



Spot Check Evaluation

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2235-2
FCC ID : IHDT56AF2
STANDARD : 47 CFR Part 2, 24(E), 27(M)
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

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China**



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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 | XT2235-2 |
| FCC ID | IHDT56AF2 |
| HW Version | DVT2 |
| SW Version | S2SN32.29 |
| 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 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 Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958 | | |
| Test Site No. | Sporton Site No. | FCC Designation No. | FCC Test Firm Registration No. |
| | 03CH04-KS TH01-KS | CN1257 | 314309 |

1.5 Test Software

| Item | Site | Manufacture | Name | Version |
|------|-----------|-------------|------|--------------|
| 1. | 03CH04-KS | AUDIX | E3 | 6.2009-8-24a |



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: XT2235-2, FCC ID: IHDT56AF2) is electrically identical to the reference device (Model: XT2235-1, FCC ID: IHDT56AF1) 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) and FCC Part 15E (equipment class: NII) and FCC Part 24, 27 (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: IHDT56AF2 .

2.2 Model Difference Information

The main difference between FCC ID: IHDT56AF1 and FCC ID: IHDT56AF2 is as below:

- Remove WCDMA Band IV and LTE Band 2/4/13/26/66.
- Add NFC function and LTE Band 41.

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2235-2_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 | IHDT56AF1 | Original Grant | FR232908A | IHDT56AF2 | All sections applicable |
| | DTS (BLE) | 2400~2483.5 | IHDT56AF1 | Original Grant | FR232908B | IHDT56AF2 | All sections applicable |
| | DTS (WLAN) | 2400~2483.5 | IHDT56AF1 | Original Grant | FR232908C | IHDT56AF2 | All sections applicable |
| 15E | U-NII-1 | 5180~5240 | IHDT56AF1 | Original Grant | FR232908D | IHDT56AF2 | All sections applicable |
| | U-NII-2A | 5260~5320 | IHDT56AF1 | Original Grant | FR232908D | IHDT56AF2 | All sections applicable |
| | U-NII-2C | 5500~5720 | IHDT56AF1 | Original Grant | FR232908D | IHDT56AF2 | All sections applicable |
| | U-NII-3 | 5745~5825 | IHDT56AF1 | Original Grant | FR232908E | IHDT56AF2 | All sections applicable |
| | DFS | 5260~5320 5500~5720 | IHDT56AF1 | Original Grant | FZ232908 | IHDT56AF2 | All sections applicable |
| 24, 27 | PCE (GSM) | GSM1900 | IHDT56AF1 | Original Grant | FR232908A | IHDT56AF2 | All sections applicable |
| | PCE (WCDMA) | Band II | IHDT56AF1 | Original Grant | FR232908A | IHDT56AF2 | All sections applicable |
| | PCE (LTE) | B7/38 | IHDT56AF1 | Original Grant | FR232908B | IHDT56AF2 | 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 | IHDT56AF1 Parent Worst Result | IHDT56AF2 Variant Check Result | Difference (dB) |
|-----------------------|--------------------|-------------------------------|--------------------------------|-----------------|
| Conducted Power (dBm) | BT BR/EDR | 12.96 | 11.87 | 1.09 |
| | BLE 1Mbps | 7.18 | 6.85 | 0.33 |
| | 11b, 2.4GHz | 21.30 | 20.63 | 0.67 |
| | 11g, 2.4GHz | 24.02 | 23.93 | 0.09 |
| | 11n HT20, 2.4GHz | 24.01 | 23.81 | 0.2 |
| | 11n HT40, 2.4GHz | 24.03 | 23.45 | 0.58 |
| | 11a, 5.2GHz | 18.29 | 17.45 | 0.84 |
| | 11a, 5.3GHz | 18.54 | 17.79 | 0.75 |
| | 11a, 5.5GHz | 18.23 | 17.28 | 0.95 |
| | 11a, 5.8GHz | 18.10 | 16.57 | 1.53 |
| | 11n HT20, 5.2GHz | 18.25 | 17.49 | 0.76 |
| | 11n HT20, 5.3GHz | 18.39 | 17.64 | 0.75 |
| | 11n HT20, 5.5GHz | 18.10 | 17.09 | 1.01 |
| | 11n HT20, 5.8GHz | 17.95 | 16.39 | 1.56 |
| | 11n HT40, 5.2GHz | 17.90 | 17.18 | 0.72 |
| | 11n HT40, 5.3GHz | 18.18 | 17.31 | 0.87 |
| | 11n HT40, 5.5GHz | 17.79 | 16.88 | 0.91 |
| | 11n HT40, 5.8GHz | 17.67 | 16.08 | 1.59 |
| | 11ac VHT20, 5.2GHz | 18.28 | 17.51 | 0.77 |
| | 11ac VHT20, 5.3GHz | 18.52 | 17.70 | 0.82 |
| | 11ac VHT20, 5.5GHz | 18.11 | 17.13 | 0.98 |
| | 11ac VHT20, 5.8GHz | 17.99 | 16.42 | 1.57 |
| | 11ac VHT40, 5.2GHz | 18.07 | 17.35 | 0.72 |
| | 11ac VHT40, 5.3GHz | 18.27 | 17.37 | 0.9 |
| | 11ac VHT40, 5.5GHz | 17.92 | 16.94 | 0.98 |
| | 11ac VHT40, 5.8GHz | 17.77 | 16.17 | 1.6 |
| | 11ac VHT80, 5.2GHz | 11.11 | 11.06 | 0.05 |
| | 11ac VHT80, 5.3GHz | 11.95 | 11.73 | 0.22 |
| | 11ac VHT80, 5.5GHz | 17.76 | 16.47 | 1.29 |
| | 11ac VHT80, 5.8GHz | 17.81 | 16.20 | 1.61 |
| | GSM1900 | 29.66 | 29.54 | 0.12 |
| | WCDMA Band II | 22.92 | 22.83 | 0.09 |
| | LTE Band 7 | 22.90 | 23.10 | -0.20 |
| LTE Band 38 | 22.96 | 22.90 | 0.06 | |



