FCC Test Report (15.407)

Report No.: RF150305E02-1

FCC ID: KA2WA192A1

Test Model: DWA-192

Received Date: Mar. 05, 2015

Test Date: Mar. 31 to May 08, 2015

Issued Date: May 27, 2015

Applicant: D-Link corporation

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

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Release Control Record

Issue No.	Description	Date Issued
RF150305E02-1	Original release.	May 27, 2015

1 Certificate of Conformity

Product: AC1900 Wi-Fi USB 3.0 Adapter

Brand: D-Link

Test Model: DWA-192

Sample Status: ENGINEERING SAMPLE

Applicant: D-Link corporation

Test Date: Mar. 31 to May 08, 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:** May 27, 2015
Midoli Peng / Specialist

Approved by : _____, **Date:** May 27, 2015
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (SECTION 15.407 Under New Rule)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -10.40dB at 0.20859MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5150.00MHz, 5725.00MHz, 5715.00MHz, 5860.00MHz, 5350.00MHz, 5470.00MHz.
15.407(a) (1/2/3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a) (1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(e)	6dB bandwidth	PASS	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-PEX not a standard connector.

NOTE: 1. For WLAN: The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz. For the 2400 ~ 2483.5MHz RF parameters was recorded in another test report.

2. The DFS report was recorded in another test report.

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

Product	AC1900 Wi-Fi USB 3.0 Adapter
Brand	D-Link
Test Model	DWA-192
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 5V from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n : up to 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	For 15.407 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.70GHz, 5.745 ~ 5.825GHz
	For 15.247 2.412 ~ 2.462GHz
Number of Channel	For 15.407 24 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 11 for 802.11n (HT40), 802.11ac (VHT40) 5 for 802.11ac (VHT80)
	For 15.247 11 for 802.11b/g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	For 15.407 802.11a: 97.275mW 802.11ac (VHT20): 139.785mW 802.11ac (VHT40): 120.528mW 802.11ac (VHT80): 32.242mW
	For 15.247 802.11b: 102.802mW 802.11g: 100.693mW 802.11n (HT20): 38.208mW 802.11n (HT40): 35.276mW
Antenna Type	Please see Note
Antenna Connector	Please see Note
Accessory Device	NA
Data Cable Supplied	USB data cable(1.35m, unshielded)

Note:

1. 2.4GHz and 5GHz technology can't transmit at same time.
2. The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Brand	Model	Gain (dBi)	Frequency range (MHz to MHz)	Cable Length (mm)	Antenna Type	Connecter Type
Ant. 1 Chain (0)	HL TECHNOLOGY GROUP LIMITED	290-20179	4.03	2400~2500	150	PCB	i-PEX
			2.18	5150~5350			
			2.11	5470~5850			
Ant. 2 Chain (1)	HL TECHNOLOGY GROUP LIMITED	290-20178	2.13	2400~2500	150	PCB	i-PEX
			2.05	5150~5350			
			2.65	5470~5850			
Ant. 3 Chain (2)	HL TECHNOLOGY GROUP LIMITED	ANT_UM814A01	2.45	2400~2500	NA	PCB	NA
			4.03	5150~5350			
			4.45	5470~5850			
Ant. 4 Chain (3)	HL TECHNOLOGY GROUP LIMITED	ANT_UM814A02	2.26	2400~2500	NA	PCB	NA
			2.53	5150~5350			
			4.19	5470~5850			

NOTE: 1. Ant. 1(Chain 0), Ant. 2(Chain 1) & Ant. 4(Chain 3) – With TX & RX function
2. Ant. 3(Chain 2) – With RX function
3. From the above antennas, Ant. 1(Chain 0) was selected as representative antenna for the 802.11b/g test and its data was recorded in this report.
4. From the above antennas, Ant. 4(Chain 3) was selected as representative antenna for the 802.11a test and its data was recorded in this report.

3. The EUT incorporates a MIMO function, with beamforming for 5GHz.

2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	1TX (diversity)	4RX
802.11g	6 ~ 54Mbps	1TX (diversity)	4RX
802.11n (HT20)	MCS 0~7	1TX (diversity)	4RX
	MCS 8~15	2TX (diversity)	4RX
	MCS 16~23	3TX	4RX
802.11n (HT40)	MCS 0~7	1TX (diversity)	4RX
	MCS 8~15	2TX (diversity)	4RX
	MCS 16~23	3TX	4RX
5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	1TX (diversity)	4RX
802.11n (HT20)	MCS 0~7	1TX (diversity)	4RX
	MCS 8~15	2TX (diversity)	4RX
	MCS 16~23	3TX	4RX
802.11n (HT40)	MCS 0~7	1TX (diversity)	4RX
	MCS 8~15	2TX (diversity)	4RX
	MCS 16~23	3TX	4RX
802.11ac (VHT20)	MCS 0~8, Nss=1	1TX (diversity)	4RX
	MCS 0~8, Nss=2	2TX (diversity)	4RX
	MCS 0~9, Nss=3	3TX	4RX
802.11ac (VHT40)	MCS 0~9, Nss=1	1TX (diversity)	4RX
	MCS 0~9, Nss=2	2TX (diversity)	4RX
	MCS 0~9, Nss=3	3TX	4RX
802.11ac (VHT80)	MCS 0~9, Nss=1	1TX (diversity)	4RX
	MCS 0~9, Nss=2	2TX (diversity)	4RX
	MCS 0~9, Nss=3	3TX	4RX

Note: 1. For 2.4GHz: The device operate with three spatial stream (Nss = 3) with different data, and three signals are not correlated.
2. 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)

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

3.2 Description of Test Modes

FOR 5180 ~ 5240MHz

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

FOR 5260 ~ 5320MHz

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	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	5530MHz	122	5610 MHz

FOR 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

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	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	BPSK	19.5 MCS0 / Nss 3
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	40.5 MCS0 / Nss 3
802.11ac (VHT80)		42	42	OFDM	BPSK	87.8 MCS0 / Nss 3
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	BPSK	19.5 MCS0 / Nss 3
802.11ac (VHT40)		54 to 62	54, 62	OFDM	BPSK	40.5 MCS0 / Nss 3
802.11ac (VHT80)		58	58	OFDM	BPSK	87.8 MCS0 / Nss 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	19.5 MCS0 / Nss 3
802.11ac (VHT40)		102 to 134	102, 118, 134	OFDM	BPSK	40.5 MCS0 / Nss 3
802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	87.8 MCS0 / Nss 3
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	BPSK	19.5 MCS0 / Nss 3
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	40.5 MCS0 / Nss 3
802.11ac (VHT80)		155	155	OFDM	BPSK	87.8 MCS0 / Nss 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 (VHT20)	5180-5240	36 to 48	157	OFDM	BPSK	19.5 MCS0 / Nss 3
	5260-5320	52 to 64				
	5500-5700	100 to 140				
	5745-5825	149 to 165				

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 (VHT20)	5180-5240	36 to 48	157	OFDM	BPSK	19.5 MCS0 / Nss 3
	5260-5320	52 to 64				
	5500-5700	100 to 140				
	5745-5825	149 to 165				

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	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	BPSK	19.5 MCS0 / Nss 3
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	40.5 MCS0 / Nss 3
802.11ac (VHT80)		42	42	OFDM	BPSK	87.8 MCS0 / Nss 3
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	BPSK	19.5 MCS0 / Nss 3
802.11ac (VHT40)		54 to 62	54, 62	OFDM	BPSK	40.5 MCS0 / Nss 3
802.11ac (VHT80)		58	58	OFDM	BPSK	87.8 MCS0 / Nss 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	19.5 MCS0 / Nss 3
802.11ac (VHT40)		102 to 134	102, 118, 134	OFDM	BPSK	40.5 MCS0 / Nss 3
802.11ac (VHT80)		106 to 122	106, 122	OFDM	BPSK	87.8 MCS0 / Nss 3
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	BPSK	19.5 MCS0 / Nss 3
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	40.5 MCS0 / Nss 3
802.11ac (VHT80)		155	155	OFDM	BPSK	87.8 MCS0 / Nss 3

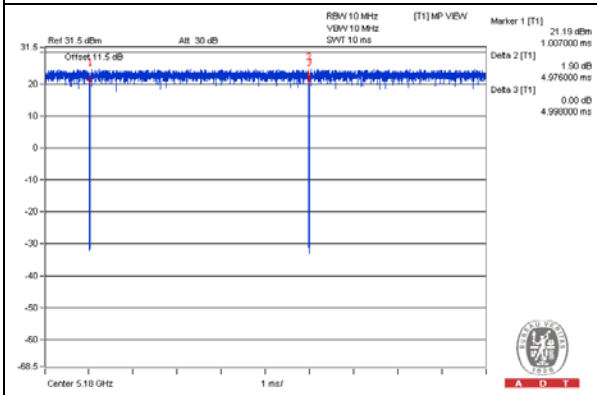
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE≥1G	24deg. C, 69%RH 21deg. C, 70%RH 21deg. C, 65%RH	120Vac, 60Hz	Weiwei Lo Tim Ho
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Robert Cheng
PLC	25deg. C, 63%RH	120Vac, 60Hz	Timmy Hu
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

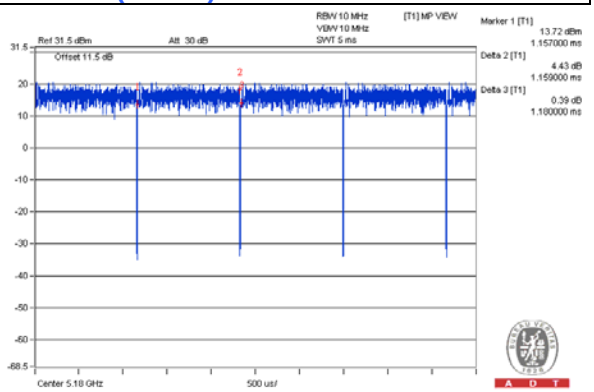
3.3 Duty Cycle of Test Signal

Duty cycle of test signal is ≥ 98 %, duty factor is not required.
802.11a: Duty cycle = 4.976 ms/4.998 ms = 0.996
802.11ac (VHT20): Duty cycle = 1.159 ms/1.18 ms = 0.982
802.11ac (VHT40): Duty cycle = 3.21 ms/3.233 ms = 0.993
802.11ac (VHT80): Duty cycle = 1.511 ms/1.526 ms = 0.99

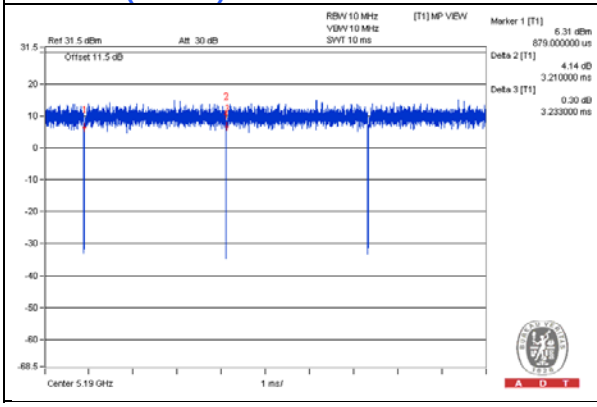
802.11a



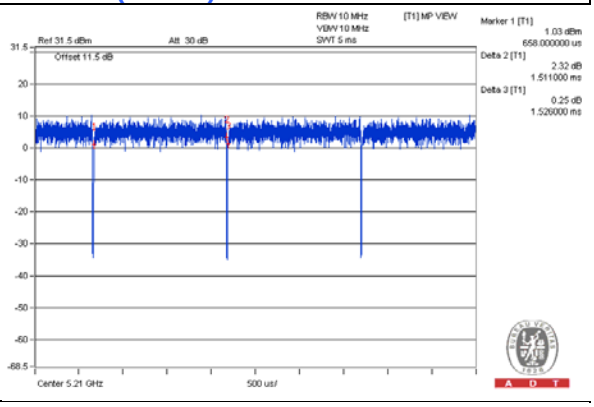
802.11ac (VHT20)



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.

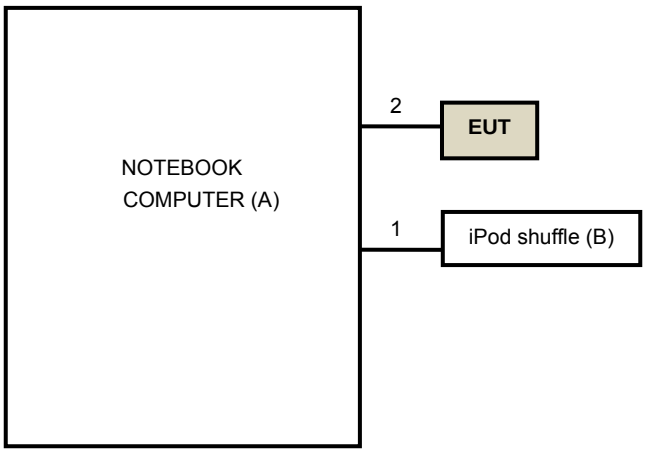
No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	DELL	E6420	482T3R1	FCC DoC	Provided by Lab
B	iPod shuffle	Apple	MC749TA/A	CC4DN25WDFDM	NA	Provided by Lab

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	USB	1	0.1	Yes	0	Provided by Lab
2	USB	1	1.35	Yes	0	Supplied by Client

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)
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.

