

FCC Test Report

Report No.: RF170508E05C-1

FCC ID: PY317100370

Test Model: EX3110

Received Date: May 08, 2017

Test Date: May 10 to 18, 2017

Issued Date: July 11, 2017

Applicant: Netgear, Inc.

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

Release Control Record	4
1 Certificate of Conformity.....	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Modification Record	6
3 General Information.....	7
3.1 General Description of EUT	7
3.2 Description of Test Modes	9
3.2.1 Test Mode Applicability and Tested Channel Detail	10
3.3 Duty Cycle of Test Signal	12
3.4 Description of Support Units	13
3.4.1 Configuration of System under Test	13
3.5 General Description of Applied Standard	14
4 Test Types and Results	15
4.1 Radiated Emission and Bandedge Measurement.....	15
4.1.1 Limits of Radiated Emission and Bandedge Measurement	15
4.1.2 Test Instruments	16
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	42
4.2.1 Limits of Conducted Emission Measurement	42
4.2.2 Test Instruments	42
4.2.3 Test Procedure	43
4.2.4 Deviation from Test Standard	43
4.2.5 Test Setup.....	43
4.2.6 EUT Operating Condition	43
4.2.7 Test Results	44
4.3 Transmit Power Measurement	46
4.3.1 Limits of Transmit Power Measurement	46
4.3.2 Test Setup.....	47
4.3.3 Test Instruments	47
4.3.4 Test Procedure	47
4.3.5 Deviation from Test Standard	47
4.3.6 EUT Operating Condition	47
4.3.7 Test Result.....	48
4.4 Occupied Bandwidth Measurement	53
4.4.1 Test Setup.....	53
4.4.2 Test Instruments	53
4.4.3 Test Procedure	53
4.4.4 Test Results	54
4.5 Peak Power Spectral Density Measurement	56
4.5.1 Limits of Peak Power Spectral Density Measurement	56
4.5.2 Test Setup.....	56
4.5.3 Test Instruments	56
4.5.4 Test Procedure	56
4.5.5 Deviation from Test Standard	56
4.5.6 EUT Operating Condition	56
4.5.7 Test Results	57
4.6 Frequency Stability Measurement.....	61
4.6.1 Limits of Frequency Stability Measurement	61

4.6.2	Test Setup.....	61
4.6.3	Test Instruments	61
4.6.4	Test Procedure	61
4.6.5	Deviation from Test Standard	61
4.6.6	EUT Operating Condition	61
4.6.7	Test Results	62
5	Pictures of Test Arrangements.....	63
	Appendix – Information on the Testing Laboratories	64

Release Control Record

Issue No.	Description	Date Issued
RF170508E05C-1	Original release.	July 11, 2017

1 Certificate of Conformity

Product: AC750 WiFi Range Extender

Brand: NETGEAR

Test Model: EX3110

Sample Status: ENGINEERING SAMPLE

Applicant: Netgear, Inc.

Test Date: May 10 to 18, 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 :  , **Date:** July 11, 2017
Wendy Wu / Specialist

Approved by :  , **Date:** July 11, 2017
May Chen / 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 -3.38dB at 21.66406MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement*	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5350.00MHz, 5470.00MHz, 5725.00MHz, 15900.00MHz, 16740.00MHz.
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(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

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	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.30 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.16 dB
	6GHz ~ 18GHz	4.91 dB
	18GHz ~ 40GHz	5.30 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC750 WiFi Range Extender
Brand	NETGEAR
Test Model	EX3110
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	AC 100-240V, 0.15A, 50-60Hz
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11a: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	5.26 ~ 5.32GHz, 5.5 ~ 5.70GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20): 15 802.11n (HT40), 802.11ac (VHT40): 7 802.11ac (VHT80): 3
Output Power	5.26 ~ 5.32GHz: 219.215mW 5.50 ~ 5.70GHz: 245.238mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the Report No.: RF170508E05-1 as the following:

◆ Add DFS band <5.26 ~ 5.32GHz, 5.5 ~ 5.70GHz>

2. According to above condition, all test items need to be performed. And all data were verified to meet the requirements.

3. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 2.4GHz	WLAN 5GHz

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

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

Ant No.	Antenna Gain(dBi)	Frequency range	Antenna Type
1	1.98	2.4~2.4835GHz	PIFA
	2.52	5.15~5.25GHz	
	2.68	5.25~5.35GHz	
	2.68	5.47~5.725GHz	
	2.7	5.725~5.85GHz	
2	1.34	2.4~2.4835GHz	PIFA
	3.15	5.15~5.25GHz	
	3.26	5.25~5.35GHz	
	3.26	5.47~5.725GHz	
	3.24	5.725~5.85GHz	

5. The EUT incorporates a MIMO function:

2.4GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
5GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS 0~8, Nss=1	2TX	2RX
	MCS 0~8, Nss=2	2TX	2RX
802.11ac (VHT40)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX
802.11ac (VHT80)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX

Note:

1. 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)

6. 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 5260 ~ 5320MHz

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

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

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

Channel	Frequency	Channel	Frequency
54	5270MHz	62	5310MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

FOR 5500 ~ 5700MHz

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

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

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

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

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

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

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

NOTE:

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

Radiated Emission Test (Above 1GHz):

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

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
802.11ac (VHT40)		54 to 62	54, 62	OFDM	BPSK	13.5
802.11ac (VHT80)		58	58	OFDM	BPSK	29.3
802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6
802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	BPSK	6.5
802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	BPSK	13.5
802.11ac (VHT80)		106 to 122	106, 122	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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT40)	5260-5320 5500-5700.	54 to 62 102 to 134	110	OFDM	BPSK	13.5

Power Line Conducted Emission Test:

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

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT40)	5260-5320 5500-5700.	54 to 62 102 to 134	110	OFDM	BPSK	13.5

Antenna Port Conducted Measurement:

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

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
802.11ac (VHT40)		54 to 62	54, 62	OFDM	BPSK	13.5
802.11ac (VHT80)		58	58	OFDM	BPSK	29.3
802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6
802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	BPSK	6.5
802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	BPSK	13.5
802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE $\geq$ 1G	25deg. C, 63%RH	120Vac, 60Hz	Jyunchun Lin
RE<1G	22deg. C, 63%RH	120Vac, 60Hz	Jyunchun Lin
PLC	26deg. C, 69%RH	120Vac, 60Hz	Andy Ho
APCM	21deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98 %, duty factor shall be considered.

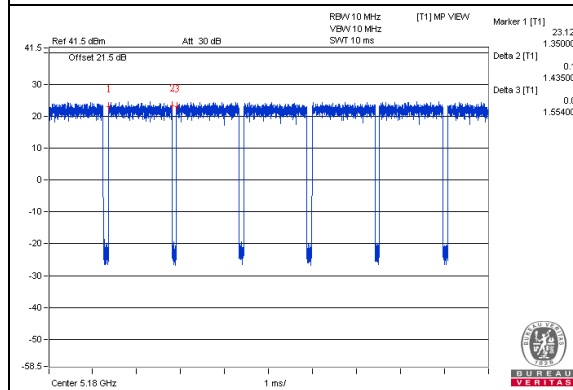
802.11a: Duty cycle = 2.063 ms/2.14 ms = 0.964, Duty factor = $10 * \log(1/0.964) = 0.16$

802.11ac (VHT20): Duty cycle = 3.711ms/3.81 ms = 0.974, Duty factor = $10 * \log(1/0.974) = 0.11$

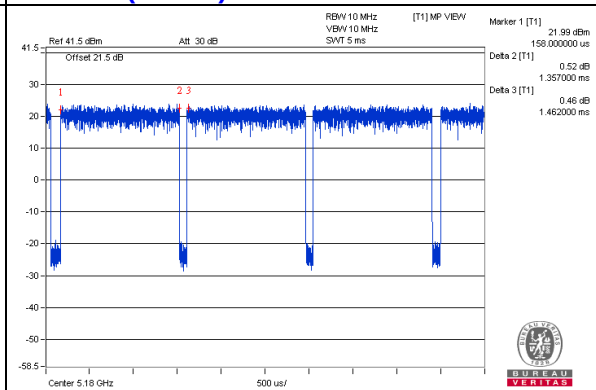
802.11ac (VHT40): Duty cycle = 1.807 ms/1.904 ms = 0.949, Duty factor = $10 * \log(1/0.949) = 0.23$

802.11ac (VHT80): Duty cycle = 0.855 ms/0.96 ms = 0.891, Duty factor = $10 * \log(1/0.891) = 0.50$

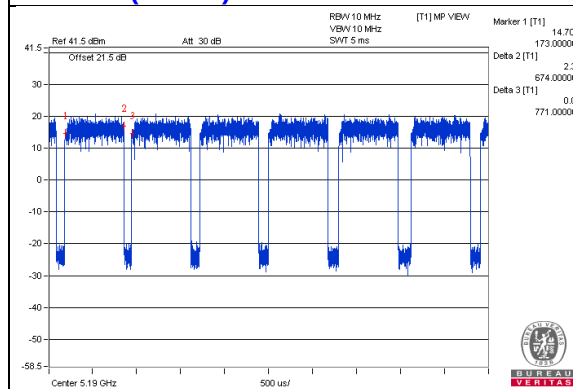
802.11a



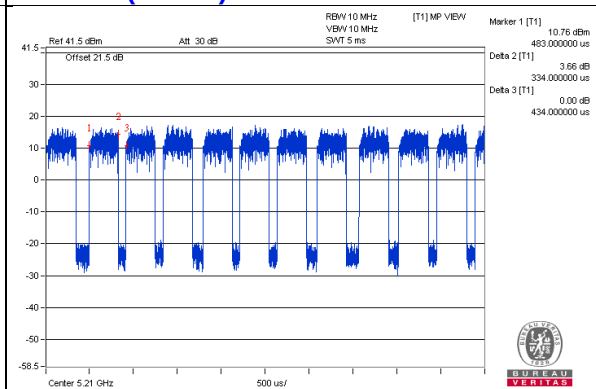
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



