FCC Test Report

(15.407, WLAN)

Report No.:	RF150326E02A-2
FCC ID:	2AD8UFZPFWIC01
Test Model:	FWIC
Received Date:	Mar. 26, 2015
Test Date:	May 06 to 22, 2015
Issued Date:	June 25, 2015
Applicant:	Nokia Solutions and Networks
Address:	1455 West Shure Drive, Arlington Heights, IL 60004, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.
Test Location (1):	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
RF150326E02A-2	Original release.	June 25, 2015

1 Certificate of Conformity

Product:	Flexi Zone Indoor Pico BTS
Brand:	Nokia
Test Model:	FWIC
Sample Status:	ENGINEERING SAMPLE
Applicant:	Nokia Solutions and Networks
Test Date:	May 06 to 22, 2015
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10:2009

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:** June 25, 2015

Midoli Peng / Specialist

Approved by : _____ , **Date:** June 25, 2015

May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (SECTION 15.407)				
FCC Clause	FCC KDB 789033	Test Item	Result	Remarks
15.407(b)(6)	-	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.35dB at 25.74219MHz.
15.407(b) (1/2/3/4/6)	Section G	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5350.00MHz.
15.407(b) (1/2/3/4/6)	Section G	Conducted Emissions	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Section E.3	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Section F	Peak Power Spectral Density	PASS	Meet the requirement of limit.
-	Section D	Occupied Bandwidth Measurement	PASS	Meet the requirement.
15.407(g)	-	Frequency Stability	PASS	Meet the requirement of limit.
15.203	-	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.43 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.72 dB
	6GHz ~ 18GHz	4.00 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN, 15.407 <DFS band>)

Product	Flexi Zone Indoor Pico BTS
Brand	Nokia
Test Model	FWIC
Test Sample S/N	EA150710164
Hardware Version	472942A.X33 (Confirmation that the hardware version 472942A.X33 is fully identical with 472942A.101)
Software Version	Operating SW: FB_FZM_PS_LFS_OS_2014_05_59-0-g927a301 WiFi module SW: 9.8.1.0.14302702
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter or 55Vdc from POE
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	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, 5.50 ~ 5.70GHz
Number of Channel	15 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 7 for 802.11n (HT40), 802.11ac (VHT40) 3 for 802.11ac (VHT80)
Output Power	802.11a: 249.476mW 802.11ac (VHT20): 248.333mW 802.11ac (VHT40): 250.058mW 802.11ac (VHT80): 243.804mW
Antenna Type	Refer to note as below
Antenna Connector	Refer to note as below
Accessory Device	Adapter x1
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC Class II. This report is used in conjunction with report No RF150326E02-2 and adds the following additional information:
   - Add DFS band <5250~5350MHz & 5470~5725MHz>
2. There are WLAN, BT, LTE and GPS technology used for the EUT.
3. The emission of the simultaneous operation (WLAN, BT & LTE) has been evaluated and no non-compliance was found.
4. The EUT must be supplied with a POE(option) or power adapter as following table:

Power adapter		
Brand	Model No.	Spec.
DVE	DSA-60PFE-12 1 120500	Input: 100-240V, 2.0A, 50/60Hz AC input cable(1.8m, unshielded) Output: 12V, 5A DC output cable(1.2m, unshielded, with one core)

5. The EUT was pre-tested under following test modes :

Test Mode	Description
Mode A	**With POE**
Mode B	With adapter

For the above modes, the worst radaited emission (above 1GHz) test was found in **Mode A**. Therefore only the test data of the modes were recorded in this report.

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

WLAN Antenna Spec.

Antenna No	Brand	Model	Antenna Type	Antenna Connector	Gain(dBi) <Including cable loss>	Cable Length (mm)	Frequency (MHz)
Internal WIFI (Main)	TongDa	T-543-8141037-3	PIFA	i-pex(MHF)	3.3	90	2412~2472
					2.4		5150~5825
Internal WIFI (Aux)	TongDa	T-543-8141037-4	PIFA	i-pex(MHF)	3	70	2412~2472
					2.9		5150~5825

7. The EUT incorporates a MIMO function.

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

* 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)

8. 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	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (40MHz), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

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 (40MHz), 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	5530MHz	122	5610 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
1	√	√	√	√	With POE
2	-	√	√	-	With adapter

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

NOTE: 1. "-"means no effect.
2. This device can be installed in different orientations (wall mounted or tabletop), so had been investigated two different orientations. The worst case was found when positioned on Y-plane

Radiated Emission Test (Above 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	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, 120, 140	OFDM	BPSK	6
	802.11ac (VHT20)		100 to 140	100, 120, 140	OFDM	BPSK	6.5
	802.11ac (VHT40)		102 to 134	102, 118, 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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	802.11ac (VHT40)	5500-5700	102 to 134	134	OFDM	BPSK	13.5
2	802.11ac (VHT40)	5500-5700	102 to 134	134	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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	802.11ac (VHT40)	5500-5700	102 to 134	134	OFDM	BPSK	13.5
2	802.11ac (VHT40)	5500-5700	102 to 134	134	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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	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, 120, 140	OFDM	BPSK	6
	802.11ac (VHT20)		100 to 140	100, 120, 140	OFDM	BPSK	6.5
	802.11ac (VHT40)		102 to 134	102, 118, 134	OFDM	BPSK	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	29.3

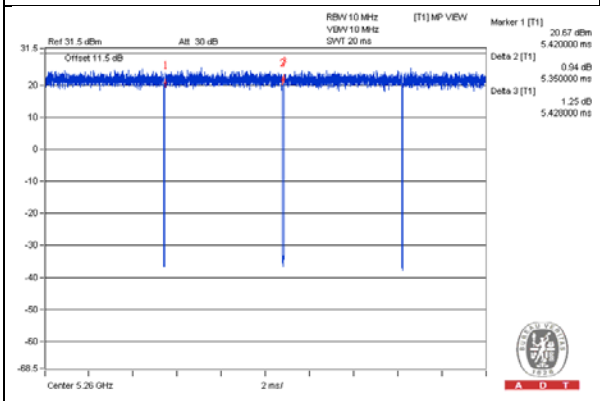
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	24deg. C, 68%RH	120Vac, 60Hz	Gary Cheng
RE<1G	23deg. C, 68%RH	120Vac, 60Hz	Jason Huang
PLC	25deg. C, 70%RH	120Vac, 60Hz	Mike Hsieh
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

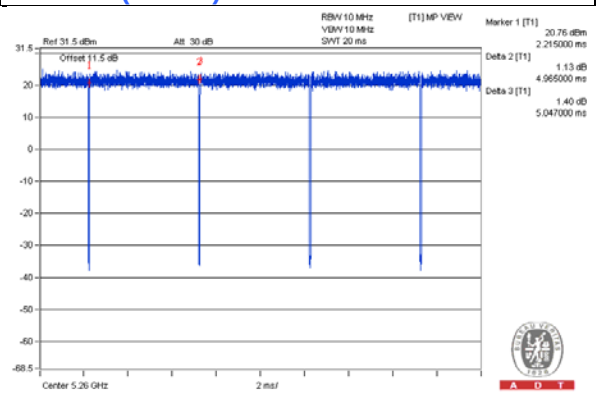
3.3 Duty Cycle of Test Signal

If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.
802.11a: Duty cycle = 5.35 ms/5.428 ms = 0.986
802.11ac (VHT20): Duty cycle = 4.965 ms/5.047 ms = 0.984
802.11ac (VHT40): Duty cycle = 2.415 ms/2.481 ms = 0.973, Duty factor = 10 * log(1/0.973) = 0.12
802.11ac (VHT80): Duty cycle = 1.135 ms/1.195 ms = 0.95, Duty factor = 10 * log(1/0.95) = 0.22

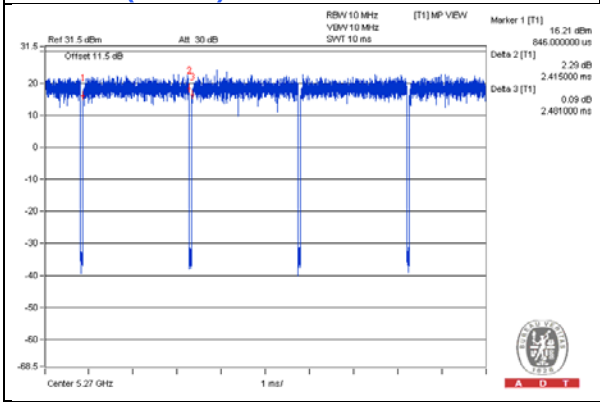
802.11a



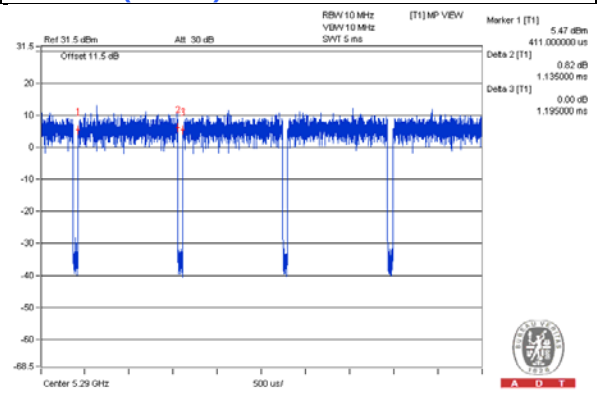
802.11ac (VHT20)



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.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B	NOTEBOOK COMPUTER	DELL	E6420	H62T3R1	FCC DoC	Provided by Lab
C	POE ADAPTER	NA	PD-7001G	D11326441001235A01	FCC DoC	Provided by Lab

NOTE:

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

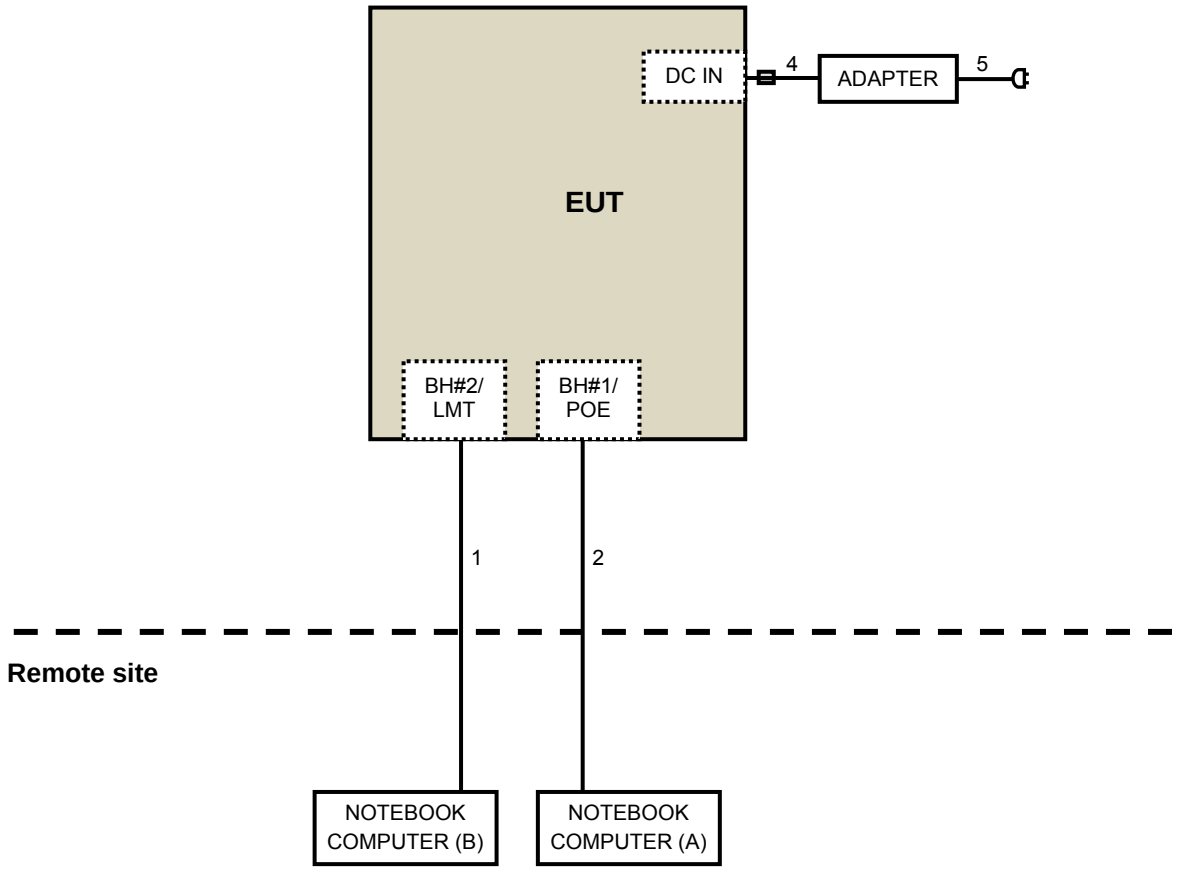
No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1	RJ-45	1	10	No	0	Provided by Lab
2	RJ-45	1	10	No	0	Provided by Lab
3	RJ-45	1	1.5	No	0	Provided by Lab
4	DC	1	1.2	No	1	Supplied by Client
5	AC	1	1.8	Yes	0	Supplied by Client

