FCC Test Report

Report No.:	RF191122C08-1
FCC ID:	UJH-R1LOW
Test Model:	R1LOW (refer to item 3.1 for more details)
Received Date:	Nov. 22, 2019
Test Date:	Dec. 23, 2019 ~ Jan. 03, 2020
Issued Date:	Jan. 10, 2020
Applicant:	Mitsubishi Electric Corporation Sanda Works
Address:	2-3-33 Miwa, Sanda-City, Hyogo 669-1513, Japan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF191122C08-1	Original release	Jan. 10, 2020

1 Certificate of Conformity

Product:	Display Audio
Brand:	Mitsubishi Electric Corporation
Test Model:	R1LOW (refer to item 3.1 for more details)
Sample Status:	DV
Applicant:	Mitsubishi Electric Corporation Sanda Works
Test Date:	Dec. 23, 2019 ~ Jan. 03, 2020
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10:2013

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

Prepared by : Pettie Chen , **Date:** Jan. 10, 2020

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Jan. 10, 2020

Bruce Chen / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	NA	EUT is powered from DC
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 -4.8dB at 37.76MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is SMA not a standard connector.

Note:
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Display Audio
Brand	Mitsubishi Electric Corporation
Model	R1LOW (refer to note for more details)
Sample Status	DV
Power Supply Rating	12Vdc
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
Operating Frequency	5180~5240MHz, 5260~5320MHz, 5500~5700MHz, 5745~5825MHz
Number of Channel	5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5260~5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500~5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	5180~5240MHz: For Outdoor Access Point Mode: 4.275mW For Mobile and Portable client device Mode: 4.275mW 5260~5320MHz: 4.601mW 5500~5700MHz: 4.707mW 5745~5825MHz: 4.423mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	2m non-shielded DC power cable without core
Cable Supplied	0.5m shielded USB cable with 2 cores

Note:

1. The following models with different panel size are provided to this EUT.

Brand	Model	Description
Mitsubishi Electric Corporation	R1LOW	No.12 (7” ICS Panel)
		No.13 (8.4” ICS Panel)

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

Modulation Mode	TX Function
802.11a	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX

* The modulation and bandwidth are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40 on 802.11ac mode, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

3. There two modules are collocated in the EUT.

Module No.	Function
1	WLAN 2.4GHz, 5GHz, BT EDR, BT LE (1M)
2	BT LE (1M, 2M)

4. The EUT uses following antennas.

Type	Sheet metal antenna			
Connecter	SMA			
Model	2342059-1		2342059-2	
Frequency (MHz)	2400-2500	5150-5850	2400-2500	5150-5850
Gain (dBi)	3	2	1	4

3.2 Description of Test Modes

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

5260~5320MHz:

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290 MHz

5500~5700MHz:

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

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

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

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

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

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	
A	√	√	Note 2	√	EUT: No.12 (7" ICS Panel)
B	-	√	Note 2	-	EUT: No.13 (8.4" ICS Panel)

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

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

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.
2. No need to concern of PLC due to the EUT is powered from DC.
3. For radiated emission (below 1GHz) test item, the worst maximum power was selected.
4. "-": Means no effect.

Radiated Emission Test (Above 1GHz):

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

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	65.0
	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	65.0
	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	65.0
	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155	155	OFDM	65.0

Radiated Emission Test (Below 1GHz):

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

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B	802.11a	5180-5240	36 to 48	40	OFDM	6.0
		5260-5320	52 to 64		OFDM	6.0
		5500-5700	100 to 140		OFDM	6.0
		5745-5825	149 to 165		OFDM	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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	65.0
	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	65.0
	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	65.0
	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155	155	OFDM	65.0

Test Condition:

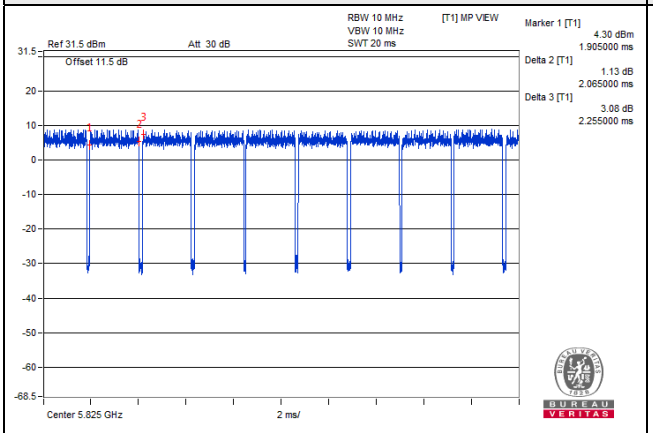
Applicable to	Environmental Conditions	Input Power (system)	Tested by
RE≥1G	22 deg. C, 66% RH	120Vac, 60Hz	Han Wu
RE<1G	22 deg. C, 66% RH	120Vac, 60Hz	Han Wu
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ted Chang

3.3 Duty Cycle of Test Signal

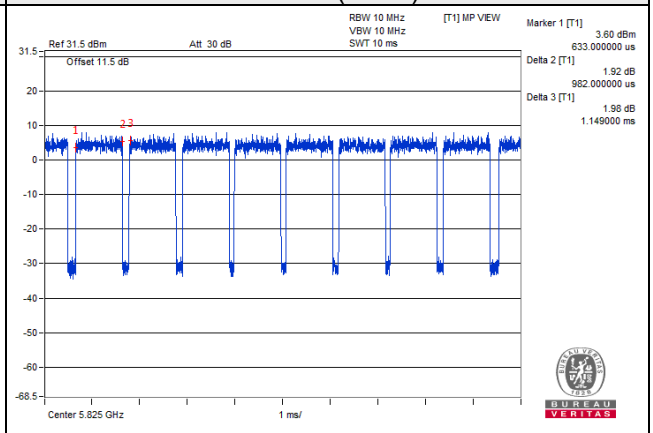
Duty cycle of test signal is ≥ 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 2.065/2.255 = 0.916, Duty factor = 10 * log(1/0.916) = 0.38
802.11n (HT20): Duty cycle = 0.982/1.148 = 0.855, Duty factor = 10 * log(1/0.855) = 0.68
802.11n (HT40): Duty cycle = 0.495/0.620 = 0.798, Duty factor = 10 * log(1/0.798) = 0.98
802.11ac (VHT80): Duty cycle = 0.256/0.423 = 0.605, Duty factor = 10 * log(1/0.605) = 2.18

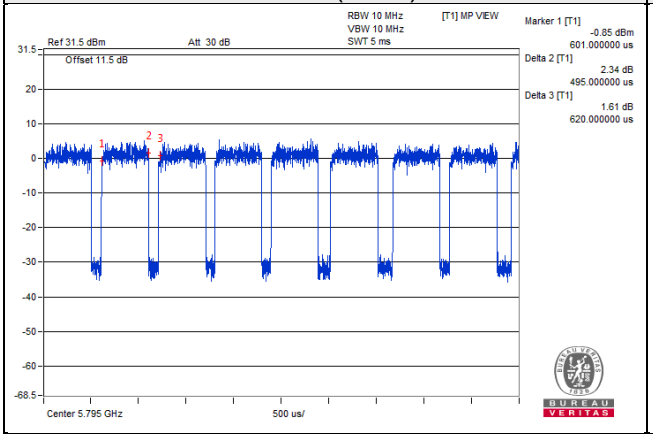
802.11a



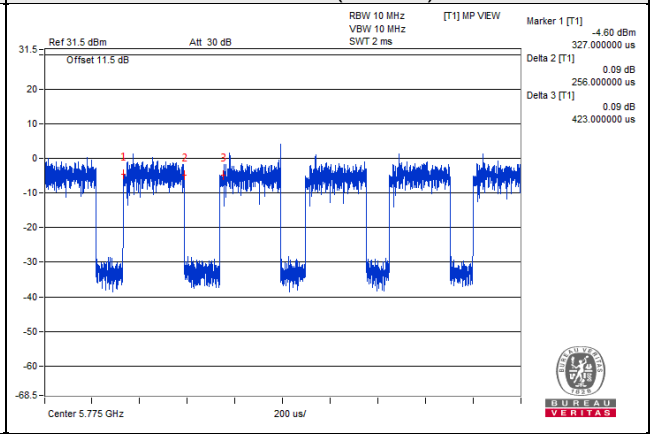
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



3.4 Description of Support Units

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

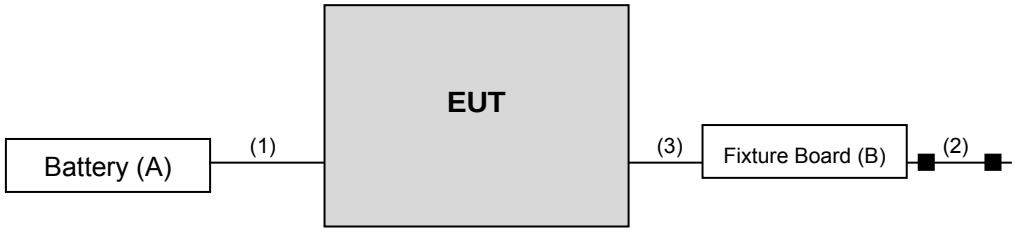
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Battery	YUASA	75D23R-CMF II	NA	NA	-
B.	Fixture Board	NA	NA	NA	NA	Provided by client

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC power cable	1	2	N	0	Accessory
2.	USB cable	1	0.5	Y	2	Accessory
3.	Harness cable	1	2	N	0	Provided by client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

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

Test Standard:
FCC Part 15, Subpart E (15.407)
ANSI C63.10:2013

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

References Test Guidance:

KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

Limits of unwanted emission out of the restricted bands

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

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 15, 2019	Apr. 14, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 04, 2019	Jun. 03, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 07, 2019	Nov. 06, 2020
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jul. 11, 2019	Jul. 10, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 19, 2019	Feb. 18, 2020
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 19, 2019	Jan. 18, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jul. 11, 2019	Jul. 10, 2020
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 30, 2019	Jul. 29, 2020
Software BV ADT	ADT_Radiated_V7.6.15.9.5	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
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 15, 2019	Jul. 14, 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 HwaYa Chamber 9.

4.1.3 Test Procedures

For Radiated emission below 30MHz

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

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

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

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

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

Note:

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

For Radiated emission above 30MHz

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

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

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

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

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

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

Note:

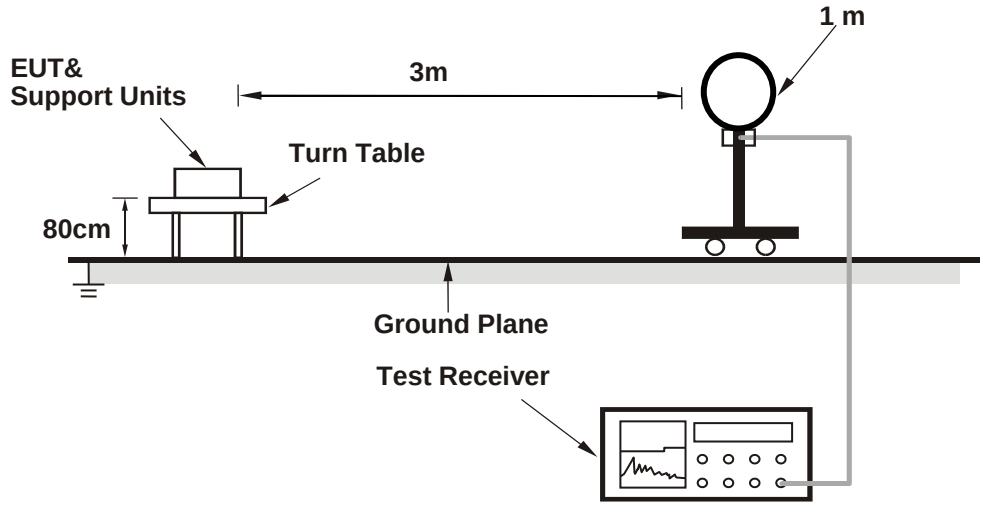
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

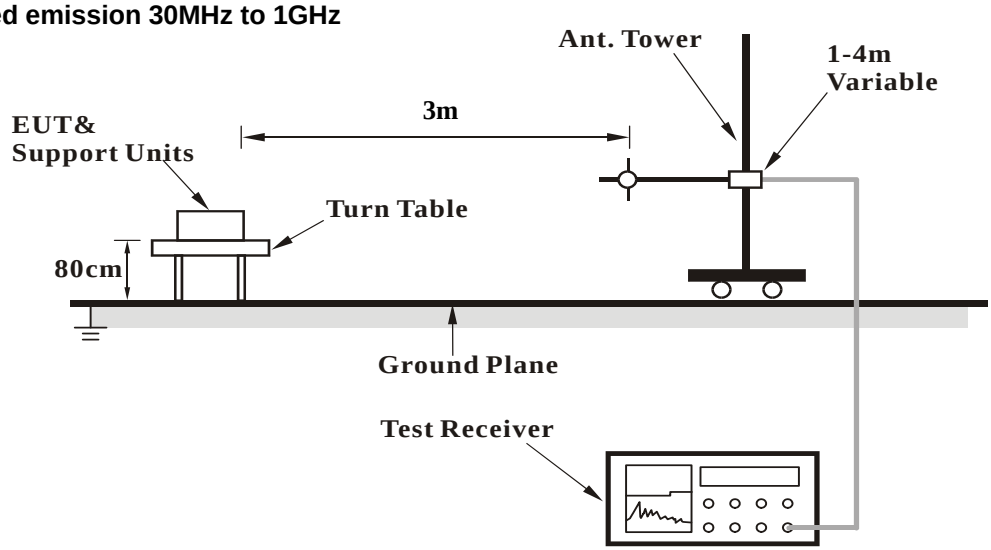
No deviation.

4.1.5 Test Setup

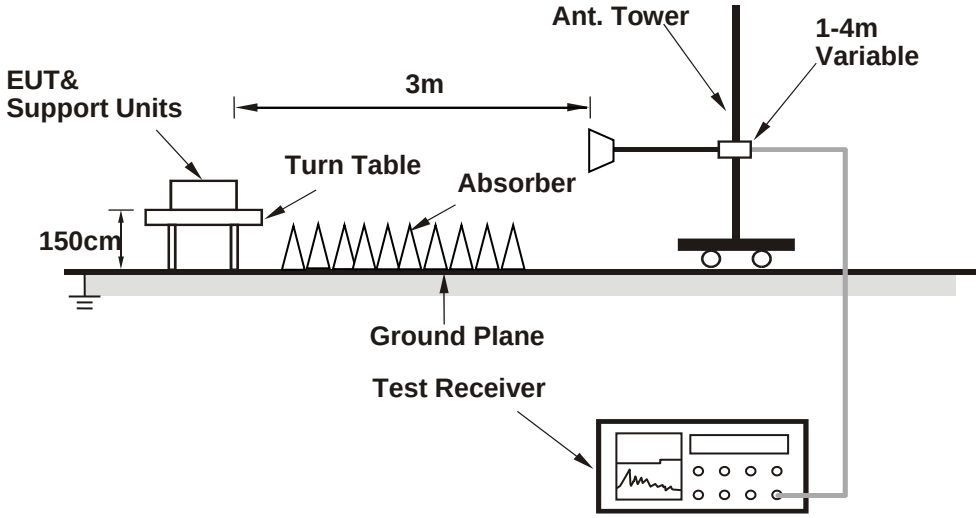
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Set the EUT under transmission condition continuously at specific channel frequency.

