Maximum Permissible Exposure Evaluation

FCC ID: 2AQNX-SPN10

1. Client Information

Applicant	:	ShenZhen Longtour Photology Co., Ltd
Address	:	202, Ying 'An Building, Shangtang Intersection, Minzhi Ave, Minzhi St, Longhua New Dist, Shenzhen, China
Manufacturer	:	ShenZhen Longtour Photology Co., Ltd
Address	:	202, Ying 'An Building, Shangtang Intersection, Minzhi Ave, Minzhi St, Longhua New Dist, Shenzhen, China

2. General Description of EUT

EUT Name	:	Smart Socket	
Models No.	:	SPN10, SPN20, SPN25	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance.	
Brand Name	:	Teckin	
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): 7channels
		RF Output Power:	802.11b:14.39dBm 802.11g: 12.51dBm 802.11n (HT20): 12.86dBm 802.11n (HT40): 11.94dBm
		Antenna Gain:	2 dBi PCB Antenna
Power Rating	:	Input: AC 120V, 50/60Hz, 10A Max Output: AC 120V, 50/60Hz, 10A Max. Power 1200W	
Software Version	:	1.0	
Hardware Version	:	1.0	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	the MPE report used the EUT(Sample ID: TBBJ-20200516-08-2#).	

MPE Calculations for WIFI

1. **Antenna Gain:**
   PCB Antenna: 2dBi.

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}	Freq. (MHz)	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	1	2412	13.56	14±1	15	2	20	0.0100
		2437	14.39	14±1	15	2	20	0.0100
		2462	13.79	14±1	15	2	20	0.0100
802.11g	1	2412	12.47	12±1	13	2	20	0.0063
		2437	12.10	12±1	13	2	20	0.0063
		2462	12.51	12±1	13	2	20	0.0063
802.11n(HT20)	1	2412	12.43	12±1	13	2	20	0.0063
		2437	12.86	12±1	13	2	20	0.0063
		2462	12.35	12±1	13	2	20	0.0063
802.11n(HT40)	1	2422	11.35	12±1	13	2	20	0.0063
		2437	11.94	12±1	13	2	20	0.0063
		2452	11.61	12±1	13	2	20	0.0063

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 Bluetooth:2412~2462 MHz
MPE limit S: $1mW/ cm^2$
The MPE is calculated as ***0.0100mW / cm² < limit 1mW / 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.

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

Note

For a more detailed features description, please refer to the RF Test Report.

-----END OF REPORT-----