

FCC Test Report

Report No.: RF181024C03-1

FCC ID: PY318400431

Test Model: EX6250

Received Date: Oct. 24, 2018

Test Date: Nov. 07 ~ Dec. 11, 2018

Issued Date: Dec. 13, 2018

Applicant: NETGEAR, INC.

Address: 350 East Plumeria Drive San Jose, CA 95134

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration /
Designation Number:** 788550 / TW0003



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty.....	6
2.2 Modification Record.....	6
3 General Information	7
3.1 General Description of EUT.....	7
3.2 Description of Test Modes.....	9
3.2.1 Test Mode Applicability and Tested Channel Detail.....	10
3.3 Duty Cycle of Test Signal.....	12
3.4 Description of Support Units.....	13
3.4.1 Configuration of System under Test.....	13
3.5 General Description of Applied Standards.....	13
4 Test Types and Results	14
4.1 Radiated Emission and Bandedge Measurement.....	14
4.1.1 Limits of Radiated Emission and Bandedge Measurement.....	14
4.1.2 Test Instruments.....	15
4.1.3 Test Procedures.....	16
4.1.4 Deviation from Test Standard.....	16
4.1.5 Test Setup.....	17
4.1.6 EUT Operating Conditions.....	18
4.1.7 Test Results.....	19
4.2 Conducted Emission Measurement.....	39
4.2.1 Limits of Conducted Emission Measurement.....	39
4.2.2 Test Instruments.....	39
4.2.3 Test Procedures.....	40
4.2.4 Deviation from Test Standard.....	40
4.2.5 Test Setup.....	40
4.2.6 EUT Operating Conditions.....	40
4.2.7 Test Results.....	41
4.3 Transmit Power Measurement.....	43
4.3.1 Limits of Transmit Power Measurement.....	43
4.3.2 Test Setup.....	43
4.3.3 Test Instruments.....	43
4.3.4 Test Procedure.....	43
4.3.5 Deviation from Test Standard.....	43
4.3.6 EUT Operating Conditions.....	43
4.3.7 Test Result.....	44
4.4 Occupied Bandwidth Measurement.....	46
4.4.1 Test Setup.....	46
4.4.2 Test Instruments.....	46
4.4.3 Test Procedure.....	46
4.4.4 Test Result.....	47
4.5 Peak Power Spectral Density Measurement.....	49
4.5.1 Limits of Peak Power Spectral Density Measurement.....	49
4.5.2 Test Setup.....	49
4.5.3 Test Instruments.....	49
4.5.4 Test Procedures.....	49
4.5.5 Deviation from Test Standard.....	50
4.5.6 EUT Operating Conditions.....	50
4.5.7 Test Results.....	51
4.6 Frequency Stability.....	56
4.6.1 Limits of Frequency Stability Measurement.....	56

4.6.2	Test Setup.....	56
4.6.3	Test Instruments	56
4.6.4	Test Procedure	56
4.6.5	Deviation from Test Standard	57
4.6.6	EUT Operating Condition	57
4.6.7	Test Results	57
4.7	6dB Bandwidth Measurement.....	58
4.7.1	Limits of 6dB Bandwidth Measurement.....	58
4.7.2	Test Setup.....	58
4.7.3	Test Instruments	58
4.7.4	Test Procedure	58
4.7.5	Deviation from Test Standard	58
4.7.6	EUT Operating Condition	58
4.7.7	Test Results	59
5	Pictures of Test Arrangements.....	61
	Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band).....	62
	Appendix – Information on the Testing Laboratories	65

Release Control Record

Issue No.	Description	Date Issued
RF181024C03-1	Original release	Dec. 13, 2018

1 Certificate of Conformity

Product: AC1750 WiFi Mesh Extender

Brand: NETGEAR

Test Model: EX6250

Sample Status: Engineering sample

Applicant: NETGEAR, INC.

Test Date: Nov. 07 ~ Dec. 11, 2018

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 : Celine Chou , **Date:** Dec. 13, 2018
Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Dec. 13, 2018
Bruce Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -12.58dB at 0.54951MHz.
15.407(b)(1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5150.00MHz.
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	No antenna connector is used.

*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) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	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	AC1750 WiFi Mesh Extender
Brand	NETGEAR
Test Model	EX6250
Sample Status	Engineering sample
Power Supply Rating	100-240Vac
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 600Mbps 802.11ac: 1733.3Mbps
Operating Frequency	5180 ~ 5240MHz, 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 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	CDD Mode: 5180 ~ 5240MHz: 523.242mW 5745 ~ 5825MHz: 652.010mW Beamforming Mode: 5180 ~ 5240MHz: 516.798mW 5745 ~ 5825MHz: 623.467mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides 3 completed transmitters and 3 receivers.

Modulation Mode	TX Function	Beamforming
802.11a	3TX	Not Support
802.11n (HT20)	3TX	Support
802.11n (HT40)	3TX	Support
802.11ac (VHT20)	3TX	Support
802.11ac (VHT40)	3TX	Support
802.11ac (VHT80)	3TX	Support

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

* CDD mode is the worst case for final tests except output power test after pretesting CDD mode and beamforming mode.

2. The EUT uses following antennas.

Ant. Type	PIFA		
Connector Type	NA		
Directional Antenna Gain (dBi)			
5G Band 1	5G Band 2	5G Band 3	5G Band 4
4.34	4.15	4.17	4.80

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	5210MHz

For 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

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 EUT 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	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155	155	OFDM	29.3

Radiated Emission Test (Below 1GHz):

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	157	OFDM	6.0
-	802.11a	5745-5825	149 to 165		OFDM	6.0

Power Line Conducted Emission Test:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	157	OFDM	6.0
-	802.11a	5745-5825	149 to 165		OFDM	6.0

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
-	802.11a	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 _≥ 1G	25 deg. C, 70% RH	120Vac, 60Hz	Luis Lee
RE _{<} 1G	25 deg. C, 71% RH	120Vac, 60Hz	Noah Chang
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Noah Chang
APCM	25 deg. C, 70% RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

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

802.11a: Duty cycle = 2.055/2.133 = 0.963, Duty factor = $10 \cdot \log(1/0.963) = 0.16$

802.11n (HT20): Duty cycle = 2.060/2.132 = 0.966, Duty factor = $10 \cdot \log(1/0.966) = 0.15$

802.11n (HT40): Duty cycle = 2.427/2.505 = 0.969, Duty factor = $10 \cdot \log(1/0.969) = 0.14$

802.11ac (VHT80): Duty cycle = 1.137/1.210 = 0.940, Duty factor = $10 \cdot \log(1/0.940) = 0.27$



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.

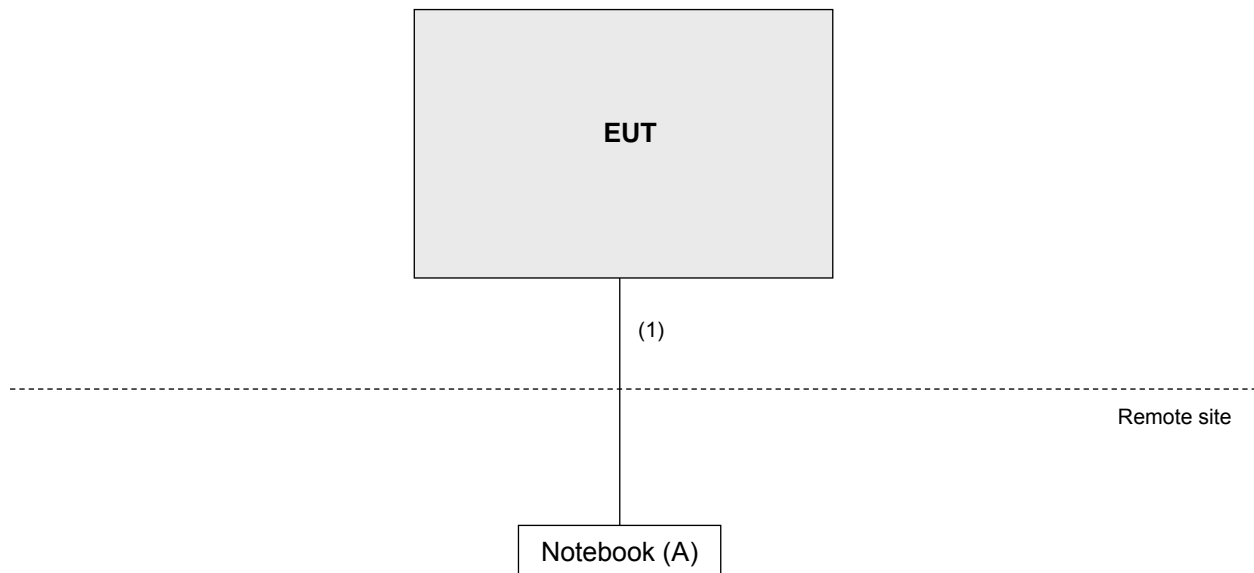
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	ASUS	P2420L	FCNXCV16385351D	FCC DoC Approved	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e cable	1	10	N	0	-

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 (dBuV/m)	AV: 54 (dBuV/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(dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	<input checked="" type="checkbox"/> 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(dBuV/m) ^{*1} PK: 105.2 (dBuV/m) ^{*2} PK: 110.8(dBuV/m) ^{*3} PK: 122.2 (dBuV/m) ^{*4}
	<input type="checkbox"/> 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:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 29, 2018	May 28, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 21, 2018	Dec. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2018	Aug. 07, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2018	Aug. 07, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2018	Nov. 13, 2019
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY5519000 4/MY55190007/MY55210 005	Jul. 17, 2018	Jul. 16, 2019
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is 7450F-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:

