



| TE   | EST REPORT  |                        |  |
|--|---|------------------------|--|
| Report Reference No                                | TRE1805013707 R/C   | : 11244                |  |
| FCC ID:  | 2ADE3NMC001   |                        |  |
| Applicant's name:                                  | WUXI IDATA TECHNOLOGY COMP.   | ANY LTD.               |  |
| Address:   | Floor 11,Building B1,Wuxi Binhu Natio<br>Center,No.999 Gaolang East Road, W |                        |  |
| Manufacturer                                       | WUXI IDATA TECHNOLOGY COMPA   | ANY LTD.               |  |
| Address:   | Floor 11,Building B1,Wuxi Binhu Natio<br>Center,No.999 Gaolang East Road, W |                        |  |
| Test item description:                             | NEW MOBILE COMPUTER   |                        |  |
| Trade Mark:  | iData   |                        |  |
| Model/Type reference                               | iData 50  |                        |  |
| Listed Model(s)                                    | iData 55HC  |                        |  |
| Standard:  | FCC CFR Title 47 Part 15 Subpart C Section 15.225                           |                        |  |
| Date of receipt of test sample                     | May 16, 2018  |                        |  |
| Date of testing                                    | May 17, 2018 - May 28, 2018   |                        |  |
| Date of issue                                      | May 28, 2018  |                        |  |
| Result:  | PASS  |                        |  |
| Compiled by<br>( position+printedname+signature):  | File administrators Shayne Zhu  | Shayne Zhu             |  |
| Supervised by<br>(position+printedname+signature): | Project Engineer Edward Pan   | Edward pour            |  |
| Approved by<br>(position+printedname+signature):   | RF Manager Hans Hu  | Homsty                 |  |
| Testing Laboratory Name :                          | Shenzhen Huatongwei Internationa  | I Inspection Co., Ltd. |  |
| Address:   | 1/F, Bldg 3, Hongfa Hi-tech Industrial Tianliao, Gongming, Shenzhen, China  |                        |  |
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The test report merely correspond to the test sample.

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|   | Test Standards         Report version information         TEST DESCRIPTION         SUMMARY         Client Information         Product Description         EUT operation mode         EUT configuration         Modifications         TEST ENVIRONMENT         Address of the test laboratory         Test Facility         Environmental conditions         Statement of the measurement uncertainty         Equipments Used during the Test         TEST CONDITIONS AND RESULTS         Antenna requirement         AC Power Conducted Emissions         Field Strength of Fundamental Emission and Mask Measurement         20 dB Occupied Bandwidth         Radiated Emissions         Frequency Stability Measurement         TEST SETUP PHOTOS OF THE EUT |

# 1. TEST STANDARDS AND TEST DESCRIPTION

### 1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.225: Operation within the band 13.110-14.010 MHz

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

### **1.2.** Report version information

| Revision No. | Date of issue | Description |
|--------------|---------------|-------------|
| N/A          | 2018-05-28    | Original    |
|              |               |             |
|              |               |             |
|              |               |             |
|              |               |             |

# 2. Test Description

| Test Item   | FCC Rule      | Result | Test Engineer |
|---|---------------|--------|---------------|
| Antenna requirement   | 15.203        | Pass   | Xiaokang tan  |
| AC Power Line Conducted Emissions                               | 15.207        | Pass   | Si Ding       |
| Field Strength of Fundamental<br>Emissions and Mask Measurement | 15.225        | Pass   | Jiuru Pan     |
| 20dB Occupied Bandwidth   | 15.215&15.215 | Pass   | Xiaokang tan  |
| Radiated Emission   | 15.209        | Pass   | Shower Dai    |
| Frequency Stability Measurement                                 | 15.225        | Pass   | Xiaokang tan  |

Remark: The measurement uncertainty is not included in the test result.

