

Voice-Controlled Intelligent Shopper 999.11000611

FCC ID: 2AHU499911000611

MPE calculation

Dear Reviewer,

The maximum measured power output is

802.11b/g/n: 16.0dBm

The maximum antenna gain for integral antenna is

802.11b/g: 2.0dBi

The maximum permissible exposure is defined in 47 CFR 1.1310 with 1 mW/cm².

The Transmitter is using external antennas that operate at 20 cm or more from nearby persons.

The maximum permitted level is calculated using the general equation:

$$S = P' / 4\pi R^2$$

$$802.11b/g: P' = 16.0\text{dBm} + 2.0\text{dBi} = 18.0\text{dBm} = 39.8\text{mW}$$

$$R = 20\text{cm}$$

$$\pi = 3.1416$$

Solving for S, the power density at 20 cm is

$$802.11b/g/n: \mathbf{0.079\text{mW/cm}^2}$$

Standalone SAR test exclusion considerations

Per 447498 D01 General RF Exposure Guidance v06, the 1-g SAR and 10-g SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances ≤ 50 mm are determined by:

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

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

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Mode	Position	f(GHz)	Min. test separation distance (mm)	Pmax (dBm)	Pmax (mW)	Calculation result	SAR Exclusion threshold	SAR Test exclusion
Wi-Fi	Body-worn	2.437	23.00	16.00	39.811	1.086	3	YES

Separate file called antenna-to-edges distances

