RF Exposure Report

Report No.:	MFBARR-WTW-P21100969F
FCC ID:	RAS-MT7902
Test Model:	MT7902
Received Date:	2021/10/28
Test Date:	2021/11/10 ~ 2022/1/18
Issued Date:	2022/10/28
Applicant:	MediaTek Inc.
Address:	No. 1, Dusing 1st Rd., Hsinchu Science Park, Hsinchu City, 30078 Taiwan
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
MFBARR-WTW-P21100969F	Original release.	2022/10/28

1 Certificate of Conformity

Product:	1TX 11ax (WiFi6E) BW160 + BT/BLE Combo Card
Brand:	MediaTek
Test Model:	MT7902
Sample Status:	Engineering sample
Applicant:	MediaTek Inc.
Test Date:	2021/11/10 ~ 2022/1/18
FCC Rule Part:	FCC Part 2 (Section 2.1091)
Standards:	KDB 447498 D01 General RF Exposure Guidance v06

Note: This report is issued as a duplicate report of BV CPS report no.: SABARR-WTW-P21100969. The differences compared with the original report is disable 5.9GHz & 6GHz for Diversity sku and add Dipole antenna. Therefore, there is no addition test has to be performed. All test data are copied from the original test report.

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 : Vivian Huang , **Date:** 2022/10/28

Vivian Huang / Specialist

Approved by : , **Date:** 2022/10/28

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

$Pd = (Pout*G) / (4*pi*r^2)$

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 20 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Original

Antenna Set No	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
1	Chain0	PSA	RFMTA340718EMLB302	3.18	2.4~2.4835	PIFA	ipex(MHF)	200
				4.92	5.15~5.895			
	Chain1 (only Diversity Sample)	PSA	RFMTA340718EMLB302	3.18	2.4~2.4835	PIFA	ipex(MHF)	200
				4.92	5.15~5.895			
2	Chain0	PSA	RFMTA311020EMMB301	1.71	2.4~2.4835	PIFA	ipex(MHF)	200
				4.82	5.15~5.895			
				4.76 4.29 4.61 4.09	5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125			
	Chain1 (only Diversity Sample)	PSA	RFMTA311020EMMB301	1.71	2.4~2.4835	PIFA	ipex(MHF)	200
				4.82	5.15~5.895			
				4.76 4.29 4.61 4.09	5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125			

Newly

Antenna Set No	RF Chain NO.	Brand	Model	Antenna Net Gain(dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
3	Chain0	Cortec	AN2450-4902BRS	2.42	2.4~2.4835	Dipole	R-SMA	150
				3.87	5.15~5.85			
	Chain1 (only Diversity Sample)	Cortec	AN2450-4902BRS	2.42	2.4~2.4835	Dipole	R-SMA	150
				3.87	5.15~5.85			
4	Chain0	ASUS	14008-02650000	1.64	2.4~2.4835	Dipole	SMA RP PLUG	800
				1.15	5.15~5.85			
	Chain1 (only Diversity Sample)	ASUS	14008-02650000	1.65	2.4~2.4835			
				1.12	5.15~5.85			
5	Chain0	ASUS	14008-02650400	0.4	2.4~2.4835	Dipole	SMA RP PLUG	800
				0.1	5.15~5.85			
	Chain1 (only Diversity Sample)	ASUS	14008-02650400	-0.8	2.4~2.4835			
				2.7	5.15~5.85			

6	Chain0	ASUS	14008-02650600	0.3	2.4~2.4835	Dipole	SMA RP PLUG	800
				1.3	5.15~5.85			
	Chain1 (only Diversity Sample)	ASUS	14008-02650600	-1.1	2.4~2.4835			
				-1.1	5.15~5.85			

Note:
1. The Bluetooth technology will fix transmission on Chain 0.
2. For Dipole antenna, max. gain was selected for the final test.

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2.5 Calculation Result of Maximum Conducted Power

All data was copied from the original test report (Report No.: SABARR-WTW-P21100969)

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Pass/ Fail
WLAN (2.4GHz)	2412-2472	274.789	3.18	20	0.11369	1	Pass
WLAN (U-NII-1)	5180-5250	147.231	4.92	20	0.09093	1	Pass
WLAN (U-NII-2A)	5250-5320	154.525	4.92	20	0.09544	1	Pass
WLAN (U-NII-2C)	5500-5720	159.221	4.92	20	0.09834	1	Pass
WLAN (U-NII-3)	5745-5825	177.419	4.92	20	0.10958	1	Pass
BT-EDR	2402-2480	79.983	3.18	20	0.03309	1	Pass
BT-LE	2402-2480	84.918	3.18	20	0.03513	1	Pass

Note: 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

WLAN 5GHz + Bluetooth = 0.10958 / 1 + 0.03513 / 1 = 0.14471

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

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