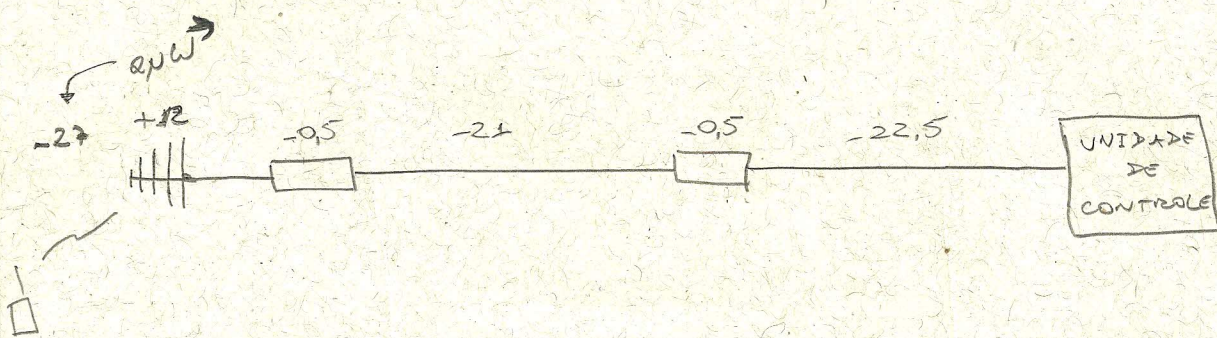


aula de Onda



$$X_{dBm} = 10 \log \frac{2 \times 10^{-6}}{1 \times 10^{-3}} = -27 \text{ dBm}$$

$$mW = 10^{-3}$$

$$\mu W = 10^{-6}$$

$$nW = 10^{-9}$$

a) PARA 30 MHz

$$100 \text{ m} \rightarrow 6 \text{ dB}$$

$$X = 21 \text{ dB}$$

$$350 \text{ m} \rightarrow X$$

$$100 \text{ m} \rightarrow 15 \text{ dB}$$

$$X = 22,5 \text{ dB}$$

$$150 \text{ m} \rightarrow X$$

$$P_{rec} = -27,0 \text{ dBm} + 12 \text{ dB} - 0,5 \text{ dB} - 21 \text{ dB} - 0,5 \text{ dB} - 22,5 \text{ dB} = \boxed{}$$

[30 MHz]

b) PARA 1000 MHz ou 1 GHz

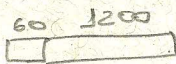
③ PARA 5GB = 1200B (CARGA ÚTIL)

$$a) N^{\circ} \text{ pacotes} = \frac{5 \times 2^{30} \times 8}{1200 \times 8} = 4.473.924,26 \rightarrow 4.473.925 + 20\%$$

$\rightarrow 5.368.710 \text{ PACOTES}$

$$b) \text{ tempo} = \frac{1260 \times 5.368.710 \times 8}{512 \times 10^6} = 105,7 \text{ s}$$

PACOTE = C. ÚTIL + OVERHEAD



$$\text{tempo} = \frac{\text{PACOTE} + \text{OVH} \times N^{\circ} \text{ PACOTES} \times 8}{\text{VELOCIDADE}}$$

$$c) \frac{60}{1200 + 60} \times 100 = 4,7\%$$

d) O ÚLTIMO PACOTE É 0,26 DE UM PACOTE
ENTÃO: $0,26 \times 1200 = 312$

$$\frac{60}{312 + 60} = \frac{60}{372} \times 100 \approx 16\%$$