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	54.2 PK	74.0	-19.8	2.95 H	62	50.3	3.9
2	5150.00	40.5 AV	54.0	-13.5	2.95 H	62	36.6	3.9
3	*5180.00	92.8 PK			2.95 H	68	54.5	38.3
4	*5180.00	83.5 AV			2.95 H	68	45.2	38.3
5	#10360.00	57.2 PK	68.2	-11.0	3.24 H	341	40.6	16.6
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	5150.00	54.2 PK	74.0	-19.8	1.38 V	44	50.3	3.9
2	5150.00	40.6 AV	54.0	-13.4	1.38 V	44	36.7	3.9
3	*5180.00	97.4 PK			1.38 V	45	59.1	38.3
4	*5180.00	87.6 AV			1.38 V	45	49.3	38.3
5	#10360.00	57.1 PK	68.2	-11.1	2.43 V	83	40.5	16.6

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. 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) 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	93.8 PK			2.90 H	65	55.7	38.1
2	*5200.00	83.9 AV			2.90 H	65	45.8	38.1
3	#10400.00	58.1 PK	68.2	-10.1	3.18 H	334	41.4	16.7
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	*5200.00	97.5 PK			1.42 V	43	59.4	38.1
2	*5200.00	87.7 AV			1.42 V	43	49.6	38.1
3	#10400.00	58.1 PK	68.2	-10.1	2.43 V	79	41.4	16.7

Remarks:

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

CHANNEL	TX Channel 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	92.1 PK			3.05 H	68	54.0	38.1
2	*5240.00	82.0 AV			3.05 H	68	43.9	38.1
3	5350.00	54.4 PK	74.0	-19.6	2.85 H	70	50.6	3.8
4	5350.00	41.1 AV	54.0	-12.9	2.85 H	70	37.3	3.8
5	#10480.00	57.8 PK	68.2	-10.4	3.15 H	332	41.3	16.5
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	*5240.00	96.0 PK			1.43 V	42	57.9	38.1
2	*5240.00	86.2 AV			1.43 V	42	48.1	38.1
3	5350.00	54.4 PK	74.0	-19.6	1.43 V	44	50.6	3.8
4	5350.00	41.1 AV	54.0	-12.9	1.43 V	44	37.3	3.8
5	#10480.00	57.8 PK	68.2	-10.4	2.29 V	84	41.3	16.5

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.6 PK	74.0	-19.4	3.02 H	70	50.7	3.9
2	5150.00	41.0 AV	54.0	-13.0	3.02 H	70	37.1	3.9
3	*5260.00	91.5 PK			2.89 H	63	53.4	38.1
4	*5260.00	82.3 AV			2.89 H	63	44.2	38.1
5	#10520.00	58.0 PK	68.2	-10.2	3.16 H	336	41.4	16.6
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	5150.00	54.5 PK	74.0	-19.5	1.24 V	56	50.6	3.9
2	5150.00	40.8 AV	54.0	-13.2	1.24 V	56	36.9	3.9
3	*5260.00	95.7 PK			1.28 V	52	57.6	38.1
4	*5260.00	86.2 AV			1.28 V	52	48.1	38.1
5	#10520.00	57.7 PK	68.2	-10.5	2.34 V	83	41.1	16.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	91.7 PK			2.86 H	70	53.6	38.1
2	*5300.00	82.2 AV			2.86 H	70	44.1	38.1
3	10600.00	58.1 PK	74.0	-15.9	3.32 H	335	41.3	16.8
4	10600.00	43.6 AV	54.0	-10.4	3.32 H	335	26.8	16.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	95.4 PK			1.17 V	55	57.3	38.1
2	*5300.00	86.2 AV			1.17 V	55	48.1	38.1
3	10600.00	58.2 PK	74.0	-15.8	2.42 V	83	41.4	16.8
4	10600.00	43.3 AV	54.0	-10.7	2.42 V	83	26.5	16.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	91.7 PK			2.88 H	67	53.6	38.1
2	*5320.00	82.0 AV			2.88 H	67	43.9	38.1
3	5350.00	54.6 PK	74.0	-19.4	3.03 H	70	50.8	3.8
4	5350.00	40.8 AV	54.0	-13.2	3.03 H	70	37.0	3.8
5	10640.00	57.8 PK	74.0	-16.2	3.19 H	337	40.8	17.0
6	10640.00	43.6 AV	54.0	-10.4	3.19 H	337	26.6	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	95.7 PK			1.25 V	53	57.6	38.1
2	*5320.00	86.0 AV			1.25 V	53	47.9	38.1
3	5350.00	54.2 PK	74.0	-19.8	1.27 V	59	50.4	3.8
4	5350.00	40.8 AV	54.0	-13.2	1.27 V	59	37.0	3.8
5	10640.00	57.5 PK	74.0	-16.5	2.46 V	81	40.5	17.0
6	10640.00	43.4 AV	54.0	-10.6	2.46 V	81	26.4	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.1 PK	74.0	-19.9	2.86 H	68	49.9	4.2
2	5460.00	40.4 AV	54.0	-13.6	2.86 H	68	36.2	4.2
3	#5470.00	54.8 PK	68.2	-13.4	2.81 H	64	50.5	4.3
4	*5500.00	91.9 PK			2.90 H	66	53.2	38.7
5	*5500.00	81.9 AV			2.90 H	66	43.2	38.7
6	11000.00	59.0 PK	74.0	-15.0	3.25 H	331	40.6	18.4
7	11000.00	45.7 AV	54.0	-8.3	3.25 H	331	27.3	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.4 PK	74.0	-19.6	1.46 V	46	50.2	4.2
2	5460.00	40.2 AV	54.0	-13.8	1.46 V	46	36.0	4.2
3	#5470.00	55.0 PK	68.2	-13.2	1.43 V	54	50.7	4.3
4	*5500.00	95.6 PK			1.48 V	50	56.9	38.7
5	*5500.00	86.4 AV			1.48 V	50	47.7	38.7
6	11000.00	59.8 PK	74.0	-14.2	2.29 V	84	41.4	18.4
7	11000.00	45.7 AV	54.0	-8.3	2.29 V	84	27.3	18.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	91.4 PK			2.94 H	67	52.8	38.6
2	*5580.00	82.0 AV			2.94 H	67	43.4	38.6
3	11160.00	58.5 PK	74.0	-15.5	3.25 H	337	41.3	17.2
4	11160.00	44.3 AV	54.0	-9.7	3.25 H	337	27.1	17.2
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	*5580.00	95.2 PK			1.26 V	51	56.6	38.6
2	*5580.00	85.9 AV			1.26 V	51	47.3	38.6
3	11160.00	58.6 PK	74.0	-15.4	2.26 V	85	41.4	17.2
4	11160.00	44.5 AV	54.0	-9.5	2.26 V	85	27.3	17.2

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	92.7 PK			2.82 H	62	53.9	38.8
2	*5700.00	82.6 AV			2.82 H	62	43.8	38.8
3	#5725.00	54.4 PK	68.2	-13.8	1.43 H	50	50.0	4.4
4	11400.00	58.5 PK	74.0	-15.5	3.23 H	346	41.0	17.5
5	11400.00	44.6 AV	54.0	-9.4	3.23 H	346	27.1	17.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	96.5 PK			1.28 V	42	57.7	38.8
2	*5700.00	86.7 AV			1.28 V	42	47.9	38.8
3	#5725.00	54.1 PK	68.2	-14.1	1.46 V	54	49.7	4.4
4	11400.00	59.0 PK	74.0	-15.0	2.38 V	76	41.5	17.5
5	11400.00	44.7 AV	54.0	-9.3	2.38 V	76	27.2	17.5

Remarks:

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

CHANNEL	TX Channel 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	#5644.80	54.6 PK	68.2	-13.6	1.41 H	71	50.3	4.3
2	*5745.00	93.7 PK			1.41 H	71	54.8	38.9
3	*5745.00	84.1 AV			1.41 H	71	45.2	38.9
4	#5984.00	56.2 PK	68.2	-12.0	1.41 H	71	51.2	5.0
5	11490.00	57.4 PK	74.0	-16.6	3.08 H	345	40.5	16.9
6	11490.00	44.2 AV	54.0	-9.8	3.08 H	345	27.3	16.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5619.20	54.5 PK	68.2	-13.7	1.07 V	42	50.2	4.3
2	*5745.00	96.2 PK			1.07 V	42	57.3	38.9
3	*5745.00	86.1 AV			1.07 V	42	47.2	38.9
4	#5983.20	55.1 PK	68.2	-13.1	1.07 V	42	50.1	5.0
5	11490.00	58.3 PK	74.0	-15.7	2.42 V	76	41.4	16.9
6	11490.00	44.1 AV	54.0	-9.9	2.42 V	76	27.2	16.9

Remarks:

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

CHANNEL	TX Channel 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	#5620.80	53.2 PK	68.2	-15.0	2.89 H	65	48.9	4.3
2	*5785.00	94.8 PK			2.89 H	65	55.8	39.0
3	*5785.00	84.9 AV			2.89 H	65	45.9	39.0
4	#5959.20	54.6 PK	68.2	-13.6	2.89 H	65	49.6	5.0
5	11570.00	57.8 PK	74.0	-16.2	3.23 H	346	41.1	16.7
6	11570.00	43.6 AV	54.0	-10.4	3.23 H	346	26.9	16.7
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	#5634.40	53.5 PK	68.2	-14.7	1.23 V	40	49.2	4.3
2	*5785.00	96.4 PK			1.23 V	40	57.4	39.0
3	*5785.00	86.7 AV			1.23 V	40	47.7	39.0
4	#5928.80	54.3 PK	68.2	-13.9	1.23 V	40	49.3	5.0
5	11570.00	57.4 PK	74.0	-16.6	2.43 V	79	40.7	16.7
6	11570.00	43.7 AV	54.0	-10.3	2.43 V	79	27.0	16.7

Remarks:

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

CHANNEL	TX Channel 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	#5604.80	54.1 PK	68.2	-14.1	2.86 H	67	49.9	4.2
2	*5825.00	94.6 PK			2.86 H	67	55.5	39.1
3	*5825.00	84.8 AV			2.86 H	67	45.7	39.1
4	#5932.00	55.7 PK	68.2	-12.5	2.86 H	67	50.7	5.0
5	11650.00	57.3 PK	74.0	-16.7	3.24 H	342	40.8	16.5
6	11650.00	43.5 AV	54.0	-10.5	3.24 H	342	27.0	16.5
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	#5626.40	54.9 PK	68.2	-13.3	1.35 V	41	50.6	4.3
2	*5825.00	96.5 PK			1.35 V	41	57.4	39.1
3	*5825.00	86.6 AV			1.35 V	41	47.5	39.1
4	#5978.40	55.0 PK	68.2	-13.2	1.35 V	41	50.0	5.0
5	11650.00	57.6 PK	74.0	-16.4	2.34 V	81	41.1	16.5
6	11650.00	43.7 AV	54.0	-10.3	2.34 V	81	27.2	16.5

Remarks:

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

802.11n (HT20)

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	54.6 PK	74.0	-19.4	2.99 H	68	50.7	3.9
2	5150.00	40.8 AV	54.0	-13.2	2.99 H	68	36.9	3.9
3	*5180.00	92.7 PK			3.04 H	66	54.4	38.3
4	*5180.00	81.0 AV			3.04 H	66	42.7	38.3
5	#10360.00	57.3 PK	68.2	-10.9	3.31 H	333	40.7	16.6
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	5150.00	54.5 PK	74.0	-19.5	1.34 V	42	50.6	3.9
2	5150.00	41.0 AV	54.0	-13.0	1.34 V	42	37.1	3.9
3	*5180.00	96.8 PK			1.32 V	44	58.5	38.3
4	*5180.00	84.8 AV			1.32 V	44	46.5	38.3
5	#10360.00	57.5 PK	68.2	-10.7	2.40 V	86	40.9	16.6

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. 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) 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	92.4 PK			2.92 H	67	54.3	38.1
2	*5200.00	80.0 AV			2.92 H	67	41.9	38.1
3	#10400.00	57.9 PK	68.2	-10.3	3.30 H	341	41.2	16.7
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	*5200.00	96.6 PK			1.43 V	44	58.5	38.1
2	*5200.00	84.3 AV			1.43 V	44	46.2	38.1
3	#10400.00	58.1 PK	68.2	-10.1	2.37 V	70	41.4	16.7

Remarks:

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

CHANNEL	TX Channel 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	91.3 PK			2.90 H	67	53.2	38.1
2	*5240.00	79.5 AV			2.90 H	67	41.4	38.1
3	5350.00	54.0 PK	74.0	-20.0	2.92 H	66	50.2	3.8
4	5350.00	40.9 AV	54.0	-13.1	2.92 H	66	37.1	3.8
5	#10480.00	57.7 PK	68.2	-10.5	3.33 H	337	41.2	16.5
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	*5240.00	95.2 PK			1.43 V	43	57.1	38.1
2	*5240.00	83.3 AV			1.43 V	43	45.2	38.1
3	5350.00	54.3 PK	74.0	-19.7	1.46 V	47	50.5	3.8
4	5350.00	40.9 AV	54.0	-13.1	1.46 V	47	37.1	3.8
5	#10480.00	57.0 PK	68.2	-11.2	2.44 V	82	40.5	16.5

