



RF Exposure Analysis – Routine Evaluation Exemption

Applicant: TQ-Systems GmbH
FCC ID: 2ANFF-Q103
Model number/name: HPR DISPLAY V03

The above device operates in the 2402-2480 MHz frequency band (Bluetooth LE) and at 2457 MHz (ANT+). The minimum test separation distance is ≤ 5 mm.

Analysis for FCC portable use according to Part 2.1093

Standalone SAR test exclusion considerations are defined in 447498 D01 General RF Exposure Guidance v06, section 4.3.1 where the 1-g head or body and 10-g extremity SAR exclusion threshold is defined by the following formula:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [v(f(\text{GHz}))] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR}$$

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

For Bluetooth LE (2402 - 2480 MHz):

Maximum conducted power = +2 dBm = 2 mW (includes tolerance)
 $(2 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.480 \text{ GHz}} = \underline{\underline{0.6}}$

Conclusion: $0.6 \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

For ANT+ (2457 MHz):

Maximum conducted power = +1 dBm = 1 mW (includes tolerance)
 $(1 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.457 \text{ GHz}} = \underline{\underline{0.3}}$

Conclusion: $0.3 \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

Bluetooth LE and ANT+ cannot transmit simultaneously.

Conclusion: The above device is exempt from Routine Evaluation.

Certification Body

UL International (UK) Ltd