| Test Item | Mode | IHDT56AF1 Parent Worst Result | IHDT56AF2 Variant Check Result | Difference (dB) |
|-------------------------------------|---------------|-------------------------------------|--------------------------------------|-----------------|
| Radiated Spurious Emission (dBm) | GSM1900 | -25.48 | -41.86 | 16.38 |
| | WCDMA Band II | -38.63 | -39.53 | 0.90 |
| | LTE Band 7 | -17.83 | -36.4 | 18.57 |

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.



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 | May 12, 2022 | Oct. 13, 2022 | Conducted (TH01-KS) |
| Power divider | STI | STI08-0055 | - | 0.5~40GHz | Aug. 26, 2021 | May 12, 2022 | Aug. 25, 2022 | Conducted (TH01-KS) |
| EXA Spectrum Analyzer | Keysight | N9010B | MY57541079 | 10Hz-44G,MAX 30dB | Oct. 14, 2021 | May 06, 2022 | Oct. 13, 2022 | Radiation (03CH04-KS) |
| Loop Antenna | R&S | HFH2-Z2 | 100321 | 9kHz~30MHz | Oct. 30, 2021 | May 06, 2022 | Oct. 29, 2022 | Radiation (03CH04-KS) |
| Bilog Antenna | TeseQ | CBL6111D | 49922 | 30MHz-1GHz | May 30, 2021 | May 06, 2022 | May 29, 2022 | Radiation (03CH04-KS) |
| Horn Antenna | Schwarzbeck | BBHA9120D | 1284 | 1GHz~18GHz | Oct. 18, 2021 | May 06, 2022 | Oct. 18, 2022 | Radiation (03CH04-KS) |
| SHF-EHF Horn | Com-power | AH-840 | 101070 | 18GHz~40GHz | Jan. 05, 2022 | May 06, 2022 | Jan. 04, 2023 | Radiation (03CH04-KS) |
| Amplifier | SONOMA | 310N | 187289 | 9KHz-1GHz | Jan. 05, 2022 | May 06, 2022 | Jan. 04, 2023 | Radiation (03CH04-KS) |
| Amplifier | MITEQ | EM18G40GG A | 060728 | 18~40GHz | Jan. 05, 2022 | May 06, 2022 | Jan. 04, 2023 | Radiation (03CH04-KS) |
| high gain Amplifier | MITEQ | AMF-7D-0010 1800-30-10P | 2025788 | 1Ghz-18Ghz | Jul. 30, 2021 | May 06, 2022 | Jul. 29, 2022 | Radiation (03CH04-KS) |
| Amplifier | Keysight | 83017A | MY57280106 | 500MHz~26.5G Hz | Oct. 13, 2021 | May 06, 2022 | Oct. 12, 2022 | Radiation (03CH04-KS) |
| AC Power Source | Chroma | 61601 | F104090004 | N/A | NCR | May 06, 2022 | NCR | Radiation (03CH04-KS) |
| Turn Table | ChamPro | EM 1000-T | 060762-T | 0~360 degree | NCR | May 06, 2022 | NCR | Radiation (03CH04-KS) |
| Antenna Mast | ChamPro | EM 1000-A | 060762-A | 1 m~4 m | NCR | May 06, 2022 | NCR | Radiation (03CH04-KS) |

NCR: No Calibration Required.

-THE END-