FCC Test Report

Report No.:	RF150807E06A-1
FCC ID:	PY313200233
Test Model:	R7000
Received Date:	Mar. 12, 2018
Test Date:	Apr. 13 to 24, 2018
Issued Date:	May 03, 2018
Applicant:	NETGEAR, Inc.
Address:	350 East Plumeria Drive San Jose, CA 95134
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

Testing Laboratory
2022

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Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF150807E06A-1	Original release.	May 03, 2018

1 Certificate of Conformity

Product:	AC1900 Smart WiFi Router
Brand:	NETGEAR
Test Model:	R7000
Sample Status:	ENGINEERING SAMPLE
Applicant:	NETGEAR, Inc.
Test Date:	Apr. 13 to 24, 2018
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Phoenix Huang , **Date:** May 03, 2018

Phoenix Huang / Specialist

Approved by : , **Date:** May 03, 2018

Max Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5401.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.33 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.10 dB
	6GHz ~ 18GHz	4.85 dB
	18GHz ~ 40GHz	5.24 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC1900 Smart WiFi Router
Brand	NETGEAR
Test Model	R7000
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT20 and VHT40 mode of 2.4GHz Band.
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11a: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**2.412 ~ 2.462GHz** **CDD Mode:** 771.988 mW **Beamforming Mode** 746.893 mW **5.18 ~ 5.24GHz** **CDD Mode:** 279.494 mW **Beamforming Mode** 221.004 mW **5.745 ~ 5.825GHz** **CDD Mode:** 922.716 mW **Beamforming Mode** 952.215 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1
Data Cable Supplied	RJ45 Cable x1 (unshielded, 1.5m)

Note:

1. This report is prepared for FCC Class II change. The differences between them are as below information:
   - ◆ Upgraded standard version.
   - ◆ Change RF 2.4G+5G PA(still pin to pin) under the same PCB
   - ◆ Change the MPE distance from 25cm to 23cm
2. According to above conditions, only Radiated Emissions and Transmit Power need to be performed. And all data was verified to meet the requirements.
3. The EUT must be supplied with a power adapter and the following different models could be chosen:

No.	Brand	Model No.	P/N	Spec.
1	NETGEAR	MU42-3120350-A1	332-10762-01	AC input: 100-240V, 50/60Hz, 1.5A DC output: 12V, 3.5A DC output cable: 1.8m, unshielded
2	NETGEAR	2ABN042F NA	332-10761-01	AC input: 100-240V, 50/60Hz, 1.5A DC output: 12V, 3.5A DC output cable: 1.8m, unshielded
Note: The EUT was pre-tested with above adapters, for radiated emission test the worse case was found in **Adapter 2**. Therefore only the test data of the adapter was recorded in this report.				

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

Antenna No.	Antenna Type	Antenna Gain (dBi)	Frequency range (GHz ~ GHz)	Connecter Type
1	Dipole	0.6	2.4~2.4835	Re-SMA
		0.9	5.15~5.85	
2	Dipole	0.6	2.4~2.4835	Re-SMA
		0.9	5.15~5.85	
3	Dipole	0.6	2.4~2.4835	Re-SMA
		0.9	5.15~5.85	

5. 2.4GHz & 5GHz technology can transmit at same time.

6. The EUT incorporates a MIMO function with beamforming.

For 2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	3TX	3RX
802.11g	6 ~ 54Mbps	3TX	3RX
802.11n (HT20) & 802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
VHT20	MCS0~8 Nss= 1	3TX	3RX
	MCS0~8 Nss= 2	3TX	3RX
	MCS0~9 Nss= 3	3TX	3RX
VHT40	MCS0~9 Nss= 1	3TX	3RX
	MCS0~9 Nss= 2	3TX	3RX
	MCS0~9 Nss= 3	3TX	3RX
For 5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	3TX	3RX
802.11n (HT20) & 802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11ac (VHT20)	MCS0~8 Nss= 1	3TX	3RX
	MCS0~8 Nss= 2	3TX	3RX
	MCS0~9 Nss= 3	3TX	3RX
802.11ac (VHT40) & 802.11ac (VHT80)	MCS0~9 Nss= 1	3TX	3RX
	MCS0~9 Nss= 2	3TX	3RX
	MCS0~9 Nss= 3	3TX	3RX

Note:
1. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
2. All of modulation mode support beamforming function except 802.11b/g/a modulation mode.

7. The above EUT information is declared by manufacturer and for more detailed features description, please refers 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	5210 MHz

FOR 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

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

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

Note: The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-plane**.

Radiated Emission Test (Above 1GHz):

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

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
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
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
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1GHz):

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

Beamforming Mode						
Mode	**FREQ. Band (MHz)**	**Available Channel**	**Tested Channel**	**Modulation Technology**	**Modulation Type**	**Data Rate (Mbps)**
802.11ac (VHT20)	5180-5240, 5745-5825	36 to 48, 149 to 165	149	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

☒ 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
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
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
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

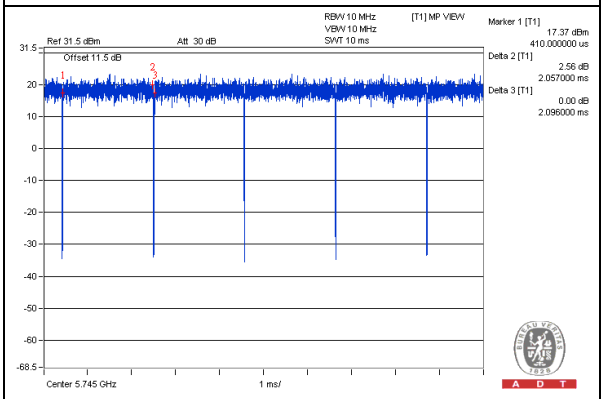
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	22deg. C, 67%RH	120Vac, 60Hz	Eason Tseng
RE<1G	22deg. C, 68%RH	120Vac, 60Hz	Steven Chiang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

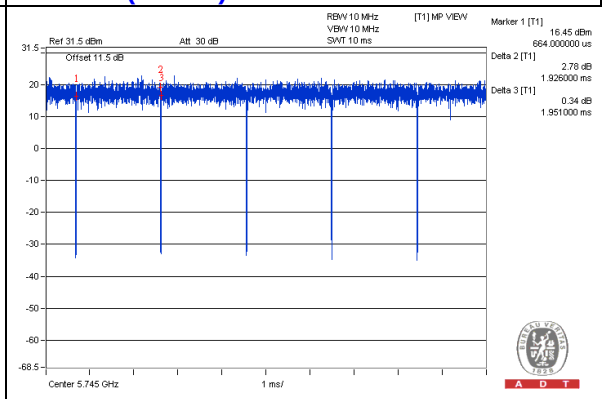
3.3 Duty Cycle of Test Signal

If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.
802.11a: Duty cycle = 2.057 ms/2.096 ms = 0.981
802.11ac (VHT20): Duty cycle = 1.926 ms/1.951 ms = 0.987
802.11ac (VHT40): Duty cycle = 0.947 ms/0.972 ms = 0.974, Duty factor = 10 * log(1/ Duty cycle) = 0.11
802.11ac (VHT80): Duty cycle = 0.458 ms/0.478 ms = 0.958, Duty factor = 10 * log(1/ Duty cycle) = 0.19

