



# Spot Check Evaluation

APPLICANT : Motorola Mobility LLC  
EQUIPMENT : Mobile Cellular Phone  
BRAND NAME : Motorola  
MODEL NAME : XT2221-2  
FCC ID : IHDT56AE2  
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(M), 90(S)  
47 CFR Part 15 Subpart C §15.225  
47 CFR Part 15 Subpart C §15.247  
47 CFR Part 15 Subpart E §15.407

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures 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 Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager



**Sporton International Inc. (Kunshan)**

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## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| 1D1023-01  | Rev. 01 | Initial issue of report | Feb. 22, 2022 |
|            |         |                         |               |
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# **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      | XT2221-2              |
| FCC ID          | IHDT56AE2             |
| HW Version      | DVT2                  |
| SW Version      | S1SR32.16             |
| EUT Stage       | Identical Prototype   |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## **1.4 Modification of EUT**

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

## 1.5 Specification of Accessory

| Specification of Accessory |            |                           |            |                 |
|----------------------------|------------|---------------------------|------------|-----------------|
| AC Adapter 1(US)           | Brand Name | Motorola (Salcomp)        | Model Name | MC-331          |
| AC Adapter 1(EU)           | Brand Name | Motorola (Salcomp)        | Model Name | MC-332          |
| AC Adapter 1(UK)           | Brand Name | Motorola (Salcomp)        | Model Name | MC-333          |
| AC Adapter 1(IN)           | Brand Name | Motorola (Salcomp)        | Model Name | MC-334          |
| AC Adapter 1(AU)           | Brand Name | Motorola (Salcomp)        | Model Name | MC-335          |
| AC Adapter 1(AR)           | Brand Name | Motorola (Salcomp)        | Model Name | MC-336          |
| AC Adapter 1(BR)           | Brand Name | Motorola (Salcomp)        | Model Name | MC-337          |
| AC Adapter 1(CHILE)        | Brand Name | Motorola (Salcomp)        | Model Name | MC-339          |
| AC Adapter 2(US)           | Brand Name | Motorola (Acbel)          | Model Name | MC-331          |
| AC Adapter 2(EU)           | Brand Name | Motorola (Acbel)          | Model Name | MC-332          |
| AC Adapter 2(UK)           | Brand Name | Motorola (Acbel)          | Model Name | MC-333          |
| AC Adapter 3(US)           | Brand Name | Motorola (Aohai)          | Model Name | MC-331          |
| AC Adapter 3(EU)           | Brand Name | Motorola (Aohai)          | Model Name | MC-332          |
| AC Adapter 3(UK)           | Brand Name | Motorola (Aohai)          | Model Name | MC-333          |
| Battery                    | Brand Name | Motorola (Sunwoda)        | Model Name | NE50            |
| Earphone 1                 | Brand Name | Motorola (NEW LEADER)     | Model Name | NLD-EM313A-09SF |
| Earphone 2                 | Brand Name | Motorola (NEW LEADER)     | Model Name | NLD-EM313A-19SF |
| Earphone 3                 | Brand Name | Motorola (LYAND ACOUSTIC) | Model Name | LYM239-76C-006  |
| Earphone 4                 | Brand Name | Motorola (LYAND ACOUSTIC) | Model Name | LYM528-76C-001  |
| USB Cable 1                | Brand Name | Motorola (Saibao)         | Model Name | SHQ-A110A       |
| USB Cable 2                | Brand Name | Motorola (Chuantuo)       | Model Name | K235            |

## 1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

|                    |                                                                                                                                                                          |                     |                                |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------|
| Test Firm          | Sporton International Inc. (Kunshan)                                                                                                                                     |                     |                                |
| Test Site Location | No. 1098, Pengxi North Road, Kunshan Economic Development Zone<br>Jiangsu Province 215300 People's Republic of China<br>TEL : +86-512-57900158<br>FAX : +86-512-57900958 |                     |                                |
| Test Site No.      | Sporton Site No.                                                                                                                                                         | FCC Designation No. | FCC Test Firm Registration No. |
|                    | 03CH04-KS<br>TH01-KS                                                                                                                                                     | CN1257              | 314309                         |



## 2 Re-use of Measured Data

### 2.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: XT2221-2, FCC ID: IHDT56AE2) is electrically identical to the reference device (Model: XT2221-1, FCC ID: IHDT56AE1) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS, DXX) and FCC Part 15E (equipment class: NII) and FCC Part 22, 24, 27, 90(equipment class: PCE) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 v01.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: IHDT56AE2 .