# 3. SUMMARY

# 3.1. Client Information

| Applicant:  | cant: WUXI IDATA TECHNOLOGY COMPANY LTD.  |  |
|---|---|--|
| Address:Floor 11,Building B1,Wuxi Binhu National Sensing Information Center,<br>No.999 Gaolang East Road, Wuxi, China |   |  |
| Manufacturer: WUXI IDATA TECHNOLOGY COMPANY LTD.  |   |  |
| Address:  | Floor 11,Building B1,Wuxi Binhu National Sensing Information Center,<br>No.999 Gaolang East Road, Wuxi, China |  |

### **3.2. Product Description**

| Name of EUT:                  | NEW MOBILE COMPUTER  |  |
|-------------------------------|--|--|
| Trade Mark:                   | iData  |  |
| Model No.:                    | iData 50   |  |
| Listed Model(s):              | iData 55HC   |  |
| IMEI:                         | Radiated:359157093486913<br>Conducted:359157093486970                                    |  |
| Power supply:                 | DC 3.7V  |  |
| Adapter information 1:        | Model: FJ-SW1260502000UN<br>Input: 100-240Va.c., 50/60Hz, 0.4A<br>Output: 5Vd.c., 2000mA |  |
| Adapter information 2:        | Model:FJ-SW1202000N<br>Input:AC 100-240V 50/60Hz 0.6A Max<br>Output: 12Vd.c., 2000mA     |  |
| Hardware version:             | A20  |  |
| Software version:             | Android.Marshmallow.V6.0   |  |
| NFC                           |  |  |
| Operation frequency: 13.56MHz |  |  |
| Channel number:               | 1  |  |
| Modulation Type:              | ASK  |  |
| Antenna type:                 | PIFA antenna   |  |
| Antenna gain:                 | 1.5dBi   |  |

### 3.3. EUT operation mode

| For RF test items  |
|--|
| The engineering test program was provided and enabled to make EUT continuous transmit. |
| For AC power line conducted emissions:   |
| The EUT was set to connect with large package sizes transmission.                      |

### 3.4. EUT configuration

# The following peripheral devices and interface cables were connected during the measurement: - supplied by the manufacturer

supplied by the lab

| Man | ufacturer : / |
|-----|---------------|
| M   | odel No. : /  |
| Man | ufacturer : / |
| М   | odel No. : /  |

### 3.5. Modifications

No modifications were implemented to meet testing criteria.

# 4. TEST ENVIRONMENT

#### 4.1. Address of the test laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd. Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China Phone: 86-755-26748019 Fax: 86-755-26748089

### 4.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### A2LA-Lab Cert. No. 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

#### FCC-Registration No.: 762235

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files.

#### IC-Registration No.: 5377B-1

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B-1.

#### ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

### 4.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

| Temperature:     | 15~35°C     |
|------------------|-------------|
| lative Humidity: | 30~60 %     |
| Air Pressure:    | 950~1050mba |

#### 4.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors in calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of according to TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system according to ISO/IEC 17025. Further more, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Here after the best measurement capability for Shenzhen Huatongwei is reported:

| Test Items                              | MeasurementUncertainty | Notes |
|---|------------------------|-------|
| Conducted spurious emissions 9KHz-30MHz | 3.39 dB                | (1)   |
| Radiated Emissions 30~1000MHz           | 4.24 dB                | (1)   |
| Radiated Emissions 1~18GHz              | 5.16 dB                | (1)   |
| Radiated Emissions 18-40GHz             | 5.54 dB                | (1)   |
| Occupied Bandwidth                      |                        | (1)   |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

# 4.5. Equipments Used during the Test

| Conduc | Conducted Emissions       |              |           |            |                         |                         |
|--------|---------------------------|--------------|-----------|------------|-------------------------|-------------------------|
| Item   | Test<br>Equipment         | Manufacturer | Model No. | Serial No. | Last Cal.<br>(mm-dd-yy) | Next Cal.<br>(mm-dd-yy) |
| 1      | EMI Test<br>Receiver      | R&S          | ESCI      | 101247     | 11/11/2017              | 11/10/2018              |
| 2      | Artificial Mains          | SCHWARZBECK  | NNLK 8121 | 573        | 11/11/2017              | 11/10/2018              |
| 3      | 2-Line V-<br>Network      | R&S          | ESH3-Z5   | 100049     | 11/11/2017              | 11/10/2018              |
| 4      | Pulse Limiter             | R&S          | ESH3-Z2   | 101488     | 11/11/2017              | 11/10/2018              |
| 5      | RF<br>Connection<br>Cable | HUBER+SUHNER | EF400     | N/A        | 11/21/2017              | 11/20/2018              |
| 6      | Test Software             | R&S          | ES-K1     | N/A        | N/A                     | N/A                     |

