

FCC Test Report

Report No.: RF171005D11-1

FCC ID: PY317300391

Test Model: R6350

Received Date: Oct. 5, 2017

Test Date: Oct. 31 ~ Nov. 21, 2017

Issued Date: Dec. 14, 2017

Applicant: NETGEAR INC.

Address: 350 East Plumeria Drive, San Jose, CA 95134, USA

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.

**FCC Registration /
Designation Number:** 198487 / TW2021



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 unless 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	13
3.4 Description of Support Units	14
3.4.1 Configuration of System under Test	14
3.5 General Description of Applied Standard	15
4 Test Types and Results	16
4.1 Radiated Emission and Bandedge Measurement.....	16
4.1.1 Limits of Radiated Emission and Bandedge Measurement	16
4.1.2 Test Instruments	17
4.1.3 Test Procedure	18
4.1.4 Deviation from Test Standard	18
4.1.5 Test Setup.....	19
4.1.6 EUT Operating Condition	20
4.1.7 Test Results	21
4.2 Conducted Emission Measurement	52
4.2.1 Limits of Conducted Emission Measurement	52
4.2.2 Test Instruments	52
4.2.3 Test Procedure	53
4.2.4 Deviation from Test Standard	53
4.2.5 Test Setup.....	53
4.2.6 EUT Operating Condition	53
4.2.7 Test Results	54
4.3 Transmit Power Measurement	56
4.3.1 Limits of Transmit Power Measurement	56
4.3.2 Test Setup.....	56
4.3.3 Test Instruments	56
4.3.4 Test Procedure	57
4.3.5 Deviation from Test Standard	57
4.3.6 EUT Operating Condition	57
4.3.7 Test Result.....	58
4.4 Occupied Bandwidth Measurement	63
4.4.1 Test Setup.....	63
4.4.2 Test Instruments	63
4.4.3 Test Procedure	63
4.4.4 Test Results	64
4.5 Peak Power Spectral Density Measurement.....	66
4.5.1 Limits of Peak Power Spectral Density Measurement	66
4.5.2 Test Setup.....	66
4.5.3 Test Instruments	66
4.5.4 Test Procedure	66
4.5.5 Deviation from Test Standard	66
4.5.6 EUT Operating Condition	66
4.5.7 Test Results	67
4.6 Frequency Stability Measurement.....	72

4.6.1	Limits of Frequency Stability Measurement.....	72
4.6.2	Test Setup.....	72
4.6.3	Test Instruments	72
4.6.4	Test Procedure	72
4.6.5	Deviation from Test Standard	72
4.6.6	EUT Operating Condition	72
4.6.7	Test Results	73
4.7	6dB Bandwidth Measurement.....	74
4.7.1	Limits of 6dB Bandwidth Measurement.....	74
4.7.2	Test Setup.....	74
4.7.3	Test Instruments	74
4.7.4	Test Procedure	74
4.7.5	Deviation from Test Standard	74
4.7.6	EUT Operating Condition	74
4.7.7	Test Results	75
5	Pictures of Test Arrangements.....	77
	Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band).....	78
	Appendix – Information on the Testing Laboratories	83

Release Control Record

Issue No.	Description	Date Issued
RF171005D11-1	Original release.	Dec. 14, 2017

1 Certificate of Conformity

Product: AC1750 Smart WiFi Router

Brand: NETGEAR

Test Model: R6350

Sample Status: Engineering sample

Applicant: NETGEAR INC.

Test Date: Oct. 31 ~ Nov. 21, 2017

Standard: 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 EMC characteristics under the conditions specified in this report.

Prepared by : *Annie Chang* , **Date:** Dec. 14, 2017
Annie Chang / Senior Specialist

Approved by : *Rex Lai* , **Date:** Dec. 14, 2017
Rex Lai / Associate Technical Manager

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 -10.27dB at 0.41172MHz.
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 -0.24dB 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	Antenna connector is I-PEX not a standard connector.

*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	2.77 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.38 dB
	30MHz ~ 1000MHz	5.54 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.77 dB
	6GHz ~ 18GHz	5.48 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC1750 Smart WiFi Router
Brand	NETGEAR
Test Model	R6350
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter (refer to note as below)
Modulation Type	64QAM, 16QAM, QPSK, BPSK 256QAM for OFDM in 11ac mode only.
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733Mbps
Operating Frequency	5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz 4 for 802.11a, 802.11n (20MHz), 802.11ac (20MHz) 2 for 802.11n (40MHz), 802.11ac (40MHz) 1 for 802.11ac (80MHz) 5745 ~ 5825MHz 5 for 802.11a, 802.11n (20MHz), 802.11ac (20MHz) 2 for 802.11n (40MHz), 802.11ac (40MHz) 1 for 802.11ac (80MHz)
Output Power	5180 ~ 5240MHz: 723.658mW 5745 ~ 5825MHz: 829.502mW
Antenna Type	Refer to note as below
Antenna Connector	Refer to note as below
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. The EUT provides 4 completed transmitters and 4 receivers.

Modulation Mode	TX Function	
	5.0GHz (Non-Beamforming)	5.0GHz (Beamforming)
802.11a	4TX	-
802.11n (20MHz)	4TX	-
802.11n (40MHz)	4TX	-
802.11ac (20MHz)	4TX	4TX
802.11ac (40MHz)	4TX	4TX
802.11ac (80MHz)	4TX	4TX

Note: * 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 EUT uses following adapter.

Adapter	1	2
Brand	LEI	CWT
Model	ML18-F120150-A1	2ABB018F 1 NJ
P/N	332-10858-01	332-10927-01
AC Input Power	100-120V~ 50/60Hz 0.5A	100-120V~ 50/60Hz 0.6A
DC Output Power	12V 1.5A	12.0V, 1.5A
Plug Type	US Plug	US Plug
Cable	Non-shielded DC cable (1.8m)	Non-shielded DC cable (1.8m)

After pre-tested, the **adapter 1** was the worst case for final test.

3. The antennas provided to the EUT, please refer to the following table:

Frequency Band (MHz)	Chain No.	Antenna Type	Directional Gain (dBi)	Connectot Type
5180-5240	Chain 0	PIFA	6.92	N/A
	Chain 1	Dipole		I- PEX
	Chain 2	Dipole		I-PEX
	Chain 3	Dipole		I-PEX
5745-5825	Chain 0	PIFA	7.28	N/A
	Chain 1	Dipole		I- PEX
	Chain 2	Dipole		I-PEX
	Chain 3	Dipole		I-PEX

The directional gain info are from operation description of antenna specifications exhibit, which calculate by each degrees (15 degrees/step) to find worst case antenna configuration and define directional gain.

The directional antenna gain information is declared by manufacturer and more detailed features description please refer to operation description of antenna specifications exhibit.

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

3.2 Description of Test Modes

FOR 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz):

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

2 channels are provided for 802.11n (40MHz), 802.11ac (40MHz):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (80MHz):

Channel	Frequency
42	5210MHz

FOR 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz):

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

2 channels are provided for 802.11n (40MHz), 802.11ac (40MHz):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (80MHz):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G**: Radiated Emission above 1GHz **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 2 axis. The worst case was found when positioned on **X-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.

CCD Mode							
EUT Configure Mode	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
-	802.11ac (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
-	802.11ac (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
-	802.11ac (80MHz)		42	42	OFDM	BPSK	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
-	802.11ac (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
-	802.11ac (40MHz)		151 to 159	151, 159	OFDM	BPSK	13.5
-	802.11ac (80MHz)		155	155	OFDM	BPSK	29.3
Beamforming_NSS1 Mode							
EUT Configure Mode	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11ac (20MHz)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-	802.11ac (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
-	802.11ac (80MHz)		42	42	OFDM	BPSK	29.3
-	802.11ac (20MHz)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-	802.11ac (40MHz)		151 to 159	151, 159	OFDM	BPSK	13.5
-	802.11ac (80MHz)		155	155	OFDM	BPSK	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.

CCD Mode							
EUT Configure Mode	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	40	OFDM	BPSK	6
-	802.11a	5745-5825	149 to 165		OFDM	BPSK	6

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.

CCD Mode							
EUT Configure Mode	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	40	OFDM	BPSK	6
-	802.11a	5745-5825	149 to 165		OFDM	BPSK	6

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.

CCD Mode							
EUT Configure Mode	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
-	802.11ac (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
-	802.11ac (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
-	802.11ac (80MHz)		42	42	OFDM	BPSK	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
-	802.11ac (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
-	802.11ac (40MHz)		151 to 159	151, 159	OFDM	BPSK	13.5
-	802.11ac (80MHz)		155	155	OFDM	BPSK	29.3
Beamforming_NSS1 Mode (Output Power Only)							
EUT Configure Mode	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11ac (20MHz)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-	802.11ac (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
-	802.11ac (80MHz)		42	42	OFDM	BPSK	29.3
-	802.11ac (20MHz)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-	802.11ac (40MHz)		151 to 159	151, 159	OFDM	BPSK	13.5
-	802.11ac (80MHz)		155	155	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	26deg. C, 69%RH	120Vac, 60Hz	James Wei
RE<1G	27deg. C, 68%RH	120Vac, 60Hz	Ian Chang
PLC	25deg. C, 75%RH	120Vac, 60Hz	Ian Chang
APCM	25deg. C, 76%RH	120Vac, 60Hz	Saxon Lee

3.3 Duty Cycle of Test Signal

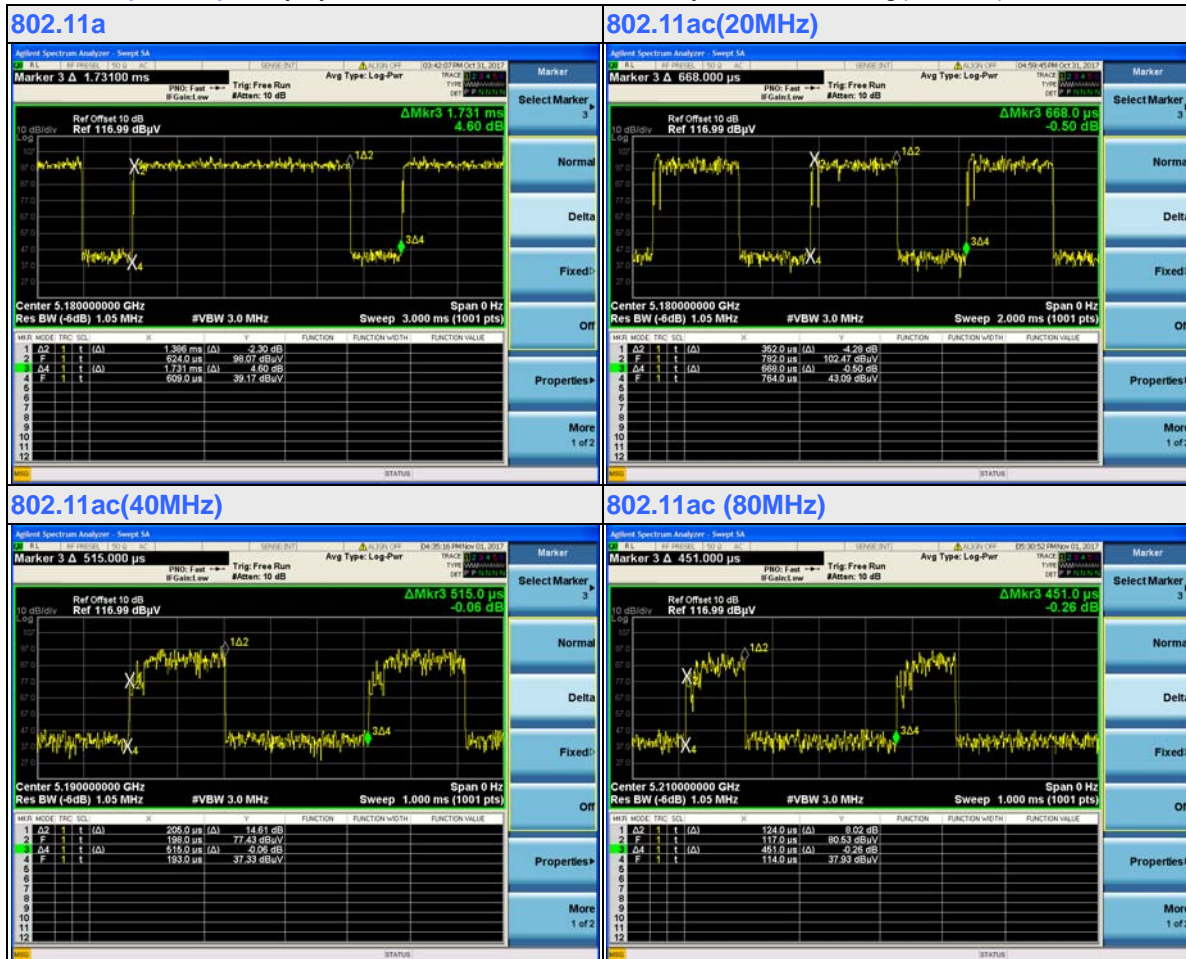
Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = 1.386/1.731 = 0.801, Duty factor = $10 * \log(1/0.801) = 0.97$

802.11ac (20MHz): Duty cycle = 0.352/0.668 = 0.527, Duty factor = $10 * \log(1/0.527) = 2.78$

802.11ac (40MHz): Duty cycle = 0.205/0.515 = 0.398, Duty factor = $10 * \log(1/0.398) = 4.00$

802.11ac (80MHz): Duty cycle = 0.124/0.451 = 0.275, Duty factor = $10 * \log(1/0.275) = 5.61$



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 COMPUTER	DELL	PP27L	8SNZ12S	FCC DoC Approved	Provided by Lab