### 2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AE1 and FCC ID: IHDT56AE2 is as below:

- Remove WCDMA Band VII/ XIX and LTE Band 18/19/20.
- Add WCDMA Band IV and LTE Band 4/12/13/66.

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2221-2\_Operational Description of Product Equality Declaration).

### 2.3 Reference detail Section:

| Rule Part  | Equipment Class | Frequency Band (MHz)   | Reference FCC ID(Parent) | Type Grant/ Permissive Change | Reference Title | FCC ID Filling (Variant) | Report Title/Section    |
|------------|-----------------|------------------------|--------------------------|-------------------------------|-----------------|--------------------------|-------------------------|
| 15C        | DSS (BR/EDR)    | 2400~2483.5            | IHDT56AE1                | Original Grant                | FR1D1023A       | IHDT56AE2                | All sections applicable |
|            | DTS (BLE)       | 2400~2483.5            | IHDT56AE1                | Original Grant                | FR1D1023B       | IHDT56AE2                | All sections applicable |
|            | DTS (WLAN)      | 2400~2483.5            | IHDT56AE1                | Original Grant                | FR1D1023C       | IHDT56AE2                | All sections applicable |
|            | DXX (NFC)       | 13.56                  | IHDT56AE1                | Original Grant                | FR1D1023D       | IHDT56AE2                | All sections applicable |
| 15E        | U-NII-1         | 5150~5250              | IHDT56AE1                | Original Grant                | FR1D1023E       | IHDT56AE2                | All sections applicable |
|            | U-NII-2A        | 5250~5350              | IHDT56AE1                | Original Grant                | FR1D1023E       | IHDT56AE2                | All sections applicable |
|            | U-NII-2C        | 5470~5725              | IHDT56AE1                | Original Grant                | FR1D1023E       | IHDT56AE2                | All sections applicable |
|            | U-NII-3         | 5725~5850              | IHDT56AE1                | Original Grant                | FR1D1023F       | IHDT56AE2                | All sections applicable |
|            | DFS             | 5250~5350<br>5470~5725 | IHDT56AE1                | Original Grant                | FZ1D1023        | IHDT56AE2                | All sections applicable |
| 22, 24, 27 | PCE (GSM)       | GSM 850/1900           | IHDT56AE1                | Original Grant                | FG1D1023A       | IHDT56AE2                | All sections applicable |
|            | PCE (WCDMA)     | Band V                 | IHDT56AE1                | Original Grant                | FG1D1023A       | IHDT56AE2                | All sections applicable |



|    |           |               |           |                |           |           |                         |
|----|-----------|---------------|-----------|----------------|-----------|-----------|-------------------------|
|    | PCE (LTE) | B5/7/26/38/41 | IHDT56AE1 | Original Grant | FG1D1023B | IHDT56AE2 | All sections applicable |
| 90 | PCE (LTE) | B26           | IHDT56AE1 | Original Grant | FG1D1023C | IHDT56AE2 | All sections applicable |

## 2.4 Spot Check Verification Data Section

Conducted power test and radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model

Summary for power and RSE spot check for each rule entry and technology is listed as below:

