A L I E N

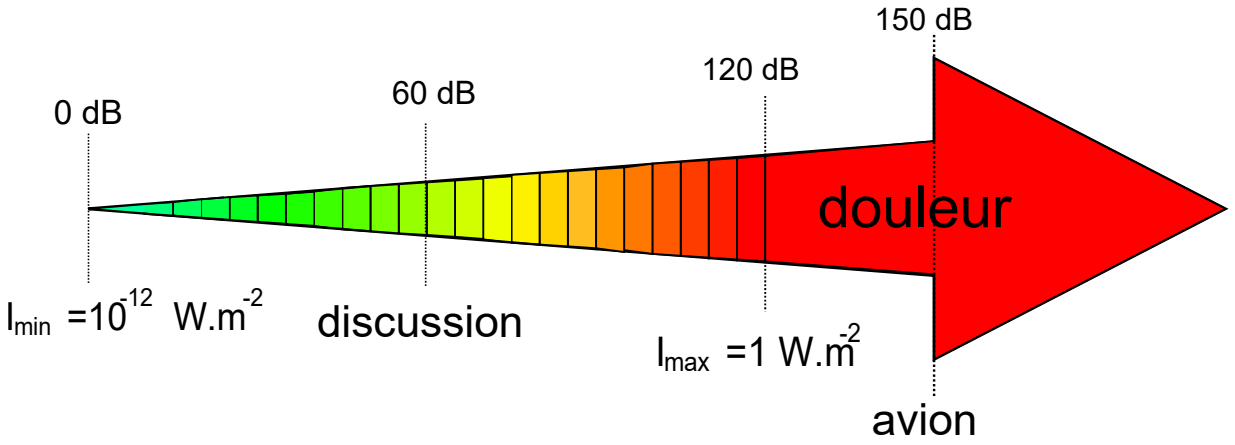
IN SPACE NO ONE CAN HEAR YOU SCREAM

$$\rho_0 \frac{\partial \vec{v_1}}{\partial t} = -\vec{\text{grad}}\ p_1 \tag{1}$$

$$\rho_1 = \rho_0 \chi_S p_1 \tag{2}$$

$$\frac{\partial \rho_1}{\partial t} = -\rho_0\ \text{div}\ \vec{v_1} \tag{3}$$

$$\Delta p_1 - \frac{1}{c^2}\frac{\partial^2 p_1}{\partial t^2} = 0 \qquad \text{avec} \qquad c = \frac{1}{\sqrt{\rho_0 \chi_S}} \tag{4}$$



$$I^{dB} = 10 \log (I / I_{min})$$

Retour sur hypothèses :

— $\rho_1 \ll \rho_0$ (1)

— $p_1 \ll p_0$ (2)

— $|\vec{v}_1| \ll c_{son}$ (3)

— $\rho_1 g \ll \rho_0 |\frac{\partial \vec{v}_1}{\partial t}|$ (4)

ondes acoustiques $\longleftrightarrow$ câble coaxial

$\vec{v_1} \leftrightarrow i$

$p_1 \leftrightarrow u$

$\rho_0 \leftrightarrow \Gamma$

$\chi_S \leftrightarrow \Lambda$

$$c = \frac{1}{\sqrt{\rho_0 \chi_s}} \leftrightarrow c = \frac{1}{\sqrt{\Gamma \Lambda}}$$

$$Z = \sqrt{\frac{\rho_0}{\chi_S}} \leftrightarrow Z = \sqrt{\frac{\Gamma}{\Lambda}}$$