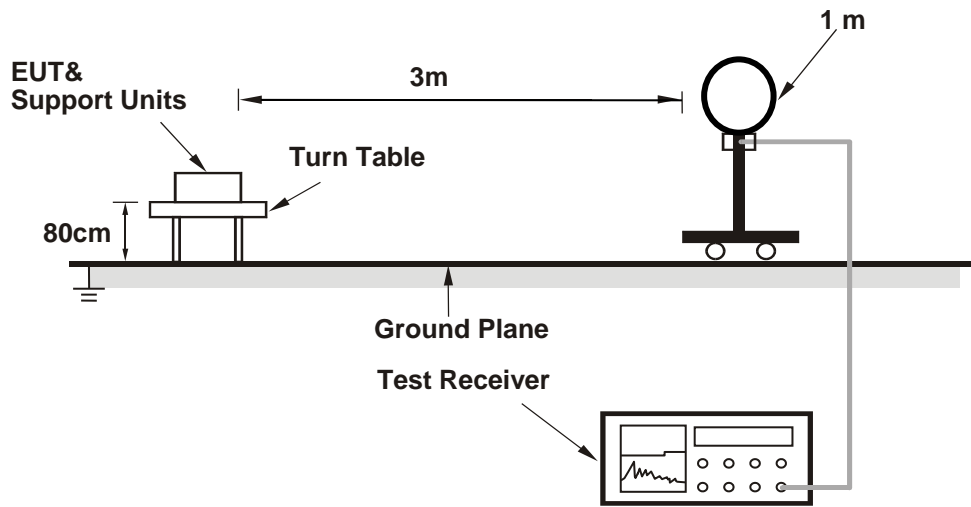
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

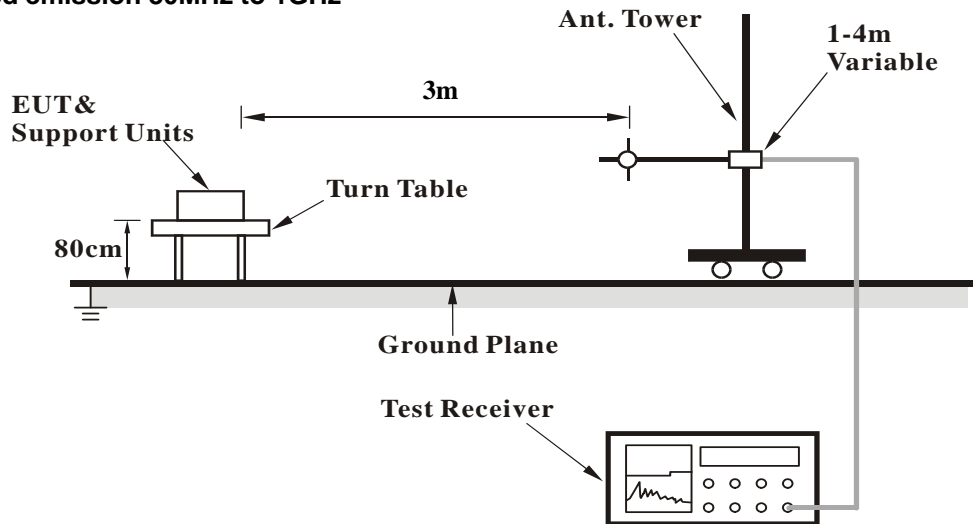
No deviation.

4.1.5 Test Setup

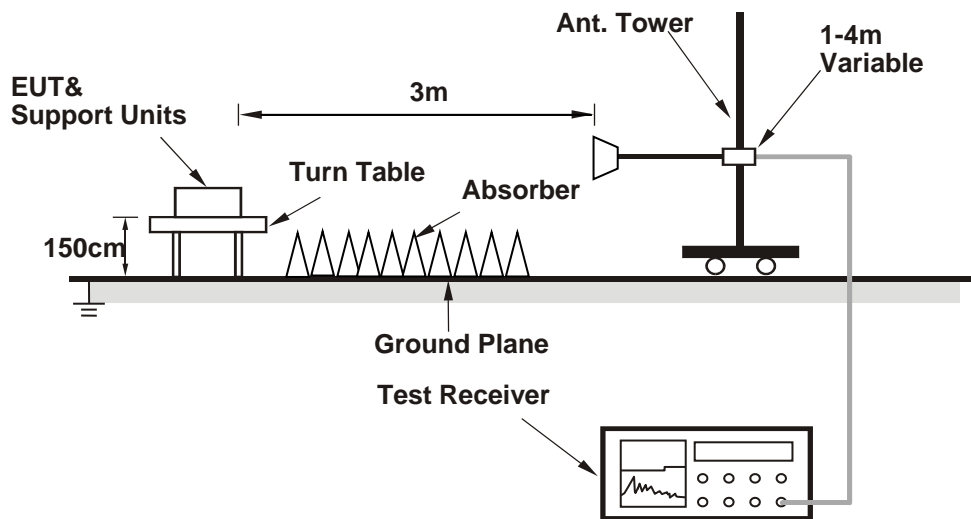
For Radiated emission below 30MHz



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

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".

4.1.7 Test Results

Above 1GHz data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.5 PK	74.0	-12.5	1.49 H	147	49.7	11.8
2	5150.00	49.4 AV	54.0	-4.6	1.49 H	147	37.6	11.8
3	*5180.00	112.6 PK			1.49 H	147	71.8	40.8
4	*5180.00	101.6 AV			1.49 H	147	60.8	40.8
5	#10360.00	62.2 PK	68.2	-6.0	2.69 H	214	40.1	22.1

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	65.4 PK	74.0	-8.6	1.05 V	222	53.6	11.8
2	5150.00	53.9 AV	54.0	-0.1	1.05 V	222	42.1	11.8
3	*5180.00	114.4 PK			1.05 V	222	73.6	40.8
4	*5180.00	104.1 AV			1.05 V	222	63.3	40.8
5	#10360.00	61.9 PK	68.2	-6.3	1.62 V	225	39.8	22.1

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 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	117.2 PK			1.67 H	146	76.4	40.8
2	*5200.00	106.3 AV			1.67 H	146	65.5	40.8
3	#10400.00	62.1 PK	68.2	-6.1	2.57 H	206	39.7	22.4
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	*5200.00	120.0 PK			1.08 V	221	79.2	40.8
2	*5200.00	109.5 AV			1.08 V	221	68.7	40.8
3	#10400.00	62.3 PK	68.2	-5.9	1.89 V	241	39.9	22.4

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	117.5 PK			1.58 H	142	77.0	40.5
2	*5240.00	107.3 AV			1.58 H	142	66.8	40.5
3	5350.00	60.8 PK	74.0	-13.2	1.58 H	142	48.9	11.9
4	5350.00	47.3 AV	54.0	-6.7	1.58 H	142	35.4	11.9
5	#10480.00	61.7 PK	68.2	-6.5	2.72 H	198	39.5	22.2

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	*5240.00	120.1 PK			1.10 V	221	79.6	40.5
2	*5240.00	109.6 AV			1.10 V	221	69.1	40.5
3	5350.00	61.0 PK	74.0	-13.0	1.10 V	221	49.1	11.9
4	5350.00	47.6 AV	54.0	-6.4	1.10 V	221	35.7	11.9
5	#10480.00	62.0 PK	68.2	-6.2	2.01 V	273	39.8	22.2

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	#5638.40	63.7 PK	68.2	-4.5	1.34 H	133	51.2	12.5
2	*5745.00	120.6 PK			1.34 H	133	78.4	42.2
3	*5745.00	110.1 AV			1.34 H	133	67.9	42.2
4	#5968.80	63.7 PK	68.2	-4.5	1.34 H	133	50.0	13.7
5	11490.00	63.0 PK	74.0	-11.0	2.14 H	226	39.5	23.5
6	11490.00	49.9 AV	54.0	-4.1	2.14 H	226	26.4	23.5

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	#5647.20	66.6 PK	68.2	-1.6	1.36 V	210	54.2	12.4
2	*5745.00	122.0 PK			1.36 V	210	79.8	42.2
3	*5745.00	111.6 AV			1.36 V	210	69.4	42.2
4	#5980.80	63.6 PK	68.2	-4.6	1.36 V	210	49.9	13.7
5	11490.00	63.3 PK	74.0	-10.7	1.95 V	241	39.8	23.5
6	11490.00	50.6 AV	54.0	-3.4	1.95 V	241	27.1	23.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5612.80	62.7 PK	68.2	-5.5	1.41 H	130	50.1	12.6
2	*5785.00	120.2 PK			1.41 H	130	77.7	42.5
3	*5785.00	110.0 AV			1.41 H	130	67.5	42.5
4	#5949.60	63.6 PK	68.2	-4.6	1.41 H	130	49.9	13.7
5	11570.00	62.8 PK	74.0	-11.2	2.03 H	248	39.6	23.2
6	11570.00	49.8 AV	54.0	-4.2	2.03 H	248	26.6	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	#5625.60	62.8 PK	68.2	-5.4	1.50 V	211	50.2	12.6
2	*5785.00	122.7 PK			1.50 V	211	80.2	42.5
3	*5785.00	112.0 AV			1.50 V	211	69.5	42.5
4	#5930.40	63.2 PK	68.2	-5.0	1.50 V	211	49.6	13.6
5	11570.00	63.7 PK	74.0	-10.3	1.62 V	287	40.5	23.2
6	11570.00	50.1 AV	54.0	-3.9	1.62 V	287	26.9	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 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	#5636.00	63.9 PK	68.2	-4.3	1.41 H	129	51.4	12.5
2	*5825.00	120.5 PK			1.41 H	129	77.7	42.8
3	*5825.00	110.0 AV			1.41 H	129	67.2	42.8
4	#5993.60	64.2 PK	68.2	-4.0	1.41 H	129	50.5	13.7
5	11650.00	62.4 PK	74.0	-11.6	2.30 H	284	39.5	22.9
6	11650.00	49.6 AV	54.0	-4.4	2.30 H	284	26.7	22.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5608.00	62.4 PK	68.2	-5.8	1.40 V	201	49.8	12.6
2	*5825.00	122.2 PK			1.40 V	201	79.4	42.8
3	*5825.00	111.7 AV			1.40 V	201	68.9	42.8
4	#5926.40	64.2 PK	68.2	-4.0	1.40 V	201	50.6	13.6
5	11650.00	63.5 PK	74.0	-10.5	1.94 V	272	40.6	22.9
6	11650.00	50.0 AV	54.0	-4.0	1.94 V	272	27.1	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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.6 PK	74.0	-11.4	1.62 H	147	50.8	11.8
2	5150.00	50.3 AV	54.0	-3.7	1.62 H	147	38.5	11.8
3	*5180.00	112.1 PK			1.62 H	147	71.3	40.8
4	*5180.00	101.2 AV			1.62 H	147	60.4	40.8
5	#10360.00	60.8 PK	68.2	-7.4	2.35 H	267	38.7	22.1
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	64.9 PK	74.0	-9.1	1.10 V	220	53.1	11.8
2	5150.00	53.8 AV	54.0	-0.2	1.10 V	220	42.0	11.8
3	*5180.00	113.4 PK			1.10 V	220	72.6	40.8
4	*5180.00	103.4 AV			1.10 V	220	62.6	40.8
5	#10360.00	61.3 PK	68.2	-6.9	1.83 V	251	39.2	22.1

