

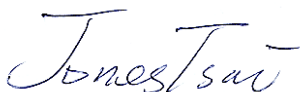
# FCC EMI TEST REPORT

FCC ID : IHDT56XS1  
Equipment : Mobile Cellular Phone  
Brand Name : Motorola  
Model Name : XT1980-4  
Applicant : Motorola Mobility LLC  
222 W,Merchandise Mart Plaza,  
Chicago IL 60654 USA  
Manufacturer : Motorola Mobility LLC  
222 W,Merchandise Mart Plaza,  
Chicago IL 60654 USA  
Standard : FCC 47 CFR FCC Part 15 Subpart B

The product was received on Mar. 05, 2019 and testing was started from Mar. 29, 2019 and completed on Apr. 06, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Jones Tsai

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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## History of this test report

| Report No.  | Version | Description             | Issued Date   |
|-------------|---------|-------------------------|---------------|
| FC930415-06 | 01      | Initial issue of report | Apr. 18, 2019 |
|             |         |                         |               |
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|             |         |                         |               |
|             |         |                         |               |



## Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items            | Result (PASS/FAIL) | Remark                                  |
|---------------|-----------------|-----------------------|--------------------|-----------------------------------------|
| 3.1           | 15.107          | AC Conducted Emission | Pass               | Under limit<br>4.12 dB at<br>0.227 MHz  |
| 3.2           | 15.109          | Radiated Emission     | Pass               | Under limit<br>6.63 dB at<br>55.920 MHz |

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

**Reviewed by:** Louis Wu

**Report Producer:** Aileen Huang

## 1. General Description

### 1.1. Product Feature of Equipment Under Test

| Product Feature                 |                                                                                                                                       |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Equipment                       | Mobile Cellular Phone                                                                                                                 |
| Brand Name                      | Motorola                                                                                                                              |
| Model Name                      | XT1980-4                                                                                                                              |
| FCC ID                          | IHDT56XS1                                                                                                                             |
| IMEI Code                       | Conduction : 352157100008574<br>Radiation : 352157100008509                                                                           |
| EUT supports Radios application | CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/NFC/GNSS/<br>FM<br>WLAN 11a/b/g/n HT20/HT40<br>WLAN 11ac VHT20/VHT40/VHT80<br>Bluetooth BR/EDR/LE |
| HW Version                      | DVT2                                                                                                                                  |
| EUT Stage                       | Identical Prototype                                                                                                                   |

**Remark:** The above EUT's information was declared by manufacturer.

| Accessory List |                       |
|----------------|-----------------------|
| WPC Cover      | Brand Name : Motorola |
|                | Model Name : MD100W   |

### 1.2. Product Specification of Equipment Under Test

| Standards-related Product Specification |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tx Frequency                            | GSM850: 824.2 MHz ~ 848.8 MHz<br>GSM1900: 1850.2 MHz ~ 1909.8MHz<br>WCDMA Band V: 826.4 MHz ~ 846.6 MHz<br>WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz<br>LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 5 : 824.7 MHz ~ 848.3 MHz<br>LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz<br>LTE Band 12 : 699.7 MHz ~ 715.3 MHz<br>LTE Band 13 : 779.5 MHz ~ 784.5 MHz<br>LTE Band 66: 1710.7 MHz ~ 1779.3 MHz<br>CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz<br>CDMA2000 BC1: 1851.25 MHz ~ 1908.75 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz ; 5745 MHz ~ 5825 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>NFC : 13.56 MHz |

| Standards-related Product Specification |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rx Frequency</b>                     | GSM850: 869.2 MHz ~ 893.8 MHz<br>GSM1900: 1930.2 MHz ~ 1989.8 MHz<br>WCDMA Band V: 871.4 MHz ~ 891.6 MHz<br>WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz<br>LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz<br>LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz<br>LTE Band 5 : 869.7 MHz ~ 893.3 MHz<br>LTE Band 7 : 2622.5 MHz ~ 2687.5 MHz<br>LTE Band 12 : 729.7 MHz ~ 745.3 MHz<br>LTE Band 13 : 748.5 MHz ~ 753.5 MHz<br>LTE Band 66: 2110.7 MHz ~ 2199.3 MHz<br>CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz<br>CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz ; 5745 MHz ~ 5825 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>GNSS: 1559 MHz ~ 1610 MHz(GPS/Glonass)<br>NFC : 13.56 MHz<br>FM : 88 MHz ~ 108 MHz |
| <b>Antenna Type</b>                     | WWAN : Dipole Antenna<br>LTE : Dipole Antenna<br>WLAN : Loop Antenna<br>Bluetooth : Loop Antenna<br>NFC : Loop Antenna<br>GNSS : Loop Antenna<br>FM Receiver : using earphone as antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Type of Modulation</b>               | GSM: GMSK<br>GPRS: GMSK<br>EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK<br>WCDMA: QPSK (Uplink)<br>HSDPA: 64QAM (Downlink)<br>HSUPA: QPSK (Uplink)<br>LTE: QPSK / 16QAM / 64QAM<br>CDMA2000 : QPSK<br>CDMA2000 1xEV-DO : 8PSK<br>802.11b : DSSS (DBPSK / DQPSK / CCK)<br>802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)<br>802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)<br>Bluetooth LE : GFSK<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth (2Mbps) : $\pi/4$ -DQPSK<br>Bluetooth (3Mbps) : 8-DPSK<br>GPS : BPSK<br>NFC: ASK<br>FM                                                                                                                                                                                                                                                                                 |

### 1.3. Modification of EUT

No modifications are made to the EUT during all test items.

