

Maximum Permissible Exposure Evaluation

FCC ID:2A4MW-MWEA55

1. Client Information

Applicant	:	Marvel Technology(China)Co., Ltd
Address	:	Block 14, Longbi Industrial Park, No 27, Dafa Rd, Bantian LongGang District, Shenzhen, China
Manufacturer	:	Marvel Technology(China)Co., Ltd
Address	:	Block 14, Longbi Industrial Park, No 27, Dafa Rd, Bantian LongGang District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Ipad photo booth	
Models No.	:	MWEA55, MWEA56, MWEA57, MWEA58	
Model Difference	:	All PCB boards and circuit diagrams are the same, the only difference is that appearance and names.	
Product Description	:	Operation Frequency:	Bluetooth 5.0(BLE): 2402MHz~2480MHz
		Number of Channel:	40 channels
		RF Output Power:	GFSK: -0.117 dBm
		Antenna Gain:	-0.58dBi PCB Antenna
Power Rating	:	Input: AC 120V Output: DC 62V, 650mA	
Software Version	:	BK3432_DM_SW_V01	
Hardware Version	:	BK3432_DM_HW_V01	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	The antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.	

MPE Calculations for 2.4G

1. Antenna Gain:

PCB Antenna: -0.58dBi.

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna

4. Test Result:

Worst Maximum MPE Result								
Mode	N _{TX}	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
GFSK	1	2402	-0.117	0±1	1	-0.58	20	0.00022
		2440	-0.854	-1±1	0	-0.58	20	0.00017
		2480	-0.752	-1±1	0	-0.58	20	0.00017
Note: (1) N _{TX} = Number of Transmit Antennas (2) RF Output power specifies that Maximum Conducted Peak Output Power.								

5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

For BLE:2402~2480 MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as **0.00022 mW / cm² < limit 1mW / cm²**. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.

6. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF REPORT-----