



# FCC RF Test Report

APPLICANT : Motorola Mobility LLC  
EQUIPMENT : Mobile Cellular Phone  
BRAND NAME : Motorola  
MODEL NAME : 10714  
FCC ID : IHDT56WC6  
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E)  
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Apr. 27, 2017 and testing was completed on May 16, 2017. We, Sporton International (KunShan) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-D-2010 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (KunShan) INC., the test report shall not be reproduced except in full.

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Prepared by: James Huang / Manager



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Approved by: Jones Tsai / Manager

**Sporton International (KunShan) INC.**

**No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China**



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## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| FG742708A  | Rev. 01 | Initial issue of report | Jul. 07, 2017 |
|            |         |                         |               |
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|            |         |                         |               |



## SUMMARY OF TEST RESULT

| Report Section | FCC Rule              | Description                             | Limit                                  | Result | Remark                                        |
|----------------|-----------------------|-----------------------------------------|----------------------------------------|--------|-----------------------------------------------|
| 3.4            | §2.1053<br>§24.238(a) | Field Strength of<br>Spurious Radiation | $< 43 + 10 \log_{10}(P[\text{Watts}])$ | PASS   | Under limit<br>50.36 dB at<br>7520.000<br>MHz |



# 1 General Description

## 1.1 Applicant

Motorola Mobility LLC

222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

## 1.2 Manufacturer

Motorola Mobility LLC

222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

## 1.3 Product Feature of Equipment Under Test

| Product Feature                 |                                                                                                                                                                |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment                       | Mobile Cellular Phone                                                                                                                                          |
| Brand Name                      | Motorola                                                                                                                                                       |
| Model Name                      | 10714                                                                                                                                                          |
| FCC ID                          | IHDT56WC6                                                                                                                                                      |
| EUT supports Radios application | GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/LTE<br>WLAN 2.4GHz 802.11b/g/n HT20<br>Bluetooth v3.0 + EDR/Bluetooth v4.0 LE/<br>Bluetooth v4.1 LE/Bluetooth v4.2 LE |
| IMEI Code                       | Radiation: 355641080065214/355641080065222                                                                                                                     |
| HW Version                      | WKGMA1A4-3                                                                                                                                                     |
| SW Version                      | woods- userdebug 7.0 NMA25.27 314 intcfg,test-keys                                                                                                             |
| EUT Stage                       | Identical Prototype                                                                                                                                            |

### Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This is a variant report for 10714. The product equality declaration could be referred to Appendix C. According to the differences between previous and current project, only the worst case of Radiated Spurious Emission of WCDMA Band II from original test report (Sporton Report Number FG711913A) were verified for the differences.

## 1.4 Product Specification of Equipment Under Test

| Standards-related Product Specification |                                                                                                                                                                                |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tx Frequency</b>                     | <b>GSM/GPRS/EDGE:</b><br>850: 824.2 MHz ~ 848.8 MHz<br>1900: 1850.2 MHz ~ 1909.8MHz<br><b>WCDMA:</b><br>Band V: 826.4 MHz ~ 846.6 MHz<br>Band II: 1852.4 MHz ~ 1907.6 MHz      |
| <b>Rx Frequency</b>                     | <b>GSM/GPRS/EDGE:</b><br>850: 869.2 MHz ~ 893.8 MHz<br>1900: 1930.2 MHz ~ 1989.8 MHz<br><b>WCDMA:</b><br>Band V: 871.4 MHz ~ 891.6 MHz<br>Band II: 1932.4 MHz ~ 1987.6 MHz     |
| <b>Antenna Type</b>                     | PIFA Antenna                                                                                                                                                                   |
| <b>Type of Modulation</b>               | GSM: GMSK<br>GPRS: GMSK<br>EDGE: GMSK / 8PSK<br>WCDMA: BPSK (Uplink)<br>HSDPA /DC-HSDPA : QPSK (Uplink)<br>HSUPA : QPSK (Uplink)<br>HSPA+ : 16QAM (uplink)<br>DC-HSDPA : 64QAM |

