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|   | <br>CERTIFICATE 2518.08 |
| <b>MOTOROLA PENANG ADV. COMM. LABORATORY</b><br>Motorola Solutions Malaysia Sdn Bhd<br>Plot 2A, Medan Bayan Lepas,<br>Mukim 12 SWD, 11900 Bayan Lepas<br>Penang, MALAYSIA  | <b>FCC / ISED TEST REPORT</b><br><b>Report Revision : Rev.A</b>  |
| <p><b>Date/s Tested</b> : 23-OCT-2024<br/><b>Manufacturer</b> : MOTOROLA SOLUTIONS MALAYSIA SDN BHD<br/><b>Manufacturer Address</b> : PLOT 2A, MEDAN BAYAN LEPAS, MUKIM 12 SWD, 11900 BAYAN LEPAS, PENANG, MALAYSIA<br/><b>Requestor</b> : Chew Looi Wong<br/><b>Product Type</b> : PORTABLE<br/><b>Model Number</b> : RMU2080BDLAA<br/><b>Frequency Band</b> : 162.4-162.55 MHz (Weather Channel)<br/><b>Firmware Version</b> : R02.02<br/><b>Applicant Name</b> : Motorola Solutions Inc<br/><b>Applicant Address</b> : PLOT 2A, MEDAN BAYAN LEPAS, MUKIM 12 SWD, 11900 BAYAN LEPAS, PENANG, MALAYSIA<br/><b>ISED Registrations</b> : MY0001<br/><b>FCC Registrations</b> : 461337<br/><b>Remark</b> : NA</p> <p><b>The equipment was tested accordance to the requirement listed below:</b></p> <p><b>FCC 47 CFR Part 15B /<br/>RSS GEN / ICES-003</b> <span style="float: right;"><b>PASS</b></span></p> |  |
| <p>This report shall not be reproduced without written approval from an officially designated representative of the Motorola Penang Adv. Comm. Laboratory. The results and statements contained in this report pertain only to the device(s) evaluated.</p>  |  |
| <p>Prepared By:</p> <br>_____<br><b>MOHD ALIF IZMER</b><br><b>Report Generator</b>  | <p>Approve Signatory:</p><br><br>_____<br><b>LEOW TING JUN</b><br><b>Responsible Engineer</b>              |

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## Report Revision History

| <b>Revision History</b> | <b>Description</b> | <b>Date</b>        | <b>Originator</b> |
|-------------------------|--------------------|--------------------|-------------------|
| Rev. A                  | Initial Report     | <b>08-NOV-2024</b> | MOHD ALIF IZMER   |

### 1.0. General Information

#### EUT Description:

|                        |                       |
|------------------------|-----------------------|
| <b>Technologies</b>    | LMR (Weather Channel) |
| <b>Modulation Type</b> | FM                    |

The EUT was tested with following device/accessory:

| Item                         | Brand    | Model or P/N |
|------------------------------|----------|--------------|
| RM/RVA/XT HC BATT LIION-3000 | MOTOROLA | PMNN4453A    |

#### General Description of Applied Standards

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

#### ANSI C63.4.2014

### 2.0. Summary of Test Results

| FCC General Rules Part (47CFR) | IC General Rules Part | Test Item                             | Result |
|--------------------------------|-----------------------|---------------------------------------|--------|
| 15.109, 15.111                 | RSS-Gen               | Conducted Spurious Output Power       | NA     |
| 15.109, 15.111                 | RSS-Gen               | Radiated Spurious Output Power        | Pass   |
| 15.107                         | ICES-003 6.1, RSS-Gen | AC Power Conducted Spurious Emissions | NA     |

NA → Not Applicable

### 3.0. Measurement Uncertainty

| Measurement                               | Frequency        | Expanded Uncertainty (k=1.96) (±) |
|---|------------------|-----------------------------------|
| AC Power Line Conducted Spurious Emission | 150KHz ~ 30MHz   | 3.48                              |
| Radiated Emissions up to 1 GHz            | 30MHz ~ 200MHz   | 5.88                              |
|   | 200MHz ~ 1000MHz | 5.88                              |
| Radiated Emissions above 1 GHz            | 1GHz ~ 18GHz     | 5.84                              |
|   | 18GHz ~ 25GHz    | 6.02                              |
| Conducted Spurious Emissions              | 9kHz ~ 12.75GHz  | 2.82                              |

