

FCC Test Report

Report No.: RF190515C36-1

FCC ID: H79WQL-400

Test Model: WQL-400

Received Date: May 16, 2019

Test Date: Jun. 06 ~ Aug. 13, 2019

Issued Date: Aug. 30, 2019

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FCC Registration / 788550 / TW0003
Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RF190515C36-1	Original release	Aug. 30, 2019

1 Certificate of Conformity

Product: LauncherPlus

Brand: Vivitek, Delta

Test Model: WQL-400

Sample Status: Engineering Sample

Applicant: Delta Electronics Incorporated

Test Date: Jun. 06 ~ Aug. 13, 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:** Aug. 30, 2019
Pettie Chen / Senior Specialist

Approved by : Bruce Chen, **Date:** Aug. 30, 2019
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -12.71dB at 0.44600MHz.
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, 5470.00MHz.
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 connector is Murata switch not a standard connector.

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the 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	LauncherPlus
Brand	Vivitek, Delta
Test Model	WQL-400
Sample Status	Engineering Sample
Power Supply Rating	5 Vdc (Host equipment)
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 866.7Mbps
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: 49.119mW 5260 ~ 5320MHz: 48.884mW 5500 ~ 5720MHz: 49.830mW 5745 ~ 5825MHz: 49.731mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	0.1m non-shielded USB cable without core attached on EUT

Note:

1. 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)

2. The following antennas were provided to the EUT.

No.	Type	Gain(dBi)						Connector
		2400MHz	2450MHz	2500MHz	5150MHz	5550MHz	5850MHz	
1	Monopole	1.74	2.11	1.95	2.19	1.95	1.21	Murata switch
2	Monopole	0.77	-1.02	1.36	0.36	0.23	0.25	Murata switch

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)
-	802.11n (HT20)	5180-5240	36 to 48	100	OFDM	6.5
	802.11n (HT20)	5260-5320	52 to 64		OFDM	6.5
	802.11n (HT20)	5500-5720	100 to 144		OFDM	6.5
	802.11n (HT20)	5745-5825	149 to 165		OFDM	6.5

Power Line Conducted Emission Test:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11n (HT20)	5180-5240	36 to 48	100	OFDM	6.5
	802.11n (HT20)	5260-5320	52 to 64		OFDM	6.5
	802.11n (HT20)	5500-5720	100 to 144		OFDM	6.5
	802.11n (HT20)	5745-5825	149 to 165		OFDM	6.5

Antenna Port Conducted Measurement:

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

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	Luis Lee
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Frank Liu

3.3 Duty Cycle of Test Signal

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

802.11a: Duty cycle = $1.4/1.6 = 0.875$, Duty factor = $10 * \log(1/0.875) = 0.58$

802.11n (HT20): Duty cycle = $1.263/1.425 = 0.886$, Duty factor = $10 * \log(1/0.886) = 0.52$

802.11n (HT40): Duty cycle = $0.658/0.769 = 0.856$, Duty factor = $10 * \log(1/0.856) = 0.68$

802.11ac (VHT80): Duty cycle = $0.323/0.436 = 0.741$, Duty factor = $10 * \log(1/0.741) = 1.30$



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.

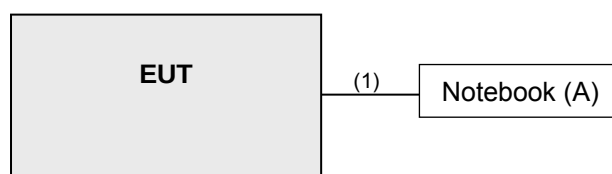
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB cable	1	0.1	N	0	attached on EUT

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
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 11, 2019	Jul. 10, 2020
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jun. 11, 2019	Jun. 10, 2020
RF Coaxial Cable WORKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 21, 2018	Aug. 20, 2019
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Aug. 20, 2019	Aug. 19, 2020
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Aug. 28, 2018	Aug. 27, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Mar. 25, 2019	Mar. 24, 2020
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	Jul. 11, 2019	Jul. 10, 2020
Antenna Tower inn-co GmbH	MA 4000	010303	Aug. 08, 2018	Aug. 07, 2019
Antenna Tower Controller BV ADT	AT100	AT93021703	Jul. 11, 2019	Jul. 10, 2020
Turn Table BV ADT	TT100	TT93021703	Aug. 08, 2018	Aug. 07, 2019
Turn Table Controller BV ADT	SC100	SC93021703	Jul. 11, 2019	Jul. 10, 2020
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190 004/MY55190007/MY55 210005	NA	NA
			Jul. 17, 2018	Jul. 16, 2019
			Jul. 15, 2019	Jul. 14, 2020

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

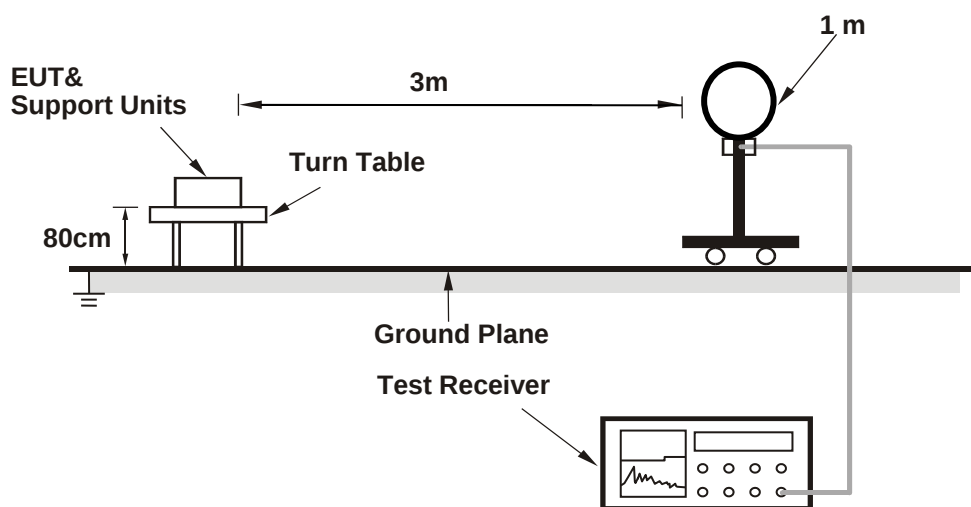
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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 = 10kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

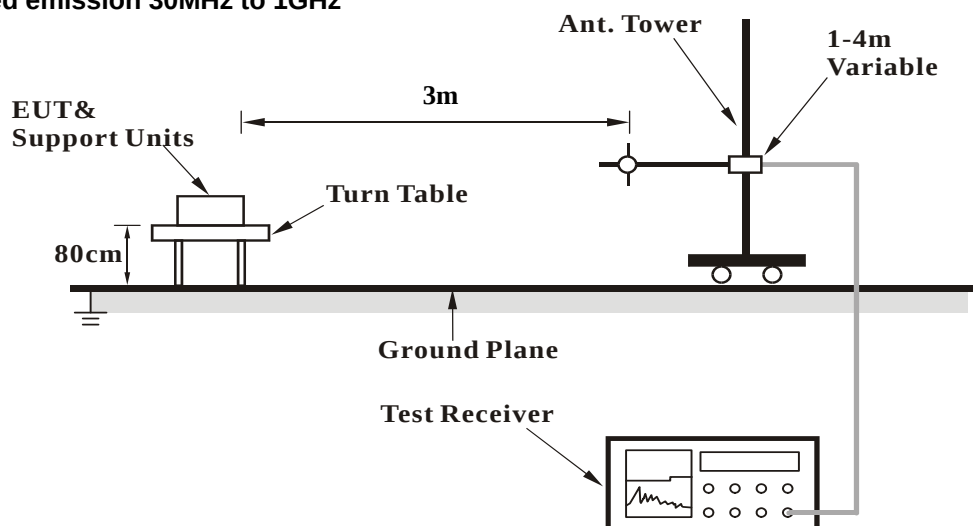
No deviation.

4.1.5 Test Setup

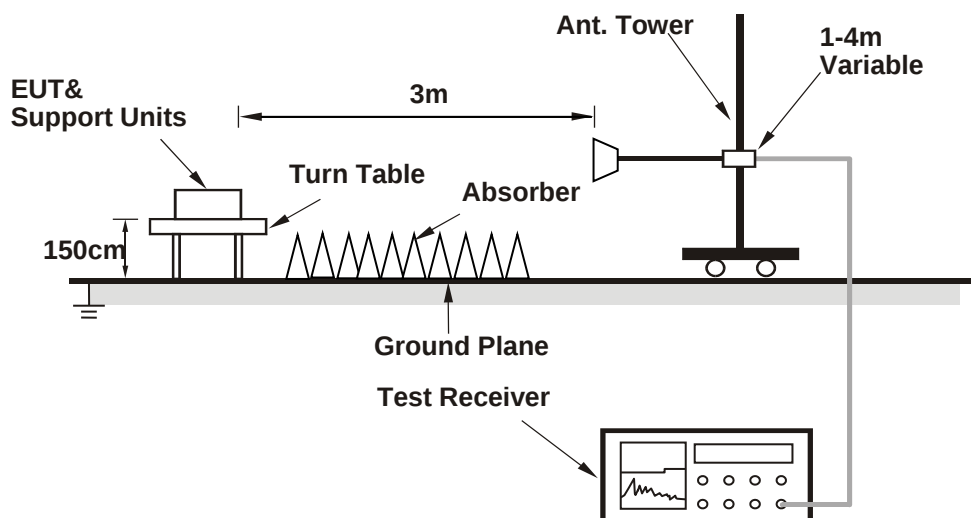
For Radiated emission below 30MHz



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

- The EUT was connected to the notebook via USB cable.
- Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

