



WamBlee®

SAR-W400

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SAR-W400

Part 1 - Human exposure to electromagnetic fields



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1.2 *Pages list*

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1.3 Intro

This report demonstrate that the Wamblee W400 MSLD is compliance with US requirements for protection of the general public (uncontrolled) from exposure to electromagnetic fields.

1.4 Basis

In the US regulation 47CFR chapter 1.1310 (Radio frequency radiation exposure limit) , specifies that in the bands 30 – 300MHz the exposure limit is 0.2mW/cm².

1.5 Computation

Form the test report (Our Doc: RPT-FCC_W400 , chapter 1.15), the RF output power is +17.9 dBm (62 mW) with a duty cicle = 1 (continuos AM modulation). Purely precautionary purposes, the power considered is brought to +20 dBm (100 mW).

Distance at which the power density meets the 0.2mW/cm² limit is given by:

$$r = \sqrt{\left(\frac{P_{out}}{4 * \pi * P_{density}}\right)} = \sqrt{\left(\frac{100}{4 * \pi * 0.2}\right)} = 6.31\text{cms} = 2.48\text{inches} @ 0.2\text{mW/cm}^2$$

According to the procedure in KDB447498 (v05r02) section 4.3, SAR testing is excluded if the following criteria is met.

$$\left(\frac{P}{d}\right) * \sqrt(f) \leq 3.0 \text{ for } 1-g \text{ SAR}$$

Where :

- P is the time averaged maximum conducted power in mW
- minimum separation distance in mm



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- f is the frequency in Ghz.

Power and distance are rounded values:

- For : d= 20mm , f = 0.1215 GHz and P = 100mW

$$\left(\frac{100}{20}\right) * \sqrt{0.1215} = 1.74$$

Which is less the value of 3 specified for exemption to 1-g SAR evaluation.

Therefore the Wamblee W400 meets the requirements for exposure to radiated electromagnetic fields at a worst case distance of 11.7 cms from the transmitting antenna in both the USA and Europe.