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Spatial Velocimeter N1

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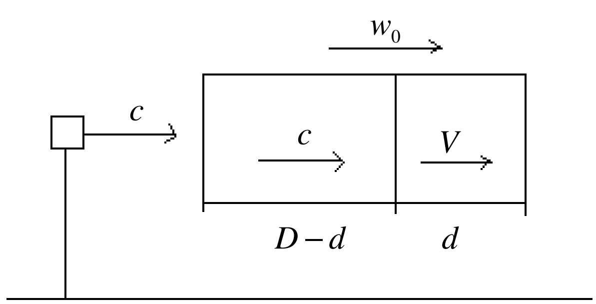
Introduction – Relativity theory:
1st postulate – we can't distinguish the state of uniform movement from rest in a closed laboratory with any kind of experiment performed inside it … but there are no laboratories closed to gravity. So it is possible to measure the speed relative to a gravitational field.
2nd postulate – the speed of light is constant and doesn't depend on the movement of the emitter or the receptor … so, how is the existence of the astronomic aberration of light possible

Derivation of the speed formula for a moving medium

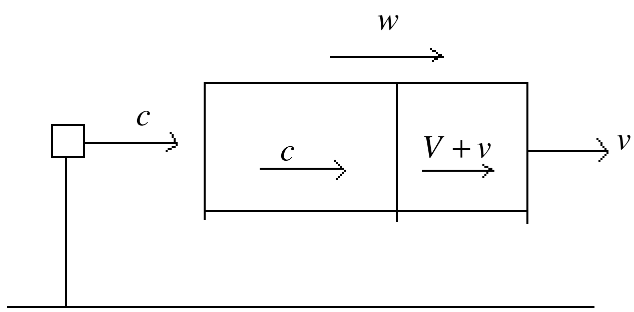
We admit the hypothesis that a medium has, along the propagation direction, one part associated with the vacuum (Earth's gravitational field) and one part with a field that carries the totality of the wave that propagates there with a speed V:

Rest medium:



$$\frac{D}{w_0} = \frac{D-d}{c} + \frac{d}{V} \qquad (1)$$

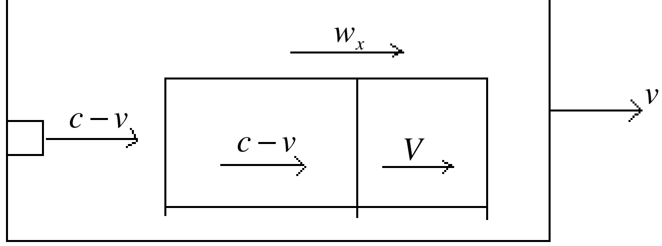
Moving medium relative to the reference:



$$\frac{D}{w} = \frac{D-d}{c} + \frac{d}{V+v} \qquad (2)$$

According to Lorentz's equations: $$w = c^2 \frac{w_0 + v}{c^2 + vw_0} \qquad (3)$$

Our device:

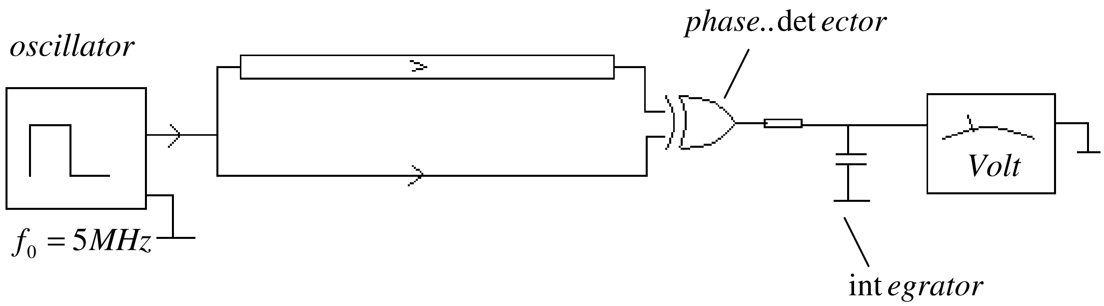


$$\frac{D}{w_x} = \frac{D-d}{c-v} + \frac{d}{V} \qquad (4)$$

Substituting *d, V* and *w* in the equations (1), (2), (3) e (4) we get the general formula for the intrinsic propagation speed in a medium with the speed relative to a gravitational reference field:

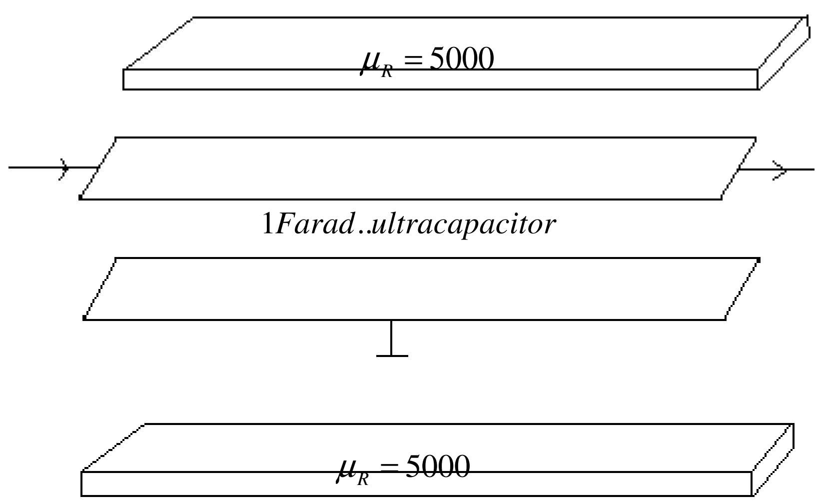
$$w_x \approx \frac{w_0}{c}(c \pm v)$$

Experiment description



The device consists on an oscillator that generates a signal that travels in two parallel conductors: one a normal conductor with almost light speed and the other a conductor 450mm long with a capacity of one Farad (a flat ultra capacitor) and a relative magnetic permeability of 5000, which has a very low propagation speed.

Low speed conductor:



Propagation speed: $$w_0 = \frac{d}{\sqrt{LC}}$$

Difference of time: $\Delta t = \frac{\sqrt{LC}}{c}\Delta v$

$C = 1 Farad$; $\Delta v = 27.7 ms^{-1}$; $L = \mu_0 \mu_R d$ and $d = 0.45m$; $\mu_0 = 4\pi 10^{-7}$

$\mu_R = 5000$ $\Leftrightarrow$ $L = 2.8mH$ $\Leftrightarrow$

$\Leftrightarrow$ $\underline{\Delta t = 48.9ns}$

$f_0 = 5MHz$ $\Leftrightarrow$ $t_0 = 2 \times 10^{-7} s$ $\Leftrightarrow$

$\Delta t \Leftrightarrow \alpha = 88^0$

When the speed of the device varies from zero to 100 Km/h the signal phase varies 88 degrees and the voltmeter shows a different value.

This experiment was possible with the sponsorship of the Cooper Bussmann company that manufactures the ultracapacitors.