

## Calculation: RF-Exposure for 156 MHz - 162 MHz transmitter

Type identification: **P200-CS**

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: 2.0 W/m<sup>2</sup>  
 - RSS-102 Issue 5, Table 4: 1.291 W/m<sup>2</sup>
- P: 2.51 W (peak value, refer clause 5.5 of test report F201366E1)
- G: 2.9 dBi = 1.95 (max. antenna gain, declared by the applicant)
- D: Duty cycle: According to the Recommendation ITU-R M.1371-5 (02/2014) the maximum reporting rate for a Class B AIS is 2 s. So every 2 seconds a 27 ms telegram is transmitted as worst case.

This is equal to a duty cycle of 1.35 % = 0.0135.

- R: Distance in what the limit of S has to be reached: 0.2 m.

$$S = \frac{P \cdot G \cdot D}{4 \cdot \pi \cdot R^2} \Rightarrow \underline{S} = \frac{2.51 \text{ W} \cdot 1.95 \cdot 0.0135}{4 \cdot \pi \cdot (0.2 \text{ m})^2} = \underline{0.131 \frac{\text{W}}{\text{m}^2}}$$

The value of the power density is below the limit of CFR Part 47, §1.1310 for the “General population / Uncontrolled Exposure” and below the limit of RSS-102 Issue 5, Table 4 “General Public (uncontrolled environment)”. Base of the above calculations is the highest output power of the EUT.