

RF Exposure Report

Report No.: MFBEOO-WTW-P22041058

FCC ID: MADG060708-50-02B

Test Model: G060708-50-02B

Received Date: 2022/4/29

Test Date: 2022/6/12

Issued Date: 2022/7/15

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
Hsin Chu Laboratory

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
MFBEOO-WTW-P22041058	Original release.	2022/7/15

1 Certificate of Conformity

Product: Triple Low Band RU

Brand: MTI (Microelectronics Technology Inc.)

Test Model: G060708-50-02B

Sample Status: Engineering sample


Applicant: Microelectronics Technology Inc.

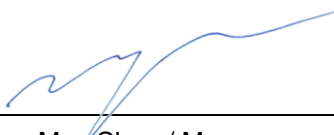
Test Date: 2022/6/12

FCC Rule Part: FCC Part 2 (Section 2.1091)

Standards: 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 EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** 2022/7/15
Claire Kuan / Specialist

Approved by :  , **Date:** 2022/7/15
May Chen / Manager

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

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW/MHz

G = gain of antenna in linear scale

π = 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 1485 cm away from the body of the user. So, this device is classified as fixed station and installations by professional service personnel 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 : Band 26 Gain = 16 dBi Band 29 Gain = 17 dBi Band 71 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

For 5G NR Band n26 (20W)

5MHz (Single Carrier): QPSK

Frequency Band (MHz)	Conducted Average Power - Per Chain (dBm)		Max Conducted Average Power - Total (dBm)	Directional Gain (dBi)	Max EIRP Power (dBm)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
	ANT2	ANT3							
866.5	43.12	43.07	46.11	16.00	62.11	1625548.756	1485	0.05866	0.57767

For 5G NR Band n29 (60W)

10M (Single Carrier): 256QAM

Frequency Band (MHz)	Conducted Average Power - Per Chain (dBm)		Max Conducted Average Power - Total (dBm)	Directional Gain (dBi)	Max EIRP Power (dBm)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
	ANT0	ANT1							
722.5	47.98	47.31	50.67	17.00	67.67	5847900.841	1485	0.21103	0.48167

For 5G NR Band n71 (30W)

20M (Single Carrier): 256QAM

Frequency Band (MHz)	Conducted Average Power - Per Chain (dBm)				Max Conducted Average Power - Total (dBm)	Directional Gain (dBi)	Max EIRP Power (dBm)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
	ANT0	ANT1	ANT2	ANT3							
642	44.86	45.08	45.17	44.54	50.94	17.00	67.94	6223002.852	1485	0.22456	0.42800

For 5G NR Band n26(20W) + n29 (60W) + n71(30W)

5M+10M+20M (Single Carrier): QPSK

Frequency Band (MHz)	Conducted Average Power - Per Chain (dBm)				Max Conducted Average Power - Total (dBm)	Directional Gain (dBi)	Max EIRP Power (dBm)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
	ANT0	ANT1	ANT2	ANT3							
866.5	NA	NA	42.49	42.46	45.49	16.00	61.49	1409288.798	1485	0.05086	0.57767
723	47.29	47.32	NA	NA	50.31	17.00	67.32	5395106.225	1485	0.19469	0.48200
627	44.65	44.82	44.51	44.68	50.69	17.00	67.69	5874893.525	1485	0.21200	0.41800

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:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

Band n26 + Band n29 + Band n71 = $0.05086/0.57767 + 0.19469/0.482 + 0.212/0.418 = 0.99914$

Therefore the maximum calculations of above situations are less than the “1” limit.

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