### 1.4. Test Location

|                    |                                                                                                                       |           |
|--------------------|-----------------------------------------------------------------------------------------------------------------------|-----------|
| Test Site          | SPORTON INTERNATIONAL INC.                                                                                            |           |
| Test Site Location | No.52, Huaya 1st Rd., Guishan Dist.,<br>Taoyuan City, Taiwan (R.O.C.)<br>TEL: +886-3-327-3456<br>FAX: +886-3-328-4978 |           |
| Test Site No.      | Sporton Site No.                                                                                                      |           |
|                    | CO05-HY                                                                                                               | 03CH06-HY |

FCC Designation No. TW1093

### 1.5. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC 47 CFR FCC Part 15 Subpart B
- ♦ ANSI C63.4-2014

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

## 2. Test Configuration of Equipment Under Test

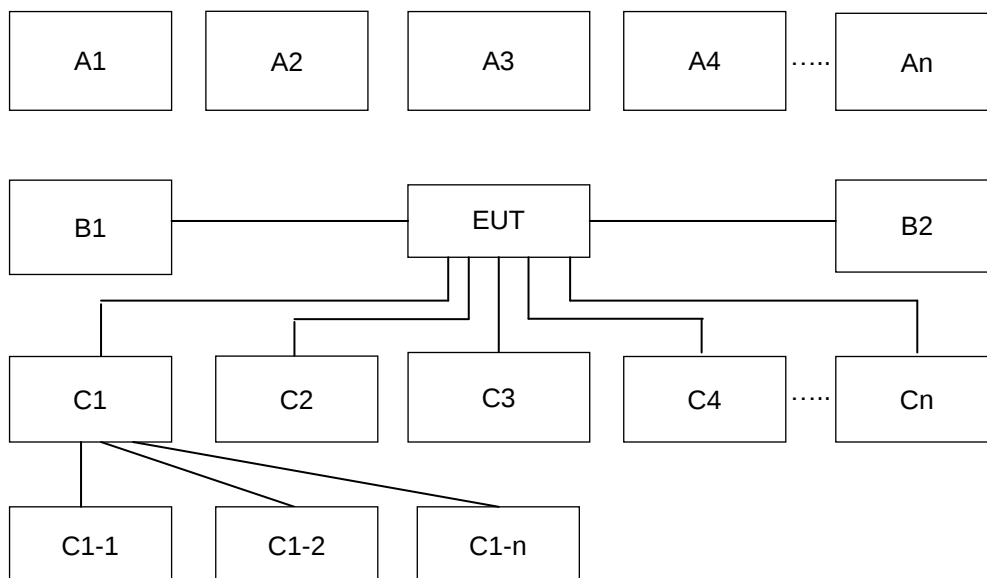
### 2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

| Test Items                                                                                                                                                                             | Function Type                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AC Conducted Emission</b>                                                                                                                                                           | Mode 1 : GSM850 Idle + Bluetooth Idle + WLAN Idle + Camera + Battery + WPC Back cover + LG Charging pad + USB Cable (Charging from AC Adapter) + SIM 1 |
|                                                                                                                                                                                        | Mode 2 : WCDMA V Idle + Bluetooth Idle + WLAN Idle + NFC on + Battery + WPC Back cover + PMA Charging pad + Adapter + SIM 2                            |
| <b>Radiated Emissions</b>                                                                                                                                                              | Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + Camera + Battery + WPC Back cover + LG Charging pad + USB Cable (Charging from AC Adapter) + SIM 1  |
|                                                                                                                                                                                        | Mode 2: WCDMA V Idle + Bluetooth Idle + WLAN Idle + NFC on + Battery + WPC Back cover + PMA Charging pad + Adapter + SIM 2                             |
| <b>Remark:</b><br>1. The worst case of AC is mode 2; only the test data of this mode was reported.<br>2. The worst case of RE is mode 2; only the test data of this mode was reported. |                                                                                                                                                        |

### 2.2. Connection Diagram of Test System



| Radiation Test Setup |                   |                                   |           |   |   |   |   |   |   |
|----------------------|-------------------|-----------------------------------|-----------|---|---|---|---|---|---|
| No.                  | Wireless Station  | Connection Type                   | Test Mode |   |   |   |   |   |   |
|                      |                   |                                   | 1         | 2 | - | - | - | - | - |
| A1                   | BT Earphone       | Bluetooth                         | X         | X |   |   |   |   |   |
| A2                   | System Simulator  | GSM/UMTS/CDMA/<br>WCDMA/LTE       | X         | X |   |   |   |   |   |
| A3                   | AP router         | WiFi                              | X         | X |   |   |   |   |   |
| No.                  | Power Source      | Connection Type                   | 1         | 2 | - | - | - | - | - |
| B1                   | AC : 120V/60Hz    | WPC                               | X         | X |   |   |   |   |   |
| No.                  | Setup Peripherals | Connection Type                   | 1         | 2 | - | - | - | - | - |
| C1                   | Earphone          | Earphone jack                     | X         | X |   |   |   |   |   |
| C2                   | SD card           | SD I/O interface<br>without Cable | X         | X |   |   |   |   |   |

| Conduction Test Setup |                   |                                   |           |   |   |   |   |   |   |
|-----------------------|-------------------|-----------------------------------|-----------|---|---|---|---|---|---|
| No.                   | Wireless Station  | Connection Type                   | Test Mode |   |   |   |   |   |   |
|                       |                   |                                   | 1         | 2 | - | - | - | - | - |
| A1                    | BT Earphone       | Bluetooth                         | X         | X |   |   |   |   |   |
| A2                    | System Simulator  | GSM/UMTS/CDMA/<br>WCDMA/LTE       | X         | X |   |   |   |   |   |
| A3                    | AP router         | WiFi                              | X         | X |   |   |   |   |   |
| No.                   | Power Source      | Connection Type                   | 1         | 2 | - | - | - | - | - |
| B1                    | AC : 120V/60Hz    | WPC                               | X         | X |   |   |   |   |   |
| No.                   | Setup Peripherals | Connection Type                   | 1         | 2 | - | - | - | - | - |
| C1                    | SD card           | SD I/O interface<br>without Cable | X         | X |   |   |   |   |   |

## 2.3. Support Unit used in test configuration and system

| Item | Equipment          | Trade Name    | Model Name | FCC ID      | Data Cable      | Power Cord        |
|------|--------------------|---------------|------------|-------------|-----------------|-------------------|
| 1.   | System Simulator   | R&S           | CMU 200    | N/A         | N/A             | Unshielded, 1.8 m |
| 2.   | System Simulator   | Anritsu       | MT8820C    | N/A         | N/A             | Unshielded, 1.8 m |
| 3.   | WLAN AP            | ASUS          | RT-AC66U   | MSQ-RTAC66U | N/A             | Unshielded, 1.8 m |
| 4.   | Bluetooth Earphone | Sony Ericsson | MW600      | PY7DDA-2029 | N/A             | N/A               |
| 5.   | SD Card            | SanDisk       | MicroSD HC | FCC DoC     | N/A             | N/A               |
| 6.   | PMA                | Duracell      | CT 06801   | N/A         | N/A             | N/A               |
| 7.   | LG Charging Pad    | LG            | WCD-110    | FCC DoC     | Shielded, 0.5 m | N/A               |

## 2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Turn on camera to capture images.
2. Turn on NFC function.

### 3. Test Result

#### 3.1. Test of AC Conducted Emission Measurement

##### 3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (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 the limits in the following table.

| Frequency of emission<br>(MHz) | Conducted limit (dBuV) |           |
|--------------------------------|------------------------|-----------|
|                                | Quasi-peak             | Average   |
| 0.15-0.5                       | 66 to 56*              | 56 to 46* |
| 0.5-5                          | 56                     | 46        |
| 5-30                           | 60                     | 50        |

\*Decreases with the logarithm of the frequency.