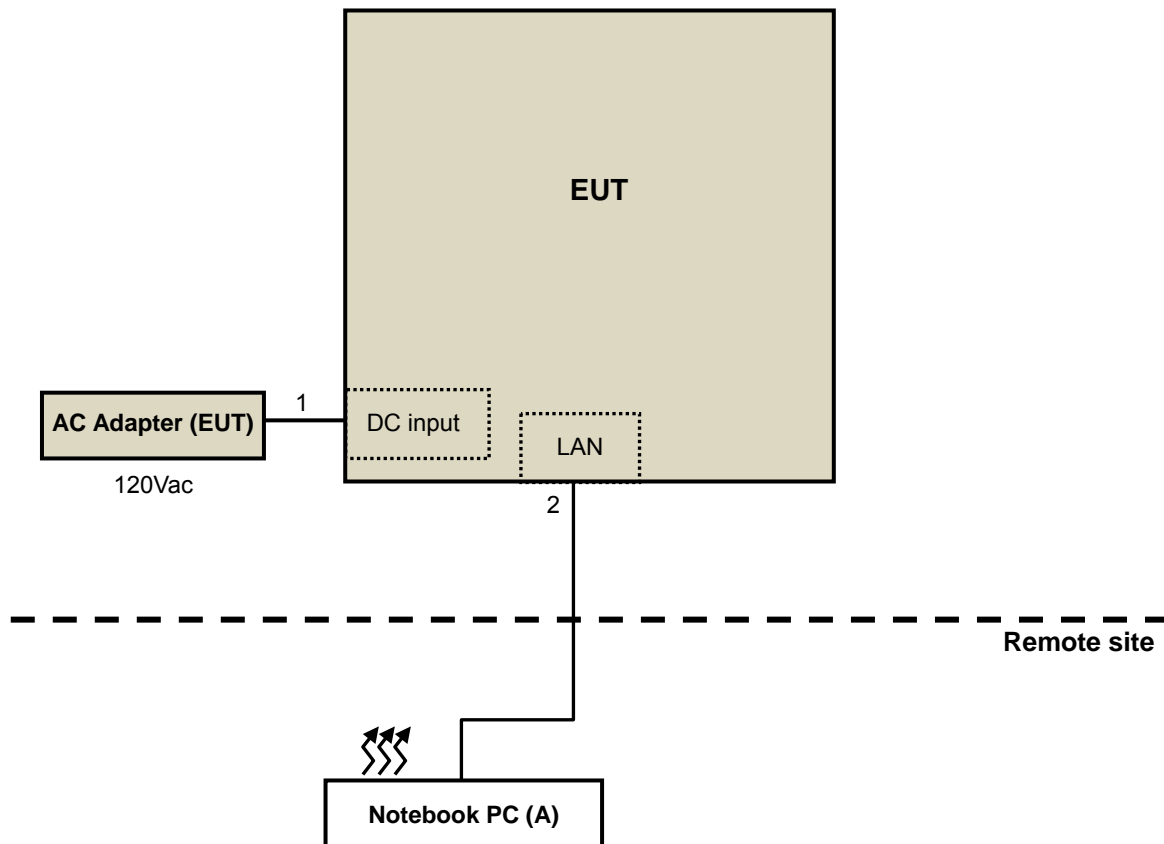
Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1.8	N	0	Supplied by client
2.	LAN cable	1	10	N	0	Provided by Lab

Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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 v01r03		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	<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(dBµV/m) ^{*1} PK:105.2 (dBµV/m) ^{*2} PK: 110.8(dBµV/m) ^{*3} PK:122.2 (dBµV/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. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.		^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 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.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 21, 2017	Feb. 20, 2018
HP Preamplifier	8449B	3008A01201	Feb. 22, 2017	Feb. 21, 2018
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2017	Feb. 20, 2018
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 8, 2017	Feb. 7, 2018
Schwarzbeck Antenna	VULB 9168	139	Dec. 13, 2016	Dec. 12, 2017
Schwarzbeck Antenna	VHBA 9123	480	May 19, 2017	May 18, 2019
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 30, 2016	Dec. 29, 2017
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Dec. 27, 2016	Dec. 26, 2017
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 14, 2017	Aug. 13, 2018
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 14, 2017	Aug. 13, 2018
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	U2021XA-001	May 31, 2017	May 30, 2018
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 26, 2017	Jul. 25, 2018
Loop Antenna EMCI	LPA600	270	Aug. 11, 2017	Aug. 10, 2019
EMCO Horn Antenna	3115	00028257	Dec. 15, 2016	Dec. 14, 2017
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 29, 2017	Sep. 28, 2018
Anritsu Power Sensor	MA2411B	0738404	Apr. 24, 2017	Apr. 23, 2018
Anritsu Power Meter	ML2495A	0842014	Apr. 24, 2017	Apr. 23, 2018

- NOTE:**
1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
 2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The test was performed in Chamber No. 6.
 4. The Industry Canada Reference No. IC 7450E-6.

4.1.3 Test Procedure

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. Both X and Y axes 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:

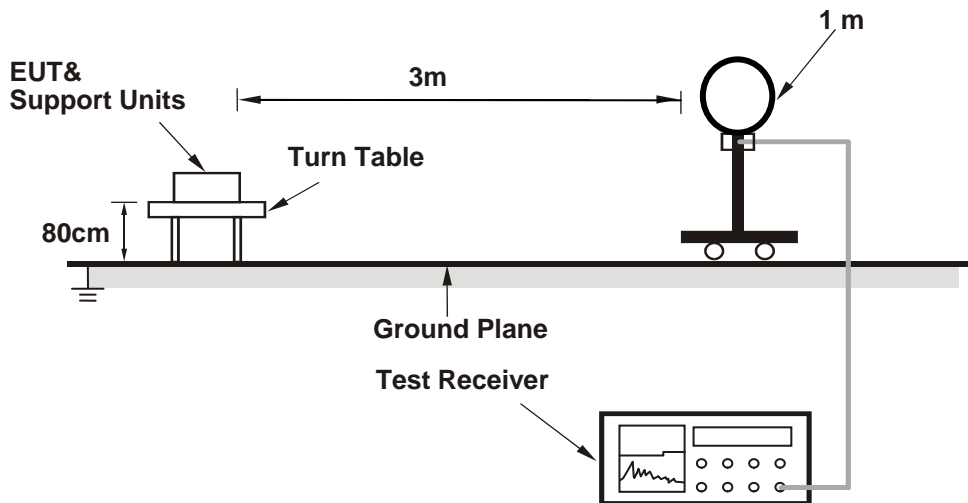
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

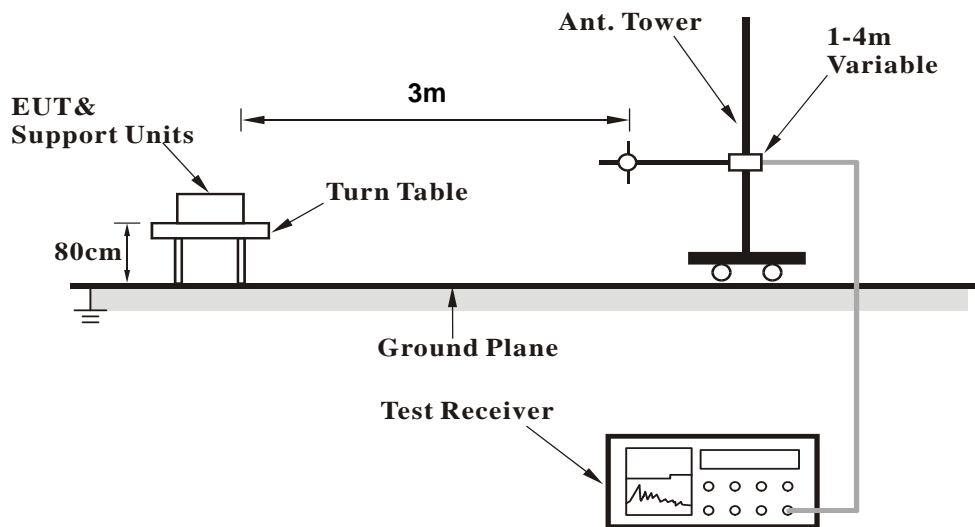
No deviation.

4.1.5 Test Setup

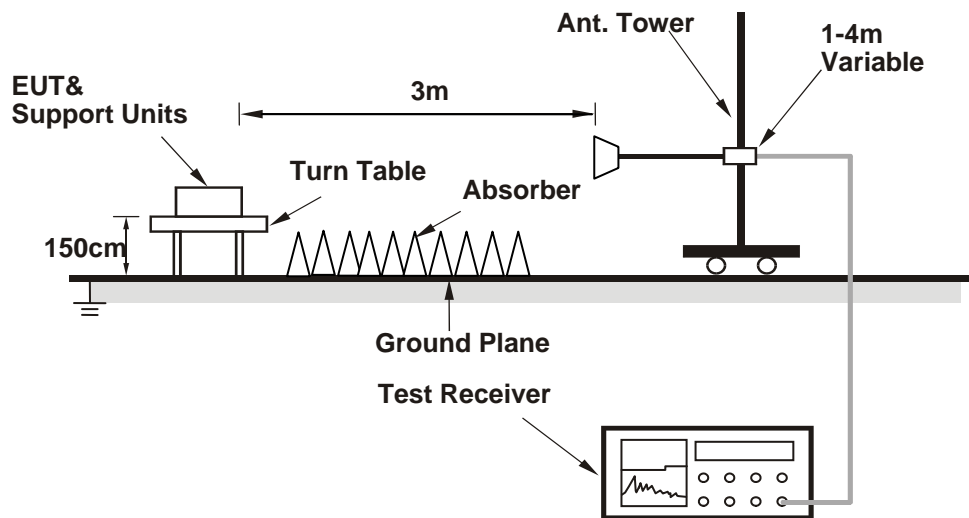
For Radiated emission below 30MHz



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 Condition

- a. Connected the EUT with AC adapter placed on testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

ABOVE 1GHz DATA

CCD Mode

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	68.45 PK	74.00	-5.55	1.12 H	268	63.54	4.91
2	5150.00	49.92 AV	54.00	-4.08	1.12 H	268	45.01	4.91
3	*5180.00	108.90 PK			1.12 H	268	103.96	4.94
4	*5180.00	100.21 AV			1.12 H	268	95.27	4.94
5	10360.00	58.07 PK	74.00	-15.93	2.98 H	311	42.54	15.53
6	10360.00	45.41 AV	54.00	-8.59	2.98 H	311	29.88	15.53

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	71.38 PK	74.00	-2.62	1.54 V	278	66.47	4.91
2	5150.00	53.74 AV	54.00	-0.26	1.54 V	278	48.83	4.91
3	*5180.00	113.23 PK			1.54 V	278	108.29	4.94
4	*5180.00	104.26 AV			1.54 V	278	99.32	4.94
5	10360.00	59.69 PK	74.00	-14.31	1.13 V	202	44.16	15.53
6	10360.00	46.83 AV	54.00	-7.17	1.13 V	202	31.30	15.53

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.

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	113.79 PK			1.25 H	271	108.82	4.97
2	*5200.00	105.13 AV			1.25 H	271	100.16	4.97
3	10400.00	58.99 PK	74.00	-15.01	2.96 H	310	43.41	15.58
4	10400.00	46.33 AV	54.00	-7.67	2.96 H	310	30.75	15.58

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	118.74 PK			1.55 V	286	113.77	4.97
2	*5200.00	109.50 AV			1.55 V	286	104.53	4.97
3	10400.00	60.80 PK	74.00	-13.20	1.15 V	218	45.22	15.58
4	10400.00	47.52 AV	54.00	-6.48	1.15 V	218	31.94	15.58

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.

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	113.49 PK			1.22 H	288	108.45	5.04
2	*5240.00	105.06 AV			1.22 H	288	100.02	5.04
3	5350.00	54.22 PK	74.00	-19.78	1.22 H	288	48.87	5.35
4	5350.00	40.91 AV	54.00	-13.09	1.22 H	288	35.56	5.35
5	10480.00	59.04 PK	74.00	-14.96	3.10 H	311	43.28	15.76
6	10480.00	46.45 AV	54.00	-7.55	3.10 H	311	30.69	15.76

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	117.74 PK			1.53 V	281	112.70	5.04
2	*5240.00	108.84 AV			1.53 V	281	103.80	5.04
3	5350.00	56.37 PK	74.00	-17.63	1.53 V	281	51.02	5.35
4	5350.00	43.57 AV	54.00	-10.43	1.53 V	281	38.22	5.35
5	10480.00	60.88 PK	74.00	-13.12	1.22 V	197	45.12	15.76
6	10480.00	47.64 AV	54.00	-6.36	1.22 V	197	31.88	15.76

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.

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	5649.75	52.57 PK	68.20	-15.63	1.55 H	65	45.96	6.61
2	*5745.00	111.49 PK			1.55 H	65	104.80	6.69
3	*5745.00	102.41 AV			1.55 H	65	95.72	6.69
4	5939.02	51.93 PK	68.20	-16.27	1.55 H	65	44.86	7.07
5	11490.00	61.11 PK	74.00	-12.89	2.23 H	105	44.21	16.90
6	11490.00	49.48 AV	54.00	-4.52	2.23 H	105	32.58	16.90

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	5634.55	59.03 PK	68.20	-9.17	1.33 V	315	52.43	6.60
2	*5745.00	116.54 PK			1.33 V	315	109.85	6.69
3	*5745.00	107.75 AV			1.33 V	315	101.06	6.69
4	5967.05	57.58 PK	68.20	-10.62	1.33 V	315	50.38	7.20
5	11490.00	64.76 PK	74.00	-9.24	1.22 V	206	47.86	16.90
6	11490.00	51.77 AV	54.00	-2.23	1.22 V	206	34.87	16.90

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5623.15	52.73 PK	68.20	-15.47	1.62 H	64	46.14	6.59
2	*5785.00	110.53 PK			1.62 H	64	103.81	6.72
3	*5785.00	101.84 AV			1.62 H	64	95.12	6.72
4	5956.60	51.17 PK	68.20	-17.03	1.62 H	64	44.01	7.16
5	11570.00	60.93 PK	74.00	-13.07	2.54 H	100	44.14	16.79
6	11570.00	49.28 AV	54.00	-4.72	2.54 H	100	32.49	16.79

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	5649.27	57.53 PK	68.20	-10.67	1.24 V	316	50.92	6.61
2	*5785.00	116.94 PK			1.24 V	316	110.22	6.72
3	*5785.00	107.78 AV			1.24 V	316	101.06	6.72
4	5926.20	56.88 PK	68.20	-11.32	1.24 V	316	49.86	7.02
5	11570.00	66.97 PK	74.00	-7.03	1.03 V	144	50.18	16.79
6	11570.00	53.75 AV	54.00	-0.25	1.03 V	144	36.96	16.79

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.

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	5637.40	52.02 PK	68.20	-16.18	1.83 H	79	45.42	6.60
2	*5825.00	111.34 PK			1.83 H	79	104.56	6.78
3	*5825.00	102.47 AV			1.83 H	79	95.69	6.78
4	5931.43	51.80 PK	68.20	-16.40	1.83 H	79	44.75	7.05
5	11650.00	60.85 PK	74.00	-13.15	2.86 H	154	44.09	16.76
6	11650.00	49.24 AV	54.00	-4.76	2.86 H	154	32.48	16.76

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	5596.07	59.09 PK	68.20	-9.11	2.36 V	164	52.55	6.54
2	*5825.00	118.46 PK			2.36 V	164	111.68	6.78
3	*5825.00	109.62 AV			2.36 V	164	102.84	6.78
4	5933.32	58.23 PK	68.20	-9.97	2.36 V	164	51.18	7.05
5	11650.00	63.92 PK	74.00	-10.08	1.03 V	138	47.16	16.76
6	11650.00	50.24 AV	54.00	-3.76	1.03 V	138	33.48	16.76

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.

802.11ac (20MHz)

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	65.69 PK	74.00	-8.31	1.50 H	226	60.78	4.91
2	5150.00	48.75 AV	54.00	-5.25	1.50 H	226	43.84	4.91
3	*5180.00	107.81 PK			1.50 H	226	102.87	4.94
4	*5180.00	95.57 AV			1.50 H	226	90.63	4.94
5	10360.00	54.71 PK	74.00	-19.29	3.07 H	341	39.18	15.53
6	10360.00	43.39 AV	54.00	-10.61	3.07 H	341	27.86	15.53

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	66.32 PK	74.00	-7.68	1.54 V	52	61.41	4.91
2	5150.00	53.75 AV	54.00	-0.25	1.54 V	52	48.84	4.91
3	*5180.00	114.08 PK			1.54 V	52	109.14	4.94
4	*5180.00	102.07 AV			1.54 V	52	97.13	4.94
5	10360.00	55.82 PK	74.00	-18.18	2.25 V	105	40.29	15.53
6	10360.00	44.13 AV	54.00	-9.87	2.25 V	105	28.60	15.53

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.

