RF Exposure Report

Report No.:	MFBEOO-WTW-P22050206
FCC ID:	MADG2021-49-02B
Test Model:	G2021-49-02B
Received Date:	Apr. 29, 2022
Test Date:	May 17 ~ Jun. 24, 2022
Issued Date:	Jul. 06, 2022
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 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
MFBEOO-WTW-P22050206	Original release	Jul. 06, 2022

1 Certificate of Conformity

Product:	Dual Mid-Band RU
Brand:	MTI
Test Model:	G2021-49-02B
Sample Status:	Engineering sample
Applicant:	Microelectronics Technology Inc.
Test Date:	May 17 ~ Jun. 24, 2022
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 RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Jul. 06, 2022

Polly Chien / Specialist

Approved by : _____ , **Date:** Jul. 06, 2022

Jeremy Lin / Project 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 848cm 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 n66 Gain = 14 dBi Band n70 Gain = 16 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

20MHz (30W) + 20MHz (30W) (CA Contiguous): 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							
2170+2190	44.55	44.51	44.57	44.52	53.60	14	67.60	5754399.373	848	0.637	1
	44.59	44.63	44.60	44.61							

*The power configurations are based on 20MHz (30W) + 20MHz (30W) for n66 only.

For 5G NR Band n70

5MHz (20W) + 5MHz (20W) (CA-Non-Contiguous): 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							
1997.5+ 2017.5	42.85	42.90	42.90	42.94	52.07	16	68.07	6412095.766	848	0.710	1
	43.19	43.16	43.14	43.20							

*The power configurations are based on 5MHz (20W) + 5MHz (20W) for n70 only.

For 5G NR Band n66+n70

CA-Non-Contiguous

Band n66 5MHz(20W)+5MHz(20W) + Band n70 5MHz(20W)+5MHz(20W)

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)	Co-located Ratio<1
	ANT0	ANT1	ANT2	ANT3								
2142.5+ 2197.5	42.46	42.47	42.36	42.33	51.43	14	65.43	3492360.413	848	0.386	1	0.998
	42.40	42.44	42.40	42.34								
1997.5+ 2017.5	42.42	42.46	42.38	42.34	51.43	16	67.43	5539641.361	848	0.612	1	
	42.41	42.36	42.44	42.42								

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

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

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