| Test Item                   | Mode                  | IHDT56AE1<br>Parent<br>Worst Result | IHDT56AE2<br>Variant<br>Check Result | Difference (dB) |
|-----------------------------|-----------------------|-------------------------------------|--------------------------------------|-----------------|
| Conducted<br>Power<br>(dBm) | BT BR/EDR             | 13.29                               | 13.13                                | 0.16            |
|                             | BLE                   | 7.78                                | 7.76                                 | 0.02            |
|                             | 11b, 2.4GHz           | 21.37                               | 21.29                                | 0.08            |
|                             | 11g, 2.4GHz           | 23.46                               | 23.24                                | 0.22            |
|                             | 11n HT20, 2.4GHz      | 22.96                               | 22.91                                | 0.05            |
|                             | 11n HT40, 2.4GHz      | 23.44                               | 23.39                                | 0.05            |
|                             | 11a, 5.2GHz           | 18.09                               | 17.00                                | 1.09            |
|                             | 11n HT20, 5.2GHz      | 17.98                               | 16.83                                | 1.15            |
|                             | 11n HT40, 5.2GHz      | 16.56                               | 15.01                                | 1.55            |
|                             | 11ac VHT20, 5.2GHz    | 16.19                               | 14.96                                | 1.23            |
|                             | 11ac VHT40, 5.2GHz    | 14.92                               | 13.65                                | 1.27            |
|                             | 11ac VHT80, 5.2GHz    | 11.56                               | 10.01                                | 1.55            |
|                             | 11a, 5.3GHz           | 18.08                               | 17.44                                | 0.64            |
|                             | 11n HT20, 5.3GHz      | 17.79                               | 17.30                                | 0.49            |
|                             | 11n HT40, 5.3GHz      | 16.99                               | 15.86                                | 1.13            |
|                             | 11ac VHT20, 5.3GHz    | 16.00                               | 15.41                                | 0.59            |
|                             | 11ac VHT40, 5.3GHz    | 14.89                               | 14.15                                | 0.74            |
|                             | 11ac VHT80, 5.3GHz    | 11.99                               | 11.21                                | 0.78            |
|                             | 11a, 5.5GHz           | 18.21                               | 17.36                                | 0.85            |
|                             | 11n HT20, 5.5GHz      | 17.93                               | 17.23                                | 0.70            |
|                             | 11n HT40, 5.5GHz      | 16.79                               | 16.07                                | 0.72            |
|                             | 11ac VHT20, 5.5GHz    | 16.24                               | 15.27                                | 0.97            |
|                             | 11ac VHT40, 5.5GHz    | 14.96                               | 14.28                                | 0.68            |
|                             | 11ac VHT80, 5.5GHz    | 14.13                               | 13.14                                | 0.99            |
|                             | 11a, 5.8GHz           | 18.17                               | 18.09                                | 0.08            |
|                             | 11n HT20, 5.8GHz      | 17.83                               | 17.73                                | 0.10            |
|                             | 11n HT40, 5.8GHz      | 16.82                               | 16.46                                | 0.36            |
|                             | 11ac VHT20, 5.8GHz    | 16.04                               | 15.92                                | 0.12            |
|                             | 11ac VHT40, 5.8GHz    | 14.86                               | 14.55                                | 0.31            |
|                             | 11ac VHT80, 5.8GHz    | 14.36                               | 13.44                                | 0.92            |
|                             | Part 22H GSM850       | 32.93                               | 33.11                                | 0.18            |
|                             | Part 24E GSM1900      | 30.02                               | 30.10                                | 0.08            |
|                             | Part 22H WCDMA Band V | 22.78                               | 23.26                                | 0.48            |
|                             | Part 22H LTE Band 5   | 22.52                               | 23.44                                | 0.92            |
|                             | Part 27M LTE Band 7   | 22.76                               | 22.79                                | 0.03            |



|  |                      |       |       |      |
|--|----------------------|-------|-------|------|
|  | Part 22H LTE Band 26 | 22.70 | 23.57 | 0.87 |
|  | Part 90S LTE Band 26 | 22.64 | 23.51 | 0.87 |
|  | Part 27M LTE Band 38 | 22.88 | 22.71 | 0.17 |
|  | Part 27M LTE Band 41 | 22.89 | 22.79 | 0.10 |

| Test Item                                | Mode                  | IHDT56AE1<br>Parent<br>Worst Result | IHDT56AE2<br>Variant<br>Check Result | Difference (dB) |
|------------------------------------------|-----------------------|-------------------------------------|--------------------------------------|-----------------|
| Radiated Spurious Emission (dBuV/m) @ 3m | NFC 13.56MHz          | -3.54                               | -4.81                                | 1.27            |
| Radiated Spurious Emission (dBm)         | Part 22H GSM 850      | -31.90                              | -32.79                               | 0.89            |
|                                          | Part 22H EDGE 850     | -38.68                              | -36.81                               | 1.87            |
|                                          | Part 22H WCDMA Band V | -46.25                              | -46.38                               | 0.13            |
|                                          | Part 24E GSM 1900     | -34.44                              | -36.73                               | 2.29            |
|                                          | Part 24E EDGE 1900    | -32.22                              | -34.85                               | 2.63            |
|                                          | Part 27M LTE Band 7   | -32.19                              | -34.02                               | 1.83            |
|                                          | Part 22H LTE Band 26  | -45.41                              | -45.54                               | 0.13            |
|                                          | Part 90S LTE Band 26  | -45.32                              | -46.46                               | 1.14            |
|                                          | Part 27M LTE Band 41  | -32.21                              | -34.46                               | 2.25            |