#### 4.0. Equipment List

##### **Conducted Spur Emission Ate # 1**

NA

##### **Radiated Emission Station**

| DESCRIPTION                     | MODEL                        | SERIAL NUMBER | CALIBRATION DATE | CALIBRATION DUE DATE |
|---------------------------------|------------------------------|---------------|------------------|----------------------|
| DRG HORN FREQ.                  | SAS-571                      | 1143          | 08-Mar-23        | 08-Mar-25            |
| DRG HORN FREQ.                  | SAS-571                      | 720           | 18-Apr-23        | 18-Apr-25            |
| DC Power Supply                 | 6623A                        | 3302A02585    | 30-Jul-24        | 30-Jul-25            |
| SIGNAL GENERATOR                | SMB 100A                     | 182511        | 04-Sep-21        | 04-Dec-24            |
| EMI TEST RECEIVER               | ESW44                        | 101750        | 08-Aug-24        | 07-Aug-25            |
| 5m SEMI-ANECHOIC CHAMBER        | S800-HX                      | J2308         | No Cal. Req'd    | No Cal. Req'd        |
| BILOG ANTENNA                   | CBL6112B                     | 2950          | 14-Dec-23        | 14-Dec-24            |
| BILOG ANTENNA                   | CBL6112D                     | 55546         | 05-Jun-24        | 05-Jun-25            |
| DATA LOGGER<br>THERMOHYGROMETER | SDL500                       | A.016800      | 26-Jun-24        | 26-Jun-25            |
| SYSTEM CONTROLLER               | SC104V                       | 050806-1      | No Cal. Req'd    | No Cal. Req'd        |
| TURNTABLE FLUSH MOUNT 2M        | FM2011                       | FM2011-001    | No Cal. Req'd    | No Cal. Req'd        |
| ANTENNA POSITIONING<br>TOWER    | TLT2                         | NA            | No Cal. Req'd    | No Cal. Req'd        |
| BROAD-BAND HORN ANTENNA         | BBHA9170                     | BBHA9170255   | 13-Mar-2024      | 13-Mar-2025          |
| PREAMPLIFIER 18-40GHz           | Miteq Hi Gain<br>Sucoflex    | 002           | No Cal. Req'd    | No Cal. Req'd        |
| PREAMPLIFIER                    | PAM-0118P                    | 574           | 19-Mar-24        | 19-Mar-25            |
| LOOP ANTENNA                    | 6502                         | 00203479      | 06-Mac-24        | 06-Mac-25            |
| TEST SOFTWARE                   | EMC_FCC_IC_BLUETOOTH_RE_TEST |               |                  |                      |
| VERSION                         | EMC_FCC_RE_v1.6.5            |               |                  |                      |

