

SAR EXCLUSION JUSTIFICATION

Manufacturer	Ekahau Inc
Device	A4+ WiFi Tag
FCC ID	TA7-A400

SAR exclusion Justification

Guidance document reference: KDB447498 D01 General RF Exposure Guidance v05r02, page 11, paragraph 4.3.1(1).

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:

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

- f (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.

These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

Calculations and assumptions

Test separation distance 5 mm.

Power with tune-up:

$$P_W = P_{MAX} + \text{TuneUp} = 11.94 \text{ dBm} + 2\text{dB} = 13.94 \text{ dBm} = 24.77 \text{ mW}$$

Source-base time-averaged power using the duty cycle of 10%, declared by the manufacturer:

$$P_E = P_W \times 0.1 = 24.77 \text{ mW} \times 0.1 = 2.477 \text{ mW}$$

Actual evaluation:

$$\frac{2.477 \text{ mW}}{5 \text{ mm}} \times \sqrt{2.462 \text{ GHz}} \approx 0.78 \leq 3.0$$

Conclusion

The analysis shows that the device qualifies for exemption from SAR testing.