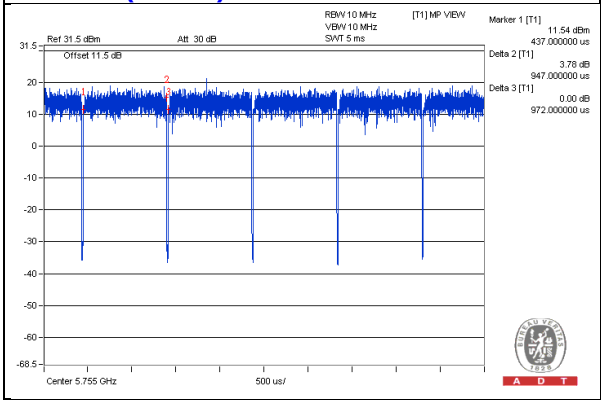
802.11a



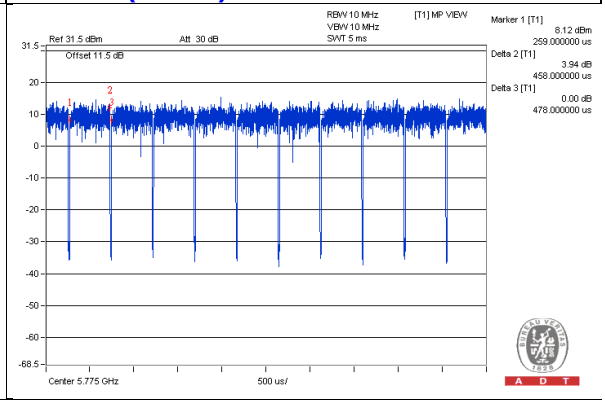
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



3.4 Description of Support Units

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

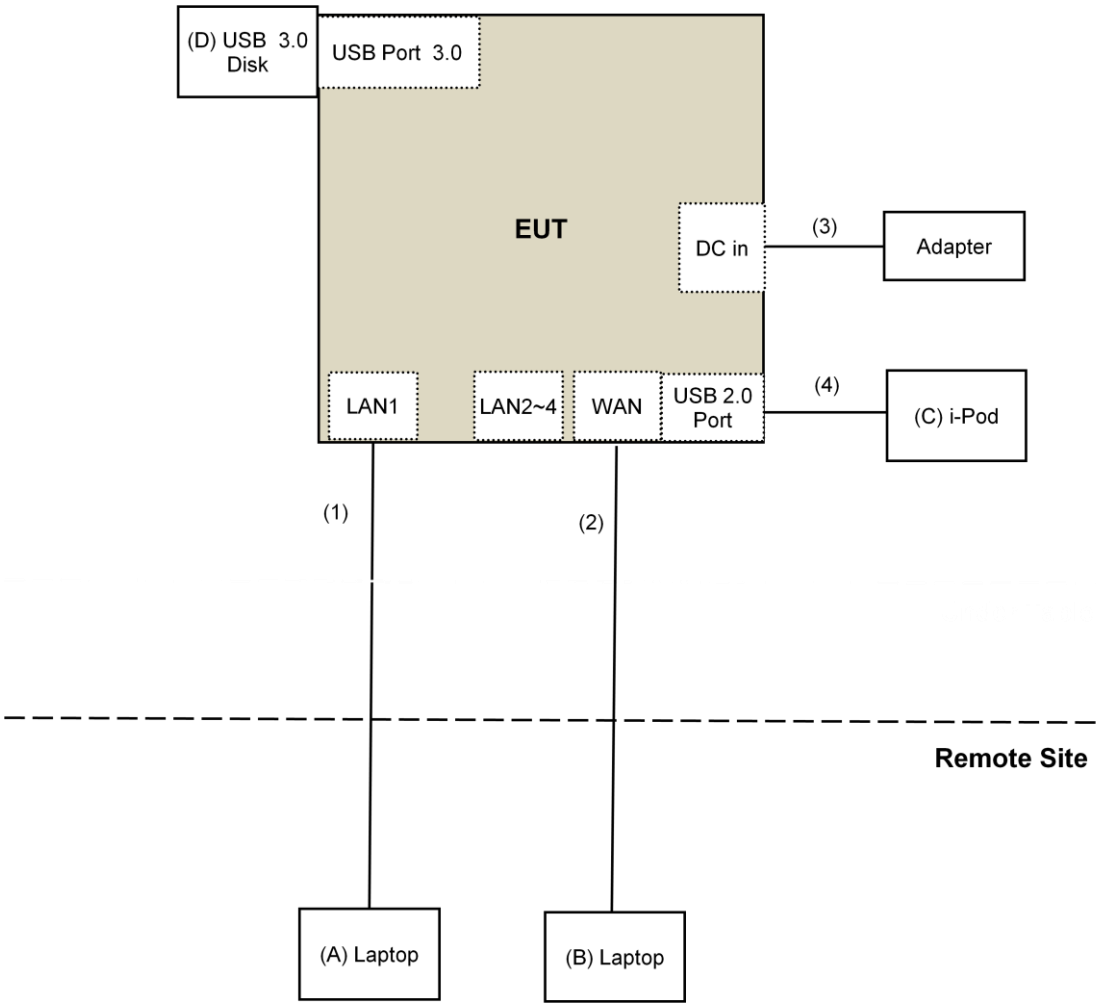
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	482T3R1	FCC DoC	Provided by Lab
B.	Laptop	ZyXEL	ES-116P	S060H02000215	FCC DoC	Provided by Lab
C.	i-Pod	Apple	MD778TA/A	CC4JL03FF4T1	NA	Provided by Lab
D.	USB 3.0 Disk	Transcend	16G	NA	NA	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	DC Cable	1	1.8	No	0	Supplied by client
4.	USB Cable	1	0.1	Yes	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)
KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