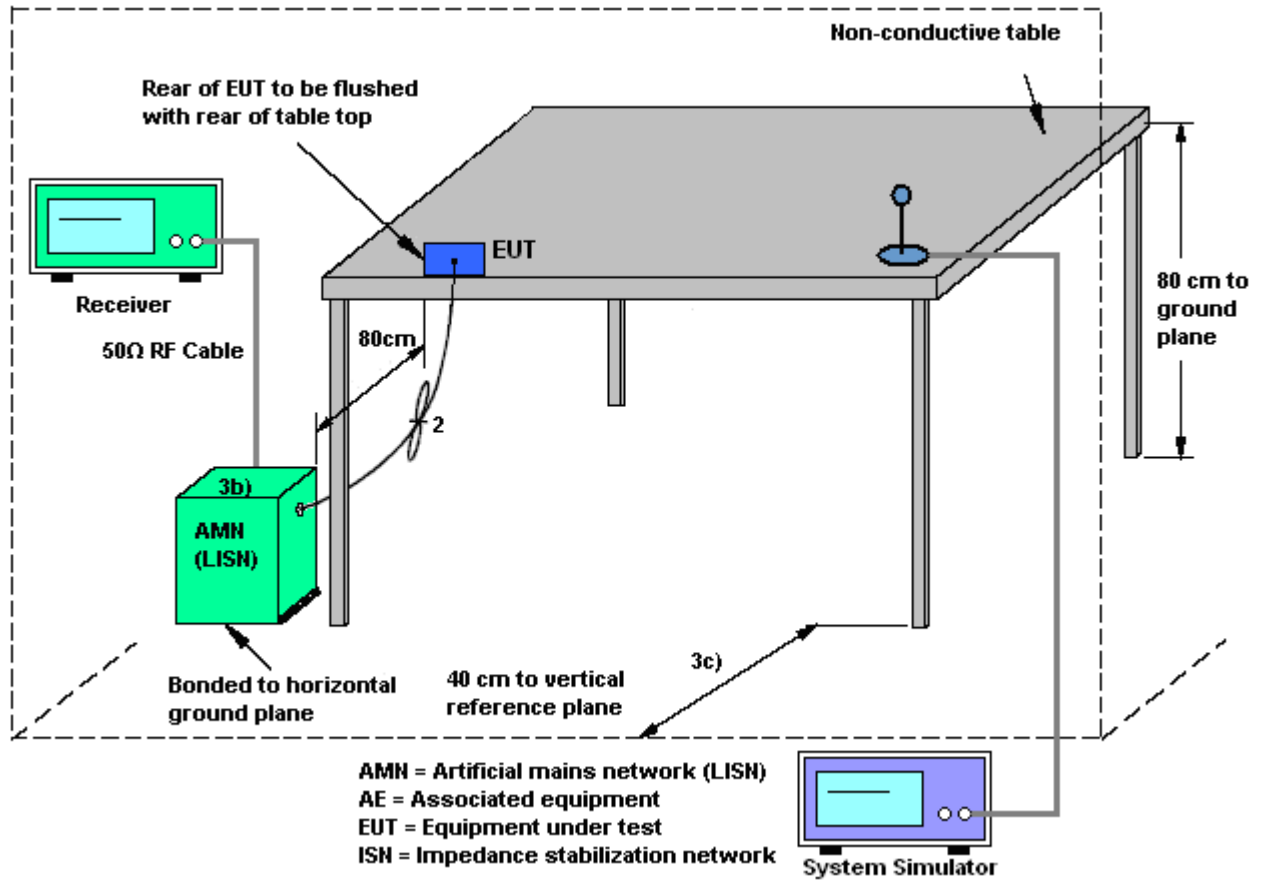
##### 3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

##### 3.1.3 Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

### 3.1.4 Test Setup



### 3.1.5 Test Result of AC Conducted Emission

Please refer to Appendix A.

## 3.2. Test of Radiated Emission Measurement

### 3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|--------------------|--------------------------------------|----------------------------------|
| 30 – 88            | 100                                  | 3                                |
| 88 – 216           | 150                                  | 3                                |
| 216 - 960          | 200                                  | 3                                |
| Above 960          | 500                                  | 3                                |

### 3.2.2. Measuring Instruments

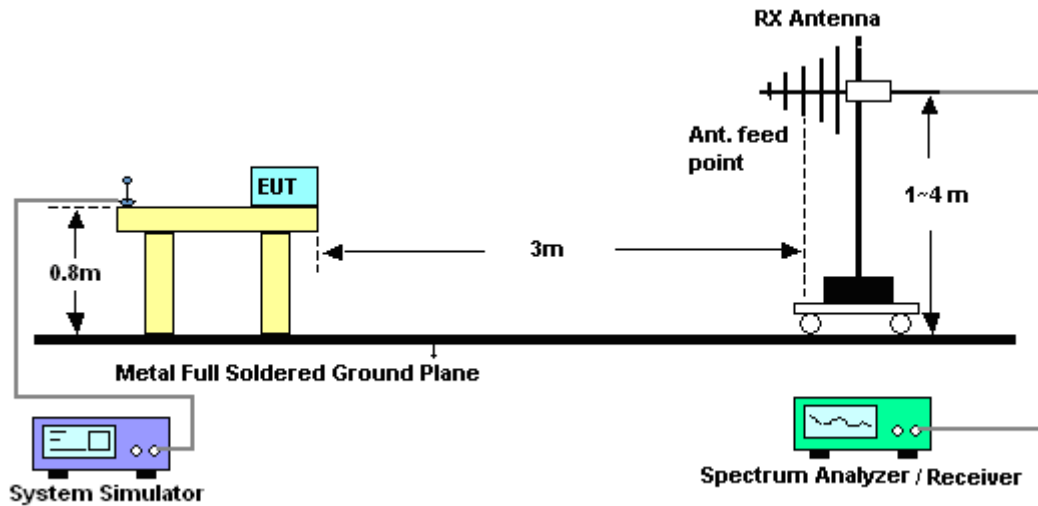
Refer a test equipment and calibration data table in this test report.