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	5150.00	66.22 PK	74.00	-7.78	1.44 H	231	61.31	4.91
2	5150.00	49.83 AV	54.00	-4.17	1.44 H	231	44.92	4.91
3	*5200.00	110.72 PK			1.44 H	231	105.75	4.97
4	*5200.00	98.58 AV			1.44 H	231	93.61	4.97
5	10400.00	55.75 PK	74.00	-18.25	3.11 H	351	40.17	15.58
6	10400.00	44.33 AV	54.00	-9.67	3.11 H	351	28.75	15.58

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	67.50 PK	74.00	-6.50	2.29 V	161	62.59	4.91
2	5150.00	53.71 AV	54.00	-0.29	2.29 V	161	48.80	4.91
3	*5200.00	117.08 PK			2.29 V	161	112.11	4.97
4	*5200.00	104.12 AV			2.29 V	161	99.15	4.97
5	10400.00	56.76 PK	74.00	-17.24	2.53 V	118	41.18	15.58
6	10400.00	45.05 AV	54.00	-8.95	2.53 V	118	29.47	15.58

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.

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	5150.00	59.74 PK	74.00	-14.26	1.58 H	230	54.83	4.91
2	5150.00	46.43 AV	54.00	-7.57	1.58 H	230	41.52	4.91
3	*5240.00	110.28 PK			1.58 H	230	105.24	5.04
4	*5240.00	98.52 AV			1.58 H	230	93.48	5.04
5	5350.00	54.90 PK	74.00	-19.10	1.58 H	230	49.55	5.35
6	5350.00	42.84 AV	54.00	-11.16	1.58 H	230	37.49	5.35
7	10480.00	55.81 PK	74.00	-18.19	2.99 H	325	40.05	15.76
8	10480.00	44.49 AV	54.00	-9.51	2.99 H	325	28.73	15.76

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	61.71 PK	74.00	-12.29	2.48 V	159	56.80	4.91
2	5150.00	47.74 AV	54.00	-6.26	2.48 V	159	42.83	4.91
3	*5240.00	117.03 PK			2.48 V	159	111.99	5.04
4	*5240.00	104.05 AV			2.48 V	159	99.01	5.04
5	5350.00	56.63 PK	74.00	-17.37	2.48 V	159	51.28	5.35
6	5350.00	44.48 AV	54.00	-9.52	2.48 V	159	39.13	5.35
7	10480.00	56.78 PK	74.00	-17.22	2.18 V	133	41.02	15.76
8	10480.00	45.19 AV	54.00	-8.81	2.18 V	133	29.43	15.76

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5643.57	55.05 PK	68.20	-13.15	1.00 H	290	48.43	6.62
2	*5745.00	110.80 PK			1.00 H	290	104.11	6.69
3	*5745.00	98.70 AV			1.00 H	290	92.01	6.69
4	5932.85	54.56 PK	68.20	-13.64	1.00 H	290	47.51	7.05
5	11490.00	61.73 PK	74.00	-12.27	1.93 H	271	44.83	16.90
6	11490.00	48.74 AV	54.00	-5.26	1.93 H	271	31.84	16.90

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	5629.80	59.27 PK	68.20	-8.93	2.15 V	35	52.68	6.59
2	*5745.00	117.75 PK			2.15 V	35	111.06	6.69
3	*5745.00	104.54 AV			2.15 V	35	97.85	6.69
4	5971.80	57.99 PK	68.20	-10.21	2.15 V	35	50.77	7.22
5	11490.00	63.98 PK	74.00	-10.02	1.05 V	190	47.08	16.90
6	11490.00	51.21 AV	54.00	-2.79	1.05 V	190	34.31	16.90

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.

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	5638.82	52.77 PK	68.20	-15.43	1.10 H	256	46.16	6.61
2	*5785.00	110.74 PK			1.10 H	256	104.02	6.72
3	*5785.00	98.58 AV			1.10 H	256	91.86	6.72
4	5930.00	53.66 PK	68.20	-14.54	1.10 H	256	46.62	7.04
5	11570.00	61.36 PK	74.00	-12.64	2.18 H	255	44.57	16.79
6	11570.00	48.28 AV	54.00	-5.72	2.18 H	255	31.49	16.79

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5630.75	57.27 PK	68.20	-10.93	2.12 V	294	50.67	6.60
2	*5785.00	117.20 PK			2.12 V	294	110.48	6.72
3	*5785.00	104.26 AV			2.12 V	294	97.54	6.72
4	5927.62	56.58 PK	68.20	-11.62	2.12 V	294	49.56	7.02
5	11570.00	63.68 PK	74.00	-10.32	1.19 V	183	46.89	16.79
6	11570.00	50.97 AV	54.00	-3.03	1.19 V	183	34.18	16.79

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.

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	5635.02	51.35 PK	68.20	-16.85	1.24 H	293	44.75	6.60
2	*5825.00	110.91 PK			1.24 H	293	104.13	6.78
3	*5825.00	98.72 AV			1.24 H	293	91.94	6.78
4	5930.48	49.89 PK	68.20	-18.31	1.24 H	293	42.85	7.04
5	11650.00	61.44 PK	74.00	-12.56	1.94 H	276	44.68	16.76
6	11650.00	48.42 AV	54.00	-5.58	1.94 H	276	31.66	16.76

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5641.68	57.26 PK	68.20	-10.94	2.11 V	299	50.66	6.60
2	*5825.00	117.45 PK			2.11 V	299	110.67	6.78
3	*5825.00	104.41 AV			2.11 V	299	97.63	6.78
4	5927.62	56.12 PK	68.20	-12.08	2.11 V	299	49.10	7.02
5	11650.00	63.74 PK	74.00	-10.26	1.55 V	176	46.98	16.76
6	11650.00	50.97 AV	54.00	-3.03	1.55 V	176	34.21	16.76

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.

802.11ac (40MHz)

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	68.49 PK	74.00	-5.51	2.26 H	252	63.58	4.91
2	5150.00	51.21 AV	54.00	-2.79	2.26 H	252	46.30	4.91
3	*5190.00	102.45 PK			2.26 H	252	97.49	4.96
4	*5190.00	90.65 AV			2.26 H	252	85.69	4.96
5	10380.00	54.09 PK	74.00	-19.91	3.11 H	208	38.53	15.56
6	10380.00	42.37 AV	54.00	-11.63	3.11 H	208	26.81	15.56

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	70.61 PK	74.00	-3.39	2.86 V	286	65.70	4.91
2	5150.00	53.73 AV	54.00	-0.27	2.86 V	286	48.82	4.91
3	*5190.00	107.90 PK			2.86 V	286	102.94	4.96
4	*5190.00	94.61 AV			2.86 V	286	89.65	4.96
5	10380.00	55.37 PK	74.00	-18.63	2.85 V	104	39.81	15.56
6	10380.00	43.88 AV	54.00	-10.12	2.85 V	104	28.32	15.56

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.

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	64.56 PK	74.00	-9.44	2.27 H	250	59.65	4.91
2	5150.00	51.52 AV	54.00	-2.48	2.27 H	250	46.61	4.91
3	*5230.00	108.13 PK			2.27 H	250	103.11	5.02
4	*5230.00	94.30 AV			2.27 H	250	89.28	5.02
5	5350.00	56.30 PK	74.00	-17.70	2.27 H	250	50.95	5.35
6	5350.00	44.52 AV	54.00	-9.48	2.27 H	250	39.17	5.35
7	10460.00	54.99 PK	74.00	-19.01	3.29 H	198	39.28	15.71
8	10460.00	43.40 AV	54.00	-10.60	3.29 H	198	27.69	15.71

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	66.86 PK	74.00	-7.14	2.55 V	271	61.95	4.91
2	5150.00	53.72 AV	54.00	-0.28	2.55 V	271	48.81	4.91
3	*5230.00	113.23 PK			2.55 V	271	108.21	5.02
4	*5230.00	98.57 AV			2.55 V	271	93.55	5.02
5	5350.00	59.08 PK	74.00	-14.92	2.55 V	271	53.73	5.35
6	5350.00	46.95 AV	54.00	-7.05	2.55 V	271	41.60	5.35
7	10460.00	56.24 PK	74.00	-17.76	2.88 V	109	40.53	15.71
8	10460.00	44.55 AV	54.00	-9.45	2.88 V	109	28.84	15.71

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.

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	5647.73	59.44 PK	68.20	-8.76	1.02 H	292	52.83	6.61
2	*5755.00	107.25 PK			1.02 H	292	100.55	6.70
3	*5755.00	94.93 AV			1.02 H	292	88.23	6.70
4	5932.96	51.65 PK	68.20	-16.55	1.02 H	292	44.60	7.05
5	11510.00	61.73 PK	74.00	-12.27	2.59 H	174	44.86	16.87
6	11510.00	48.78 AV	54.00	-5.22	2.59 H	174	31.91	16.87

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	5649.21	67.94 PK	68.20	-0.26	1.16 V	296	61.33	6.61
2	*5755.00	115.24 PK			1.16 V	296	108.54	6.70
3	*5755.00	100.78 AV			1.16 V	296	94.08	6.70
4	5937.01	57.50 PK	68.20	-10.70	1.16 V	296	50.43	7.07
5	11510.00	63.07 PK	74.00	-10.93	1.12 V	190	46.20	16.87
6	11510.00	50.34 AV	54.00	-3.66	1.12 V	190	33.47	16.87

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.

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	5652.28	53.97 PK	69.89	-15.92	1.51 H	288	47.36	6.61
2	*5795.00	107.57 PK			1.51 H	288	100.84	6.73
3	*5795.00	95.34 AV			1.51 H	288	88.61	6.73
4	5927.52	49.62 PK	68.20	-18.58	1.51 H	288	42.60	7.02
5	11590.00	61.68 PK	74.00	-12.32	2.66 H	162	44.93	16.75
6	11590.00	48.83 AV	54.00	-5.17	2.66 H	162	32.08	16.75

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	5647.36	58.62 PK	68.20	-9.58	1.96 V	24	52.01	6.61
2	*5795.00	115.76 PK			1.96 V	24	109.03	6.73
3	*5795.00	101.46 AV			1.96 V	24	94.73	6.73
4	5968.69	56.47 PK	68.20	-11.73	1.96 V	24	49.27	7.20
5	11590.00	63.13 PK	74.00	-10.87	1.27 V	188	46.38	16.75
6	11590.00	50.26 AV	54.00	-3.74	1.27 V	188	33.51	16.75

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.

802.11ac (80MHz)

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	66.33 PK	74.00	-7.67	2.31 H	189	61.42	4.91
2	5150.00	49.80 AV	54.00	-4.20	2.31 H	189	44.89	4.91
3	*5210.00	100.11 PK			2.31 H	189	95.13	4.98
4	*5210.00	87.49 AV			2.31 H	189	82.51	4.98
5	5350.00	60.13 PK	74.00	-13.87	2.31 H	189	54.78	5.35
6	5350.00	45.74 AV	54.00	-8.26	2.31 H	189	40.39	5.35
7	10420.00	53.22 PK	74.00	-20.78	2.88 H	254	37.59	15.63
8	10420.00	41.71 AV	54.00	-12.29	2.88 H	254	26.08	15.63

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	69.23 PK	74.00	-4.77	2.74 V	155	64.32	4.91
2	5150.00	53.76 AV	54.00	-0.24	2.74 V	155	48.85	4.91
3	*5210.00	104.94 PK			2.74 V	155	99.96	4.98
4	*5210.00	91.71 AV			2.74 V	155	86.73	4.98
5	5350.00	62.94 PK	74.00	-11.06	2.74 V	155	57.59	5.35
6	5350.00	48.18 AV	54.00	-5.82	2.74 V	155	42.83	5.35
7	10420.00	54.52 PK	74.00	-19.48	2.73 V	168	38.89	15.63
8	10420.00	42.60 AV	54.00	-11.40	2.73 V	168	26.97	15.63

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.

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	5647.42	58.48 PK	68.20	-9.72	1.28 H	78	51.87	6.61
2	*5775.00	101.44 PK			1.28 H	78	94.72	6.72
3	*5775.00	88.20 AV			1.28 H	78	81.48	6.72
4	5949.49	53.05 PK	68.20	-15.15	1.28 H	78	45.93	7.12
5	11550.00	54.05 PK	74.00	-19.95	1.95 H	54	37.24	16.81
6	11550.00	43.77 AV	54.00	-10.23	1.95 H	54	26.96	16.81

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	5647.22	67.92 PK	68.20	-0.28	3.04 V	9	61.31	6.61
2	*5775.00	110.01 PK			3.04 V	9	103.29	6.72
3	*5775.00	96.35 AV			3.04 V	9	89.63	6.72
4	5937.45	60.40 PK	68.20	-7.80	3.04 V	9	53.33	7.07
5	11550.00	56.57 PK	74.00	-17.43	1.00 V	192	39.76	16.81
6	11550.00	45.64 AV	54.00	-8.36	1.00 V	192	28.83	16.81

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.

Beamforming_NSS1 Mode

802.11ac (20MHz)

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	63.92 PK	74.00	-10.08	1.44 H	267	59.01	4.91
2	5150.00	46.66 AV	54.00	-7.34	1.44 H	267	41.75	4.91
3	*5180.00	105.47 PK			1.44 H	267	100.53	4.94
4	*5180.00	95.72 AV			1.44 H	267	90.78	4.94
5	10360.00	55.35 PK	74.00	-18.65	1.44 H	295	39.82	15.53
6	10360.00	41.67 AV	54.00	-12.33	1.44 H	295	26.14	15.53

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	73.03 PK	74.00	-0.97	2.98 V	205	68.12	4.91
2	5150.00	53.14 AV	54.00	-0.86	2.98 V	205	48.23	4.91
3	*5180.00	111.22 PK			2.98 V	205	106.28	4.94
4	*5180.00	102.68 AV			2.98 V	205	97.74	4.94
5	10360.00	57.36 PK	74.00	-16.64	2.97 V	36	41.83	15.53
6	10360.00	43.48 AV	54.00	-10.52	2.97 V	36	27.95	15.53

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.

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	5150.00	61.14 PK	74.00	-12.86	1.59 H	261	56.23	4.91
2	5150.00	46.67 AV	54.00	-7.33	1.59 H	261	41.76	4.91
3	*5200.00	111.56 PK			1.59 H	261	106.59	4.97
4	*5200.00	101.82 AV			1.59 H	261	96.85	4.97
5	10400.00	55.70 PK	74.00	-18.30	1.57 H	299	40.12	15.58
6	10400.00	42.20 AV	54.00	-11.80	1.57 H	299	26.62	15.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	70.57 PK	74.00	-3.43	2.84 V	204	65.66	4.91
2	5150.00	53.19 AV	54.00	-0.81	2.84 V	204	48.28	4.91
3	*5200.00	117.31 PK			2.84 V	204	112.34	4.97
4	*5200.00	107.61 AV			2.84 V	204	102.64	4.97
5	10400.00	58.35 PK	74.00	-15.65	3.11 V	48	42.77	15.58
6	10400.00	44.12 AV	54.00	-9.88	3.11 V	48	28.54	15.58

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.

