

# RF Exposure Evaluation

## FCC ID: 2ABHA0013

### 1. Client Information

<b>Applicant</b>	: NINGBO CSTAR IMP&EXP CO., LTD
<b>Address</b>	: Floor 4, Building E, No. 655-90, Qiming Road, Yinzhou Investment & Innovation Center, Ningbo, China
<b>Manufacturer</b>	: ShenZhen C-Star Electronic Tech. co., Ltd
<b>Address</b>	: 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

<b>EUT Name</b>	: Bluetooth Speaker Power Bank	
<b>Models No.</b>	: SL019, PL-1352	
<b>Model Difference</b>	: All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial.	
<b>Product Description</b>	Operation Frequency:	Bluetooth V2.1+EDR: 2402~2480 MHz
	Number of Channel:	Bluetooth: 79 Channels See Note 2
	Max Peak Output Power:	Bluetooth: 0.63 dBm(8-DPSK)
	Antenna Gain:	0 dBi PCB Antenna
	Modulation Type:	GFSK 1Mbps(1 Mbps) $\pi$ /4-DQPSK(2 Mbps) 8-DPSK(3 Mbps)
<b>Power Supply</b>	: DC power by USB cable. DC power by Li-ion battery.	
<b>Power Rating</b>	: DC 3.6V by 2200mAh 7.92Wh Li-ion Battery. Input: DC 5V, 550mA Output: DC 5V, 1000mAh.	
<b>Connecting I/O Port(S)</b>	: 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  $\leq 5$  mm are determined by:

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

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

## 2.

**Calculation:**

Test separation: 5mm					
Bluetooth Mode (GFSK)					
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-0.24	±0.5	1.062	0.329	3.0
2.441	0.07	±0.5	1.140	0.356	3.0
2.480	-0.16	±0.5	1.081	0.341	3.0
Bluetooth Mode ( $\pi/4$ -DQPSK)					
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-0.26	±0.5	1.057	0.328	3.0
2.441	0.04	±0.5	1.132	0.354	3.0
2.480	-0.06	±0.5	1.107	0.349	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	-0.09	±0.5	1.099	0.341	3.0
2.441	0.63	±0.5	1.297	0.405	3.0
2.480	0.01	±0.5	1.125	0.354	3.0

So standalone SAR measurements are not required.

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