

FCC Test Report

Report No.: RF190326C19-1

FCC ID: M82-261ACNBT

Test Model: WPEQ-261ACN(BT)

Received Date: Feb. 27, 2019

Test Date: Mar. 26 ~ Apr. 03, 2019

Issued Date: Apr. 17, 2019

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Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RF190326C19-1	Original release	Apr. 17, 2019

1 Certificate of Conformity

Product: 802.11ac/b/g/n Wi-Fi+BT module

Brand: Advantech

Test Model: WPEQ-261ACN(BT)

Sample Status: Engineering sample

Applicant: ADVANTECH CO., LTD

Test Date: Mar. 26 ~ Apr. 03, 2019

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

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

Prepared by : Pettie Chen, **Date:** Apr. 17, 2019
Pettie Chen / Senior Specialist

Approved by : Bruce Chen, **Date:** Apr. 17, 2019
Bruce Chen / 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 -9.40dB at 0.63400MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5350.00, 5470.00, 5725.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna 1: Antenna connector is IPEX not a standard connector. Antenna 2: Antenna connector is IPEX not a standard connector. Antenna 3: Antenna connector is IPEX-4L not a standard connector. Antenna 4: Antenna connector is FALRA 3FA1-NISJ-C04W0 BEIGE not a standard connector. Antenna 5: Antenna connector is RP-SMA(M) not a standard connector. Antenna 6: Antenna connector is RP-SMA(M) not a standard connector.

Note:

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	802.11ac/b/g/n Wi-Fi+BT module
Brand	Advantech
Test Model	WPEQ-261ACN(BT)
Sample Status	Engineering sample
Power Supply Rating	3.3Vdc
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
Operating Frequency	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5720MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5260 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500 ~ 5720MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 12 802.11n (HT40), 802.11ac (VHT40): 6 802.11ac (VHT80): 3 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	5180 ~ 5240MHz: 75.238mW 5260 ~ 5320MHz: 74.269mW 5500 ~ 5720MHz: 51.697mW 5745 ~ 5825MHz: 63.344mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original design is adding 6 antennas. Therefore, all tests had been retested.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

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

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

3. The following antennas were provided to the EUT.

		Antenna type	Connector	Gain (dBi)	
				2.4GHz	5.0GHz
1	Taoglas MA540 (5 in 1 Antenna)	WiFi: PCB LTE: SMA hinged antenna GPS: Patch	IPEX (MHF1)	Ant. 1: 2.4 Ant. 2: 2.8	Ant. 1: 5.3 Ant. 2: 5.8
2	Taoglas PC163 (2 in 1 Antenna)	2 in 1 antenna is "PCB"	IPEX (MHF4L)	Ant. 1: 4.44 Ant. 2: 2.64	Ant. 1: 4.33 Ant. 2: 4.25
3	AN2450-16HM01BRS	Diople	IPEX-4L	1.5	5
4	Sinbon wifi dual band external antenna (5M) (TREK-676)	Diople	FALRA 3FA1-NISJ -C04W0 BEIGE	-0.61	-2.51
5	Taoglas MA231 (1750007724-01)	PCB	RP-SMA(M)	2.96	1.37
6	Taoglas WA500 (1750007723-01)	PCB	RP-SMA(M)	-0.49	-2.04

Note: 5GHz: After pre-testing, antenna 1 was selected for Radiated emission measurement test.

4. There are Bluetooth technology and WLAN technology used for the EUT.
5. WLAN <5GHz> and Bluetooth technology can transmit at same time.

3.2 Description of Test Modes

For 5180 ~ 5240MHz:

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210 MHz

For 5260 ~ 5320MHz:

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290 MHz

For 5500 ~ 5720MHz:

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80):

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

For 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Note: The antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
-	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155	155	OFDM	29.3

Radiated Emission Test (Below 1GHz):

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	52	OFDM	6.0
	802.11a	5260-5320	52 to 64		OFDM	6.0
	802.11a	5500-5720	100 to 144		OFDM	6.0
	802.11a	5745-5825	149 to 165		OFDM	6.0

Power Line Conducted Emission Test:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	52	OFDM	6.0
	802.11a	5260-5320	52 to 64		OFDM	6.0
	802.11a	5500-5720	100 to 144		OFDM	6.0
	802.11a	5745-5825	149 to 165		OFDM	6.0

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
-	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155	155	OFDM	29.3

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 70% RH	120Vac, 60Hz	Noah Chang
RE<1G	25 deg. C, 70% RH	120Vac, 60Hz	Noah Chang
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Noah Chang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = $2.06/2.18 = 0.945$, Duty factor = $10 * \log(1/0.945) = 0.25$

802.11n (HT20): Duty cycle = $1.922/2.03 = 0.947$, Duty factor = $10 * \log(1/0.947) = 0.24$

802.11n (HT40): Duty cycle = $0.946/1.037 = 0.912$, Duty factor = $10 * \log(1/0.912) = 0.40$

802.11ac (VHT80): Duty cycle = $0.464/0.572 = 0.811$, Duty factor = $10 * \log(1/0.811) = 0.91$



3.4 Description of Support Units

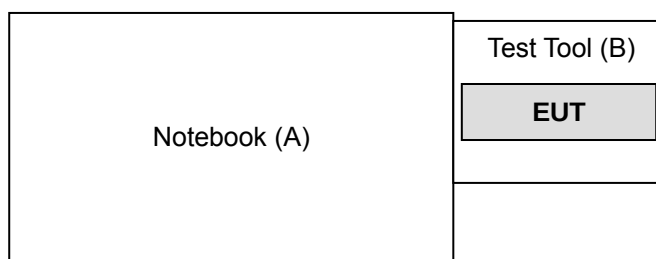
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Test Tool	NA	NA	NA	NA	Supplied by client

Note:

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10:2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

Limits of unwanted emission out of the restricted bands

Applicable To			Limit	
789033 D02 General UNII Test Procedure New Rules v02r01			Field Strength at 3m	
			PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To		EIRP Limit	Equivalent Field Strength at 3m
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:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jan. 03, 2019	Jan. 02, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 21, 2018	Nov. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2018	Aug. 07, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2018	Aug. 07, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY5519000 4/MY55190007/MY55210 005	Jul. 17, 2018	Jul. 16, 2019
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2018	Nov. 13, 2019

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

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

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

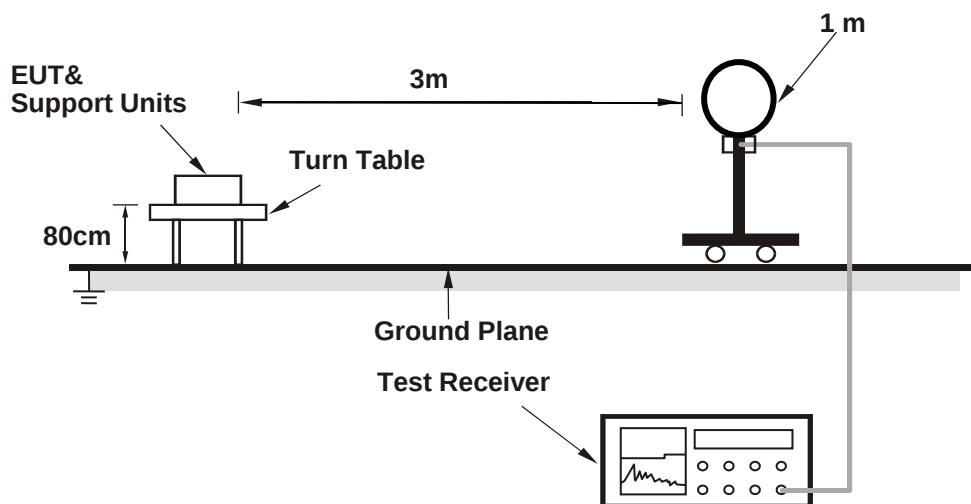
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
(802.11a: RBW = 1MHz, VBW = 1kHz; 802.11n (HT20): RBW = 1MHz, VBW = 1kHz;
802.11n (HT40): RBW = 1MHz, VBW = 3kHz; 802.11ac (VHT80): RBW = 1MHz, VBW = 3kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

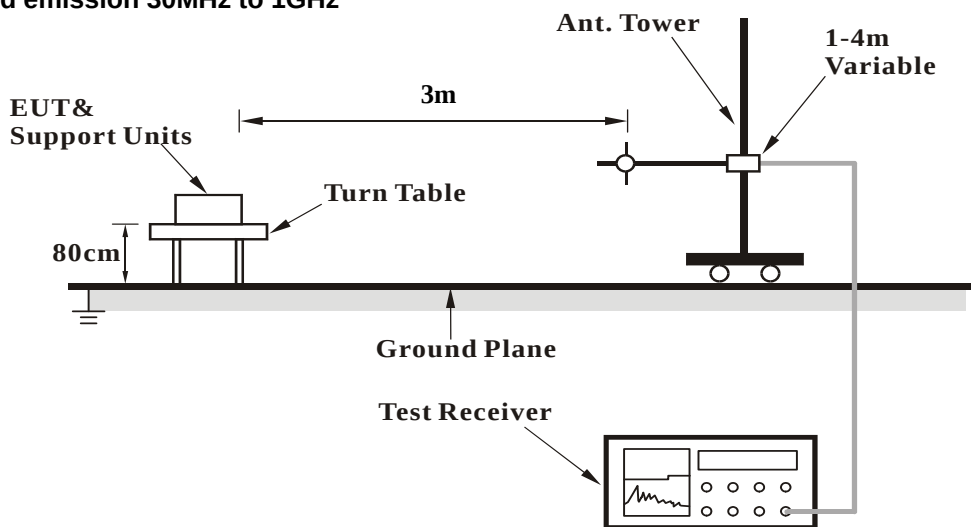
No deviation.

4.1.5 Test Setup

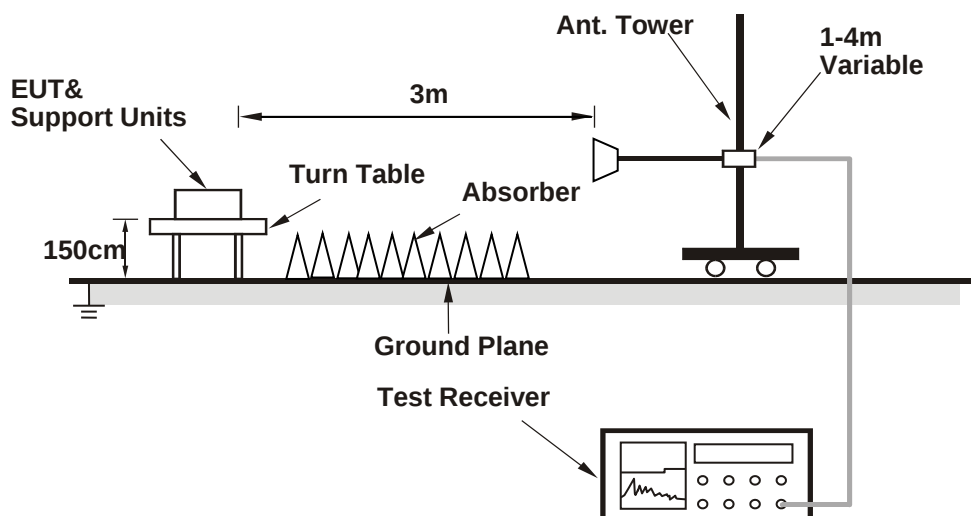
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- Connected the EUT with the notebook which is placed on the testing table.
- Controlling software (QRCT V3.0.264.0) has been activated to enable EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	72.6 PK	74.0	-1.4	1.88 H	33	60.0	12.6
2	5150.00	50.7 AV	54.0	-3.3	1.88 H	33	38.1	12.6
3	*5180.00	113.7 PK			1.84 H	22	72.2	41.5
4	*5180.00	103.6 AV			1.84 H	22	62.1	41.5
5	#10360.00	62.8 PK	68.2	-5.4	2.62 H	331	40.3	22.5
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	61.1 PK	74.0	-12.9	1.03 V	200	48.5	12.6
2	5150.00	47.9 AV	54.0	-6.1	1.03 V	200	35.3	12.6
3	*5180.00	103.7 PK			1.00 V	203	62.2	41.5
4	*5180.00	93.6 AV			1.00 V	203	52.1	41.5
5	#10360.00	62.3 PK	68.2	-5.9	2.22 V	211	39.8	22.5

