

FCC Test Report (WLAN)

Report No.: RF150407E02

Compliance ID : ADBA-SX14015A

Product Name* : ADB-1761WF

**For any other product variant refer to above Compliance ID*

FCC ID: MCLADB1761WF

Received Date: Feb. 11, 2015

Test Date: Feb. 11 to May 11, 2015

Issued Date: May 28, 2015

Applicant: HON HAI PRECISION IND. CO., LTD.

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

Release Control Record

Issue No.	Description	Date Issued
RF150407E02	Original release.	May 28, 2015



A D T

1 Certificate of Conformity

Compliance ID: ADBA-SX14015A

Product Name*: ADB-1761WF

Product Description: IP Set-Top Box with Wi-Fi 11ac

**For any other product variant refer to above Compliance ID*

Brand: ADB

Sample Status: ENGINEERING SAMPLE

Applicant: HON HAI PRECISION IND. CO., LTD.

Test Date: Feb. 11 to May 11, 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 28, 2015
Elsie Hsu / Specialist

Approved by : , **Date:** May 28, 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 -15.33dB at 10.96875MHz.
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 17475.00MHz.
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(MHF) not a standard connector.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.43 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.65 dB
	6GHz ~ 18GHz	3.88 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Compliance ID:	ADBA-SX14015A
Product Name*:	ADB-1761WF
Product Description:	IP Set-Top Box with Wi-Fi 11ac
<i>*For any other product variant refer to above Compliance ID</i>	
Brand	ADB
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 12V from power adapter
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	OFDM
Transfer Rate	802.11a: up to 54Mbps 802.11n (HT20): up to 288.9Mbps 802.11ac (VHT20): up to 346.7Mbps 802.11n (HT40): up to 600Mbps 802.11ac (VHT40): up to 800Mbps 802.11ac (VHT80) : up to 1733.3Mbps
Operating Frequency	5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	9 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 4 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80)
Output Power	CDD Mode: 802.11a: 274.648mW 802.11ac (VHT20): 264.91mW 802.11ac (VHT40): 231.77mW 802.11ac (VHT80): 116.519mW Beamforming Mode: 802.11ac (VHT20): 224.64mW 802.11ac (VHT40): 303.827mW 802.11ac (VHT80): 115.914mW
Antenna Type	Please see NOTE
Antenna Connector	Please see NOTE
Accessory Device	Adapter x 1
Data Cable Supplied	Ethernet cable x 1 (Unshielded, 1.5m) RCA cable x 1 (Unshielded, 1.5m)

Note:

- There are WLAN and Zigbee technology used for the EUT.
- The emission of the simultaneous operation (WLAN and Zigbee) has been evaluated and no non-compliance was found.
- The EUT must be supplied with power adapter as following table:

Brand	Model No.	Spec.
DVE	DSA-30PFB-12 FUS 120250	Input: 100-240V, 0.8A, 50/60Hz Output: 12V, 2.5A DC output cable(Unshielded, 1.5m)

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

Zigbee							
Antenna No.	Transmitter Circuit	Brand	Model	Ant. Gain(dBi) <Including cable loss>	Frequency range (GHz to GHz)	Antenna Type	Connector Type
1	Chain (0)	INPAQ	NA	2.78	2.4~2.5	PIFA	NA
2	Chain (1)		NA	2.45	2.4~2.5		
5GHz Band							
Antenna No.	Transmitter Circuit	Brand	Model	Ant. Gain(dBi) <Including cable loss>	Frequency range (GHz to GHz)	Antenna Type	Connector Type
1	Chain (0)	TONGDA COMMUNICAT ION CO., LTD.	NA	3.49	5.15~5.25	PCB	i-pex(MHF)
			NA	3.99	5.725~5.85	PCB	i-pex(MHF)
2	Chain (1)		NA	3.47	5.15~5.25	PCB	i-pex(MHF)
			NA	4.57	5.725~5.85	PCB	i-pex(MHF)
3	Chain (2)		NA	4.11	5.15~5.25	PCB	i-pex(MHF)
			NA	3.7	5.725~5.85	PCB	i-pex(MHF)
4	Chain (3)		NA	3.45	5.15~5.25	PCB	i-pex(MHF)
			NA	3.46	5.725~5.85	PCB	i-pex(MHF)

5. The EUT incorporates a MIMO function with beamforming.

5GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	4TX	4RX
802.11n (HT20)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
802.11n (HT40)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
802.11ac (VHT20)	MCS0~8 Nss=1	4TX	4RX
	MCS0~8 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~8 Nss=4	4TX	4RX
802.11ac (VHT40)	MCS0~9 Nss=1	4TX	4RX
	MCS0~9 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~9 Nss=4	4TX	4RX
802.11ac (VHT80)	MCS0~9 Nss=1	4TX	4RX
	MCS0~9 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~9 Nss=4	4TX	4RX

Note: The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

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

3.2 Description of Test Modes

For 5180 ~ 5240MHz

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

For 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

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

Where **RE≥1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE: “-” means no effect.

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.

CDD MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5 MCS0 / Nss=1
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5 MCS0 / Nss=1
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3 MCS0 / Nss=1
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5 MCS0 / Nss=1
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5 MCS0 / Nss=1
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3 MCS0 / Nss=1
Beamforming MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5 MCS0 / Nss=1
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5 MCS0 / Nss=1
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3 MCS0 / Nss=1
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5 MCS0 / Nss=1
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5 MCS0 / Nss=1
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3 MCS0 / Nss=1

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.

CDD MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240 5745-5825	36 to 48 149 to 165	36	OFDM	BPSK	6

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

CDD MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240 5745-5825	36 to 48 149 to 165	36	OFDM	BPSK	6

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

CDD MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5 MCS0 / Nss=1
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5 MCS0 / Nss=1
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3 MCS0 / Nss=1
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5 MCS0 / Nss=1
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5 MCS0 / Nss=1
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3 MCS0 / Nss=1

Beamforming MODE						
MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5 MCS0 / Nss=1
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5 MCS0 / Nss=1
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3 MCS0 / Nss=1
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5 MCS0 / Nss=1
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5 MCS0 / Nss=1
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3 MCS0 / Nss=1

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	24deg. C, 67%RH	120Vac, 60Hz	Gary Cheng
RE<1G	24deg. C, 73%RH	120Vac, 60Hz	Gary Cheng
PLC	23deg. C, 70%RH	120Vac, 60Hz	Barry Lee
APCM	25deg. C, 60%RH	120Vac, 60Hz	Gary Cheng

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

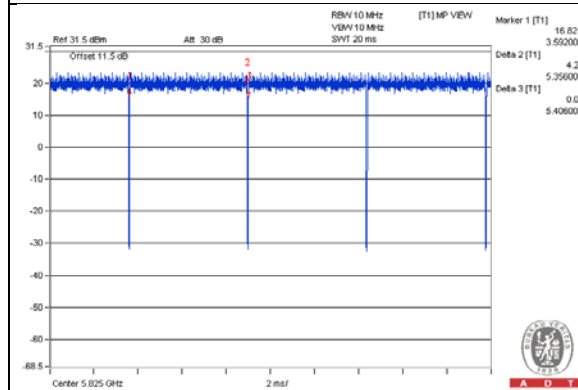
802.11a: Duty cycle = $5.356 \text{ ms} / 5.406 \text{ ms} = 0.991$

802.11ac (VHT20): Duty cycle = $4.993 \text{ ms} / 5.035 \text{ ms} = 0.992$

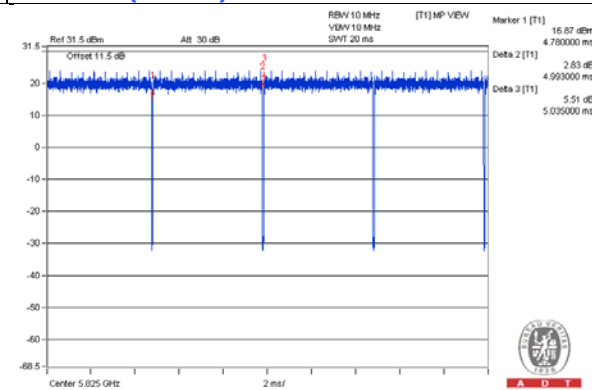
802.11ac (VHT40): Duty cycle = $2.438 \text{ ms} / 2.455 \text{ ms} = 0.993$

802.11ac (VHT80): Duty cycle = $1.177 \text{ ms} / 1.2 \text{ ms} = 0.981$

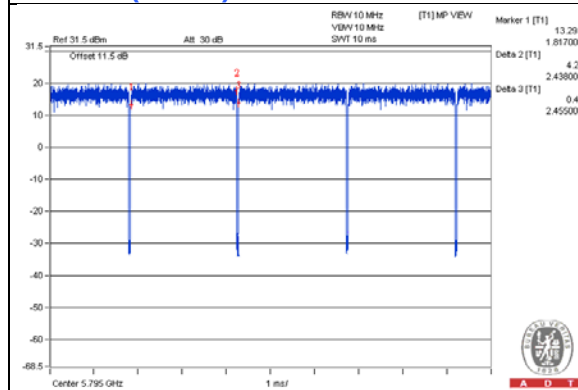
802.11a



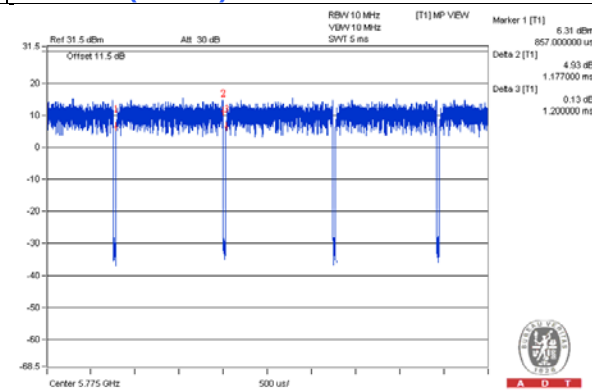
802.11ac (VHT20)



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	SONY LCD TV	SONY	KDL-32CX520	3676813	FCC DoC	Provided by Lab
B	USB 3.0 Dongle	Transcend	16GB	NA	NA	Provided by Lab
C	NOTEBOOK COMPUTER	DELL	PP32LA	DSL32S	FCC DoC	Provided by Lab
D	SD Card	Panasonic	128MB	NA	NA	Provided by Lab
E	Audio converter	LINDY	1658-BC	NA	NA	Provided by Lab
F	Speaker	Lenovo	41A5330	NA	NA	Provided by Lab
G	Remote Controller	ADB	NA	NA	NA	Supplied by Client
H	H.D.D	ADB	ADB-HDD-1TB	NA	NA	Supplied by Client
I	2.5 H.D.D	WD	WDBACW0010HBK-SESN	WCAZAL625787	FCC DoC	Provided by Lab

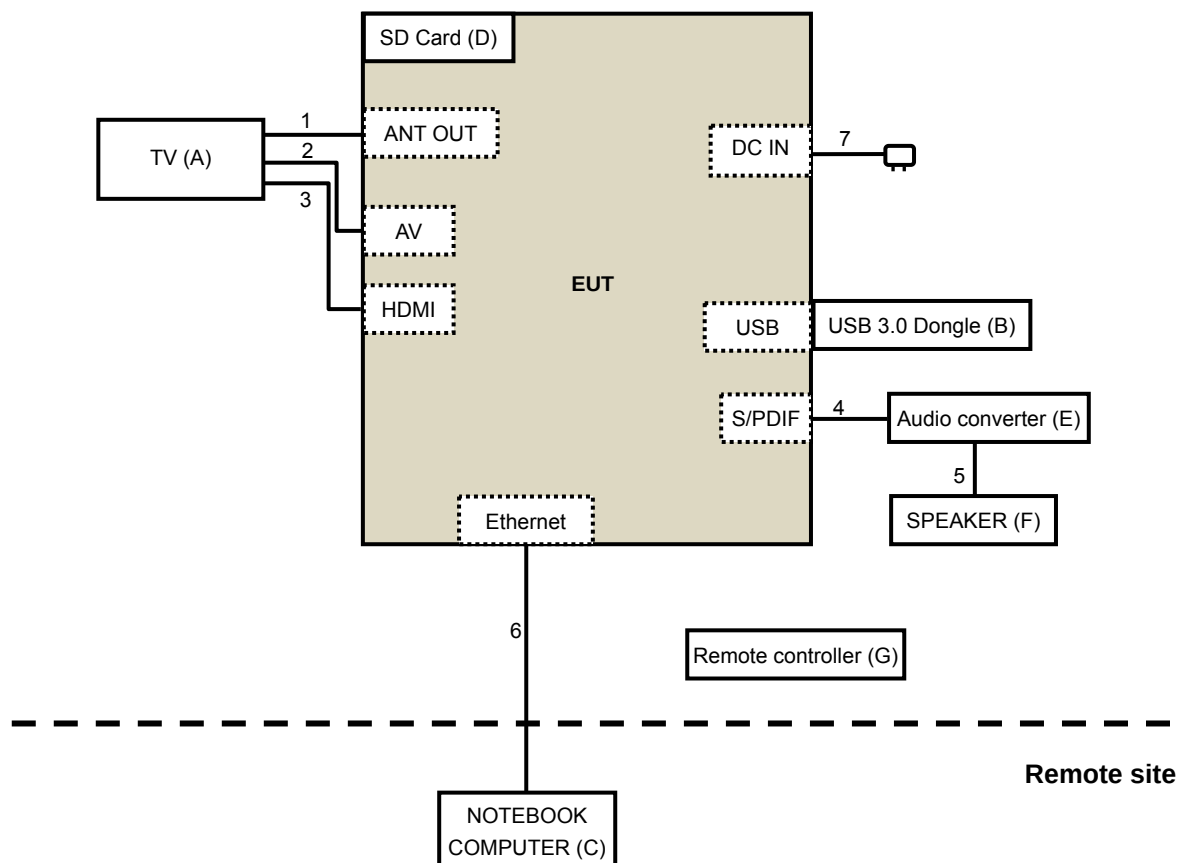
NOTE:

