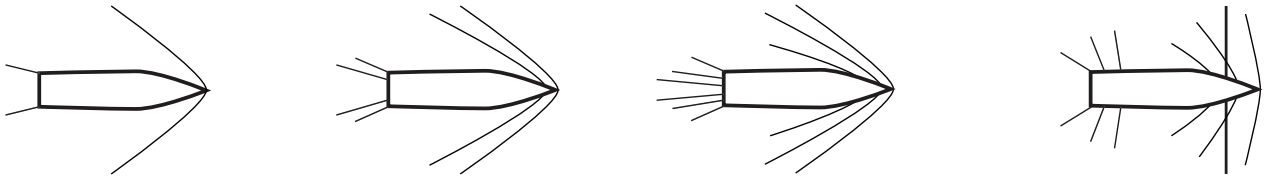
CARDAS AUDIO

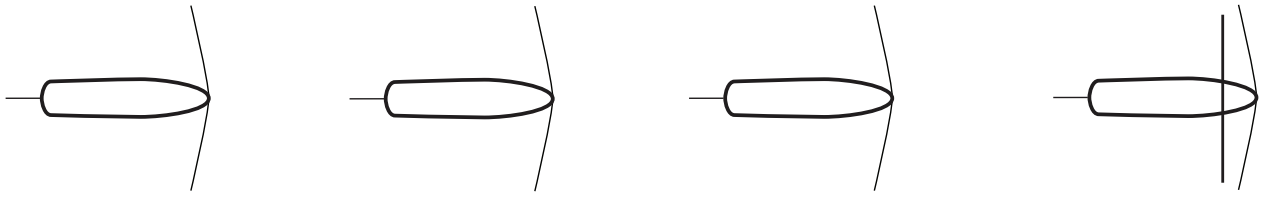
Signal in an Audio Cable
By George Cardas

Signal in a cable can be envisioned as a boat entering a canal at high speed. Initially, the boat skims across the surface of the water (planes), but soon the boat begins to decelerate as it looses power (cable resistance builds) and a wake builds in front of the boat (capacitance builds), slowing the boat further and building more wake until the boat reaches its hull speed (characteristic impedance) at the wave propagation velocity (Vop) in the canal.



The boat can now proceed at this speed for the length of the canal without building additional wake height. At the end of the canal the point of the boat reaches the shore and delivers its signal, followed by the wake turbulence of the boat (shot noise).

With "continuously loaded conductors" the boat enters the canal at hull speed so it does not build the initial large wake; at the shore it delivers the signal with exponentially less wake turbulence (noise). We have essentially built a slower boat with a rounded bow so that it can transverse the canal with less turbulence.



The turbulence (noise) is largely related to the initial wake, so it does not build in proportion to cable length. It does build in sequential cables in a system, if the signal is repeated or the impedance changes.

Cardas Audio, Ltd. • 480 Eleventh Street, South East • Bandon, OR 97411 • Phone 541 347 2484 • Fax 541 347 2301 • cardas@cardas.com