802.11a

CHANNEL	TX Channel 36	DETECTOR	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	5150.00	63.6 PK	74.0	-10.4	1.06 H	304	51.0	12.6
2	5150.00	50.0 AV	54.0	-4.0	1.06 H	304	37.4	12.6
3	*5180.00	107.7 PK			1.15 H	299	66.2	41.5
4	*5180.00	98.0 AV			1.15 H	299	56.5	41.5
5	#10360.00	62.2 PK	68.2	-6.0	2.52 H	121	39.7	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	60.7 PK	74.0	-13.3	1.00 V	321	48.1	12.6
2	5150.00	48.1 AV	54.0	-5.9	1.00 V	321	35.5	12.6
3	*5180.00	103.2 PK			1.00 V	313	61.7	41.5
4	*5180.00	93.6 AV			1.00 V	313	52.1	41.5
5	#10360.00	62.6 PK	68.2	-5.6	1.51 V	263	40.1	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	107.2 PK			1.00 H	300	65.7	41.5
2	*5200.00	98.1 AV			1.00 H	300	56.6	41.5
3	#10400.00	63.1 PK	68.2	-5.1	2.55 H	245	40.2	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	103.0 PK			1.03 V	309	61.5	41.5
2	*5200.00	93.7 AV			1.03 V	309	52.2	41.5
3	#10400.00	62.8 PK	68.2	-5.4	2.39 V	164	39.9	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	107.1 PK			1.00 H	297	65.9	41.2
2	*5240.00	97.5 AV			1.00 H	297	56.3	41.2
3	5350.00	60.9 PK	74.0	-13.1	1.05 H	296	48.5	12.4
4	5350.00	47.6 AV	54.0	-6.4	1.05 H	296	35.2	12.4
5	#10480.00	63.5 PK	68.2	-4.7	2.11 H	250	40.7	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	104.9 PK			1.16 V	312	63.7	41.2
2	*5240.00	94.8 AV			1.16 V	312	53.6	41.2
3	5350.00	60.8 PK	74.0	-13.2	1.08 V	305	48.4	12.4
4	5350.00	47.5 AV	54.0	-6.5	1.08 V	305	35.1	12.4
5	#10480.00	62.7 PK	68.2	-5.5	2.63 V	199	39.9	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	1.40 H	16	48.5	12.6
2	5150.00	48.2 AV	54.0	-5.8	1.40 H	16	35.6	12.6
3	*5260.00	108.3 PK			1.37 H	10	67.2	41.1
4	*5260.00	97.6 AV			1.37 H	10	56.5	41.1
5	#10520.00	63.3 PK	68.2	-4.9	2.66 H	152	40.3	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	60.8 PK	74.0	-13.2	1.06 V	38	48.2	12.6
2	5150.00	47.9 AV	54.0	-6.1	1.06 V	38	35.3	12.6
3	*5260.00	102.6 PK			1.00 V	22	61.5	41.1
4	*5260.00	93.3 AV			1.00 V	22	52.2	41.1
5	#10520.00	62.8 PK	68.2	-5.4	2.30 V	144	39.8	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	107.1 PK			1.37 H	11	66.0	41.1
2	*5300.00	96.0 AV			1.37 H	11	54.9	41.1
3	10600.00	63.5 PK	74.0	-10.5	2.49 H	191	40.3	23.2
4	10600.00	49.9 AV	54.0	-4.1	2.49 H	191	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	*5300.00	102.3 PK			1.06 V	17	61.2	41.1
2	*5300.00	93.1 AV			1.06 V	17	52.0	41.1
3	10600.00	62.8 PK	74.0	-11.2	1.65 V	205	39.6	23.2
4	10600.00	49.6 AV	54.0	-4.4	1.65 V	205	26.4	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	107.9 PK			1.24 H	10	66.7	41.2
2	*5320.00	96.8 AV			1.24 H	10	55.6	41.2
3	5350.00	68.5 PK	74.0	-5.5	1.00 H	11	56.1	12.4
4	5350.00	51.9 AV	54.0	-2.1	1.00 H	11	39.5	12.4
5	10640.00	63.7 PK	74.0	-10.3	2.13 H	160	40.5	23.2
6	10640.00	50.0 AV	54.0	-4.0	2.13 H	160	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	*5320.00	102.8 PK			1.01 V	23	61.6	41.2
2	*5320.00	93.6 AV			1.01 V	23	52.4	41.2
3	5350.00	68.7 PK	74.0	-5.3	1.03 V	24	56.3	12.4
4	5350.00	52.0 AV	54.0	-2.0	1.03 V	24	39.6	12.4
5	10640.00	62.8 PK	74.0	-11.2	2.71 V	182	39.6	23.2
6	10640.00	49.6 AV	54.0	-4.4	2.71 V	182	26.4	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	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	5460.00	61.5 PK	74.0	-12.5	1.09 H	86	48.7	12.8
2	5460.00	48.5 AV	54.0	-5.5	1.09 H	86	35.7	12.8
3	#5470.00	62.0 PK	68.2	-6.2	1.24 H	93	49.1	12.9
4	*5500.00	104.9 PK			1.06 H	82	62.9	42.0
5	*5500.00	94.6 AV			1.06 H	82	52.6	42.0
6	11000.00	63.8 PK	74.0	-10.2	2.64 H	152	40.4	23.4
7	11000.00	49.9 AV	54.0	-4.1	2.64 H	152	26.5	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	61.3 PK	74.0	-12.7	1.00 V	46	48.5	12.8
2	5460.00	48.0 AV	54.0	-6.0	1.00 V	46	35.2	12.8
3	#5470.00	61.4 PK	68.2	-6.8	1.20 V	46	48.5	12.9
4	*5500.00	102.9 PK			1.09 V	50	60.9	42.0
5	*5500.00	92.6 AV			1.09 V	50	50.6	42.0
6	11000.00	63.4 PK	74.0	-10.6	2.15 V	214	40.0	23.4
7	11000.00	49.7 AV	54.0	-4.3	2.15 V	214	26.3	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	104.2 PK			1.48 H	63	62.4	41.8
2	*5580.00	93.2 AV			1.48 H	63	51.4	41.8
3	11160.00	63.9 PK	74.0	-10.1	1.93 H	251	40.6	23.3
4	11160.00	49.8 AV	54.0	-4.2	1.93 H	251	26.5	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	102.2 PK			1.44 V	150	60.4	41.8
2	*5580.00	91.2 AV			1.44 V	150	49.4	41.8
3	11160.00	63.4 PK	74.0	-10.6	2.99 V	232	40.1	23.3
4	11160.00	49.5 AV	54.0	-4.5	2.99 V	232	26.2	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	104.9 PK			1.33 H	72	62.8	42.1
2	*5700.00	94.8 AV			1.33 H	72	52.7	42.1
3	#5725.00	61.5 PK	68.2	-6.7	1.20 H	63	48.6	12.9
4	11400.00	64.7 PK	74.0	-9.3	1.92 H	201	40.3	24.4
5	11400.00	51.0 AV	54.0	-3.0	1.92 H	201	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	102.9 PK			1.00 V	49	60.8	42.1
2	*5700.00	92.8 AV			1.00 V	49	50.7	42.1
3	#5725.00	61.0 PK	68.2	-7.2	1.09 V	53	48.1	12.9
4	11400.00	64.5 PK	74.0	-9.5	2.11 V	233	40.1	24.4
5	11400.00	50.8 AV	54.0	-3.2	2.11 V	233	26.4	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	60.3 PK	68.2	-7.9	1.99 H	70	47.4	12.9
2	*5720.00	105.4 PK			2.72 H	74	63.2	42.2
3	*5720.00	94.8 AV			2.72 H	74	52.6	42.2
4	#5850.00	61.1 PK	68.2	-7.1	2.55 H	71	47.8	13.3
5	11440.00	64.3 PK	74.0	-9.7	1.56 H	320	40.1	24.2
6	11440.00	51.1 AV	54.0	-2.9	1.56 H	320	26.9	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	60.1 PK	68.2	-8.1	1.05 V	56	47.2	12.9
2	*5720.00	103.7 PK			1.00 V	55	61.5	42.2
3	*5720.00	94.0 AV			1.00 V	55	51.8	42.2
4	#5850.00	60.8 PK	68.2	-7.4	1.08 V	60	47.5	13.3
5	11440.00	64.2 PK	74.0	-9.8	2.00 V	211	40.0	24.2
6	11440.00	50.7 AV	54.0	-3.3	2.00 V	211	26.5	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 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	#5651.20	63.1 PK	69.1	-6.0	1.88 H	54	50.5	12.6
2	*5745.00	105.1 PK			1.88 H	54	62.6	42.5
3	*5745.00	94.9 AV			1.88 H	54	52.4	42.5
4	#5980.80	64.1 PK	68.2	-4.1	1.88 H	54	50.3	13.8
5	11490.00	65.2 PK	74.0	-8.8	2.65 H	233	41.1	24.1
6	11490.00	51.7 AV	54.0	-2.3	2.65 H	233	27.6	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	#5600.00	62.3 PK	68.2	-5.9	1.00 V	41	49.7	12.6
2	*5745.00	105.2 PK			1.00 V	41	62.7	42.5
3	*5745.00	95.6 AV			1.00 V	41	53.1	42.5
4	#5995.20	62.9 PK	68.2	-5.3	1.00 V	41	49.1	13.8
5	11490.00	64.6 PK	74.0	-9.4	1.41 V	177	40.5	24.1
6	11490.00	51.3 AV	54.0	-2.7	1.41 V	177	27.2	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	#5621.60	62.7 PK	68.2	-5.5	1.72 H	54	50.0	12.7
2	*5785.00	105.1 PK			1.72 H	54	62.5	42.6
3	*5785.00	94.5 AV			1.72 H	54	51.9	42.6
4	#5999.20	63.2 PK	68.2	-5.0	1.72 H	54	49.4	13.8
5	11570.00	64.9 PK	74.0	-9.1	2.88 H	211	40.9	24.0
6	11570.00	51.1 AV	54.0	-2.9	2.88 H	211	27.1	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	#5633.60	63.4 PK	68.2	-4.8	1.00 V	42	50.7	12.7
2	*5785.00	104.2 PK			1.00 V	42	61.6	42.6
3	*5785.00	94.9 AV			1.00 V	42	52.3	42.6
4	#5985.60	63.0 PK	68.2	-5.2	1.00 V	42	49.2	13.8
5	11570.00	64.9 PK	74.0	-9.1	2.09 V	177	40.9	24.0
6	11570.00	51.3 AV	54.0	-2.7	2.09 V	177	27.3	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	#5640.80	62.8 PK	68.2	-5.4	1.71 H	58	50.1	12.7
2	*5825.00	105.6 PK			1.71 H	58	63.0	42.6
3	*5825.00	94.6 AV			1.71 H	58	52.0	42.6
4	#5943.20	63.7 PK	68.2	-4.5	1.71 H	58	50.1	13.6
5	11650.00	64.2 PK	74.0	-9.8	2.28 H	211	40.6	23.6
6	11650.00	50.9 AV	54.0	-3.1	2.28 H	211	27.3	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	#5604.80	63.0 PK	68.2	-5.2	1.00 V	59	50.4	12.6
2	*5825.00	104.1 PK			1.00 V	59	61.5	42.6
3	*5825.00	94.2 AV			1.00 V	59	51.6	42.6
4	#5945.60	63.2 PK	68.2	-5.0	1.00 V	59	49.6	13.6
5	11650.00	63.7 PK	74.0	-10.3	2.88 V	173	40.1	23.6
6	11650.00	50.6 AV	54.0	-3.4	2.88 V	173	27.0	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	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	5150.00	61.4 PK	74.0	-12.6	2.44 H	79	48.8	12.6
2	5150.00	48.3 AV	54.0	-5.7	2.44 H	79	35.7	12.6
3	*5180.00	106.5 PK			1.00 H	303	65.0	41.5
4	*5180.00	97.0 AV			1.00 H	303	55.5	41.5
5	#10360.00	63.4 PK	68.2	-4.8	2.11 H	252	40.9	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	61.3 PK	74.0	-12.7	1.20 V	230	48.7	12.6
2	5150.00	48.0 AV	54.0	-6.0	1.20 V	230	35.4	12.6
3	*5180.00	103.9 PK			1.16 V	304	62.4	41.5
4	*5180.00	93.0 AV			1.16 V	304	51.5	41.5
5	#10360.00	62.7 PK	68.2	-5.5	2.55 V	187	40.2	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	105.5 PK			1.00 H	302	64.0	41.5
2	*5200.00	95.9 AV			1.00 H	302	54.4	41.5
3	#10400.00	63.7 PK	68.2	-4.5	2.39 H	360	40.8	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	103.6 PK			1.17 V	300	62.1	41.5
2	*5200.00	92.8 AV			1.17 V	300	51.3	41.5
3	#10400.00	62.7 PK	68.2	-5.5	1.95 V	220	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	106.3 PK			1.00 H	299	65.1	41.2
2	*5240.00	96.3 AV			1.00 H	299	55.1	41.2
3	5350.00	60.5 PK	74.0	-13.5	1.25 H	290	48.1	12.4
4	5350.00	47.7 AV	54.0	-6.3	1.25 H	290	35.3	12.4
5	#10480.00	63.7 PK	68.2	-4.5	2.69 H	233	40.9	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	102.7 PK			1.23 V	312	61.5	41.2
2	*5240.00	91.6 AV			1.23 V	312	50.4	41.2
3	5350.00	60.9 PK	74.0	-13.1	1.28 V	255	48.5	12.4
4	5350.00	47.7 AV	54.0	-6.3	1.28 V	255	35.3	12.4
5	#10480.00	62.9 PK	68.2	-5.3	2.31 V	188	40.1	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	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	5150.00	61.2 PK	74.0	-12.8	1.05 H	13	48.6	12.6
2	5150.00	48.4 AV	54.0	-5.6	1.05 H	13	35.8	12.6
3	*5260.00	107.8 PK			1.02 H	7	66.7	41.1
4	*5260.00	96.8 AV			1.02 H	7	55.7	41.1
5	#10520.00	63.5 PK	68.2	-4.7	1.47 H	200	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	61.1 PK	74.0	-12.9	1.24 V	19	48.5	12.6
2	5150.00	48.0 AV	54.0	-6.0	1.24 V	19	35.4	12.6
3	*5260.00	102.5 PK			1.15 V	26	61.4	41.1
4	*5260.00	92.4 AV			1.15 V	26	51.3	41.1
5	#10520.00	62.4 PK	68.2	-5.8	2.94 V	175	39.4	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	108.2 PK			1.28 H	7	67.1	41.1
2	*5300.00	96.5 AV			1.28 H	7	55.4	41.1
3	10600.00	63.8 PK	74.0	-10.2	2.54 H	117	40.6	23.2
4	10600.00	49.7 AV	54.0	-4.3	2.54 H	117	26.5	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	102.6 PK			1.33 V	26	61.5	41.1
2	*5300.00	92.1 AV			1.33 V	26	51.0	41.1
3	10600.00	62.9 PK	74.0	-11.1	2.55 V	141	39.7	23.2
4	10600.00	49.5 AV	54.0	-4.5	2.55 V	141	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	107.6 PK			1.38 H	12	66.4	41.2
2	*5320.00	96.4 AV			1.38 H	12	55.2	41.2
3	5350.00	65.8 PK	74.0	-8.2	1.00 H	4	53.4	12.4
4	5350.00	50.2 AV	54.0	-3.8	1.00 H	4	37.8	12.4
5	10640.00	63.8 PK	74.0	-10.2	2.12 H	119	40.6	23.2
6	10640.00	49.9 AV	54.0	-4.1	2.12 H	119	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	102.7 PK			1.09 V	34	61.5	41.2
2	*5320.00	92.1 AV			1.09 V	34	50.9	41.2
3	5350.00	62.6 PK	74.0	-11.4	1.28 V	14	50.2	12.4
4	5350.00	48.3 AV	54.0	-5.7	1.28 V	14	35.9	12.4
5	10640.00	62.9 PK	74.0	-11.1	1.95 V	220	39.7	23.2
6	10640.00	49.6 AV	54.0	-4.4	1.95 V	220	26.4	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	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	5460.00	61.7 PK	74.0	-12.3	1.55 H	79	48.9	12.8
2	5460.00	48.9 AV	54.0	-5.1	1.55 H	79	36.1	12.8
3	#5470.00	64.1 PK	68.2	-4.1	1.63 H	80	51.2	12.9
4	*5500.00	106.2 PK			1.48 H	72	64.2	42.0
5	*5500.00	95.7 AV			1.48 H	72	53.7	42.0
6	11000.00	63.9 PK	74.0	-10.1	1.95 H	222	40.5	23.4
7	11000.00	49.8 AV	54.0	-4.2	1.95 H	222	26.4	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	61.6 PK	74.0	-12.4	1.11 V	50	48.8	12.8
2	5460.00	48.6 AV	54.0	-5.4	1.11 V	50	35.8	12.8
3	#5470.00	63.8 PK	68.2	-4.4	1.66 V	89	50.9	12.9
4	*5500.00	104.2 PK			1.02 V	40	62.2	42.0
5	*5500.00	93.7 AV			1.02 V	40	51.7	42.0
6	11000.00	63.5 PK	74.0	-10.5	1.25 V	52	40.1	23.4
7	11000.00	49.6 AV	54.0	-4.4	1.25 V	52	26.2	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	106.1 PK			1.46 H	79	64.3	41.8
2	*5580.00	95.6 AV			1.46 H	79	53.8	41.8
3	11160.00	63.9 PK	74.0	-10.1	2.05 H	199	40.6	23.3
4	11160.00	49.9 AV	54.0	-4.1	2.05 H	199	26.6	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	104.1 PK			1.10 V	49	62.3	41.8
2	*5580.00	94.6 AV			1.10 V	49	52.8	41.8
3	11160.00	63.4 PK	74.0	-10.6	1.59 V	43	40.1	23.3
4	11160.00	49.5 AV	54.0	-4.5	1.59 V	43	26.2	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	106.2 PK			1.48 H	69	64.1	42.1
2	*5700.00	95.6 AV			1.48 H	69	53.5	42.1
3	#5725.00	61.5 PK	68.2	-6.7	1.44 H	79	48.6	12.9
4	11400.00	64.7 PK	74.0	-9.3	2.90 H	142	40.3	24.4
5	11400.00	50.9 AV	54.0	-3.1	2.90 H	142	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	104.2 PK			1.05 V	49	62.1	42.1
2	*5700.00	93.6 AV			1.05 V	49	51.5	42.1
3	#5725.00	61.0 PK	68.2	-7.2	1.09 V	56	48.1	12.9
4	11400.00	64.2 PK	74.0	-9.8	2.99 V	266	39.8	24.4
5	11400.00	50.8 AV	54.0	-3.2	2.99 V	266	26.4	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	2.10 H	62	47.7	12.9
2	*5720.00	106.0 PK			2.41 H	66	63.8	42.2
3	*5720.00	95.0 AV			2.41 H	66	52.8	42.2
4	#5850.00	61.2 PK	68.2	-7.0	2.11 H	60	47.9	13.3
5	11440.00	64.4 PK	74.0	-9.6	1.11 H	120	40.2	24.2
6	11440.00	51.2 AV	54.0	-2.8	1.11 H	120	27.0	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	60.4 PK	68.2	-7.8	1.05 V	61	47.5	12.9
2	*5720.00	104.0 PK			1.00 V	55	61.8	42.2
3	*5720.00	93.0 AV			1.00 V	55	50.8	42.2
4	#5850.00	61.1 PK	68.2	-7.1	1.09 V	63	47.8	13.3
5	11440.00	64.1 PK	74.0	-9.9	2.89 V	300	39.9	24.2
6	11440.00	51.0 AV	54.0	-3.0	2.89 V	300	26.8	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	#5625.60	63.0 PK	68.2	-5.2	2.53 H	64	50.3	12.7
2	*5745.00	106.7 PK			2.53 H	64	64.2	42.5
3	*5745.00	95.0 AV			2.53 H	64	52.5	42.5
4	#5962.40	63.6 PK	68.2	-4.6	2.53 H	64	49.9	13.7
5	11490.00	64.2 PK	74.0	-9.8	3.00 H	315	40.1	24.1
6	11490.00	51.4 AV	54.0	-2.6	3.00 H	315	27.3	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	#5640.00	63.2 PK	68.2	-5.0	1.09 V	45	50.5	12.7
2	*5745.00	105.7 PK			1.09 V	45	63.2	42.5
3	*5745.00	94.4 AV			1.09 V	45	51.9	42.5
4	#5938.40	63.2 PK	68.2	-5.0	1.09 V	45	49.6	13.6
5	11490.00	64.3 PK	74.0	-9.7	1.00 V	199	40.2	24.1
6	11490.00	51.0 AV	54.0	-3.0	1.00 V	199	26.9	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	#5604.80	62.5 PK	68.2	-5.7	2.55 H	66	49.9	12.6
2	*5785.00	106.7 PK			2.55 H	66	64.1	42.6
3	*5785.00	94.9 AV			2.55 H	66	52.3	42.6
4	#5936.00	63.6 PK	68.2	-4.6	2.55 H	66	50.0	13.6
5	11570.00	64.6 PK	74.0	-9.4	2.00 H	2	40.6	24.0
6	11570.00	51.3 AV	54.0	-2.7	2.00 H	2	27.3	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	#5606.40	63.3 PK	68.2	-4.9	1.09 V	47	50.7	12.6
2	*5785.00	105.1 PK			1.09 V	47	62.5	42.6
3	*5785.00	94.3 AV			1.09 V	47	51.7	42.6
4	#5980.80	63.8 PK	68.2	-4.4	1.09 V	47	50.0	13.8
5	11570.00	63.9 PK	74.0	-10.1	3.33 V	300	39.9	24.0
6	11570.00	50.8 AV	54.0	-3.2	3.33 V	300	26.8	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	#5634.40	62.8 PK	68.2	-5.4	2.14 H	63	50.1	12.7
2	*5825.00	106.3 PK			2.14 H	63	63.7	42.6
3	*5825.00	94.7 AV			2.14 H	63	52.1	42.6
4	#5951.20	64.4 PK	68.2	-3.8	2.14 H	63	50.8	13.6
5	11650.00	63.9 PK	74.0	-10.1	2.74 H	244	40.3	23.6
6	11650.00	50.8 AV	54.0	-3.2	2.74 H	244	27.2	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	#5614.40	62.8 PK	68.2	-5.4	1.00 V	51	50.1	12.7
2	*5825.00	103.6 PK			1.00 V	51	61.0	42.6
3	*5825.00	92.8 AV			1.00 V	51	50.2	42.6
4	#5959.20	63.4 PK	68.2	-4.8	1.00 V	51	49.8	13.6
5	11650.00	63.4 PK	74.0	-10.6	1.27 V	210	39.8	23.6
6	11650.00	50.5 AV	54.0	-3.5	1.27 V	210	26.9	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	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	5150.00	66.5 PK	74.0	-7.5	1.00 H	306	53.9	12.6
2	5150.00	52.9 AV	54.0	-1.1	1.00 H	306	40.3	12.6
3	*5190.00	101.7 PK			1.00 H	301	60.2	41.5
4	*5190.00	92.2 AV			1.00 H	301	50.7	41.5
5	#10380.00	63.3 PK	68.2	-4.9	2.99 H	245	40.6	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	62.6 PK	74.0	-11.4	1.03 V	295	50.0	12.6
2	5150.00	50.9 AV	54.0	-3.1	1.03 V	295	38.3	12.6
3	*5190.00	98.8 PK			1.04 V	303	57.3	41.5
4	*5190.00	88.0 AV			1.04 V	303	46.5	41.5
5	#10380.00	62.5 PK	68.2	-5.7	2.61 V	144	39.8	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	105.0 PK			1.00 H	302	63.7	41.3
2	*5230.00	94.8 AV			1.00 H	302	53.5	41.3
3	5350.00	61.4 PK	74.0	-12.6	1.05 H	309	49.0	12.4
4	5350.00	48.3 AV	54.0	-5.7	1.05 H	309	35.9	12.4
5	#10460.00	63.9 PK	68.2	-4.3	2.88 H	214	41.0	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	101.2 PK			1.05 V	290	59.9	41.3
2	*5230.00	91.0 AV			1.05 V	290	49.7	41.3
3	5350.00	60.9 PK	74.0	-13.1	1.09 V	284	48.5	12.4
4	5350.00	47.9 AV	54.0	-6.1	1.09 V	284	35.5	12.4
5	#10460.00	62.5 PK	68.2	-5.7	2.36 V	300	39.6	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	60.8 PK	74.0	-13.2	1.25 H	7	48.2	12.6
2	5150.00	48.4 AV	54.0	-5.6	1.25 H	7	35.8	12.6
3	*5270.00	105.5 PK			1.34 H	10	64.4	41.1
4	*5270.00	95.0 AV			1.34 H	10	53.9	41.1
5	#10540.00	63.0 PK	68.2	-5.2	2.29 H	105	40.1	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	60.6 PK	74.0	-13.4	1.16 V	29	48.0	12.6
2	5150.00	48.2 AV	54.0	-5.8	1.16 V	29	35.6	12.6
3	*5270.00	100.9 PK			1.25 V	16	59.8	41.1
4	*5270.00	91.0 AV			1.25 V	16	49.9	41.1
5	#10540.00	62.7 PK	68.2	-5.5	2.36 V	305	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 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	*5310.00	103.6 PK			1.12 H	8	62.4	41.2
2	*5310.00	92.8 AV			1.12 H	8	51.6	41.2
3	5350.00	66.9 PK	74.0	-7.1	1.00 H	4	54.5	12.4
4	5350.00	53.0 AV	54.0	-1.0	1.00 H	4	40.6	12.4
5	10620.00	63.6 PK	74.0	-10.4	2.31 H	145	40.5	23.1
6	10620.00	49.5 AV	54.0	-4.5	2.31 H	145	26.4	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	98.4 PK			1.00 V	22	57.2	41.2
2	*5310.00	88.6 AV			1.00 V	22	47.4	41.2
3	5350.00	63.9 PK	74.0	-10.1	1.09 V	30	51.5	12.4
4	5350.00	51.8 AV	54.0	-2.2	1.09 V	30	39.4	12.4
5	10620.00	62.9 PK	74.0	-11.1	2.25 V	141	39.8	23.1
6	10620.00	49.6 AV	54.0	-4.4	2.25 V	141	26.5	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 102	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	5460.00	64.4 PK	74.0	-9.6	1.03 H	73	51.6	12.8
2	5460.00	52.8 AV	54.0	-1.2	1.03 H	73	40.0	12.8
3	#5470.00	67.2 PK	68.2	-1.0	1.09 H	81	54.3	12.9
4	*5510.00	100.3 PK			1.00 H	81	58.4	41.9
5	*5510.00	90.7 AV			1.00 H	81	48.8	41.9
6	11020.00	63.8 PK	74.0	-10.2	2.31 H	154	40.5	23.3
7	11020.00	50.0 AV	54.0	-4.0	2.31 H	154	26.7	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	62.9 PK	74.0	-11.1	1.03 V	49	50.1	12.8
2	5460.00	50.9 AV	54.0	-3.1	1.03 V	49	38.1	12.8
3	#5470.00	64.9 PK	68.2	-3.3	1.09 V	41	52.0	12.9
4	*5510.00	98.8 PK			1.00 V	44	56.9	41.9
5	*5510.00	89.2 AV			1.00 V	44	47.3	41.9
6	11020.00	63.5 PK	74.0	-10.5	1.47 V	111	40.2	23.3
7	11020.00	49.8 AV	54.0	-4.2	1.47 V	111	26.5	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 110	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	*5550.00	102.0 PK			1.12 H	79	60.2	41.8
2	*5550.00	92.4 AV			1.12 H	79	50.6	41.8
3	11100.00	63.9 PK	74.0	-10.1	1.94 H	142	40.5	23.4
4	11100.00	49.9 AV	54.0	-4.1	1.94 H	142	26.5	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	100.5 PK			1.00 V	59	58.7	41.8
2	*5550.00	90.9 AV			1.00 V	59	49.1	41.8
3	11100.00	63.5 PK	74.0	-10.5	1.52 V	177	40.1	23.4
4	11100.00	49.6 AV	54.0	-4.4	1.52 V	177	26.2	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	102.1 PK			1.35 H	63	60.2	41.9
2	*5670.00	91.8 AV			1.35 H	63	49.9	41.9
3	#5725.00	63.0 PK	68.2	-5.2	1.12 H	72	50.1	12.9
4	11340.00	64.2 PK	74.0	-9.8	1.63 H	250	40.4	23.8
5	11340.00	50.3 AV	54.0	-3.7	1.63 H	250	26.5	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	100.9 PK			1.05 V	49	59.0	41.9
2	*5670.00	90.6 AV			1.05 V	49	48.7	41.9
3	#5725.00	62.1 PK	68.2	-6.1	1.05 V	44	49.2	12.9
4	11340.00	63.9 PK	74.0	-10.1	1.99 V	200	40.1	23.8
5	11340.00	50.0 AV	54.0	-4.0	1.99 V	200	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

