



SPORTON International Inc.

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FCC RADIO TEST REPORT

| | |
|------------------------|--|
| Applicant's company | Electronwheel, Inc. |
| Applicant Address | 16935 W Bernardo Drive Suite 103, San Diego, CA 92127 |
| FCC ID | 2ANKG-PEDAL-01 |
| Manufacturer's company | Tri Star Group |
| Manufacturer Address | 11F, International Shipping & Finance Ctr 720 Pudong Ave. Shanghai, China 200120 |

| | |
|-------------------|---------------------------------------|
| Product Name | PEDALING SENSOR |
| Brand Name | ELECTRON WHEEL |
| Model Name | PEDAL-01 |
| Test Rule Part(s) | 47 CFR FCC Part 15 Subpart C § 15.249 |
| Test Freq. Range | 2400 ~ 2483.5MHz |
| Received Date | Aug. 29, 2017 |
| Final Test Date | Sep. 06, 2017 |
| Submission Type | Original Equipment |

Statement

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013** and **47 CFR FCC Part 15 Subpart C**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



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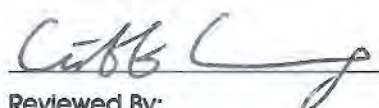
History of This Test Report

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|------------|---------|-------------------------|---------------|
| FR782349 | Rev. 01 | Initial issue of report | Oct. 20, 2017 |
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1. VERIFICATION OF COMPLIANCE

Product Name : PEDALING SENSOR
Brand Name : ELECTRON WHEEL
Model Name : PEDAL-01
Applicant : Electronwheel, Inc.
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.249

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Aug. 29, 2017 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Reviewed By:

Cliff Chang

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

| Applied Standard: 47 CFR FCC Part 15 Subpart C | | | |
|--|---------------|---|----------|
| Part | Rule Section | Description of Test | Result |
| 4.1 | 15.207 | AC Power Line Conducted Emissions | Complies |
| 4.2 | 15.249(a) | Field Strength of Fundamental Emissions | Complies |
| 4.3 | 15.215(c) | 20dB Spectrum Bandwidth | Complies |
| 4.4 | 15.249(a)/(d) | Radiated Emissions | Complies |
| 4.5 | 15.249(d) | Band Edge Emissions | Complies |
| 4.6 | 15.203 | Antenna Requirements | Complies |

3. GENERAL INFORMATION

3.1. Product Details

| Items | Description |
|---------------------------|---|
| Power Type | From power adapter or internal lithium battery |
| Modulation | FSK |
| Frequency Range | 2400 ~ 2483.5MHz |
| Operation Frequency Range | 2405 ~ 2480MHz |
| Channel Number | 10 |
| Channel Bandwidth (99%) | 0.31 MHz |
| Max. Field Strength | 88.10 dBuV/m at 3m (Average) |
| Carrier Frequencies | Please refer to section 3.3 |
| Antenna | Antenna Type: Printed Antenna (Without any antenna connector) Antenna Gain: 3.27 dBi |

3.2. Accessories

| Power | Brand | Model No. | Rating | Remark |
|--|---------------|-----------|--|---|
| Adapter | SINO-AMERICAN | SA103K-05 | INPUT: 100-240VAC, 50-60Hz, 0.1A OUTPUT: 5VDC, 0.6A, 3W | With cable: Non-shielded, 1m (for EUT use only) |
| Internal lithium battery | RPC | IP601834 | 300mAHR | - |
| Other | | | | |
| Power cable*1: Non-shielded, 1.8m (for adapter 2 use only) | | | | |

3.3. Table for Carrier Frequencies

| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
|------------------|-------------|-----------|-------------|-----------|
| 2400 ~ 2483.5MHz | 1 | 2405 MHz | 6 | 2430 MHz |
| | 2 | 2410 MHz | 7 | 2435 MHz |
| | 3 | 2415 MHz | 8 | 2440 MHz |
| | 4 | 2420 MHz | 9 | 2460 MHz |
| | 5 | 2425 MHz | 10 | 2480 MHz |

3.4. Table for Test Modes

The following table is a list of the test modes shown in this test report.

| Test Items | Mode | Channel | Antenna |
|--|-------------|---------|---------|
| AC Power Line Conducted Emissions | Normal Link | - | - |
| Field Strength of Fundamental Emissions 20dB Spectrum Bandwidth | CTX | 1/8/10 | 1 |
| Radiated Emissions 30MHz ~ 1GHz | Normal Link | - | - |
| Radiated Emissions 1GHz~10 th Harmonic | CTX | 1/8/10 | 1 |
| Band Edge Emissions | CTX | 1/8/10 | 1 |

Note: CTX=continuously transmitting

The following test modes were performed for all tests:

The following table is a list of the test modes shown in this test report.

| AC Power Line Conducted Emissions | |
|-----------------------------------|--------------------------------------|
| Test Mode | Description |
| 1 | Normal Link - EUT with charging mode |

| Radiated Emissions 30MHz ~ 1GHz | |
|---|---|
| Test Mode | Description |
| 1 | Normal Link - 26" Electron Wheel + EUT in Y axis |
| 2 | Normal Link - 26" Electron Wheel + EUT in X axis |
| Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3~5 will follow this same test mode. | |
| 3 | Normal Link - 28" Electron Wheel + EUT in Y axis |
| 4 | Normal Link - 26" Electron Wheel + EUT in Y axis with charging mode |
| 5 | Normal Link - 28" Electron Wheel + EUT in Y axis with charging mode |
| Mode 4 generated the worst test result, so it was recorded in this report. | |

| Radiated Emissions 1GHz~10 th Harmonic and Band Edge Emissions | |
|---|---------------------|
| Test Mode | Description |
| 1 | CTX - EUT in Y axis |
| 2 | CTX - EUT in X axis |
| Mode 1 has been evaluated to be the worst case after evaluating. Consequently, measurement will follow this same test mode. | |

3.5. Table for Testing Locations

| Test Site Location | | | | | |
|--------------------|--|----------|---------------------|-------------|--------------|
| Address: | No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C. | | | | |
| TEL: | 886-3-656-9065 | | | | |
| FAX: | 886-3-656-9085 | | | | |
| Test Site No. | Site Category | Location | FCC Designation No. | IC File No. | VCCI Reg. No |
| 03CH01-CB | SAC | Hsin Chu | TW0006 | IC 4086D | - |
| CO01-CB | Conduction | Hsin Chu | TW0006 | IC 4086D | - |
| TH01-CB | OVEN Room | Hsin Chu | - | - | - |

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

3.6. Table for Supporting Units

For Test Site No: CO01-CB: N/A

For Test Site No: 03CH01-CB (below 1GHz)

| Support Unit | Brand | Model | FCC ID |
|--------------------|----------------|------------|-----------|
| Test Fixture | TranzX | TRAINER | N/A |
| 26" Electron Wheel | ELECTRON WHEEL | E-WHEEL-04 | QOQBLE113 |
| 28" Electron Wheel | ELECTRON WHEEL | E-WHEEL-05 | QOQBLE113 |

For Test Site No: 03CH01-CB (above 1GHz) and TH01-CB

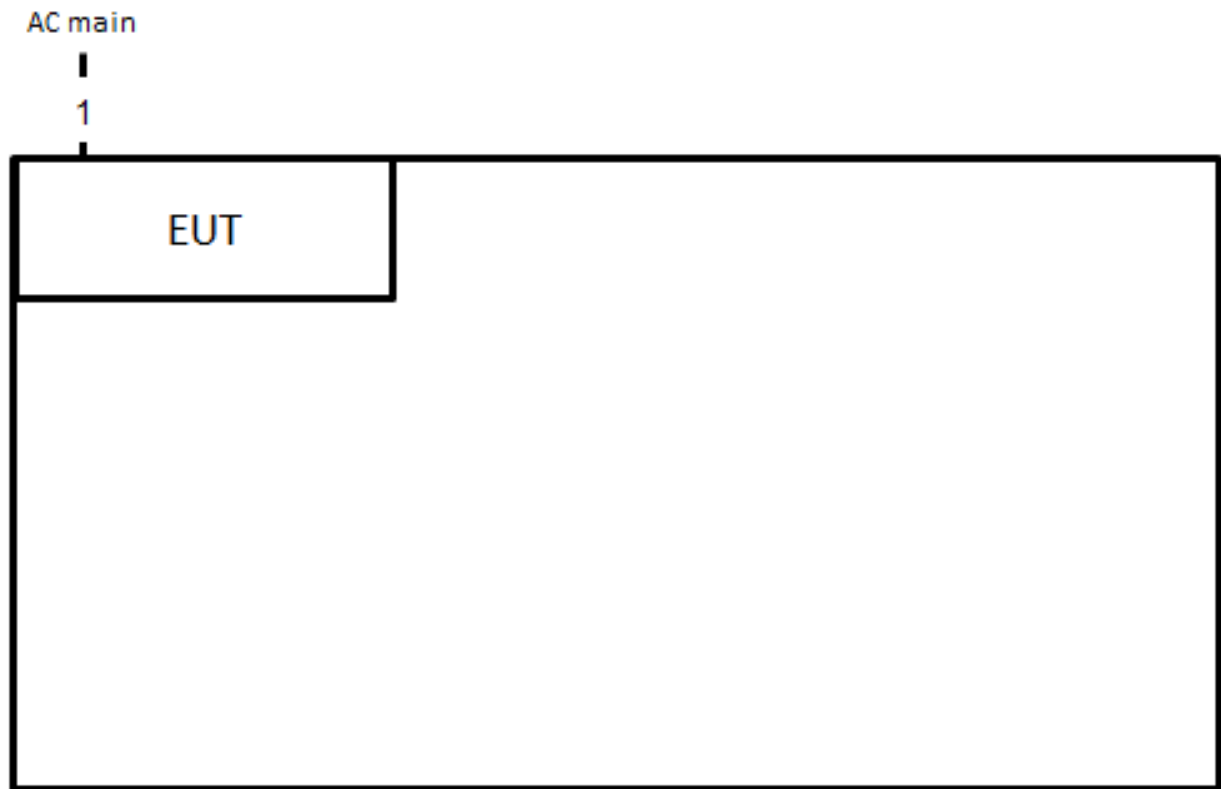
| Support Unit | Brand | Model | FCC ID |
|--------------|---------|--------|--------|
| Test Fixture | AMICCOM | EK7196 | N/A |
| Notebook | DELL | E4300 | DoC |

