

الطيف

رصاصه

9883303

بالتزامن مع

#2

$$\text{Transmitter} \begin{cases} \text{Band 1: } 50 \text{ MHz} - 52 \text{ MHz} \rightarrow L_1 = 20 \text{ dB} = 100 \text{ W} \\ \text{Band 2: } 54 \text{ MHz} - 58 \text{ MHz} \rightarrow L_2 = 20 \text{ dB} = 100 \end{cases}$$

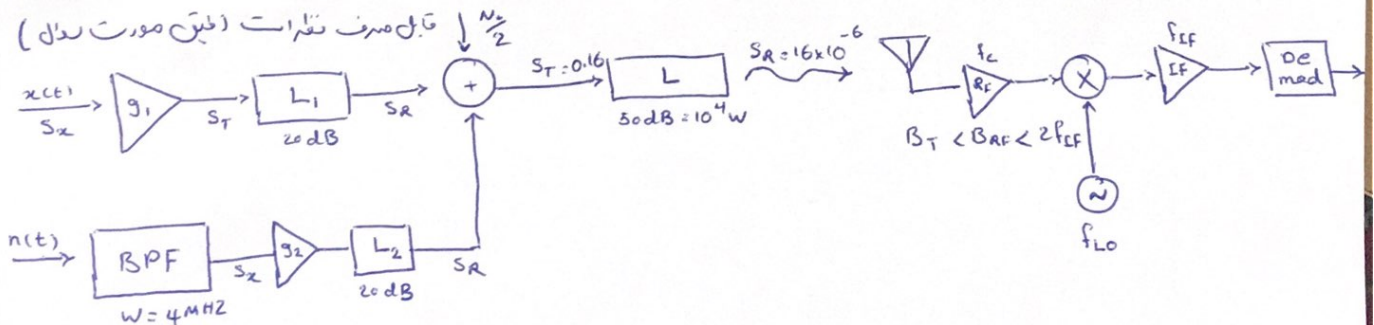
$$\text{FM: } \begin{cases} W = 30 \text{ KHz} \\ S_x = \frac{1}{3} \end{cases}$$

$$\text{Receiver: } \begin{cases} F_{IF} = 2 \text{ MHz} \\ f_c = f_{Lo} - f_{IF} \end{cases}$$

$$\text{for Band ①: } \begin{cases} f_c = 50 \text{ MHz} - 52 \text{ MHz} \\ f_{IF} = 2 \text{ MHz} \end{cases} \Rightarrow \begin{cases} f_{Lo} = f_c + f_{IF} = 52 \text{ MHz} - 54 \text{ MHz} \\ f_c = f_c + 2f_{IF} = 54 \text{ MHz} - 56 \text{ MHz} \end{cases}$$

$$\text{for Band ②: } \begin{cases} f_c = 54 \text{ MHz} - 58 \text{ MHz} \\ f_{IF} = 2 \text{ MHz} \end{cases} \Rightarrow \begin{cases} f_{Lo} = f_c + f_{IF} = 56 \text{ MHz} - 60 \text{ MHz} \\ f_c = f_c + 2f_{IF} = 58 \text{ MHz} - 62 \text{ MHz} \end{cases}$$

$$S_T = 12 \text{ W} \Rightarrow S_R = \frac{S_T}{L_1} = \frac{12}{100} = 0.12 \text{ W} \Rightarrow S_R = \frac{S_x g_1}{L_1} \Rightarrow g_1 = \frac{S_R L_1}{S_x} = \frac{0.12 \times 100}{\frac{1}{3}} = 36$$



$$S_R = \frac{S_T}{L_2} = S_0 = \frac{4 \text{ W}}{100} = 0.04 \text{ W} \Rightarrow N_0 = \text{?} \text{ W} = \text{?}$$

$$\left(\frac{S}{N}\right)_D = \frac{S_R}{N_0 W} \Rightarrow 10^6 = \frac{16 \times 10^{-6}}{N_0 \times 4 \times 10^6} \Rightarrow N_0 = 4 \times 10^{-6}$$

در صورت علامت بر شیب، مؤثر با توان $N_0 = 4 \times 10^{-6}$ و فرکانس ها را تصویر با علامت به سادگی شده
در صفحه قبل درخت می شود

$$B_T < B_{RF} < 2I_F$$

$$4\phi < B_{RF} < 5$$