3.4 Description of Support Units

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

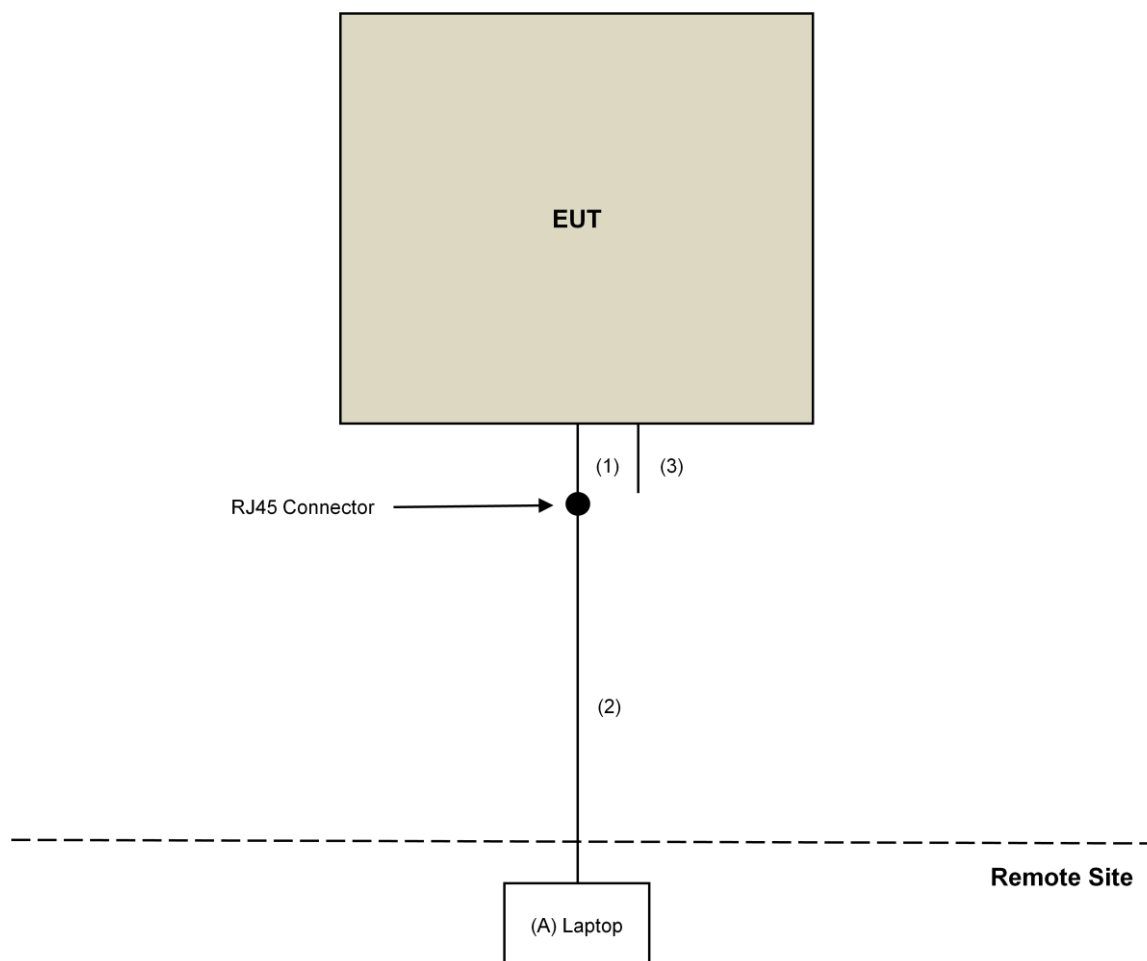
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RF Cable	1	0.1	No	0	Supplied by client (for RF Setup)
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	RF Cable	1	0.1	No	0	Supplied by client (for RF Setup)

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 v01r04

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 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 v01r04			Field Strength at 3m	
			PK:74 (dBµV/m)	AV:54 (dBµV/m)
Frequency Band	Applicable To		EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)		PK:-27 (dBm/MHz)	PK:68.2(dBµV/m)
5250~5350 MHz	15.407(b)(2)			
5470~5725 MHz	15.407(b)(3)			
5725~5850 MHz	☒	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2(dBµV/m) ^{*1} PK:105.2 (dBµV/m) ^{*2} PK: 110.8(dBµV/m) ^{*3} PK:122.2 (dBµV/m) ^{*4}
	☐	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge.			^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note:

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

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

4.1.2 Test Instruments

For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Dec. 27, 2016	Dec. 26, 2017
Pre-Amplifier EMCI	EMC12630SE	980385	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM- SM-1200 EMC104-SM- SM-2000 EMC104-SM- SM-5000	160923 150318 150323	Feb. 02, 2017 Mar. 29, 2017 Mar. 29, 2017	Feb. 01, 2018 Mar. 28, 2018 Mar. 28, 2018
Pre-Amplifier EMCI	EMC184045S E	980387	Feb. 02, 2017	Feb. 01, 2018
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 15, 2016	Dec. 14, 2017
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 15, 2017	Jan. 14, 2018
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 4.
3. The FCC Site Registration No. is 292998
4. The CANADA Site Registration No. is 20331-2
5. Tested Date: May 10, 2017

For other test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Pre-Amplifier ^(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna ^(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 17, 2017	Jan. 16, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 10, 2016	Nov. 09, 2017
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Dec. 13, 2016	Dec. 12, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Oct. 05, 2016	Oct. 04, 2017
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSv40	100964	June 28, 2016	June 27, 2017
Power meter Anritsu	ML2495A	1014008	May 11, 2017	May 10, 2018
Power sensor Anritsu	MA2411B	0917122	May 11, 2017	May 10, 2018
AC Power Source Extech Electronics	6205	1440452	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 11, 2017	Jan. 10, 2018
Digital Multimeter FLUKE	87III	73680266	Nov. 10, 2016	Nov. 09, 2017

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. The FCC Site Registration No. is 292998
5. The CANADA Site Registration No. is 20331-2
6. Loop antenna was used for all emissions below 30 MHz.
7. Tested Date: May 17 to 18, 2017

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

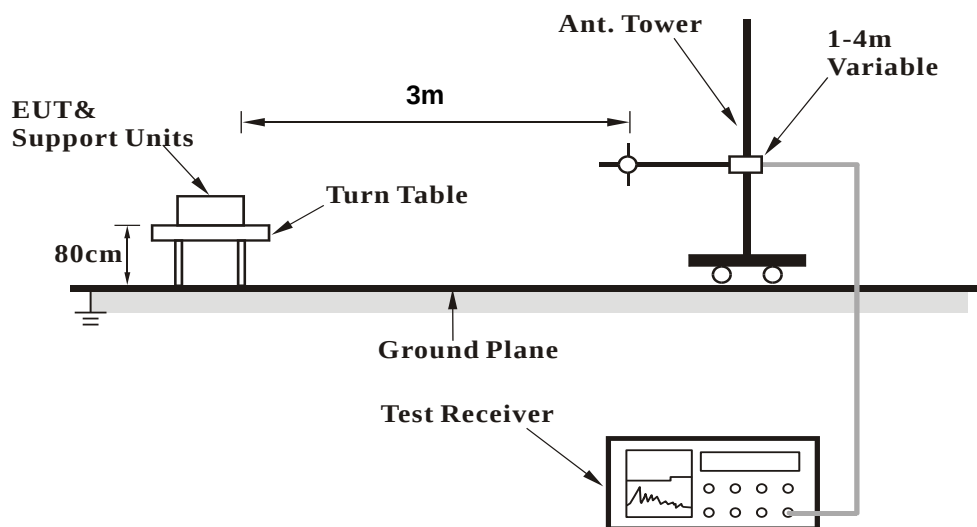
No deviation.