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	116.6 PK			1.57 H	139	75.8	40.8
2	*5200.00	106.8 AV			1.57 H	139	66.0	40.8
3	#10400.00	61.9 PK	68.2	-6.3	1.87 H	235	39.5	22.4
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	*5200.00	118.8 PK			1.12 V	220	78.0	40.8
2	*5200.00	109.1 AV			1.12 V	220	68.3	40.8
3	#10400.00	62.5 PK	68.2	-5.7	1.98 V	269	40.1	22.4

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 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	116.2 PK			1.60 H	146	75.7	40.5
2	*5240.00	106.0 AV			1.60 H	146	65.5	40.5
3	5350.00	60.4 PK	74.0	-13.6	1.60 H	146	48.5	11.9
4	5350.00	47.1 AV	54.0	-6.9	1.60 H	146	35.2	11.9
5	#10480.00	61.9 PK	68.2	-6.3	1.93 H	241	39.7	22.2

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	*5240.00	118.5 PK			1.01 V	218	78.0	40.5
2	*5240.00	108.5 AV			1.01 V	218	68.0	40.5
3	5350.00	60.5 PK	74.0	-13.5	1.01 V	218	48.6	11.9
4	5350.00	47.5 AV	54.0	-6.5	1.01 V	218	35.6	11.9
5	#10480.00	62.1 PK	68.2	-6.1	1.63 V	252	39.9	22.2

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	#5633.60	63.5 PK	68.2	-4.7	1.41 H	128	50.9	12.6
2	*5745.00	120.8 PK			1.41 H	128	78.6	42.2
3	*5745.00	110.1 AV			1.41 H	128	67.9	42.2
4	#5955.20	64.3 PK	68.2	-3.9	1.41 H	128	50.6	13.7
5	11490.00	62.4 PK	74.0	-11.6	1.89 H	261	38.9	23.5
6	11490.00	50.3 AV	54.0	-3.7	1.89 H	261	26.8	23.5

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	#5646.40	65.0 PK	68.2	-3.2	1.55 V	202	52.6	12.4
2	*5745.00	122.0 PK			1.55 V	202	79.8	42.2
3	*5745.00	111.4 AV			1.55 V	202	69.2	42.2
4	#5986.40	63.4 PK	68.2	-4.8	1.55 V	202	49.7	13.7
5	11490.00	63.3 PK	74.0	-10.7	1.69 V	254	39.8	23.5
6	11490.00	50.4 AV	54.0	-3.6	1.69 V	254	26.9	23.5

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 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	#5630.40	62.4 PK	68.2	-5.8	1.41 H	126	49.8	12.6
2	*5785.00	120.8 PK			1.41 H	126	78.3	42.5
3	*5785.00	109.7 AV			1.41 H	126	67.2	42.5
4	#5996.00	64.5 PK	68.2	-3.7	1.41 H	126	50.8	13.7
5	11570.00	62.6 PK	74.0	-11.4	1.96 H	252	39.4	23.2
6	11570.00	49.5 AV	54.0	-4.5	1.96 H	252	26.3	23.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5640.00	63.5 PK	68.2	-4.7	1.58 V	200	51.0	12.5
2	*5785.00	121.1 PK			1.58 V	200	78.6	42.5
3	*5785.00	110.6 AV			1.58 V	200	68.1	42.5
4	#5965.60	63.6 PK	68.2	-4.6	1.58 V	200	49.8	13.8
5	11570.00	63.3 PK	74.0	-10.7	2.40 V	295	40.1	23.2
6	11570.00	50.5 AV	54.0	-3.5	2.40 V	295	27.3	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 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	#5636.00	63.3 PK	68.2	-4.9	1.38 H	130	50.8	12.5
2	*5825.00	120.7 PK			1.38 H	130	77.9	42.8
3	*5825.00	109.7 AV			1.38 H	130	66.9	42.8
4	#5940.00	63.7 PK	68.2	-4.5	1.38 H	130	50.1	13.6
5	11650.00	62.3 PK	74.0	-11.7	2.01 H	293	39.4	22.9
6	11650.00	49.4 AV	54.0	-4.6	2.01 H	293	26.5	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	#5624.80	62.7 PK	68.2	-5.5	1.59 V	206	50.1	12.6
2	*5825.00	121.8 PK			1.59 V	206	79.0	42.8
3	*5825.00	110.5 AV			1.59 V	206	67.7	42.8
4	#5961.60	64.0 PK	68.2	-4.2	1.59 V	206	50.2	13.8
5	11650.00	62.7 PK	74.0	-11.3	1.27 V	264	39.8	22.9
6	11650.00	49.8 AV	54.0	-4.2	1.27 V	264	26.9	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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.5 PK	74.0	-7.5	1.60 H	144	54.7	11.8
2	5150.00	51.9 AV	54.0	-2.1	1.60 H	144	40.1	11.8
3	*5190.00	111.0 PK			1.60 H	144	70.2	40.8
4	*5190.00	100.6 AV			1.60 H	144	59.8	40.8
5	#10380.00	61.6 PK	68.2	-6.6	2.15 H	248	39.3	22.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.8 PK	74.0	-7.2	1.00 V	230	55.0	11.8
2	5150.00	53.5 AV	54.0	-0.5	1.00 V	230	41.7	11.8
3	*5190.00	110.7 PK			1.00 V	230	69.9	40.8
4	*5190.00	100.1 AV			1.00 V	230	59.3	40.8
5	#10380.00	62.2 PK	68.2	-6.0	1.83 V	210	39.9	22.3

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 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	5150.00	66.8 PK	74.0	-7.2	1.58 H	142	55.0	11.8
2	5150.00	52.3 AV	54.0	-1.7	1.58 H	142	40.5	11.8
3	*5230.00	113.1 PK			1.58 H	142	72.5	40.6
4	*5230.00	103.1 AV			1.58 H	142	62.5	40.6
5	5350.00	61.0 PK	74.0	-13.0	1.58 H	142	49.1	11.9
6	5350.00	47.0 AV	54.0	-7.0	1.58 H	142	35.1	11.9
7	#10460.00	61.8 PK	68.2	-6.4	2.28 H	271	39.5	22.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.8 PK	74.0	-6.2	1.18 V	219	56.0	11.8
2	5150.00	53.6 AV	54.0	-0.4	1.18 V	219	41.8	11.8
3	*5230.00	114.3 PK			1.18 V	219	73.7	40.6
4	*5230.00	104.1 AV			1.18 V	219	63.5	40.6
5	5350.00	63.8 PK	74.0	-10.2	1.18 V	219	51.9	11.9
6	5350.00	49.9 AV	54.0	-4.1	1.18 V	219	38.0	11.9
7	#10460.00	62.0 PK	68.2	-6.2	1.67 V	271	39.7	22.3

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 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	#5649.60	64.0 PK	68.2	-4.2	1.33 H	129	51.6	12.4
2	*5755.00	115.4 PK			1.33 H	129	73.1	42.3
3	*5755.00	105.8 AV			1.33 H	129	63.5	42.3
4	#5928.80	63.5 PK	68.2	-4.7	1.33 H	129	49.9	13.6
5	11510.00	62.5 PK	74.0	-11.5	2.10 H	274	39.2	23.3
6	11510.00	49.9 AV	54.0	-4.1	2.10 H	274	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	#5646.40	66.8 PK	68.2	-1.4	1.43 V	209	54.4	12.4
2	*5755.00	117.2 PK			1.43 V	209	74.9	42.3
3	*5755.00	106.9 AV			1.43 V	209	64.6	42.3
4	#5968.00	64.0 PK	68.2	-4.2	1.43 V	209	50.3	13.7
5	11510.00	63.0 PK	74.0	-11.0	1.29 V	257	39.7	23.3
6	11510.00	50.1 AV	54.0	-3.9	1.29 V	257	26.8	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 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	#5630.40	64.0 PK	68.2	-4.2	1.32 H	133	51.4	12.6
2	*5795.00	115.7 PK			1.32 H	133	73.1	42.6
3	*5795.00	105.8 AV			1.32 H	133	63.2	42.6
4	#5932.80	65.6 PK	68.2	-2.6	1.32 H	133	52.0	13.6
5	11590.00	62.3 PK	74.0	-11.7	1.96 H	255	39.4	22.9
6	11590.00	49.2 AV	54.0	-4.8	1.96 H	255	26.3	22.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5637.60	63.7 PK	68.2	-4.5	1.60 V	205	51.2	12.5
2	*5795.00	118.7 PK			1.60 V	205	76.1	42.6
3	*5795.00	107.9 AV			1.60 V	205	65.3	42.6
4	#5924.00	67.0 PK	68.9	-1.9	1.60 V	205	53.5	13.5
5	11590.00	62.5 PK	74.0	-11.5	1.42 V	239	39.6	22.9
6	11590.00	49.6 AV	54.0	-4.4	1.42 V	239	26.7	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

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.0 PK	74.0	-8.0	1.57 H	148	54.2	11.8
2	5150.00	53.0 AV	54.0	-1.0	1.57 H	148	41.2	11.8
3	*5210.00	104.8 PK			1.57 H	148	64.1	40.7
4	*5210.00	94.6 AV			1.57 H	148	53.9	40.7
5	5350.00	60.3 PK	74.0	-13.7	1.57 H	148	48.4	11.9
6	5350.00	46.7 AV	54.0	-7.3	1.57 H	148	34.8	11.9
7	#10420.00	61.9 PK	68.2	-6.3	2.19 H	265	39.6	22.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.5 PK	74.0	-7.5	1.21 V	218	54.7	11.8
2	5150.00	53.5 AV	54.0	-0.5	1.21 V	218	41.7	11.8
3	*5210.00	105.2 PK			1.21 V	218	64.5	40.7
4	*5210.00	95.0 AV			1.21 V	218	54.3	40.7
5	5350.00	60.4 PK	74.0	-13.6	1.21 V	218	48.5	11.9
6	5350.00	47.4 AV	54.0	-6.6	1.21 V	218	35.5	11.9
7	#10420.00	62.1 PK	68.2	-6.1	1.62 V	241	39.8	22.3

