FCC Test Report

Report No.: RF191111C21-1

FCC ID: KA2WL6720APA1

Test Model: DWL-6720AP

Received Date: Nov. 11, 2019

Test Date: Nov. 17, 2019 ~ Jan. 07, 2020

Issued Date: Apr. 28, 2020

Applicant: D-Link Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / Designation Number: 788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF191111C21-1	Original Release	Apr. 28, 2020

1 Certificate of Conformity

Product: Unified AC Concurrent Dual-band PoE Access Point

Brand: D-Link

Test Model: DWL-6720AP

Sample Status: Engineering Sample

Applicant: D-Link Corporation

Test Date: Nov. 17, 2019 ~ Jan. 07, 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 : _____ , **Date:** Apr. 28, 2020
Gina Liu / Specialist

Approved by : _____ , **Date:** Apr. 28, 2020
Dylan Chiou / 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	Pass	Meet the requirement of limit. Minimum passing margin is -3.20 dB at 0.55557 MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.2 dB at 5150.00 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX / R-SMA not a standard connector.

Note:

1. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.
2. For U-NII-1, U-NII-2A, U-NII-2C band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex B. Test Procedures refer to report 4.1.3.
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.79 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Unified AC Concurrent Dual-band PoE Access Point
Brand	D-Link
Test Model	DWL-6720AP
Status of EUT	Engineering Sample
Power Supply Rating	48 Vdc (POE)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to 400.0 Mbps 802.11ac: up to 866.7 Mbps
Operating Frequency	5180 ~ 5240 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
Output Power	CDD Mode: 390.476 mW for 5180 ~ 5240 MHz 371.586 mW for 5745 ~ 5825 MHz Beamforming Mode: 189.265 mW for 5180 ~ 5240 MHz 183.401 mW for 5745 ~ 5825 MHz
Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

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

Modulation Mode	Beamformng Mode	Tx Function
802.11a	Not Support	2TX
802.11n (HT20)	Support	2TX
802.11n (HT40)	Support	2TX
802.11ac (VHT20)	Support	2TX
802.11ac (VHT40)	Support	2TX
802.11ac (VHT80)	Support	2TX

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

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

2. The antenna information is listed as below.

Antenna NO.	RF Chain NO.	Brand	Model	Antenna Gain (dBi)	Frequency range	Antenna Type	Connecter Type
1 (Internal)	1	whayu	C056-511224-A	3.50	2.412~2.462GHz	Dipole	i-pex(MHF)
				4.80	5.18~5.24GHz		
				4.70	5.745~5.825 GHz		
2 (Internal)	2	whayu	C056-511225-A	3.20	2.4~2.4835GHz	Dipole	i-pex(MHF)
				4.60	5.18~5.24GHz		
				4.40	5.745~5.825 GHz		
3 (External)	-	whayu	C059-510399-A	3.35	2.4~2.4835GHz	Dipole	R-SMA
				4.54	5.18~5.24GHz		
				4.19	5.745~5.825 GHz		
*During the test, the maximum gain of Internal 1 was selected as representative antenna and therefore only Internal antenna 1 and External antenna 3 were chosen for final test.							

3. The EUT contains following accessory devices.

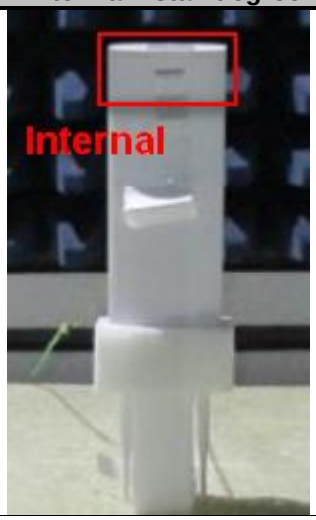
Product	Brand	Model	Description
RJ45 Cable	N/A	N/A	1.9 m shielded

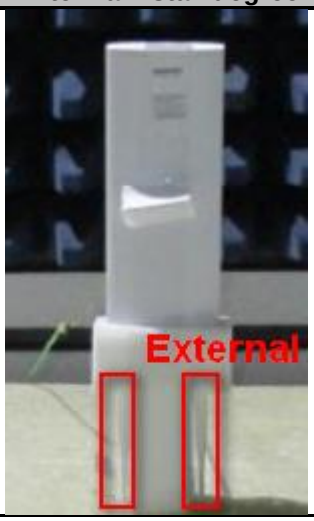
4. **There're 2 configurations for the EUT listed as below.**

   Mode A: Internal Antenna

   Mode B: External Antenna

5. The EUT will install at outdoor area, the highest antenna gain from the horizon above 30 degrees as below, for more detail information please refer to antenna specification and user manual.

Antenna Model	Antenna gain	Antenna install degree
C056-511224-A (Internal)	1.197dBi	
Due to device will restricted installation position as above photo, thus consider to above 30 degrees from the horizon the highest antenna gain are chosen from antenna specification exhibits from 120 to 240 degrees for U-NII-1 band		

Antenna Model	Antenna gain	Antenna install degree
C059-510399-A (External)	4.54dBi	
Due to device will restricted installation position as above photo, thus consider to above 30 degrees from the horizon the highest antenna gain are chosen from antenna specification exhibits from 300 to 70 degrees for U-NII-1 band		

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

3.2 Description of Test Modes

For 5180 ~ 5240 MHz

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

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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

For 5745 ~ 5825 MHz:

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

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

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Internal Antenna
B	√	√	√	-	External Antenna

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

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

Radiated Emission Test (Above 1 GHz):

☒ 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5
		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1 GHz):

☒ 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	5180-5240	802.11n (HT20)	36 to 48	40	OFDM	BPSK	6.5
B		802.11n (HT40)	38 to 46	46			

Power Line Conducted Emission Test:

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	5180-5240	802.11n (HT20)	36 to 48	40	OFDM	BPSK	6.5
B		802.11n (HT40)	38 to 46	46			

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5
-		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Willy Cheng, James Yang
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Greg Lin
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jones Chang, Noah Chang
APCM	25 deg. C, 65 % RH	48 Vdc	Ivan Tseng

3.3 Duty Cycle of Test Signal

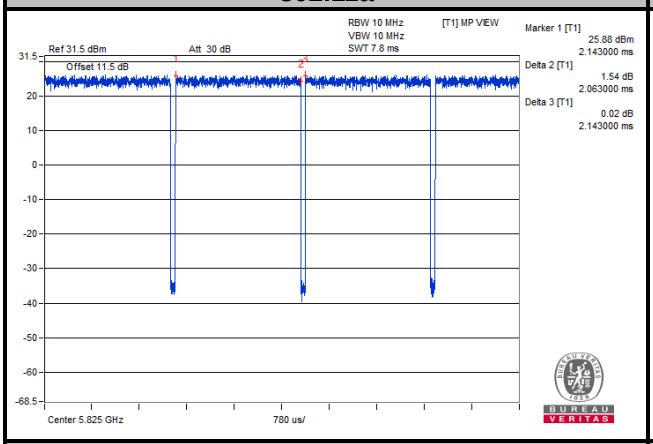
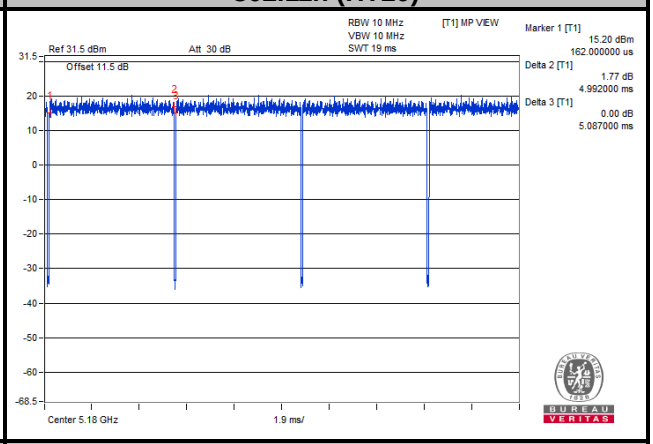
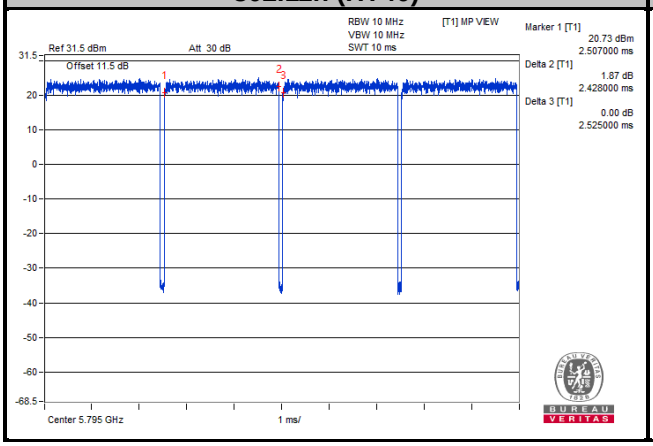
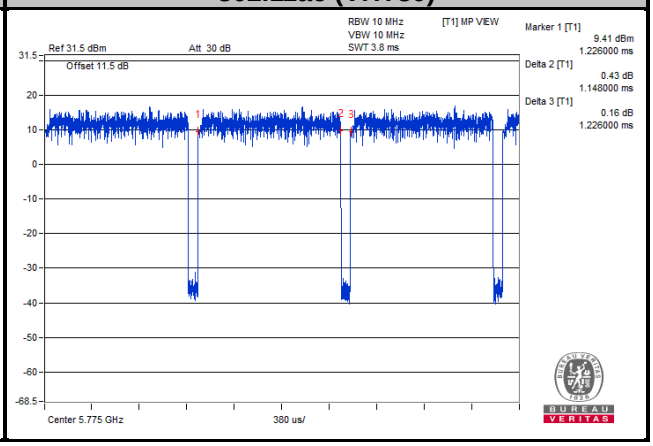
MODULATION TYPE: BPSK

802.11a: Duty cycle = 2.063/2.143 = 0.963, Duty factor = 10 * log(1/0.963) = 0.17

802.11n (HT20): Duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11n (HT40): Duty cycle = 2.428/2.525 = 0.962, Duty factor = 10 * log(1/0.962) = 0.17

802.11ac (VHT80): Duty cycle = 1.148/1.226 = 0.936, Duty factor = 10 * log(1/0.936) = 0.29

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.

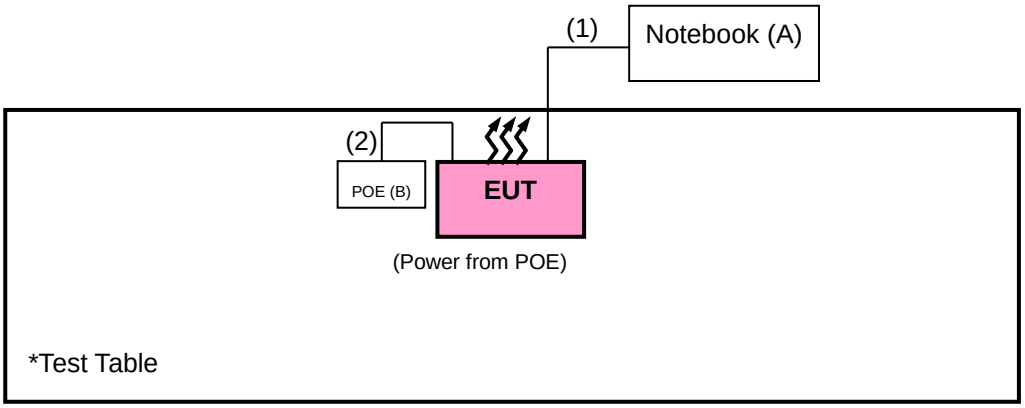
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	N/A	Provided by Lab
B.	POE	Ubiquiti Networks. Inc.	GP-H480-050G	N/A	N/A	Provided by Client

Note:

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

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN Cable	1	10	N	0	RJ45, Cat5e, Provided by Lab
2.	LAN Cable	1	1.9	Y	0	Accessory of the EUT

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 Procedures 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 1000 MHz, 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 20 dB under any condition of modulation.

Limits f Unwanted Emission Out of the Restricted Bands

Applicable To			Limit	
789033 D02 General UNII Test Procedures New Rules v02r01			Field Strength at 3 m	
			PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Frequency Band	**Applicable To**		**EIRP Limit**	**Equivalent Field Strength at 3 m**
5150~5250 MHz	15.407(b)(1)		PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
5250~5350 MHz	15.407(b)(2)			
5470~5725 MHz	15.407(b)(3)			
5725~5850 MHz	☒	15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2 (dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8 (dBμV/m) *3 PK:122.2 (dBμV/m) *4
	☐	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

*1 beyond 75 MHz or more above of the band edge.

*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note:

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

$$E = \frac{1000000\sqrt{30P}}{3}$$ 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. 25, 2018	Nov. 24, 2019
			Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
			Nov. 24, 2019	Nov. 23, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jul. 11, 2019	Jul. 10, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A01976	Aug. 20, 2019	Aug. 19, 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 30 MHz

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 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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 detected 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:

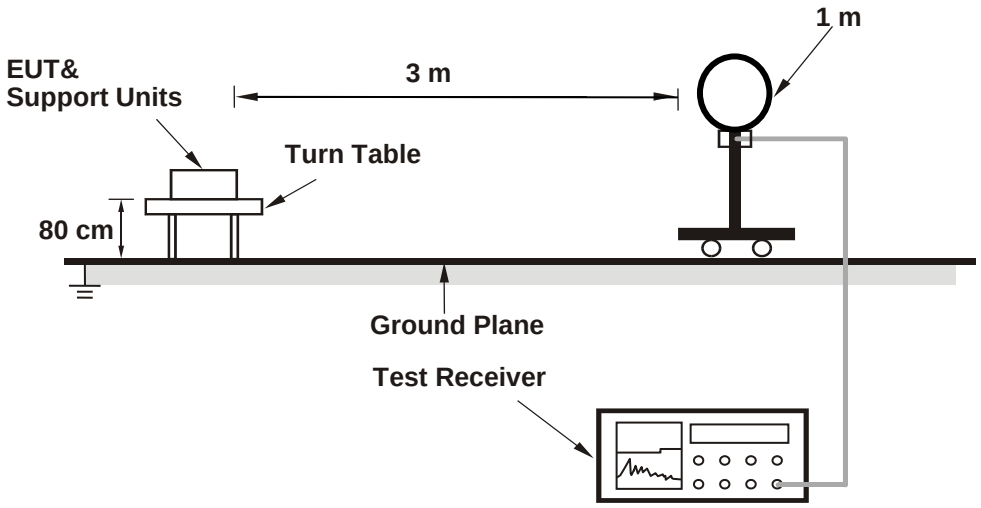
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
   (11a: RBW = 1 MHz, VBW = 1 kHz ; 11n (HT20): RBW = 1 MHz, VBW = 10 Hz ;
   11n (HT40): RBW = 1 MHz, VBW = 1 kHz ; 11ac (VHT80): RBW = 1 MHz, VBW = 1 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

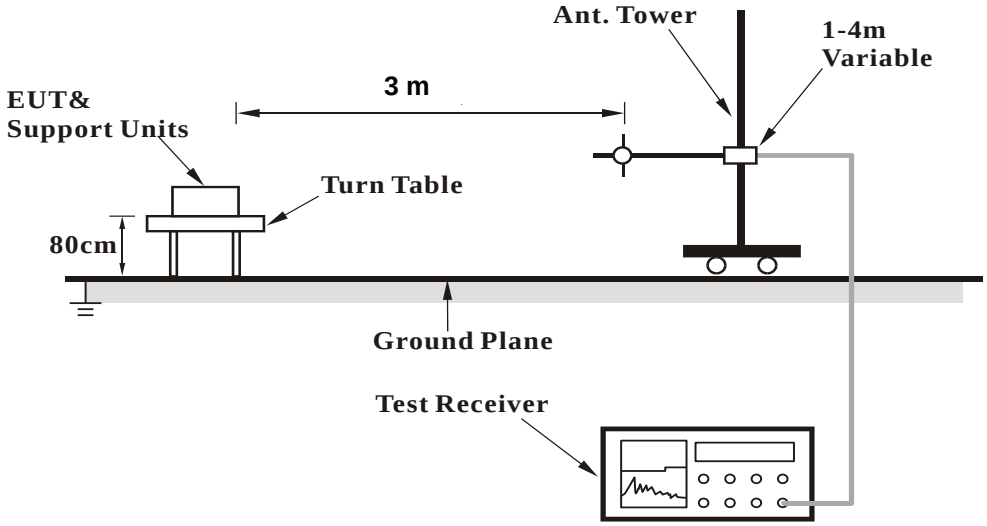
No deviation.

4.1.5 Test Setup

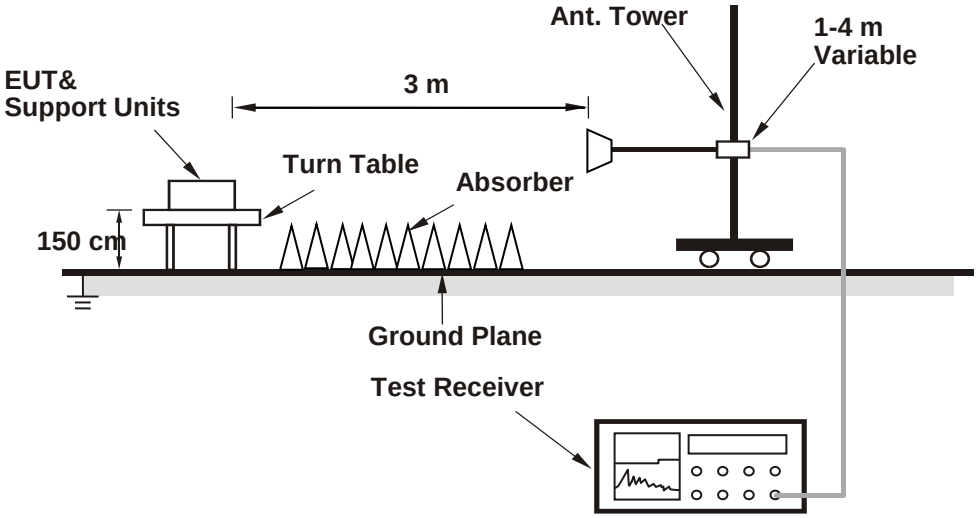
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.6 EUT Operating Conditions

a. Placed the EUT on a testing table.

b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1 GHz Data：

Mode A

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	61.8 PK	74.0	-12.2	1.77 H	6	57.7	4.1
2	5150.00	46.1 AV	54.0	-7.9	1.77 H	6	42.0	4.1
3	*5180.00	108.8 PK			1.72 H	357	70.3	38.5
4	*5180.00	98.9 AV			1.72 H	357	60.4	38.5
5	#10360.00	55.9 PK	68.2	-12.3	1.84 H	146	39.4	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	5150.00	70.9 PK	74.0	-3.1	2.86 V	3	66.8	4.1
2	5150.00	53.4 AV	54.0	-0.6	2.86 V	3	49.3	4.1
3	*5180.00	115.8 PK			2.85 V	349	77.3	38.5
4	*5180.00	105.2 AV			2.85 V	349	66.7	38.5
5	#10360.00	58.0 PK	68.2	-10.2	1.56 V	186	41.5	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.6 PK	74.0	-12.4	3.05 H	2	57.5	4.1
2	5150.00	45.8 AV	54.0	-8.2	3.05 H	2	41.7	4.1
3	*5200.00	114.7 PK			3.30 H	36	76.3	38.4
4	*5200.00	104.4 AV			3.30 H	36	66.0	38.4
5	#10400.00	54.8 PK	68.2	-13.4	2.77 H	308	39.6	15.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	72.3 PK	74.0	-1.7	2.75 V	0	68.2	4.1
2	5150.00	53.1 AV	54.0	-0.9	2.75 V	0	49.0	4.1
3	*5200.00	119.4 PK			2.79 V	3	81.0	38.4
4	*5200.00	108.3 AV			2.79 V	3	69.9	38.4
5	#10400.00	54.6 PK	68.2	-13.6	1.22 V	206	39.4	15.2

REMARKS:

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

CHANNEL	TX Channel 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	113.4 PK			3.07 H	358	75.1	38.3
2	*5240.00	102.5 AV			3.07 H	358	64.2	38.3
3	5350.00	53.6 PK	74.0	-20.4	3.00 H	4	49.7	3.9
4	5350.00	40.2 AV	54.0	-13.8	3.00 H	4	36.3	3.9
5	#10480.00	55.7 PK	68.2	-12.5	1.24 H	118	40.4	15.3
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	*5240.00	119.0 PK			2.93 V	352	80.7	38.3
2	*5240.00	108.8 AV			2.93 V	352	70.5	38.3
3	5350.00	54.5 PK	74.0	-19.5	2.97 V	355	50.6	3.9
4	5350.00	40.3 AV	54.0	-13.7	2.97 V	355	36.4	3.9
5	#10480.00	54.8 PK	68.2	-13.4	1.60 V	299	39.5	15.3

