

# MAXIMUM PERMISSIBLE EXPOSURE TEST REPORT

For

## TYT ELECTRONICS CO., LTD

Block 39-1, Optoelectronics-information industry base, Nan'an, Quanzhou, Fujian, China

**FCC ID: POD-DMR3**

|                                        |                                                                                                                                                                                                                                                       |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Type:</b><br>Original Report | <b>Product Name:</b><br>DMR mobile radio                                                                                                                                                                                                              |
| <b>Report Number:</b> RXM170927052-20  |                                                                                                                                                                                                                                                       |
| <b>Report Date:</b> 2017-12-21         |                                                                                                                                                                                                                                                       |
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| <b>Reviewed By:</b>                    | EMC Manager                                                                                                                                                                                                                                           |
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**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

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## FCC §1.1310 & FCC §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### Product Description for Equipment under Test (EUT)

The **TYT ELECTRONICS CO., LTD**'s product, model number: **MD-9600 (FCC ID: POD-DMR3)** ( the "EUT") in this report was a *DMR mobile radio*, which was measured approximately: 18.8 cm (L) x 14.3 cm (W) x 5.0 cm (H), DC 13.8V.

#### Antenna Information:

| Manufacturer   | Antenna Type     | Model No. | Length (cm) | Gain (dBi)                              |
|----------------|------------------|-----------|-------------|-----------------------------------------|
| nagoya Antenna | Monopole Antenna | NL-770R   | 43          | 3.2dBi@136-174MHz<br>5.5dBi@ 400-470MHz |

\*All measurement and test data in this report was gathered from production sample serial number: 170927052 (Assigned by BACL,Dongguan). The EUT was received on 2017-09-26.

### Applicable Standard

According to 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

#### Limits for Maximum Permissible Exposure (MPE)

| Limits for Occupational/Controlled Exposure |                                   |                                   |                                         |                                        |
|---------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------------|----------------------------------------|
| Frequency Range (MHz)                       | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Time  E ,  H  or S (minutes) |
| 0.3- 3.0                                    | 614                               | 1.63                              | (100)*                                  | 6                                      |
| 3.0 - 30                                    | 1842/f                            | 4.89/f                            | (900/f <sup>2</sup> )*                  | 6                                      |
| 30-300                                      | 61.4                              | 0.163                             | 1.0                                     | 6                                      |
| 300-1500                                    | /                                 | /                                 | f/300                                   | 6                                      |
| 1500-100,000                                | /                                 | /                                 | 5                                       | 6                                      |

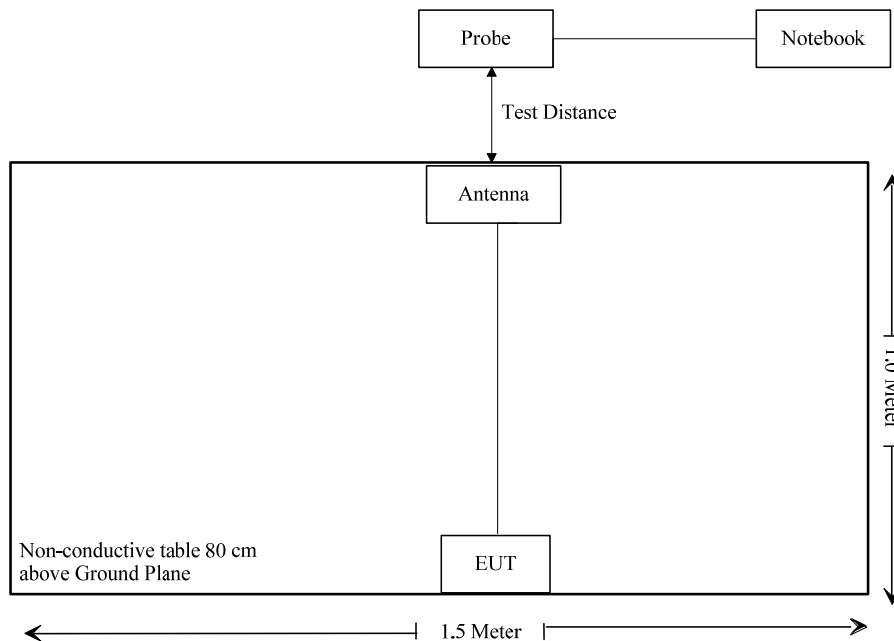
f = frequency in MHz;

