03/12/2020

Tarefa 7

$f_c = 5\,GHz$, $B = 20\,MHz$, $G_t = G_r = 2\,dB$,
$M = 16\,dB$, $P_L = 90\,dB$, $P_t = 20\,dBm$
$SNR = 10\,dB$

$$Rx - sensitivity = P_r(min) = N \times F \times SNR(min)$$

$$Rx - sensitivity = -174 + 10 \log_{10} B + F + SNR$$

$$\Rightarrow F = P_r(min) + 174 - 10 \log_{10} B - SNR$$

$$P_t = P_r + P_L + M + L - G$$

$$P_r = P_t - P_L - M - L + G$$

$$P_r = 20 - 90 - 16 - 0 + (2+2)$$

$$P_r = -82\,dBm$$

$$\Rightarrow F = -82 + 174 - 10 \log_{10} 20.000.000 - 10$$

$$F = 3,94\,dB \simeq 4\,dB$$