



TÜVRheinland®
Precisely Right.

RF Exposure Exhibit

EUT Name: Wireless Audio Headset

EUT Model: Elite 800 RX

CFR47 Part 2.1093

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1.1 Maximum Permissible Exposure

1.1.1 Test Methodology

In this section, we try to prove the safety of radiation harmfulness to the human body for our product. The KDB 447498 D01 General RF Exposure Guidance is followed. The Gain of the antenna used in this calculation is declared by the manufacturer, and the maximum average power input to the antenna is measured. Using the general SAR test exclusion guidance in Section 4.3 of KDB 447498, we show the device meeting the SAR exclusion threshold.

1.1.2 FCC KDB 447498 D01 – General SAR Test Exclusion Guidance

The SAR exclusion threshold conditions are listed:

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{(\text{min. test separation distance, mm})} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR,}^{16} \text{ where}$$
 - ☐ $f(\text{GHz})$ is the RF channel transmit frequency in GHz
 - ☐ Power and distance are rounded to the nearest mW and mm before calculation¹⁷
 - ☐ The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

- 2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B:¹⁸
 - a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · ($f(\text{MHz})/150$)] mW, at 100 MHz to 1500 MHz
 - b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz
- 3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion, and as illustrated in Appendix C:¹⁹
 - a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by $[1 + \log(100/f(\text{MHz}))]$ for test separation distances > 50 mm and < 200 mm
 - b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$ for test separation distances ≤ 50 mm
 - c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

1.1.3 EUT Operating Condition

The software provided by Manufacturer enabled the EUT to transmit data at lowest, middle and highest channel individually.

1.1.4 Classification

The antenna of the product, under normal use condition, is less than 20cm away from the body of the user. This device is classified as a **Portable Device**. It is intended to be with head wear device; extremity SAR limit is applied.

1.1.5 SAR Test Exclusion Threshold

Antenna Gain

The transmitting antennas were integrated. The 2.4GHz antenna gain was +2.8 dBi or 1.91 (numeric), and the 5GHz antenna gain was +1.3 dBi or 1.35 (numeric).

SAR Exclusion Threshold Calculation

Mode	Max. Power (dBm)	EIRP (dBm)	Min. Separation Distance (mm)	Cal. Excl. Threshold	1-g SAR Limit	10-g extremity SAR Limit	Result
Bluetooth (2.4GHz)	4.36	7.16	20	0.4097	≤ 3.0	≤ 7.5	Exempted *
802.11A (5GHz)	4.94	6.24	20	0.4820	≤ 3.0	≤ 7.5	Exempted *
Σ Pwr of Radios	9.30	13.40	20	2.5064	≤ 3.0	≤ 7.5	Exempted *
Note: 1. Per manufacture the separation between the transmitter antenna and user is greater than 2cm. This separation distance was used for calculation per condition #1 of SAR Exclusion Threshold. 2. The maximum output power was taken from Table 2. 3. (*) The calculated threshold is less than 3.0; therefore, EUT is SAR exempted for head and body usage.							