| Radiat | Radiated Emissions             |                                 |           |            |                         |                         |  |
|--------|--------------------------------|---------------------------------|-----------|------------|-------------------------|-------------------------|--|
| Item   | Test<br>Equipment              | Manufacturer                    | Model No. | Serial No. | Last Cal.<br>(mm-dd-yy) | Next Cal.<br>(mm-dd-yy) |  |
| 1      | EMI Test<br>Receiver           | R&S                             | ESCI      | 101247     | 11/11/2017              | 11/10/2018              |  |
| 2      | Loop Antenna                   | R&S                             | HFH2-Z2   | 100020     | 11/20/2017              | 11/19/2018              |  |
| 3      | Ultra-<br>Broadband<br>Antenna | SCHWARZBECK                     | VULB9163  | 538        | 4/5/2017                | 4/4/2020                |  |
| 4      | Preamplifier                   | SCHWARZBECK                     | BBV 9743  | 9743-0022  | 10/18/2017              | 10/17/2018              |  |
| 5      | RF<br>Connection<br>Cable      | HUBER+SUHNE<br>R                | RE-7-FL   | N/A        | 11/21/2017              | 11/20/2018              |  |
| 6      | EMI Test<br>Software           | R&S                             | ESK1      | N/A        | N/A                     | N/A                     |  |
| 7      | Spectrum<br>Analyzer           | R&S                             | FSP40     | 100597     | 11/11/2017              | 11/10/2018              |  |
| 8      | Horn Antenna                   | SCHWARZBECK                     | 9120D     | 1011       | 3/27/2017               | 3/26/2020               |  |
| 9      | Horn Antenna                   | SCHWARZBECK                     | BBHA9170  | 25841      | 3/27/2017               | 3/26/2018               |  |
| 10     | Broadband<br>Preamplifier      | SCHWARZBECK                     | BBV 9718  | 9718-248   | 10/18/2017              | 10/17/2018              |  |
| 11     | High pass<br>filter            | Compliance<br>Direction systems | BSU-6     | 34202      | 11/11/2017              | 11/10/2018              |  |
| 12     | RF<br>Connection<br>Cable      | HUBER+SUHNE<br>R                | RE-7-FH   | N/A        | 11/21/2017              | 11/20/2018              |  |
| 13     | EMI Test<br>Software           | Audix                           | E3        | N/A        | N/A                     | N/A                     |  |
| 14     | Turntable                      | MATURO                          | TT2.0     | N/A        | N/A                     | N/A                     |  |
| 15     | Antenna Mast                   | MATURO                          | TAM-4.0-P | N/A        | N/A                     | N/A                     |  |

| RF Conducted Test |                        |              |           |            |                         |                         |  |  |
|-------------------|------------------------|--------------|-----------|------------|-------------------------|-------------------------|--|--|
| Item              | Test<br>Equipment      | Manufacturer | Model No. | Serial No. | Last Cal.<br>(mm-dd-yy) | Next Cal.<br>(mm-dd-yy) |  |  |
| 1                 | Spectrum<br>Analyzer   | R&S          | FSV40     | 100048     | 11/11/2017              | 11/10/2018              |  |  |
| 2                 | EXA Signal<br>Analyzer | Agilent      | N9020A    | 184247     | 9/22/2017               | 9/21/2018               |  |  |
| 3                 | Power Meter            | Anritsu      | ML249A    | N/A        | 9/22/2017               | 9/21/2018               |  |  |
| 4                 | OSP                    | R&S          | OSP120    | 101317     | N/A                     | N/A                     |  |  |