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.1 PK	74.0	-19.9	3.05 H	66	50.2	3.9
2	5150.00	41.1 AV	54.0	-12.9	3.05 H	66	37.2	3.9
3	*5260.00	90.1 PK			2.86 H	70	52.0	38.1
4	*5260.00	78.6 AV			2.86 H	70	40.5	38.1
5	#10520.00	57.9 PK	68.2	-10.3	3.28 H	340	41.3	16.6
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	5150.00	54.8 PK	74.0	-19.2	1.42 V	41	50.9	3.9
2	5150.00	41.0 AV	54.0	-13.0	1.42 V	41	37.1	3.9
3	*5260.00	94.0 PK			1.42 V	44	55.9	38.1
4	*5260.00	82.5 AV			1.42 V	44	44.4	38.1
5	#10520.00	57.1 PK	68.2	-11.1	2.30 V	70	40.5	16.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	90.3 PK			2.98 H	68	52.2	38.1
2	*5300.00	79.3 AV			2.98 H	68	41.2	38.1
3	10600.00	57.8 PK	74.0	-16.2	3.24 H	337	41.0	16.8
4	10600.00	43.2 AV	54.0	-10.8	3.24 H	337	26.4	16.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	94.3 PK			1.31 V	53	56.2	38.1
2	*5300.00	83.2 AV			1.31 V	53	45.1	38.1
3	10600.00	57.8 PK	74.0	-16.2	2.45 V	73	41.0	16.8
4	10600.00	43.5 AV	54.0	-10.5	2.45 V	73	26.7	16.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	90.9 PK			3.02 H	70	52.8	38.1
2	*5320.00	79.2 AV			3.02 H	70	41.1	38.1
3	5350.00	54.1 PK	74.0	-19.9	3.05 H	62	50.3	3.8
4	5350.00	41.0 AV	54.0	-13.0	3.05 H	62	37.2	3.8
5	10640.00	58.4 PK	74.0	-15.6	3.31 H	329	41.4	17.0
6	10640.00	43.5 AV	54.0	-10.5	3.31 H	329	26.5	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	94.8 PK			1.25 V	52	56.7	38.1
2	*5320.00	83.0 AV			1.25 V	52	44.9	38.1
3	5350.00	53.8 PK	74.0	-20.2	1.27 V	59	50.0	3.8
4	5350.00	41.0 AV	54.0	-13.0	1.27 V	59	37.2	3.8
5	10640.00	58.0 PK	74.0	-16.0	2.45 V	73	41.0	17.0
6	10640.00	43.7 AV	54.0	-10.3	2.45 V	73	26.7	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.2 PK	74.0	-19.8	2.86 H	65	50.0	4.2
2	5460.00	40.4 AV	54.0	-13.6	2.86 H	65	36.2	4.2
3	#5470.00	54.4 PK	68.2	-13.8	2.83 H	67	50.1	4.3
4	*5500.00	90.5 PK			2.98 H	61	51.8	38.7
5	*5500.00	79.1 AV			2.98 H	61	40.4	38.7
6	11000.00	58.9 PK	74.0	-15.1	3.20 H	346	40.5	18.4
7	11000.00	45.3 AV	54.0	-8.7	3.20 H	346	26.9	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.4 PK	74.0	-19.6	1.33 V	43	50.2	4.2
2	5460.00	40.2 AV	54.0	-13.8	1.33 V	43	36.0	4.2
3	#5470.00	55.1 PK	68.2	-13.1	1.55 V	57	50.8	4.3
4	*5500.00	94.2 PK			1.33 V	49	55.5	38.7
5	*5500.00	82.9 AV			1.33 V	49	44.2	38.7
6	11000.00	59.2 PK	74.0	-14.8	2.29 V	87	40.8	18.4
7	11000.00	45.6 AV	54.0	-8.4	2.29 V	87	27.2	18.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	90.1 PK			2.98 H	61	51.5	38.6
2	*5580.00	79.0 AV			2.98 H	61	40.4	38.6
3	11160.00	58.7 PK	74.0	-15.3	3.17 H	337	41.5	17.2
4	11160.00	44.3 AV	54.0	-9.7	3.17 H	337	27.1	17.2
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	*5580.00	94.0 PK			1.07 V	50	55.4	38.6
2	*5580.00	82.7 AV			1.07 V	50	44.1	38.6
3	11600.00	57.7 PK	74.0	-16.3	2.34 V	93	41.3	16.4
4	11600.00	43.4 AV	54.0	-10.6	2.34 V	93	27.0	16.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	90.1 PK			2.96 H	64	51.3	38.8
2	*5700.00	79.1 AV			2.96 H	64	40.3	38.8
3	#5725.00	54.4 PK	68.2	-13.8	2.90 H	67	50.0	4.4
4	11400.00	58.2 PK	74.0	-15.8	3.08 H	341	40.7	17.5
5	11400.00	44.6 AV	54.0	-9.4	3.08 H	341	27.1	17.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	94.1 PK			1.01 V	41	55.3	38.8
2	*5700.00	82.7 AV			1.01 V	41	43.9	38.8
3	#5725.00	54.2 PK	68.2	-14.0	1.08 V	48	49.8	4.4
4	11400.00	58.9 PK	74.0	-15.1	2.31 V	85	41.4	17.5
5	11400.00	44.4 AV	54.0	-9.6	2.31 V	85	26.9	17.5

Remarks:

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

CHANNEL	TX Channel 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	#5608.00	54.4 PK	68.2	-13.8	1.44 H	68	50.2	4.2
2	*5745.00	92.6 PK			1.44 H	68	53.7	38.9
3	*5745.00	81.3 AV			1.44 H	68	42.4	38.9
4	#5969.60	55.1 PK	68.2	-13.1	1.44 H	68	50.1	5.0
5	11490.00	57.5 PK	74.0	-16.5	3.20 H	343	40.6	16.9
6	11490.00	43.9 AV	54.0	-10.1	3.20 H	343	27.0	16.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5602.40	55.0 PK	68.2	-13.2	1.21 V	40	50.8	4.2
2	*5745.00	94.7 PK			1.21 V	40	55.8	38.9
3	*5745.00	83.2 AV			1.21 V	40	44.3	38.9
4	#5962.40	56.0 PK	68.2	-12.2	1.21 V	40	51.0	5.0
5	11490.00	58.2 PK	74.0	-15.8	2.36 V	92	41.3	16.9
6	11490.00	43.9 AV	54.0	-10.1	2.36 V	92	27.0	16.9

Remarks:

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

CHANNEL	TX Channel 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	#5626.40	55.2 PK	68.2	-13.0	1.32 H	71	50.9	4.3
2	*5785.00	93.3 PK			1.32 H	71	54.3	39.0
3	*5785.00	82.1 AV			1.32 H	71	43.1	39.0
4	#5948.80	55.6 PK	68.2	-12.6	1.32 H	71	50.6	5.0
5	11570.00	58.0 PK	74.0	-16.0	3.21 H	340	41.3	16.7
6	11570.00	43.7 AV	54.0	-10.3	3.21 H	340	27.0	16.7
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	#5618.40	54.5 PK	68.2	-13.7	1.24 V	41	50.2	4.3
2	*5785.00	95.3 PK			1.24 V	41	56.3	39.0
3	*5785.00	83.8 AV			1.24 V	41	44.8	39.0
4	#5981.60	55.9 PK	68.2	-12.3	1.24 V	41	50.9	5.0
5	11570.00	57.5 PK	74.0	-16.5	2.39 V	87	40.8	16.7
6	11570.00	43.8 AV	54.0	-10.2	2.39 V	87	27.1	16.7

Remarks:

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

CHANNEL	TX Channel 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	#5608.00	54.8 PK	68.2	-13.4	1.36 H	76	50.6	4.2
2	*5825.00	93.1 PK			1.36 H	76	54.0	39.1
3	*5825.00	81.8 AV			1.36 H	76	42.7	39.1
4	#5996.00	55.3 PK	68.2	-12.9	1.36 H	76	50.3	5.0
5	11650.00	57.0 PK	74.0	-17.0	3.12 H	334	40.5	16.5
6	11650.00	43.5 AV	54.0	-10.5	3.12 H	334	27.0	16.5
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	#5604.00	55.8 PK	68.2	-12.4	1.26 V	39	51.6	4.2
2	*5825.00	95.0 PK			1.26 V	39	55.9	39.1
3	*5825.00	83.5 AV			1.26 V	39	44.4	39.1
4	#5987.20	56.8 PK	68.2	-11.4	1.26 V	39	51.8	5.0
5	11650.00	57.5 PK	74.0	-16.5	2.36 V	88	41.0	16.5
6	11650.00	43.8 AV	54.0	-10.2	2.36 V	88	27.3	16.5

Remarks:

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

802.11n (HT40)

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	53.9 PK	74.0	-20.1	3.03 H	66	50.0	3.9
2	5150.00	41.0 AV	54.0	-13.0	3.03 H	66	37.1	3.9
3	*5190.00	79.3 PK			3.05 H	67	41.1	38.2
4	*5190.00	78.5 AV			3.05 H	67	40.3	38.2
5	#10380.00	57.4 PK	68.2	-10.8	3.33 H	335	40.7	16.7
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	5150.00	44.8 PK	74.0	-29.2	1.44 V	40	40.9	3.9
2	5150.00	41.1 AV	54.0	-12.9	1.44 V	40	37.2	3.9
3	*5190.00	93.3 PK			1.42 V	43	55.1	38.2
4	*5190.00	82.3 AV			1.42 V	43	44.1	38.2
5	#10380.00	57.3 PK	68.2	-10.9	2.41 V	83	40.6	16.7

Remarks:

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

CHANNEL	TX Channel 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	87.1 PK			2.89 H	62	49.0	38.1
2	*5230.00	77.2 AV			2.89 H	62	39.1	38.1
3	5350.00	54.6 PK	74.0	-19.4	3.03 H	65	50.8	3.8
4	5350.00	40.8 AV	54.0	-13.2	3.03 H	65	37.0	3.8
5	#10460.00	58.0 PK	68.2	-10.2	3.23 H	333	41.5	16.5
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	*5230.00	90.9 PK			1.31 V	47	52.8	38.1
2	*5230.00	81.0 AV			1.31 V	47	42.9	38.1
3	5350.00	44.2 PK	74.0	-29.8	1.30 V	45	40.4	3.8
4	5350.00	41.1 AV	54.0	-12.9	1.30 V	45	37.3	3.8
5	#10460.00	57.3 PK	68.2	-10.9	2.38 V	73	40.8	16.5

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.3 PK	74.0	-19.7	2.94 H	68	50.4	3.9
2	5150.00	41.2 AV	54.0	-12.8	2.94 H	68	37.3	3.9
3	*5270.00	86.7 PK			3.05 H	69	48.6	38.1
4	*5270.00	77.0 AV			3.05 H	69	38.9	38.1
5	#10540.00	57.2 PK	68.2	-11.0	3.30 H	329	40.5	16.7
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	5150.00	54.6 PK	74.0	-19.4	1.16 V	53	50.7	3.9
2	5150.00	41.2 AV	54.0	-12.8	1.16 V	53	37.3	3.9
3	*5270.00	90.9 PK			1.16 V	57	52.8	38.1
4	*5270.00	80.9 AV			1.16 V	57	42.8	38.1
5	#10540.00	57.4 PK	68.2	-10.8	2.28 V	68	40.7	16.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	86.3 PK			2.96 H	69	48.2	38.1
2	*5310.00	76.2 AV			2.96 H	69	38.1	38.1
3	5350.00	54.8 PK	74.0	-19.2	2.88 H	67	51.0	3.8
4	5350.00	40.8 AV	54.0	-13.2	2.88 H	67	37.0	3.8
5	10620.00	57.7 PK	74.0	-16.3	3.27 H	335	40.8	16.9
6	10620.00	43.3 AV	54.0	-10.7	3.27 H	335	26.4	16.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	90.5 PK			1.09 V	58	52.4	38.1
2	*5310.00	80.5 AV			1.09 V	58	42.4	38.1
3	5350.00	54.1 PK	74.0	-19.9	1.09 V	59	50.3	3.8
4	5350.00	41.1 AV	54.0	-12.9	1.09 V	59	37.3	3.8
5	10620.00	58.3 PK	74.0	-15.7	2.44 V	86	41.4	16.9
6	10620.00	43.4 AV	54.0	-10.6	2.44 V	86	26.5	16.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.6 PK	74.0	-19.4	2.91 H	66	50.4	4.2
2	5460.00	40.2 AV	54.0	-13.8	2.91 H	66	36.0	4.2
3	#5470.00	55.1 PK	68.2	-13.1	2.87 H	65	50.8	4.3
4	*5510.00	85.8 PK			2.95 H	68	47.2	38.6
5	*5510.00	76.8 AV			2.95 H	68	38.2	38.6
6	11020.00	59.4 PK	74.0	-14.6	3.09 H	336	41.3	18.1
7	11020.00	45.3 AV	54.0	-8.7	3.09 H	336	27.2	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	5460.00	54.4 PK	74.0	-19.6	1.17 V	56	50.2	4.2
2	5460.00	40.2 AV	54.0	-13.8	1.17 V	56	36.0	4.2
3	#5470.00	54.9 PK	68.2	-13.3	1.13 V	56	50.6	4.3
4	*5510.00	89.5 PK			1.12 V	52	50.9	38.6
5	*5510.00	80.9 AV			1.12 V	52	42.3	38.6
6	11020.00	58.7 PK	74.0	-15.3	2.32 V	90	40.6	18.1
7	11020.00	45.1 AV	54.0	-8.9	2.32 V	90	27.0	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	86.3 PK			2.86 H	66	47.7	38.6
2	*5550.00	76.7 AV			2.86 H	66	38.1	38.6
3	11100.00	58.8 PK	74.0	-15.2	3.21 H	343	41.5	17.3
4	11100.00	44.5 AV	54.0	-9.5	3.21 H	343	27.2	17.3
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	*5550.00	90.3 PK			1.10 V	51	51.7	38.6
2	*5550.00	80.5 AV			1.10 V	51	41.9	38.6
3	11100.00	57.9 PK	74.0	-16.1	2.35 V	76	40.6	17.3
4	11100.00	44.5 AV	54.0	-9.5	2.35 V	76	27.2	17.3

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	86.7 PK			2.84 H	62	48.0	38.7
2	*5670.00	76.3 AV			2.84 H	62	37.6	38.7
3	#5725.00	54.3 PK	68.2	-13.9	2.94 H	68	49.9	4.4
4	11340.00	58.4 PK	74.0	-15.6	3.12 H	329	40.7	17.7
5	11340.00	45.0 AV	54.0	-9.0	3.12 H	329	27.3	17.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	90.6 PK			1.25 V	40	51.9	38.7
2	*5670.00	80.1 AV			1.25 V	40	41.4	38.7
3	#5725.00	54.1 PK	68.2	-14.1	1.21 V	37	49.7	4.4
4	11340.00	58.3 PK	74.0	-15.7	2.44 V	79	40.6	17.7
5	11340.00	44.7 AV	54.0	-9.3	2.44 V	79	27.0	17.7

Remarks:

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

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	#5621.60	57.2 PK	68.2	-11.0	1.39 H	76	52.9	4.3
2	*5755.00	89.3 PK			1.39 H	76	50.4	38.9
3	*5755.00	79.0 AV			1.39 H	76	40.1	38.9
4	#5992.80	56.6 PK	68.2	-11.6	1.39 H	76	51.6	5.0
5	11510.00	57.8 PK	74.0	-16.2	3.24 H	336	40.9	16.9
6	11510.00	43.8 AV	54.0	-10.2	3.24 H	336	26.9	16.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5612.00	56.6 PK	68.2	-11.6	1.24 V	41	52.4	4.2
2	*5755.00	91.3 PK			1.24 V	41	52.4	38.9
3	*5755.00	81.1 AV			1.24 V	41	42.2	38.9
4	#5969.60	55.8 PK	68.2	-12.4	1.24 V	41	50.8	5.0
5	11510.00	58.2 PK	74.0	-15.8	2.35 V	91	41.3	16.9
6	11510.00	44.1 AV	54.0	-9.9	2.35 V	91	27.2	16.9

Remarks:

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

CHANNEL	TX Channel 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	#5608.80	55.6 PK	68.2	-12.6	1.36 H	70	51.4	4.2
2	*5795.00	89.3 PK			1.36 H	70	50.3	39.0
3	*5795.00	78.7 AV			1.36 H	70	39.7	39.0
4	#5988.80	55.8 PK	68.2	-12.4	1.36 H	70	50.8	5.0
5	11590.00	57.4 PK	74.0	-16.6	3.20 H	345	40.9	16.5
6	11590.00	43.7 AV	54.0	-10.3	3.20 H	345	27.2	16.5
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	#5600.00	54.0 PK	68.2	-14.2	1.26 V	41	49.8	4.2
2	*5795.00	91.2 PK			1.26 V	41	52.2	39.0
3	*5795.00	80.9 AV			1.26 V	41	41.9	39.0
4	#5932.80	55.9 PK	68.2	-12.3	1.26 V	41	50.9	5.0
5	11590.00	57.3 PK	74.0	-16.7	2.35 V	81	40.8	16.5
6	11590.00	43.6 AV	54.0	-10.4	2.35 V	81	27.1	16.5

Remarks:

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

802.11ac (VHT80)