##### **AC Power Line Conducted Spurious Emission**

NA

5.0. Test Condition

**5.1 Receiver Test Conditions**

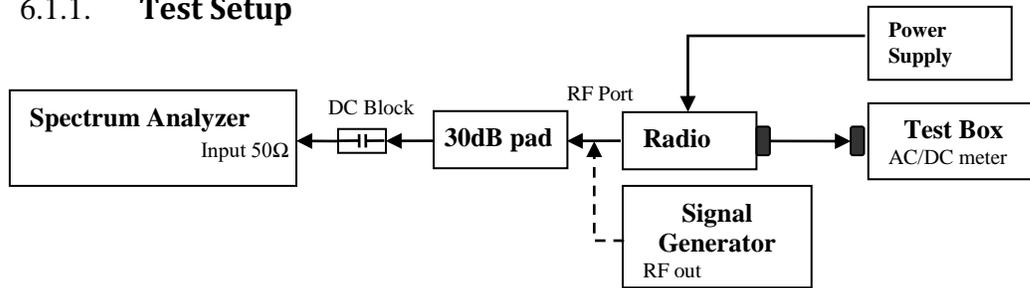
| <b>Test Item,<br/>(Channel<br/>Spacing)</b>                            | <b>Temperature<br/>(°C)</b> | <b>Voltage<br/>Supply<br/>(V)</b> | <b>Power<br/>(W)</b> | <b>Modulation</b> | <b>Test<br/>Frequency<br/>(MHz)</b> | <b>Test Mode<br/>Description</b>   |
|--|-----------------------------|-----------------------------------|----------------------|-------------------|-------------------------------------|--|
| <b>Conducted<br/>Spurious<br/>Output Power<br/>(NA)</b>                | NA                          | NA                                | NA                   | NA                | NA                                  | NA   |
| <b>Radiated<br/>Spurious<br/>Output Power<br/>(25kHz)</b>              | 23.1                        | 3.7                               | 2                    | FM                | 162.4000                            | Radio turned<br>ON with<br>LMR<br>(weather<br>channel) in<br>standby<br>mode |
| <b>AC Power Line<br/>Conducted<br/>Spurious<br/>Emissions<br/>(NA)</b> | NA                          | NA                                | NA                   | NA                | NA                                  | NA   |

**NA → Not Applicable**

## 6.0. Receiver Test Parameters

### 6.1. Conducted Spurious Output Power

#### 6.1.1. Test Setup



- 1) Identify the radio is high side ( $LO = Fc + IF$ ) or low side injection ( $LO = Fc - IF$ ).
- 2) To get the reference point, set sigen to 1<sup>st</sup> LO frequency with amplitude level 0dBm.
- 3) Set the LO frequency into PSA. Adjust the PSA RBW = 100 kHz and record the Reference level offset.
- 4) Replace the Sigen with the UUT.
- 5) At PSA, set the frequency step size to LO frequency to test from 2LO to 10LO.
- 6) Record or screen captures the data in dBm value.