**Conclusion:**

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result, the test data from the original model is representative for the variant model. The power level and RSE spot check are shown within expected level compliant to limit line.

We are using power and ERP/EIRP measurements from the original parent model reports to list on the grant.

The same DFS detection is used in the variant. Hence, there is no spot check data for DFS.

We confirm that the test data reuse policy of FCC KDB 484596 D01 Referencing Test Data v01 has been followed and the test data as referenced from the parent model report represents compliance with new FCC ID.



|                 |            |                     |         |
|-----------------|------------|---------------------|---------|
| Test Engineer : | Simle Wang | Temperature :       | 22~23°C |
|                 |            | Relative Humidity : | 40~42%  |

Here only list the power/EIRP of the frequency band which is greater than parent report.

### Conducted Output Power(Average power)

#### GSM 850:

| GSM850          | Burst Average Power (dBm) |       |       | ERP(W)<br>Gain=-4.5dBi |        |        |
|-----------------|---------------------------|-------|-------|------------------------|--------|--------|
| TX Channel      | 128                       | 189   | 251   |                        |        |        |
| Frequency (MHz) | 824.2                     | 836.4 | 848.8 | L                      | M      | H      |
| GSM 1 Tx slot   | 33.11                     | 32.89 | 32.80 | 0.4426                 | 0.4207 | 0.4121 |
| GPRS 1 Tx slot  | 33.10                     | 32.88 | 32.77 | 0.4416                 | 0.4198 | 0.4093 |
| GPRS 2 Tx slots | 30.50                     | 30.71 | 30.35 | 0.2427                 | 0.2547 | 0.2344 |
| GPRS 3 Tx slots | 28.10                     | 28.35 | 28.19 | 0.1396                 | 0.1479 | 0.1426 |
| GPRS 4 Tx slots | 25.86                     | 26.06 | 25.97 | 0.0834                 | 0.0873 | 0.0855 |
| EDGE 1 Tx slot  | 26.36                     | 26.38 | 26.37 | 0.0935                 | 0.0940 | 0.0938 |
| EDGE 2 Tx slots | 24.25                     | 24.27 | 24.23 | 0.0575                 | 0.0578 | 0.0573 |
| EDGE 3 Tx slots | 22.07                     | 22.15 | 22.09 | 0.0348                 | 0.0355 | 0.0350 |
| EDGE 4 Tx slots | 20.64                     | 20.72 | 20.93 | 0.0251                 | 0.0255 | 0.0268 |

#### GSM 1900:

| GSM1900         | Burst Average Power (dBm) |       |        | EIRP(W)<br>Gain=-2.8dBi |        |        |
|-----------------|---------------------------|-------|--------|-------------------------|--------|--------|
| TX Channel      | 512                       | 661   | 810    |                         |        |        |
| Frequency (MHz) | 1850.2                    | 1880  | 1909.8 | L                       | M      | H      |
| GSM 1 Tx slot   | 30.08                     | 30.10 | 30.07  | 0.5346                  | 0.5370 | 0.5333 |
| GPRS 1 Tx slot  | 30.06                     | 29.99 | 30.05  | 0.5321                  | 0.5236 | 0.5309 |
| GPRS 2 Tx slots | 28.06                     | 28.18 | 28.17  | 0.3357                  | 0.3451 | 0.3443 |
| GPRS 3 Tx slots | 25.92                     | 25.81 | 25.92  | 0.2051                  | 0.2000 | 0.2051 |
| GPRS 4 Tx slots | 23.68                     | 23.64 | 23.74  | 0.1225                  | 0.1213 | 0.1242 |
| EDGE 1 Tx slot  | 25.75                     | 25.66 | 25.60  | 0.1972                  | 0.1932 | 0.1905 |
| EDGE 2 Tx slots | 23.57                     | 23.41 | 23.40  | 0.1194                  | 0.1151 | 0.1148 |
| EDGE 3 Tx slots | 21.35                     | 21.21 | 21.36  | 0.0716                  | 0.0693 | 0.0718 |
| EDGE 4 Tx slots | 19.50                     | 19.44 | 19.49  | 0.0468                  | 0.0461 | 0.0467 |



