

## MPE Report

Applicant : Meter Inc  
Product Name : Meter wireless access point  
Trade Name : Meter  
Model Number : MW08  
Applicable Standard : 47 CFR § 2.1091  
Received Date : Apr. 18, 2023  
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### Issued by

Approved By :

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### Revision History

Rev.	Issued Date	Revisions	Revised By
00	Jun. 17, 2023	Initial Issue	Rowan Hsieh

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## 1. General Information

### 1.1 Reference Applicable Standard

Standard	Description	Version
IEEE C95.1	American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 KHz to 100 GHz, New York.	1992
47 CFR § 2.1091	Radiofrequency radiation exposure evaluation: mobile devices.	-
47 CFR § 1.1310	Radiofrequency radiation exposure limits.	-
KDB 447498 D04	RF exposure procedures and equipment authorization policies for mobile and portable devices	v01

### 1.2 Testing Location

Site Name: Site Name: Eurofins E&E Wireless Taiwan Co., Ltd.

Site Address: ☒ No. 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan (R.O.C.)

Site Address: ☐ No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan (R.O.C.)

## 2. Description of Equipment under Test (EUT)

Applicant	Meter Inc 548 Market St., PMB 22716, San Francisco, CA 94104
Product Name	Meter wireless access point
Trade Name	Meter
Model Number	MW08
FCC ID	2AVV-MW08
Frequency Range	WLAN 2.4 GHz Band : 2412 - 2472 MHz WLAN 5.2 GHz Band : 5180 - 5320 MHz WLAN 5.8 GHz Band : 5725 - 5850 MHz Bluetooth : 2402 - 2480 MHz
Supported Modulations	WLAN 2.4 GHz : 802.11b/g/n/ac/ax HT20/HT40/VHT20/VHT40/ HE20/HE40
	WLAN 5 GHz : 802.11a/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160
Use Distance	20 cm

Note:

The above information of DUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

### 3. RF Exposure Limit

For devices that operate at larger distances from persons, where there are minimal RF coupling interactions between a device and the user or nearby persons, RF exposure compliance using maximum permissible exposure (MPE) limits is applied. The limits for MPE is listed as below:

Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
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 / 1,500	30
1,500-100,000	-	-	1.0	30
Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1,842 / f	4.89 / f	(900 / f <sup>2</sup> )*	6
30-300	61.4	0.163	1.0	6
300-1,500	-	-	F / 300	6
1,500-100,000	-	-	5	6

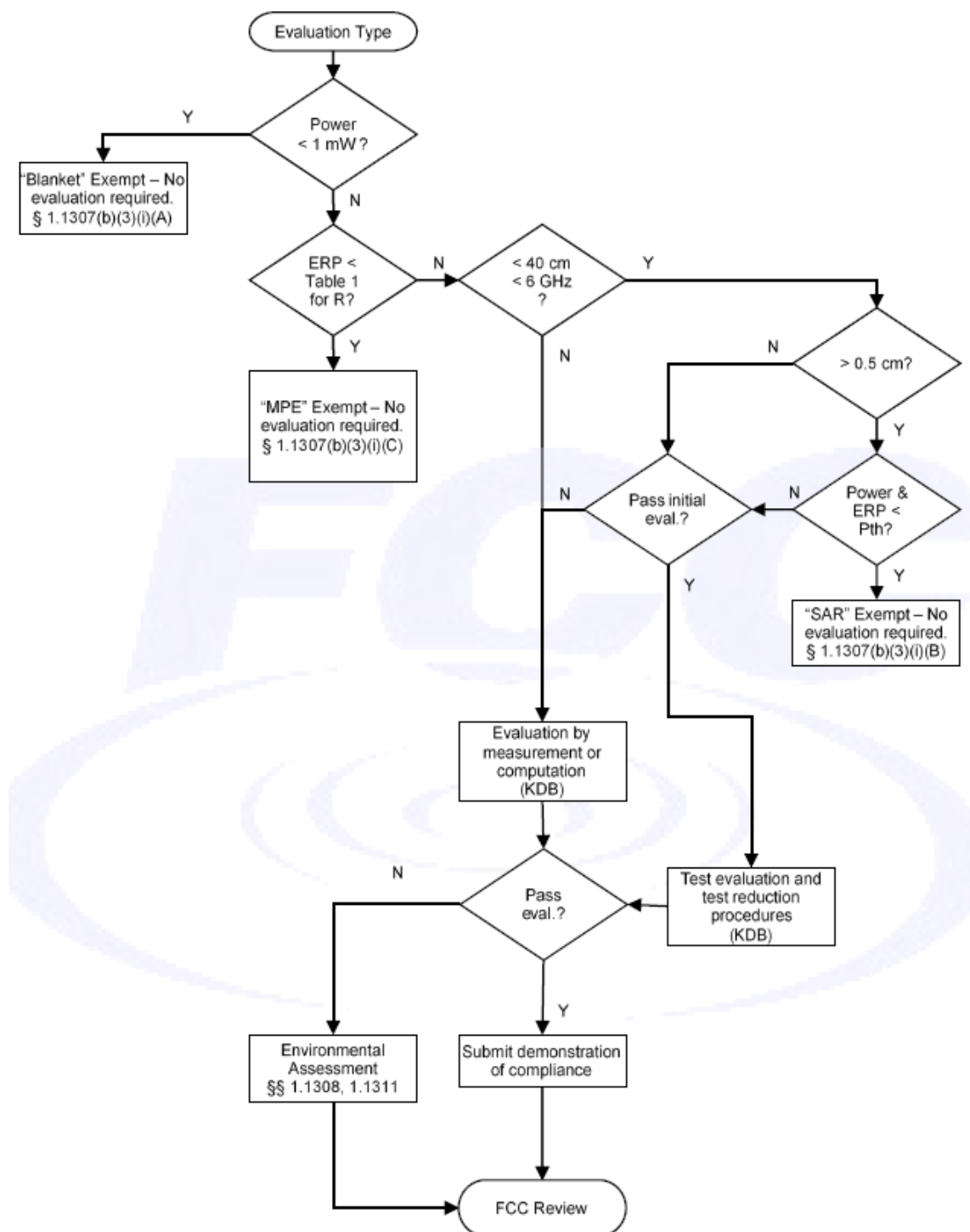
f = frequency in MHz. \* = Plane-wave equivalent power density.