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:

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-1000VH2 B	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	Feb. 06, 2015	Feb. 05, 2016
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	Feb. 05, 2015	Feb. 04, 2016
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
Power Meter Anritsu	ML2495A	0824006	May 22, 2014	May 21, 2015
Power Sensor Anritsu	MA2411B	0738172	May 22, 2014	May 21, 2015
SPECTRUM ANALYZER R&S	FSV 40	100964	July 05, 2014	July 04, 2015
True RMS Multimeter FLUKE	87III	73680266	Nov. 07, 2014	Nov. 06, 2015
Temperature & Humidity Chamber GIANTFORCE	GTH-150-40-S P-AR	MAA0812-008	Jan. 12, 2015	Jan. 11, 2016

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: Apr. 30 to May 08, 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:

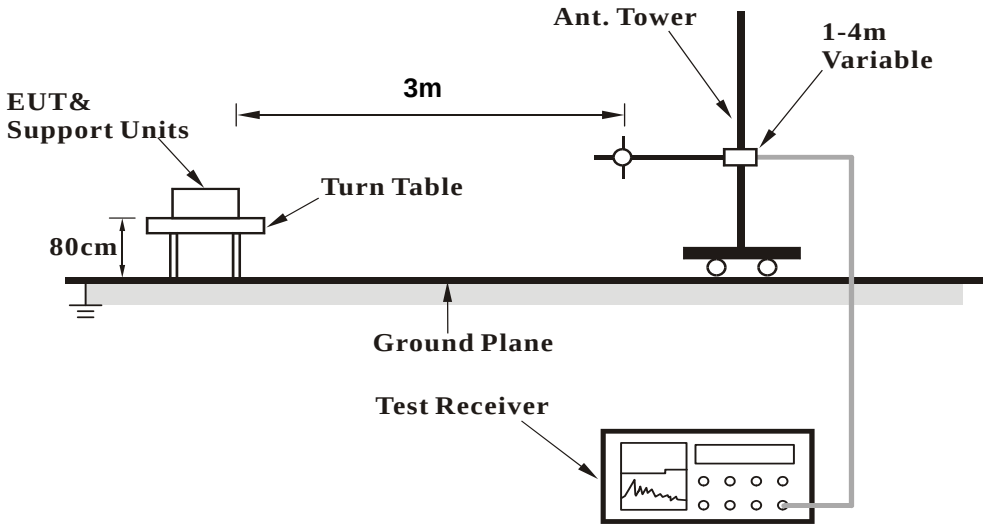
1. For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the ground at 3 meter chamber room for test
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
3. The resolution 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

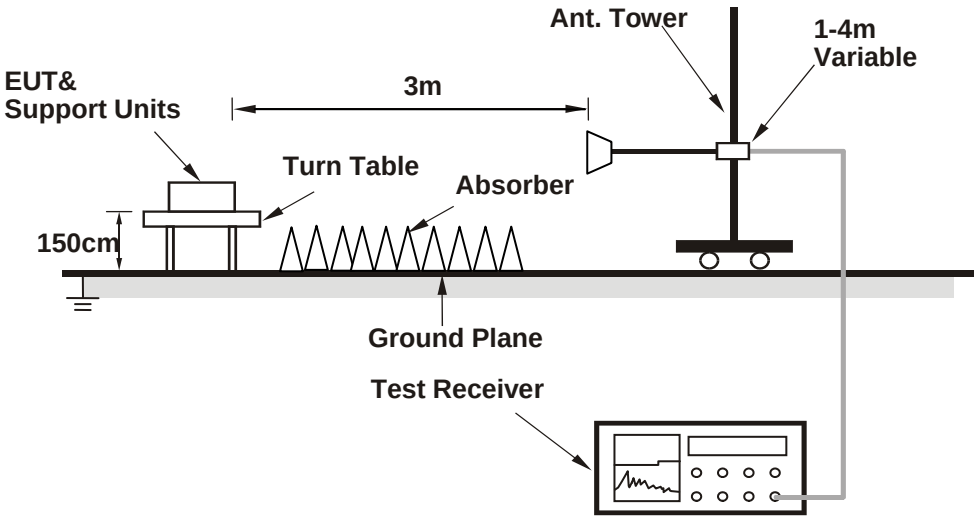
No deviation.

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 unit A (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program “REALTEK 11ac 8814AU USB WLAN NIC Massproduction Kit” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 Test Results

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 36	**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	69.0 PK	74.0	-5.0	1.31 H	260	65.16	3.84
2	5150.00	53.6 AV	54.0	-0.4	1.31 H	260	49.76	3.84
3	*5180.00	113.0 PK			1.31 H	260	109.08	3.92
4	*5180.00	102.3 AV			1.31 H	260	98.38	3.92
5	#10360.00	55.6 PK	74.0	-18.4	1.12 H	317	46.17	9.43
6	#10360.00	42.9 AV	54.0	-11.1	1.12 H	317	33.47	9.43
7	15540.00	59.5 PK	74.0	-14.5	1.08 H	350	45.47	14.03
8	15540.00	46.1 AV	54.0	-7.9	1.08 H	350	32.07	14.03
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	5150.00	58.8 PK	74.0	-15.2	1.67 V	360	54.96	3.84
2	5150.00	49.3 AV	54.0	-4.7	1.67 V	360	45.46	3.84
3	*5180.00	109.2 PK			1.78 V	360	105.28	3.92
4	*5180.00	98.1 AV			1.78 V	360	94.18	3.92
5	#10360.00	56.2 PK	74.0	-17.8	1.29 V	220	46.77	9.43
6	#10360.00	43.8 AV	54.0	-10.2	1.29 V	220	34.37	9.43
7	15540.00	60.0 PK	74.0	-14.0	1.07 V	108	45.97	14.03
8	15540.00	47.6 AV	54.0	-6.4	1.07 V	108	33.57	14.03

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 40	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	65.8 PK	74.0	-8.2	1.24 H	264	61.96	3.84
2	5150.00	53.6 AV	54.0	-0.4	1.24 H	264	49.76	3.84
3	*5200.00	116.0 PK			1.24 H	264	112.04	3.96
4	*5200.00	105.7 AV			1.24 H	264	101.74	3.96
5	#10400.00	55.7 PK	74.0	-18.3	1.02 H	342	46.25	9.45
6	#10400.00	43.0 AV	54.0	-11.0	1.02 H	342	33.55	9.45
7	15600.00	61.5 PK	74.0	-12.5	1.63 H	227	47.32	14.18
8	15600.00	49.7 AV	54.0	-4.3	1.63 H	227	35.52	14.18
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	5150.00	59.3 PK	74.0	-14.7	1.82 V	349	55.46	3.84
2	5150.00	49.6 AV	54.0	-4.4	1.82 V	349	45.76	3.84
3	*5200.00	112.0 PK			1.83 V	360	108.04	3.96
4	*5200.00	101.6 AV			1.83 V	360	97.64	3.96
5	#10400.00	54.8 PK	74.0	-19.2	1.30 V	218	45.35	9.45
6	#10400.00	42.9 AV	54.0	-11.1	1.30 V	218	33.45	9.45
7	15600.00	62.2 PK	74.0	-11.8	1.00 V	101	48.02	14.18
8	15600.00	49.8 AV	54.0	-4.2	1.00 V	101	35.62	14.18

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.

CHANNEL	TX Channel 48	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	*5240.00	117.4 PK			1.26 H	268	113.45	3.95
2	*5240.00	106.8 AV			1.26 H	268	102.85	3.95
3	#10480.00	57.3 PK	74.0	-16.7	2.05 H	127	47.63	9.67
4	#10480.00	46.2 AV	54.0	-7.8	2.05 H	127	36.53	9.67
5	15720.00	63.6 PK	74.0	-10.4	1.63 H	229	49.71	13.89
6	15720.00	50.7 AV	54.0	-3.3	1.63 H	229	36.81	13.89
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	113.2 PK			1.79 V	360	109.25	3.95
2	*5240.00	102.8 AV			1.79 V	360	98.85	3.95
3	#10480.00	57.0 PK	74.0	-17.0	2.17 V	228	47.33	9.67
4	#10480.00	46.2 AV	54.0	-7.8	2.17 V	228	36.53	9.67
5	15720.00	63.7 PK	74.0	-10.3	1.18 V	243	49.81	13.89
6	15720.00	51.3 AV	54.0	-2.7	1.18 V	243	37.41	13.89

REMARKS:

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

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK) 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	*5260.00	115.3 PK			1.23 H	267	111.35	3.95
2	*5260.00	104.2 AV			1.23 H	267	100.25	3.95
3	#10520.00	57.6 PK	74.0	-16.4	2.07 H	122	47.82	9.78
4	#10520.00	46.5 AV	54.0	-7.5	2.07 H	122	36.72	9.78
5	15780.00	63.5 PK	74.0	-10.5	1.57 H	243	49.57	13.93
6	15780.00	50.6 AV	54.0	-3.4	1.57 H	243	36.67	13.93
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			1.76 V	341	106.25	3.95
2	*5260.00	99.5 AV			1.76 V	341	95.55	3.95
3	#10520.00	57.8 PK	74.0	-16.2	2.16 V	204	48.02	9.78
4	#10520.00	46.6 AV	54.0	-7.4	2.16 V	204	36.82	9.78
5	15780.00	64.3 PK	74.0	-9.7	1.22 V	247	50.37	13.93
6	15780.00	51.5 AV	54.0	-2.5	1.22 V	247	37.57	13.93

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	*5300.00	114.8 PK			1.46 H	263	110.86	3.94
2	*5300.00	104.2 AV			1.46 H	263	100.26	3.94
3	5350.00	64.7 PK	74.0	-9.3	1.46 H	263	60.63	4.07
4	5350.00	50.2 AV	54.0	-3.8	1.46 H	263	46.13	4.07
5	10600.00	57.0 PK	74.0	-17.0	2.06 H	128	46.93	10.07
6	10600.00	46.1 AV	54.0	-7.9	2.06 H	128	36.03	10.07
7	15900.00	64.1 PK	74.0	-9.9	1.62 H	231	49.88	14.22
8	15900.00	51.0 AV	54.0	-3.0	1.62 H	231	36.78	14.22
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	110.5 PK			1.81 V	352	106.56	3.94
2	*5300.00	99.8 AV			1.81 V	352	95.86	3.94
3	5350.00	64.8 PK	74.0	-9.2	1.81 V	352	60.73	4.07
4	5350.00	48.4 AV	54.0	-5.6	1.81 V	352	44.33	4.07
5	10600.00	57.2 PK	74.0	-16.8	2.21 V	218	47.13	10.07
6	10600.00	46.2 AV	54.0	-7.8	2.21 V	218	36.13	10.07
7	15900.00	63.8 PK	74.0	-10.2	1.22 V	231	49.58	14.22
8	15900.00	51.2 AV	54.0	-2.8	1.22 V	231	36.98	14.22

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	112.9 PK			1.33 H	267	108.91	3.99
2	*5320.00	102.1 AV			1.33 H	267	98.11	3.99
3	5350.00	70.0 PK	74.0	-4.0	1.30 H	271	65.93	4.07
4	5350.00	53.6 AV	54.0	-0.4	1.30 H	271	49.53	4.07
5	10640.00	56.0 PK	74.0	-18.0	1.04 H	312	45.99	10.01
6	10640.00	43.5 AV	54.0	-10.5	1.04 H	312	33.49	10.01
7	15960.00	59.6 PK	74.0	-14.4	1.01 H	351	45.45	14.15
8	15960.00	46.3 AV	54.0	-7.7	1.01 H	351	32.15	14.15
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	*5320.00	108.1 PK			1.87 V	353	104.11	3.99
2	*5320.00	98.2 AV			1.87 V	353	94.21	3.99
3	5350.00	58.4 PK	74.0	-15.6	1.72 V	336	54.33	4.07
4	5350.00	49.1 AV	54.0	-4.9	1.72 V	336	45.03	4.07
5	10640.00	55.3 PK	74.0	-18.7	1.32 V	222	45.29	10.01
6	10640.00	43.2 AV	54.0	-10.8	1.32 V	222	33.19	10.01
7	15960.00	61.0 PK	74.0	-13.0	1.05 V	114	46.85	14.15
8	15960.00	48.3 AV	54.0	-5.7	1.05 V	114	34.15	14.15

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.

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	#5470.00	71.0 PK	74.0	-3.0	1.12 H	264	66.83	4.17
2	#5470.00	53.8 AV	54.0	-0.2	1.12 H	264	49.63	4.17
3	*5500.00	110.6 PK			1.15 H	265	106.44	4.16
4	*5500.00	100.4 AV			1.15 H	265	96.24	4.16
5	11000.00	56.1 PK	74.0	-17.9	1.03 H	330	45.87	10.23
6	11000.00	43.3 AV	54.0	-10.7	1.03 H	330	33.07	10.23
7	#16500.00	59.6 PK	74.0	-14.4	1.02 H	331	43.40	16.20
8	#16500.00	46.0 AV	54.0	-8.0	1.02 H	331	29.80	16.20

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	59.1 PK	74.0	-14.9	1.80 V	326	54.93	4.17
2	#5470.00	49.4 AV	54.0	-4.6	1.80 V	326	45.23	4.17
3	*5500.00	106.5 PK			1.83 V	357	102.34	4.16
4	*5500.00	96.1 AV			1.83 V	357	91.94	4.16
5	11000.00	55.3 PK	74.0	-18.7	1.31 V	203	45.07	10.23
6	11000.00	43.0 AV	54.0	-11.0	1.31 V	203	32.77	10.23
7	#16500.00	60.3 PK	74.0	-13.7	1.04 V	106	44.10	16.20
8	#16500.00	48.1 AV	54.0	-5.9	1.04 V	106	31.90	16.20

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	*5600.00	110.9 PK			1.36 H	267	106.39	4.51
2	*5600.00	100.2 AV			1.36 H	267	95.69	4.51
3	11200.00	56.9 PK	74.0	-17.1	2.08 H	131	46.77	10.13
4	11200.00	45.8 AV	54.0	-8.2	2.08 H	131	35.67	10.13
5	#16800.00	64.4 PK	74.0	-9.6	1.67 H	230	46.98	17.42
6	#16800.00	51.3 AV	54.0	-2.7	1.67 H	230	33.88	17.42
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	*5600.00	106.5 PK			1.79 V	360	101.99	4.51
2	*5600.00	96.1 AV			1.79 V	360	91.59	4.51
3	11200.00	57.0 PK	74.0	-17.0	2.25 V	217	46.87	10.13
4	11200.00	46.2 AV	54.0	-7.8	2.25 V	217	36.07	10.13
5	#16800.00	64.1 PK	74.0	-9.9	1.22 V	215	46.68	17.42
6	#16800.00	51.5 AV	54.0	-2.5	1.22 V	215	34.08	17.42