\* = Plane-wave equivalent power density;

## Test Procedure

1. Place the EUT's antenna was vertical polarization on the table.
2. The EUT was set to transmit at the frequency at maximum RF power.
3. The Distance between the test probe and the investigated EUT's antenna equal to the distance be specified as safety distance in the user manual.
4. Power density measurements were taken at different heights of the probe from the ground (0.1 to 2 meters) while rotating versus azimuth (from 0° to 360°) the antenna.
5. adjusted the distance between the test probe and the tested antenna to the real safe distance,  $R_{real}$ , such that the measured highest power density in the "worst case" position was the same or slightly less than the test limit.
6. The measurement results of final measurements conducted at the chosen azimuth and different heights of the probe above the ground.
7. Average values of power density were calculated for the imaginary whole human body (0.1–2.0 m), for the lower part of the body (0.1–0.9 m) and for the upper part of the body (1.0–2.0 m).

## Block Diagram of Test Setup



## Test Equipment List and Details

| Manufacturer | Description | Model No. | Serial No. | Calibration Date | Calibration Due Date |
|--------------|-------------|-----------|------------|------------------|----------------------|
| ETS-LINDGREN | Field Probe | HI-6005   | 00069461   | 2016-2-29        | 2019-2-28            |

**\* Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Data****Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 28.2 °C   |
| <b>Relative Humidity:</b> | 52 %      |
| <b>ATM Pressure:</b>      | 100.6 kPa |

The testing was performed by Pean Zhu on 2017-10-13 .

Test Mode:VHF-FM(155.7525 MHz)

| Measuring<br>Probe Height<br>(cm) | Power Density<br>(mW/cm <sup>2</sup> ) |                    |                    |                    |                    |
|-----------------------------------|----------------------------------------|--------------------|--------------------|--------------------|--------------------|
|                                   | Distance<br>(40cm)                     | Distance<br>(50cm) | Distance<br>(60cm) | Distance<br>(70cm) | Distance<br>(80cm) |
| 10                                | 0.037                                  | 0.035              | 0.034              | 0.023              | 0.033              |
| 20                                | 0.055                                  | 0.042              | 0.031              | 0.025              | 0.018              |
| 30                                | 0.077                                  | 0.052              | 0.039              | 0.03               | 0.021              |
| 40                                | 0.106                                  | 0.061              | 0.033              | 0.034              | 0.031              |
| 50                                | 0.133                                  | 0.062              | 0.037              | 0.04               | 0.038              |
| 60                                | 0.158                                  | 0.066              | 0.04               | 0.045              | 0.038              |
| 70                                | 0.188                                  | 0.073              | 0.047              | 0.051              | 0.036              |
| 80                                | 0.182                                  | 0.072              | 0.05               | 0.053              | 0.032              |
| 90                                | 0.153                                  | 0.067              | 0.051              | 0.045              | 0.034              |
| 100                               | 0.114                                  | 0.059              | 0.052              | 0.047              | 0.038              |
| 110                               | 0.125                                  | 0.065              | 0.051              | 0.048              | 0.042              |
| 120                               | 0.153                                  | 0.073              | 0.056              | 0.051              | 0.044              |
| 130                               | 0.168                                  | 0.092              | 0.055              | 0.064              | 0.046              |
| 140                               | 0.154                                  | 0.097              | 0.066              | 0.057              | 0.041              |
| 150                               | 0.127                                  | 0.071              | 0.047              | 0.041              | 0.034              |
| 160                               | 0.085                                  | 0.046              | 0.045              | 0.04               | 0.031              |
| 170                               | 0.065                                  | 0.035              | 0.031              | 0.033              | 0.026              |
| 180                               | 0.042                                  | 0.03               | 0.029              | 0.026              | 0.022              |
| 190                               | 0.035                                  | 0.023              | 0.022              | 0.021              | 0.023              |
| 200                               | 0.023                                  | 0.018              | 0.017              | 0.02               | 0.018              |

