

Transmission lines are similar to vented speakers in that they employ a resonator to load the resonators, but the end result is similar. In a transmission line, the system is tuned to a single frequency, just like the Helmholtz frequency of a bass-reflex box. Since standing waves are the tuning mechanism in a transmission line, there are unwanted harmonics to deal with above the

somewhat down the length. Careful placement can reduce the next (unwanted) harmonic up by standing wave cancellation and stuffing in the line can reduce the harmonics above that. The best work on transmission lines, in my opinion, is by Martin King. [Quarter-Wave.com](#) Another relationship worth mentioning is basshorns, which are also tuned pipes. Basshorns are tapered, but their mouths are usually small in relation to wavelength, so they act something like transmission lines. If the mouth is large enough, the horn acts like a wide band resonator. If too

larger the mouth area is, the more it acts like a true horn with flat response through its pass band. Basshorn or Transmission Line