

RF EXPOSURE EVALUATION

1. PRODUCT INFORMATION

Product Description	NINA-B4
Model Name	NINA-B401, NINA-B411
FCC ID	XPYNINAB4

2. EVALUATION METHOD

According to 447498 D01 General RF Exposure Guidance v05

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:

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

Where $f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

The exposure safety distance is less than 5mm.

3. CALCULATION

GFSK-1M

$$P_i = 5.817 \text{ dBm} = 3.82 \text{ mW}$$

The value of the Maximum output power P_i is referred to the test report of the CFR47 §15.247.

The result for RF exposure evaluation $\text{SAR} = (3.82 \text{ mW} / 5 \text{ mm}) \cdot [\sqrt{2.48}(\text{GHz})] = 1.20 < 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.

GFSK-2M

$$P_i = 5.864 \text{ dBm} = 3.86 \text{ mW}$$

The value of the Maximum output power P_i is referred to the test report of the CFR47 §15.247.

The result for RF exposure evaluation $\text{SAR} = (3.86 \text{ mW} / 5 \text{ mm}) \cdot [\sqrt{2.402}(\text{GHz})] = 1.20 < 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.

O-QPSK

$$P_i = 5.651 \text{ dBm} = 3.67 \text{ mW}$$

The value of the Maximum output power P_i is referred to the test report of the CFR47 §15.247.

The result for RF exposure evaluation $\text{SAR} = (3.67 \text{ mW} / 5 \text{ mm}) \cdot [\sqrt{2.440}(\text{GHz})] = 1.15 < 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.

4. CONCLUSION

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