## WCDMA B5:

| Band            |                         | WCDMA V |       |       | ERP(W)<br>Gain=-4.5dBi |        |        |
|-----------------|-------------------------|---------|-------|-------|------------------------|--------|--------|
| TX Channel      |                         | 4132    | 4182  | 4233  |                        |        |        |
| Rx Channel      |                         | 4357    | 4407  | 4458  |                        |        |        |
| Frequency (MHz) |                         | 826.4   | 836.4 | 846.6 | L                      | M      | H      |
| 3GPP Rel 99     | AMR 12.2Kbps            | 23.20   | 23.23 | 23.13 | 0.0452                 | 0.0455 | 0.0445 |
| 3GPP Rel 99     | RMC 12.2Kbps            | 23.21   | 23.26 | 23.15 | 0.0453                 | 0.0458 | 0.0447 |
| 3GPP Rel 6      | HSDPA Subtest-1         | 22.08   | 22.14 | 22.18 | 0.0349                 | 0.0354 | 0.0357 |
| 3GPP Rel 6      | HSDPA Subtest-2         | 22.05   | 22.29 | 22.34 | 0.0347                 | 0.0366 | 0.0371 |
| 3GPP Rel 6      | HSDPA Subtest-3         | 21.78   | 21.54 | 21.55 | 0.0326                 | 0.0308 | 0.0309 |
| 3GPP Rel 6      | HSDPA Subtest-4         | 21.36   | 21.58 | 21.63 | 0.0296                 | 0.0311 | 0.0315 |
| 3GPP Rel 8      | DC-HSDPA Subtest-1      | 22.39   | 22.13 | 22.35 | 0.0375                 | 0.0353 | 0.0372 |
| 3GPP Rel 8      | DC-HSDPA Subtest-2      | 22.34   | 22.34 | 22.33 | 0.0371                 | 0.0371 | 0.0370 |
| 3GPP Rel 8      | DC-HSDPA Subtest-3      | 21.83   | 21.64 | 21.45 | 0.0330                 | 0.0316 | 0.0302 |
| 3GPP Rel 8      | DC-HSDPA Subtest-4      | 21.47   | 21.77 | 21.53 | 0.0303                 | 0.0325 | 0.0308 |
| 3GPP Rel 6      | HSUPA Subtest-1         | 22.18   | 22.15 | 22.40 | 0.0357                 | 0.0355 | 0.0376 |
| 3GPP Rel 6      | HSUPA Subtest-2         | 20.14   | 20.23 | 20.35 | 0.0223                 | 0.0228 | 0.0234 |
| 3GPP Rel 6      | HSUPA Subtest-3         | 21.23   | 21.21 | 20.85 | 0.0287                 | 0.0286 | 0.0263 |
| 3GPP Rel 6      | HSUPA Subtest-4         | 19.90   | 20.06 | 20.12 | 0.0211                 | 0.0219 | 0.0222 |
| 3GPP Rel 6      | HSUPA Subtest-5         | 22.05   | 22.15 | 22.35 | 0.0347                 | 0.0355 | 0.0372 |
| 3GPP Rel 7      | HSPA+ (16QAM) Subtest-1 | 19.49   | 19.57 | 19.47 | 0.0192                 | 0.0196 | 0.0191 |