#### 6.1.2. Test Result

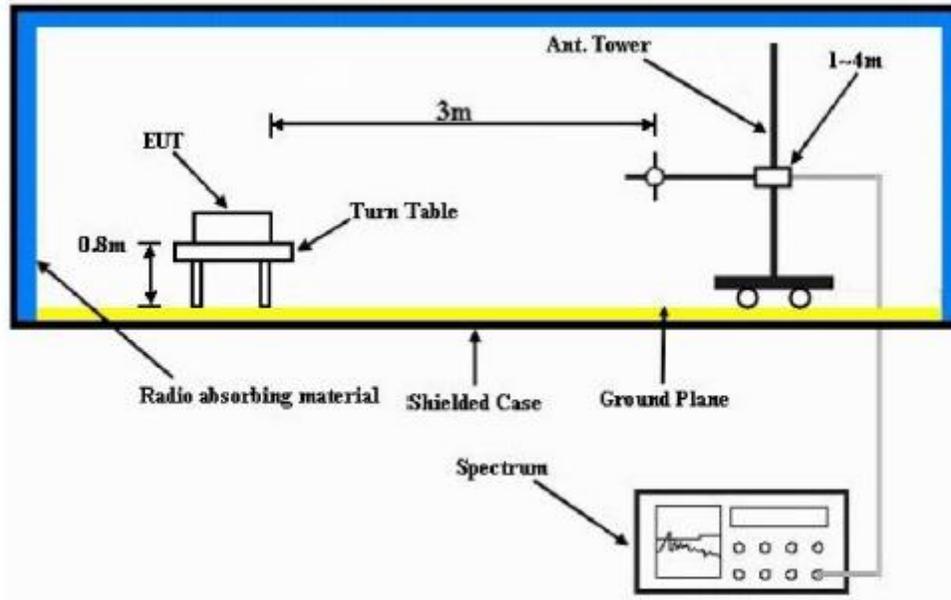
NA

#### 6.1.3. Test Limit

NA

## 6.2. Radiated Spurious Output Power

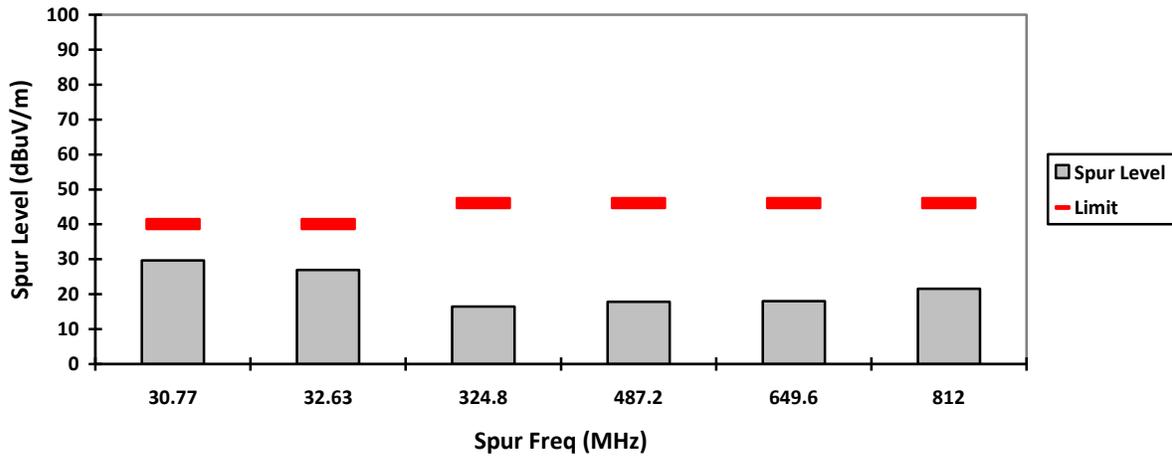
### 6.2.1. Test Setup



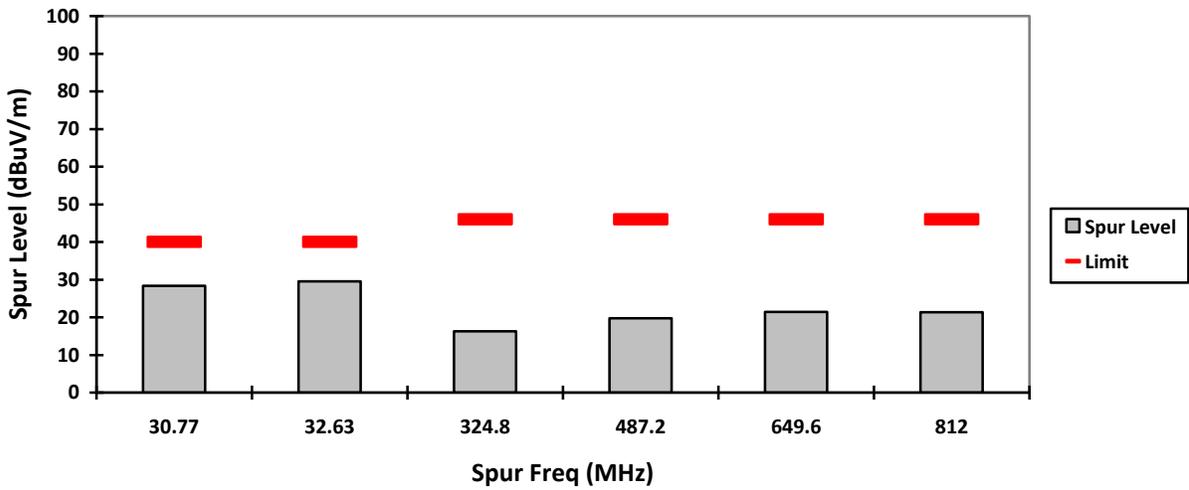
- 1) The spectrum setting for scanning Radiated Emission below 1 GHz is RBW = 100 kHz, VBW = 300 kHz and above 1 GHz is RBW = 1MHz, VBW = 3MHz. Detector mode is positive peak.
- 2) In the semi-anechoic chamber, setup as illustrated above the EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 3) The substitution antenna is substituted for EUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum radiation power. Record the power level of maximum radiation power from spectrum. So, the measured substitution value = Ref level of S.G + TX cables loss – Substituted Antenna Gain.
- 4) Final Radiated Spurious Emission = "Read Value" + Measured substitution value.