### 3.2.3. Test Procedures

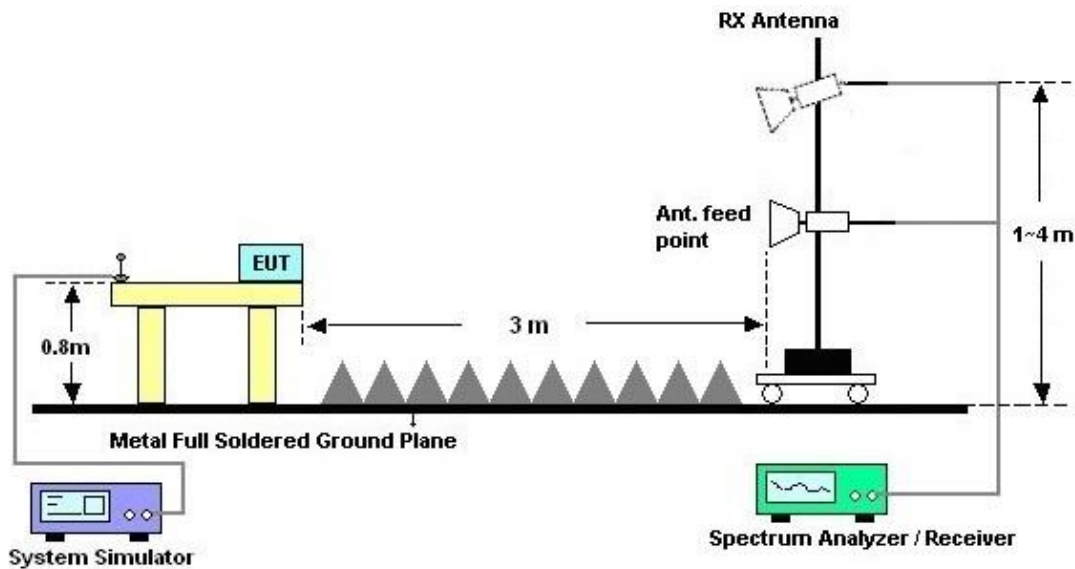
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamplifier Factor = Level

### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.2.5. Test Result of Radiated Emission

Please refer to Appendix B.



## 4. List of Measuring Equipment

| Instrument        | Manufacturer                          | Model No.               | Serial No.                                 | Characteristics               | Calibration Date | Test Date     | Due Date      | Remark                |
|-------------------|---------------------------------------|-------------------------|--------------------------------------------|-------------------------------|------------------|---------------|---------------|-----------------------|
| AC Power Source   | ChainTek                              | APC-1000W               | N/A                                        | N/A                           | N/A              | Mar. 29, 2019 | N/A           | Conduction (CO05-HY)  |
| EMI Test Receiver | Rohde & Schwarz                       | ESR3                    | 102388                                     | 9KHz~3.6GHz                   | Nov. 12, 2018    | Mar. 29, 2019 | Nov. 11, 2019 | Conduction (CO05-HY)  |
| LISN              | Rohde & Schwarz                       | ENV216                  | 100080                                     | 9kHz~30MHz                    | Nov. 14, 2018    | Mar. 29, 2019 | Nov. 13, 2019 | Conduction (CO05-HY)  |
| Software          | Rohde & Schwarz                       | EMC32 V10.30            | N/A                                        | N/A                           | N/A              | Mar. 29, 2019 | N/A           | Conduction (CO05-HY)  |
| LF Cable          | HUBER + SUHNER                        | RG-214/U                | LF01                                       | N/A                           | Dec. 31, 2018    | Mar. 29, 2019 | Dec. 30, 2019 | Conduction (CO05-HY)  |
| Pulse Limiter     | Rohde & Schwarz                       | ESH3-Z2                 | 100851                                     | N/A                           | Dec. 31, 2018    | Mar. 29, 2019 | Dec. 30, 2019 | Conduction (CO05-HY)  |
| Bilog Antenna     | Schaffner                             | CBL6111C&N -6-06        | 2725&AT-N0601                              | 30MHz~1GHz                    | Oct. 13, 2018    | Apr. 06, 2019 | Oct. 12, 2019 | Radiation (03CH06-HY) |
| EMI Test Receiver | Rohde & Schwarz                       | ESU26                   | 100472                                     | 20Hz~26.5GHz                  | Jan. 08, 2019    | Apr. 06, 2019 | Jan. 07, 2020 | Radiation (03CH06-HY) |
| Horn Antenna      | SCHWARZBECK                           | BBHA 9120 D             | 9120D-1156                                 | 1GHz~18GHz                    | Aug. 24, 2018    | Apr. 06, 2019 | Aug. 23, 2019 | Radiation (03CH06-HY) |
| Preamplifier      | SONOMA                                | 310N                    | 186713                                     | 9kHz~1GHz                     | May 02, 2018     | Apr. 06, 2019 | May 01, 2019  | Radiation (03CH06-HY) |
| Preamplifier      | MITEQ                                 | AMF-7D-0010 1800-30-10P | 1850117                                    | 1GHz ~ 18GHz                  | May 24, 2018     | Apr. 06, 2019 | May 23, 2019  | Radiation (03CH06-HY) |
| Controller        | INN-CO                                | EM1000                  | 060782                                     | Control Turn table & Ant Mast | N/A              | Apr. 06, 2019 | N/A           | Radiation (03CH06-HY) |
| Antenna Mast      | MF                                    | MF-7802                 | MF780208212                                | 1m~4m                         | N/A              | Apr. 06, 2019 | N/A           | Radiation (03CH06-HY) |
| Turn Table        | INN-CO                                | DS2000                  | 420/650/00                                 | 0-360 degree                  | N/A              | Apr. 06, 2019 | N/A           | Radiation (03CH06-HY) |
| Test Software     | AUDIX                                 | e3                      | 6.2009-8-24(k5)                            | N/A                           | N/A              | Apr. 06, 2019 | N/A           | Radiation (03CH06-HY) |
| RF Cable          | HUBER+SUHNER/WOKEN/HARBOUR INDUSTRIES | SUCOFLEX 104/STORM/L142 | MY24966/4/00100A1 O2A178T/CA3601-3601-1000 | 30MHz-26GHz                   | Nov. 22, 2018    | Apr. 06, 2019 | Nov. 21, 2019 | Radiation (03CH06-HY) |
| Filter            | Microwave                             | H1G013G1                | SN477215                                   | 1.0G High Pass                | Nov. 02, 2018    | Apr. 06, 2019 | Nov. 01, 2019 | Radiation (03CH06-HY) |
| Filter            | Wainwright                            | WLKS1200-8SS            | SN3                                        | 1.2G Low Pass                 | Nov. 02, 2018    | Apr. 06, 2019 | Nov. 01, 2019 | Radiation (03CH06-HY) |

