

# RF Exposure Evaluation

## FCC ID: 2ABHA0048

### 1. Client Information

<b>Applicant</b>	:	NINGBO CSTAR IMP&EXP CO., LTD
<b>Address</b>	:	Floor 4, Building E, No. 65590, Qiming Road, Yinzhou Investment & Innovation Center, Ningbo, China
<b>Manufacturer</b>	:	NINGBO CSTAR IMP&EXP CO., LTD
<b>Address</b>	:	Floor 4, Building E, No. 65590, Qiming Road, Yinzhou Investment & Innovation Center, Ningbo, China

### 2. General Description of EUT

<b>EUT Name</b>	:	Clock Wireless Charger Speaker
<b>Models No.</b>	:	SL203, 2967, 32328
<b>Model Difference</b>	:	All models are in the same PCB layout interior structure and electrical circuits, The only difference is model name.
<b>Product Description</b>	Operation Frequency:	Bluetooth 4.2(BT): 2402MHz~2480MHz
	RF Output Power:	GFSK:0.265dBm $\pi$ /4-DQPSK: -0.044dBm 8-DPSK: 0.179dBm
	Antenna Gain:	-0.5dBi PCB Antenna
<b>Power Supply</b>	:	DC Voltage Supply from Adapter DC Voltage supplied by Li-ion battery.
<b>Power Rating</b>	:	Input: DC 5.0V 2A by adapter DC 3.7V by 4000mAh Li-ion battery
<b>Software Version</b>	:	1.0
<b>Hardware Version</b>	:	1.2
<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:

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

## 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	0.265	0±1	1	1.259	0.390	3.0
2.441	-0.081	0±1	1	1.259	0.393	3.0
2.480	-0.207	0±1	1	1.259	0.397	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	-0.044	0±1	1	1.259	0.390	3.0
2.441	-0.090	0±1	1	1.259	0.393	3.0
2.480	-0.185	0±1	1	1.259	0.397	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	0.179	0±1	1	1.259	0.390	3.0
2.441	0.075	0±1	1	1.259	0.393	3.0
2.480	-0.025	0±1	1	1.259	0.397	3.0

Test separation: 5mm		
The worst RF Exposure Evaluation		
Worst Calculation Value	Total Calculation Value	Threshold Value
Bluetooth Mode		
0.397	0.397	3.0

The worst RF Exposure Evaluation is calculated as **0.397 / cm<sup>2</sup> < limit 3.0**, So standalone SAR measurements are not required.

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