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

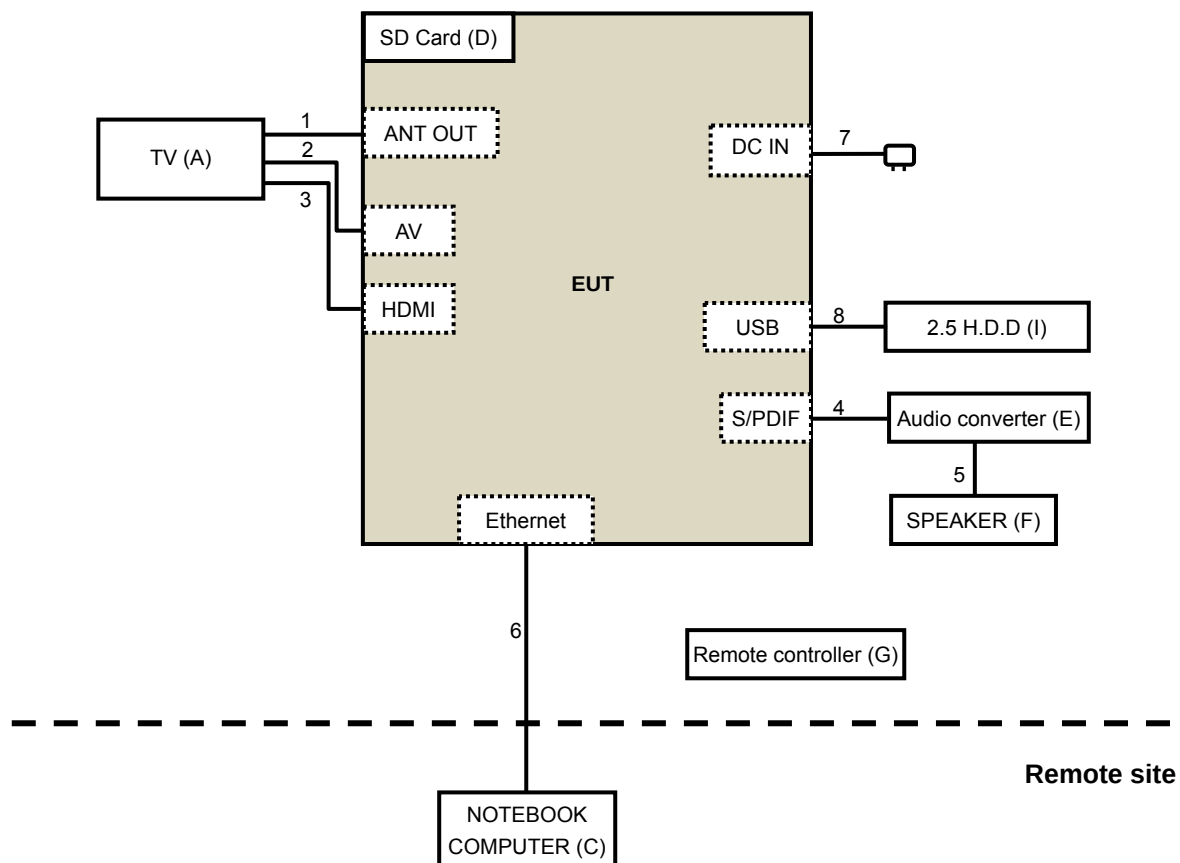
No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1	Coaxial	1	1.5	Yes	0	Provided by Lab
2	A/V	1	1.3	Yes	0	Provided by Lab
3	HDMI (Brand: Baoyuanda, Model: B123W600A-150)	1	1.5	Yes	0	Supplied by Client
4	Fiber	1	1.5	No	0	Provided by Lab
5	(L/R) to 3.5 Audio	1	1.8	Yes	0	Provided by Lab
6	RJ-45	1	10	No	0	Provided by Lab
7	DC	1	1.5	No	0	Supplied by Client
8	USB	1	1	Yes	0	Provided by Lab

3.4.1 Configuration of System under Test

For other tests



For conducted 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:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedure New Rules v01	FIELD STRENGTH AT 3m	
	PK:74 (dBuV/m)	AV:54 (dBuV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBuV/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(dBuV/m) ^{*1} PK:78.2 (dBuV/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:

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

4.1.2 Test Instruments

For Below 1GHz test:

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. 27, 2014	Feb. 26, 2015
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Aug. 26, 2014	Aug. 25, 2015
Pre-Amplifier Agilent	8449B	300801923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier EMCI	EMC184045	980143	Jan. 16, 2015	Jan. 15, 2016
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.
6. Tested Date: Feb. 11, 2015

For Above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	July 21, 2014	July 20, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 06, 2015	Feb. 05, 2016
RF Cable	NA	CHGCAB_001	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	0000320091110	Aug. 27, 2014	Aug. 26, 2015
Pre-Amplifier Agilent	8449B	3008A02578	June 24, 2014	June 23, 2015
RF Cable	NA	131205 131214 SNMY23684/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier EMCI	EMC184045	980143	Jan. 16, 2015	Jan. 15, 2016
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Antenna Tower & Turn Table CT	NA	NA	NA	NA
Spectrum Analyzer R&S	FSP 40	100060	May 08, 2015	May 07, 2016
Power meter Anritsu	ML2495A	0824006	May 22, 2014	May 21, 2015
Power sensor Anritsu	MA2411B	0738172	May 22, 2014	May 21, 2015

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. G.
4. The FCC Site Registration No. is 966073.
- 5 The VCCI Site Registration No. is G-137.
- 6 The CANADA Site Registration No. is IC 7450H-2.
- 7 Tested Date: May 09 to 11, 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:

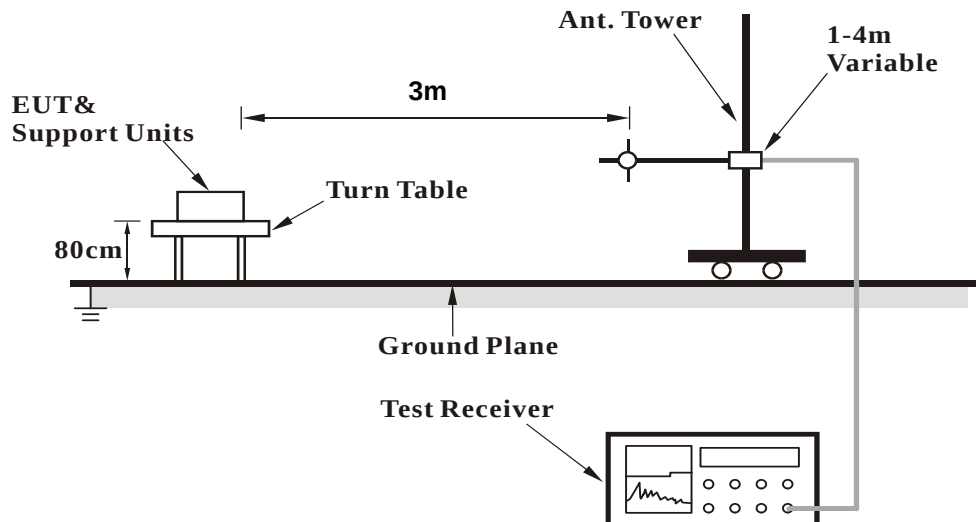
1. For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the ground at 3 meter chamber room for test
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
3. The resolution 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 ($10 \log(1/\text{duty cycle})$).
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) 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

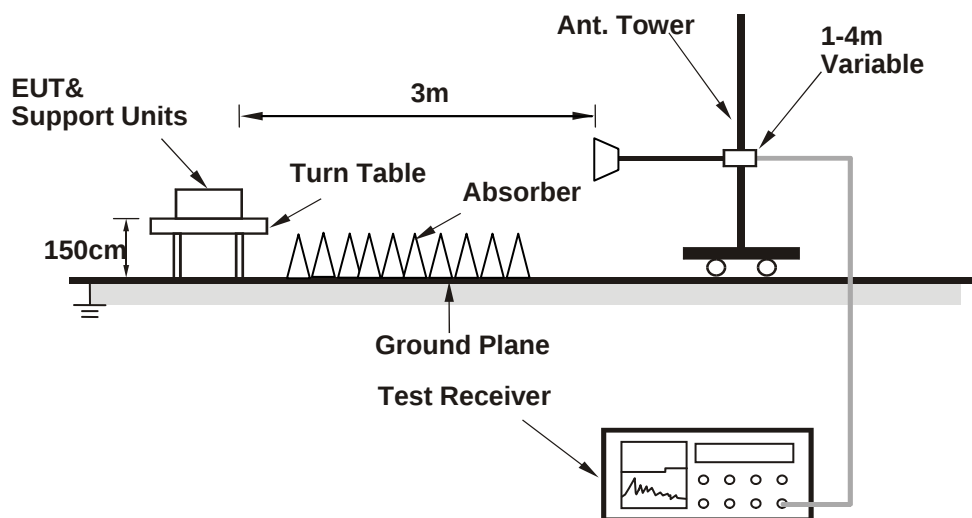
No deviation.

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 C (NOTEBOOK COMPUTER) which is placed on remote site.
2. Controlling software (telnet with command) has been activated to set the EUT on specific status.

4.1.7 Test Results

CDD MODE

Above 1GHz Data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.5 PK	74.0	-9.5	1.89 H	80	54.53	9.97
2	5150.00	51.6 AV	54.0	-2.4	1.89 H	80	41.63	9.97
3	*5180.00	118.5 PK			1.89 H	80	108.34	10.16
4	*5180.00	108.9 AV			1.89 H	80	98.74	10.16
5	#10360.00	60.3 PK	74.0	-13.7	1.34 H	240	43.32	16.98
6	#10360.00	46.1 AV	54.0	-7.9	1.34 H	240	29.12	16.98
7	15540.00	65.7 PK	74.0	-8.3	1.63 H	72	43.77	21.93
8	15540.00	51.2 AV	54.0	-2.8	1.63 H	72	29.27	21.93
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	5150.00	58.8 PK	74.0	-15.2	1.53 V	41	48.83	9.97
2	5150.00	48.7 AV	54.0	-5.3	1.53 V	41	38.73	9.97
3	*5180.00	115.9 PK			1.53 V	41	105.74	10.16
4	*5180.00	105.8 AV			1.53 V	41	95.64	10.16
5	#10360.00	58.6 PK	74.0	-15.4	1.03 V	168	41.62	16.98
6	#10360.00	45.1 AV	54.0	-8.9	1.03 V	168	28.12	16.98
7	15540.00	68.6 PK	74.0	-5.4	1.83 V	72	46.67	21.93
8	15540.00	53.6 AV	54.0	-0.4	1.83 V	72	31.67	21.93

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	118.8 PK			1.90 H	66	108.54	10.26
2	*5200.00	109.1 AV			1.90 H	66	98.84	10.26
3	#10400.00	60.2 PK	74.0	-13.8	1.40 H	247	43.14	17.06
4	#10400.00	46.0 AV	54.0	-8.0	1.40 H	247	28.94	17.06
5	15600.00	63.3 PK	74.0	-10.7	1.56 H	71	41.02	22.28
6	15600.00	50.6 AV	54.0	-3.4	1.56 H	71	28.32	22.28

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	115.6 PK			1.48 V	38	105.34	10.26
2	*5200.00	105.8 AV			1.48 V	38	95.54	10.26
3	#10400.00	59.0 PK	74.0	-15.0	1.00 V	173	41.94	17.06
4	#10400.00	45.5 AV	54.0	-8.5	1.00 V	173	28.44	17.06
5	15600.00	67.4 PK	74.0	-6.6	2.01 V	72	45.12	22.28
6	15600.00	53.3 AV	54.0	-0.7	2.01 V	72	31.02	22.28

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	117.4 PK			2.01 H	80	107.07	10.33
2	*5240.00	108.0 AV			2.01 H	80	97.67	10.33
3	5350.00	60.1 PK	74.0	-13.9	2.01 H	80	49.55	10.55
4	5350.00	48.3 AV	54.0	-5.7	2.01 H	80	37.75	10.55
5	#10480.00	60.5 PK	74.0	-13.5	1.39 H	260	43.77	16.73
6	#10480.00	46.1 AV	54.0	-7.9	1.39 H	260	29.37	16.73
7	15720.00	62.9 PK	74.0	-11.1	1.53 H	86	40.27	22.63
8	15720.00	50.1 AV	54.0	-3.9	1.53 H	86	27.47	22.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	115.9 PK			1.53 V	41	105.57	10.33
2	*5240.00	106.3 AV			1.53 V	41	95.97	10.33
3	5350.00	57.6 PK	74.0	-16.4	1.53 V	41	47.05	10.55
4	5350.00	45.4 AV	54.0	-8.6	1.53 V	41	34.85	10.55
5	#10480.00	58.9 PK	74.0	-15.1	1.00 V	157	42.17	16.73
6	#10480.00	45.3 AV	54.0	-8.7	1.00 V	157	28.57	16.73
7	15720.00	68.3 PK	74.0	-5.7	1.96 V	70	45.67	22.63
8	15720.00	53.4 AV	54.0	-0.6	1.96 V	70	30.77	22.63

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	62.1 PK	74.0	-11.9	1.96 H	74	50.57	11.53
2	#5715.00	50.4 AV	54.0	-3.6	1.96 H	74	38.87	11.53
3	#5725.00	76.4 PK	78.2	-1.8	1.96 H	74	64.85	11.55
4	*5745.00	114.8 PK			1.96 H	74	103.17	11.63
5	*5745.00	105.6 AV			1.96 H	74	93.97	11.63
6	11490.00	58.6 PK	74.0	-15.4	1.30 H	227	41.30	17.30
7	11490.00	44.3 AV	54.0	-9.7	1.30 H	227	27.00	17.30
8	#17235.00	63.3 PK	74.0	-10.7	1.59 H	84	36.49	26.81
9	#17235.00	49.4 AV	54.0	-4.6	1.59 H	84	22.59	26.81

