

Supplemental “Transmit Simultaneously” Test Report

Report No.: RF150807E06A-2

FCC ID: PY313200233

Test Model: R7000

Received Date: Mar. 12, 2018

Test Date: Apr. 14 to 23, 2018

Issued Date: May 03, 2018

Applicant: NETGEAR, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

| Issue No. | Description | Date Issued |
|----------------|-------------------|--------------|
| RF150807E06A-2 | 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. 14 to 23, 2018

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)

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 : May Chen , **Date:** May 03, 2018
May Chen / Manager

2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart C, E (SECTION 15.247, 15.407) | | | |
|--|---|--------|---|
| FCC Clause | Test Item | Result | Remarks |
| 15.205 / 15.209 / 15.247(d) 15.407(b) (1/2/3/4(i/ii)/6) | Radiated Emissions and Band Edge Measurement | PASS | Meet the requirement of limit. Minimum passing margin is -6.1dB at 62.23MHz and 83.71MHz. |

2.1 Measurement Uncertainty

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

| Measurement | Frequency | Expanded Uncertainty (k=2) (\pm) |
|--------------------------------|---------------|---|
| 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 Band Edge 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) | Connector 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.
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.
3. 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 refer to the manufacturer's specifications or user's manual.

3.1.1 Test Mode Applicability and Tested Channel Detail

| EUT CONFIGURE MODE | APPLICABLE TO | | DESCRIPTION |
|--------------------|---------------|-----------|-------------|
| | RE \geq 1G | RE $<$ 1G | |
| - | √ | √ | - |

Where **RE \geq 1G**: Radiated Emission above 1GHz & Bandedge Measurement **RE $<$ 1G**: Radiated Emission below 1GHz

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):

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

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE |
|------------------|-------------------------|----------------|-----------------------|-----------------|
| 802.11g + | 1 to 11 | 6 | OFDM | BPSK |
| 802.11ac (VHT20) | 36 to 48, 149 to 165 | 149 | OFDM | BPSK |

Radiated Emission Test (Below 1GHz):

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

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE |
|------------------|-------------------------|----------------|-----------------------|-----------------|
| 802.11g + | 1 to 11 | 6 | OFDM | BPSK |
| 802.11ac (VHT20) | 36 to 48, 149 to 165 | 149 | OFDM | BPSK |

Test Condition:

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER | TESTED BY |
|---------------|--------------------------|--------------|---------------|
| RE \geq 1G | 23deg. C, 65%RH | 120Vac, 60Hz | Eason Tseng |
| RE $<$ 1G | 22deg. C, 68%RH | 120Vac, 60Hz | Steven Chiang |

3.2 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.