NOTE:

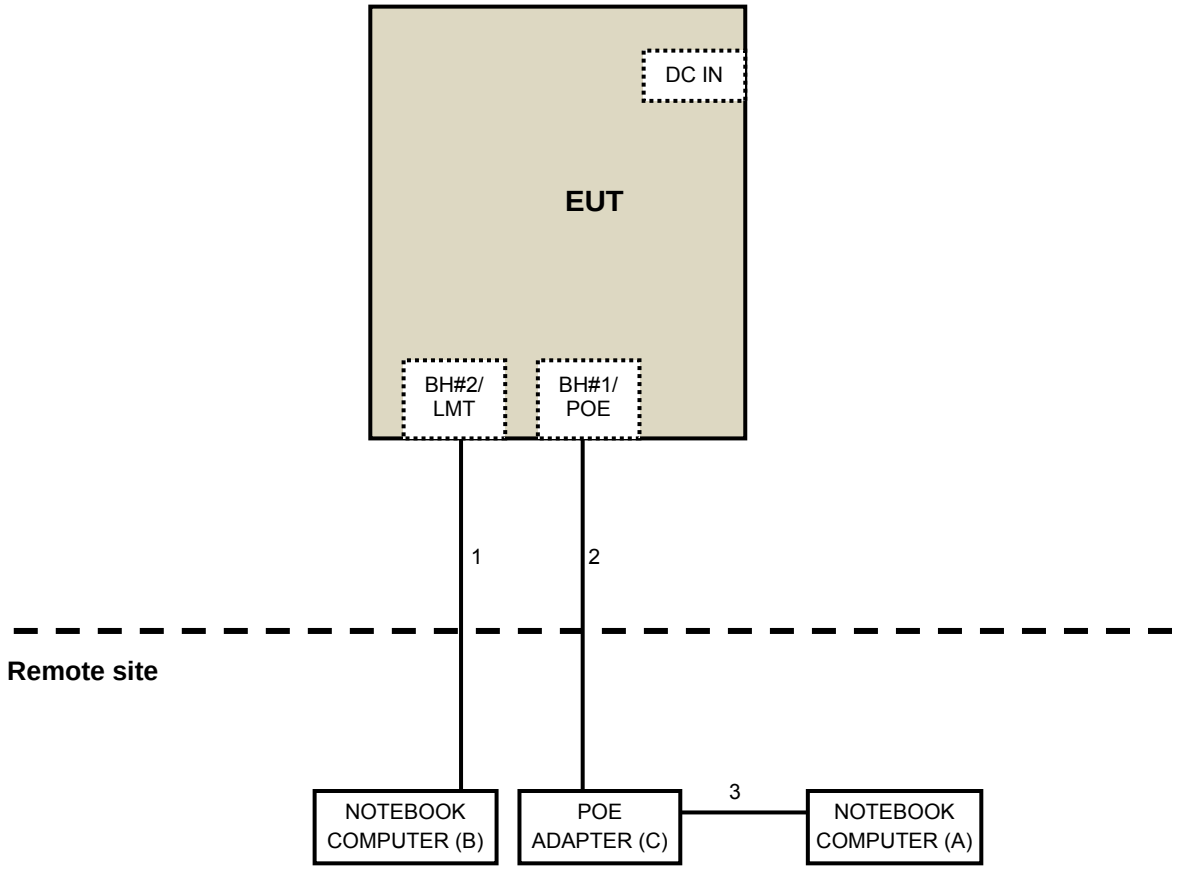
1. The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

For Adapter mode:



For POE mode:


DC IN
EUT
BH#2/
LMT
BH#1/
POE
1
2
Remote site
NOTEBOOK
COMPUTER (B)
POE
ADAPTER (C)
3
NOTEBOOK
COMPUTER (A)

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)
789033 D02 General UNII Test Procedure New Rules v01
662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2009

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 v01	FIELD STRENGTH AT 3m	
	PK:74 (dBμV/m)	AV:54 (dBμV/m)
APPLICABLE TO	**EIRP LIMIT**	**EQUIVALENT FIELD STRENGTH AT 3m**
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK:-27 (dBm/MHz) [*1] PK:-17 (dBm/MHz) [*2]	PK: 68.2(dBμV/m) [*1] PK:78.2 (dBμV/m) [*2]

NOTE: [*1] beyond 10MHz of the band edge [*2] within 10 MHz of band edge

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

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 06, 2015	Feb. 05, 2016
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Aug. 26, 2014	Aug. 25, 2015
Pre-Amplifier Agilent	8449B	300801923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated_V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3 The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5 The CANADA Site Registration No. is IC 7450H-3.
6 Tested Date: May 06 to 22, 2015

4.1.3 Test Procedure

a. The EUT was placed on the top of a rotating table 0.8 meters 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:

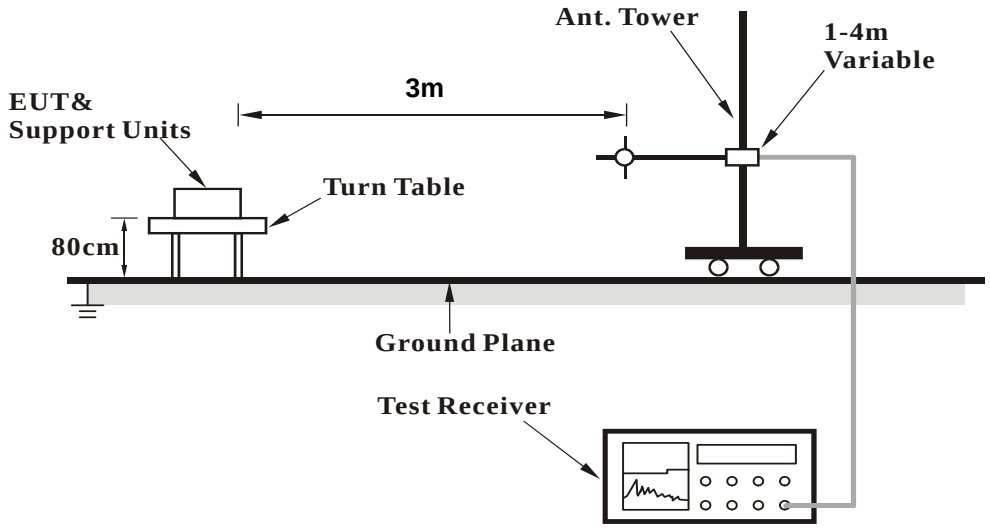
1. For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the ground at 3 meter chamber room for test
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
6. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

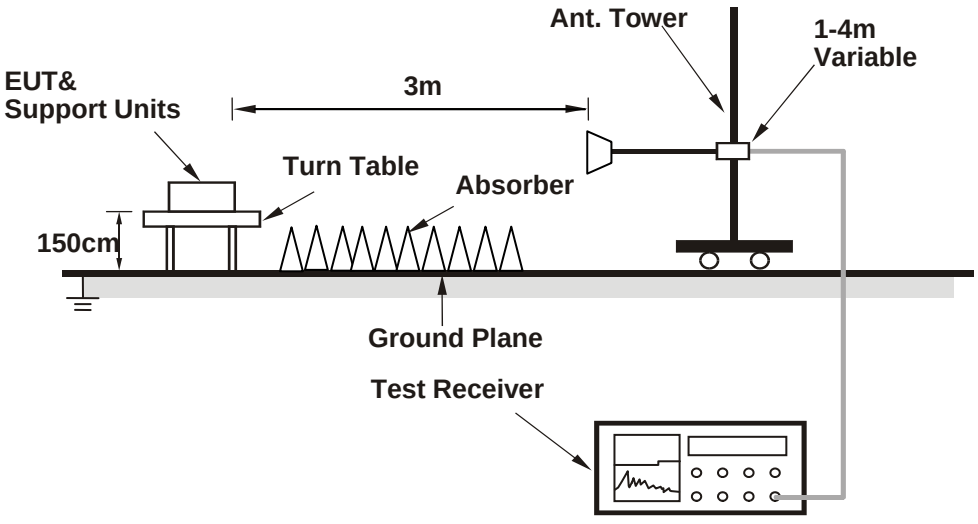
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Condition

1. Connect the EUT with the support units A-B (Notebook Computer) which is placed in remote site.
2. The communication partner run test program “cart.exe[art2_ver_4_9_575_5]” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 Test Results (Mode 1)

ABOVE 1GHz DATA

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.0 PK	74.0	-12.0	2.05 H	19	55.53	6.47
2	5150.00	49.3 AV	54.0	-4.7	2.05 H	19	42.83	6.47
3	*5260.00	120.3 PK			2.05 H	19	113.45	6.85
4	*5260.00	109.4 AV			2.05 H	19	102.55	6.85
5	5350.00	61.2 PK	74.0	-12.8	2.05 H	19	54.16	7.04
6	5350.00	49.1 AV	54.0	-4.9	2.05 H	19	42.06	7.04
7	11490.00	59.9 PK	74.0	-14.1	1.34 H	304	45.38	14.52
8	11490.00	47.6 AV	54.0	-6.4	1.34 H	304	33.08	14.52
9	#17235.00	63.6 PK	74.0	-10.4	1.58 H	132	39.84	23.76
10	#17235.00	50.1 AV	54.0	-3.9	1.58 H	132	26.34	23.76
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	55.6 PK	74.0	-18.4	1.78 V	283	49.13	6.47
2	5150.00	43.4 AV	54.0	-10.6	1.78 V	283	36.93	6.47
3	*5260.00	113.2 PK			1.78 V	283	106.35	6.85
4	*5260.00	102.7 AV			1.78 V	283	95.85	6.85
5	5350.00	55.4 PK	74.0	-18.6	1.78 V	283	48.36	7.04
6	5350.00	43.1 AV	54.0	-10.9	1.78 V	283	36.06	7.04
7	#10520.00	61.4 PK	74.0	-12.6	2.14 V	359	47.57	13.83
8	#10520.00	49.4 AV	54.0	-4.6	2.14 V	359	35.57	13.83
9	15780.00	62.2 PK	74.0	-11.8	1.97 V	332	42.84	19.36
10	15780.00	50.3 AV	54.0	-3.7	1.97 V	332	30.94	19.36

