



RF Exposure Evaluation

FCC ID: 2A8SM-RUNARRNR1

1. Client Information

Applicant	:	Brothers Turvey Ltd.
Address	:	39 Leander Gardens, Birmingham, West Midlands, United Kingdom, B146EZ, UK
Manufacturer	:	Shenzhen Shenzhen Electronics CO., LTD.
Address	:	Building 6, No.1 Xuri East Road, Shanxia community, Pinghu, Longgang, Shenzhen, Guangdong, China, 518111

2. General Description of EUT

EUT Name	:	Wireless Headphone	
Model(s) No.	:	Runar RNR1	
Product Description	:	Operation Frequency:	Bluetooth 5.0: 2402MHz~2480MHz
		Number of Channel:	Bluetooth 5.0: 79 channels
		Antenna Gain:	1.24dBi Ceramic Antenna
		Modulation Type:	GFSK, Pi/4-DQPSK
		Bit Rate of Transmitter:	1/2Mbps
Power Supply	:	USB Input: DC 5V, 300mA DC 3.7V by 250mAh Rechargeable Li-ion battery	
Software Version	:	V1.0	
Hardware Version	:	V1.0	
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.			

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:

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

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



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	-2.027	-2±1	-1	0.794	0.246	3.0
2.441	-1.905	-2±1	-1	0.794	0.248	3.0
2.480	-1.97	-2±1	-1	0.794	0.250	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	-1.102	-1±1	0	1.000	0.310	3.0
2.441	-0.976	-1±1	0	1.000	0.312	3.0
2.480	-1.127	-1±1	0	1.000	0.315	3.0

Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

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