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

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK:74 (dBµV/m)</td><td>AV:54 (dBµV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK:-27 (dBm/MHz)</td><td rowspan="3">PK:68.2(dBµV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☐</td><td>15.407(b)(4)(i)</td><td>PK:-27 (dBm/MHz) *1
PK:10 (dBm/MHz) *2
PK:15.6 (dBm/MHz) *3
PK:27 (dBm/MHz) *4</td><td>PK: 68.2(dBµV/m) *1
PK:105.2 (dBµV/m) *2
PK: 110.8(dBµV/m) *3
PK:122.2 (dBµV/m) *4</td></tr>
<tr><td>☒</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*1 beyond 75 MHz or more above of the band edge.
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.
*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</td></tr>
</table>

Note:

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

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 08, 2017	July 07, 2018
Pre-Amplifier EMCI	EMC001340	980142	Feb. 09, 2018	Feb. 08, 2019
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 15, 2018	Jan. 14, 2019
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 09, 2017	Nov. 08, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 29, 2017	Nov. 28, 2018
RF Cable	8D	966-4-1 966-4-2 966-4-3	Mar. 21, 2018	Mar. 20, 2019
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Oct. 03, 2017	Oct. 02, 2018
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Dec. 12, 2017	Dec. 11, 2018
Pre-Amplifier EMCI	EMC12630SE	980385	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-1200 EMC104-SM-SM-2000 EMC104-SM-SM-5000	160923 150318 150321	Jan. 29, 2018	Jan. 28, 2019
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 29, 2018	Jan. 28, 2019
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 14, 2017	Dec. 13, 2018
RF Cable	EMC102-KM-KM-1200	160925	Jan. 29, 2018	Jan. 28, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSv40	100964	July 1, 2017	June 30, 2018
Power meter Anritsu	ML2495A	1014008	May 11, 2017	May 10, 2018
Power sensor Anritsu	MA2411B	0917122	May 11, 2017	May 10, 2018

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. The CANADA Site Registration No. is 20331-2
5. Loop antenna was used for all emissions below 30 MHz.
6. Tested Date: Apr. 13 to 24, 2018

4.1.3 Test Procedure

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

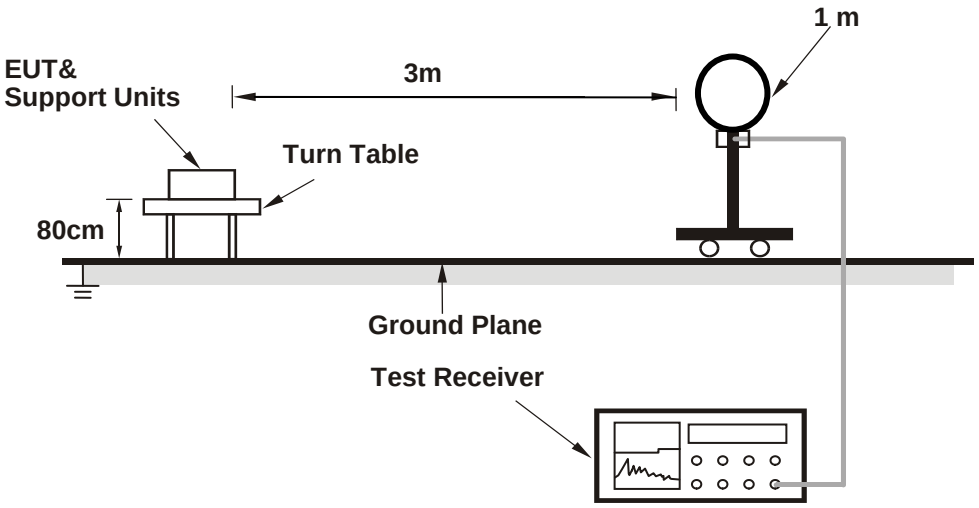
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

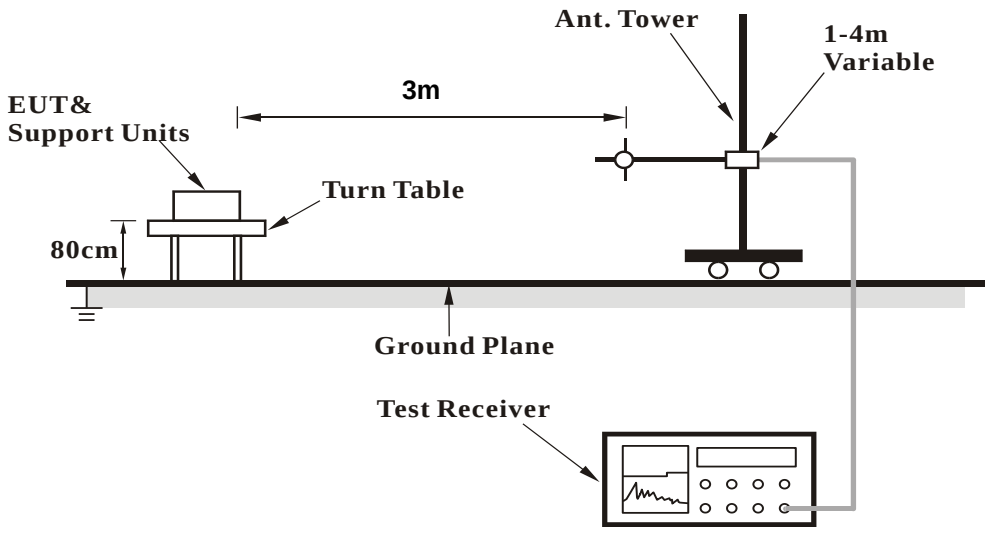
No deviation.

4.1.5 Test Setup

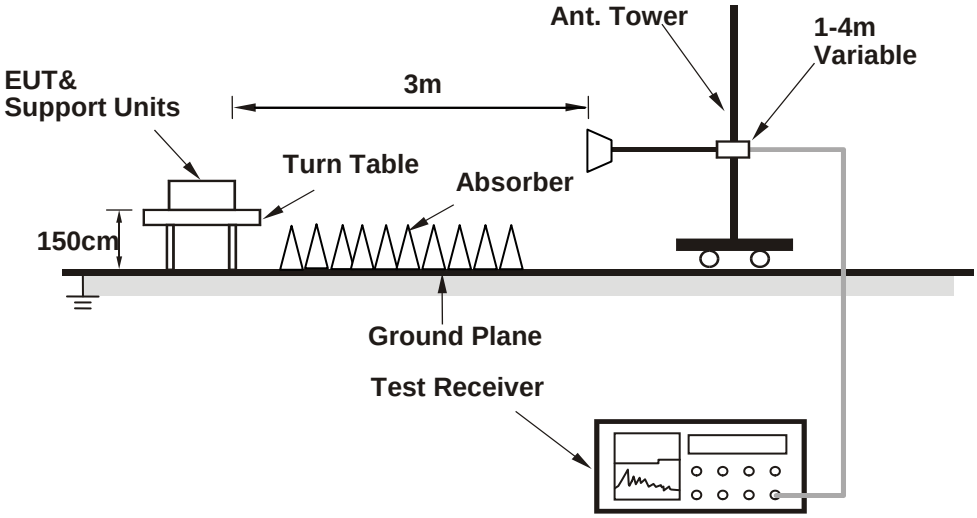
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Condition

