Subject: Re: crossover point
Posted by Duke on Tue, 17 Jun 2008 04:46:31 GMT
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Directivity control in the bass region is hard to get because the physical sizes required are so great. At the link below is a speaker whose widely-spaced woofers are theoretically directional in the vertical plane down to about 130 Hz, but in the horizontal plane they're omnidirectional down there.An alternative way to get directivity down at low frequencies is to use a dipole or cardioid type enclosure (the former is pretty simple, and the latter is pretty complicated). Dipoles inherently have a figure-8 radiation pattern at low frequencies. The drawback is that they need a lot of equalization to do bass well, unless they are very large.According to researcher Earl Geddes, radiation pattern control below 500 Hz isn't really necessary in a normal home listening room. Often even getting down to 500 Hz requires tradeoffs. A loudspeaker designed with a great deal of attention to radiation pattern control is the Gradient Revolution. It's a dipole below 200 Hz, then it's a cardioid (lilly-pad shaped pattern) from 200 Hz to about 2.5 kHz, then it's 120 degrees wide above that point (uses a coaxial tweeter, and the angle of the midrange cone is about 120 degrees). But, it's only about 85 dB efficient - that's one of the tradeoffs.Duke
 WwmtmwW format speaker