

nox medical

RF Exposure Analysis

FCC ID: V5A-NOXBLEMOD

Analysis for FCC portable use

Standalone SAR test exclusion considerations are defined in KDB 447498D01 (v06) Chapter 4.3.1 where the 1-g head or body and 10-g extremity SAR exclusion threshold is defined by the following formula:

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

- f(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

For the NOXBLEMOD, the maximum conducted output power is 7.6 dBm (5.8mW).

Applying the above data using the given KDB 447498 D01 formula, and minimum separation distance of 5mm, the following results:

$$(5.8\text{mW} / 5 \text{ mm}) \times \sqrt{2.45 \text{ GHz}} = 1.8 \text{ (i.e.: } \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR)}$$

This demonstrates the NOXBLEMOD meets the criteria for 1-g head/ body and 10-g extremity SAR test exemption.

Analysis for FCC mobile use

The following far field power density equation is applicable:

$$S = \text{EIRP} / 4 \pi R^2$$

Where

S = Power density

EIRP = Effective Isotropically Radiated Power (EIRP = P x G)

P = Conducted Transmitter Power

G = Antenna Gain (relative to an isotropic radiator)

R = distance to the centre of radiation of the antenna

Requirement

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of FCC Rule Part 1.1310 for 1,500-100,000MHz

$$S = 1.0 \text{ mW/cm}^2$$

Calculation for 20cm safe distance

$$P = 7.6\text{dBm}$$

$$G = -6.0\text{dBi}$$

$$\text{EIRP} = 1.6\text{dBm} = 1.4\text{mW}$$

$$R = 20\text{cm}$$

$$S = \text{EIRP} / 4 \pi R^2$$

$$S = 1.4 / (12.56 \times 20^2)$$

$$= 1.4 / 5024$$

$$S = < 1.0 \text{ mW/cm}^2$$

This is equivalent to a safe operating distance of 0.33cm for $S=1.0\text{mW/cm}^2$

Conclusion

The NOXBLEMOD can be used in either FCC portable or Mobile operations

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