3.7. Duty Cycle

| On Time (ms) | On+Off Time (ms) | Duty Cycle (%) | Duty Factor (dB) | 1/T Minimum VBW (kHz) |
|--------------|------------------|----------------|------------------|-----------------------|
| 1.000 | 1.000 | 100.00% | 0.00 | 0.01 |

3.8. Test Configurations

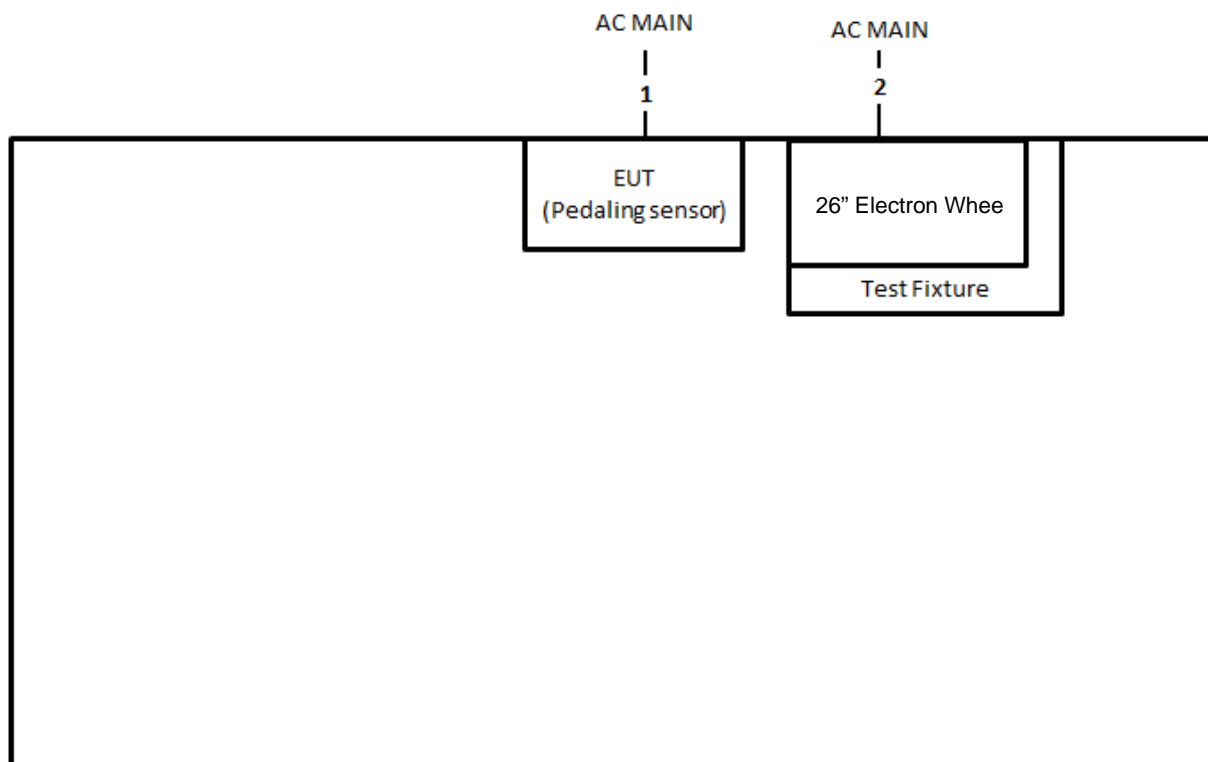
3.8.1. AC Power Line Conduction Emissions Test Configuration



| Item | Connection | Shielded | Length |
|------|-------------|----------|--------|
| 1 | Power cable | No | 1m |

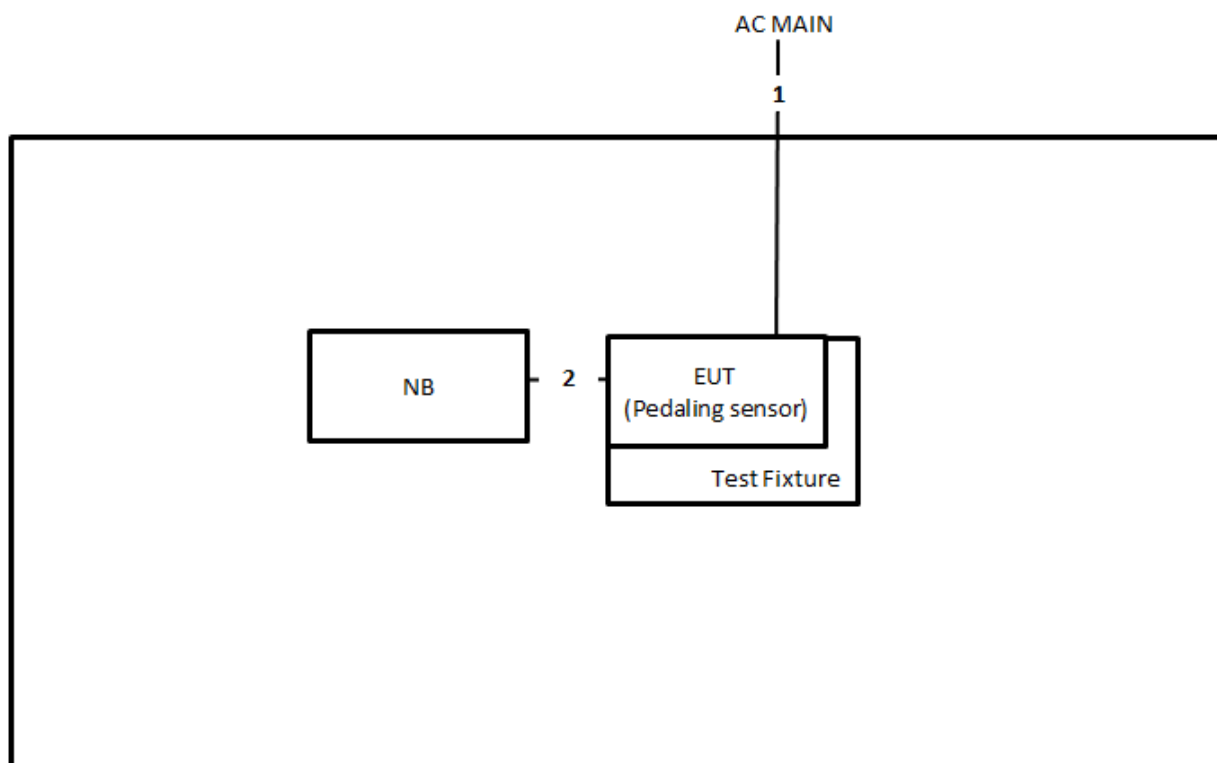
3.8.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



| Item | Connection | Shielded | Length |
|------|-------------|----------|--------|
| 1 | Power cable | No | 1m |
| 2 | Power cable | No | 2.8m |

Test Configuration: Above 1GHz



| Item | Connection | Shielded | Length |
|------|-------------|----------|--------|
| 1 | Power cable | No | 1 m |
| 2 | USB cable | No | 2.5m |

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

| Frequency (MHz) | QP Limit (dBuV) | AV Limit (dBuV) |
|-----------------|-----------------|-----------------|
| 0.15~0.5 | 66~56 | 56~46 |
| 0.5~5 | 56 | 46 |
| 5~30 | 60 | 50 |