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 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	108.6 PK			1.30 H	267	104.11	4.49
2	*5700.00	98.3 AV			1.30 H	267	93.81	4.49
3	#5725.00	69.2 PK	74.0	-4.8	1.45 H	267	64.70	4.50
4	#5725.00	53.2 AV	54.0	-0.8	1.45 H	267	48.70	4.50
5	11400.00	56.1 PK	74.0	-17.9	1.05 H	335	46.13	9.97
6	11400.00	43.5 AV	54.0	-10.5	1.05 H	335	33.53	9.97
7	#17100.00	59.2 PK	74.0	-14.8	1.06 H	353	41.48	17.72
8	#17100.00	45.9 AV	54.0	-8.1	1.06 H	353	28.18	17.72
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	104.3 PK			1.66 V	321	99.81	4.49
2	*5700.00	94.1 AV			1.66 V	321	89.61	4.49
3	#5725.00	59.0 PK	74.0	-15.0	1.81 V	339	54.50	4.50
4	#5725.00	49.1 AV	54.0	-4.9	1.81 V	339	44.60	4.50
5	11400.00	55.5 PK	74.0	-18.5	1.32 V	196	45.53	9.97
6	11400.00	43.5 AV	54.0	-10.5	1.32 V	196	33.53	9.97
7	#17100.00	60.2 PK	74.0	-13.8	1.01 V	123	42.48	17.72
8	#17100.00	47.6 AV	54.0	-6.4	1.01 V	123	29.88	17.72

REMARKS:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) 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	#5715.00	63.8 PK	74.0	-10.2	1.46 H	268	59.32	4.48
2	#5715.00	48.3 AV	54.0	-5.7	1.46 H	268	43.82	4.48
3	#5725.00	77.3 PK	78.2	-0.9	1.50 H	267	72.80	4.50
4	*5745.00	107.5 PK			1.44 H	268	103.01	4.49
5	*5745.00	96.6 AV			1.44 H	268	92.11	4.49
6	11490.00	55.8 PK	74.0	-18.2	1.08 H	334	45.76	10.04
7	11490.00	42.8 AV	54.0	-11.2	1.08 H	334	32.76	10.04
8	#17235.00	61.7 PK	74.0	-12.3	1.69 H	225	43.14	18.56
9	#17235.00	50.2 AV	54.0	-3.8	1.69 H	225	31.64	18.56
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	60.3 PK	74.0	-13.7	1.76 V	348	55.82	4.48
2	#5715.00	45.9 AV	54.0	-8.1	1.76 V	348	41.42	4.48
3	#5725.00	74.2 PK	78.2	-4.0	1.76 V	348	69.70	4.50
4	*5745.00	103.7 PK			1.76 V	348	99.21	4.49
5	*5745.00	92.4 AV			1.76 V	348	87.91	4.49
6	11490.00	55.2 PK	74.0	-18.8	1.26 V	209	45.16	10.04
7	11490.00	43.3 AV	54.0	-10.7	1.26 V	209	33.26	10.04
8	#17235.00	62.5 PK	74.0	-11.5	1.00 V	115	43.94	18.56
9	#17235.00	50.2 AV	54.0	-3.8	1.00 V	115	31.64	18.56

REMARKS:

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

CHANNEL	TX Channel 157	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	*5785.00	113.2 PK			1.83 H	347	108.70	4.50
2	*5785.00	102.9 AV			1.83 H	347	98.40	4.50
3	11570.00	57.3 PK	74.0	-16.7	2.02 H	130	47.22	10.08
4	11570.00	46.3 AV	54.0	-7.7	2.02 H	130	36.22	10.08
5	#17355.00	63.3 PK	74.0	-10.7	1.57 H	243	44.40	18.90
6	#17355.00	50.3 AV	54.0	-3.7	1.57 H	243	31.40	18.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	109.3 PK			2.11 V	232	104.80	4.50
2	*5785.00	99.4 AV			2.11 V	232	94.90	4.50
3	11570.00	60.2 PK	74.0	-13.8	2.40 V	176	50.12	10.08
4	11570.00	53.2 AV	54.0	-0.8	2.40 V	176	43.12	10.08
5	#17355.00	63.7 PK	74.0	-10.3	1.18 V	239	44.80	18.90
6	#17355.00	51.2 AV	54.0	-2.8	1.18 V	239	32.30	18.90

REMARKS:

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

CHANNEL	TX Channel 165	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	*5825.00	113.0 PK			1.88 H	346	108.47	4.53
2	*5825.00	102.9 AV			1.88 H	346	98.37	4.53
3	#5850.00	73.2 PK	78.2	-5.0	1.88 H	346	68.63	4.57
4	#5860.00	61.9 PK	74.0	-12.1	1.88 H	346	57.31	4.59
5	#5860.00	49.2 AV	54.0	-4.8	1.88 H	346	44.61	4.59
6	11650.00	61.0 PK	74.0	-13.0	1.74 H	274	51.03	9.97
7	11650.00	49.0 AV	54.0	-5.0	1.74 H	274	39.03	9.97
8	#17475.00	63.2 PK	74.0	-10.8	1.56 H	246	44.09	19.11
9	#17475.00	50.5 AV	54.0	-3.5	1.56 H	246	31.39	19.11
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	*5825.00	108.7 PK			1.74 V	295	104.17	4.53
2	*5825.00	98.9 AV			1.74 V	295	94.37	4.53
3	#5850.00	70.2 PK	78.2	-8.0	1.74 V	295	65.63	4.57
4	#5860.00	58.3 PK	74.0	-15.7	1.74 V	295	53.71	4.59
5	#5860.00	47.6 AV	54.0	-6.4	1.74 V	295	43.01	4.59
6	11650.00	62.9 PK	74.0	-11.1	1.97 V	170	52.93	9.97
7	11650.00	53.4 AV	54.0	-0.6	1.97 V	170	43.43	9.97
8	#17475.00	63.8 PK	74.0	-10.2	1.20 V	235	44.69	19.11
9	#17475.00	51.4 AV	54.0	-2.6	1.20 V	235	32.29	19.11

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 36	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	65.1 PK	74.0	-8.9	1.19 H	260	58.50	6.60
2	5150.00	53.2 AV	54.0	-0.8	1.19 H	260	46.60	6.60
3	*5180.00	114.1 PK			1.19 H	260	107.31	6.79
4	*5180.00	107.3 AV			1.19 H	260	100.51	6.79
5	#10360.00	58.9 PK	74.0	-15.1	1.73 H	98	45.04	13.86
6	#10360.00	49.4 AV	54.0	-4.6	1.73 H	98	35.54	13.86
7	15540.00	64.9 PK	74.0	-9.1	1.22 H	151	45.75	19.15
8	15540.00	51.6 AV	54.0	-2.4	1.22 H	151	32.45	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	5150.00	62.1 PK	74.0	-11.9	1.42 V	173	55.50	6.60
2	5150.00	52.7 AV	54.0	-1.3	1.42 V	173	46.10	6.60
3	*5180.00	113.6 PK			1.42 V	173	106.81	6.79
4	*5180.00	105.3 AV			1.42 V	173	98.51	6.79
5	#10360.00	57.8 PK	74.0	-16.2	1.36 V	205	43.94	13.86
6	#10360.00	48.8 AV	54.0	-5.2	1.36 V	205	34.94	13.86
7	15540.00	64.3 PK	74.0	-9.7	1.44 V	307	45.15	19.15
8	15540.00	51.5 AV	54.0	-2.5	1.44 V	307	32.35	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 40	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	62.9 PK	74.0	-11.1	1.51 H	206	56.30	6.60
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**1.51 H**	**206**	**47.30**	**6.60**
3	*5200.00	117.1 PK			1.42 H	261	110.20	6.90
4	*5200.00	110.2 AV			1.42 H	261	103.30	6.90
5	#10400.00	58.8 PK	74.0	-15.2	1.67 H	104	44.92	13.88
6	#10400.00	49.5 AV	54.0	-4.5	1.67 H	104	35.62	13.88
7	15600.00	65.5 PK	74.0	-8.5	1.27 H	137	46.85	18.65
8	15600.00	52.5 AV	54.0	-1.5	1.27 H	137	33.85	18.65

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.4 PK	74.0	-12.6	1.50 V	203	54.80	6.60
2	5150.00	52.6 AV	54.0	-1.4	1.50 V	203	46.00	6.60
3	*5200.00	117.4 PK			1.50 V	203	110.50	6.90
4	*5200.00	109.4 AV			1.50 V	203	102.50	6.90
5	#10400.00	58.4 PK	74.0	-15.6	1.33 V	201	44.52	13.88
6	#10400.00	49.6 AV	54.0	-4.4	1.33 V	201	35.72	13.88
7	15600.00	64.8 PK	74.0	-9.2	1.37 V	302	46.15	18.65
8	15600.00	52.3 AV	54.0	-1.7	1.37 V	302	33.65	18.65

REMARKS:

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

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK) 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	*5240.00	118.5 PK			1.30 H	260	111.54	6.96
2	*5240.00	109.4 AV			1.30 H	260	102.44	6.96
3	#10480.00	59.2 PK	74.0	-14.8	1.72 H	103	45.54	13.66
4	#10480.00	49.6 AV	54.0	-4.4	1.72 H	103	35.94	13.66
5	15720.00	65.1 PK	74.0	-8.9	1.21 H	149	45.92	19.18
6	15720.00	52.0 AV	54.0	-2.0	1.21 H	149	32.82	19.18
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	*5240.00	118.2 PK			1.56 V	185	111.24	6.96
2	*5240.00	107.6 AV			1.56 V	185	100.64	6.96
3	#10480.00	58.3 PK	74.0	-15.7	1.34 V	209	44.64	13.66
4	#10480.00	49.3 AV	54.0	-4.7	1.34 V	209	35.64	13.66
5	15720.00	64.5 PK	74.0	-9.5	1.42 V	302	45.32	19.18
6	15720.00	51.8 AV	54.0	-2.2	1.42 V	302	32.62	19.18

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.

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	*5260.00	121.4 PK			1.43 H	259	114.42	6.98
2	*5260.00	112.1 AV			1.43 H	259	105.12	6.98
3	#10520.00	58.5 PK	74.0	-15.5	1.69 H	117	45.00	13.50
4	#10520.00	49.2 AV	54.0	-4.8	1.69 H	117	35.70	13.50
5	15780.00	64.9 PK	74.0	-9.1	1.21 H	144	45.48	19.42
6	15780.00	51.7 AV	54.0	-2.3	1.21 H	144	32.28	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	*5260.00	120.3 PK			1.57 V	190	113.32	6.98
2	*5260.00	109.6 AV			1.57 V	190	102.62	6.98
3	#10520.00	58.4 PK	74.0	-15.6	1.32 V	208	44.90	13.50
4	#10520.00	49.5 AV	54.0	-4.5	1.32 V	208	36.00	13.50
5	15780.00	64.2 PK	74.0	-9.8	1.45 V	309	44.78	19.42
6	15780.00	51.4 AV	54.0	-2.6	1.45 V	309	31.98	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 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	*5300.00	118.8 PK			1.39 H	260	111.76	7.04
2	*5300.00	110.3 AV			1.39 H	260	103.26	7.04
3	10600.00	59.5 PK	74.0	-14.5	1.67 H	95	46.35	13.15
4	10600.00	50.0 AV	54.0	-4.0	1.67 H	95	36.85	13.15
5	15900.00	65.5 PK	74.0	-8.5	1.16 H	137	46.59	18.91
6	15900.00	52.3 AV	54.0	-1.7	1.16 H	137	33.39	18.91
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	117.3 PK			1.53 V	197	110.26	7.04
2	*5300.00	108.2 AV			1.53 V	197	101.16	7.04
3	10600.00	58.8 PK	74.0	-15.2	1.34 V	218	45.65	13.15
4	10600.00	49.7 AV	54.0	-4.3	1.34 V	218	36.55	13.15
5	15900.00	64.5 PK	74.0	-9.5	1.36 V	311	45.59	18.91
6	15900.00	51.7 AV	54.0	-2.3	1.36 V	311	32.79	18.91

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	115.4 PK			1.39 H	262	108.30	7.10
2	*5320.00	107.2 AV			1.39 H	262	100.10	7.10
3	5350.00	65.0 PK	74.0	-9.0	1.39 H	262	57.82	7.18
4	5350.00	52.6 AV	54.0	-1.4	1.39 H	262	45.42	7.18
5	10640.00	59.9 PK	74.0	-14.1	1.78 H	98	46.50	13.40
6	10640.00	50.1 AV	54.0	-3.9	1.78 H	98	36.70	13.40
7	15960.00	65.3 PK	74.0	-8.7	1.19 H	137	46.64	18.66
8	15960.00	52.2 AV	54.0	-1.8	1.19 H	137	33.54	18.66
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	113.4 PK			1.38 V	171	106.30	7.10
2	*5320.00	104.9 AV			1.38 V	171	97.80	7.10
3	5350.00	64.2 PK	74.0	-9.8	1.38 V	171	57.02	7.18
4	5350.00	51.3 AV	54.0	-2.7	1.38 V	171	44.12	7.18
5	10640.00	57.7 PK	74.0	-16.3	1.31 V	198	44.30	13.40
6	10640.00	49.0 AV	54.0	-5.0	1.31 V	198	35.60	13.40
7	15960.00	64.8 PK	74.0	-9.2	1.44 V	294	46.14	18.66
8	15960.00	52.1 AV	54.0	-1.9	1.44 V	294	33.44	18.66

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	#5470.00	69.7 PK	74.0	-4.3	1.43 H	262	62.27	7.43
2	#5470.00	53.7 AV	54.0	-0.3	1.43 H	262	46.27	7.43
3	*5500.00	115.2 PK			1.43 H	262	107.73	7.47
4	*5500.00	106.6 AV			1.43 H	262	99.13	7.47
5	11000.00	59.2 PK	74.0	-14.8	1.67 H	106	45.08	14.12
6	11000.00	49.7 AV	54.0	-4.3	1.67 H	106	35.58	14.12
7	#16500.00	65.1 PK	74.0	-8.9	1.25 H	137	43.91	21.19
8	#16500.00	52.2 AV	54.0	-1.8	1.25 H	137	31.01	21.19
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	#5470.00	68.4 PK	74.0	-5.6	1.32 V	255	60.97	7.43
2	#5470.00	52.1 AV	54.0	-1.9	1.32 V	255	44.67	7.43
3	*5500.00	114.6 PK			1.32 V	255	107.13	7.47
4	*5500.00	103.9 AV			1.32 V	255	96.43	7.47
5	11000.00	58.6 PK	74.0	-15.4	1.29 V	224	44.48	14.12
6	11000.00	49.3 AV	54.0	-4.7	1.29 V	224	35.18	14.12
7	#16500.00	64.9 PK	74.0	-9.1	1.46 V	316	43.71	21.19
8	#16500.00	52.1 AV	54.0	-1.9	1.46 V	316	30.91	21.19