Test Mode:VHF-4FSK(155.7525 MHz)

| Measuring<br>Probe Height<br>(cm) | Power Density<br>(mW/cm <sup>2</sup> ) |                    |                    |                    |                    |
|-----------------------------------|----------------------------------------|--------------------|--------------------|--------------------|--------------------|
|                                   | Distance<br>(40cm)                     | Distance<br>(50cm) | Distance<br>(60cm) | Distance<br>(70cm) | Distance<br>(80cm) |
| 10                                | 0.031                                  | 0.023              | 0.029              | 0.021              | 0.024              |
| 20                                | 0.05                                   | 0.039              | 0.023              | 0.018              | 0.007              |
| 30                                | 0.064                                  | 0.042              | 0.031              | 0.02               | 0.014              |
| 40                                | 0.098                                  | 0.057              | 0.026              | 0.023              | 0.02               |
| 50                                | 0.126                                  | 0.052              | 0.03               | 0.031              | 0.034              |
| 60                                | 0.145                                  | 0.057              | 0.028              | 0.037              | 0.031              |
| 70                                | 0.178                                  | 0.066              | 0.044              | 0.043              | 0.024              |
| 80                                | 0.173                                  | 0.066              | 0.047              | 0.042              | 0.02               |
| 90                                | 0.151                                  | 0.058              | 0.047              | 0.033              | 0.033              |
| 100                               | 0.11                                   | 0.051              | 0.048              | 0.036              | 0.031              |
| 110                               | 0.117                                  | 0.064              | 0.048              | 0.045              | 0.039              |
| 120                               | 0.149                                  | 0.069              | 0.055              | 0.039              | 0.032              |
| 130                               | 0.158                                  | 0.084              | 0.047              | 0.059              | 0.035              |
| 140                               | 0.141                                  | 0.084              | 0.06               | 0.051              | 0.039              |
| 150                               | 0.126                                  | 0.069              | 0.038              | 0.033              | 0.024              |
| 160                               | 0.083                                  | 0.039              | 0.036              | 0.032              | 0.023              |
| 170                               | 0.055                                  | 0.023              | 0.025              | 0.024              | 0.018              |
| 180                               | 0.033                                  | 0.019              | 0.023              | 0.021              | 0.021              |
| 190                               | 0.026                                  | 0.014              | 0.01               | 0.019              | 0.021              |
| 200                               | 0.023                                  | 0.018              | 0.017              | 0.02               | 0.018              |

Test Mode:UHF-FM(453.2125 MHz)

| Measuring<br>Probe Height<br>(cm) | Power Density<br>(mW/cm <sup>2</sup> ) |                    |                    |                    |                    |
|-----------------------------------|----------------------------------------|--------------------|--------------------|--------------------|--------------------|
|                                   | Distance<br>(40cm)                     | Distance<br>(50cm) | Distance<br>(60cm) | Distance<br>(70cm) | Distance<br>(80cm) |
| 10                                | 0.063                                  | 0.051              | 0.034              | 0.03               | 0.037              |
| 20                                | 0.091                                  | 0.087              | 0.067              | 0.045              | 0.031              |
| 30                                | 0.072                                  | 0.06               | 0.051              | 0.031              | 0.026              |
| 40                                | 0.041                                  | 0.029              | 0.025              | 0.019              | 0.023              |
| 50                                | 0.048                                  | 0.049              | 0.043              | 0.044              | 0.036              |
| 60                                | 0.096                                  | 0.112              | 0.116              | 0.106              | 0.073              |
| 70                                | 0.192                                  | 0.155              | 0.167              | 0.135              | 0.13               |
| 80                                | 0.309                                  | 0.201              | 0.189              | 0.141              | 0.143              |
| 90                                | 0.563                                  | 0.316              | 0.238              | 0.164              | 0.138              |
| 100                               | 0.76                                   | 0.39               | 0.256              | 0.196              | 0.138              |
| 110                               | 0.739                                  | 0.387              | 0.257              | 0.205              | 0.142              |
| 120                               | 0.551                                  | 0.332              | 0.24               | 0.195              | 0.143              |
| 130                               | 0.384                                  | 0.247              | 0.195              | 0.163              | 0.124              |
| 140                               | 0.289                                  | 0.191              | 0.165              | 0.127              | 0.101              |
| 150                               | 0.223                                  | 0.147              | 0.128              | 0.104              | 0.082              |
| 160                               | 0.163                                  | 0.114              | 0.103              | 0.085              | 0.075              |
| 170                               | 0.117                                  | 0.088              | 0.082              | 0.075              | 0.064              |
| 180                               | 0.081                                  | 0.068              | 0.061              | 0.057              | 0.056              |
| 190                               | 0.057                                  | 0.061              | 0.052              | 0.05               | 0.053              |
| 200                               | 0.042                                  | 0.046              | 0.055              | 0.054              | 0.042              |