4.1.5 Test Setup

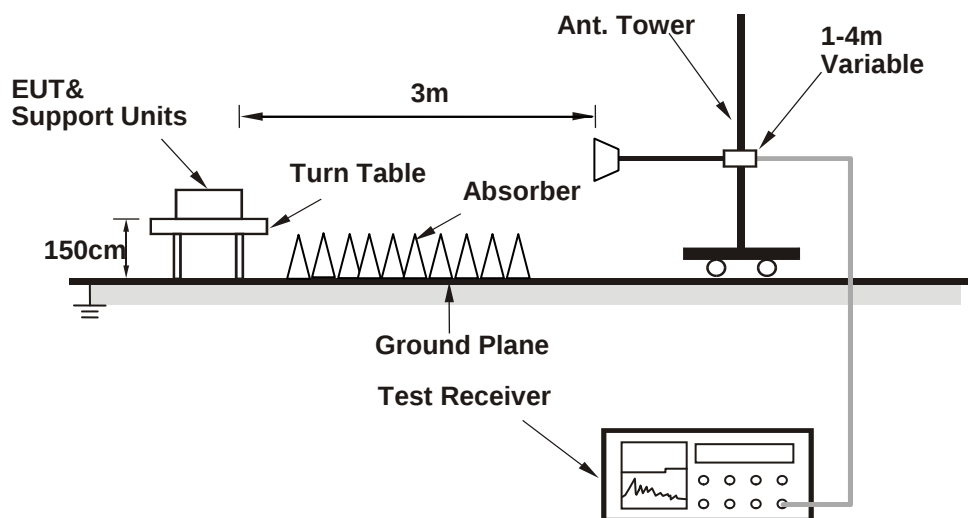
For Radiated emission below 30MHz



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

- Connected the EUT with the Laptop which is placed on remote site.
- Controlling software (MT76xxE_AP.exe [V0.0.2.3]) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	48.8 PK	74.0	-25.2	1.00 H	27	44.8	4.0
2	5150.00	36.9 AV	54.0	-17.1	1.00 H	27	32.9	4.0
3	*5260.00	109.9 PK			1.00 H	27	105.7	4.2
4	*5260.00	98.5 AV			1.00 H	27	94.3	4.2
5	#10520.00	44.2 PK	74.0	-29.8	1.53 H	31	30.4	13.8
6	#10520.00	33.3 AV	54.0	-20.7	1.53 H	31	19.5	13.8
7	15780.00	66.0 PK	74.0	-8.0	1.83 H	53	51.9	14.1
8	15780.00	53.7 AV	54.0	-0.3	1.83 H	53	39.6	14.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	49.5 PK	74.0	-24.5	1.00 V	327	45.5	4.0
2	5150.00	37.4 AV	54.0	-16.6	1.00 V	327	33.4	4.0
3	*5260.00	110.7 PK			1.00 V	327	106.5	4.2
4	*5260.00	99.0 AV			1.00 V	327	94.8	4.2
5	#10520.00	46.3 PK	74.0	-27.7	1.97 V	160	32.5	13.8
6	#10520.00	35.1 AV	54.0	-18.9	1.97 V	160	21.3	13.8
7	15780.00	63.7 PK	74.0	-10.3	1.78 V	360	49.6	14.1
8	15780.00	51.4 AV	54.0	-2.6	1.78 V	360	37.3	14.1

REMARKS:

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

CHANNEL	TX Channel 60	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	*5300.00	109.5 PK			1.00 H	29	105.2	4.3
2	*5300.00	98.8 AV			1.00 H	29	94.5	4.3
3	10600.00	43.3 PK	74.0	-30.7	1.63 H	58	29.5	13.8
4	10600.00	33.0 AV	54.0	-21.0	1.63 H	58	19.2	13.8
5	15900.00	64.9 PK	74.0	-9.1	1.75 H	60	51.7	13.2
6	15900.00	53.8 AV	54.0	-0.2	1.75 H	60	40.6	13.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	109.5 PK			1.00 V	53	105.2	4.3
2	*5300.00	98.8 AV			1.00 V	53	94.5	4.3
3	10600.00	46.8 PK	74.0	-27.2	1.94 V	146	33.0	13.8
4	10600.00	35.2 AV	54.0	-18.8	1.94 V	146	21.4	13.8
5	15900.00	61.5 PK	74.0	-12.5	1.77 V	360	48.3	13.2
6	15900.00	50.5 AV	54.0	-3.5	1.77 V	360	37.3	13.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	110.3 PK			1.00 H	335	106.0	4.3
2	*5320.00	98.4 AV			1.00 H	335	94.1	4.3
3	5350.00	61.8 PK	74.0	-12.2	1.00 H	335	57.4	4.4
4	5350.00	48.3 AV	54.0	-5.7	1.00 H	335	43.9	4.4
5	10640.00	43.8 PK	74.0	-30.2	1.53 H	27	29.8	14.0
6	10640.00	33.3 AV	54.0	-20.7	1.53 H	27	19.3	14.0
7	15960.00	65.9 PK	74.0	-8.1	1.86 H	56	52.4	13.5
8	15960.00	53.8 AV	54.0	-0.2	1.86 H	56	40.3	13.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	111.3 PK			2.73 V	360	107.0	4.3
2	*5320.00	99.9 AV			2.73 V	360	95.6	4.3
3	5350.00	62.1 PK	74.0	-11.9	2.73 V	360	57.7	4.4
4	5350.00	48.6 AV	54.0	-5.4	2.73 V	360	44.2	4.4
5	10640.00	45.9 PK	74.0	-28.1	1.97 V	149	31.9	14.0
6	10640.00	34.4 AV	54.0	-19.6	1.97 V	149	20.4	14.0
7	15960.00	63.2 PK	74.0	-10.8	1.76 V	360	49.7	13.5
8	15960.00	50.7 AV	54.0	-3.3	1.76 V	360	37.2	13.5

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	70.3 PK	74.0	-3.7	1.00 H	339	65.8	4.5
2	#5470.00	50.7 AV	54.0	-3.3	1.00 H	339	46.2	4.5
3	*5500.00	110.3 PK			1.00 H	339	105.8	4.5
4	*5500.00	99.2 AV			1.00 H	339	94.7	4.5
5	11000.00	44.3 PK	74.0	-29.7	1.53 H	34	29.5	14.8
6	11000.00	33.5 AV	54.0	-20.5	1.53 H	34	18.7	14.8
7	#16500.00	62.1 PK	74.0	-11.9	2.22 H	360	46.5	15.6
8	#16500.00	51.7 AV	54.0	-2.3	2.22 H	360	36.1	15.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	73.7 PK	74.0	-0.3	1.55 V	16	69.2	4.5
2	#5470.00	53.1 AV	54.0	-0.9	1.55 V	16	48.6	4.5
3	*5500.00	114.0 PK			1.55 V	16	109.5	4.5
4	*5500.00	102.0 AV			1.55 V	16	97.5	4.5
5	11000.00	45.6 PK	74.0	-28.4	1.97 V	151	30.8	14.8
6	11000.00	34.5 AV	54.0	-19.5	1.97 V	151	19.7	14.8
7	#16500.00	61.4 PK	74.0	-12.6	2.68 V	360	45.8	15.6
8	#16500.00	50.9 AV	54.0	-3.1	2.68 V	360	35.3	15.6

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	49.6 PK	74.0	-24.4	1.10 H	341	45.1	4.5
2	#5470.00	37.1 AV	54.0	-16.9	1.10 H	341	32.6	4.5
3	*5580.00	113.9 PK			1.10 H	341	109.3	4.6
4	*5580.00	102.2 AV			1.10 H	341	97.6	4.6
5	11160.00	44.4 PK	74.0	-29.6	1.47 H	37	30.0	14.4
6	11160.00	33.4 AV	54.0	-20.6	1.47 H	37	19.0	14.4
7	#16740.00	67.8 PK	74.0	-6.2	2.33 H	360	51.3	16.5
8	#16740.00	53.9 AV	54.0	-0.1	2.33 H	360	37.4	16.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	50.3 PK	74.0	-23.7	1.00 V	360	45.8	4.5
2	#5470.00	37.9 AV	54.0	-16.1	1.00 V	360	33.4	4.5
3	*5580.00	114.6 PK			1.00 V	360	110.0	4.6
4	*5580.00	102.6 AV			1.00 V	360	98.0	4.6
5	11160.00	45.5 PK	74.0	-28.5	2.03 V	162	31.1	14.4
6	11160.00	34.4 AV	54.0	-19.6	2.03 V	162	20.0	14.4
7	#16740.00	63.5 PK	74.0	-10.5	2.64 V	360	47.0	16.5
8	#16740.00	53.2 AV	54.0	-0.8	2.64 V	360	36.7	16.5

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	113.6 PK			2.36 H	19	108.8	4.8
2	*5700.00	102.1 AV			2.36 H	19	97.3	4.8
3	#5725.00	69.5 PK	74.0	-4.5	2.36 H	19	64.6	4.9
4	#5725.00	53.9 AV	54.0	-0.1	2.36 H	19	49.0	4.9
5	11400.00	43.9 PK	74.0	-30.1	1.57 H	33	29.5	14.4
6	11400.00	33.2 AV	54.0	-20.8	1.57 H	33	18.8	14.4
7	#17100.00	57.4 PK	74.0	-16.6	2.71 H	334	38.9	18.5
8	#17100.00	43.7 AV	54.0	-10.3	2.71 H	334	25.2	18.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	113.8 PK			1.00 V	33	109.0	4.8
2	*5700.00	104.0 AV			1.00 V	33	99.2	4.8
3	#5725.00	69.0 PK	74.0	-5.0	1.00 V	33	64.1	4.9
4	#5725.00	52.6 AV	54.0	-1.4	1.00 V	33	47.7	4.9
5	11400.00	45.6 PK	74.0	-28.4	2.01 V	156	31.2	14.4
6	11400.00	34.3 AV	54.0	-19.7	2.01 V	156	19.9	14.4
7	#17100.00	54.5 PK	74.0	-19.5	2.73 V	360	36.0	18.5
8	#17100.00	41.1 AV	54.0	-12.9	2.73 V	360	22.6	18.5

REMARKS:

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

802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	109.9 PK			1.10 H	338	105.7	4.2
2	*5260.00	101.9 AV			1.10 H	338	97.7	4.2
3	#10520.00	44.4 PK	74.0	-29.6	1.51 H	49	30.6	13.8
4	#10520.00	34.1 AV	54.0	-19.9	1.51 H	49	20.3	13.8
5	15780.00	66.9 PK	74.0	-7.1	1.81 H	58	52.8	14.1
6	15780.00	53.7 AV	54.0	-0.3	1.81 H	58	39.6	14.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	110.2 PK			2.44 V	16	106.0	4.2
2	*5260.00	101.2 AV			2.44 V	16	97.0	4.2
3	#10520.00	48.0 PK	74.0	-26.0	2.03 V	7	34.2	13.8
4	#10520.00	35.8 AV	54.0	-18.2	2.03 V	7	22.0	13.8
5	15780.00	65.7 PK	74.0	-8.3	1.84 V	41	51.6	14.1
6	15780.00	52.5 AV	54.0	-1.5	1.84 V	41	38.4	14.1