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 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	#5632.80	63.9 PK	68.2	-4.3	1.33 H	131	51.3	12.6
2	*5775.00	107.8 PK			1.33 H	131	65.3	42.5
3	*5775.00	98.2 AV			1.33 H	131	55.7	42.5
4	#5952.80	63.8 PK	68.2	-4.4	1.33 H	131	50.1	13.7
5	11550.00	62.4 PK	74.0	-11.6	2.36 H	290	39.2	23.2
6	11550.00	49.7 AV	54.0	-4.3	2.36 H	290	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	#5643.20	66.5 PK	68.2	-1.7	1.46 V	206	54.0	12.5
2	*5775.00	109.0 PK			1.46 V	206	66.5	42.5
3	*5775.00	99.2 AV			1.46 V	206	56.7	42.5
4	#5925.60	64.2 PK	68.2	-4.0	1.46 V	206	50.6	13.6
5	11550.00	62.7 PK	74.0	-11.3	1.98 V	251	39.5	23.2
6	11550.00	49.6 AV	54.0	-4.4	1.98 V	251	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

Below 1GHz Worst-Case Data:

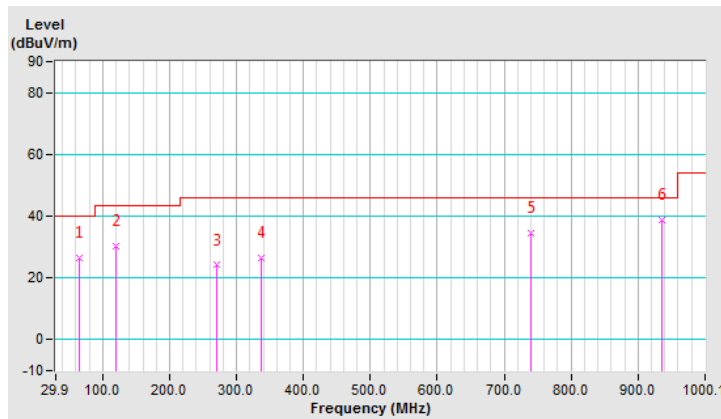
802.11a

CHANNEL	TX Channel 157	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	64.83	26.5 QP	40.0	-13.5	2.00 H	309	36.2	-9.7
2	119.16	30.2 QP	43.5	-13.3	1.00 H	305	41.3	-11.1
3	270.51	24.1 QP	46.0	-21.9	1.00 H	280	32.8	-8.7
4	336.48	26.3 QP	46.0	-19.7	1.00 H	129	33.6	-7.3
5	740.09	34.7 QP	46.0	-11.3	1.00 H	314	33.8	0.9
6	936.07	38.7 QP	46.0	-7.3	1.00 H	182	34.7	4.0

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 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

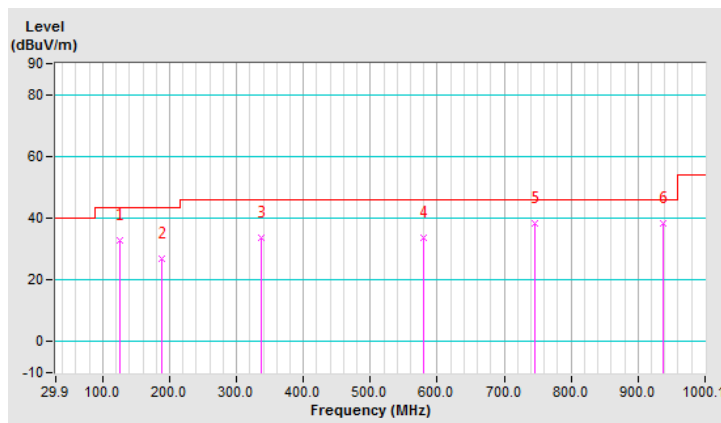


CHANNEL	TX Channel 157	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	124.98	33.0 QP	43.5	-10.5	1.50 V	324	43.7	-10.7
2	189.01	26.7 QP	43.5	-16.8	1.00 V	88	37.9	-11.2
3	336.48	33.6 QP	46.0	-12.4	1.00 V	163	40.9	-7.3
4	579.03	33.5 QP	46.0	-12.5	1.00 V	10	36.6	-3.1
5	745.91	38.1 QP	46.0	-7.9	1.50 V	223	37.1	1.0
6	938.01	38.4 QP	46.0	-7.6	1.00 V	112	34.3	4.1

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 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	ESCS30	100291	Sep. 03, 2018	Sep. 02, 2019
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

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

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

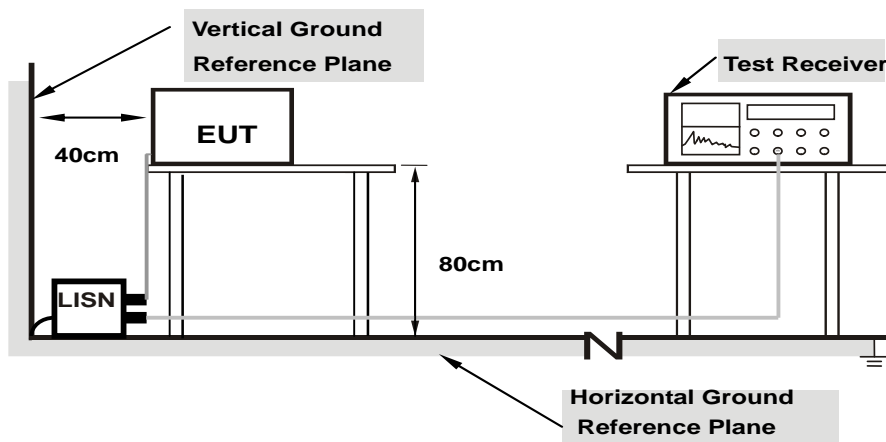
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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



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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

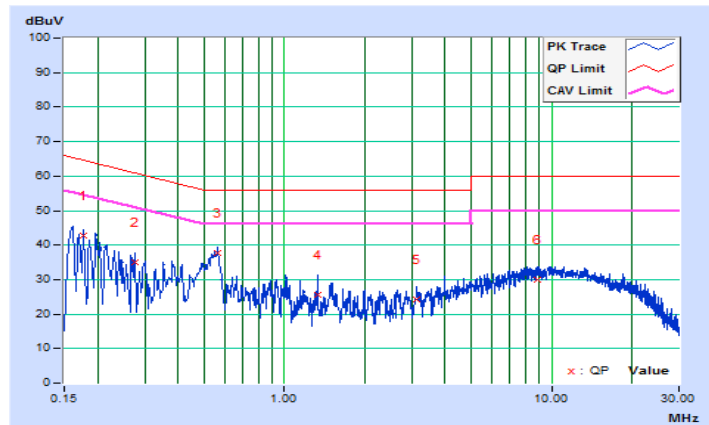
802.11a

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

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	0.17737	9.67	33.20	19.78	42.87	29.45	64.61
2	0.27512	9.67	25.28	10.84	34.95	20.51	60.96	50.96	-26.01	-30.45
3	0.56121	9.66	27.89	22.04	37.55	31.70	56.00	46.00	-18.45	-14.30
4	1.32691	9.66	15.80	8.20	25.46	17.86	56.00	46.00	-30.54	-28.14
5	3.13724	9.71	14.37	9.30	24.08	19.01	56.00	46.00	-31.92	-26.99
6	8.82238	9.83	20.27	14.03	30.10	23.86	60.00	50.00	-29.90	-26.14

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.

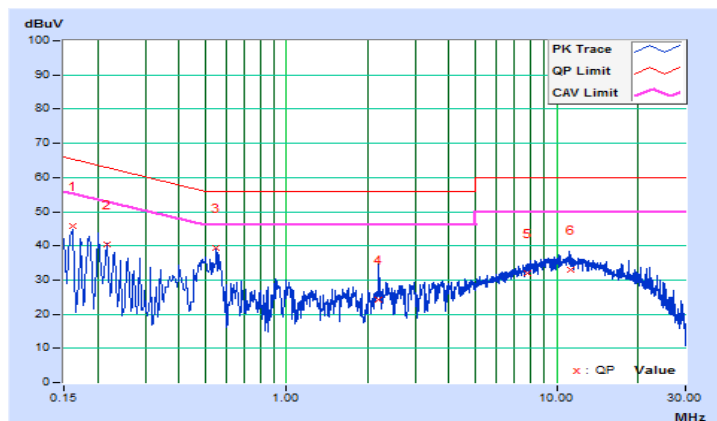


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

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	0.16096	9.68	35.96	24.44	45.64	34.12	65.41
2	0.21647	9.67	30.59	20.36	40.26	30.03	62.95	52.95	-22.69	-22.92
3	0.54951	9.67	29.68	23.75	39.35	33.42	56.00	46.00	-16.65	-12.58
4	2.20275	9.69	14.53	6.95	24.22	16.64	56.00	46.00	-31.78	-29.36
5	7.79796	9.81	22.18	16.01	31.99	25.82	60.00	50.00	-28.01	-24.18
6	11.20748	9.88	23.22	16.81	33.10	26.69	60.00	50.00	-26.90	-23.31

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,

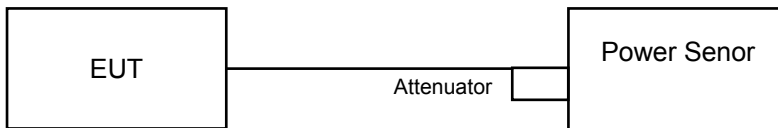
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