REMARKS:

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

CHANNEL	TX Channel 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	#5632.00	54.0 PK	68.2	-14.2	2.32 H	329	49.5	4.5
2	*5745.00	108.3 PK			2.32 H	329	69.3	39.0
3	*5745.00	97.9 AV			2.32 H	329	58.9	39.0
4	#5955.20	54.5 PK	68.2	-13.7	2.32 H	329	49.2	5.3
5	11490.00	57.1 PK	74.0	-16.9	2.18 H	297	40.3	16.8
6	11490.00	44.0 AV	54.0	-10.0	2.18 H	297	27.2	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	#5623.20	56.4 PK	68.2	-11.8	3.86 V	339	51.9	4.5
2	*5745.00	119.4 PK			3.86 V	339	80.4	39.0
3	*5745.00	108.6 AV			3.86 V	339	69.6	39.0
4	#5958.40	56.9 PK	68.2	-11.3	3.86 V	339	51.6	5.3
5	11490.00	57.4 PK	74.0	-16.6	3.35 V	16	40.6	16.8
6	11490.00	44.2 AV	54.0	-9.8	3.35 V	16	27.4	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5639.20	54.3 PK	68.2	-13.9	3.18 H	68	49.7	4.6
2	*5785.00	111.9 PK			3.18 H	68	72.7	39.2
3	*5785.00	102.1 AV			3.18 H	68	62.9	39.2
4	#5989.60	54.3 PK	68.2	-13.9	3.18 H	68	49.0	5.3
5	11570.00	55.9 PK	74.0	-18.1	2.61 H	199	39.3	16.6
6	11570.00	43.0 AV	54.0	-11.0	2.61 H	199	26.4	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	#5619.20	56.8 PK	68.2	-11.4	3.86 V	340	52.3	4.5
2	*5785.00	119.6 PK			3.86 V	340	80.4	39.2
3	*5785.00	108.8 AV			3.86 V	340	69.6	39.2
4	#5951.20	57.1 PK	68.2	-11.1	3.86 V	340	51.8	5.3
5	11570.00	57.9 PK	74.0	-16.1	3.42 V	22	41.3	16.6
6	11570.00	43.9 AV	54.0	-10.1	3.42 V	22	27.3	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5641.60	54.1 PK	68.2	-14.1	3.01 H	40	49.5	4.6
2	*5825.00	111.6 PK			3.01 H	40	72.2	39.4
3	*5825.00	101.7 AV			3.01 H	40	62.3	39.4
4	#5991.20	54.9 PK	68.2	-13.3	3.01 H	40	49.6	5.3
5	11650.00	56.1 PK	74.0	-17.9	1.88 H	169	39.6	16.5
6	11650.00	43.4 AV	54.0	-10.6	1.88 H	169	26.9	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	#5630.40	56.6 PK	68.2	-11.6	3.69 V	344	52.1	4.5
2	*5825.00	119.7 PK			3.69 V	344	80.3	39.4
3	*5825.00	108.9 AV			3.69 V	344	69.5	39.4
4	#5934.40	58.5 PK	68.2	-9.7	3.69 V	344	53.2	5.3
5	11650.00	57.8 PK	74.0	-16.2	1.52 V	170	41.3	16.5
6	11650.00	44.8 AV	54.0	-9.2	1.52 V	170	28.3	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (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	63.7 PK	74.0	-10.3	3.78 H	312	59.6	4.1
2	5150.00	47.3 AV	54.0	-6.7	3.78 H	312	43.2	4.1
3	*5180.00	109.7 PK			3.56 H	306	71.2	38.5
4	*5180.00	99.1 AV			3.56 H	306	60.6	38.5
5	#10360.00	57.0 PK	68.2	-11.2	2.47 H	185	40.5	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	5150.00	70.3 PK	74.0	-3.7	3.51 V	27	66.2	4.1
2	5150.00	53.3 AV	54.0	-0.7	3.51 V	27	49.2	4.1
3	*5180.00	116.8 PK			3.50 V	5	78.3	38.5
4	*5180.00	105.3 AV			3.50 V	5	66.8	38.5
5	#10360.00	56.1 PK	68.2	-12.1	1.96 V	231	39.6	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.0 PK	74.0	-9.0	1.28 H	312	60.9	4.1
2	5150.00	46.9 AV	54.0	-7.1	1.28 H	312	42.8	4.1
3	*5200.00	115.3 PK			2.82 H	317	76.9	38.4
4	*5200.00	104.3 AV			2.82 H	317	65.9	38.4
5	#10400.00	57.3 PK	68.2	-10.9	1.96 H	213	40.8	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	5150.00	72.4 PK	74.0	-1.6	2.98 V	340	68.3	4.1
2	**5150.00**	**53.8 AV**	**54.0**	**-0.2**	**2.98 V**	**340**	**49.7**	**4.1**
3	*5200.00	120.2 PK			3.79 V	339	81.8	38.4
4	*5200.00	109.3 AV			3.79 V	339	70.9	38.4
5	#10400.00	56.9 PK	68.2	-11.3	2.17 V	255	40.4	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	112.0 PK			1.52 H	253	73.7	38.3
2	*5240.00	101.1 AV			1.52 H	253	62.8	38.3
3	5350.00	54.5 PK	74.0	-19.5	1.59 H	286	50.6	3.9
4	5350.00	41.5 AV	54.0	-12.5	1.59 H	286	37.6	3.9
5	#10480.00	56.8 PK	68.2	-11.4	2.29 H	164	40.5	16.3
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	*5240.00	119.2 PK			1.40 V	359	80.9	38.3
2	*5240.00	108.6 AV			1.40 V	359	70.3	38.3
3	5350.00	54.4 PK	74.0	-19.6	1.52 V	343	50.5	3.9
4	5350.00	41.5 AV	54.0	-12.5	1.52 V	343	37.6	3.9
5	#10480.00	56.0 PK	68.2	-12.2	2.55 V	262	39.7	16.3

REMARKS:

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

CHANNEL	TX Channel 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	#5606.40	54.4 PK	68.2	-13.8	3.85 H	298	50.0	4.4
2	*5745.00	109.0 PK			3.85 H	298	70.0	39.0
3	*5745.00	98.6 AV			3.85 H	298	59.6	39.0
4	#5959.20	54.5 PK	68.2	-13.7	3.85 H	298	49.2	5.3
5	11490.00	56.3 PK	74.0	-17.7	2.69 H	294	39.5	16.8
6	11490.00	43.2 AV	54.0	-10.8	2.69 H	294	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	#5608.80	56.6 PK	68.2	-11.6	3.56 V	15	52.2	4.4
2	*5745.00	118.0 PK			3.56 V	15	79.0	39.0
3	*5745.00	107.5 AV			3.56 V	15	68.5	39.0
4	#5929.60	57.0 PK	68.2	-11.2	3.56 V	15	51.7	5.3
5	11490.00	55.8 PK	74.0	-18.2	2.17 V	192	39.0	16.8
6	11490.00	42.8 AV	54.0	-11.2	2.17 V	192	26.0	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.00	53.8 PK	68.2	-14.4	3.27 H	18	49.3	4.5
2	*5785.00	110.0 PK			3.27 H	18	70.8	39.2
3	*5785.00	99.8 AV			3.27 H	18	60.6	39.2
4	#5980.80	54.4 PK	68.2	-13.8	3.27 H	18	49.1	5.3
5	11570.00	56.1 PK	74.0	-17.9	2.64 H	199	39.5	16.6
6	11570.00	43.2 AV	54.0	-10.8	2.64 H	199	26.6	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	#5632.80	56.3 PK	68.2	-11.9	2.69 V	325	51.7	4.6
2	*5785.00	117.5 PK			2.69 V	325	78.3	39.2
3	*5785.00	107.2 AV			2.69 V	325	68.0	39.2
4	#5960.80	56.5 PK	68.2	-11.7	2.69 V	325	51.1	5.4
5	11570.00	57.8 PK	74.0	-16.2	2.96 V	184	41.2	16.6
6	11570.00	44.1 AV	54.0	-9.9	2.96 V	184	27.5	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5617.60	54.2 PK	68.2	-14.0	3.92 H	302	49.7	4.5
2	*5825.00	111.3 PK			3.92 H	302	71.9	39.4
3	*5825.00	101.2 AV			3.92 H	302	61.8	39.4
4	#5969.60	54.4 PK	68.2	-13.8	3.92 H	302	49.0	5.4
5	11650.00	55.7 PK	74.0	-18.3	2.28 H	192	39.2	16.5
6	11650.00	42.8 AV	54.0	-11.2	2.28 H	192	26.3	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	#5634.40	56.1 PK	68.2	-12.1	3.43 V	11	51.5	4.6
2	*5825.00	119.1 PK			3.43 V	11	79.7	39.4
3	*5825.00	108.7 AV			3.43 V	11	69.3	39.4
4	#5928.80	58.1 PK	68.2	-10.1	3.43 V	11	52.8	5.3
5	11650.00	56.7 PK	74.0	-17.3	2.87 V	326	40.2	16.5
6	11650.00	44.1 AV	54.0	-9.9	2.87 V	326	27.6	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (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	59.6 PK	74.0	-14.4	1.51 H	241	55.5	4.1
2	5150.00	46.7 AV	54.0	-7.3	1.51 H	241	42.6	4.1
3	*5190.00	101.5 PK			1.64 H	241	63.1	38.4
4	*5190.00	92.1 AV			1.64 H	241	53.7	38.4
5	#10380.00	57.5 PK	68.2	-10.7	2.52 H	208	40.9	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	65.9 PK	74.0	-8.1	1.40 V	357	61.8	4.1
2	5150.00	53.1 AV	54.0	-0.9	1.40 V	357	49.0	4.1
3	*5190.00	109.6 PK			1.28 V	306	71.2	38.4
4	*5190.00	100.1 AV			1.28 V	306	61.7	38.4
5	#10380.00	56.5 PK	68.2	-11.7	1.93 V	218	39.9	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.6 PK	74.0	-13.4	1.66 H	241	56.5	4.1
2	5150.00	46.7 AV	54.0	-7.3	1.66 H	241	42.6	4.1
3	*5230.00	106.5 PK			1.65 H	251	68.3	38.2
4	*5230.00	96.7 AV			1.65 H	251	58.5	38.2
5	5350.00	54.4 PK	74.0	-19.6	1.52 H	251	50.5	3.9
6	5350.00	41.5 AV	54.0	-12.5	1.52 H	251	37.6	3.9
7	#10460.00	56.9 PK	68.2	-11.3	2.02 H	177	40.6	16.3
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	5150.00	67.9 PK	74.0	-6.1	1.37 V	359	63.8	4.1
2	5150.00	53.0 AV	54.0	-1.0	1.37 V	359	48.9	4.1
3	*5230.00	114.1 PK			1.23 V	357	75.9	38.2
4	*5230.00	104.4 AV			1.23 V	357	66.2	38.2
5	5350.00	55.8 PK	74.0	-18.2	1.46 V	319	51.9	3.9
6	5350.00	43.1 AV	54.0	-10.9	1.46 V	319	39.2	3.9
7	#10460.00	56.1 PK	68.2	-12.1	1.73 V	188	39.8	16.3

REMARKS:

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

CHANNEL	TX Channel 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	#5643.20	54.1 PK	68.2	-14.1	2.22 H	316	49.5	4.6
2	*5755.00	106.2 PK			2.22 H	316	67.1	39.1
3	*5755.00	96.9 AV			2.22 H	316	57.8	39.1
4	#5956.00	54.8 PK	68.2	-13.4	2.22 H	316	49.5	5.3
5	11510.00	56.0 PK	74.0	-18.0	1.69 H	313	39.2	16.8
6	11510.00	43.2 AV	54.0	-10.8	1.69 H	313	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	#5644.80	60.3 PK	68.2	-7.9	3.87 V	339	55.7	4.6
2	*5755.00	115.2 PK			3.87 V	339	76.1	39.1
3	*5755.00	105.3 AV			3.87 V	339	66.2	39.1
4	#5937.60	57.8 PK	68.2	-10.4	3.87 V	339	52.5	5.3
5	11510.00	56.5 PK	74.0	-17.5	2.69 V	199	39.7	16.8
6	11510.00	44.0 AV	54.0	-10.0	2.69 V	199	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5621.60	54.0 PK	68.2	-14.2	2.24 H	316	49.5	4.5
2	*5795.00	106.1 PK			2.24 H	316	66.9	39.2
3	*5795.00	96.3 AV			2.24 H	316	57.1	39.2
4	#5971.20	54.4 PK	68.2	-13.8	2.24 H	316	49.1	5.3
5	11590.00	56.1 PK	74.0	-17.9	1.43 H	197	39.6	16.5
6	11590.00	43.4 AV	54.0	-10.6	1.43 H	197	26.9	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	#5645.60	56.8 PK	68.2	-11.4	4.00 V	325	52.2	4.6
2	*5795.00	114.8 PK			4.00 V	325	75.6	39.2
3	*5795.00	105.1 AV			4.00 V	325	65.9	39.2
4	#5928.00	59.3 PK	68.2	-8.9	4.00 V	325	54.0	5.3
5	11590.00	56.5 PK	74.0	-17.5	2.39 V	166	40.0	16.5
6	11590.00	43.6 AV	54.0	-10.4	2.39 V	166	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (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	60.1 PK	74.0	-13.9	1.51 H	242	56.0	4.1
2	5150.00	46.3 AV	54.0	-7.7	1.51 H	242	42.2	4.1
3	*5210.00	96.7 PK			2.10 H	244	58.4	38.3
4	*5210.00	86.9 AV			2.10 H	244	48.6	38.3
5	5350.00	54.7 PK	74.0	-19.3	1.55 H	269	50.8	3.9
6	5350.00	41.7 AV	54.0	-12.3	1.55 H	269	37.8	3.9
7	#10420.00	56.8 PK	68.2	-11.4	1.99 H	168	40.3	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	5150.00	65.3 PK	74.0	-8.7	1.39 V	358	61.2	4.1
2	5150.00	53.4 AV	54.0	-0.6	1.39 V	358	49.3	4.1
3	*5210.00	105.5 PK			1.30 V	311	67.2	38.3
4	*5210.00	95.6 AV			1.30 V	311	57.3	38.3
5	5350.00	55.8 PK	74.0	-18.2	1.46 V	339	51.9	3.9
6	5350.00	43.0 AV	54.0	-11.0	1.46 V	339	39.1	3.9
7	#10420.00	56.7 PK	68.2	-11.5	2.18 V	243	40.2	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5648.00	56.5 PK	68.2	-11.7	3.42 H	20	51.9	4.6
2	#5650.00	59.3 PK	68.2	-8.9	3.45 H	345	54.7	4.6
3	*5775.00	100.1 PK			3.42 H	20	61.0	39.1
4	*5775.00	90.4 AV			3.42 H	20	51.3	39.1
5	#5925.00	56.3 PK	68.2	-11.9	3.66 H	318	51.0	5.3
6	#5979.20	54.7 PK	68.2	-13.5	3.42 H	20	49.4	5.3
7	11550.00	56.3 PK	74.0	-17.7	1.96 H	123	39.6	16.7
8	11550.00	43.1 AV	54.0	-10.9	1.96 H	123	26.4	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	#5645.60	65.1 PK	68.2	-3.1	3.63 V	340	60.5	4.6
2	#5650.00	67.4 PK	68.2	-0.8	3.59 V	332	62.8	4.6
3	*5775.00	109.1 PK			3.63 V	340	70.0	39.1
4	*5775.00	99.4 AV			3.63 V	340	60.3	39.1
5	#5925.00	66.6 PK	68.2	-1.6	3.63 V	332	61.3	5.3
6	#5928.00	63.3 PK	68.2	-4.9	3.63 V	340	58.0	5.3
7	11550.00	56.3 PK	74.0	-17.7	2.83 V	261	39.6	16.7
8	11550.00	43.4 AV	54.0	-10.6	2.83 V	261	26.7	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Mode B

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	54.7 PK	74.0	-19.3	1.48 H	218	50.6	4.1
2	5150.00	44.3 AV	54.0	-9.7	1.48 H	218	40.2	4.1
3	*5180.00	104.1 PK			1.38 H	236	65.6	38.5
4	*5180.00	93.9 AV			1.38 H	236	55.4	38.5
5	#10360.00	56.3 PK	68.2	-11.9	2.37 H	115	39.8	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	5150.00	67.3 PK	74.0	-6.7	1.83 V	224	63.2	4.1
2	5150.00	52.7 AV	54.0	-1.3	1.83 V	224	48.6	4.1
3	*5180.00	117.7 PK			1.72 V	226	79.2	38.5
4	*5180.00	107.3 AV			1.72 V	226	68.8	38.5
5	#10360.00	56.8 PK	68.2	-11.4	1.28 V	336	40.3	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.4 PK	74.0	-18.6	1.52 H	227	51.3	4.1
2	5150.00	44.5 AV	54.0	-9.5	1.52 H	227	40.4	4.1
3	*5200.00	107.3 PK			1.44 H	234	68.9	38.4
4	*5200.00	97.2 AV			1.44 H	234	58.8	38.4
5	#10400.00	56.7 PK	68.2	-11.5	2.43 H	108	40.2	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	5150.00	67.3 PK	74.0	-6.7	1.88 V	233	63.2	4.1
2	5150.00	52.6 AV	54.0	-1.4	1.88 V	233	48.5	4.1
3	*5200.00	120.8 PK			1.65 V	224	82.4	38.4
4	*5200.00	110.6 AV			1.65 V	224	72.2	38.4
5	#10400.00	57.2 PK	68.2	-11.0	1.26 V	341	40.7	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	109.1 PK			1.42 H	242	70.8	38.3
2	*5240.00	98.9 AV			1.42 H	242	60.6	38.3
3	5350.00	54.3 PK	74.0	-19.7	1.52 H	217	50.4	3.9
4	5350.00	43.5 AV	54.0	-10.5	1.52 H	217	39.6	3.9
5	#10480.00	56.9 PK	68.2	-11.3	2.63 H	114	40.6	16.3
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	*5240.00	122.5 PK			1.74 V	223	84.2	38.3
2	*5240.00	112.1 AV			1.74 V	223	73.8	38.3
3	5350.00	56.3 PK	74.0	-17.7	1.82 V	237	52.4	3.9
4	5350.00	45.2 AV	54.0	-8.8	1.82 V	237	41.3	3.9
5	#10480.00	57.5 PK	68.2	-10.7	1.67 V	218	41.2	16.3

REMARKS:

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

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	54.7 PK	74.0	-19.3	1.27 H	214	50.6	4.1
2	5150.00	44.4 AV	54.0	-9.6	1.27 H	214	40.3	4.1
3	*5180.00	103.9 PK			1.37 H	224	65.4	38.5
4	*5180.00	93.7 AV			1.37 H	224	55.2	38.5
5	#10360.00	56.9 PK	68.2	-11.3	2.57 H	116	40.4	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	5150.00	67.8 PK	74.0	-6.2	1.65 V	218	63.7	4.1
2	5150.00	52.8 AV	54.0	-1.2	1.65 V	218	48.7	4.1
3	*5180.00	117.1 PK			1.55 V	191	78.6	38.5
4	*5180.00	107.1 AV			1.55 V	191	68.6	38.5
5	#10360.00	57.3 PK	68.2	-10.9	1.34 V	337	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.3 PK	74.0	-19.7	1.31 H	217	50.2	4.1
2	5150.00	43.8 AV	54.0	-10.2	1.31 H	217	39.7	4.1
3	*5200.00	107.7 PK			1.46 H	228	69.3	38.4
4	*5200.00	97.3 AV			1.46 H	228	58.9	38.4
5	#10400.00	56.7 PK	68.2	-11.5	2.53 H	124	40.2	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	5150.00	68.0 PK	74.0	-6.0	1.64 V	220	63.9	4.1
2	5150.00	52.9 AV	54.0	-1.1	1.64 V	220	48.8	4.1
3	*5200.00	121.0 PK			1.66 V	191	82.6	38.4
4	*5200.00	110.8 AV			1.66 V	191	72.4	38.4
5	#10400.00	57.2 PK	68.2	-11.0	1.35 V	332	40.7	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	108.7 PK			1.52 H	239	70.4	38.3
2	*5240.00	98.4 AV			1.52 H	239	60.1	38.3
3	5350.00	54.0 PK	74.0	-20.0	1.24 H	213	50.1	3.9
4	5350.00	43.6 AV	54.0	-10.4	1.24 H	213	39.7	3.9
5	#10480.00	56.7 PK	68.2	-11.5	2.55 H	104	40.4	16.3
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	*5240.00	122.1 PK			1.61 V	190	83.8	38.3
2	*5240.00	111.8 AV			1.61 V	190	73.5	38.3
3	5350.00	54.7 PK	74.0	-19.3	1.75 V	224	50.8	3.9
4	5350.00	44.2 AV	54.0	-9.8	1.75 V	224	40.3	3.9
5	#10480.00	57.3 PK	68.2	-10.9	1.36 V	332	41.0	16.3

REMARKS:

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

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	54.7 PK	74.0	-19.3	1.21 H	214	50.6	4.1
2	5150.00	44.3 AV	54.0	-9.7	1.21 H	214	40.2	4.1
3	*5190.00	97.8 PK			1.27 H	225	59.4	38.4
4	*5190.00	88.1 AV			1.27 H	225	49.7	38.4
5	#10380.00	56.7 PK	68.2	-11.5	2.53 H	117	40.1	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	64.9 PK	74.0	-9.1	1.56 V	194	60.8	4.1
2	5150.00	52.4 AV	54.0	-1.6	1.56 V	194	48.3	4.1
3	*5190.00	111.0 PK			1.61 V	197	72.6	38.4
4	*5190.00	101.5 AV			1.61 V	197	63.1	38.4
5	#10380.00	57.1 PK	68.2	-11.1	1.21 V	346	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.8 PK	74.0	-19.2	1.31 H	224	50.7	4.1
2	5150.00	44.4 AV	54.0	-9.6	1.31 H	224	40.3	4.1
3	*5230.00	103.3 PK			1.48 H	231	65.1	38.2
4	*5230.00	93.3 AV			1.48 H	231	55.1	38.2
5	5350.00	53.6 PK	74.0	-20.4	1.38 H	242	49.7	3.9
6	5350.00	43.3 AV	54.0	-10.7	1.38 H	242	39.4	3.9
7	#10460.00	56.5 PK	68.2	-11.7	2.64 H	113	40.2	16.3
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	5150.00	69.2 PK	74.0	-4.8	1.56 V	194	65.1	4.1
2	5150.00	53.0 AV	54.0	-1.0	1.56 V	194	48.9	4.1
3	*5230.00	116.2 PK			1.68 V	189	78.0	38.2
4	*5230.00	106.6 AV			1.68 V	189	68.4	38.2
5	5350.00	61.7 PK	74.0	-12.3	1.72 V	183	57.8	3.9
6	5350.00	48.2 AV	54.0	-5.8	1.72 V	183	44.3	3.9
7	#10460.00	57.0 PK	68.2	-11.2	1.35 V	352	40.7	16.3

REMARKS:

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

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	54.5 PK	74.0	-19.5	1.41 H	231	50.4	4.1
2	5150.00	43.9 AV	54.0	-10.1	1.41 H	231	39.8	4.1
3	*5210.00	103.7 PK			1.48 H	238	65.4	38.3
4	*5210.00	84.1 AV			1.48 H	238	45.8	38.3
5	5350.00	54.1 PK	74.0	-19.9	1.36 H	224	50.2	3.9
6	5350.00	43.5 AV	54.0	-10.5	1.36 H	224	39.6	3.9
7	#10420.00	56.3 PK	68.2	-11.9	2.62 H	126	39.8	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	5150.00	64.7 PK	74.0	-9.3	1.55 V	193	60.6	4.1
2	5150.00	52.8 AV	54.0	-1.2	1.55 V	193	48.7	4.1
3	*5210.00	107.0 PK			1.60 V	194	68.7	38.3
4	*5210.00	97.5 AV			1.60 V	194	59.2	38.3
5	5350.00	57.2 PK	74.0	-16.8	1.67 V	184	53.3	3.9
6	5350.00	45.1 AV	54.0	-8.9	1.67 V	184	41.2	3.9
7	#10420.00	56.9 PK	68.2	-11.3	1.37 V	233	40.4	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11a

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	#5620.00	56.5 PK	68.2	-11.7	1.67 H	272	52.0	4.5
2	*5745.00	110.3 PK			1.67 H	272	71.3	39.0
3	*5745.00	99.9 AV			1.67 H	272	60.9	39.0
4	#5978.40	57.2 PK	68.2	-11.0	1.67 H	272	51.9	5.3
5	11490.00	57.4 PK	74.0	-16.6	2.53 H	106	40.6	16.8
6	11490.00	43.2 AV	54.0	-10.8	2.53 H	106	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	#5628.00	55.8 PK	68.2	-12.4	1.60 V	183	51.3	4.5
2	*5745.00	123.9 PK			1.60 V	183	84.9	39.0
3	*5745.00	113.3 AV			1.60 V	183	74.3	39.0
4	#5956.00	55.0 PK	68.2	-13.2	1.60 V	183	49.7	5.3
5	11490.00	58.3 PK	74.0	-15.7	1.36 V	328	41.5	16.8
6	11490.00	44.2 AV	54.0	-9.8	1.36 V	328	27.4	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.00	55.7 PK	68.2	-12.5	1.48 H	265	51.2	4.5
2	*5785.00	110.4 PK			1.48 H	265	71.2	39.2
3	*5785.00	100.0 AV			1.48 H	265	60.8	39.2
4	#5940.00	57.1 PK	68.2	-11.1	1.48 H	265	51.8	5.3
5	11570.00	57.3 PK	74.0	-16.7	2.67 H	125	40.7	16.6
6	11570.00	43.0 AV	54.0	-11.0	2.67 H	125	26.4	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	#5618.40	54.9 PK	68.2	-13.3	1.58 V	186	50.4	4.5
2	*5785.00	123.6 PK			1.58 V	186	84.4	39.2
3	*5785.00	113.4 AV			1.58 V	186	74.2	39.2
4	#5962.40	56.9 PK	68.2	-11.3	1.58 V	186	51.5	5.4
5	11570.00	58.2 PK	74.0	-15.8	1.32 V	327	41.6	16.6
6	11570.00	44.2 AV	54.0	-9.8	1.32 V	327	27.6	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5605.60	57.0 PK	68.2	-11.2	1.46 H	267	52.6	4.4
2	*5825.00	110.2 PK			1.46 H	267	70.8	39.4
3	*5825.00	99.9 AV			1.46 H	267	60.5	39.4
4	#5991.20	57.8 PK	68.2	-10.4	1.46 H	267	52.5	5.3
5	11650.00	57.3 PK	74.0	-16.7	2.56 H	117	40.8	16.5
6	11650.00	43.1 AV	54.0	-10.9	2.56 H	117	26.6	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	#5605.60	54.9 PK	68.2	-13.3	1.55 V	183	50.5	4.4
2	*5825.00	123.6 PK			1.55 V	183	84.2	39.4
3	*5825.00	113.2 AV			1.55 V	183	73.8	39.4
4	#5991.20	55.0 PK	68.2	-13.2	1.55 V	183	49.7	5.3
5	11650.00	57.9 PK	74.0	-16.1	1.43 V	312	41.4	16.5
6	11650.00	44.0 AV	54.0	-10.0	1.43 V	312	27.5	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT20)

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	#5620.80	55.4 PK	68.2	-12.8	1.54 H	268	50.9	4.5
2	*5745.00	109.6 PK			1.54 H	268	70.6	39.0
3	*5745.00	99.3 AV			1.54 H	268	60.3	39.0
4	#5976.00	57.1 PK	68.2	-11.1	1.54 H	268	51.8	5.3
5	11490.00	57.5 PK	74.0	-16.5	2.56 H	113	40.7	16.8
6	11490.00	43.3 AV	54.0	-10.7	2.56 H	113	26.5	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	#5641.60	54.7 PK	68.2	-13.5	1.62 V	188	50.1	4.6
2	*5745.00	123.1 PK			1.62 V	188	84.1	39.0
3	*5745.00	112.7 AV			1.62 V	188	73.7	39.0
4	#5976.80	55.8 PK	68.2	-12.4	1.62 V	188	50.5	5.3
5	11490.00	58.1 PK	74.0	-15.9	1.46 V	326	41.3	16.8
6	11490.00	44.1 AV	54.0	-9.9	1.46 V	326	27.3	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5613.60	55.7 PK	68.2	-12.5	1.59 H	270	51.2	4.5
2	*5785.00	110.0 PK			1.59 H	270	70.8	39.2
3	*5785.00	99.6 AV			1.59 H	270	60.4	39.2
4	#5961.60	57.2 PK	68.2	-11.0	1.59 H	270	51.8	5.4
5	11570.00	57.4 PK	74.0	-16.6	2.63 H	124	40.8	16.6
6	11570.00	43.3 AV	54.0	-10.7	2.63 H	124	26.7	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	#5637.60	54.3 PK	68.2	-13.9	1.63 V	192	49.7	4.6
2	*5785.00	123.5 PK			1.63 V	192	84.3	39.2
3	*5785.00	113.0 AV			1.63 V	192	73.8	39.2
4	#5966.40	56.8 PK	68.2	-11.4	1.63 V	192	51.4	5.4
5	11570.00	58.3 PK	74.0	-15.7	1.53 V	334	41.7	16.6
6	11570.00	44.0 AV	54.0	-10.0	1.53 V	334	27.4	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5609.60	55.8 PK	68.2	-12.4	1.57 H	265	51.4	4.4
2	*5825.00	109.7 PK			1.57 H	265	70.3	39.4
3	*5825.00	99.3 AV			1.57 H	265	59.9	39.4
4	#5937.60	58.0 PK	68.2	-10.2	1.57 H	265	52.7	5.3
5	11650.00	57.2 PK	74.0	-16.8	2.59 H	126	40.7	16.5
6	11650.00	43.2 AV	54.0	-10.8	2.59 H	126	26.7	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	#5623.20	56.0 PK	68.2	-12.2	1.65 V	190	51.5	4.5
2	*5825.00	123.1 PK			1.65 V	190	83.7	39.4
3	*5825.00	112.7 AV			1.65 V	190	73.3	39.4
4	#5986.40	54.5 PK	68.2	-13.7	1.65 V	190	49.2	5.3
5	11650.00	57.8 PK	74.0	-16.2	1.37 V	335	41.3	16.5
6	11650.00	43.5 AV	54.0	-10.5	1.37 V	335	27.0	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT40)

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	#5603.20	55.9 PK	68.2	-12.3	1.54 H	267	51.5	4.4
2	*5755.00	106.5 PK			1.54 H	267	67.4	39.1
3	*5755.00	96.0 AV			1.54 H	267	56.9	39.1
4	#5996.80	57.7 PK	68.2	-10.5	1.54 H	267	52.4	5.3
5	11510.00	57.4 PK	74.0	-16.6	2.68 H	119	40.6	16.8
6	11510.00	43.5 AV	54.0	-10.5	2.68 H	119	26.7	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	#5647.20	61.1 PK	68.2	-7.1	1.67 V	218	56.5	4.6
2	*5755.00	119.8 PK			1.67 V	218	80.7	39.1
3	*5755.00	109.5 AV			1.67 V	218	70.4	39.1
4	#5999.20	56.9 PK	68.2	-11.3	1.67 V	218	51.6	5.3
5	11510.00	58.0 PK	74.0	-16.0	1.36 V	335	41.2	16.8
6	11510.00	44.0 AV	54.0	-10.0	1.36 V	335	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5637.60	55.6 PK	68.2	-12.6	1.54 H	261	51.0	4.6
2	*5795.00	106.4 PK			1.54 H	261	67.2	39.2
3	*5795.00	96.0 AV			1.54 H	261	56.8	39.2
4	#5964.80	56.1 PK	68.2	-12.1	1.54 H	261	50.7	5.4
5	11590.00	56.8 PK	74.0	-17.2	2.77 H	126	40.3	16.5
6	11590.00	42.9 AV	54.0	-11.1	2.77 H	126	26.4	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	#5648.00	56.2 PK	68.2	-12.0	1.64 V	220	51.6	4.6
2	*5795.00	119.8 PK			1.64 V	220	80.6	39.2
3	*5795.00	109.4 AV			1.64 V	220	70.2	39.2
4	#5930.40	58.3 PK	68.2	-9.9	1.64 V	220	53.0	5.3
5	11590.00	57.5 PK	74.0	-16.5	1.42 V	329	41.0	16.5
6	11590.00	43.6 AV	54.0	-10.4	1.42 V	329	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT80)

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	#5628.00	55.8 PK	68.2	-12.4	1.52 H	264	51.3	4.5
2	#5650.00	56.8 PK	68.2	-11.4	1.62 H	257	52.2	4.6
3	*5775.00	101.3 PK			1.52 H	264	62.2	39.1
4	*5775.00	90.9 AV			1.52 H	264	51.8	39.1
5	#5925.00	57.9 PK	68.2	-10.3	1.49 H	261	52.6	5.3
6	#5983.20	56.8 PK	68.2	-11.4	1.52 H	264	51.5	5.3
7	11550.00	56.9 PK	74.0	-17.1	2.76 H	123	40.2	16.7
8	11550.00	43.1 AV	54.0	-10.9	2.76 H	123	26.4	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	#5648.00	66.2 PK	68.2	-2.0	1.53 V	187	61.6	4.6
2	#5650.00	67.0 PK	68.2	-1.2	1.57 V	192	62.4	4.6
3	*5775.00	114.4 PK			1.53 V	187	75.3	39.1
4	*5775.00	104.2 AV			1.53 V	187	65.1	39.1
5	#5925.00	65.8 PK	68.2	-2.4	1.64 V	179	60.5	5.3
6	#5933.60	64.9 PK	68.2	-3.3	1.53 V	187	59.6	5.3
7	11550.00	57.5 PK	74.0	-16.5	1.44 V	318	40.8	16.7
8	11550.00	43.6 AV	54.0	-10.4	1.44 V	318	26.9	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

9 kHz ~ 30 MHz Data:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

Mode A

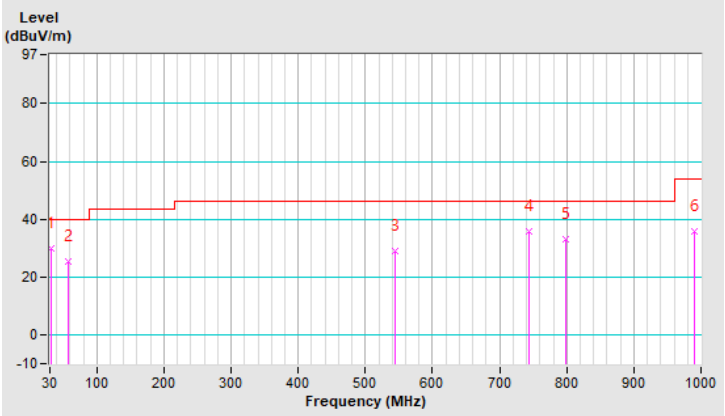
802.11n (HT20)

CHANNEL	TX Channel 40	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	31.94	29.9 QP	40.0	-10.1	1.00 H	5	41.3	-11.4
2	58.13	25.2 QP	40.0	-14.8	1.00 H	205	35.3	-10.1
3	545.07	29.0 QP	46.0	-17.0	1.00 H	317	31.9	-2.9
4	742.95	36.0 QP	46.0	-10.0	1.50 H	10	35.6	0.4
5	799.21	33.2 QP	46.0	-12.8	1.00 H	111	31.7	1.5
6	990.27	35.8 QP	54.0	-18.2	2.00 H	19	30.9	4.9

REMARKS:

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

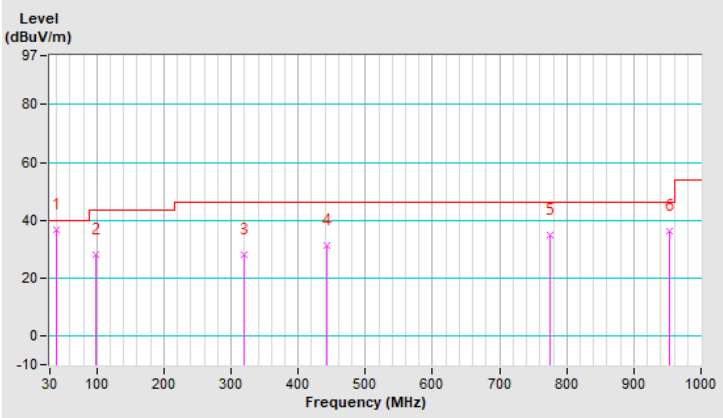


CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	39.67	36.5 QP	40.0	-3.5	1.00 V	288	47.1	-10.6
2	97.90	28.0 QP	43.5	-15.5	1.00 V	87	42.2	-14.2
3	320.03	28.1 QP	46.0	-17.9	1.00 V	94	35.6	-7.5
4	442.25	31.4 QP	46.0	-14.6	1.50 V	109	36.0	-4.6
5	774.96	35.0 QP	46.0	-11.0	1.00 V	8	33.7	1.3
6	952.47	36.3 QP	46.0	-9.7	2.00 V	308	31.8	4.5

REMARKS:

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



Mode B

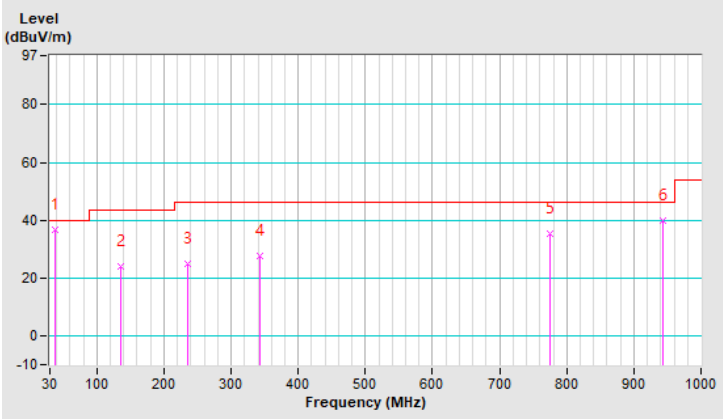
802.11n (HT40)

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.76	36.7 QP	40.0	-3.3	1.25 H	89	47.4	-10.7
2	135.73	24.0 QP	43.5	-19.5	1.25 H	264	34.1	-10.1
3	234.67	24.8 QP	46.0	-21.2	1.00 H	209	35.8	-11.0
4	343.31	27.7 QP	46.0	-18.3	1.00 H	217	34.8	-7.1
5	775.93	35.3 QP	46.0	-10.7	1.50 H	317	33.9	1.4
6	943.74	39.8 QP	46.0	-6.2	1.00 H	52	35.5	4.3

REMARKS:

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

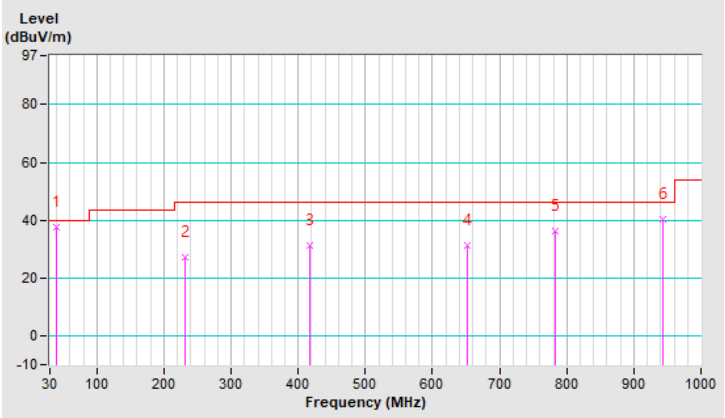


CHANNEL	TX Channel 46	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	40.67	37.5 QP	40.0	-2.5	1.00 V	283	47.8	-10.3
2	231.76	27.4 QP	46.0	-18.6	1.25 V	249	38.9	-11.5
3	418.00	31.3 QP	46.0	-14.7	1.00 V	262	36.8	-5.5
4	651.77	31.4 QP	46.0	-14.6	1.50 V	227	32.5	-1.1
5	783.69	36.1 QP	46.0	-9.9	1.00 V	324	34.6	1.5
6	943.74	40.4 QP	46.0	-5.6	1.25 V	24	36.1	4.3

REMARKS:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 14, 2018	Dec. 13, 2019
			Dec. 11, 2019	Dec. 10, 2020
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Mar. 06, 2019	Mar. 05, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 22, 2019	Aug. 21, 2020
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

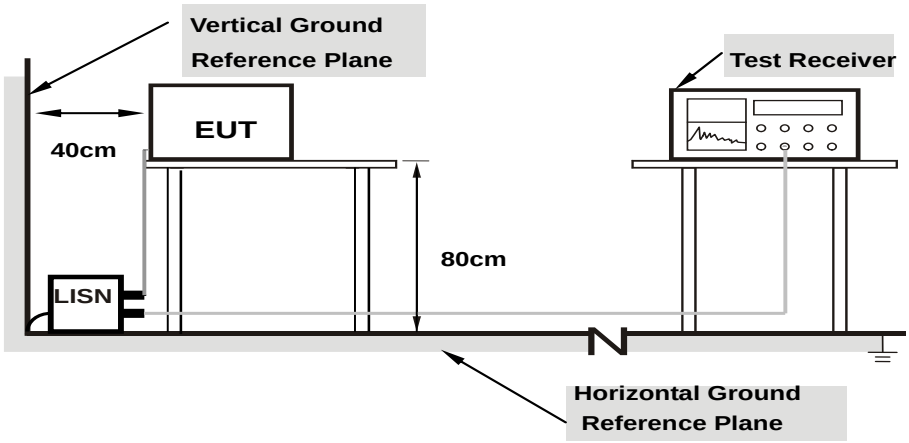
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit -20 dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT Operating Conditions

a. Placed the EUT on a testing table.
b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