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	#5470.00	60.4 PK	68.2	-7.8	2.44 H	60	47.5	12.9
2	*5710.00	103.0 PK			2.47 H	66	60.9	42.1
3	*5710.00	91.4 AV			2.47 H	66	49.3	42.1
4	#5850.00	60.5 PK	68.2	-7.7	2.00 H	49	47.2	13.3
5	11420.00	64.2 PK	74.0	-9.8	1.00 H	100	39.8	24.4
6	11420.00	51.5 AV	54.0	-2.5	1.00 H	100	27.1	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	#5470.00	60.1 PK	68.2	-8.1	1.52 V	55	47.2	12.9
2	*5710.00	101.0 PK			1.02 V	60	58.9	42.1
3	*5710.00	89.4 AV			1.02 V	60	47.3	42.1
4	#5850.00	60.3 PK	68.2	-7.9	1.00 V	15	47.0	13.3
5	11420.00	64.0 PK	74.0	-10.0	2.00 V	231	39.6	24.4
6	11420.00	51.2 AV	54.0	-2.8	2.00 V	231	26.8	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 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	#5637.60	63.7 PK	68.2	-4.5	2.47 H	67	51.0	12.7
2	*5755.00	103.4 PK			2.47 H	67	60.9	42.5
3	*5755.00	92.2 AV			2.47 H	67	49.7	42.5
4	#5970.40	63.8 PK	68.2	-4.4	2.47 H	67	50.1	13.7
5	11510.00	64.3 PK	74.0	-9.7	3.63 H	100	40.4	23.9
6	11510.00	51.1 AV	54.0	-2.9	3.63 H	100	27.2	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	#5634.40	63.4 PK	68.2	-4.8	1.00 V	50	50.7	12.7
2	*5755.00	102.1 PK			1.00 V	50	59.6	42.5
3	*5755.00	91.7 AV			1.00 V	50	49.2	42.5
4	#5968.80	64.6 PK	68.2	-3.6	1.00 V	50	50.9	13.7
5	11510.00	63.7 PK	74.0	-10.3	2.09 V	201	39.8	23.9
6	11510.00	50.7 AV	54.0	-3.3	2.09 V	201	26.8	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	#5612.80	62.2 PK	68.2	-6.0	2.43 H	66	49.5	12.7
2	*5795.00	102.8 PK			2.43 H	66	60.2	42.6
3	*5795.00	91.8 AV			2.43 H	66	49.2	42.6
4	#5961.60	62.6 PK	68.2	-5.6	2.43 H	66	48.9	13.7
5	11590.00	64.5 PK	74.0	-9.5	2.70 H	100	40.7	23.8
6	11590.00	51.4 AV	54.0	-2.6	2.70 H	100	27.6	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	#5619.20	63.1 PK	68.2	-5.1	1.00 V	44	50.4	12.7
2	*5795.00	102.1 PK			1.00 V	44	59.5	42.6
3	*5795.00	91.1 AV			1.00 V	44	48.5	42.6
4	#5976.80	64.1 PK	68.2	-4.1	1.00 V	44	50.3	13.8
5	11590.00	63.6 PK	74.0	-10.4	2.00 V	144	39.8	23.8
6	11590.00	50.7 AV	54.0	-3.3	2.00 V	144	26.9	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	63.1 PK	74.0	-10.9	1.06 H	304	50.5	12.6
2	5150.00	52.5 AV	54.0	-1.5	1.06 H	304	39.9	12.6
3	*5210.00	98.0 PK			1.05 H	298	56.6	41.4
4	*5210.00	86.5 AV			1.05 H	298	45.1	41.4
5	5350.00	58.7 PK	74.0	-15.3	1.09 H	311	46.3	12.4
6	5350.00	47.3 AV	54.0	-6.7	1.09 H	311	34.9	12.4
7	#10420.00	63.3 PK	68.2	-4.9	2.99 H	285	40.5	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	62.4 PK	74.0	-11.6	1.35 V	304	49.8	12.6
2	5150.00	49.8 AV	54.0	-4.2	1.35 V	304	37.2	12.6
3	*5210.00	96.0 PK			1.35 V	318	54.6	41.4
4	*5210.00	85.3 AV			1.35 V	318	43.9	41.4
5	5350.00	58.2 PK	74.0	-15.8	1.41 V	306	45.8	12.4
6	5350.00	47.0 AV	54.0	-7.0	1.41 V	306	34.6	12.4
7	#10420.00	62.3 PK	68.2	-5.9	2.66 V	231	39.5	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	61.1 PK	74.0	-12.9	1.06 H	18	48.5	12.6
2	5150.00	48.3 AV	54.0	-5.7	1.06 H	18	35.7	12.6
3	*5290.00	99.8 PK			1.02 H	8	58.7	41.1
4	*5290.00	89.5 AV			1.02 H	8	48.4	41.1
5	5350.00	64.6 PK	74.0	-9.4	1.00 H	9	52.2	12.4
6	5350.00	52.5 AV	54.0	-1.5	1.00 H	9	40.1	12.4
7	#10580.00	63.4 PK	68.2	-4.8	2.91 H	178	40.3	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	61.0 PK	74.0	-13.0	1.17 V	24	48.4	12.6
2	5150.00	48.0 AV	54.0	-6.0	1.17 V	24	35.4	12.6
3	*5290.00	94.6 PK			1.25 V	29	53.5	41.1
4	*5290.00	84.7 AV			1.25 V	29	43.6	41.1
5	5350.00	62.2 PK	74.0	-11.8	1.09 V	13	49.8	12.4
6	5350.00	49.7 AV	54.0	-4.3	1.09 V	13	37.3	12.4
7	#10580.00	62.7 PK	68.2	-5.5	2.22 V	141	39.6	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	63.7 PK	74.0	-10.3	1.12 H	67	50.9	12.8
2	5460.00	52.5 AV	54.0	-1.5	1.12 H	67	39.7	12.8
3	#5470.00	64.3 PK	68.2	-3.9	1.19 H	75	51.4	12.9
4	*5530.00	96.8 PK			1.10 H	81	54.9	41.9
5	*5530.00	86.9 AV			1.10 H	81	45.0	41.9
6	#5725.00	61.9 PK	68.2	-6.3	1.26 H	81	49.0	12.9
7	11060.00	63.7 PK	74.0	-10.3	2.60 H	174	40.3	23.4
8	11060.00	49.8 AV	54.0	-4.2	2.60 H	174	26.4	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	62.5 PK	74.0	-11.5	1.00 V	339	49.7	12.8
2	5460.00	49.3 AV	54.0	-4.7	1.00 V	339	36.5	12.8
3	#5470.00	63.1 PK	68.2	-5.1	1.00 V	332	50.2	12.9
4	*5530.00	97.2 PK			1.05 V	332	55.3	41.9
5	*5530.00	85.2 AV			1.05 V	332	43.3	41.9
6	#5725.00	60.2 PK	68.2	-8.0	1.05 V	332	47.3	12.9
7	11060.00	63.4 PK	74.0	-10.6	3.00 V	360	40.0	23.4
8	11060.00	49.6 AV	54.0	-4.4	3.00 V	360	26.2	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	59.9 PK	74.0	-14.1	2.33 H	65	47.1	12.8
2	5460.00	48.4 AV	54.0	-5.6	2.33 H	65	35.6	12.8
3	#5470.00	60.6 PK	68.2	-7.6	2.39 H	73	47.7	12.9
4	*5610.00	100.4 PK			2.37 H	67	58.6	41.8
5	*5610.00	87.8 AV			2.37 H	67	46.0	41.8
6	#5725.00	60.8 PK	68.2	-7.4	2.10 H	60	47.9	12.9
7	11220.00	63.1 PK	74.0	-10.9	1.22 H	222	39.9	23.2
8	11220.00	49.4 AV	54.0	-4.6	1.22 H	222	26.2	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	59.8 PK	74.0	-14.2	1.02 V	50	47.0	12.8
2	5460.00	48.2 AV	54.0	-5.8	1.02 V	50	35.4	12.8
3	#5470.00	60.4 PK	68.2	-7.8	1.11 V	48	47.5	12.9
4	*5610.00	98.9 PK			1.00 V	18	57.1	41.8
5	*5610.00	86.3 AV			1.00 V	18	44.5	41.8
6	#5725.00	60.4 PK	68.2	-7.8	1.99 V	52	47.5	12.9
7	11220.00	62.9 PK	74.0	-11.1	1.55 V	222	39.7	23.2
8	11220.00	49.2 AV	54.0	-4.8	1.55 V	222	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 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	60.3 PK	68.2	-7.9	2.99 H	90	47.4	12.9
2	*5690.00	100.8 PK			3.48 H	94	58.8	42.0
3	*5690.00	87.6 AV			3.48 H	94	45.6	42.0
4	#5850.00	60.7 PK	68.0	-7.3	3.55 H	93	47.4	13.3
5	11380.00	64.4 PK	74.0	-9.6	2.22 H	122	40.2	24.2
6	11380.00	51.1 AV	54.0	-2.9	2.22 H	122	26.9	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	60.0 PK	68.2	-8.2	2.00 V	56	47.1	12.9
2	*5690.00	99.3 PK			1.05 V	55	57.3	42.0
3	*5690.00	86.1 AV			1.05 V	55	44.1	42.0
4	#5850.00	60.6 PK	68.2	-7.6	1.55 V	59	47.3	13.3
5	11380.00	64.1 PK	74.0	-9.9	2.21 V	111	39.9	24.2
6	11380.00	51.0 AV	54.0	-3.0	2.21 V	111	26.8	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	#5633.60	64.0 PK	68.2	-4.2	2.42 H	69	51.3	12.7
2	*5775.00	100.3 PK			2.42 H	69	57.7	42.6
3	*5775.00	87.0 AV			2.42 H	69	44.4	42.6
4	#5989.60	64.3 PK	68.2	-3.9	2.42 H	69	50.5	13.8
5	11550.00	63.9 PK	74.0	-10.1	2.87 H	145	40.0	23.9
6	11550.00	50.9 AV	54.0	-3.1	2.87 H	145	27.0	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	#5615.20	63.8 PK	68.2	-4.4	1.00 V	46	51.1	12.7
2	*5775.00	98.9 PK			1.00 V	46	56.3	42.6
3	*5775.00	86.1 AV			1.00 V	46	43.5	42.6
4	#5928.00	63.3 PK	68.2	-4.9	1.00 V	46	49.7	13.6
5	11550.00	63.7 PK	74.0	-10.3	3.14 V	185	39.8	23.9
6	11550.00	50.8 AV	54.0	-3.2	3.14 V	185	26.9	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:

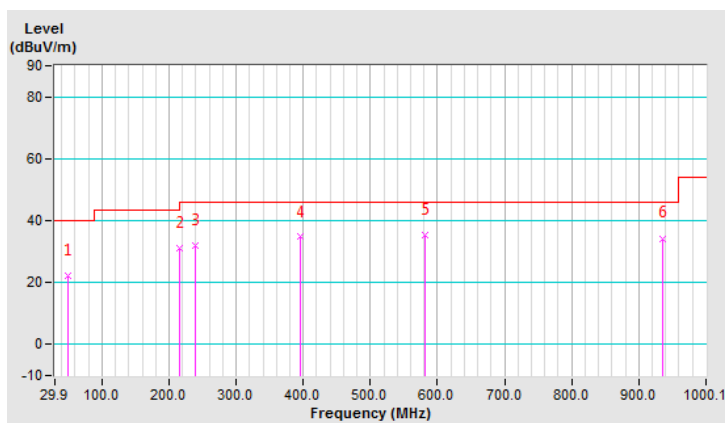
802.11n (HT20)

CHANNEL	TX Channel 100	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	49.30	22.2 QP	40.0	-17.8	2.00 H	19	31.2	-9.0
2	216.18	31.2 QP	46.0	-14.8	1.50 H	184	42.6	-11.4
3	239.46	31.8 QP	46.0	-14.2	1.00 H	7	42.0	-10.2
4	396.64	34.7 QP	46.0	-11.3	2.00 H	243	40.8	-6.1
5	580.97	35.4 QP	46.0	-10.6	1.50 H	95	38.5	-3.1
6	936.07	34.3 QP	46.0	-11.7	1.50 H	24	31.0	3.3

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 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

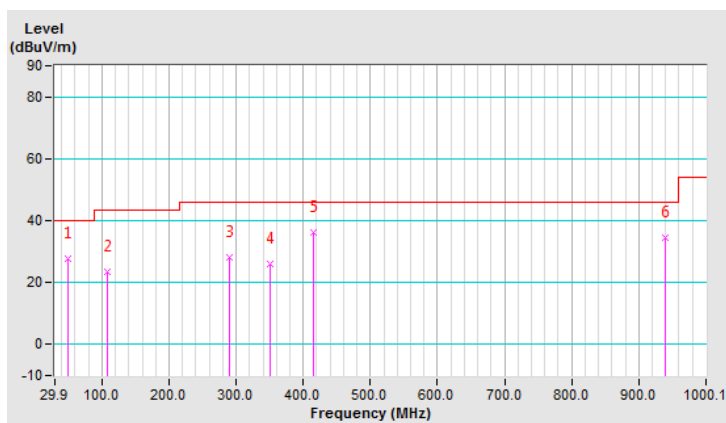


CHANNEL	TX Channel 100	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	49.30	27.7 QP	40.0	-12.3	1.51 V	7	36.7	-9.0
2	107.52	23.4 QP	43.5	-20.1	1.01 V	13	35.9	-12.5
3	289.91	28.2 QP	46.0	-17.8	2.00 V	43	36.5	-8.3
4	350.07	25.9 QP	46.0	-20.1	1.01 V	124	33.1	-7.2
5	416.04	36.2 QP	46.0	-9.8	2.00 V	43	41.9	-5.7
6	939.95	34.6 QP	46.0	-11.4	2.00 V	334	31.3	3.3

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 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	ESCI	100613	Dec. 10, 2018	Dec. 09, 2019
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
			Aug. 22, 2019	Aug. 21, 2020
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

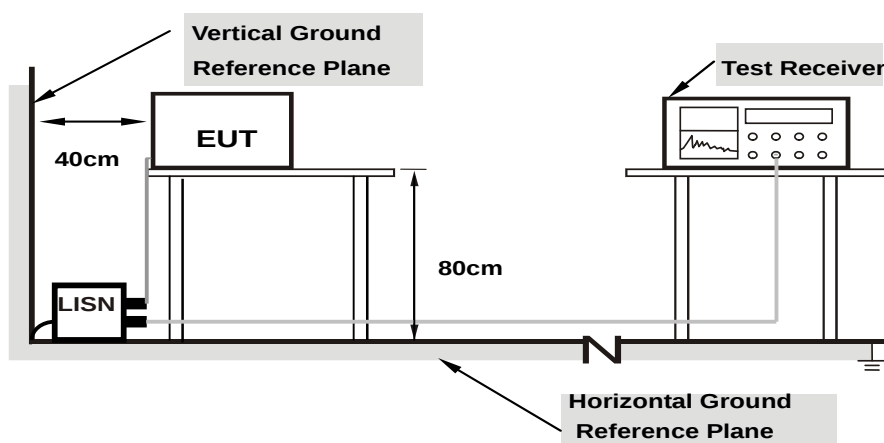
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

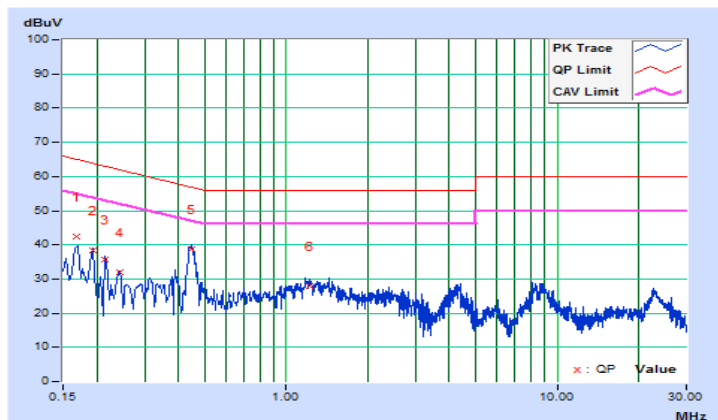
802.11n (HT20)

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	0.16843	9.69	32.73	19.87	42.42	29.56	65.04	55.04	-22.62	-25.48
2	0.19400	9.68	28.60	17.28	38.28	26.96	63.86	53.86	-25.58	-26.90
3	0.21406	9.68	25.99	14.04	35.67	23.72	63.05	53.05	-27.38	-29.33
4	0.24200	9.68	22.37	11.86	32.05	21.54	62.03	52.03	-29.98	-30.49
5	0.44527	9.68	29.13	21.62	38.81	31.30	56.96	46.96	-18.15	-15.66
6	1.21400	9.68	18.10	10.68	27.78	20.36	56.00	46.00	-28.22	-25.64

Remarks:

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

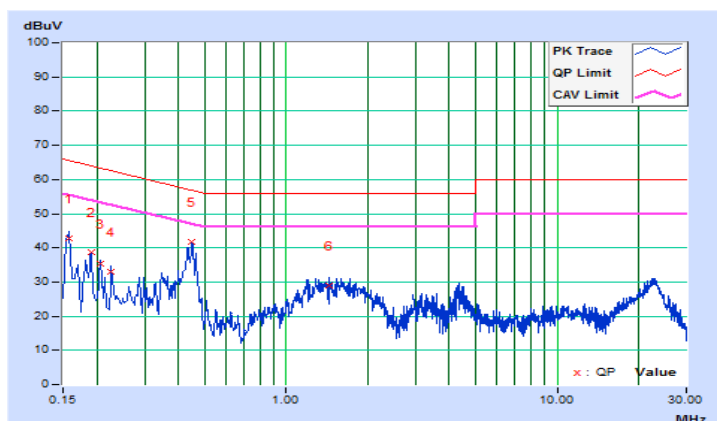


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

No	Freq. [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	0.15800	9.66	33.00	18.86	42.66	28.52	65.57	55.57	-22.91	-27.05
2	0.19000	9.66	29.01	15.26	38.67	24.92	64.04	54.04	-25.37	-29.12
3	0.20600	9.66	25.57	10.43	35.23	20.09	63.37	53.37	-28.14	-33.28
4	0.22600	9.66	23.20	8.49	32.86	18.15	62.60	52.60	-29.74	-34.45
5	0.44600	9.65	32.02	24.59	41.67	34.24	56.95	46.95	-15.28	-12.71
6	1.44200	9.65	19.24	12.82	28.89	22.47	56.00	46.00	-27.11	-23.53

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} ;

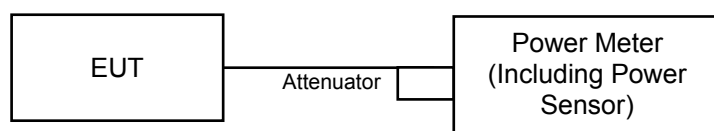
Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

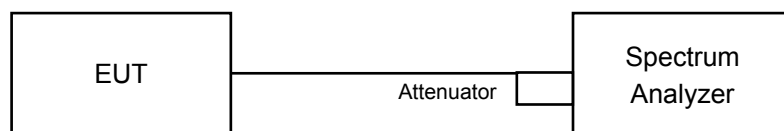
4.3.2 Test Setup

For Power Output

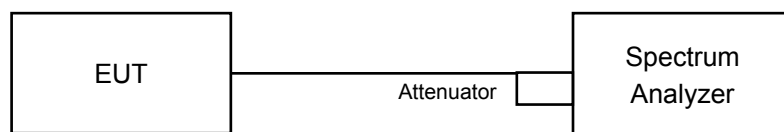
802.11a, 802.11n (HT20), 802.11n (HT40)



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)

- Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- Set sweep trigger to "free run".
- Set RBW = 1 MHz
- Set VBW $\geq$ 3 MHz
- Number of points in sweep $\geq$ 2 Span / RBW
- Sweep time $\leq$ (number of points in sweep) * T
- Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- Detector = RMS
- Trace mode = max hold
- Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
- 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

