# RF Exposure Report

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|---|---|
| **Report No.:** | SABEOO-WTW-P21020573A |
| **FCC ID:** | MAD-G2021-49-01B |
| **Test Model:** | G2021-49-01B |
| **Received Date:** | Mar. 31, 2021 |
| **Test Date:** | Jun. 08 ~ Aug. 26, 2021 |
| **Issued Date:** | Aug. 30, 2021 |
| **Applicant:** | Microelectronics Technology Inc. |
| **Address:** | No. 1, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan, R.O.C. |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch<br>Lin Kou Laboratories |
| **Lab Address:** | No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan |
| **Test Location:** | No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan |
| **FCC Registration / Designation Number:** | 788550 / TW0003 |

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## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| SABEOO-WTW-P21020573A | Original release | Aug. 30, 2021 |

## 1 Certificate of Conformity

| | |
|---|---|
| **Product:** | Dual Mid Band RU |
| **Brand:** | MTI |
| **Test Model:** | G2021-49-01B |
| **Sample Status:** | Engineering sample |
| **Applicant:** | Microelectronics Technology Inc. |
| **Test Date:** | Jun. 08 ~ Aug. 26, 2021 |
| **Standards:** | FCC Part 2 (Section 2.1091) |
| **References Test Guidance:** | KDB 447498 D01 General RF Exposure Guidance v06 |

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

**Prepared by :** Pettie Chen , **Date:** Aug. 30, 2021

Pettie Chen / Senior Specialist

**Approved by :** Bruce Chen , **Date:** Aug. 30, 2021

Bruce Chen / Senior Engineer

## 2 RF Exposure

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

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density ($mW/cm^2$) | Average Time (minutes) |
|---|---|---|---|---|
| Limits For General Population / Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | ($180/f^2$)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | … | … | f/1500 | 30 |
| 1500-100,000 | … | … | 1.0 | 30 |

f = Frequency in MHz; *Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$
where
Pd = power density in $mW/cm^2$
Pout = output power to antenna in mW
G = gain of antenna in linear scale
pi = 3.1416
r = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 443cm away from the body of the user. So, this device is classified as fixed station and installations by professional service persionnel device.

## 3 General Description of Antenna Gain

The antennas provided to the EUT, please refer to the following table:

| | |
|---|---|
| Antenna Type | Directional Cross-Polarized Sector antenna with :<br>Band n66 Gain = 15 dBi<br>Band n70 Gain = 17 dBi |
| Antenna Connector | 4x4.3-10 Female |

Note:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
2. Based on the maximum RF power (conducted & EIRP) listed in this report, considerations pertaining to the maximum allowed EIRP (conducted power level), signal type and antenna gain should be considered for each installation.

## 4 Calculation Result of Maximum Conducted Power

**For 5G NR Band n66**

5MHz (Single Carrier): 16QAM

| Frequency Band (MHz) | Conducted Average Power - Per Chain (dBm/MHz) | | | | Max Conducted Average Power - Totaol (dBm/MHz) | Directional Gain (dBi) | Max EIRP Power (dBm/MHz) | Max EIRP Power (mW/MHz) | Distance (cm) | Power Density ($mW/cm^2$) | Limit ($mW/cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ANT0 | ANT1 | ANT2 | ANT3 | | | | | | | |
| 2155 | 38.87 | 38.80 | 38.66 | 38.80 | 44.80 | 15 | 59.80 | 955821.3453 | 443 | 0.387 | 1 |

**For 5G NR Band n70**

5MHz (Single Carrier): 16QAM

| Frequency Band (MHz) | Conducted Average Power - Per Chain (dBm/MHz) | | | | Max Conducted Average Power - Totaol (dBm/MHz) | Directional Gain (dBi) | Max EIRP Power (dBm/MHz) | Max EIRP Power (mW/MHz) | Distance (cm) | Power Density ($mW/cm^2$) | Limit ($mW/cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ANT0 | ANT1 | ANT2 | ANT3 | | | | | | | |
| 2007.5 | 38.80 | 38.83 | 38.66 | 38.70 | 44.77 | 17 | 61.77 | 1503141.966 | 443 | 0.610 | 1 |

Note:

1. EIRP Power = Conducted Power+ Antenna gain
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

**Conclusion:**

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Band n66 + Band n70= 0.387/1+0.610/1 = 0.997

**Therefore the maximum calculations of above situations are less than the "1" limit.**

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