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	#5470.00	69.8 PK	74.0	-4.2	1.38 H	254	62.37	7.43
2	#5470.00	53.8 AV	54.0	-0.2	1.38 H	254	46.37	7.43
3	*5600.00	114.1 PK			1.38 H	254	106.64	7.46
4	*5600.00	105.4 AV			1.38 H	254	97.94	7.46
5	11200.00	58.9 PK	74.0	-15.1	1.69 H	96	44.69	14.21
6	11200.00	49.5 AV	54.0	-4.5	1.69 H	96	35.29	14.21
7	#16800.00	64.8 PK	74.0	-9.2	1.26 H	157	42.75	22.05
8	#16800.00	51.9 AV	54.0	-2.1	1.26 H	157	29.85	22.05
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	68.4 PK	74.0	-5.6	1.32 V	215	60.97	7.43
2	#5470.00	52.1 AV	54.0	-1.9	1.32 V	215	44.67	7.43
3	*5600.00	112.3 PK			1.32 V	215	104.84	7.46
4	*5600.00	102.9 AV			1.32 V	215	95.44	7.46
5	11200.00	58.8 PK	74.0	-15.2	1.36 V	224	44.59	14.21
6	11200.00	49.7 AV	54.0	-4.3	1.36 V	224	35.49	14.21
7	#16800.00	64.5 PK	74.0	-9.5	1.48 V	297	42.45	22.05
8	#16800.00	51.9 AV	54.0	-2.1	1.48 V	297	29.85	22.05

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	110.3 PK			1.31 H	264	102.40	7.90
2	*5700.00	101.6 AV			1.31 H	264	93.70	7.90
3	#5725.00	71.9 PK	74.0	-2.1	1.31 H	264	63.96	7.94
4	**#5725.00**	**53.9 AV**	**54.0**	**-0.1**	**1.31 H**	**264**	**45.96**	**7.94**
5	11400.00	59.2 PK	74.0	-14.8	1.76 H	95	44.75	14.45
6	11400.00	49.4 AV	54.0	-4.6	1.76 H	95	34.95	14.45
7	#17100.00	65.5 PK	74.0	-8.5	1.25 H	148	42.65	22.85
8	#17100.00	52.4 AV	54.0	-1.6	1.25 H	148	29.55	22.85

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	108.9 PK			1.32 V	231	101.00	7.90
2	*5700.00	98.7 AV			1.32 V	231	90.80	7.90
3	#5725.00	70.6 PK	74.0	-3.4	1.32 V	231	62.66	7.94
4	#5725.00	52.6 AV	54.0	-1.4	1.32 V	231	44.66	7.94
5	11400.00	58.1 PK	74.0	-15.9	1.30 V	216	43.65	14.45
6	11400.00	49.0 AV	54.0	-5.0	1.30 V	216	34.55	14.45
7	#17100.00	64.1 PK	74.0	-9.9	1.36 V	291	41.25	22.85
8	#17100.00	51.3 AV	54.0	-2.7	1.36 V	291	28.45	22.85

REMARKS:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) 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	#5715.00	63.8 PK	74.0	-10.2	1.41 H	262	59.32	4.48
2	**#5715.00**	**53.9 AV**	**54.0**	**-0.1**	**1.41 H**	**262**	**49.42**	**4.48**
3	**#5725.00**	**78.1 PK**	**78.2**	**-0.1**	**1.41 H**	**262**	**73.60**	**4.50**
4	*5745.00	107.7 PK			1.41 H	262	103.21	4.49
5	*5745.00	99.4 AV			1.41 H	262	94.91	4.49
6	11490.00	58.6 PK	74.0	-15.4	1.74 H	96	48.56	10.04
7	11490.00	48.9 AV	54.0	-5.1	1.74 H	96	38.86	10.04
8	#17235.00	66.1 PK	74.0	-7.9	1.21 H	152	47.54	18.56
9	#17235.00	52.8 AV	54.0	-1.2	1.21 H	152	34.24	18.56
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	62.4 PK	74.0	-11.6	1.47 V	254	57.92	4.48
2	#5715.00	52.6 AV	54.0	-1.4	1.47 V	254	48.12	4.48
3	#5725.00	65.6 PK	78.2	-12.6	1.47 V	254	61.10	4.50
4	*5745.00	106.6 PK			1.47 V	254	102.11	4.49
5	*5745.00	97.7 AV			1.47 V	254	93.21	4.49
6	11490.00	58.0 PK	74.0	-16.0	1.25 V	212	47.96	10.04
7	11490.00	49.1 AV	54.0	-4.9	1.25 V	212	39.06	10.04
8	#17235.00	63.9 PK	74.0	-10.1	1.41 V	290	45.34	18.56
9	#17235.00	51.0 AV	54.0	-3.0	1.41 V	290	32.44	18.56

REMARKS:

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

CHANNEL	TX Channel 157	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	#5715.00	68.0 PK	74.0	-6.0	1.46 H	265	63.52	4.48
2	#5715.00	53.5 AV	54.0	-0.5	1.46 H	265	49.02	4.48
3	#5725.00	73.2 PK	78.2	-5.0	1.46 H	265	68.70	4.50
4	*5785.00	113.6 PK			1.46 H	265	109.10	4.50
5	*5785.00	104.5 AV			1.46 H	265	100.00	4.50
6	#5850.00	63.8 PK	78.2	-14.4	1.46 H	265	59.23	4.57
7	#5860.00	58.9 PK	74.0	-15.1	1.46 H	265	54.31	4.59
8	#5860.00	49.1 AV	54.0	-4.9	1.46 H	265	44.51	4.59
9	11570.00	58.4 PK	74.0	-15.6	1.68 H	110	48.32	10.08
10	11570.00	49.2 AV	54.0	-4.8	1.68 H	110	39.12	10.08
11	#17355.00	64.9 PK	74.0	-9.1	1.23 H	153	46.00	18.90
12	#17355.00	51.9 AV	54.0	-2.1	1.23 H	153	33.00	18.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	66.5 PK	74.0	-7.5	1.46 V	254	62.02	4.48
2	#5715.00	52.4 AV	54.0	-1.6	1.46 V	254	47.92	4.48
3	#5725.00	61.4 PK	78.2	-16.8	1.46 V	254	56.90	4.50
4	*5785.00	110.6 PK			1.46 V	254	106.10	4.50
5	*5785.00	101.4 AV			1.46 V	254	96.90	4.50
6	#5850.00	54.2 PK	78.2	-24.0	1.46 V	254	49.63	4.57
7	#5860.00	57.7 PK	74.0	-16.3	1.46 V	254	53.11	4.59
8	#5860.00	47.6 AV	54.0	-6.4	1.46 V	254	43.01	4.59
9	11570.00	58.8 PK	74.0	-15.2	1.39 V	239	48.72	10.08
10	11570.00	49.8 AV	54.0	-4.2	1.39 V	239	39.72	10.08
11	#17355.00	64.3 PK	74.0	-9.7	1.50 V	306	45.40	18.90
12	#17355.00	51.6 AV	54.0	-2.4	1.50 V	306	32.70	18.90

REMARKS:

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

CHANNEL	TX Channel 165	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	*5825.00	109.7 PK			1.46 H	261	105.17	4.53
2	*5825.00	102.0 AV			1.46 H	261	97.47	4.53
3	#5850.00	76.2 PK	78.2	-2.0	1.46 H	261	71.63	4.57
4	#5860.00	66.0 PK	74.0	-8.0	1.46 H	261	61.41	4.59
5	**#5860.00**	**53.9 AV**	**54.0**	**-0.1**	**1.46 H**	**261**	**49.31**	**4.59**
6	11650.00	59.3 PK	74.0	-14.7	1.78 H	88	49.33	9.97
7	11650.00	49.5 AV	54.0	-4.5	1.78 H	88	39.53	9.97
8	#17475.00	65.7 PK	74.0	-8.3	1.29 H	140	46.59	19.11
9	#17475.00	52.4 AV	54.0	-1.6	1.29 H	140	33.29	19.11
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	*5825.00	106.5 PK			1.45 V	250	101.97	4.53
2	*5825.00	99.5 AV			1.45 V	250	94.97	4.53
3	#5850.00	57.4 PK	78.2	-20.8	1.45 V	250	52.83	4.57
4	#5860.00	65.3 PK	74.0	-8.7	1.45 V	250	60.71	4.59
5	#5860.00	52.1 AV	54.0	-1.9	1.45 V	250	47.51	4.59
6	11650.00	58.4 PK	74.0	-15.6	1.29 V	232	48.43	9.97
7	11650.00	49.0 AV	54.0	-5.0	1.29 V	232	39.03	9.97
8	#17475.00	63.8 PK	74.0	-10.2	1.38 V	293	44.69	19.11
9	#17475.00	51.1 AV	54.0	-2.9	1.38 V	293	31.99	19.11

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 38	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	69.1 PK	74.0	-4.9	1.23 H	264	62.50	6.60
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**1.23 H**	**264**	**47.30**	**6.60**
3	*5190.00	104.9 PK			1.23 H	264	98.06	6.84
4	*5190.00	98.4 AV			1.23 H	264	91.56	6.84
5	#10380.00	59.2 PK	74.0	-14.8	1.74 H	93	45.33	13.87
6	#10380.00	49.7 AV	54.0	-4.3	1.74 H	93	35.83	13.87
7	15570.00	65.3 PK	74.0	-8.7	1.23 H	149	46.40	18.90
8	15570.00	52.2 AV	54.0	-1.8	1.23 H	149	33.30	18.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.4 PK	74.0	-5.6	1.35 V	215	61.80	6.60
2	5150.00	52.7 AV	54.0	-1.3	1.35 V	215	46.10	6.60
3	*5190.00	103.3 PK			1.35 V	215	96.46	6.84
4	*5190.00	95.2 AV			1.35 V	215	88.36	6.84
5	#10380.00	58.5 PK	74.0	-15.5	1.36 V	222	44.63	13.87
6	#10380.00	49.8 AV	54.0	-4.2	1.36 V	222	35.93	13.87
7	15570.00	64.8 PK	74.0	-9.2	1.48 V	287	45.90	18.90
8	15570.00	52.0 AV	54.0	-2.0	1.48 V	287	33.10	18.90

REMARKS:

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

CHANNEL	TX Channel 46	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	58.4 PK	74.0	-15.6	1.50 H	264	51.80	6.60
2	5150.00	52.5 AV	54.0	-1.5	1.50 H	264	45.90	6.60
3	*5230.00	113.4 PK			1.50 H	264	106.45	6.95
4	*5230.00	108.5 AV			1.50 H	264	101.55	6.95
5	5350.00	54.3 PK	74.0	-19.7	1.50 H	264	47.12	7.18
6	5350.00	45.7 AV	54.0	-8.3	1.50 H	264	38.52	7.18
7	#10460.00	58.8 PK	74.0	-15.2	1.68 H	105	45.09	13.71
8	#10460.00	49.4 AV	54.0	-4.6	1.68 H	105	35.69	13.71
9	15690.00	65.3 PK	74.0	-8.7	1.27 H	139	46.24	19.06
10	15690.00	52.4 AV	54.0	-1.6	1.27 H	139	33.34	19.06
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	57.3 PK	74.0	-16.7	1.47 V	171	50.70	6.60
2	5150.00	51.6 AV	54.0	-2.4	1.47 V	171	45.00	6.60
3	*5230.00	111.9 PK			1.47 V	171	104.95	6.95
4	*5230.00	105.3 AV			1.47 V	171	98.35	6.95
5	5350.00	53.5 PK	74.0	-20.5	1.47 V	171	46.32	7.18
6	5350.00	44.6 AV	54.0	-9.4	1.47 V	171	37.42	7.18
7	#10460.00	58.2 PK	74.0	-15.8	1.31 V	210	44.49	13.71
8	#10460.00	49.0 AV	54.0	-5.0	1.31 V	210	35.29	13.71
9	15690.00	64.8 PK	74.0	-9.2	1.40 V	313	45.74	19.06
10	15690.00	51.9 AV	54.0	-2.1	1.40 V	313	32.84	19.06

REMARKS:

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

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK) 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	54.4 PK	74.0	-19.6	1.28 H	263	47.80	6.60
2	5150.00	46.0 AV	54.0	-8.0	1.28 H	263	39.40	6.60
3	*5270.00	110.7 PK			1.28 H	263	103.71	6.99
4	*5270.00	105.0 AV			1.28 H	263	98.01	6.99
5	5350.00	59.7 PK	74.0	-14.3	1.28 H	263	52.52	7.18
6	5350.00	53.1 AV	54.0	-0.9	1.28 H	263	45.92	7.18
7	#10540.00	59.4 PK	74.0	-14.6	1.73 H	88	45.98	13.42
8	#10540.00	49.9 AV	54.0	-4.1	1.73 H	88	36.48	13.42
9	15810.00	65.4 PK	74.0	-8.6	1.17 H	140	45.96	19.44
10	15810.00	52.2 AV	54.0	-1.8	1.17 H	140	32.76	19.44
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	53.3 PK	74.0	-20.7	1.47 V	214	46.70	6.60
2	5150.00	45.2 AV	54.0	-8.8	1.47 V	214	38.60	6.60
3	*5270.00	109.9 PK			1.47 V	214	102.91	6.99
4	*5270.00	102.1 AV			1.47 V	214	95.11	6.99
5	5350.00	58.3 PK	74.0	-15.7	1.47 V	214	51.12	7.18
6	5350.00	51.9 AV	54.0	-2.1	1.47 V	214	44.72	7.18
7	#10540.00	58.9 PK	74.0	-15.1	1.37 V	221	45.48	13.42
8	#10540.00	49.8 AV	54.0	-4.2	1.37 V	221	36.38	13.42
9	15810.00	64.5 PK	74.0	-9.5	1.44 V	294	45.06	19.44
10	15810.00	52.1 AV	54.0	-1.9	1.44 V	294	32.66	19.44

