



FCC ID: N50TR061

## SAR Exclusion Justification

Test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq$  50 mm

Guidance document reference: 447498 D01 General RF Exposure Guidance v05r02, page 11, paragraph 4.3.1(1).

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq$  50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] ^ *$

$[\text{vf(GHz)}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is  $\leq$  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 according to 5) in section 4.1 is applied to determine SAR test exclusion.

### SAR test exclusion analysis:

Assumptions: Since the exact separation distance may vary from sensor to sensor, the minimum separation distance of 5 mm is assumed per the guidance document.

Max,Power of Channel: 20.68 dBm

Tune up tolerance: 0.5 dB

Duty Cycle: 4.3 %

Average power 5.64

Min. separation distance: 5 mm

Max. frequency: 2.48 GHz

$[(\text{Pwr/Dist}) * \text{vfFreq.}] = 1.78$

Max. power is source-based time-averaged maximum conducted output power, adjusted for tune-up tolerance.

The result of the above SAR threshold calculation demonstrates that the result is less than the 1-g numeric threshold of 3 and the 10-g numeric threshold of 7.5.

**Conclusion: The above analysis shows that the evaluated device qualifies for exemption from SAR testing.**

Signed: *G. Suhantham*, Senior Enginner 3/2/2021