# 5. TEST CONDITIONS AND RESULTS

### 5.1. Antenna requirement

#### **Requirement**

#### FCC CFR Title 47 Part 15 Subpart C Section 15.203:

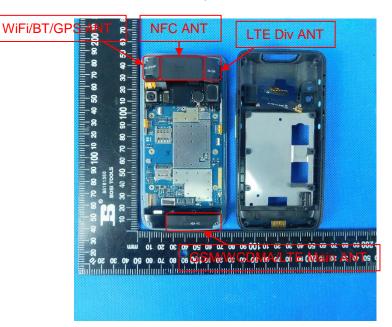
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of anantenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### Refer to statement below for compliance.

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.

### Test Result:

The directional gain of the antenna less than 6 dBi, please refer to the below antenna photo.



### 5.2. AC Power Conducted Emissions

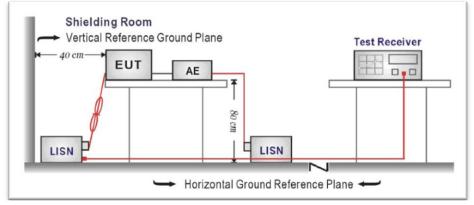
#### <u>LIMIT</u>

FCC CFR Title 47 Part 15 Subpart C Section 15.207:

| Eroquopov rango (MHz) | Limit (dBuV) |           |  |  |
|-----------------------|--------------|-----------|--|--|
| Frequency range (MHz) | Quasi-peak   | Average   |  |  |
| 0.15-0.5              | 66 to 56*    | 56 to 46* |  |  |
| 0.5-5                 | 56           | 46        |  |  |
| 5-30                  | 60           | 50        |  |  |

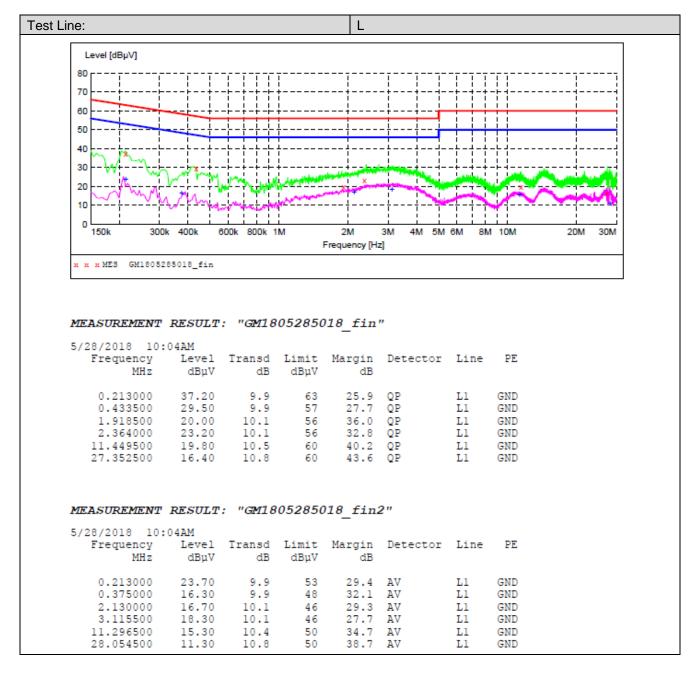
\* Decreases with the logarithm of the frequency.

