

# RF Exposure Evaluation

## FCC ID: 2ARR9-G12

### 1. Client Information

Applicant	:	SHENZHEN NUOJIAYUAN SCIENCE AND TECHNOLOGY CO.,LTD.
Address	:	Room 17I, Block A, HuaQiang Square, HuaQiang North Road, Futian District, Shenzhen, China
Manufacturer	:	SHENZHEN NUOJIAYUAN SCIENCE AND TECHNOLOGY CO.,LTD.
Address	:	Room 17I, Block A, HuaQiang Square, HuaQiang North Road, Futian District, Shenzhen, China

### 2. General Description of EUT

EUT Name	:	Smart Watch
Models No.	:	G12, G13, G15, G18, G20, S10, S12, S13, S15, S18
Model Difference	:	All models are in the same PCB layout interior structure and electrical circuits, The only difference is appearance color.
Product Description	Operation Frequency:	Bluetooth 4.2(BT): 2402MHz~2480MHz
	RF Output Power:	BLE:0.099 dBm
	Antenna Gain:	2.41dBi Ceramic Antenna
Power Supply	:	DC Voltage Supply from USB Line. DC Voltage supplied by Li-ion battery.
Power Rating	:	DC 5V 0.5A by USB Line DC 3.7V by 350mAh Li-ion battery
Software Version	:	N/A
Hardware Version	:	N/A
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  $\leq 5$  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						
BLE 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	0.099	0±1	1	1.259	0.390	3.0
2.442	-0.055	0±1	1	1.259	0.393	3.0
2.480	-0.219	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		
0.315	0.315	3.0

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

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