a. Connected the EUT with the Laptop which is placed on remote site.
b. Controlling software (Mtool 2.0.1.1) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5101.90	62.4 PK	74.0	-11.6	1.07 H	254	58.4	4.0
2	5101.90	42.7 AV	54.0	-11.3	1.07 H	254	38.7	4.0
3	5150.00	61.1 PK	74.0	-12.9	1.07 H	254	57.0	4.1
4	5150.00	41.8 AV	54.0	-12.2	1.07 H	254	37.7	4.1
5	*5180.00	104.8 PK			1.07 H	254	101.0	3.8
6	*5180.00	94.9 AV			1.07 H	254	91.1	3.8
7	#10360.00	47.1 PK	74.0	-26.9	3.01 H	44	34.0	13.1
8	#10360.00	34.1 AV	54.0	-19.9	3.01 H	44	21.0	13.1
9	15540.00	53.1 PK	74.0	-20.9	3.20 H	218	40.0	13.1
10	15540.00	38.9 AV	54.0	-15.1	3.20 H	218	25.8	13.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5101.90	62.7 PK	74.0	-11.3	2.98 V	312	58.7	4.0
2	5101.90	52.8 AV	54.0	-1.2	2.98 V	312	48.8	4.0
3	5150.00	61.4 PK	74.0	-12.6	2.98 V	312	57.3	4.1
4	5150.00	51.7 AV	54.0	-2.3	2.98 V	312	47.6	4.1
5	*5180.00	116.9 PK			2.98 V	312	113.1	3.8
6	*5180.00	106.7 AV			2.98 V	312	102.9	3.8
7	#10360.00	46.2 PK	74.0	-27.8	3.46 V	199	33.1	13.1
8	#10360.00	35.2 AV	54.0	-18.8	3.46 V	199	22.1	13.1
9	15540.00	52.8 PK	74.0	-21.2	2.72 V	242	39.7	13.1
10	15540.00	39.3 AV	54.0	-14.7	2.72 V	242	26.2	13.1

REMARKS:

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

CHANNEL	TX Channel 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	5144.00	51.8 PK	74.0	-22.2	1.04 H	233	47.7	4.1
2	5144.00	41.5 AV	54.0	-12.5	1.04 H	233	37.4	4.1
3	5150.00	50.8 PK	74.0	-23.2	1.04 H	233	46.7	4.1
4	5150.00	40.5 AV	54.0	-13.5	1.04 H	233	36.4	4.1
5	*5200.00	103.5 PK			1.04 H	233	99.8	3.7
6	*5200.00	93.9 AV			1.04 H	233	90.2	3.7
7	5350.00	59.7 PK	74.0	-14.3	1.04 H	233	56.1	3.6
8	5350.00	39.5 AV	54.0	-14.5	1.04 H	233	35.9	3.6
9	5352.00	60.5 PK	74.0	-13.5	1.04 H	233	56.9	3.6
10	5352.00	40.2 AV	54.0	-13.8	1.04 H	233	36.6	3.6
11	#10400.00	46.5 PK	74.0	-27.5	2.97 H	34	33.4	13.1
12	#10400.00	33.8 AV	54.0	-20.2	2.97 H	34	20.7	13.1
13	15600.00	52.8 PK	74.0	-21.2	3.12 H	214	39.8	13.0
14	15600.00	37.6 AV	54.0	-16.4	3.12 H	214	24.6	13.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5144.00	61.2 PK	74.0	-12.8	3.14 V	309	57.1	4.1
2	5144.00	51.4 AV	54.0	-2.6	3.14 V	309	47.3	4.1
3	5150.00	59.8 PK	74.0	-14.2	3.14 V	309	55.7	4.1
4	5150.00	50.2 AV	54.0	-3.8	3.14 V	309	46.1	4.1
5	*5200.00	115.8 PK			3.14 V	309	112.1	3.7
6	*5200.00	105.8 AV			3.14 V	309	102.1	3.7
7	5350.00	58.0 PK	74.0	-16.0	3.14 V	309	54.4	3.6
8	5350.00	48.6 AV	54.0	-5.4	3.14 V	309	45.0	3.6
9	5352.00	59.7 PK	74.0	-14.3	3.14 V	309	56.1	3.6
10	5352.00	50.1 AV	54.0	-3.9	3.14 V	309	46.5	3.6
11	#10400.00	45.7 PK	74.0	-28.3	3.44 V	171	32.6	13.1
12	#10400.00	34.9 AV	54.0	-19.1	3.44 V	171	21.8	13.1
13	15600.00	52.4 PK	74.0	-21.6	2.78 V	256	39.4	13.0
14	15600.00	38.8 AV	54.0	-15.2	2.78 V	256	25.8	13.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	106.4 PK			1.01 H	239	102.9	3.5
2	*5240.00	96.1 AV			1.01 H	239	92.6	3.5
3	5350.00	53.1 PK	74.0	-20.9	1.01 H	239	49.5	3.6
4	5350.00	42.6 AV	54.0	-11.4	1.01 H	239	39.0	3.6
5	5406.00	54.1 PK	74.0	-19.9	1.01 H	239	50.3	3.8
6	5406.00	43.9 AV	54.0	-10.1	1.01 H	239	40.1	3.8
7	#10480.00	47.3 PK	74.0	-26.7	3.02 H	41	33.8	13.5
8	#10480.00	34.3 AV	54.0	-19.7	3.02 H	41	20.8	13.5
9	15720.00	53.3 PK	74.0	-20.7	3.18 H	207	40.5	12.8
10	15720.00	39.1 AV	54.0	-14.9	3.18 H	207	26.3	12.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	118.3 PK			3.20 V	356	114.8	3.5
2	*5240.00	108.1 AV			3.20 V	356	104.6	3.5
3	5350.00	64.2 PK	74.0	-9.8	3.20 V	356	60.6	3.6
4	5350.00	52.8 AV	54.0	-1.2	3.20 V	356	49.2	3.6
5	5401.00	65.3 PK	74.0	-8.7	3.20 V	356	61.5	3.8
6	**5401.00**	**53.9 AV**	**54.0**	**-0.1**	**3.20 V**	**356**	**50.1**	**3.8**
7	#10480.00	47.4 PK	74.0	-26.6	3.44 V	183	33.9	13.5
8	#10480.00	35.5 AV	54.0	-18.5	3.44 V	183	22.0	13.5
9	15720.00	53.4 PK	74.0	-20.6	2.75 V	245	40.6	12.8
10	15720.00	39.5 AV	54.0	-14.5	2.75 V	245	26.7	12.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	117.3 PK			2.69 H	4	113.0	4.3
2	*5745.00	106.5 AV			2.69 H	4	102.2	4.3
3	11490.00	48.2 PK	74.0	-25.8	2.95 H	113	34.2	14.0
4	11490.00	36.4 AV	54.0	-17.6	2.95 H	113	22.4	14.0
5	#17235.00	56.1 PK	74.0	-17.9	2.79 H	180	39.2	16.9
6	#17235.00	45.3 AV	54.0	-8.7	2.79 H	180	28.4	16.9
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	*5745.00	125.4 PK			1.90 V	189	121.1	4.3
2	*5745.00	114.7 AV			1.90 V	189	110.4	4.3
3	11490.00	49.9 PK	74.0	-24.1	1.39 V	360	35.9	14.0
4	11490.00	37.6 AV	54.0	-16.4	1.39 V	360	23.6	14.0
5	#17235.00	56.4 PK	74.0	-17.6	2.68 V	339	39.5	16.9
6	#17235.00	45.7 AV	54.0	-8.3	2.68 V	339	28.8	16.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	117.5 PK			2.68 H	12	113.2	4.3
2	*5785.00	107.1 AV			2.68 H	12	102.8	4.3
3	11570.00	49.3 PK	74.0	-24.7	2.96 H	123	35.3	14.0
4	11570.00	36.7 AV	54.0	-17.3	2.96 H	123	22.7	14.0
5	#17355.00	56.2 PK	74.0	-17.8	2.73 H	193	38.9	17.3
6	#17355.00	45.8 AV	54.0	-8.2	2.73 H	193	28.5	17.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	125.7 PK			1.87 V	200	121.4	4.3
2	*5785.00	115.1 AV			1.87 V	200	110.8	4.3
3	11570.00	50.2 PK	74.0	-23.8	1.33 V	360	36.2	14.0
4	11570.00	37.8 AV	54.0	-16.2	1.33 V	360	23.8	14.0
5	#17355.00	56.7 PK	74.0	-17.3	2.68 V	343	39.4	17.3
6	#17355.00	46.1 AV	54.0	-7.9	2.68 V	343	28.8	17.3