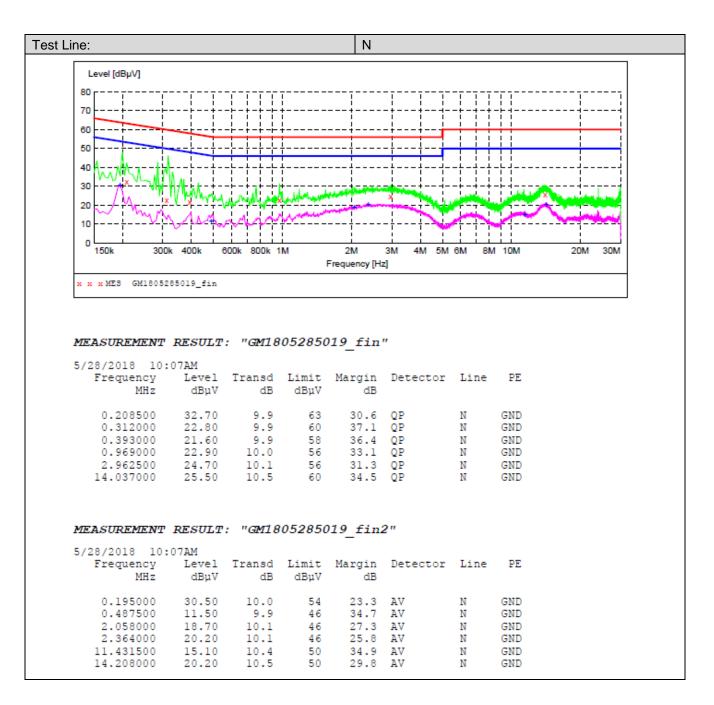
#### **TEST CONFIGURATION**



#### TEST PROCEDURE

- 1. The EUT was setup according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
- The EUT was placed on a plat form of nominal size, 1 m by 1.5 m, raised 10 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 10 cm from any other grounded conducting surface.
- 3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50ohm / 50uH coupling impedance for the measuring equipment.
- 4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
- 5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
- 6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- 7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
- 8. During the above scans, the emissions were maximized by cable manipulation.





### 5.3. Field Strength of Fundamental Emission and Mask Measurement

#### <u>Limit</u>

Operation frequency range 13.11MHz~14.01MHz.

According to ANSI C63:10-2013 Clause 6.4.4.The measured distance great than  $\lambda/2 \pi$  at 13.56MHz. So the measured field strength is

$$FS_{\text{limit}} = FS_{\text{max}} - 20\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

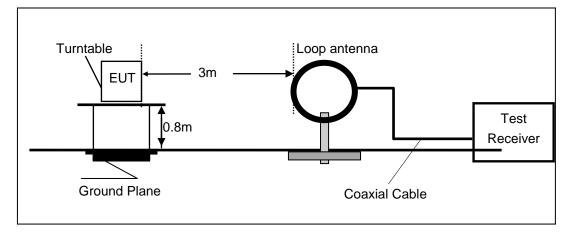
 $FS_{limit}$  is the calculation of field strength at the limit distance, expressed in dBµV/m  $FS_{max}$  is the measured field strength, expressed in dBµV/m  $d_{near}$  field is the  $\lambda/2\pi$  distance  $d_{measure}$  is the distance of the measurement point from the EUT

 $d_{\text{limit}}$  is the reference limit distance

| Frequency (MHz) | Field Strength<br>(microvolts/meter) at 30m | Field Strength<br>(dBuV/m) at 3m |
|-----------------|---|----------------------------------|
| 1.705~13.110    | 30  | 49.5                             |
| 13.110~13.410   | 106   | 60.5                             |
| 13.410~13.553   | 334   | 70.5                             |
| 13.553~13.567   | 15848                                       | 104.0                            |
| 13.567~13.710   | 334   | 70.5                             |
| 13.710~14.010   | 106   | 70.5                             |
| 14.010~30.000   | 30  | 49.5                             |

#### TEST CONFIGURATION

Radiated Emission Test Set-Up Frequency range 9KHz–30MHz



#### TEST PROCEDURE

- 1. The EUT was tested according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.225 requirements.
- 2. The EUT is placed on a turn table which is 0.8 meter above ground plane. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
- 5. Use the following spectrum analyzer settings
- 6. Span shall wide enough to fully capture the emission being measured;
  - (1) Span shall wide enough to fully capture the emission being measured;
    - (2) From 13.11MHz to 14.01MHz, RBW=10KHz, VBW=30KHz, Sweep=auto, Detector function=peak,

(3) Below 1GHz, RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detectoris 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

