

RF Exposure Evaluation

FCC ID: 2APOD-2174

1. Client Information

Applicant	:	APEX TOP INTL LTD
Address	:	4/F, A BUILDING, HUAYANG TECH INDUSTRY, NO. 5 NANTAI RD., GUSHU XIXIANG BAO'AN, SHENZHEN, CHINA
Manufacturer	:	APEX TOP INTL LTD
Address	:	4/F, A BUILDING, HUAYANG TECH INDUSTRY, NO. 5 NANTAI RD., GUSHU XIXIANG BAO'AN, SHENZHEN, CHINA

2. General Description of EUT

EUT Name	:	Bluetooth Earphone
Models No.	:	2174, 2184
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:	Bluetooth2.1+EDR: 2402MHz~2480MHz
	Max Peak Output Power:	-9.170dBm(π /4-DQPSK)
	Antenna Gain:	-0.58dBi Chip Antenna
	Modulation Type:	GFSK (1 Mbps) π /4-DQPSK (2 Mbps)
Power Rating	:	DC 5.0 V from the USB Cable. DC 3.7V 80mAh by 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 ≤ 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 (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-10.654	-10±1	-9	0.126	0.039	3.0
2.441	-9.580	-9±1	-8	0.158	0.050	3.0
2.480	-9.496	-9±1	-8	0.158	0.050	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	-9.380	-9±1	-8	0.158	0.049	3.0
2.441	-9.170	-9±1	-8	0.158	0.050	3.0
2.480	-10.131	-10±1	-9	0.126	0.040	3.0

So standalone SAR measurements are not required.

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