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	5150.00	54.2 PK	74.0	-19.8	2.90 H	70	50.3	3.9
2	5150.00	40.9 AV	54.0	-13.1	2.90 H	70	37.0	3.9
3	*5210.00	84.3 PK			2.94 H	67	46.2	38.1
4	*5210.00	74.2 AV			2.94 H	67	36.1	38.1
5	5350.00	54.2 PK	74.0	-19.8	2.90 H	70	50.4	3.8
6	5350.00	40.9 AV	54.0	-13.1	2.90 H	70	37.1	3.8
7	#10420.00	58.1 PK	68.2	-10.1	2.31 H	85	41.5	16.6
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	5150.00	54.4 PK	74.0	-19.6	1.34 V	45	50.5	3.9
2	5150.00	41.6 AV	54.0	-12.4	1.34 V	45	37.7	3.9
3	*5210.00	88.3 PK			1.39 V	41	50.2	38.1
4	*5210.00	78.0 AV			1.39 V	41	39.9	38.1
5	5350.00	54.2 PK	74.0	-19.8	1.39 V	40	50.4	3.8
6	5350.00	40.7 AV	54.0	-13.3	1.39 V	40	36.9	3.8
7	#10420.00	57.7 PK	68.2	-10.5	2.33 V	72	41.1	16.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 58	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	54.6 PK	74.0	-19.4	2.96 H	68	50.7	3.9
2	5150.00	40.9 AV	54.0	-13.1	2.96 H	68	37.0	3.9
3	*5290.00	86.2 PK			3.01 H	62	48.1	38.1
4	*5290.00	72.9 AV			3.01 H	62	34.8	38.1
5	5350.00	54.1 PK	74.0	-19.9	2.86 H	63	50.3	3.8
6	5350.00	40.7 AV	54.0	-13.3	2.86 H	63	36.9	3.8
7	#10580.00	57.3 PK	68.2	-10.9	3.20 H	342	40.5	16.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.2 PK	74.0	-19.8	1.28 V	58	50.3	3.9
2	5150.00	40.9 AV	54.0	-13.1	1.28 V	58	37.0	3.9
3	*5290.00	90.3 PK			1.29 V	53	52.2	38.1
4	*5290.00	76.9 AV			1.29 V	53	38.8	38.1
5	5350.00	54.6 PK	74.0	-19.4	1.28 V	52	50.8	3.8
6	5350.00	40.8 AV	54.0	-13.2	1.28 V	52	37.0	3.8
7	#10580.00	58.2 PK	68.2	-10.0	2.30 V	71	41.4	16.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.1 PK	74.0	-19.9	2.83 H	63	49.9	4.2
2	5460.00	40.5 AV	54.0	-13.5	2.83 H	63	36.3	4.2
3	#5470.00	54.5 PK	68.2	-13.7	2.97 H	65	50.2	4.3
4	*5530.00	84.1 PK			2.99 H	64	45.5	38.6
5	*5530.00	72.9 AV			2.99 H	64	34.3	38.6
6	#5725.00	55.0 PK	68.2	-13.2	2.80 H	62	50.6	4.4
7	11060.00	59.1 PK	74.0	-14.9	3.19 H	328	41.3	17.8
8	11060.00	45.0 AV	54.0	-9.0	3.19 H	328	27.2	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	5460.00	54.0 PK	74.0	-20.0	1.44 V	59	49.8	4.2
2	5460.00	40.3 AV	54.0	-13.7	1.44 V	59	36.1	4.2
3	#5470.00	54.7 PK	68.2	-13.5	1.41 V	51	50.4	4.3
4	*5530.00	88.0 PK			1.41 V	52	49.4	38.6
5	*5530.00	76.7 AV			1.41 V	52	38.1	38.6
6	#5725.00	54.7 PK	68.2	-13.5	1.44 V	49	50.3	4.4
7	10600.00	58.0 PK	74.0	-16.0	2.44 V	87	41.2	16.8
8	10600.00	44.0 AV	54.0	-10.0	2.44 V	87	27.2	16.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.8 PK	74.0	-20.2	2.92 H	65	49.6	4.2
2	5460.00	40.3 AV	54.0	-13.7	2.92 H	65	36.1	4.2
3	#5470.00	54.6 PK	68.2	-13.6	2.89 H	68	50.3	4.3
4	*5610.00	84.8 PK			2.82 H	63	46.1	38.7
5	*5610.00	72.5 AV			2.82 H	63	33.8	38.7
6	#5725.00	54.4 PK	68.2	-13.8	2.99 H	62	50.0	4.4
7	11220.00	57.6 PK	74.0	-16.4	3.08 H	345	40.5	17.1
8	11220.00	44.4 AV	54.0	-9.6	3.08 H	345	27.3	17.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.7 PK	74.0	-20.3	1.14 V	43	49.5	4.2
2	5460.00	40.3 AV	54.0	-13.7	1.14 V	43	36.1	4.2
3	#5470.00	54.2 PK	68.2	-14.0	1.14 V	55	49.9	4.3
4	*5610.00	88.8 PK			1.07 V	48	50.1	38.7
5	*5610.00	76.1 AV			1.07 V	48	37.4	38.7
6	#5725.00	54.7 PK	68.2	-13.5	1.07 V	52	50.3	4.4
7	11220.00	58.3 PK	74.0	-15.7	2.28 V	83	41.2	17.1
8	11220.00	44.3 AV	54.0	-9.7	2.28 V	83	27.2	17.1

Remarks:

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

CHANNEL	TX Channel 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	#5625.60	54.1 PK	68.2	-14.1	1.32 H	74	49.8	4.3
2	*5775.00	86.6 PK			1.32 H	74	47.6	39.0
3	*5775.00	75.6 AV			1.32 H	74	36.6	39.0
4	#5975.20	55.7 PK	68.2	-12.5	1.32 H	74	50.7	5.0
5	11550.00	57.8 PK	74.0	-16.2	3.10 H	332	41.1	16.7
6	11550.00	43.7 AV	54.0	-10.3	3.10 H	332	27.0	16.7
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	#5613.60	54.7 PK	68.2	-13.5	1.10 V	43	50.4	4.3
2	*5775.00	88.4 PK			1.10 V	43	49.4	39.0
3	*5775.00	77.3 AV			1.10 V	43	38.3	39.0
4	#5968.80	55.2 PK	68.2	-13.0	1.10 V	43	50.2	5.0
5	11550.00	57.9 PK	74.0	-16.1	2.31 V	82	41.2	16.7
6	11550.00	43.7 AV	54.0	-10.3	2.31 V	82	27.0	16.7

Remarks:

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

Below 1GHz worst-case data:

Test Mode A

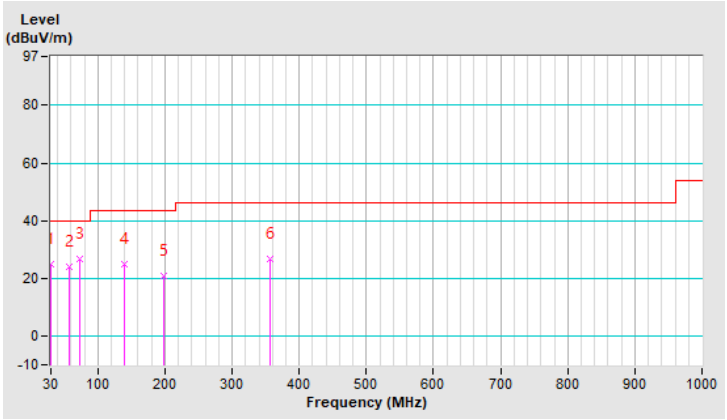
802.11a

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	30.00	25.1 QP	40.0	-14.9	1.00 H	357	36.4	-11.3
2	58.13	23.9 QP	40.0	-16.1	1.00 H	348	34.0	-10.1
3	73.65	26.7 QP	40.0	-13.3	1.00 H	253	39.1	-12.4
4	138.64	24.9 QP	43.5	-18.6	1.00 H	62	34.8	-9.9
5	197.81	21.0 QP	43.5	-22.5	1.00 H	66	33.1	-12.1
6	356.89	26.5 QP	46.0	-19.5	1.00 H	122	33.2	-6.7

Remarks:

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

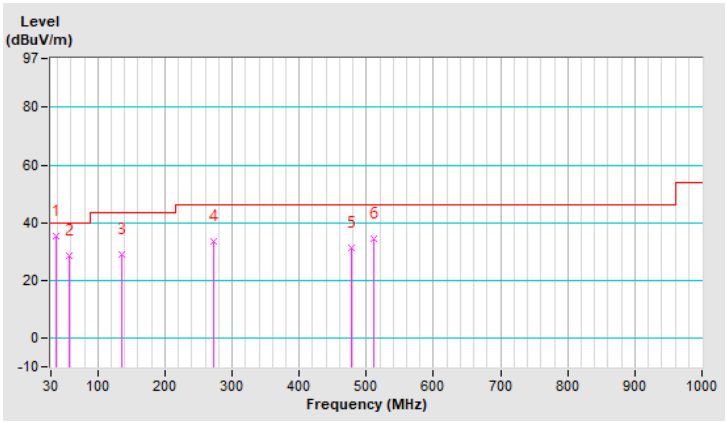


CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	**37.76**	**35.2 QP**	**40.0**	**-4.8**	**1.00 V**	**113**	**45.9**	**-10.7**
2	58.13	28.7 QP	40.0	-11.3	1.00 V	138	38.8	-10.1
3	135.73	28.9 QP	43.5	-14.6	1.00 V	40	39.0	-10.1
4	272.50	33.4 QP	46.0	-12.6	1.00 V	64	42.1	-8.7
5	478.14	31.3 QP	46.0	-14.7	1.00 V	7	35.4	-4.1
6	511.12	34.3 QP	46.0	-11.7	1.00 V	8	37.7	-3.4

Remarks:

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



Test Mode B

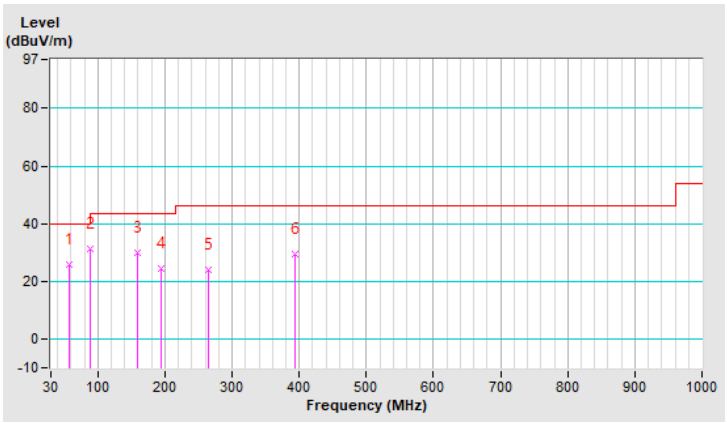
802.11a

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	57.16	25.6 QP	40.0	-14.4	1.00 H	236	35.8	-10.2
2	89.17	31.2 QP	43.5	-12.3	1.00 H	72	46.1	-14.9
3	159.98	29.8 QP	43.5	-13.7	1.00 H	102	38.8	-9.0
4	193.93	24.3 QP	43.5	-19.2	1.00 H	260	36.3	-12.0
5	263.77	24.0 QP	46.0	-22.0	1.00 H	310	33.4	-9.4
6	392.78	29.6 QP	46.0	-16.4	1.00 H	306	35.5	-5.9

Remarks:

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

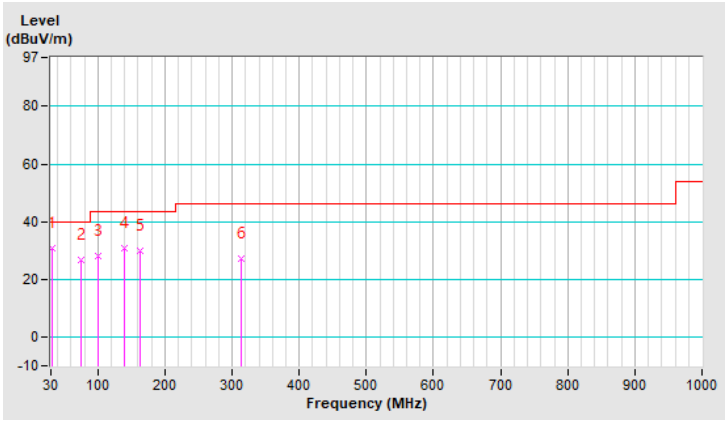


CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	31.94	30.8 QP	40.0	-9.2	1.00 V	214	42.2	-11.4
2	75.59	26.7 QP	40.0	-13.3	1.00 V	348	39.5	-12.8
3	99.84	28.1 QP	43.5	-15.4	1.00 V	81	42.0	-13.9
4	138.64	30.6 QP	43.5	-12.9	1.00 V	46	40.5	-9.9
5	163.86	29.7 QP	43.5	-13.8	1.00 V	321	39.0	-9.3
6	314.21	27.1 QP	46.0	-18.9	1.00 V	196	34.8	-7.7

Remarks:

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



4.2 Transmit Power Measurement

4.2.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

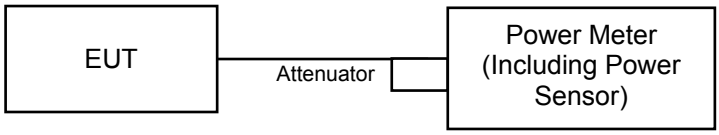
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

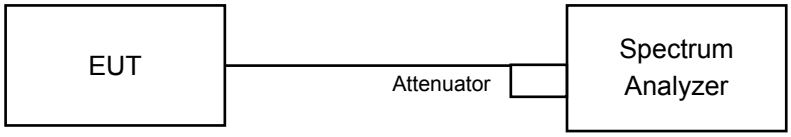
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.2.2 Test Setup

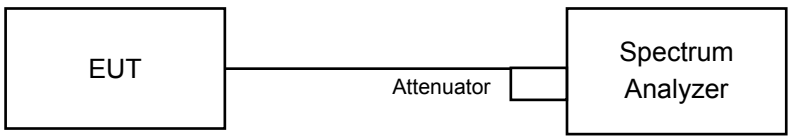
For Power Output
802.11a, 802.11n (HT20), 802.11n (HT40)



802.11ac (VHT80)



For Bandwidth



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 Test Procedure

For Average Power Measurement

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

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

For 802.11ac (VHT80)

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

For 26dB Bandwidth

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

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

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

4.2.7 Test Result

Power Output:

For U-NII-1 (Outdoor Access Point Mode):

802.11a

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
36	5180	3.91	0.72	3.640	5.61	30.00	4	9.61	21.00	Pass
40	5200	3.72	0.89	3.582	5.54	30.00	4	9.54	21.00	Pass
48	5240	4.63	1.37	4.275	6.31	30.00	4	10.31	21.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the power limit no need to be reduce.

802.11n (HT20)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
36	5180	3.37	0.24	3.230	5.09	30.00	4	9.09	21.00	Pass
40	5200	3.61	0.31	3.370	5.28	30.00	4	9.28	21.00	Pass
48	5240	4.05	1.17	3.850	5.85	30.00	4	9.85	21.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the power limit no need to be reduce.

802.11n (HT40)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
38	5190	3.11	0.63	3.202	5.05	30.00	4	9.05	21.00	Pass
46	5230	3.81	0.78	3.601	5.56	30.00	4	9.56	21.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the power limit no need to be reduce.

802.11ac (VHT80)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
42	5210	2.34	-0.57	2.5910	4.13	30.00	4	8.13	21.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the power limit no need to be reduce.

For U-NII-1 (Mobile and Portable client device Mode):

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	3.91	0.72	3.640	5.61	24.00	Pass
40	5200	3.72	0.89	3.582	5.54	24.00	Pass
48	5240	4.63	1.37	**4.275**	6.31	24.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the power limit no need to be reduce.