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- 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	13.64	13.62	46.135	16.64	24.00	Pass
40	5200	13.52	13.56	45.190	16.55	24.00	Pass
48	5240	13.40	13.64	44.999	16.53	24.00	Pass
52	5260	12.13	14.26	43.000	16.33	23.76	Pass
60	5300	12.11	14.31	43.232	16.36	24.00	Pass
64	5320	12.17	14.47	44.472	16.48	24.00	Pass
100	5500	13.83	13.95	48.986	16.90	24.00	Pass
116	5580	13.13	13.42	42.538	16.29	23.77	Pass
140	5700	13.87	13.82	48.477	16.86	24.00	Pass
144	5720 (For U-NII-2C)	9.54	9.42	20.280	13.07	23.00	Pass
144	5720 (For U-NII-3)	5.01	5.36	7.550	8.78	30.00	Pass
149	5745	13.09	13.94	45.144	16.55	30.00	Pass
157	5785	12.88	14.26	46.078	16.63	30.00	Pass
165	5825	12.71	13.99	43.725	16.41	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(18.91) = 23.76 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(21.94) = 24.41 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(22.00) = 24.42 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(21.91) = 24.40 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(18.94) = 23.77 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(21.92) = 24.40 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.12) = 23.00 < 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(18.93) = 23.77 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(21.96) = 24.41 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(21.97) = 24.41 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(21.99) = 24.42 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(18.94) = 23.77 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(21.97) = 24.41 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.04) = 23.03 < 24\text{dBm}$

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	13.63	13.81	47.111	16.73	24.00	Pass
40	5200	13.65	13.77	46.997	16.72	24.00	Pass
48	5240	13.07	13.93	44.994	16.53	24.00	Pass
52	5260	12.81	14.74	48.884	16.89	23.84	Pass
60	5300	12.03	14.28	42.751	16.31	24.00	Pass
64	5320	12.18	14.39	43.999	16.43	24.00	Pass
100	5500	13.76	14.16	49.830	16.97	24.00	Pass
116	5580	13.80	14.12	49.811	16.97	23.82	Pass
140	5700	13.86	13.98	49.325	16.93	24.00	Pass
144	5720 (For U-NII-2C)	9.60	9.58	20.532	13.12	23.01	Pass
144	5720 (For U-NII-3)	3.38	4.19	5.418	7.34	30.00	Pass
149	5745	12.88	13.96	44.298	16.46	30.00	Pass
157	5785	12.71	13.98	43.667	16.40	30.00	Pass
165	5825	12.46	13.81	41.664	16.20	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(19.32) = 23.86 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(22.23) = 24.46 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(22.19) = 24.46 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(22.15) = 24.45 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(19.17) = 23.82 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(22.17) = 24.45 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5708.91) = 23.06 < 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(19.25) = 23.84 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(22.00) = 24.42 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(21.97) = 24.41 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(22.40) = 24.50 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(19.26) = 23.84 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(22.04) = 24.43 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.11) = 23.01 < 24\text{dBm}$

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	10.73	10.79	23.825	13.77	24.00	Pass
46	5230	13.76	14.04	49.119	16.91	24.00	Pass
54	5270	12.26	14.45	44.688	16.50	24.00	Pass
62	5310	11.18	13.05	33.306	15.23	24.00	Pass
102	5510	10.87	11.07	25.012	13.98	24.00	Pass
110	5550	13.41	13.78	45.806	16.61	24.00	Pass
134	5670	13.70	13.46	45.624	16.59	24.00	Pass
142	5710 (For U-NII-2C)	6.98	7.00	11.688	10.68	24.00	Pass
142	5710 (For U-NII-3)	-3.37	-2.69	1.167	0.67	30.00	Pass
151	5755	13.41	14.43	49.661	16.96	30.00	Pass
159	5795	13.36	14.48	49.731	16.97	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(41.51) = 27.18 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(41.57) = 27.18 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(41.47) = 27.17 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(41.29) = 27.15 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(41.43) = 27.17 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.41) = 26.51 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(41.14) = 27.14 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(41.50) = 27.18 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(41.35) = 27.16 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(41.35) = 27.16 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(41.31) = 27.16 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.53) = 26.49 > 24\text{dBm}$

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	10.15	10.29	21.042	13.23	24.00	Pass
58	5290	10.53	12.61	29.537	14.70	24.00	Pass
106	5530	10.62	10.59	22.990	13.62	24.00	Pass
122	5610	13.78	13.86	48.200	16.83	24.00	Pass
138	5690 (For U-NII-2C)	3.94	3.91	6.664	8.24	24.00	Pass
138	5690 (For U-NII-3)	-10.51	-9.20	0.282	-5.49	30.00	Pass
155	5775	12.68	13.82	42.634	16.30	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(83.30) = 30.20 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(82.94) = 30.18 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(83.32) = 30.20 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(5725.00 - 5648.67) = 29.82 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(82.70) = 30.17 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(82.66) = 30.17 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(82.92) = 30.18 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(5725.00 - 5648.67) = 29.82 > 24\text{dBm}$

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	18.91	18.93
60	5300	21.94	21.96
64	5320	22.00	21.97
100	5500	21.91	21.99
116	5580	18.94	18.94
140	5700	21.92	21.97
144	5720 (For U-NII-2C)	15.88	15.96
144	5720 (For U-NII-3)	5.92	5.90

802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	19.32	19.25
60	5300	22.23	22.00
64	5320	22.19	21.97
100	5500	22.15	22.40
116	5580	19.17	19.26
140	5700	22.17	22.04
144	5720 (For U-NII-2C)	16.09	15.89
144	5720 (For U-NII-3)	6.06	6.11

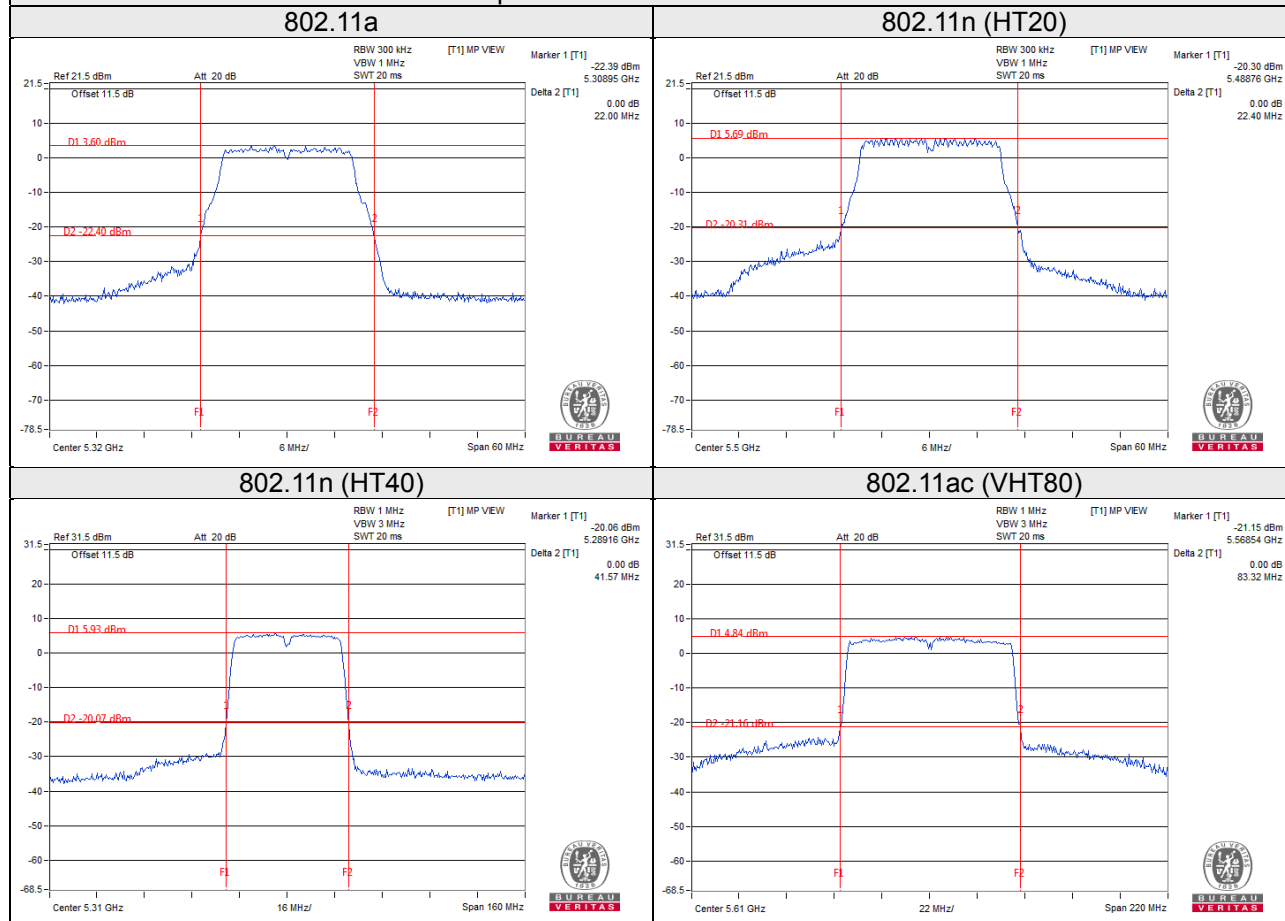
802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	41.51	41.14
62	5310	41.57	41.50
102	5510	41.47	41.35
110	5550	41.29	41.35
134	5670	41.43	41.31
142	5710 (For U-NII-2C)	35.59	35.47
142	5710 (For U-NII-3)	5.73	5.65

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	83.30	82.70
106	5530	82.94	82.66
122	5610	83.32	82.92
138	5690 (For U-NII-2C)	76.33	76.33
138	5690 (For U-NII-3)	6.57	6.47

Spectrum Plot of Worst Value



EUT Maximum Conducted Power

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	44.472	16.48
5470~5725	48.986	16.90

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	48.884	16.89
5470~5725	49.830	16.97

802.11n (HT40)

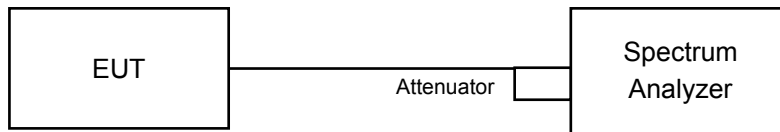
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	44.688	16.50
5470~5725	45.806	16.61

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	29.537	14.70
5470~5725	48.200	16.83

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	17.16	17.16
40	5200	17.16	17.16
48	5240	16.68	16.68
52	5260	16.68	16.68
60	5300	17.16	17.28
64	5320	17.16	17.16
100	5500	17.16	17.16
116	5580	16.68	16.68
140	5700	17.28	17.28
144	5720 (For U-NII-2C)	13.28	13.28
144	5720 (For U-NII-3)	3.28	3.28
149	5745	17.28	17.16
157	5785	17.16	17.16
165	5825	17.16	17.16

802.11n (HT20)

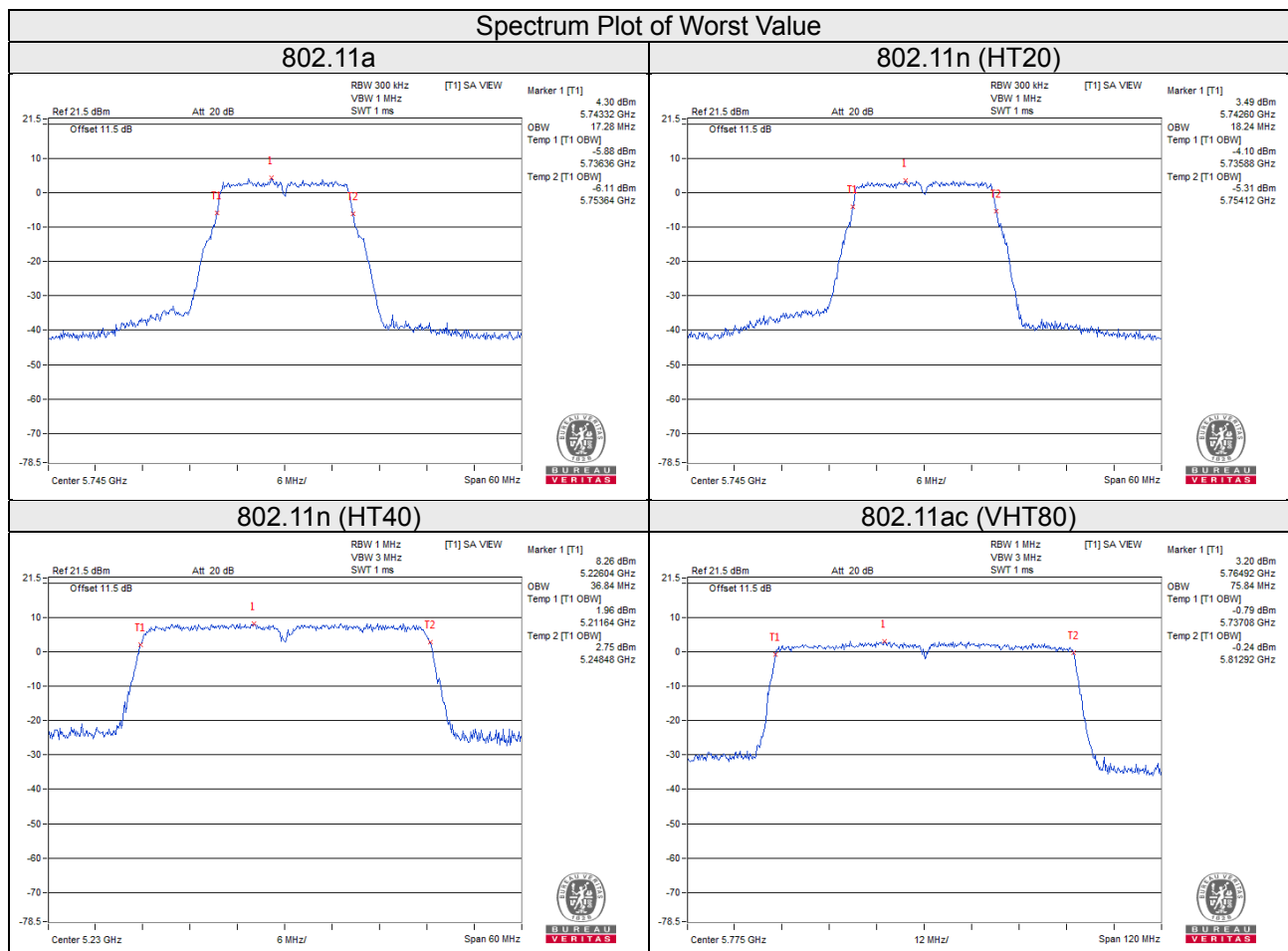
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.12	18.00
40	5200	18.12	18.00
48	5240	17.40	17.52
52	5260	17.40	17.52
60	5300	18.24	18.00
64	5320	18.24	18.00
100	5500	18.12	18.12
116	5580	17.40	17.40
140	5700	18.24	18.12
144	5720 (For U-NII-2C)	13.88	13.88
144	5720 (For U-NII-3)	3.88	3.88
149	5745	18.24	18.00
157	5785	18.24	18.12
165	5825	18.12	18.12