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.8 PK	74.0	-18.2	1.96 H	360	49.33	6.47
2	5150.00	46.0 AV	54.0	-8.0	1.96 H	360	39.53	6.47
3	*5300.00	120.0 PK			1.96 H	360	113.10	6.90
4	*5300.00	109.2 AV			1.96 H	360	102.30	6.90
5	5350.00	63.9 PK	74.0	-10.1	1.96 H	360	56.86	7.04
6	5350.00	50.9 AV	54.0	-3.1	1.96 H	360	43.86	7.04
7	10600.00	59.8 PK	74.0	-14.2	1.28 H	301	46.36	13.44
8	10600.00	47.3 AV	54.0	-6.7	1.28 H	301	33.86	13.44
9	15900.00	63.1 PK	74.0	-10.9	1.57 H	119	44.09	19.01
10	15900.00	49.7 AV	54.0	-4.3	1.57 H	119	30.69	19.01
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	51.4 PK	74.0	-22.6	1.78 V	286	44.93	6.47
2	5150.00	39.8 AV	54.0	-14.2	1.78 V	286	33.33	6.47
3	*5300.00	113.1 PK			1.78 V	286	106.20	6.90
4	*5300.00	102.8 AV			1.78 V	286	95.90	6.90
5	5350.00	52.7 PK	74.0	-21.3	1.78 V	286	45.66	7.04
6	5350.00	40.9 AV	54.0	-13.1	1.78 V	286	33.86	7.04
7	10600.00	60.8 PK	74.0	-13.2	2.11 V	354	47.36	13.44
8	10600.00	48.9 AV	54.0	-5.1	2.11 V	354	35.46	13.44
9	15900.00	61.6 PK	74.0	-12.4	1.95 V	322	42.59	19.01
10	15900.00	49.8 AV	54.0	-4.2	1.95 V	322	30.79	19.01

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4915.20	57.8 PK	74.0	-16.2	1.69 H	329	51.73	6.07
2	4915.20	48.0 AV	54.0	-6.0	1.69 H	329	41.93	6.07
3	*5320.00	119.3 PK			1.96 H	360	112.33	6.97
4	*5320.00	108.8 AV			1.96 H	360	101.83	6.97
5	5350.00	65.9 PK	74.0	-8.1	1.96 H	360	58.86	7.04
6	5350.00	52.9 AV	54.0	-1.1	1.96 H	360	45.86	7.04
7	10640.00	61.2 PK	74.0	-12.8	1.31 H	290	47.53	13.67
8	10640.00	49.0 AV	54.0	-5.0	1.31 H	290	35.33	13.67
9	15960.00	65.0 PK	74.0	-9.0	1.64 H	134	46.16	18.84
10	15960.00	51.4 AV	54.0	-2.6	1.64 H	134	32.56	18.84
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	4915.20	53.4 PK	74.0	-20.6	1.68 V	135	47.33	6.07
2	4915.20	43.7 AV	54.0	-10.3	1.68 V	135	37.63	6.07
3	*5320.00	111.1 PK			1.82 V	287	104.13	6.97
4	*5320.00	100.8 AV			1.82 V	287	93.83	6.97
5	5350.00	57.8 PK	74.0	-16.2	1.73 V	272	50.76	7.04
6	5350.00	44.2 AV	54.0	-9.8	1.73 V	272	37.16	7.04
7	10640.00	63.0 PK	74.0	-11.0	2.16 V	355	49.33	13.67
8	10640.00	51.1 AV	54.0	-2.9	2.16 V	355	37.43	13.67
9	15960.00	63.2 PK	74.0	-10.8	1.91 V	311	44.36	18.84
10	15960.00	51.6 AV	54.0	-2.4	1.91 V	311	32.76	18.84

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5350.00	62.3 PK	74.0	-11.7	1.92 H	22	55.26	7.04
2	5350.00	49.5 AV	54.0	-4.5	1.92 H	22	42.46	7.04
3	#5470.00	66.9 PK	74.0	-7.1	1.92 H	22	59.61	7.29
4	#5470.00	52.3 AV	54.0	-1.7	1.92 H	22	45.01	7.29
5	*5500.00	117.0 PK			1.92 H	22	109.67	7.33
6	*5500.00	106.6 AV			1.92 H	22	99.27	7.33
7	11000.00	60.4 PK	74.0	-13.6	1.29 H	286	46.17	14.23
8	11000.00	47.8 AV	54.0	-6.2	1.29 H	286	33.57	14.23
9	#16500.00	64.3 PK	74.0	-9.7	1.64 H	121	43.33	20.97
10	#16500.00	50.2 AV	54.0	-3.8	1.64 H	121	29.23	20.97
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	5350.00	56.8 PK	74.0	-17.2	1.77 V	277	49.76	7.04
2	5350.00	43.5 AV	54.0	-10.5	1.77 V	277	36.46	7.04
3	#5470.00	60.1 PK	74.0	-13.9	1.77 V	277	52.81	7.29
4	#5470.00	45.2 AV	54.0	-8.8	1.77 V	277	37.91	7.29
5	*5500.00	110.9 PK			1.77 V	277	103.57	7.33
6	*5500.00	100.7 AV			1.77 V	277	93.37	7.33
7	11000.00	62.4 PK	74.0	-11.6	2.14 V	348	48.17	14.23
8	11000.00	50.2 AV	54.0	-3.8	2.14 V	348	35.97	14.23
9	#16500.00	62.2 PK	74.0	-11.8	1.86 V	318	41.23	20.97
10	#16500.00	50.3 AV	54.0	-3.7	1.86 V	318	29.33	20.97

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5350.00	62.6 PK	74.0	-11.4	1.85 H	26	55.56	7.04
2	5350.00	49.7 AV	54.0	-4.3	1.85 H	26	42.66	7.04
3	#5470.00	61.9 PK	74.0	-12.1	1.85 H	26	54.61	7.29
4	#5470.00	49.4 AV	54.0	-4.6	1.85 H	26	42.11	7.29
5	*5600.00	118.2 PK			1.85 H	26	111.07	7.13
6	*5600.00	107.0 AV			1.85 H	26	99.87	7.13
7	#5725.00	59.0 PK	74.0	-15.0	1.85 H	26	51.62	7.38
8	#5725.00	47.0 AV	54.0	-7.0	1.85 H	26	39.62	7.38
9	11200.00	61.9 PK	74.0	-12.1	1.32 H	303	47.43	14.47
10	11200.00	49.3 AV	54.0	-4.7	1.32 H	303	34.83	14.47
11	#16800.00	65.4 PK	74.0	-8.6	1.63 H	126	43.30	22.10
12	#16800.00	52.9 AV	54.0	-1.1	1.63 H	126	30.80	22.10
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	5350.00	56.2 PK	74.0	-17.8	1.76 V	265	49.16	7.04
2	5350.00	43.6 AV	54.0	-10.4	1.76 V	265	36.56	7.04
3	#5470.00	55.9 PK	74.0	-18.1	1.76 V	265	48.61	7.29
4	#5470.00	43.3 AV	54.0	-10.7	1.76 V	265	36.01	7.29
5	*5600.00	112.7 PK			1.76 V	265	105.57	7.13
6	*5600.00	101.6 AV			1.76 V	265	94.47	7.13
7	#5725.00	53.4 PK	74.0	-20.6	1.76 V	265	46.02	7.38
8	#5725.00	41.3 AV	54.0	-12.7	1.76 V	265	33.92	7.38
9	11200.00	62.2 PK	74.0	-11.8	2.04 V	348	47.73	14.47
10	11200.00	49.9 AV	54.0	-4.1	2.04 V	348	35.43	14.47
11	#16800.00	61.8 PK	74.0	-12.2	1.81 V	322	39.70	22.10
12	#16800.00	49.7 AV	54.0	-4.3	1.81 V	322	27.60	22.10

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	117.2 PK			2.12 H	27	109.81	7.39
2	*5700.00	106.3 AV			2.12 H	27	98.91	7.39
3	#5725.00	67.7 PK	68.2	-0.5	2.12 H	27	60.32	7.38
4	11400.00	60.2 PK	74.0	-13.8	1.27 H	310	45.34	14.86
5	11400.00	47.6 AV	54.0	-6.4	1.27 H	310	32.74	14.86
6	#17100.00	64.6 PK	74.0	-9.4	1.63 H	128	41.61	22.99
7	#17100.00	51.5 AV	54.0	-2.5	1.63 H	128	28.51	22.99
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	111.3 PK			1.72 V	266	103.91	7.39
2	*5700.00	100.6 AV			1.72 V	266	93.21	7.39
3	#5725.00	61.3 PK	68.2	-6.9	1.77 V	266	53.92	7.38
4	11400.00	59.3 PK	74.0	-14.7	2.09 V	328	44.44	14.86
5	11400.00	47.2 AV	54.0	-6.8	2.09 V	328	32.34	14.86
6	#17100.00	60.4 PK	74.0	-13.6	1.70 V	333	37.41	22.99
7	#17100.00	47.6 AV	54.0	-6.4	1.70 V	333	24.61	22.99

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.9 PK	74.0	-14.1	2.01 H	12	53.43	6.47
2	5150.00	49.5 AV	54.0	-4.5	2.01 H	12	43.03	6.47
3	*5260.00	120.3 PK			2.01 H	12	113.45	6.85
4	*5260.00	109.7 AV			2.01 H	12	102.85	6.85
5	5350.00	59.9 PK	74.0	-14.1	2.01 H	12	52.86	7.04
6	5350.00	48.0 AV	54.0	-6.0	2.01 H	12	40.96	7.04
7	#10520.00	62.3 PK	74.0	-11.7	1.25 H	282	48.47	13.83
8	#10520.00	49.8 AV	54.0	-4.2	1.25 H	282	35.97	13.83
9	15780.00	65.6 PK	74.0	-8.4	1.60 H	133	46.24	19.36
10	15780.00	52.2 AV	54.0	-1.8	1.60 H	133	32.84	19.36
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	53.6 PK	74.0	-20.4	1.82 V	277	47.13	6.47
2	5150.00	41.4 AV	54.0	-12.6	1.82 V	277	34.93	6.47
3	*5260.00	113.8 PK			1.73 V	298	106.95	6.85
4	*5260.00	103.2 AV			1.73 V	298	96.35	6.85
5	5350.00	51.6 PK	74.0	-22.4	1.79 V	281	44.56	7.04
6	5350.00	43.9 AV	54.0	-10.1	1.79 V	281	36.86	7.04
7	#10520.00	63.5 PK	74.0	-10.5	2.14 V	360	49.67	13.83
8	#10520.00	51.5 AV	54.0	-2.5	2.14 V	360	37.67	13.83
9	15780.00	64.5 PK	74.0	-9.5	1.93 V	315	45.14	19.36
10	15780.00	52.3 AV	54.0	-1.7	1.93 V	315	32.94	19.36

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5120.00	57.6 PK	74.0	-16.4	1.99 H	360	51.30	6.30
2	5120.00	45.8 AV	54.0	-8.2	1.99 H	360	39.50	6.30
3	*5300.00	120.6 PK			1.99 H	360	113.70	6.90
4	*5300.00	110.4 AV			1.99 H	360	103.50	6.90
5	5350.00	59.8 PK	74.0	-14.2	1.99 H	360	52.76	7.04
6	5350.00	46.3 AV	54.0	-7.7	1.99 H	360	39.26	7.04
7	10600.00	62.2 PK	74.0	-11.8	1.28 H	292	48.76	13.44
8	10600.00	49.9 AV	54.0	-4.1	1.28 H	292	36.46	13.44
9	15900.00	66.2 PK	74.0	-7.8	1.59 H	139	47.19	19.01
10	15900.00	52.6 AV	54.0	-1.4	1.59 H	139	33.59	19.01
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	5120.00	57.2 PK	74.0	-16.8	1.73 V	296	50.90	6.30
2	5120.00	40.4 AV	54.0	-13.6	1.73 V	296	34.10	6.30
3	*5300.00	113.8 PK			1.73 V	296	106.90	6.90
4	*5300.00	103.1 AV			1.73 V	296	96.20	6.90
5	5350.00	56.1 PK	74.0	-17.9	1.73 V	296	49.06	7.04
6	5350.00	43.9 AV	54.0	-10.1	1.73 V	296	36.86	7.04
7	10600.00	63.9 PK	74.0	-10.1	2.09 V	353	50.46	13.44
8	10600.00	51.8 AV	54.0	-2.2	2.09 V	353	38.36	13.44
9	15900.00	64.0 PK	74.0	-10.0	1.98 V	308	44.99	19.01
10	15900.00	52.1 AV	54.0	-1.9	1.98 V	308	33.09	19.01

