

## RF Exposure Report

**Report No.:** MFBBDJ-WTW-P23050444

**FCC ID:** PPQ202005BG95M5

**Test Model:** EX-1193-MFD-80

**Series Model:** EX-1193-MFD-48

(refer to item 3.1 for more details)

**Received Date:** May 17, 2023

**Date of Evaluation:** Jun. 28, 2023

**Issued Date:** Jul. 20, 2023

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33383, TAIWAN

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
MFBBDJ-WTW-P23050444	Original Release	Jul. 20, 2023



## 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

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

where

Pd = power density in mW/cm<sup>2</sup>

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

### 3 Calculation Result of Maximum Conducted Power

Band	Max ERP Power (dBm)	Gain (dBi)	Max EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
GPRS 850	25.97	1.9	27.87	20	0.122	0.55
GPRS 1900	22.97	1.7	24.67	20	0.058	1.00
Cat-M1						
Cat-M1 Band 2	25	1.7	26.70	20	0.093	1.00
Cat-M1 Band 4	25	1.5	26.50	20	0.089	1.00
Cat-M1 Band 5	25	1.9	26.90	20	0.097	0.55
Cat-M1 Band 12	25	1.1	26.10	20	0.081	0.46
Cat-M1 Band 13	25	0.7	25.70	20	0.074	0.52
Cat-M1 Band 25	25	1.7	26.70	20	0.093	1.00
Cat-M1 Band 26 (Part 22)	25	1.9	26.90	20	0.097	0.54
Cat-M1 Band 26 (Part 90)	25	1.1		20	0.081	0.54
Cat-M1 Band 66	25	1.5	26.50	20	0.089	1.00
Cat-M1 Band 85	25	1.1	26.10	20	0.081	0.46
NB-IoT						
NB-IoT Band 2	25	1.7	26.70	20	0.093	1.00
NB-IoT Band 4	25	1.5	26.50	20	0.089	1.00
NB-IoT Band 5	25	1.9	26.90	20	0.097	0.55
NB-IoT Band 12	25	1.1	26.10	20	0.081	0.46
NB-IoT Band 13	25	0.7	25.70	20	0.074	0.52
NB-IoT Band 25	25	1.7	26.70	20	0.093	1.00
NB-IoT Band 66	25	1.5	26.50	20	0.089	1.00
NB-IoT Band 71	25	1.3	26.30	20	0.085	0.44
NB-IoT Band 85	25	1.1	26.10	20	0.081	0.46

Band	Frequency Band (MHz)	Max PK. Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN	2412-2462	21.50	2.6	20	0.051	1.00

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.
- The max. power is Tune-up Power.
- WLAN 2.4G & WWAN & NFC technology can transmit at same time.
- The EUT contains certified WLAN module with FCC ID: PPQLILYW131 and NFC module with FCC ID: PPQRYORR2L.
- $EIRP = ERP + 2.15$

Frequency (MHz)	Field Strength (dBuV/m@3m)	Max. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value <sup>(NOTE)</sup>	1-g extremity SAR test exclusion thresholds	Result
13.56	66.3	0.001279	5	0.001279	1107.433774	Pass

**Note:**

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. Calculate SAR test exclusion thresholds from condition “c) 2)” formulas.
3. Field Strength (dBuV/m@3m) = Field Strength (dBuV/m@30m) + 40\*log(30/3).
4. Max Power (dBm) = Field Strength of Fundamental (dBuV/m@3m) – 95.23,  
Max Power (mW) = 10<sup>^(Max power (dBm)/10)</sup>

**Conclusion:**

Both of the WLAN 2.4GHz and WWAN can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$$WLAN\ 2.4GHz + WWAN = 0.051/1 + 0.122/0.55 = 0.273$$

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

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