## 4. RF Exposure Assessment

### 4.1 Exemption Evaluation

Exemption evaluation was performed according to the appendix A and B in KDB447498 D04.

The General Sequence for Determination of Procedure demonstrated in Figure A.1 of KDB447498 D04 was applied.



## 4.2 Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons."

Exposure evaluation

$$S_{eip} = \frac{EIRP}{4\pi d^2} = \frac{PG}{4\pi d^2} (W / m^2)$$

Where

S: is the input power (W);

G: is the antenna gain;

d : is the distance between antennas and evaluation point (m).



## 5. Maximum Conducted Power

Band	Frequency Range (MHz)	Max Conducted Power ( dBm)	TX Status
WLAN 2.4 GHz	2412 - 2472	26.40	MIMO
WLAN 5.2 GHz	5150 - 5250	24.86	MIMO
WLAN 5.8 GHz	5725 - 5850	28.28	MIMO
Bluetooth	2402 - 2480	3.98	SISO

Note:

The power exhibited for WLAN mode are 4\*4 MIMO

## 6. Result

### Exemption Evaluation

Band	Freq.(Min)	Freq.(Max)	Distance (cm) [R]	Tune-up Power (dBm) [P]	ANT Gain (dBi)	ERP(W)	MPE Exemption <§1.1307(b)(3)(i)(C)> Minimum Distance (m)	MPE Exemption <§1.1307(b)(3)(i)(C)> Threshold ERP (W)	MPE Exemption <§1.1307(b)(3)(i)(C)> considerations
2.4G	2412	2472	20.00	26.40	5.01	0.843	0.020	0.768	Not Qualified
5.2G	5150	5250	20.00	24.86	5.13	0.608	0.020	0.768	Qualified
5.8G	5725	5850	20.00	28.28	5.19	1.355	0.020	0.768	Not Qualified
Bluetooth	2402	2480	20.00	3.98	5.90	0.006	0.020	0.768	Qualified

Note:

This device is qualified for exemption under §1.1307(b)(3)(i)(C).

### MPE Evaluation

Band	Frequency (MHz)	Distance (cm) [R]	Tune-up Power (dBm) [P]	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle (mW) [P]x[G]	Power Density (mW/cm <sup>2</sup> ) [S]	Standalone Limit (mW/cm <sup>2</sup> )
2.4G	2412 - 2472	20.0	26.40	5.01	3.17	1	1383.76	0.28	1.00
5.8G	5725 - 5850	20.0	28.28	5.19	3.30	1	2220.82	0.44	1.00

Note:

1. Mobile or fixed location transmitters, minimum separation distance is 0.25 m, even if calculations indicate MPE distance is less.
2. The Numeric Gain calculated by  $10^{(\text{ant. Gain(dBi)} / 10)}$ .
3. Max total conducted power were performed for MPE of any configurations.
4. MPE results are evaluated by lowest data rate for WLAN.
5. MPE calculation for WLAN is based on MIMO Beamforming mode

### Simultaneous Transmitting:

WLAN 2.4G + WLAN 5G

MAX MPE : 0.44 mW/cm <sup>2</sup>	TER : 0.72
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## 7. Conclusion

The results WLAN5.2G and Bluetooth show that this device is qualified for MPE-Based Exemption in KDB447498. Therefore, MPE testing is not required.

The results WLAN2.4G and WLAN5.8G show that this device is compliance with the exposure limits in 47 CFR §1.1310.

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