## 5. Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

|                                                                            |     |
|----------------------------------------------------------------------------|-----|
| Measuring Uncertainty for a Level of Confidence<br>of 95% ( $U = 2Uc(y)$ ) | 2.2 |
|----------------------------------------------------------------------------|-----|

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

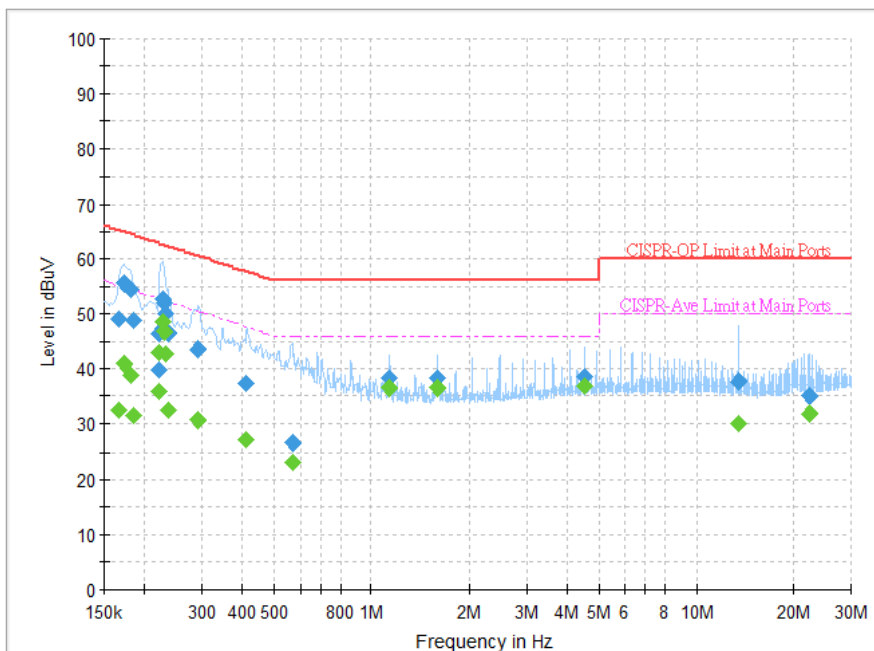
|                                                                            |     |
|----------------------------------------------------------------------------|-----|
| Measuring Uncertainty for a Level of Confidence<br>of 95% ( $U = 2Uc(y)$ ) | 3.9 |
|----------------------------------------------------------------------------|-----|

### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

|                                                                            |     |
|----------------------------------------------------------------------------|-----|
| Measuring Uncertainty for a Level of Confidence<br>of 95% ( $U = 2Uc(y)$ ) | 4.7 |
|----------------------------------------------------------------------------|-----|

## Appendix A. AC Conducted Emission Test Results

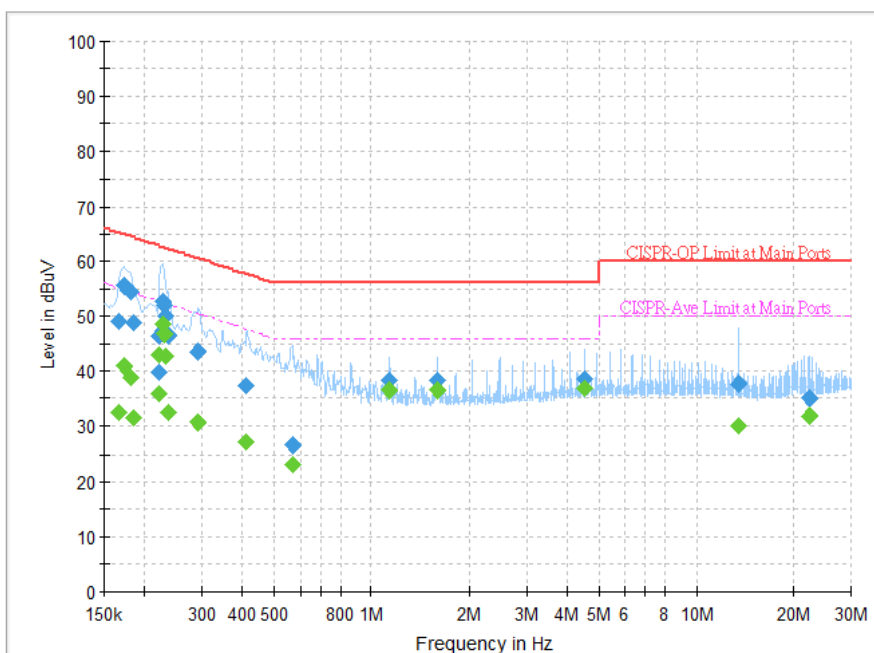
|                        |                                                                                 |                            |         |
|------------------------|---------------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Engineer :</b> | Rick Lin, and Jimmy Chang                                                       | <b>Temperature :</b>       | 24~26°C |
|                        |                                                                                 | <b>Relative Humidity :</b> | 51~53%  |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                                                   | <b>Phase :</b>             | Line    |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |         |