REMARKS:

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

CHANNEL	TX Channel 60	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	*5300.00	112.7 PK			1.07 H	19	108.4	4.3
2	*5300.00	103.5 AV			1.07 H	19	99.2	4.3
3	5350.00	61.0 PK	74.0	-13.0	1.07 H	19	56.6	4.4
4	5350.00	45.0 AV	54.0	-9.0	1.07 H	19	40.6	4.4
5	10600.00	44.0 PK	74.0	-30.0	1.54 H	47	30.2	13.8
6	10600.00	33.6 AV	54.0	-20.4	1.54 H	47	19.8	13.8
7	15900.00	66.4 PK	74.0	-7.6	1.81 H	67	53.2	13.2
8	15900.00	53.9 AV	54.0	-0.1	1.81 H	67	40.7	13.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	111.0 PK			2.53 V	345	106.7	4.3
2	*5300.00	102.4 AV			2.53 V	345	98.1	4.3
3	5350.00	59.0 PK	74.0	-15.0	2.53 V	345	54.6	4.4
4	5350.00	42.7 AV	54.0	-11.3	2.53 V	345	38.3	4.4
5	10600.00	48.2 PK	74.0	-25.8	2.16 V	0	34.4	13.8
6	10600.00	36.8 AV	54.0	-17.2	2.16 V	0	23.0	13.8
7	15900.00	65.0 PK	74.0	-9.0	1.84 V	53	51.8	13.2
8	15900.00	52.6 AV	54.0	-1.4	1.84 V	53	39.4	13.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	111.7 PK			2.99 H	54	107.4	4.3
2	*5320.00	102.7 AV			2.99 H	54	98.4	4.3
3	5350.00	69.6 PK	74.0	-4.4	2.99 H	54	65.2	4.4
4	5350.00	53.7 AV	54.0	-0.3	2.99 H	54	49.3	4.4
5	10640.00	44.2 PK	74.0	-29.8	1.58 H	50	30.2	14.0
6	10640.00	33.5 AV	54.0	-20.5	1.58 H	50	19.5	14.0
7	15960.00	66.1 PK	74.0	-7.9	1.81 H	56	52.6	13.5
8	15960.00	52.9 AV	54.0	-1.1	1.81 H	56	39.4	13.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	110.7 PK			2.53 V	2	106.4	4.3
2	*5320.00	101.8 AV			2.53 V	2	97.5	4.3
3	5350.00	66.6 PK	74.0	-7.4	2.53 V	2	62.2	4.4
4	5350.00	52.6 AV	54.0	-1.4	2.53 V	2	48.2	4.4
5	10640.00	48.4 PK	74.0	-25.6	2.22 V	7	34.4	14.0
6	10640.00	37.1 AV	54.0	-16.9	2.22 V	7	23.1	14.0
7	15960.00	64.2 PK	74.0	-9.8	1.89 V	52	50.7	13.5
8	15960.00	51.7 AV	54.0	-2.3	1.89 V	52	38.2	13.5

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	66.9 PK	74.0	-7.1	2.31 H	7	62.4	4.5
2	#5470.00	51.0 AV	54.0	-3.0	2.31 H	7	46.5	4.5
3	*5500.00	110.5 PK			2.31 H	7	106.0	4.5
4	*5500.00	101.5 AV			2.31 H	7	97.0	4.5
5	11000.00	44.0 PK	74.0	-30.0	1.54 H	65	29.2	14.8
6	11000.00	33.6 AV	54.0	-20.4	1.54 H	65	18.8	14.8
7	#16500.00	65.2 PK	74.0	-8.8	1.86 H	13	49.6	15.6
8	#16500.00	51.5 AV	54.0	-2.5	1.86 H	13	35.9	15.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	69.9 PK	74.0	-4.1	1.00 V	338	65.4	4.5
2	#5470.00	53.7 AV	54.0	-0.3	1.00 V	338	49.2	4.5
3	*5500.00	112.2 PK			1.00 V	338	107.7	4.5
4	*5500.00	103.6 AV			1.00 V	338	99.1	4.5
5	11000.00	46.1 PK	74.0	-27.9	2.01 V	161	31.3	14.8
6	11000.00	34.5 AV	54.0	-19.5	2.01 V	161	19.7	14.8
7	#16500.00	61.9 PK	74.0	-12.1	1.87 V	56	46.3	15.6
8	#16500.00	49.6 AV	54.0	-4.4	1.87 V	56	34.0	15.6

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	48.8 PK	74.0	-25.2	2.64 H	360	44.3	4.5
2	#5470.00	37.7 AV	54.0	-16.3	2.64 H	360	33.2	4.5
3	*5580.00	112.8 PK			2.64 H	360	108.2	4.6
4	*5580.00	103.9 AV			2.64 H	360	99.3	4.6
5	11160.00	44.1 PK	74.0	-29.9	1.56 H	44	29.7	14.4
6	11160.00	33.4 AV	54.0	-20.6	1.56 H	44	19.0	14.4
7	#16740.00	67.1 PK	74.0	-6.9	1.81 H	13	50.6	16.5
8	#16740.00	53.2 AV	54.0	-0.8	1.81 H	13	36.7	16.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	50.2 PK	74.0	-23.8	2.30 V	347	45.7	4.5
2	#5470.00	38.5 AV	54.0	-15.5	2.30 V	347	34.0	4.5
3	*5580.00	115.1 PK			2.30 V	347	110.5	4.6
4	*5580.00	105.9 AV			2.30 V	347	101.3	4.6
5	11160.00	46.2 PK	74.0	-27.8	1.93 V	145	31.8	14.4
6	11160.00	35.2 AV	54.0	-18.8	1.93 V	145	20.8	14.4
7	#16740.00	64.8 PK	74.0	-9.2	1.87 V	67	48.3	16.5
8	#16740.00	52.0 AV	54.0	-2.0	1.87 V	67	35.5	16.5

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	109.1 PK			2.30 H	360	104.3	4.8
2	*5700.00	100.5 AV			2.30 H	360	95.7	4.8
3	#5725.00	68.6 PK	74.0	-5.4	2.30 H	360	63.7	4.9
4	#5725.00	53.6 AV	54.0	-0.4	2.30 H	360	48.7	4.9
5	11400.00	44.0 PK	74.0	-30.0	1.58 H	21	29.6	14.4
6	11400.00	33.0 AV	54.0	-21.0	1.58 H	21	18.6	14.4
7	#17100.00	57.9 PK	74.0	-16.1	2.69 H	342	39.4	18.5
8	#17100.00	44.1 AV	54.0	-9.9	2.69 H	342	25.6	18.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	111.9 PK			2.44 V	342	107.1	4.8
2	*5700.00	102.8 AV			2.44 V	342	98.0	4.8
3	#5725.00	69.2 PK	74.0	-4.8	2.44 V	342	64.3	4.9
4	#5725.00	53.9 AV	54.0	-0.1	2.44 V	342	49.0	4.9
5	11400.00	45.8 PK	74.0	-28.2	2.01 V	151	31.4	14.4
6	11400.00	34.7 AV	54.0	-19.3	2.01 V	151	20.3	14.4
7	#17100.00	60.7 PK	74.0	-13.3	1.94 V	36	42.2	18.5
8	#17100.00	49.4 AV	54.0	-4.6	1.94 V	36	30.9	18.5

REMARKS:

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

802.11ac (VHT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	50.3 PK	74.0	-23.7	1.00 H	341	46.3	4.0
2	5150.00	39.4 AV	54.0	-14.6	1.00 H	341	35.4	4.0
3	*5270.00	110.1 PK			1.00 H	341	105.9	4.2
4	*5270.00	101.4 AV			1.00 H	341	97.2	4.2
5	5350.00	65.6 PK	74.0	-8.4	1.00 H	341	61.2	4.4
6	5350.00	51.8 AV	54.0	-2.2	1.00 H	341	47.4	4.4
7	#10540.00	53.9 PK	74.0	-20.1	1.25 H	302	40.2	13.7
8	#10540.00	34.4 AV	54.0	-19.6	1.25 H	302	20.7	13.7
9	15810.00	65.8 PK	74.0	-8.2	1.93 H	346	51.8	14.0
10	15810.00	52.0 AV	54.0	-2.0	1.93 H	346	38.0	14.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	51.7 PK	74.0	-22.3	3.95 V	6	47.7	4.0
2	5150.00	40.3 AV	54.0	-13.7	3.95 V	6	36.3	4.0
3	*5270.00	111.4 PK			3.95 V	6	107.2	4.2
4	*5270.00	102.0 AV			3.95 V	6	97.8	4.2
5	5350.00	60.5 PK	74.0	-13.5	3.95 V	6	56.1	4.4
6	5350.00	49.4 AV	54.0	-4.6	3.95 V	6	45.0	4.4
7	#10540.00	45.1 PK	74.0	-28.9	1.87 V	49	31.4	13.7
8	#10540.00	35.4 AV	54.0	-18.6	1.87 V	49	21.7	13.7
9	15810.00	64.3 PK	74.0	-9.7	2.98 V	360	50.3	14.0
10	15810.00	52.8 AV	54.0	-1.2	2.98 V	360	38.8	14.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	102.8 PK			1.00 H	345	98.5	4.3
2	*5310.00	94.9 AV			1.00 H	345	90.6	4.3
3	5350.00	65.1 PK	74.0	-8.9	1.00 H	345	60.7	4.4
4	5350.00	52.9 AV	54.0	-1.1	1.00 H	345	48.5	4.4
5	10620.00	45.1 PK	74.0	-28.9	1.24 H	303	31.2	13.9
6	10620.00	34.9 AV	54.0	-19.1	1.24 H	303	21.0	13.9
7	15930.00	58.0 PK	74.0	-16.0	2.01 H	335	44.7	13.3
8	15930.00	46.5 AV	54.0	-7.5	2.01 H	335	33.2	13.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	102.5 PK			3.45 V	360	98.2	4.3
2	*5310.00	94.6 AV			3.45 V	360	90.3	4.3
3	5350.00	67.5 PK	74.0	-6.5	3.45 V	360	63.1	4.4
4	5350.00	53.9 AV	54.0	-0.1	3.45 V	360	49.5	4.4
5	10620.00	44.3 PK	74.0	-29.7	1.88 V	44	30.4	13.9
6	10620.00	34.5 AV	54.0	-19.5	1.88 V	44	20.6	13.9
7	15930.00	57.8 PK	74.0	-16.2	3.06 V	360	44.5	13.3
8	15930.00	46.7 AV	54.0	-7.3	3.06 V	360	33.4	13.3