4.1.2. Measuring Instruments and Setting

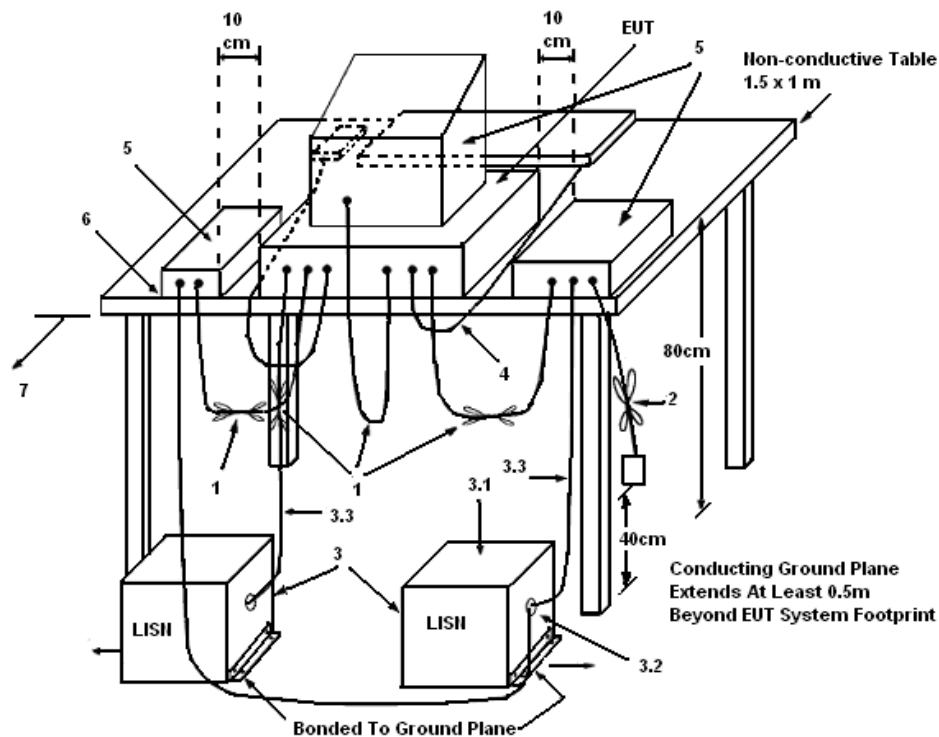
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
- (3.1) All other equipment powered from additional LISN(s).
- (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
- (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

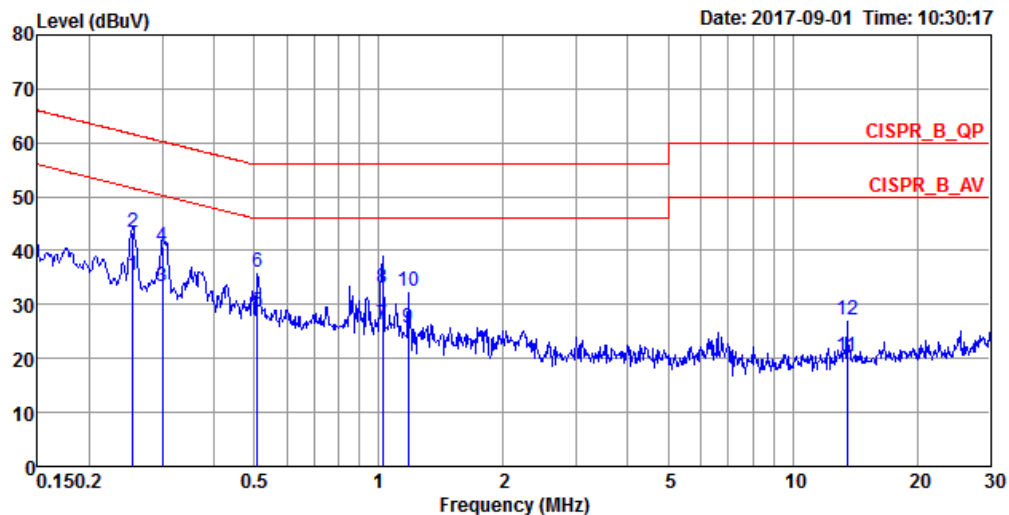
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

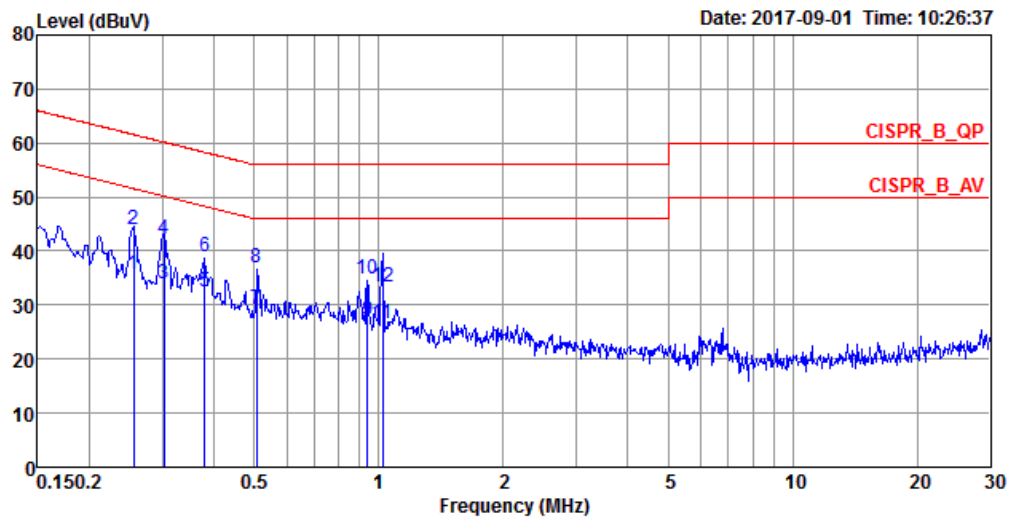
4.1.7. Results of AC Power Line Conducted Emissions Measurement

| | | | |
|---------------|-------------|-----------|--------|
| Temperature | 25°C | Humidity | 64% |
| Test Engineer | Wei Liu | Phase | Line |
| Configuration | Normal Link | Test Mode | Mode 1 |



| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark | Pol/Phase |
|----|---------|-------|---------------|---------------|---------------|----------------|---------------|---------|-----------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | | |
| 1 | 0.2548 | 35.41 | -16.19 | 51.60 | 25.40 | 9.92 | 0.09 | Average | LINE |
| 2 | 0.2548 | 43.34 | -18.26 | 61.60 | 33.33 | 9.92 | 0.09 | QP | LINE |
| 3 | 0.3003 | 33.30 | -16.94 | 50.24 | 23.31 | 9.93 | 0.06 | Average | LINE |
| 4 | 0.3003 | 40.81 | -19.43 | 60.24 | 30.82 | 9.93 | 0.06 | QP | LINE |
| 5 | 0.5101 | 28.75 | -17.25 | 46.00 | 18.74 | 9.95 | 0.06 | Average | LINE |
| 6 | 0.5101 | 35.89 | -20.11 | 56.00 | 25.88 | 9.95 | 0.06 | QP | LINE |
| 7 | 1.0211 | 26.19 | -19.81 | 46.00 | 16.04 | 9.96 | 0.19 | Average | LINE |
| 8 | 1.0211 | 33.05 | -22.95 | 56.00 | 22.90 | 9.96 | 0.19 | QP | LINE |
| 9 | 1.1781 | 25.66 | -20.34 | 46.00 | 15.51 | 9.96 | 0.19 | Average | LINE |
| 10 | 1.1781 | 32.40 | -23.60 | 56.00 | 22.25 | 9.96 | 0.19 | QP | LINE |
| 11 | 13.5509 | 20.38 | -29.62 | 50.00 | 10.00 | 10.20 | 0.18 | Average | LINE |
| 12 | 13.5509 | 27.13 | -32.87 | 60.00 | 16.75 | 10.20 | 0.18 | QP | LINE |

| | | | |
|---------------|-------------|-----------|---------|
| Temperature | 25°C | Humidity | 64% |
| Test Engineer | Wei Liu | Phase | Neutral |
| Configuration | Normal Link | Test Mode | Mode 1 |



| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark | Pol/Phase |
|----|--------|-------|---------------|---------------|---------------|----------------|---------------|---------|-----------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | | |
| 1 | 0.2562 | 35.80 | -15.76 | 51.56 | 25.63 | 10.08 | 0.09 | Average | NEUTRAL |
| 2 | 0.2562 | 43.87 | -17.69 | 61.56 | 33.70 | 10.08 | 0.09 | QP | NEUTRAL |
| 3 | 0.3035 | 34.05 | -16.10 | 50.15 | 23.84 | 10.15 | 0.06 | Average | NEUTRAL |
| 4 | 0.3035 | 42.12 | -18.03 | 60.15 | 31.91 | 10.15 | 0.06 | QP | NEUTRAL |
| 5 | 0.3791 | 32.39 | -15.91 | 48.30 | 22.15 | 10.22 | 0.02 | Average | NEUTRAL |
| 6 | 0.3791 | 38.98 | -19.32 | 58.30 | 28.74 | 10.22 | 0.02 | QP | NEUTRAL |
| 7 | 0.5074 | 29.12 | -16.88 | 46.00 | 18.84 | 10.22 | 0.06 | Average | NEUTRAL |
| 8 | 0.5074 | 36.95 | -19.05 | 56.00 | 26.67 | 10.22 | 0.06 | QP | NEUTRAL |
| 9 | 0.9381 | 27.19 | -18.81 | 46.00 | 16.94 | 10.07 | 0.18 | Average | NEUTRAL |
| 10 | 0.9381 | 34.80 | -21.20 | 56.00 | 24.55 | 10.07 | 0.18 | QP | NEUTRAL |
| 11 | 1.0211 | 26.60 | -19.40 | 46.00 | 16.36 | 10.05 | 0.19 | Average | NEUTRAL |
| 12 | 1.0211 | 33.32 | -22.68 | 56.00 | 23.08 | 10.05 | 0.19 | QP | NEUTRAL |

