



### 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:

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

$[f(\text{GHz})] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  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
- 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: 9.23 mW  
Min. separation distance: 5 mm  
Max. frequency: 2.44 GHz

$$[(P_{\text{wr}}/\text{Dist}) * \sqrt{f_{\text{req}}}] = 2.9$$

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. **This is a limb-worn device where the 10-g threshold applies.**

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

Signed: Senior Engineer 4/11/2018