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	60.9 PK	74.0	-13.1	1.87 V	26	49.37	11.53
2	#5715.00	47.6 AV	54.0	-6.4	1.87 V	26	36.07	11.53
3	#5725.00	63.3 PK	78.2	-14.9	1.87 V	26	51.75	11.55
4	*5745.00	113.1 PK			1.87 V	26	101.47	11.63
5	*5745.00	103.2 AV			1.87 V	26	91.57	11.63
6	11490.00	56.4 PK	74.0	-17.6	1.01 V	167	39.10	17.30
7	11490.00	43.8 AV	54.0	-10.2	1.01 V	167	26.50	17.30
8	#17235.00	66.4 PK	74.0	-7.6	1.83 V	77	39.59	26.81
9	#17235.00	52.1 AV	54.0	-1.9	1.83 V	77	25.29	26.81

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	117.2 PK			1.91 H	73	105.46	11.74
2	*5785.00	107.4 AV			1.91 H	73	95.66	11.74
3	11570.00	61.2 PK	74.0	-12.8	1.08 H	325	43.29	17.91
4	11570.00	49.2 AV	54.0	-4.8	1.08 H	325	31.29	17.91
5	#17355.00	64.4 PK	74.0	-9.6	1.76 H	215	37.26	27.14
6	#17355.00	51.2 AV	54.0	-2.8	1.76 H	215	24.06	27.14
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	114.6 PK			1.48 V	38	102.86	11.74
2	*5785.00	104.6 AV			1.48 V	38	92.86	11.74
3	11570.00	62.6 PK	74.0	-11.4	1.86 V	185	44.69	17.91
4	11570.00	50.3 AV	54.0	-3.7	1.86 V	185	32.39	17.91
5	#17355.00	66.6 PK	74.0	-7.4	1.64 V	215	39.46	27.14
6	#17355.00	53.3 AV	54.0	-0.7	1.64 V	215	26.16	27.14

REMARKS:

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

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	116.8 PK			2.05 H	72	105.02	11.78
2	*5825.00	107.3 AV			2.05 H	72	95.52	11.78
3	#5850.00	65.9 PK	78.2	-12.3	2.05 H	72	54.15	11.75
4	#5860.00	62.2 PK	74.0	-11.8	2.05 H	72	50.45	11.75
5	#5860.00	51.2 AV	54.0	-2.8	2.05 H	72	39.45	11.75
6	11650.00	61.4 PK	74.0	-12.6	1.05 H	315	43.24	18.16
7	11650.00	49.4 AV	54.0	-4.6	1.05 H	315	31.24	18.16
8	#17475.00	63.9 PK	74.0	-10.1	1.85 H	151	35.98	27.92
9	#17475.00	50.9 AV	54.0	-3.1	1.85 H	151	22.98	27.92

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	115.3 PK			1.51 V	24	103.52	11.78
2	*5825.00	105.2 AV			1.51 V	24	93.42	11.78
3	#5850.00	55.9 PK	78.2	-22.3	1.51 V	24	44.15	11.75
4	#5860.00	60.3 PK	74.0	-13.7	1.51 V	24	48.55	11.75
5	#5860.00	46.8 AV	54.0	-7.2	1.51 V	24	35.05	11.75
6	11650.00	62.5 PK	74.0	-11.5	1.87 V	177	44.34	18.16
7	11650.00	50.0 AV	54.0	-4.0	1.87 V	177	31.84	18.16
8	#17475.00	64.2 PK	74.0	-9.8	1.70 V	214	36.28	27.92
9	#17475.00	53.9 AV	54.0	-0.1	1.70 V	214	25.98	27.92

REMARKS:

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

802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	73.0 PK	74.0	-1.0	2.01 H	80	63.03	9.97
2	5150.00	53.0 AV	54.0	-1.0	2.01 H	80	43.03	9.97
3	*5180.00	118.2 PK			2.01 H	80	108.04	10.16
4	*5180.00	108.3 AV			2.01 H	80	98.14	10.16
5	#10360.00	60.4 PK	74.0	-13.6	1.38 H	256	43.42	16.98
6	#10360.00	46.3 AV	54.0	-7.7	1.38 H	256	29.32	16.98
7	15540.00	63.5 PK	74.0	-10.5	1.51 H	76	41.57	21.93
8	15540.00	50.4 AV	54.0	-3.6	1.51 H	76	28.47	21.93
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	5150.00	61.8 PK	74.0	-12.2	1.18 V	329	51.83	9.97
2	5150.00	49.6 AV	54.0	-4.4	1.18 V	329	39.63	9.97
3	*5180.00	115.4 PK			1.47 V	42	105.24	10.16
4	*5180.00	105.3 AV			1.47 V	42	95.14	10.16
5	#10360.00	59.4 PK	74.0	-14.6	1.04 V	170	42.42	16.98
6	#10360.00	45.7 AV	54.0	-8.3	1.04 V	170	28.72	16.98
7	15540.00	68.8 PK	74.0	-5.2	1.83 V	72	46.87	21.93
8	15540.00	53.4 AV	54.0	-0.6	1.83 V	72	31.47	21.93

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	118.0 PK			2.00 H	68	107.74	10.26
2	*5200.00	107.9 AV			2.00 H	68	97.64	10.26
3	#10400.00	59.7 PK	74.0	-14.3	1.33 H	255	42.64	17.06
4	#10400.00	45.9 AV	54.0	-8.1	1.33 H	255	28.84	17.06
5	15600.00	63.5 PK	74.0	-10.5	1.52 H	88	41.22	22.28
6	15600.00	50.2 AV	54.0	-3.8	1.52 H	88	27.92	22.28

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	115.5 PK			1.52 V	37	105.24	10.26
2	*5200.00	105.2 AV			1.52 V	37	94.94	10.26
3	#10400.00	58.7 PK	74.0	-15.3	1.04 V	171	41.64	17.06
4	#10400.00	45.2 AV	54.0	-8.8	1.04 V	171	28.14	17.06
5	15600.00	67.8 PK	74.0	-6.2	1.89 V	72	45.52	22.28
6	15600.00	53.1 AV	54.0	-0.9	1.89 V	72	30.82	22.28

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	117.2 PK			2.05 H	81	106.87	10.33
2	*5240.00	107.9 AV			2.05 H	81	97.57	10.33
3	5350.00	60.1 PK	74.0	-13.9	2.05 H	81	49.55	10.55
4	5350.00	49.2 AV	54.0	-4.8	2.05 H	81	38.65	10.55
5	#10480.00	60.0 PK	74.0	-14.0	1.34 H	250	43.27	16.73
6	#10480.00	45.8 AV	54.0	-8.2	1.34 H	250	29.07	16.73
7	15720.00	63.1 PK	74.0	-10.9	1.57 H	86	40.47	22.63
8	15720.00	50.4 AV	54.0	-3.6	1.57 H	86	27.77	22.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	115.4 PK			1.54 V	44	105.07	10.33
2	*5240.00	105.1 AV			1.54 V	44	94.77	10.33
3	5350.00	68.4 PK	74.0	-5.6	1.54 V	44	57.85	10.55
4	5350.00	46.2 AV	54.0	-7.8	1.54 V	44	35.65	10.55
5	#10480.00	59.1 PK	74.0	-14.9	1.09 V	168	42.37	16.73
6	#10480.00	45.4 AV	54.0	-8.6	1.09 V	168	28.67	16.73
7	15720.00	68.1 PK	74.0	-5.9	2.01 V	72	45.47	22.63
8	15720.00	53.1 AV	54.0	-0.9	2.01 V	72	30.47	22.63

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	63.9 PK	74.0	-10.1	2.14 H	73	52.37	11.53
2	#5715.00	50.3 AV	54.0	-3.7	2.14 H	73	38.77	11.53
3	#5725.00	76.7 PK	78.2	-1.5	2.14 H	73	65.15	11.55
4	*5745.00	115.3 PK			2.14 H	73	103.67	11.63
5	*5745.00	105.5 AV			2.14 H	73	93.87	11.63
6	11490.00	58.9 PK	74.0	-15.1	1.24 H	215	41.60	17.30
7	11490.00	44.7 AV	54.0	-9.3	1.24 H	215	27.40	17.30
8	#17235.00	63.0 PK	74.0	-11.0	1.57 H	74	36.19	26.81
9	#17235.00	49.1 AV	54.0	-4.9	1.57 H	74	22.29	26.81

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	61.1 PK	74.0	-12.9	1.88 V	12	49.57	11.53
2	#5715.00	47.8 AV	54.0	-6.2	1.88 V	12	36.27	11.53
3	#5725.00	63.5 PK	78.2	-14.7	1.93 V	34	51.95	11.55
4	*5745.00	113.6 PK			1.91 V	20	101.97	11.63
5	*5745.00	103.5 AV			1.91 V	20	91.87	11.63
6	11490.00	56.1 PK	74.0	-17.9	1.01 V	164	38.80	17.30
7	11490.00	43.5 AV	54.0	-10.5	1.01 V	164	26.20	17.30
8	#17235.00	66.4 PK	74.0	-7.6	1.88 V	73	39.59	26.81
9	#17235.00	51.9 AV	54.0	-2.1	1.88 V	73	25.09	26.81

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	117.5 PK			1.96 H	62	105.76	11.74
2	*5785.00	107.7 AV			1.96 H	62	95.96	11.74
3	11570.00	60.9 PK	74.0	-13.1	1.05 H	336	42.99	17.91
4	11570.00	48.8 AV	54.0	-5.2	1.05 H	336	30.89	17.91
5	#17355.00	67.8 PK	74.0	-6.2	1.86 H	142	40.66	27.14
6	#17355.00	52.7 AV	54.0	-1.3	1.86 H	142	25.56	27.14

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	114.4 PK			1.45 V	42	102.66	11.74
2	*5785.00	104.4 AV			1.45 V	42	92.66	11.74
3	11570.00	62.7 PK	74.0	-11.3	1.88 V	174	44.79	17.91
4	11570.00	50.2 AV	54.0	-3.8	1.88 V	174	32.29	17.91
5	#17355.00	65.8 PK	74.0	-8.2	1.87 V	160	38.66	27.14
6	#17355.00	53.2 AV	54.0	-0.8	1.87 V	160	26.06	27.14

REMARKS:

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

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	116.8 PK			2.06 H	58	105.02	11.78
2	*5825.00	107.0 AV			2.06 H	58	95.22	11.78
3	#5850.00	66.0 PK	78.2	-12.2	2.08 H	79	54.25	11.75
4	#5860.00	62.7 PK	74.0	-11.3	2.10 H	64	50.95	11.75
5	#5860.00	51.5 AV	54.0	-2.5	2.10 H	64	39.75	11.75
6	11650.00	61.2 PK	74.0	-12.8	1.00 H	304	43.04	18.16
7	11650.00	49.4 AV	54.0	-4.6	1.00 H	304	31.24	18.16
8	#17475.00	67.0 PK	74.0	-7.0	1.81 H	159	39.08	27.92
9	#17475.00	53.0 AV	54.0	-1.0	1.81 H	159	25.08	27.92

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	115.3 PK			1.51 V	12	103.52	11.78
2	*5825.00	105.2 AV			1.51 V	12	93.42	11.78
3	#5850.00	55.9 PK	78.2	-22.3	1.46 V	23	44.15	11.75
4	#5860.00	60.5 PK	74.0	-13.5	1.47 V	29	48.75	11.75
5	#5860.00	47.1 AV	54.0	-6.9	1.47 V	29	35.35	11.75
6	11650.00	62.2 PK	74.0	-11.8	1.89 V	167	44.04	18.16
7	11650.00	49.7 AV	54.0	-4.3	1.89 V	167	31.54	18.16
8	#17475.00	63.9 PK	74.0	-10.1	1.66 V	211	35.98	27.92
9	#17475.00	53.8 AV	54.0	-0.2	1.66 V	211	25.88	27.92

REMARKS:

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

802.11ac (VHT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.5 PK	74.0	-6.5	1.86 H	80	57.53	9.97
2	5150.00	53.8 AV	54.0	-0.2	1.86 H	80	43.83	9.97
3	*5190.00	111.4 PK			1.86 H	80	101.20	10.20
4	*5190.00	101.6 AV			1.86 H	80	91.40	10.20
5	#10380.00	57.8 PK	74.0	-16.2	1.39 H	221	40.78	17.02
6	#10380.00	43.0 AV	54.0	-11.0	1.39 H	221	25.98	17.02
7	15570.00	60.9 PK	74.0	-13.1	1.50 H	126	38.80	22.10
8	15570.00	49.0 AV	54.0	-5.0	1.50 H	126	26.90	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	5150.00	61.7 PK	74.0	-12.3	1.67 V	41	51.73	9.97
2	5150.00	49.2 AV	54.0	-4.8	1.67 V	41	39.23	9.97
3	*5190.00	109.5 PK			1.67 V	41	99.30	10.20
4	*5190.00	99.8 AV			1.67 V	41	89.60	10.20
5	#10380.00	57.2 PK	74.0	-16.8	1.06 V	177	40.18	17.02
6	#10380.00	42.8 AV	54.0	-11.2	1.06 V	177	25.78	17.02
7	15570.00	65.3 PK	74.0	-8.7	1.89 V	98	43.20	22.10
8	15570.00	52.1 AV	54.0	-1.9	1.89 V	98	30.00	22.10

REMARKS:

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

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	114.8 PK			1.95 H	78	104.48	10.32
2	*5230.00	104.8 AV			1.95 H	78	94.48	10.32
3	5350.00	59.3 PK	74.0	-14.7	1.95 H	78	48.75	10.55
4	5350.00	47.7 AV	54.0	-6.3	1.95 H	78	37.15	10.55
5	#10460.00	58.5 PK	74.0	-15.5	1.38 H	245	41.68	16.82
6	#10460.00	44.0 AV	54.0	-10.0	1.38 H	245	27.18	16.82
7	15690.00	63.0 PK	74.0	-11.0	1.52 H	106	40.48	22.52
8	15690.00	50.2 AV	54.0	-3.8	1.52 H	106	27.68	22.52
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	*5230.00	113.1 PK			1.76 V	42	102.78	10.32
2	*5230.00	103.5 AV			1.76 V	42	93.18	10.32
3	5350.00	58.4 PK	74.0	-15.6	1.76 V	42	47.85	10.55
4	5350.00	45.4 AV	54.0	-8.6	1.76 V	42	34.85	10.55
5	#10460.00	58.9 PK	74.0	-15.1	1.08 V	159	42.08	16.82
6	#10460.00	44.6 AV	54.0	-9.4	1.08 V	159	27.78	16.82
7	15690.00	65.9 PK	74.0	-8.1	1.91 V	72	43.38	22.52
8	15690.00	53.1 AV	54.0	-0.9	1.91 V	72	30.58	22.52

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
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	66.4 PK	74.0	-7.6	2.19 H	73	54.87	11.53
2	#5715.00	53.5 AV	54.0	-0.5	2.19 H	73	41.97	11.53
3	#5725.00	72.4 PK	78.2	-5.8	2.19 H	73	60.85	11.55
4	*5755.00	111.3 PK			2.19 H	73	99.66	11.64
5	*5755.00	101.6 AV			2.19 H	73	89.96	11.64
6	11510.00	57.4 PK	74.0	-16.6	1.24 H	220	40.10	17.30
7	11510.00	43.3 AV	54.0	-10.7	1.24 H	220	26.00	17.30
8	#17265.00	61.3 PK	74.0	-12.7	1.61 H	65	34.59	26.71
9	#17265.00	47.6 AV	54.0	-6.4	1.61 H	65	20.89	26.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	63.4 PK	74.0	-10.6	1.91 V	9	51.87	11.53
2	#5715.00	50.4 AV	54.0	-3.6	1.91 V	9	38.87	11.53
3	#5725.00	62.8 PK	78.2	-15.4	1.88 V	30	51.25	11.55
4	*5755.00	109.3 PK			1.86 V	23	97.66	11.64
5	*5755.00	99.3 AV			1.86 V	23	87.66	11.64
6	11510.00	59.3 PK	74.0	-14.7	1.00 V	160	42.00	17.30
7	11510.00	45.4 AV	54.0	-8.6	1.00 V	160	28.10	17.30
8	#17265.00	63.3 PK	74.0	-10.7	1.93 V	88	36.59	26.71
9	#17265.00	49.3 AV	54.0	-4.7	1.93 V	88	22.59	26.71

REMARKS:

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

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	114.6 PK			2.18 H	73	102.82	11.78
2	*5795.00	104.3 AV			2.18 H	73	92.52	11.78
3	#5850.00	62.6 PK	78.2	-15.6	2.18 H	73	50.85	11.75
4	#5860.00	60.1 PK	74.0	-13.9	2.18 H	73	48.35	11.75
5	#5860.00	49.3 AV	54.0	-4.7	2.18 H	73	37.55	11.75
6	11590.00	61.0 PK	74.0	-13.0	1.05 H	307	42.89	18.11
7	11590.00	48.3 AV	54.0	-5.7	1.05 H	307	30.19	18.11
8	#17385.00	64.6 PK	74.0	-9.4	1.77 H	171	37.15	27.45
9	#17385.00	52.0 AV	54.0	-2.0	1.77 H	171	24.55	27.45

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	111.4 PK			1.46 V	11	99.62	11.78
2	*5795.00	102.2 AV			1.46 V	11	90.42	11.78
3	#5850.00	54.4 PK	78.2	-23.8	1.46 V	11	42.65	11.75
4	#5860.00	57.6 PK	74.0	-16.4	1.46 V	11	45.85	11.75
5	#5860.00	47.4 AV	54.0	-6.6	1.46 V	11	35.65	11.75
6	11590.00	61.4 PK	74.0	-12.6	1.95 V	181	43.29	18.11
7	11590.00	49.2 AV	54.0	-4.8	1.95 V	181	31.09	18.11
8	#17385.00	66.6 PK	74.0	-7.4	1.91 V	148	39.15	27.45
9	#17385.00	53.1 AV	54.0	-0.9	1.91 V	148	25.65	27.45

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	69.1 PK	74.0	-4.9	2.29 H	79	59.13	9.97
2	5150.00	53.7 AV	54.0	-0.3	2.29 H	79	43.73	9.97
3	*5210.00	107.1 PK			2.29 H	79	96.83	10.27
4	*5210.00	97.1 AV			2.29 H	79	86.83	10.27
5	5350.00	57.4 PK	74.0	-16.6	2.29 H	79	46.85	10.55
6	5350.00	45.5 AV	54.0	-8.5	2.29 H	79	34.95	10.55
7	#10420.00	58.0 PK	74.0	-16.0	1.35 H	236	41.02	16.98
8	#10420.00	43.4 AV	54.0	-10.6	1.35 H	236	26.42	16.98
9	15630.00	61.1 PK	74.0	-12.9	1.50 H	114	38.73	22.37
10	15630.00	49.2 AV	54.0	-4.8	1.50 H	114	26.83	22.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.8 PK	74.0	-7.2	1.75 V	41	56.83	9.97
2	5150.00	52.9 AV	54.0	-1.1	1.75 V	41	42.93	9.97
3	*5210.00	107.2 PK			1.75 V	41	96.93	10.27
4	*5210.00	96.9 AV			1.75 V	41	86.63	10.27
5	5350.00	57.0 PK	74.0	-17.0	1.75 V	41	46.45	10.55
6	5350.00	43.9 AV	54.0	-10.1	1.75 V	41	33.35	10.55
7	#10420.00	57.4 PK	74.0	-16.6	1.06 V	169	40.42	16.98
8	#10420.00	43.2 AV	54.0	-10.8	1.06 V	169	26.22	16.98
9	15630.00	65.4 PK	74.0	-8.6	1.91 V	87	43.03	22.37
10	15630.00	52.1 AV	54.0	-1.9	1.91 V	87	29.73	22.37

REMARKS:

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

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	69.6 PK	74.0	-4.4	2.10 H	74	58.07	11.53
2	#5715.00	53.4 AV	54.0	-0.6	2.10 H	74	41.87	11.53
3	#5725.00	77.6 PK	78.2	-0.6	2.10 H	74	66.05	11.55
4	*5775.00	108.7 PK			2.10 H	74	96.98	11.72
5	*5775.00	97.9 AV			2.10 H	74	86.18	11.72
6	#5850.00	70.9 PK	78.2	-7.3	2.10 H	74	59.15	11.75
7	#5860.00	71.4 PK	74.0	-2.6	2.10 H	74	59.65	11.75
8	#5860.00	51.7 AV	54.0	-2.3	2.10 H	74	39.95	11.75
9	11550.00	59.4 PK	74.0	-14.6	1.02 H	296	41.69	17.71
10	11550.00	47.0 AV	54.0	-7.0	1.02 H	296	29.29	17.71
11	#17325.00	61.3 PK	74.0	-12.7	1.80 H	181	34.45	26.85
12	#17325.00	49.2 AV	54.0	-4.8	1.80 H	181	22.35	26.85

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	#5715.00	67.7 PK	74.0	-6.3	1.41 V	11	56.17	11.53
2	#5715.00	51.4 AV	54.0	-2.6	1.41 V	11	39.87	11.53
3	#5725.00	67.9 PK	78.2	-10.3	1.41 V	11	56.35	11.55
4	*5775.00	107.7 PK			1.41 V	11	95.98	11.72
5	*5775.00	95.4 AV			1.41 V	11	83.68	11.72
6	#5850.00	66.4 PK	78.2	-11.8	1.41 V	11	54.65	11.75
7	#5860.00	69.8 PK	74.0	-4.2	1.41 V	11	58.05	11.75
8	#5860.00	48.3 AV	54.0	-5.7	1.41 V	11	36.55	11.75
9	11550.00	60.9 PK	74.0	-13.1	1.94 V	166	43.19	17.71
10	11550.00	47.4 AV	54.0	-6.6	1.94 V	166	29.69	17.71
11	#17325.00	63.2 PK	74.0	-10.8	1.90 V	147	36.35	26.85
12	#17325.00	50.3 AV	54.0	-3.7	1.90 V	147	23.45	26.85

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.

Below 1GHz Data:

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	149.92	34.6 QP	43.5	-8.9	1.98 H	107	47.48	-12.86
2	285.15	36.3 QP	46.0	-9.7	1.10 H	204	48.75	-12.43
3	298.72	37.5 QP	46.0	-8.5	1.80 H	102	49.45	-11.95
4	410.19	40.9 QP	46.0	-5.1	1.10 H	103	50.20	-9.32
5	432.62	41.4 QP	46.0	-4.6	1.20 H	109	49.81	-8.39
6	469.99	39.5 QP	46.0	-6.5	1.10 H	67	47.36	-7.84
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	73.50	36.8 QP	40.0	-3.2	1.80 V	149	53.13	-16.31
2	261.15	33.1 QP	46.0	-12.9	1.95 V	170	46.65	-13.55
3	322.16	37.3 QP	46.0	-8.7	1.88 V	310	48.34	-11.02
4	399.92	37.7 QP	46.0	-8.3	1.56 V	313	47.29	-9.59
5	410.15	39.4 QP	46.0	-6.6	1.10 V	105	48.70	-9.32
6	608.17	36.5 QP	46.0	-9.5	1.00 V	200	41.06	-4.58

REMARKS:

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

Beamforming MODE

Above 1GHz Data:

802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.2 PK	74.0	-16.8	1.14 H	105	47.23	9.97
2	5150.00	53.0 AV	54.0	-1.0	1.14 H	105	43.03	9.97
3	*5180.00	117.8 PK			1.14 H	105	107.64	10.16
4	*5180.00	107.5 AV			1.14 H	105	97.34	10.16
5	#10360.00	63.3 PK	74.0	-10.7	1.57 H	76	46.32	16.98
6	#10360.00	47.4 AV	54.0	-6.6	1.57 H	76	30.42	16.98
7	15540.00	64.1 PK	74.0	-9.9	1.62 H	148	42.17	21.93
8	15540.00	50.0 AV	54.0	-4.0	1.62 H	148	28.07	21.93
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	5150.00	67.2 PK	74.0	-6.8	1.25 V	59	57.23	9.97
2	5150.00	52.1 AV	54.0	-1.9	1.25 V	59	42.13	9.97
3	*5180.00	114.3 PK			1.25 V	59	104.14	10.16
4	*5180.00	105.4 AV			1.25 V	59	95.24	10.16
5	#10360.00	54.3 PK	74.0	-19.7	1.19 V	320	37.32	16.98
6	#10360.00	41.2 AV	54.0	-12.8	1.19 V	320	24.22	16.98
7	15540.00	66.2 PK	74.0	-7.8	1.88 V	103	44.27	21.93
8	15540.00	53.4 AV	54.0	-0.6	1.88 V	103	31.47	21.93

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	118.2 PK			1.09 H	112	107.94	10.26
2	*5200.00	107.9 AV			1.09 H	112	97.64	10.26
3	#10400.00	63.1 PK	74.0	-10.9	1.56 H	73	46.04	17.06
4	#10400.00	47.5 AV	54.0	-6.5	1.56 H	73	30.44	17.06
5	15600.00	64.0 PK	74.0	-10.0	1.62 H	160	41.72	22.28
6	15600.00	49.9 AV	54.0	-4.1	1.62 H	160	27.62	22.28

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	114.6 PK			1.30 V	49	104.34	10.26
2	*5200.00	105.8 AV			1.30 V	49	95.54	10.26
3	#10400.00	54.3 PK	74.0	-19.7	1.16 V	322	37.24	17.06
4	#10400.00	41.0 AV	54.0	-13.0	1.16 V	322	23.94	17.06
5	15600.00	66.8 PK	74.0	-7.2	1.53 V	100	44.52	22.28
6	15600.00	53.7 AV	54.0	-0.3	1.53 V	100	31.42	22.28

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	117.8 PK			1.09 H	118	107.47	10.33
2	*5240.00	107.2 AV			1.09 H	118	96.87	10.33
3	5350.00	55.4 PK	74.0	-18.6	1.09 H	118	44.85	10.55
4	5350.00	50.2 AV	54.0	-3.8	1.09 H	118	39.65	10.55
5	#10480.00	63.8 PK	74.0	-10.2	1.60 H	61	47.07	16.73
6	#10480.00	47.8 AV	54.0	-6.2	1.60 H	61	31.07	16.73
7	15720.00	64.0 PK	74.0	-10.0	1.67 H	135	41.37	22.63
8	15720.00	50.1 AV	54.0	-3.9	1.67 H	135	27.47	22.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	114.7 PK			1.22 V	58	104.37	10.33
2	*5240.00	105.9 AV			1.22 V	58	95.57	10.33
3	5350.00	53.3 PK	74.0	-20.7	1.22 V	58	42.75	10.55
4	5350.00	48.3 AV	54.0	-5.7	1.22 V	58	37.75	10.55
5	#10480.00	54.6 PK	74.0	-19.4	1.18 V	331	37.87	16.73
6	#10480.00	41.7 AV	54.0	-12.3	1.18 V	331	24.97	16.73
7	15720.00	66.3 PK	74.0	-7.7	1.60 V	104	43.67	22.63
8	15720.00	53.2 AV	54.0	-0.8	1.60 V	104	30.57	22.63

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	64.1 PK	74.0	-9.9	1.81 H	106	52.57	11.53
2	#5715.00	50.1 AV	54.0	-3.9	1.81 H	106	38.57	11.53
3	#5725.00	77.7 PK	78.2	-0.5	1.81 H	106	66.15	11.55
4	*5745.00	114.4 PK			1.81 H	106	102.77	11.63
5	*5745.00	105.0 AV			1.81 H	106	93.37	11.63
6	11490.00	52.5 PK	74.0	-21.5	1.70 H	203	35.20	17.30
7	11490.00	40.4 AV	54.0	-13.6	1.70 H	203	23.10	17.30
8	#17235.00	62.7 PK	74.0	-11.3	1.88 H	289	35.89	26.81
9	#17235.00	50.8 AV	54.0	-3.2	1.88 H	289	23.99	26.81