**VERTICAL, QPK**



**HORIZONTAL, QPK**



### 6.2.3. Test Limit

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

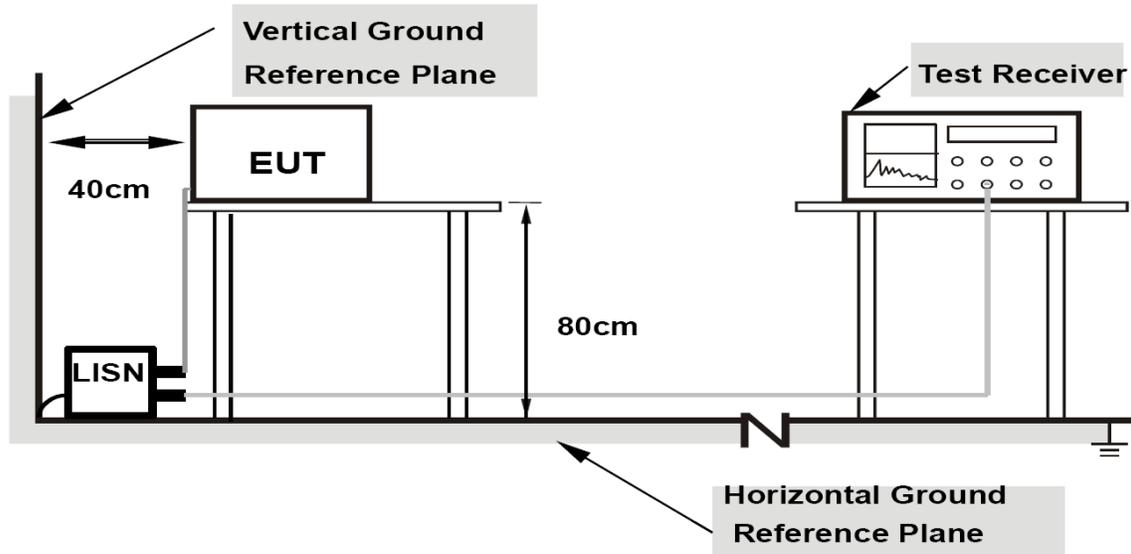
| Frequency of emission (MHz) | Field strength (microvolts/meter) |
|-----------------------------|-----------------------------------|
| 30-88                       | 100                               |
| 88-216                      | 150                               |
| 216-960                     | 200                               |
| Above 960                   | 500                               |

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

| Frequency of emission (MHz) | Field strength (microvolts/meter) |
|-----------------------------|-----------------------------------|
| 30-88                       | 90                                |
| 88-216                      | 150                               |
| 216-960                     | 210                               |
| Above 960                   | 300                               |

### 6.3. AC Power Line Conducted Spur Emissions

#### 6.3.1. Test Setup



- 1) Tests were conducted for both Receive and Transmit Mode of the EUT.
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 4) The frequency range from 150 kHz to 30MHz was measured.