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	65.8 PK	74.0	-8.2	1.00 H	332	61.3	4.5
2	#5470.00	52.3 AV	54.0	-1.7	1.00 H	332	47.8	4.5
3	*5510.00	102.4 PK			1.00 H	332	97.8	4.6
4	*5510.00	94.7 AV			1.00 H	332	90.1	4.6
5	11020.00	45.0 PK	74.0	-29.0	1.18 H	309	30.3	14.7
6	11020.00	35.0 AV	54.0	-19.0	1.18 H	309	20.3	14.7
7	#16530.00	57.1 PK	74.0	-16.9	2.03 H	343	41.3	15.8
8	#16530.00	45.9 AV	54.0	-8.1	2.03 H	343	30.1	15.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	69.2 PK	74.0	-4.8	2.38 V	360	64.7	4.5
2	#5470.00	53.8 AV	54.0	-0.2	2.38 V	360	49.3	4.5
3	*5510.00	103.4 PK			2.38 V	360	98.8	4.6
4	*5510.00	95.3 AV			2.38 V	360	90.7	4.6
5	11020.00	44.6 PK	74.0	-29.4	1.82 V	30	29.9	14.7
6	11020.00	34.7 AV	54.0	-19.3	1.82 V	30	20.0	14.7
7	#16530.00	57.6 PK	74.0	-16.4	3.10 V	349	41.8	15.8
8	#16530.00	46.5 AV	54.0	-7.5	3.10 V	349	30.7	15.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	68.3 PK	74.0	-5.7	2.33 H	339	63.8	4.5
2	#5470.00	51.6 AV	54.0	-2.4	2.33 H	339	47.1	4.5
3	*5550.00	110.5 PK			2.33 H	339	106.0	4.5
4	*5550.00	101.4 AV			2.33 H	339	96.9	4.5
5	11100.00	53.9 PK	74.0	-20.1	1.21 H	315	39.5	14.4
6	11100.00	34.7 AV	54.0	-19.3	1.21 H	315	20.3	14.4
7	#16650.00	66.2 PK	74.0	-7.8	1.87 H	355	49.8	16.4
8	#16650.00	52.2 AV	54.0	-1.8	1.87 H	355	35.8	16.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	61.4 PK	74.0	-12.6	3.89 V	360	56.9	4.5
2	#5470.00	47.9 AV	54.0	-6.1	3.89 V	360	43.4	4.5
3	*5550.00	110.7 PK			3.89 V	360	106.2	4.5
4	*5550.00	101.9 AV			3.89 V	360	97.4	4.5
5	11100.00	45.2 PK	74.0	-28.8	1.83 V	51	30.8	14.4
6	11100.00	35.4 AV	54.0	-18.6	1.83 V	51	21.0	14.4
7	#16650.00	64.4 PK	74.0	-9.6	3.01 V	360	48.0	16.4
8	#16650.00	52.7 AV	54.0	-1.3	3.01 V	360	36.3	16.4

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	109.0 PK			2.73 H	360	104.2	4.8
2	*5670.00	100.3 AV			2.73 H	360	95.5	4.8
3	#5725.00	69.6 PK	74.0	-4.4	2.73 H	360	64.7	4.9
4	#5725.00	53.9 AV	54.0	-0.1	2.73 H	360	49.0	4.9
5	11340.00	44.2 PK	74.0	-29.8	1.23 H	308	29.8	14.4
6	11340.00	34.3 AV	54.0	-19.7	1.23 H	308	19.9	14.4
7	#17010.00	61.5 PK	74.0	-12.5	1.99 H	359	43.3	18.2
8	#17010.00	50.0 AV	54.0	-4.0	1.99 H	359	31.8	18.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	110.5 PK			3.87 V	360	105.7	4.8
2	*5670.00	101.9 AV			3.87 V	360	97.1	4.8
3	#5725.00	67.5 PK	74.0	-6.5	3.87 V	360	62.6	4.9
4	#5725.00	52.8 AV	54.0	-1.2	3.87 V	360	47.9	4.9
5	11340.00	45.5 PK	74.0	-28.5	1.81 V	44	31.1	14.4
6	11340.00	35.5 AV	54.0	-18.5	1.81 V	44	21.1	14.4
7	#17010.00	60.5 PK	74.0	-13.5	2.98 V	360	42.3	18.2
8	#17010.00	49.7 AV	54.0	-4.3	2.98 V	360	31.5	18.2

REMARKS:

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

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5290.00	102.8 PK			2.74 H	303	98.5	4.3
2	*5290.00	92.5 AV			2.74 H	303	88.2	4.3
3	5350.00	62.5 PK	74.0	-11.5	2.74 H	303	58.1	4.4
4	5350.00	52.1 AV	54.0	-1.9	2.74 H	303	47.7	4.4
5	#10580.00	45.6 PK	74.0	-28.4	1.68 H	215	31.7	13.9
6	#10580.00	34.8 AV	54.0	-19.2	1.68 H	215	20.9	13.9
7	15870.00	46.2 PK	74.0	-27.8	1.35 H	268	32.8	13.4
8	15870.00	38.0 AV	54.0	-16.0	1.35 H	268	24.6	13.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5290.00	103.1 PK			3.51 V	360	98.8	4.3
2	*5290.00	93.2 AV			3.51 V	360	88.9	4.3
3	5350.00	64.6 PK	74.0	-9.4	3.51 V	360	60.2	4.4
4	5350.00	53.9 AV	54.0	-0.1	3.51 V	360	49.5	4.4
5	#10580.00	46.1 PK	74.0	-27.9	2.46 V	340	32.2	13.9
6	#10580.00	34.7 AV	54.0	-19.3	2.46 V	340	20.8	13.9
7	15870.00	46.4 PK	74.0	-27.6	1.01 V	199	33.0	13.4
8	15870.00	38.4 AV	54.0	-15.6	1.01 V	199	25.0	13.4

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	61.4 PK	74.0	-12.6	2.77 H	317	56.9	4.5
2	#5470.00	53.0 AV	54.0	-1.0	2.77 H	317	48.5	4.5
3	*5530.00	109.8 PK			2.77 H	317	105.3	4.5
4	*5530.00	90.1 AV			2.77 H	317	85.6	4.5
5	11060.00	45.1 PK	74.0	-28.9	1.65 H	212	30.6	14.5
6	11060.00	34.5 AV	54.0	-19.5	1.65 H	212	20.0	14.5
7	#16590.00	46.2 PK	74.0	-27.8	1.40 H	286	29.6	16.6
8	#16590.00	38.0 AV	54.0	-16.0	1.40 H	286	21.4	16.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	63.7 PK	74.0	-10.3	3.50 V	360	59.2	4.5
2	#5470.00	53.9 AV	54.0	-0.1	3.50 V	360	49.4	4.5
3	*5530.00	101.1 PK			3.50 V	360	96.6	4.5
4	*5530.00	90.4 AV			3.50 V	360	85.9	4.5
5	11060.00	46.5 PK	74.0	-27.5	2.53 V	346	32.0	14.5
6	11060.00	35.1 AV	54.0	-18.9	2.53 V	346	20.6	14.5
7	#16590.00	45.9 PK	74.0	-28.1	1.05 V	220	29.3	16.6
8	#16590.00	37.9 AV	54.0	-16.1	1.05 V	220	21.3	16.6