## 1.5 Modification of EUT

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

## 1.6 Specification of Accessory

| Specification of Accessory |                  |                                                     |            |                |
|----------------------------|------------------|-----------------------------------------------------|------------|----------------|
| AC Adapter IN              | Brand Name       | Motorola (Chenyang)                                 | Model Name | C-P45 SPN5982A |
|                            | Power Rating     | I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA         |            |                |
| AC Adapter US              | Brand Name       | Motorola (Chenyang)                                 | Model Name | C-P56 SPN5987A |
|                            | Power Rating     | I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA         |            |                |
| AC Adapter EU              | Brand Name       | Motorola (Chenyang)                                 | Model Name | C-P57 SPN5985A |
|                            | Power Rating     | I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA         |            |                |
| AC Adapter UK              | Brand Name       | Motorola (Chenyang)                                 | Model Name | C-P58 SPN5981A |
|                            | Power Rating     | I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA         |            |                |
| AC Adapter AU              | Brand Name       | Motorola (Chenyang)                                 | Model Name | C-P59 SPN5983A |
|                            | Power Rating     | I/P: 100-240 Vac, 130mA, O/P: 5 Vdc, 1000mA         |            |                |
| Battery                    | Brand Name       | Motorola (ATL)                                      | Model Name | GK40           |
|                            | Power Rating     | 3.8Vdc, 2685/2800mAh (Min/Typ)                      | Type       | Li-ion         |
| Earphone                   | Brand Name       | Motorola(Tenji)                                     | Model Name | TJ101247P      |
|                            | Signal Line Type | 1.3 meter, non-shielded cable, without ferrite core |            |                |
| USB Cable                  | Brand Name       | Motorola (LIQI)                                     | Model Name | LQ-02300032    |
|                            | Signal Line Type | 1.0 meter, shielded cable, without ferrite core     |            |                |

## 1.7 Testing Location

|                    |                                                                                                                        |                      |
|--------------------|------------------------------------------------------------------------------------------------------------------------|----------------------|
| Test Site          | Sporton International (KunShan) INC.                                                                                   |                      |
| Test Site Location | No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China<br>TEL: +86-0512-5790-0158<br>FAX: +86-0512-5790-0958 |                      |
| Test Site No.      | Sporton Site No.                                                                                                       | FCC Registration No. |
|                    | 03CH03-KS                                                                                                              | 306251               |

## 1.8 Applicable Standards

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

- ♦ 47 CFR Part 2, 22(H), 24(E)
- ♦ ANSI / TIA / EIA-603-D-2010
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

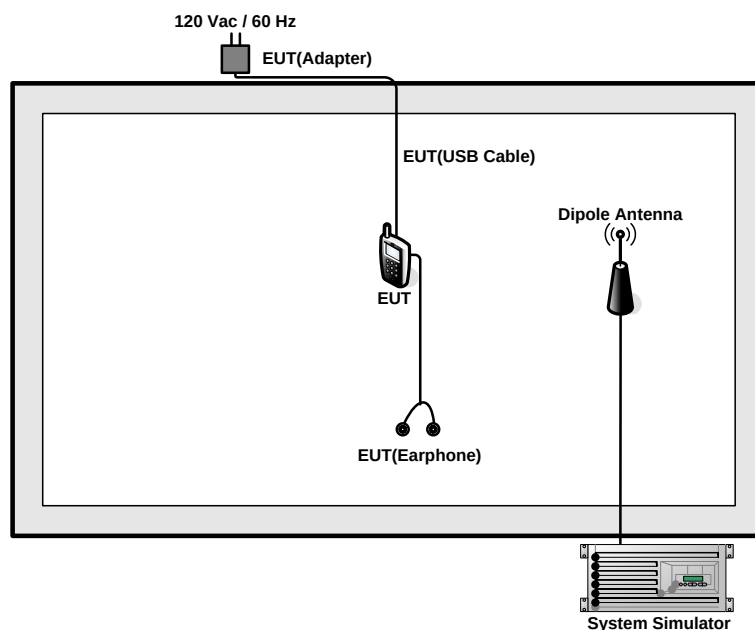
1. 30 MHz to 10th harmonic for WCDMA Band II.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

| Test Modes    |                     |
|---------------|---------------------|
| Band          | Radiated TCs        |
| WCDMA Band II | ■ RMC 12.2Kbps Link |

## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration

| Item | Equipment        | Trade Name | Model No. | FCC ID | Data Cable | Power Cord        |
|------|------------------|------------|-----------|--------|------------|-------------------|
| 1.   | System Simulator | Anritsu    | MT8820C   | N/A    | N/A        | Unshielded, 1.8 m |

