

Maximum Permissible Exposure Evaluation

FCC ID: 2AEP6XM-JPIDR2-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	:	SMART VIDEO DOORBELL
Models No.	:	XM-JPIDR2-F4
Model Difference	:	N/A
Product Description	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz 433.89MHz
	Number of Channel:	802.11b/g/n(HT20):11 channels 802.11n(HT40): 7 channels
	RF Output Power:	802.11b: 17.17 dBm 802.11g: 15.36 dBm 802.11n (HT20): 13.44 dBm 802.11n (HT40): 13.20 dBm
	Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK, QPSK, 16QAM, 64QAM) 433.89MHz: ASK
Power Supply	:	DC 5V by USB Cable. DC 3.7V by 4000mAh Li-ion Battery.
Software Version	:	N/A
Hardware Version	:	N/A
Connecting I/O Port(S)	:	Please refer to the User's Manual

Note:

More test information about the EUT please refer the RF Test Report.

MPE Calculations for WiFi

1. Antenna Gain:

Internal Antenna: 3dBi.

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	17.14	17±1	18	3	20	0.0250
		2437	17.16	17±1	18	3	20	0.0250
		2462	17.17	17±1	18	3	20	0.0250
802.11g	1	2412	15.23	15±1	16	3	20	0.0158
		2437	15.19	15±1	16	3	20	0.0158
		2462	15.36	15±1	16	3	20	0.0158
802.11n (HT20)	1	2412	13.42	13±1	14	3	20	0.0100
		2437	13.35	13±1	14	3	20	0.0100
		2462	13.44	13±1	14	3	20	0.0100
802.11n (HT40)	1	2422	13.16	13±1	14	3	20	0.0100
		2437	13.20	13±1	14	3	20	0.0100
		2452	13.19	13±1	14	3	20	0.0100

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/ cm²

The MPE is calculated as $0.0250\text{mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$. 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.

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