

RF Exposure Evaluation

FCC ID: 2AXSP-SM18030

1. Client Information

Applicant	:	SUNSCOPE OPTICS LIMITED
Address	:	Unit 1909, South Tower, 371-375 Huan Shi Dong Rd., Guangzhou 510095, China
Manufacturer	:	SUNSCOPE OPTICS LIMITED
Address	:	Unit 1909, South Tower, 371-375 Huan Shi Dong Rd., Guangzhou 510095, China

2. General Description of EUT

EUT Name	:	DIGITAL SCOPE
Models No.	:	SM18030
Model Different	:	N/A
Product Description	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz
	Number of Channel:	802.11b/g/n(HT20):11 channels
	RF Output Power:	802.11b: 9.271dBm 802.11g: 9.284dBm 802.11n (HT20): 9.302dBm
	Antenna Gain:	1.5 dBi FPC Antenna
	Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK, QPSK, 16QAM, 64QAM)
	Bit Rate of Transmitter:	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n: up to 150Mbps
Power Rating	:	USB Input: DC5V, 1.5A or ICR18650 3.7V 5200mAh 19.24wh
Software Version	:	2.06
Hardware Version	:	2020

Note: More test information about the EUT please refer the RF Test Report.

SAR Test Exclusion Calculations

1. FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

- (1) Clause 4.3: General SAR test reduction and exclusion guidance

- Sub clause 4.31: Standalone SAR test exclusion considerations

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance ≤ 5 mm are determined by:

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $\sqrt{f_{\text{GHz}}}$] ≤ 3.0 for 1-g SAR

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $\sqrt{f_{\text{GHz}}}$] $\leq 7.5.0$ for 10-g SAR

2. Calculation:

Test separation: 5mm						
2.4GWIFI B Mode						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	9.271	8.5±1	9.5	8.9125	2.768	3.0
2.437	9.155	8.5±1	9.5	8.9125	2.783	3.0
2.462	8.799	8.0±1	9.0	7.9433	2.493	3.0
2.4GWIFI G Mode						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	8.971	8.0±1	9.0	7.9433	2.467	3.0
2.437	9.147	8.5±1	9.5	8.9125	2.783	3.0
2.462	9.284	8.5±1	9.5	8.9125	2.797	3.0
2.4GWIFI N20 Mode						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	9.024	8.5±1	9.5	8.9125	2.783	3.0
2.437	9.302	8.5±1	9.5	8.9125	2.783	3.0
2.462	9.139	8.5±1	9.5	8.9125	2.783	3.0

So the worst RF Exposure Evaluation is calculated as **2.797 < limit 3.0**.

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

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