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5610.00	106.2 PK			3.93 H	5	101.5	4.7
2	*5610.00	96.2 AV			3.93 H	5	91.5	4.7
3	#5725.00	59.9 PK	74.0	-14.1	3.93 H	5	55.0	4.9
4	#5725.00	51.2 AV	54.0	-2.8	3.93 H	5	46.3	4.9
5	11220.00	46.2 PK	74.0	-27.8	1.09 H	264	31.8	14.4
6	11220.00	35.9 AV	54.0	-18.1	1.09 H	264	21.5	14.4
7	#16830.00	51.8 PK	74.0	-22.2	2.26 H	6	34.8	17.0
8	#16830.00	41.2 AV	54.0	-12.8	2.26 H	6	24.2	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5610.00	108.1 PK			3.30 V	356	103.4	4.7
2	*5610.00	98.0 AV			3.30 V	356	93.3	4.7
3	#5725.00	64.5 PK	74.0	-9.5	3.30 V	356	59.6	4.9
4	#5725.00	53.7 AV	54.0	-0.3	3.30 V	356	48.8	4.9
5	11220.00	46.0 PK	74.0	-28.0	2.94 V	297	31.6	14.4
6	11220.00	36.1 AV	54.0	-17.9	2.94 V	297	21.7	14.4
7	#16830.00	51.2 PK	74.0	-22.8	1.18 V	357	34.2	17.0
8	#16830.00	40.5 AV	54.0	-13.5	1.18 V	357	23.5	17.0

REMARKS:

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

Below 1GHz Data:

802.11ac (VHT40)

CHANNEL	TX Channel 110	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	56.01	18.5 QP	40.0	-21.5	3.00 H	294	27.0	-8.5
2	172.71	22.2 QP	43.5	-21.3	1.00 H	93	30.8	-8.6
3	218.90	25.5 QP	46.0	-20.5	1.00 H	288	36.9	-11.4
4	250.10	23.7 QP	46.0	-22.3	1.00 H	289	33.1	-9.4
5	478.00	23.3 QP	46.0	-22.7	1.00 H	93	26.3	-3.0
6	885.39	28.6 QP	46.0	-17.4	3.00 H	191	24.9	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	46.68	20.6 QP	40.0	-19.4	1.00 V	190	28.6	-8.0
2	137.95	18.7 QP	43.5	-24.8	2.00 V	216	26.9	-8.2
3	173.50	21.5 QP	43.5	-22.0	1.00 V	281	30.1	-8.6
4	224.25	21.8 QP	46.0	-24.2	1.00 V	283	33.5	-11.7
5	642.95	26.1 QP	46.0	-19.9	3.00 V	81	26.0	0.1
6	917.16	29.3 QP	46.0	-16.7	1.00 V	274	24.9	4.4

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
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.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2016	Oct. 23, 2017
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 26, 2016	Oct. 25, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 13, 2016	June 12, 2017
50 ohms Terminator	N/A	EMC-02	Sep. 29, 2016	Sep. 28, 2017
RF Cable	5D-FB	COCCAB-001	Sep. 30, 2016	Sep. 29, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 20, 2016	June 19, 2017
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 1.
- 3 Tested Date: May 17, 2017

4.2.3 Test Procedure

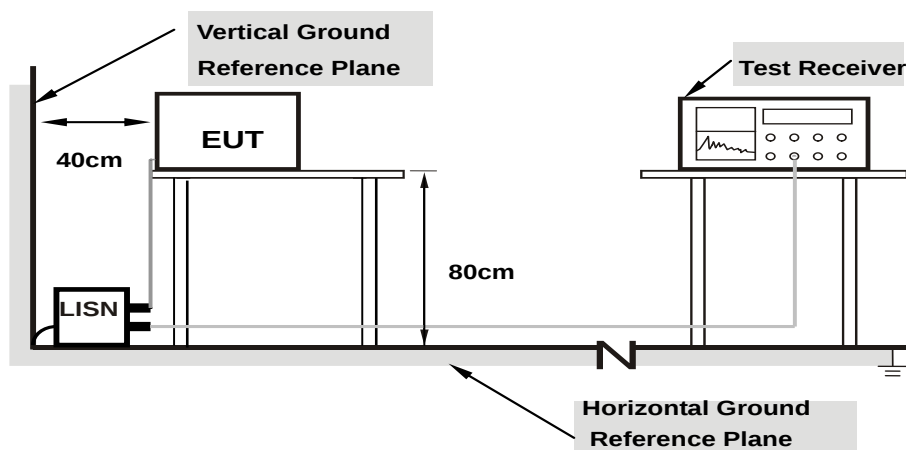
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

NOTE: 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 4.1.6.

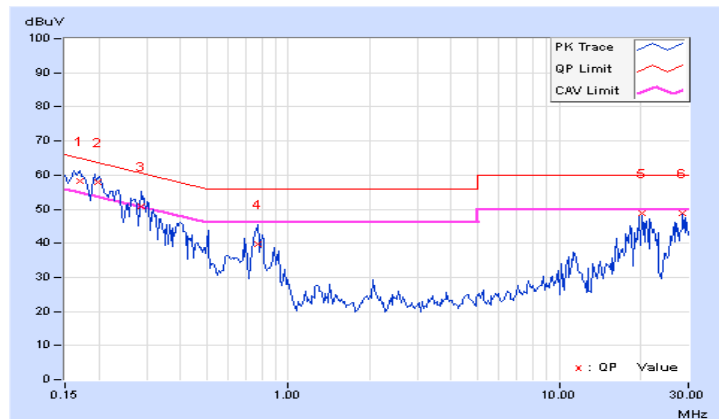
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
		(dB)								
1	0.16953	10.07	48.22	35.85	58.29	45.92	64.98	54.98	-6.69	-9.06
2	0.19930	10.06	47.85	34.75	57.91	44.81	63.64	53.64	-5.73	-8.83
3	0.28572	10.08	40.81	30.11	50.89	40.19	60.65	50.65	-9.76	-10.46
4	0.77500	10.13	29.45	23.87	39.58	34.00	56.00	46.00	-16.42	-12.00
5	20.26172	11.29	37.42	33.68	48.71	44.97	60.00	50.00	-11.29	-5.03
6	28.68359	11.37	37.55	34.51	48.92	45.88	60.00	50.00	-11.08	-4.12

REMARKS:

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

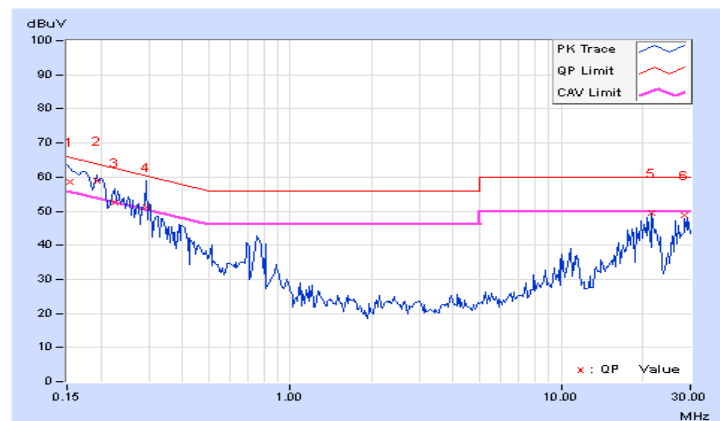


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.06	48.55	35.92	58.61	45.98	65.79	55.79	-7.18	-9.81
2	0.19297	10.03	48.99	36.32	59.02	46.35	63.91	53.91	-4.89	-7.56
3	0.22422	10.04	42.51	32.11	52.55	42.15	62.66	52.66	-10.11	-10.51
4	0.29453	10.06	41.05	29.88	51.11	39.94	60.40	50.40	-9.29	-10.46
5	21.66406	11.00	38.57	35.62	49.57	46.62	60.00	50.00	-10.43	-3.38
6	28.68359	10.96	37.77	35.42	48.73	46.38	60.00	50.00	-11.27	-3.62

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	$\sqrt{\quad}$		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	$\sqrt{\quad}$		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 $N_{ANT} \leq 4$;

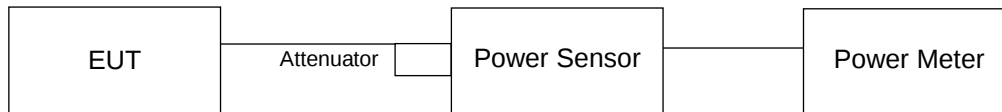
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

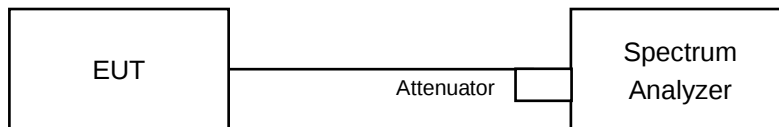
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

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

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 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

802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	19.98	19.07	180.265	22.56	24.00	Pass
60	5300	19.85	19.16	179.019	22.53	24.00	Pass
64	5320	20.15	19.45	191.619	22.82	24.00	Pass
100	5500	20.63	20.24	221.293	23.45	24.00	Pass
116	5580	21.32	20.32	243.166	23.86	24.00	Pass
140	5700	19.33	18.55	157.318	21.97	24.00	Pass

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	34.58	29.68
60	5300	31.07	28.86
64	5320	33.09	29.80
100	5500	34.78	31.01
116	5580	35.34	31.60
140	5700	36.15	30.57

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	29.68	25.72 > 24
60	5300	28.86	25.6 > 24
64	5320	29.80	25.74 > 24
100	5500	31.01	25.91 > 24
116	5580	31.60	25.99 > 24
140	5700	30.57	25.85 > 24

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	19.66	18.58	164.581	22.16	24.00	Pass
60	5300	20.54	19.78	208.3	23.19	24.00	Pass
64	5320	20.12	19.33	188.506	22.75	24.00	Pass
100	5500	19.93	19.10	179.684	22.55	24.00	Pass
116	5580	20.93	20.23	229.319	23.60	24.00	Pass
140	5700	18.69	18.14	139.124	21.43	24.00	Pass

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	37.54	29.56
60	5300	39.95	33.35
64	5320	38.47	31.44
100	5500	37.81	31.72
116	5580	39.29	35.78
140	5700	37.82	30.41