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	3.37	0.24	3.230	5.09	24.00	Pass
40	5200	3.61	0.31	3.370	5.28	24.00	Pass
48	5240	4.05	1.17	3.850	5.85	24.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the power limit no need to be reduce.

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	3.11	0.63	3.202	5.05	24.00	Pass
46	5230	3.81	0.78	3.601	5.56	24.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the power limit no need to be reduce.

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	2.34	-0.57	2.591	4.13	24.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the power limit no need to be reduce.

For U-NII-2A, U-NII-2C, U-NII-3:

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	4.64	2.28	**4.601**	6.63	24.00	Pass
60	5300	4.22	2.11	4.268	6.30	23.92	Pass
64	5320	4.44	2.26	4.463	6.50	24.00	Pass
100	5500	4.31	2.28	4.388	6.42	23.98	Pass
116	5580	4.57	2.11	4.490	6.52	23.93	Pass
140	5700	4.72	2.41	**4.707**	6.73	24.00	Pass
149	5745	4.31	2.03	4.294	6.33	30.00	Pass
157	5785	4.23	2.49	**4.423**	6.46	30.00	Pass
165	5825	3.61	2.54	4.091	6.12	30.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For 5260~5320MHz, 5500~5700MHz

Chain 0

1. 11dBm + 10log (20.12) = 24.03 > 24dBm
2. 11dBm + 10log (20.11) = 24.03 > 24dBm
3. 11dBm + 10log (20.06) = 24.02 > 24dBm
4. 11dBm + 10log (19.89) = 23.98 < 24dBm
5. 11dBm + 10log (20.06) = 24.02 > 24dBm
6. 11dBm + 10log (20.00) = 24.01 > 24dBm

Chain 1

1. 11dBm + 10log (20.14) = 24.04 > 24dBm
2. 11dBm + 10log (19.63) = 23.92 < 24dBm
3. 11dBm + 10log (20.31) = 24.07 > 24dBm
4. 11dBm + 10log (20.17) = 24.04 > 24dBm
5. 11dBm + 10log (19.65) = 23.93 < 24dBm
6. 11dBm + 10log (20.00) = 24.01 > 24dBm

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	3.94	1.06	3.753	5.74	24.00	Pass
60	5300	3.95	1.08	3.765	5.76	24.00	Pass
64	5320	3.96	1.37	3.860	5.87	24.00	Pass
100	5500	3.72	1.12	3.649	5.62	24.00	Pass
116	5580	3.86	1.26	3.769	5.76	24.00	Pass
140	5700	3.33	1.45	3.549	5.50	24.00	Pass
149	5745	3.91	1.57	3.895	5.91	30.00	Pass
157	5785	3.67	1.54	3.754	5.74	30.00	Pass
165	5825	3.04	2.21	3.677	5.65	30.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For 5260~5320MHz, 5500~5700MHz

Chain 0

1. 11dBm + 10log (21.21) = 24.26 > 24dBm
2. 11dBm + 10log (21.36) = 24.29 > 24dBm
3. 11dBm + 10log (21.26) = 24.27 > 24dBm
4. 11dBm + 10log (21.47) = 24.31 > 24dBm
5. 11dBm + 10log (21.39) = 24.30 > 24dBm
6. 11dBm + 10log (21.58) = 24.34 > 24dBm

Chain 1

1. 11dBm + 10log (21.11) = 24.24 > 24dBm
2. 11dBm + 10log (21.07) = 24.23 > 24dBm
3. 11dBm + 10log (20.72) = 24.16 > 24dBm
4. 11dBm + 10log (20.68) = 24.15 > 24dBm
5. 11dBm + 10log (20.89) = 24.19 > 24dBm
6. 11dBm + 10log (20.66) = 24.15 > 24dBm

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	3.89	0.91	3.682	5.66	24.00	Pass
62	5310	3.41	0.69	3.365	5.27	24.00	Pass
102	5510	3.81	1.04	3.675	5.65	24.00	Pass
110	5550	3.49	0.74	3.420	5.34	24.00	Pass
134	5670	3.85	1.47	3.830	5.83	24.00	Pass
151	5755	3.91	0.91	3.693	5.67	30.00	Pass
159	5795	3.55	1.01	3.527	5.47	30.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For 5260~5320MHz, 5500~5700MHz

Chain 0

1. 11dBm + 10log (43.69) = 27.40 > 24dBm
2. 11dBm + 10log (43.59) = 27.39 > 24dBm
3. 11dBm + 10log (43.86) = 27.42 > 24dBm
4. 11dBm + 10log (43.13) = 27.34 > 24dBm
5. 11dBm + 10log (43.16) = 27.35 > 24dBm

Chain 1

1. 11dBm + 10log (42.46) = 27.27 > 24dBm
2. 11dBm + 10log (42.80) = 27.31 > 24dBm
3. 11dBm + 10log (42.56) = 27.29 > 24dBm
4. 11dBm + 10log (42.58) = 27.29 > 24dBm
5. 11dBm + 10log (42.40) = 27.27 > 24dBm

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	2.67	0.09	2.870	4.58	24.00	Pass
106	5530	2.61	-0.11	2.799	4.47	24.00	Pass
122	5610	2.61	-0.09	2.803	4.48	24.00	Pass
155	5775	2.65	0.76	3.032	4.82	30.00	Pass

Note: Max. Gain = 4dBi < 6dBi, so the limit no need to be reduced.

For 5260~5320MHz, 5500~5700MHz

Chain 0

1. 11dBm + 10log (83.66) = 30.22 > 24dBm
2. 11dBm + 10log (83.79) = 30.23 > 24dBm

Chain 1

1. 11dBm + 10log (82.21) = 30.14 > 24dBm
2. 11dBm + 10log (82.61) = 30.17 > 24dBm

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	20.05	19.78
40	5200	20.08	19.77
48	5240	20.10	19.47
52	5260	20.12	20.14
60	5300	20.11	19.63
64	5320	20.06	20.31
100	5500	19.89	20.17
116	5580	20.06	19.65
140	5700	20.00	20.00

802.11n (HT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	21.32	21.17
40	5200	21.48	21.12
48	5240	21.31	21.01
52	5260	21.21	21.11
60	5300	21.36	21.07
64	5320	21.26	20.72
100	5500	21.47	20.68
116	5580	21.39	20.89
140	5700	21.58	20.66

802.11n (HT40)

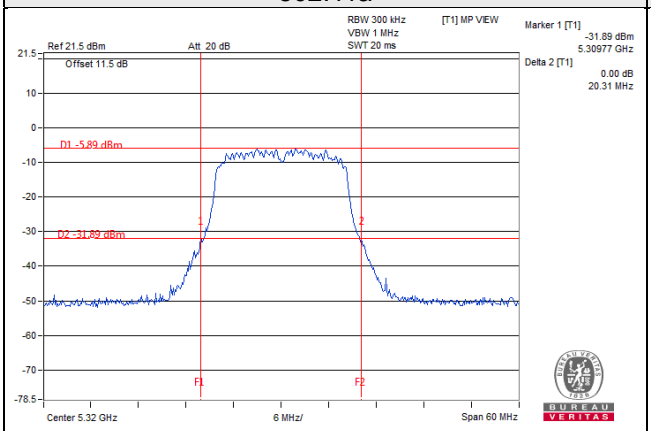
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	43.85	42.35
46	5230	43.95	42.58
54	5270	43.69	42.46
62	5310	43.59	42.80
102	5510	43.86	42.56
110	5550	43.13	42.58
134	5670	43.16	42.40

802.11ac (VHT80)

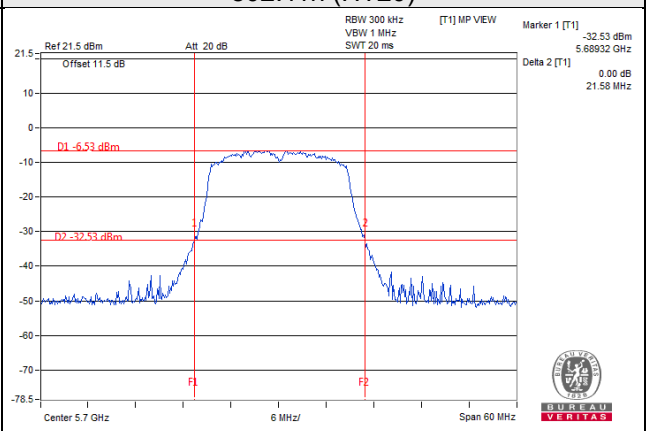
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	81.69	82.17
58	5290	83.66	82.21
106	5530	83.79	82.61
122	5610	80.43	82.83

Spectrum Plot of Worst Value

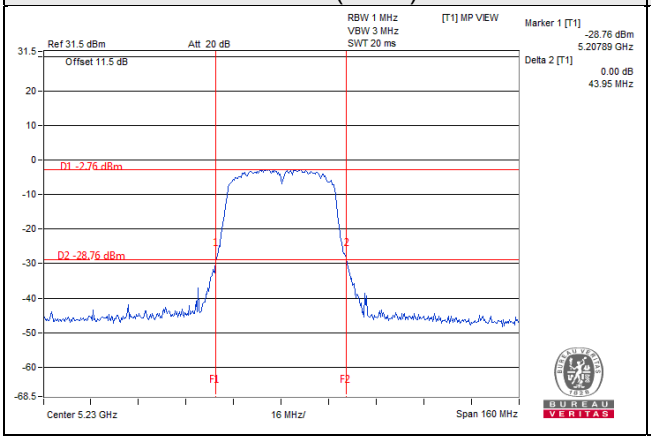
802.11a



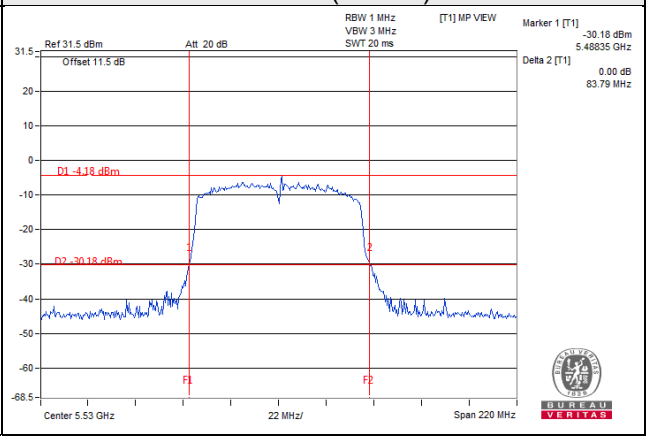
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



EUT Maximum Conducted Power

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	4.601	6.63
5470~5725	4.707	6.73

Note: The UUT can adjust a transmitter's output power based on the signal level present at the receiver. TPC is auto controlled by software.

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	3.860	5.87
5470~5725	3.769	5.76

Note: The UUT can adjust a transmitter's output power based on the signal level present at the receiver. TPC is auto controlled by software.

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	3.682	5.66
5470~5725	3.830	5.83

Note: The UUT can adjust a transmitter's output power based on the signal level present at the receiver. TPC is auto controlled by software.

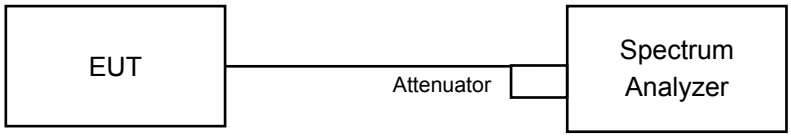
802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	2.870	4.58
5470~5725	2.803	4.48

Note: The UUT can adjust a transmitter's output power based on the signal level present at the receiver. TPC is auto controlled by software.

4.3 Occupied Bandwidth Measurement

4.3.1 Test Setup



4.3.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.3 Test Procedure

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

4.3.4 Test Result

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.44	16.44
40	5200	16.44	16.44
48	5240	16.44	16.44
52	5260	16.44	16.44
60	5300	16.44	16.44
64	5320	16.44	16.44
100	5500	16.44	16.44
116	5580	16.44	16.44
140	5700	16.44	16.44
149	5745	16.44	16.44
157	5785	16.44	16.44
165	5825	16.44	16.44

802.11n (HT20)

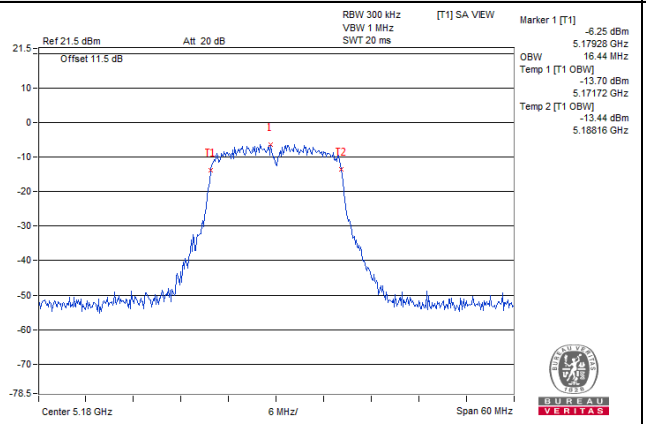
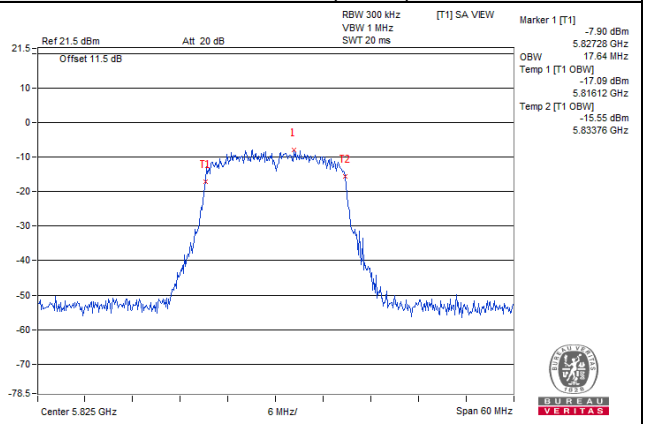
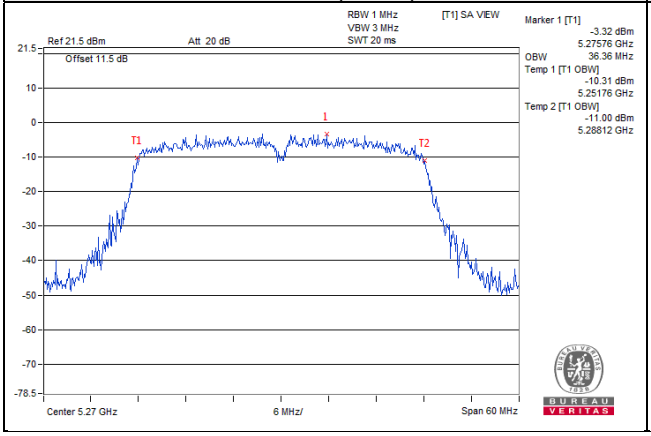
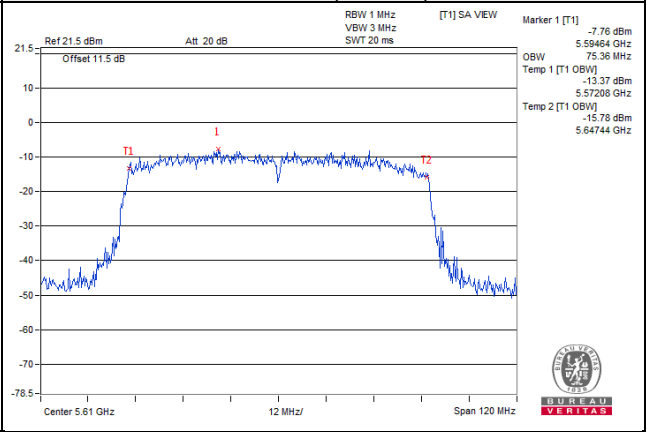
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.52	17.64
40	5200	17.64	17.64
48	5240	17.52	17.64
52	5260	17.52	17.64
60	5300	17.52	17.52
64	5320	17.64	17.64
100	5500	17.64	17.52
116	5580	17.64	17.64
140	5700	17.52	17.52
149	5745	17.52	17.64
157	5785	17.64	17.52
165	5825	17.64	17.64

802.11n (HT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.12	36.24
46	5230	36.24	36.12
54	5270	36.36	36.24
62	5310	36.12	36.12
102	5510	36.12	36.12
110	5550	36.24	36.24
134	5670	36.24	36.24
151	5755	36.12	36.12
159	5795	36.24	36.12

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.36	75.36
58	5290	75.12	75.36
106	5530	75.12	75.36
122	5610	75.36	75.12
155	5775	75.12	75.12

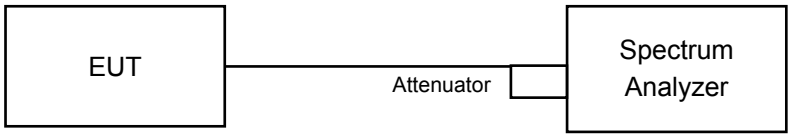
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

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	
	√	Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

For U-NII-1, U-NII-2A, U-NII-2C band
Duty cycle of test signal is ≥ 98%
Using method SA-1
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS.
3) Set Channel power measure = 1MHz.
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value.