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	116.8 PK			1.84 H	22	75.3	41.5
2	*5200.00	106.5 AV			1.84 H	22	65.0	41.5
3	#10400.00	63.5 PK	68.2	-4.7	2.33 H	222	40.6	22.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	106.8 PK			1.03 V	201	65.3	41.5
2	*5200.00	96.5 AV			1.03 V	201	55.0	41.5
3	#10400.00	62.7 PK	68.2	-5.5	2.00 V	333	39.8	22.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	117.0 PK			1.84 H	22	75.8	41.2
2	*5240.00	107.0 AV			1.84 H	22	65.8	41.2
3	5350.00	61.4 PK	74.0	-12.6	1.89 H	40	49.0	12.4
4	5350.00	47.5 AV	54.0	-6.5	1.89 H	40	35.1	12.4
5	#10480.00	63.0 PK	68.2	-5.2	2.62 H	322	40.2	22.8
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	*5240.00	107.0 PK			1.09 V	231	65.8	41.2
2	*5240.00	97.0 AV			1.09 V	231	55.8	41.2
3	5350.00	60.5 PK	74.0	-13.5	1.22 V	212	48.1	12.4
4	5350.00	47.2 AV	54.0	-6.8	1.22 V	212	34.8	12.4
5	#10480.00	62.6 PK	68.2	-5.6	2.52 V	274	39.8	22.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.1 PK	74.0	-12.9	1.23 H	6	48.5	12.6
2	5150.00	47.7 AV	54.0	-6.3	1.23 H	6	35.1	12.6
3	*5260.00	117.1 PK			1.22 H	16	76.0	41.1
4	*5260.00	106.0 AV			1.22 H	16	64.9	41.1
5	#10520.00	63.2 PK	68.2	-5.0	2.36 H	200	40.2	23.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.7 PK	74.0	-13.3	1.02 V	216	48.1	12.6
2	5150.00	47.6 AV	54.0	-6.4	1.02 V	216	35.0	12.6
3	*5260.00	107.1 PK			1.05 V	201	66.0	41.1
4	*5260.00	96.0 AV			1.05 V	201	54.9	41.1
5	#10520.00	62.7 PK	68.2	-5.5	2.62 V	233	39.7	23.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	116.5 PK			1.81 H	20	75.4	41.1
2	*5300.00	106.1 AV			1.81 H	20	65.0	41.1
3	10600.00	63.5 PK	74.0	-10.5	2.66 H	320	40.3	23.2
4	10600.00	50.1 AV	54.0	-3.9	2.66 H	320	26.9	23.2
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	*5300.00	106.5 PK			1.00 V	203	65.4	41.1
2	*5300.00	96.1 AV			1.00 V	203	55.0	41.1
3	10600.00	63.0 PK	74.0	-11.0	2.11 V	144	39.8	23.2
4	10600.00	49.5 AV	54.0	-4.5	2.11 V	144	26.3	23.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	114.0 PK			2.01 H	22	72.8	41.2
2	*5320.00	103.8 AV			2.01 H	22	62.6	41.2
3	5350.00	72.7 PK	74.0	-1.3	1.81 H	19	60.3	12.4
4	5350.00	51.9 AV	54.0	-2.1	1.81 H	19	39.5	12.4
5	10640.00	63.5 PK	74.0	-10.5	2.15 H	233	40.3	23.2
6	10640.00	49.9 AV	54.0	-4.1	2.15 H	233	26.7	23.2
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	*5320.00	104.0 PK			1.01 V	201	62.8	41.2
2	*5320.00	93.8 AV			1.01 V	201	52.6	41.2
3	5350.00	60.5 PK	74.0	-13.5	1.09 V	213	48.1	12.4
4	5350.00	47.5 AV	54.0	-6.5	1.09 V	213	35.1	12.4
5	10640.00	63.2 PK	74.0	-10.8	2.14 V	174	40.0	23.2
6	10640.00	49.7 AV	54.0	-4.3	2.14 V	174	26.5	23.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.5 PK	74.0	-13.5	1.02 H	188	47.7	12.8
2	5460.00	47.9 AV	54.0	-6.1	1.02 H	188	35.1	12.8
3	#5470.00	67.2 PK	68.2	-1.0	1.08 H	177	54.3	12.9
4	*5500.00	105.1 PK			1.00 H	175	63.1	42.0
5	*5500.00	95.7 AV			1.00 H	175	53.7	42.0
6	11000.00	62.0 PK	74.0	-12.0	1.25 H	222	38.6	23.4
7	11000.00	49.2 AV	54.0	-4.8	1.25 H	222	25.8	23.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.2 PK	74.0	-14.8	1.05 V	331	46.4	12.8
2	5460.00	46.5 AV	54.0	-7.5	1.05 V	331	33.7	12.8
3	#5470.00	60.9 PK	68.2	-7.3	1.00 V	339	48.0	12.9
4	*5500.00	97.0 PK			1.00 V	339	55.0	42.0
5	*5500.00	86.6 AV			1.00 V	339	44.6	42.0
6	11000.00	62.9 PK	74.0	-11.1	2.62 V	232	39.5	23.4
7	11000.00	49.3 AV	54.0	-4.7	2.62 V	232	25.9	23.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	115.2 PK			1.02 H	179	73.4	41.8
2	*5580.00	105.2 AV			1.02 H	179	63.4	41.8
3	11160.00	63.5 PK	74.0	-10.5	2.39 H	262	40.2	23.3
4	11160.00	49.6 AV	54.0	-4.4	2.39 H	262	26.3	23.3
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	*5580.00	106.2 PK			1.02 V	332	64.4	41.8
2	*5580.00	96.2 AV			1.02 V	332	54.4	41.8
3	11160.00	63.2 PK	74.0	-10.8	2.12 V	152	39.9	23.3
4	11160.00	49.4 AV	54.0	-4.6	2.12 V	152	26.1	23.3

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	114.6 PK			1.01 H	176	72.5	42.1
2	*5700.00	104.3 AV			1.01 H	176	62.2	42.1
3	#5725.00	67.2 PK	68.2	-1.0	1.09 H	172	54.3	12.9
4	11400.00	64.6 PK	74.0	-9.4	2.39 H	263	40.2	24.4
5	11400.00	51.0 AV	54.0	-3.0	2.39 H	263	26.6	24.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	105.6 PK			1.32 V	321	63.5	42.1
2	*5700.00	95.3 AV			1.32 V	321	53.2	42.1
3	#5725.00	61.2 PK	68.2	-7.0	1.02 V	335	48.3	12.9
4	11400.00	64.2 PK	74.0	-9.8	2.15 V	211	39.8	24.4
5	11400.00	50.2 AV	54.0	-3.8	2.15 V	211	25.8	24.4

Remarks:

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

CHANNEL	TX Channel 144	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	60.4 PK	68.2	-7.8	1.02 H	177	47.5	12.9
2	*5720.00	114.4 PK			1.00 H	172	72.2	42.2
3	*5720.00	104.3 AV			1.00 H	172	62.1	42.2
4	#5850.00	60.4 PK	68.2	-7.8	1.22 H	177	47.1	13.3
5	11440.00	64.3 PK	74.0	-9.7	2.62 H	320	40.1	24.2
6	11440.00	50.5 AV	54.0	-3.5	2.62 H	320	26.3	24.2
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	#5470.00	59.8 PK	68.2	-8.4	1.66 V	226	46.9	12.9
2	*5720.00	104.4 PK			1.33 V	203	62.2	42.2
3	*5720.00	94.3 AV			1.33 V	203	52.1	42.2
4	#5850.00	60.1 PK	68.2	-8.1	1.03 V	253	46.8	13.3
5	11440.00	63.9 PK	74.0	-10.1	2.66 V	333	39.7	24.2
6	11440.00	49.9 AV	54.0	-4.1	2.66 V	333	25.7	24.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5643.20	62.7 PK	68.2	-5.5	1.00 H	178	50.0	12.7
2	*5745.00	114.5 PK			1.00 H	178	72.0	42.5
3	*5745.00	104.9 AV			1.00 H	178	62.4	42.5
4	#5948.80	63.5 PK	68.2	-4.7	1.00 H	178	49.9	13.6
5	11490.00	64.1 PK	74.0	-9.9	1.25 H	210	40.0	24.1
6	11490.00	50.3 AV	54.0	-3.7	1.25 H	210	26.2	24.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5612.00	62.8 PK	68.2	-5.4	1.18 V	222	50.1	12.7
2	*5745.00	104.5 PK			1.18 V	222	62.0	42.5
3	*5745.00	94.9 AV			1.18 V	222	52.4	42.5
4	#5928.00	63.4 PK	68.2	-4.8	1.18 V	222	49.8	13.6
5	11490.00	63.6 PK	74.0	-10.4	2.52 V	177	39.5	24.1
6	11490.00	50.0 AV	54.0	-4.0	2.52 V	177	25.9	24.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5612.00	63.2 PK	68.2	-5.0	1.00 H	176	50.5	12.7
2	*5785.00	116.8 PK			1.00 H	176	74.2	42.6
3	*5785.00	106.3 AV			1.00 H	176	63.7	42.6
4	#5973.60	63.8 PK	68.2	-4.4	1.00 H	176	50.1	13.7
5	11570.00	63.6 PK	74.0	-10.4	2.62 H	96	39.6	24.0
6	11570.00	50.0 AV	54.0	-4.0	2.62 H	96	26.0	24.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.80	63.4 PK	68.2	-4.8	1.15 V	234	50.7	12.7
2	*5785.00	106.8 PK			1.15 V	234	64.2	42.6
3	*5785.00	96.3 AV			1.15 V	234	53.7	42.6
4	#5981.60	63.8 PK	68.2	-4.4	1.15 V	234	50.0	13.8
5	11570.00	63.5 PK	74.0	-10.5	2.88 V	74	39.5	24.0
6	11570.00	49.5 AV	54.0	-4.5	2.88 V	74	25.5	24.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5615.20	62.9 PK	68.2	-5.3	1.00 H	179	50.2	12.7
2	*5825.00	115.7 PK			1.00 H	179	73.1	42.6
3	*5825.00	105.4 AV			1.00 H	179	62.8	42.6
4	#5976.80	63.5 PK	68.2	-4.7	1.00 H	179	49.7	13.8
5	11650.00	63.8 PK	74.0	-10.2	2.55 H	188	40.2	23.6
6	11650.00	49.9 AV	54.0	-4.1	2.55 H	188	26.3	23.6
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	#5615.20	62.4 PK	68.2	-5.8	1.15 V	231	49.7	12.7
2	*5825.00	105.7 PK			1.15 V	231	63.1	42.6
3	*5825.00	95.4 AV			1.15 V	231	52.8	42.6
4	#5928.80	62.9 PK	68.2	-5.3	1.15 V	231	49.3	13.6
5	11650.00	63.4 PK	74.0	-10.6	1.85 V	333	39.8	23.6
6	11650.00	49.4 AV	54.0	-4.6	1.85 V	333	25.8	23.6

Remarks:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	72.8 PK	74.0	-1.2	1.87 H	22	60.2	12.6
2	5150.00	51.9 AV	54.0	-2.1	1.87 H	22	39.3	12.6
3	*5180.00	113.2 PK			1.80 H	33	71.7	41.5
4	*5180.00	103.3 AV			1.80 H	33	61.8	41.5
5	#10360.00	63.1 PK	68.2	-5.1	2.66 H	211	40.6	22.5
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	60.9 PK	74.0	-13.1	1.09 V	222	48.3	12.6
2	5150.00	47.6 AV	54.0	-6.4	1.09 V	222	35.0	12.6
3	*5180.00	103.2 PK			1.03 V	212	61.7	41.5
4	*5180.00	93.3 AV			1.03 V	212	51.8	41.5
5	#10360.00	62.0 PK	68.2	-6.2	2.52 V	211	39.5	22.5

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	115.9 PK			1.95 H	22	74.4	41.5
2	*5200.00	105.7 AV			1.95 H	22	64.2	41.5
3	#10400.00	62.7 PK	68.2	-5.5	2.33 H	211	39.8	22.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	105.9 PK			1.12 V	199	64.4	41.5
2	*5200.00	95.7 AV			1.12 V	199	54.2	41.5
3	#10400.00	62.4 PK	68.2	-5.8	2.11 V	121	39.5	22.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	115.5 PK			2.18 H	20	74.3	41.2
2	*5240.00	105.3 AV			2.18 H	20	64.1	41.2
3	5350.00	60.8 PK	74.0	-13.2	2.11 H	33	48.4	12.4
4	5350.00	48.3 AV	54.0	-5.7	2.11 H	33	35.9	12.4
5	#10480.00	63.0 PK	68.2	-5.2	3.11 H	152	40.2	22.8
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	*5240.00	105.5 PK			1.09 V	219	64.3	41.2
2	*5240.00	95.3 AV			1.09 V	219	54.1	41.2
3	5350.00	60.5 PK	74.0	-13.5	1.06 V	232	48.1	12.4
4	5350.00	47.7 AV	54.0	-6.3	1.06 V	232	35.3	12.4
5	#10480.00	62.4 PK	68.2	-5.8	2.62 V	232	39.6	22.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.7 PK	74.0	-13.3	1.86 H	36	48.1	12.6
2	5150.00	47.7 AV	54.0	-6.3	1.86 H	36	35.1	12.6
3	*5260.00	115.4 PK			1.78 H	18	74.3	41.1
4	*5260.00	105.6 AV			1.78 H	18	64.5	41.1
5	#10520.00	63.5 PK	68.2	-4.7	2.55 H	221	40.5	23.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.6 PK	74.0	-13.4	1.00 V	203	48.0	12.6
2	5150.00	47.6 AV	54.0	-6.4	1.00 V	203	35.0	12.6
3	*5260.00	105.4 PK			1.06 V	209	64.3	41.1
4	*5260.00	95.6 AV			1.06 V	209	54.5	41.1
5	#10520.00	62.6 PK	68.2	-5.6	2.68 V	320	39.6	23.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	115.5 PK			1.78 H	20	74.4	41.1
2	*5300.00	105.7 AV			1.78 H	20	64.6	41.1
3	10600.00	63.3 PK	74.0	-10.7	2.55 H	200	40.1	23.2
4	10600.00	50.0 AV	54.0	-4.0	2.55 H	200	26.8	23.2
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	*5300.00	105.5 PK			1.09 V	203	64.4	41.1
2	*5300.00	95.7 AV			1.09 V	203	54.6	41.1
3	10600.00	62.8 PK	74.0	-11.2	3.25 V	125	39.6	23.2
4	10600.00	48.7 AV	54.0	-5.3	3.25 V	125	25.5	23.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	113.5 PK			1.88 H	23	72.3	41.2
2	*5320.00	103.1 AV			1.88 H	23	61.9	41.2
3	5350.00	72.9 PK	74.0	-1.1	1.82 H	19	60.5	12.4
4	5350.00	51.6 AV	54.0	-2.4	1.82 H	19	39.2	12.4
5	10640.00	63.3 PK	74.0	-10.7	2.66 H	320	40.1	23.2
6	10640.00	49.5 AV	54.0	-4.5	2.66 H	320	26.3	23.2
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	*5320.00	103.5 PK			1.03 V	209	62.3	41.2
2	*5320.00	93.1 AV			1.03 V	209	51.9	41.2
3	5350.00	60.6 PK	74.0	-13.4	1.09 V	212	48.2	12.4
4	5350.00	47.5 AV	54.0	-6.5	1.09 V	212	35.1	12.4
5	10640.00	63.0 PK	74.0	-11.0	2.66 V	320	39.8	23.2
6	10640.00	49.2 AV	54.0	-4.8	2.66 V	320	26.0	23.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.9 PK	74.0	-14.1	1.05 H	175	47.1	12.8
2	5460.00	47.3 AV	54.0	-6.7	1.05 H	175	34.5	12.8
3	#5470.00	66.8 PK	68.2	-1.4	1.00 H	177	53.9	12.9
4	*5500.00	104.8 PK			1.05 H	176	62.8	42.0
5	*5500.00	95.2 AV			1.05 H	176	53.2	42.0
6	11000.00	63.5 PK	74.0	-10.5	2.52 H	144	40.1	23.4
7	11000.00	49.6 AV	54.0	-4.4	2.52 H	144	26.2	23.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.3 PK	74.0	-13.7	1.06 V	300	47.5	12.8
2	5460.00	47.0 AV	54.0	-7.0	1.06 V	300	34.2	12.8
3	#5470.00	61.2 PK	68.2	-7.0	1.25 V	300	48.3	12.9
4	*5500.00	95.8 PK			1.00 V	339	53.8	42.0
5	*5500.00	86.2 AV			1.00 V	339	44.2	42.0
6	11000.00	63.2 PK	74.0	-10.8	2.44 V	177	39.8	23.4
7	11000.00	49.0 AV	54.0	-5.0	2.44 V	177	25.6	23.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	114.3 PK			1.00 H	170	72.5	41.8
2	*5580.00	104.7 AV			1.00 H	170	62.9	41.8
3	11160.00	63.3 PK	74.0	-10.7	2.63 H	282	40.0	23.3
4	11160.00	49.3 AV	54.0	-4.7	2.63 H	282	26.0	23.3
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	*5580.00	105.3 PK			1.08 V	336	63.5	41.8
2	*5580.00	95.7 AV			1.08 V	336	53.9	41.8
3	11160.00	62.8 PK	74.0	-11.2	2.11 V	202	39.5	23.3
4	11160.00	48.8 AV	54.0	-5.2	2.11 V	202	25.5	23.3