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	58.9 PK	74.0	-15.1	1.44 V	55	47.37	11.53
2	#5715.00	46.3 AV	54.0	-7.7	1.44 V	55	34.77	11.53
3	#5725.00	70.3 PK	78.2	-7.9	1.44 V	55	58.75	11.55
4	*5745.00	110.8 PK			1.44 V	55	99.17	11.63
5	*5745.00	101.4 AV			1.44 V	55	89.77	11.63
6	11490.00	52.6 PK	74.0	-21.4	1.15 V	83	35.30	17.30
7	11490.00	40.2 AV	54.0	-13.8	1.15 V	83	22.90	17.30
8	#17235.00	64.5 PK	74.0	-9.5	1.81 V	214	37.69	26.81
9	#17235.00	51.4 AV	54.0	-2.6	1.81 V	214	24.59	26.81

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	117.7 PK			1.85 H	107	105.96	11.74
2	*5785.00	107.7 AV			1.85 H	107	95.96	11.74
3	11570.00	61.0 PK	74.0	-13.0	1.06 H	322	43.09	17.91
4	11570.00	49.0 AV	54.0	-5.0	1.06 H	322	31.09	17.91
5	#17355.00	66.2 PK	74.0	-7.8	1.80 H	220	39.06	27.14
6	#17355.00	52.4 AV	54.0	-1.6	1.80 H	220	25.26	27.14

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	115.1 PK			1.44 V	55	103.36	11.74
2	*5785.00	105.1 AV			1.44 V	55	93.36	11.74
3	11570.00	63.0 PK	74.0	-11.0	1.10 V	97	45.09	17.91
4	11570.00	50.4 AV	54.0	-3.6	1.10 V	97	32.49	17.91
5	#17355.00	67.6 PK	74.0	-6.4	1.24 V	298	40.46	27.14
6	#17355.00	53.1 AV	54.0	-0.9	1.24 V	298	25.96	27.14

REMARKS:

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

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	117.7 PK			1.89 H	116	105.92	11.78
2	*5825.00	107.4 AV			1.89 H	116	95.62	11.78
3	#5850.00	65.6 PK	78.2	-12.6	1.89 H	116	53.85	11.75
4	#5860.00	62.9 PK	74.0	-11.1	1.89 H	116	51.15	11.75
5	#5860.00	51.7 AV	54.0	-2.3	1.89 H	116	39.95	11.75
6	11650.00	61.1 PK	74.0	-12.9	1.08 H	329	42.94	18.16
7	11650.00	49.0 AV	54.0	-5.0	1.08 H	329	30.84	18.16
8	#17475.00	66.3 PK	74.0	-7.7	1.81 H	229	38.38	27.92
9	#17475.00	52.1 AV	54.0	-1.9	1.81 H	229	24.18	27.92

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	114.8 PK			1.38 V	45	103.02	11.78
2	*5825.00	104.7 AV			1.38 V	45	92.92	11.78
3	#5850.00	55.8 PK	78.2	-22.4	1.38 V	45	44.05	11.75
4	#5860.00	60.7 PK	74.0	-13.3	1.38 V	45	48.95	11.75
5	#5860.00	47.3 AV	54.0	-6.7	1.38 V	45	35.55	11.75
6	11650.00	63.3 PK	74.0	-10.7	1.15 V	104	45.14	18.16
7	11650.00	50.6 AV	54.0	-3.4	1.15 V	104	32.44	18.16
8	#17475.00	67.3 PK	74.0	-6.7	1.23 V	292	39.38	27.92
9	#17475.00	53.4 AV	54.0	-0.6	1.23 V	292	25.48	27.92

REMARKS:

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

802.11ac (VHT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	70.2 PK	74.0	-3.8	1.15 H	112	60.23	9.97
2	5150.00	53.8 AV	54.0	-0.2	1.15 H	112	43.83	9.97
3	*5190.00	112.1 PK			1.15 H	112	101.90	10.20
4	*5190.00	101.3 AV			1.15 H	112	91.10	10.20
5	#10380.00	57.6 PK	74.0	-16.4	1.40 H	235	40.58	17.02
6	#10380.00	43.3 AV	54.0	-10.7	1.40 H	235	26.28	17.02
7	15570.00	60.7 PK	74.0	-13.3	1.55 H	116	38.60	22.10
8	15570.00	48.7 AV	54.0	-5.3	1.55 H	116	26.60	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	5150.00	61.2 PK	74.0	-12.8	1.72 V	40	51.23	9.97
2	5150.00	48.9 AV	54.0	-5.1	1.72 V	40	38.93	9.97
3	*5190.00	109.5 PK			1.72 V	40	99.30	10.20
4	*5190.00	100.1 AV			1.72 V	40	89.90	10.20
5	#10380.00	57.8 PK	74.0	-16.2	1.38 V	228	40.78	17.02
6	#10380.00	43.1 AV	54.0	-10.9	1.38 V	228	26.08	17.02
7	15570.00	60.9 PK	74.0	-13.1	1.50 V	98	38.80	22.10
8	15570.00	49.2 AV	54.0	-4.8	1.50 V	98	27.10	22.10

REMARKS:

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

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	115.0 PK			1.15 H	112	104.68	10.32
2	*5230.00	105.2 AV			1.15 H	112	94.88	10.32
3	5350.00	59.0 PK	74.0	-15.0	1.15 H	112	48.45	10.55
4	5350.00	47.5 AV	54.0	-6.5	1.15 H	112	36.95	10.55
5	#10460.00	58.6 PK	74.0	-15.4	1.37 H	231	41.78	16.82
6	#10460.00	44.2 AV	54.0	-9.8	1.37 H	231	27.38	16.82
7	15690.00	62.6 PK	74.0	-11.4	1.58 H	105	40.08	22.52
8	15690.00	50.1 AV	54.0	-3.9	1.58 H	105	27.58	22.52
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	*5230.00	113.5 PK			1.72 V	48	103.18	10.32
2	*5230.00	103.7 AV			1.72 V	48	93.38	10.32
3	5350.00	58.4 PK	74.0	-15.6	1.78 V	32	47.85	10.55
4	5350.00	45.2 AV	54.0	-8.8	1.78 V	32	34.65	10.55
5	#10460.00	59.4 PK	74.0	-14.6	1.09 V	160	42.58	16.82
6	#10460.00	45.1 AV	54.0	-8.9	1.09 V	160	28.28	16.82
7	15690.00	65.9 PK	74.0	-8.1	1.88 V	62	43.38	22.52
8	15690.00	53.6 AV	54.0	-0.4	1.88 V	62	31.08	22.52

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
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	68.1 PK	74.0	-5.9	1.86 H	127	56.57	11.53
2	#5715.00	53.1 AV	54.0	-0.9	1.86 H	127	41.57	11.53
3	#5725.00	69.5 PK	78.2	-8.7	1.86 H	127	57.95	11.55
4	*5755.00	111.8 PK			1.86 H	127	100.16	11.64
5	*5755.00	100.6 AV			1.86 H	127	88.96	11.64
6	11510.00	57.2 PK	74.0	-16.8	1.09 H	338	39.90	17.30
7	11510.00	43.1 AV	54.0	-10.9	1.09 H	338	25.80	17.30
8	#17265.00	61.2 PK	74.0	-12.8	1.82 H	228	34.49	26.71
9	#17265.00	47.2 AV	54.0	-6.8	1.82 H	228	20.49	26.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	66.4 PK	74.0	-7.6	1.40 V	53	54.87	11.53
2	#5715.00	51.2 AV	54.0	-2.8	1.40 V	53	39.67	11.53
3	#5725.00	59.4 PK	78.2	-18.8	1.40 V	53	47.85	11.55
4	*5755.00	109.4 PK			1.40 V	53	97.76	11.64
5	*5755.00	98.2 AV			1.40 V	53	86.56	11.64
6	11510.00	59.1 PK	74.0	-14.9	1.16 V	114	41.80	17.30
7	11510.00	45.4 AV	54.0	-8.6	1.16 V	114	28.10	17.30
8	#17265.00	63.0 PK	74.0	-11.0	1.20 V	277	36.29	26.71
9	#17265.00	49.2 AV	54.0	-4.8	1.20 V	277	22.49	26.71

REMARKS:

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

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	116.1 PK			1.92 H	139	104.32	11.78
2	*5795.00	106.4 AV			1.92 H	139	94.62	11.78
3	#5850.00	72.1 PK	78.2	-6.1	1.92 H	139	60.35	11.75
4	#5860.00	69.5 PK	74.0	-4.5	1.92 H	139	57.75	11.75
5	#5860.00	51.8 AV	54.0	-2.2	1.92 H	139	40.05	11.75
6	11590.00	61.3 PK	74.0	-12.7	1.09 H	349	43.19	18.11
7	11590.00	48.7 AV	54.0	-5.3	1.09 H	349	30.59	18.11
8	#17385.00	64.3 PK	74.0	-9.7	1.77 H	225	36.85	27.45
9	#17385.00	51.7 AV	54.0	-2.3	1.77 H	225	24.25	27.45

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	111.1 PK			1.44 V	55	99.32	11.78
2	*5795.00	101.8 AV			1.44 V	55	90.02	11.78
3	#5850.00	64.3 PK	78.2	-13.9	1.44 V	55	52.55	11.75
4	#5860.00	67.5 PK	74.0	-6.5	1.44 V	55	55.75	11.75
5	#5860.00	49.4 AV	54.0	-4.6	1.44 V	55	37.65	11.75
6	11590.00	61.8 PK	74.0	-12.2	2.00 V	184	43.69	18.11
7	11590.00	49.6 AV	54.0	-4.4	2.00 V	184	31.49	18.11
8	#17385.00	66.3 PK	74.0	-7.7	1.86 V	153	38.85	27.45
9	#17385.00	53.0 AV	54.0	-1.0	1.86 V	153	25.55	27.45

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	69.3 PK	74.0	-4.7	1.22 H	122	59.33	9.97
2	5150.00	53.6 AV	54.0	-0.4	1.22 H	122	43.63	9.97
3	*5210.00	107.7 PK			1.22 H	122	97.43	10.27
4	*5210.00	97.6 AV			1.22 H	122	87.33	10.27
5	5350.00	57.4 PK	74.0	-16.6	1.22 H	122	46.85	10.55
6	5350.00	45.4 AV	54.0	-8.6	1.22 H	122	34.85	10.55
7	#10420.00	57.6 PK	74.0	-16.4	1.31 H	223	40.62	16.98
8	#10420.00	43.2 AV	54.0	-10.8	1.31 H	223	26.22	16.98
9	15630.00	61.0 PK	74.0	-13.0	1.49 H	110	38.63	22.37
10	15630.00	49.1 AV	54.0	-4.9	1.49 H	110	26.73	22.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.3 PK	74.0	-6.7	1.72 V	55	57.33	9.97
2	5150.00	52.7 AV	54.0	-1.3	1.72 V	55	42.73	9.97
3	*5210.00	107.2 PK			1.73 V	27	96.93	10.27
4	*5210.00	96.5 AV			1.73 V	27	86.23	10.27
5	5350.00	56.4 PK	74.0	-17.6	1.69 V	56	45.85	10.55
6	5350.00	43.4 AV	54.0	-10.6	1.69 V	56	32.85	10.55
7	#10420.00	57.5 PK	74.0	-16.5	1.05 V	155	40.52	16.98
8	#10420.00	43.1 AV	54.0	-10.9	1.05 V	155	26.12	16.98
9	15630.00	65.0 PK	74.0	-9.0	1.89 V	86	42.63	22.37
10	15630.00	51.7 AV	54.0	-2.3	1.89 V	86	29.33	22.37

REMARKS:

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

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5715.00	67.3 PK	74.0	-6.7	1.01 H	111	55.77	11.53
2	#5715.00	53.1 AV	54.0	-0.9	1.01 H	111	41.57	11.53
3	#5725.00	68.9 PK	78.2	-9.3	1.00 H	111	57.35	11.55
4	*5775.00	108.3 PK			1.00 H	102	96.58	11.72
5	*5775.00	98.7 AV			1.00 H	102	86.98	11.72
6	#5850.00	65.3 PK	78.2	-12.9	1.00 H	106	53.55	11.75
7	#5860.00	64.5 PK	74.0	-9.5	1.00 H	109	52.75	11.75
8	#5860.00	50.0 AV	54.0	-4.0	1.00 H	109	38.25	11.75
9	11550.00	59.3 PK	74.0	-14.7	1.05 H	346	41.59	17.71
10	11550.00	46.9 AV	54.0	-7.1	1.05 H	346	29.19	17.71
11	#17325.00	61.6 PK	74.0	-12.4	1.80 H	237	34.75	26.85
12	#17325.00	49.6 AV	54.0	-4.4	1.80 H	237	22.75	26.85

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	#5715.00	65.4 PK	74.0	-8.6	1.43 V	63	53.87	11.53
2	#5715.00	51.4 AV	54.0	-2.6	1.43 V	63	39.87	11.53
3	#5725.00	60.2 PK	78.2	-18.0	1.43 V	63	48.65	11.55
4	*5775.00	107.5 PK			1.43 V	63	95.78	11.72
5	*5775.00	95.4 AV			1.43 V	63	83.68	11.72
6	#5850.00	58.3 PK	78.2	-19.9	1.43 V	63	46.55	11.75
7	#5860.00	63.2 PK	74.0	-10.8	1.43 V	63	51.45	11.75
8	#5860.00	49.2 AV	54.0	-4.8	1.43 V	63	37.45	11.75
9	11550.00	60.9 PK	74.0	-13.1	2.00 V	196	43.19	17.71
10	11550.00	47.2 AV	54.0	-6.8	2.00 V	196	29.49	17.71
11	#17325.00	63.4 PK	74.0	-10.6	1.80 V	161	36.55	26.85
12	#17325.00	50.5 AV	54.0	-3.5	1.80 V	161	23.65	26.85

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.

