

General SAR test reduction & exclusion guidance

KDB 447498

Section 4.3 General SAR test reduction and exclusion guidance

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.

The SAR Test Exclusion Threshold for frequencies in the range 100 MHz to 6 GHz, and for test separation distance of \leq 50 mm, is determined as follows.

$$\text{SAR Exclusion Threshold (SARET)} = (NT \times TSD_A) / \sqrt{f_{GHz}}$$

Where,

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

TSD_A = Minimum Test separation distance or 50 mm (whichever is lower)

f_{GHz} = Transmit frequency in GHz

The SAR Test Exclusion Threshold for frequencies below 100 MHz, and for test separation distance of \leq 50 mm, is determined as follows.

$$\text{SAR Exclusion Threshold (SARET)} = [(NT \times TSD_A) / \sqrt{0.1}] \times [1 + \text{Log}(100 / f_{MHz})] \times 1/2$$

Where,

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

TSD_A = 50 mm

f_{MHz} = Transmit frequency in MHz

125 kHz Operation - Eletec:

Radio Type	Frequency (MHz)	Maximum Conducted Power (mW)	SAR Exclusion Threshold at 14 mm (mW)	Ratio	Sum of Ratios	SAR Evaluation
RFID	0.125	0.000000018	925.7	0.000	0.936	Not Required
Wi-Fi	2437	25.2	26.9	0.936		

Note: Wi-Fi maximum conducted power taken from FCC SAR test report - <https://fcc.report/FCC-ID/KA2WA131E1/2348815.pdf>

13.56 MHz Operation – Eletec:

Radio Type	Frequency (MHz)	Maximum Conducted Power (mW)	SAR Exclusion Threshold at 14 mm (mW)	Ratio	Sum of Ratios	SAR Evaluation
RFID	13.56	0.000004	443.0	0.000	0.936	Not Required
Wi-Fi	2437	25.2	26.9	0.936		

Note: Wi-Fi maximum conducted power taken from FCC SAR test report - <https://fcc.report/FCC-ID/KA2WA131E1/2348815.pdf>

13.56 MHz Operation – Consumable:

Radio Type	Frequency (MHz)	Maximum Conducted Power (mW)	SAR Exclusion Threshold at 14 mm (mW)	Ratio	Sum of Ratios	SAR Evaluation
RFID	13.56	0.000010	443.0	0.000	0.936	Not Required
Wi-Fi	2437	25.2	26.9	0.936		

Note: Wi-Fi maximum conducted power taken from FCC SAR test report - <https://fcc.report/FCC-ID/KA2WA131E1/2348815.pdf>

Therefore standalone SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required.