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

CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	20.27	19.91	20.04	305.288	24.85	30.00	Pass
40	5200	22.37	22.52	22.32	521.841	27.18	30.00	Pass
48	5240	22.30	22.62	22.32	523.242	27.19	30.00	Pass
149	5745	22.78	22.64	22.58	554.459	27.44	30.00	Pass
157	5785	22.54	22.79	22.77	558.815	27.47	30.00	Pass
165	5825	23.96	22.68	23.38	652.010	28.14	30.00	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	20.35	20.59	20.10	325.273	25.12	30.00	Pass
40	5200	22.23	22.54	22.31	516.798	27.13	30.00	Pass
48	5240	22.04	22.57	22.20	506.632	27.05	30.00	Pass
149	5745	22.76	22.65	22.68	558.229	27.47	30.00	Pass
157	5785	22.55	22.79	22.57	550.712	27.41	30.00	Pass
165	5825	24.06	22.80	22.51	623.467	27.95	30.00	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
38	5190	18.95	19.09	18.69	233.581	23.68	30.00	Pass
46	5230	21.51	21.65	21.51	429.376	26.33	30.00	Pass
151	5755	22.37	22.13	21.97	493.287	26.93	30.00	Pass
159	5795	22.64	22.60	22.59	547.176	27.38	30.00	Pass

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
42	5210	16.24	16.74	16.32	132.134	21.21	30.00	Pass
155	5775	17.88	17.82	17.92	183.854	22.64	30.00	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	20.35	20.59	20.10	325.273	25.12	30.00	Pass
40	5200	22.23	22.54	22.31	516.798	27.13	30.00	Pass
48	5240	22.04	22.57	22.20	506.632	27.05	30.00	Pass
149	5745	22.76	22.65	22.68	558.229	27.47	30.00	Pass
157	5785	22.55	22.79	22.57	550.712	27.41	30.00	Pass
165	5825	24.06	22.80	22.51	623.467	27.95	30.00	Pass

Note:

1. U-NII-1 Band: Directional gain = 4.34dBi < 6dBi, so the power limit no need to reduced.
2. U-NII-3 Band: Directional gain = 4.80dBi < 6dBi, so the power limit no need to reduced.

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	Chain 2				
38	5190	18.95	19.09	18.69	233.581	23.68	30.00	Pass
46	5230	21.51	21.65	21.51	429.376	26.33	30.00	Pass
151	5755	22.37	22.13	21.97	493.287	26.93	30.00	Pass
159	5795	22.64	22.60	22.59	547.176	27.38	30.00	Pass

Note:

1. U-NII-1 Band: Directional gain = 4.34dBi < 6dBi, so the power limit no need to reduced.
2. U-NII-3 Band: Directional gain = 4.80dBi < 6dBi, so the power limit no need to reduced.

802.11ac (VHT80)

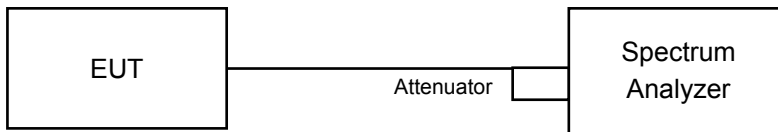
Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
42	5210	16.24	16.74	16.32	132.134	21.21	30.00	Pass
155	5775	17.88	17.82	17.92	183.854	22.64	30.00	Pass

Note:

1. U-NII-1 Band: Directional gain = 4.34dBi < 6dBi, so the power limit no need to reduced.
2. U-NII-3 Band: Directional gain = 4.80dBi < 6dBi, so the power limit no need to reduced.

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	Chain 2
36	5180	16.68	16.44	16.44
40	5200	19.68	16.44	16.68
48	5240	17.64	16.44	16.44
149	5745	26.40	30.12	31.92
157	5785	33.24	35.04	36.48
165	5825	16.92	16.92	17.04

802.11n (HT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
36	5180	16.56	17.64	17.64
40	5200	19.92	17.76	17.64
48	5240	17.64	17.76	17.76
149	5745	27.00	30.24	33.36
157	5785	33.72	36.84	38.40
165	5825	17.88	18.00	17.88

802.11n (HT40)

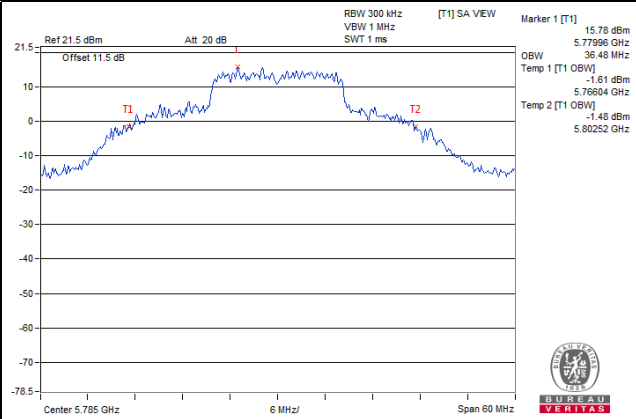
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
38	5190	36.00	35.88	36.12
46	5230	38.76	36.48	36.24
151	5755	37.20	39.84	41.52
159	5795	37.44	37.32	39.24

802.11ac (VHT80)

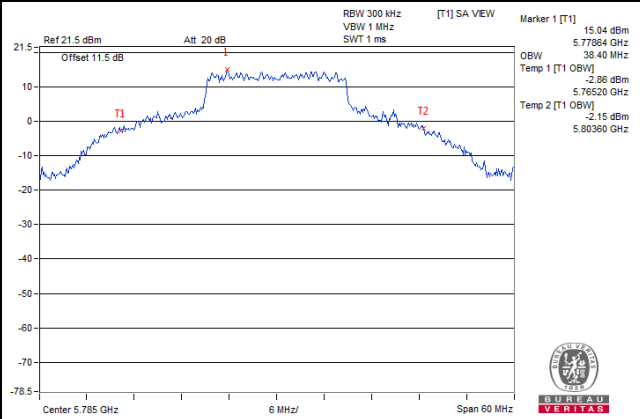
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
42	5210	75.84	75.60	76.08
155	5775	75.84	75.84	75.84

Spectrum Plot of Worst Value

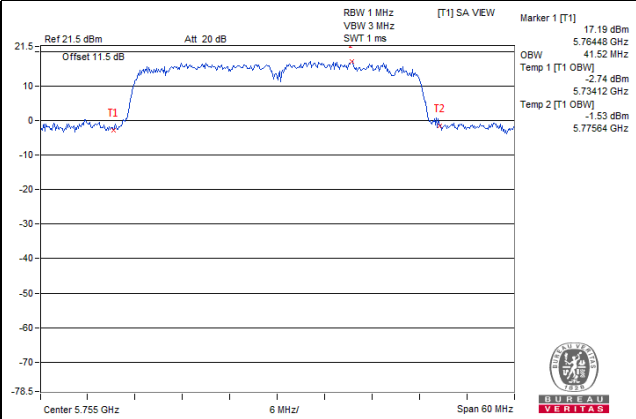
802.11a



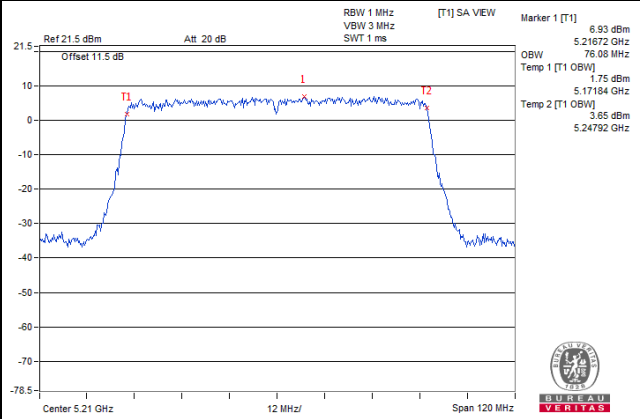
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

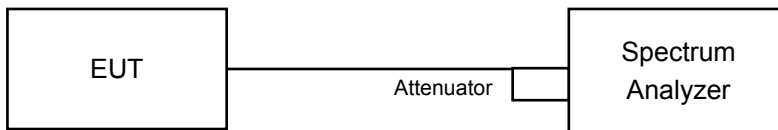


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1 band:

Using method SA-2

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

For U-NII-3 band:

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For U-NII-1 band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)			Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	7.15	7.88	7.32	0.16	12.39	17.00	Pass
40	5200	8.38	8.54	8.42	0.16	13.38	17.00	Pass
48	5240	8.47	8.76	8.18	0.16	13.41	17.00	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 4.34dBi < 6dBi, 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	Chain 2				
36	5180	7.06	6.92	6.92	0.15	11.89	17.00	Pass
40	5200	8.33	8.24	8.39	0.15	13.24	17.00	Pass
48	5240	8.20	8.58	8.28	0.15	13.28	17.00	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 4.34dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)			Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
38	5190	2.53	3.01	2.88	0.14	7.72	17.00	Pass
46	5230	5.89	6.23	5.92	0.14	10.93	17.00	Pass

Note:

