

Calculation: RF-Exposure for Sateline-4Pro transmitter

HVIN: **SATEL-TA30**

PMN: **SATELLINE-4Pro**

In accordance to the **CFR Part 47, §1.1310** and **RSS-102 Issue 5**

- S: Limit for power density according to
 - CFR Part 47, §1.1310: 2.71 W/m²
 - RSS-102 Issue 5, Table 4: 1.59 W/m²
- P: 36.3 W (peak value, refer clause 5.1 of test report F160575E1)
- G: 8.0 dBi = 6.3
- D: Duty cycle: 100 % = 1
- R: Distance in what the limit of S is reached (refer also to the manufacturers installation / user manual).

$$S = \frac{P \cdot G \cdot D}{4 \cdot \pi \cdot R^2} \Rightarrow R = \sqrt{\frac{P \cdot G \cdot D}{4 \cdot \pi \cdot S}}$$

- CFR Part 47, §1.1310:
$$R = \sqrt{\frac{P \cdot G \cdot D}{4 \cdot \pi \cdot S}} = \sqrt{\frac{36.3W \cdot 6.3 \cdot 1}{4 \cdot \pi \cdot 2.71W / m^2}} = \underline{\underline{2.59m}}$$

- RSS-102 Issue 5, Table 4:
$$R = \sqrt{\frac{P \cdot G \cdot D}{4 \cdot \pi \cdot S}} = \sqrt{\frac{36.3W \cdot 6.3 \cdot 1}{4 \cdot \pi \cdot 1.59W / m^2}} = \underline{\underline{3.38m}}$$

The value of the power density is below the limit of CFR Part 47, §1.1310 for the “General population / Uncontrolled Exposure” at a distance of more than 2.59 m from the antenna and below the limit of RSS-102 Issue 5, Table 4 “General Public (uncontrolled environment)” at a distance of more than 3.38 m from the antenna. The above calculations are based on the lowest possible frequency in combination with the highest output power of the EUT and no cable loss.