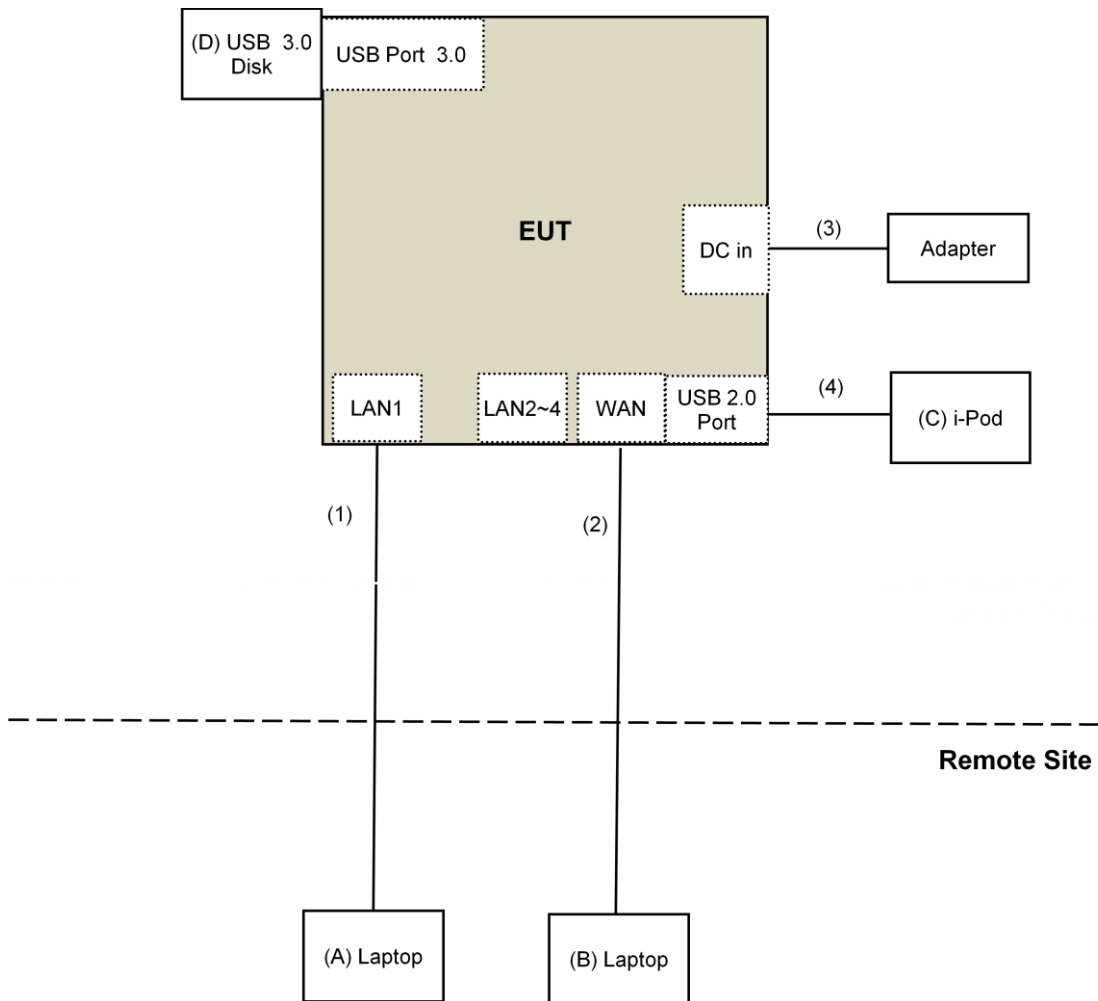
| ID | Product | Brand | Model No. | Serial No. | FCC ID | Remarks |
|----|--------------|-----------|-----------|---------------|---------|-----------------|
| A. | Laptop | DELL | E6420 | 482T3R1 | FCC DoC | Provided by Lab |
| B. | Laptop | ZyXEL | ES-116P | S060H02000215 | FCC DoC | Provided by Lab |
| 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 |

3.2.1 Configuration of System under Test



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 v02r01 | | Field Strength at 3m | |
| | | PK:74 (dBuV/m) | AV:54 (dBuV/m) |
| Frequency Band | Applicable To | EIRP Limit | Equivalent Field Strength at 3m |
| 5150~5250 MHz | 15.407(b)(1) | PK:-27 (dBm/MHz) | PK:68.2(dBuV/m) |
| 5250~5350 MHz | 15.407(b)(2) | | |
| 5470~5725 MHz | 15.407(b)(3) | | |
| 5725~5850 MHz | <input type="checkbox"/> 15.407(b)(4)(i) | PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4} | PK: 68.2(dBuV/m) ^{*1} PK:105.2 (dBuV/m) ^{*2} PK: 110.8(dBuV/m) ^{*3} PK:122.2 (dBuV/m) ^{*4} |
| | <input checked="" type="checkbox"/> 15.407(b)(4)(ii) | Emission limits in section 15.247(d) | |
| ^{*1} beyond 75 MHz or more above of the band edge. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. | | ^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. | |

Note:

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

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

4.1.2 Test Instruments

| 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-00 1 LOOPCAB-00 2 | Jan. 15, 2018 | Jan. 14, 2019 |
| Pre-Amplifier Mini-Circuits | ZFL-1000VH2 B | 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 | EMC184045S E | 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 |

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. 14 to 23, 2018

4.1.3 Test Procedures

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 detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