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: Apr. 16, 2015

4.2.3 Test Procedure

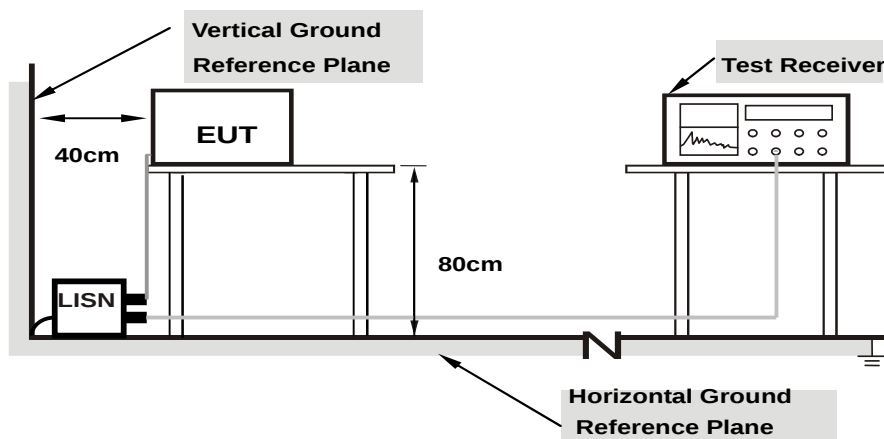
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Condition

Same as 4.1.6.

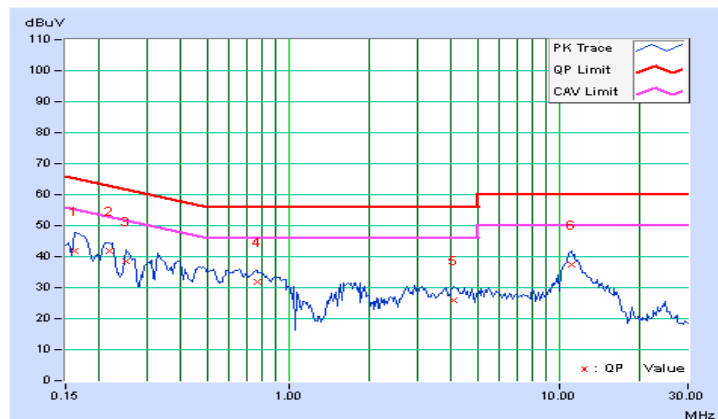
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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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	0.16172	0.08	41.63	27.88	41.71	27.96	65.38	55.38	-23.66	-27.41
2	0.21641	0.09	41.60	32.84	41.69	32.93	62.96	52.96	-21.26	-20.02
3	0.25156	0.09	38.36	30.71	38.45	30.80	61.71	51.71	-23.25	-20.90
4	0.76328	0.12	31.91	21.59	32.03	21.71	56.00	46.00	-23.97	-24.29
5	4.11328	0.22	25.71	16.60	25.93	16.82	56.00	46.00	-30.07	-29.18
6	11.09766	0.48	36.79	32.29	37.27	32.77	60.00	50.00	-22.73	-17.23

Remarks:

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

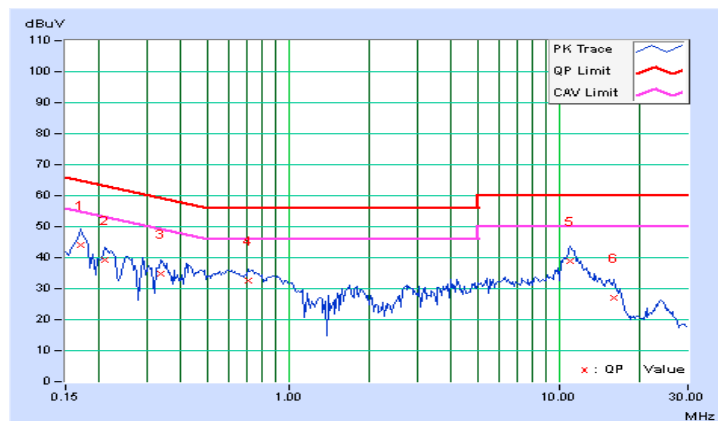


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.08	44.07	37.55	44.15	37.63	64.98	54.98	-20.83	-17.35
2	0.20859	0.08	39.32	30.97	39.40	31.05	63.26	53.26	-23.86	-22.21
3	0.33750	0.09	34.86	28.17	34.95	28.26	59.26	49.26	-24.31	-21.00
4	0.71250	0.12	32.32	23.35	32.44	23.47	56.00	46.00	-23.56	-22.53
5	10.96875	0.49	38.41	34.18	38.90	34.67	60.00	50.00	-21.10	-15.33
6	15.88672	0.62	26.25	20.75	26.87	21.37	60.00	50.00	-33.13	-28.63

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
		Mobile and Portable client device	250mW (24 dBm)
U-NII-2A			250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C			250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3		√	1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

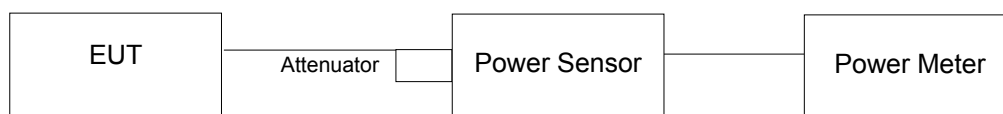
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

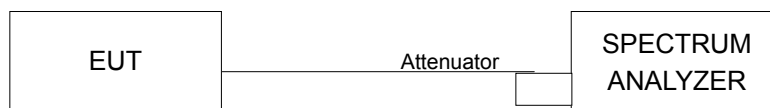
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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.

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

CDD MODE

802.11a

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
36	5180	18.56	18.40	18.18	18.32	274.648	24.39	30	PASS
40	5200	18.73	18.52	18.27	17.71	271.929	24.34	30	PASS
48	5240	18.60	18.50	18.10	18.16	273.268	24.37	30	PASS
149	5745	16.37	17.00	16.13	16.40	178.142	22.51	30	PASS
157	5785	17.52	17.77	16.92	17.12	217.062	23.37	30	PASS
165	5825	17.44	17.80	16.77	16.89	212.118	23.27	30	PASS

802.11ac (VHT20)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
36	5180	18.06	18.11	18.05	18.52	263.634	24.21	30	PASS
40	5200	18.16	18.23	18.00	18.44	264.91	24.23	30	PASS
48	5240	18.10	18.15	18.16	18.42	264.844	24.23	30	PASS
149	5745	15.41	15.86	15.16	15.74	143.609	21.57	30	PASS
157	5785	17.12	17.46	16.88	16.73	203.093	23.08	30	PASS
165	5825	17.23	17.52	16.78	16.70	203.756	23.09	30	PASS

802.11ac (VHT40)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
38	5190	15.32	14.80	14.56	14.72	122.465	20.88	30	PASS
46	5230	16.49	16.00	15.59	15.56	156.576	21.95	30	PASS
151	5755	14.92	15.00	14.98	15.12	126.655	21.03	30	PASS
159	5795	17.63	18.09	17.33	17.43	231.77	23.65	30	PASS

802.11ac (VHT80)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
42	5210	15.20	14.40	14.23	14.59	115.914	20.64	30	PASS
155	5775	14.89	14.97	14.44	14.23	116.519	20.66	30	PASS

Beamforming MODE

802.11ac (VHT20)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
36	5180	17.49	17.52	17.23	17.40	220.398	23.43	26.34	PASS
40	5200	17.52	17.44	17.23	17.32	218.753	23.40	26.34	PASS
48	5240	17.65	17.56	17.44	17.32	224.64	23.51	26.34	PASS
149	5745	15.41	15.86	15.16	15.74	143.609	21.57	26.04	PASS
157	5785	17.12	17.46	16.88	16.73	203.093	23.08	26.04	PASS
165	5825	17.23	17.52	16.78	16.70	203.756	23.09	26.04	PASS

NOTE:

5150~5250MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 9.66dBi > 6dBi , so the power limit shall be reduced to 30-(9.66-6) = 26.34dBm.

5725~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 9.96dBi > 6dBi , so the power limit shall be reduced to 30-(9.96-6) = 26.04dBm.

802.11ac (VHT40)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
38	5190	15.32	14.80	14.56	14.72	122.465	20.88	26.34	PASS
46	5230	19.02	18.56	18.86	18.77	303.827	24.83	26.34	PASS
151	5755	13.72	14.12	13.92	14.23	100.518	20.02	26.04	PASS
159	5795	19.02	18.44	18.78	18.89	302.577	24.81	26.04	PASS

NOTE:

5150~5250MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 9.66dBi > 6dBi , so the power limit shall be reduced to 30-(9.66-6) = 26.34dBm.

5725~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 9.96dBi > 6dBi , so the power limit shall be reduced to 30-(9.96-6) = 26.04dBm.

802.11ac (VHT80)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
42	5210	15.20	14.40	14.23	14.59	115.914	20.64	26.34	PASS
155	5775	13.89	13.92	13.62	13.56	94.864	19.77	26.04	PASS

NOTE:

5150~5250MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 9.66dBi > 6dBi , so the power limit shall be reduced to 30-(9.66-6) = 26.34dBm.

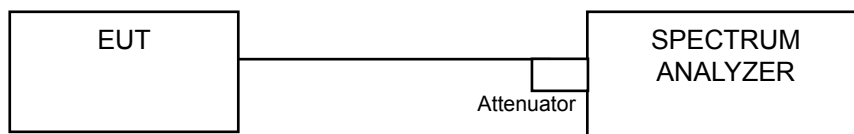
5725~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 9.96dBi > 6dBi , so the power limit shall be reduced to 30-(9.96-6) = 26.04dBm.

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

Using method SA-1

※For U-NII-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:

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 $BWCF = 10\log(500\text{ kHz}/300\text{ kHz})$
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

CDD MODE For U-NII-1 Band 802.11a

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)				TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3			
36	5180	4.30	4.82	4.40	4.74	10.59	13.34	PASS
40	5200	3.71	4.72	4.62	4.72	10.48	13.34	PASS
48	5240	4.04	5.21	4.75	4.87	10.76	13.34	PASS

- NOTE:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 + 10^{G4/20})^2 / 4] = 9.66\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(9.66-6) = 13.34\text{dBm}$.

802.11ac (VHT20)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)				TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3			
36	5180	3.44	4.47	4.16	4.92	10.30	13.34	PASS
40	5200	3.99	4.56	4.37	4.88	10.48	13.34	PASS
48	5240	4.13	4.95	4.64	4.87	10.68	13.34	PASS

- NOTE:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 + 10^{G4/20})^2 / 4] = 9.66\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(9.66-6) = 13.34\text{dBm}$.

802.11ac (VHT40)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)				TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3			
38	5190	-2.44	-1.34	-2.36	-1.98	4.01	13.34	PASS
46	5230	-0.90	-0.44	-0.87	-0.70	5.30	13.34	PASS

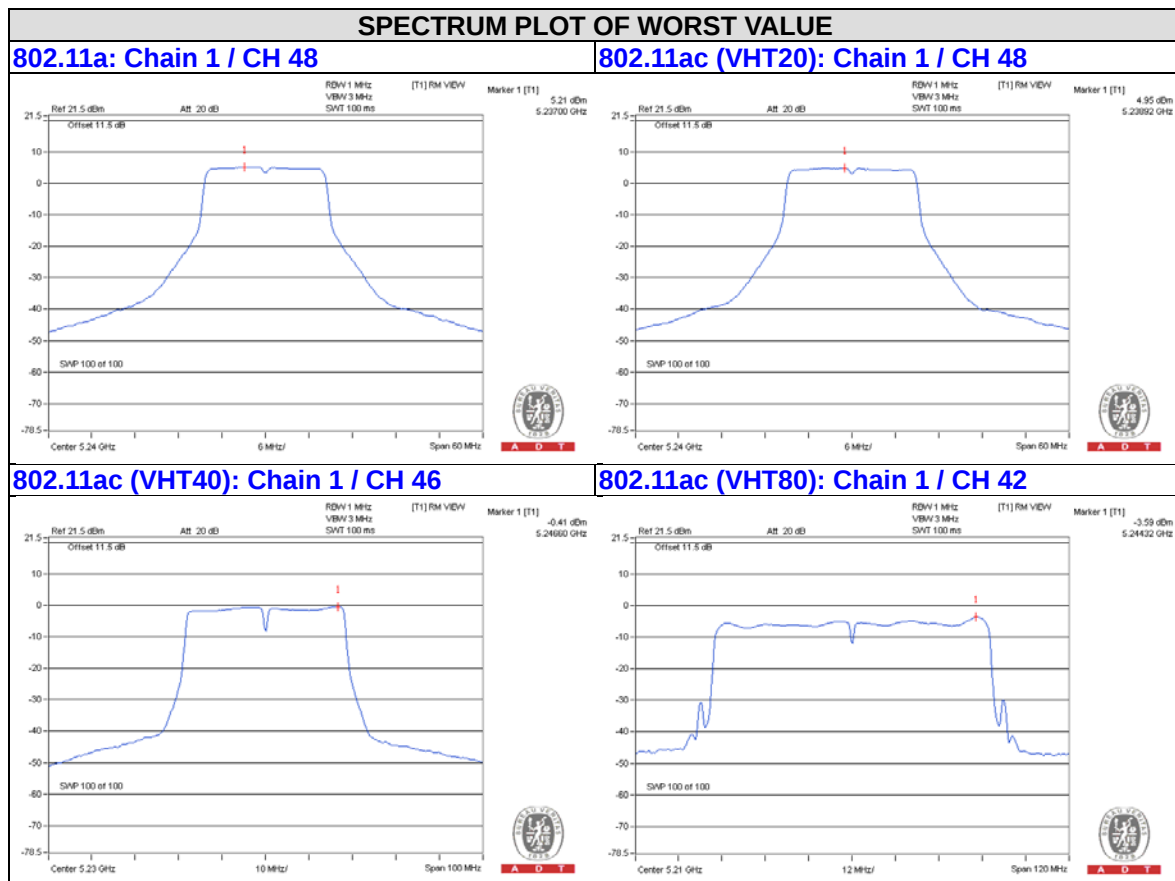
- NOTE:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 + 10^{G4/20})^2 / 4] = 9.66\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(9.66-6) = 13.34\text{dBm}$.