Duty cycle of test signal is < 98%
Using method SA-2
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS.
3) Set Channel power measure = 1MHz.
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value and add 10 log (1/duty cycle).

For U-NII-3 band
Duty cycle ≥ 98%
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 1) power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz / 300 kHz).
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.

Duty cycle <98%
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)

4.4.5 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 (Outdoor Access Point Mode):

802.11a

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	-10.43	-13.23	0.38	-8.22	16.93	Pass
40	5200	-10.46	-13.40	0.38	-8.30	16.93	Pass
48	5240	-9.44	-12.43	0.38	-7.29	16.93	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[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$]= 6.07dBi > 6dBi, so the power density limit shall be reduced to 17-(6.07-6) = 16.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	-11.58	-14.54	0.68	-9.12	16.93	Pass
40	5200	-11.34	-14.51	0.68	-8.95	16.93	Pass
48	5240	-10.59	-13.48	0.68	-8.11	16.93	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[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$]= 6.07dBi > 6dBi, so the power density limit shall be reduced to 17-(6.07-6) = 16.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-15.17	-17.75	0.98	-12.28	16.93	Pass
46	5230	-14.61	-17.17	0.98	-11.71	16.93	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[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$]= 6.07dBi > 6dBi, so the power density limit shall be reduced to 17-(6.07-6) = 16.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

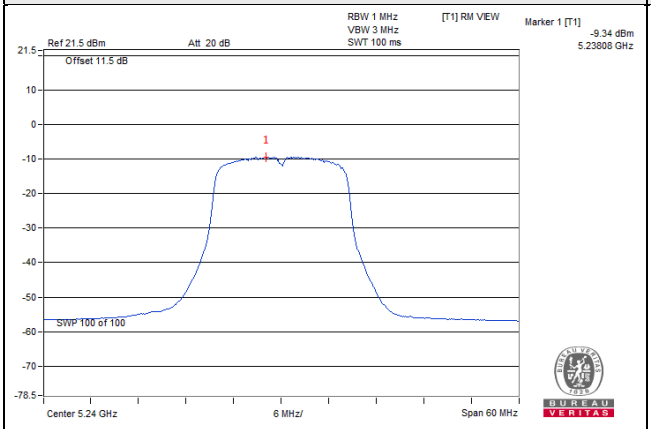
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-19.68	-22.59	2.18	-15.71	16.93	Pass

Note:

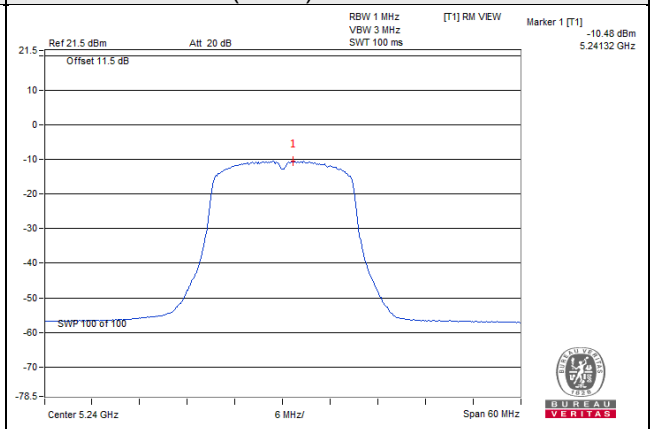
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + ... + $10^{GN/20}$)^2/N]= 6.07dBi > 6dBi, so the power density limit shall be reduced to 17-(6.07-6) = 16.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

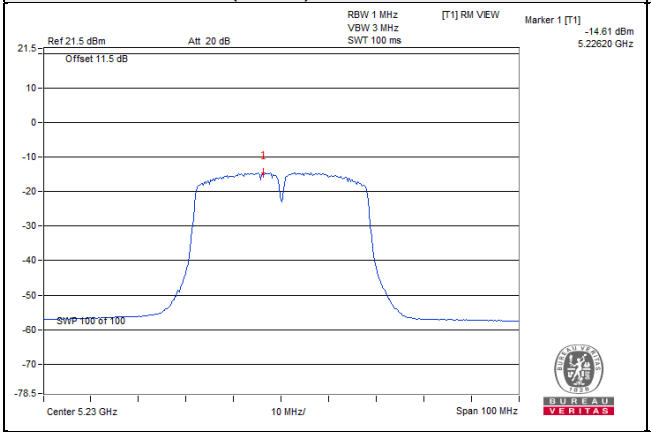
802.11a / Chain 0 / CH 48



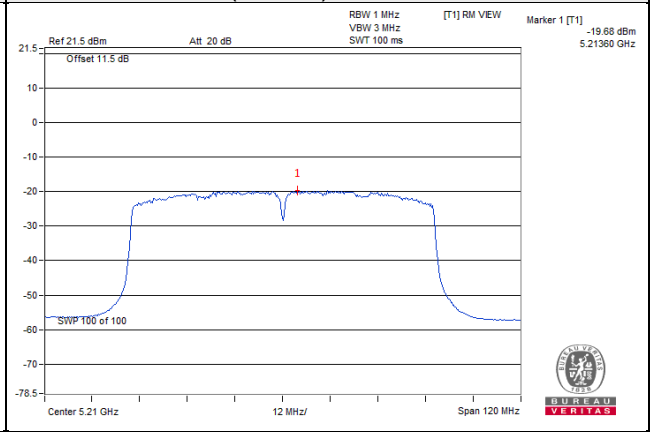
802.11n (HT20) / Chain 0 / CH 48



802.11n (HT40) / Chain 0 / CH 46



802.11ac (VHT80) / Chain 0 / CH 42



For U-NII-1 (Mobile and Portable client device Mode):

802.11a

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	-10.43	-13.23	0.38	-8.22	10.93	Pass
40	5200	-10.46	-13.40	0.38	-8.30	10.93	Pass
48	5240	-9.44	-12.43	0.38	-7.29	10.93	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 11-(6.07-6) = 10.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	-11.58	-14.54	0.68	-9.12	10.93	Pass
40	5200	-11.34	-14.51	0.68	-8.95	10.93	Pass
48	5240	-10.59	-13.48	0.68	-8.11	10.93	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 11-(6.07-6) = 10.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

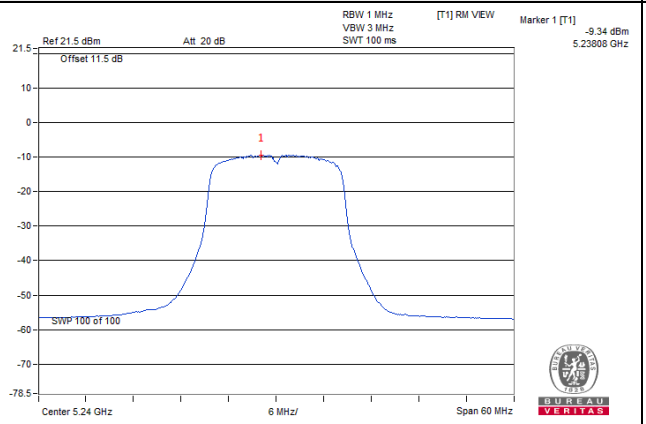
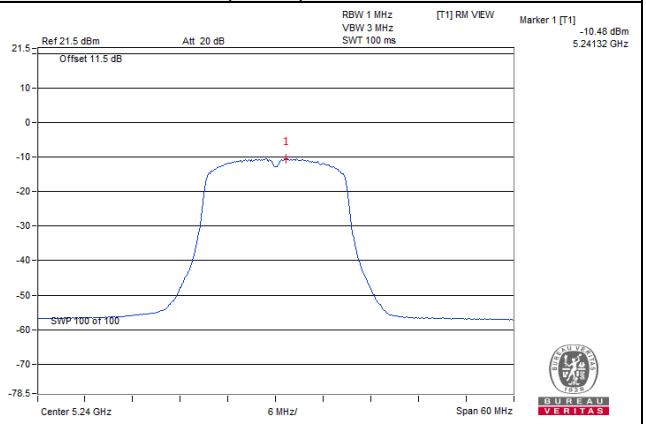
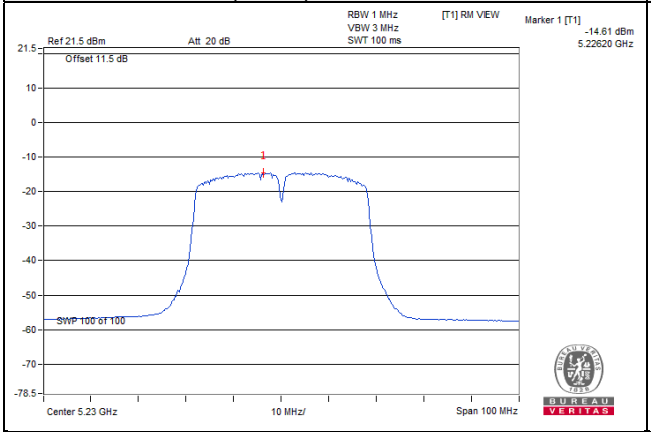
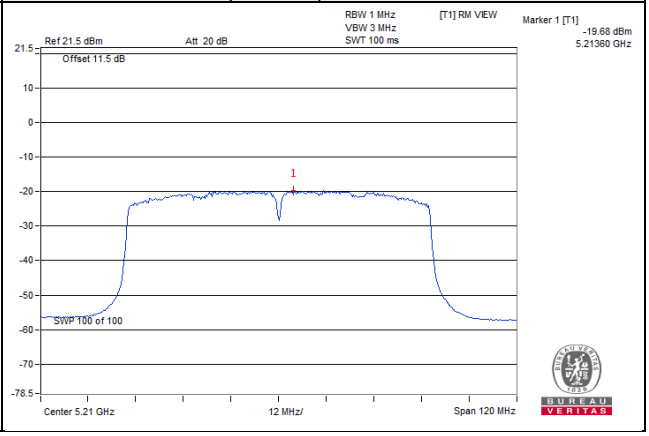
Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-15.17	-17.75	0.98	-12.28	10.93	Pass
46	5230	-14.61	-17.17	0.98	-11.71	10.93	Pass

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 = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 11-(6.07-6) = 10.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-19.68	-22.59	2.18	-15.71	10.93	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 11-(6.07-6) = 10.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / Chain 0 / CH 48	802.11n (HT20) / Chain 0 / CH 48
	
802.11n (HT40) / Chain 0 / CH 46	802.11ac (VHT80) / Chain 0 / CH 42
	

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

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	-9.41	-12.33	0.38	-7.24	10.93	Pass
60	5300	-9.46	-12.38	0.38	-7.29	10.93	Pass
64	5320	-9.40	-12.04	0.38	-7.13	10.93	Pass
100	5500	-8.88	-11.42	0.38	-6.58	10.93	Pass
116	5580	-8.98	-11.21	0.38	-6.56	10.93	Pass
140	5700	-10.70	-12.84	0.38	-8.25	10.93	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 11-(6.07-6) = 10.93dBm.

802.11n (HT20)

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				
52	5260	-10.43	-13.51	0.68	-8.01	10.93	Pass
60	5300	-10.48	-13.52	0.68	-8.05	10.93	Pass
64	5320	-10.46	-13.21	0.68	-7.93	10.93	Pass
100	5500	-10.32	-12.39	0.68	-7.54	10.93	Pass
116	5580	-10.22	-12.40	0.68	-7.48	10.93	Pass
140	5700	-11.91	-13.99	0.68	-9.14	10.93	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 11-(6.07-6) = 10.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