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Field Strength of Fundamental Emissions Measurement

4.2.1. Limit

The field strength of fundamental emissions within these bands specified at a distance of 3 meters (measurement instrumentation employing an average detector) shall comply with the following table.

| Frequency Band (MHz) | Fundamental Emissions Limit (dBuV/m) at 3m |
|----------------------|--|
| 2400-2483.5 | 94 (Average) |
| | 114 (Peak) |

4.2.2. Measuring Instruments and Setting

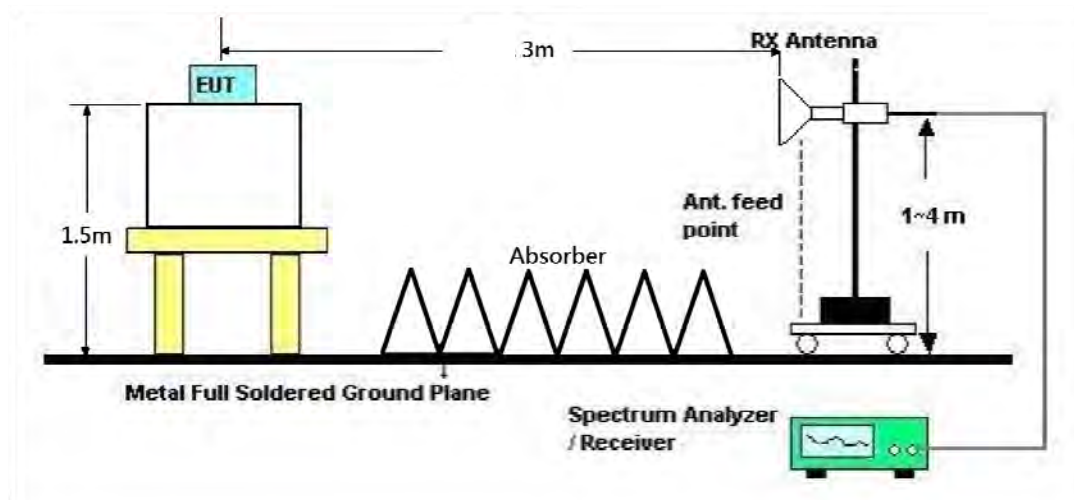
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Power Meter Parameter | Setting |
|-----------------------|--------------------------|
| RBW | 1 MHz Peak / 3MHz Peak |
| VBW | 1 MHz Peak / 1/T Average |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

4.2.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. For Fundamental emissions, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Field Strength of Fundamental Emissions

| | | | |
|---------------|-----------------------------------|----------------|------------------|
| Temperature | 22°C | Humidity | 54% |
| Test Engineer | Jay Luo, Mason Chen, Paul Chen | Configurations | Channel 1, 8, 10 |
| Test Date | Sep. 06, 2017 | | |

Channel 1

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 2404.80 | 88.10 | 94.00 | -5.90 | 56.15 | 3.70 | 28.25 | 0.00 | 101 | 153 | Average | VERTICAL |
| 2 | 2404.80 | 88.67 | 114.00 | -25.33 | 56.72 | 3.70 | 28.25 | 0.00 | 101 | 153 | Peak | VERTICAL |

Channel 8

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 2439.60 | 82.41 | 94.00 | -11.59 | 50.37 | 3.73 | 28.31 | 0.00 | 101 | 156 | Average | VERTICAL |
| 2 | 2439.60 | 83.02 | 114.00 | -30.98 | 50.98 | 3.73 | 28.31 | 0.00 | 101 | 156 | Peak | VERTICAL |

Channel 10

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 2479.80 | 78.72 | 94.00 | -15.28 | 46.60 | 3.76 | 28.36 | 0.00 | 116 | 118 | Average | HORIZONTAL |
| 2 | 2479.80 | 79.45 | 114.00 | -34.55 | 47.33 | 3.76 | 28.36 | 0.00 | 116 | 118 | Peak | HORIZONTAL |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

4.3. 20dB Spectrum Bandwidth Measurement

4.3.1. Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band (2400 ~ 2483.5MHz).

4.3.2. Measuring Instruments and Setting

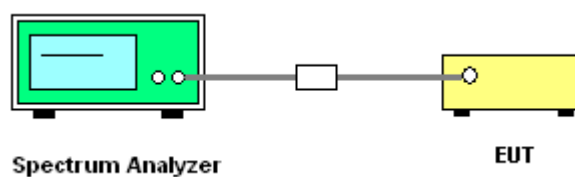
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameters | Setting |
|---------------------|------------------|
| Attenuation | Auto |
| Span Frequency | > 20dB Bandwidth |
| RBW | 100 kHz |
| VBW | 100 kHz |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 100 kHz were used.
3. Measured the spectrum width with power higher than 6dB below carrier.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

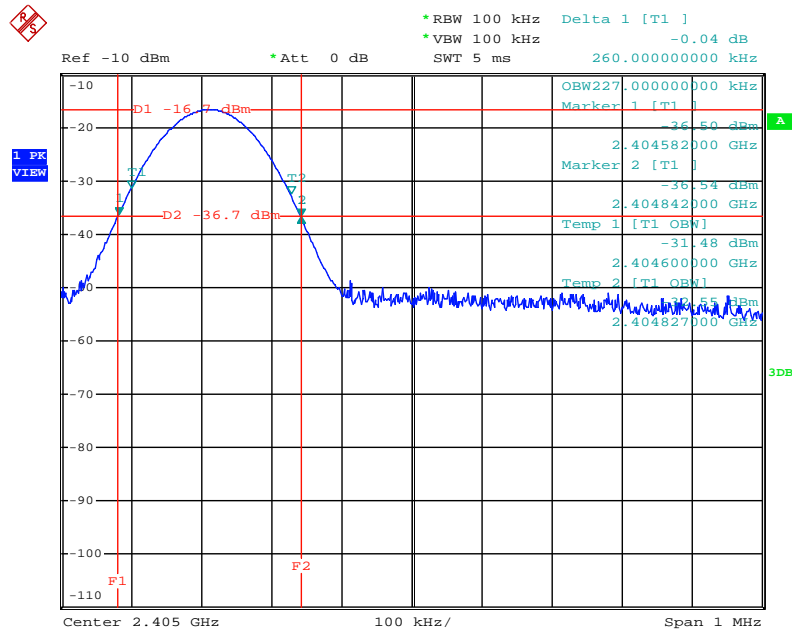
The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 20dB Spectrum Bandwidth

| | | | |
|----------------------|------------|-----------------------|----------------|
| Temperature | 22°C | Humidity | 54% |
| Test Engineer | Eddie Weng | Configurations | Channel 1/8/10 |

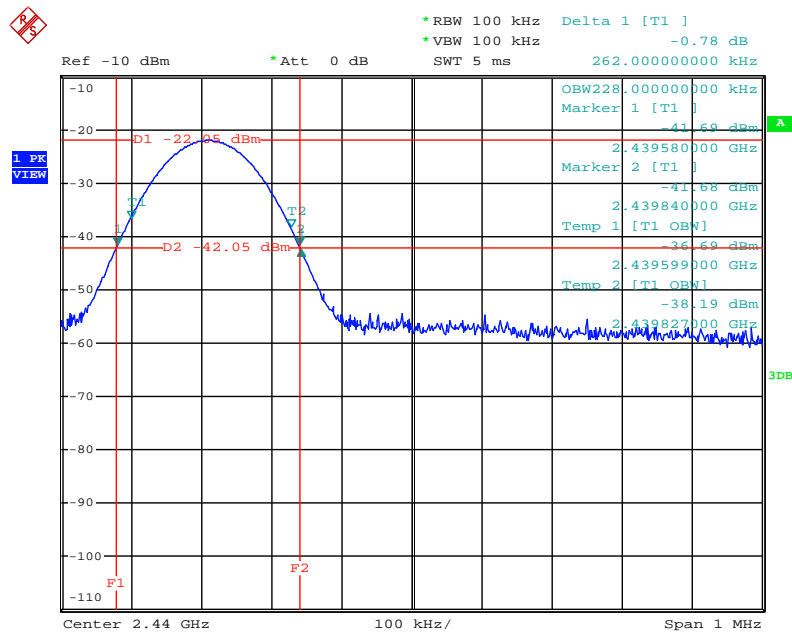
| Frequency | 20dB BW (MHz) | 99% OBW (MHz) | Frequency range (MHz) $f_L > 2400\text{MHz}$ | Frequency range (MHz) $f_H < 2483.5\text{MHz}$ | Test Result |
|-----------|---------------|---------------|---|---|-------------|
| 2405 MHz | 0.26 | 0.23 | 2404.6000 | - | Complies |
| 2440 MHz | 0.26 | 0.23 | - | - | Complies |
| 2480 MHz | 0.28 | 0.31 | - | 2479.8870 | Complies |