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	106.4 PK			1.05 H	173	64.3	42.1
2	*5700.00	96.4 AV			1.05 H	173	54.3	42.1
3	#5725.00	66.9 PK	68.2	-1.3	1.08 H	177	54.0	12.9
4	11400.00	64.7 PK	74.0	-9.3	2.63 H	285	40.3	24.4
5	11400.00	50.9 AV	54.0	-3.1	2.63 H	285	26.5	24.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	97.4 PK			1.21 V	332	55.3	42.1
2	*5700.00	87.4 AV			1.21 V	332	45.3	42.1
3	#5725.00	61.0 PK	68.2	-7.2	1.11 V	338	48.1	12.9
4	11400.00	64.1 PK	74.0	-9.9	2.15 V	333	39.7	24.4
5	11400.00	50.2 AV	54.0	-3.8	2.15 V	333	25.8	24.4

Remarks:

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

CHANNEL	TX Channel 144	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	60.6 PK	68.2	-7.6	1.21 H	166	47.7	12.9
2	*5720.00	114.2 PK			1.00 H	171	72.0	42.2
3	*5720.00	103.6 AV			1.00 H	171	61.4	42.2
4	#5850.00	60.5 PK	68.2	-7.7	1.16 H	181	47.2	13.3
5	11440.00	64.3 PK	74.0	-9.7	2.22 H	100	40.1	24.2
6	11440.00	50.5 AV	54.0	-3.5	2.22 H	100	26.3	24.2
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	#5470.00	60.2 PK	68.2	-8.0	1.00 V	200	47.3	12.9
2	*5720.00	104.2 PK			1.55 V	213	62.0	42.2
3	*5720.00	93.6 AV			1.55 V	213	51.4	42.2
4	#5850.00	60.2 PK	68.2	-8.0	1.02 V	213	46.9	13.3
5	11440.00	63.8 PK	74.0	-10.2	2.33 V	321	39.6	24.2
6	11440.00	49.5 AV	54.0	-4.5	2.33 V	321	25.3	24.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5615.20	62.9 PK	68.2	-5.3	1.22 H	178	50.2	12.7
2	*5745.00	115.3 PK			1.22 H	178	72.8	42.5
3	*5745.00	104.5 AV			1.22 H	178	62.0	42.5
4	#5948.00	63.7 PK	68.2	-4.5	1.22 H	178	50.1	13.6
5	11490.00	64.2 PK	74.0	-9.8	2.25 H	188	40.1	24.1
6	11490.00	50.0 AV	54.0	-4.0	2.25 H	188	25.9	24.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5650.40	63.8 PK	68.5	-4.7	1.19 V	236	51.2	12.6
2	*5745.00	105.3 PK			1.19 V	236	62.8	42.5
3	*5745.00	94.5 AV			1.19 V	236	52.0	42.5
4	#5975.20	64.4 PK	68.2	-3.8	1.19 V	236	50.6	13.8
5	11490.00	64.0 PK	74.0	-10.0	2.11 V	22	39.9	24.1
6	11490.00	49.6 AV	54.0	-4.4	2.11 V	22	25.5	24.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5623.20	61.9 PK	68.2	-6.3	1.01 H	180	49.2	12.7
2	*5785.00	115.2 PK			1.01 H	180	72.6	42.6
3	*5785.00	105.0 AV			1.01 H	180	62.4	42.6
4	#5947.20	63.1 PK	68.2	-5.1	1.01 H	180	49.5	13.6
5	11570.00	64.1 PK	74.0	-9.9	2.22 H	155	40.1	24.0
6	11570.00	49.8 AV	54.0	-4.2	2.22 H	155	25.8	24.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5647.20	62.7 PK	68.2	-5.5	1.52 V	233	50.1	12.6
2	*5785.00	105.2 PK			1.52 V	233	62.6	42.6
3	*5785.00	95.0 AV			1.52 V	233	52.4	42.6
4	#5987.20	62.8 PK	68.2	-5.4	1.52 V	233	49.0	13.8
5	11570.00	63.6 PK	74.0	-10.4	2.99 V	32	39.6	24.0
6	11570.00	49.5 AV	54.0	-4.5	2.99 V	32	25.5	24.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5612.00	62.7 PK	68.2	-5.5	1.12 H	177	50.0	12.7
2	*5825.00	115.8 PK			1.12 H	177	73.2	42.6
3	*5825.00	105.0 AV			1.12 H	177	62.4	42.6
4	#5976.00	63.1 PK	68.2	-5.1	1.12 H	177	49.3	13.8
5	11650.00	63.4 PK	74.0	-10.6	2.15 H	220	39.8	23.6
6	11650.00	49.7 AV	54.0	-4.3	2.15 H	220	26.1	23.6
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	#5620.00	63.3 PK	68.2	-4.9	1.18 V	237	50.6	12.7
2	*5825.00	105.8 PK			1.18 V	237	63.2	42.6
3	*5825.00	95.0 AV			1.18 V	237	52.4	42.6
4	#5980.80	63.5 PK	68.2	-4.7	1.18 V	237	49.7	13.8
5	11650.00	63.1 PK	74.0	-10.9	2.52 V	111	39.5	23.6
6	11650.00	49.4 AV	54.0	-4.6	2.52 V	111	25.8	23.6

Remarks:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	72.8 PK	74.0	-1.2	1.22 H	20	60.2	12.6
2	5150.00	51.8 AV	54.0	-2.2	1.22 H	20	39.2	12.6
3	*5190.00	107.1 PK			1.25 H	21	65.6	41.5
4	*5190.00	96.9 AV			1.25 H	21	55.4	41.5
5	#10380.00	62.7 PK	68.2	-5.5	2.66 H	233	40.0	22.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.9 PK	74.0	-13.1	1.56 V	200	48.3	12.6
2	5150.00	47.6 AV	54.0	-6.4	1.56 V	200	35.0	12.6
3	*5190.00	97.1 PK			1.09 V	206	55.6	41.5
4	*5190.00	86.9 AV			1.09 V	206	45.4	41.5
5	#10380.00	62.3 PK	68.2	-5.9	2.52 V	299	39.6	22.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	111.6 PK			1.23 H	22	70.3	41.3
2	*5230.00	101.7 AV			1.23 H	22	60.4	41.3
3	5350.00	60.7 PK	74.0	-13.3	2.00 H	26	48.3	12.4
4	5350.00	48.0 AV	54.0	-6.0	2.00 H	26	35.6	12.4
5	#10460.00	62.6 PK	68.2	-5.6	2.62 H	222	39.7	22.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	101.6 PK			1.09 V	195	60.3	41.3
2	*5230.00	91.7 AV			1.09 V	195	50.4	41.3
3	5350.00	60.5 PK	74.0	-13.5	1.09 V	206	48.1	12.4
4	5350.00	47.6 AV	54.0	-6.4	1.09 V	206	35.2	12.4
5	#10460.00	62.4 PK	68.2	-5.8	2.32 V	300	39.5	22.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.0 PK	74.0	-13.0	1.82 H	20	48.4	12.6
2	5150.00	47.8 AV	54.0	-6.2	1.82 H	20	35.2	12.6
3	*5270.00	114.3 PK			1.88 H	33	73.2	41.1
4	*5270.00	103.8 AV			1.88 H	33	62.7	41.1
5	#10540.00	63.2 PK	68.2	-5.0	2.63 H	140	40.3	22.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.8 PK	74.0	-13.2	1.00 V	200	48.2	12.6
2	5150.00	47.6 AV	54.0	-6.4	1.00 V	200	35.0	12.6
3	*5270.00	104.3 PK			1.02 V	203	63.2	41.1
4	*5270.00	93.8 AV			1.02 V	203	52.7	41.1
5	#10540.00	62.7 PK	68.2	-5.5	2.11 V	252	39.8	22.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	106.2 PK			1.88 H	26	65.0	41.2
2	*5310.00	96.0 AV			1.88 H	26	54.8	41.2
3	5350.00	73.0 PK	74.0	-1.0	1.88 H	33	60.6	12.4
4	5350.00	51.2 AV	54.0	-2.8	1.88 H	33	38.8	12.4
5	10620.00	63.2 PK	74.0	-10.8	2.55 H	144	40.1	23.1
6	10620.00	49.3 AV	54.0	-4.7	2.55 H	144	26.2	23.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	96.2 PK			1.02 V	209	55.0	41.2
2	*5310.00	86.0 AV			1.02 V	209	44.8	41.2
3	5350.00	60.5 PK	74.0	-13.5	1.09 V	201	48.1	12.4
4	5350.00	47.5 AV	54.0	-6.5	1.09 V	201	35.1	12.4
5	10620.00	62.6 PK	74.0	-11.4	2.00 V	296	39.5	23.1
6	10620.00	48.9 AV	54.0	-5.1	2.00 V	296	25.8	23.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.6 PK	74.0	-15.4	1.11 H	335	45.8	12.8
2	5460.00	46.7 AV	54.0	-7.3	1.11 H	335	33.9	12.8
3	#5470.00	66.9 PK	68.2	-1.3	1.02 H	171	54.0	12.9
4	*5510.00	101.6 PK			1.00 H	174	59.7	41.9
5	*5510.00	91.2 AV			1.00 H	174	49.3	41.9
6	11020.00	63.7 PK	74.0	-10.3	2.83 H	213	40.4	23.3
7	11020.00	49.4 AV	54.0	-4.6	2.83 H	213	26.1	23.3
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	5460.00	59.0 PK	74.0	-15.0	1.15 V	331	46.2	12.8
2	5460.00	47.0 AV	54.0	-7.0	1.15 V	331	34.2	12.8
3	#5470.00	61.2 PK	68.2	-7.0	1.22 V	331	48.3	12.9
4	*5510.00	92.6 PK			1.05 V	332	50.7	41.9
5	*5510.00	82.2 AV			1.05 V	332	40.3	41.9
6	11020.00	63.0 PK	74.0	-11.0	2.11 V	210	39.7	23.3
7	11020.00	49.0 AV	54.0	-5.0	2.11 V	210	25.7	23.3

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	109.9 PK			1.00 H	172	68.1	41.8
2	*5550.00	100.1 AV			1.00 H	172	58.3	41.8
3	11100.00	63.4 PK	74.0	-10.6	2.53 H	21	40.0	23.4
4	11100.00	49.3 AV	54.0	-4.7	2.53 H	21	25.9	23.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	100.9 PK			1.08 V	335	59.1	41.8
2	*5550.00	91.1 AV			1.08 V	335	49.3	41.8
3	11100.00	62.8 PK	74.0	-11.2	2.22 V	177	39.4	23.4
4	11100.00	48.8 AV	54.0	-5.2	2.22 V	177	25.4	23.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	107.1 PK			1.02 H	177	65.2	41.9
2	*5670.00	97.1 AV			1.02 H	177	55.2	41.9
3	#5725.00	66.8 PK	68.2	-1.4	1.01 H	169	53.9	12.9
4	11340.00	63.6 PK	74.0	-10.4	2.52 H	177	39.8	23.8
5	11340.00	49.6 AV	54.0	-4.4	2.52 H	177	25.8	23.8
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	*5670.00	98.1 PK			1.16 V	334	56.2	41.9
2	*5670.00	88.1 AV			1.16 V	334	46.2	41.9
3	#5725.00	60.7 PK	68.2	-7.5	1.51 V	339	47.8	12.9
4	11340.00	63.3 PK	74.0	-10.7	2.37 V	41	39.5	23.8
5	11340.00	49.3 AV	54.0	-4.7	2.37 V	41	25.5	23.8

Remarks:

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

CHANNEL	TX Channel 142	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5710.00	109.0 PK			1.00 H	174	66.9	42.1
2	*5710.00	99.2 AV			1.00 H	174	57.1	42.1
3	#5850.00	60.6 PK	68.2	-7.6	1.21 H	177	47.3	13.3
4	11420.00	64.9 PK	74.0	-9.1	1.21 H	222	40.5	24.4
5	11420.00	50.6 AV	54.0	-3.4	1.21 H	222	26.2	24.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5710.00	99.0 PK			1.09 V	222	56.9	42.1
2	*5710.00	89.2 AV			1.09 V	222	47.1	42.1
3	#5850.00	60.3 PK	68.2	-7.9	1.51 V	233	47.0	13.3
4	11420.00	64.2 PK	74.0	-9.8	3.22 V	15	39.8	24.4
5	11420.00	50.0 AV	54.0	-4.0	3.22 V	15	25.6	24.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.80	63.3 PK	68.2	-4.9	1.00 H	176	50.6	12.7
2	*5755.00	109.7 PK			1.00 H	176	67.2	42.5
3	*5755.00	100.2 AV			1.00 H	176	57.7	42.5
4	#5944.00	64.0 PK	68.2	-4.2	1.00 H	176	50.4	13.6
5	11510.00	63.7 PK	74.0	-10.3	2.52 H	212	39.8	23.9
6	11510.00	49.9 AV	54.0	-4.1	2.52 H	212	26.0	23.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5653.60	63.6 PK	70.9	-7.3	1.15 V	232	51.0	12.6
2	*5755.00	99.7 PK			1.15 V	232	57.2	42.5
3	*5755.00	90.2 AV			1.15 V	232	47.7	42.5
4	#5966.40	63.8 PK	68.2	-4.4	1.15 V	232	50.1	13.7
5	11510.00	63.4 PK	74.0	-10.6	2.22 V	12	39.5	23.9
6	11510.00	49.4 AV	54.0	-4.6	2.22 V	12	25.5	23.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5643.20	64.3 PK	68.2	-3.9	1.11 H	179	51.6	12.7
2	*5795.00	110.7 PK			1.11 H	179	68.1	42.6
3	*5795.00	101.0 AV			1.11 H	179	58.4	42.6
4	#5933.60	64.6 PK	68.2	-3.6	1.11 H	179	51.0	13.6
5	11590.00	63.5 PK	74.0	-10.5	2.15 H	174	39.7	23.8
6	11590.00	50.2 AV	54.0	-3.8	2.15 H	174	26.4	23.8
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	#5604.00	63.4 PK	68.2	-4.8	1.14 V	230	50.8	12.6
2	*5795.00	100.7 PK			1.14 V	230	58.1	42.6
3	*5795.00	91.0 AV			1.14 V	230	48.4	42.6
4	#5976.80	64.4 PK	68.2	-3.8	1.14 V	230	50.6	13.8
5	11590.00	63.4 PK	74.0	-10.6	2.52 V	100	39.6	23.8
6	11590.00	50.0 AV	54.0	-4.0	2.52 V	100	26.2	23.8

Remarks:

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

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.7 PK	74.0	-5.3	1.25 H	29	56.1	12.6
2	5150.00	52.9 AV	54.0	-1.1	1.25 H	29	40.3	12.6
3	*5210.00	103.5 PK			1.23 H	22	62.1	41.4
4	*5210.00	94.3 AV			1.23 H	22	52.9	41.4
5	5350.00	61.2 PK	74.0	-12.8	1.20 H	39	48.8	12.4
6	5350.00	48.0 AV	54.0	-6.0	1.20 H	39	35.6	12.4
7	#10420.00	63.0 PK	68.2	-5.2	2.66 H	200	40.2	22.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.4 PK	74.0	-12.6	1.06 V	198	48.8	12.6
2	5150.00	48.1 AV	54.0	-5.9	1.06 V	198	35.5	12.6
3	*5210.00	93.5 PK			1.03 V	209	52.1	41.4
4	*5210.00	84.3 AV			1.03 V	209	42.9	41.4
5	5350.00	60.9 PK	74.0	-13.1	1.09 V	221	48.5	12.4
6	5350.00	47.6 AV	54.0	-6.4	1.09 V	221	35.2	12.4
7	#10420.00	62.5 PK	68.2	-5.7	1.05 V	311	39.7	22.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.8 PK	74.0	-12.2	1.79 H	30	49.2	12.6
2	5150.00	49.6 AV	54.0	-4.4	1.79 H	30	37.0	12.6
3	*5290.00	103.8 PK			1.76 H	20	62.7	41.1
4	*5290.00	93.4 AV			1.76 H	20	52.3	41.1
5	5350.00	68.4 PK	74.0	-5.6	1.77 H	32	56.0	12.4
6	5350.00	52.7 AV	54.0	-1.3	1.77 H	32	40.3	12.4
7	#10580.00	63.2 PK	68.2	-5.0	2.22 H	222	40.1	23.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.4 PK	74.0	-13.6	1.06 V	211	47.8	12.6
2	5150.00	47.5 AV	54.0	-6.5	1.06 V	211	34.9	12.6
3	*5290.00	92.3 PK			1.00 V	203	51.2	41.1
4	*5290.00	83.4 AV			1.00 V	203	42.3	41.1
5	5350.00	60.6 PK	74.0	-13.4	1.02 V	199	48.2	12.4
6	5350.00	47.5 AV	54.0	-6.5	1.02 V	199	35.1	12.4
7	#10580.00	62.6 PK	68.2	-5.6	2.52 V	155	39.5	23.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	63.3 PK	74.0	-10.7	1.52 H	169	50.5	12.8
2	5460.00	48.4 AV	54.0	-5.6	1.52 H	169	35.6	12.8
3	#5470.00	67.0 PK	68.2	-1.2	1.22 H	156	54.1	12.9
4	*5530.00	99.7 PK			1.09 H	177	57.8	41.9
5	*5530.00	89.0 AV			1.09 H	177	47.1	41.9
6	#5725.00	60.9 PK	68.2	-7.3	1.05 H	166	48.0	12.9
7	11060.00	63.2 PK	74.0	-10.8	1.51 H	129	39.8	23.4
8	11060.00	49.5 AV	54.0	-4.5	1.51 H	129	26.1	23.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.0 PK	74.0	-15.0	1.21 V	332	46.2	12.8
2	5460.00	46.7 AV	54.0	-7.3	1.21 V	332	33.9	12.8
3	#5470.00	60.9 PK	68.2	-7.3	1.09 V	332	48.0	12.9
4	*5530.00	90.7 PK			1.12 V	341	48.8	41.9
5	*5530.00	80.0 AV			1.12 V	341	38.1	41.9
6	#5725.00	60.7 PK	68.2	-7.5	1.22 V	335	47.8	12.9
7	11060.00	63.2 PK	74.0	-10.8	2.63 V	101	39.8	23.4
8	11060.00	49.2 AV	54.0	-4.8	2.63 V	101	25.8	23.4

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	61.9 PK	74.0	-12.1	1.02 H	171	49.1	12.8
2	5460.00	49.6 AV	54.0	-4.4	1.02 H	171	36.8	12.8
3	#5470.00	66.2 PK	68.2	-2.0	1.05 H	179	53.3	12.9
4	*5610.00	107.2 PK			1.10 H	175	65.4	41.8
5	*5610.00	96.1 AV			1.10 H	175	54.3	41.8
6	#5725.00	66.7 PK	68.2	-1.5	1.00 H	173	53.8	12.9
7	11220.00	63.4 PK	74.0	-10.6	2.33 H	321	40.2	23.2
8	11220.00	49.5 AV	54.0	-4.5	2.33 H	321	26.3	23.2
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	5460.00	60.3 PK	74.0	-13.7	1.11 V	326	47.5	12.8
2	5460.00	47.6 AV	54.0	-6.4	1.11 V	326	34.8	12.8
3	#5470.00	60.8 PK	68.2	-7.4	1.05 V	332	47.9	12.9
4	*5610.00	98.2 PK			1.21 V	335	56.4	41.8
5	*5610.00	87.1 AV			1.21 V	335	45.3	41.8
6	#5725.00	61.0 PK	68.2	-7.2	1.05 V	326	48.1	12.9
7	11220.00	63.1 PK	74.0	-10.9	2.52 V	174	39.9	23.2
8	11220.00	48.8 AV	54.0	-5.2	2.52 V	174	25.6	23.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	63.1 PK	68.2	-5.1	1.51 H	171	50.2	12.9
2	*5690.00	108.8 PK			1.00 H	172	66.8	42.0
3	*5690.00	96.4 AV			1.00 H	172	54.4	42.0
4	#5850.00	61.9 PK	68.2	-6.3	1.51 H	174	48.6	13.3
5	11380.00	64.5 PK	74.0	-9.5	2.16 H	156	40.3	24.2
6	11380.00	50.2 AV	54.0	-3.8	2.16 H	156	26.0	24.2
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	#5470.00	60.5 PK	68.2	-7.7	2.15 V	210	47.6	12.9
2	*5690.00	98.8 PK			1.21 V	224	56.8	42.0
3	*5690.00	86.4 AV			1.21 V	224	44.4	42.0
4	#5850.00	60.5 PK	68.2	-7.7	1.51 V	223	47.2	13.3
5	11380.00	63.7 PK	74.0	-10.3	3.12 V	55	39.5	24.2
6	11380.00	49.7 AV	54.0	-4.3	3.12 V	55	25.5	24.2

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5616.80	63.8 PK	68.2	-4.4	1.02 H	176	51.1	12.7
2	*5775.00	107.2 PK			1.02 H	176	64.6	42.6
3	*5775.00	94.7 AV			1.02 H	176	52.1	42.6
4	#5950.40	62.8 PK	68.2	-5.4	1.02 H	176	49.2	13.6
5	11550.00	64.1 PK	74.0	-9.9	1.52 H	322	40.2	23.9
6	11550.00	50.0 AV	54.0	-4.0	1.52 H	322	26.1	23.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5615.20	62.9 PK	68.2	-5.3	1.19 V	236	50.2	12.7
2	*5775.00	94.4 PK			1.19 V	236	51.8	42.6
3	*5775.00	84.3 AV			1.19 V	236	41.7	42.6
4	#5975.20	63.9 PK	68.2	-4.3	1.19 V	236	50.1	13.8
5	11550.00	63.7 PK	74.0	-10.3	1.84 V	151	39.8	23.9
6	11550.00	49.4 AV	54.0	-4.6	1.84 V	151	25.5	23.9

Remarks:

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

Below 1GHz Worst-Case Data:

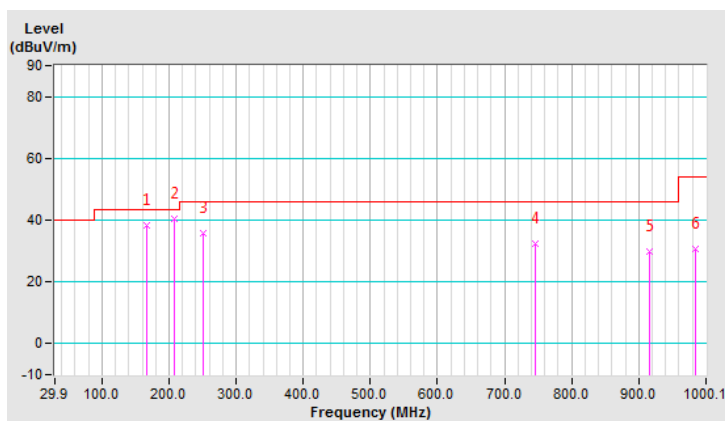
802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	166.00	38.2 QP	43.5	-5.3	1.50 H	90	47.1	-8.9
2	208.77	40.4 QP	43.5	-3.1	2.00 H	12	51.5	-11.1
3	251.55	35.7 QP	46.0	-10.3	1.01 H	8	45.1	-9.4
4	745.40	32.2 QP	46.0	-13.8	1.50 H	281	31.4	0.8
5	916.50	29.8 QP	46.0	-16.2	2.00 H	187	26.0	3.8
6	984.55	30.8 QP	54.0	-23.2	1.50 H	7	26.4	4.4

Remarks:

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

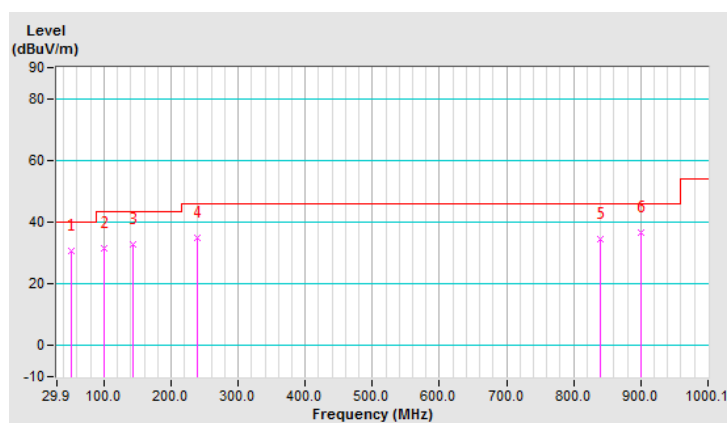


CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	51.29	30.5 QP	40.0	-9.5	1.00 V	92	39.5	-9.0
2	99.89	31.5 QP	43.5	-12.0	1.99 V	19	44.8	-13.3
3	142.67	33.0 QP	43.5	-10.5	1.00 V	67	42.1	-9.1
4	239.88	35.0 QP	46.0	-11.0	1.50 V	325	44.8	-9.8
5	840.67	34.5 QP	46.0	-11.5	1.00 V	271	32.1	2.4
6	900.94	36.4 QP	46.0	-9.6	1.00 V	293	32.9	3.5

Remarks:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS 30	100288	Jan. 03, 2019	Jan. 02, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Conc_ 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

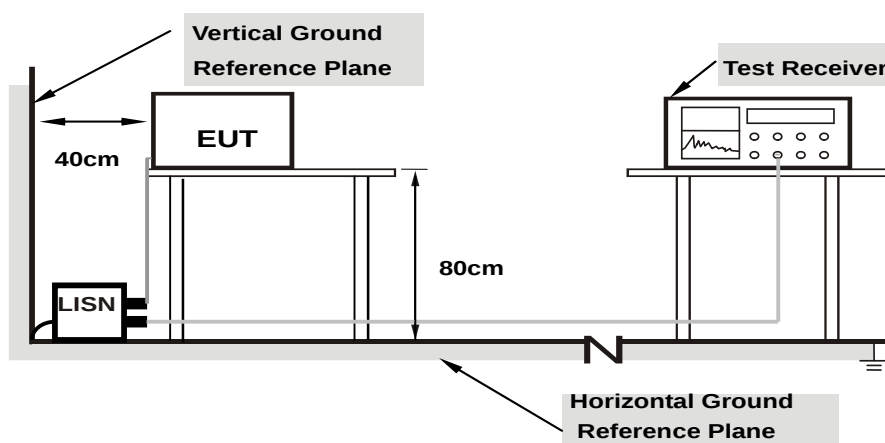
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

