

## RF Exposure Report

**Report No.:** SABARR-WTW-P21060023

**FCC ID:** RAS-MT7922A12L

**Test Model:** MT7922A12L

**Received Date:** June 01, 2021

**Test Date:** Aug. 09 to 11, 2021

**Issued Date:** Aug. 24, 2021

**Applicant:** MediaTek Inc.

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**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
SABARR-WTW-P21060023	Original release.	Aug. 24, 2021

## 1 Certificate of Conformity

**Product:** 2TX 11ax (WiFi6E) BW160 + BT/BLE Combo Card

**Brand:** MediaTek

**Test Model:** MT7922A12L

**Sample Status:** Engineering sample

**Applicant:** MediaTek Inc.

**Test Date:** Aug. 09 to 11, 2021

**Standards:** FCC Part 2 (Section 2.1091)

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 :** Phoenix Huang, **Date:** Aug. 24, 2021

Phoenix Huang / Specialist

**Approved by :** Clark Lin, **Date:** Aug. 24, 2021

Clark Lin / Technical 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 <sup>2</sup> )	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 <sup>2</sup> )*	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

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

where

P<sub>d</sub> = power density in mW/cm<sup>2</sup>

P<sub>out</sub> = 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

Antenna Set	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 4.92	2.4~2.4835 5.15~5.85	PIFA	i-pex(MHF)	200
	Chain1	PSA	RFMTA340718EMLB302	3.18 4.92	2.4~2.4835 5.15~5.85	PIFA	i-pex(MHF)	200
2	Chain0	PSA	RFMTA311020EMMB301	1.71 4.82 4.76 4.29 4.61 4.09	2.4~2.4835 5.15~5.85 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	PIFA	i-pex(MHF)	200
				1.71 4.82 4.76 4.29 4.61 4.09	2.4~2.4835 5.15~5.85 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125			

Note: Max. gain was selected for the final test.

\* The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

## 2.5 Calculation Result

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
WLAN (2.4GHz)	2412~2472	254.734	6.19	20	0.21077	1	Pass
WLAN (U-NII-1)	5180~5250	193.272	7.93	20	0.23873	1	Pass
WLAN (U-NII-2A)	5250~5320	197.703	7.93	20	0.2442	1	Pass
WLAN (U-NII-2C)	5500~5720	243.885	7.93	20	0.30124	1	Pass
WLAN (U-NII-3)	5745~5825	256.185	7.93	20	0.31643	1	Pass
BT-EDR	2402~2480	19.77	3.18	20	0.00818	1	Pass
BT-LE	2402~2480	15.56	3.18	20	0.00644	1	Pass

Operation Mode	Evaluation Frequency (MHz)	Max. EIRP (mW)	Distance (m)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
WLAN (U-NII-5)	5955-6415	56.234	20	0.01119	1	Pass
WLAN (U-NII-6)	6425-6525	46.452	20	0.00924	1	Pass
WLAN (U-NII-7)	6525-6875	52.966	20	0.01054	1	Pass
WLAN (U-NII-8)	6875-7115	44.978	20	0.00895	1	Pass

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: The directional gain = 3.18 dBi + 10log(2) = 6.19 dBi
3. 5GHz: The directional gain = 4.92 dBi + 10log(2) = 7.93 dBi
4. 2.4GHz & 5GHz/6GHz technology cannot transmit at same time.

### 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

$$\text{WLAN (5GHz)} + \text{Bluetooth} = 0.31643 / 1 + 0.00818 / 1 = 0.32461$$

$$\text{WLAN (6GHz)} + \text{Bluetooth} = 0.01119 / 1 + 0.00818 / 1 = 0.01937$$

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

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