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	117.9 PK			2.68 H	6	113.5	4.4
2	*5825.00	107.3 AV			2.68 H	6	102.9	4.4
3	11650.00	49.1 PK	74.0	-24.9	2.99 H	110	35.2	13.9
4	11650.00	36.6 AV	54.0	-17.4	2.99 H	110	22.7	13.9
5	#17475.00	56.3 PK	74.0	-17.7	2.74 H	168	38.1	18.2
6	#17475.00	45.9 AV	54.0	-8.1	2.74 H	168	27.7	18.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	125.6 PK			1.92 V	189	121.2	4.4
2	*5825.00	114.8 AV			1.92 V	189	110.4	4.4
3	11650.00	50.6 PK	74.0	-23.4	1.28 V	360	36.7	13.9
4	11650.00	38.1 AV	54.0	-15.9	1.28 V	360	24.2	13.9
5	#17475.00	56.9 PK	74.0	-17.1	2.67 V	350	38.7	18.2
6	#17475.00	46.2 AV	54.0	-7.8	2.67 V	350	28.0	18.2

REMARKS:

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

802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5099.00	53.2 PK	74.0	-20.8	1.02 H	232	49.2	4.0
2	5099.00	41.8 AV	54.0	-12.2	1.02 H	232	37.8	4.0
3	5150.00	52.2 PK	74.0	-21.8	1.02 H	232	48.1	4.1
4	5150.00	40.3 AV	54.0	-13.7	1.02 H	232	36.2	4.1
5	*5180.00	103.7 PK			1.02 H	232	99.9	3.8
6	*5180.00	94.4 AV			1.02 H	232	90.6	3.8
7	#10360.00	47.2 PK	74.0	-26.8	2.99 H	36	34.1	13.1
8	#10360.00	34.2 AV	54.0	-19.8	2.99 H	36	21.1	13.1
9	15540.00	53.2 PK	74.0	-20.8	3.05 H	196	40.1	13.1
10	15540.00	38.5 AV	54.0	-15.5	3.05 H	196	25.4	13.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5099.00	60.8 PK	74.0	-13.2	3.12 V	319	56.8	4.0
2	5099.00	51.3 AV	54.0	-2.7	3.12 V	319	47.3	4.0
3	5150.00	59.7 PK	74.0	-14.3	3.12 V	319	55.6	4.1
4	5150.00	50.2 AV	54.0	-3.8	3.12 V	319	46.1	4.1
5	*5180.00	115.4 PK			3.12 V	319	111.6	3.8
6	*5180.00	105.8 AV			3.12 V	319	102.0	3.8
7	#10360.00	46.1 PK	74.0	-27.9	3.43 V	163	33.0	13.1
8	#10360.00	34.9 AV	54.0	-19.1	3.43 V	163	21.8	13.1
9	15540.00	52.1 PK	74.0	-21.9	2.70 V	251	39.0	13.1
10	15540.00	38.8 AV	54.0	-15.2	2.70 V	251	25.7	13.1

