

# Maximum Permissible Exposure Evaluation

## FCC ID: 2APQK-AT-UP001

### 1. Client Information

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

<b>EUT Name</b>	:	Smart Smart Plug	
<b>Models No.</b>	:	AT-UP001	
<b>Model Different</b>	:	N/A	
<b>Product Description</b>	:	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)
<b>Power Supply</b>	:	AC Voltage supplied	
<b>Power Rating</b>	:	Input: AC 120V, 60Hz, 10A	
<b>SoftwareVersion</b>	:	N/A	
<b>Hardware Version</b>	:	N/A	
<b>Connecting I/O Port(S)</b>	:	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 <sup>2</sup> ) [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 <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0

For 802.11b/g/n:2412~2462 MHz

MPE limit S: 1mW/ cm<sup>2</sup>

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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