802.11n (HT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.72	36.60
46	5230	36.72	36.84
54	5270	36.72	36.72
62	5310	36.72	36.72
102	5510	36.72	36.72
110	5550	36.72	36.84
134	5670	36.72	36.72
142	5710 (For U-NII-2C)	33.36	33.24
142	5710 (For U-NII-3)	3.36	3.48
151	5755	36.72	36.69
159	5795	36.72	36.72

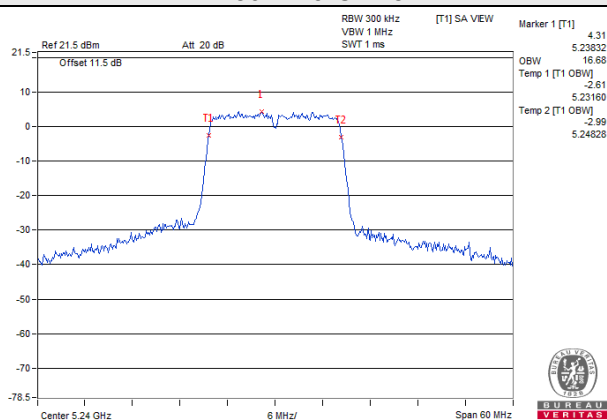
802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.84	75.84
58	5290	75.84	75.84
106	5530	75.84	75.84
122	5610	75.84	75.84
138	5690 (For U-NII-2C)	72.92	72.92
138	5690 (For U-NII-3)	2.92	3.16
155	5775	75.84	75.84

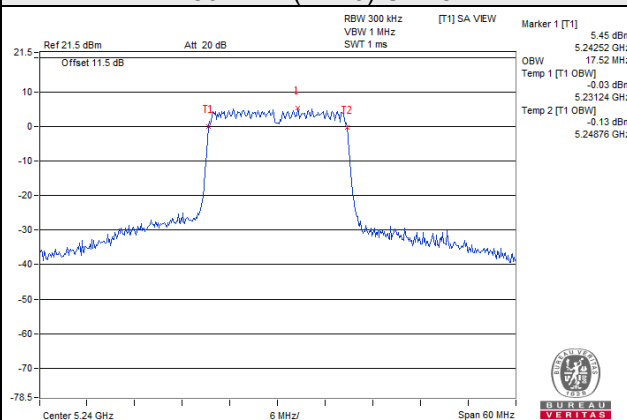


Spectrum Plot of Value

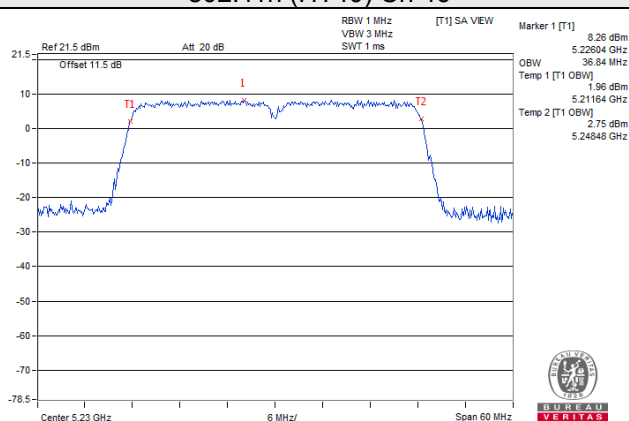
802.11a Ch 48



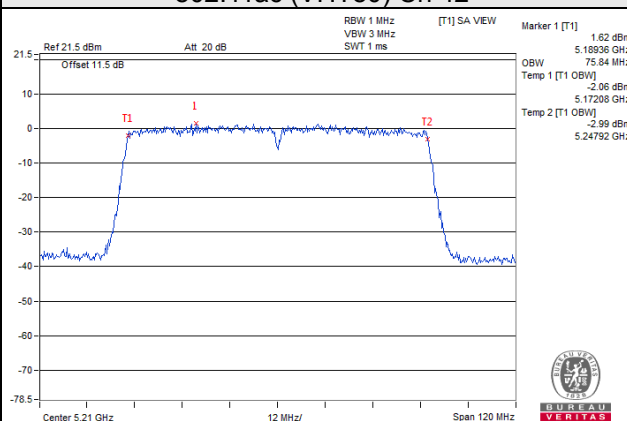
802.11n (HT20) Ch 48



802.11n (HT40) Ch 46

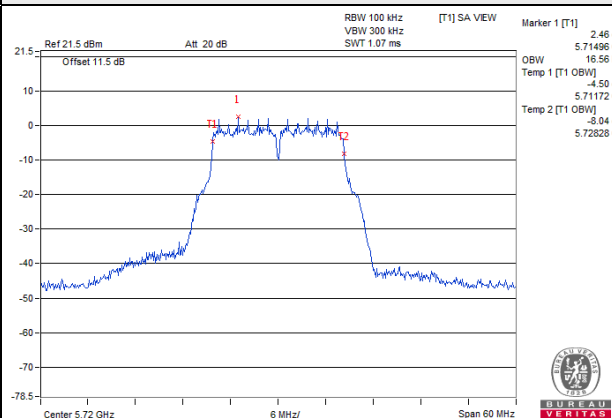


802.11ac (VHT80) Ch 42

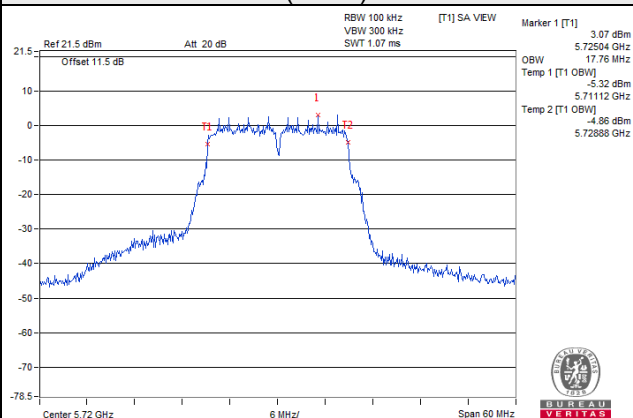


Spectrum Plot of Value

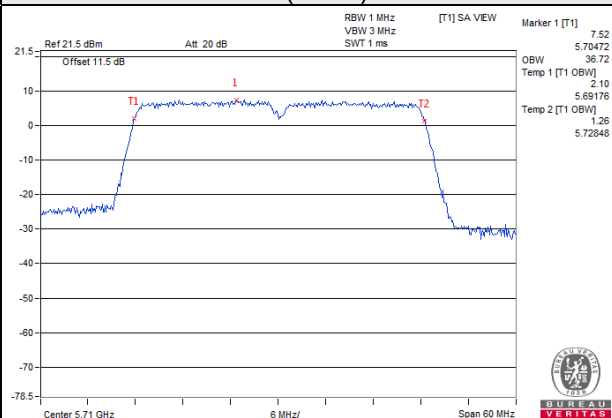
802.11a Ch 144



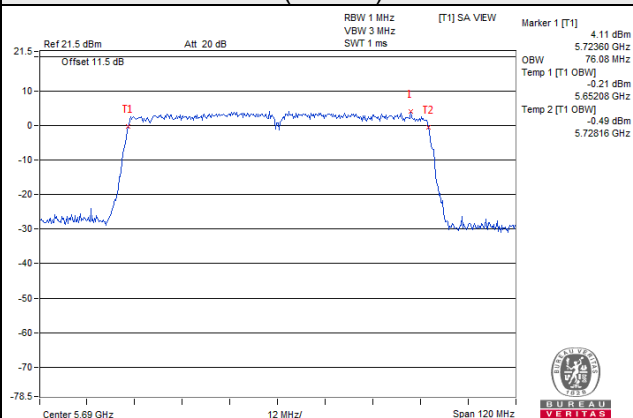
802.11n (HT20) Ch 144



802.11n (HT40) Ch 142

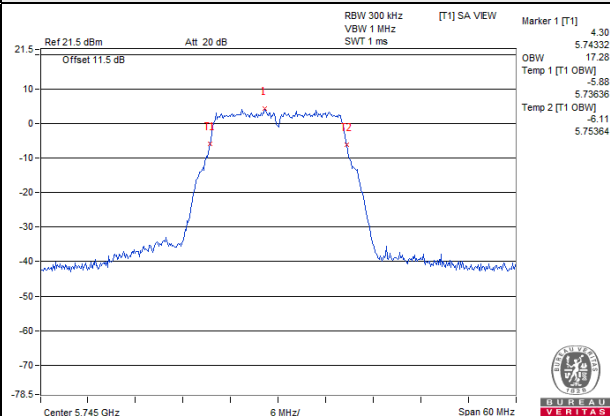


802.11ac (VHT80) Ch 138

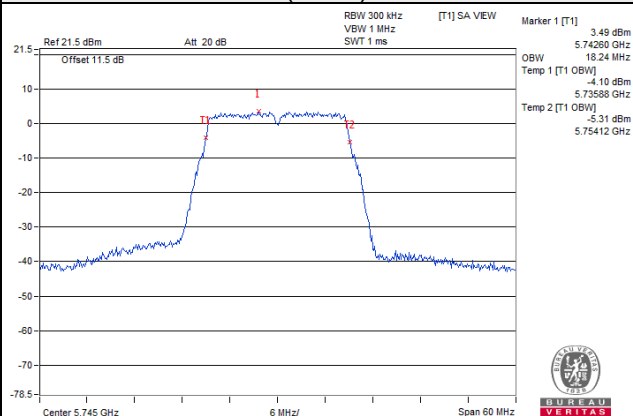


Spectrum Plot of Value

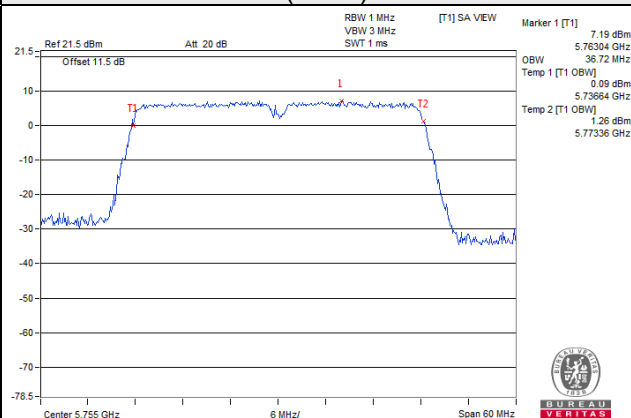
802.11a Ch 149



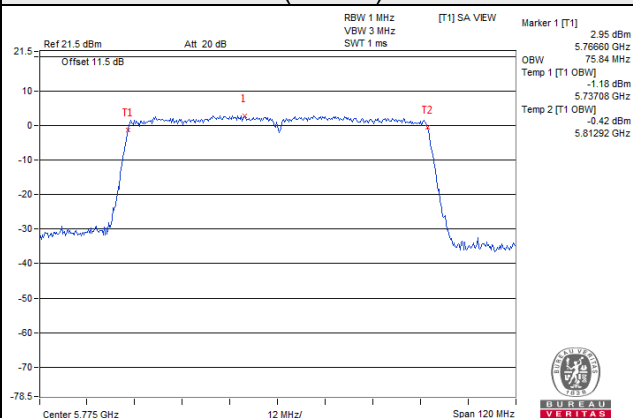
802.11n (HT20) Ch 149



802.11n (HT40) Ch 151



802.11ac (VHT80) Ch 155

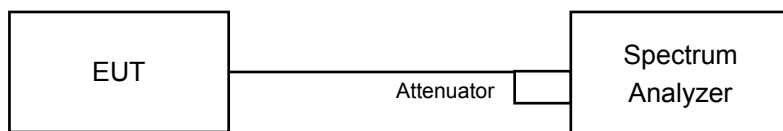


4.5 Peak Power Spectral Density Measurement

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 ≥ 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 ≥ 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/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	-0.04	-0.05	0.58	3.55	11.00	Pass
40	5200	0.03	-0.06	0.58	3.58	11.00	Pass
48	5240	-0.09	0.46	0.58	3.78	11.00	Pass
52	5260	-0.45	0.63	0.58	3.71	11.00	Pass
60	5300	-1.56	0.85	0.58	3.40	11.00	Pass
64	5320	-1.29	1.05	0.58	3.63	11.00	Pass
100	5500	0.54	0.63	0.58	4.18	11.00	Pass
116	5580	0.68	-0.15	0.58	3.88	11.00	Pass
140	5700	0.47	0.63	0.58	4.14	11.00	Pass
144	5720 (For U-NII-2C)	0.36	0.65	0.58	4.10	11.00	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 = $2.19\text{dBi} + 10\log(2) = 5.2\text{dBi} < 6\text{dBi}$, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	0.07	-0.48	0.52	3.33	11.00	Pass
40	5200	-0.03	-0.51	0.52	3.27	11.00	Pass
48	5240	-0.42	0.04	0.52	3.35	11.00	Pass
52	5260	-0.60	1.01	0.52	3.81	11.00	Pass
60	5300	-1.15	0.50	0.52	3.28	11.00	Pass
64	5320	-1.89	0.63	0.52	3.08	11.00	Pass
100	5500	0.13	0.26	0.52	3.73	11.00	Pass
116	5580	0.46	0.38	0.52	3.95	11.00	Pass
140	5700	0.06	0.07	0.52	3.60	11.00	Pass
144	5720 (For U-NII-2C)	0.05	0.11	0.52	3.61	11.00	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 = $2.19\text{dBi} + 10\log(2) = 5.2\text{dBi} < 6\text{dBi}$, so the power density limit no need to reduced.
- 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	-5.41	-5.90	0.68	-1.96	11.00	Pass
46	5230	-2.98	-2.81	0.68	0.80	11.00	Pass
54	5270	-4.37	-2.50	0.68	0.36	11.00	Pass
62	5310	-5.44	-2.80	0.68	-0.23	11.00	Pass
102	5510	-5.18	-5.27	0.68	-1.53	11.00	Pass
110	5550	-3.39	-3.42	0.68	0.29	11.00	Pass
134	5670	-3.32	-3.72	0.68	0.17	11.00	Pass
142	5710 (For U-NII-2C)	-3.46	-3.63	0.68	0.15	11.00	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 = $2.19\text{dBi} + 10\log(2) = 5.2\text{dBi} < 6\text{dBi}$, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