## LTE B5:

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | ERP(W)<br>Gain=-4.5dBi |        |        |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|------------------------|--------|--------|
| Channel         |            |         |           | 20450                 | 20525                    | 20600                  |                        |        |        |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    | L                      | M      | H      |
| 10              | QPSK       | 1       | 0         | 23.34                 | 23.44                    | 23.41                  | 0.0467                 | 0.0478 | 0.0474 |
| 10              | QPSK       | 1       | 49        | 23.31                 | 23.40                    | 23.39                  | 0.0463                 | 0.0473 | 0.0472 |
| 10              | QPSK       | 50      | 0         | 22.36                 | 22.39                    | 22.30                  | 0.0372                 | 0.0375 | 0.0367 |
| 10              | 16QAM      | 1       | 0         | 22.49                 | 22.37                    | 22.34                  | 0.0384                 | 0.0373 | 0.0371 |
| 10              | 64QAM      | 1       | 0         | 21.34                 | 21.48                    | 21.43                  | 0.0294                 | 0.0304 | 0.0301 |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  | ERP(W)                 |        |        |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  | L                      | M      | H      |
| 5               | QPSK       | 1       | 0         | 23.19                 | 23.39                    | 23.35                  | 0.0451                 | 0.0472 | 0.0468 |
| 5               | 16QAM      | 1       | 0         | 22.45                 | 22.34                    | 22.31                  | 0.0380                 | 0.0371 | 0.0368 |
| Channel         |            |         |           | 20415                 | 20525                    | 20635                  | ERP(W)                 |        |        |
| Frequency (MHz) |            |         |           | 825.5                 | 836.5                    | 847.5                  | L                      | M      | H      |
| 3               | QPSK       | 1       | 0         | 23.18                 | 23.25                    | 23.37                  | 0.0450                 | 0.0457 | 0.0470 |
| 3               | 16QAM      | 1       | 0         | 22.25                 | 22.36                    | 22.33                  | 0.0363                 | 0.0372 | 0.0370 |
| Channel         |            |         |           | 20407                 | 20525                    | 20643                  | ERP(W)                 |        |        |
| Frequency (MHz) |            |         |           | 824.7                 | 836.5                    | 848.3                  | L                      | M      | H      |
| 1.4             | QPSK       | 1       | 0         | 23.18                 | 23.06                    | 23.32                  | 0.0450                 | 0.0438 | 0.0465 |
| 1.4             | 16QAM      | 1       | 0         | 22.20                 | 22.27                    | 22.46                  | 0.0359                 | 0.0365 | 0.0381 |



## LTE B7:

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | EIRP(W)<br>Gain=-2.1dBi |        |        |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|-------------------------|--------|--------|
| Channel         |            |         |           | 20850                 | 20850                    | 21350                  |                         |        |        |
| Frequency (MHz) |            |         |           | 2510                  | 2535                     | 2560                   | L                       | M      | H      |
| 20              | QPSK       | 1       | 0         | 22.68                 | 22.79                    | 22.78                  | 0.1143                  | 0.1172 | 0.1169 |
| 20              | QPSK       | 1       | 99        | 22.77                 | 22.66                    | 22.77                  | 0.1167                  | 0.1138 | 0.1167 |
| 20              | QPSK       | 100     | 0         | 21.83                 | 21.84                    | 21.83                  | 0.0940                  | 0.0942 | 0.0940 |
| 20              | 16QAM      | 1       | 0         | 21.87                 | 21.78                    | 21.86                  | 0.0948                  | 0.0929 | 0.0946 |
| 20              | 64QAM      | 1       | 0         | 20.78                 | 20.88                    | 20.84                  | 0.0738                  | 0.0755 | 0.0748 |
| Channel         |            |         |           | 20825                 | 21100                    | 21375                  | EIRP(W)                 |        |        |
| Frequency (MHz) |            |         |           | 2507.5                | 2535                     | 2562.5                 | L                       | M      | H      |
| 15              | QPSK       | 1       | 0         | 22.74                 | 22.72                    | 22.76                  | 0.1159                  | 0.1153 | 0.1164 |
| 15              | 16QAM      | 1       | 0         | 21.79                 | 21.71                    | 21.67                  | 0.0931                  | 0.0914 | 0.0906 |
| Channel         |            |         |           | 20800                 | 21100                    | 21400                  | EIRP(W)                 |        |        |
| Frequency (MHz) |            |         |           | 2505                  | 2535                     | 2565                   | L                       | M      | H      |
| 10              | QPSK       | 1       | 0         | 22.55                 | 22.77                    | 22.61                  | 0.1109                  | 0.1167 | 0.1125 |
| 10              | 16QAM      | 1       | 0         | 21.85                 | 21.75                    | 21.73                  | 0.0944                  | 0.0923 | 0.0918 |
| Channel         |            |         |           | 20775                 | 21100                    | 21425                  | EIRP(W)                 |        |        |
| Frequency (MHz) |            |         |           | 2502.5                | 2535                     | 2567.5                 | L                       | M      | H      |
| 5               | QPSK       | 1       | 0         | 22.57                 | 22.62                    | 22.71                  | 0.1114                  | 0.1127 | 0.1151 |
| 5               | 16QAM      | 1       | 0         | 21.85                 | 21.68                    | 21.78                  | 0.0944                  | 0.0908 | 0.0929 |

