	PASS	5180.0104	PASS	5180.0112	Pass
	2.805	5180.0132	PASS	5180.0131	PASS	5180.0099	PASS	5180.011	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.96	0.5	PASS
157	5785	15.96	0.5	PASS
165	5825	15.80	0.5	PASS

802.11ac (VHT20)

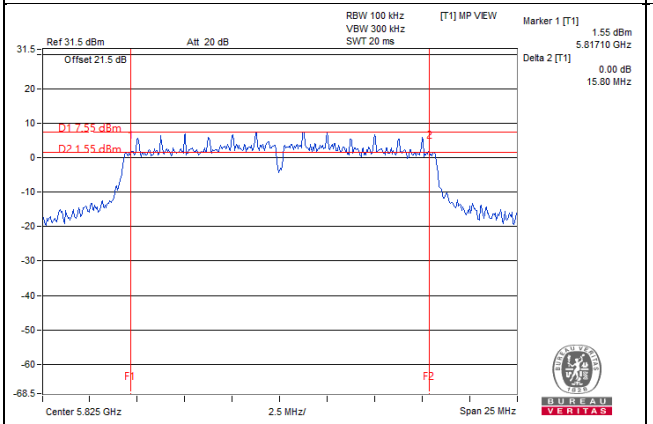
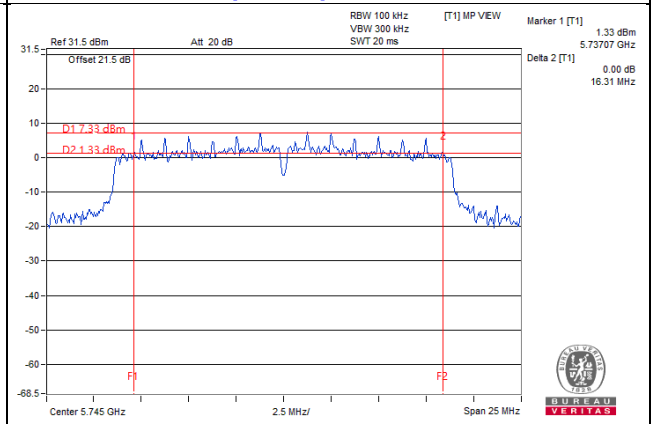
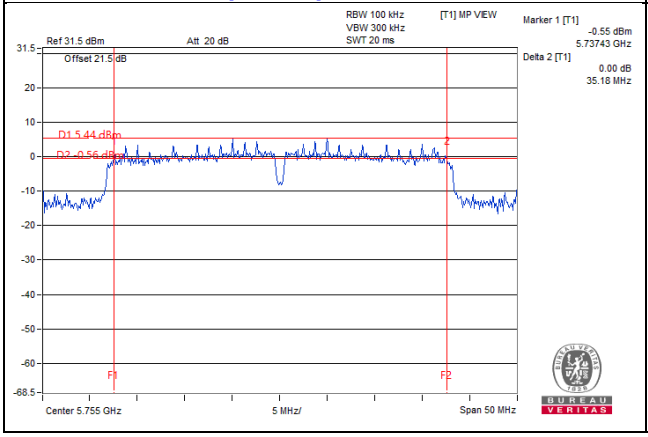
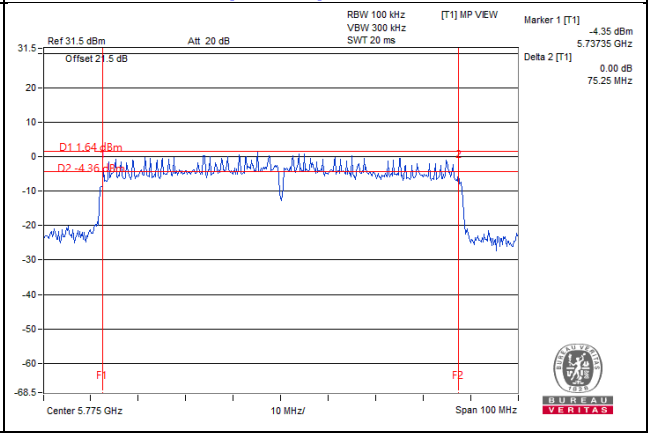
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.31	17.06	0.5	PASS
157	5785	16.57	16.60	0.5	PASS
165	5825	16.33	16.55	0.5	PASS

