

KDB 447498 guidance

Section 4.3 General SAR test reduction and exclusion

For Standalone SAR exclusion consideration, when SAR Exclusion Threshold requirement in KDB 447498 is satisfied, standalone SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required.

In the frequency range below 100 MHz to 6 GHz and test separation distance of 50mm, the SAR Test Exclusion Threshold for operation in the 2400 – 2483.5 MHz band will be determined as follows

SAR Exclusion Threshold (SARET)

SAR Exclusion Threshold = Step 1 + Step 2

Step 1

$$NT = [(MP/TSD^A) * \sqrt{f_{GHz}}]$$

NT = Numeric Threshold (3.0 for 1-g SAR and 7.5 for 10-g SAR)

MP = Max Power of channel (mW) (inc tune up)

TSD^A = Min Test separation Distance or 50mm (whichever is lower) = 5

We can transpose this formula to allow us to find the maximum power of a channel allowed and compare this to the measured maximum power.

$$= [(NT \times TSD^A) / \sqrt{f_{GHz}}]$$

For Distances Greater than 50 mm Step 2 applies

Step 2

$$(TSD^B - 50mm) * 10\}$$

Where:

TSD^B = Min Test separation Distance (mm) = 50

Operating Frequency 0.91043 GHz

SARET = $[(3.0 \times 5) / \sqrt{0.91043}]$
 SARET = $[15 / 0.954]$
 SARET = 15.7 mW

Operating Frequency 0.9181 GHz

SARET = $[(3.0 \times 5) / \sqrt{0.91810}]$
 SARET = $[15 / 0.958]$
 SARET = 15.66 mW

Channel Frequency (MHz)	EIRP (mW)	Duty Cycle %	Time Averaged EIRP (mW)	SAR Exclusion Threshold (mW)	SAR Evaluation
910.43	25.0	52	13.00	15.70	Exempt
918.10	25.4	52	13.21	15.66	Exempt

Note: EIRP calculated from peak radiated field strength.

Note: Duty cycle calculated based on longest transmission in any 100 ms period.