



**SAR Exclusion Justification**

Test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 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 ≤ 50 mm are determined by:

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

- 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
- 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 ≤ 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  |

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

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.**

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