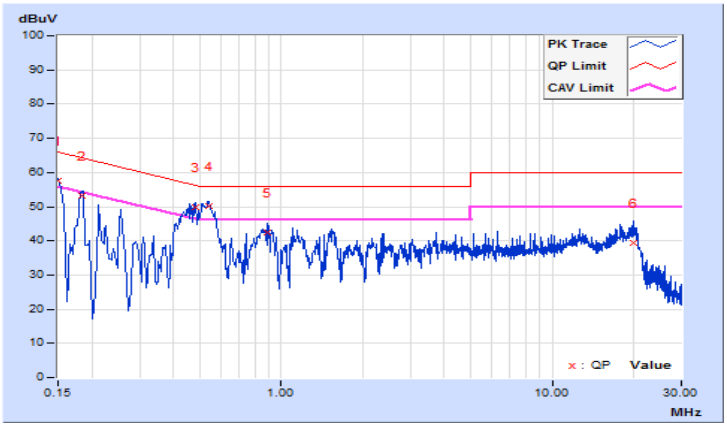
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Jones Chang	Test Date	2020/1/7
Test Mode	Mode A		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.67	47.75	34.47	57.42	44.14	66.00	56.00	-8.58	-11.86
2	0.18363	9.66	43.44	33.29	53.10	42.95	64.32	54.32	-11.22	-11.37
3	0.48168	9.70	40.16	31.66	49.86	41.36	56.31	46.31	-6.45	-4.95
4	0.54100	9.70	40.41	30.45	50.11	40.15	56.00	46.00	-5.89	-5.85
5	0.89290	9.72	32.58	22.48	42.30	32.20	56.00	46.00	-13.70	-13.80
6	20.06363	9.98	29.35	23.73	39.33	33.71	60.00	50.00	-20.67	-16.29

Remarks:

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

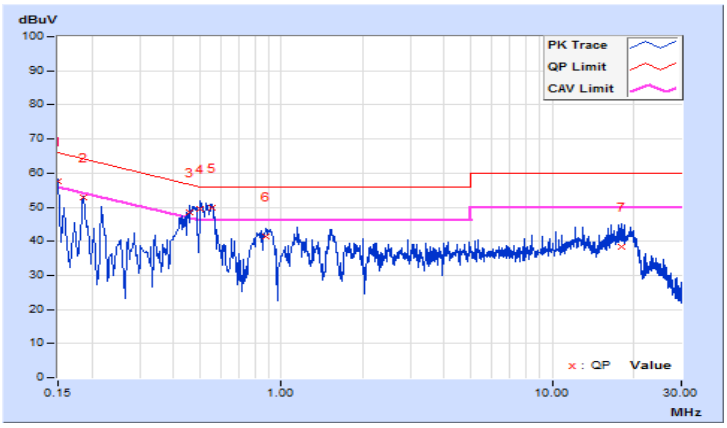


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Jones Chang	Test Date	2020/1/7
Test Mode	Mode A		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.64	48.04	34.92	57.68	44.56	66.00	56.00	-8.32	-11.44
2	0.18519	9.64	43.18	32.36	52.82	42.00	64.25	54.25	-11.43	-12.25
3	0.45889	9.66	38.79	26.38	48.45	36.04	56.71	46.71	-8.26	-10.67
4	0.50190	9.67	39.79	28.78	49.46	38.45	56.00	46.00	-6.54	-7.55
5	0.55533	9.67	40.29	31.92	49.96	41.59	56.00	46.00	-6.04	-4.41
6	0.88117	9.69	31.89	23.02	41.58	32.71	56.00	46.00	-14.42	-13.29
7	17.93268	10.03	28.20	22.41	38.23	32.44	60.00	50.00	-21.77	-17.56

Remarks:

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

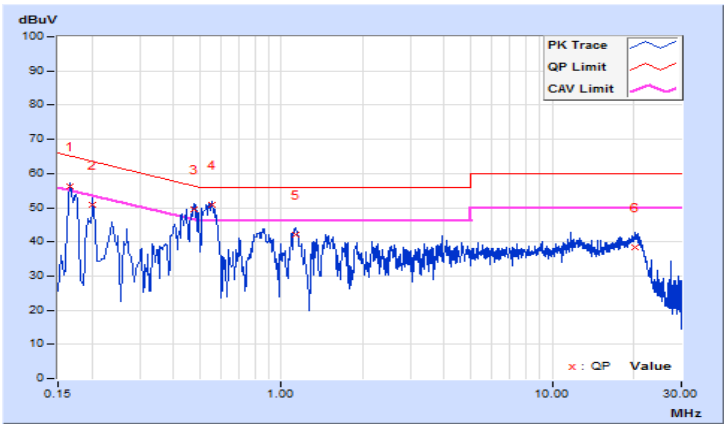


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Noah Chang	Test Date	2019/12/2
Test Mode	Mode B		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16600	9.67	46.48	35.46	56.15	45.13	65.16	55.16	-9.01	-10.03
2	0.20200	9.66	41.09	31.10	50.75	40.76	63.53	53.53	-12.78	-12.77
3	0.47800	9.70	39.96	30.02	49.66	39.72	56.37	46.37	-6.71	-6.65
4	**0.55557**	**9.70**	**41.25**	**33.10**	**50.95**	**42.80**	**56.00**	**46.00**	**-5.05**	**-3.20**
5	1.13800	9.74	32.31	24.22	42.05	33.96	56.00	46.00	-13.95	-12.04
6	20.20200	9.98	28.47	23.31	38.45	33.29	60.00	50.00	-21.55	-16.71

Remarks:

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

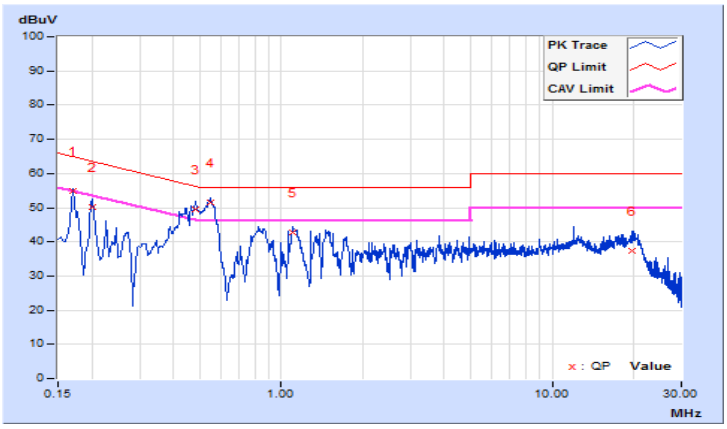


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Noah Chang	Test Date	2019/12/2
Test Mode	Mode B		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17000	9.64	45.10	33.48	54.74	43.12	64.96	54.96	-10.22	-11.84
2	0.20148	9.64	40.56	30.65	50.20	40.29	63.55	53.55	-13.35	-13.26
3	0.48200	9.67	39.78	30.14	49.45	39.81	56.30	46.30	-6.85	-6.49
4	0.54600	9.67	41.80	32.54	51.47	42.21	56.00	46.00	-4.53	-3.79
5	1.10600	9.71	33.04	24.57	42.75	34.28	56.00	46.00	-13.25	-11.72
6	19.73400	10.05	27.19	22.20	37.24	32.25	60.00	50.00	-22.76	-17.75

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

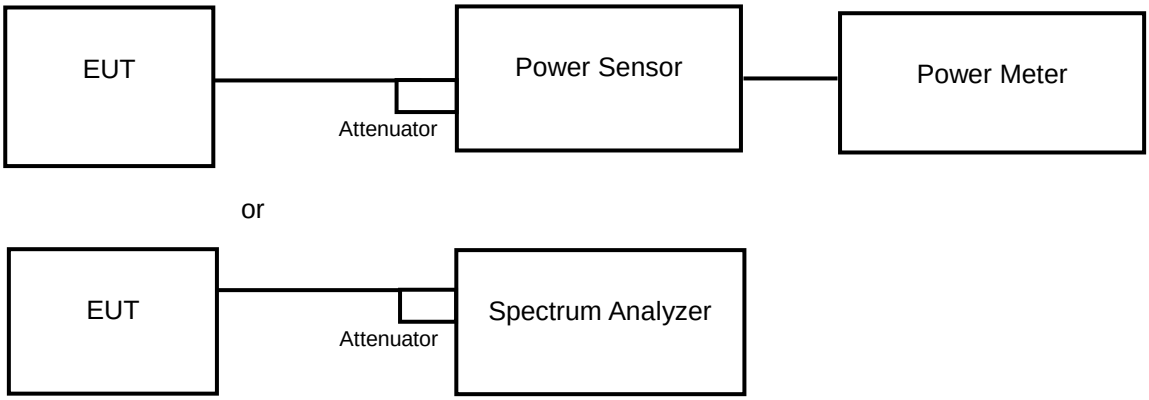
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

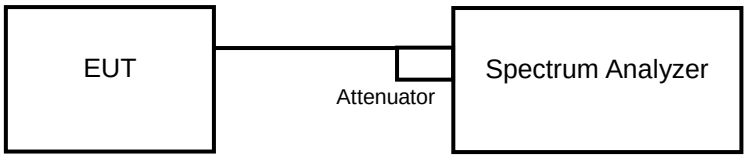
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

<Power Output Measurement>



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

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

26 dB Bandwidth

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

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

CCD Mode

802.11a

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Ant. Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
36	5180	12.69	13.34	40.155	16.04	30.00	4.54	20.58	21.00	Pass
40	5200	12.84	13.61	42.192	16.25	30.00	4.54	20.79	21.00	Pass
48	5240	12.66	13.53	40.992	16.13	30.00	4.54	20.67	21.00	Pass

Note:
1. Antenna gain = 4.8dBi < 6dBi, so the limit no need to be reduced.
2. Antenna gain = 4.54dBi (above 30 degrees from the horizon).
3. EIRP = conducted power + (4.54dBi) + array gain = (0 dB (i.e., no array gain) for $N_{ANT} \leq 4$).

802.11n (HT20)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Ant. Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
36	5180	12.91	13.15	40.197	16.04	30.00	4.54	20.58	21.00	Pass
40	5200	12.92	13.60	42.497	16.28	30.00	4.54	20.82	21.00	Pass
48	5240	12.77	13.48	41.207	16.15	30.00	4.54	20.69	21.00	Pass

Note:
1. Antenna gain = 4.8dBi < 6dBi, so the limit no need to be reduced.
2. Antenna gain = 4.54dBi (above 30 degrees from the horizon).
3. EIRP = conducted power + (4.54dBi) + array gain = (0 dB (i.e., no array gain) for $N_{ANT} \leq 4$).

802.11n (HT40)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Ant. Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
38	5190	12.95	13.55	42.37	16.27	30.00	4.54	20.81	21.00	Pass
46	5230	12.74	13.71	42.289	16.26	30.00	4.54	20.80	21.00	Pass

Note:
1. Antenna gain = 4.8dBi < 6dBi, so the limit no need to be reduced.
2. Antenna gain = 4.54dBi (above 30 degrees from the horizon).
3. EIRP = conducted power + (4.54dBi) + array gain = (0 dB (i.e., no array gain) for $N_{ANT} \leq 4$).

802.11ac (VHT80)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Ant. Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
42	5210	12.95	13.17	40.473	16.07	30.00	4.54	20.61	21.00	Pass

Note:
1. Antenna gain = 4.8dBi < 6dBi, so the limit no need to be reduced.
2. Antenna gain = 4.54dBi (above 30 degrees from the horizon).
3. EIRP = conducted power + (4.54dBi) + array gain = (0 dB (i.e., no array gain) for $N_{ANT} \leq 4$).

Beamforming Mode

802.11n (HT20)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Ant. Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
36	5180	9.90	10.14	20.1	13.03	28.29	7.55	20.58	21.00	Pass
40	5200	9.91	10.59	21.25	13.27	28.29	7.55	20.82	21.00	Pass
48	5240	9.76	10.47	20.605	13.14	28.29	7.55	20.69	21.00	Pass

Note:
1. Antenna gain = 7.71dBi < 6dBi, so the power limit shall be reduced to 30-(7.71-6) = 28.29dBm.
2. Antenna gain = 7.55dBi (above 30 degrees from the horizon).
3. EIRP = conducted power + (7.55dBi) + array gain = (0 dB (i.e., no array gain) for $N_{ANT} \leq 4$).

802.11n (HT40)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Ant. Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
38	5190	9.94	10.54	21.187	13.26	28.29	7.55	20.81	21.00	Pass
46	5230	9.73	10.70	21.146	13.25	28.29	7.55	20.80	21.00	Pass

Note:
1. Antenna gain = 7.71dBi < 6dBi, so the power limit shall be reduced to 30-(7.71-6) = 28.29dBm.
2. Antenna gain = 7.55dBi (above 30 degrees from the horizon).
3. EIRP = conducted power + (7.55dBi) + array gain = (0 dB (i.e., no array gain) for $N_{ANT} \leq 4$).

802.11ac (VHT80)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Ant. Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
42	5210	9.94	10.16	20.238	13.06	28.29	7.55	20.61	21.00	Pass

Note:
1. Antenna gain = 7.71dBi < 6dBi, so the power limit shall be reduced to 30-(7.71-6) = 28.29dBm.
2. Antenna gain = 7.55dBi (above 30 degrees from the horizon).
3. EIRP = conducted power + (7.55dBi) + array gain = (0 dB (i.e., no array gain) for $N_{ANT} \leq 4$).

For U-NII-1 band (Indoor Access Point):

CCD 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	17.13	17.18	103.882	20.17	30.00	Pass
40	5200	20.76	21.19	250.646	23.99	30.00	Pass
48	5240	22.83	22.98	390.476	25.92	30.00	Pass

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	16.67	16.54	91.534	19.62	30.00	Pass
40	5200	20.80	21.30	255.122	24.07	30.00	Pass
48	5240	22.71	22.83	378.505	25.78	30.00	Pass

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	13.86	13.99	49.383	16.94	30.00	Pass
46	5230	19.06	19.42	168.036	22.25	30.00	Pass

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	12.95	13.17	40.473	16.07	30.00	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	13.66	13.53	45.769	16.61	28.29	Pass
40	5200	17.79	18.29	127.57	21.06	28.29	Pass
48	5240	19.70	19.82	189.265	22.77	28.29	Pass

Note: Beamforming gain = 7.71dBi > 6dBi , so the power limit shall be reduced to 30-(7.71-6) = 28.29dBm.

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	10.85	10.98	24.693	13.93	28.29	Pass
46	5230	16.05	16.41	84.024	19.24	28.29	Pass

Note: Beamforming gain = 7.71dBi > 6dBi , so the power limit shall be reduced to 30-(7.71-6) = 28.29dBm.

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	9.94	10.16	20.238	13.06	28.29	Pass

Note: Beamforming gain = 7.71dBi > 6dBi , so the power limit shall be reduced to 30-(7.71-6) = 28.29dBm.

For U-NII-3 band:

CCD 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				
149	5745	22.72	22.26	355.335	25.51	30.00	Pass
157	5785	22.79	22.31	360.324	25.57	30.00	Pass
165	5825	22.74	22.64	371.586	25.70	30.00	Pass

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				
149	5745	22.68	22.37	357.937	25.54	30.00	Pass
157	5785	22.73	22.24	354.993	25.50	30.00	Pass
165	5825	22.77	22.40	363.014	25.60	30.00	Pass

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				
151	5755	22.81	22.45	366.777	25.64	30.00	Pass
159	5795	22.77	22.42	363.816	25.61	30.00	Pass

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				
155	5775	17.54	17.11	108.158	20.34	30.00	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	19.67	19.36	178.981	22.53	28.44	Pass
157	5785	19.72	19.23	177.509	22.49	28.44	Pass
165	5825	19.76	19.39	181.52	22.59	28.44	Pass

Note: Beamforming gain = 7.56dBi > 6dBi , so the power limit shall be reduced to 30-(7.56-6) = 28.44dBm.

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				
151	5755	19.80	19.44	183.401	22.63	28.44	Pass
159	5795	19.76	19.41	181.921	22.60	28.44	Pass

Note: Beamforming gain = 7.56dBi > 6dBi , so the power limit shall be reduced to 30-(7.56-6) = 28.44dBm.

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				
155	5775	14.53	14.10	54.083	17.33	28.44	Pass

Note: Beamforming gain = 7.56dBi > 6dBi , so the power limit shall be reduced to 30-(7.56-6) = 28.44dBm.

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	19.24	19.46
40	5200	22.76	20.77
48	5240	34.62	34.49

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	20.36	20.31
40	5200	22.79	20.75
48	5240	39.56	33.58

802.11n (HT40)

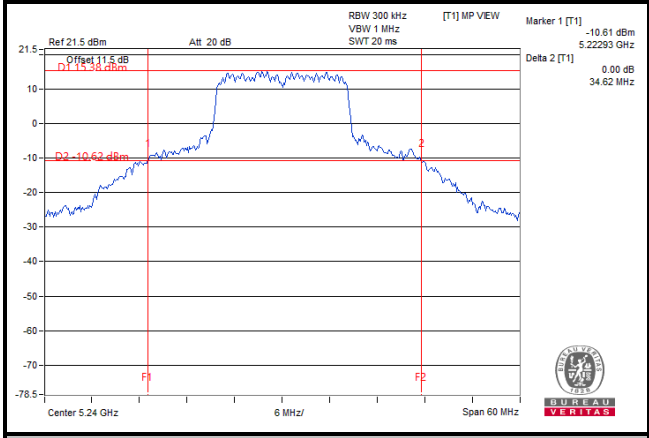
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	40.79	40.67
46	5230	41.09	40.85

802.11ac (VHT80)

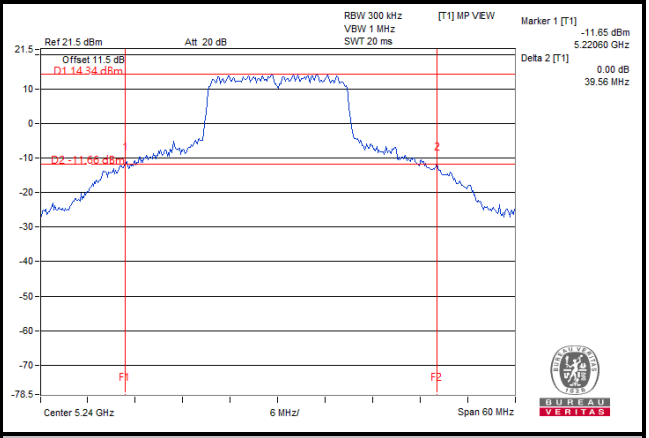
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	83.88	83.77

Spectrum Plot of Worst Value

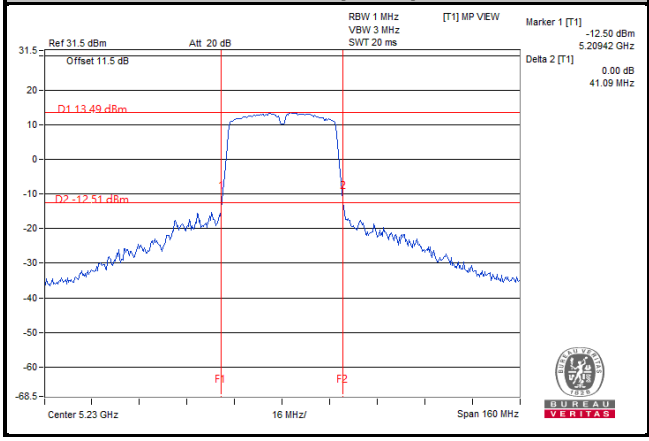
802.11a



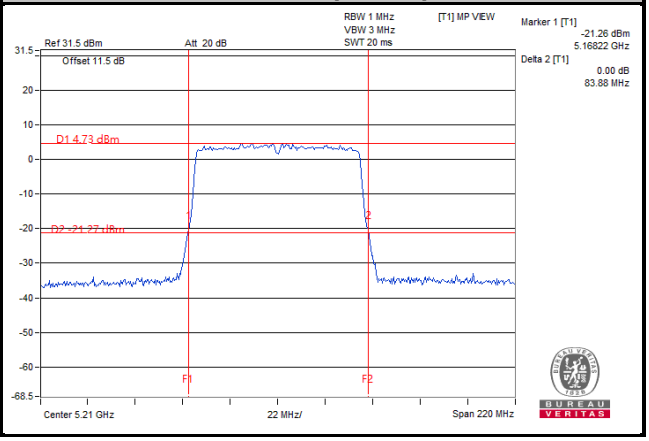
802.11n (HT20)



802.11n (HT40)

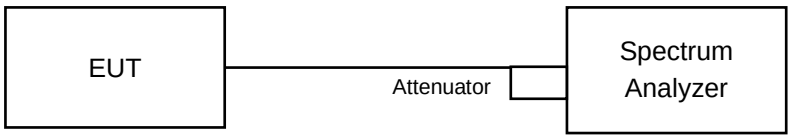


802.11ac (VHT80)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Result

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.44	16.44
40	5200	16.44	16.68
48	5240	18.12	17.16
149	5745	25.48	28.46
157	5785	28.65	30.67
165	5825	29.76	31.20