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	108.2 PK			1.38 H	248	101.13	7.07
2	*5310.00	100.9 AV			1.38 H	248	93.83	7.07
3	**5350.00**	**73.9 PK**	**74.0**	**-0.1**	**1.38 H**	**248**	**66.72**	**7.18**
4	5350.00	53.8 AV	54.0	-0.2	1.38 H	248	46.62	7.18
5	10620.00	59.1 PK	74.0	-14.9	1.67 H	98	45.84	13.26
6	10620.00	49.2 AV	54.0	-4.8	1.67 H	98	35.94	13.26
7	15930.00	65.0 PK	74.0	-9.0	1.26 H	150	46.22	18.78
8	15930.00	52.0 AV	54.0	-2.0	1.26 H	150	33.22	18.78
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	107.6 PK			1.34 V	254	100.53	7.07
2	*5310.00	97.7 AV			1.34 V	254	90.63	7.07
3	5350.00	72.4 PK	74.0	-1.6	1.34 V	254	65.22	7.18
4	5350.00	52.2 AV	54.0	-1.8	1.34 V	254	45.02	7.18
5	10620.00	58.8 PK	74.0	-15.2	1.39 V	220	45.54	13.26
6	10620.00	49.6 AV	54.0	-4.4	1.39 V	220	36.34	13.26
7	15930.00	65.0 PK	74.0	-9.0	1.38 V	313	46.22	18.78
8	15930.00	52.1 AV	54.0	-1.9	1.38 V	313	33.32	18.78

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	#5470.00	63.6 PK	74.0	-10.4	1.38 H	247	56.17	7.43
2	**#5470.00**	**53.9 AV**	**54.0**	**-0.1**	**1.38 H**	**247**	**46.47**	**7.43**
3	*5510.00	103.6 PK			1.38 H	247	96.13	7.47
4	*5510.00	96.2 AV			1.38 H	247	88.73	7.47
5	11020.00	59.5 PK	74.0	-14.5	1.76 H	104	45.34	14.16
6	11020.00	50.0 AV	54.0	-4.0	1.76 H	104	35.84	14.16
7	#16530.00	65.3 PK	74.0	-8.7	1.19 H	140	43.88	21.42
8	#16530.00	51.9 AV	54.0	-2.1	1.19 H	140	30.48	21.42

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	#5470.00	62.4 PK	74.0	-11.6	1.37 V	241	54.97	7.43
2	#5470.00	52.6 AV	54.0	-1.4	1.37 V	241	45.17	7.43
3	*5510.00	102.4 PK			1.37 V	241	94.93	7.47
4	*5510.00	93.4 AV			1.37 V	241	85.93	7.47
5	11020.00	58.1 PK	74.0	-15.9	1.35 V	198	43.94	14.16
6	11020.00	49.4 AV	54.0	-4.6	1.35 V	198	35.24	14.16
7	#16530.00	64.8 PK	74.0	-9.2	1.42 V	317	43.38	21.42
8	#16530.00	52.2 AV	54.0	-1.8	1.42 V	317	30.78	21.42

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 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	63.7 PK	74.0	-10.3	1.35 H	244	56.27	7.43
2	#5470.00	53.8 AV	54.0	-0.2	1.35 H	244	46.37	7.43
3	*5590.00	103.2 PK			1.35 H	244	95.74	7.46
4	*5590.00	96.1 AV			1.35 H	244	88.64	7.46
5	11180.00	58.7 PK	74.0	-15.3	1.68 H	89	44.48	14.22
6	11180.00	49.2 AV	54.0	-4.8	1.68 H	89	34.98	14.22
7	#16770.00	65.3 PK	74.0	-8.7	1.25 H	160	43.29	22.01
8	#16770.00	52.4 AV	54.0	-1.6	1.25 H	160	30.39	22.01
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	#5470.00	62.5 PK	74.0	-11.5	1.36 V	245	55.07	7.43
2	#5470.00	52.4 AV	54.0	-1.6	1.36 V	245	44.97	7.43
3	*5590.00	102.7 PK			1.36 V	245	95.24	7.46
4	*5590.00	93.3 AV			1.36 V	245	85.84	7.46
5	11180.00	58.8 PK	74.0	-15.2	1.36 V	216	44.58	14.22
6	11180.00	49.7 AV	54.0	-4.3	1.36 V	216	35.48	14.22
7	#16770.00	64.3 PK	74.0	-9.7	1.36 V	298	42.29	22.01
8	#16770.00	51.5 AV	54.0	-2.5	1.36 V	298	29.49	22.01

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.
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	106.2 PK			1.58 H	282	98.43	7.77
2	*5670.00	99.1 AV			1.58 H	282	91.33	7.77
3	#5725.00	67.8 PK	74.0	-6.2	1.58 H	282	59.86	7.94
4	#5725.00	53.8 AV	54.0	-0.2	1.58 H	282	45.86	7.94
5	11340.00	59.8 PK	74.0	-14.2	1.77 H	108	45.61	14.19
6	11340.00	50.0 AV	54.0	-4.0	1.77 H	108	35.81	14.19
7	#17010.00	65.5 PK	74.0	-8.5	1.23 H	140	42.33	23.17
8	#17010.00	52.4 AV	54.0	-1.6	1.23 H	140	29.23	23.17
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	105.7 PK			1.45 V	222	97.93	7.77
2	*5670.00	96.2 AV			1.45 V	222	88.43	7.77
3	#5725.00	66.4 PK	74.0	-7.6	1.45 V	222	58.46	7.94
4	#5725.00	52.1 AV	54.0	-1.9	1.45 V	222	44.16	7.94
5	11340.00	57.8 PK	74.0	-16.2	1.36 V	217	43.61	14.19
6	11340.00	49.0 AV	54.0	-5.0	1.36 V	217	34.81	14.19
7	#17010.00	65.1 PK	74.0	-8.9	1.37 V	289	41.93	23.17
8	#17010.00	52.1 AV	54.0	-1.9	1.37 V	289	28.93	23.17

REMARKS:

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

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK) 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	#5715.00	71.8 PK	74.0	-2.2	1.37 H	259	67.32	4.48
2	**#5715.00**	**53.9 AV**	**54.0**	**-0.1**	**1.37 H**	**259**	**49.42**	**4.48**
3	#5725.00	77.9 PK	78.2	-0.3	1.37 H	259	73.40	4.50
4	*5755.00	104.3 PK			1.37 H	259	99.81	4.49
5	*5755.00	94.8 AV			1.37 H	259	90.31	4.49
6	11510.00	59.6 PK	74.0	-14.4	1.78 H	111	49.55	10.05
7	11510.00	49.9 AV	54.0	-4.1	1.78 H	111	39.85	10.05
8	#17265.00	65.2 PK	74.0	-8.8	1.21 H	147	46.56	18.64
9	#17265.00	52.0 AV	54.0	-2.0	1.21 H	147	33.36	18.64
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	#5715.00	69.4 PK	74.0	-4.6	1.46 V	360	64.92	4.48
2	#5715.00	51.6 AV	54.0	-2.4	1.46 V	360	47.12	4.48
3	#5725.00	67.5 PK	78.2	-10.7	1.46 V	360	63.00	4.50
4	*5755.00	101.4 PK			1.46 V	360	96.91	4.49
5	*5755.00	91.2 AV			1.46 V	360	86.71	4.49
6	11510.00	58.2 PK	74.0	-15.8	1.39 V	195	48.15	10.05
7	11510.00	49.6 AV	54.0	-4.4	1.39 V	195	39.55	10.05
8	#17265.00	64.7 PK	74.0	-9.3	1.44 V	303	46.06	18.64
9	#17265.00	52.1 AV	54.0	-1.9	1.44 V	303	33.46	18.64

REMARKS:

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

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) 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	*5795.00	108.0 PK			1.51 H	262	103.49	4.51
2	*5795.00	98.8 AV			1.51 H	262	94.29	4.51
3	#5850.00	74.8 PK	78.2	-3.4	1.51 H	262	70.23	4.57
4	#5860.00	68.8 PK	74.0	-5.2	1.51 H	262	64.21	4.59
5	#5860.00	53.8 AV	54.0	-0.2	1.51 H	262	49.21	4.59
6	11590.00	60.2 PK	74.0	-13.8	1.73 H	112	50.11	10.09
7	11590.00	50.3 AV	54.0	-3.7	1.73 H	112	40.21	10.09
8	#17385.00	65.9 PK	74.0	-8.1	1.29 H	135	46.90	19.00
9	#17385.00	52.6 AV	54.0	-1.4	1.29 H	135	33.60	19.00
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	*5795.00	105.3 PK			1.52 V	360	100.79	4.51
2	*5795.00	95.2 AV			1.52 V	360	90.69	4.51
3	#5850.00	64.6 PK	78.2	-13.6	1.52 V	360	60.03	4.57
4	#5860.00	66.8 PK	74.0	-7.2	1.52 V	360	62.21	4.59
5	#5860.00	52.1 AV	54.0	-1.9	1.52 V	360	47.51	4.59
6	11590.00	57.7 PK	74.0	-16.3	1.30 V	215	47.61	10.09
7	11590.00	48.9 AV	54.0	-5.1	1.30 V	215	38.81	10.09
8	#17385.00	64.9 PK	74.0	-9.1	1.34 V	278	45.90	19.00
9	#17385.00	51.7 AV	54.0	-2.3	1.34 V	278	32.70	19.00

REMARKS:

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

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.2 PK	74.0	-7.8	1.71 H	19	59.60	6.60
2	5150.00	53.5 AV	54.0	-0.5	1.71 H	19	46.90	6.60
3	*5210.00	100.4 PK			1.64 H	47	93.49	6.91
4	*5210.00	90.3 AV			1.64 H	47	83.39	6.91
5	#10420.00	59.0 PK	74.0	-15.0	1.70 H	90	45.19	13.81
6	#10420.00	49.2 AV	54.0	-4.8	1.70 H	90	35.39	13.81
7	15630.00	65.2 PK	74.0	-8.8	1.25 H	151	46.41	18.79
8	15630.00	52.3 AV	54.0	-1.7	1.25 H	151	33.51	18.79
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.3 PK	74.0	-8.7	1.30 V	155	58.70	6.60
2	5150.00	52.4 AV	54.0	-1.6	1.30 V	155	45.80	6.60
3	*5210.00	98.2 PK			1.30 V	155	91.29	6.91
4	*5210.00	86.9 AV			1.30 V	155	79.99	6.91
5	#10420.00	58.6 PK	74.0	-15.4	1.28 V	193	44.79	13.81
6	#10420.00	49.3 AV	54.0	-4.7	1.28 V	193	35.49	13.81
7	15630.00	64.2 PK	74.0	-9.8	1.42 V	311	45.41	18.79
8	15630.00	51.3 AV	54.0	-2.7	1.42 V	311	32.51	18.79

REMARKS:

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

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	102.6 PK			1.96 H	46	95.57	7.03
2	*5290.00	92.9 AV			1.96 H	46	85.87	7.03
3	5350.00	67.3 PK	74.0	-6.7	1.85 H	15	60.12	7.18
4	**5350.00**	**53.9 AV**	**54.0**	**-0.1**	**1.85 H**	**15**	**46.72**	**7.18**
5	#10580.00	59.7 PK	74.0	-14.3	1.67 H	91	46.46	13.24
6	#10580.00	49.9 AV	54.0	-4.1	1.67 H	91	36.66	13.24
7	15870.00	65.0 PK	74.0	-9.0	1.19 H	137	45.91	19.09
8	15870.00	52.0 AV	54.0	-2.0	1.19 H	137	32.91	19.09

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	100.3 PK			1.52 V	222	93.27	7.03
2	*5290.00	89.8 AV			1.52 V	222	82.77	7.03
3	5350.00	66.4 PK	74.0	-7.6	1.52 V	222	59.22	7.18
4	5350.00	52.1 AV	54.0	-1.9	1.52 V	222	44.92	7.18
5	#10580.00	58.9 PK	74.0	-15.1	1.34 V	222	45.66	13.24
6	#10580.00	49.7 AV	54.0	-4.3	1.34 V	222	36.46	13.24
7	15870.00	64.3 PK	74.0	-9.7	1.45 V	317	45.21	19.09
8	15870.00	51.7 AV	54.0	-2.3	1.45 V	317	32.61	19.09

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	#5470.00	70.3 PK	74.0	-3.7	1.55 H	23	62.87	7.43
2	#5470.00	53.8 AV	54.0	-0.2	1.55 H	23	46.37	7.43
3	*5530.00	104.5 PK			2.04 H	37	97.04	7.46
4	*5530.00	94.6 AV			2.04 H	37	87.14	7.46
5	11060.00	59.1 PK	74.0	-14.9	1.73 H	95	44.90	14.20
6	11060.00	49.2 AV	54.0	-4.8	1.73 H	95	35.00	14.20
7	#16590.00	65.0 PK	74.0	-9.0	1.25 H	152	43.12	21.88
8	#16590.00	51.8 AV	54.0	-2.2	1.25 H	152	29.92	21.88
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	69.4 PK	74.0	-4.6	1.38 V	211	61.97	7.43
2	#5470.00	51.9 AV	54.0	-2.1	1.38 V	211	44.47	7.43
3	*5530.00	103.6 PK			1.38 V	211	96.14	7.46
4	*5530.00	91.4 AV			1.38 V	211	83.94	7.46
5	11060.00	58.5 PK	74.0	-15.5	1.28 V	203	44.30	14.20
6	11060.00	49.3 AV	54.0	-4.7	1.28 V	203	35.10	14.20
7	#16590.00	64.7 PK	74.0	-9.3	1.47 V	299	42.82	21.88
8	#16590.00	51.8 AV	54.0	-2.2	1.47 V	299	29.92	21.88

