

Maximum Permissible Exposure Evaluation

FCC ID: 2AR7R-X7

1. Client Information

Applicant	:	SHENZHEN ICE KING TECHNOLOGY CO.,LTD
Address	:	No.226, A3 BUILDING, MINGXI INDUSTRIAL PARK, NO.4 HUAIDE SOUTH ROAD, BAOAN, SHENZHEN, CHINA
Manufacturer	:	SHENZHEN ICE KING TECHNOLOGY CO.,LTD
Address	:	No.226, A3 BUILDING, MINGXI INDUSTRIAL PARK, NO.4 HUAIDE SOUTH ROAD, BAOAN, SHENZHEN, CHINA

2. General Description of EUT

EUT Name	:	TV Dongle
Models No.	:	X7, X4, X5, X6, X8, X9, X10, M9, M4
Model Different	:	All these models are the same PCB, layout and electrical circuit, the only difference is appearance color.
Product Description	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
	RF Output Power:	802.11b: 16.68dBm 802.11g: 15.63dBm 802.11n (HT20): 15.66dBm 802.11n (HT40): 14.96dBm
	Antenna Gain:	3dBi Internal Antenna
	Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)
Power Supply	:	DC Voltage supplied by AC/DC Adapter.
Power Rating	:	Input: DC 5V/1A
SoftwareVersion	:	N/A
Hardware Version	:	N/A
Connecting I/ OPort(S)	:	Please refer to the User's Manual

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:

Mode	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	16.68	16±1	17	3	20	0.01989
802.11g	15.63	15±1	16	3	20	0.01580
802.11n (HT20)	15.66	15±1	16	3	20	0.01580
802.11n (HT40)	14.96	14±1	15	3	20	0.01255

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

802.11n(HT40): 2422MHz~2452MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.01989\text{mW} / \text{cm}^2 < \text{limit } 1\text{mW} / \text{cm}^2$. 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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