RF Exposure Evaluation

FCC ID: 2ABHA0012

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	
Models No.	:	CT15211, CPP-4142, 32065, PL-1210	
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 V2.1+EDR: 2402~2480 MHz
		Number of Channel:	Bluetooth: 79 Channels See Note 2
		Max Peak Output Power:	Bluetooth: 3.317 dBm(GFSK)
		Antenna Gain:	1.5dBi 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	:	DC 5V by USB Cable. DC 3.7V by 55mAh Li-ion Battery.	
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.

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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)]*[$\sqrt{f_{(GHz)}}$] ≤3.0 for 1-g SAR
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤7.5.0 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 (mw)	Calculation Value	Threshold Value
2.402	3.035	±0.5	2.257	0.700	**3.0**
2.441	3.279	±0.5	2.387	0.746	**3.0**
2.480	3.317	±0.5	2.408	0.759	**3.0**
Bluetooth Mode (π/4-DQPSK)					
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	1.870	±0.5	1.726	0.535	**3.0**
2.441	2.270	±0.5	1.892	0.591	**3.0**
2.480	2.336	±0.5	1.921	0.605	**3.0**
Bluetooth Mode (8-QPSK)					
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	1.997	±0.5	1.777	0.551	**3.0**
2.441	2.360	±0.5	1.932	0.604	**3.0**
2.480	2.421	±0.5	1.959	0.617	**3.0**

So standalone SAR measurements are not required.

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