Maximum Permissible Exposure Evaluation

FCC ID: 2AEP6XM-JPF2-F4

1. Client Information

Applicant : HangZhou XiongMai Technology CO., LTD

Address : 9th Floor, Building 9, Yinhu Innovation Center, No.9 FuXian Road, YinHu Street, Hangzhou, China

Manufacturer : HangZhou XiongMai Technology CO., LTD

Address : 9th Floor, Building 9, Yinhu Innovation Center, No.9 FuXian Road, YinHu Street, Hangzhou, China

2. General Description of EUT

EUT Name	:	PANORAMIC UFO CAMERA	
Models No.	:	XM-JPF2-F4, XM-F5-F4, XM-F2-F4, XM-JPF5-F4, XM-F4-F2, XM-JPF4-F2	
Model Difference	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is market positioning.	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		Number of Channel:	802.11b/g/n(HT20):11 channels 802.11n(HT40):9 channels
		RF Output Power:	802.11b: 17.92 dBm 802.11g: 17.32 dBm 802.11n (HT20): 15.98 dBm 802.11n (HT40): 14.95 dBm
		Antenna Gain:	3.29 dBi PCB Antenna
		Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n:OFDM(BPSK,QPSK,16QAM, 64QAM)
		Bit Rate of Transmitter:	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n:up to 150Mbps
Power Rating	:	AC/DC Adapter: Input: AC 100-240V~0.3A 50/60Hz Output: DC 5.0V, 2A Max	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

MPE Calculations for WiFi

1. **Antenna Gain:**
   Integral Antenna: 3.29dBi.

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	17.92	17±1	18	3.29	20	0.0268
		2437	17.86	17±1	18	3.29	20	0.0268
		2462	17.78	17±1	18	3.29	20	0.0268
802.11g	1	2412	17.25	17±1	18	3.29	20	0.0268
		2437	17.19	17±1	18	3.29	20	0.0268
		2462	17.32	17±1	18	3.29	20	0.0268
802.11n (HT20)	1	2412	15.98	16±1	17	3.29	20	0.0213
		2437	15.67	16±1	17	3.29	20	0.0213
		2462	15.85	16±1	17	3.29	20	0.0213
802.11n (HT40)	1	2422	14.86	15±1	16	3.29	20	0.0169
		2437	14.95	15±1	16	3.29	20	0.0169
		2452	14.69	15±1	16	3.29	20	0.0169

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 802.11b/g/n (2412~2462 MHz)
MPE limit S: 1 mW/ cm^2
The MPE is calculated as 0.0268mW / cm^2 < limit 1 mW / 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.

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