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	106.4 PK			1.53 H	198	98.90	7.50
2	*5610.00	97.3 AV			1.53 H	198	89.80	7.50
3	#5725.00	68.2 PK	74.0	-5.8	1.79 H	21	60.26	7.94
4	#5725.00	53.8 AV	54.0	-0.2	1.79 H	21	45.86	7.94
5	11220.00	59.2 PK	74.0	-14.8	1.75 H	92	45.03	14.17
6	11220.00	49.4 AV	54.0	-4.6	1.75 H	92	35.23	14.17
7	#16830.00	64.5 PK	74.0	-9.5	1.20 H	152	42.40	22.10
8	#16830.00	51.7 AV	54.0	-2.3	1.20 H	152	29.60	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	*5610.00	104.9 PK			1.35 V	222	97.40	7.50
2	*5610.00	94.3 AV			1.35 V	222	86.80	7.50
3	#5725.00	67.3 PK	74.0	-6.7	1.35 V	222	59.36	7.94
4	#5725.00	52.4 AV	54.0	-1.6	1.35 V	222	44.46	7.94
5	11220.00	59.0 PK	74.0	-15.0	1.37 V	217	44.83	14.17
6	11220.00	49.8 AV	54.0	-4.2	1.37 V	217	35.63	14.17
7	#16830.00	64.4 PK	74.0	-9.6	1.39 V	296	42.30	22.10
8	#16830.00	51.8 AV	54.0	-2.2	1.39 V	296	29.70	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 155	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	#5715.00	71.1 PK	74.0	-2.9	1.38 H	263	66.62	4.48
2	**#5715.00**	**53.9 AV**	**54.0**	**-0.1**	**1.38 H**	**263**	**49.42**	**4.48**
3	#5725.00	73.2 PK	78.2	-5.0	1.38 H	263	68.70	4.50
4	*5775.00	101.2 PK			1.38 H	263	96.71	4.49
5	*5775.00	95.4 AV			1.38 H	263	90.91	4.49
6	#5850.00	67.7 PK	78.2	-10.5	1.38 H	263	63.13	4.57
7	#5860.00	56.8 PK	74.0	-17.2	1.38 H	263	52.21	4.59
8	#5860.00	46.7 AV	54.0	-7.3	1.38 H	263	42.11	4.59
9	11550.00	59.3 PK	74.0	-14.7	1.73 H	109	49.23	10.07
10	11550.00	49.6 AV	54.0	-4.4	1.73 H	109	39.53	10.07
11	#17325.00	65.5 PK	74.0	-8.5	1.26 H	164	46.68	18.82
12	#17325.00	52.3 AV	54.0	-1.7	1.26 H	164	33.48	18.82

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	#5715.00	69.4 PK	74.0	-4.6	1.50 V	360	64.92	4.48
2	#5715.00	51.6 AV	54.0	-2.4	1.50 V	360	47.12	4.48
3	#5725.00	63.2 PK	78.2	-15.0	1.50 V	360	58.70	4.50
4	*5775.00	97.8 PK			1.50 V	360	93.31	4.49
5	*5775.00	92.4 AV			1.50 V	360	87.91	4.49
6	#5850.00	57.6 PK	78.2	-20.6	1.50 V	360	53.03	4.57
7	#5860.00	55.2 PK	74.0	-18.8	1.50 V	360	50.61	4.59
8	#5860.00	44.3 AV	54.0	-9.7	1.50 V	360	39.71	4.59
9	11550.00	58.8 PK	74.0	-15.2	1.26 V	187	48.73	10.07
10	11550.00	49.6 AV	54.0	-4.4	1.26 V	187	39.53	10.07
11	#17325.00	64.9 PK	74.0	-9.1	1.50 V	313	46.08	18.82
12	#17325.00	51.8 AV	54.0	-2.2	1.50 V	313	32.98	18.82

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 (VHT20)

CHANNEL	TX Channel 157	**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	232.39	41.1 QP	46.0	-4.9	1.00 H	313	55.92	-14.86
2	248.44	40.7 QP	46.0	-5.3	1.00 H	286	54.59	-13.90
3	265.52	42.7 QP	46.0	-3.3	1.00 H	83	56.04	-13.34
4	283.80	42.8 QP	46.0	-3.2	1.00 H	77	55.35	-12.51
5	288.99	40.1 QP	46.0	-5.9	1.00 H	77	52.42	-12.35
6	796.59	40.4 QP	46.0	-5.6	1.00 H	131	41.93	-1.51
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	67.88	34.9 QP	40.0	-5.1	1.00 V	59	50.16	-15.22
2	165.99	37.7 QP	43.5	-5.8	1.00 V	80	50.96	-13.23
3	232.54	36.1 QP	46.0	-9.9	1.00 V	54	50.95	-14.84
4	266.87	38.5 QP	46.0	-7.5	1.00 V	113	51.80	-13.28
5	280.31	35.5 QP	46.0	-10.5	1.00 V	109	48.14	-12.60
6	796.64	37.9 QP	46.0	-8.1	1.00 V	299	39.43	-1.52

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: Mar. 31, 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.

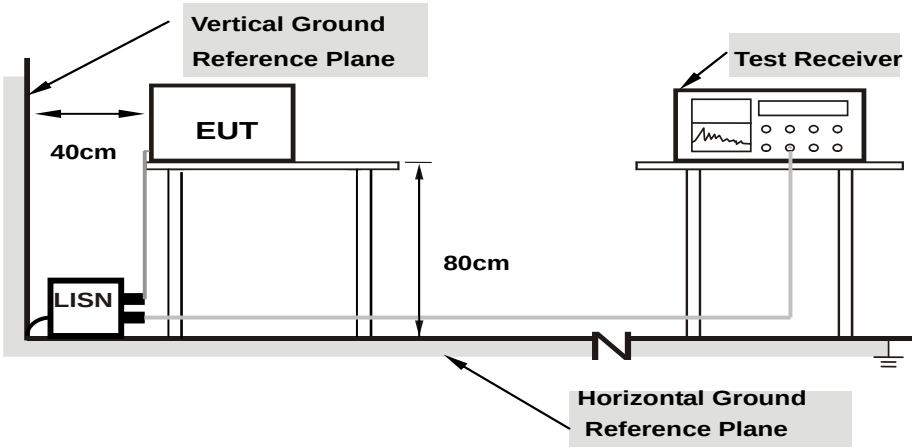
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

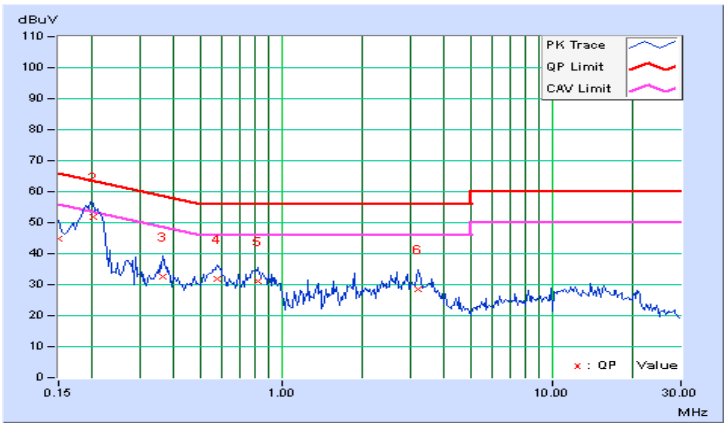
4.2.7 Test Results

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	0.15000	0.08	44.78	29.42	44.86	29.50	66.00	56.00	-21.14	-26.50
2	0.20078	0.09	51.58	34.26	51.67	34.35	63.58	53.58	-11.91	-19.23
3	0.36484	0.10	32.50	17.84	32.60	17.94	58.62	48.62	-26.02	-30.68
4	0.57578	0.11	31.58	23.18	31.69	23.29	56.00	46.00	-24.31	-22.71
5	0.81406	0.12	31.02	22.10	31.14	22.22	56.00	46.00	-24.86	-23.78
6	3.21875	0.20	28.38	22.86	28.58	23.06	56.00	46.00	-27.42	-22.94

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

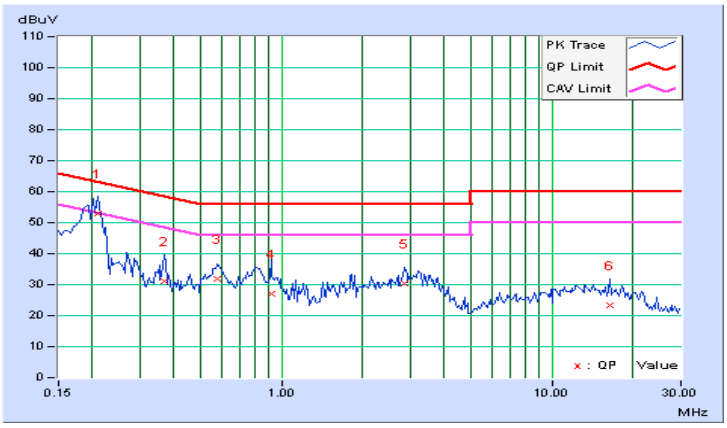


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	**0.20859**	**0.08**	**52.78**	**34.54**	**52.86**	**34.62**	**63.26**	**53.26**	**-10.40**	**-18.64**
2	0.36875	0.10	30.92	16.46	31.02	16.56	58.53	48.53	-27.51	-31.97
3	0.57969	0.11	31.76	22.84	31.87	22.95	56.00	46.00	-24.13	-23.05
4	0.91953	0.13	27.02	18.66	27.15	18.79	56.00	46.00	-28.85	-27.21
5	2.86328	0.20	30.04	23.10	30.24	23.30	56.00	46.00	-25.76	-22.70
6	16.41797	0.64	22.58	17.06	23.22	17.70	60.00	50.00	-36.78	-32.30

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,

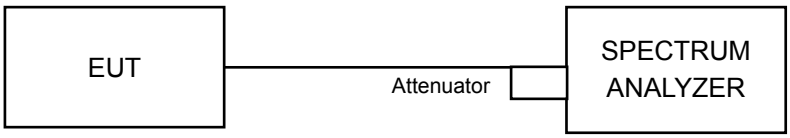
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

Refer to section 4.1.2 to get information of above instrument.

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 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 (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
Chain 0					
36	5180	38.637	15.87	24	Pass
40	5200	37.757	15.77	24	Pass
48	5240	37.239	15.71	24	Pass
52	5260	40.272	16.05	24	Pass
60	5300	42.462	16.28	24	Pass
64	5320	41.976	16.23	24	Pass
100	5500	43.152	16.35	24	Pass
120	5600	43.351	16.37	24	Pass
140	5700	41.4	16.17	24	Pass
149	5745	44.875	16.52	30	Pass
157	5785	46.559	16.68	30	Pass
165	5825	45.92	16.62	30	Pass
Chain 1					
36	5180	54.45	17.36	24	Pass
40	5200	54.954	17.40	24	Pass
48	5240	54.954	17.40	24	Pass
52	5260	57.28	17.58	24	Pass
60	5300	59.156	17.72	24	Pass
64	5320	57.81	17.62	24	Pass
100	5500	47.753	16.79	24	Pass
120	5600	48.306	16.84	24	Pass
140	5700	48.641	16.87	24	Pass
149	5745	51.404	17.11	30	Pass
157	5785	51.88	17.15	30	Pass
165	5825	50.699	17.05	30	Pass

802.11a

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
Chain 3					
36	5180	69.663	18.43	24	Pass
40	5200	88.512	19.47	24	Pass
48	5240	86.696	19.38	24	Pass
52	5260	92.045	19.64	24	Pass
60	5300	97.275	19.88	24	Pass
64	5320	94.406	19.75	24	Pass
100	5500	79.983	19.03	24	Pass
120	5600	80.724	19.07	24	Pass
140	5700	66.988	18.26	24	Pass
149	5745	60.954	17.85	30	Pass
157	5785	92.045	19.64	30	Pass
165	5825	89.536	19.52	30	Pass

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
36	5180	31.94
40	5200	44.26
48	5240	44.03
52	5260	44.20
60	5300	45.37
64	5320	40.54
100	5500	43.36
120	5600	45.48
140	5700	43.84

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	44.20	27.45 > 24
60	5300	45.37	27.56 > 24
64	5320	40.54	27.07 > 24
100	5500	43.36	27.37 > 24
120	5600	45.48	27.57 > 24
140	5700	43.84	27.41 > 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	Chain 3				
36	5180	15.90	16.07	16.01	119.265	20.77	22.97	Pass
40	5200	15.37	16.21	15.78	114.062	20.57	22.97	Pass
48	5240	15.47	15.66	16.23	114.026	20.57	22.97	Pass
52	5260	14.41	12.62	12.49	63.629	18.04	22.97	Pass
60	5300	14.74	15.01	11.05	74.216	18.70	22.97	Pass
64	5320	14.62	15.15	10.12	71.987	18.57	22.97	Pass
100	5500	13.43	15.34	7.70	62.115	17.93	22.20	Pass
120	5600	13.10	13.02	10.89	52.736	17.22	22.20	Pass
140	5700	10.51	9.11	6.53	23.891	13.78	22.20	Pass
149	5745	7.93	8.14	8.64	20.036	13.02	28.20	Pass
157	5785	16.71	16.66	16.68	139.785	21.45	28.20	Pass
165	5825	14.60	14.21	15.87	93.84	19.72	28.20	Pass

NOTE: 1. 5150~5350MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.03dBi > 6dBi , so the power limit shall be reduced to “24-(7.03-6)”.

2. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power limit shall be reduced to “24-(7.80-6)”.

3. 5725~5825MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power limit shall be reduced to “30-(7.80-6)”.