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	119.2 PK			1.98 H	360	112.23	6.97
2	*5320.00	108.6 AV			1.98 H	360	101.63	6.97
3	5350.00	66.0 PK	74.0	-8.0	1.98 H	360	58.96	7.04
4	5350.00	52.4 AV	54.0	-1.6	1.98 H	360	45.36	7.04
5	10640.00	61.0 PK	74.0	-13.0	1.28 H	302	47.33	13.67
6	10640.00	49.0 AV	54.0	-5.0	1.28 H	302	35.33	13.67
7	15960.00	63.4 PK	74.0	-10.6	1.61 H	121	44.56	18.84
8	15960.00	49.8 AV	54.0	-4.2	1.61 H	121	30.96	18.84
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	114.0 PK			2.16 V	301	107.03	6.97
2	*5320.00	103.6 AV			2.16 V	301	96.63	6.97
3	5350.00	60.0 PK	74.0	-14.0	2.16 V	301	52.96	7.04
4	5350.00	47.1 AV	54.0	-6.9	2.16 V	301	40.06	7.04
5	10640.00	62.8 PK	74.0	-11.2	2.20 V	360	49.13	13.67
6	10640.00	50.9 AV	54.0	-3.1	2.20 V	360	37.23	13.67
7	15960.00	62.1 PK	74.0	-11.9	1.96 V	326	43.26	18.84
8	15960.00	50.5 AV	54.0	-3.5	1.96 V	326	31.66	18.84

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	68.8 PK	74.0	-5.2	2.16 H	360	61.51	7.29
2	#5470.00	52.3 AV	54.0	-1.7	2.16 H	360	45.01	7.29
3	*5500.00	116.9 PK			2.16 H	360	109.57	7.33
4	*5500.00	106.6 AV			2.16 H	360	99.27	7.33
5	11000.00	60.3 PK	74.0	-13.7	1.25 H	326	46.07	14.23
6	11000.00	47.7 AV	54.0	-6.3	1.25 H	326	33.47	14.23
7	#16500.00	64.7 PK	74.0	-9.3	1.61 H	150	43.73	20.97
8	#16500.00	51.7 AV	54.0	-2.3	1.61 H	150	30.73	20.97
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	62.7 PK	74.0	-11.3	2.06 V	300	55.41	7.29
2	#5470.00	45.8 AV	54.0	-8.2	2.06 V	300	38.51	7.29
3	*5500.00	110.4 PK			2.06 V	300	103.07	7.33
4	*5500.00	100.4 AV			2.06 V	300	93.07	7.33
5	11000.00	60.2 PK	74.0	-13.8	2.02 V	347	45.97	14.23
6	11000.00	48.0 AV	54.0	-6.0	2.02 V	347	33.77	14.23
7	#16500.00	60.0 PK	74.0	-14.0	1.78 V	335	39.03	20.97
8	#16500.00	47.9 AV	54.0	-6.1	1.78 V	335	26.93	20.97

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 120	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	5350.00	63.2 PK	74.0	-10.8	1.85 H	6	56.16	7.04
2	5350.00	50.2 AV	54.0	-3.8	1.85 H	6	43.16	7.04
3	#5470.00	62.1 PK	74.0	-11.9	1.85 H	6	54.81	7.29
4	#5470.00	49.4 AV	54.0	-4.6	1.85 H	6	42.11	7.29
5	*5600.00	117.9 PK			1.85 H	6	110.77	7.13
6	*5600.00	106.7 AV			1.85 H	6	99.57	7.13
7	#5725.00	59.0 PK	74.0	-15.0	1.85 H	6	51.62	7.38
8	#5725.00	47.3 AV	54.0	-6.7	1.85 H	6	39.92	7.38
9	11200.00	60.0 PK	74.0	-14.0	1.29 H	316	45.53	14.47
10	11200.00	47.4 AV	54.0	-6.6	1.29 H	316	32.93	14.47
11	#16800.00	65.4 PK	74.0	-8.6	1.57 H	136	43.30	22.10
12	#16800.00	52.1 AV	54.0	-1.9	1.57 H	136	30.00	22.10
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	5350.00	57.0 PK	74.0	-17.0	2.10 V	315	49.96	7.04
2	5350.00	43.8 AV	54.0	-10.2	2.10 V	315	36.76	7.04
3	#5470.00	55.8 PK	74.0	-18.2	2.10 V	315	48.51	7.29
4	#5470.00	43.3 AV	54.0	-10.7	2.10 V	315	36.01	7.29
5	*5600.00	110.7 PK			2.10 V	315	103.57	7.13
6	*5600.00	100.6 AV			2.10 V	315	93.47	7.13
7	#5725.00	52.8 PK	74.0	-21.2	2.10 V	315	45.42	7.38
8	#5725.00	41.6 AV	54.0	-12.4	2.10 V	315	34.22	7.38
9	11200.00	60.9 PK	74.0	-13.1	2.08 V	357	46.43	14.47
10	11200.00	48.5 AV	54.0	-5.5	2.08 V	357	34.03	14.47
11	#16800.00	61.0 PK	74.0	-13.0	1.76 V	341	38.90	22.10
12	#16800.00	48.7 AV	54.0	-5.3	1.76 V	341	26.60	22.10

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	116.1 PK			2.12 H	360	108.71	7.39
2	*5700.00	105.2 AV			2.12 H	360	97.81	7.39
3	#5725.00	67.9 PK	68.2	-0.3	2.12 H	360	60.52	7.38
4	11400.00	59.8 PK	74.0	-14.2	1.24 H	320	44.94	14.86
5	11400.00	47.4 AV	54.0	-6.6	1.24 H	320	32.54	14.86
6	#17100.00	64.8 PK	74.0	-9.2	1.59 H	116	41.81	22.99
7	#17100.00	51.4 AV	54.0	-2.6	1.59 H	116	28.41	22.99
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	110.2 PK			2.00 V	262	102.81	7.39
2	*5700.00	100.3 AV			2.00 V	262	92.91	7.39
3	#5725.00	61.1 PK	68.2	-7.1	1.77 V	255	53.72	7.38
4	11400.00	60.0 PK	74.0	-14.0	2.08 V	317	45.14	14.86
5	11400.00	47.7 AV	54.0	-6.3	2.08 V	317	32.84	14.86
6	#17100.00	60.2 PK	74.0	-13.8	1.70 V	325	37.21	22.99
7	#17100.00	47.3 AV	54.0	-6.7	1.70 V	325	24.31	22.99

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.6 PK	74.0	-11.4	2.04 H	360	56.13	6.47
2	5150.00	49.9 AV	54.0	-4.1	2.04 H	360	43.43	6.47
3	*5270.00	117.7 PK			2.04 H	360	110.84	6.86
4	*5270.00	106.2 AV			2.04 H	360	99.34	6.86
5	5350.00	63.2 PK	74.0	-10.8	2.04 H	360	56.16	7.04
6	5350.00	51.9 AV	54.0	-2.1	2.04 H	360	44.86	7.04
7	#10540.00	56.8 PK	74.0	-17.2	1.13 H	343	43.07	13.73
8	#10540.00	42.5 AV	54.0	-11.5	1.13 H	343	28.77	13.73
9	15810.00	56.0 PK	74.0	-18.0	1.26 H	306	36.58	19.42
10	15810.00	45.2 AV	54.0	-8.8	1.26 H	306	25.78	19.42
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	55.2 PK	74.0	-18.8	2.06 V	264	48.73	6.47
2	5150.00	43.6 AV	54.0	-10.4	2.06 V	264	37.13	6.47
3	*5270.00	111.4 PK			2.06 V	264	104.54	6.86
4	*5270.00	100.4 AV			2.06 V	264	93.54	6.86
5	5350.00	57.4 PK	74.0	-16.6	2.06 V	264	50.36	7.04
6	5350.00	45.6 AV	54.0	-8.4	2.06 V	264	38.56	7.04
7	#10540.00	56.4 PK	74.0	-17.6	1.00 V	30	42.67	13.73
8	#10540.00	43.7 AV	54.0	-10.3	1.00 V	30	29.97	13.73
9	15810.00	58.4 PK	74.0	-15.6	1.54 V	0	38.98	19.42
10	15810.00	45.4 AV	54.0	-8.6	1.54 V	0	25.98	19.42

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	113.5 PK			1.96 H	360	106.56	6.94
2	*5310.00	102.4 AV			1.96 H	360	95.46	6.94
3	5350.00	68.2 PK	74.0	-5.8	1.96 H	360	61.16	7.04
4	**5350.00**	**53.9 AV**	**54.0**	**-0.1**	**1.96 H**	**360**	**46.86**	**7.04**
5	10620.00	56.8 PK	74.0	-17.2	1.25 H	302	43.26	13.54
6	10620.00	44.9 AV	54.0	-9.1	1.25 H	302	31.36	13.54
7	15930.00	61.5 PK	74.0	-12.5	1.24 H	338	42.58	18.92
8	15930.00	46.5 AV	54.0	-7.5	1.24 H	338	27.58	18.92
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	107.7 PK			2.00 V	260	100.76	6.94
2	*5310.00	96.0 AV			2.00 V	260	89.06	6.94
3	5350.00	61.8 PK	74.0	-12.2	2.00 V	260	54.76	7.04
4	5350.00	47.9 AV	54.0	-6.1	2.00 V	260	40.86	7.04
5	10620.00	58.4 PK	74.0	-15.6	1.02 V	51	44.86	13.54
6	10620.00	45.7 AV	54.0	-8.3	1.02 V	51	32.16	13.54
7	15930.00	60.4 PK	74.0	-13.6	1.65 V	12	41.48	18.92
8	15930.00	46.0 AV	54.0	-8.0	1.65 V	12	27.08	18.92

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5350.00	61.6 PK	74.0	-12.4	2.30 H	360	54.56	7.04
2	5350.00	48.4 AV	54.0	-5.6	2.30 H	360	41.36	7.04
3	#5470.00	70.2 PK	74.0	-3.8	2.30 H	360	62.91	7.29
4	#5470.00	53.7 AV	54.0	-0.3	2.30 H	360	46.41	7.29
5	*5510.00	112.3 PK			2.30 H	360	104.99	7.31
6	*5510.00	101.4 AV			2.30 H	360	94.09	7.31
7	11020.00	56.9 PK	74.0	-17.1	1.28 H	292	42.62	14.28
8	11020.00	45.0 AV	54.0	-9.0	1.28 H	292	30.72	14.28
9	#16530.00	62.0 PK	74.0	-12.0	1.24 H	322	40.77	21.23
10	#16530.00	46.8 AV	54.0	-7.2	1.24 H	322	25.57	21.23
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	5350.00	55.6 PK	74.0	-18.4	2.03 V	269	48.56	7.04
2	5350.00	42.1 AV	54.0	-11.9	2.03 V	269	35.06	7.04
3	#5470.00	64.4 PK	74.0	-9.6	2.03 V	269	57.11	7.29
4	#5470.00	47.8 AV	54.0	-6.2	2.03 V	269	40.51	7.29
5	*5510.00	106.2 PK			2.03 V	269	98.89	7.31
6	*5510.00	95.6 AV			2.03 V	269	88.29	7.31
7	11020.00	58.1 PK	74.0	-15.9	1.08 V	56	43.82	14.28
8	11020.00	45.4 AV	54.0	-8.6	1.08 V	56	31.12	14.28
9	#16530.00	60.5 PK	74.0	-13.5	1.67 V	2	39.27	21.23
10	#16530.00	45.8 AV	54.0	-8.2	1.67 V	2	24.57	21.23