802.11n (HT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.64	17.64
40	5200	17.64	17.64
48	5240	18.84	18.12
149	5745	26.16	27.12
157	5785	29.14	30.29
165	5825	30.20	31.15

802.11n (HT40)

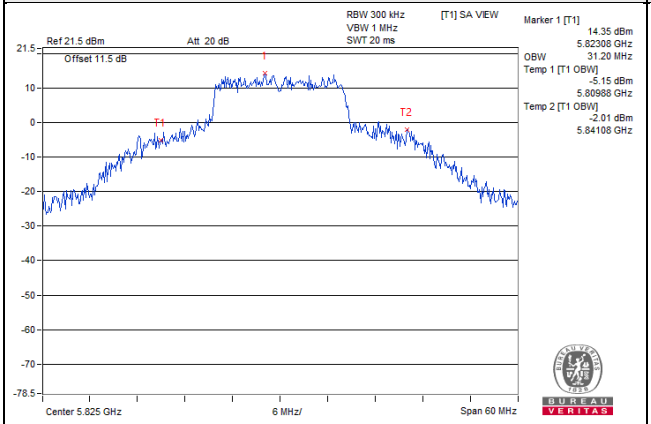
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.24	36.00
46	5230	36.00	36.00
151	5755	38.76	46.80
159	5795	39.00	47.52

802.11ac (VHT80)

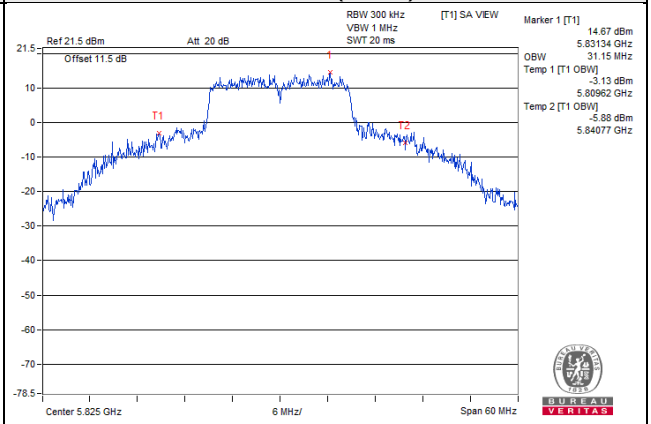
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.84	75.84
155	5775	75.96	75.76

Spectrum Plot of Worst Value

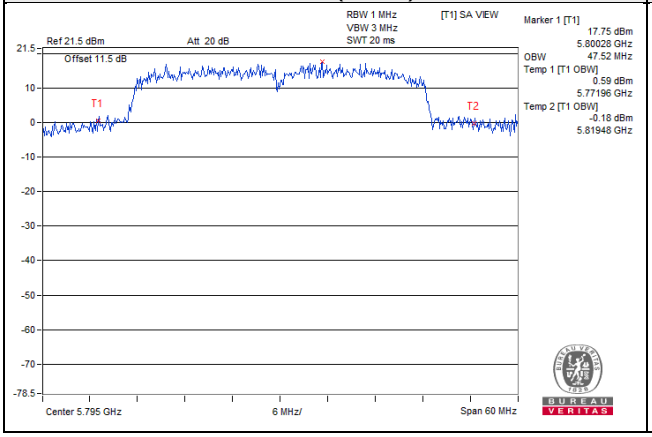
802.11a



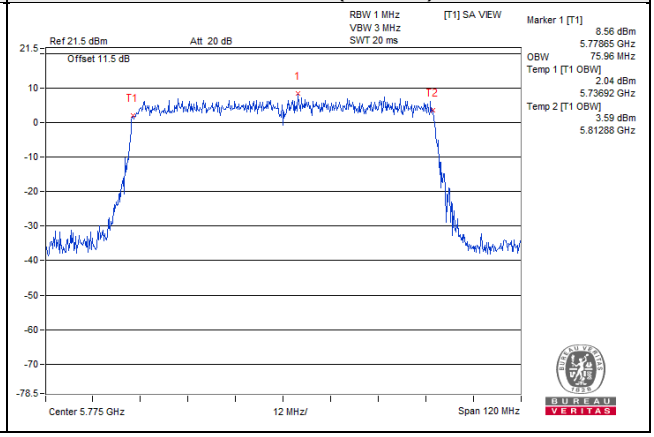
802.11n (HT20)



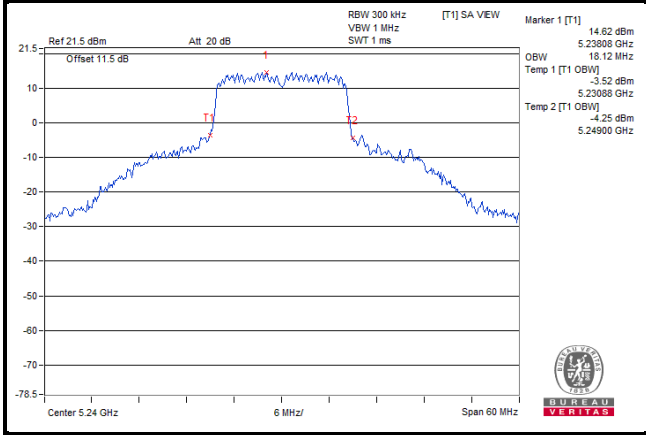
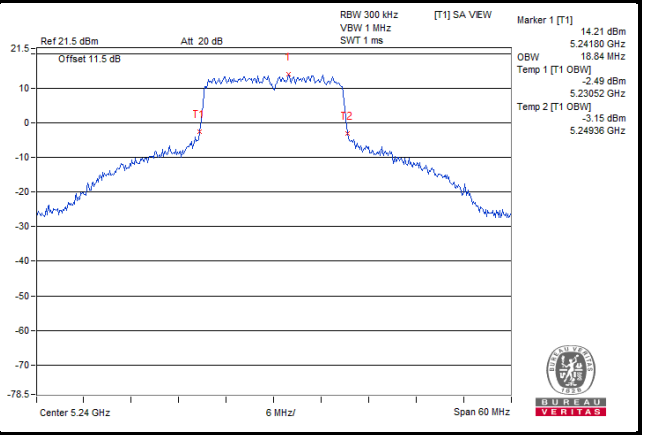
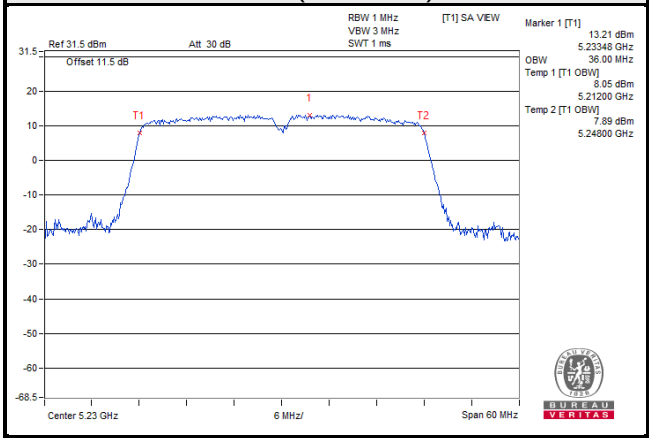
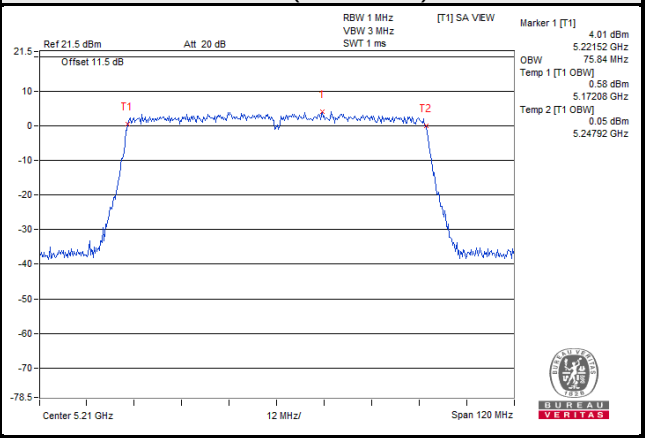
802.11n (HT40)



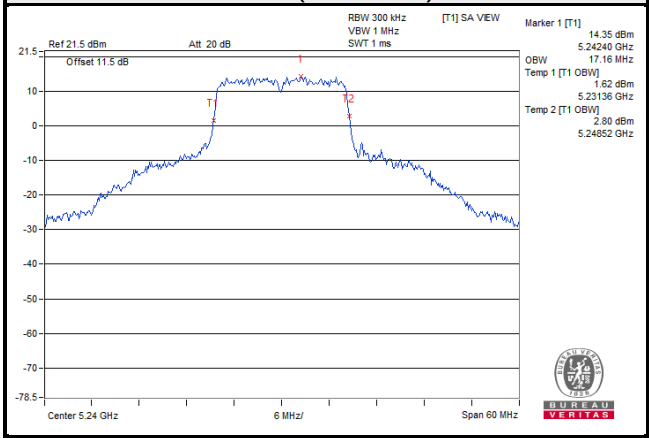
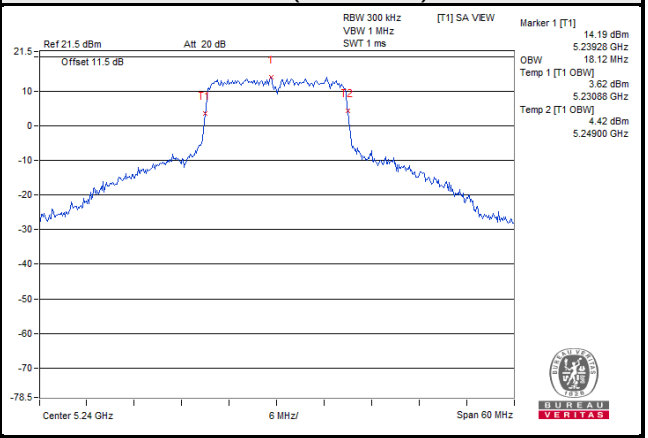
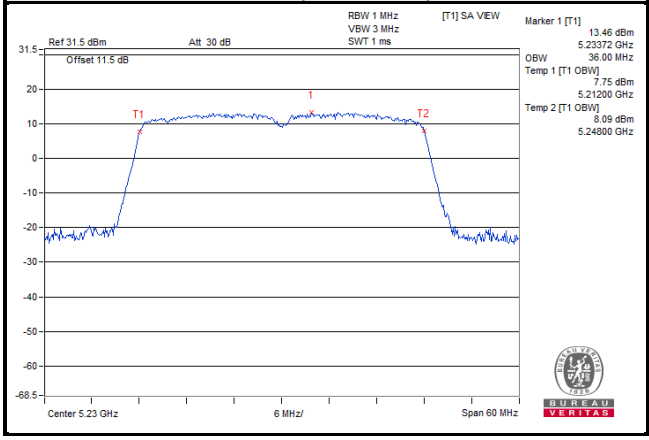
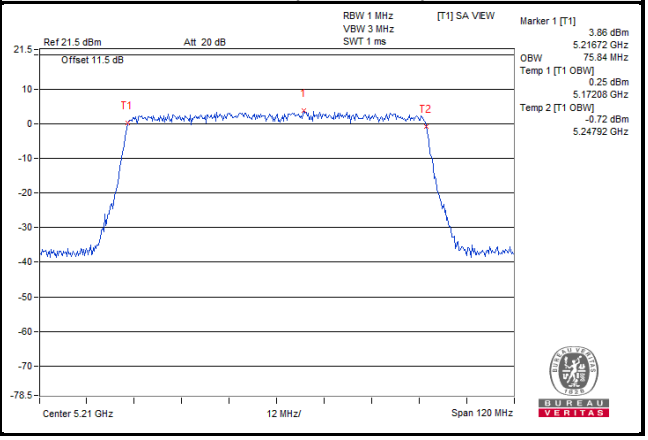
802.11ac (VHT80)



Chain 0

Spectrum Plot for Nearby DFS Band	
802.11a	802.11n (HT20)
Ch 48 (5240 MHz)	Ch 48 (5240 MHz)
	
802.11n (HT40)	802.11ac (VHT80)
Ch 46 (5230 MHz)	Ch 42 (5210 MHz)
	

Chain 1

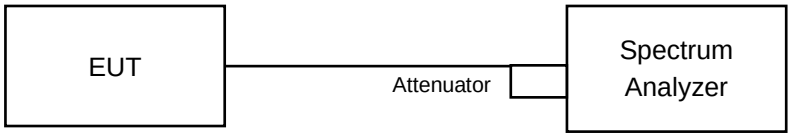
Spectrum Plot for Nearby DFS Band	
802.11a	802.11n (HT20)
Ch 48 (5240 MHz)	Ch 48 (5240 MHz)
	
802.11n (HT40)	802.11ac (VHT80)
Ch 46 (5230 MHz)	Ch 42 (5210 MHz)
	

4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1 band:

Duty cycle of test signal is > 98%

Using method SA-1

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

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

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

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

e. Record the max value

Duty cycle of test signal is < 98%

Using method SA-2

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

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

c. Set Channel power measure = 1MHz

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

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

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

For U-NII-3 band:

Duty cycle of test signal is > 98%

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

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

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

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

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

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

g. Record the max value

Duty cycle of test signal is < 98%

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

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

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

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

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

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

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For U-NII-1 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				
36	5180	4.34	4.42	0.17	7.56	15.29	Pass
40	5200	8.15	8.38	0.17	11.45	15.29	Pass
48	5240	9.72	10.07	0.17	13.08	15.29	Pass

Note:
1. Method E) 2) 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[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/2$] = 7.71dBi > 6dBi so the power density limit shall be reduced to 17-(7.71-6) = 15.29dBi.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	3.70	3.56	6.64	15.29	Pass
40	5200	7.96	7.91	10.95	15.29	Pass
48	5240	9.65	9.52	12.60	15.29	Pass

Note:
1. Method E) 2) 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[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/2$] = 7.71dBi > 6dBi so the power density limit shall be reduced to 17-(7.71-6) = 15.29dBi.

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	-2.00	-1.89	0.17	1.24	15.29	Pass
46	5230	3.46	3.46	0.17	6.64	15.29	Pass

Note:
1. Method E) 2) 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[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/2$] = 7.71dBi > 6dBi so the power density limit shall be reduced to 17-(7.71-6) = 15.29dBi.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

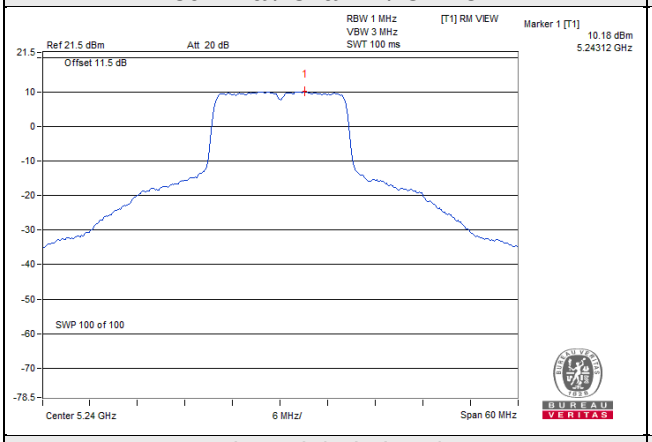
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-6.43	-6.29	0.17	-3.06	15.29	Pass

Note:

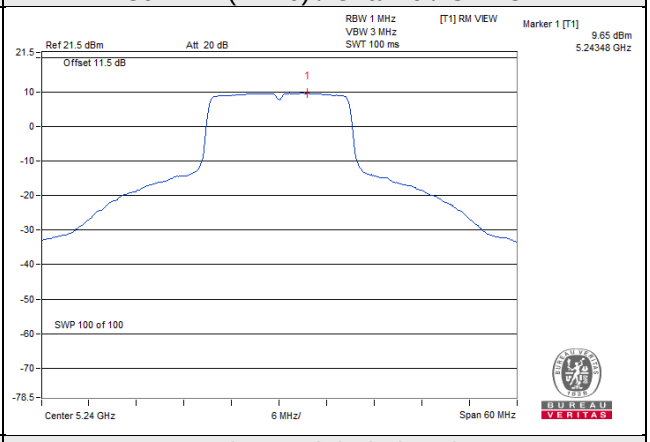
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/2$] = 7.71dBi > 6dBi so the power density limit shall be reduced to 17-(7.71-6) = 15.29dBi.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

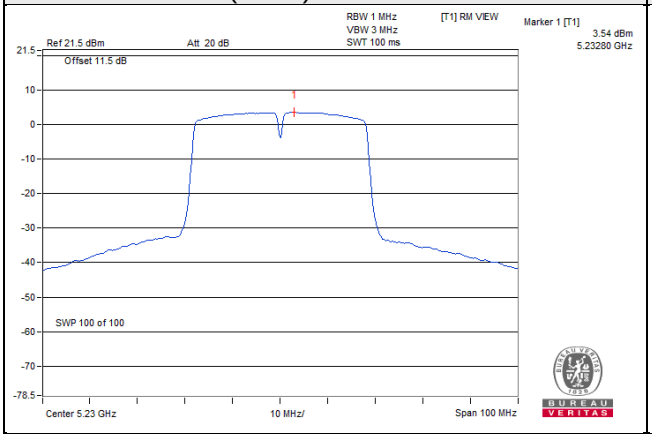
802.11a / Chain 1 / CH 48



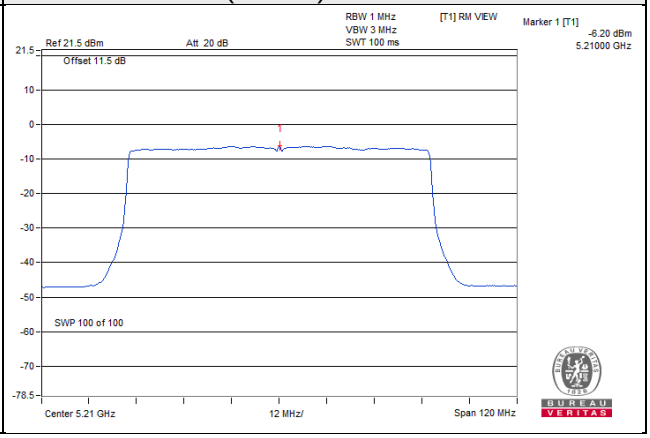
802.11n (HT20) / Chain 0 / CH 48



802.11n (HT40) / Chain 0 / CH 46



802.11ac (VHT80) / Chain 1 / CH 42



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/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	1.93	4.15	3.01	0.17	7.33	28.44	Pass
	157	5785	1.74	3.96	3.01	0.17	7.14	28.44	Pass
	165	5825	1.60	3.82	3.01	0.17	7.00	28.44	Pass
1	149	5745	1.81	4.03	3.01	0.17	7.21	28.44	Pass
	157	5785	1.74	3.96	3.01	0.17	7.14	28.44	Pass
	165	5825	1.30	3.52	3.01	0.17	6.70	28.44	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/2$] = 7.56dBi > 6dBi so the power density limit shall be reduced to 30-(7.56-6)=28.44dBi.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	1.87	4.09	3.01	7.10	28.44	Pass
	157	5785	1.94	4.16	3.01	7.17	28.44	Pass
	165	5825	1.56	3.78	3.01	6.79	28.44	Pass
1	149	5745	1.93	4.15	3.01	7.16	28.44	Pass
	157	5785	1.88	4.10	3.01	7.11	28.44	Pass
	165	5825	1.23	3.45	3.01	6.46	28.44	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/2$] = 7.56dBi > 6dBi so the power density limit shall be reduced to 30-(7.56-6)=28.44dBi.

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	-1.48	0.74	3.01	0.17	3.92	28.44	Pass
	159	5795	-1.10	1.12	3.01	0.17	4.30	28.44	Pass
1	151	5755	-0.75	1.47	3.01	0.17	4.65	28.44	Pass
	159	5795	-1.30	0.92	3.01	0.17	4.10	28.44	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/2$] = 7.56dBi > 6dBi so the power density limit shall be reduced to 30-(7.56-6)=28.44dBi.
3. Refer to section 3.3 for duty cycle spectrum plot.