### Final Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.165750        | ---              | 32.34           | 55.17        | 22.83       | L1   | OFF    | 19.5       |
| 0.165750        | 49.23            | ---             | 65.17        | 15.94       | L1   | OFF    | 19.5       |
| 0.172500        | ---              | 40.89           | 54.84        | 13.95       | L1   | OFF    | 19.5       |
| 0.172500        | 55.56            | ---             | 64.84        | 9.28        | L1   | OFF    | 19.5       |
| 0.179250        | ---              | 38.84           | 54.52        | 15.68       | L1   | OFF    | 19.5       |
| 0.179250        | 54.52            | ---             | 64.52        | 10.00       | L1   | OFF    | 19.5       |
| 0.183750        | ---              | 31.61           | 54.31        | 22.70       | L1   | OFF    | 19.5       |
| 0.183750        | 48.70            | ---             | 64.31        | 15.61       | L1   | OFF    | 19.5       |
| 0.219750        | ---              | 36.07           | 52.83        | 16.76       | L1   | OFF    | 19.5       |
| 0.219750        | 39.66            | ---             | 62.83        | 23.17       | L1   | OFF    | 19.5       |
| 0.222000        | ---              | 43.05           | 52.74        | 9.69        | L1   | OFF    | 19.5       |
| 0.222000        | 46.46            | ---             | 62.74        | 16.28       | L1   | OFF    | 19.5       |
| 0.226500        | ---              | 48.46           | 52.58        | 4.12        | L1   | OFF    | 19.5       |
| 0.226500        | 52.54            | ---             | 62.58        | 10.04       | L1   | OFF    | 19.5       |
| 0.228750        | ---              | 46.74           | 52.50        | 5.76        | L1   | OFF    | 19.5       |
| 0.228750        | 52.03            | ---             | 62.50        | 10.47       | L1   | OFF    | 19.5       |
| 0.231000        | ---              | 42.61           | 52.41        | 9.80        | L1   | OFF    | 19.5       |
| 0.231000        | 49.91            | ---             | 62.41        | 12.50       | L1   | OFF    | 19.5       |
| 0.237750        | ---              | 32.47           | 52.17        | 19.70       | L1   | OFF    | 19.5       |
| 0.237750        | 46.63            | ---             | 62.17        | 15.54       | L1   | OFF    | 19.5       |
| 0.291750        | ---              | 30.80           | 50.47        | 19.67       | L1   | OFF    | 19.5       |
| 0.291750        | 43.49            | ---             | 60.47        | 16.98       | L1   | OFF    | 19.5       |

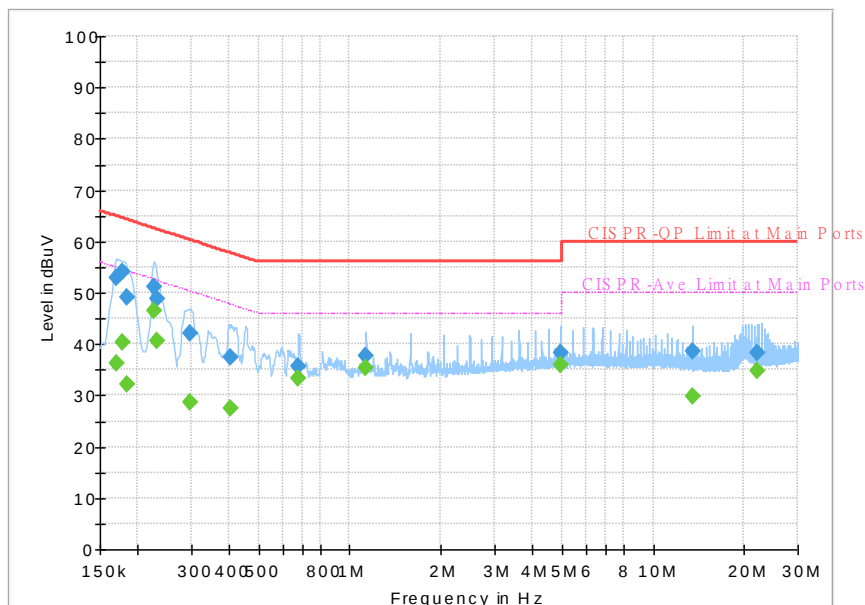
|                        |                                                                                 |                            |         |
|------------------------|---------------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Engineer :</b> | Rick Lin, and Jimmy Chang                                                       | <b>Temperature :</b>       | 24~26°C |
|                        |                                                                                 | <b>Relative Humidity :</b> | 51~53%  |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                                                   | <b>Phase :</b>             | Line    |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |         |



### Final Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.411000        | ---              | 27.14           | 47.63        | 20.49       | L1   | OFF    | 19.5       |
| 0.411000        | 37.47            | ---             | 57.63        | 20.16       | L1   | OFF    | 19.5       |
| 0.566250        | ---              | 23.06           | 46.00        | 22.94       | L1   | OFF    | 19.5       |
| 0.566250        | 26.71            | ---             | 56.00        | 29.29       | L1   | OFF    | 19.5       |
| 1.131000        | ---              | 36.54           | 46.00        | 9.46        | L1   | OFF    | 19.6       |
| 1.131000        | 38.25            | ---             | 56.00        | 17.75       | L1   | OFF    | 19.6       |
| 1.583250        | ---              | 36.64           | 46.00        | 9.36        | L1   | OFF    | 19.6       |
| 1.583250        | 38.33            | ---             | 56.00        | 17.67       | L1   | OFF    | 19.6       |
| 4.524000        | ---              | 36.87           | 46.00        | 9.13        | L1   | OFF    | 19.7       |
| 4.524000        | 38.45            | ---             | 56.00        | 17.55       | L1   | OFF    | 19.7       |
| 13.560000       | ---              | 30.08           | 50.00        | 19.92       | L1   | OFF    | 20.0       |
| 13.560000       | 37.82            | ---             | 60.00        | 22.18       | L1   | OFF    | 20.0       |
| 22.402500       | ---              | 31.95           | 50.00        | 18.05       | L1   | OFF    | 20.3       |
| 22.402500       | 35.05            | ---             | 60.00        | 24.95       | L1   | OFF    | 20.3       |