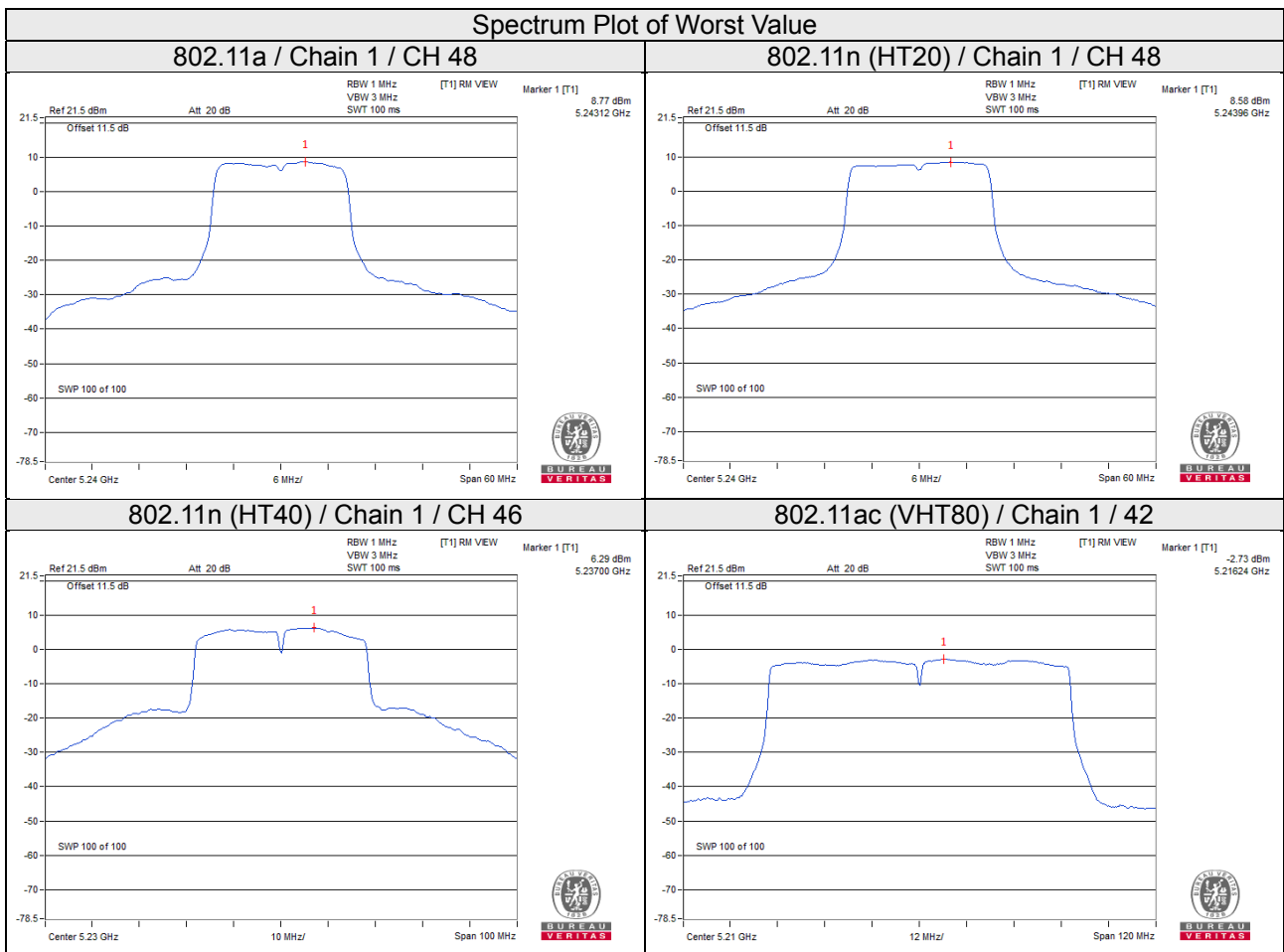
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 4.34dBi < 6dBi, so the power density limit no need to reduced.
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	Chain 2				
42	5210	-3.35	-2.73	-3.19	0.27	1.96	17.00	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 4.34dBi < 6dBi, so the power density limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	1.95	4.17	4.77	0.16	9.10	30.00	Pass
	157	5785	2.11	4.33	4.77	0.16	9.26	30.00	Pass
	165	5825	-1.32	0.90	4.77	0.16	5.83	30.00	Pass
1	149	5745	1.86	4.08	4.77	0.16	9.01	30.00	Pass
	157	5785	1.77	3.99	4.77	0.16	8.92	30.00	Pass
	165	5825	-1.29	0.93	4.77	0.16	5.86	30.00	Pass
2	149	5745	1.71	3.93	4.77	0.16	8.86	30.00	Pass
	157	5785	1.84	4.06	4.77	0.16	8.99	30.00	Pass
	165	5825	-1.21	1.01	4.77	0.16	5.94	30.00	Pass

Note:

1. Directional gain = 4.80dBi < 6dBi, so the power density limit no need to reduced.
2. 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=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	1.97	4.19	4.77	0.15	9.11	30.00	Pass
	157	5785	2.22	4.44	4.77	0.15	9.36	30.00	Pass
	165	5825	-1.78	0.44	4.77	0.15	5.36	30.00	Pass
1	149	5745	1.33	3.55	4.77	0.15	8.47	30.00	Pass
	157	5785	1.45	3.67	4.77	0.15	8.59	30.00	Pass
	165	5825	-1.69	0.53	4.77	0.15	5.45	30.00	Pass
2	149	5745	1.32	3.54	4.77	0.15	8.46	30.00	Pass
	157	5785	1.53	3.75	4.77	0.15	8.67	30.00	Pass
	165	5825	-1.58	0.64	4.77	0.15	5.56	30.00	Pass

Note:

1. Directional gain = 4.80dBi < 6dBi, so the power density limit no need to reduced.
2. 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=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	-2.05	0.17	4.77	0.14	5.08	30.00	Pass
	159	5795	-4.40	-2.18	4.77	0.14	2.73	30.00	Pass
1	151	5755	-2.18	0.04	4.77	0.14	4.95	30.00	Pass
	159	5795	-4.27	-2.05	4.77	0.14	2.86	30.00	Pass
2	151	5755	-2.31	-0.09	4.77	0.14	4.82	30.00	Pass
	159	5795	-4.17	-1.95	4.77	0.14	2.96	30.00	Pass

Note:

1. Directional gain = 4.80dBi < 6dBi, so the power density limit no need to reduced.
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

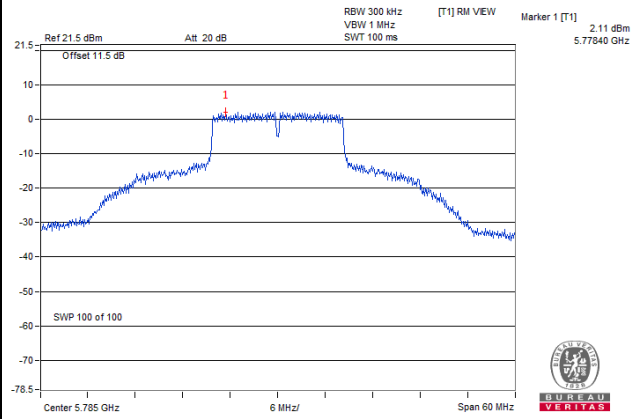
TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-9.42	-7.20	4.77	0.27	-2.16	30.00	Pass
1	155	5775	-9.70	-7.48	4.77	0.27	-2.44	30.00	Pass
2	155	5775	-9.88	-7.66	4.77	0.27	-2.62	30.00	Pass

Note:

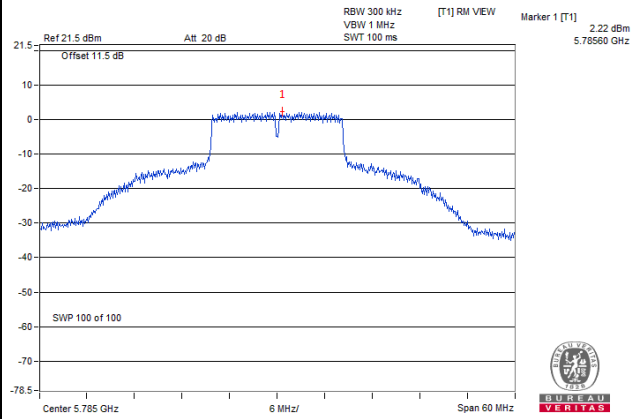
1. Directional gain = 4.80dBi < 6dBi, so the power density limit no need to reduced.
2. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

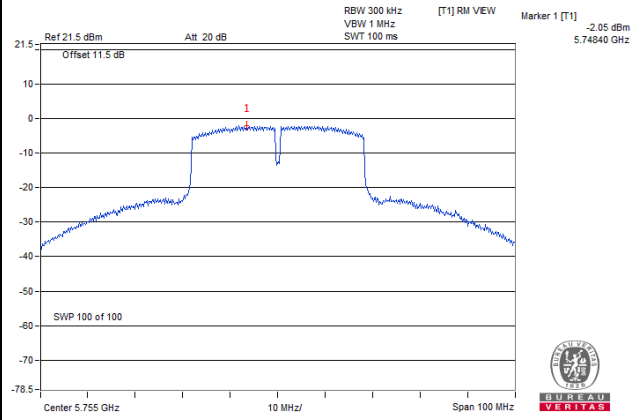
802.11a



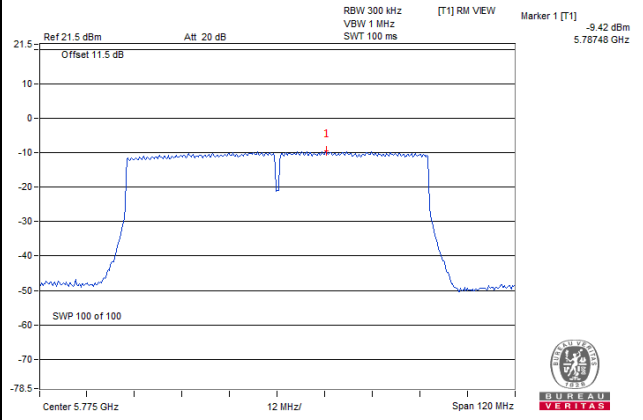
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

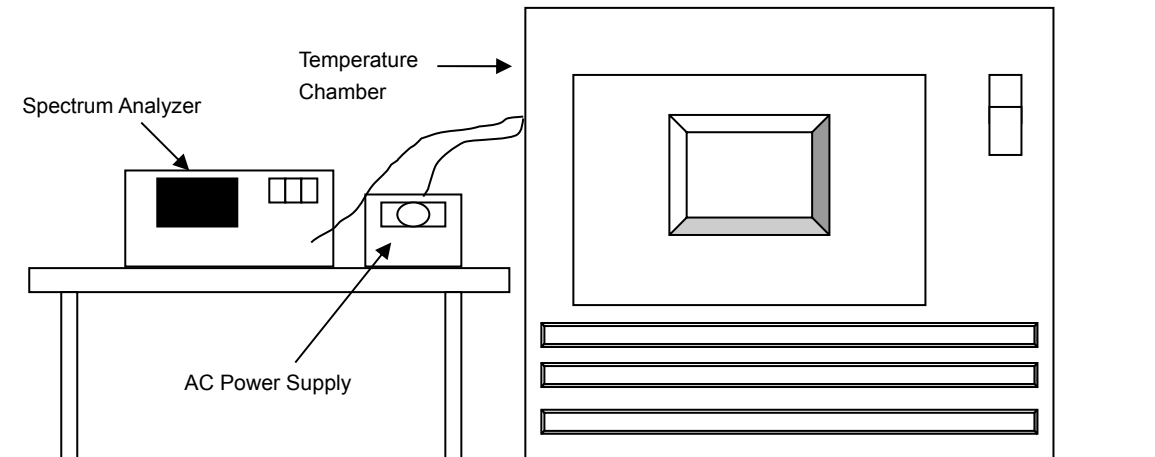


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 11, 2018	Jun. 10, 2019
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019
DC Power Supply Topward	6603D	700637	NA	NA

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

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
45	120	5180.0146	Pass	5180.0167	Pass	5180.0137	Pass	5180.016	Pass
40	120	5180.024	Pass	5180.0233	Pass	5180.0247	Pass	5180.0277	Pass
30	120	5179.9831	Pass	5179.9865	Pass	5179.9846	Pass	5179.9821	Pass
20	120	5180.0101	Pass	5180.013	Pass	5180.0123	Pass	5180.0088	Pass
10	120	5180.0229	Pass	5180.026	Pass	5180.023	Pass	5180.0271	Pass
0	120	5179.9958	Pass	5179.9914	Pass	5179.9957	Pass	5179.9942	Pass

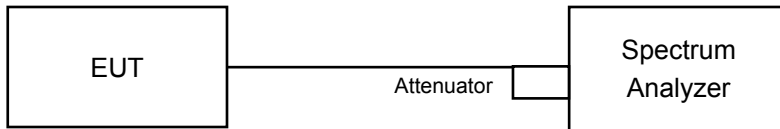
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0094	Pass	5180.0135	Pass	5180.0118	Pass	5180.0096	Pass
	120	5180.0101	Pass	5180.013	Pass	5180.0123	Pass	5180.0088	Pass
	102	5180.0091	Pass	5180.0131	Pass	5180.0133	Pass	5180.0082	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	Chain 2		
149	5745	16.11	15.93	15.49	0.5	Pass
157	5785	16.11	16.08	15.52	0.5	Pass
165	5825	16.33	16.33	16.36	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.33	17.60	17.61	0.5	Pass
157	5785	16.11	17.65	17.63	0.5	Pass
165	5825	17.32	17.20	17.31	0.5	Pass

802.11n (HT40)

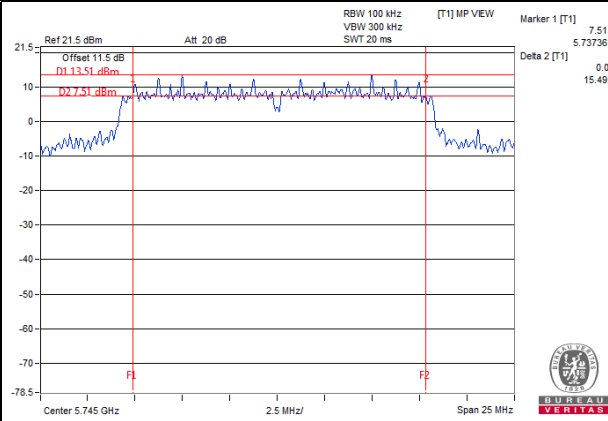
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
151	5755	35.18	35.17	33.92	0.5	Pass
159	5795	35.20	35.15	35.28	0.5	Pass

802.11ac (VHT80)

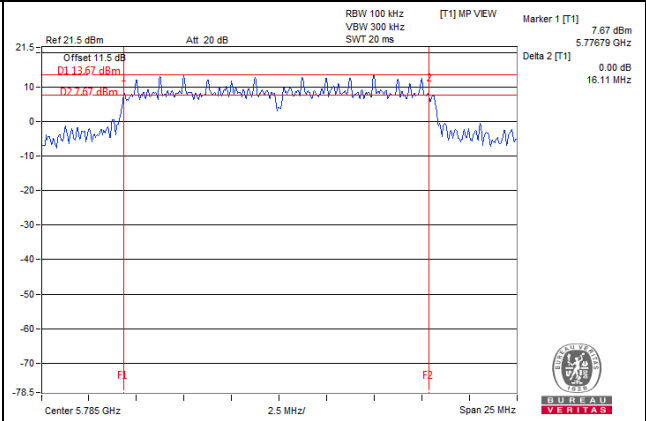
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
155	5775	76.10	76.06	75.55	0.5	Pass

Spectrum Plot of Worst Value

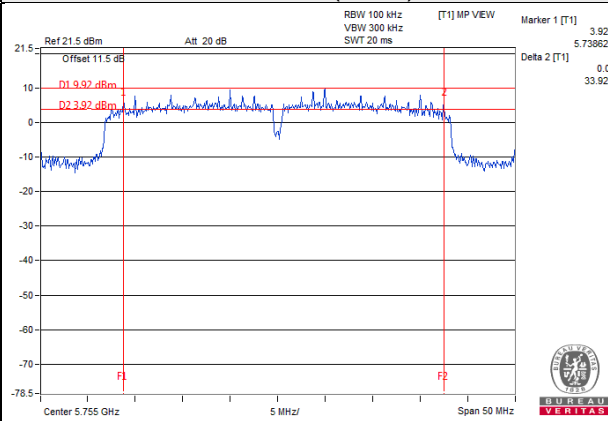
802.11a



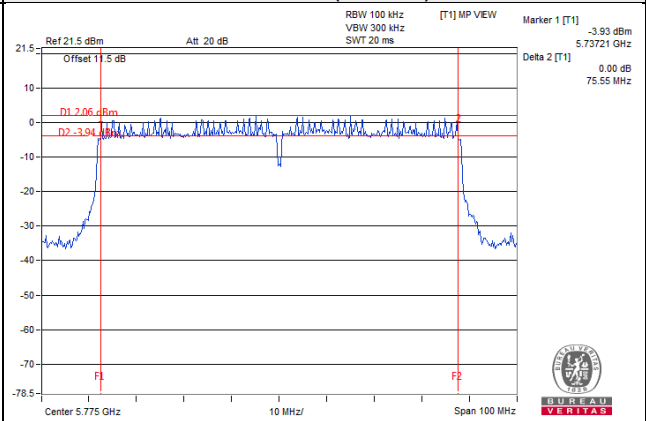
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

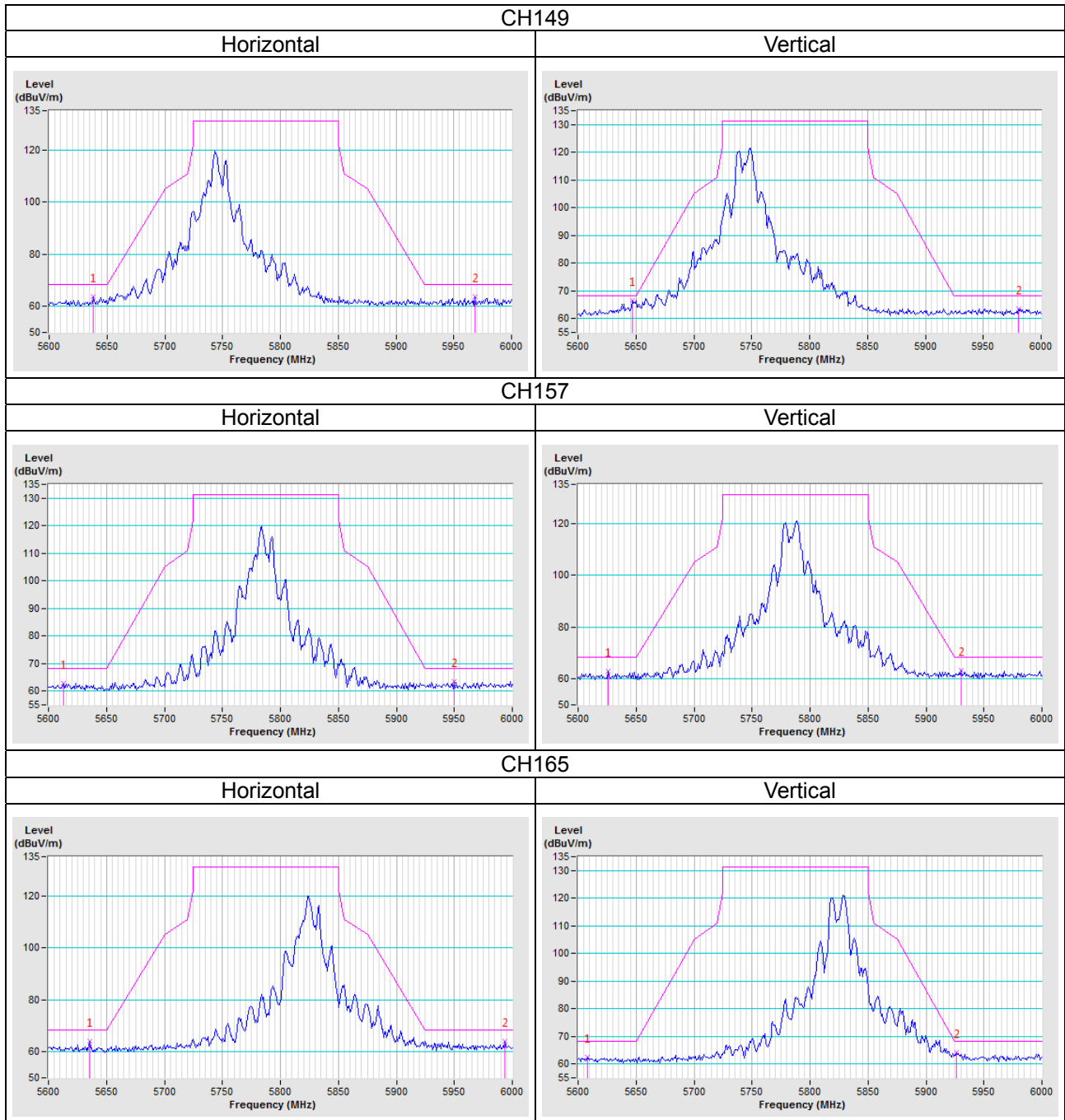


5 Pictures of Test Arrangements

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

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

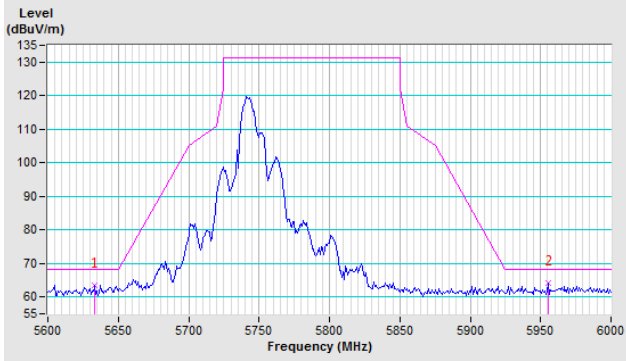
802.11a



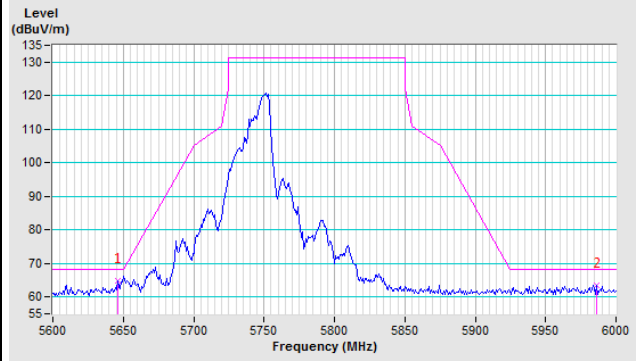
802.11n (HT20)

