

Maximum Permissible Exposure Evaluation

FCC ID: 2AEP6XM-JPK1S

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 Socket
Models No.	:	XM-JPK1S, XM-JPK1, XM-JPK2, XM-JPK2S
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial.
Product Description	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
	:	Number of Channel: 802.11b/g/n(HT20):11channels 802.11n(HT40): 7 channels
	:	Output Power: 802.11b: 12.28 dBm 802.11g: 12.11 dBm 802.11n (HT20): 11.98 dBm 802.11n (HT40): 11.35 dBm
	:	Antenna Gain: -0.5 dBi Chip Antenna
	:	Modulation Type: 802.11b: CCK, DQPSK, DBPSK 802.11g: 64-QAM,QPSK,BPSK 802.11n: 64-QAM,16-QAM,QPSK,BPSK
Power Supply	:	AC Voltage supplied
Power Rating	:	Input: AC 90~240V Output: AC 90~240V, DC 5V Max Load: 240V, 10A USB 5V 1A

Connecting I/O Port(S)	:	Please refer to the User's Manual
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Note: More detail information about Equipment, please refer to User's manual, more information about the RF, please refer to test report.

MPE Calculations for WIFI

1. Antenna Gain:

Chip Antenna: -0.5 dBi.

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}	Frequency (MHz)	Power (dBm) [P]	ANT Gain (dBi) [G]	Turn-up Power Tolerance (dB)	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
2.4G							
802.11b	1	2437	12.28	-0.5	±1	20	0.003773
802.11g	1	2437	12.11	-0.5	±1	20	0.003629
802.11n (HT20)	1	2462	11.98	-0.5	±1	20	0.003522
802.11n (HT40)	1	2452	11.35	-0.5	±1	20	0.003046
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 0.003773mW / cm² < limit 1 mW / 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.