

RF Exposure Evaluation

FCC ID:2ABHA0019

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	: Bluetooth earbuds with power bank	
Models No.	: SL074, 2746, 7198-16, PL-1211, SL075, SL074-2	
Model Difference	: All these models are identical in the same PCB, layout and electrical circuit, the SL074, 2746, 7198-16 and PL-1211 only difference is model name for commercial. SL075 and SL074-2 is only enclosure different to SL074.	
Product Description	Operation Frequency:	Bluetooth V4.1: 2402~2480 MHz
	RF Output Power:	Bluetooth: 5.469 dBm(GFSK)
	Antenna Gain:	-4.5 dBi PBC Antenna
	Modulation Type:	GFSK (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	: DC 5V by USB Cable. (Charging Box) DC 3.7V by 2000mAh Li-ion Battery. (Charging Box) DC 3.7V by 40mAh Li-ion Battery. (Headsets)	
Connecting I/O Port(S)	: Please refer to the User's Manual	

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	5.469	5±1	6	3.981	1.234	3.0
2.441	4.687	4±1	5	3.162	0.988	3.0
2.480	3.609	3±1	4	2.512	0.791	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	4.536	4±1	5	3.162	0.980	3.0
2.441	3.796	3±1	4	2.512	0.785	3.0
2.480	2.753	2±1	3	1.995	0.628	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	4.585	4±1	5	3.162	0.980	3.0
2.441	3.818	3±1	4	2.512	0.785	3.0
2.480	2.844	2±1	3	1.995	0.628	3.0

So standalone SAR measurements are not required.

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