802.11ac (VHT80):

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)				TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3			
42	5210	-4.27	-3.59	-4.18	-4.05	2.01	13.34	PASS

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

2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 + 10^{G4/20})^2 / 4] = 9.66\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (9.66 - 6) = 13.34\text{dBm}$.



For U-NII-3 Band

802.11a

TX chain	Channel	Freq. (MHz)	PSD		10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-5.93	-3.71	6.02	2.31	26.04	PASS
	157	5785	-4.19	-1.97	6.02	4.05	26.04	PASS
	165	5825	-4.01	-1.79	6.02	4.23	26.04	PASS
1	149	5745	-4.66	-2.44	6.02	3.58	26.04	PASS
	157	5785	-3.99	-1.77	6.02	4.25	26.04	PASS
	165	5825	-3.46	-1.24	6.02	4.78	26.04	PASS
2	149	5745	-5.87	-3.65	6.02	2.37	26.04	PASS
	157	5785	-4.76	-2.54	6.02	3.48	26.04	PASS
	165	5825	-4.69	-2.47	6.02	3.55	26.04	PASS
3	149	5745	-5.18	-2.96	6.02	3.06	26.04	PASS
	157	5785	-4.42	-2.20	6.02	3.82	26.04	PASS
	165	5825	-4.82	-2.60	6.02	3.42	26.04	PASS

NOTE: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.96\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.96 - 6) = 26.04\text{dBm}$.

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD		10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-7.11	-4.89	6.02	1.13	26.04	PASS
	157	5785	-5.24	-3.02	6.02	3.00	26.04	PASS
	165	5825	-4.65	-2.43	6.02	3.59	26.04	PASS
1	149	5745	-5.88	-3.66	6.02	2.36	26.04	PASS
	157	5785	-3.92	-1.70	6.02	4.32	26.04	PASS
	165	5825	-3.60	-1.38	6.02	4.64	26.04	PASS
2	149	5745	-6.49	-4.27	6.02	1.75	26.04	PASS
	157	5785	-4.99	-2.77	6.02	3.25	26.04	PASS
	165	5825	-4.85	-2.63	6.02	3.39	26.04	PASS
3	149	5745	-6.36	-4.14	6.02	1.88	26.04	PASS
	157	5785	-4.54	-2.32	6.02	3.70	26.04	PASS
	165	5825	-4.70	-2.48	6.02	3.54	26.04	PASS

NOTE: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.96\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.96 - 6) = 26.04\text{dBm}$.

802.11ac (VHT40)

TX chain	Channel	Freq. (MHz)	PSD		10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)				
0	151	5755	-11.43	-9.21	6.02	-3.19	26.04	PASS
	159	5795	-8.35	-6.13	6.02	-0.11	26.04	PASS
1	151	5755	-10.52	-8.30	6.02	-2.28	26.04	PASS
	159	5795	-7.21	-4.99	6.02	1.03	26.04	PASS
2	151	5755	-10.96	-8.74	6.02	-2.72	26.04	PASS
	159	5795	-8.17	-5.95	6.02	0.07	26.04	PASS
3	151	5755	-10.73	-8.51	6.02	-2.49	26.04	PASS
	159	5795	-8.16	-5.94	6.02	0.08	26.04	PASS

NOTE: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.96\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.96 - 6) = 26.04\text{dBm}$.

802.11ac (VHT80)

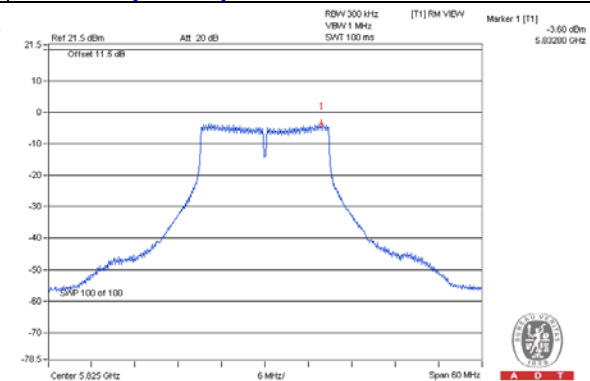
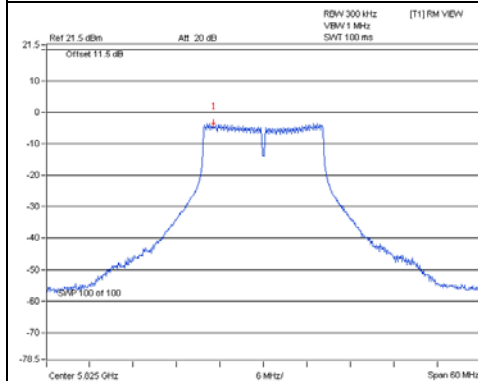
TX chain	Channel	Freq. (MHz)	PSD		10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)				
0	155	5775	-13.53	-11.31	6.02	-5.29	26.04	PASS
1	155	5775	-13.01	-10.79	6.02	-4.77	26.04	PASS
2	155	5775	-14.28	-12.06	6.02	-6.04	26.04	PASS
3	155	5775	-13.96	-11.74	6.02	-5.72	26.04	PASS

NOTE: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.96\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.96 - 6) = 26.04\text{dBm}$.

SPECTRUM PLOT OF WORST VALUE

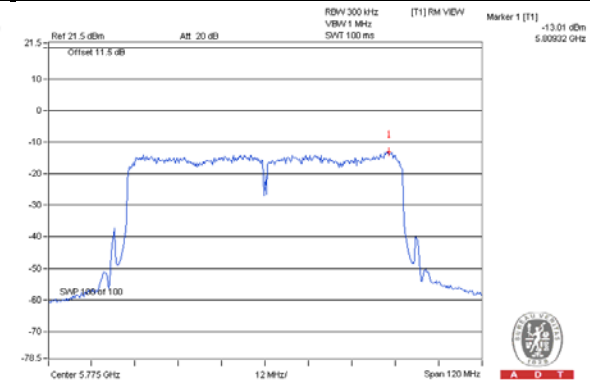
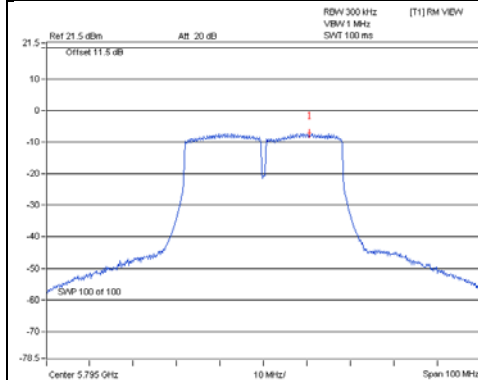
802.11a: Chain 1 / CH 165

802.11ac (VHT20): Chain 1 / CH 165



802.11ac (VHT40): Chain 1 / CH 159

802.11ac (VHT80): Chain 1 / CH 155



Beamforming MODE For U-NII-1 Band

802.11ac (VHT20)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)				TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3			
36	5180	3.28	3.79	3.73	3.81	9.68	13.34	PASS
40	5200	3.65	3.79	3.56	3.96	9.76	13.34	PASS
48	5240	3.49	3.92	3.59	3.86	9.74	13.34	PASS

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

2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 + 10^{G4/20})^2 / 4] = 9.66\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(9.66-6) = 13.34\text{dBm}$.

802.11ac (VHT40)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)				TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3			
38	5190	-2.44	-1.34	-2.36	-1.98	4.01	13.34	PASS
46	5230	0.92	2.45	2.11	2.14	7.96	13.34	PASS

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

2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 + 10^{G4/20})^2 / 4] = 9.66\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(9.66-6) = 13.34\text{dBm}$.

802.11ac (VHT80):

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)				TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3			
42	5210	-4.27	-3.59	-4.18	-4.05	2.01	13.34	PASS

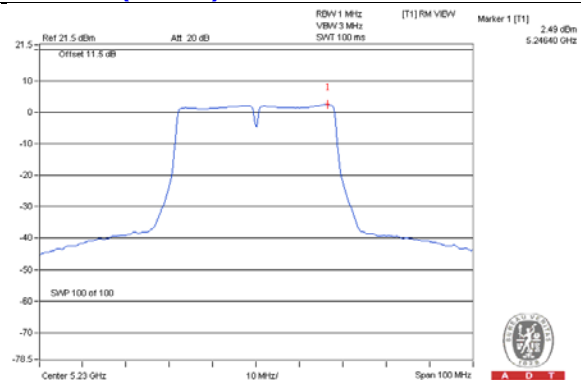
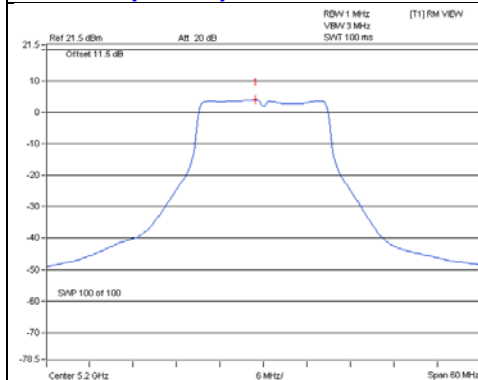
NOTE: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 + 10^{G4/20})^2 / 4] = 9.66\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(9.66-6) = 13.34\text{dBm}$.

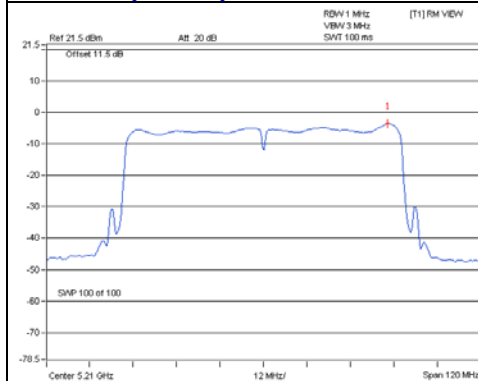
SPECTRUM PLOT OF WORST VALUE

802.11ac (VHT20): Chain 3 / CH 40

802.11ac (VHT40): Chain 1 / CH 46



802.11ac (VHT80): Chain 1 / CH 42



For U-NII-3 Band

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD		10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-7.11	-4.89	6.02	1.13	26.04	PASS
	157	5785	-5.24	-3.02	6.02	3.00	26.04	PASS
	165	5825	-4.65	-2.43	6.02	3.59	26.04	PASS
1	149	5745	-5.88	-3.66	6.02	2.36	26.04	PASS
	157	5785	-3.92	-1.70	6.02	4.32	26.04	PASS
	165	5825	-3.60	-1.38	6.02	4.64	26.04	PASS
2	149	5745	-6.49	-4.27	6.02	1.75	26.04	PASS
	157	5785	-4.99	-2.77	6.02	3.25	26.04	PASS
	165	5825	-4.85	-2.63	6.02	3.39	26.04	PASS
3	149	5745	-6.36	-4.14	6.02	1.88	26.04	PASS
	157	5785	-4.54	-2.32	6.02	3.70	26.04	PASS
	165	5825	-4.70	-2.48	6.02	3.54	26.04	PASS

NOTE: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.96\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.96 - 6) = 26.04\text{dBm}$.

802.11ac (VHT40)

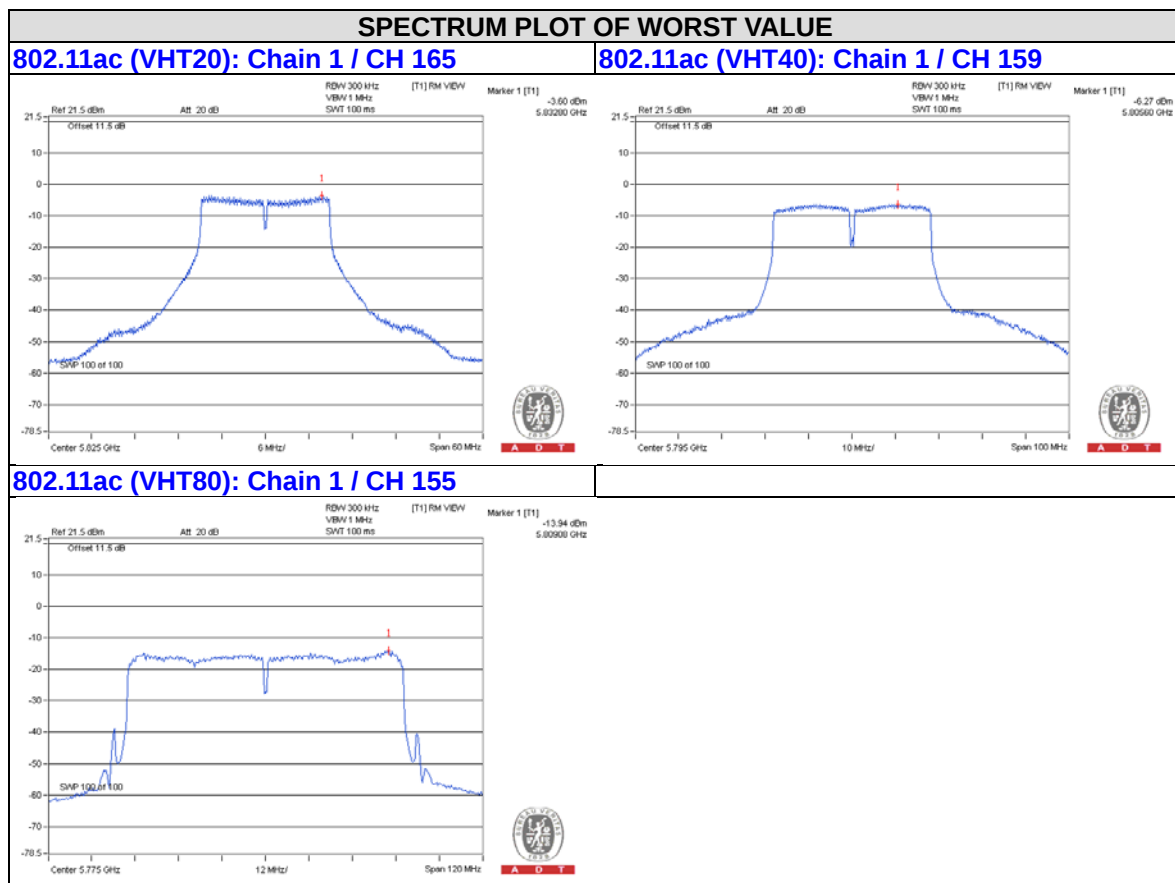
TX chain	Channel	Freq. (MHz)	PSD		10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)				
0	151	5755	-12.77	-10.55	6.02	-4.53	26.04	PASS
	159	5795	-6.53	-4.31	6.02	1.71	26.04	PASS
1	151	5755	-11.43	-9.21	6.02	-3.19	26.04	PASS
	159	5795	-6.27	-4.05	6.02	1.97	26.04	PASS
2	151	5755	-11.79	-9.57	6.02	-3.55	26.04	PASS
	159	5795	-7.15	-4.93	6.02	1.09	26.04	PASS
3	151	5755	-11.79	-9.57	6.02	-3.55	26.04	PASS
	159	5795	-7.25	-5.03	6.02	0.99	26.04	PASS

NOTE: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.96\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.96 - 6) = 26.04\text{dBm}$.