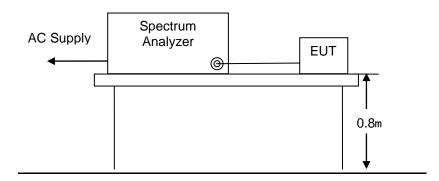
| Frequency<br>MHz | Mea.Frequency<br>MHz | Test result<br>(dBµV/m@3m) | Limit<br>(dBuV/m @3m) | Margin<br>dB | Det.  | Result |
|------------------|----------------------|----------------------------|-----------------------|--------------|-------|--------|
| 13.110~13.410    | 13.400               | 24.77                      | 60.50                 | -35.73       | Quasi | Pass   |
| 13.410~13.553    | 13.551               | 24.69                      | 70.50                 | -45.81       | Quasi | Pass   |
| 13.553~13.567    | 13.560               | 52.69                      | 104.00                | -51.31       | Quasi | Pass   |
| 13.567~13.710    | 13.568               | 24.52                      | 70.50                 | -45.98       | Quasi | Pass   |
| 13.710~14.010    | 13.710               | 24.48                      | 65.50                 | -41.02       | Quasi | Pass   |

### 5.4. 20 dB Occupied Bandwidth

#### <u>Limit</u>

Operation frequency range 13.11MHz~14.01MHz.

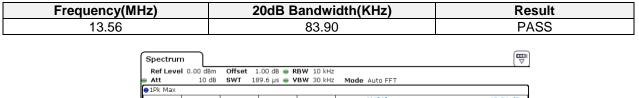
#### **TEST CONFIGURATION**

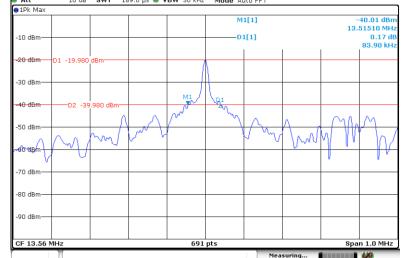


#### TEST PROCEDURE

1.As required by 47 CFR 15.215 and 47 CFR 15.225

2. The EUT connected to the spectrum analyzer was operated in linear scale and 2.0MHz span mode after tuning to the transmitter frequency.





### 5.5. Radiated Emissions

### <u>LIMIT</u>

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table:

| Frequency (MHz) | Distance(Meters) | Radiated(dBµV/m)     | Radiated(µV/m) |
|-----------------|------------------|----------------------|----------------|
| 0.009 - 0.490   | 300              | 20*log(2400/F(kHz))  | 2400/F(kHz)    |
| 0.490 - 1.705   | 30               | 20*log(24000/F(kHz)) | 24000/F(kHz)   |
| 1.705 - 30.0    | 30               | 29.54                | 30             |
| 30-88           | 3                | 40.0                 | 100            |
| 88-216          | 3                | 43.5                 | 150            |
| 216-960         | 3                | 46.0                 | 200            |
| Above 960       | 3                | 54.0                 | 500            |

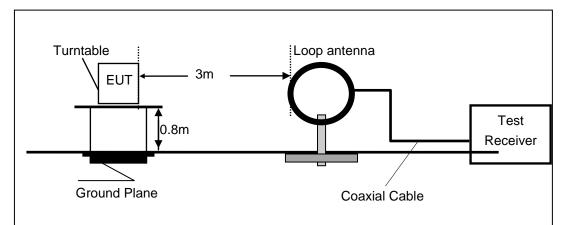
Remark:At frequencies below 30MHz, Limit 3m(dBuV)=Limit xm(dBuV)+20log(xm/3m); At frequencies below 30MHz, Limit 3m(dBuV)=Limit xm(dBuV)+40log(xm/3m),x replace the number 10.30.300.