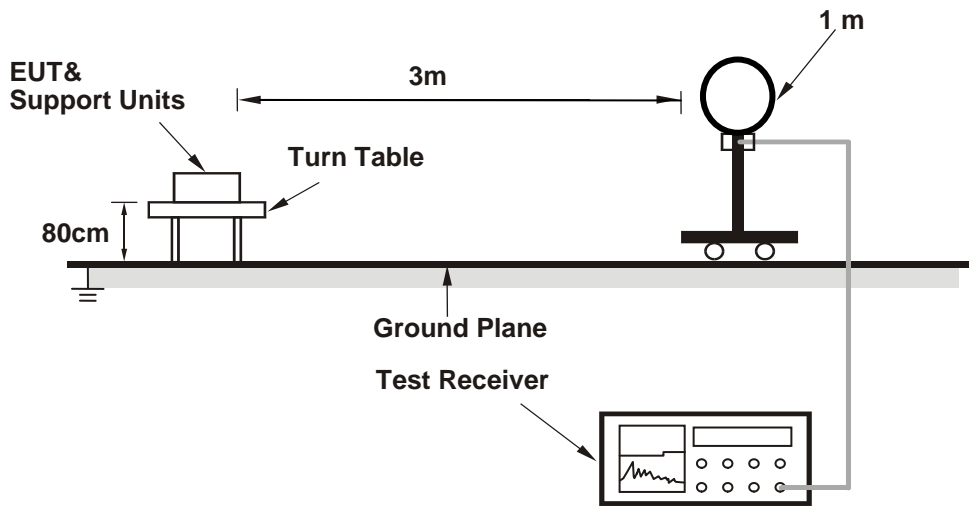
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

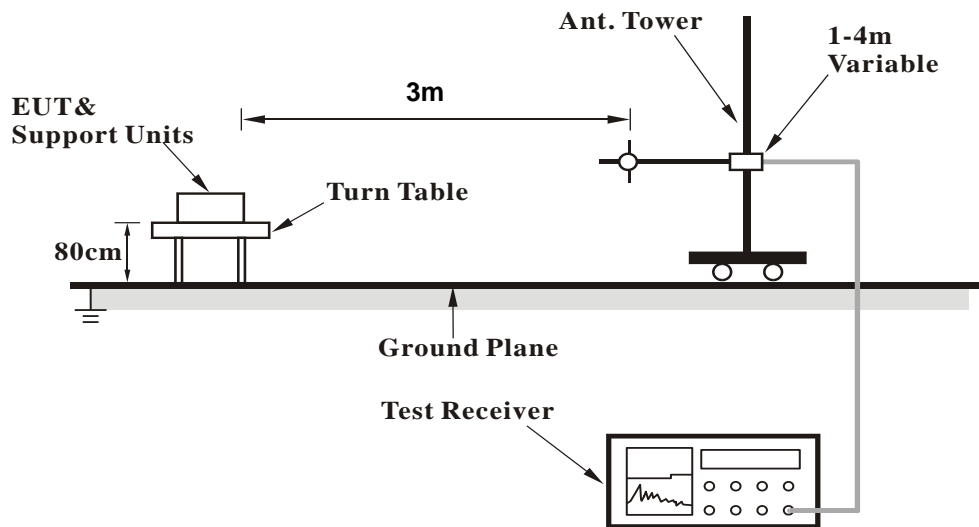
No deviation.

4.1.5 Test Setup

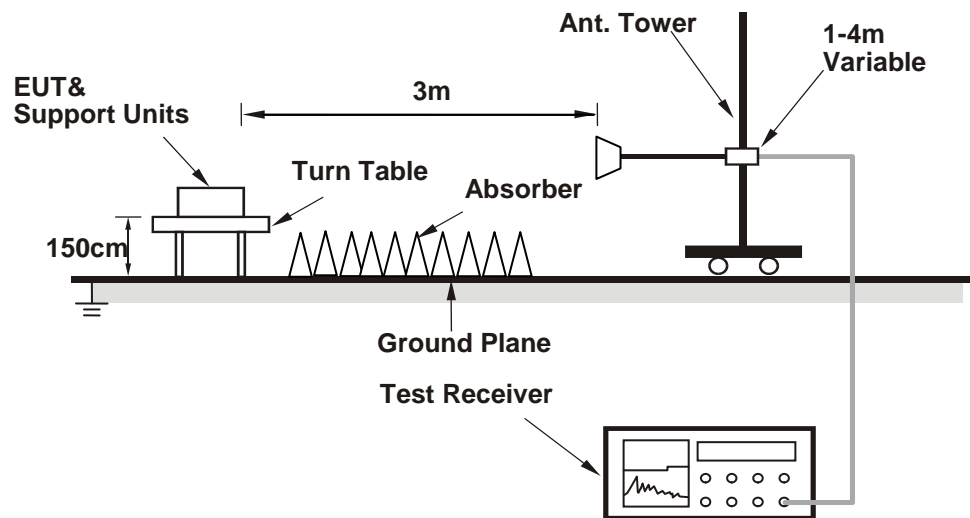
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- a. Connected the EUT with the Laptop which is placed on remote site.
- b. Controlling software (2.4GHz WLAN: Mtool 3.0.0.6 / 5GHz WLAN: Mtool 2.0.1.1) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data

