

HUADNO
NEBO

ZEMLJA
(gozd)

SONCE

REF

REF + 7dB

REF + 13,5dB

$T_1 \leftarrow 70K$

T_2

$$\frac{SF = 69}{T_3} @ 1415MHz$$

$$T_1 = T_s \leftarrow T_N = 10K$$

$$T_2 = T_s \cdot 10^{\frac{7}{10}} \leftarrow T_2 = 290K$$

$$\Delta T = T_2 - T_1 = 280K$$

$$F_{dB} = 10^{\frac{7}{10}} = 5$$

$$T_s \cdot 5 - T_s = 280K$$

$$4 \cdot T_s = 280K$$

$$T_s = 70K$$

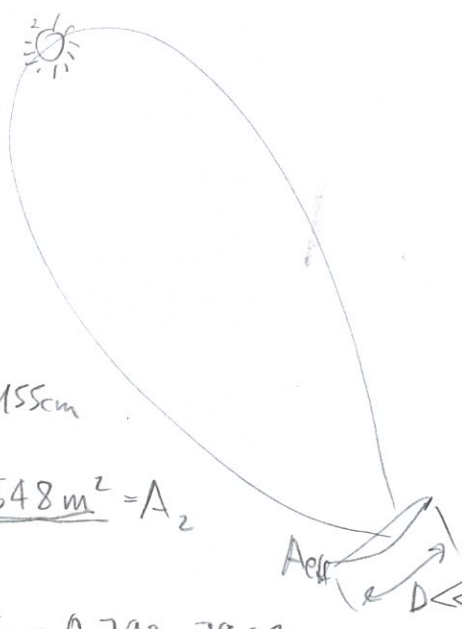
$$T_s = \underbrace{10K}_{\text{nebo}} + \underbrace{30K}_{\text{LNA}} + \underbrace{30K}_{\text{Antena}}$$

$$N_{0H} = k_B T_1 = 1,38 \cdot 10^{-23} J/K \cdot 70K = 96,6 \cdot 10^{-23} J$$

$$13,5dB = 10^{\frac{13,5}{10}} = 22,39$$

$$N_{0S} = k_B \cdot T_3 = N_{0H} \cdot 10^{\frac{13,5}{10}} = 2162 \cdot 10^{-23} W/Hz$$

$$N_s = N_{0S} - N_{0H} = 2,066 \cdot 10^{-20} W/Hz$$



$$F = 69 \cdot 10^{-22} W/m^2/Hz$$

$$N_s = F \cdot A_{eff} / 2 \leftarrow \text{ena polarizacija!}$$

$$A_{eff} = \frac{2 N_s}{F} = \frac{2 \cdot 206,6 \cdot 10^{-22} W/Hz}{69 \cdot 10^{-22} W/m^2/Hz}$$

$$\underline{\underline{A_{eff} = 5,988m^2}}$$

$$r = \frac{D}{2} = 155cm$$

$$\pi r^2 = 7,548m^2 = A_2$$

$$M_0 = \frac{A_{eff}}{A_2} = 0,793 = 79,3\%$$