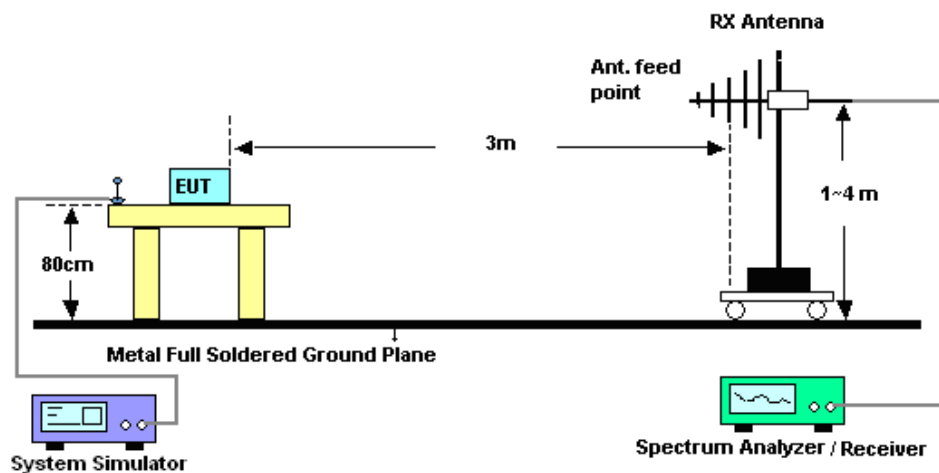
### 3 Radiated Test Items

#### 3.1 Measuring Instruments

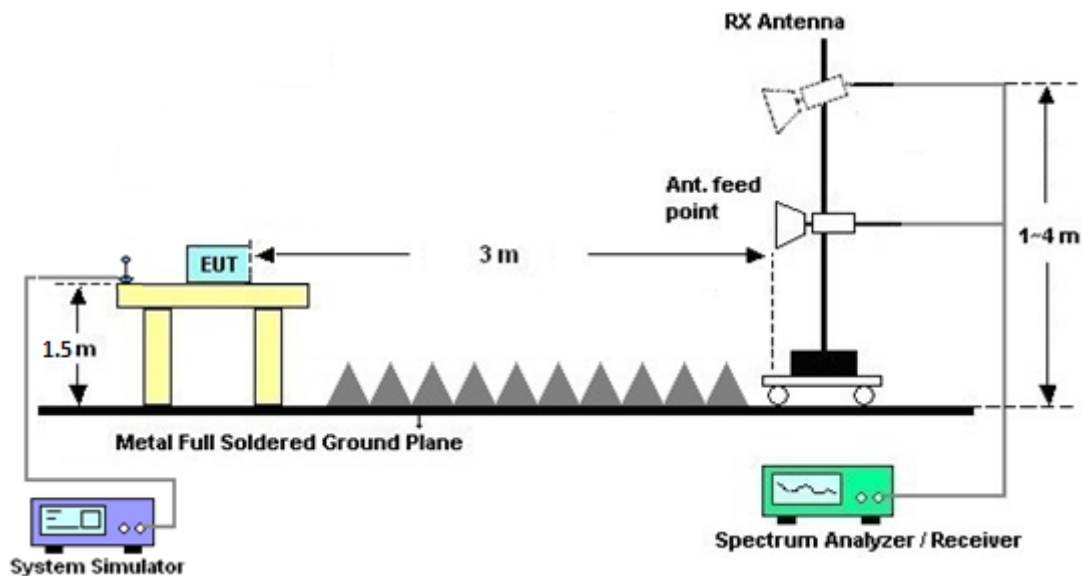
See list of measuring instruments of this test report.

#### 3.2 Test Setup

##### 3.2.1 For radiated test from 30MHz to 1GHz



##### 3.2.2 For radiated test above 1GHz



#### 3.3 Test Result of Radiated Test

Please refer to Appendix A.