#### 6.3.2. Test Results

NA

#### 6.3.3. Test Limits

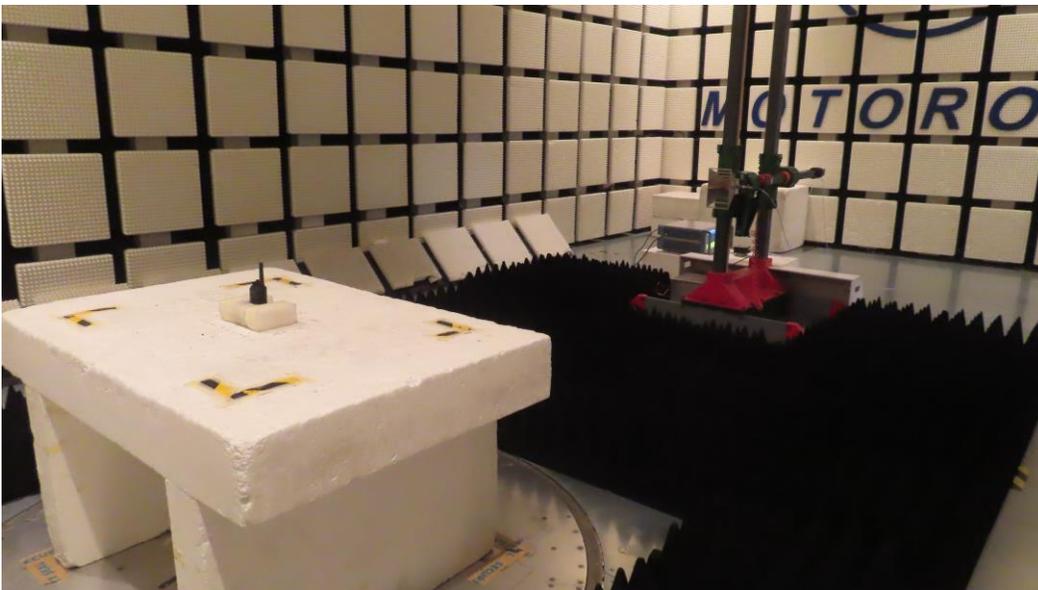
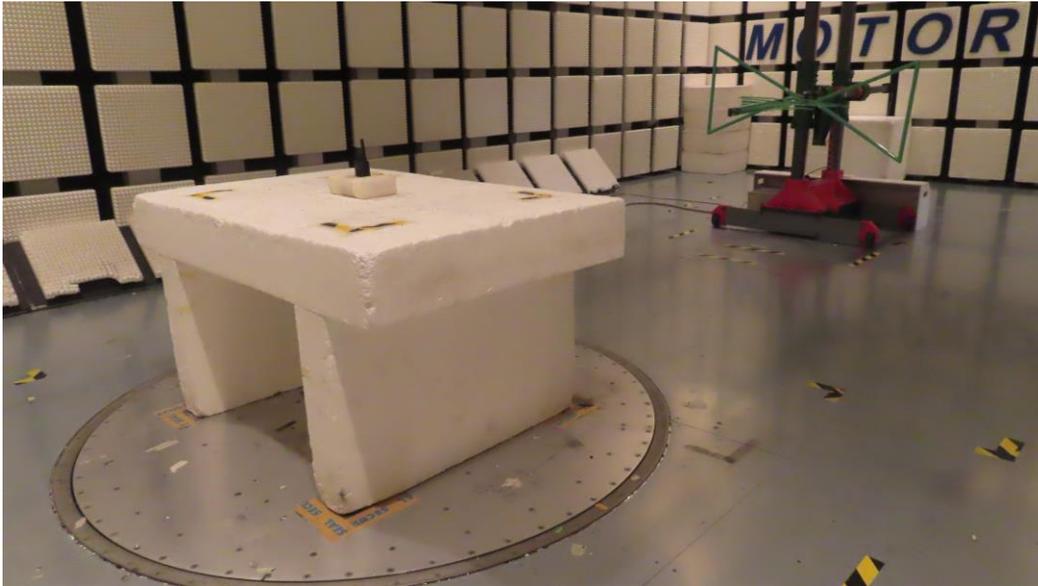
NA

## 7.0. Appendix: Test Setup Photo

### 7.1. Conducted Spur Emission ATE Station Setup

NA

### 7.2. Radiated Spur Emission Station Setup



### 7.3. AC Power Line Conducted Emission Station Setup

NA

#### 7.4. **Photographs - EUT**



**Radio + Antenna + Battery**

**~ End of Test Report ~**