

Maximum Permissible Exposure Evaluation

FCC ID: 2AL64-WF238

1. Client Information

Applicant	:	Shenzhen qiuyu Electronic Co.,Ltd
Address	:	3F, E Building, Hongzhuyongqi Industrial Park, Lezhujiao village, Xixiang town, Bao'an District, Shenzhen, China
Manufacturer	:	Shenzhen qiuyu Electronic Co.,Ltd
Address	:	3F, E Building, Hongzhuyongqi Industrial Park, Lezhujiao village, Xixiang town, Bao'an District, Shenzhen, China

2. General Description of EUT

EUT Name	:	KODAK 23-Inch Wall Photo Frame / Wi-Fi Enabled	
Models No.	:	WF238, WF320, WF215, WF490	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is Appearance color.	
Brand Name	:	----	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz
		Number of Channel:	802.11b/g/n(HT20):11 channels
		RF Output Power:	802.11b: 13.26 dBm 802.11g: 12.78 dBm 802.11n (HT20): 12.56 dBm
		Antenna Gain:	1.14dBi PIFA Antenna
Power Rating	:	Adapter(J361-1203000I) Input:AC 100-240V, 50/60Hz. 1.5A Output:12V 3A	
Software Version	:	Android 8.1	
Hardware Version	:	RGQ40E-MB_V1.1	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	the MPE report used the EUT(TBBJ-20200711-07-2#).	

MPE Calculations for WIFI

1. Antenna Gain:

PIFA Antenna: 1.14dBi.

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]
802.11b	1	2412	13.20	13±1	14	1.14	20	0.0065
		2437	13.26	13±1	14	1.14	20	0.0065
		2462	13.18	13±1	14	1.14	20	0.0065
802.11g	1	2412	12.53	12±1	13	1.14	20	0.0051
		2437	12.78	12±1	13	1.14	20	0.0051
		2462	12.30	12±1	13	1.14	20	0.0051
802.11n(HT20)	1	2412	12.56	12±1	13	1.14	20	0.0051
		2437	12.45	12±1	13	1.14	20	0.0051
		2462	12.45	12±1	13	1.14	20	0.0051

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 2.4WIFI:2412~2462 MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.0065 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{mW} / \text{cm}^2$. 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.

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