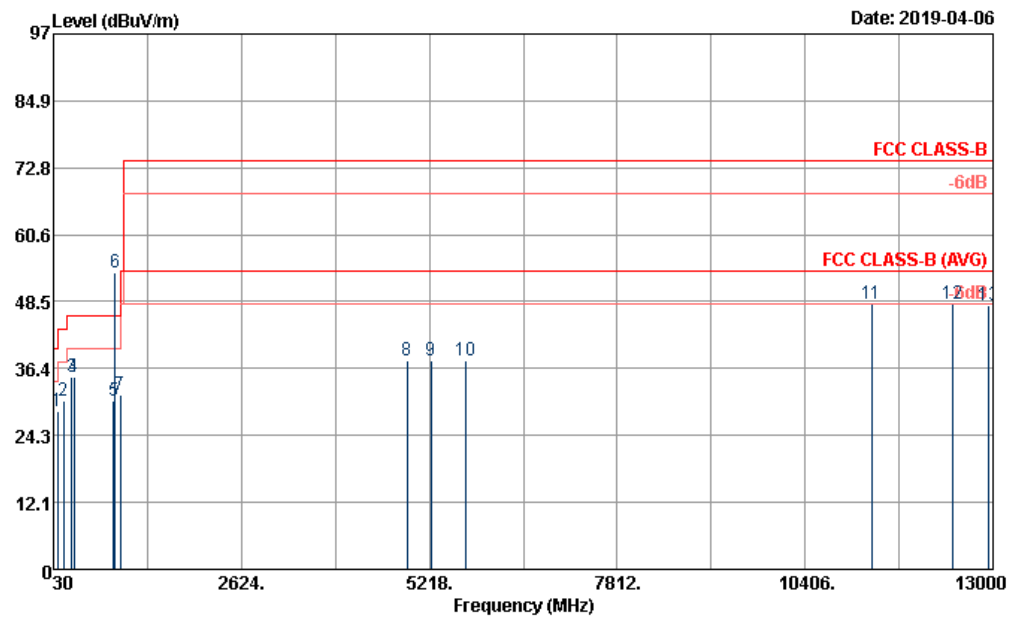
|                        |                                                                                 |                            |         |
|------------------------|---------------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Engineer :</b> | Rick Lin, and Jimmy Chang                                                       | <b>Temperature :</b>       | 24~26°C |
|                        |                                                                                 | <b>Relative Humidity :</b> | 51~53%  |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                                                   | <b>Phase :</b>             | Neutral |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |         |


**Final Result :**

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.170250        | ---              | 36.20           | 54.95        | 18.75       | N    | OFF    | 19.5       |
| 0.170250        | 52.97            | ---             | 64.95        | 11.98       | N    | OFF    | 19.5       |
| 0.177000        | ---              | 40.26           | 54.63        | 14.37       | N    | OFF    | 19.5       |
| 0.177000        | 53.97            | ---             | 64.63        | 10.66       | N    | OFF    | 19.5       |
| 0.183750        | ---              | 32.14           | 54.31        | 22.17       | N    | OFF    | 19.5       |
| 0.183750        | 49.02            | ---             | 64.31        | 15.29       | N    | OFF    | 19.5       |
| 0.226500        | ---              | 46.50           | 52.58        | 6.08        | N    | OFF    | 19.5       |
| 0.226500        | 51.29            | ---             | 62.58        | 11.29       | N    | OFF    | 19.5       |
| 0.231000        | ---              | 40.64           | 52.41        | 11.77       | N    | OFF    | 19.5       |
| 0.231000        | 48.90            | ---             | 62.41        | 13.51       | N    | OFF    | 19.5       |
| 0.298500        | ---              | 28.71           | 50.28        | 21.57       | N    | OFF    | 19.5       |
| 0.298500        | 42.06            | ---             | 60.28        | 18.22       | N    | OFF    | 19.5       |
| 0.404250        | ---              | 27.53           | 47.77        | 20.24       | N    | OFF    | 19.5       |
| 0.404250        | 37.49            | ---             | 57.77        | 20.28       | N    | OFF    | 19.5       |
| 0.676500        | ---              | 33.38           | 46.00        | 12.62       | N    | OFF    | 19.6       |
| 0.676500        | 35.63            | ---             | 56.00        | 20.37       | N    | OFF    | 19.6       |
| 1.131000        | ---              | 35.30           | 46.00        | 10.70       | N    | OFF    | 19.6       |
| 1.131000        | 37.70            | ---             | 56.00        | 18.30       | N    | OFF    | 19.6       |
| 4.976250        | ---              | 35.94           | 46.00        | 10.06       | N    | OFF    | 19.7       |
| 4.976250        | 38.16            | ---             | 56.00        | 17.84       | N    | OFF    | 19.7       |
| 13.560000       | ---              | 29.77           | 50.00        | 20.23       | N    | OFF    | 20.1       |
| 13.560000       | 38.73            | ---             | 60.00        | 21.27       | N    | OFF    | 20.1       |
| 21.936750       | ---              | 34.86           | 50.00        | 15.14       | N    | OFF    | 20.4       |
| 21.936750       | 38.36            | ---             | 60.00        | 21.64       | N    | OFF    | 20.4       |

## Appendix B. Radiated Emission Test Result

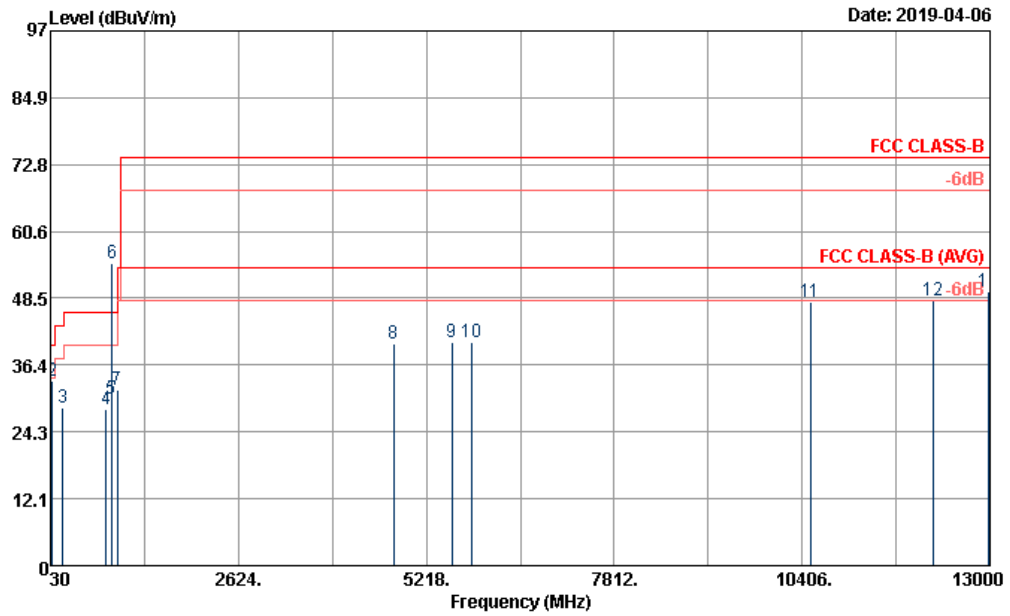
|                        |                                                     |                            |            |
|------------------------|-----------------------------------------------------|----------------------------|------------|
| <b>Test Engineer :</b> | Yuan Lee, and Donny Tang                            | <b>Temperature :</b>       | 24~26°C    |
|                        |                                                     | <b>Relative Humidity :</b> | 49~51%     |
| <b>Test Distance :</b> | 3m                                                  | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | #6 is system simulator signal which can be ignored. |                            |            |



Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m 9120B\_1156\_180824 HORIZONTAL  
 Project : 930415-05  
 Power : 120Vac/60Hz  
 Memo : Mode 2

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Preamp | A/Pos | T/Pos |              |
|-----|----------|--------|------------|------------|-------------------|--------------|-------|-------|--------------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | Loss Factor  | cm    | deg   | Remark       |
| 1   | 88.86    | 28.56  | -14.94     | 43.50      | 44.77             | 14.50        | 1.03  | 31.74 | --- --- Peak |
| 2   | 170.67   | 30.57  | -12.93     | 43.50      | 45.35             | 15.51        | 1.43  | 31.72 | --- --- Peak |
| 3   | 283.26   | 34.77  | -11.23     | 46.00      | 45.62             | 18.80        | 2.04  | 31.69 | --- --- Peak |
| 4   | 315.40   | 34.84  | -11.16     | 46.00      | 45.07             | 19.35        | 2.12  | 31.70 | 100 100 Peak |
| 5   | 855.80   | 30.40  | -15.60     | 46.00      | 29.51             | 28.91        | 3.61  | 31.63 | --- --- Peak |
| 6 * | 881.70   | 53.82  |            |            | 52.79             | 28.88        | 3.67  | 31.52 | --- --- Peak |
| 7   | 951.00   | 31.61  | -14.39     | 46.00      | 28.42             | 30.39        | 3.79  | 30.99 | --- --- Peak |
| 8   | 4910.00  | 37.79  | -36.21     | 74.00      | 55.72             | 31.23        | 9.18  | 58.73 | --- --- Peak |
| 9   | 5240.00  | 37.81  | -36.19     | 74.00      | 53.50             | 31.20        | 10.23 | 57.81 | --- --- Peak |
| 10  | 5730.00  | 37.76  | -36.24     | 74.00      | 52.05             | 31.87        | 10.99 | 57.72 | --- --- Peak |
| 11  | 11327.00 | 48.09  | -25.91     | 74.00      | 48.05             | 39.72        | 15.37 | 56.23 | --- --- Peak |
| 12  | 12433.00 | 48.14  | -25.86     | 74.00      | 50.49             | 38.40        | 16.33 | 58.24 | 100 135 Peak |
| 13  | 12930.00 | 47.86  | -26.14     | 74.00      | 49.44             | 39.20        | 16.90 | 58.83 | --- --- Peak |

|                        |                                                     |                            |          |
|------------------------|-----------------------------------------------------|----------------------------|----------|
| <b>Test Engineer :</b> | Yuan Lee, and Donny Tang                            | <b>Temperature :</b>       | 24~26°C  |
|                        |                                                     | <b>Relative Humidity :</b> | 49~51%   |
| <b>Test Distance :</b> | 3m                                                  | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | #6 is system simulator signal which can be ignored. |                            |          |



Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m 9120B\_1156\_180824 VERTICAL  
 Project : 930415-05  
 Power : 120Vac/60Hz  
 Memo : Mode 2

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Factor | Preamp Loss | A/Pos | T/Pos | Remark |
|-----|----------|--------|------------|------------|-------------------|--------------|-------------|-------|-------|--------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m         | dB          | dB    | cm    | deg    |
| 1   | 31.62    | 27.43  | -12.57     | 40.00      | 35.00             | 23.58        | 0.62        | 31.77 | ---   | ---    |
| 2   | 55.92    | 33.37  | -6.63      | 40.00      | 52.09             | 12.20        | 0.84        | 31.76 | 100   | 66     |
| 3   | 196.86   | 28.65  | -14.85     | 43.50      | 43.96             | 14.86        | 1.54        | 31.71 | ---   | ---    |
| 4   | 798.40   | 28.29  | -17.71     | 46.00      | 28.71             | 27.96        | 3.50        | 31.88 | ---   | ---    |
| 5   | 865.60   | 30.15  | -15.85     | 46.00      | 29.13             | 29.00        | 3.61        | 31.59 | ---   | ---    |
| 6 * | 881.70   | 54.84  |            |            | 53.81             | 28.88        | 3.67        | 31.52 | ---   | ---    |
| 7   | 956.60   | 31.93  | -14.07     | 46.00      | 28.20             | 30.69        | 3.98        | 30.94 | ---   | ---    |
| 8   | 4765.00  | 40.13  | -33.87     | 74.00      | 58.24             | 31.00        | 9.68        | 59.34 | ---   | ---    |
| 9   | 5570.00  | 40.46  | -33.54     | 74.00      | 54.51             | 31.70        | 11.02       | 57.42 | ---   | ---    |
| 10  | 5840.00  | 40.46  | -33.54     | 74.00      | 54.46             | 32.30        | 11.02       | 57.92 | ---   | ---    |
| 11  | 10522.00 | 47.86  | -26.14     | 74.00      | 49.36             | 40.00        | 14.86       | 57.57 | ---   | ---    |
| 12  | 12216.00 | 48.04  | -25.96     | 74.00      | 49.55             | 38.88        | 16.05       | 57.60 | ---   | ---    |
| 13  | 12972.00 | 49.85  | -24.15     | 74.00      | 51.44             | 39.20        | 16.93       | 58.87 | 100   | 163    |

-----THE END-----