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	112.46 PK			1.73 H	288	107.42	5.04
2	*5240.00	102.33 AV			1.73 H	288	97.29	5.04
3	5350.00	54.93 PK	74.00	-19.07	1.73 H	288	49.58	5.35
4	5350.00	41.46 AV	54.00	-12.54	1.73 H	288	36.11	5.35
5	10480.00	56.38 PK	74.00	-17.62	1.69 H	275	40.62	15.76
6	10480.00	42.57 AV	54.00	-11.43	1.69 H	275	26.81	15.76

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	118.72 PK			2.57 V	340	113.68	5.04
2	*5240.00	108.04 AV			2.57 V	340	103.00	5.04
3	5350.00	57.81 PK	74.00	-16.19	2.57 V	340	52.46	5.35
4	5350.00	44.18 AV	54.00	-9.82	2.57 V	340	38.83	5.35
5	10480.00	58.88 PK	74.00	-15.12	3.22 V	91	43.12	15.76
6	10480.00	44.47 AV	54.00	-9.53	3.22 V	91	28.71	15.76

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.

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	5621.68	51.82 PK	68.20	-16.38	2.65 H	301	45.24	6.58
2	*5745.00	110.56 PK			2.65 H	301	103.87	6.69
3	*5745.00	102.58 AV			2.65 H	301	95.89	6.69
4	5954.08	50.73 PK	68.20	-17.47	2.65 H	301	43.59	7.14
5	11490.00	61.17 PK	74.00	-12.83	1.78 H	218	44.27	16.90
6	11490.00	49.19 AV	54.00	-4.81	1.78 H	218	32.29	16.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5648.29	55.55 PK	68.20	-12.65	1.73 V	78	48.95	6.60
2	*5745.00	117.12 PK			1.73 V	78	110.43	6.69
3	*5745.00	108.21 AV			1.73 V	78	101.52	6.69
4	5963.82	55.10 PK	68.20	-13.10	1.73 V	78	47.92	7.18
5	11490.00	64.73 PK	74.00	-9.27	3.51 V	162	47.83	16.90
6	11490.00	51.41 AV	54.00	-2.59	3.51 V	162	34.51	16.90

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.

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	5621.02	49.00 PK	68.20	-19.20	2.55 H	311	42.41	6.59
2	*5785.00	110.94 PK			2.55 H	311	104.22	6.72
3	*5785.00	102.64 AV			2.55 H	311	95.92	6.72
4	5930.06	47.48 PK	68.20	-20.72	2.55 H	311	40.44	7.04
5	11570.00	61.18 PK	74.00	-12.82	1.81 H	207	44.39	16.79
6	11570.00	49.21 AV	54.00	-4.79	1.81 H	207	32.42	16.79

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	5625.16	56.79 PK	68.20	-11.41	3.27 V	136	50.20	6.59
2	*5785.00	117.66 PK			3.27 V	136	110.94	6.72
3	*5785.00	109.03 AV			3.27 V	136	102.31	6.72
4	5929.94	55.78 PK	68.20	-12.42	3.27 V	136	48.74	7.04
5	11570.00	64.68 PK	74.00	-9.32	3.55 V	181	47.89	16.79
6	11570.00	51.45 AV	54.00	-2.55	3.55 V	181	34.66	16.79

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.

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	5624.42	48.13 PK	68.20	-20.07	2.88 H	291	41.53	6.60
2	*5825.00	110.69 PK			2.88 H	291	103.91	6.78
3	*5825.00	102.76 AV			2.88 H	291	95.98	6.78
4	5942.34	47.29 PK	68.20	-20.91	2.88 H	291	40.20	7.09
5	11650.00	61.11 PK	74.00	-12.89	2.11 H	211	44.35	16.76
6	11650.00	49.07 AV	54.00	-4.93	2.11 H	211	32.31	16.76

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5626.90	54.03 PK	68.20	-14.17	2.47 V	63	47.44	6.59
2	*5825.00	117.70 PK			2.47 V	63	110.92	6.78
3	*5825.00	109.38 AV			2.47 V	63	102.60	6.78
4	5956.29	54.40 PK	68.20	-13.80	2.47 V	63	47.24	7.16
5	11650.00	64.75 PK	74.00	-9.25	3.22 V	183	47.99	16.76
6	11650.00	51.47 AV	54.00	-2.53	3.22 V	183	34.71	16.76

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.

802.11ac (40MHz)

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	67.85 PK	74.00	-6.15	1.52 H	291	62.94	4.91
2	5150.00	48.68 AV	54.00	-5.32	1.52 H	291	43.77	4.91
3	*5190.00	101.83 PK			1.52 H	291	96.87	4.96
4	*5190.00	92.95 AV			1.52 H	291	87.99	4.96
5	10380.00	54.12 PK	74.00	-19.88	1.57 H	159	38.56	15.56
6	10380.00	40.89 AV	54.00	-13.11	1.57 H	159	25.33	15.56

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	73.46 PK	74.00	-0.54	1.99 V	337	68.55	4.91
2	5150.00	53.61 AV	54.00	-0.39	1.99 V	337	48.70	4.91
3	*5190.00	109.61 PK			1.99 V	337	104.65	4.96
4	*5190.00	100.97 AV			1.99 V	337	96.01	4.96
5	10380.00	54.94 PK	74.00	-19.06	1.07 V	200	39.38	15.56
6	10380.00	42.49 AV	54.00	-11.51	1.07 V	200	26.93	15.56

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.

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	64.53 PK	74.00	-9.47	1.51 H	284	59.62	4.91
2	5150.00	47.79 AV	54.00	-6.21	1.51 H	284	42.88	4.91
3	*5230.00	99.95 PK			1.51 H	284	94.93	5.02
4	*5230.00	91.05 AV			1.51 H	284	86.03	5.02
5	10460.00	54.40 PK	74.00	-19.60	1.48 H	167	38.69	15.71
6	10460.00	41.19 AV	54.00	-12.81	1.48 H	167	25.48	15.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.27 PK	74.00	-5.73	2.96 V	270	63.36	4.91
2	5150.00	53.54 AV	54.00	-0.46	2.96 V	270	48.63	4.91
3	*5230.00	111.85 PK			2.96 V	270	106.83	5.02
4	*5230.00	102.79 AV			2.96 V	270	97.77	5.02
5	10460.00	55.55 PK	74.00	-18.45	1.11 V	195	39.84	15.71
6	10460.00	42.90 AV	54.00	-11.10	1.11 V	195	27.19	15.71

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.

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	5644.87	54.23 PK	68.20	-13.97	3.03 H	308	47.62	6.61
2	*5755.00	107.86 PK			3.03 H	308	101.16	6.70
3	*5755.00	99.49 AV			3.03 H	308	92.79	6.70
4	5951.97	52.31 PK	68.20	-15.89	3.03 H	308	45.18	7.13
5	11510.00	60.38 PK	74.00	-13.62	2.43 H	181	43.51	16.87
6	11510.00	47.74 AV	54.00	-6.26	2.43 H	181	30.87	16.87

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	5638.86	67.29 PK	68.20	-0.91	3.02 V	120	60.68	6.61
2	*5755.00	114.24 PK			3.02 V	120	107.54	6.70
3	*5755.00	106.51 AV			3.02 V	120	99.81	6.70
4	5945.12	53.59 PK	68.20	-14.61	3.02 V	120	46.49	7.10
5	11510.00	61.76 PK	74.00	-12.24	2.81 V	255	44.89	16.87
6	11510.00	48.30 AV	54.00	-5.70	2.81 V	255	31.43	16.87

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.

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	5622.95	54.05 PK	68.20	-14.15	2.60 H	330	47.46	6.59
2	*5795.00	108.96 PK			2.60 H	330	102.23	6.73
3	*5795.00	99.64 AV			2.60 H	330	92.91	6.73
4	5929.67	53.77 PK	68.20	-14.43	2.60 H	330	46.74	7.03
5	11590.00	60.34 PK	74.00	-13.66	2.98 H	155	43.59	16.75
6	11590.00	47.67 AV	54.00	-6.33	2.98 H	155	30.92	16.75

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	5635.19	55.06 PK	68.20	-13.14	1.96 V	82	48.46	6.60
2	*5795.00	114.57 PK			1.96 V	82	107.84	6.73
3	*5795.00	106.84 AV			1.96 V	82	100.11	6.73
4	5950.79	53.37 PK	68.20	-14.83	1.96 V	82	46.24	7.13
5	11590.00	61.68 PK	74.00	-12.32	2.45 V	251	44.93	16.75
6	11590.00	48.24 AV	54.00	-5.76	2.45 V	251	31.49	16.75

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.

802.11ac (80MHz)

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	63.96 PK	74.00	-10.04	2.47 H	259	59.05	4.91
2	5150.00	45.99 AV	54.00	-8.01	2.47 H	259	41.08	4.91
3	*5210.00	97.04 PK			2.47 H	259	92.06	4.98
4	*5210.00	87.87 AV			2.47 H	259	82.89	4.98
5	5350.00	56.23 PK	74.00	-17.77	2.47 H	259	50.88	5.35
6	5350.00	42.31 AV	54.00	-11.69	2.47 H	259	36.96	5.35
7	10420.00	53.78 PK	74.00	-20.22	1.33 H	81	38.15	15.63
8	10420.00	41.39 AV	54.00	-12.61	1.33 H	81	25.76	15.63

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	71.10 PK	74.00	-2.90	2.31 V	201	66.19	4.91
2	5150.00	53.24 AV	54.00	-0.76	2.31 V	201	48.33	4.91
3	*5210.00	103.64 PK			2.31 V	201	98.66	4.98
4	*5210.00	94.54 AV			2.31 V	201	89.56	4.98
5	5350.00	56.82 PK	74.00	-17.18	2.31 V	201	51.47	5.35
6	5350.00	43.73 AV	54.00	-10.27	2.31 V	201	38.38	5.35
7	10420.00	54.90 PK	74.00	-19.10	1.51 V	217	39.27	15.63
8	10420.00	42.44 AV	54.00	-11.56	1.51 V	217	26.81	15.63

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.

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	5646.77	64.00 PK	68.20	-4.20	2.51 H	338	57.39	6.61
2	*5775.00	109.81 PK			2.51 H	338	103.09	6.72
3	*5775.00	100.75 AV			2.51 H	338	94.03	6.72
4	5939.25	58.96 PK	68.20	-9.24	2.51 H	338	51.89	7.07
5	11550.00	57.62 PK	74.00	-16.38	2.58 H	83	40.81	16.81
6	11550.00	41.95 AV	54.00	-12.05	2.58 H	83	25.14	16.81

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5645.50	67.78 PK	68.20	-0.42	1.82 V	73	61.17	6.61
2	*5775.00	111.20 PK			1.82 V	73	104.48	6.72
3	*5775.00	102.01 AV			1.82 V	73	95.29	6.72
4	5925.10	65.31 PK	68.20	-2.89	1.82 V	73	58.29	7.02
5	11550.00	59.10 PK	74.00	-14.90	1.15 V	193	42.29	16.81
6	11550.00	43.70 AV	54.00	-10.30	1.15 V	193	26.89	16.81

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.

BELOW 1GHz WORST-CASE DATA: 802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.82	26.10 QP	40.00	-13.90	1.00 H	211	35.15	-9.05
2	198.56	24.36 QP	43.50	-19.14	1.85 H	144	35.87	-11.51
3	351.82	28.13 QP	46.00	-17.87	1.96 H	155	34.54	-6.41
4	495.54	30.90 QP	46.00	-15.10	1.14 H	12	33.95	-3.05
5	618.43	32.33 QP	46.00	-13.67	1.55 H	52	32.55	-0.22
6	819.77	35.18 QP	46.00	-10.82	1.56 H	178	31.57	3.61

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	87.69	23.54 QP	40.00	-16.46	1.19 V	225	38.56	-15.02
2	228.57	27.17 QP	46.00	-18.83	1.52 V	11	38.56	-11.39
3	365.55	29.74 QP	46.00	-16.26	1.85 V	222	35.84	-6.10
4	542.33	30.54 QP	46.00	-15.46	1.04 V	228	32.89	-2.35
5	692.77	33.10 QP	46.00	-12.90	1.15 V	10	32.15	0.95
6	897.99	37.44 QP	46.00	-8.56	1.56 V	208	32.89	4.55

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

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
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100276	Apr. 10, 2017	Apr. 9, 2018
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ENV216	101197	May 22, 2017	May 21, 2018
LISN With Adapter (for EUT)	AD10	C10Ada-002	May 22, 2017	May 21, 2018
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 23, 2016	Nov. 22, 2017
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 9, 2017	May 8, 2018
Software	Cond_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C10.01	Feb. 14, 2017	Feb. 13, 2018
SUHNTER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-011484	May 18, 2017	May 17, 2018
ROHDE & SCHWARZ Artificial Mains Network (For TV EUT)	ESH3-Z5	100220	Nov. 14, 2017	Nov. 13, 2018
LISN With Adapter (for TV EUT)	100220	N/A	Nov. 14, 2017	Nov. 13, 2018

Notes: 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 Shielded Room No. 10.

4.2.3 Test Procedure

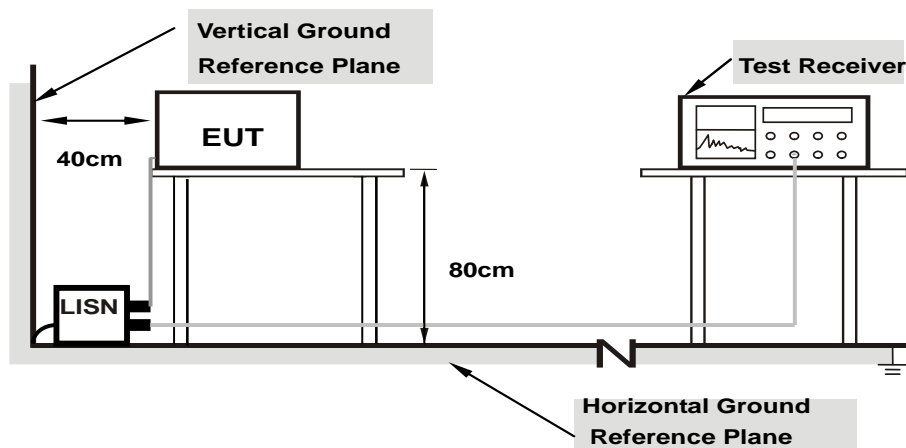
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Condition

Same as item 4.1.6.