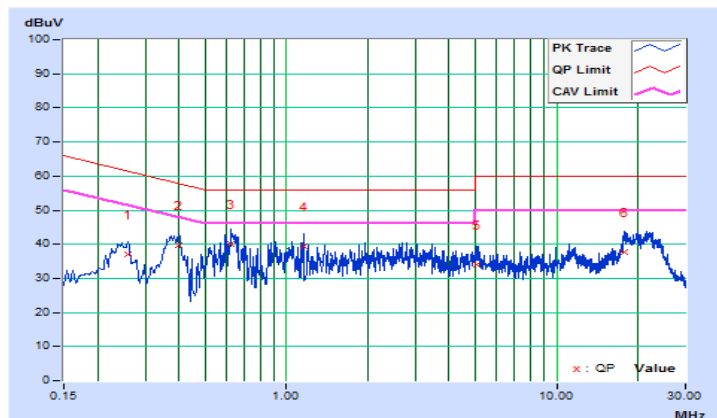
802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.25810	10.00	27.02	20.76	37.02	30.76	61.49	51.49	-24.47	-20.73
2	0.39863	9.99	29.70	23.55	39.69	33.54	57.88	47.88	-18.19	-14.34
3	0.62200	9.99	29.91	21.98	39.90	31.97	56.00	46.00	-16.10	-14.03
4	1.15400	9.98	29.53	15.62	39.51	25.60	56.00	46.00	-16.49	-20.40
5	5.06600	10.07	24.04	18.05	34.11	28.12	60.00	50.00	-25.89	-21.88
6	17.73000	10.26	27.33	21.54	37.59	31.80	60.00	50.00	-22.41	-18.20

Remarks:

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

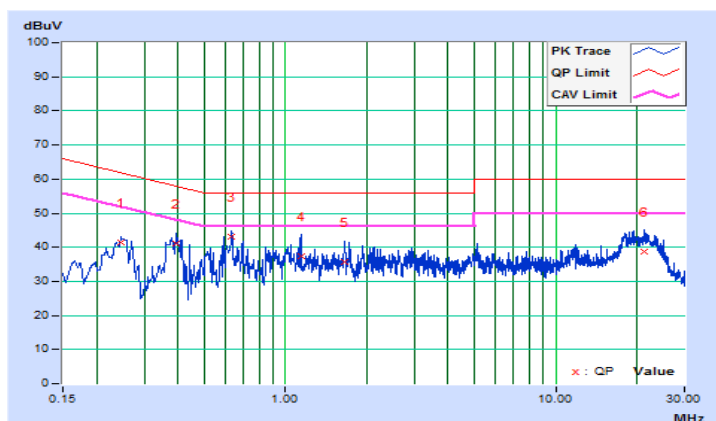


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.24549	10.02	31.38	27.23	41.40	37.25	61.91	51.91	-20.51	-14.66
2	0.39445	10.00	30.93	25.73	40.93	35.73	57.97	47.97	-17.04	-12.24
3	0.63400	10.00	33.23	26.60	43.23	36.60	56.00	46.00	-12.77	-9.40
4	1.14200	9.99	27.47	18.23	37.46	28.22	56.00	46.00	-18.54	-17.78
5	1.65400	10.01	25.54	18.58	35.55	28.59	56.00	46.00	-20.45	-17.41
6	21.20600	10.33	28.33	22.33	38.66	32.66	60.00	50.00	-21.34	-17.34

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 $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	✓	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	✓		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	✓		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	✓		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

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

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

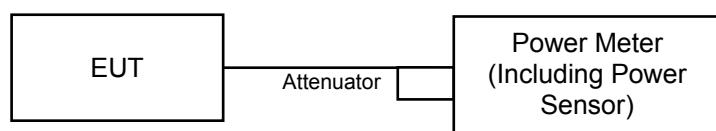
Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

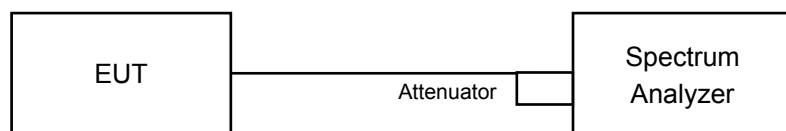
4.3.2 Test Setup

For Power Output

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



802.11ac (VHT80)



For 26dB Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

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

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

For 802.11ac (VHT80)

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

For 26dB Bandwidth

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

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	13.47	12.63	40.556	16.08	24.00	Pass
40	5200	15.22	16.14	74.381	18.71	24.00	Pass
48	5240	15.39	16.09	75.238	18.76	24.00	Pass
52	5260	15.54	15.85	74.269	18.71	24.00	Pass
60	5300	15.34	16.02	74.192	18.70	24.00	Pass
64	5320	13.97	13.30	46.326	16.66	23.89	Pass
100	5500	7.11	5.89	9.022	9.55	23.85	Pass
116	5580	13.31	14.20	47.732	16.79	23.97	Pass
140	5700	5.89	7.09	8.999	9.54	23.81	Pass
144	5720 (For U-NII-2C)	9.96	8.91	18.718	12.72	22.69	Pass
144	5720 (For U-NII-3)	1.93	2.07	3.356	5.26	30.00	Pass
149	5745	13.42	13.79	45.912	16.62	30.00	Pass
157	5785	14.55	15.42	63.344	18.02	30.00	Pass
165	5825	14.51	15.02	60.018	17.78	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(20.14) = 24.04 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.13) = 24.03 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(19.48) = 23.89 < 24\text{dBm}$
4. $11\text{dBm} + 10\log(19.28) = 23.85 < 24\text{dBm}$
5. $11\text{dBm} + 10\log(19.86) = 23.97 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(19.12) = 23.81 < 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.77) = 22.82 < 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(34.48) = 26.37 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(37.71) = 26.76 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.47) = 24.11 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(19.46) = 23.89 < 24\text{dBm}$
5. $11\text{dBm} + 10\log(36.91) = 26.67 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(19.24) = 23.84 < 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5710.23) = 22.69 < 24\text{dBm}$

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	12.93	13.06	39.864	16.01	24.00	Pass
40	5200	14.01	14.82	55.516	17.44	24.00	Pass
48	5240	14.13	15.08	58.093	17.64	24.00	Pass
52	5260	14.10	14.92	56.750	17.54	24.00	Pass
60	5300	14.12	15.17	58.708	17.69	24.00	Pass
64	5320	14.13	13.76	49.650	16.96	24.00	Pass
100	5500	6.02	4.86	7.061	8.49	24.00	Pass
116	5580	13.64	14.56	51.697	17.13	24.00	Pass
140	5700	5.77	6.84	8.607	9.35	24.00	Pass
144	5720 (For U-NII-2C)	8.81	9.58	17.618	12.46	22.84	Pass
144	5720 (For U-NII-3)	1.64	1.01	2.874	4.58	30.00	Pass
149	5745	13.58	13.99	47.864	16.80	30.00	Pass
157	5785	14.14	13.99	51.003	17.08	30.00	Pass
165	5825	14.60	14.85	59.389	17.74	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(20.99) = 24.22 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(21.01) = 24.22 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.59) = 24.13 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.69) = 24.15 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.60) = 24.13 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.80) = 24.18 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.71) = 22.84 < 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(20.89) = 24.19 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(21.08) = 24.23 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.98) = 24.21 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.58) = 24.13 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(26.47) = 25.22 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.57) = 24.13 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.50) = 22.90 < 24\text{dBm}$

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	8.69	8.39	14.298	11.55	24.00	Pass
46	5230	13.10	14.33	47.519	16.77	24.00	Pass
54	5270	12.91	14.29	46.396	16.66	24.00	Pass
62	5310	9.57	8.93	16.873	12.27	24.00	Pass
102	5510	6.23	5.67	7.888	8.97	24.00	Pass
110	5550	12.70	13.59	41.477	16.18	24.00	Pass
134	5670	10.91	10.71	24.107	13.82	24.00	Pass
142	5710 (For U-NII-2C)	6.32	6.81	9.956	9.98	24.00	Pass
142	5710 (For U-NII-3)	-5.88	-4.35	0.686	-1.64	30.00	Pass
151	5755	11.57	12.44	31.894	15.04	30.00	Pass
159	5795	13.41	13.45	44.059	16.44	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(46.46) = 27.67 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(45.57) = 27.58 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(48.21) = 27.83 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(50.42) = 28.02 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(54.14) = 28.33 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5681.97) = 27.33 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(47.15) = 27.73 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(46.81) = 27.70 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(44.06) = 27.44 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(48.07) = 27.81 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(48.85) = 27.88 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5681.17) = 27.41 > 24\text{dBm}$

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	8.94	9.08	15.925	12.02	24.00	Pass
58	5290	9.25	8.65	15.742	11.97	24.00	Pass
106	5530	5.93	5.52	7.482	8.74	24.00	Pass
122	5610	13.78	13.25	45.013	16.53	24.00	Pass
138	5690 (For U-NII-2C)	5.54	5.47	8.759	9.42	24.00	Pass
138	5690 (For U-NII-3)	-10.95	-9.55	0.236	-6.27	30.00	Pass
155	5775	10.17	11.01	23.017	13.62	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(81.37) = 30.10 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(81.22) = 30.09 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(81.29) = 30.10 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(5725.00 - 5648.73) = 29.82 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(85.58) = 30.32 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(81.54) = 30.11 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(98.34) = 30.92 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(5725.00 - 5648.52) = 29.83 > 24\text{dBm}$

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.14	34.48
60	5300	20.13	37.71
64	5320	19.48	20.47
100	5500	19.28	19.46
116	5580	19.86	36.91
140	5700	19.12	19.24
144	5720 (For U-NII-2C)	15.23	14.77
144	5720 (For U-NII-3)	4.50	5.32

802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.99	20.89
60	5300	21.01	21.08
64	5320	20.59	20.98
100	5500	20.69	20.58
116	5580	20.60	26.47
140	5700	20.80	20.57
144	5720 (For U-NII-2C)	15.29	15.50
144	5720 (For U-NII-3)	5.04	5.25

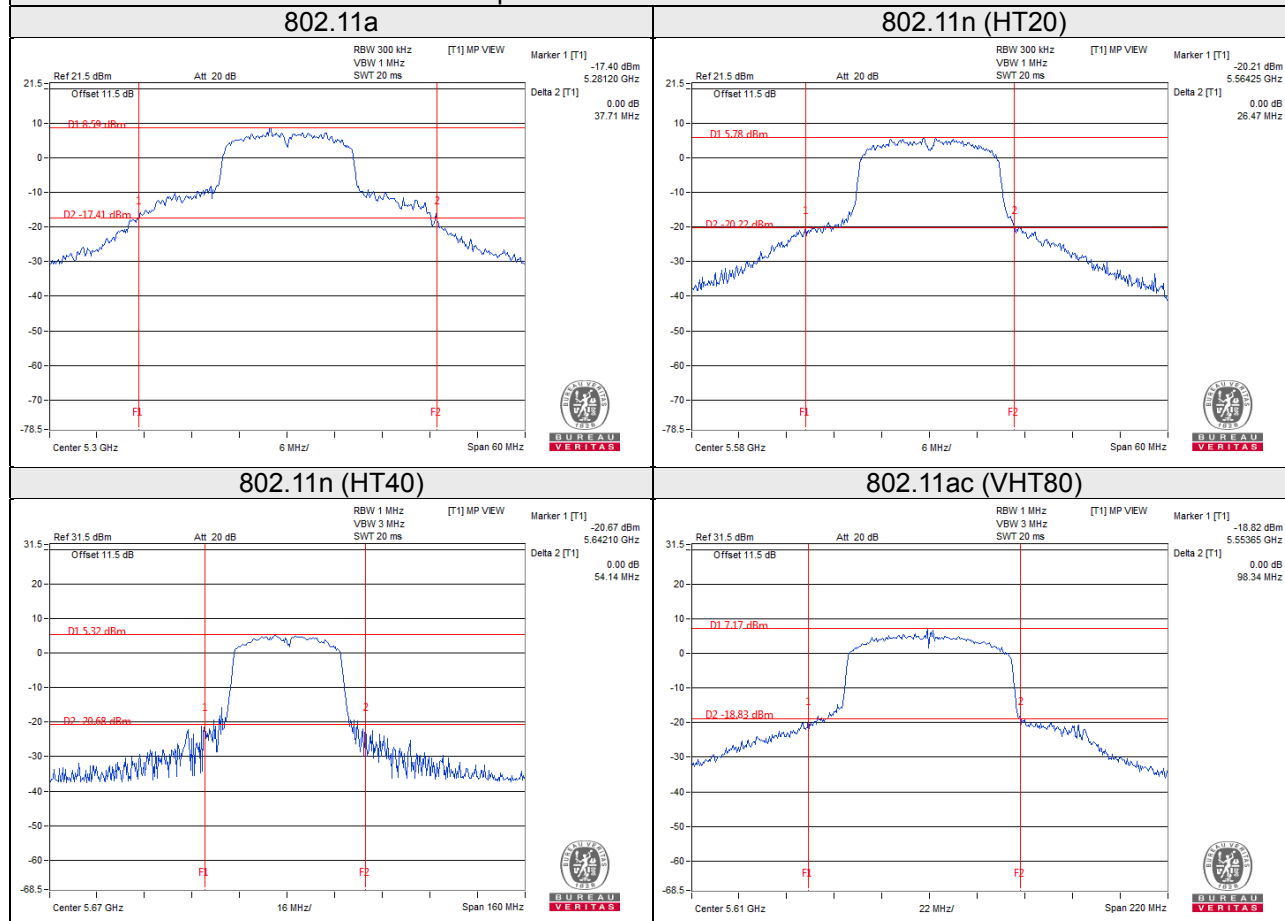
802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	46.46	47.15
62	5310	45.57	46.81
102	5510	48.21	44.06
110	5550	50.42	48.07
134	5670	54.14	48.85
142	5710 (For U-NII-2C)	43.03	43.83
142	5710 (For U-NII-3)	8.24	10.81