In addition to the provisions of §15.249, the field strength of emissions from intentional radiators operated under this section shall not exceed thefollowing:

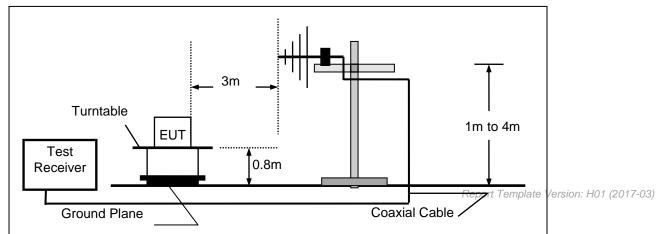
| Fundamental frequency | Field strength of fundamental<br>(millivolts/meter) | Field strength of harmonics<br>(microvolts/meter) |
|-----------------------|---|---|
| 902-928 MHz           | 50  | 500   |
| 2400-2483.5 MHz       | 50  | 500   |
| 5725-5875 MHz         | 50  | 500   |
| 24.0-24.25 GHz        | 250   | 2500  |

#### **TEST CONFIGURATION**

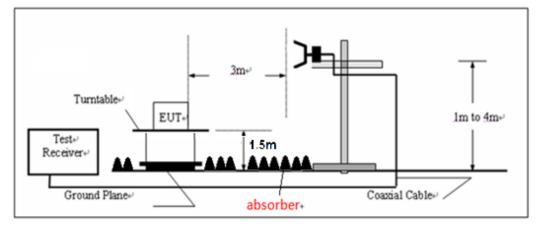
Radiated Emission Test Set-Up Frequency range 9KHz–30MHz



Frequency range30MHz – 1000MHz



#### Frequency range above 1GHz-25GHz



#### TEST PROCEDURE

- 7. The EUT was tested according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
- 8. The EUT is placed on a turn table which is 0.8/1.5 meter above ground plane. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 9. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
- 10. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
- 11. Use the following spectrum analyzer settings
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Below 1GHz, RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detectoris 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, theemission measurement will be repeated using the quasi-peak detector and reported.
  - (3) Above 1GHz, RBW=1MHz, VBW=3MHz Peak detetor for Peak value RBW=1MHz, VBW=3MHz RMS detetor for Average value.

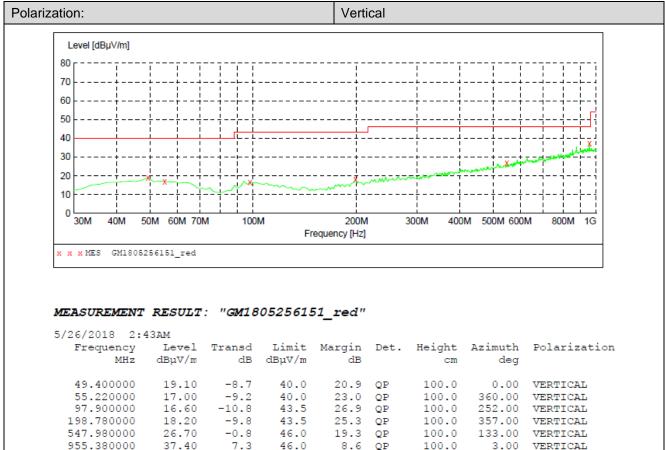
Remark: "floor-standing equipment" Where possible, the antenna(s) of the EUT shall be located at a height of 1.5 m above the floor, and the intentional radiator circuitry shall be located within the system at a height of at least 0.8 m above the floor.

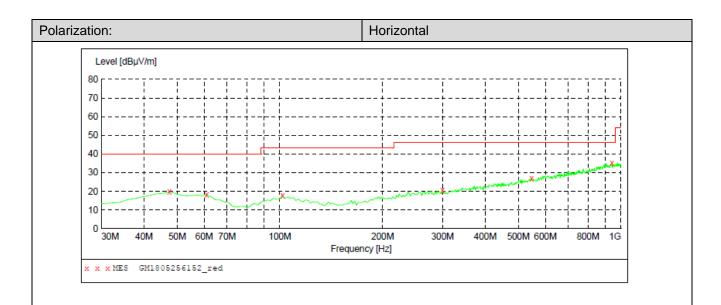
#### TEST RESULTS

#### ■ 9kHz ~ 30MHz

The EUT was pre-scanned the frequency band (9KHz~30MHz), found the radiated level lower than the limit, so don't show on the report.

