

FCC SAR Exclusion

447498 D01 General RF Exposure Guidance v06

SAR test exclusion calculations

Section 4.3: General SAR test exclusion guidance / Section 4.3.1: Standalone SAR test exclusion considerations

	Input	Select Units
Max Power:	-14.4	dBm
Min separation distance:	5	mm
Frequency, f:	433.92	MHz

Value reference Number	Values used for Calculation		Reference number definition
v1	0	mW	$[max. \text{ power of channel, including tune-up tolerance, mW}] \cdot \text{'Rounded to nearest mW'}$
v2	5	mm	$[min. \text{ test separation distance, mm}] \cdot \text{'Rounded to nearest mm'}$
v3	0.659		$[\sqrt{f(\text{GHz})}]$

- a) For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

1g Exclusion Threshold:	22.8	mW	$\leq 3 \cdot v2 / v3$
10g Exclusion Threshold:	56.9	mW	$\leq 7.5 \cdot v2 / v3$

Conclusions:	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Body applications		
	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Extremity applications		

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Note: the at 433.92 MHz, the EUT power is -14.4 dBm (0.036 mW), which much lower than the 52 mW Exemption threshold. Therefore, SAR testing is not required.

2.5.1 Exemption Limits for Routine Evaluation — SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in [Table 1](#).

Table 1: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance^{4.5}

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤ 5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤ 300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW