

Maximum Permissible Exposure Evaluation

FCC ID: 2A2KE-SBD-PTC-20B

1. Client Information

Applicant	:	Shenzhen SiBead Technology Co., Ltd
Address	:	Room 201, Building 6-7, Buxinteli Industrial Zone, No. 3051, Dongxiao Road, Dongxiao Community, Dongxiao Street, Luohu District, Shenzhen, China
Manufacturer	:	Shenzhen SiBead Technology Co., Ltd
Address	:	Room 201, Building 6-7, Buxinteli Industrial Zone, No. 3051, Dongxiao Road, Dongxiao Community, Dongxiao Street, Luohu District, Shenzhen, China

2. General Description of EUT

EUT Name	:	IP Camera								
Models No.	:	SBD-PTC-20B, SBD-ODC-20B, SBD-OPC-21B, SBD-IDC-20B, SBD-BMC-20B, SBD-PTC-XXXB, SBD-OPC-XXXB, SBD-ODC-XXXB, SBD-BMC-XXXB, SBD-IDC-XXXB, SBD-DLC-XXXB, X On behalf of 0-9								
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, The only difference is appearance and model name.								
Brand Name	:	----								
Product Description	:	<table border="1"><tr><td>Operation Frequency:</td><td>802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz</td></tr><tr><td>Number of Channel:</td><td>802.11b/g/n(HT20):11 channels 802.11n(HT40): 7 channels</td></tr><tr><td>RF Output Power:</td><td>802.11b: 15.218 dBm (Max) 802.11g: 15.884 dBm (Max) 802.11n(HT20): 16.966 dBm (Max) 802.11n(HT40): 17.046 dBm (Max)</td></tr><tr><td>Antenna Gain:</td><td>-3.0dBi Dipole Antenna</td></tr></table>	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz	Number of Channel:	802.11b/g/n(HT20):11 channels 802.11n(HT40): 7 channels	RF Output Power:	802.11b: 15.218 dBm (Max) 802.11g: 15.884 dBm (Max) 802.11n(HT20): 16.966 dBm (Max) 802.11n(HT40): 17.046 dBm (Max)	Antenna Gain:	-3.0dBi Dipole Antenna
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Antenna Gain:	-3.0dBi Dipole Antenna									
Power Rating	:	Adapter (JAH-1201) Input: 100-240V~, 50/60Hz, Output: DC 12V1.0A								
Software Version	:	----								
Hardware Version	:	----								
Connecting I/O Port(S)	:	Please refer to the User's Manual								
Remark	:	the MPE report used the EUT-2(20210615-27-02).								

MPE Calculations for WIFI

1. Antenna Gain:

Dipole Antenna: -3.0dBi.

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:

2.4g Wifi

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]	Limit of Power Density (mW/ cm ²) (S)
802.11B	15.218	15±1	16	-3.0	20	0.0039	1
802.11G	15.884	15±1	16	-3.0	20	0.0039	1
802.11N(HT20)	16.966	16±1	17	-3.0	20	0.0049	1
802.11N(HT40)	17.046	17±1	18	-3.0	20	0.0062	1

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 2.4g WiFi: 2412~2462 MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.0062 \text{ mW/cm}^2 < \text{limit } 1 \text{ mW/cm}^2$. 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 CFR 2.1091 (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.

6. Conclusion:

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

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