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

Type identification: **Type 1 AIS AtoN Station N321**

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^2
- RSS-102 Issue 5, Table 4: 1.291 W/m^2

P: 12.5 W (rated output power, used because this value is higher than the peak value, documented in clause 5.4 of test report F212211E2)

G: 2.86 dBi = 1.93 (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 AtoN Station is 3 s. So every 3 seconds a 27 ms telegram is transmitted as worst case.

This is equal to a duty cycle of 0.9 % = 0.009.

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

$$S = \frac{P \cdot G \cdot D}{4 \cdot \pi \cdot R^2} \Rightarrow \underline{S} = \frac{12.5\,W \cdot 1.93 \cdot 0.009}{4 \cdot \pi \cdot (0.2\,m)^2} = \underline{0.432 \frac{W}{m^2}}$$

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.