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	29.56	25.7 > 24
60	5300	33.35	26.23 > 24
64	5320	31.44	25.97 > 24
100	5500	31.72	26.01 > 24
116	5580	35.78	26.53 > 24
140	5700	30.41	25.83 > 24

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.66	20.12	219.215	23.41	24.00	Pass
62	5310	15.31	15.67	70.861	18.50	24.00	Pass
102	5510	15.69	14.88	67.829	18.31	24.00	Pass
110	5550	21.10	20.66	245.238	23.90	24.00	Pass
134	5670	19.10	18.55	152.897	21.84	24.00	Pass

26dB BANDWIDTH:

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	87.11	78.85
62	5310	41.77	41.78
102	5510	41.89	41.84
110	5550	83.82	78.06
134	5670	78.94	71.77

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	78.85	29.96 > 24
62	5310	41.77	27.2 > 24
102	5510	41.84	27.21 > 24
110	5550	78.06	29.92 > 24
134	5670	71.77	29.55 > 24

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	15.68	14.75	66.837	18.25	24.00	Pass
106	5530	15.26	14.55	62.084	17.93	24.00	Pass
122	5610	18.38	17.67	127.344	21.05	24.00	Pass

26dB BANDWIDTH:

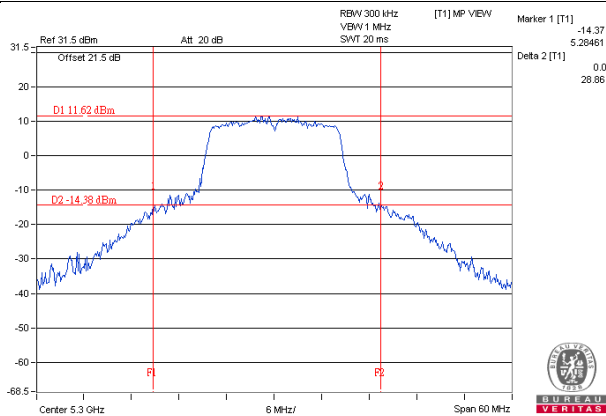
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	87.11	81.79
106	5530	81.94	81.72
122	5610	151.71	114.41

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth

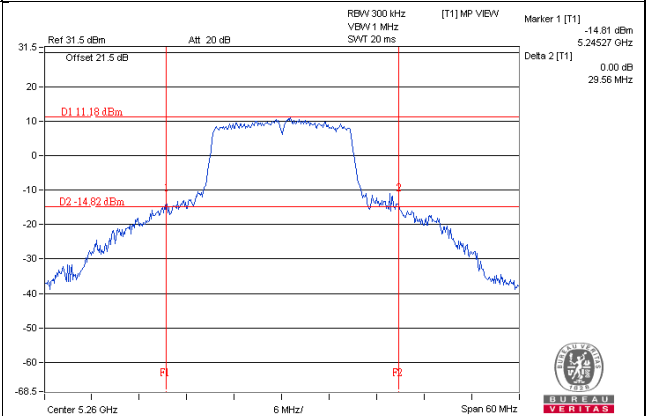
Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	81.79	30.12 > 24
106	5530	81.72	30.12 > 24
122	5610	114.41	31.58 > 24

Spectrum Plot of Worst Value

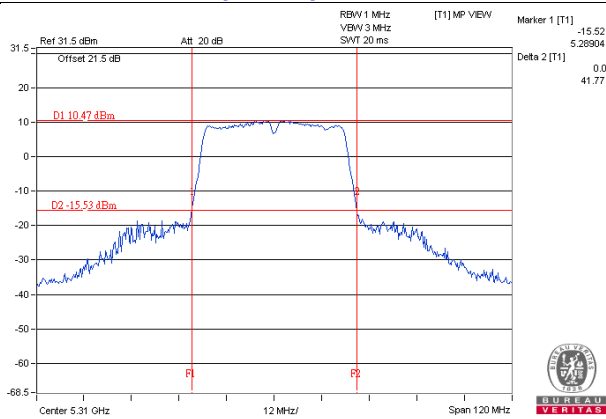
802.11a_Chain 1 / CH60



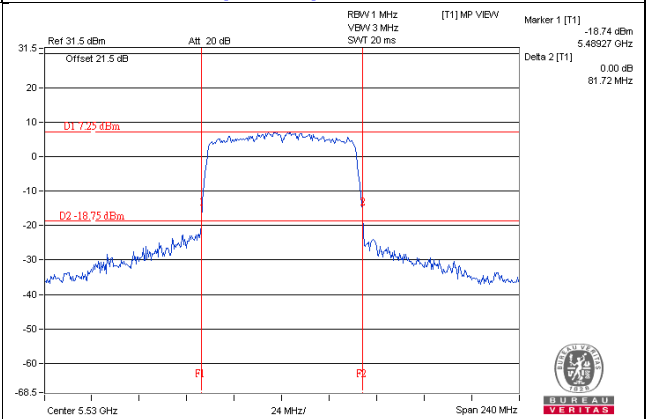
802.11ac (VHT20)_Chain 1 / CH52



802.11ac (VHT40)_Chain 0 / CH62

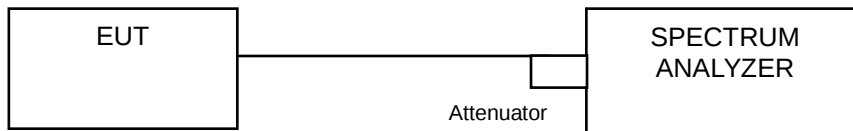


802.11ac (VHT80)_Chain 1 / CH106



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

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
52	5260	17.40	17.16
60	5300	17.16	16.80
64	5320	17.40	17.04
100	5500	17.76	17.16
116	5580	18.48	17.16
140	5700	18.72	16.92

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
52	5260	18.24	17.88
60	5300	19.56	18.00
64	5320	18.48	17.88
100	5500	18.24	18.00
116	5580	18.72	18.12
140	5700	18.48	17.88

802.11ac (VHT40)

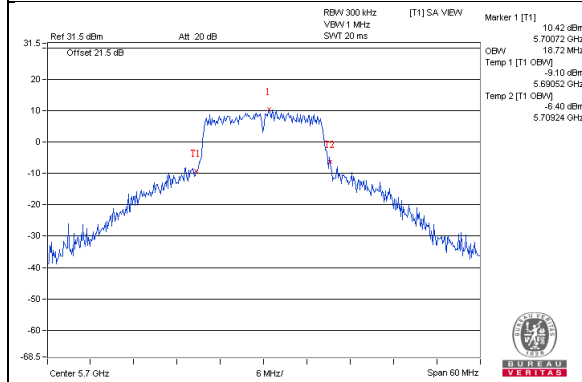
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
54	5270	42.72	37.20
62	5310	36.48	36.24
102	5510	36.24	36.24
110	5550	38.40	37.44
134	5670	37.92	36.72

802.11ac (VHT80)

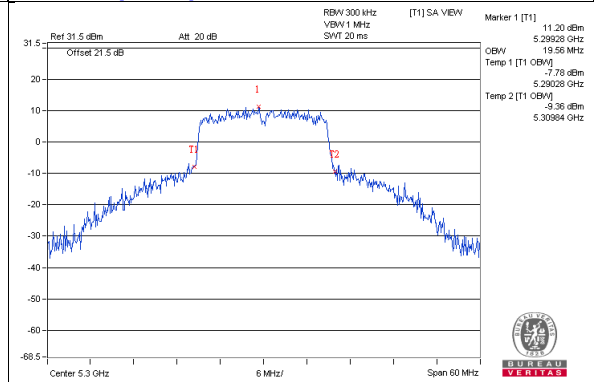
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
58	5290	75.36	75.36
106	5530	75.84	75.36
122	5610	76.32	75.36

Spectrum Plot of Worst Value

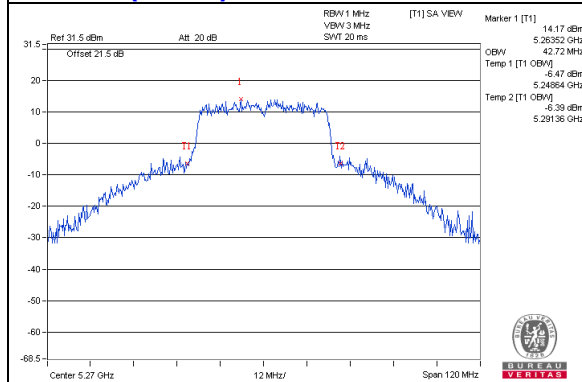
802.11a_Chain0 / CH140



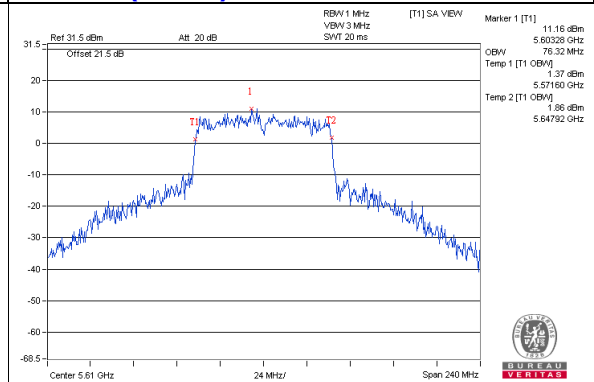
802.11n (HT20)_Chain0 / CH60



802.11ac (VHT40)_Chain0 / CH54



802.11ac (VHT80)_Chain0 / CH122

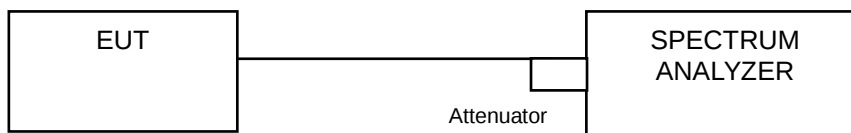


4.5 Peak Power Spectral Density Measurement

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

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW $\geq$ 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)