20 dB / 99% Bandwidth Plot on 2405 MHz



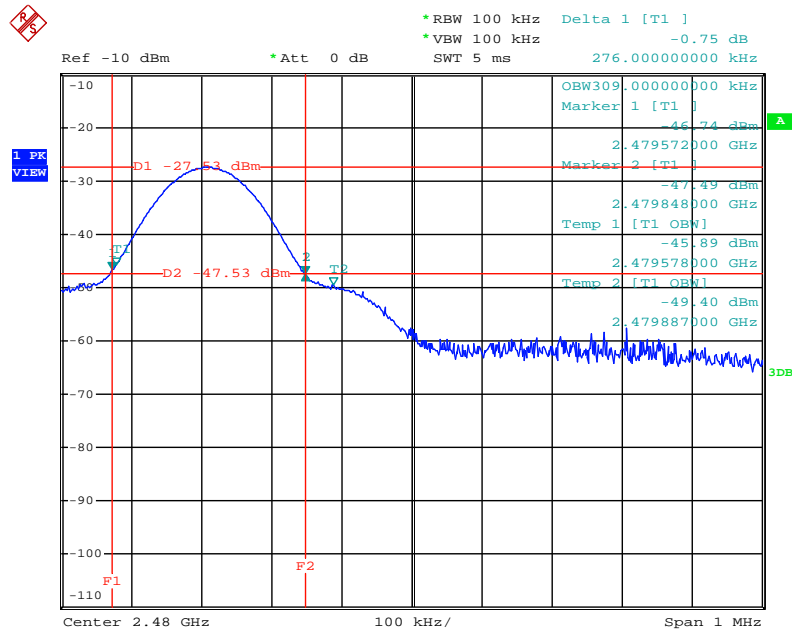
Date: 6.SEP.2017 22:46:10

20 dB / 99% Bandwidth Plot on 2440 MHz



Date: 6.SEP.2017 22:43:53

20 dB / 99% Bandwidth Plot on 2480 MHz



Date: 6.SEP.2017 23:53:11

4.4. Radiated Emissions Measurement

4.4.1. Limit

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micorvolts/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 |

4.4.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer and receiver.

| Spectrum Parameter | Setting |
|---|--|
| Attenuation | Auto |
| Start Frequency | 1 000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RBW / VBW (Emission in restricted band) | 1 MHz / 3MHz for Peak, 1 MHz / 1/T for Average |
| RBW / VBW (Emission in non-restricted band) | 100kHz/300kHz for Peak |

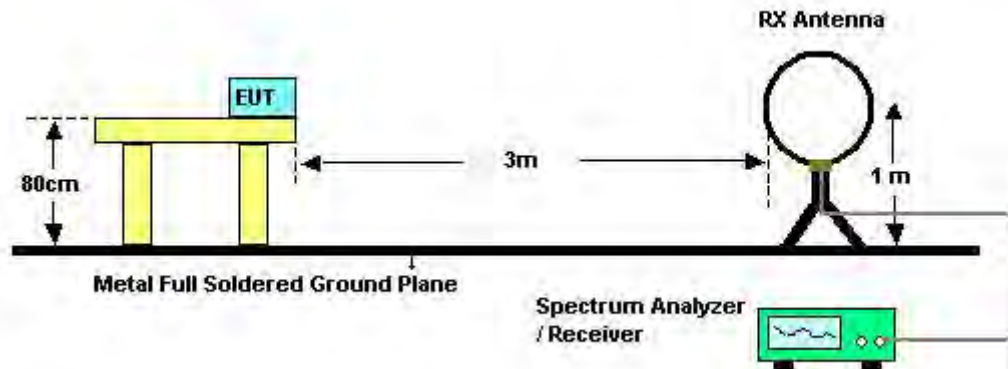
| Receiver Parameter | Setting |
|------------------------|-----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RBW 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RBW 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RBW 120kHz for QP |

4.4.3. Test Procedures

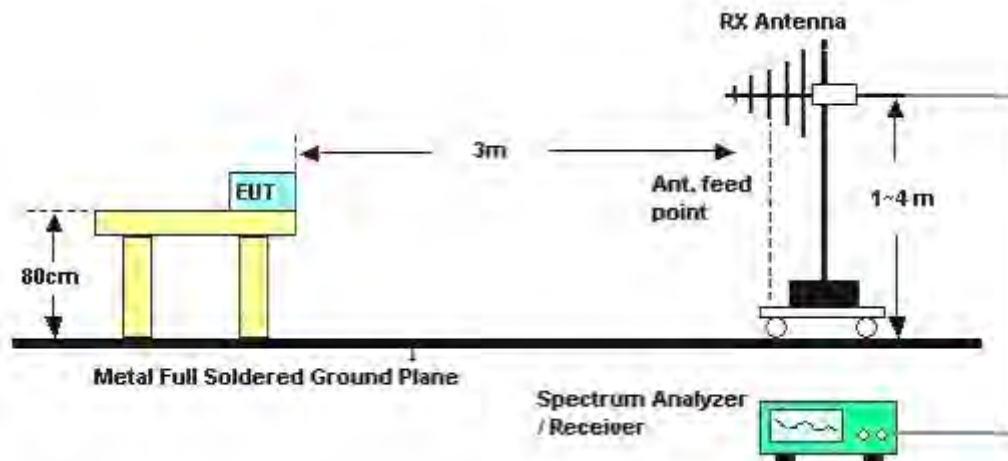
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.4.4. Test Setup Layout

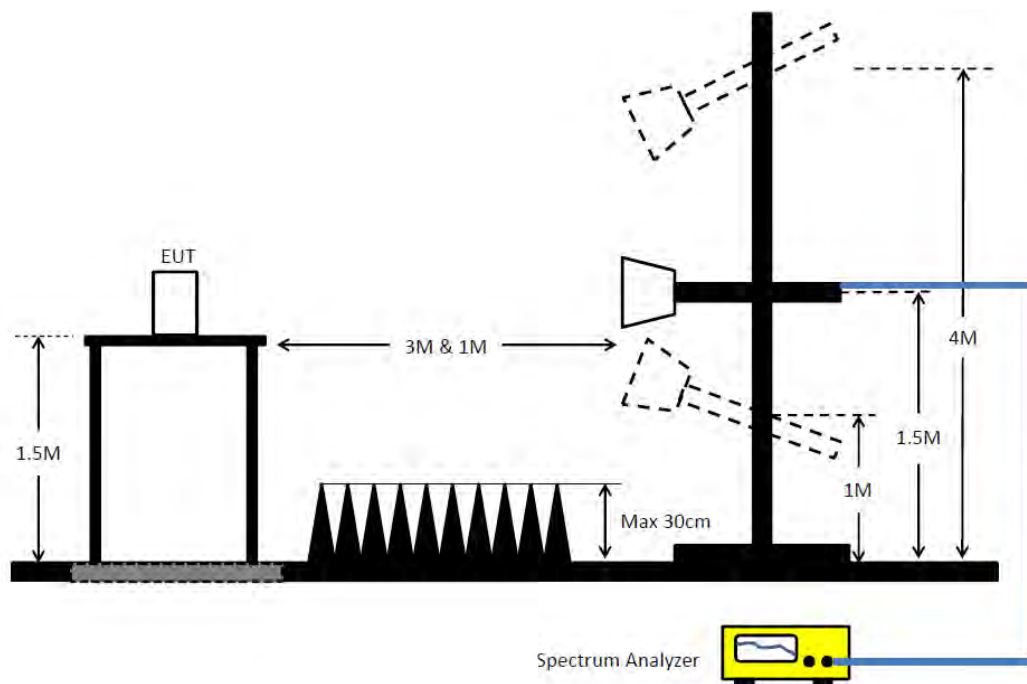
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Results of Radiated Emissions (9kHz~30MHz)

| | | | |
|----------------------|--------------------------------|-----------------------|-------------|
| Temperature | 22°C | Humidity | 54% |
| Test Engineer | Jay Luo, Mason Chen, Paul Chen | Configurations | Normal Link |
| Test Date | Aug. 31, 2017 | Test Mode | Mode 4 |

| Freq. (MHz) | Level (dBuV) | Over Limit (dB) | Limit Line (dBuV) | Remark |
|------------------------|-------------------------|----------------------------|------------------------------|---------------|
| - | - | - | - | See Note |