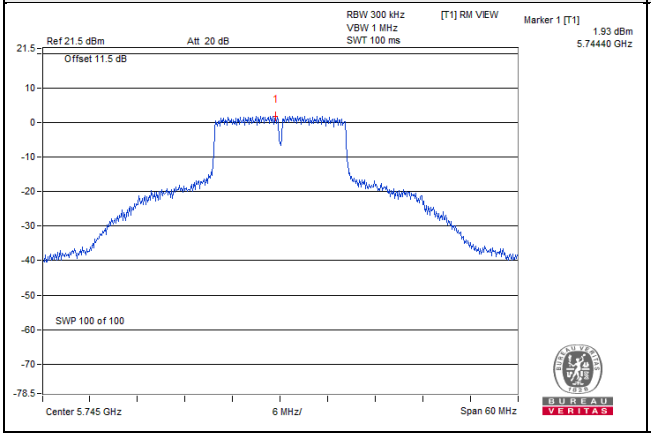
802.11ac (VHT80)

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	-11.54	-9.32	3.01	0.17	-6.02	28.44	Pass
1	155	5775	-11.29	-9.07	3.01	0.17	-5.77	28.44	Pass

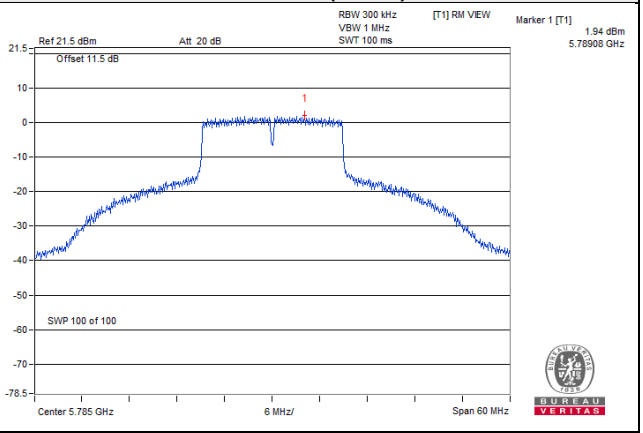
Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \cdots + 10^{GN/20})^2/2$] = 7.56dBi > 6dBi so the power density limit shall be reduced to 30-(7.56-6)=28.44dBi.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

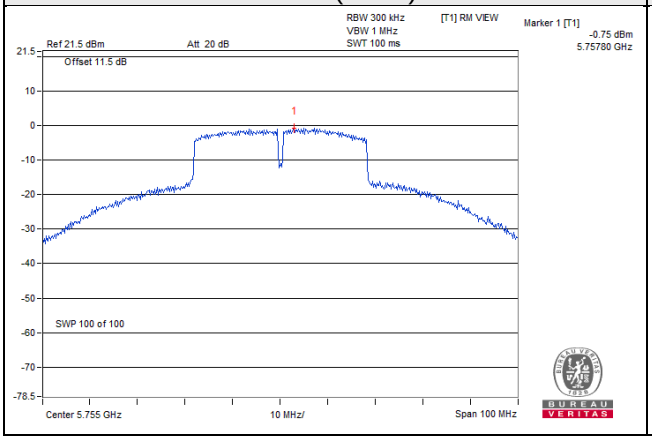
802.11a



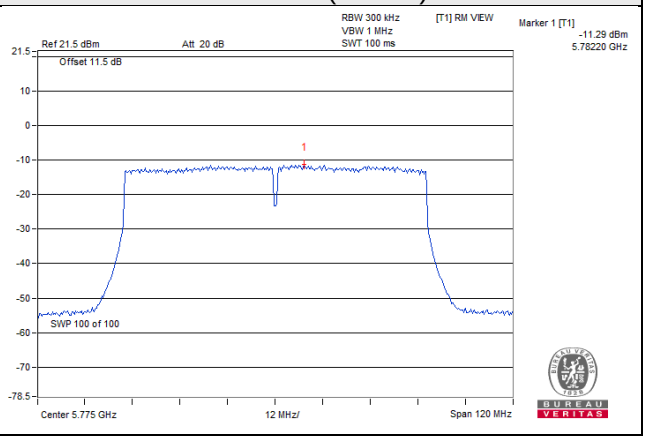
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

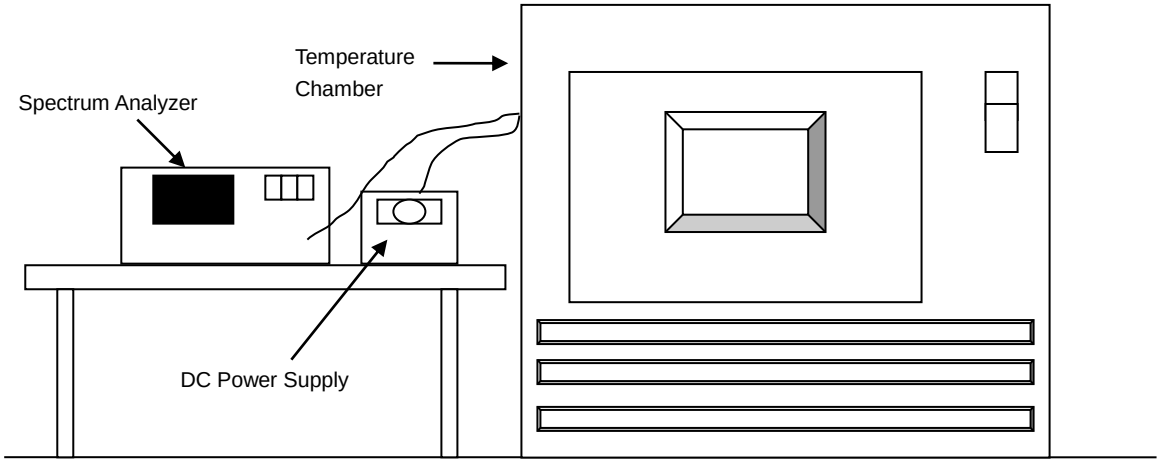


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 03, 2019	Jun. 02, 2020
Digital Multimeter Fluke	87-III	70360742	Jun. 28, 2019	Jun. 27, 2020
AC Power Supply Extech	CFW-105	E000603	NA	NA

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

4.6.4 Test Procedure

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

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

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

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

e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
40	120	5180.018	PASS	5180.0187	PASS	5180.017	PASS	5180.0199	PASS
30	120	5179.9826	PASS	5179.9857	PASS	5179.9853	PASS	5179.9853	PASS
20	120	5180.0098	PASS	5180.0108	PASS	5180.013	PASS	5180.0131	PASS
10	120	5179.9923	PASS	5179.9933	PASS	5179.9923	PASS	5179.9915	PASS
0	120	5179.9923	PASS	5179.9876	PASS	5179.9892	PASS	5179.9892	PASS
40	120	5180.018	PASS	5180.0187	PASS	5180.017	PASS	5180.0199	PASS

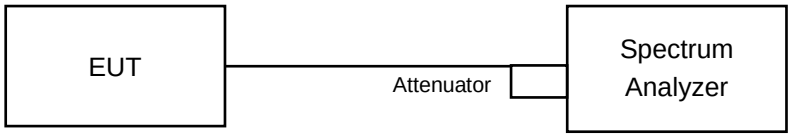
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0098	PASS	5180.0104	PASS	5180.0126	PASS	5180.0128	PASS
	120	5180.0098	PASS	5180.0108	PASS	5180.013	PASS	5180.0131	PASS
	102	5180.0102	PASS	5180.011	PASS	5180.0134	PASS	5180.0133	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.34	16.34	0.5	Pass
157	5785	16.36	16.35	0.5	Pass
165	5825	16.39	16.38	0.5	Pass

802.11n (HT20)

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

802.11n (HT40)

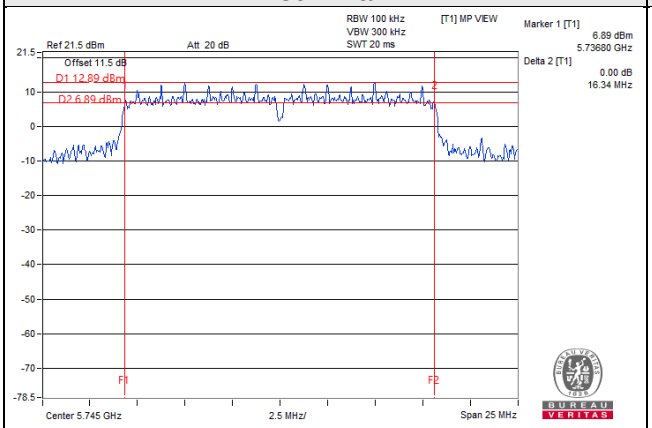
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	35.20	35.22	0.5	Pass
159	5795	35.22	35.74	0.5	Pass

802.11ac (VHT80)

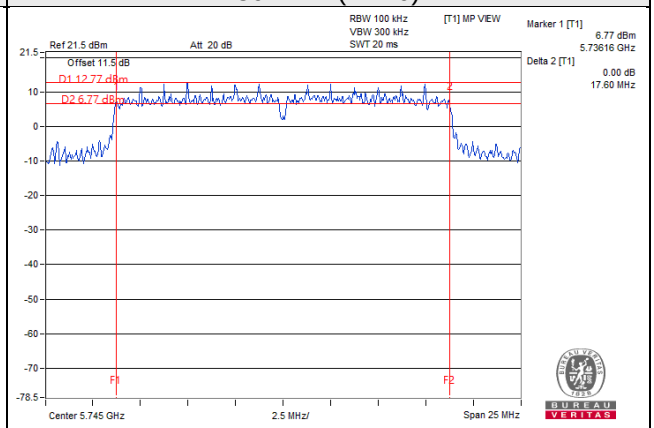
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	76.49	76.51	0.5	Pass

Spectrum Plot of Worst Value

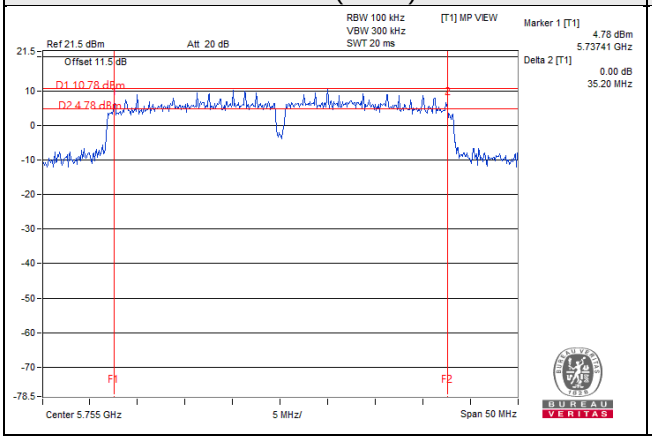
802.11a



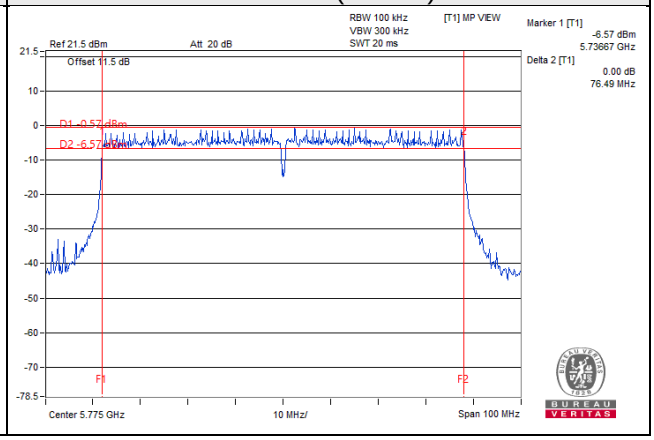
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



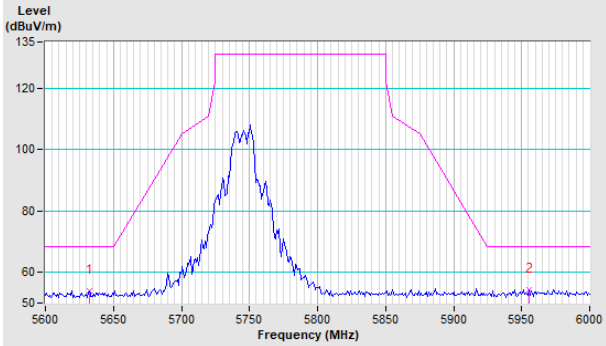
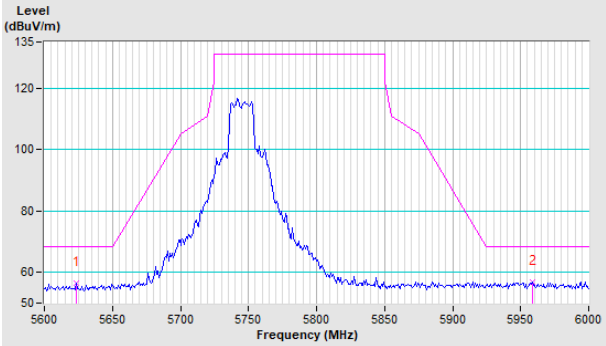
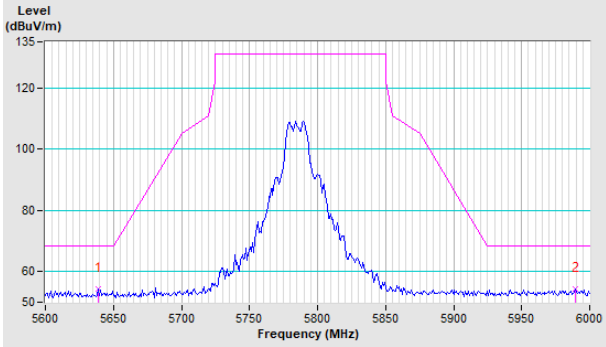
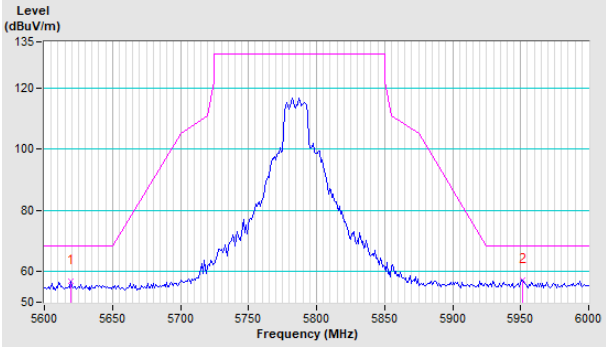
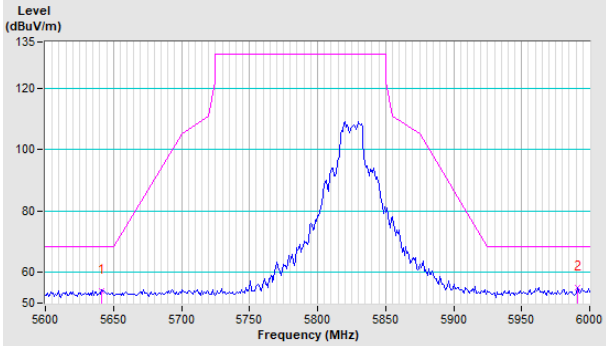
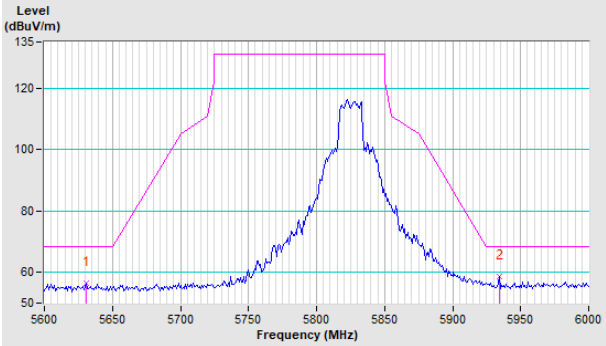
5 Pictures of Test Arrangements

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

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

Mode A

802.11a

Ch 149	
Horizontal	Vertical
	
Ch 157	
Horizontal	Vertical
	
Ch 165	
Horizontal	Vertical
	

802.11n (HT20)

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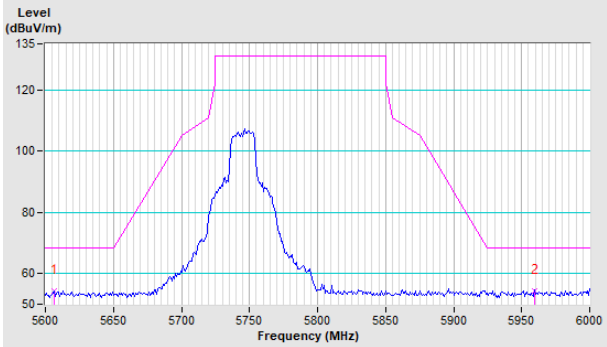
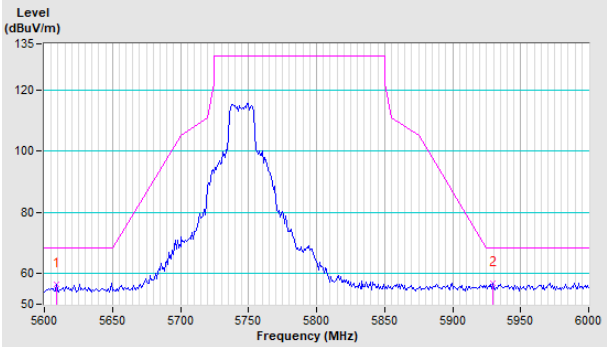
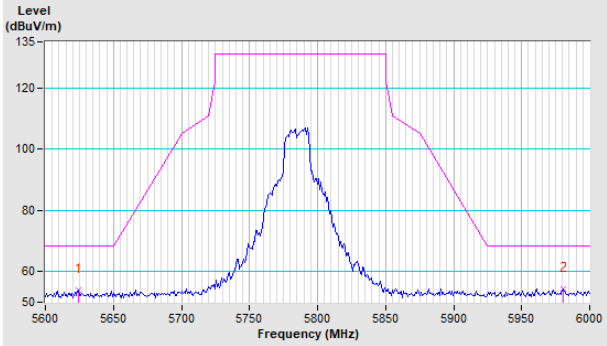
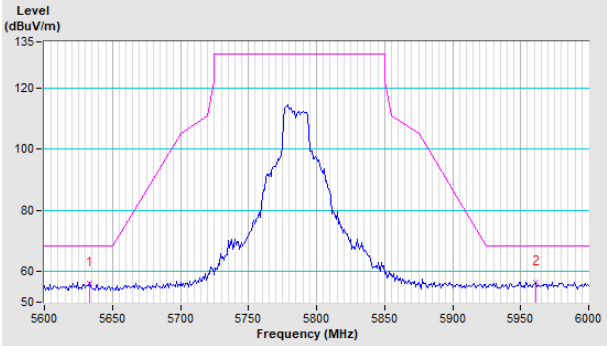
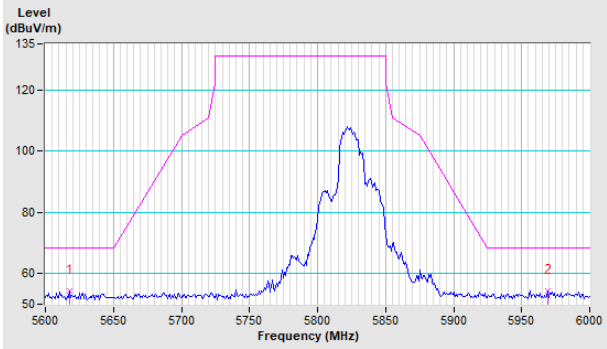
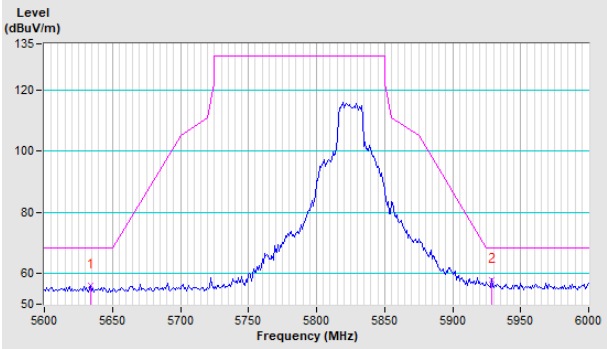
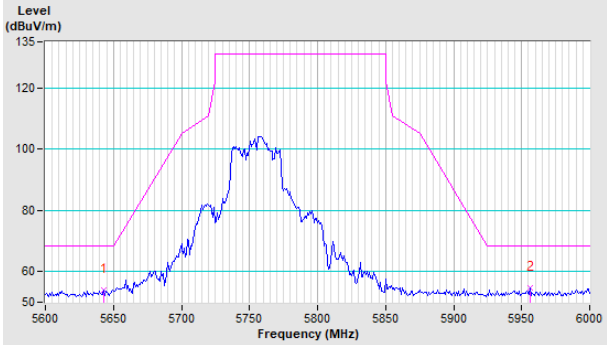
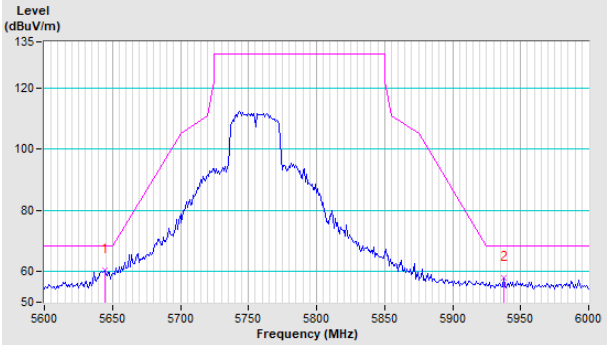
Horizontal	Vertical
	

