

Maximum Permissible Exposure Evaluation

FCC ID: 2APQK-AT-UP001

1. Client Information

Applicant	:	Shenzhen Core Image Co.,LTD
Address	:	Building 2nd Floor, No. 1 Huafeng Hi-tech Park, Yangwu Konggang, Dongfang Community, Songgang Street, Bao'an District, Shenzhen City, Guangdong Province, China
Manufacturer	:	Shenzhen Core Image Co.,LTD
Address	:	Building 2nd Floor, No. 1 Huafeng Hi-tech Park, Yangwu Konggang, Dongfang Community, Songgang Street, Bao'an District, Shenzhen City, Guangdong Province, China

2. General Description of EUT

EUT Name	:	Smart Smart Plug
Models No.	:	AT-UP001
Model Different	:	N/A
Product Description	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz
	:	RF Output Power: 802.11b: 15.97dBm 802.11g: 15.45dBm 802.11n (HT20): 14.48dBm
	:	Antenna Gain: 1dBi PCB Antenna
	:	Modulation Type: 802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)
Power Supply	:	AC Voltage supplied
Power Rating	:	Input: AC 120V, 60Hz, 10A
Software Version	:	N/A
Hardware Version	:	N/A
Connecting I/O Port(S)	:	Please refer to the User's Manual

TB-RF-075-1.0

MPE Calculations for WIFI

1. Antenna Gain:

PCB Antenna: 1dBi.

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	15.97	15±1	16	1	20	0.00997
802.11g	15.45	15±1	16	1	20	0.00997
802.11n (HT20)	14.48	14±1	15	1	20	0.00792

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: 1mW/ cm²

The MPE is calculated as $0.00997\text{mW} / \text{cm}^2 < \text{limit } 1\text{mW} / \text{cm}^2$. 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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