

RF Exposure Evaluation

FCC ID: 2ABHA0014

1. Client Information

Applicant : NINGBO CSTAR IMP&EXP CO., LTD
Address : Floor 4, Building E, No. 655-90, Qiming Road, Yinzhou Investment & Innovation Center, Ningbo, China
Manufacturer : ShenZhen C-Star Electronic Tech. co., Ltd
Address : 2, 3/F, Building B, No. 2 Bada Industrial Park, Yongfu Road, Heping Community, Fuyong Town, Baoan District, Shenzhen, China

2. General Description of EUT

EUT Name	: Micro Truwireless Earbuds	
Models No.	: 7199-99BK, SL066, 7199-99, 7198-04	
Model Difference	: All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial.	
Product Description	Operation Frequency:	Bluetooth V4.1+EDR: 2402~2480 MHz
	Number of Channel:	Bluetooth: 79 Channels See Note 2
	Max Peak Output Power:	Bluetooth: 6.06 dBm(GFSK)
	Antenna Gain:	0 dBi PCB Antenna
	Modulation Type:	GFSK 1Mbps(1 Mbps) π /4-DQPSK(2 Mbps) 8-DPSK(3 Mbps)
Power Supply	: DC power by USB cable. DC power by Li-ion battery.	
Power Rating	: EUT-1: DC 5V by USB Cable. DC 3.7V by 450mAh Li-ion Battery. EUT-2: DC 3.7V by 40mAh Li-ion Battery.	
Connecting I/O Port(S)	: Please refer to the User's Manual	
Note: EUT-1: Charging Box EUT-2: Headsets		

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:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}] \leq 3.0 \text{ for 1-g SAR}$$
$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}] \leq 7.5.0 \text{ for 10-g SAR}$$

2.

Calculation:

Test separation: 5mm						
Bluetooth Mode (GFSK)						
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
2.402	6.06	6±1	7	5.012	1.554	3.0
2.441	5.30	5±1	6	3.981	1.244	3.0
2.480	3.98	4±1	5	3.162	0.996	3.0
Bluetooth Mode (π/4-DQPSK)						
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
2.402	5.48	5±1	6	3.981	1.234	3.0
2.441	4.75	4±1	5	3.162	0.988	3.0
2.480	3.46	3±1	4	2.512	0.791	3.0
Bluetooth Mode (8-DPSK)						
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
2.402	5.61	5±1	6	3.981	1.234	3.0
2.441	4.71	4±1	5	3.162	0.988	3.0
2.480	3.42	3±1	4	2.512	0.791	3.0

So standalone SAR measurements are not required.

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