



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 v06, page 12, paragraph 4.3.1 a).

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:

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

$[\sqrt{f(\text{GHz})}] \leq 3.0$ 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
- 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 this is a hand-held device, the minimum separation distance of 5 mm is assumed per the guidance document. Max power used in calculation is source-based conducted power, including tune-up tolerance. (conducted power = 7.4 mW, tune-up tolerance = +1/-4 dB)

Max. power of channel:	9.33 mW
Min. separation distance:	5 mm
Max. frequency:	2.44 GHz

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

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

Conclusion: The above analysis shows that the evaluated device (a hand-held microphone) qualifies for exemption from SAR testing.

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