| | | | |
|------------------------|--------------|--------------------------|---------------------------|
| FREQUENCY RANGE | 1GHz ~ 40GHz | DETECTOR FUNCTION | Peak (PK) 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 | 4874.00 | 48.6 PK | 74.0 | -25.4 | 2.49 H | 57 | 45.7 | 2.9 |
| 2 | 4874.00 | 33.5 AV | 54.0 | -20.5 | 2.49 H | 57 | 30.6 | 2.9 |
| 3 | 7311.00 | 45.8 PK | 74.0 | -28.2 | 2.32 H | 114 | 36.5 | 9.3 |
| 4 | 7311.00 | 31.1 AV | 54.0 | -22.9 | 2.32 H | 114 | 21.8 | 9.3 |
| 5 | 11490.00 | 46.9 PK | 74.0 | -27.1 | 3.03 H | 133 | 32.9 | 14.0 |
| 6 | 11490.00 | 33.8 AV | 54.0 | -20.2 | 3.03 H | 133 | 19.8 | 14.0 |
| 7 | 17235.00 | 55.9 PK | 74.0 | -18.1 | 2.63 H | 202 | 39.0 | 16.9 |
| 8 | 17235.00 | 42.4 AV | 54.0 | -11.6 | 2.63 H | 202 | 25.5 | 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 | 4874.00 | 49.5 PK | 74.0 | -24.5 | 3.00 V | 40 | 46.6 | 2.9 |
| 2 | 4874.00 | 35.5 AV | 54.0 | -18.5 | 3.00 V | 40 | 32.6 | 2.9 |
| 3 | 7311.00 | 45.1 PK | 74.0 | -28.9 | 1.78 V | 248 | 35.8 | 9.3 |
| 4 | 7311.00 | 30.5 AV | 54.0 | -23.5 | 1.78 V | 248 | 21.2 | 9.3 |
| 5 | 11490.00 | 48.2 PK | 74.0 | -25.8 | 2.25 V | 272 | 34.2 | 14.0 |
| 6 | 11490.00 | 34.4 AV | 54.0 | -19.6 | 2.25 V | 272 | 20.4 | 14.0 |
| 7 | 17235.00 | 55.8 PK | 74.0 | -18.2 | 1.72 V | 321 | 38.9 | 16.9 |
| 8 | 17235.00 | 42.8 AV | 54.0 | -11.2 | 1.72 V | 321 | 25.9 | 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

Below 1GHz Data:

| | | | |
|------------------------|-------------|--------------------------|-----------------|
| FREQUENCY RANGE | 9kHz ~ 1GHz | DETECTOR FUNCTION | Quasi-Peak (QP) |
|------------------------|-------------|--------------------------|-----------------|

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 91.62 | 26.8 QP | 43.5 | -16.7 | 2.00 H | 323 | 40.5 | -13.7 |
| 2 | 250.04 | 25.2 QP | 46.0 | -20.8 | 1.50 H | 226 | 34.1 | -8.9 |
| 3 | 540.68 | 33.6 QP | 46.0 | -12.4 | 2.00 H | 171 | 34.6 | -1.0 |
| 4 | 600.00 | 33.3 QP | 46.0 | -12.7 | 1.50 H | 331 | 32.5 | 0.8 |
| 5 | 816.28 | 34.1 QP | 46.0 | -11.9 | 1.00 H | 337 | 30.1 | 4.0 |
| 6 | 986.18 | 34.8 QP | 54.0 | -19.2 | 1.50 H | 108 | 28.0 | 6.8 |

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 | 62.23 | 33.9 QP | 40.0 | -6.1 | 1.00 V | 230 | 42.7 | -8.8 |
| 2 | 83.71 | 33.9 QP | 40.0 | -6.1 | 1.00 V | 270 | 47.2 | -13.3 |
| 3 | 381.02 | 25.7 QP | 46.0 | -20.3 | 1.00 V | 42 | 30.3 | -4.6 |
| 4 | 549.24 | 30.2 QP | 46.0 | -15.8 | 1.00 V | 64 | 31.0 | -0.8 |
| 5 | 784.47 | 31.5 QP | 46.0 | -14.5 | 1.50 V | 181 | 27.8 | 3.7 |
| 6 | 893.71 | 33.1 QP | 46.0 | -12.9 | 1.50 V | 130 | 27.7 | 5.4 |

REMARKS:

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

5 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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