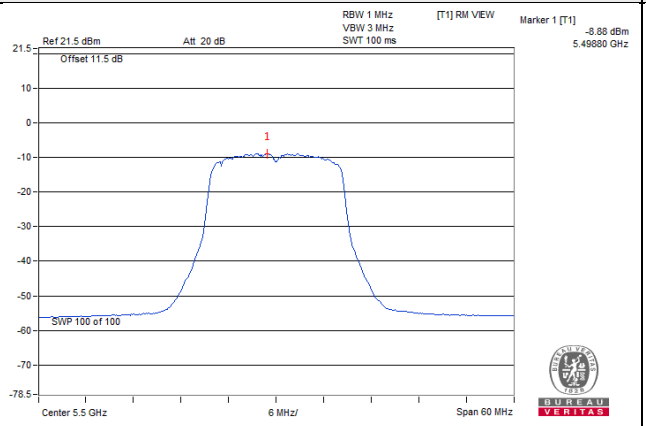
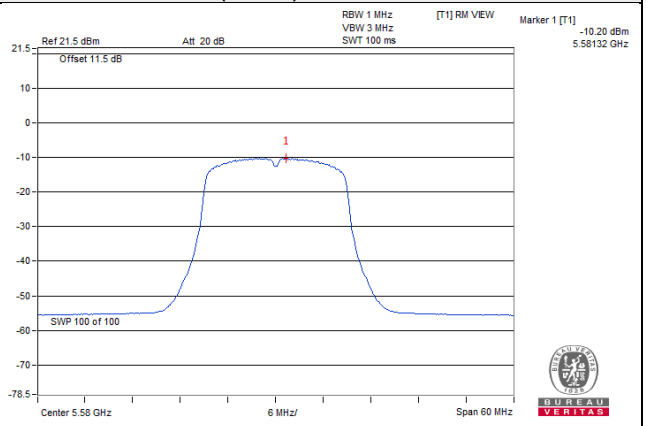
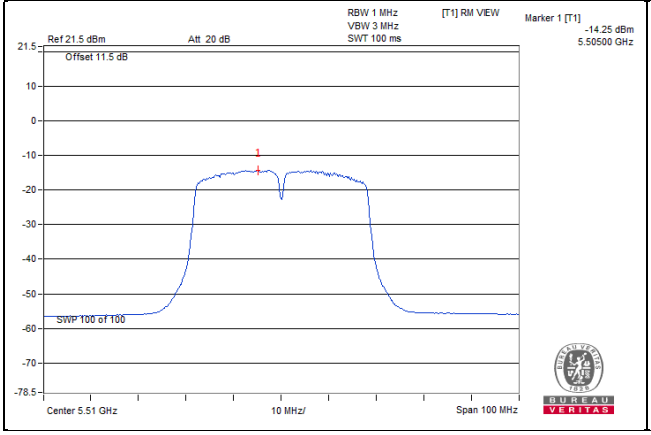
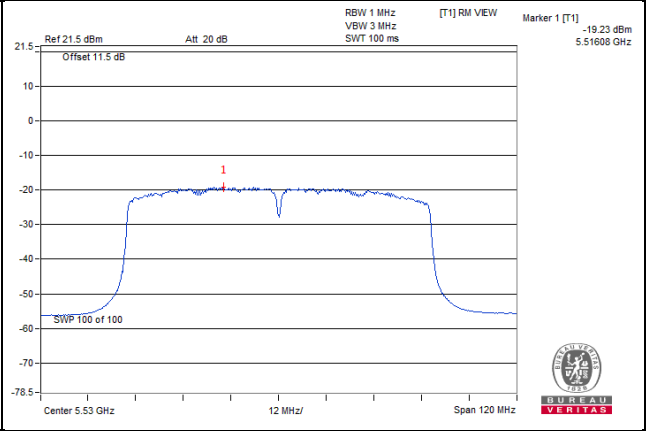
Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
54	5270	-14.37	-17.32	0.98	-11.61	10.93	Pass
62	5310	-14.61	-17.05	0.98	-11.67	10.93	Pass
102	5510	-14.25	-16.41	0.98	-11.21	10.93	Pass
110	5550	-14.49	-16.33	0.98	-11.32	10.93	Pass
134	5670	-15.65	-17.46	0.98	-12.47	10.93	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 11-(6.07-6) = 10.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	-19.52	-21.77	2.18	-15.31	10.93	Pass
106	5530	-19.24	-20.99	2.18	-14.84	10.93	Pass
122	5610	-19.42	-21.27	2.18	-15.06	10.93	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 11-(6.07-6) = 10.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a / Chain 0 / CH 100	802.11n (HT20) / Chain 0 / CH 116
	
802.11n (HT40) / Chain 0 / CH 102	802.11ac (VHT80) / Chain 0 / CH 106
	

For U-NII-3 band

802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	-18.28	-16.06	3.01	0.38	-12.67	29.93	Pass
	157	5785	-18.26	-16.04	3.01	0.38	-12.65	29.93	Pass
	165	5825	-18.54	-16.32	3.01	0.38	-12.93	29.93	Pass
1	149	5745	-20.14	-17.92	3.01	0.38	-14.53	29.93	Pass
	157	5785	-19.89	-17.67	3.01	0.38	-14.28	29.93	Pass
	165	5825	-19.78	-17.56	3.01	0.38	-14.17	29.93	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 30-(6.07-6) = 29.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	-19.49	-17.27	3.01	0.68	-13.58	29.93	Pass
	157	5785	-19.32	-17.10	3.01	0.68	-13.41	29.93	Pass
	165	5825	-20.04	-17.82	3.01	0.68	-14.13	29.93	Pass
1	149	5745	-21.15	-18.93	3.01	0.68	-15.24	29.93	Pass
	157	5785	-20.86	-18.64	3.01	0.68	-14.95	29.93	Pass
	165	5825	-20.70	-18.48	3.01	0.68	-14.79	29.93	Pass

Note:

1. Method c) of power density measurement of KDB 662911 is using for Measure and add 10 log(N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 30-(6.07-6) = 29.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

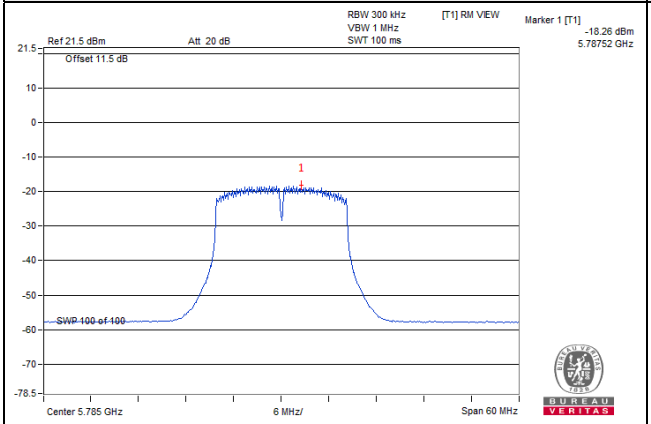
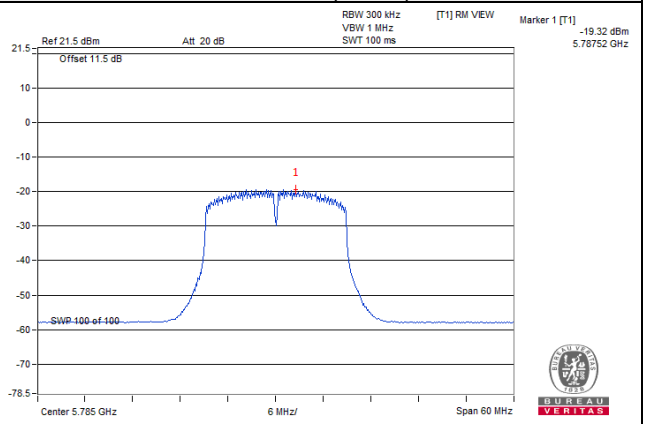
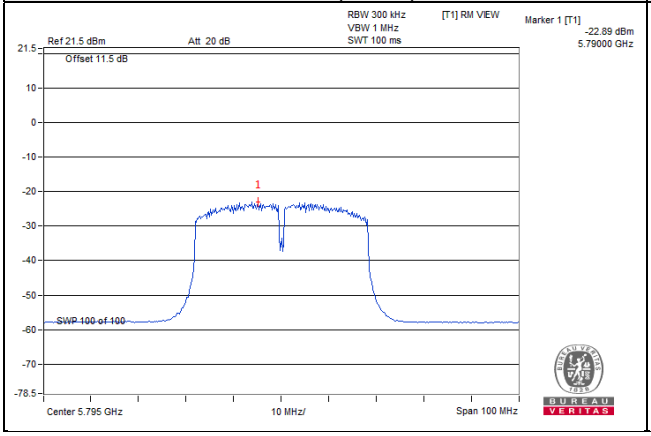
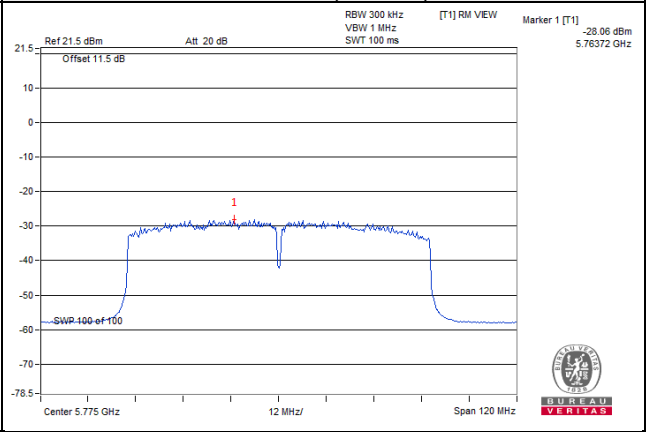
TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	-23.04	-20.82	3.01	0.98	-16.83	29.93	Pass
	159	5795	-22.89	-20.67	3.01	0.98	-16.68	29.93	Pass
1	151	5755	-25.02	-22.80	3.01	0.98	-18.81	29.93	Pass
	159	5795	-24.57	-22.35	3.01	0.98	-18.36	29.93	Pass

Note:
1. Method c) of power density measurement of KDB 662911 is using for Measure and add 10 log(N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 30-(6.07-6) = 29.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-28.06	-25.84	3.01	2.18	-20.65	29.93	Pass
1	155	5775	-29.77	-27.55	3.01	2.18	-22.36	29.93	Pass

Note:
1. Method c) of power density measurement of KDB 662911 is using for Measure and add 10 log(N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/2$] = 6.07dBi, so the power density limit shall be reduced to 30-(6.07-6) = 29.93dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

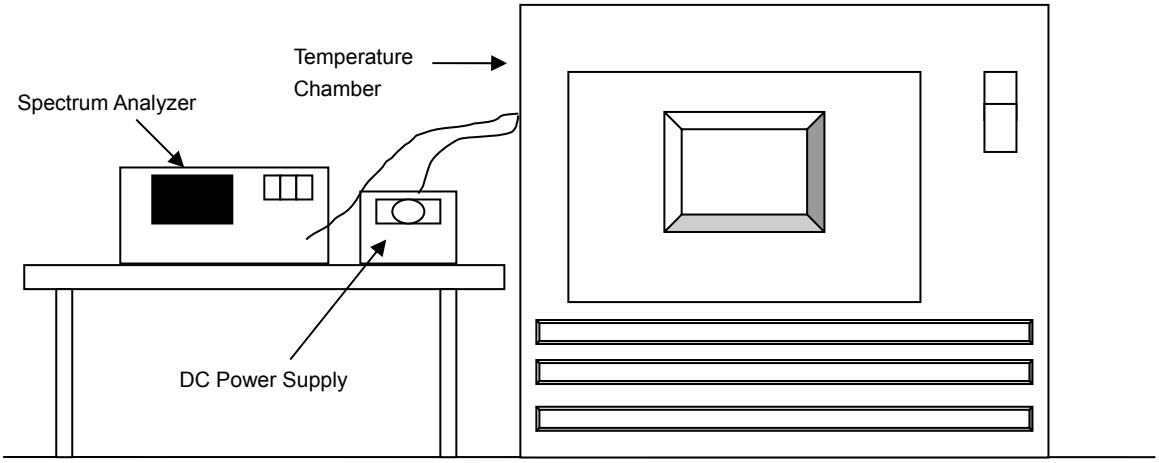
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

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

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2019	Jun. 11, 2020
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 03, 2019	Jun. 02, 2020
Digital Multimeter Fluke	87-III	70360742	Jun. 27, 2019	Jun. 26, 2020
DC Power Supply Topward	6603D	700637	NA	NA

4.5.4 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.

4.5.5 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 (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
75	12.6	5180.0113	PASS	5180.0101	PASS	5180.0106	PASS	5180.0113	PASS
70	12.6	5180.0136	PASS	5180.0139	PASS	5180.0110	PASS	5180.0100	PASS
60	12.6	5179.9943	PASS	5179.9968	PASS	5179.9963	PASS	5179.9934	PASS
50	12.6	5180.0085	PASS	5180.0050	PASS	5180.0066	PASS	5180.0050	PASS
40	12.6	5180.0177	PASS	5180.0192	PASS	5180.0143	PASS	5180.0178	PASS
30	12.6	5179.9821	PASS	5179.9819	PASS	5179.9826	PASS	5179.9854	PASS
20	12.6	5180.0157	PASS	5180.0138	PASS	5180.0132	PASS	5180.0148	PASS
10	12.6	5179.9822	PASS	5179.9824	PASS	5179.9814	PASS	5179.9826	PASS
0	12.6	5180.0167	PASS	5180.0200	PASS	5180.0150	PASS	5180.0192	PASS
-10	12.6	5180.0083	PASS	5180.0061	PASS	5180.0068	PASS	5180.0060	PASS
-20	12.6	5180.0253	PASS	5180.0247	PASS	5180.0237	PASS	5180.0255	PASS
-30	12.6	5180.0203	PASS	5180.0240	PASS	5180.0204	PASS	5180.0213	PASS
-40	12.6	5179.9961	PASS	5179.9965	PASS	5179.9955	PASS	5179.9957	PASS

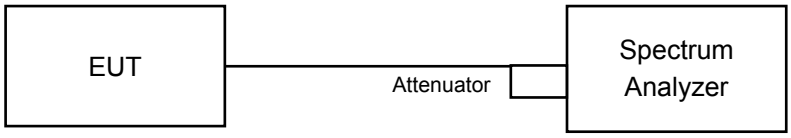
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	16.5	5180.015	PASS	5180.0148	PASS	5180.0138	PASS	5180.0148	PASS
	12.6	5180.0157	PASS	5180.0138	PASS	5180.0132	PASS	5180.0148	PASS
	9	5180.0151	PASS	5180.0140	PASS	5180.0133	PASS	5180.0150	PASS

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

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

4.6.5 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

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	15.36	15.16	0.5	Pass
157	5785	15.40	15.35	0.5	Pass
165	5825	15.36	15.16	0.5	Pass

802.11n (HT20)

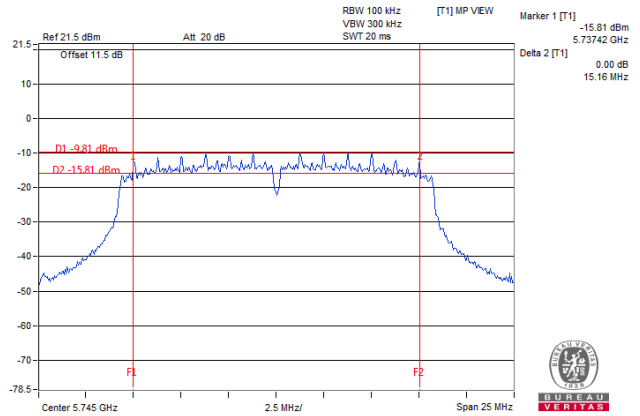
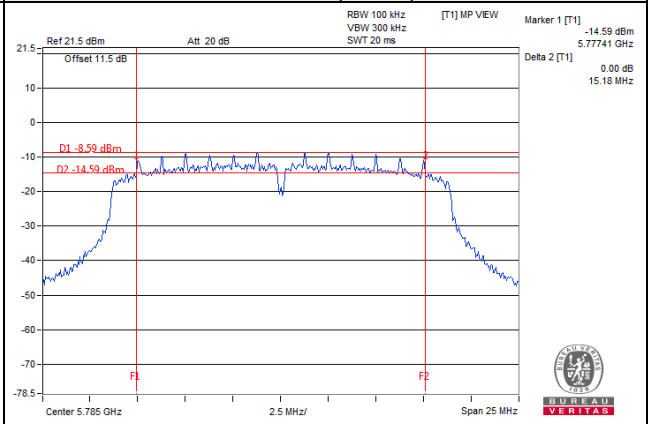
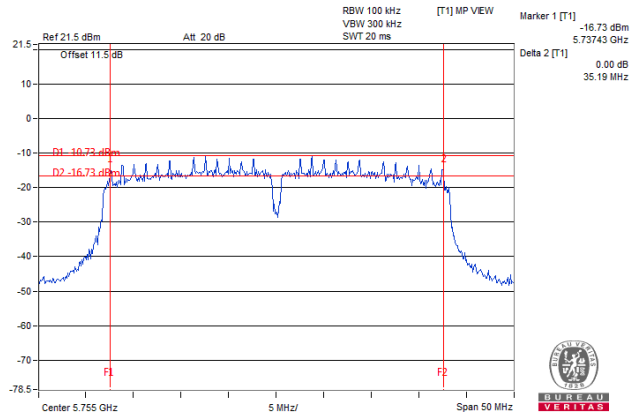
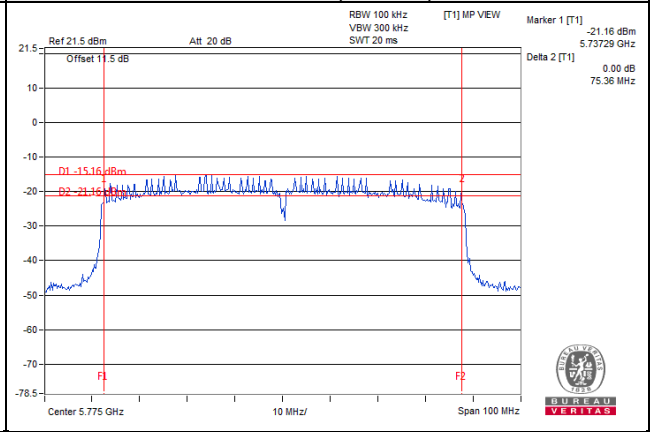
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	15.22	15.78	0.5	Pass
157	5785	15.18	15.75	0.5	Pass
165	5825	15.22	15.78	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	35.19	35.24	0.5	Pass
159	5795	35.23	35.23	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.36	75.39	0.5	Pass