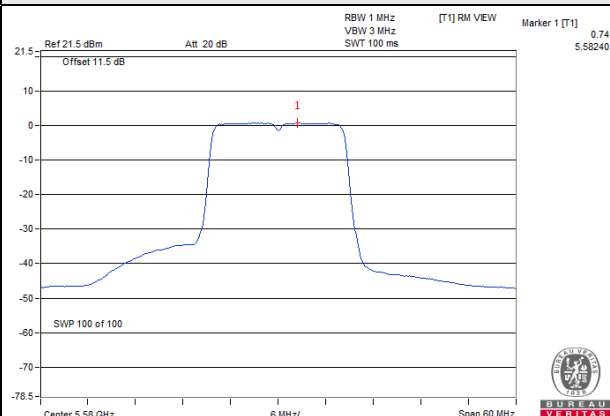
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-9.51	-9.69	1.30	-5.29	11.00	Pass
58	5290	-9.51	-9.57	1.30	-5.23	11.00	Pass
106	5530	-9.44	-9.66	1.30	-5.24	11.00	Pass
122	5610	-6.49	-6.67	1.30	-2.27	11.00	Pass
138	5690 (For U-NII-2C)	-6.75	-6.82	1.30	-2.47	11.00	Pass

Note:

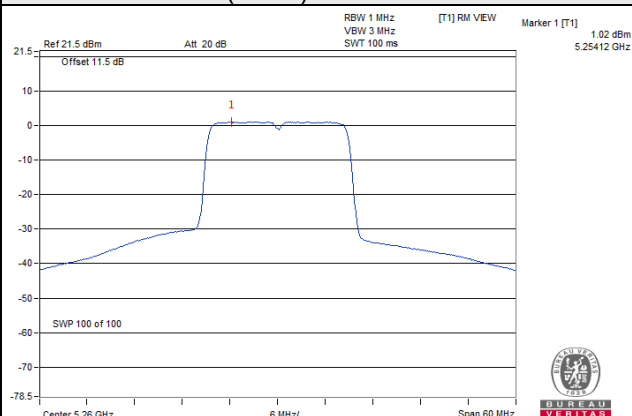
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $2.19\text{dBi} + 10\log(2) = 5.2\text{dBi} < 6\text{dBi}$, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

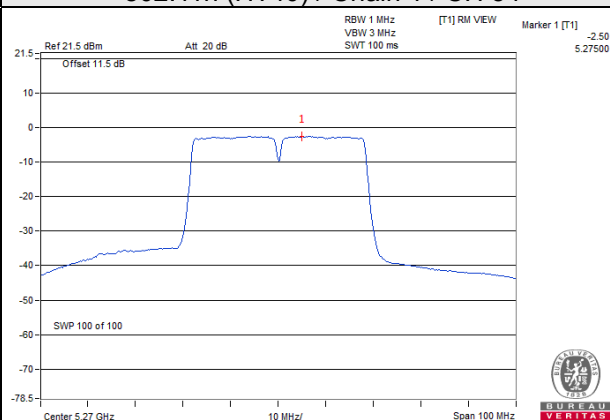
802.11a / Chain 0 / CH 116



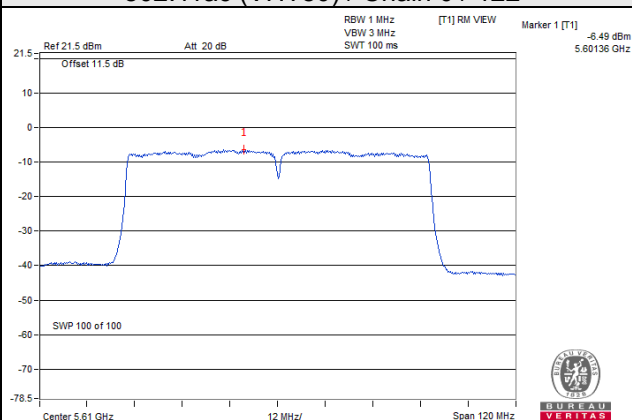
802.11n (HT20) / Chain 1 / CH 52



802.11n (HT40) / Chain 1 / CH 54



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)	-7.79	-5.57	3.01	0.58	-1.98	30.00	Pass
	149	5745	-8.66	-6.44	3.01	0.58	-2.85	30.00	Pass
	157	5785	-8.68	-6.46	3.01	0.58	-2.87	30.00	Pass
	165	5825	-8.76	-6.54	3.01	0.58	-2.95	30.00	Pass
1	144	5720 (For U-NII-3)	-7.77	-5.55	3.01	0.58	-1.96	30.00	Pass
	149	5745	-7.40	-5.18	3.01	0.58	-1.59	30.00	Pass
	157	5785	-7.30	-5.08	3.01	0.58	-1.49	30.00	Pass
	165	5825	-7.72	-5.50	3.01	0.58	-1.91	30.00	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 2.19dBi + 10log(2) = 5.2dBi < 6dBi, so the power density limit no need to reduced.
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)	-8.58	-6.36	3.01	0.52	-2.83	30.00	Pass
	149	5745	-8.92	-6.70	3.01	0.52	-3.17	30.00	Pass
	157	5785	-9.21	-6.99	3.01	0.52	-3.46	30.00	Pass
	165	5825	-9.19	-6.97	3.01	0.52	-3.44	30.00	Pass
1	144	5720 (For U-NII-3)	-8.31	-6.09	3.01	0.52	-2.56	30.00	Pass
	149	5745	-7.94	-5.72	3.01	0.52	-2.19	30.00	Pass
	157	5785	-8.00	-5.78	3.01	0.52	-2.25	30.00	Pass
	165	5825	-8.07	-5.85	3.01	0.52	-2.32	30.00	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 2.19dBi + 10log(2) = 5.2dBi < 6dBi, so the power density limit no need to reduced.
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)	-12.26	-10.04	3.01	0.68	-6.35	30.00	Pass
	151	5755	-11.83	-9.61	3.01	0.68	-5.92	30.00	Pass
	159	5795	-11.81	-9.59	3.01	0.68	-5.90	30.00	Pass
1	142	5710 (For U-NII-3)	-13.03	-10.81	3.01	0.68	-7.12	30.00	Pass
	151	5755	-11.11	-8.89	3.01	0.68	-5.20	30.00	Pass
	159	5795	-11.34	-9.12	3.01	0.68	-5.43	30.00	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = $2.19\text{dBi} + 10\log(2) = 5.2\text{dBi} < 6\text{dBi}$, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

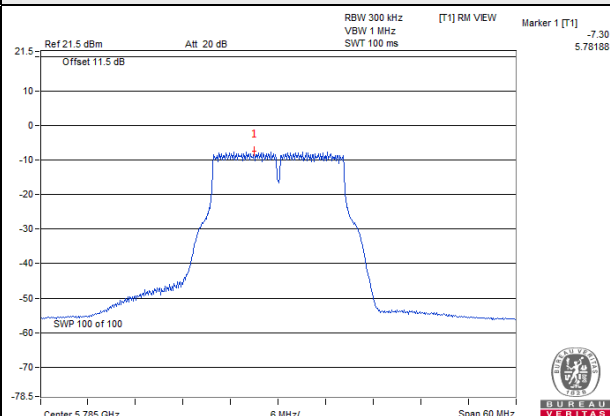
TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	138	5690 (For U-NII-3)	-16.42	-14.20	3.01	1.30	-9.89	30.00	Pass
	155	5775	-16.44	-14.22	3.01	1.30	-9.91	30.00	Pass
1	138	5690 (For U-NII-3)	-16.62	-14.40	3.01	1.30	-10.09	30.00	Pass
	155	5775	-16.40	-14.18	3.01	1.30	-9.87	30.00	Pass

Note:

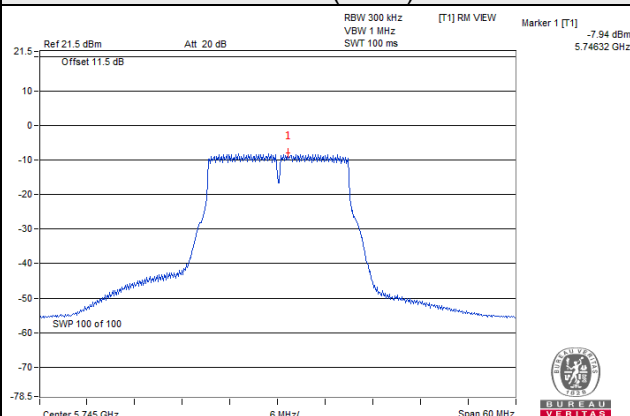
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = $2.19\text{dBi} + 10\log(2) = 5.2\text{dBi} < 6\text{dBi}$, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

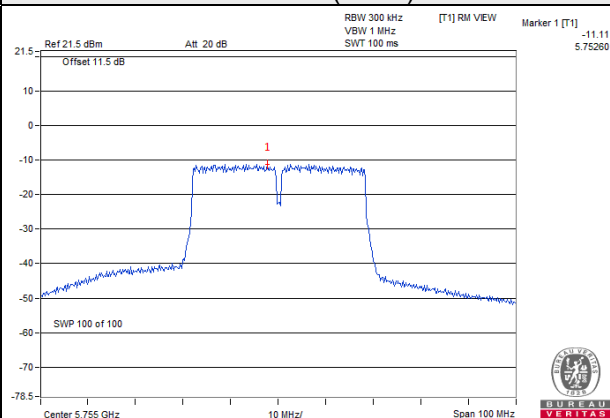
802.11a



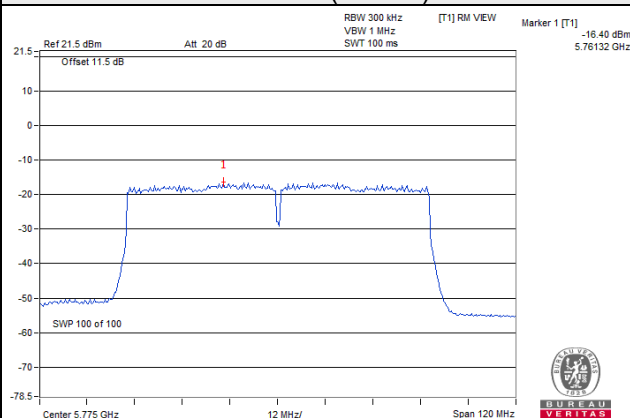
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

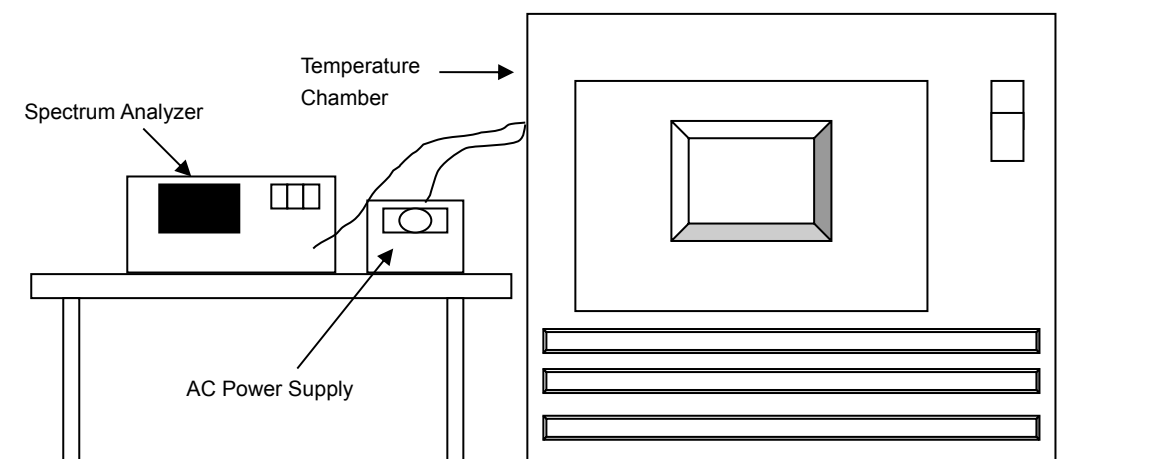


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 03, 2019	Jun. 02, 2020
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018 Jun. 27, 2019	Jun. 28, 2019 Jun. 26, 2020
AC Power Supply Extech	CFW-105	E000603	NA	NA
True RMS Clamp Meter / Fluke	325	31130711WS	May 21, 2019	May 20, 2020

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

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
50	120	5180.0054	PASS	5180.0028	PASS	5180.0064	PASS	5180.0017	PASS
40	120	5179.9785	PASS	5179.9820	PASS	5179.9784	PASS	5179.9782	PASS
30	120	5180.0144	PASS	5180.0128	PASS	5180.0128	PASS	5180.0125	PASS
20	120	5180.0184	PASS	5180.0185	PASS	5180.0183	PASS	5180.0210	PASS
10	120	5180.0007	PASS	5180.0008	PASS	5179.9990	PASS	5180.0021	PASS
0	120	5179.9785	PASS	5179.9813	PASS	5179.9820	PASS	5179.9832	PASS
-10	120	5179.9994	PASS	5179.9952	PASS	5179.9949	PASS	5179.9994	PASS
-20	120	5180.0157	PASS	5180.0113	PASS	5180.0123	PASS	5180.0114	PASS
-30	120	5179.9778	PASS	5179.9766	PASS	5179.9784	PASS	5179.9764	PASS

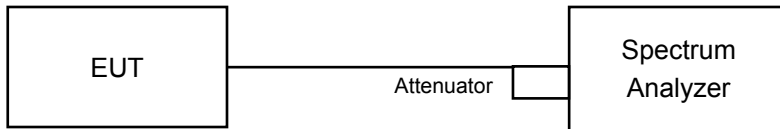
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0181	PASS	5180.0193	PASS	5180.0181	PASS	5180.0218	PASS
	120	5180.0184	PASS	5180.0185	PASS	5180.0183	PASS	5180.0210	PASS
	102	5180.0175	PASS	5180.0177	PASS	5180.0187	PASS	5180.0212	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)	3.19	3.18	0.5	Pass
149	5745	16.41	16.43	0.5	Pass
157	5785	16.43	16.41	0.5	Pass
165	5825	16.42	16.43	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)	3.82	3.91	0.5	Pass
149	5745	17.65	17.66	0.5	Pass
157	5785	17.65	17.67	0.5	Pass
165	5825	17.66	17.69	0.5	Pass

802.11n (HT40)

