

# Maximum Permissible Exposure Evaluation

## FCC ID: 2AT8NTP11S

### 1. Client Information

<b>Applicant</b>	:	Qingdao Londs Environmental Technology Co., Ltd.
<b>Address</b>	:	Eastward 100 meters of Dongwangtuan Community, Chengyang District, Qingdao, 266109, China
<b>Manufacturer</b>	:	Qingdao Londs Environmental Technology Co., Ltd.
<b>Address</b>	:	Eastward 100 meters of Dongwangtuan Community, Chengyang District, Qingdao, 266109, China

### 2. General Description of EUT

<b>EUT Name</b>	:	SMART WI-FI AIR PURIFIER
<b>Model(s) No.</b>	:	TP11S
<b>Model Difference</b>	:	N/A
<b>Product Description</b>	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz
	Number of Channel:	802.11b/g/n(HT20):11 channels
	RF Output Power:	802.11b: 13.78dBm 802.11g: 12.97dBm 802.11n (HT20): 11.98dBm
	Modulation Type:	802.11b:DSSS(CCK, DQPSK, DBPSK) 802.11g/n:OFDM(BPSK,QPSK,16QAM,64QAM)
	Antenna Gain:	2.51dBi PCB Antenna
<b>Power Supply</b>	:	AC/DC Adapter(Model: GQ18-120150-AU): Input: AC 100-240V, 50/60Hz 0.5A Max Output: DC 12V, 1.5A
<b>Software Version</b>	:	A
<b>Hardware Version</b>	:	A
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual

## MPE Calculations for WIFI

### 1. Antenna Gain:

PCB Antenna: 2.51dBi.

### 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

$$S = (P_G) / 4\pi R^2$$

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										
ANT	Mode	Freq. (MHz)	Conducted Power(max) (dBm) [P]	Tune up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm <sup>2</sup> ) [S]	Power Density Limit (mW/cm <sup>2</sup> )	Result
ANT 1	B	2412	13.29	13±1	14	2.51	20	0.0089	1	PASS
		2437	13.58	13±1	14			0.0089		
		2462	13.78	13±1	14			0.0089		
	G	2412	12.78	12±1	13			0.0071		
		2437	12.97	12±1	13			0.0071		
		2462	12.84	12±1	13			0.0071		
	N20	2412	11.82	11±1	12			0.0056		
		2437	11.98	11±1	12			0.0056		
		2462	11.79	11±1	12			0.0056		
Max Power Density(mW/cm <sup>2</sup> )			Power Density=0.0089							

Note: 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 <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  $0.0089 \text{ mW/cm}^2 < \text{limit } 1 \text{ mW/cm}^2$ . 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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