

SAR Exclusion Justification

KDB 447498 has the following exclusion for portable devices (devices that may be used within 20cm of a person):

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:

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

$\cdot [v f(\text{GHz})] \leq 3.0$ 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

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 is applied to determine SAR test exclusion. For small devices and for devices used close to the body the enclosure-to-person separation distance is used rather than the antenna-to-person separation distance.

For this device, which is hand-operated and so could be within 20cm of persons when in use:

- $f = 2.45$ GHz
- distance = 0 mm from the hand (so we will use 5 mm in the calculation)
- the maximum output power declared by the manufacturer is the measured power +1.5dB. This is 5dBm (3.2 mW)

The calculated value = $[3.0 / 5] \cdot \sqrt{ 2.45 } = 0.94$.

As this is below both 7.5 and 3.0, there is no need for SAR evaluation of this device.