#### ■ 30 MHz ~ 1 GHz





#### MEASUREMENT RESULT: "GM1805256152\_red"

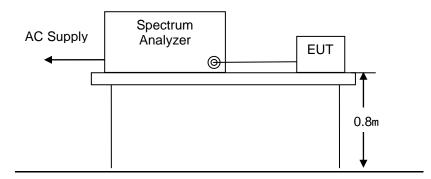
| 5/26/2018 2:46AM |                 |              |                 |              |      |              |                |              |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| Frequency<br>MHz | Level<br>dBµV/m | Transd<br>dB | Limit<br>dBµV/m | Margin<br>dB | Det. | Height<br>cm | Azimuth<br>deg | Polarization |
| 47.460000        | 19.70           | -8.8         | 40.0            | 20.3         | QP   | 300.0        | 360.00         | HORIZONTAL   |
| 61.040000        | 18.10           | -10.3        | 40.0            | 21.9         | QP   | 100.0        | 297.00         | HORIZONTAL   |
| 101.780000       | 17.70           | -10.5        | 43.5            | 25.8         | QP   | 100.0        | 114.00         | HORIZONTAL   |
| 299.660000       | 20.60           | -7.3         | 46.0            | 25.4         | QP   | 100.0        | 183.00         | HORIZONTAL   |
| 546.040000       | 26.90           | -0.8         | 46.0            | 19.1         | QP   | 300.0        | 207.00         | HORIZONTAL   |
| 939.860000       | 35.30           | 7.2          | 46.0            | 10.7         | QP   | 300.0        | 276.00         | HORIZONTAL   |

### 5.6. Frequency Stability Measurement

#### <u>LIMIT</u>

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

#### **TEST CONFIGURATION**



#### TEST PROCEDURE

- 1. The transmitter output (antenna port) was connected to the spectrum analyzer.
- 2. EUT have transmitted absence of modulation signal and fixed channelize
- 3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
- 4. Set RBW=1KHz, VBW=1KHz with peak detector and maxhold settings.
- 5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc x106 ppm and the limit is less than  $\pm$ 100ppm.
- 6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
- 7. Extreme temperature rule is  $-20^{\circ}$ C  $\sim 50^{\circ}$ C

| Reference Frequency: 13.56MHz |                  |         |           |               |        |  |  |
|-------------------------------|------------------|---------|-----------|---------------|--------|--|--|
|                               | Tomporature (°C) | Frequer | ncy error | L : : t (0( ) |        |  |  |
| Power supplied (Vdc)          | Temperature (°C) | Hz      | %         | Limit(%)      | Result |  |  |
|                               | -20              | 25.00   | 0.00018   |               |        |  |  |
|                               | -10              | 21.00   | 0.00015   | +/- 0.01      | Pass   |  |  |
|                               | 0                | 23.00   | 0.00017   |               |        |  |  |
| 0.70                          | 10               | 21.00   | 0.00015   |               |        |  |  |
| 3.70                          | 20               | 29.00   | 0.00021   |               |        |  |  |
|                               | 30               | 37.00   | 0.00027   |               |        |  |  |
|                               | 40               | 36.00   | 0.00027   |               |        |  |  |
|                               | 50               | 42.00   | 0.00031   |               |        |  |  |

| Reference Frequency: 13.56MHz |                      |                          |         |          |        |  |  |
|-------------------------------|----------------------|--------------------------|---------|----------|--------|--|--|
| Temperature (℃)               | Power supplied (Vdc) | Frequency error Limit(%) |         | Result   |        |  |  |
| remperature ( C)              | Fower supplied (vdc) | Hz                       | %       | Emil(70) | Result |  |  |
|                               | 3.60                 | 33.00                    | 0.00024 | +/- 0.01 | Pass   |  |  |
| 20                            | 3.70                 | 41.00                    | 0.00030 |          |        |  |  |
|                               | 4.20                 | 46.00                    | 0.00034 |          |        |  |  |

# 6. Test Setup Photos of the EUT

Conducted Emissions (AC Mains)



Radiated Emissions





# 7. External and Internal Photos of the EUT

Reference to the test report No.: TRE1805013701.

-----End of Report------