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5120.00	52.2 PK	74.0	-21.8	1.02 H	243	48.1	4.1
2	5120.00	41.6 AV	54.0	-12.4	1.02 H	243	37.5	4.1
3	5150.00	51.1 PK	74.0	-22.9	1.02 H	243	47.0	4.1
4	5150.00	40.3 AV	54.0	-13.7	1.02 H	243	36.2	4.1
5	*5200.00	102.8 PK			1.02 H	243	99.1	3.7
6	*5200.00	93.5 AV			1.02 H	243	89.8	3.7
7	5350.00	59.1 PK	74.0	-14.9	1.02 H	243	55.5	3.6
8	5350.00	39.2 AV	54.0	-14.8	1.02 H	243	35.6	3.6
9	5361.00	60.5 PK	74.0	-13.5	1.02 H	243	56.8	3.7
10	5361.00	40.5 AV	54.0	-13.5	1.02 H	243	36.8	3.7
11	#10400.00	46.4 PK	74.0	-27.6	2.97 H	43	33.3	13.1
12	#10400.00	33.7 AV	54.0	-20.3	2.97 H	43	20.6	13.1
13	15600.00	53.0 PK	74.0	-21.0	3.07 H	209	40.0	13.0
14	15600.00	37.9 AV	54.0	-16.1	3.07 H	209	24.9	13.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5120.00	58.7 PK	74.0	-15.3	3.09 V	328	54.6	4.1
2	5120.00	49.2 AV	54.0	-4.8	3.09 V	328	45.1	4.1
3	5150.00	57.3 PK	74.0	-16.7	3.09 V	328	53.2	4.1
4	5150.00	48.1 AV	54.0	-5.9	3.09 V	328	44.0	4.1
5	*5200.00	114.2 PK			3.09 V	328	110.5	3.7
6	*5200.00	104.9 AV			3.09 V	328	101.2	3.7
7	5350.00	60.1 PK	74.0	-13.9	3.09 V	328	56.5	3.6
8	5350.00	50.2 AV	54.0	-3.8	3.09 V	328	46.6	3.6
9	5361.00	61.4 PK	74.0	-12.6	3.09 V	328	57.7	3.7
10	5361.00	51.8 AV	54.0	-2.2	3.09 V	328	48.1	3.7
11	#10400.00	45.4 PK	74.0	-28.6	3.41 V	178	32.3	13.1
12	#10400.00	34.5 AV	54.0	-19.5	3.41 V	178	21.4	13.1
13	15600.00	51.8 PK	74.0	-22.2	2.75 V	257	38.8	13.0
14	15600.00	38.4 AV	54.0	-15.6	2.75 V	257	25.4	13.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.2 PK			1.01 H	253	99.7	3.5
2	*5240.00	93.8 AV			1.01 H	253	90.3	3.5
3	#5305.00	51.1 PK	74.0	-22.9	1.01 H	253	47.7	3.4
4	#5305.00	40.9 AV	54.0	-13.1	1.01 H	253	37.5	3.4
5	5406.70	52.4 PK	74.0	-21.6	1.01 H	253	48.6	3.8
6	5406.70	42.0 AV	54.0	-12.0	1.01 H	253	38.2	3.8
7	#10480.00	46.5 PK	74.0	-27.5	2.99 H	52	33.0	13.5
8	#10480.00	33.5 AV	54.0	-20.5	2.99 H	52	20.0	13.5
9	15720.00	53.3 PK	74.0	-20.7	3.01 H	216	40.5	12.8
10	15720.00	37.9 AV	54.0	-16.1	3.01 H	216	25.1	12.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	115.2 PK			3.05 V	321	111.7	3.5
2	*5240.00	105.1 AV			3.05 V	321	101.6	3.5
3	#5305.00	62.3 PK	74.0	-11.7	3.05 V	321	58.9	3.4
4	#5305.00	51.0 AV	54.0	-3.0	3.05 V	321	47.6	3.4
5	5406.70	63.8 PK	74.0	-10.2	3.05 V	321	60.0	3.8
6	5406.70	52.1 AV	54.0	-1.9	3.05 V	321	48.3	3.8
7	#10480.00	45.6 PK	74.0	-28.4	3.47 V	182	32.1	13.5
8	#10480.00	34.7 AV	54.0	-19.3	3.47 V	182	21.2	13.5
9	15720.00	51.9 PK	74.0	-22.1	2.78 V	255	39.1	12.8
10	15720.00	38.5 AV	54.0	-15.5	2.78 V	255	25.7	12.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	116.3 PK			2.62 H	3	112.0	4.3
2	*5745.00	106.4 AV			2.62 H	3	102.1	4.3
3	11490.00	48.1 PK	74.0	-25.9	2.95 H	131	34.1	14.0
4	11490.00	35.8 AV	54.0	-18.2	2.95 H	131	21.8	14.0
5	#17235.00	54.9 PK	74.0	-19.1	2.78 H	163	38.0	16.9
6	#17235.00	44.7 AV	54.0	-9.3	2.78 H	163	27.8	16.9
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	*5745.00	123.8 PK			1.86 V	193	119.5	4.3
2	*5745.00	113.6 AV			1.86 V	193	109.3	4.3
3	11490.00	48.2 PK	74.0	-25.8	1.29 V	360	34.2	14.0
4	11490.00	36.1 AV	54.0	-17.9	1.29 V	360	22.1	14.0
5	#17235.00	55.2 PK	74.0	-18.8	2.70 V	329	38.3	16.9
6	#17235.00	45.7 AV	54.0	-8.3	2.70 V	329	28.8	16.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	116.8 PK			2.65 H	6	112.5	4.3
2	*5785.00	106.7 AV			2.65 H	6	102.4	4.3
3	11570.00	48.5 PK	74.0	-25.5	2.91 H	127	34.5	14.0
4	11570.00	36.1 AV	54.0	-17.9	2.91 H	127	22.1	14.0
5	#17355.00	55.3 PK	74.0	-18.7	2.78 H	178	38.0	17.3
6	#17355.00	45.2 AV	54.0	-8.8	2.78 H	178	27.9	17.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	124.3 PK			1.86 V	196	120.0	4.3
2	*5785.00	114.1 AV			1.86 V	196	109.8	4.3
3	11570.00	49.3 PK	74.0	-24.7	1.30 V	354	35.3	14.0
4	11570.00	37.2 AV	54.0	-16.8	1.30 V	354	23.2	14.0
5	#17355.00	55.4 PK	74.0	-18.6	2.64 V	352	38.1	17.3
6	#17355.00	45.8 AV	54.0	-8.2	2.64 V	352	28.5	17.3

