

RF Exposure Evaluation

FCC ID: 2A2ON-9002

1. Client Information

Applicant	:	Nantong Chengxin Optical Instrument Co., Ltd
Address	:	No. 8, Runwu Road, Wujie Town, Tongzhou District, Nantong City, Jiangsu Province, China
Manufacturer	:	Nantong Chengxin Optical Instrument Co., Ltd
Address	:	No. 8, Runwu Road, Wujie Town, Tongzhou District, Nantong City, Jiangsu Province, China

2. General Description of EUT

EUT Name	:	DAY/NIGHT HD DIGITAL SCOPE	
Models No.	:	9002	
Model Different	:	----	
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: 6.99dBm 802.11g: 6.65dBm 802.11n (HT20): 5.63dBm
	:	Antenna Gain:	1.5dBi Internal 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: 5V1.5A DC 3.7V by 5200mAh Rechargeable Li-ion battery	
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	6.61	6 ± 1	7	5.012	1.557	3.0
2.437	6.41	6 ± 1	7	5.012	1.565	3.0
2.462	6.99	6 ± 1	7	5.012	1.573	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	6.65	6 ± 1	7	5.012	1.557	3.0
2.437	6.36	6 ± 1	7	5.012	1.565	3.0
2.462	5.86	5 ± 1	6	3.981	1.249	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	5.63	5 ± 1	6	3.981	1.237	3.0
2.437	5.33	5 ± 1	6	3.981	1.243	3.0
2.462	4.81	4 ± 1	5	3.162	0.992	3.0

So the worst RF Exposure Evaluation is calculated as **1.573 < 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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