4.2.7 Test Results

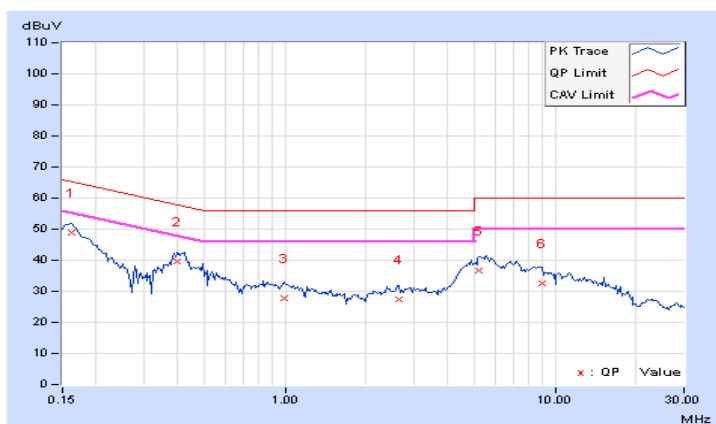
CCD Mode

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

No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	9.65	39.20	25.22	48.85	34.87	65.38	55.38	-16.53	-20.51
2	0.40000	9.69	29.89	21.77	39.58	31.46	57.85	47.85	-18.27	-16.39
3	0.99375	9.79	18.04	12.47	27.83	22.26	56.00	46.00	-28.17	-23.74
4	2.63672	9.94	17.29	10.67	27.23	20.61	56.00	46.00	-28.77	-25.39
5	5.23047	10.08	26.49	20.50	36.57	30.58	60.00	50.00	-23.43	-19.42
6	8.98047	10.16	22.49	16.93	32.65	27.09	60.00	50.00	-27.35	-22.91

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

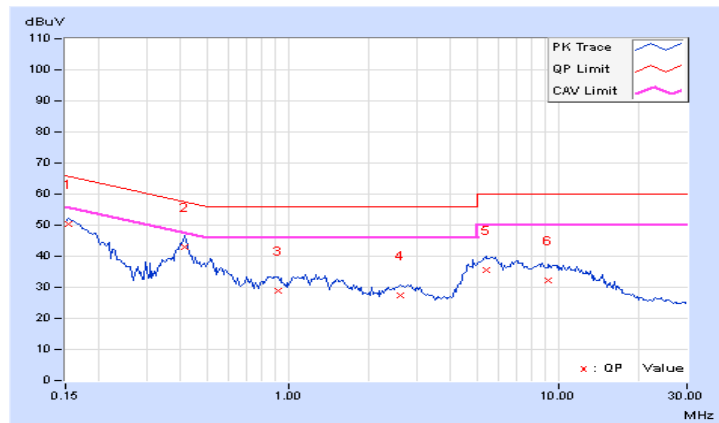


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.69	40.65	24.81	50.34	34.50	65.79	55.79	-15.45	-21.29
2	0.41172	9.73	33.11	27.61	42.84	37.34	57.61	47.61	-14.77	-10.27
3	0.91563	9.79	19.12	12.84	28.91	22.63	56.00	46.00	-27.09	-23.37
4	2.61328	9.97	17.26	11.12	27.23	21.09	56.00	46.00	-28.77	-24.91
5	5.41016	10.18	25.48	19.45	35.66	29.63	60.00	50.00	-24.34	-20.37
6	9.23047	10.25	22.06	16.67	32.31	26.92	60.00	50.00	-27.69	-23.08

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 $N_{ANT} \leq 4$;

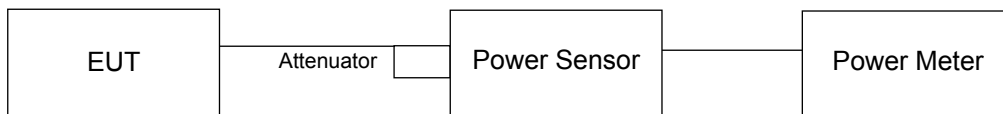
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

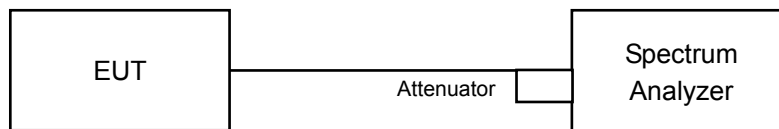
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED 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, 802.11ac (20MHz), 802.11ac (40MHz)

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 (80MHz)

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

For 26dB Occupied Bandwidth

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) 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 Condition

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

CCD Mode
Power Output:
802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	18.67	18.05	18.02	17.83	261.508	24.17	30.00	Pass
40	5200	23.10	22.46	22.45	22.24	723.658	28.60	30.00	Pass
48	5240	23.07	22.41	22.42	22.23	718.640	28.57	30.00	Pass
149	5745	23.32	22.68	22.62	22.41	757.127	28.79	30.00	Pass
157	5785	23.35	22.70	22.65	22.46	762.756	28.82	30.00	Pass
165	5825	23.41	22.75	22.72	22.52	773.362	28.88	30.00	Pass

802.11ac (20MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	19.77	18.99	18.96	18.83	329.181	25.17	30.00	Pass
40	5200	22.01	21.26	21.18	21.06	551.379	27.41	30.00	Pass
48	5240	22.94	22.17	22.12	22.02	683.756	28.35	30.00	Pass
149	5745	23.64	22.82	22.84	22.72	802.009	29.04	30.00	Pass
157	5785	23.66	22.83	22.85	22.75	805.258	29.06	30.00	Pass
165	5825	23.72	22.90	22.92	22.79	816.481	29.12	30.00	Pass

802.11ac (40MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	16.94	16.55	16.38	16.06	178.433	22.51	30.00	Pass
46	5230	20.83	20.42	20.29	19.98	437.660	26.41	30.00	Pass
151	5755	22.79	22.44	22.27	21.79	685.159	28.36	30.00	Pass
159	5795	23.62	23.27	23.11	22.61	829.502	29.19	30.00	Pass

802.11ac (80MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	15.08	14.74	14.67	14.17	117.427	20.70	30.00	Pass
155	5775	18.68	18.36	18.22	17.69	267.462	24.27	30.00	Pass

26dB Bandwidth:
802.11a

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)				Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
36	5180	26.85	27.19	31.39	29.66	Pass
40	5200	36.51	36.48	36.72	36.24	Pass
48	5240	36.28	36.41	36.41	36.40	Pass

802.11ac (20MHz)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)				Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
36	5180	27.25	27.71	33.85	29.82	Pass
40	5200	39.45	38.96	41.17	38.80	Pass
48	5240	38.54	38.24	37.00	38.11	Pass

802.11ac (40MHz)

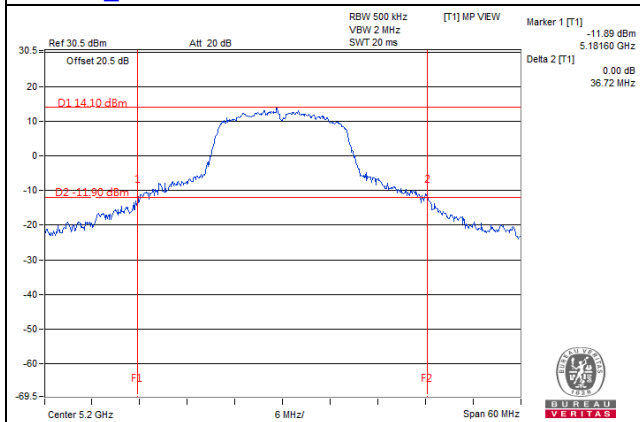
Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)				Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
38	5190	41.00	41.02	41.51	41.13	Pass
46	5230	66.31	72.25	66.46	68.15	Pass

802.11ac (80MHz)

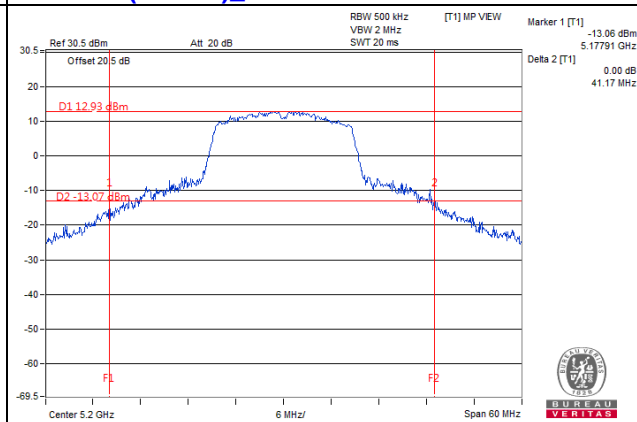
Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)				Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
42	5210	81.18	81.02	81.22	81.46	Pass

Spectrum Plot of Worst Value

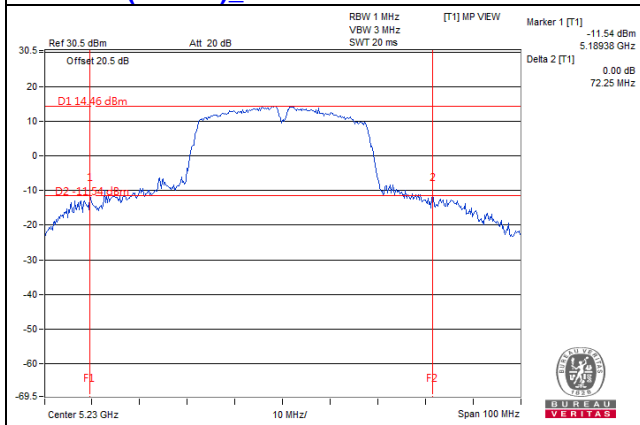
802.11a_Chain 2 / CH 40



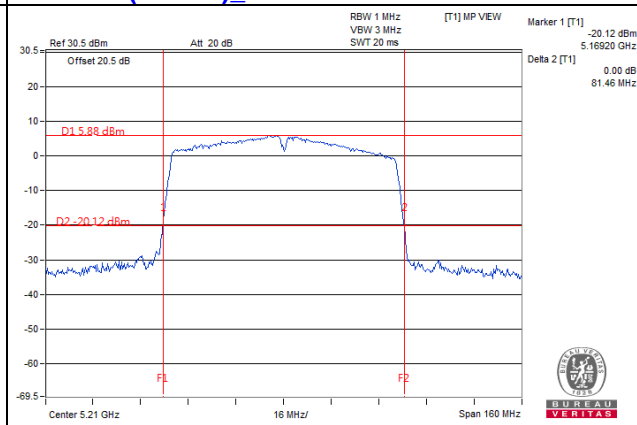
802.11ac (20MHz)_Chain 2 / CH 40



802.11ac (40MHz)_Chain 1 / CH 46



802.11ac (80MHz)_Chain 3 / CH 42



Beamforming_NSS1 Mode

Power Output:

For U-NII-1 Band

802.11ac (20MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	14.83	14.05	14.01	13.88	105.430	20.23	29.08	Pass
40	5200	22.00	21.23	21.14	21.02	547.719	27.39	29.08	Pass
48	5240	22.91	22.12	22.11	22.00	679.408	28.32	29.08	Pass

NOTE: Directional gain = 6.92dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(6.92-6) = 29.08\text{dBm}$

802.11ac (40MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	15.72	15.31	15.12	14.82	134.136	21.28	29.08	Pass
46	5230	18.91	18.53	18.34	18.02	280.710	24.48	29.08	Pass

NOTE: Directional gain = 6.92dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(6.92-6) = 29.08\text{dBm}$

802.11ac (80MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	13.21	13.03	12.04	13.14	77.634	18.90	29.08	Pass

NOTE: Directional gain = 6.92dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(6.92-6) = 29.08\text{dBm}$

For U-NII-3 Band

802.11ac (20MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
149	5745	23.12	22.31	22.34	22.20	712.687	28.53	28.72	Pass
157	5785	23.17	22.36	22.39	22.24	720.552	28.58	28.72	Pass
165	5825	23.16	22.32	22.37	22.23	717.315	28.56	28.72	Pass

NOTE: Directional gain = 7.28dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(7.28-6) = 28.72\text{dBm}$

802.11ac (40MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
151	5755	21.35	21.01	20.86	20.34	492.683	26.93	28.72	Pass
159	5795	22.96	22.64	22.48	21.98	716.123	28.55	28.72	Pass

NOTE: Directional gain = 7.28dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(7.28-6) = 28.72\text{dBm}$

802.11ac (80MHz)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
155	5775	18.24	17.94	17.78	17.26	242.101	23.84	28.72	Pass

NOTE: Directional gain = 7.28dBi >6dBi, so the Conducted Power limit shall be reduced to $30-(7.28-6) = 28.72\text{dBm}$

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 SAMPLE. 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 Results

CCD Mode

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
36	5180	17.04	17.04	17.28	17.28	Pass
40	5200	19.56	19.47	19.47	19.47	Pass
48	5240	19.65	19.73	19.91	19.65	Pass
149	5745	29.91	29.30	28.50	28.50	Pass
157	5785	27.70	27.70	28.20	28.00	Pass
165	5825	28.80	28.60	28.40	28.40	Pass

802.11ac (20MHz)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
36	5180	17.88	17.88	17.88	18.00	Pass
40	5200	19.65	19.56	19.47	19.39	Pass
48	5240	19.73	19.30	19.73	19.91	Pass
149	5745	31.30	31.00	30.60	30.70	Pass
157	5785	29.80	29.90	29.80	29.90	Pass
165	5825	31.00	31.30	30.70	30.80	Pass

802.11ac (40MHz)

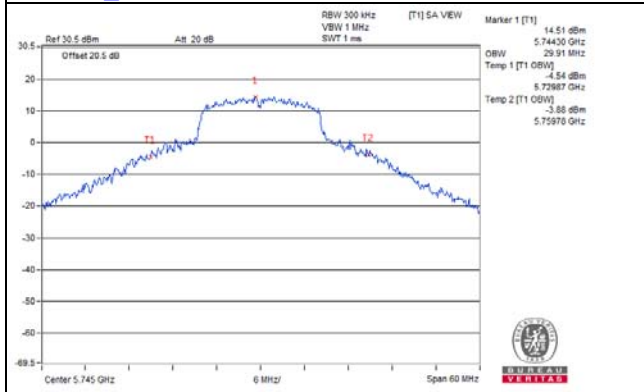
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
38	5190	36.20	36.20	36.20	36.20	Pass
46	5230	36.80	36.60	36.80	36.80	Pass
151	5755	50.86	53.50	54.83	54.00	Pass
159	5795	58.66	59.83	59.00	59.50	Pass

802.11ac (80MHz)

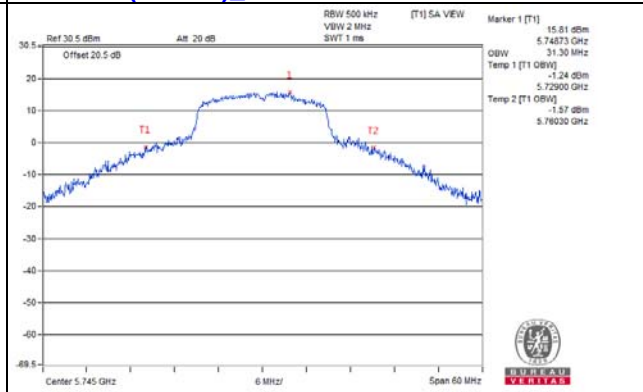
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)				Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3	
42	5210	75.12	75.12	75.12	75.12	Pass
155	5775	75.47	75.60	75.60	75.60	Pass

Spectrum Plot of Worst Value

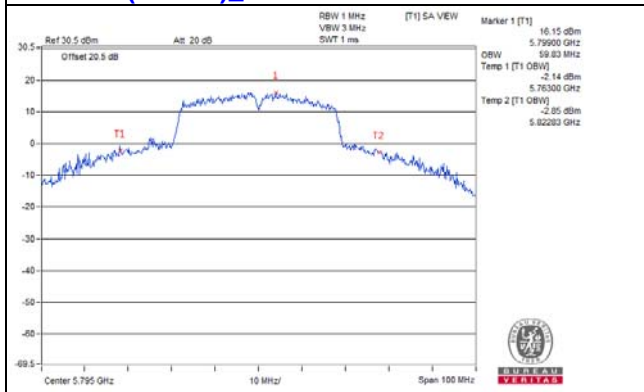
802.11a_Chain 0 / CH 149



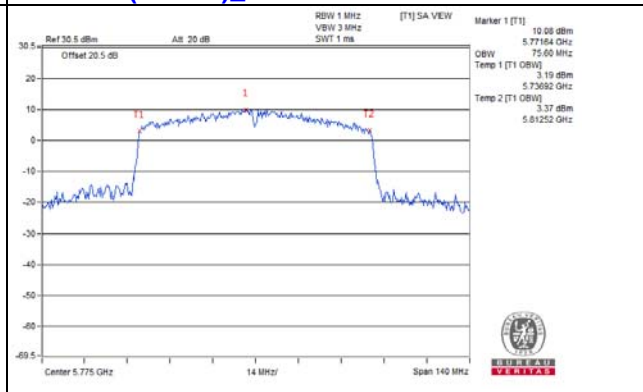
802.11ac (20MHz)_Chain 0 / CH 149



802.11ac (40MHz)_Chain 1 / CH 159



802.11ac (80MHz)_Chain 1 / CH 155

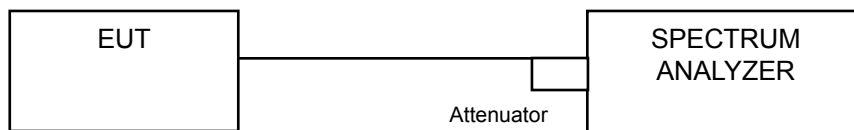


4.5 Peak Power Spectral Density Measurement

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 Procedure

For U-NII-1 band:

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to "free run".
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and add 10 log (1/duty cycle).