## LTE B26/90S:

| BW<br>[MHz]     | Modulation | RB Size | RB<br>Offset | (For<br>FCC)P<br>ower<br>Low<br>Ch. /<br>Freq. | Power<br>Low<br>Ch. /<br>Freq. | Power<br>Middl<br>e<br>Ch. /<br>Freq. | Powe<br>r<br>High<br>Ch. /<br>Freq. | ERP(W)<br>Gain=-4.5dBi |        |        |        |
|-----------------|------------|---------|--------------|------------------------------------------------|--------------------------------|---------------------------------------|-------------------------------------|------------------------|--------|--------|--------|
| Channel         |            |         |              | 26765                                          | 26865                          | 26915                                 | 26965                               |                        |        |        |        |
| Frequency (MHz) |            |         |              | 821.5                                          | 831.5                          | 836.5                                 | 841.5                               | L                      | M      | H      |        |
| 15              | QPSK       | 1       | 0            | 23.38                                          | 23.57                          | 23.25                                 | 23.51                               | 0.0471                 | 0.0492 | 0.0457 | 0.0485 |
| 15              | QPSK       | 1       | 74           | 23.45                                          | 23.48                          | 23.26                                 | 23.52                               | 0.0479                 | 0.0482 | 0.0458 | 0.0486 |
| 15              | QPSK       | 75      | 0            | 22.46                                          | 22.49                          | 22.20                                 | 22.38                               | 0.0381                 | 0.0384 | 0.0359 | 0.0374 |
| 15              | 16QAM      | 1       | 0            | 22.57                                          | 22.48                          | 22.31                                 | 22.40                               | 0.0391                 | 0.0383 | 0.0368 | 0.0376 |
| 15              | 64QAM      | 1       | 0            | 21.50                                          | 21.67                          | 21.41                                 | 21.54                               | 0.0305                 | 0.0318 | 0.0299 | 0.0308 |
| Channel         |            |         |              |                                                | 26840                          | 26915                                 | 26990                               |                        | ERP(W) |        |        |
| Frequency (MHz) |            |         |              |                                                | 829                            | 836.5                                 | 844                                 |                        | L      | M      | H      |
| 10              | QPSK       | 1       | 0            |                                                | 23.41                          | 23.47                                 | 23.31                               |                        | 0.0474 | 0.0481 | 0.0463 |
| 10              | 16QAM      | 1       | 0            |                                                | 22.42                          | 22.40                                 | 22.39                               |                        | 0.0378 | 0.0376 | 0.0375 |
| Channel         |            |         |              |                                                | 26815                          | 26915                                 | 27015                               |                        | ERP(W) |        |        |
| Frequency (MHz) |            |         |              |                                                | 826.5                          | 836.5                                 | 846.5                               |                        | L      | M      | H      |
| 5               | QPSK       | 1       | 0            |                                                | 23.27                          | 23.51                                 | 23.47                               |                        | 0.0459 | 0.0485 | 0.0481 |
| 5               | 16QAM      | 1       | 0            |                                                | 22.41                          | 22.40                                 | 22.23                               |                        | 0.0377 | 0.0376 | 0.0361 |



