Subject: Ratings of horns?
Posted by Garland on Wed, 03 Apr 2002 20:58:08 GMT
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I saw the post below on Bmars wooden horn rated as a 800hz horn. This brings up my question: how exactly is a horn rated;ie, is, in this case, the 800hz the 3dB cut-off or what? have been wondering this for a while and was always too lazy to dig into the subject and find out.Thanks!G.

Subject: Re: Ratings of horns?
Posted by Wayne Parham on Wed, 03 Apr 2002 21:28:44 GMT
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Horns are often described by their flare rate. Assuming the horn is a standard Salmon shape or Tractrix, not a hybrid, if you know the type of horn (exponential, tractrix, conical), then the flare rate describes the horn profile. The mouth must have sufficient area to support the flare rate or response will be peaky. But if these conditions are met, then the flare rate essentially sets the lower cutoff. For a tractrix horn, the lower -3dB point is about a half octave above its flare rate. Exponential horns generally work down to their flare frequency. Horns have bandwidth of about three octaves. So its upper cutoff is about three octave above its lower cutoff.

Subject: huh?
Posted by replay on Wed, 03 Apr 2002 23:00:59 GMT
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for an 800hz flare, 3 octaves brings it to 6400hz. what happened to the top octave? is this where your compensation comes into place?cheers,george

Subject: Top octave compensation
Posted by Wayne Parham on Wed, 03 Apr 2002 23:11:20 GMT
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The mass of the diaphragm and the inductance of the voice coil tend to make the driver start rolling off early. So the horn has to be matched to the driver. It wouldn't make much sense to use a super-tweeter horn on a large driver, because it couldn't reach that high. But most 1" exit drivers are made to work well with radial horns like this. The overall system starts rolling off well before the top octave, but collapsing directivity in the vertical plane tends to provide some acoustic EQ, and then the electrical EQ from top-octave compensation does the rest. The net result is flat response on-axis and along the horizontal plane within the flare angle.

Subject: Re: huh?
Posted by freddyi on Wed, 03 Apr 2002 23:21:11 GMT
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Hi Georgeif your horn has a fairly constant horizontal power distribution (CD type with little or no "neck") then rolloff will start above ~3.5Khz - most of the old-school horns had HF beaming from their natural expansion's long neck geometry which provides on-axis HF acoustic EQ - DB Keele Jr and others worked to develop the new breed of horns - old horns can sound pretty neat in monoFreddy