Ch 157	
Horizontal	Vertical
	

Ch 165	
Horizontal	Vertical
	

802.11n (HT40)

Ch 151	
Horizontal	Vertical
	
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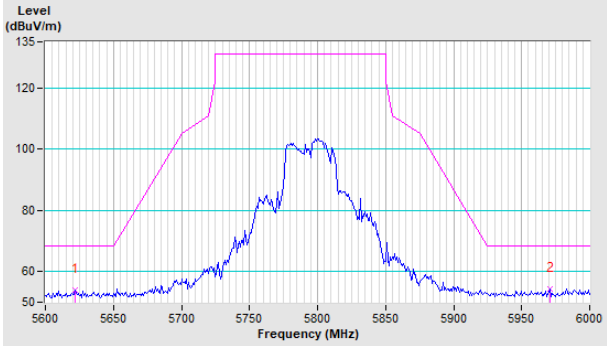
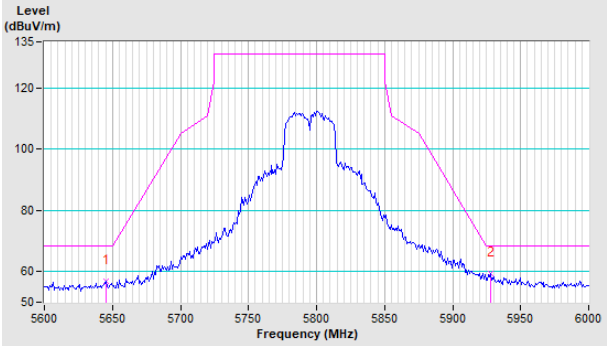
Horizontal	Vertical
	

802.11ac (VHT80)

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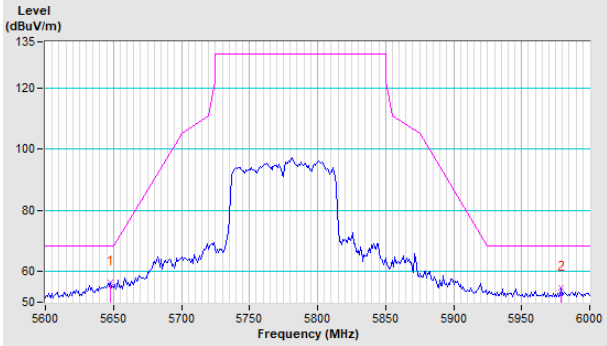
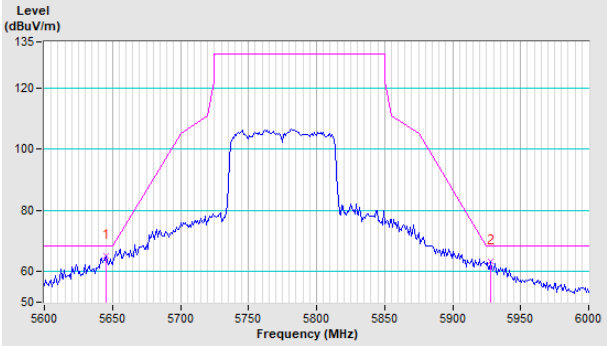
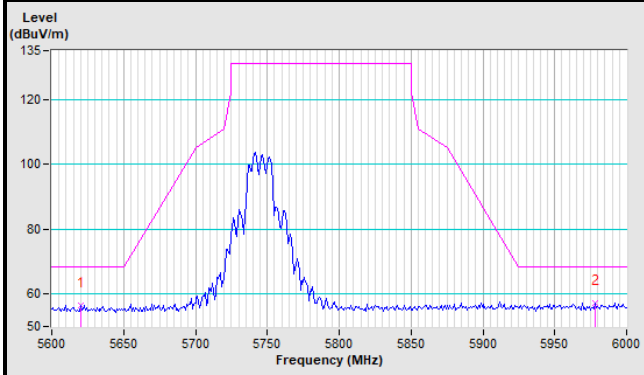
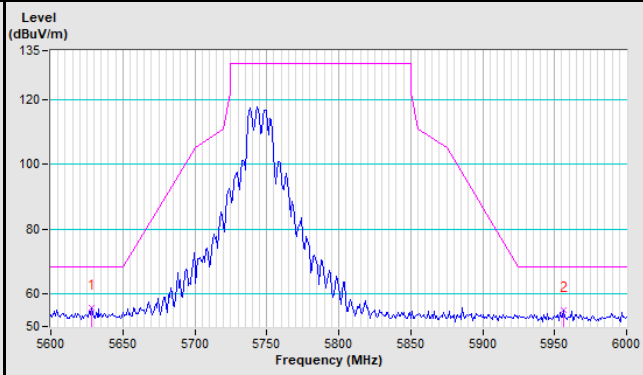
	

Mode B

802.11a

Ch 149	
Horizontal	Vertical
	
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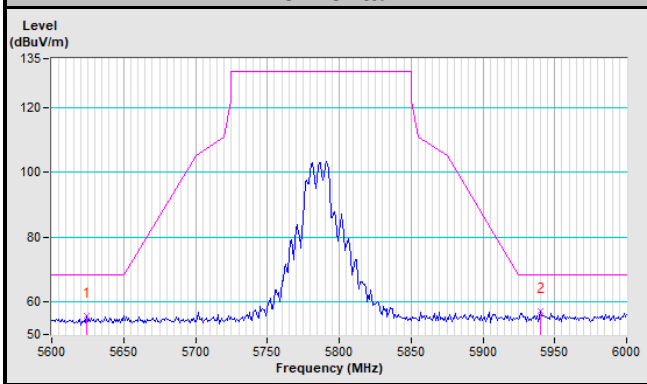
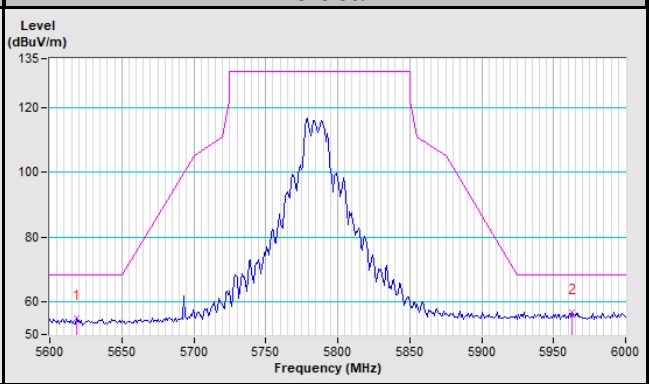
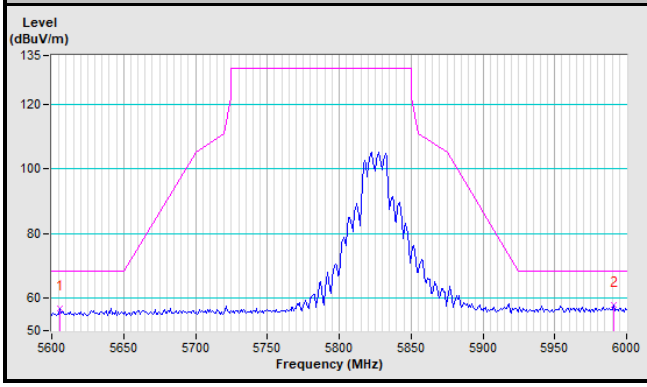
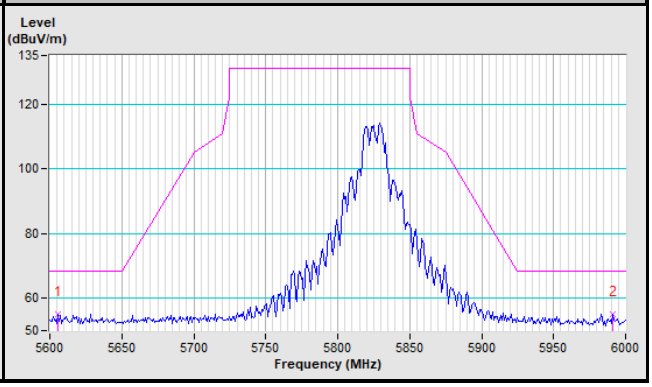
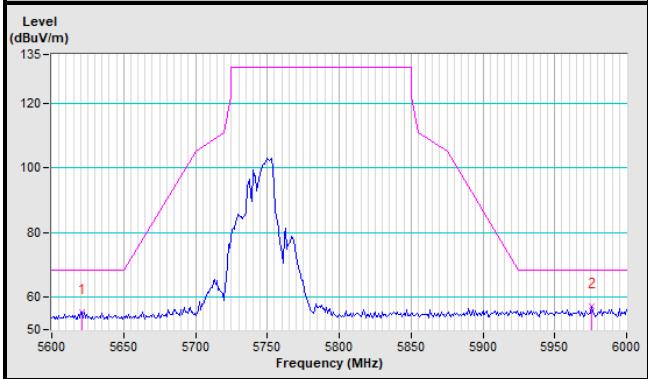
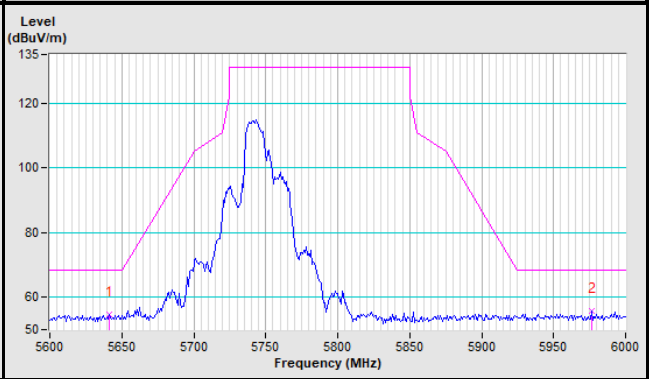
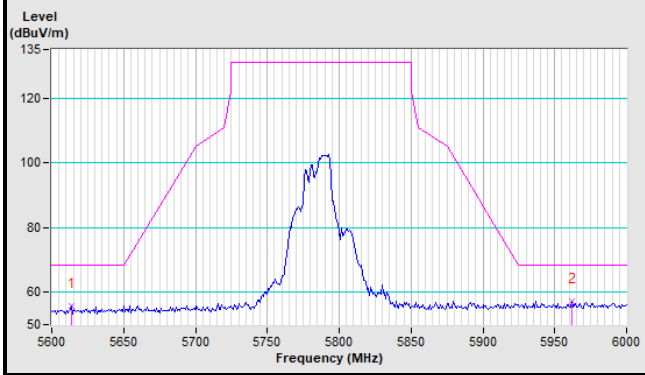
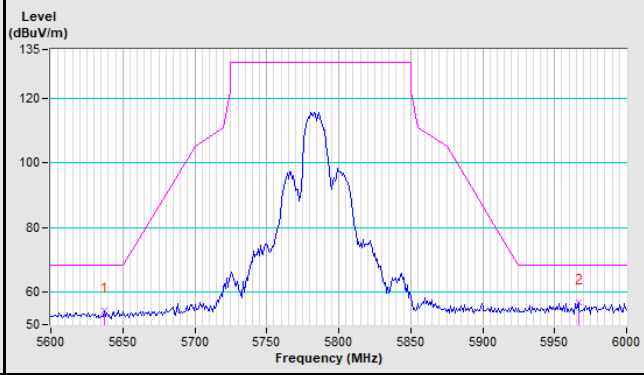
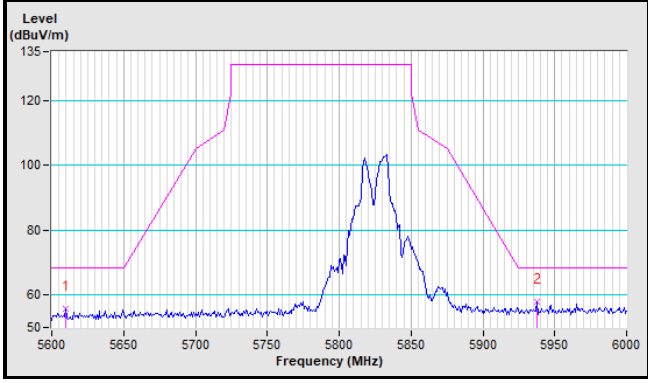
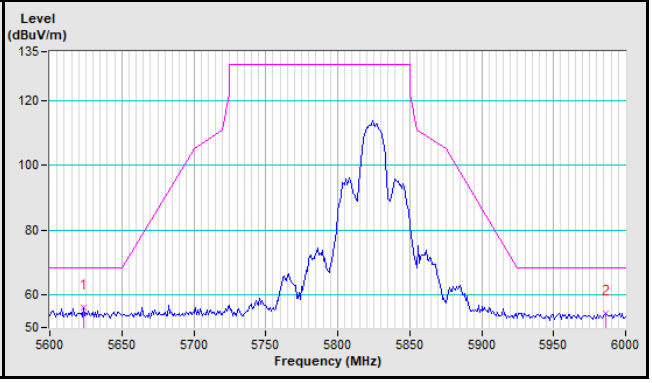
Horizontal	Vertical
	
Ch 165	
Horizontal	Vertical
	

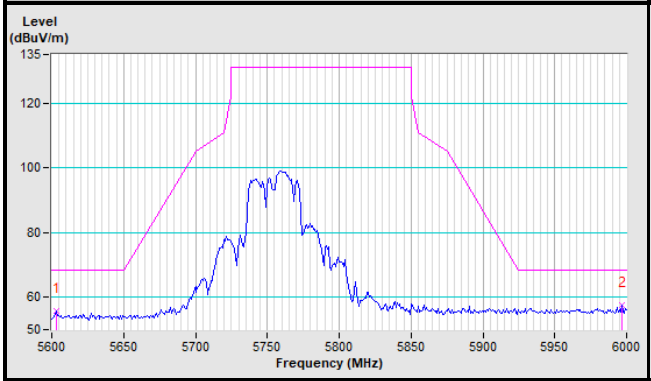
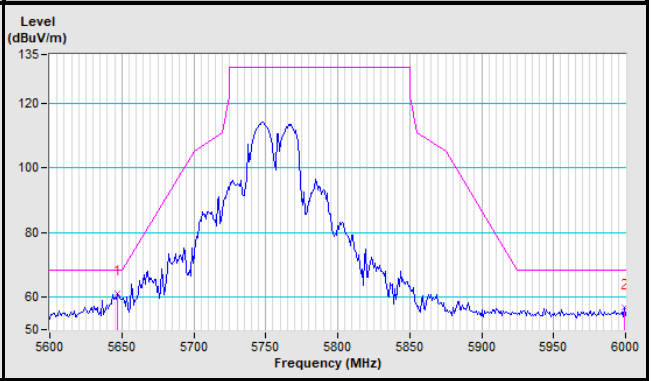
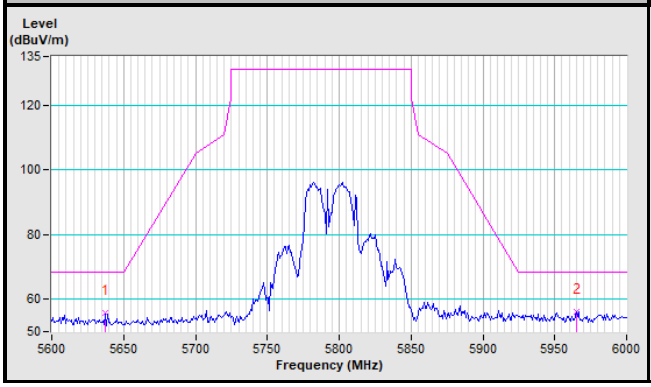
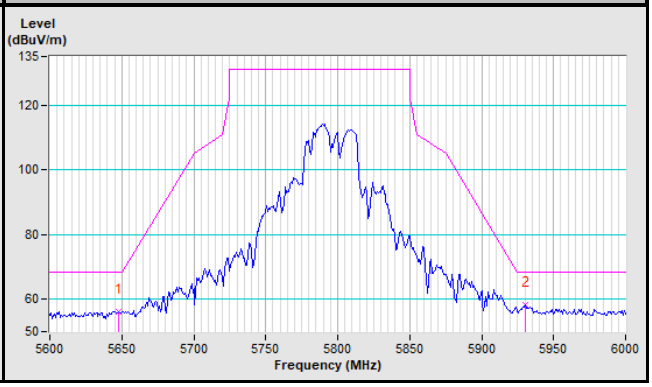
802.11n (HT20)

Ch 149	
Horizontal	Vertical
	

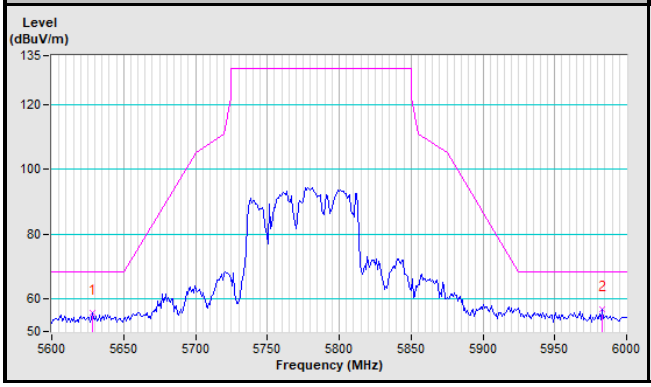
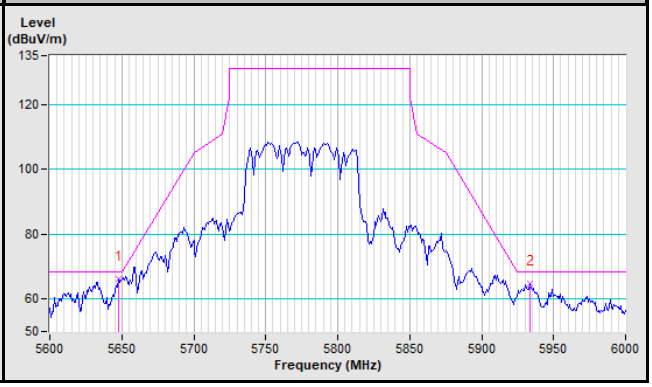
Ch 157	
Horizontal	Vertical
	

Ch 165	
Horizontal	Vertical
	

802.11n (HT40)

Ch 151	
Horizontal	Vertical
	
Ch 159	
Horizontal	Vertical
	

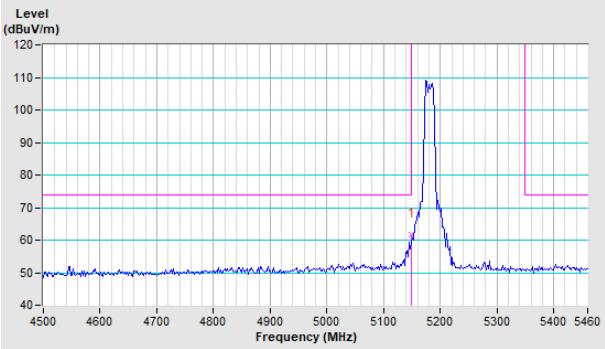
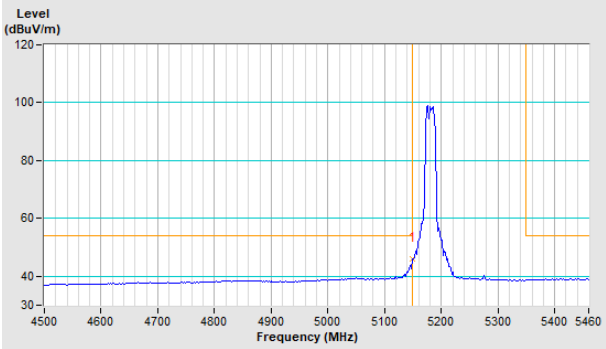
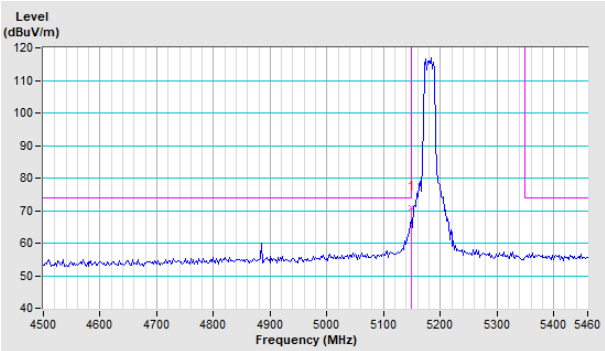
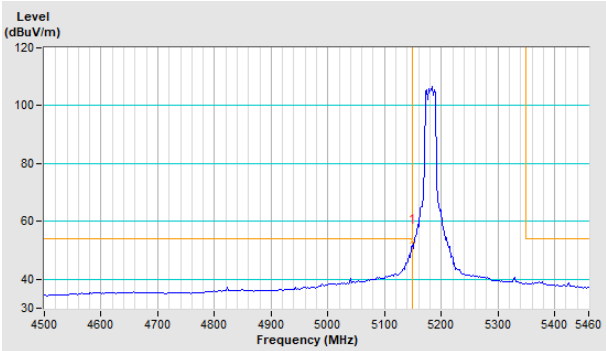
802.11ac (VHT80)