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 3
36	5180	23.20	28.44	28.17
40	5200	24.82	27.28	24.81
48	5240	24.56	24.99	33.14
52	5260	23.18	22.67	22.80
60	5300	23.22	22.99	22.81
64	5320	23.18	23.16	22.83
100	5500	23.28	23.09	22.84
120	5600	23.19	23.11	22.67
140	5700	23.29	23.16	22.95

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	22.67	24.55 > 24
60	5300	22.81	24.58 > 24
64	5320	22.83	24.58 > 24
100	5500	22.84	24.58 > 24
120	5600	22.67	24.55 > 24
140	5700	22.95	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	Chain 3				
38	5190	11.40	11.30	10.90	39.597	15.98	22.97	Pass
46	5230	15.70	15.71	15.73	111.804	20.48	22.97	Pass
54	5270	13.65	12.12	13.32	60.945	17.85	22.97	Pass
62	5310	14.51	14.94	13.50	81.825	19.13	22.97	Pass
102	5510	14.75	13.25	12.36	68.208	18.34	22.20	Pass
118	5590	14.02	13.71	12.25	65.519	18.16	22.20	Pass
134	5670	12.28	11.87	14.55	60.796	17.84	22.20	Pass
151	5755	10.17	10.09	12.90	40.106	16.03	28.20	Pass
159	5795	16.21	15.82	16.08	120.528	20.81	28.20	Pass

NOTE: 1. 5150~5350MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.03dBi > 6dBi , so the power limit shall be reduced to “24-(7.03-6)”.

2. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power limit shall be reduced to “24-(7.80-6)”.

3. 5725~5825MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power limit shall be reduced to “30-(7.80-6)”.

26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 3
38	5190	45.85	45.36	44.62
46	5230	64.25	47.69	44.95
54	5270	46.15	45.15	44.74
62	5310	54.39	44.94	44.74
102	5510	45.63	45.17	44.81
118	5590	45.43	45.26	44.88
134	5670	45.25	45.33	44.91

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	44.74	27.5 > 24
62	5310	44.74	27.5 > 24
102	5510	44.81	27.51 > 24
110	5550	44.88	27.52 > 24
134	5670	44.91	27.52 > 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	Chain 3				
42	5210	9.58	8.84	9.63	25.917	14.14	22.97	Pass
58	5290	10.50	5.81	9.68	24.321	13.86	22.97	Pass
106	5530	8.57	8.26	5.98	17.856	12.52	22.20	Pass
122	5610	9.05	11.88	9.44	32.242	15.08	22.20	Pass
155	5775	7.87	6.94	6.18	15.217	11.82	28.20	Pass

NOTE: 1. 5150~5350MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.03dBi > 6dBi , so the power limit shall be reduced to “24-(7.03-6)”.

2. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power limit shall be reduced to “24-(7.80-6)”.

3. 5725~5825MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power limit shall be reduced to “30-(7.80-6)”.

26dB OCCUPIED BANDWIDTH

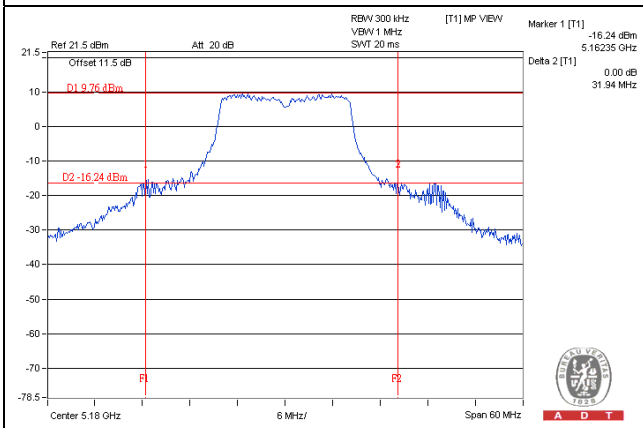
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 3
42	5210	83.01	82.33	83.14
58	5290	83.07	82.67	83.36
106	5530	83.01	82.28	83.29
122	5610	82.67	82.90	83.38

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

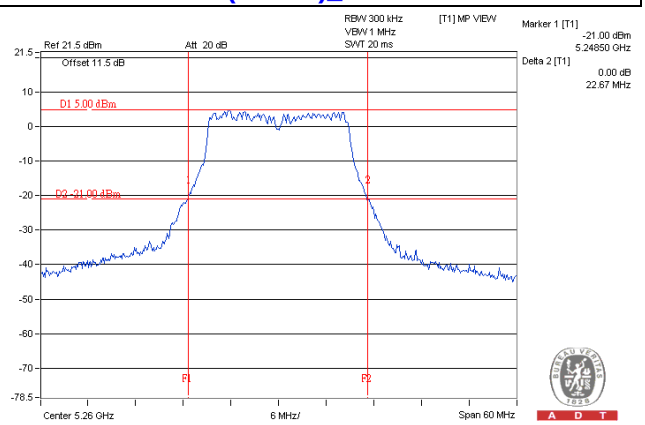
Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	82.67	30.17 > 24
106	5530	82.28	30.15 > 24
122	5610	82.67	30.17 > 24

Spectrum Plot of Worst Value

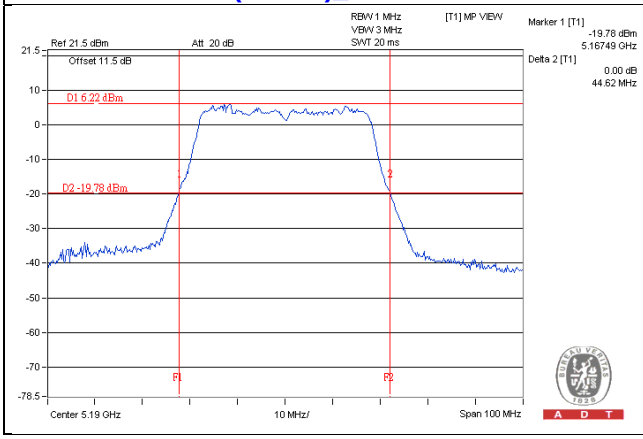
802.11a / CH36



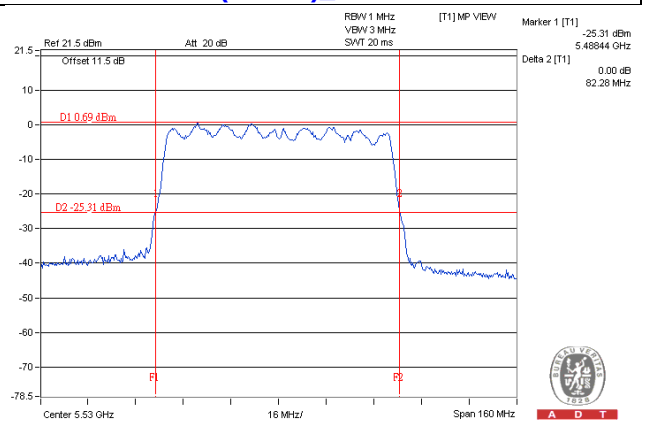
802.11ac (VHT20)_Chain 1 / CH52



802.11ac (VHT40)_Chain 3 / CH38



802.11ac (VHT80)_Chain 1 / CH106

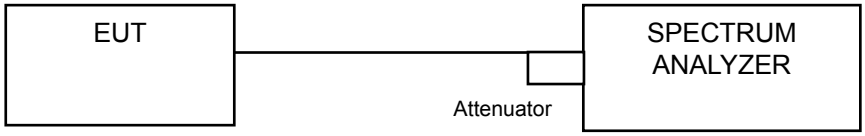


4.4 Peak Power Spectral Density Measurement

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

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedure

For U-NII-1, U-NII-2A, U-NII-2C band:

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 U-NII-3 band:

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3) Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4) Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300kHz)
5) Sweep time = auto, trigger set to “free run”.
6) Trace average at least 100 traces in power averaging mode.
7) Record the max value

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

For U-NII-1, U-NII-2A, U-NII-2C Band

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm)	Max. Limit (dBm)	Pass / Fail
36	5180	5.48	11	Pass
40	5200	9.46	11	Pass
48	5240	10.02	11	Pass
52	5260	10.19	11	Pass
60	5300	10.55	11	Pass
64	5320	8.14	11	Pass
100	5500	8.21	11	Pass
120	5600	9.28	11	Pass
140	5700	8.34	11	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm)			Total Power Density (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 3			
36	5180	2.28	5.06	4.91	9.03	9.97	Pass
40	5200	4.44	5.03	4.54	9.45	9.97	Pass
48	5240	4.07	4.54	5.42	9.48	9.97	Pass
52	5260	1.50	-0.52	-0.58	5.02	9.97	Pass
60	5300	0.85	2.88	-1.22	5.92	9.97	Pass
64	5320	0.94	2.38	-3.19	5.38	9.97	Pass
100	5500	0.32	1.91	-5.21	4.67	9.20	Pass
120	5600	-0.13	-1.11	-2.33	3.67	9.20	Pass
140	5700	-2.85	-3.68	-5.97	0.79	9.20	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. 5150~5350MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.03dBi > 6dBi , so the power density limit shall be reduced to 11-(7.03-6) = 9.97dBm.

3. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power density limit shall be reduced to 11-(7.80-6) = 9.2dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm)			Total Power Density (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 3			
38	5190	-5.85	-4.83	-5.77	-0.69	9.97	Pass
46	5230	0.19	0.71	1.36	5.55	9.97	Pass
54	5270	-2.21	-4.07	-2.86	1.79	9.97	Pass
62	5310	-2.17	-2.60	-4.10	1.89	9.97	Pass
102	5510	-1.71	-2.73	-3.75	2.12	9.20	Pass
118	5550	-2.30	-2.83	-3.00	2.07	9.20	Pass
134	5670	-3.75	-4.79	-0.84	1.98	9.20	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. 5150~5350MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.03dBi > 6dBi , so the power density limit shall be reduced to 11-(7.03-6) = 9.97dBm.

3. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power density limit shall be reduced to 11-(7.80-6) = 9.2dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD (dBm)			Total Power Density (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 3			
42	5210	-7.83	-9.59	-9.63	-4.16	9.97	Pass
58	5290	-6.82	-12.83	-10.97	-4.68	9.97	Pass
106	5530	-9.74	-10.47	-8.33	-4.65	9.20	Pass
122	5610	-8.49	-7.21	-11.95	-4.03	9.20	Pass

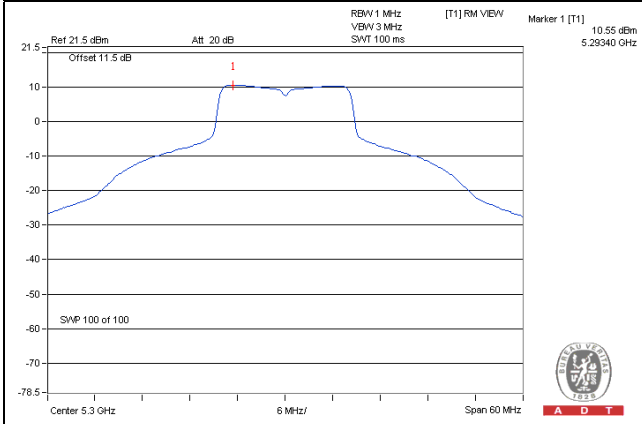
NOTE: 1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. 5150~5350MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.03dBi > 6dBi , so the power density limit shall be reduced to 11-(7.03-6) = 9.97dBm.

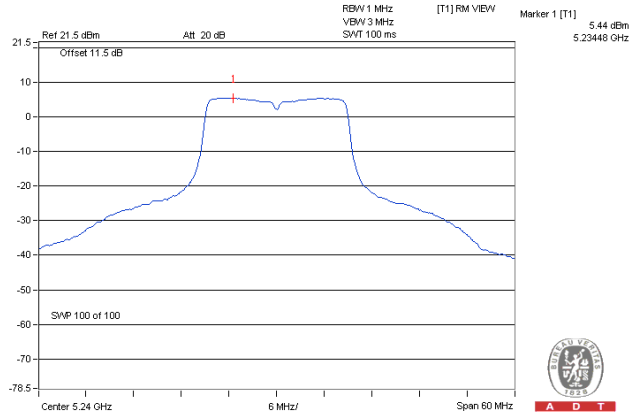
3. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power density limit shall be reduced to 11-(7.80-6) = 9.2dBm.

Spectrum Plot of Worst Value

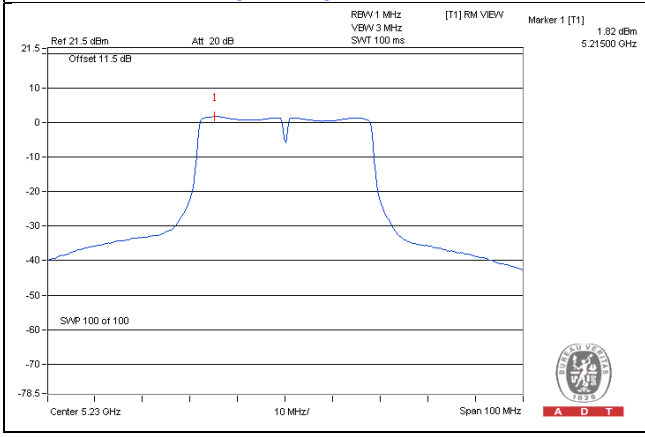
802.11a / CH60



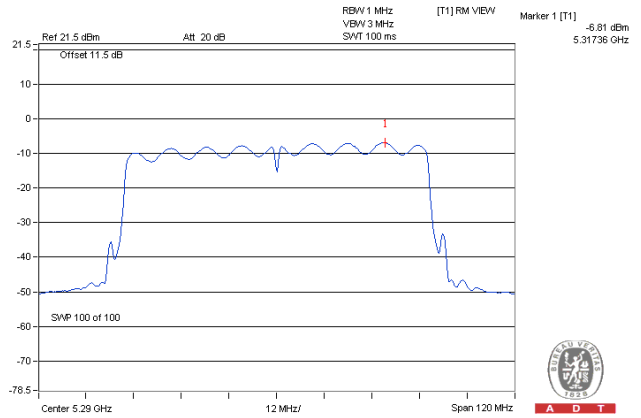
802.11ac (VHT20)_Chain 3 / CH48



802.11ac (VHT40)_Chain 3 / CH46



802.11ac (VHT80)_Chain 0 / CH58



For U-NII-3 Band

802.11a

Chan.	Chan. Freq. (MHz)	PSD		Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		(dBm/300kHz)	(dBm/500kHz)			
149	5745	-3.57	-1.35	-1.35	30	Pass
157	5785	-1.10	1.12	1.12	30	Pass
165	5825	-1.28	0.94	0.94	30	Pass

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD		10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-14.28	-12.06	4.77	-7.29	28.2	Pass
	157	5785	-2.66	-0.44	4.77	4.33	28.2	Pass
	165	5825	-6.81	-4.59	4.77	0.18	28.2	Pass
1	149	5745	-13.02	-10.80	4.77	-6.03	28.2	Pass
	157	5785	-2.49	-0.27	4.77	4.50	28.2	Pass
	165	5825	-6.51	-4.29	4.77	0.48	28.2	Pass
3	149	5745	-13.24	-11.02	4.77	-6.25	28.2	Pass
	157	5785	-2.61	-0.39	4.77	4.38	28.2	Pass
	165	5825	-6.72	-4.50	4.77	0.27	28.2	Pass

NOTE: 1. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power density limit shall be reduced to 30-(7.80-6) = 28.2dBm.

