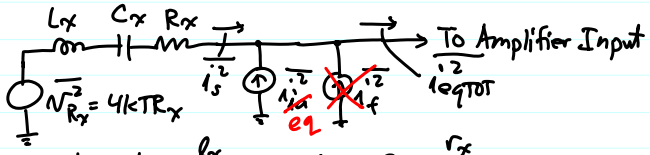
Example: Gyro MDS Calculation (cont)



where $L_x = \frac{L_x}{\eta_e^2}$, $C_x = \eta_e^2 C_x$, $R_x = \frac{r_x}{\eta_e^2}$

$$\therefore i_s = N_{R_x}\left(\frac{1}{R_x}\right)|H(j\omega_d)| \rightarrow \frac{\overline{i_s^2}}{\Delta f} = 4kTR_x\left(\frac{1}{R_x^2}\right)|H(j\omega_d)|^2$$

$$\Rightarrow \boxed{\frac{\overline{i_s^2}}{\Delta f} = \frac{4kT}{R_x}|H(j\omega_d)|^2}$$

Thus:

$$\boxed{\frac{\overline{i_{eqTOT}^2}}{\Delta f} = \frac{4kT}{R_x}|H(j\omega_d)|^2 + \frac{4kT}{R_f} + \frac{\overline{i_{ia}^2}}{\Delta f} + \frac{\overline{N_{ia}^2}}{\Delta f}\left(\frac{1}{R_f^2}\right)}$$

Learn to get these from EE240.
↳ or just get them from a data sheet ...