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

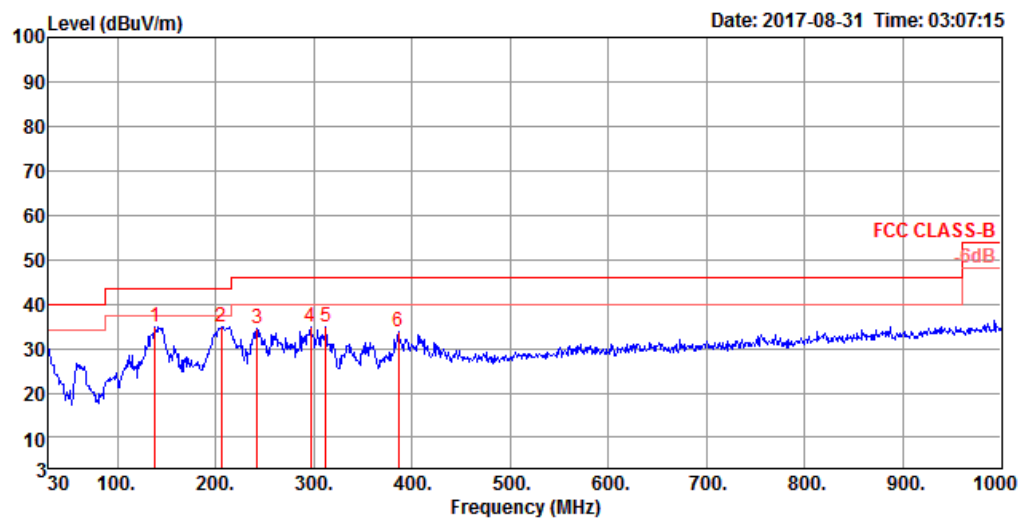
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.4.8. Results of Radiated Emissions (30MHz~1GHz)

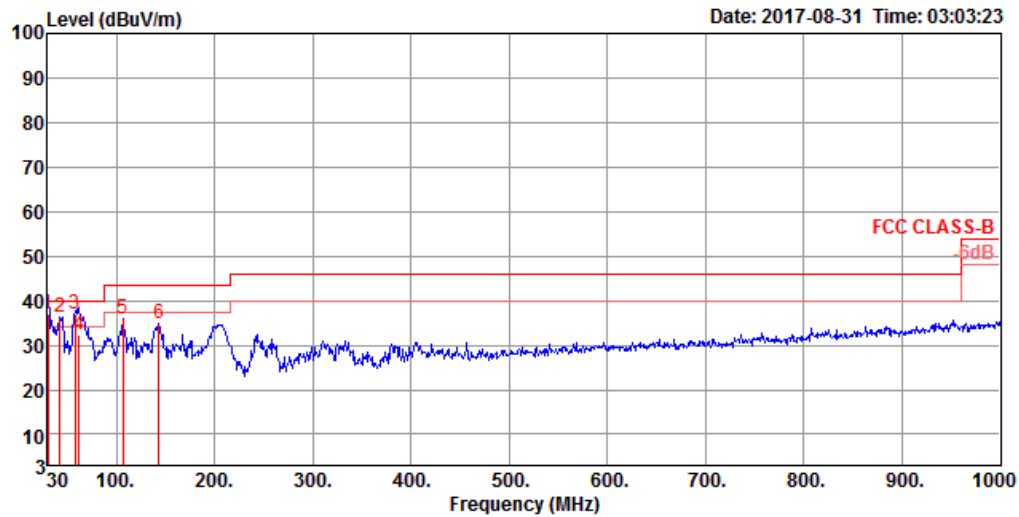
| | | | |
|---------------|--------------------------------|----------------|-------------|
| Temperature | 22°C | Humidity | 54% |
| Test Engineer | Jay Luo, Mason Chen, Paul Chen | Configurations | Normal Link |
| Test Mode | Mode 4 | | |

Horizontal



| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | A/Pos | T/Pos | Remark | Pol/Phase |
|---|--------|--------|--------|--------|-------|--------------|--------|-------|-------|----------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 138.64 | 34.88 | 43.50 | -8.62 | 48.09 | 1.36 | 17.78 | 32.35 | 150 | 211 Peak | HORIZONTAL |
| 2 | 205.57 | 34.90 | 43.50 | -8.60 | 49.19 | 1.66 | 16.36 | 32.31 | 150 | 240 Peak | HORIZONTAL |
| 3 | 242.43 | 34.62 | 46.00 | -11.38 | 46.91 | 1.80 | 18.20 | 32.29 | 150 | 260 Peak | HORIZONTAL |
| 4 | 296.75 | 34.80 | 46.00 | -11.20 | 45.44 | 1.99 | 19.64 | 32.27 | 100 | 98 Peak | HORIZONTAL |
| 5 | 312.27 | 34.88 | 46.00 | -11.12 | 45.06 | 2.04 | 20.05 | 32.27 | 100 | 110 Peak | HORIZONTAL |
| 6 | 385.99 | 33.79 | 46.00 | -12.21 | 41.74 | 2.28 | 22.06 | 32.29 | 100 | 62 Peak | HORIZONTAL |

Vertical



| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | A/Pos | T/Pos | Remark | Pol/Phase |
|---|--------|--------|--------|-------|-------|--------------|--------|-------|-------|----------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 30.00 | 36.95 | 40.00 | -3.05 | 43.15 | 0.63 | 25.60 | 32.43 | 100 | 205 QP | VERTICAL |
| 2 | 42.61 | 36.19 | 40.00 | -3.81 | 49.54 | 0.75 | 18.32 | 32.42 | 100 | 147 Peak | VERTICAL |
| 3 | 58.13 | 36.84 | 40.00 | -3.16 | 55.31 | 0.88 | 13.06 | 32.41 | 100 | 118 Peak | VERTICAL |
| 4 | 62.01 | 32.47 | 40.00 | -7.53 | 51.30 | 0.90 | 12.68 | 32.41 | 200 | 74 QP | VERTICAL |
| 5 | 106.63 | 36.05 | 43.50 | -7.45 | 49.37 | 1.20 | 17.85 | 32.37 | 100 | 252 Peak | VERTICAL |
| 6 | 143.49 | 34.81 | 43.50 | -8.69 | 48.35 | 1.38 | 17.42 | 32.34 | 100 | 288 Peak | VERTICAL |

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.4.9. Results for Radiated Emissions (1GHz~10th Harmonic)

| | | | |
|---------------|--------------------------------|----------------|-----------|
| Temperature | 22°C | Humidity | 54% |
| Test Engineer | Jay Luo, Mason Chen, Paul Chen | Configurations | Channel 1 |
| Test Date | Sep. 06, 2017 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 4809.38 | 50.21 | 74.00 | -23.79 | 45.53 | 6.26 | 33.35 | 34.93 | 222 | 58 | Peak | HORIZONTAL |
| 2 | 4809.42 | 45.05 | 54.00 | -8.95 | 40.37 | 6.26 | 33.35 | 34.93 | 222 | 58 | Average | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|-------------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 4809.42 | 52.93 | 54.00 | -1.07 | 48.25 | 6.26 | 33.35 | 34.93 | 220 | 336 | Average | VERTICAL |
| 2 | 4809.44 | 55.23 | 74.00 | -18.77 | 50.55 | 6.26 | 33.35 | 34.93 | 220 | 336 | Peak | VERTICAL |

| | | | |
|---------------|--------------------------------|----------------|-----------|
| Temperature | 22°C | Humidity | 54% |
| Test Engineer | Jay Luo, Mason Chen, Paul Chen | Configurations | Channel 8 |
| Test Date | Sep. 06, 2017 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamplifier Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 4879.37 | 50.44 | 74.00 | -23.56 | 45.62 | 6.24 | 33.51 | 34.93 | 109 | 59 | Peak | HORIZONTAL |
| 2 | 4879.42 | 44.30 | 54.00 | -9.70 | 39.48 | 6.24 | 33.51 | 34.93 | 109 | 59 | Average | HORIZONTAL |
| 3 | 7319.11 | 47.15 | 54.00 | -6.85 | 38.34 | 7.61 | 36.40 | 35.20 | 185 | 49 | Average | HORIZONTAL |
| 4 | 7319.13 | 53.23 | 74.00 | -20.77 | 44.42 | 7.61 | 36.40 | 35.20 | 185 | 49 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamplifier Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 4879.42 | 52.24 | 54.00 | -1.76 | 47.42 | 6.24 | 33.51 | 34.93 | 191 | 339 | Average | VERTICAL |
| 2 | 4879.44 | 55.40 | 74.00 | -18.60 | 50.58 | 6.24 | 33.51 | 34.93 | 191 | 339 | Peak | VERTICAL |
| 3 | 7319.10 | 42.71 | 54.00 | -11.29 | 33.90 | 7.61 | 36.40 | 35.20 | 177 | 23 | Average | VERTICAL |
| 4 | 7319.37 | 51.57 | 74.00 | -22.43 | 42.76 | 7.61 | 36.40 | 35.20 | 177 | 23 | Peak | VERTICAL |

| | | | |
|---------------|--------------------------------|----------------|------------|
| Temperature | 22°C | Humidity | 54% |
| Test Engineer | Jay Luo, Mason Chen, Paul Chen | Configurations | Channel 10 |
| Test Date | Sep. 06, 2017 | | |

