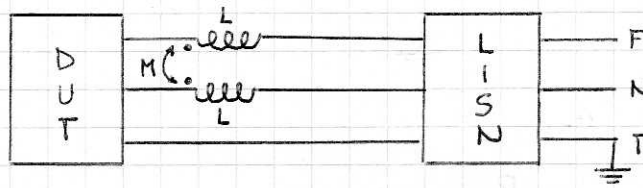


Emissioni condotte - Es. 3

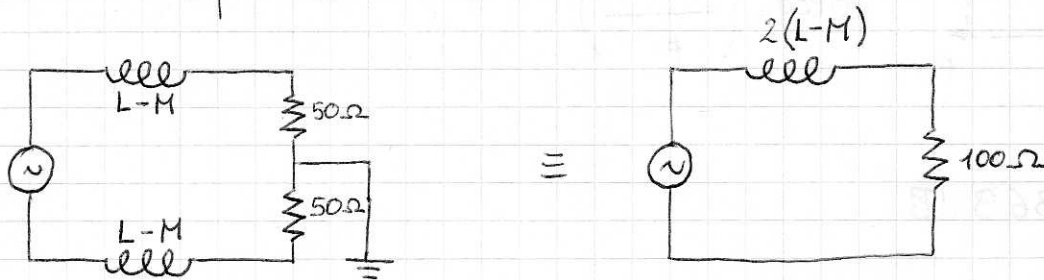
Un dispositivo è collegato alla rete LISN mediante il seguente filtro:



Calcolare l'IL per il modo comune e quello differenziale, dati $R_s \approx 0\Omega$, $L = 30\mu H$, $M = 26\mu H$, $f_{NOISE} = 10MHz$

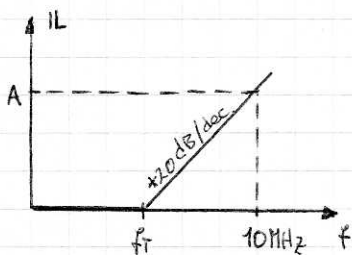
a) Modo differenziale:

il circuito equivalente è:



calcolo f_T :

$$f_T = \frac{R_L}{2\pi \cdot 2(L-M)} = 1,989 MHz$$

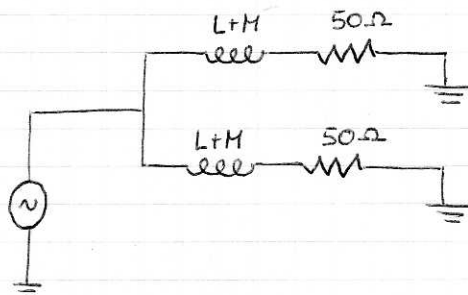


$$\frac{A}{20 \log\left(\frac{10MHz}{f_T}\right)} = +1 \Rightarrow A = 20 \log\left(\frac{10 \cdot 10^6}{1,989 \cdot 10^6}\right) =$$

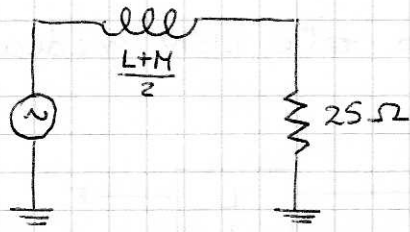
$$\Rightarrow A = 14 dB$$

b) Modo Comune

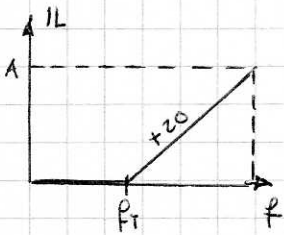
circ. equivalente



circuito equivalente simplificato



$$f_r = \frac{R_L}{2\pi \cdot \left(\frac{L+M}{2}\right)} = 142,1 \text{ KHz}$$



$$\frac{A}{20 \log_{10} \left(\frac{10 \text{ MHz}}{f_r} \right)} = 1 \Rightarrow A = 20 \log_{10} \left(\frac{10 \cdot 10^6}{0,1421 \cdot 10^5} \right)$$

$$\Rightarrow A = 36,9 \text{ dB}$$

□