802.11ac (VHT40)

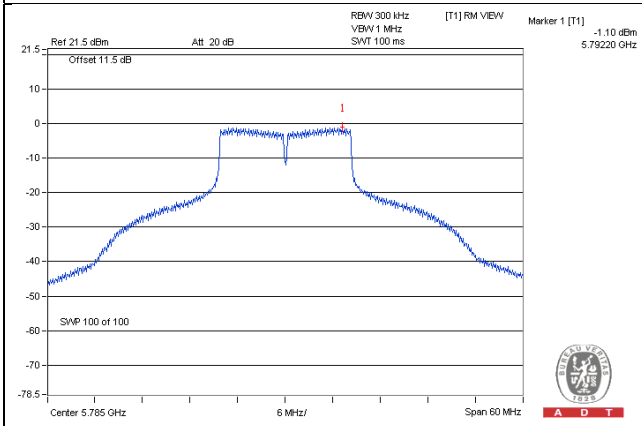
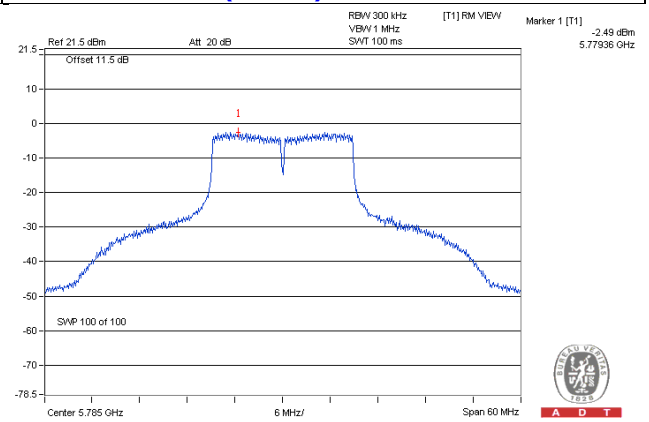
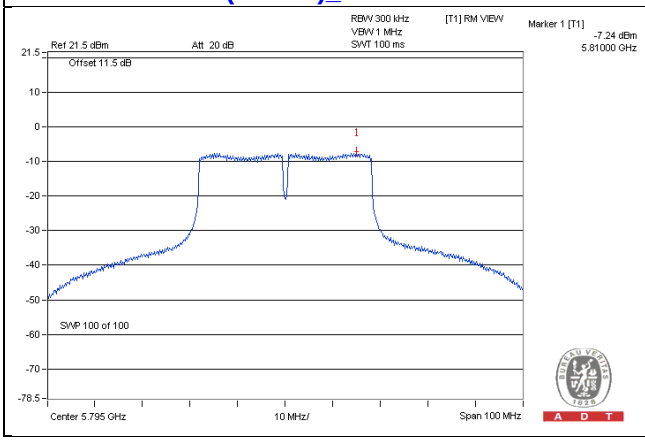
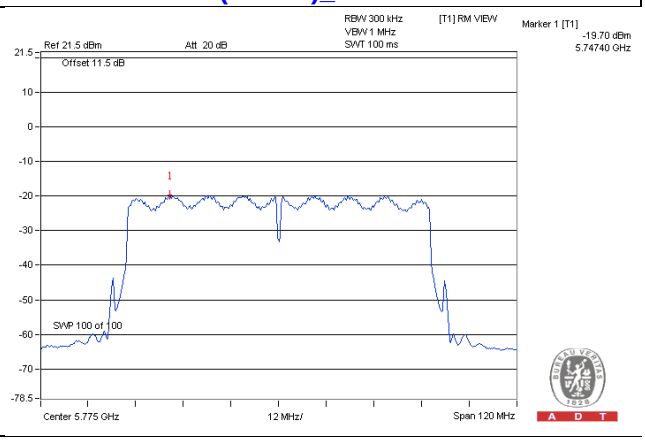
TX chain	Channel	Freq. (MHz)	PSD		10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	151	5755	-14.72	-12.50	4.77	-7.73	28.2	Pass
	159	5795	-9.45	-7.23	4.77	-2.46	28.2	Pass
1	151	5755	-14.92	-12.70	4.77	-7.93	28.2	Pass
	159	5795	-9.36	-7.14	4.77	-2.37	28.2	Pass
3	151	5755	-12.36	-10.14	4.77	-5.37	28.2	Pass
	159	5795	-7.24	-5.02	4.77	-0.25	28.2	Pass

NOTE: 1. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power density limit shall be reduced to 30-(7.80-6) = 28.2dBm.

802.11ac (VHT80)

TX chain	Channel	Freq. (MHz)	PSD		10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	155	5775	-20.00	-17.78	4.77	-13.01	28.2	Pass
1	155	5775	-19.70	-17.48	4.77	-12.71	28.2	Pass
3	155	5775	-20.68	-18.46	4.77	-13.69	28.2	Pass

NOTE: 1. 5470~5725MHz: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 7.80dBi > 6dBi , so the power density limit shall be reduced to 30-(7.80-6) = 28.2dBm.

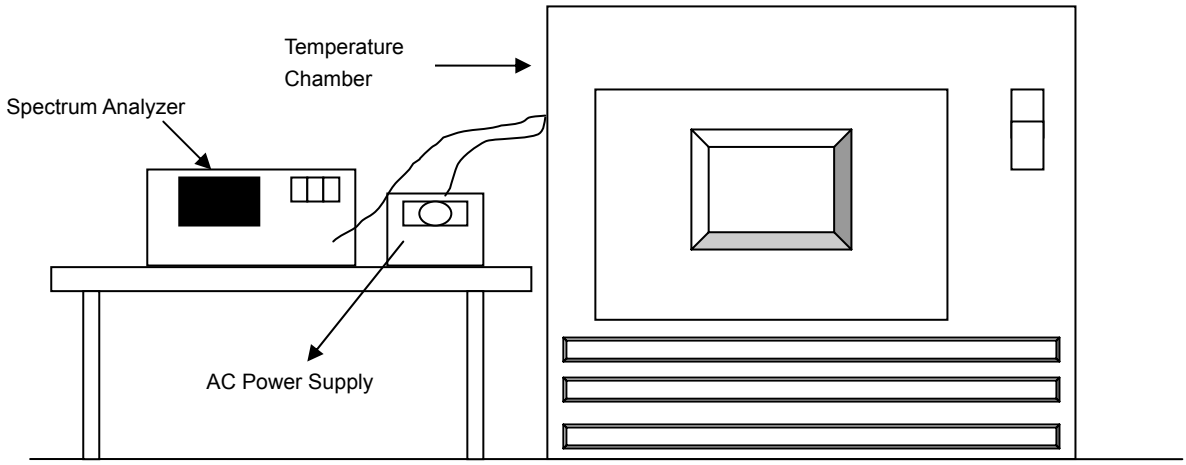
Spectrum Plot of Worst Value	
802.11a / CH157	**802.11ac (VHT20)_Chain 1 / CH157**
	
802.11ac (VHT40)_Chain 3 / CH159	**802.11ac (VHT80)_Chain 1 / CH155**
	

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

Refer to section 4.1.2 to get information of above instrument.

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: 5180MHz									
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	5179.9948	-0.00010	5179.9964	-0.00007	5179.9955	-0.00009	5179.9956	-0.00008
40	120	5180.0154	0.00030	5180.0162	0.00031	5180.012	0.00023	5180.014	0.00027
30	120	5180.0131	0.00025	5180.0126	0.00024	5180.0148	0.00029	5180.0119	0.00023
20	120	5179.979	-0.00041	5179.9765	-0.00045	5179.9777	-0.00043	5179.9792	-0.00040
10	120	5179.9985	-0.00003	5179.9988	-0.00002	5179.9992	-0.00002	5179.9974	-0.00005
0	120	5179.997	-0.00006	5179.9961	-0.00008	5179.9992	-0.00002	5179.9989	-0.00002
-10	120	5180.0216	0.00042	5180.025	0.00048	5180.0227	0.00044	5180.0219	0.00042
-20	120	5180.003	0.00006	5180.003	0.00006	5180.0056	0.00011	5180.0027	0.00005
-30	120	5180.0031	0.00006	5180.0016	0.00003	5180.0023	0.00004	5180.0052	0.00010

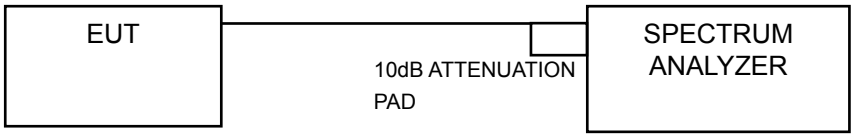
FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5180MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5179.9787	-0.00041	5179.9762	-0.00046	5179.9785	-0.00042	5179.9783	-0.00042
	120	5179.979	-0.00041	5179.9765	-0.00045	5179.9777	-0.00043	5179.9792	-0.00040
	102	5179.9782	-0.00042	5179.9768	-0.00045	5179.9769	-0.00045	5179.9798	-0.00039

4.6 6dB Bandwidth Measurment

4.6.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

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

MEASUREMENT PROCEDURE REF

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.40	0.5	PASS
157	5785	16.41	0.5	PASS
165	5825	16.43	0.5	PASS

802.11ac (VHT20)

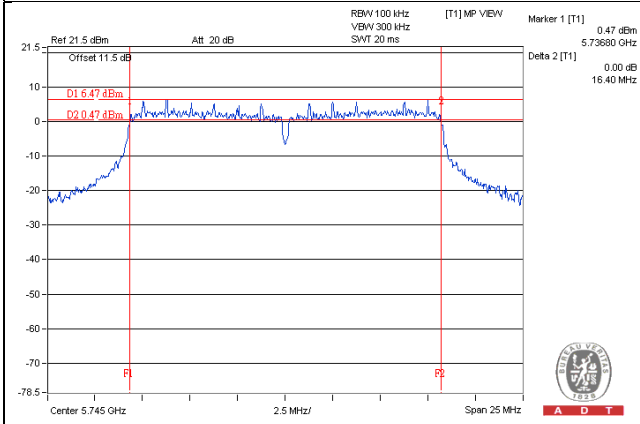
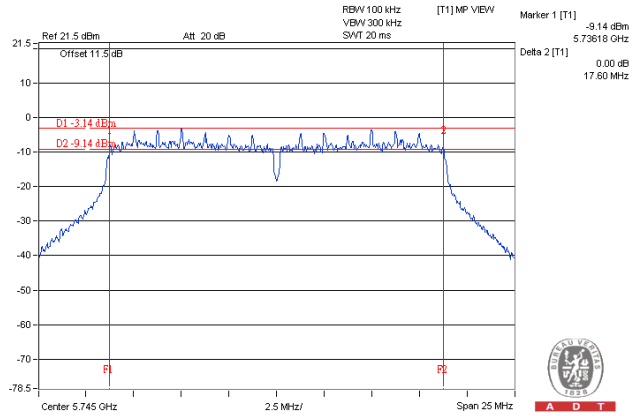
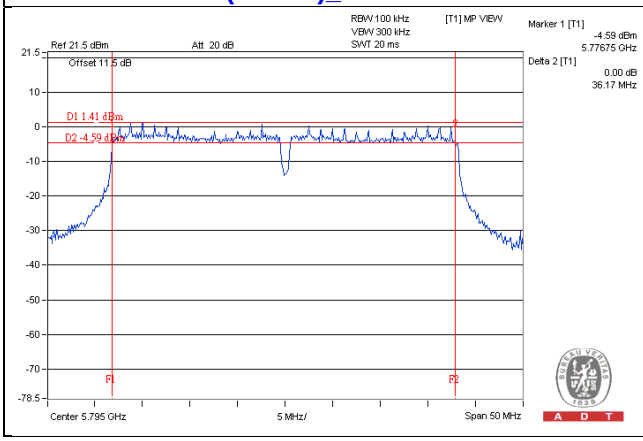
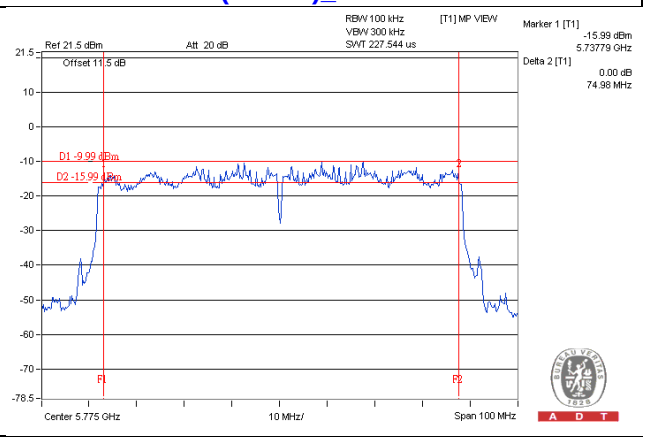
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 3		
149	5745	17.60	17.65	17.62	0.5	Pass
157	5785	17.87	17.87	17.87	0.5	Pass
165	5825	17.66	17.68	17.63	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 3		
151	5755	36.47	36.49	36.49	0.5	Pass
159	5795	36.17	36.50	36.43	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 3		
155	5775	75.38	76.05	74.98	0.5	Pass

Spectrum Plot of Worst Value	
802.11a / CH149	**802.11ac (VHT20)_Chain 0 / CH149**
	
802.11ac (VHT40)_Chain 0 / CH159	**802.11ac (VHT80)_Chain 3 / CH155**
	

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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