802.11ac (VHT80)

TX chain	Channel	Freq. (MHz)	PSD		10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)				
0	155	5775	-14.55	-12.33	6.02	-6.31	26.04	PASS
1	155	5775	-13.94	-11.72	6.02	-5.70	26.04	PASS
2	155	5775	-15.01	-12.79	6.02	-6.77	26.04	PASS
3	155	5775	-14.91	-12.69	6.02	-6.67	26.04	PASS

NOTE: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.96\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.96 - 6) = 26.04\text{dBm}$.

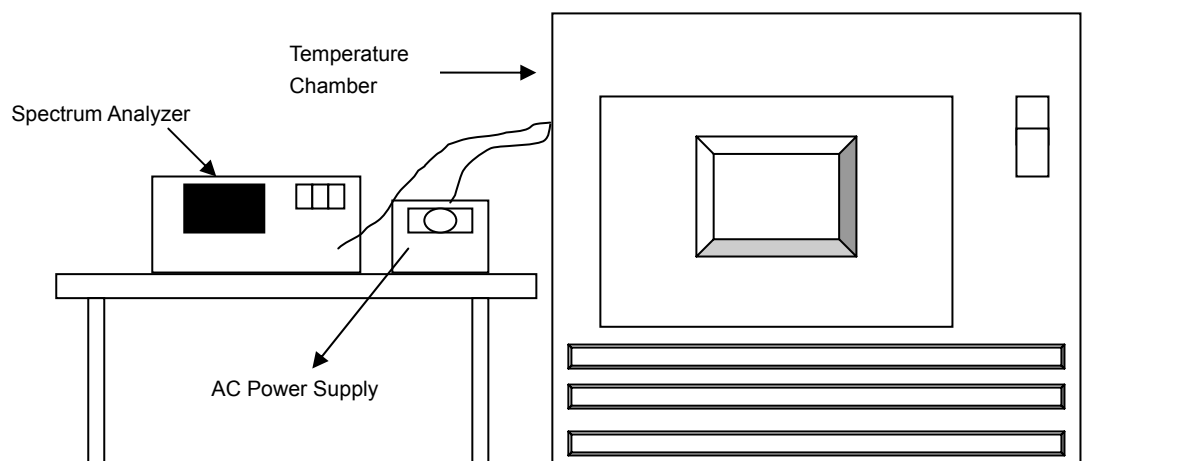


4.5 Frequency Stability Measurement

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

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

4.5.5 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

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (°C)	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	5179.9736	-0.00051	5179.975	-0.00048	5179.9774	-0.00044	5179.9754	-0.00047
40	120	5179.9986	-0.00003	5179.9946	-0.00010	5179.9972	-0.00005	5179.9969	-0.00006
30	120	5180.0089	0.00017	5180.008	0.00015	5180.0091	0.00018	5180.0122	0.00024
20	120	5180.015	0.00029	5180.0146	0.00028	5180.0122	0.00024	5180.0167	0.00032
10	120	5180.0038	0.00007	5180.0007	0.00001	5180.0038	0.00007	5180.0015	0.00003
0	120	5179.9967	-0.00006	5179.995	-0.00010	5179.998	-0.00004	5179.9952	-0.00009
-10	120	5179.9973	-0.00005	5180.0005	0.00001	5180.0014	0.00003	5179.9988	-0.00002
-20	120	5179.9976	-0.00005	5179.9981	-0.00004	5179.9964	-0.00007	5179.9987	-0.00003
-30	120	5180.0264	0.00051	5180.0227	0.00044	5180.0223	0.00043	5180.0257	0.00050

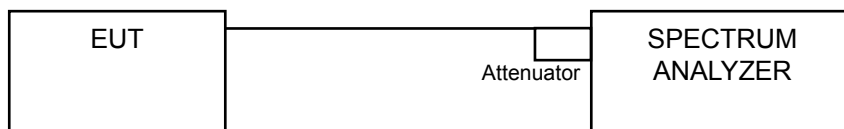
FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5180.0148	0.00029	5180.0141	0.00027	5180.0115	0.00022	5180.0175	0.00034
	120	5180.015	0.00029	5180.0146	0.00028	5180.0122	0.00024	5180.0167	0.00032
	102	5180.0141	0.00027	5180.0138	0.00027	5180.012	0.00023	5180.0167	0.00032

4.6 6dB Bandwidth Measurement

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

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

4.6.5 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

CDD MODE

802.11a

CHAN.	CHAN. FREQ. (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
149	5745	16.40	16.40	16.39	16.43	0.5	PASS
157	5785	16.43	16.45	16.42	16.46	0.5	PASS
165	5825	16.44	16.45	16.40	16.46	0.5	PASS

802.11ac (VHT20)

CHAN.	CHAN. FREQ. (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
149	5745	17.66	17.66	17.63	17.67	0.5	PASS
157	5785	17.64	17.68	17.62	17.68	0.5	PASS
165	5825	17.63	17.69	17.63	17.69	0.5	PASS

802.11ac (VHT40)

CHAN.	CHAN. FREQ. (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
151	5755	36.46	36.09	36.48	36.13	0.5	PASS
159	5795	36.42	36.15	36.42	36.38	0.5	PASS

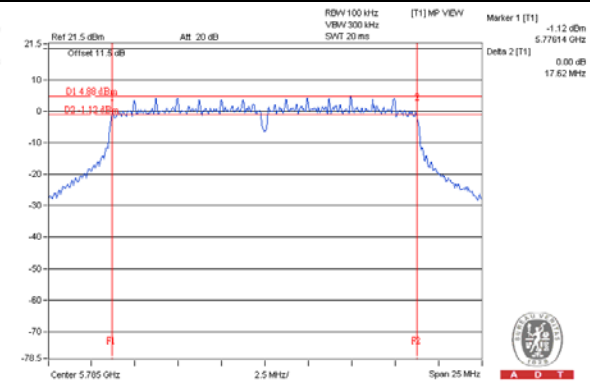
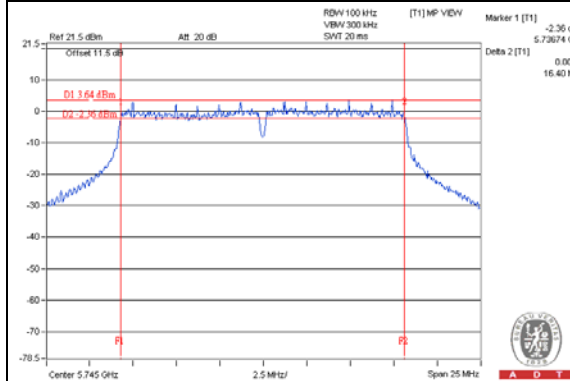
802.11ac (VHT80)

CHAN.	CHAN. FREQ. (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
155	5775	75.43	75.43	75.49	75.42	0.5	PASS

SPECTRUM PLOT OF WORST VALUE

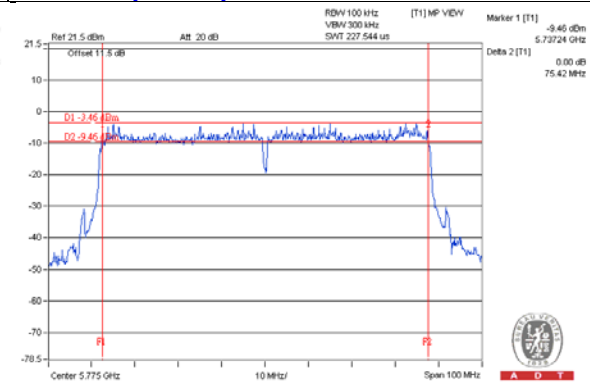
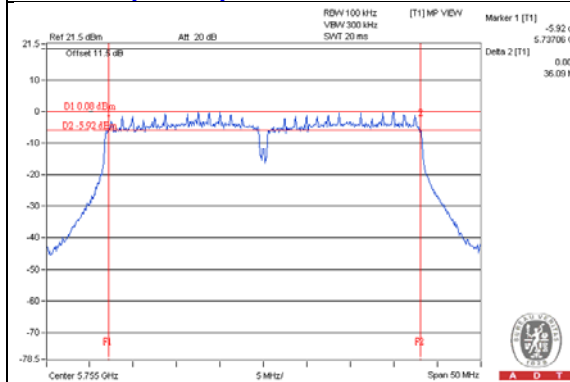
802.11a: Chain 0 / CH 149

802.11ac (VHT20): Chain 2 / CH 157



802.11ac (VHT40): Chain 1 / CH 151

802.11ac (VHT80): Chain 3 / CH 155



Beamforming MODE

802.11ac (VHT20)

CHAN.	CHAN. FREQ. (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
149	5745	17.66	17.66	17.63	17.67	0.5	PASS
157	5785	17.64	17.68	17.62	17.68	0.5	PASS
165	5825	17.63	17.69	17.63	17.69	0.5	PASS

802.11ac (VHT40)

CHAN.	CHAN. FREQ. (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
151	5755	36.42	36.38	36.44	36.13	0.5	PASS
159	5795	36.42	36.35	36.45	36.38	0.5	PASS

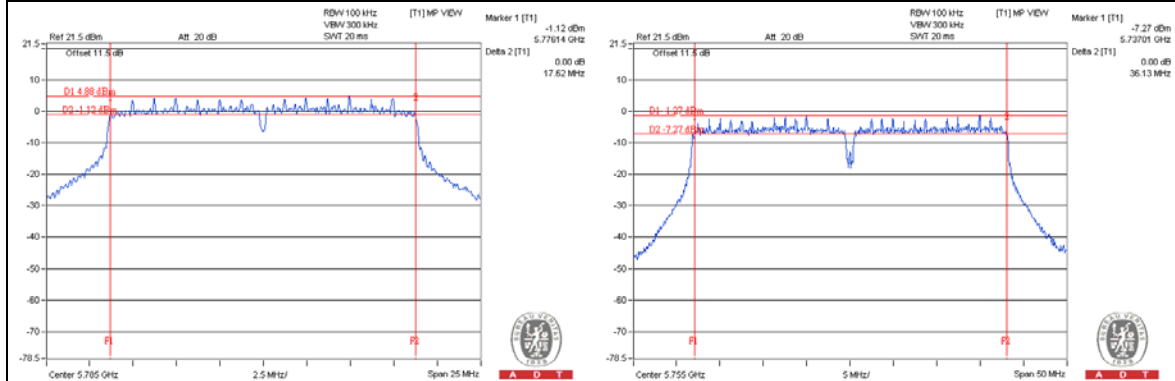
802.11ac (VHT80)

CHAN.	CHAN. FREQ. (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
155	5775	75.55	74.74	75.09	75.37	0.5	PASS

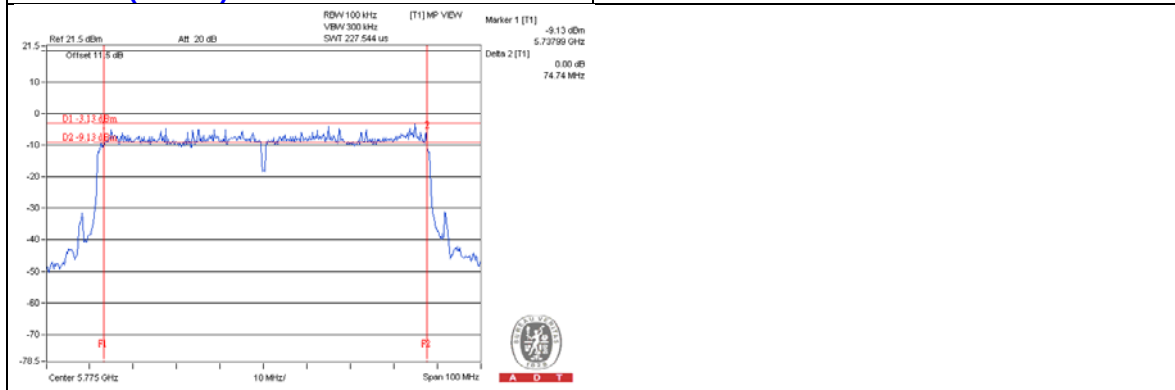
SPECTRUM PLOT OF WORST VALUE

802.11ac (VHT20): Chain 2 / CH 157

802.11ac (VHT40): Chain 3 / CH 151



802.11ac (VHT80): Chain 1 / CH 155



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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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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