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	116.5 PK			2.66 H	7	112.1	4.4
2	*5825.00	106.6 AV			2.66 H	7	102.2	4.4
3	11650.00	48.4 PK	74.0	-25.6	2.88 H	115	34.5	13.9
4	11650.00	36.0 AV	54.0	-18.0	2.88 H	115	22.1	13.9
5	#17475.00	55.2 PK	74.0	-18.8	2.84 H	164	37.0	18.2
6	#17475.00	45.1 AV	54.0	-8.9	2.84 H	164	26.9	18.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	124.4 PK			1.86 V	194	120.0	4.4
2	*5825.00	114.2 AV			1.86 V	194	109.8	4.4
3	11650.00	48.7 PK	74.0	-25.3	1.29 V	353	34.8	13.9
4	11650.00	36.8 AV	54.0	-17.2	1.29 V	353	22.9	13.9
5	#17475.00	55.4 PK	74.0	-18.6	2.63 V	350	37.2	18.2
6	#17475.00	46.0 AV	54.0	-8.0	2.63 V	350	27.8	18.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5148.00	52.6 PK	74.0	-21.4	1.11 H	259	48.5	4.1
2	5148.00	41.5 AV	54.0	-12.5	1.11 H	259	37.4	4.1
3	5150.00	51.3 PK	74.0	-22.7	1.11 H	259	47.2	4.1
4	5150.00	40.2 AV	54.0	-13.8	1.11 H	259	36.1	4.1
5	*5190.00	102.5 PK			1.11 H	259	98.7	3.8
6	*5190.00	93.1 AV			1.11 H	259	89.3	3.8
7	5350.00	48.2 PK	74.0	-25.8	1.11 H	259	44.6	3.6
8	5350.00	38.8 AV	54.0	-15.2	1.11 H	259	35.2	3.6
9	5353.50	49.8 PK	74.0	-24.2	1.11 H	259	46.2	3.6
10	5353.50	39.9 AV	54.0	-14.1	1.11 H	259	36.3	3.6
11	#10380.00	46.6 PK	74.0	-27.4	2.97 H	57	33.5	13.1
12	#10380.00	33.4 AV	54.0	-20.6	2.97 H	57	20.3	13.1
13	15570.00	51.6 PK	74.0	-22.4	3.05 H	215	38.5	13.1
14	15570.00	38.5 AV	54.0	-15.5	3.05 H	215	25.4	13.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5148.00	62.4 PK	74.0	-11.6	2.87 V	315	58.3	4.1
2	5148.00	51.4 AV	54.0	-2.6	2.87 V	315	47.3	4.1
3	5150.00	61.3 PK	74.0	-12.7	2.87 V	315	57.2	4.1
4	5150.00	50.3 AV	54.0	-3.7	2.87 V	315	46.2	4.1
5	*5190.00	110.3 PK			2.87 V	315	106.5	3.8
6	*5190.00	100.5 AV			2.87 V	315	96.7	3.8
7	5350.00	56.5 PK	74.0	-17.5	2.87 V	315	52.9	3.6
8	5350.00	46.7 AV	54.0	-7.3	2.87 V	315	43.1	3.6
9	5353.50	57.9 PK	74.0	-16.1	2.87 V	315	54.3	3.6
10	5353.50	47.9 AV	54.0	-6.1	2.87 V	315	44.3	3.6
11	#10380.00	45.7 PK	74.0	-28.3	3.42 V	171	32.6	13.1
12	#10380.00	34.6 AV	54.0	-19.4	3.42 V	171	21.5	13.1
13	15570.00	51.8 PK	74.0	-22.2	2.62 V	256	38.7	13.1
14	15570.00	38.4 AV	54.0	-15.6	2.62 V	256	25.3	13.1

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	103.7 PK			1.06 H	246	100.2	3.5
2	*5230.00	94.1 AV			1.06 H	246	90.6	3.5
3	5350.00	52.1 PK	74.0	-21.9	1.06 H	246	48.5	3.6
4	5350.00	40.6 AV	54.0	-13.4	1.06 H	246	37.0	3.6
5	5383.40	53.2 PK	74.0	-20.8	1.06 H	246	49.5	3.7
6	5383.40	41.8 AV	54.0	-12.2	1.06 H	246	38.1	3.7
7	#10460.00	47.1 PK	74.0	-26.9	3.00 H	43	33.7	13.4
8	#10460.00	33.8 AV	54.0	-20.2	3.00 H	43	20.4	13.4
9	15690.00	52.9 PK	74.0	-21.1	3.06 H	205	40.0	12.9
10	15690.00	38.1 AV	54.0	-15.9	3.06 H	205	25.2	12.9
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	111.4 PK			2.95 V	326	107.9	3.5
2	*5230.00	101.5 AV			2.95 V	326	98.0	3.5
3	5350.00	60.0 PK	74.0	-14.0	2.95 V	326	56.4	3.6
4	5350.00	48.1 AV	54.0	-5.9	2.95 V	326	44.5	3.6
5	5383.40	61.1 PK	74.0	-12.9	2.95 V	326	57.4	3.7
6	5383.40	49.2 AV	54.0	-4.8	2.95 V	326	45.5	3.7
7	#10460.00	46.1 PK	74.0	-27.9	3.41 V	169	32.7	13.4
8	#10460.00	34.9 AV	54.0	-19.1	3.41 V	169	21.5	13.4
9	15690.00	52.2 PK	74.0	-21.8	2.65 V	266	39.3	12.9
10	15690.00	38.8 AV	54.0	-15.2	2.65 V	266	25.9	12.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5755.00	112.3 PK			2.62 H	16	108.0	4.3
2	*5755.00	100.9 AV			2.62 H	16	96.6	4.3
3	11510.00	47.5 PK	74.0	-26.5	2.91 H	117	33.5	14.0
4	11510.00	34.4 AV	54.0	-19.6	2.91 H	117	20.4	14.0
5	#17265.00	53.5 PK	74.0	-20.5	2.78 H	169	36.5	17.0
6	#17265.00	43.2 AV	54.0	-10.8	2.78 H	169	26.2	17.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5755.00	122.3 PK			1.91 V	197	118.0	4.3
2	*5755.00	110.9 AV			1.91 V	197	106.6	4.3
3	11510.00	48.7 PK	74.0	-25.3	1.22 V	354	34.7	14.0
4	11510.00	35.8 AV	54.0	-18.2	1.22 V	354	21.8	14.0
5	#17265.00	54.5 PK	74.0	-19.5	2.68 V	343	37.5	17.0
6	#17265.00	44.8 AV	54.0	-9.2	2.68 V	343	27.8	17.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	112.7 PK			2.67 H	9	108.4	4.3
2	*5795.00	101.2 AV			2.67 H	9	96.9	4.3
3	11590.00	47.9 PK	74.0	-26.1	2.88 H	115	33.9	14.0
4	11590.00	34.8 AV	54.0	-19.2	2.88 H	115	20.8	14.0
5	#17385.00	53.7 PK	74.0	-20.3	2.80 H	160	36.4	17.3
6	#17385.00	43.6 AV	54.0	-10.4	2.80 H	160	26.3	17.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	121.9 PK			1.86 V	187	117.6	4.3
2	*5795.00	110.7 AV			1.86 V	187	106.4	4.3
3	11590.00	48.6 PK	74.0	-25.4	1.27 V	348	34.6	14.0
4	11590.00	35.7 AV	54.0	-18.3	1.27 V	348	21.7	14.0
5	#17385.00	54.3 PK	74.0	-19.7	2.67 V	354	37.0	17.3
6	#17385.00	44.6 AV	54.0	-9.4	2.67 V	354	27.3	17.3

REMARKS:

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

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5122.70	58.9 PK	74.0	-15.1	1.10 H	273	54.8	4.1
2	5122.70	44.2 AV	54.0	-9.8	1.10 H	273	40.1	4.1
3	5150.00	57.6 PK	74.0	-16.4	1.10 H	273	53.5	4.1
4	5150.00	43.3 AV	54.0	-10.7	1.10 H	273	39.2	4.1
5	*5210.00	101.5 PK			1.10 H	273	97.8	3.7
6	*5210.00	91.3 AV			1.10 H	273	87.6	3.7
7	#5305.00	53.2 PK	74.0	-20.8	1.10 H	273	49.8	3.4
8	#5305.00	39.1 AV	54.0	-14.9	1.10 H	273	35.7	3.4
9	5352.80	54.6 PK	74.0	-19.4	1.10 H	273	51.0	3.6
10	5352.80	40.2 AV	54.0	-13.8	1.10 H	273	36.6	3.6
11	#10420.00	43.5 PK	74.0	-30.5	2.98 H	53	30.3	13.2
12	#10420.00	32.3 AV	54.0	-21.7	2.98 H	53	19.1	13.2
13	15630.00	50.2 PK	74.0	-23.8	3.06 H	220	37.2	13.0
14	15630.00	36.4 AV	54.0	-17.6	3.06 H	220	23.4	13.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5122.70	66.9 PK	74.0	-7.1	2.89 V	322	62.8	4.1
2	5122.70	52.5 AV	54.0	-1.5	2.89 V	322	48.4	4.1
3	5150.00	65.5 PK	74.0	-8.5	2.89 V	322	61.4	4.1
4	5150.00	51.1 AV	54.0	-2.9	2.89 V	322	47.0	4.1
5	*5210.00	108.3 PK			2.89 V	322	104.6	3.7
6	*5210.00	98.5 AV			2.89 V	322	94.8	3.7
7	#5305.00	58.3 PK	74.0	-15.7	2.89 V	322	54.9	3.4
8	#5305.00	47.8 AV	54.0	-6.2	2.89 V	322	44.4	3.4
9	5352.80	59.4 PK	74.0	-14.6	2.89 V	322	55.8	3.6
10	5352.80	48.9 AV	54.0	-5.1	2.89 V	322	45.3	3.6
11	#10420.00	44.6 PK	74.0	-29.4	3.41 V	176	31.4	13.2
12	#10420.00	33.7 AV	54.0	-20.3	3.41 V	176	20.5	13.2
13	15630.00	51.4 PK	74.0	-22.6	2.62 V	261	38.4	13.0
14	15630.00	37.8 AV	54.0	-16.2	2.62 V	261	24.8	13.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5775.00	107.4 PK			2.65 H	14	103.0	4.4
2	*5775.00	97.5 AV			2.65 H	14	93.1	4.4
3	11550.00	46.2 PK	74.0	-27.8	2.83 H	115	32.3	13.9
4	11550.00	33.3 AV	54.0	-20.7	2.83 H	115	19.4	13.9
5	#17325.00	52.5 PK	74.0	-21.5	2.81 H	170	35.3	17.2
6	#17325.00	42.1 AV	54.0	-11.9	2.81 H	170	24.9	17.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5775.00	117.3 PK			1.84 V	201	112.9	4.4
2	*5775.00	107.8 AV			1.84 V	201	103.4	4.4
3	11550.00	47.2 PK	74.0	-26.8	1.33 V	341	33.3	13.9
4	11550.00	34.6 AV	54.0	-19.4	1.33 V	341	20.7	13.9
5	#17325.00	53.2 PK	74.0	-20.8	2.67 V	360	36.0	17.2
6	#17325.00	43.1 AV	54.0	-10.9	2.67 V	360	25.9	17.2

REMARKS:

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

Below 1GHz Data:

802.11ac (VHT20)

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	85.12	28.5 QP	40.0	-11.5	1.50 H	313	42.0	-13.5
2	158.19	25.1 QP	43.5	-18.4	2.00 H	80	32.7	-7.6
3	365.64	26.2 QP	46.0	-19.8	1.00 H	322	31.4	-5.2
4	549.36	33.3 QP	46.0	-12.7	2.00 H	172	34.1	-0.8
5	744.55	32.0 QP	46.0	-14.0	2.00 H	341	28.9	3.1
6	855.18	33.8 QP	46.0	-12.2	1.50 H	60	29.2	4.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	60.24	34.1 QP	40.0	-5.9	1.00 V	360	42.5	-8.4
2	82.40	34.6 QP	40.0	-5.4	1.50 V	0	47.6	-13.0
3	420.04	25.8 QP	46.0	-20.2	1.50 V	295	29.4	-3.6
4	600.02	29.9 QP	46.0	-16.1	1.00 V	360	29.1	0.8
5	800.01	34.1 QP	46.0	-11.9	2.00 V	84	30.4	3.7
6	986.88	34.8 QP	54.0	-19.2	1.50 V	219	28.0	6.8

REMARKS:

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

4.2 Transmit Power Measurement

4.2.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
		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.

4.2.2 Test Setup

4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 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.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Condition

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

4.2.7 Test Results

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	18.57	18.23	18.27	205.615	23.13	30	Pass
40	5200	17.85	16.90	16.86	158.461	22.00	30	Pass
48	5240	20.17	19.09	19.75	279.494	24.46	30	Pass
149	5745	25.34	24.97	24.26	922.716	29.65	30	Pass
157	5785	25.36	24.97	24.04	911.122	29.60	30	Pass
165	5825	25.23	24.83	24.01	889.283	29.49	30	Pass

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	18.73	18.30	18.66	215.704	23.34	30	Pass
40	5200	17.90	17.08	17.07	163.643	22.14	30	Pass
48	5240	18.26	17.06	17.17	169.923	22.30	30	Pass
149	5745	25.80	24.95	24.14	952.215	29.79	30	Pass
157	5785	25.28	24.91	24.00	898.218	29.53	30	Pass
165	5825	25.21	24.87	24.03	891.726	29.50	30	Pass

Note: Directional gain = 0.9dBi + 10log(3) = 5.67dBi < 6dBi , so the power limit shall not be reduced.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
38	5190	17.77	16.66	16.54	151.268	21.80	30	Pass
46	5230	19.38	18.19	18.35	221.004	23.44	30	Pass
151	5755	25.36	24.98	24.21	921.966	29.65	30	Pass
159	5795	25.22	24.75	24.22	895.439	29.52	30	Pass

Note: Directional gain = 0.9dBi + 10log(3) = 5.67dBi < 6dBi , so the power limit shall not be reduced.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
42	5210	15.62	14.86	14.45	94.956	19.78	30	Pass
155	5775	23.21	23.06	22.56	592.015	27.72	30	Pass

Note: Directional gain = 0.9dBi + 10log(3) = 5.67dBi < 6dBi , so the power limit shall not be reduced.

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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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

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