For U-NII-3:

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 500 kHz, Set VBW ≥ 3 RBW, Detector = RMS
- 3) Sweep time = auto, trigger set to "free run".
- 4) Trace average at least 100 traces in power averaging mode.
- 5) Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

4.5.7 Test Results

CCD Mode

For U-NII-1 band

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Duty Factor	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	3.12	3.69	3.39	3.11	0.97	10.32	16.08	Pass
40	5200	5.09	7.51	7.66	7.21	0.97	13.97	16.08	Pass
48	5240	5.82	6.05	5.84	5.79	0.97	12.86	16.08	Pass

NOTE:

- 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.
- Directional gain = 6.92dBi >6dBi, so the power spectral density limit shall be reduced to $17-(6.92-6) = 16.08\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (20MHz)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Duty Factor	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	3.67	3.23	3.87	3.16	2.78	12.30	16.08	Pass
40	5200	2.07	2.09	4.04	2.25	2.78	11.50	16.08	Pass
48	5240	0.33	0.86	0.70	0.96	2.78	9.52	16.08	Pass

NOTE:

- 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.
- Directional gain = 6.92dBi >6dBi, so the power spectral density limit shall be reduced to $17-(6.92-6) = 16.08\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (40MHz)

Chan.	Chan. Freq. (MHz)	PSD (dBm)				Duty Factor	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	-9.33	-8.44	-10.29	-9.86	4.00	0.60	16.08	Pass
46	5230	-5.29	-6.14	-5.33	-6.33	4.00	4.27	16.08	Pass

NOTE:

- 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.
- Directional gain = 6.92dBi >6dBi, so the power spectral density limit shall be reduced to $17-(6.92-6) = 16.08\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (80MHz)

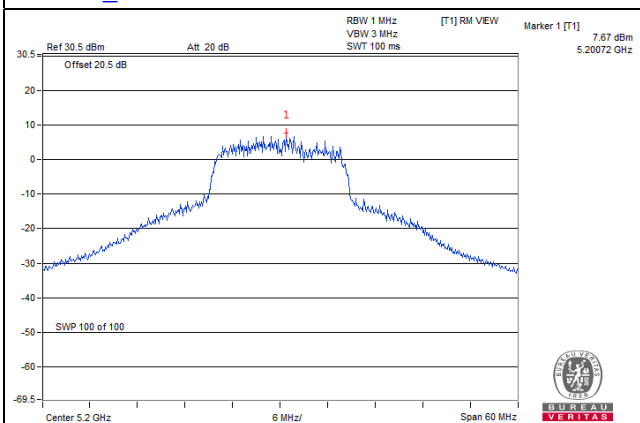
Chan.	Chan. Freq. (MHz)	PSD (dBm)				Duty Factor	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-15.31	-15.60	-15.48	-14.91	5.61	-3.69	16.08	Pass

NOTE:

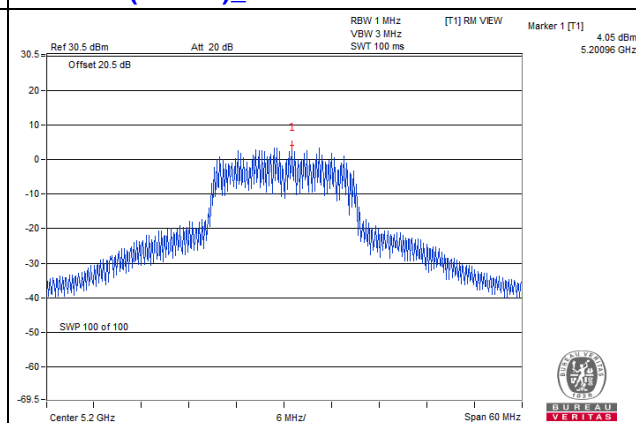
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 6.92dBi >6dBi, so the power spectral density limit shall be reduced to 17-(6.92-6) = 16.08dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

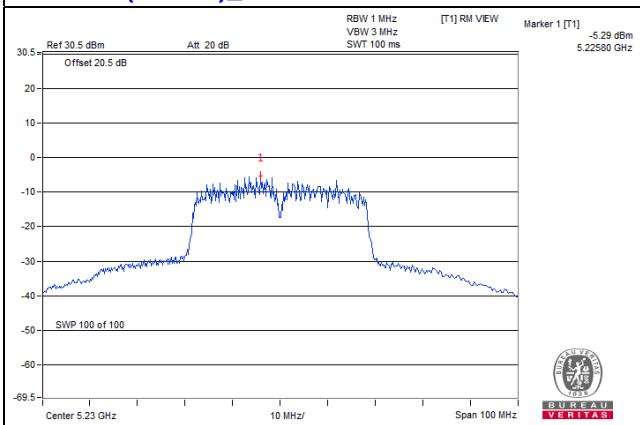
802.11a_Chain 2 / CH 40



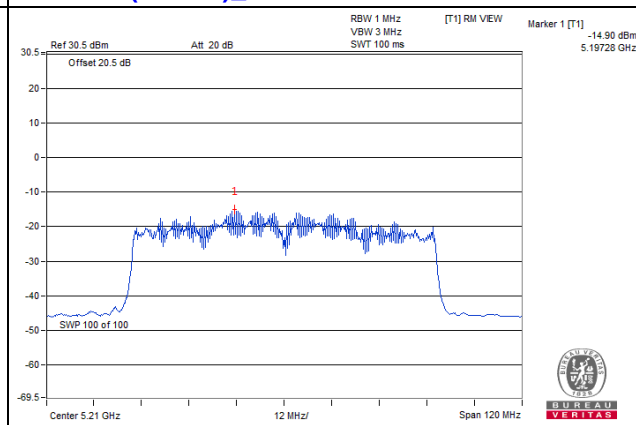
802.11ac (20MHz)_Chain 2 / CH 40



802.11ac (40MHz)_Chain 0 / CH 46



802.11ac (80MHz)_Chain 3 / CH 42



CCD Mode

For U-NII-3:
802.11a

TX chain	Channel	Freq. (MHz)	PSD (dBm/500kHz)	10 log (N=4) dB	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	149	5745	-2.66	6.02	0.97	4.33	28.72	Pass
	157	5785	-3.89	6.02	0.97	3.10	28.72	Pass
	165	5825	-3.67	6.02	0.97	3.32	28.72	Pass
1	149	5745	-3.22	6.02	0.97	3.77	28.72	Pass
	157	5785	-3.84	6.02	0.97	3.15	28.72	Pass
	165	5825	-3.51	6.02	0.97	3.48	28.72	Pass
2	149	5745	-3.48	6.02	0.97	3.51	28.72	Pass
	157	5785	-3.72	6.02	0.97	3.27	28.72	Pass
	165	5825	-3.78	6.02	0.97	3.21	28.72	Pass
3	149	5745	-3.54	6.02	0.97	3.45	28.72	Pass
	157	5785	-3.59	6.02	0.97	3.4	28.72	Pass
	165	5825	-3.46	6.02	0.97	3.53	28.72	Pass

NOTE:

1. Directional gain = 7.28dBi >6dBi, so the power spectral density limit shall be reduced to $30-(7.28-6) = 28.72\text{dBm}$.
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (20MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/500kHz)	10 log (N=4) dB	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	149	5745	-5.18	6.02	2.78	3.62	28.72	Pass
	157	5785	-5.39	6.02	2.78	3.41	28.72	Pass
	165	5825	-5.52	6.02	2.78	3.28	28.72	Pass
1	149	5745	-5.43	6.02	2.78	3.37	28.72	Pass
	157	5785	-5.65	6.02	2.78	3.15	28.72	Pass
	165	5825	-5.00	6.02	2.78	3.80	28.72	Pass
2	149	5745	-5.38	6.02	2.78	3.42	28.72	Pass
	157	5785	-5.46	6.02	2.78	3.34	28.72	Pass
	165	5825	-5.45	6.02	2.78	3.35	28.72	Pass
3	149	5745	-5.49	6.02	2.78	3.31	28.72	Pass
	157	5785	-5.83	6.02	2.78	2.97	28.72	Pass
	165	5825	-5.52	6.02	2.78	3.28	28.72	Pass

NOTE:

1. Directional gain = 7.28dBi >6dBi, so the power spectral density limit shall be reduced to $30-(7.28-6) = 28.72\text{dBm}$.
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (40MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/500kHz)	10 log (N=4) dB	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	151	5755	-7.52	6.02	4.00	2.50	28.72	Pass
	159	5795	-7.36	6.02	4.00	2.66	28.72	Pass
1	151	5755	-7.55	6.02	4.00	2.47	28.72	Pass
	159	5795	-7.42	6.02	4.00	2.60	28.72	Pass
2	151	5755	-7.82	6.02	4.00	2.20	28.72	Pass
	159	5795	-7.33	6.02	4.00	2.69	28.72	Pass
3	151	5755	-7.63	6.02	4.00	2.39	28.72	Pass
	159	5795	-7.38	6.02	4.00	2.64	28.72	Pass

NOTE:

1. Directional gain = 7.28dBi >6dBi, so the power spectral density limit shall be reduced to $30-(7.28-6) = 28.72\text{dBm}$.
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (80MHz)

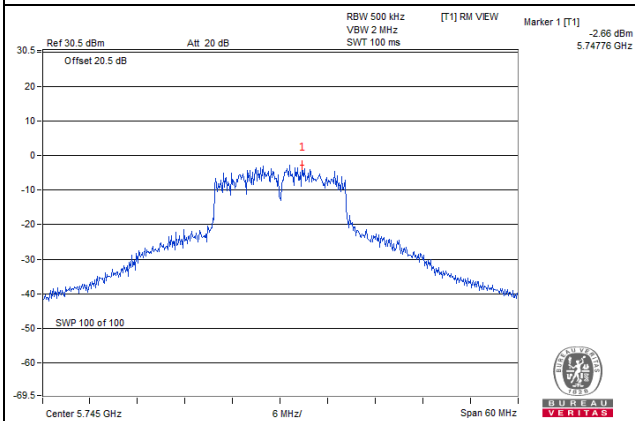
TX chain	Channel	Freq. (MHz)	PSD (dBm/500kHz)	10 log (N=4) dB	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	155	5775	-24.40	6.02	5.61	-12.77	28.72	Pass
1	155	5775	-24.42	6.02	5.61	-12.79	28.72	Pass
2	155	5775	-25.12	6.02	5.61	-13.49	28.72	Pass
3	155	5775	-24.71	6.02	5.61	-13.08	28.72	Pass

NOTE:

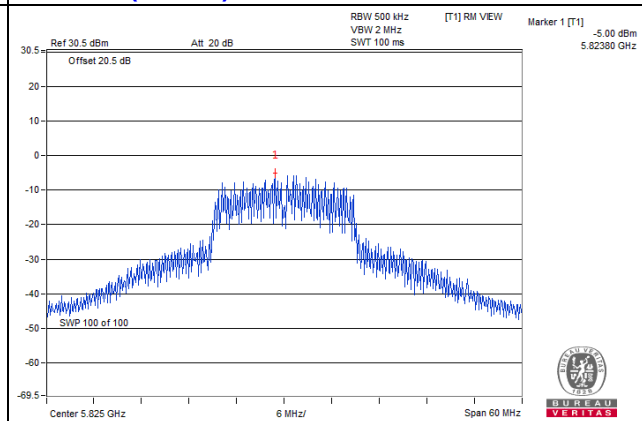
1. Directional gain = 7.28dBi >6dBi, so the power spectral density limit shall be reduced to $30-(7.28-6) = 28.72\text{dBm}$.
2. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

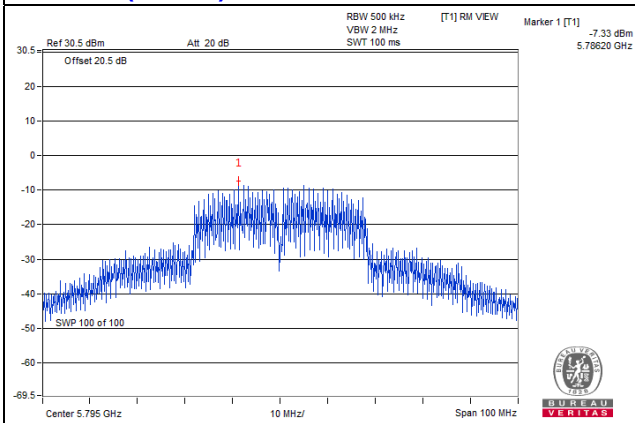
802.11a_Chain 0 / CH 149



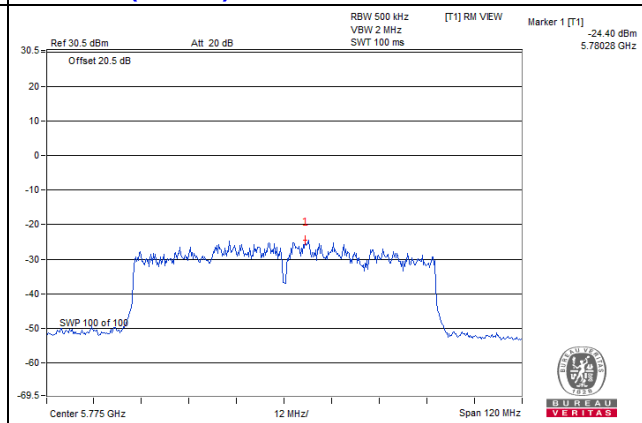
802.11ac (20MHz)_Chain 1 / CH 165



802.11ac (40MHz)_Chain 2 / CH 159



802.11ac (80MHz)_Chain 0 / CH 155

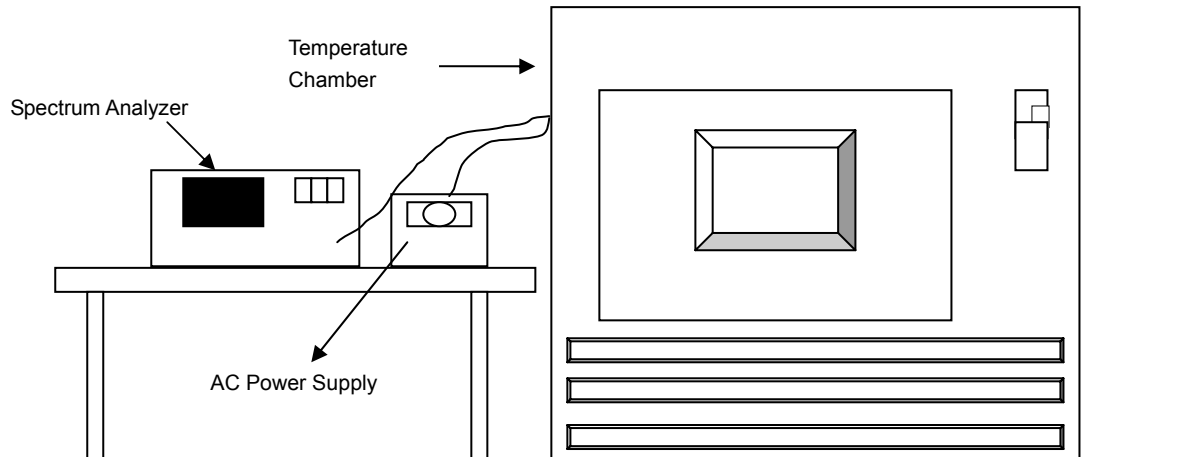


4.6 Frequency Stability Measurement

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

Refer to section 4.1.2 to get information of above instrument.