Test Mode:UHF-4FSK(453.2125 MHz)

| Measuring<br>Probe Height<br>(cm) | Power Density<br>(mW/cm <sup>2</sup> ) |                    |                    |                    |                    |
|-----------------------------------|----------------------------------------|--------------------|--------------------|--------------------|--------------------|
|                                   | Distance<br>(40cm)                     | Distance<br>(50cm) | Distance<br>(60cm) | Distance<br>(70cm) | Distance<br>(80cm) |
| 10                                | 0.05                                   | 0.046              | 0.025              | 0.027              | 0.034              |
| 20                                | 0.086                                  | 0.08               | 0.054              | 0.042              | 0.02               |
| 30                                | 0.065                                  | 0.05               | 0.047              | 0.024              | 0.014              |
| 40                                | 0.029                                  | 0.018              | 0.015              | 0.013              | 0.018              |
| 50                                | 0.047                                  | 0.046              | 0.039              | 0.031              | 0.034              |
| 60                                | 0.087                                  | 0.103              | 0.109              | 0.101              | 0.061              |
| 70                                | 0.182                                  | 0.146              | 0.155              | 0.124              | 0.127              |
| 80                                | 0.297                                  | 0.197              | 0.178              | 0.129              | 0.134              |
| 90                                | 0.557                                  | 0.306              | 0.231              | 0.162              | 0.13               |
| 100                               | 0.749                                  | 0.382              | 0.25               | 0.185              | 0.128              |
| 110                               | 0.736                                  | 0.377              | 0.246              | 0.199              | 0.137              |
| 120                               | 0.55                                   | 0.322              | 0.229              | 0.188              | 0.138              |
| 130                               | 0.379                                  | 0.237              | 0.189              | 0.158              | 0.12               |
| 140                               | 0.278                                  | 0.183              | 0.157              | 0.123              | 0.098              |
| 150                               | 0.215                                  | 0.141              | 0.118              | 0.094              | 0.077              |
| 160                               | 0.158                                  | 0.105              | 0.096              | 0.075              | 0.063              |
| 170                               | 0.106                                  | 0.08               | 0.078              | 0.073              | 0.052              |
| 180                               | 0.075                                  | 0.056              | 0.056              | 0.056              | 0.043              |
| 190                               | 0.046                                  | 0.059              | 0.047              | 0.046              | 0.044              |
| 200                               | 0.042                                  | 0.046              | 0.055              | 0.054              | 0.042              |

## Test Result Summary:

|                                                             |            |            |
|-------------------------------------------------------------|------------|------------|
| Average Power<br>Density over body<br>(mW/cm <sup>2</sup> ) | Whole body | 0.244      |
|                                                             | lower part | 0.164      |
|                                                             | High part  | 0.31       |
| Maximum Power Density<br>(mW/cm <sup>2</sup> )              |            | 0.76       |
| Safety Distance<br>(cm)                                     |            | 40         |
| Result                                                      |            | Compliance |

## Test Setup Photo

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\*\*\*\*\* END OF REPORT \*\*\*\*\*