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	35.28	35.18	0.5	PASS
159	5795	35.30	35.18	0.5	PASS

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.25	75.26	0.5	PASS

Spectrum Plot of Worst Value	
802.11a_CH165	**802.11ac (VHT20)_Chain 0 / CH149**
	
802.11ac (VHT40)_Chain 1 / CH151	**802.11ac (VHT80)_Chain 0 / CH155**
	

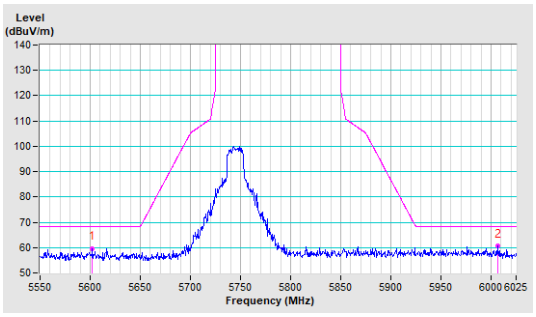
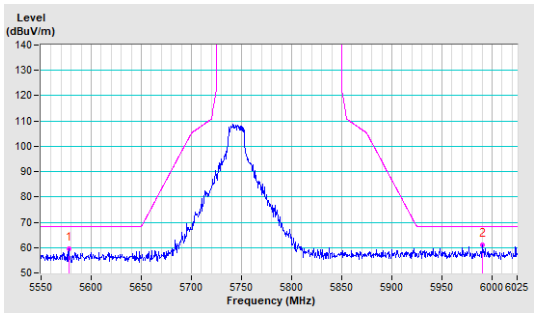
5 Pictures of Test Arrangements

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

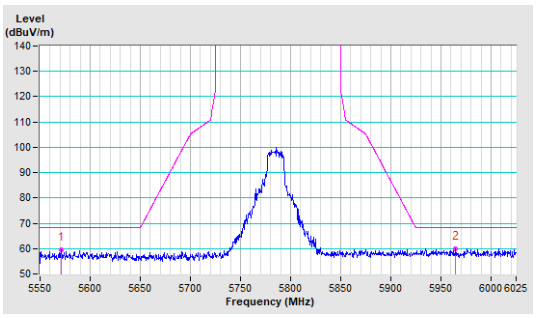
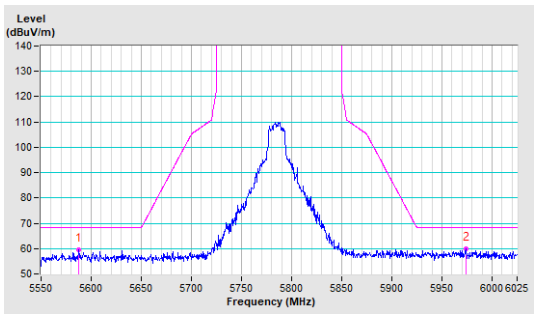
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

802.11a

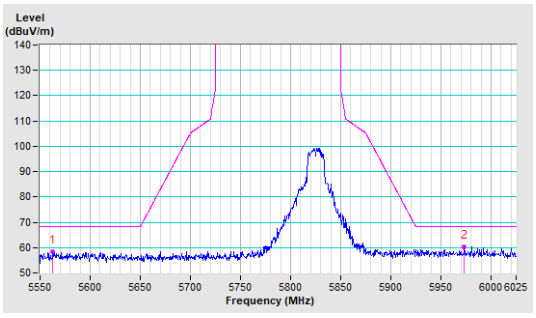
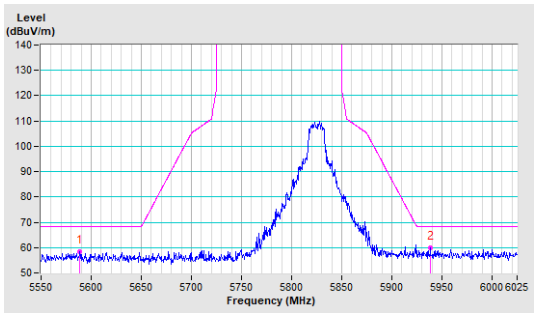
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