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	60.4 PK	74.0	-13.6	1.82 H	360	53.11	7.29
2	#5470.00	48.6 AV	54.0	-5.4	1.82 H	360	41.31	7.29
3	*5590.00	113.4 PK			1.82 H	360	106.25	7.15
4	*5590.00	103.6 AV			1.82 H	360	96.45	7.15
5	#5725.00	58.6 PK	74.0	-15.4	1.82 H	360	51.22	7.38
6	#5725.00	46.6 AV	54.0	-7.4	1.82 H	360	39.22	7.38
7	11180.00	56.3 PK	74.0	-17.7	1.13 H	352	41.83	14.47
8	11180.00	44.0 AV	54.0	-10.0	1.13 H	352	29.53	14.47
9	#16770.00	59.2 PK	74.0	-14.8	1.23 H	293	37.17	22.03
10	#16770.00	47.2 AV	54.0	-6.8	1.23 H	293	25.17	22.03
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	54.4 PK	74.0	-19.6	2.09 V	273	47.11	7.29
2	#5470.00	42.6 AV	54.0	-11.4	2.09 V	273	35.31	7.29
3	*5590.00	112.0 PK			2.09 V	273	104.85	7.15
4	*5590.00	100.5 AV			2.09 V	273	93.35	7.15
5	#5725.00	52.6 PK	74.0	-21.4	2.09 V	273	45.22	7.38
6	#5725.00	40.6 AV	54.0	-13.4	2.09 V	273	33.22	7.38
7	11180.00	58.2 PK	74.0	-15.8	1.02 V	31	43.73	14.47
8	11180.00	45.7 AV	54.0	-8.3	1.02 V	31	31.23	14.47
9	#16770.00	60.4 PK	74.0	-13.6	1.49 V	3	38.37	22.03
10	#16770.00	47.4 AV	54.0	-6.6	1.49 V	3	25.37	22.03

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	113.2 PK			1.57 H	360	105.89	7.31
2	*5670.00	102.6 AV			1.57 H	360	95.29	7.31
3	#5725.00	63.6 PK	74.0	-10.4	1.87 H	360	56.22	7.38
4	#5725.00	52.0 AV	54.0	-2.0	1.87 H	360	44.62	7.38
5	11340.00	56.3 PK	74.0	-17.7	1.18 H	355	41.74	14.56
6	11340.00	43.4 AV	54.0	-10.6	1.18 H	355	28.84	14.56
7	#17010.00	57.9 PK	74.0	-16.1	1.21 H	326	34.51	23.39
8	#17010.00	45.9 AV	54.0	-8.1	1.21 H	326	22.51	23.39
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	112.4 PK			2.09 V	273	105.09	7.31
2	*5670.00	99.4 AV			2.09 V	273	92.09	7.31
3	#5725.00	57.4 PK	74.0	-16.6	2.09 V	273	50.02	7.38
4	#5725.00	46.0 AV	54.0	-8.0	2.09 V	273	38.62	7.38
5	11340.00	57.0 PK	74.0	-17.0	1.00 V	28	42.44	14.56
6	11340.00	44.8 AV	54.0	-9.2	1.00 V	28	30.24	14.56
7	#17010.00	59.0 PK	74.0	-15.0	1.46 V	9	35.61	23.39
8	#17010.00	45.9 AV	54.0	-8.1	1.46 V	9	22.51	23.39

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5290.00	104.9 PK			1.93 H	360	98.01	6.89
2	*5290.00	93.6 AV			1.93 H	360	86.71	6.89
3	5350.00	67.2 PK	74.0	-6.8	1.93 H	360	60.16	7.04
4	5350.00	53.8 AV	54.0	-0.2	1.93 H	360	46.76	7.04
5	#10580.00	52.8 PK	74.0	-21.2	1.12 H	47	39.27	13.53
6	#10580.00	40.8 AV	54.0	-13.2	1.12 H	47	27.27	13.53
7	15870.00	56.6 PK	74.0	-17.4	1.07 H	313	37.45	19.15
8	15870.00	44.3 AV	54.0	-9.7	1.07 H	313	25.15	19.15
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	98.8 PK			2.07 V	288	91.91	6.89
2	*5290.00	87.6 AV			2.07 V	288	80.71	6.89
3	5350.00	61.4 PK	74.0	-12.6	2.07 V	288	54.36	7.04
4	5350.00	47.8 AV	54.0	-6.2	2.07 V	288	40.76	7.04
5	#10580.00	56.0 PK	74.0	-18.0	1.05 V	16	42.47	13.53
6	#10580.00	41.4 AV	54.0	-12.6	1.05 V	16	27.87	13.53
7	15870.00	58.6 PK	74.0	-15.4	1.45 V	21	39.45	19.15
8	15870.00	46.7 AV	54.0	-7.3	1.45 V	21	27.55	19.15

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5350.00	66.9 PK	74.0	-7.1	2.14 H	360	59.86	7.04
2	5350.00	51.7 AV	54.0	-2.3	2.14 H	360	44.66	7.04
3	#5470.00	69.4 PK	74.0	-4.6	2.14 H	360	62.11	7.29
4	#5470.00	53.8 AV	54.0	-0.2	2.14 H	360	46.51	7.29
5	*5530.00	106.5 PK			2.14 H	360	99.23	7.27
6	*5530.00	94.7 AV			2.14 H	360	87.43	7.27
7	11060.00	53.2 PK	74.0	-20.8	1.08 H	53	38.85	14.35
8	11060.00	41.1 AV	54.0	-12.9	1.08 H	53	26.75	14.35
9	#16590.00	56.5 PK	74.0	-17.5	1.11 H	316	34.76	21.74
10	#16590.00	44.2 AV	54.0	-9.8	1.11 H	316	22.46	21.74
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	5350.00	60.9 PK	74.0	-13.1	2.06 V	278	53.86	7.04
2	5350.00	45.7 AV	54.0	-8.3	2.06 V	278	38.66	7.04
3	#5470.00	63.4 PK	74.0	-10.6	2.06 V	278	56.11	7.29
4	#5470.00	47.8 AV	54.0	-6.2	2.06 V	278	40.51	7.29
5	*5530.00	100.3 PK			2.06 V	278	93.03	7.27
6	*5530.00	88.7 AV			2.06 V	278	81.43	7.27
7	11060.00	55.4 PK	74.0	-18.6	1.10 V	2	41.05	14.35
8	11060.00	41.1 AV	54.0	-12.9	1.10 V	2	26.75	14.35
9	#16590.00	59.0 PK	74.0	-15.0	1.47 V	5	37.26	21.74
10	#16590.00	47.0 AV	54.0	-7.0	1.47 V	5	25.26	21.74

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5610.00	111.4 PK			1.85 H	360	104.25	7.15
2	*5610.00	99.3 AV			1.85 H	360	92.15	7.15
3	#5725.00	66.7 PK	74.0	-7.3	1.85 H	360	59.32	7.38
4	#5725.00	53.6 AV	54.0	-0.4	1.85 H	360	46.22	7.38
5	11220.00	51.9 PK	74.0	-22.1	1.12 H	69	37.46	14.44
6	11220.00	40.0 AV	54.0	-14.0	1.12 H	69	25.56	14.44
7	#16830.00	57.1 PK	74.0	-16.9	1.02 H	327	34.92	22.18
8	#16830.00	45.1 AV	54.0	-8.9	1.02 H	327	22.92	22.18
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	105.4 PK			2.01 V	280	98.25	7.15
2	*5610.00	93.3 AV			2.01 V	280	86.15	7.15
3	#5725.00	60.9 PK	74.0	-13.1	2.06 V	278	53.52	7.38
4	#5725.00	47.8 AV	54.0	-6.2	2.06 V	278	40.42	7.38
5	11220.00	58.1 PK	74.0	-15.9	1.14 V	14	43.66	14.44
6	11220.00	45.4 AV	54.0	-8.6	1.14 V	14	30.96	14.44
7	#16830.00	61.1 PK	74.0	-12.9	1.52 V	12	38.92	22.18
8	#16830.00	48.0 AV	54.0	-6.0	1.52 V	12	25.82	22.18

REMARKS:

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

BELOW 1GHz WORST-CASE DATA

802.11ac (VHT40)

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 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	52.36	31.1 QP	40.0	-8.9	1.00 H	73	44.43	-13.32
2	283.66	30.6 QP	46.0	-15.4	1.65 H	34	43.11	-12.51
3	325.03	30.3 QP	46.0	-15.7	1.50 H	21	41.25	-10.93
4	550.02	34.0 QP	46.0	-12.1	1.00 H	21	40.25	-6.30
5	650.01	30.7 QP	46.0	-15.3	1.00 H	210	34.62	-3.90
6	959.94	38.0 QP	46.0	-8.0	1.00 H	354	36.84	1.19
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	80.73	28.9 QP	40.0	-11.1	1.50 V	360	46.85	-17.95
2	158.77	30.9 QP	43.5	-12.6	1.00 V	94	43.83	-12.93
3	315.96	31.9 QP	46.0	-14.1	1.50 V	33	43.14	-11.23
4	550.02	31.4 QP	46.0	-14.6	2.00 V	20	37.68	-6.30
5	601.02	34.2 QP	46.0	-11.8	1.00 V	242	38.87	-4.67
6	800.03	36.9 QP	46.0	-9.1	1.00 V	360	38.37	-1.49

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

4.1.8 Test Results (Mode 2)

BELOW 1GHz WORST-CASE DATA

802.11ac (VHT40)

CHANNEL	TX Channel 134	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	Below 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	91.40	30.3 QP	43.5	-13.2	1.50 H	311	49.25	-18.97
2	162.21	30.2 QP	43.5	-13.3	1.00 H	23	43.22	-13.01
3	304.20	32.1 QP	46.0	-13.9	1.00 H	24	43.86	-11.74
4	550.02	29.3 QP	46.0	-16.7	1.50 H	237	35.56	-6.30
5	600.05	30.8 QP	46.0	-15.2	1.00 H	265	35.50	-4.69
6	921.62	38.3 QP	46.0	-7.8	1.50 H	2	37.39	0.86
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	62.01	32.1 QP	40.0	-7.9	1.00 V	22	46.51	-14.43
2	159.52	28.2 QP	43.5	-15.3	1.50 V	230	41.16	-12.96
3	306.89	34.6 QP	46.0	-11.4	1.50 V	16	46.26	-11.63
4	550.01	33.2 QP	46.0	-12.8	1.00 V	283	39.50	-6.30
5	614.42	32.1 QP	46.0	-13.9	1.00 V	133	36.46	-4.39
6	800.03	32.9 QP	46.0	-13.1	1.50 V	318	34.35	-1.49

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 ROHDE & SCHWARZ	ESCS 30	847124/029	Oct. 22, 2014	Oct. 21, 2015
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 15, 2014	Sep. 14, 2015
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ENV216	100071	Nov. 10, 2014	Nov. 09, 2015
RF Cable (JYEBAO)	5D-FB	COCCAB-001	Mar. 09, 2015	Mar. 08, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date: May 07, 2015

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.

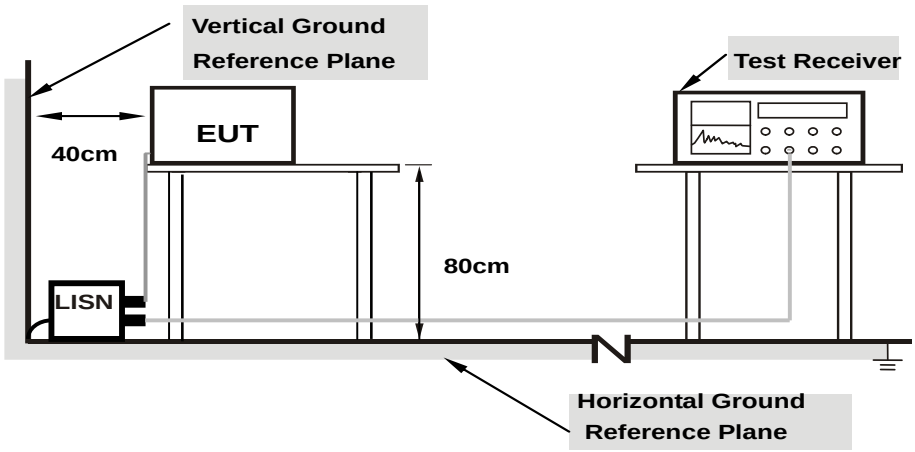
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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.