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	81.37	85.58
106	5530	81.22	81.54
122	5610	81.29	98.34
138	5690 (For U-NII-2C)	76.27	76.48
138	5690 (For U-NII-3)	6.05	5.95

Spectrum Plot of Worst Value



EUT Maximum Conducted Power

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	74.269	18.71
5470~5725	47.732	16.79

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	58.708	17.69
5470~5725	51.697	17.13

802.11n (HT40)

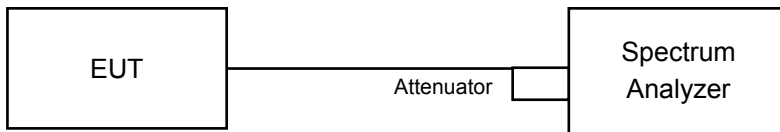
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	46.396	16.66
5470~5725	41.477	16.18

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	15.742	11.97
5470~5725	45.013	16.53

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	16.32	16.32
40	5200	16.32	16.68
48	5240	16.44	21.12
52	5260	16.44	17.64
60	5300	16.44	25.32
64	5320	16.20	16.32
100	5500	16.20	16.32
116	5580	16.44	24.72
140	5700	16.20	16.32
144	5720 (For U-NII-2C)	13.16	13.16
144	5720 (For U-NII-3)	3.04	3.16
149	5745	16.32	16.44
157	5785	16.44	19.92
165	5825	16.20	16.56

802.11n (HT20)

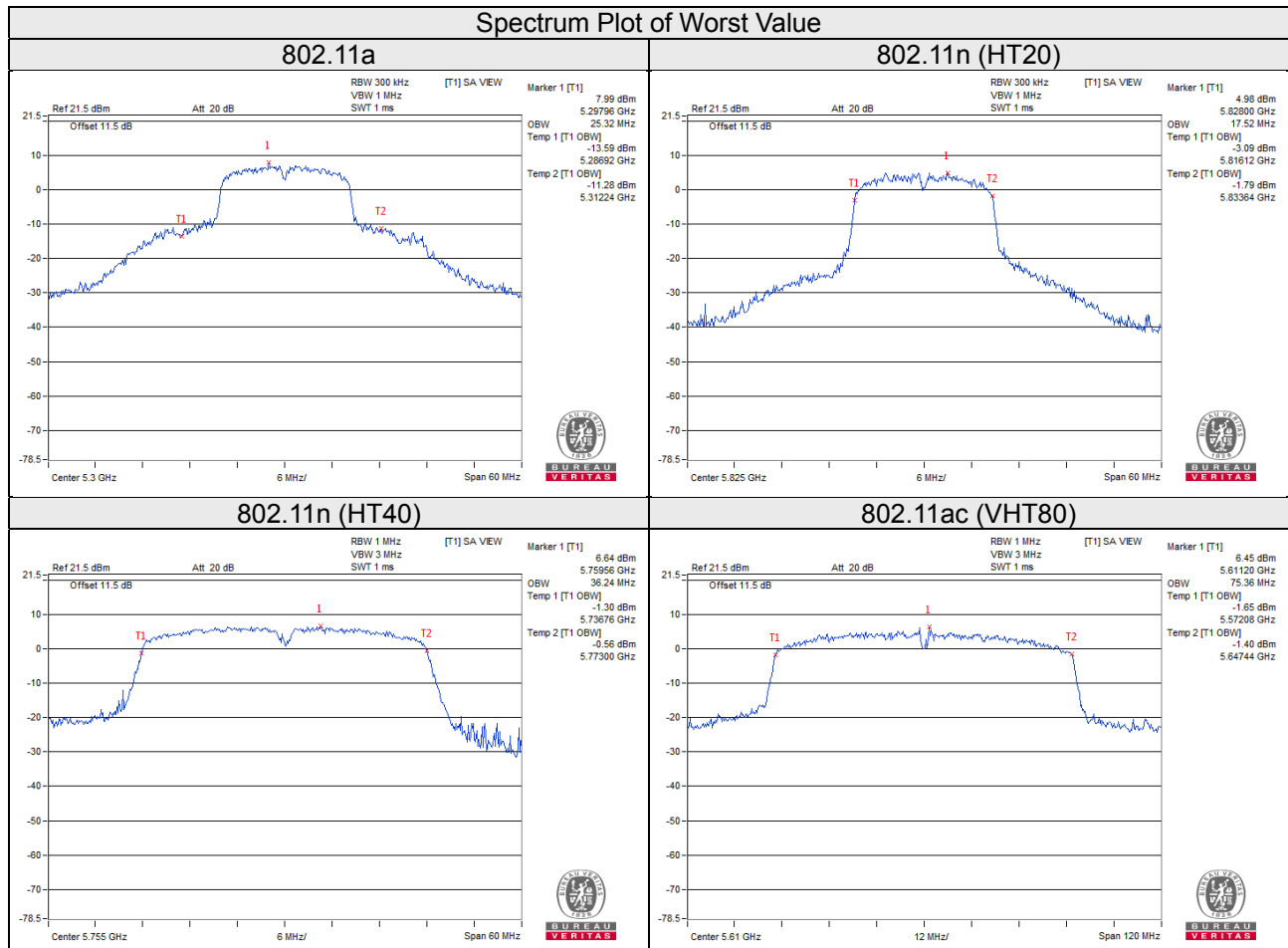
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.40	17.40
40	5200	17.40	17.40
48	5240	17.40	17.40
52	5260	17.40	17.40
60	5300	17.40	17.40
64	5320	17.40	17.40
100	5500	17.40	17.40
116	5580	17.40	17.52
140	5700	17.40	17.40
144	5720 (For U-NII-2C)	13.76	13.88
144	5720 (For U-NII-3)	3.52	3.52
149	5745	17.40	17.52
157	5785	17.40	17.52
165	5825	17.40	17.52

802.11n (HT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.00	36.00
46	5230	36.12	36.24
54	5270	36.00	36.24
62	5310	36.00	36.12
102	5510	36.00	36.12
110	5550	36.12	36.12
134	5670	36.00	36.24
142	5710 (For U-NII-2C)	33.00	33.12
142	5710 (For U-NII-3)	3.00	3.00
151	5755	36.00	36.24
159	5795	36.12	36.12

802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	74.88	74.88
58	5290	74.88	75.12
106	5530	74.64	74.88
122	5610	74.88	75.36
138	5690 (For U-NII-2C)	72.44	72.68
138	5690 (For U-NII-3)	2.20	2.20
155	5775	74.88	74.88

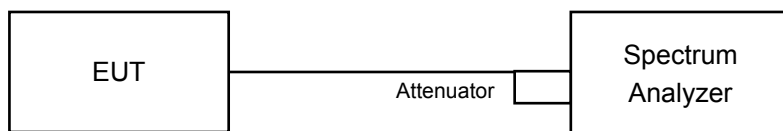


4.5 Peak Power Spectral Density Measurement

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, U-NII-2A and U-NII-2C band:

Duty cycle of test signal is > 98%

Using method SA-1

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

Duty cycle of test signal is < 98%

Using method SA-2

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

For U-NII-3 band:

Duty cycle of test signal is > 98%

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 300 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- c. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- d. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$
- e. Sweep time = auto, trigger set to "free run".
- f. Trace average at least 100 traces in power averaging mode.
- g. Record the max value

Duty cycle of test signal is < 98%

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 300 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- c. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- d. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz} / 300 \text{ kHz})$
- e. Sweep time = auto, trigger set to "free run".
- f. Trace average at least 100 traces in power averaging mode.
- g. Record the max value and add $10 \log (1/\text{duty cycle})$

4.5.5 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, U-NII-2A and U-NII-2C band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	1.25	1.04	0.25	4.41	8.19	Pass
40	5200	3.07	2.28	0.25	5.95	8.19	Pass
48	5240	3.51	2.84	0.25	6.45	8.19	Pass
52	5260	2.95	2.18	0.25	5.84	8.19	Pass
60	5300	2.59	2.97	0.25	6.04	8.19	Pass
64	5320	0.89	1.22	0.25	4.32	8.19	Pass
100	5500	-5.73	-5.28	0.25	-2.24	8.19	Pass
116	5580	2.64	2.21	0.25	5.69	8.19	Pass
140	5700	-5.20	-5.98	0.25	-2.31	8.19	Pass
144	5720 (For U-NII-2C)	-0.27	0.07	0.25	3.16	8.19	Pass

Note:

- 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.
- Directional gain = $5.8\text{dBi} + 10\log(2) = 8.81\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (8.81 - 6) = 8.19\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	0.47	0.09	0.24	3.53	8.19	Pass
40	5200	1.85	1.21	0.24	4.79	8.19	Pass
48	5240	2.03	1.39	0.24	4.97	8.19	Pass
52	5260	1.52	0.83	0.24	4.44	8.19	Pass
60	5300	1.95	1.86	0.24	5.16	8.19	Pass
64	5320	0.86	0.99	0.24	4.18	8.19	Pass
100	5500	-7.21	-7.17	0.24	-3.94	8.19	Pass
116	5580	1.38	1.07	0.24	4.48	8.19	Pass
140	5700	-6.41	-6.87	0.24	-3.38	8.19	Pass
144	5720 (For U-NII-2C)	-0.86	-0.97	0.24	2.34	8.19	Pass

Note:

- 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.
- Directional gain = $5.8\text{dBi} + 10\log(2) = 8.81\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (8.81 - 6) = 8.19\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-7.59	-7.82	0.40	-4.29	8.19	Pass
46	5230	-1.82	-2.26	0.40	1.38	8.19	Pass
54	5270	-2.21	-2.48	0.40	1.07	8.19	Pass
62	5310	-6.32	-6.40	0.40	-2.95	8.19	Pass
102	5510	-10.13	-10.28	0.40	-6.79	8.19	Pass
110	5550	-3.43	-3.65	0.40	-0.13	8.19	Pass
134	5670	-5.60	-5.52	0.40	-2.15	8.19	Pass
142	5710 (For U-NII-2C)	-5.20	-5.57	0.40	-1.97	8.19	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 = $5.8\text{dBi} + 10\log(2) = 8.81\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(8.81-6) = 8.19\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

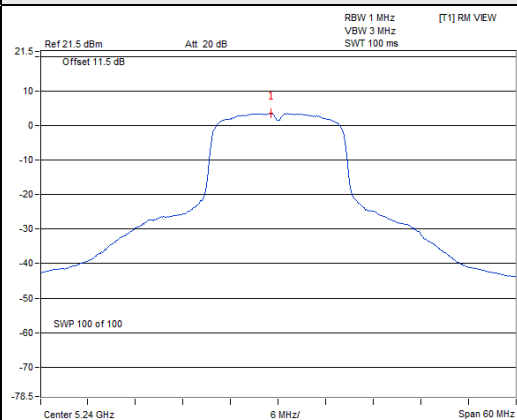
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-10.54	-10.50	0.91	-6.60	8.19	Pass
58	5290	-10.01	-9.99	0.91	-6.08	8.19	Pass
106	5530	-13.43	-13.55	0.91	-9.57	8.19	Pass
122	5610	-5.57	-5.70	0.91	-1.71	8.19	Pass
138	5690 (For U-NII-2C)	-7.34	-7.40	0.91	-3.45	8.19	Pass

Note:

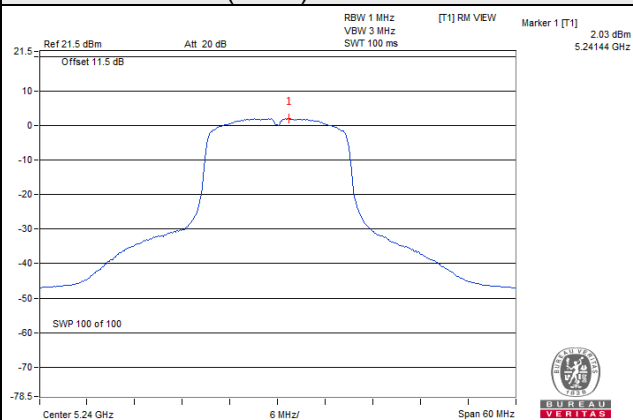
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $5.8\text{dBi} + 10\log(2) = 8.81\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(8.81-6) = 8.19\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