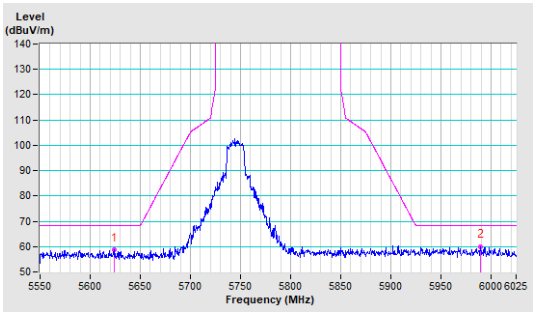
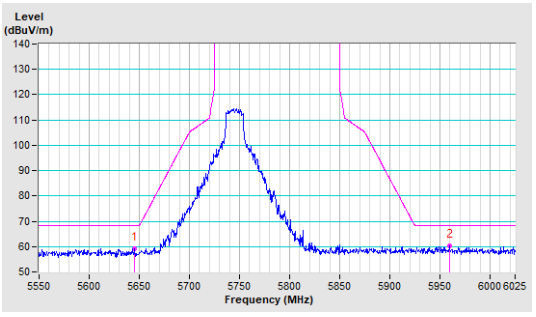
Horizontal	Vertical
	

CH 165 5825 MHz

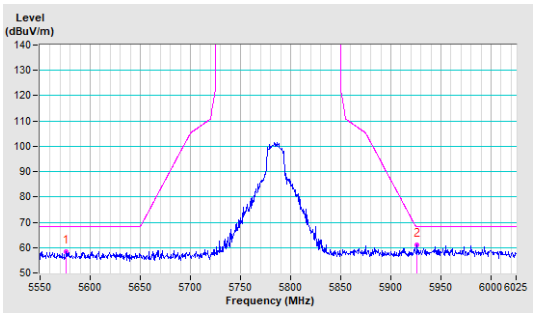
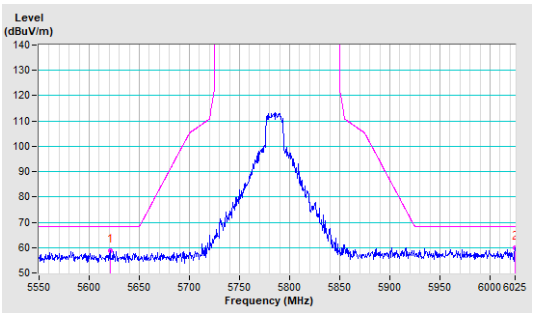
Horizontal	Vertical
	

802.11ac (VHT20)

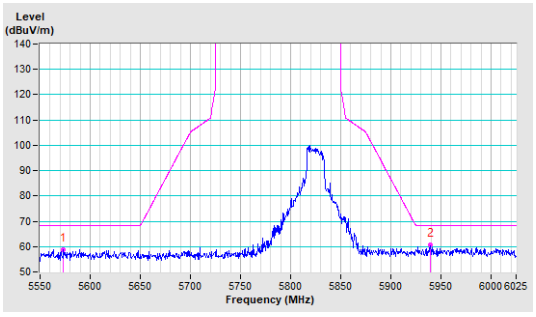
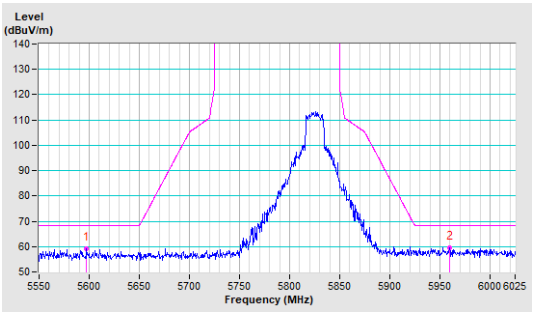
CH 149 5745 MHz

