

# RF Exposure Evaluation

## FCC ID: 2ABHA0015

### 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

<b>EUT Name</b>	:	True Wireless Earbuds	
<b>Models No.</b>	:	7198-04, CT16286	
<b>Brand Name</b>	:	Cstar	
<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 4.1: 2402~2480 MHz
	:	Number of Channel:	Bluetooth: 79 Channels
	:	Max Peak Output Power:	Bluetooth: 4.040 dBm(GFSK)
	:	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 Voltage Supplied by the Host System. DC Supply by the Battery.	
<b>Power Rating</b>	:	DC 5.0 V by Host System. DC 3.7 V by 40mAh Li-Lion Battery.	
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual	

#### Note:

More test information about the EUT please refer to 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	4.040	$4 \pm 1$	5	3.162	0.980	3.0
2.441	3.958	$4 \pm 1$	5	3.162	0.988	3.0
2.480	3.817	$4 \pm 1$	5	3.162	0.996	3.0
Bluetooth Mode ( $\pi/4$ -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	3.475	$4 \pm 1$	5	3.162	0.980	3.0
2.441	3.900	$4 \pm 1$	5	3.162	0.988	3.0
2.480	3.793	$4 \pm 1$	5	3.162	0.996	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	3.771	$4 \pm 1$	5	3.162	0.980	3.0
2.441	3.629	$4 \pm 1$	5	3.162	0.988	3.0
2.480	3.548	$4 \pm 1$	5	3.162	0.996	3.0

So standalone SAR measurements are not required.

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