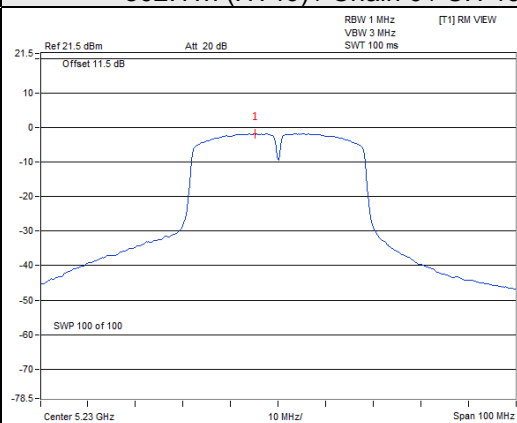
802.11a / Chain 0 / CH 48



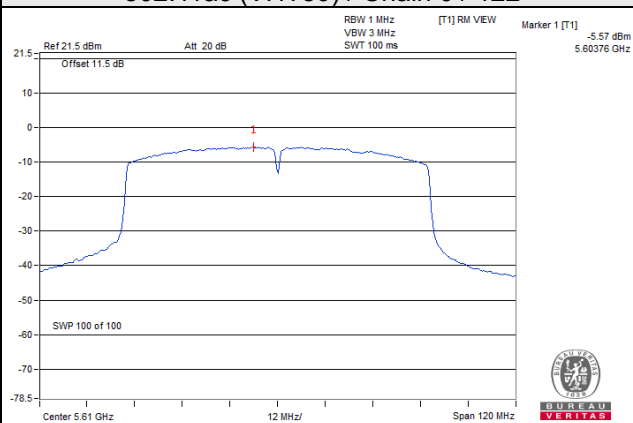
802.11n (HT20) / Chain 0 / CH 48



802.11n (HT40) / Chain 0 / CH 46



802.11ac (VHT80) / Chain 0 / 122



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	144	5720 (For U-NII-3)	-9.66	-7.44	3.01	0.25	-4.18	27.19	Pass
	149	5745	-6.58	-4.36	3.01	0.25	-1.10	27.19	Pass
	157	5785	-5.85	-3.63	3.01	0.25	-0.37	27.19	Pass
	165	5825	-6.94	-4.72	3.01	0.25	-1.46	27.19	Pass
1	144	5720 (For U-NII-3)	-9.36	-7.14	3.01	0.25	-3.88	27.19	Pass
	149	5745	-7.38	-5.16	3.01	0.25	-1.90	27.19	Pass
	157	5785	-6.24	-4.02	3.01	0.25	-0.76	27.19	Pass
	165	5825	-7.18	-4.96	3.01	0.25	-1.70	27.19	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 5.8dBi + 10log(2) = 8.81dBi > 6dBi, so the power density limit shall be reduced to 30-(8.81-6) = 27.19dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	144	5720 (For U-NII-3)	-10.08	-7.86	3.01	0.24	-4.61	27.19	Pass
	149	5745	-7.25	-5.03	3.01	0.24	-1.78	27.19	Pass
	157	5785	-7.52	-5.30	3.01	0.24	-2.05	27.19	Pass
	165	5825	-7.17	-4.95	3.01	0.24	-1.70	27.19	Pass
1	144	5720 (For U-NII-3)	-10.18	-7.96	3.01	0.24	-4.71	27.19	Pass
	149	5745	-7.35	-5.13	3.01	0.24	-1.88	27.19	Pass
	157	5785	-8.19	-5.97	3.01	0.24	-2.72	27.19	Pass
	165	5825	-7.75	-5.53	3.01	0.24	-2.28	27.19	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 5.8dBi + 10log(2) = 8.81dBi > 6dBi, so the power density limit shall be reduced to 30-(8.81-6) = 27.19dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	142	5710 (For U-NII-3)	-15.79	-13.57	3.01	0.40	-10.16	27.19	Pass
	151	5755	-12.20	-9.98	3.01	0.40	-6.57	27.19	Pass
	159	5795	-11.80	-9.58	3.01	0.40	-6.17	27.19	Pass
1	142	5710 (For U-NII-3)	-16.55	-14.33	3.01	0.40	-10.92	27.19	Pass
	151	5755	-12.47	-10.25	3.01	0.40	-6.84	27.19	Pass
	159	5795	-12.09	-9.87	3.01	0.40	-6.46	27.19	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 5.8dBi + 10log(2) = 8.81dBi > 6dBi, so the power density limit shall be reduced to 30-(8.81-6) = 27.19dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

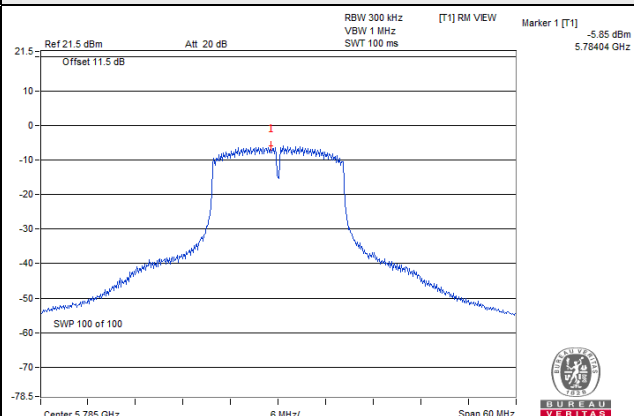
TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	138	5690 (For U-NII-3)	-20.31	-18.09	3.01	0.91	-14.17	27.19	Pass
	155	5775	-14.91	-12.69	3.01	0.91	-8.77	27.19	Pass
1	138	5690 (For U-NII-3)	-20.68	-18.46	3.01	0.91	-14.54	27.19	Pass
	155	5775	-14.66	-12.44	3.01	0.91	-8.52	27.19	Pass

Note:

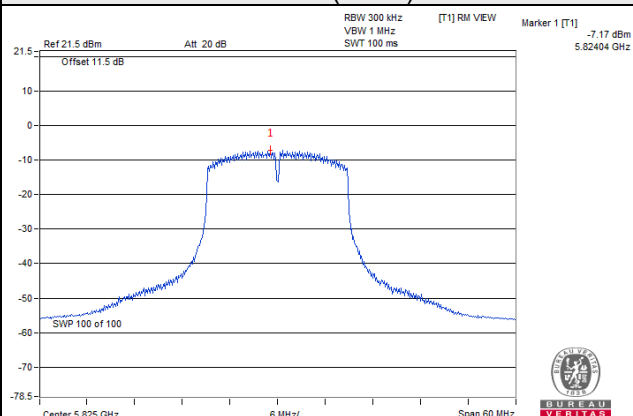
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 5.8dBi + 10log(2) = 8.81dBi > 6dBi, so the power density limit shall be reduced to 30-(8.81-6) = 27.19dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

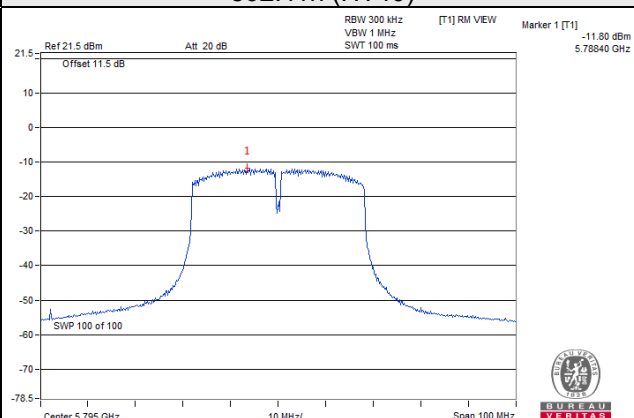
802.11a



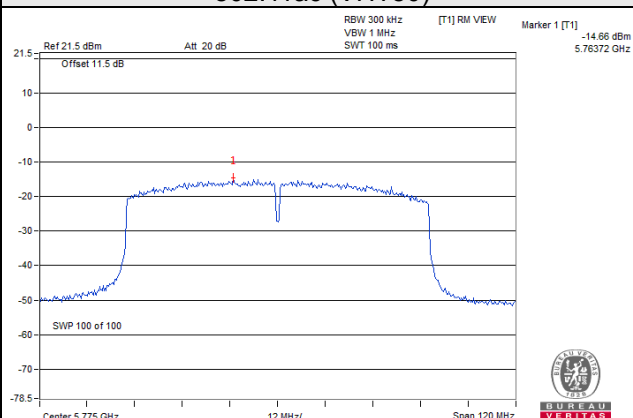
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

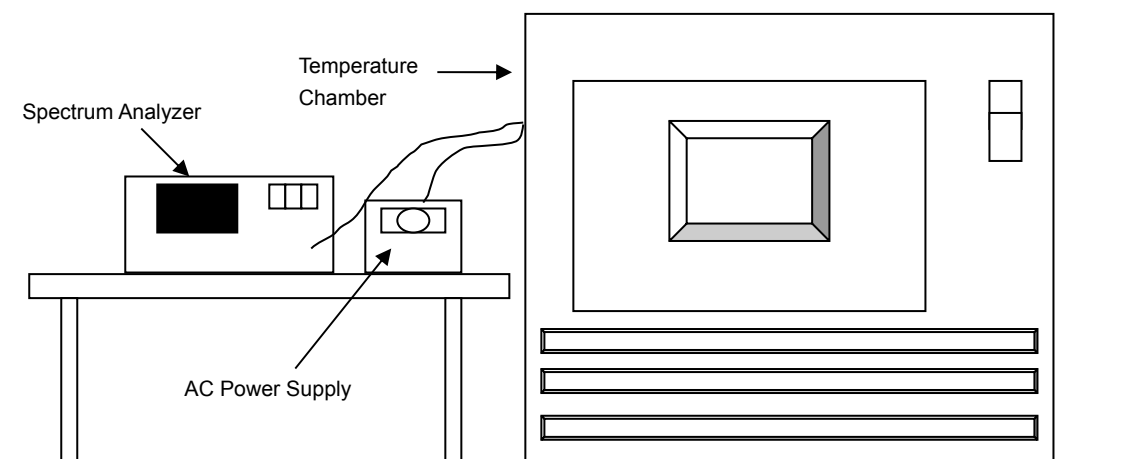


4.6 Frequency Stability

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	100039	Jun. 11, 2018	Jun. 10, 2019
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019
AC Power Supply Extech	6905S	1991553	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

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 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. (°C)	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
70	120	5180.0152	PASS	5180.0168	PASS	5180.0157	PASS	5180.0165	PASS
60	120	5179.9845	PASS	5179.9864	PASS	5179.9842	PASS	5179.9854	PASS
50	120	5179.9946	PASS	5179.9923	PASS	5179.9949	PASS	5179.9960	PASS
40	120	5179.9942	PASS	5179.9935	PASS	5179.9948	PASS	5179.9908	PASS
30	120	5179.9789	PASS	5179.9807	PASS	5179.9769	PASS	5179.9771	PASS
20	120	5179.9923	PASS	5179.9886	PASS	5179.9898	PASS	5179.9899	PASS
10	120	5179.9867	PASS	5179.9896	PASS	5179.9890	PASS	5179.9883	PASS
0	120	5180.0160	PASS	5180.0138	PASS	5180.0178	PASS	5180.0159	PASS
-10	120	5179.9905	PASS	5179.9916	PASS	5179.9946	PASS	5179.9905	PASS
-20	120	5180.0067	PASS	5180.0063	PASS	5180.0072	PASS	5180.0101	PASS
-30	120	5179.9786	PASS	5179.9832	PASS	5179.9812	PASS	5179.9786	PASS
-40	120	5180.0230	PASS	5180.0224	PASS	5180.0192	PASS	5180.0203	PASS

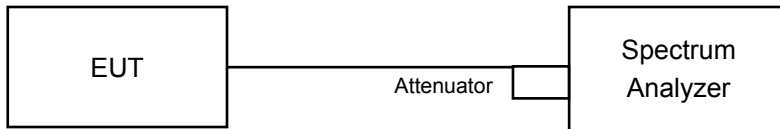
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5179.9916	PASS	5179.9878	PASS	5179.9892	PASS	5179.9909	PASS
	120	5179.9923	PASS	5179.9886	PASS	5179.9898	PASS	5179.9899	PASS
	102	5179.9924	PASS	5179.9892	PASS	5179.9895	PASS	5179.9897	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

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

4.7.5 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		
144	5720 (For U-NII-3)	2.54	2.59	0.5	Pass
149	5745	15.18	15.21	0.5	Pass
157	5785	15.22	15.20	0.5	Pass
165	5825	15.18	15.20	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 (For U-NII-3)	2.56	2.56	0.5	Pass
149	5745	15.19	15.20	0.5	Pass
157	5785	15.18	15.20	0.5	Pass
165	5825	15.18	15.21	0.5	Pass

802.11n (HT40)

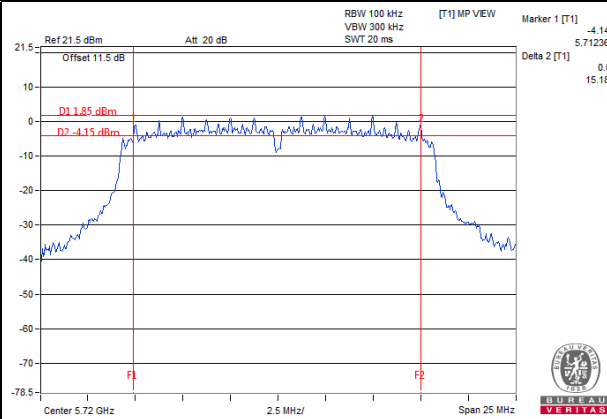
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710 (For U-NII-3)	2.55	2.55	0.5	Pass
151	5755	35.20	35.20	0.5	Pass
159	5795	35.19	35.16	0.5	Pass

802.11ac (VHT80)

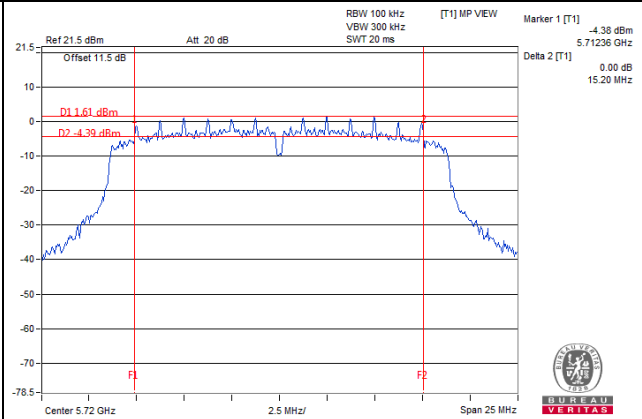
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 (For U-NII-3)	2.61	2.61	0.5	Pass
155	5775	75.24	75.28	0.5	Pass