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

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	6.23	5.71	0.35	9.33	11.00	Pass
60	5300	5.75	5.77	0.35	9.12	11.00	Pass
64	5320	5.86	5.44	0.35	9.01	11.00	Pass
100	5500	6.74	5.65	0.35	9.59	11.00	Pass
116	5580	7.46	7.48	0.35	10.83	11.00	Pass
140	5700	5.48	4.98	0.35	8.59	11.00	Pass

- Note:**
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
 2. For UNII-2A, UNII-2C: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.99\text{dBi} < 6\text{dBi}$, so the power density limit shall not be reduced.
 3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	5.66	4.94	0.32	8.65	11.00	Pass
60	5300	6.22	4.82	0.32	8.91	11.00	Pass
64	5320	5.21	5.53	0.32	8.71	11.00	Pass
100	5500	4.09	5.68	0.32	8.29	11.00	Pass
116	5580	6.53	6.74	0.32	9.97	11.00	Pass
140	5700	3.79	3.99	0.32	7.23	11.00	Pass

- Note:**
- Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
 - For UNII-2A, UNII-2C: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.99\text{dBi} < 6\text{dBi}$, so the power density limit shall not be reduced.
 - Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	3.23	-1.19	0.58	5.15	11.00	Pass
62	5310	-1.92	-1.43	0.58	1.93	11.00	Pass
102	5510	-3.98	-3.90	0.58	-0.35	11.00	Pass
110	5550	1.95	2.19	0.58	5.67	11.00	Pass
134	5670	0.70	-1.37	0.58	3.38	11.00	Pass

- Note:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For UNII-2A, UNII-2C: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.99\text{dBi} < 6\text{dBi}$, so the power density limit shall not be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

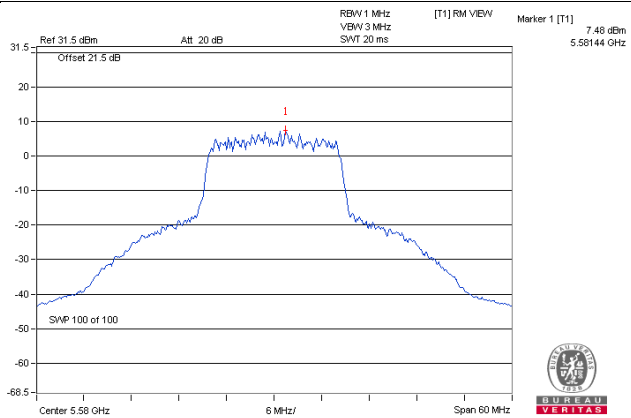
802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	-7.30	-8.18	1.14	-3.57	11.00	Pass
106	5530	-6.57	-13.44	1.14	-4.62	11.00	Pass
122	5610	-2.75	-4.51	1.14	0.61	11.00	Pass

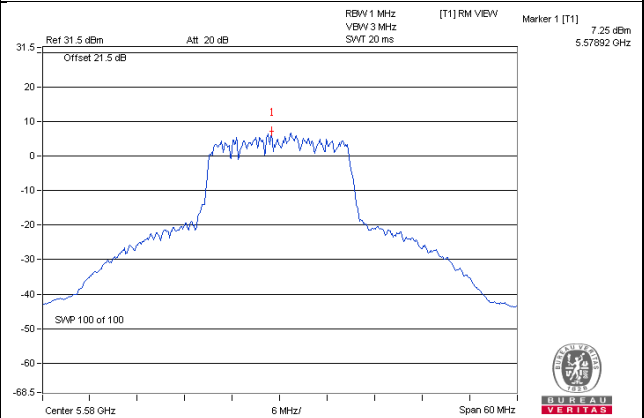
- Note:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For UNII-2A, UNII-2C: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.99\text{dBi} < 6\text{dBi}$, so the power density limit shall not be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

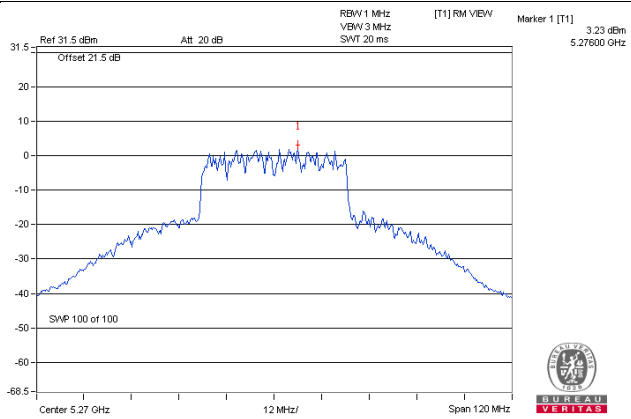
802.11a_Chain 1 / CH116



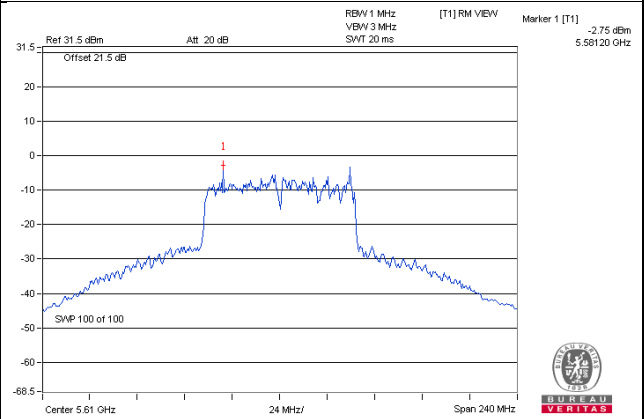
802.11ac (VHT20)_Chain 1 / CH116



802.11ac (VHT40)_Chain 0 / CH54



802.11ac (VHT80)_Chain 0 / CH122

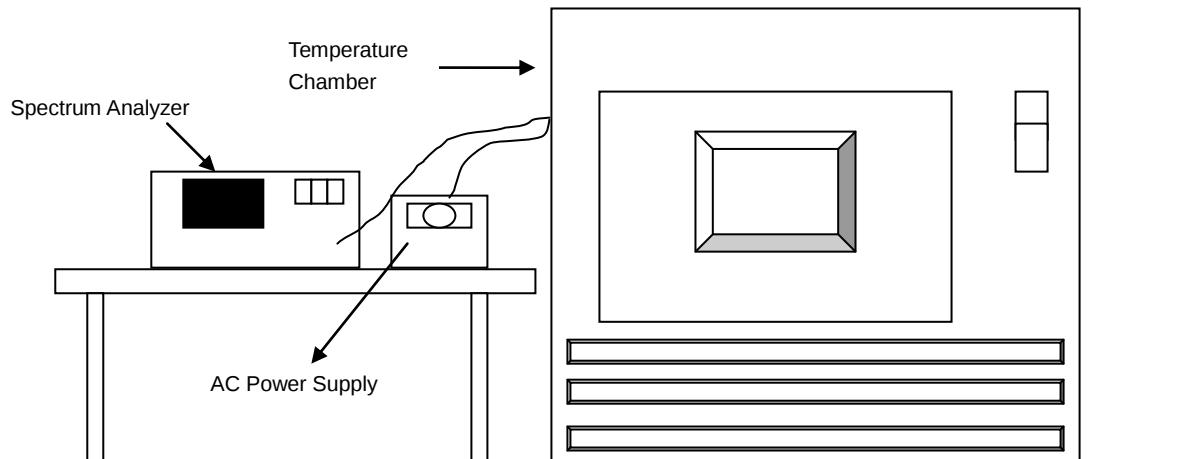


4.6 Frequency Stability Measurement

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

Frequency Stability Versus Temp.									
Operating Frequency: 5260 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	5260.022	PASS	5260.0257	PASS	5260.0214	PASS	5260.0229	PASS
40	120	5259.9742	PASS	5259.9786	PASS	5259.9758	PASS	5259.9788	PASS
30	120	5259.9984	PASS	5259.9991	PASS	5259.9982	PASS	5259.9986	PASS
20	120	5259.9922	PASS	5259.996	PASS	5259.9932	PASS	5259.9939	PASS
10	120	5259.9808	PASS	5259.9778	PASS	5259.9807	PASS	5259.978	PASS
0	120	5259.9782	PASS	5259.9763	PASS	5259.9786	PASS	5259.9812	PASS
-10	120	5259.9851	PASS	5259.9832	PASS	5259.987	PASS	5259.9826	PASS
-20	120	5259.973	PASS	5259.9761	PASS	5259.9736	PASS	5259.9735	PASS
-30	120	5259.9882	PASS	5259.9891	PASS	5259.9908	PASS	5259.987	PASS

Frequency Stability Versus Voltage									
Operating Frequency: 5260 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	5259.9922	PASS	5259.9955	PASS	5259.9922	PASS	5259.9939	PASS
	120	5259.9922	PASS	5259.996	PASS	5259.9932	PASS	5259.9939	PASS
	102	5259.9916	PASS	5259.9959	PASS	5259.9941	PASS	5259.9944	PASS

5 Pictures of Test Arrangements

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

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:

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

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