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

CCD Mode

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
50	120.0	5180.041964	Pass	5180.042358	Pass	5180.041996	Pass	5180.042353	Pass
40	120.0	5180.043365	Pass	5180.043394	Pass	5180.043295	Pass	5180.043372	Pass
30	120.0	5180.043384	Pass	5180.043709	Pass	5180.043453	Pass	5180.043574	Pass
20	120.0	5180.042417	Pass	5180.042479	Pass	5180.042419	Pass	5180.042471	Pass
10	120.0	5180.042564	Pass	5180.04253	Pass	5180.042561	Pass	5180.04245	Pass
0	120.0	5180.04336	Pass	5180.043652	Pass	5180.043422	Pass	5180.043647	Pass
-10	120.0	5180.042643	Pass	5180.04282	Pass	5180.042412	Pass	5180.042934	Pass
-20	120.0	5180.043531	Pass	5180.043431	Pass	5180.043263	Pass	5180.043308	Pass

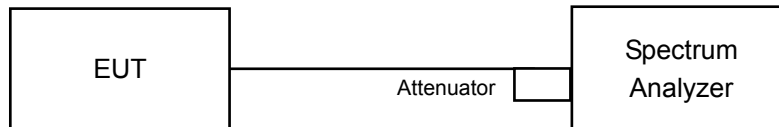
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138.0	5180.043125	Pass	5180.043167	Pass	5180.043247	Pass	5180.04282	Pass
	120.0	5180.042417	Pass	5180.042479	Pass	5180.042419	Pass	5180.042471	Pass
	102.0	5180.043421	Pass	5180.043508	Pass	5180.043377	Pass	5180.043491	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

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

CCD Mode
802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	15.17	15.16	15.16	15.17	0.5	Pass
157	5785	15.14	15.17	15.13	15.17	0.5	Pass
165	5825	15.17	15.16	15.18	15.15	0.5	Pass

802.11ac (20MHz)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	15.38	15.17	15.39	15.36	0.5	Pass
157	5785	15.37	15.18	15.36	15.17	0.5	Pass
165	5825	15.39	15.37	15.38	15.35	0.5	Pass

802.11ac (40MHz)

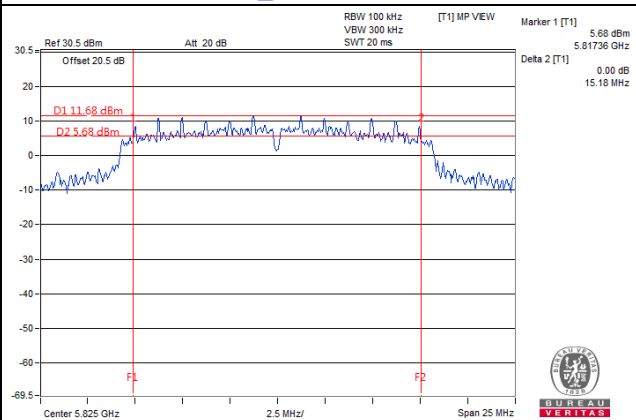
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
151	5755	35.10	33.92	33.92	33.92	0.5	Pass
159	5795	32.66	32.65	32.66	32.65	0.5	Pass

802.11ac (80MHz)

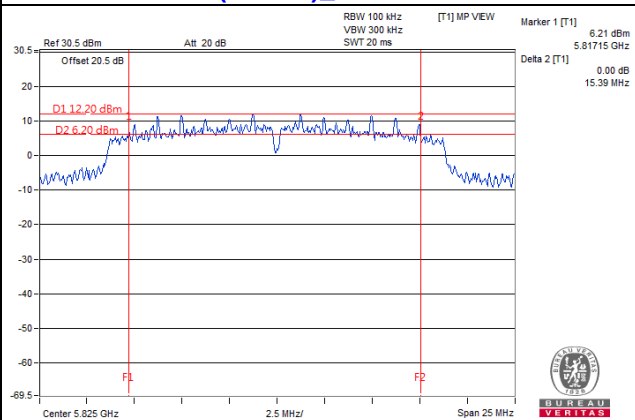
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	75.17	75.27	75.27	75.26	0.5	Pass

Spectrum Plot of Worst Value

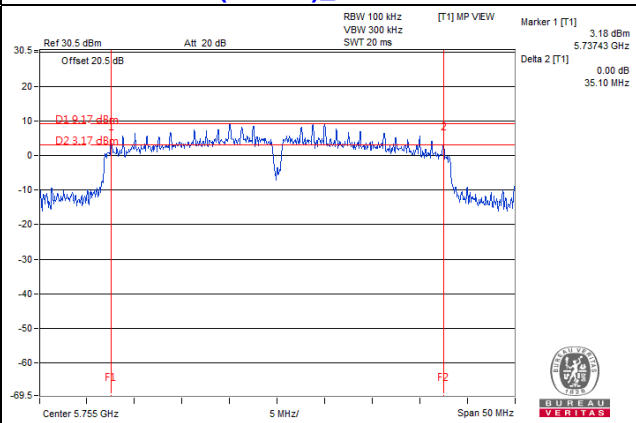
802.11a_Chain 2 / CH 165



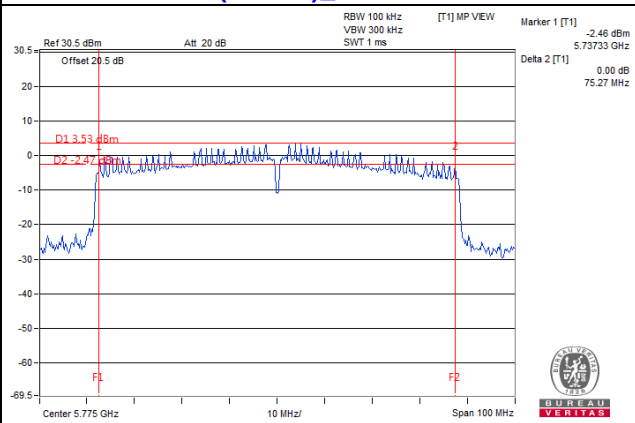
802.11ac (20MHz)_Chain 0 / CH 165



802.11ac (40MHz)_Chain 0 / CH 151



802.11ac (80MHz)_Chain 1 / CH 155



5 Pictures of Test Arrangements

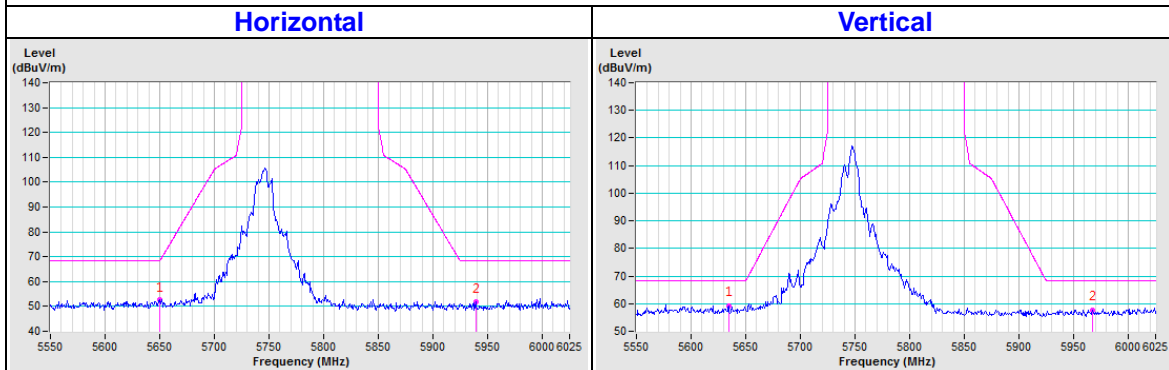
Please refer to the attached file (Test Setup Photo).