Ch 155	
Horizontal	Vertical
	

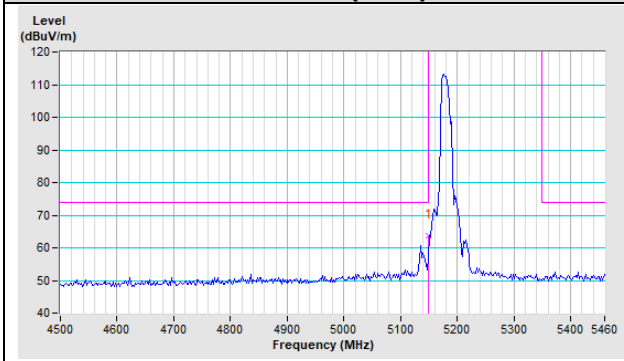
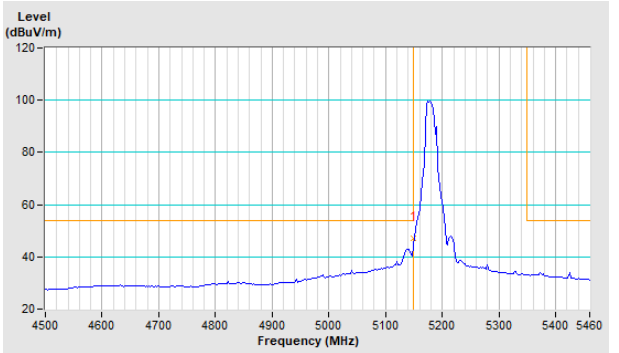
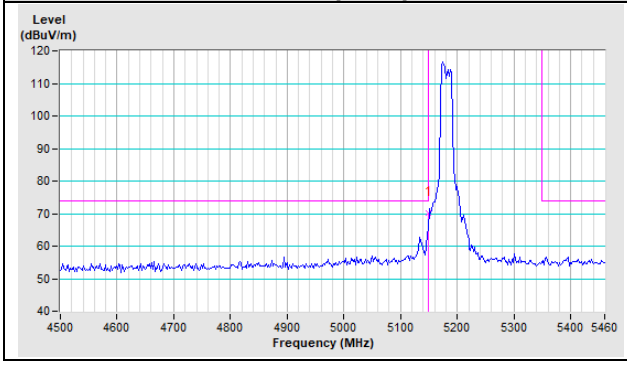
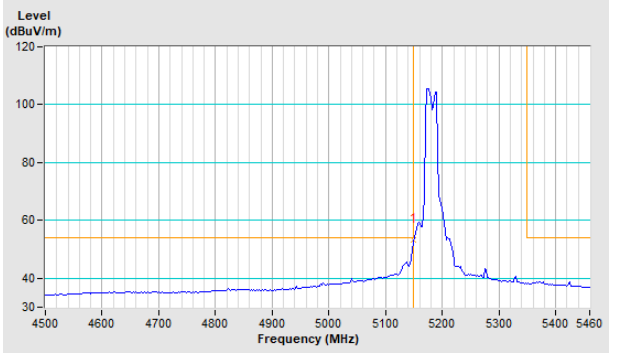
Annex B- Band Edge Measurement

Mode A

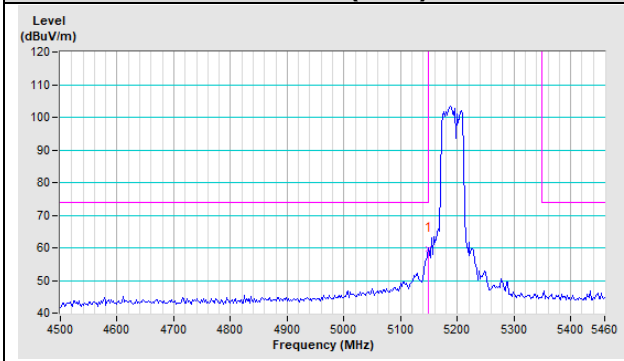
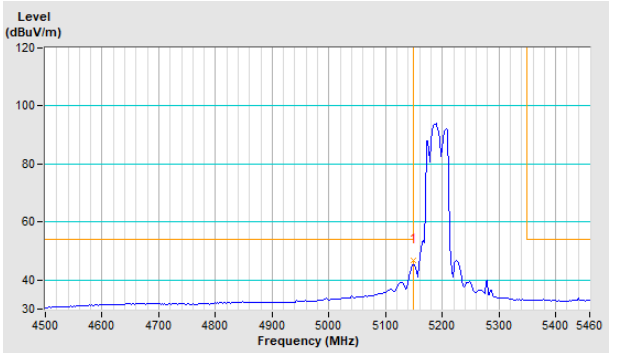
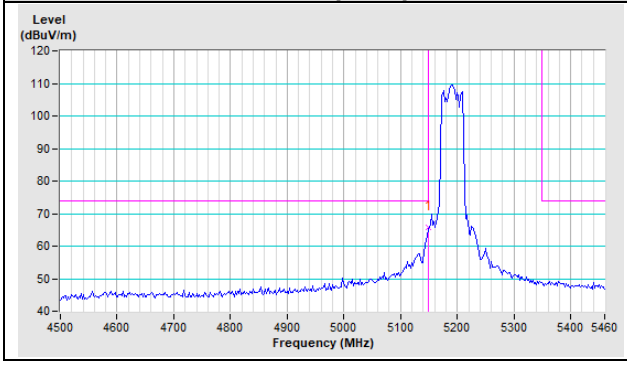
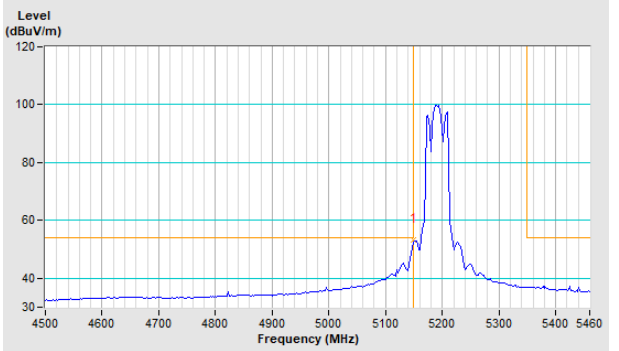
802.11a

Channel 36	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

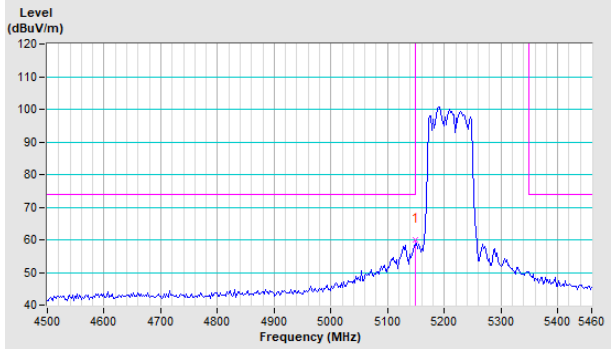
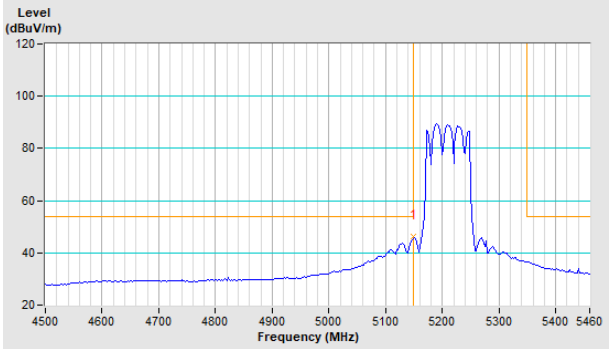
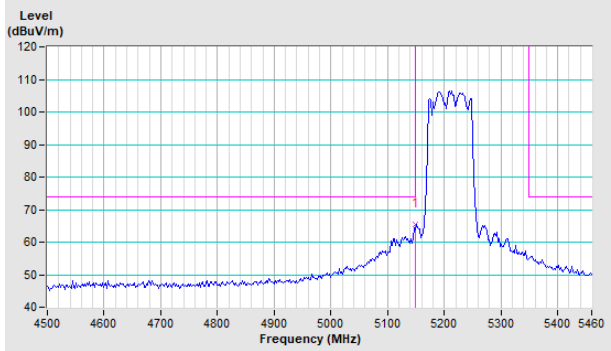
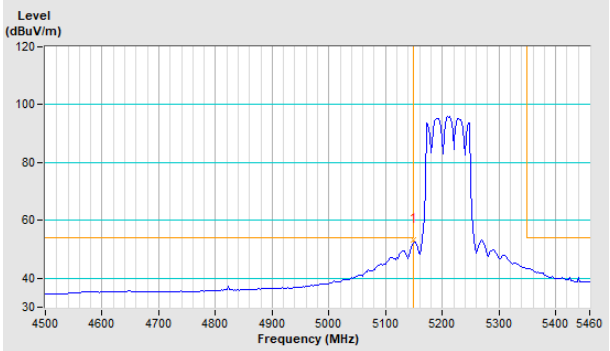
802.11n (HT20)

Channel 36	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11n (HT40)

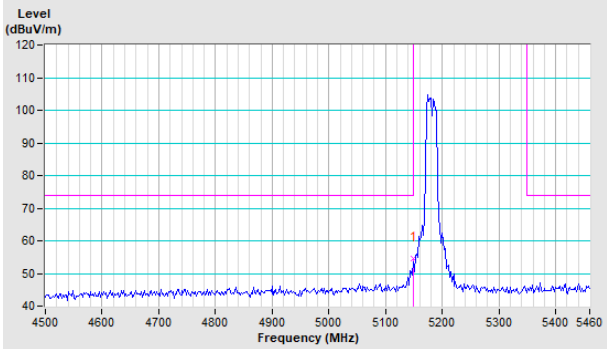
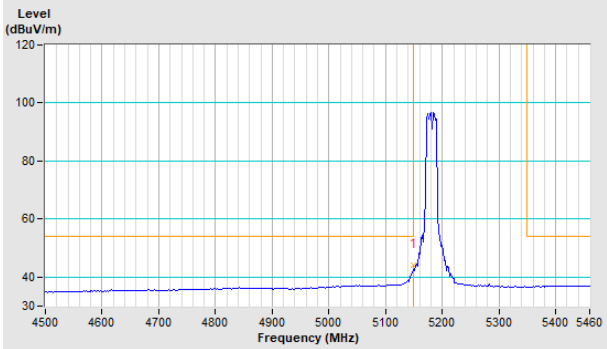
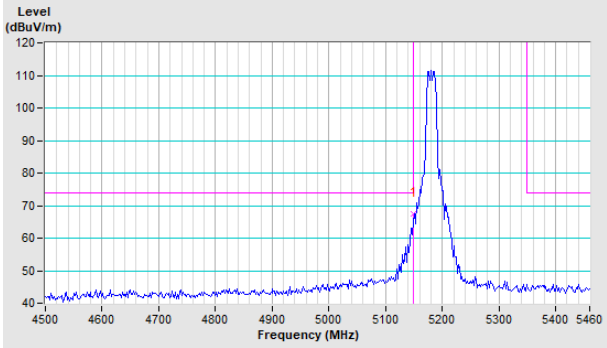
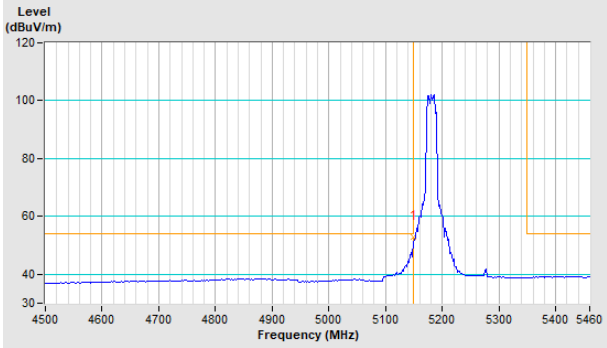
Channel 38	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11ac (VHT80)

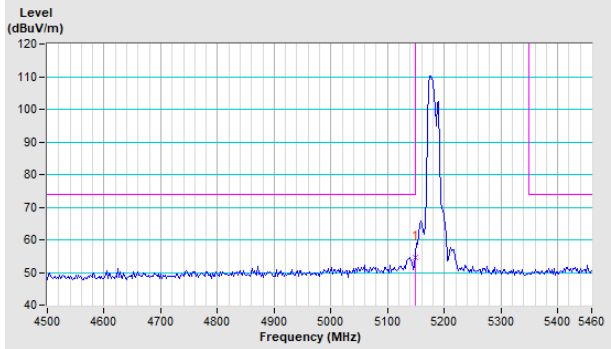
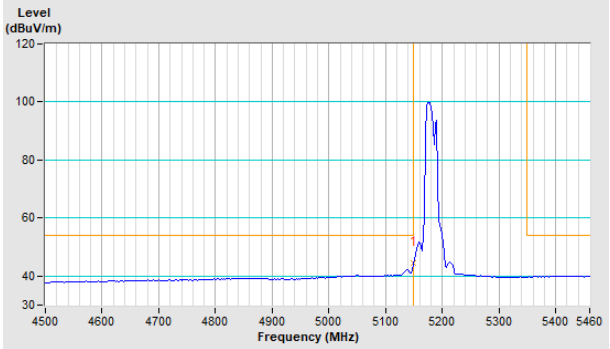
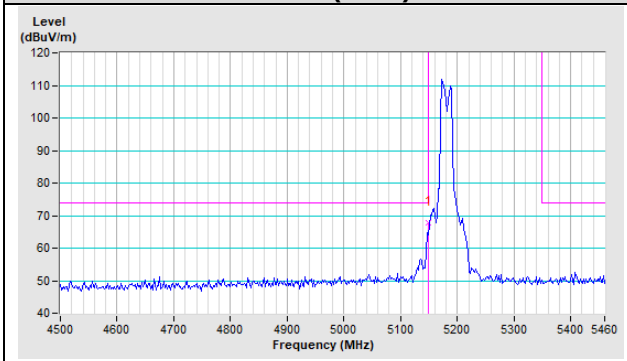
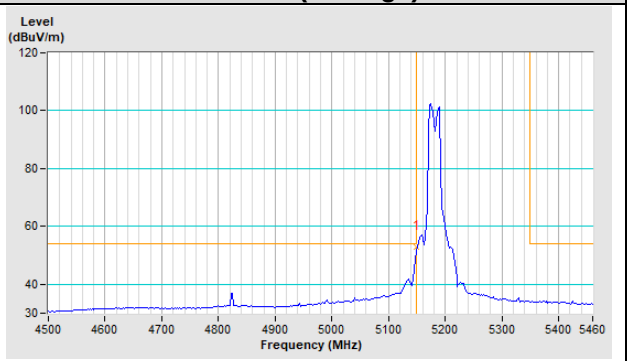
Channel 42	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

Mode B

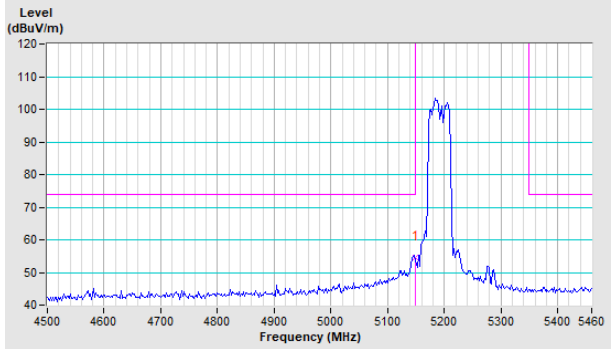
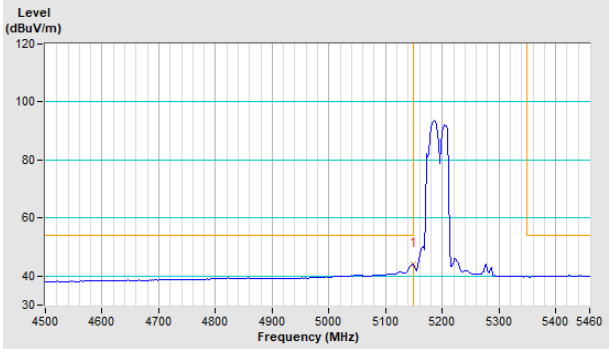
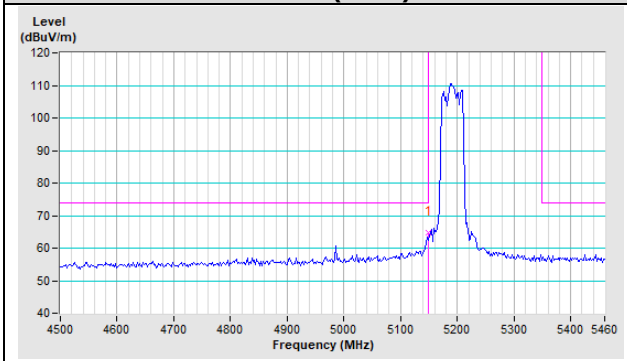
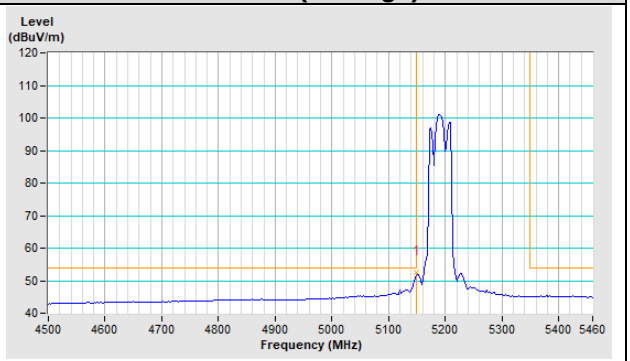
802.11a

Channel 36	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

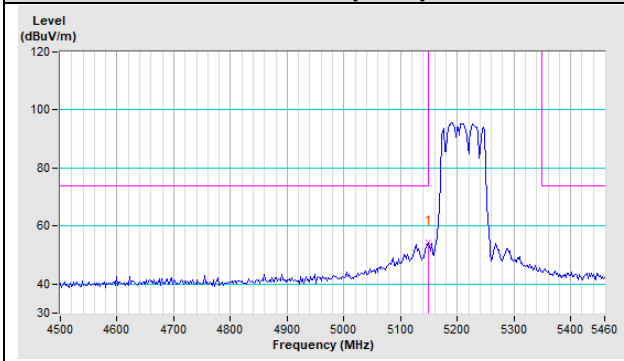
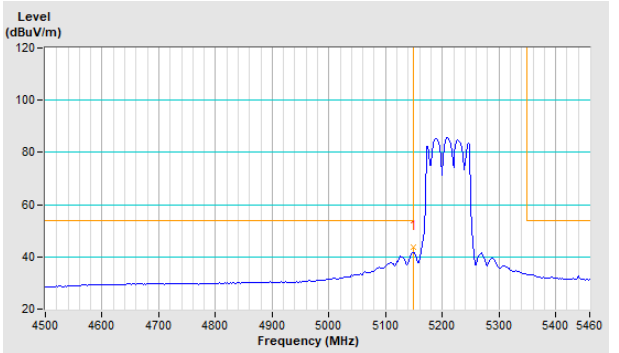
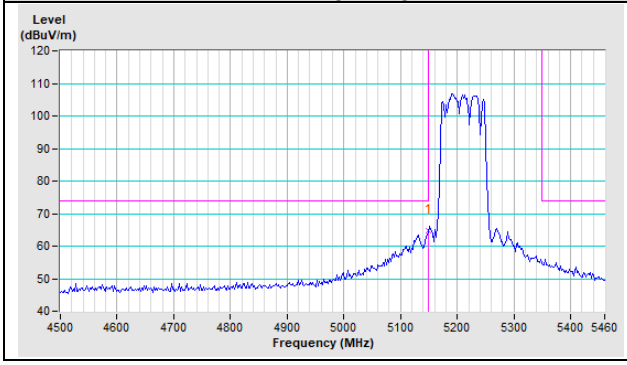
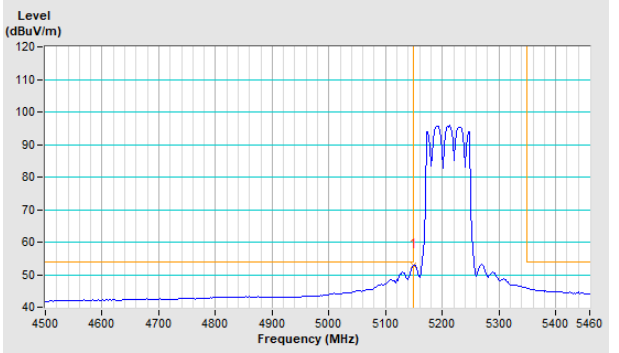
802.11n (HT20)

Channel 36	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11n (HT40)

Channel 38	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11ac (VHT80)

Channel 42	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

Appendix – Information of the Testing Laboratories

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

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

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

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

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