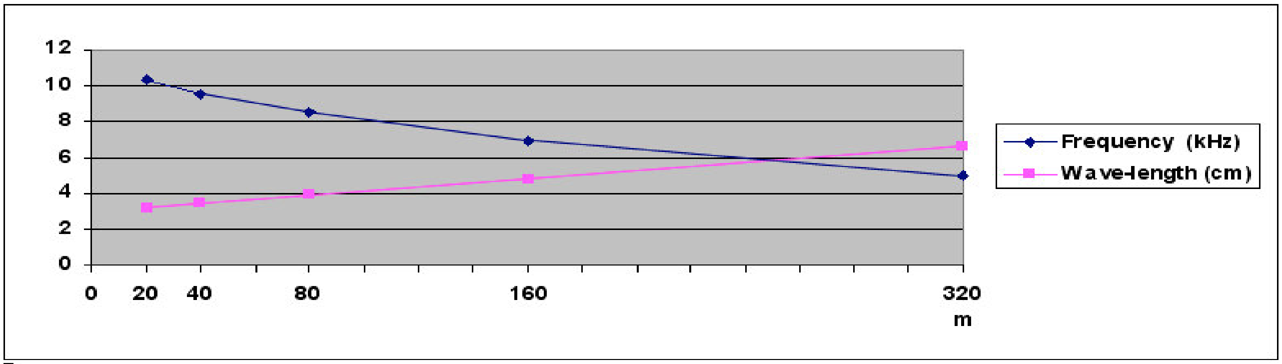
Frequency-analysis of a sound-signal at five distances, increasing from 20 - 320 m

This experiment verifies Ingvar Åstrand's discovery of the general entropy-law of nature (formulated $\Delta\lambda = h_{\varepsilon\pi} \cdot s$) that explains the radiation's constant dissipation($h_{\varepsilon\pi}$) as wave elongation($\Delta\lambda$) during its propagated distance(s).



Distance	20	40	80	160	320 m
Frequency	10.3	9.5	8.5	6.9	5 kHz
Wavelength	3.2	3.5	3.9	4.8	6.6 cm

Soundwaves elongate($\Delta\lambda$) with the distance(s).

The general wave - displacement law is : $\frac{\Delta\lambda}{s} = h_{\varepsilon\pi}$

$\Rightarrow \Delta\lambda = 6.6 - 3.2 = 3.4 \text{ cm}$

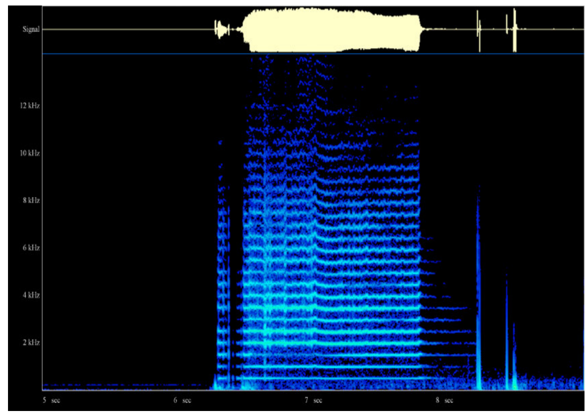
$\Rightarrow \Delta s = 320 - 20 \text{ m} = 3 \cdot 10^4 \text{ cm}$

$$\Rightarrow h_{\varepsilon\pi} = \frac{3.4 \text{ cm}}{3 \cdot 10^4 \text{ cm}} \approx 1.1 \cdot 10^{-4} \approx 0.0001$$

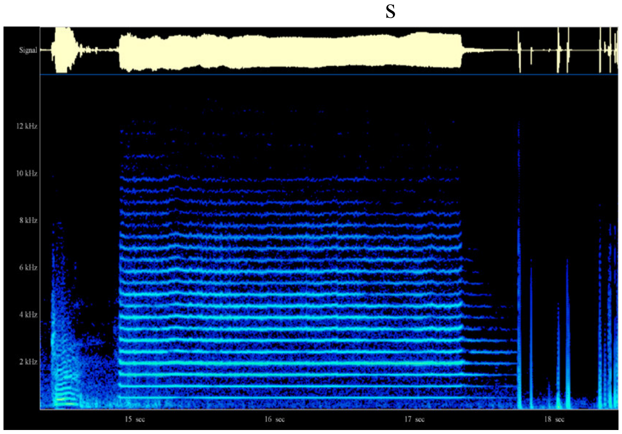
So, the sound's entropy - constant is : $h_{\varepsilon\pi} \approx 1 \cdot 10^{-4}$

- depending on temperature and viscosity of the air!

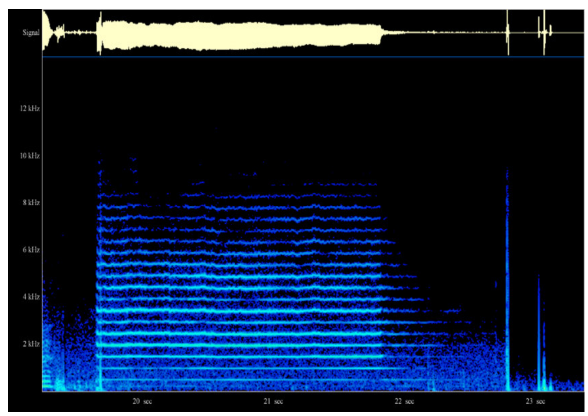
Soundwaves accelerate $\approx \frac{340 \text{ m/s} \cdot 10^{-4}}{\text{s}} \approx 3.4 \text{ cm/s}^2$



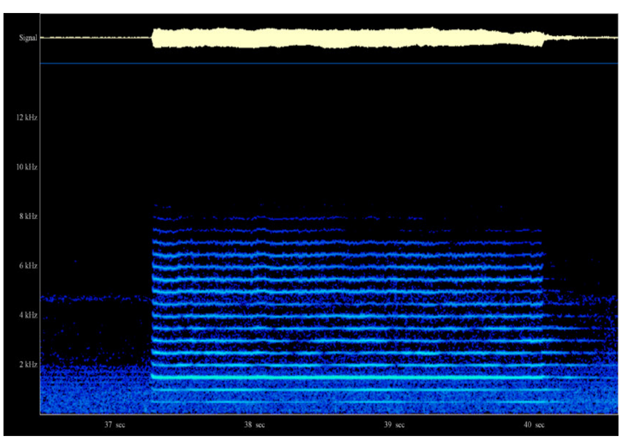
20 m



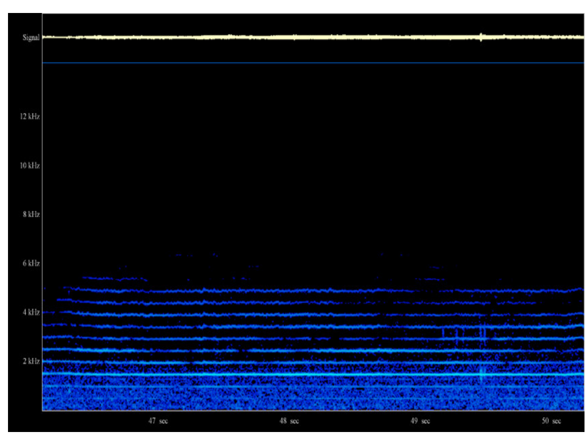
40 m



80 m



160 m



320 m

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