### 3.4 Field Strength of Spurious Radiation Measurement

#### 3.4.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

#### 3.4.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11.  $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
12.  $ERP \text{ (dBm)} = EIRP - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from  $43 + 10\log(P)$  dB below the transmitter power P(Watts)  
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$   
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$   
 $= -13\text{dBm}.$



## 4 List of Measuring Equipment

| Instrument            | Manufacturer | Model No.                | Serial No. | Characteristics       | Calibration Date | Test Date    | Due Date      | Remark                |
|-----------------------|--------------|--------------------------|------------|-----------------------|------------------|--------------|---------------|-----------------------|
| EXA Spectrum Analyzer | Keysight     | N9010A                   | MY55150244 | 10Hz~44GHz            | Apr. 18, 2017    | May 16, 2017 | Apr. 17, 2018 | Radiation (03CH03-KS) |
| Bilog Antenna         | TeseQ        | CBL6112D                 | 35406      | 25MHz-2GHz            | Apr. 22, 2017    | May 16, 2017 | Apr. 21, 2018 | Radiation (03CH03-KS) |
| Horn Antenna          | Schwarzbeck  | BBHA9120D                | 9120D-1356 | 1GHz~18GHz            | Apr. 22, 2017    | May 16, 2017 | Apr. 21, 2018 | Radiation (03CH03-KS) |
| SHF-EHF Horn          | com-power    | AH-840                   | 101070     | 18GHz ~40GHz          | Oct. 19, 2016    | May 16, 2017 | Oct. 18, 2017 | Radiation (03CH03-KS) |
| Amplifier             | com-power    | PA-103A                  | 161069     | 1MHz ~1000MHz / 32 dB | Apr. 18, 2017    | May 16, 2017 | Apr. 17, 2018 | Radiation (03CH03-KS) |
| high gain Amplifier   | MITEQ        | AMF-7D-00<br>101800-30-1 | 2025788    | 1Ghz-18Ghz            | Apr. 18, 2017    | May 16, 2017 | Apr 17, 2018  | Radiation (03CH03-KS) |
| Amplifier             | Agilent      | 8449B                    | 3008A02370 | 1GHz~26.5GHz          | Oct. 13, 2016    | May 16, 2017 | Oct. 12, 2017 | Radiation (03CH03-KS) |
| AC Power Source       | Chroma       | 61601                    | F104090004 | N/A                   | NCR              | May 16, 2017 | NCR           | Radiation (03CH03-KS) |
| Turn Table            | ChamPro      | EM 1000-T                | 060762-T   | 0~360 degree          | NCR              | May 16, 2017 | NCR           | Radiation (03CH03-KS) |
| Antenna Mast          | ChamPro      | EM 1000-A                | 060762-A   | 1 m~4 m               | NCR              | May 16, 2017 | NCR           | Radiation (03CH03-KS) |

NCR: No Calibration Required



## 5 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (25 MHz ~ 1000 MHz)

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.8dB |
|-------------------------------------------------------------------------|-------|

### Uncertainty of Radiated Emission Measurement (1GHz ~ 40 GHz)

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 3.3dB |
|-------------------------------------------------------------------------|-------|



## Appendix A. Test Results of Conducted Test

### Radiated Spurious Emission

| WCDMA Band II(RMC 12.2Kbps) |                      |                 |                  |                         |                         |                          |                            |                             |                       |
|-----------------------------|----------------------|-----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel                     | Frequency<br>( MHz ) | EIRP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Middle                      | 3762                 | -69.85          | -13              | -56.85                  | -73.36                  | -74.84                   | 1.88                       | 6.87                        | H                     |
|                             | 5640                 | -66.79          | -13              | -53.79                  | -74.98                  | -74.09                   | 2.38                       | 9.68                        | H                     |
|                             | 7520                 | -63.36          | -13              | -50.36                  | -75.39                  | -72.43                   | 2.74                       | 11.81                       | H                     |
|                             | 3762                 | -69.75          | -13              | -56.75                  | -73.54                  | -74.74                   | 1.88                       | 6.87                        | V                     |
|                             | 5640                 | -66.18          | -13              | -53.18                  | -74.75                  | -73.48                   | 2.38                       | 9.68                        | V                     |
|                             | 7520                 | -65.22          | -13              | -52.22                  | -75.93                  | -74.29                   | 2.74                       | 11.81                       | V                     |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



## **Appendix C. Product Equality Declaration**



## **Appendix D. Original Report**

Please refer to Sporton report number FG711913A which is issued separately.