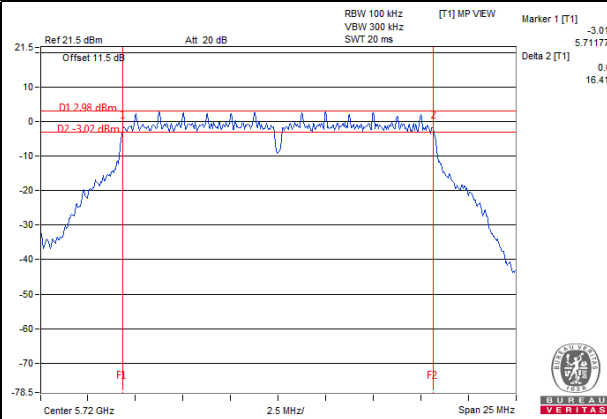
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710 (For U-NII-3)	3.22	3.34	0.5	Pass
151	5755	36.46	36.38	0.5	Pass
159	5795	36.45	36.46	0.5	Pass

802.11ac (VHT80)

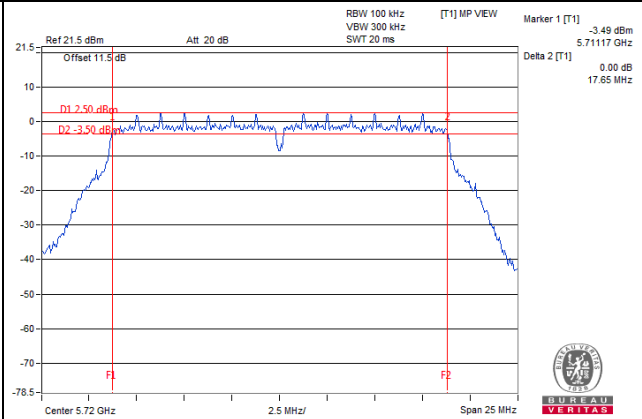
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 (For U-NII-3)	3.10	3.07	0.5	Pass
155	5775	75.93	75.91	0.5	Pass

Spectrum Plot of Worst Value

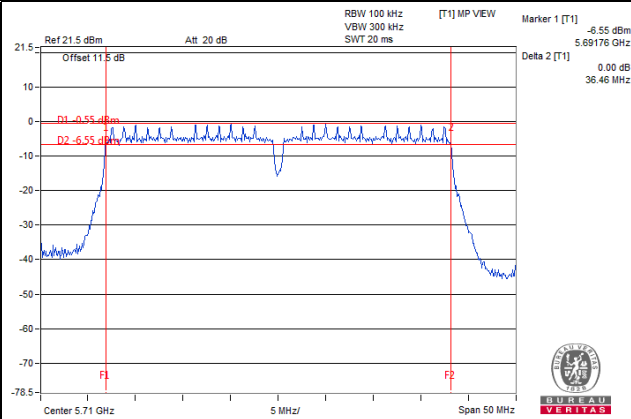
802.11a



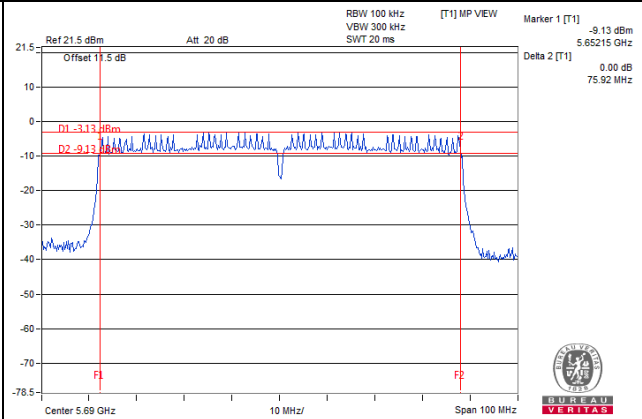
802.11n (HT20)



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

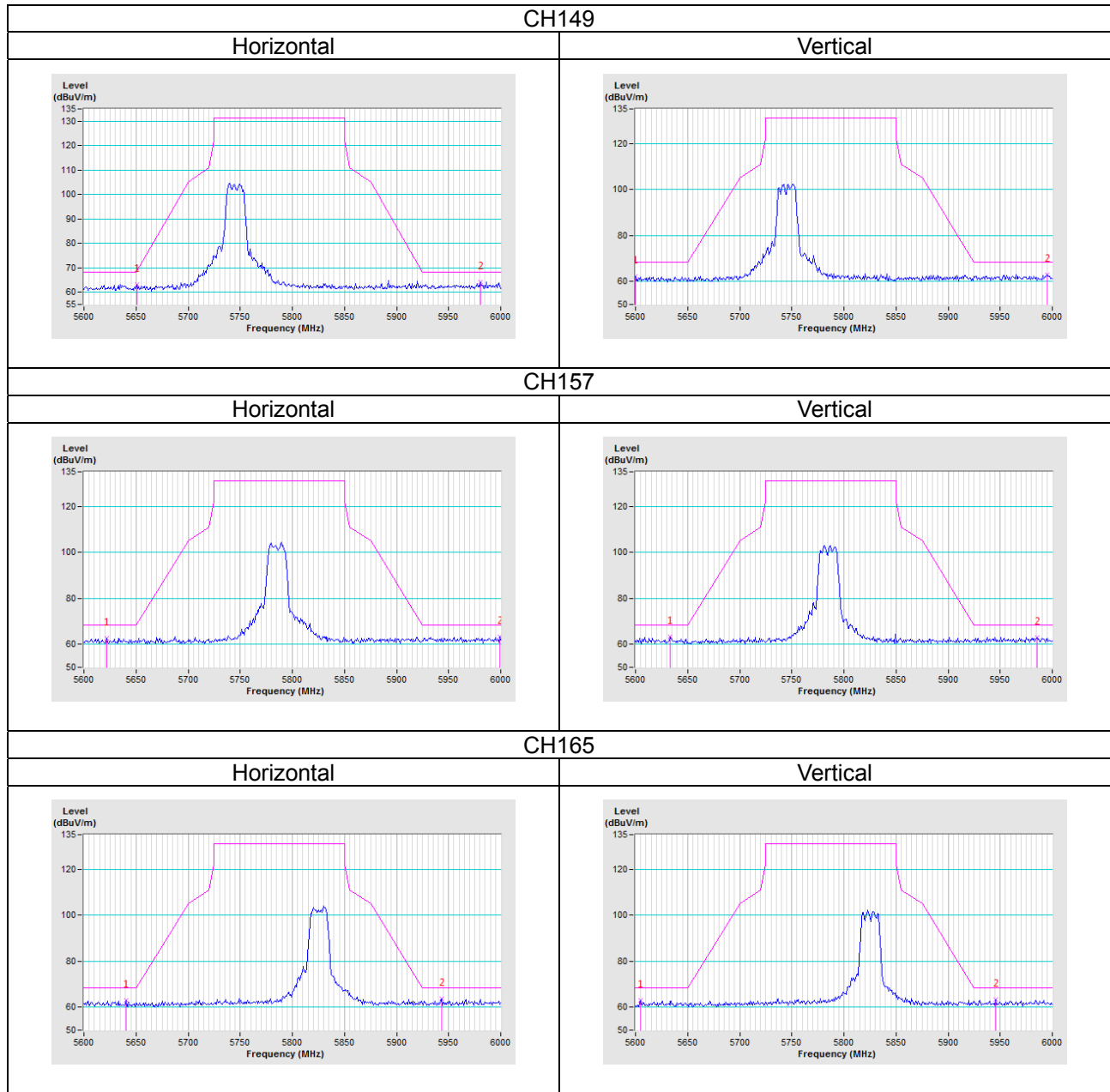
For CH138 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

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)

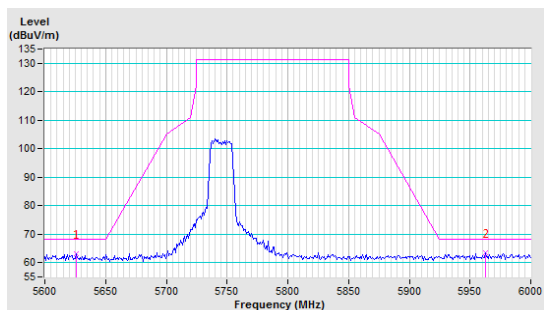
802.11a



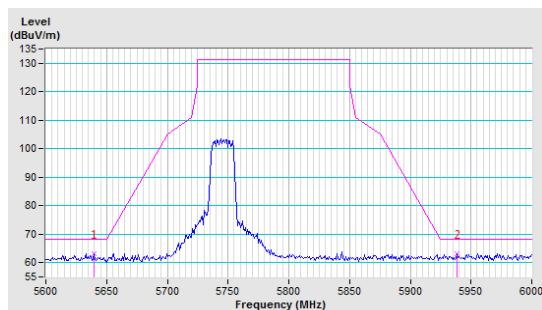
802.11n (HT20)

CH149

Horizontal

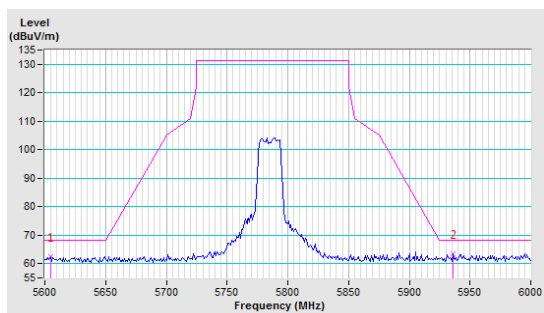


Vertical

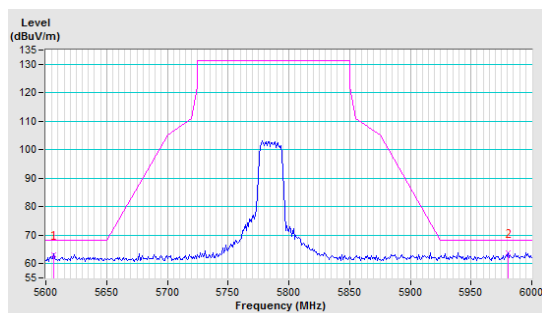


CH157

Horizontal

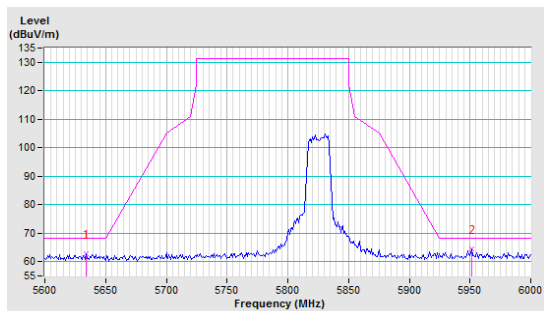


Vertical

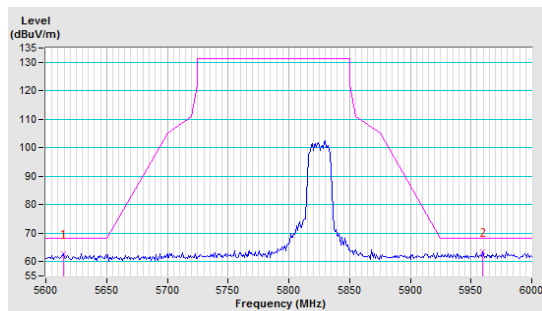


CH165

Horizontal



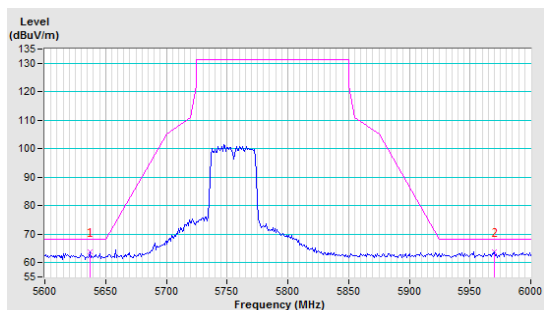
Vertical



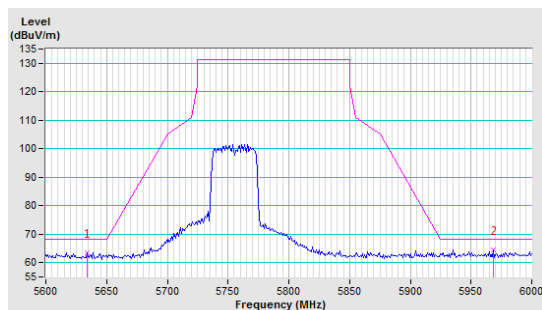
802.11n (HT40)

CH151

Horizontal

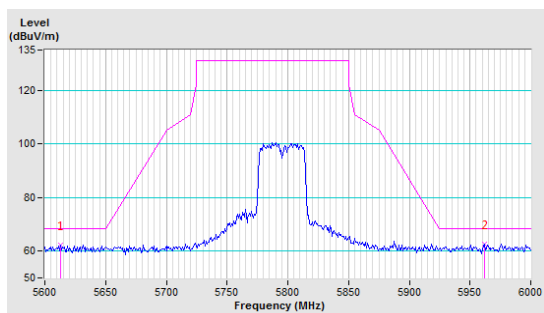


Vertical

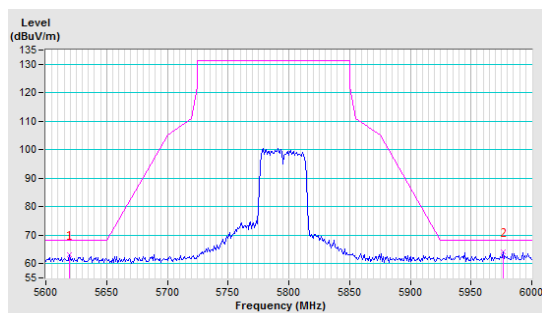


CH159

Horizontal



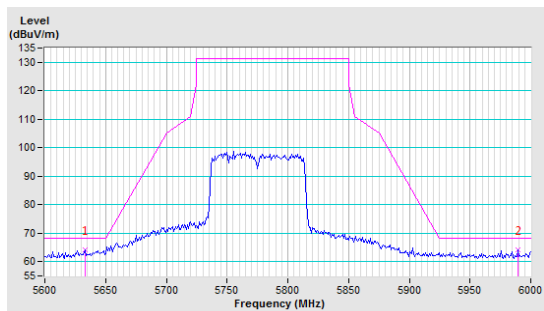
Vertical



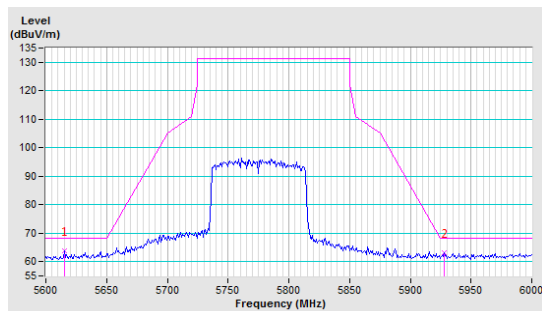
802.11ac (VHT80)

CH155

Horizontal



Vertical



Appendix – Information of the Testing Laboratories

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

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

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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