Horizontal

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 4959.40 | 45.18 | 54.00 | -8.82 | 40.18 | 6.22 | 33.70 | 34.92 | 210 | 68 | Average | HORIZONTAL |
| 2 | 4959.44 | 51.14 | 74.00 | -22.86 | 46.14 | 6.22 | 33.70 | 34.92 | 210 | 68 | Peak | HORIZONTAL |
| 3 | 7439.11 | 43.27 | 54.00 | -10.73 | 34.30 | 7.52 | 36.65 | 35.20 | 175 | 47 | Average | HORIZONTAL |
| 4 | 7439.34 | 52.09 | 74.00 | -21.91 | 43.12 | 7.52 | 36.65 | 35.20 | 175 | 47 | Peak | HORIZONTAL |

Vertical

| | Freq | Level | Limit Line | Over Limit | Read Level | Cable Loss | Antenna Factor | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|---|---------|--------|------------|------------|------------|------------|----------------|---------------|-------|-------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | | |
| 1 | 4959.38 | 55.86 | 74.00 | -18.14 | 50.86 | 6.22 | 33.70 | 34.92 | 221 | 0 | Peak | VERTICAL |
| 2 | 4959.43 | 53.64 | 54.00 | -0.36 | 48.64 | 6.22 | 33.70 | 34.92 | 221 | 0 | Average | VERTICAL |
| 3 | 7439.09 | 51.06 | 74.00 | -22.94 | 42.09 | 7.52 | 36.65 | 35.20 | 101 | 344 | Peak | VERTICAL |
| 4 | 7439.10 | 42.14 | 54.00 | -11.86 | 33.17 | 7.52 | 36.65 | 35.20 | 101 | 344 | Average | VERTICAL |

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.5. Band Edge Emissions Measurement

4.5.1. Limit

Band edge emissions radiated outside of the specified frequency bands shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micorvolts/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 |

4.5.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Span Frequency | 100 MHz |
| RBW / VBW (Emission in restricted band) | 1MHz / 3MHz for Peak, 1 MHz / 1/T for Average |
| RBW / VBW (Emission in non-restricted band) | 100kHz/300kHz for Peak |

4.5.3. Test Procedures

The test procedure is the same as section 4.4.3.

4.5.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.4.4.

4.5.5. Test Deviation

There is no deviation with the original standard.

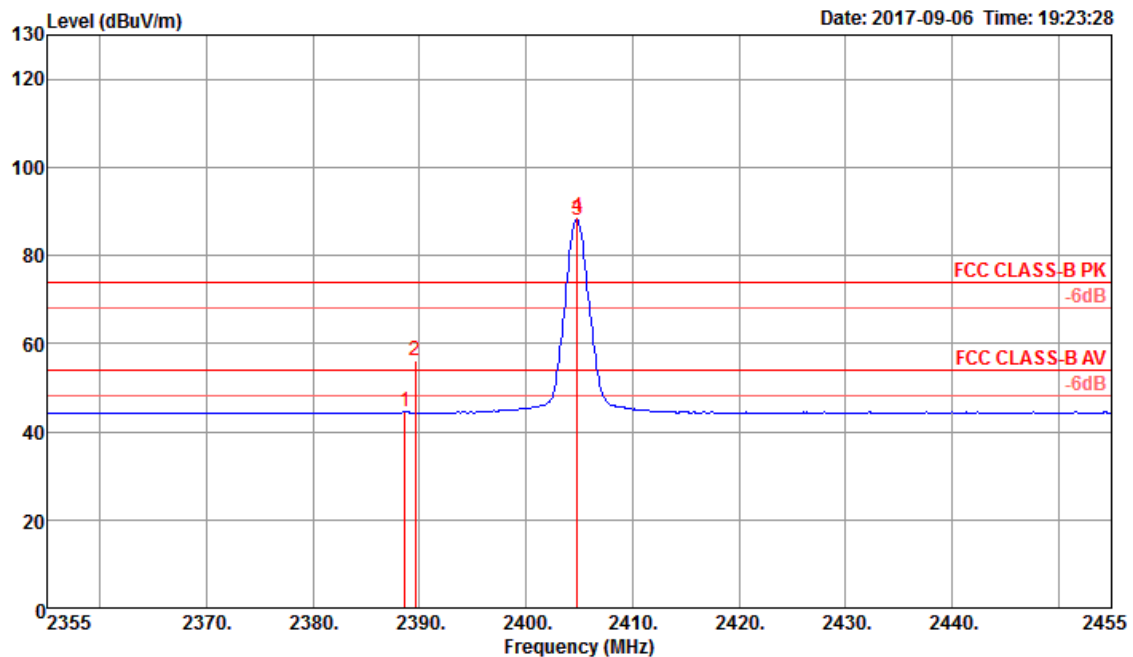
4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Band Edge and Fundamental Emissions

| | | | |
|---------------|--------------------------------|----------------|------------------|
| Temperature | 22°C | Humidity | 54% |
| Test Engineer | Jay Luo, Mason Chen, Paul Chen | Configurations | Channel 1, 8, 10 |

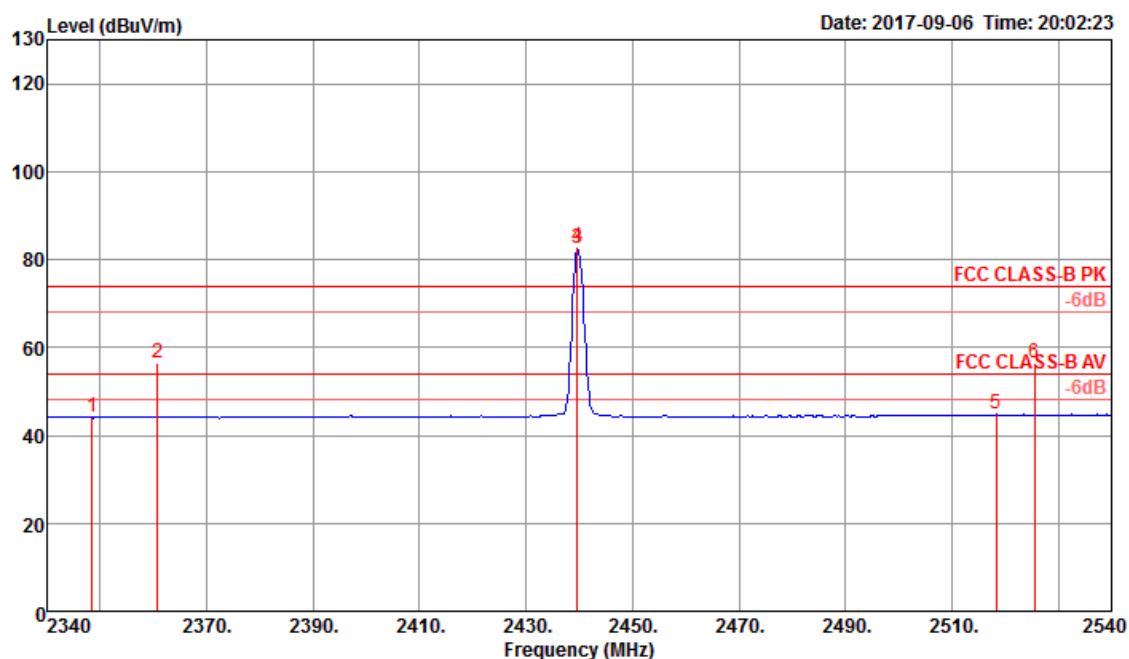
Channel 1



| | Freq | Level | Limit | Over | Read | CableAntenna | Preamp | A/Pos | T/Pos | Remark | Pol/Phase |
|-----|---------|--------|--------|--------|-------|--------------|--------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 2388.60 | 44.44 | 54.00 | -9.56 | 12.54 | 3.69 | 28.21 | 0.00 | 101 | 153 Average | VERTICAL |
| 2 | 2389.60 | 56.03 | 74.00 | -17.97 | 24.13 | 3.69 | 28.21 | 0.00 | 101 | 153 Peak | VERTICAL |
| 3 @ | 2404.80 | 88.10 | | | 56.15 | 3.70 | 28.25 | 0.00 | 101 | 153 Average | VERTICAL |
| 4 @ | 2404.80 | 88.67 | | | 56.72 | 3.70 | 28.25 | 0.00 | 101 | 153 Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 2405 MHz.