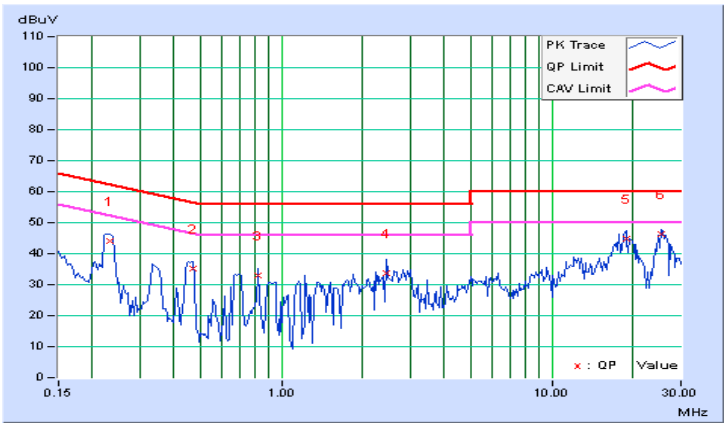
4.2.7 Test Results (Mode 1)

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

Phase Of Power : Line (L)										
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	0.23203	0.09	44.01	34.92	44.10	35.01	62.38	52.38	-18.28	-17.37
2	0.47031	0.10	34.92	25.94	35.02	26.04	56.51	46.51	-21.48	-20.46
3	0.81797	0.12	32.69	31.42	32.81	31.54	56.00	46.00	-23.19	-14.46
4	2.44922	0.18	33.58	28.71	33.76	28.89	56.00	46.00	-22.24	-17.11
5	18.80078	0.67	44.15	43.70	44.82	44.37	60.00	50.00	-15.18	-5.63
6	25.33984	0.82	45.52	45.11	46.34	45.93	60.00	50.00	-13.66	-4.07

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

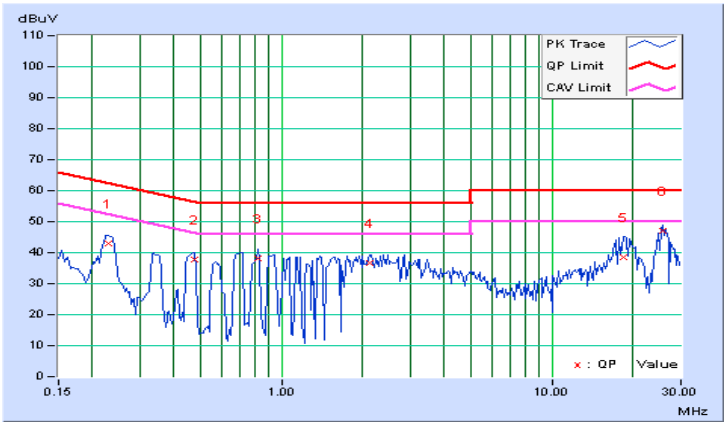


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
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	0.22812	0.08	42.98	34.90	43.06	34.98	62.52	52.52	-19.46	-17.54
2	0.47422	0.10	37.63	27.14	37.73	27.24	56.44	46.44	-18.71	-19.20
3	0.81797	0.12	37.96	32.73	38.08	32.85	56.00	46.00	-17.92	-13.15
4	2.12109	0.17	36.47	22.78	36.64	22.95	56.00	46.00	-19.36	-23.05
5	18.38281	0.69	37.71	34.83	38.40	35.52	60.00	50.00	-21.60	-14.48
6	**25.74219**	**0.88**	**46.02**	**45.77**	**46.90**	**46.65**	**60.00**	**50.00**	**-13.10**	**-3.35**

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



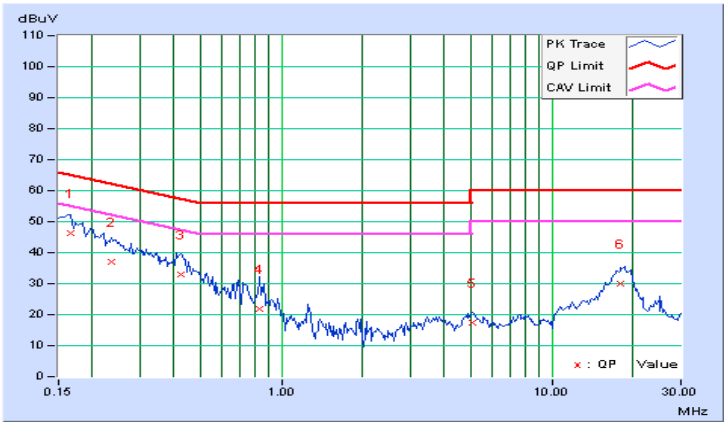
4.2.8 Test Results (Mode 2)

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

Phase Of Power : Line (L)										
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	0.16562	0.08	46.09	33.05	46.17	33.13	65.18	55.18	-19.00	-22.04
2	0.23594	0.09	36.79	27.49	36.88	27.58	62.24	52.24	-25.36	-24.66
3	0.42344	0.10	32.68	28.24	32.78	28.34	57.38	47.38	-24.60	-19.04
4	0.83359	0.12	21.68	10.82	21.80	10.94	56.00	46.00	-34.20	-35.06
5	5.10938	0.26	17.01	11.68	17.27	11.94	60.00	50.00	-42.73	-38.06
6	17.99219	0.65	29.53	24.65	30.18	25.30	60.00	50.00	-29.82	-24.70

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

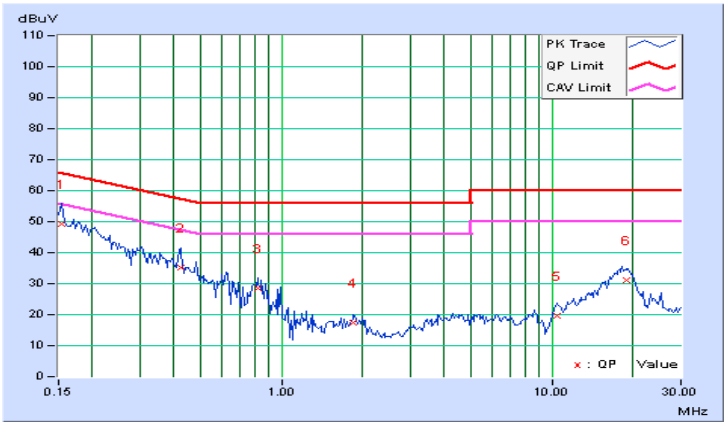


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
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	0.15391	0.08	49.26	39.53	49.34	39.61	65.79	55.79	-16.45	-16.18
2	0.42344	0.10	35.13	29.08	35.23	29.18	57.38	47.38	-22.15	-18.20
3	0.81406	0.12	28.45	20.03	28.57	20.15	56.00	46.00	-27.43	-25.85
4	1.83984	0.16	17.12	12.64	17.28	12.80	56.00	46.00	-38.72	-33.20
5	10.51172	0.47	19.32	14.79	19.79	15.26	60.00	50.00	-40.21	-34.74
6	18.91016	0.71	30.36	25.46	31.07	26.17	60.00	50.00	-28.93	-23.83

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 Measurment

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 ≦ 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,

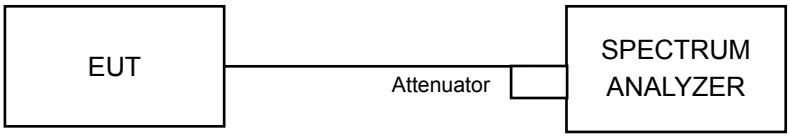
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

FOR POWER OUTPUT MEASUREMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016

NOTE: 1. The test was performed in Oven room B.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: May 22, 2015

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 05, 2014	July 04, 2015

NOTE: 1. The test was performed in Oven room B.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: May 22, 2015

4.3.4 Test Procedure

FOR POWER OUTPUT MEASUREMENT

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter with average sensor 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

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.82	20.76	239.905	23.80	24	Pass
60	5300	20.77	20.68	236.349	23.74	24	Pass
64	5320	21.12	20.68	246.37	23.92	24	Pass
100	5500	20.96	20.96	249.476	23.97	24	Pass
120	5600	20.77	20.86	241.298	23.83	24	Pass
140	5700	19.55	19.46	178.465	22.52	24	Pass

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	22.79	22.69
60	5300	22.42	22.29
64	5320	22.28	22.60
100	5500	22.25	22.74
120	5600	23.20	23.05
140	5700	22.24	22.77

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)
52	5260	22.69	24.55 > 24
60	5300	22.29	24.48 > 24
64	5320	22.28	24.47 > 24
100	5500	22.25	24.47 > 24
120	5600	23.05	24.62 > 24
140	5700	22.24	24.47 > 24

802.11ac (VHT20)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.87	20.76	241.304	23.83	24	Pass
60	5300	21.01	20.86	248.082	23.95	24	Pass
64	5320	21.26	20.55	247.161	23.93	24	Pass
100	5500	20.96	20.92	248.333	23.95	24	Pass
120	5600	20.76	20.84	240.463	23.81	24	Pass
140	5700	19.49	19.42	176.418	22.47	24	Pass

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	23.21	22.82
60	5300	23.54	23.33
64	5320	23.35	23.19
100	5500	23.30	23.40
120	5600	23.33	24.36
140	5700	23.59	22.96

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	22.82	24.58 > 24
60	5300	23.33	24.67 > 24
64	5320	23.19	24.65 > 24
100	5500	23.30	24.67 > 24
120	5600	23.33	24.67 > 24
140	5700	22.96	24.6 > 24

802.11ac (VHT40)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.94	20.86	246.064	23.91	24	Pass
62	5310	18.14	17.73	124.456	20.95	24	Pass
102	5510	18.73	18.73	149.29	21.74	24	Pass
118	5590	20.86	20.77	241.298	23.83	24	Pass
134	5670	20.94	21.00	250.058	23.98	24	Pass

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	46.46	48.84
62	5310	46.29	45.24
102	5510	48.64	45.85
118	5590	47.13	46.59
134	5670	48.10	47.54

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	46.46	27.67 > 24
62	5310	45.24	27.55 > 24
102	5510	45.85	27.61 > 24
110	5550	46.59	27.68 > 24
134	5670	47.54	27.77 > 24

802.11ac (VHT80)