Spectrum Plot of Worst Value

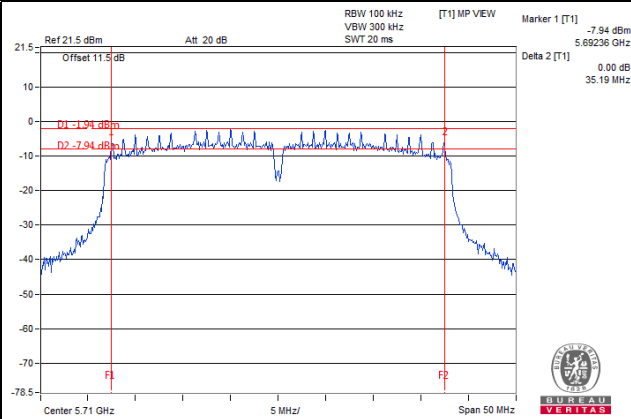
802.11a



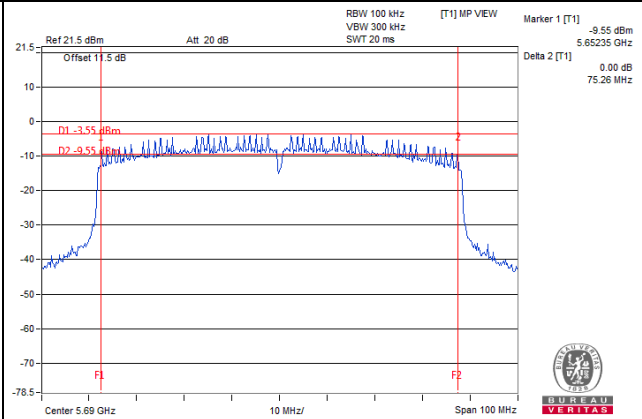
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



Note:

For CH144 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

For CH142 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

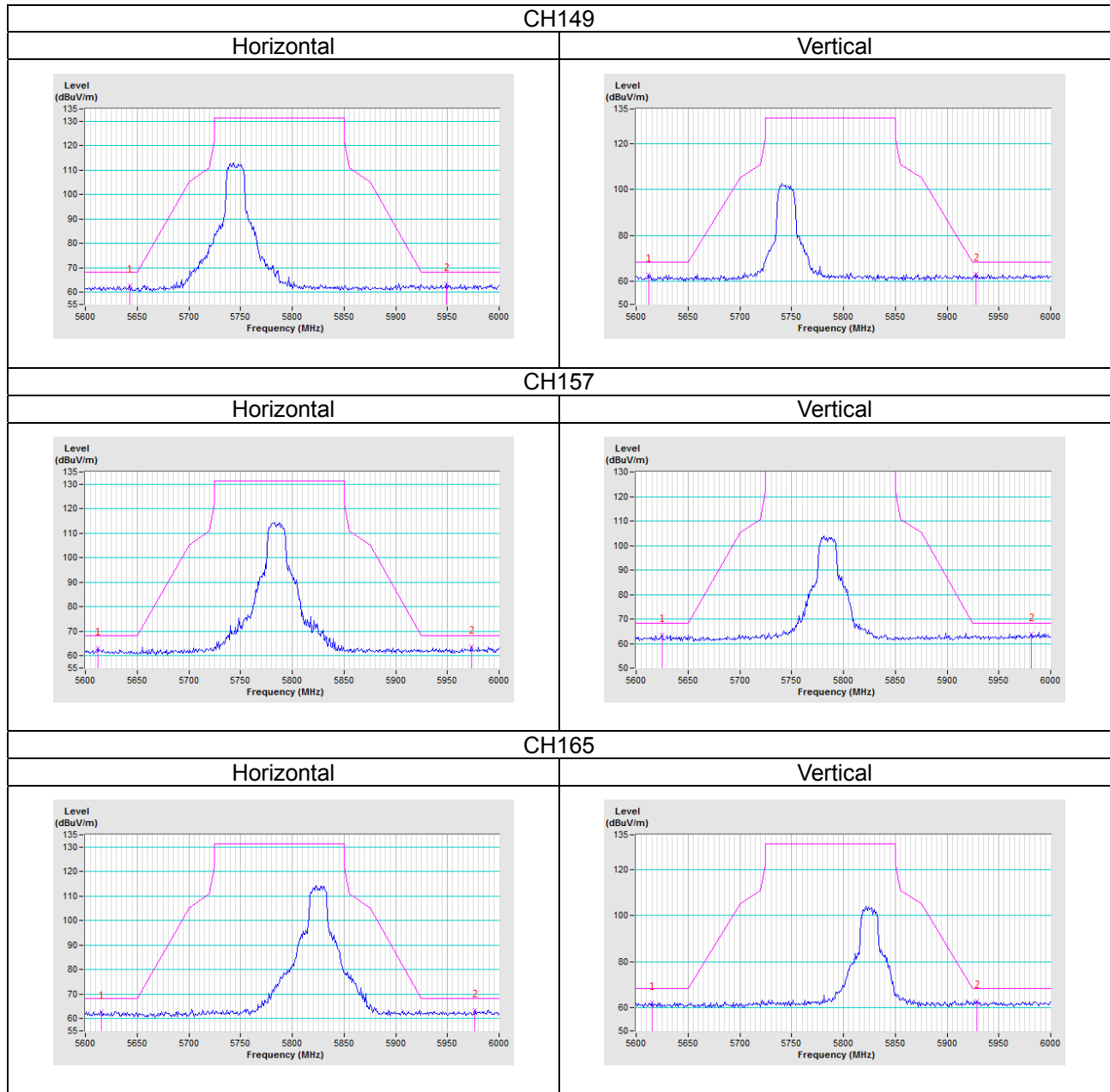
For CH138 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

5 Pictures of Test Arrangements

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

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

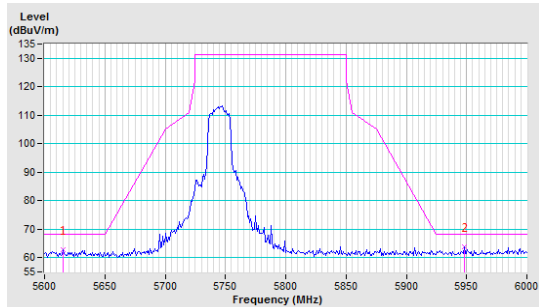
802.11a



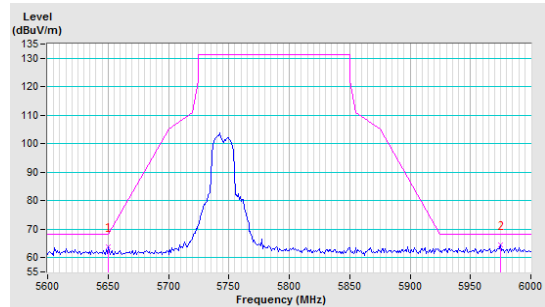
802.11n (HT20)

CH149

Horizontal

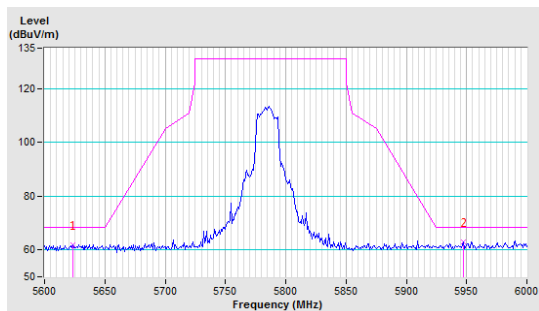


Vertical

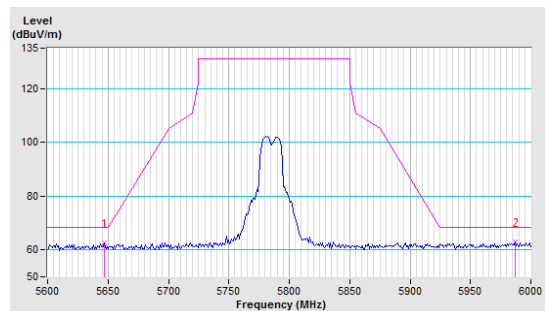


CH157

Horizontal

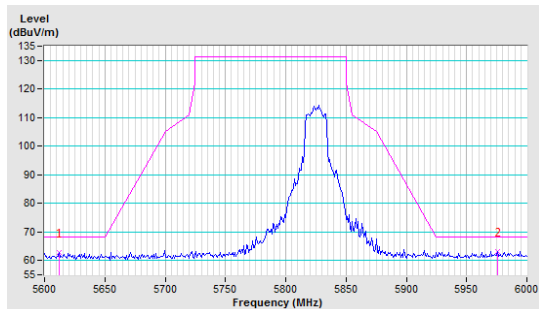


Vertical

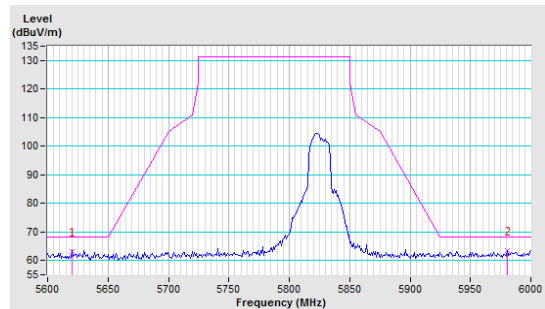


CH165

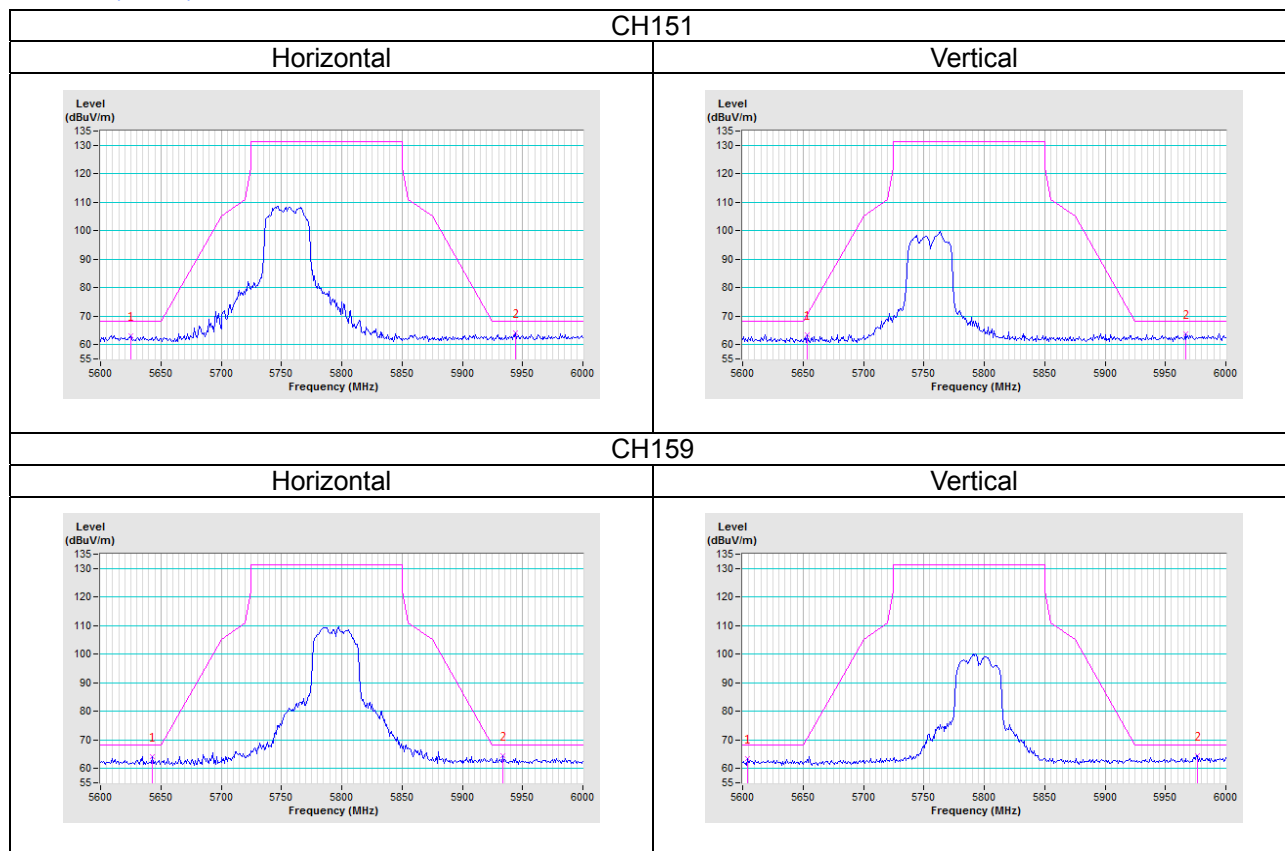
Horizontal



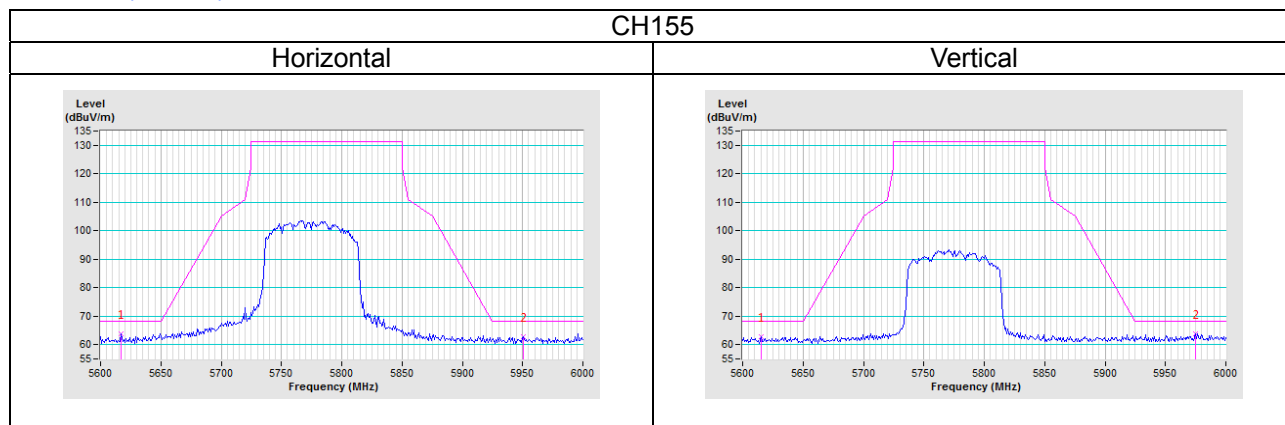
Vertical



802.11n (HT40)



802.11ac (VHT80)



Appendix – Information of the Testing Laboratories

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

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Web Site: www.bureauveritas-adt.com

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

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