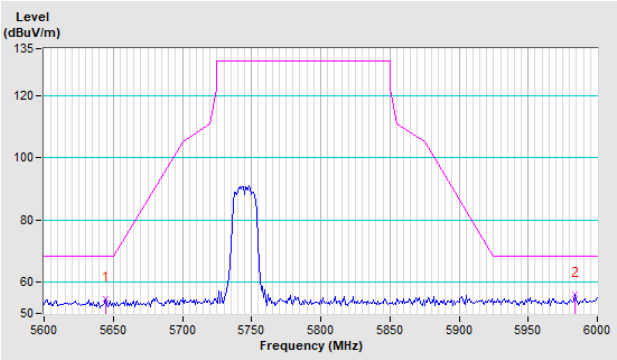
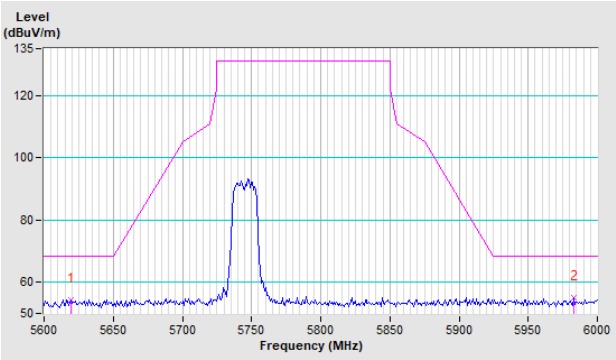
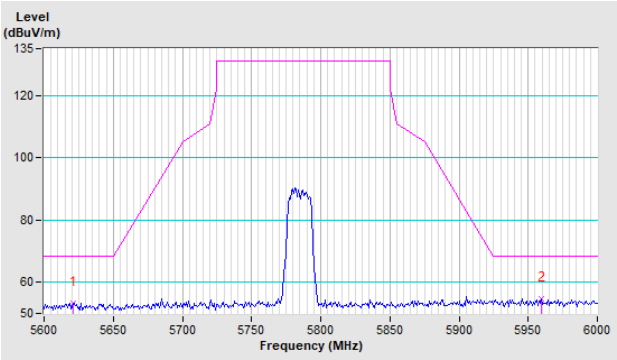
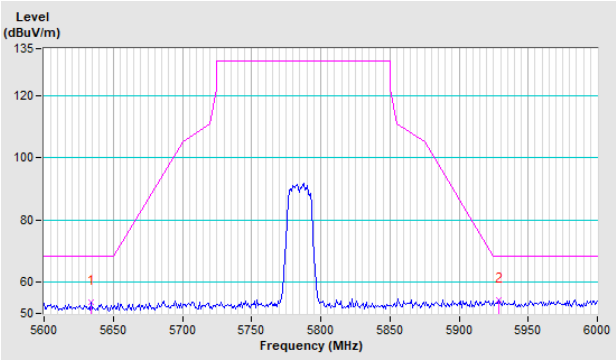
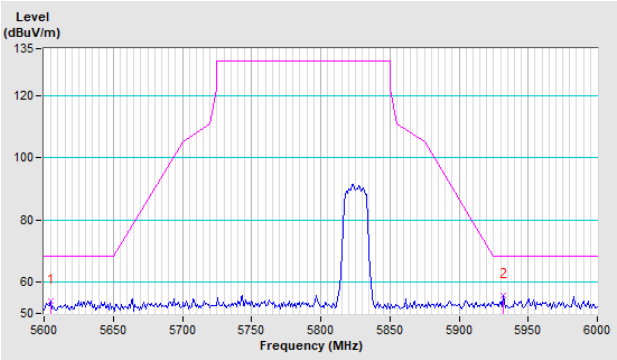
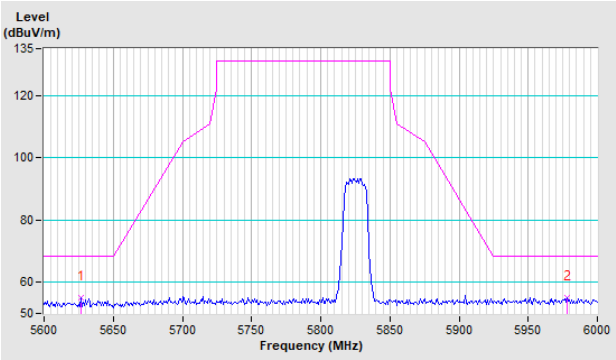
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

5 Pictures of Test Arrangements

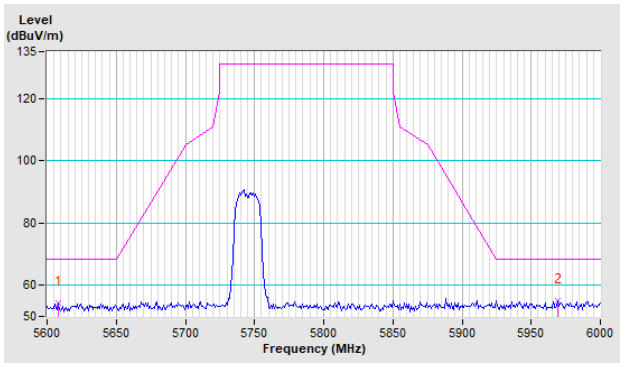
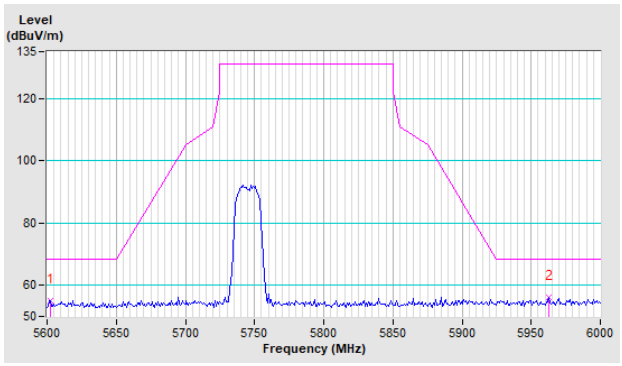
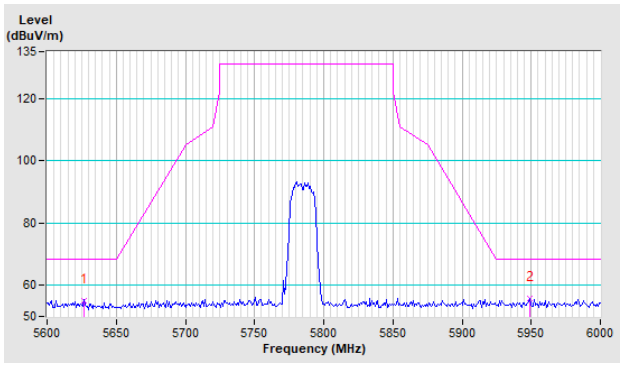
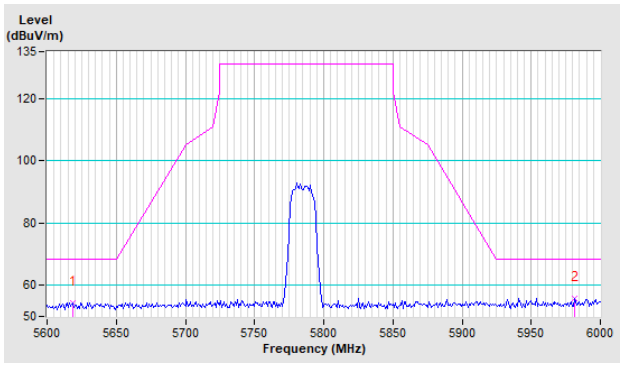
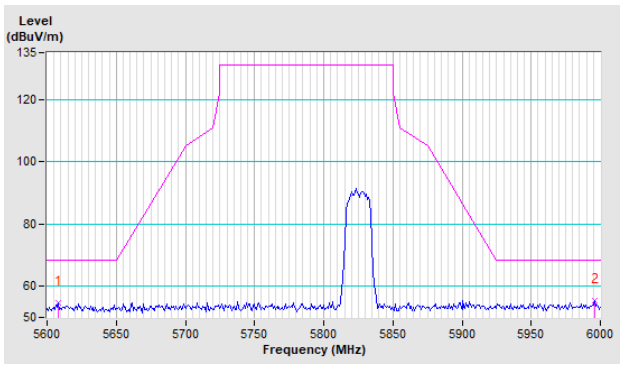
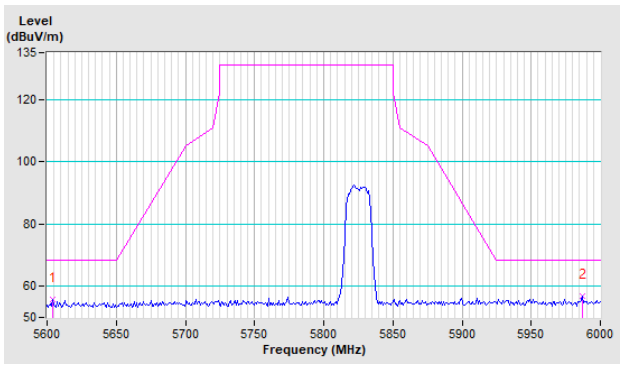
Please refer to the attached file (Test Setup Photo).

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

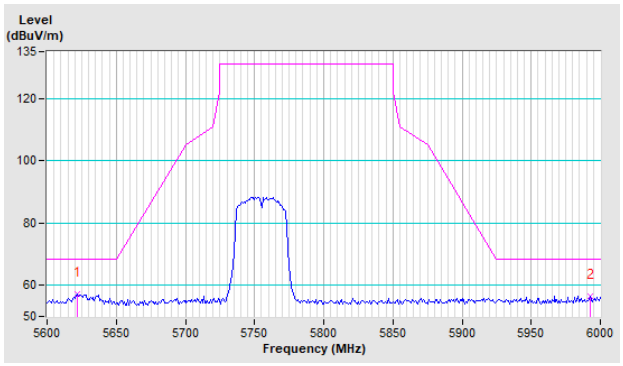
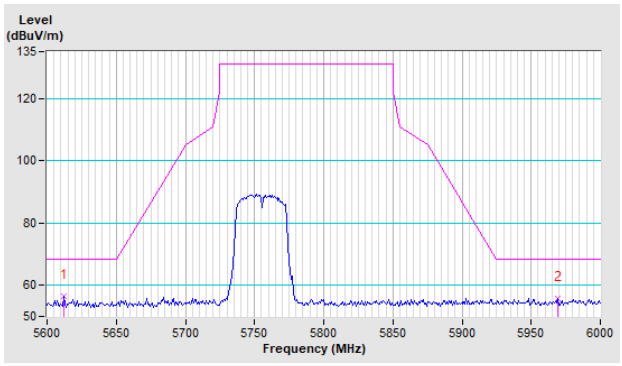
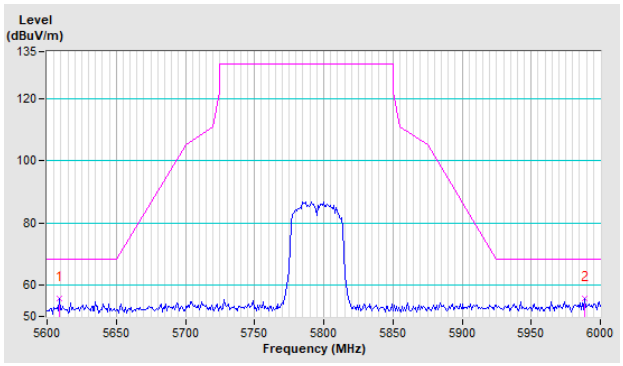
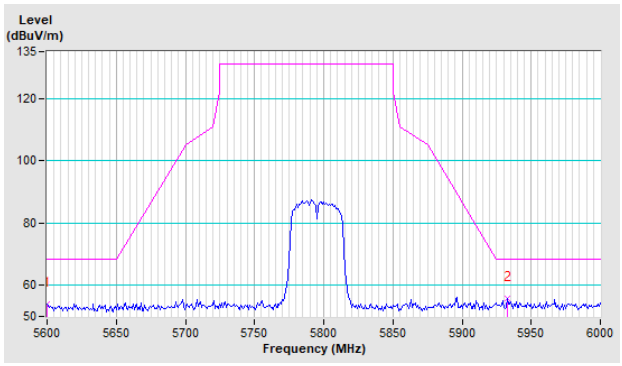
802.11a

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

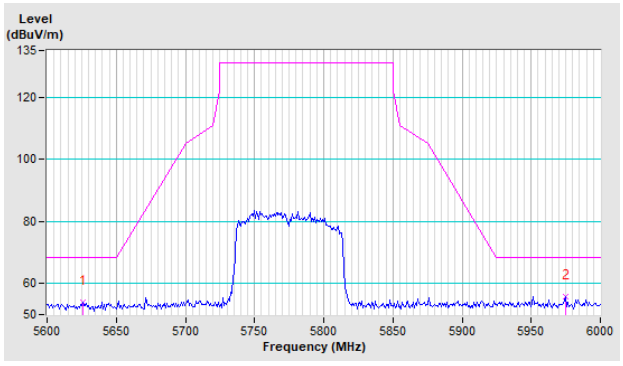
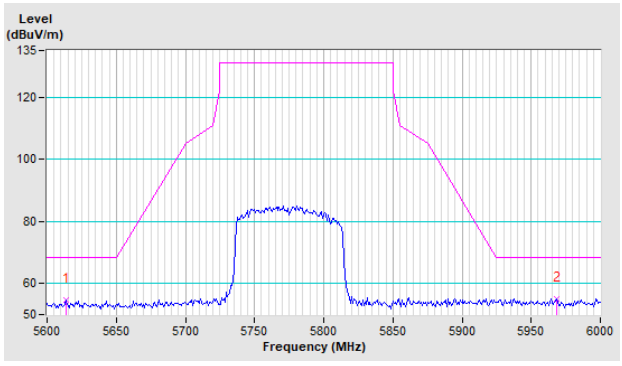
802.11n (HT20)

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

802.11n (HT40)

CH151	
Horizontal	Vertical
	
CH159	
Horizontal	Vertical
	

802.11ac (VHT80)

CH155	
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 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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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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