POWER OUTPUT

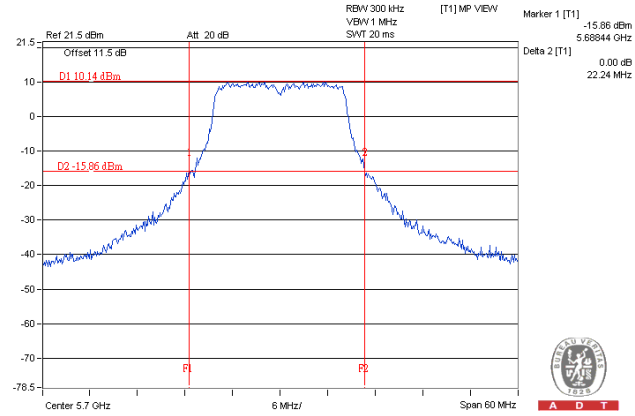
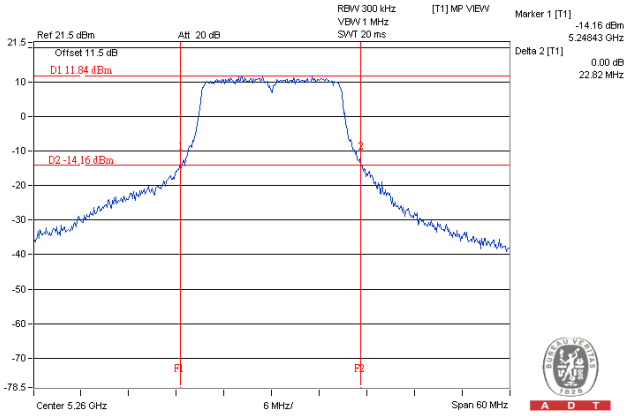
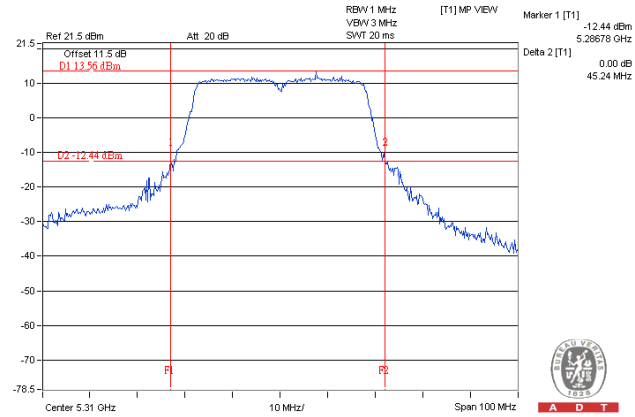
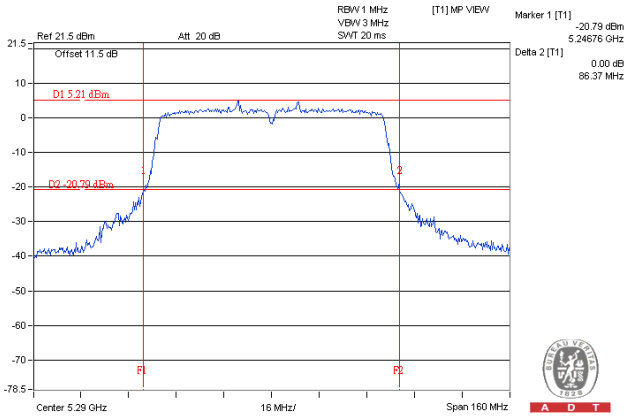
Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	12.41	11.98	33.194	15.21	24	Pass
106	5530	15.40	15.48	69.992	18.45	24	Pass
122	5610	20.83	20.89	243.804	23.87	24	Pass

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	86.37	87.53
106	5530	89.10	89.90
122	5610	90.12	88.27

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	86.37	30.36 > 24
106	5530	89.10	30.49 > 24
122	5610	88.27	30.45 > 24

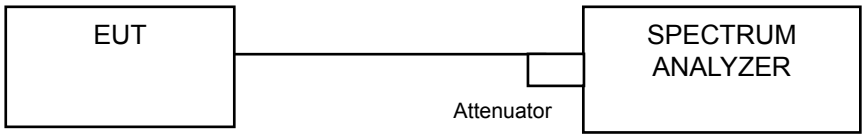
Spectrum Plot of Worst Value	
802.11a: Chain 0 / CH140	**802.11ac (VHT20): Chain 1 / CH52**
	
802.11ac (VHT40): Chain 1 / CH62	**802.11ac (VHT80): Chain 0 / CH58**
	

4.4 Peak Power Spectral Density Measurement

4.4.1 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

4.4.2 Test Setup



4.4.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 05, 2014	July 04, 2015

NOTE: 1. The test was performed in Oven room B.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: May 22, 2015

4.4.4 Test Procedure

For 802.11a, 802.11ac (VHT20):

Using method SA-1

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

For 802.11ac (VHT40), 802.11ac (VHT80):

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)

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Condition

Same as Item 4.3.6.

4.4.7 Test Results

802.11a

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
52	5260	5.74	6.90	9.37	11	Pass
60	5300	5.71	6.71	9.25	11	Pass
64	5320	6.40	6.83	9.63	11	Pass
100	5500	6.82	7.59	10.23	11	Pass
120	5600	5.99	7.22	9.66	11	Pass
140	5700	4.75	5.39	8.09	11	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 = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.66dBi < 6dBi, so the power density limit shall not be reduced.

802.11ac (VHT20)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
52	5260	5.36	6.39	8.92	11	Pass
60	5300	5.82	6.74	9.31	11	Pass
64	5320	5.98	6.44	9.23	11	Pass
100	5500	6.32	7.20	9.79	11	Pass
120	5600	5.91	6.75	9.36	11	Pass
140	5700	4.47	4.97	7.74	11	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 = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.66dBi < 6dBi, so the power density limit shall not be reduced.

802.11ac (VHT40)

CHAN.	FREQ. (MHz)	PSD W/O DUTY FACTOR (dBm)		DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
54	5270	3.15	3.57	0.12	6.49	11	Pass
62	5310	0.52	0.31	0.12	3.55	11	Pass
102	5510	1.87	1.96	0.12	5.04	11	Pass
118	5550	3.53	3.74	0.12	6.77	11	Pass
134	5670	3.60	3.44	0.12	6.65	11	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 = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.66dBi < 6dBi, so the power density limit shall not be reduced.

3. Refer to section 3.3 for duty cycle spectrum plot.

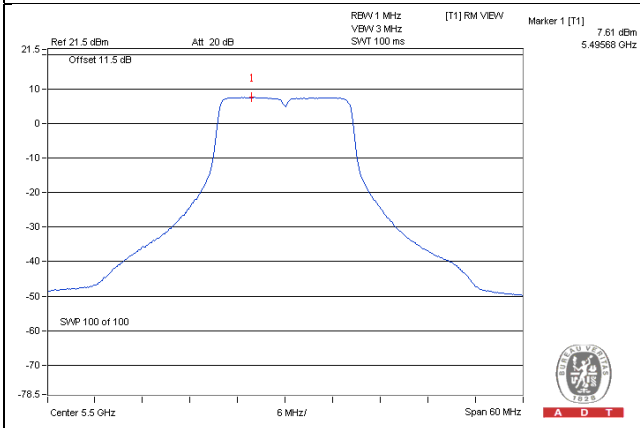
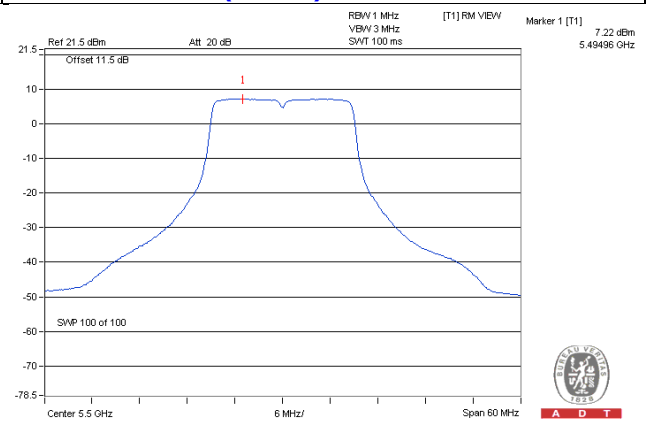
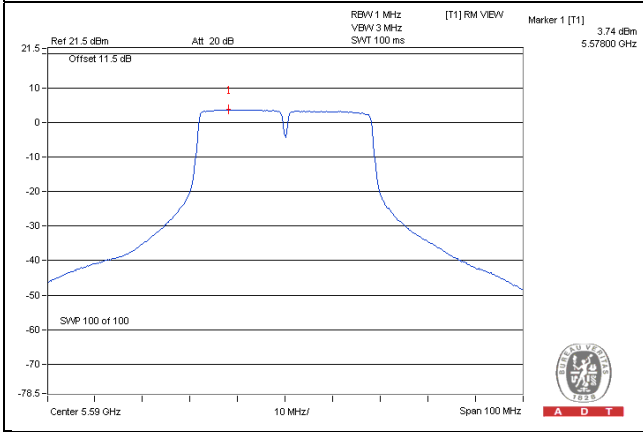
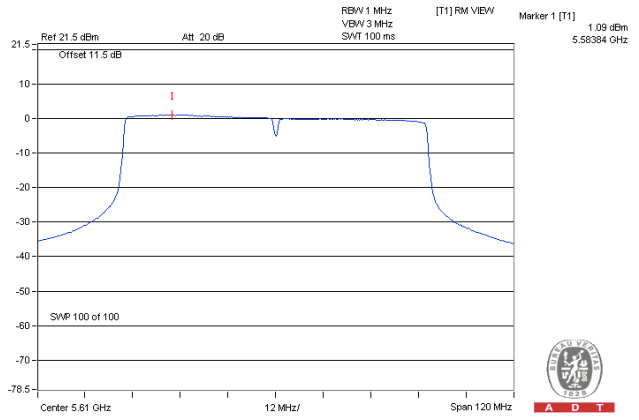
802.11ac (VHT80)

CHAN.	FREQ. (MHz)	PSD W/O DUTY FACTOR (dBm)		DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
58	5290	-8.67	-8.51	0.22	-5.36	11	Pass
106	5530	-4.60	-4.36	0.22	-1.25	11	Pass
122	5610	0.65	1.08	0.22	4.10	11	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 = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.66dBi < 6dBi, so the power density limit shall not be reduced.

3. Refer to section 3.3 for duty cycle spectrum plot.

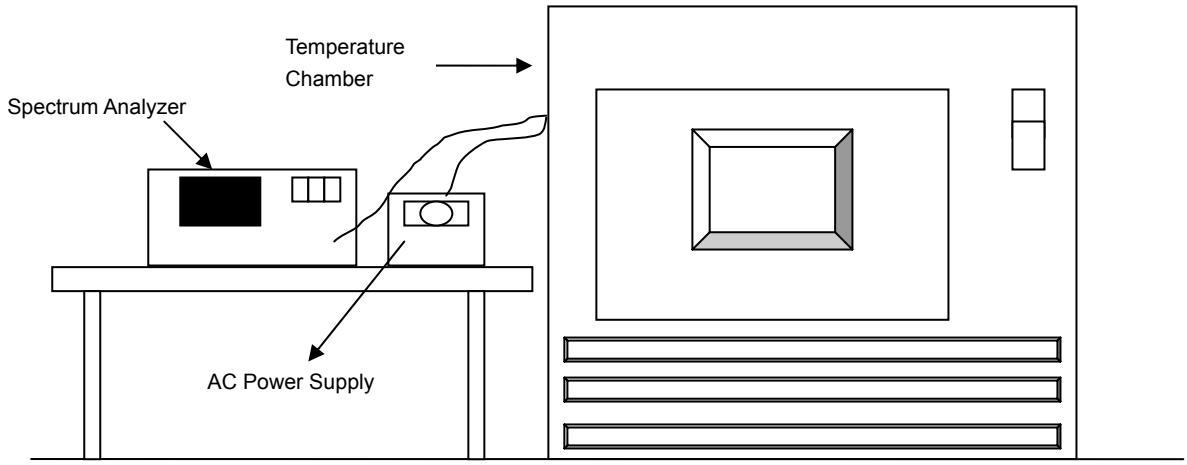
Spectrum Plot of Worst Value	
802.11a: Chain 1 / CH100	**802.11ac (VHT20): Chain 1 / CH100**
	
802.11ac (VHT40): Chain 1 / CH118	**802.11ac (VHT80): Chain 1 / CH122**
	

4.5 Frequency Stability Measurement

4.5.1 Limits of Frequency Stability Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
True RMS Multimeter FLUKE	87III	73680266	Nov. 07, 2014	Nov. 06, 2015
Temperature & Humidity Chamber GIANTFORCE	GTH-150-40-SP-AR	MAA0812-008	Jan. 12, 2015	Jan. 11, 2016

