SAR Test Exclusion Calculations

Model: SB201301
FCC ID: 2ABSF-SB201301
IC: 11586A-SB201301

We, SenionLab AB, hereby declare that the SenionBeacon, model SB201301 of SenionLab AB is exempt from RF exposure SAR evaluation as its output power meets the exclusion limits stated in FCC Part 2 §2.1093.

These calculations are done according to KDB 447498 D01 Section 4.3.1 1) which has the following exclusions. The 1g and 10g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤50mm are determined by

$$\frac{P}{d} \cdot \sqrt{f} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR}$$

where P is the power in mW, d is the test separation distance in mm and f is the frequency in GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion according to 5) in Section 4.1 of KDB 447498 D01.

The minimum possible distance from the antenna to a user or bystander is given by the distance from the antenna to the outer surface of the device. This distance is 4mm, thus 5mm will be used in the calculations. The maximum transmitted power is 2mW. Usually, this power is only used during small fraction of time when the advertisement message is sent out. However, to be conservative in these calculations, we are calculating with constant transmission at this power level. The RF transmit frequency is 2.450 GHz.

$$\frac{P}{d} \cdot \sqrt{f} = \frac{2}{5} \cdot \sqrt{2.450} = 0.62 < 3.0$$

As can be seen in the calculations above we are well below the SAR test exclusion threshold 3.0 for 1-g SAR.

Linköping, February 12, 2014

David Törnqvist, CTO
SenionLab AB
Phone: +46 709-600447
E-mail: david.tornqvist@senionlab.com