CH149

Horizontal

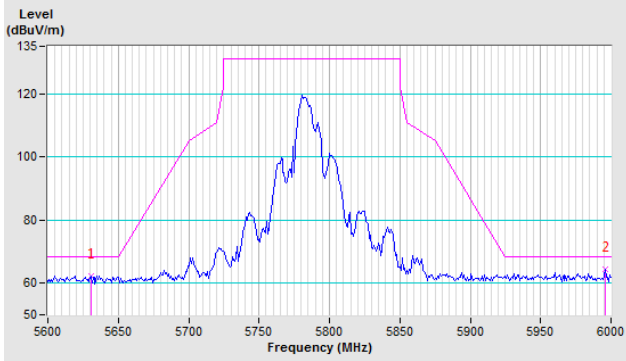


Vertical

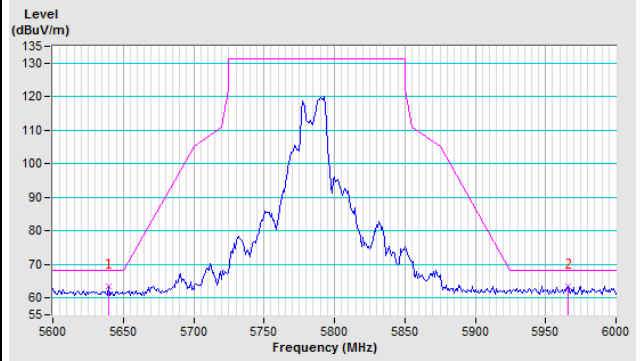


CH157

Horizontal

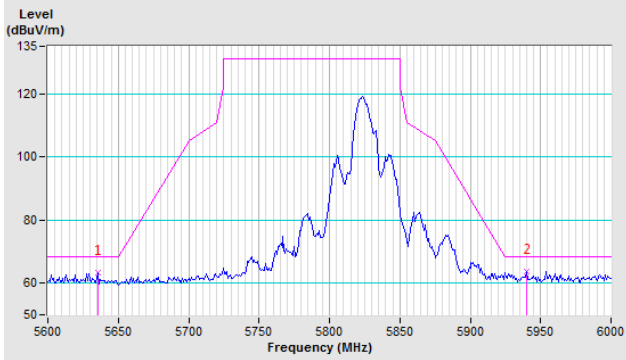


Vertical

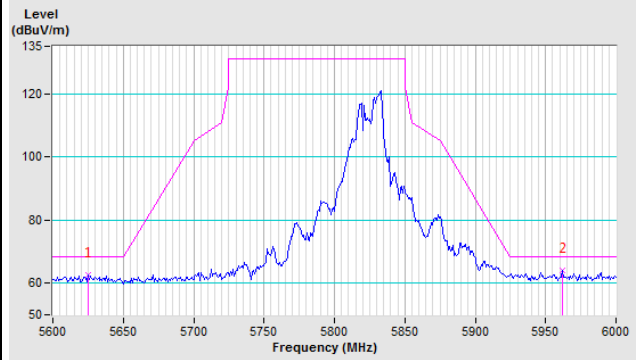


CH165

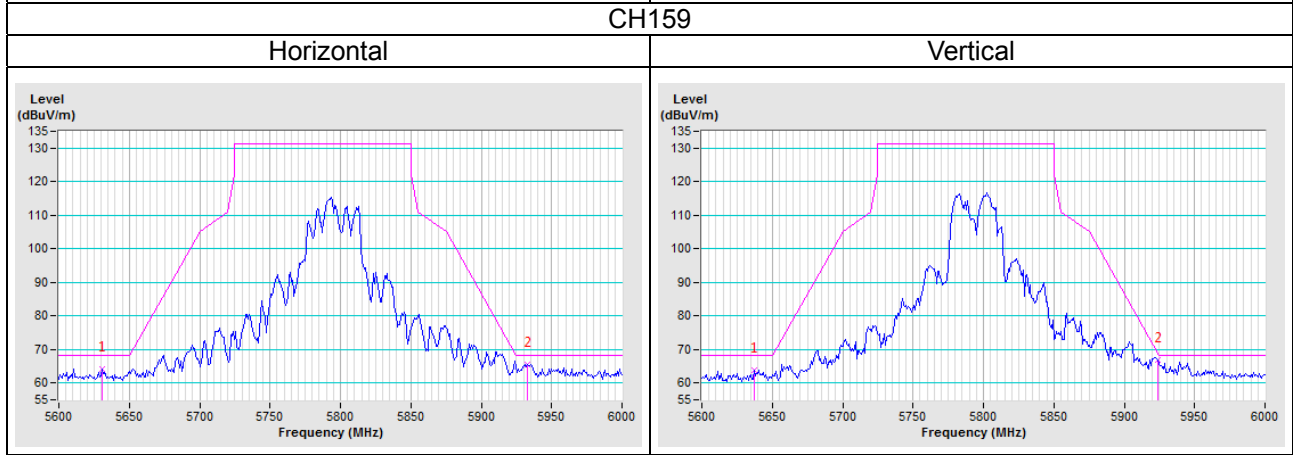
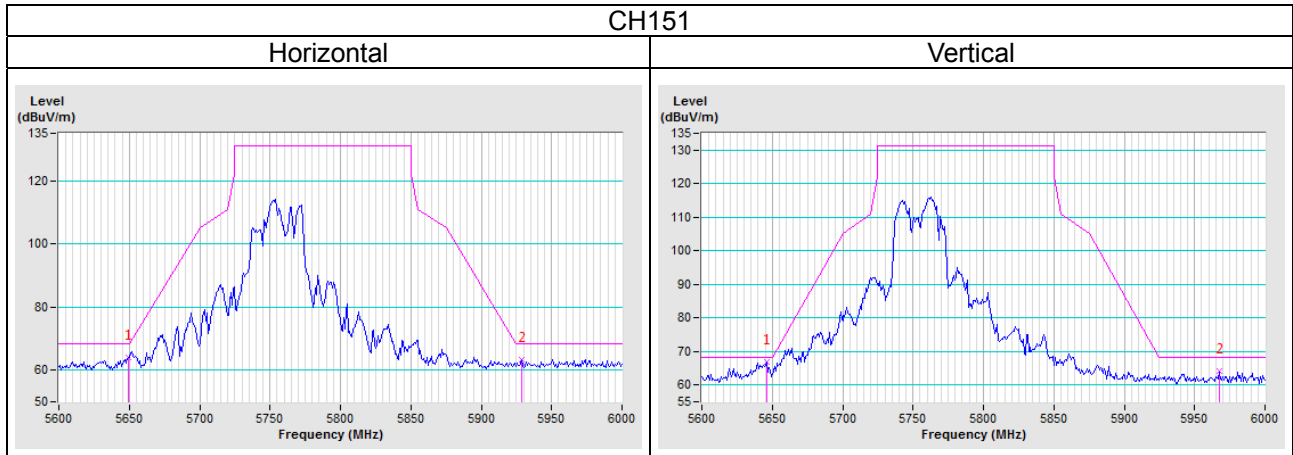
Horizontal



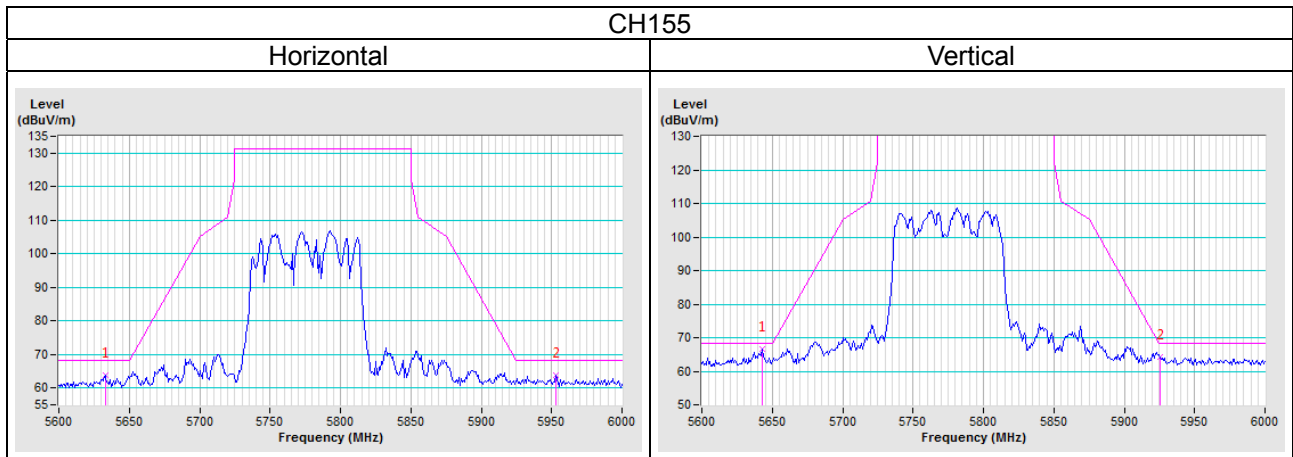
Vertical



802.11n (HT40)



802.11ac (VHT80)



Appendix – Information on 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:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety

Tel: 886-3-3183232

Fax: 886-3-3270892

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.

--- END ---