| Channel         |       |   |   | 26815 | 26915 | 2702<br>5 | ERP(W) |        |        |
|-----------------|-------|---|---|-------|-------|-----------|--------|--------|--------|
| Frequency (MHz) |       |   |   | 825.5 | 836.5 | 847.5     | L      | M      | H      |
| 3               | QPSK  | 1 | 0 | 23.30 | 23.50 | 23.34     | 0.0462 | 0.0484 | 0.0467 |
| 3               | 16QAM | 1 | 0 | 22.48 | 22.36 | 22.43     | 0.0383 | 0.0372 | 0.0378 |
| Channel         |       |   |   | 26797 | 26915 | 2703<br>3 | ERP(W) |        |        |
| Frequency (MHz) |       |   |   | 824.7 | 836.5 | 848.3     | L      | M      | H      |
| 1.4             | QPSK  | 1 | 0 | 23.10 | 23.22 | 23.48     | 0.0442 | 0.0454 | 0.0482 |
| 1.4             | 16QAM | 1 | 0 | 22.23 | 22.42 | 22.26     | 0.0361 | 0.0378 | 0.0364 |



### 3 List of Measuring Equipment

| Instrument                | Manufacturer | Model No.               | Serial No. | Characteristics   | Calibration Date | Test Date     | Due Date      | Remark                |
|---------------------------|--------------|-------------------------|------------|-------------------|------------------|---------------|---------------|-----------------------|
| Spectrum Analyzer         | R&S          | FSV40                   | 101040     | 10Hz~40GHz        | Oct. 14, 2021    | Feb. 10, 2022 | Oct. 13, 2022 | Conducted (TH01-KS)   |
| Power divider             | STI          | STI08-0055              | -          | 0.5~40GHz         | Aug. 26, 2021    | Feb. 10, 2022 | Aug. 25, 2022 | Conducted (TH01-KS)   |
| EXA Spectrum Analyzer     | Keysight     | N9010A                  | MY55150244 | 10Hz~44G,MAX 30dB | Apr. 13, 2021    | Feb. 08, 2022 | Apr. 12, 2022 | Radiation (03CH04-KS) |
| Loop Antenna              | R&S          | HFH2-Z2                 | 100321     | 9kHz~30MHz        | Oct. 30, 2021    | Feb. 08, 2022 | Oct. 29, 2022 | Radiation (03CH04-KS) |
| Bilog Antenna             | TeseQ        | CBL6111D                | 49922      | 30MHz~1GHz        | May 30, 2021     | Feb. 08, 2022 | May 29, 2022  | Radiation (03CH04-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117                    | 00218652   | 1GHz~18GHz        | Apr. 25, 2021    | Feb. 08, 2022 | Apr. 24, 2022 | Radiation (03CH04-KS) |
| SHF-EHF Horn              | Com-power    | AH-840                  | 101115     | 18GHz~40GHz       | Jan. 05, 2022    | Feb. 08, 2022 | Jan. 04, 2023 | Radiation (03CH04-KS) |
| Amplifier                 | SONOMA       | 310N                    | 187289     | 9KHz~1GHz         | Jan. 05, 2022    | Feb. 08, 2022 | Jan. 04, 2023 | Radiation (03CH04-KS) |
| Amplifier                 | MITEQ        | EM18G40G GA             | 060728     | 18~40GHz          | Jan. 05, 2022    | Feb. 08, 2022 | Jan. 04, 2023 | Radiation (03CH04-KS) |
| high gain Amplifier       | MITEQ        | AMF-7D-00 101800-30-10P | 2025788    | 1Ghz~18Ghz        | Jul. 30, 2021    | Feb. 08, 2022 | Jul. 29, 2022 | Radiation (03CH04-KS) |
| Amplifier                 | Keysight     | 83017A                  | MY57280106 | 500MHz~26.5G Hz   | Oct. 13, 2021    | Feb. 08, 2022 | Oct. 12, 2022 | Radiation (03CH04-KS) |
| AC Power Source           | Chroma       | 61601                   | F104090004 | N/A               | NCR              | Feb. 08, 2022 | NCR           | Radiation (03CH04-KS) |
| Turn Table                | ChamPro      | EM 1000-T               | 060762-T   | 0~360 degree      | NCR              | Feb. 08, 2022 | NCR           | Radiation (03CH04-KS) |
| Antenna Mast              | ChamPro      | EM 1000-A               | 060762-A   | 1 m~4 m           | NCR              | Feb. 08, 2022 | NCR           | Radiation (03CH04-KS) |

NCR: No Calibration Required.

-THE END-