NOTE: 1. The test was performed in Oven room B.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: May 22, 2015

4.5.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. 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.
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
f. 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.
.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

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

4.5.7 Test Results

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5260MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5259.9956	-0.00008	5259.9966	-0.00006	5259.9958	-0.00008	5259.9954	-0.00009
40	120	5260.0021	0.00004	5260.0009	0.00002	5260.0023	0.00004	5260.004	0.00008
30	120	5260.0173	0.00033	5260.0179	0.00034	5260.018	0.00034	5260.0186	0.00035
20	120	5260.0198	0.00038	5260.0187	0.00036	5260.0183	0.00035	5260.0228	0.00043
10	120	5260.0255	0.00048	5260.0286	0.00054	5260.0244	0.00046	5260.0255	0.00048
0	120	5259.9883	-0.00022	5259.9875	-0.00024	5259.9899	-0.00019	5259.9876	-0.00024
-10	120	5260.0162	0.00031	5260.0135	0.00026	5260.0149	0.00028	5260.0155	0.00029
-20	120	5259.984	-0.00030	5259.9816	-0.00035	5259.983	-0.00032	5259.9821	-0.00034
-30	120	5260.0172	0.00033	5260.0147	0.00028	5260.0166	0.00032	5260.0156	0.00030

FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5260MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5260.0192	0.00037	5260.0188	0.00036	5260.0182	0.00035	5260.0221	0.00042
	120	5260.0198	0.00038	5260.0187	0.00036	5260.0183	0.00035	5260.0228	0.00043
	102	5260.0191	0.00036	5260.0182	0.00035	5260.0178	0.00034	5260.0237	0.00045

4.6 Occupied Bandwidth Measurement

4.6.1 Test Setup

4.6.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 05, 2014	July 04, 2015

NOTE: 1. The test was performed in Oven room B.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: May 22, 2015

4.6.3 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 PEAK. 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.

4.6.4 Deviation from Test Standard

No deviation.

4.6.5 EUT Operating Conditions

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

4.6.6 Test Results

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.80	16.80
60	5300	16.68	16.68
64	5320	16.80	16.68
100	5500	16.92	16.68
120	5600	16.80	16.68
140	5700	16.68	16.80

802.11ac (VHT20)

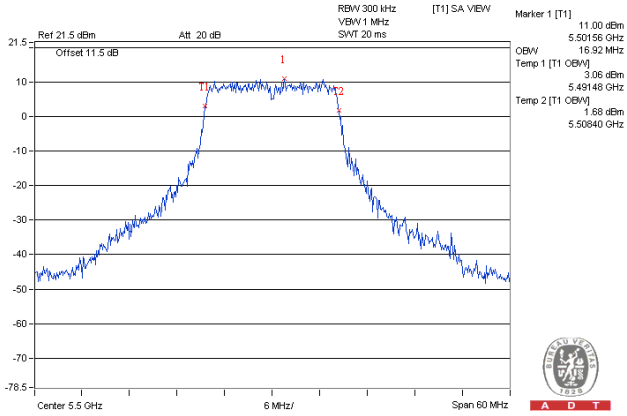
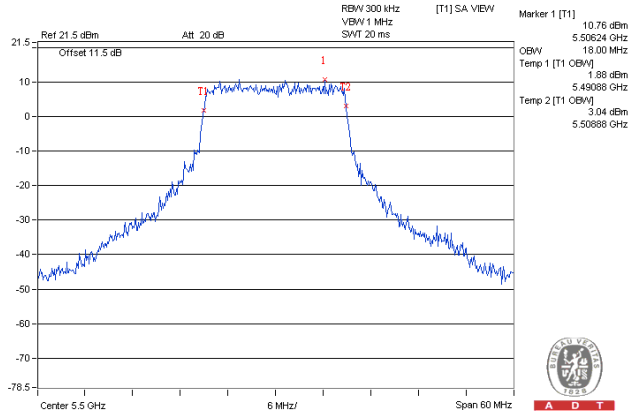
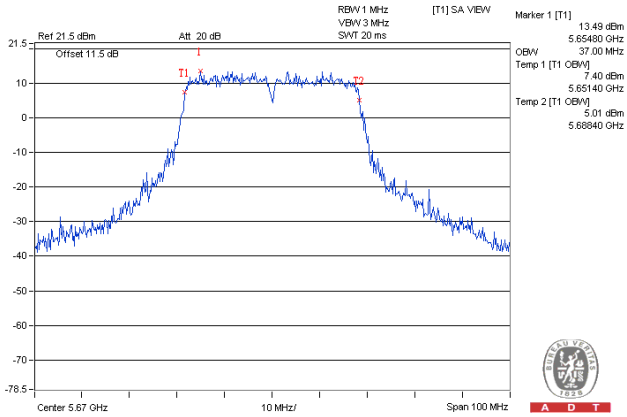
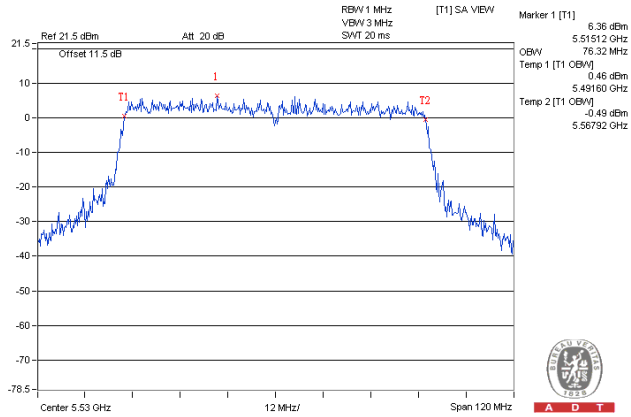
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.88	17.88
60	5300	17.88	17.88
64	5320	17.88	17.76
100	5500	18.00	17.88
120	5600	17.88	17.88
140	5700	17.88	17.88

802.11ac (VHT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.60	36.80
62	5310	36.80	36.80
102	5510	36.80	36.80
118	5590	36.60	36.80
134	5670	36.60	37.00

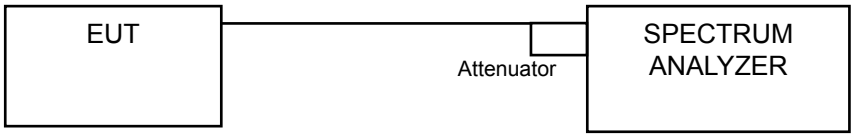
802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	76.08	76.08
106	5530	76.08	76.32
122	5610	76.08	76.08

Spectrum Plot of Worst Value	
802.11a: Chain 0 / CH100	**802.11ac (VHT20): Chain 0 / CH100**
	
802.11ac (VHT40): Chain 1 / CH134	**802.11ac (VHT80): Chain 1 / CH106**
	

4.7 26dB Bandwidth Measurment

4.7.1 Test Setup



4.7.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 05, 2014	July 04, 2015

NOTE: 1. The test was performed in Oven room B.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: May 22, 2015

4.7.3 Test Procedure

6. Set RBW = approximately 1% of the emission bandwidth.
7. Set the VBW > RBW.
8. Detector = Peak.
9. Trace mode = max hold.
10. 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%.

4.7.4 Deviation from Test Standard

No deviation.

4.7.5 EUT Operating Condition

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

4.7.6 Test Results

802.11a

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	22.79	22.69
60	5300	22.42	22.29
64	5320	22.28	22.60
100	5500	22.25	22.74
120	5600	23.20	23.05
140	5700	22.24	22.77

802.11ac (VHT20)

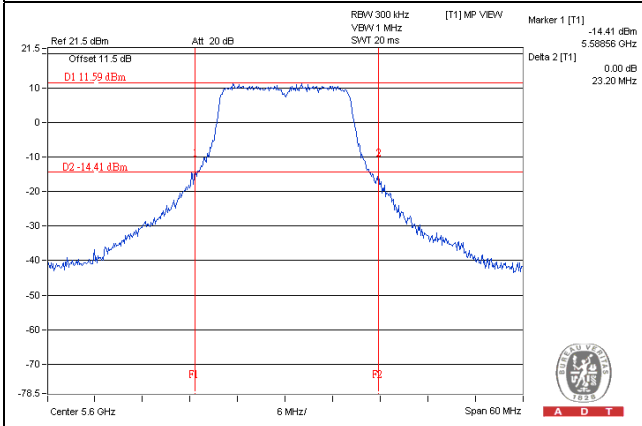
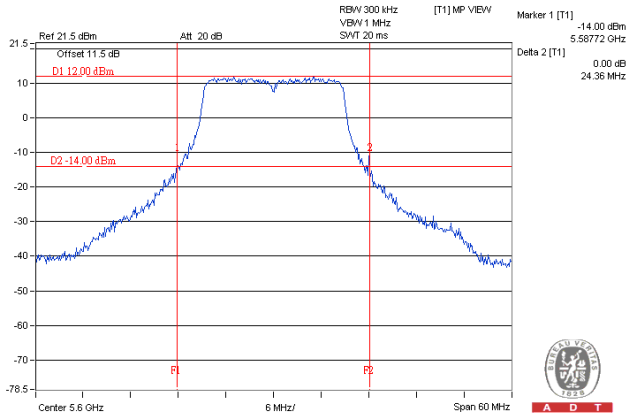
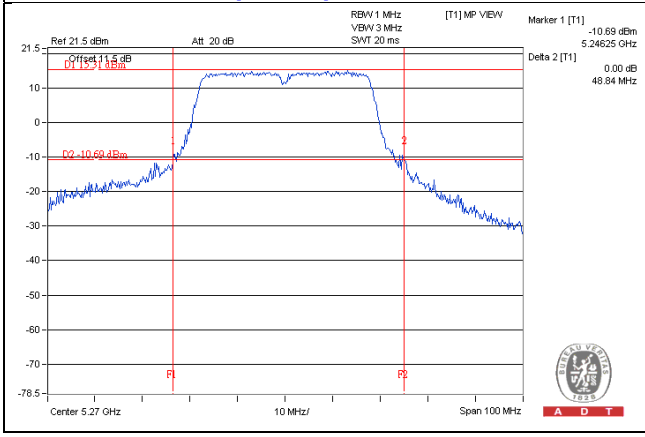
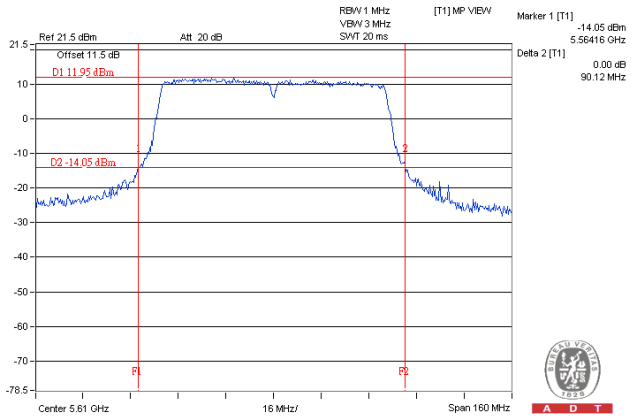
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	23.21	22.82
60	5300	23.54	23.33
64	5320	23.35	23.19
100	5500	23.30	23.40
120	5600	23.33	24.36
140	5700	23.59	22.96

802.11ac (VHT40)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	46.46	48.84
62	5310	46.29	45.24
102	5510	48.64	45.85
118	5590	47.13	46.59
134	5670	48.10	47.54

802.11ac (VHT80)

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	86.37	87.53
106	5530	89.10	89.90
122	5610	90.12	88.27

Spectrum Plot of Worst Value	
802.11a: Chain 0 / CH120	**802.11ac (VHT20): Chain 1 / CH120**
	
802.11ac (VHT40): Chain 1 / CH54	**802.11ac (VHT80): Chain 0 / CH122**
	

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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Web Site: www.bureauveritas-adt.com

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

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