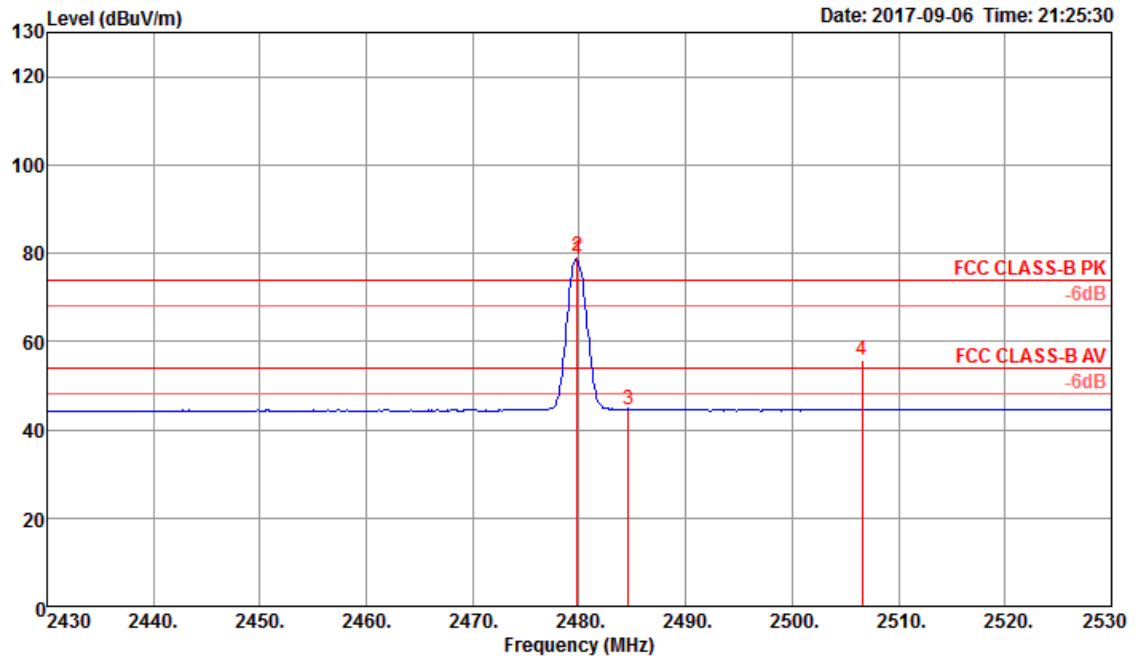
Channel 8



| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|-----|---------|--------|------------|------------|------------|-------------------|---------------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 | 2348.40 | 44.30 | 54.00 | -9.70 | 12.51 | 3.65 | 28.14 | 0.00 | 101 | 156 Average | VERTICAL |
| 2 | 2360.80 | 56.54 | 74.00 | -17.46 | 24.71 | 3.66 | 28.17 | 0.00 | 101 | 156 Peak | VERTICAL |
| 3 @ | 2439.60 | 82.41 | | | 50.37 | 3.73 | 28.31 | 0.00 | 101 | 156 Average | VERTICAL |
| 4 @ | 2439.60 | 83.02 | | | 50.98 | 3.73 | 28.31 | 0.00 | 101 | 156 Peak | VERTICAL |
| 5 | 2518.40 | 44.86 | 54.00 | -9.14 | 12.57 | 3.80 | 28.49 | 0.00 | 101 | 156 Average | VERTICAL |
| 6 | 2525.60 | 56.62 | 74.00 | -17.38 | 24.31 | 3.80 | 28.51 | 0.00 | 101 | 156 Peak | VERTICAL |

Item 3, 4 are the fundamental frequency at 2440 MHz.

Channel 10



| | Freq | Level | Limit Line | Over Limit | Read Level | CableAntenna Loss | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|-----|---------|--------|------------|------------|------------|-------------------|---------------|-------|-------|-------------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | dB/m | dB | cm | deg | |
| 1 @ | 2479.80 | 78.63 | | | 46.51 | 3.76 | 28.36 | 0.00 | 117 | 119 Average | VERTICAL |
| 2 @ | 2479.80 | 79.34 | | | 47.22 | 3.76 | 28.36 | 0.00 | 117 | 119 Peak | VERTICAL |
| 3 | 2484.60 | 44.71 | 54.00 | -9.29 | 12.56 | 3.77 | 28.38 | 0.00 | 117 | 119 Average | VERTICAL |
| 4 | 2506.60 | 55.87 | 74.00 | -18.13 | 23.65 | 3.79 | 28.43 | 0.00 | 117 | 119 Peak | VERTICAL |

Item 1, 2 are the fundamental frequency at 2480 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.6. Antenna Requirements

4.6.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.6.2. Antenna Connector Construction

Please refer to section 3.1 in this test report, antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Calibration Due Date | Remark |
|-----------------------------------|--------------|-------------------|------------------|------------------|------------------|----------------------|-----------------------|
| EMI Receiver | Agilent | N9038A | My52260123 | 9kHz ~ 8.45GHz | Jan. 23, 2017 | Jan. 22, 2018 | Conduction (CO01-CB) |
| LISN | F.C.C. | FCC-LISN-50-16-2 | 04083 | 150kHz ~ 100MHz | Dec. 14, 2016 | Dec. 13, 2017 | Conduction (CO01-CB) |
| LISN | Schwarzbeck | NSLK 8127 | 8127647 | 9kHz ~ 30MHz | Dec. 21, 2016 | Dec. 20, 2017 | Conduction (CO01-CB) |
| COND Cable | Woken | Cable | 01 | 150kHz ~ 30MHz | May 23, 2017 | May 22, 2018 | Conduction (CO01-CB) |
| Software | Audix | E3 | 6.120210n | - | N.C.R. | N.C.R. | Conduction (CO01-CB) |
| BILOG ANTENNA with 6dB Attenuator | TESEQ & EMCI | CBL6112D & N-6-06 | 37880 & AT-N0609 | 20MHz ~ 2GHz | Aug. 30, 2017 | Aug. 29, 2018 | Radiation (03CH01-CB) |
| Horn Antenna | EMCO | 3115 | 00075790 | 750MHz ~ 18GHz | Nov. 10, 2016 | Nov. 09, 2017 | Radiation (03CH01-CB) |
| Horn Antenna | Schwarzbeck | BBHA 9170 | BBHA9170252 | 15GHz ~ 40GHz | Jul. 05, 2017 | Jul. 04, 2018 | Radiation (03CH01-CB) |
| Pre-Amplifier | EMCI | EMC330N | 980332 | 20MHz ~ 3GHz | May 02, 2017 | May 01, 2018 | Radiation (03CH01-CB) |
| Pre-Amplifier | Agilent | 8449B | 3008A02310 | 1GHz ~ 26.5GHz | Jan. 16, 2017 | Jan. 15, 2018 | Radiation (03CH01-CB) |
| Pre-Amplifier | MITEQ | TTA1840-35-HG | 1864479 | 18GHz ~ 40GHz | Jul. 10, 2017 | Jul. 09, 2018 | Radiation (03CH01-CB) |
| Spectrum Analyzer | R&S | FSP40 | 100056 | 9kHz ~ 40GHz | Nov. 22, 2016 | Nov. 21, 2017 | Radiation (03CH01-CB) |
| EMI Test | R&S | ESCS | 100355 | 9kHz ~ 2.75GHz | May 06, 2017 | May 05, 2018 | Radiation (03CH01-CB) |
| RF Cable-low | Woken | Low Cable-16+17 | N/A | 30 MHz ~ 1 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Radiation (03CH01-CB) |
| RF Cable-high | Woken | High Cable-16 | N/A | 1 GHz ~ 18 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Radiation (03CH01-CB) |
| RF Cable-high | Woken | High Cable-16+17 | N/A | 1 GHz ~ 18 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Radiation (03CH01-CB) |
| RF Cable-high | Woken | High Cable-40G#1 | N/A | 18GHz ~ 40 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Radiation (03CH01-CB) |
| RF Cable-high | Woken | High Cable-40G#2 | N/A | 18GHz ~ 40 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Radiation (03CH01-CB) |
| Loop Antenna | Teseq | HLA 6120 | 24155 | 9kHz - 30 MHz | Mar. 16, 2016* | Mar. 15, 2018* | Radiation (03CH01-CB) |
| Spectrum Analyzer | R&S | FSP40 | 100056 | 9kHz ~ 40GHz | Nov. 22, 2016 | Nov. 21, 2017 | Conducted (TH01-CB) |
| RF Cable-high | Woken | RG402 | High Cable-6 | 1 GHz ~ 26.5 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Conducted (TH01-CB) |
| RF Cable-high | Woken | RG402 | High Cable-7 | 1 GHz ~ 26.5 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Conducted (TH01-CB) |
| RF Cable-high | Woken | RG402 | High Cable-8 | 1 GHz ~ 26.5 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Conducted (TH01-CB) |
| RF Cable-high | Woken | RG402 | High Cable-9 | 1 GHz ~ 26.5 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Conducted (TH01-CB) |
| RF Cable-high | Woken | RG402 | High Cable-10 | 1 GHz ~ 26.5 GHz | Oct. 24, 2016 | Oct. 23, 2017 | Conducted (TH01-CB) |
| Power Sensor | Agilent | U2021XA | MY53410001 | 50MHz~18GHz | Nov. 22, 2016 | Nov. 21, 2017 | Conducted (TH01-CB) |

Note: Calibration Interval of instruments listed above is one year.

*** Calibration Interval of instruments listed above is two years.

N.C.R. means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

| Test Items | Uncertainty | Remark |
|--------------------------------------|-------------|--------------------------|
| Conducted Emission (150kHz ~ 30MHz) | 3.2 dB | Confidence levels of 95% |
| Radiated Emission (30MHz ~ 1,000MHz) | 3.6 dB | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz) | 3.7 dB | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz) | 3.5 dB | Confidence levels of 95% |
| Conducted Emission | 1.7 dB | Confidence levels of 95% |