Horizontal	Vertical
	

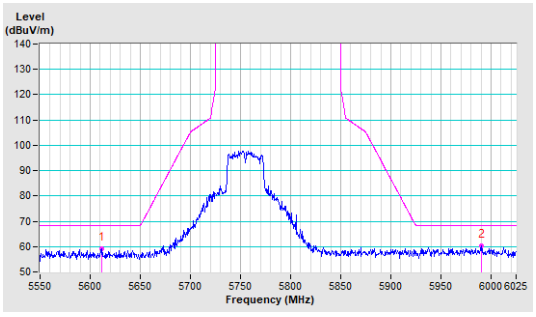
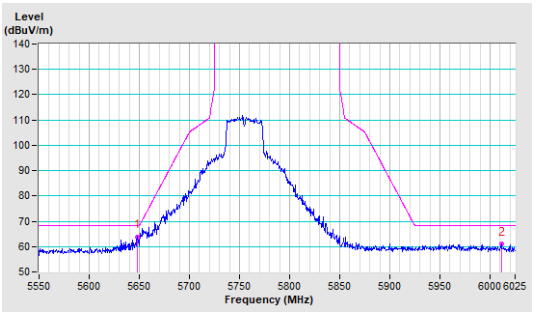
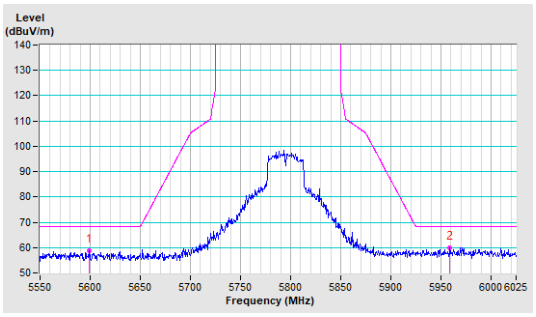
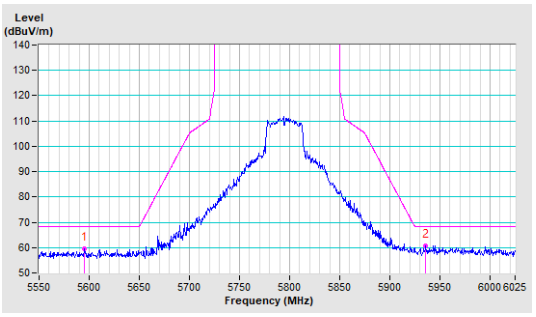
CH 157 5785 MHz

Horizontal	Vertical
	

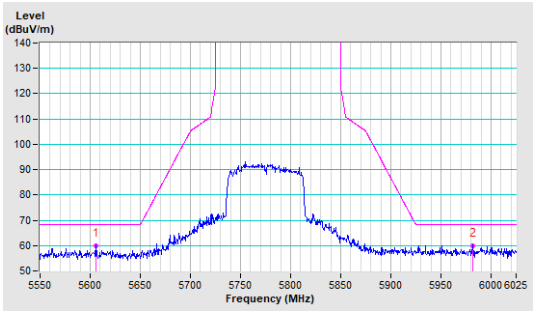
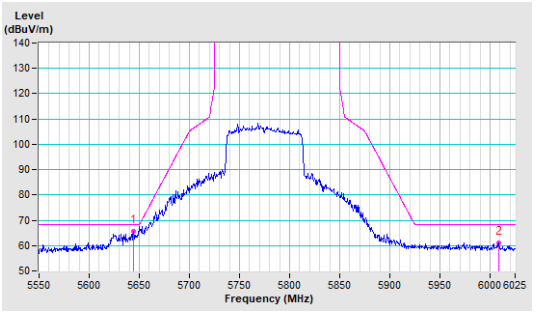
CH 165 5825 MHz

Horizontal	Vertical
	

802.11ac (VHT40)

CH 151 5755 MHz	
Horizontal	**Vertical**
	
CH 159 5795 MHz	
Horizontal	**Vertical**
	

802.11ac (VHT80)

CH 155 5775 MHz	
Horizontal	**Vertical**
	

Appendix – Information of the Testing Laboratories

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

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

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

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