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

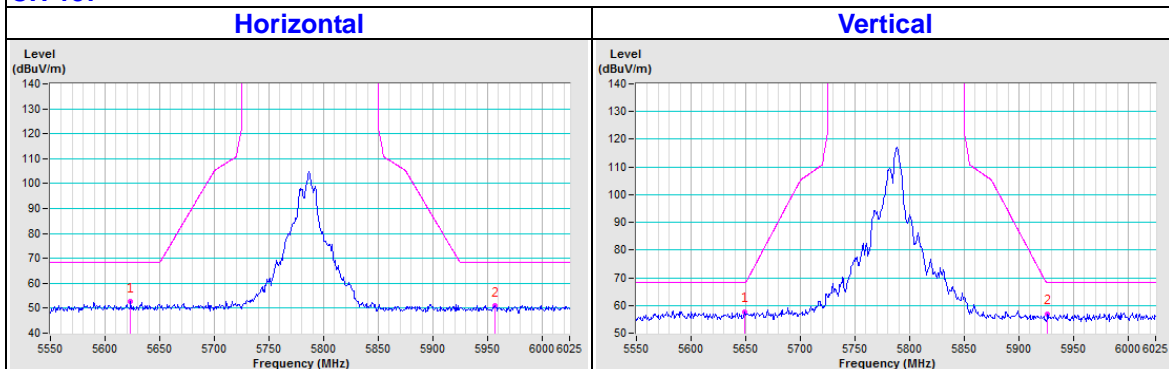
CCD Mode

802.11a

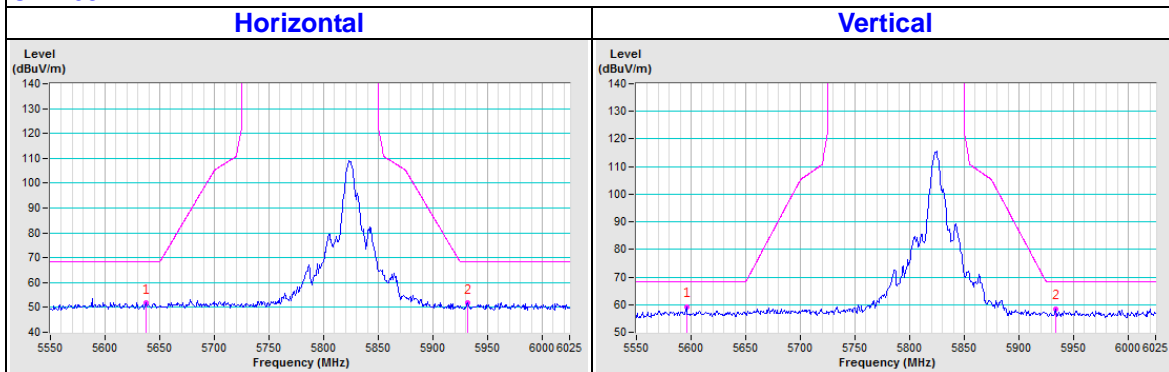
CH 149



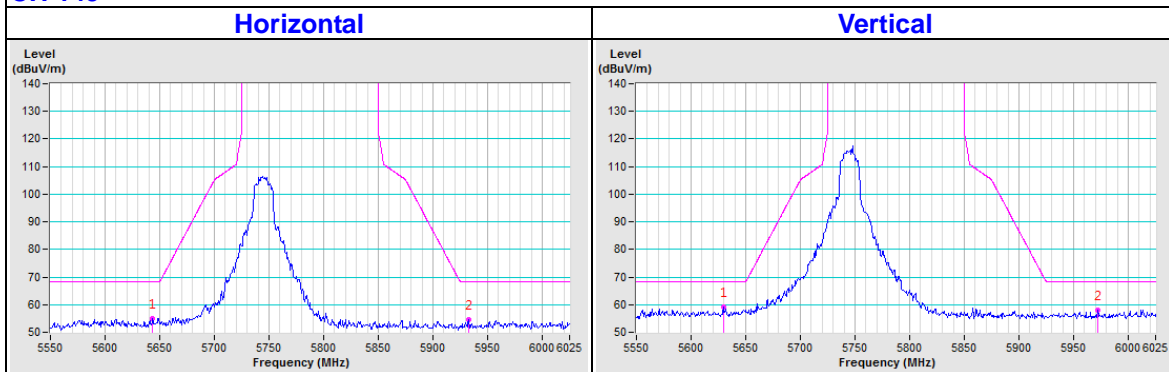
CH 157



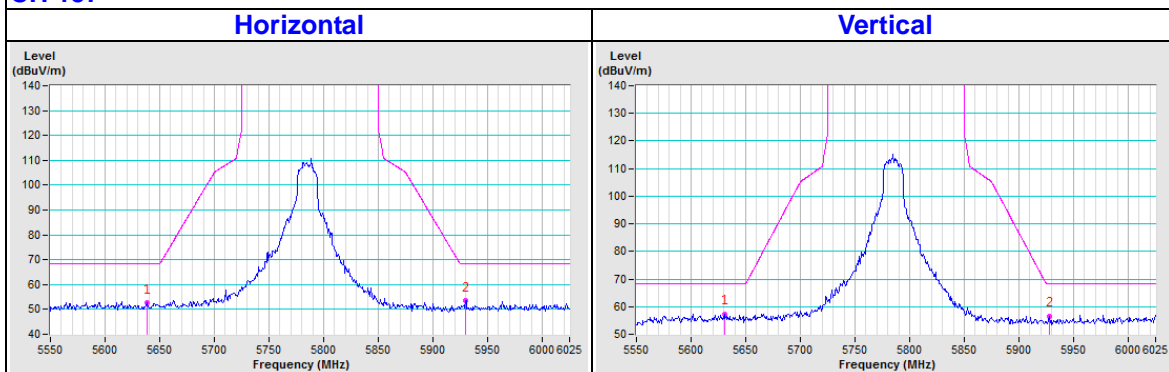
CH 165



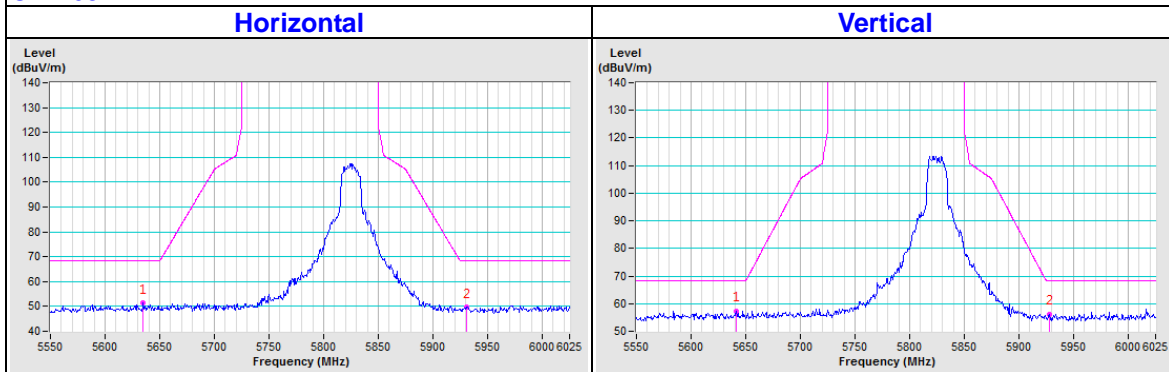
802.11ac (20MHz)
CH 149



CH 157

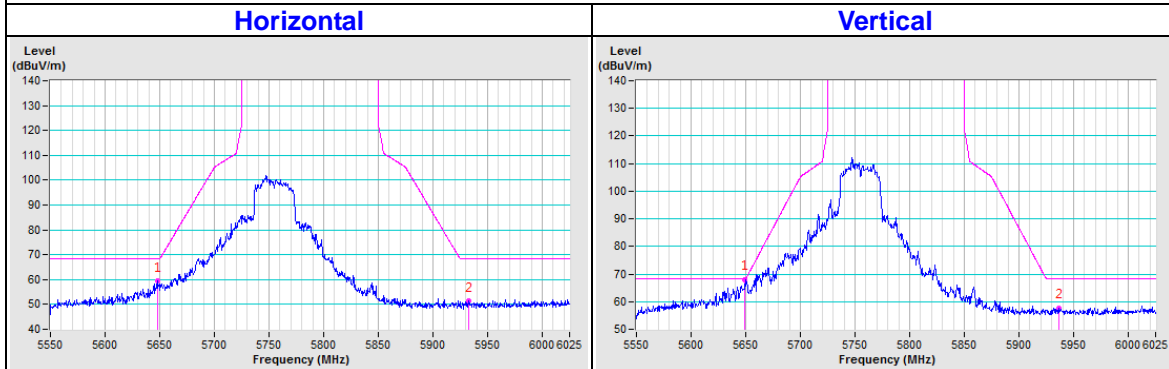


CH 165

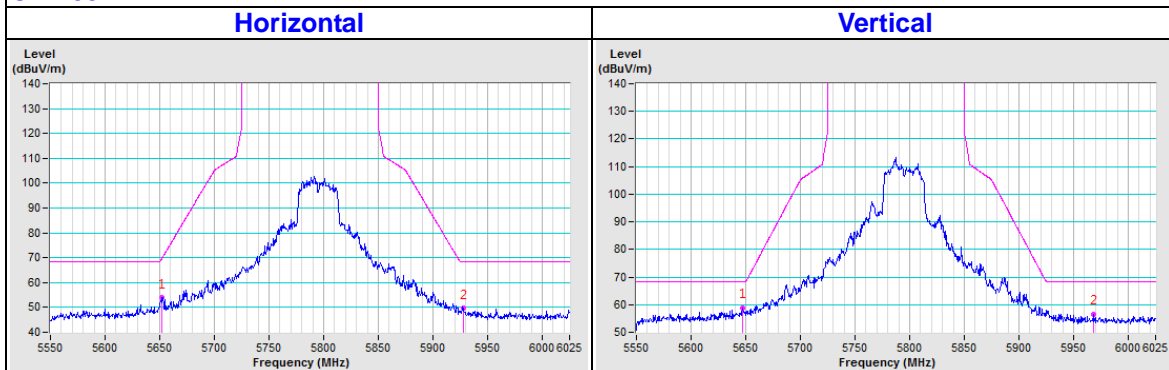


802.11ac (40MHz)

CH 151

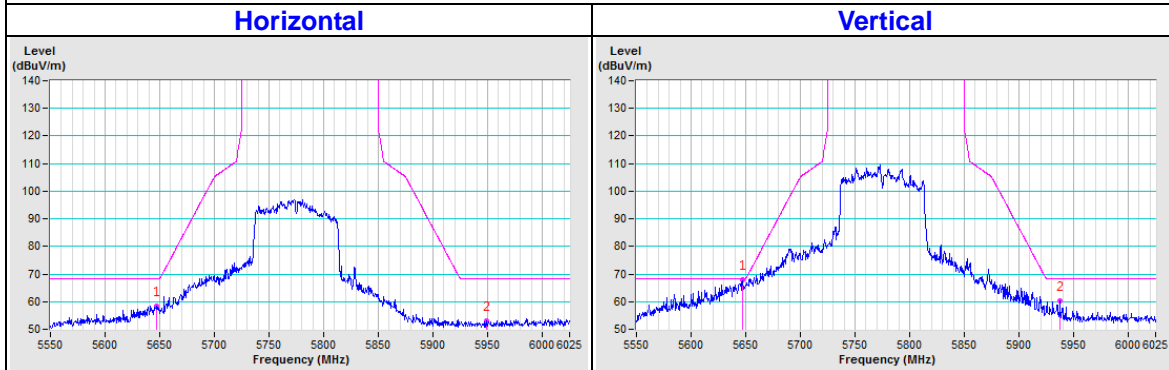


CH 159



802.11ac (80MHz)

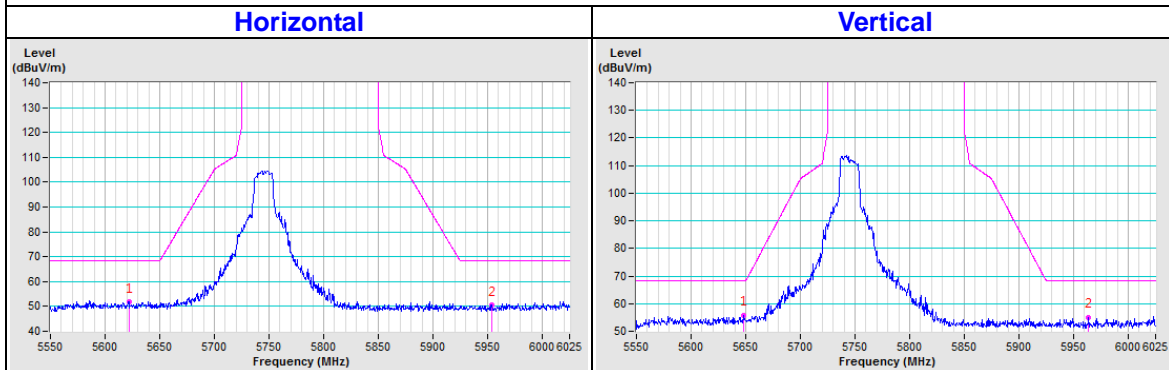
CH 155



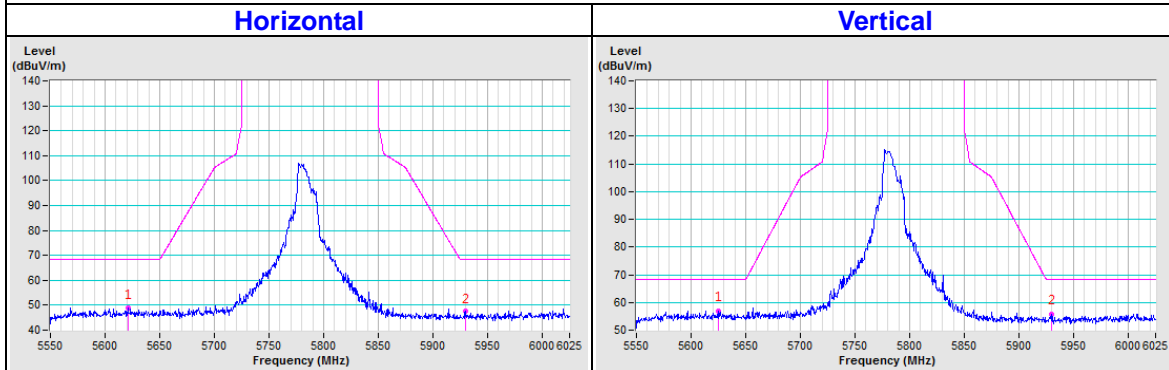
Beamforming_NSS1 Mode

802.11ac (20MHz)

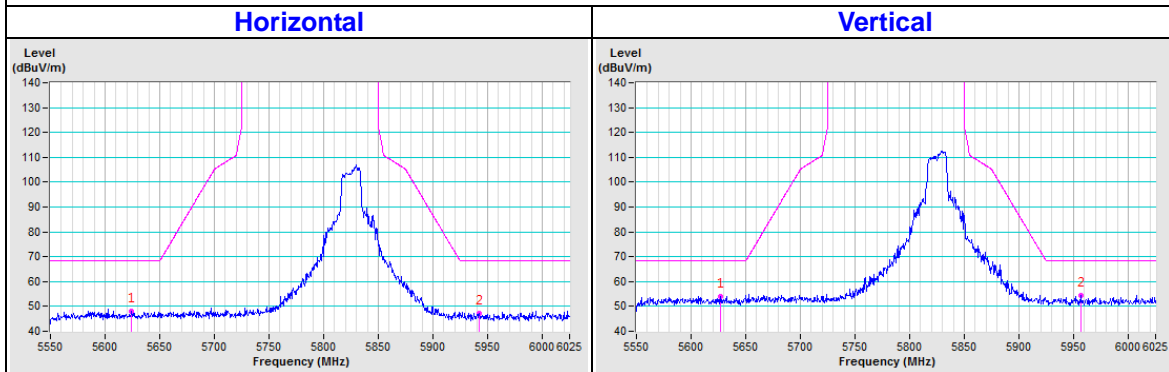
CH 149



CH 157

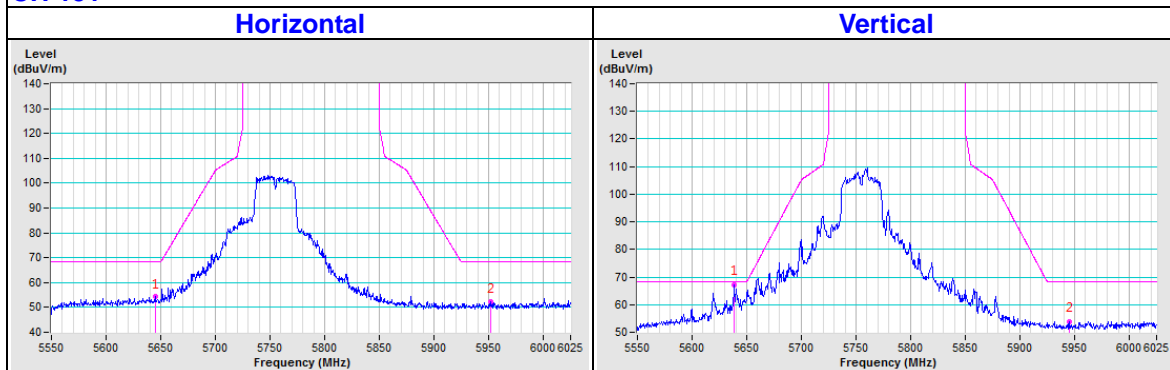


CH 165

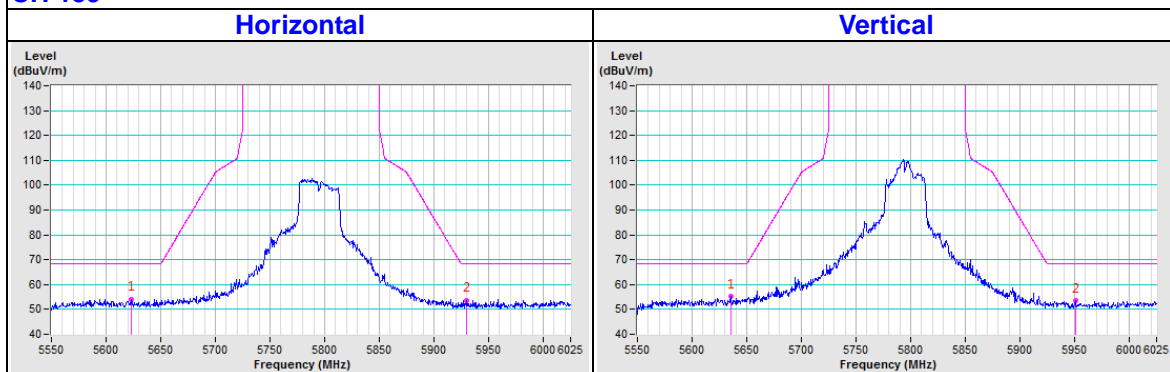


802.11ac (40MHz)

CH 151

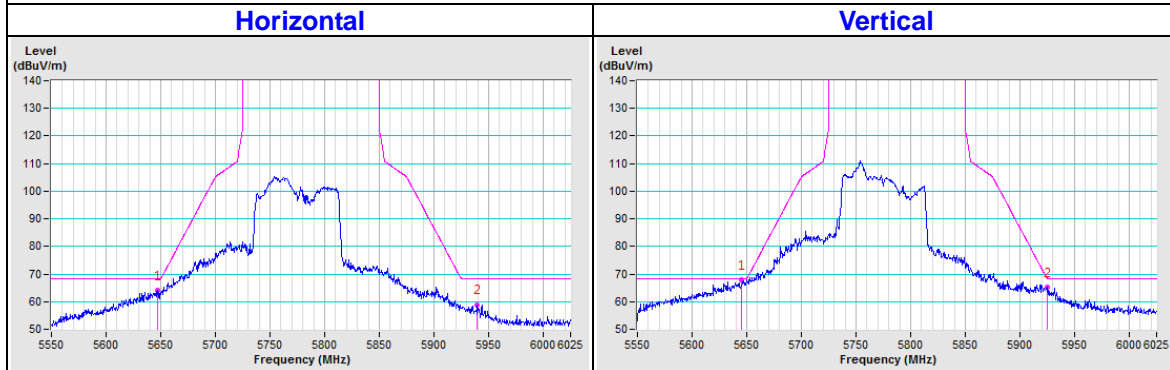


CH 159



802.11ac (80MHz)

CH 155



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 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 Lab

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 ---