

Excerpts from: A VISIT TO THE KLIPSCH KINGDOM

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Contributing Editor - Speaker Builder (4/89)

...“We built a little box with a 4-inch driver in it and made it adaptable so that a horn could be fitted on it. When you measure the response (Fig. 1), you see **15dB difference between the two conditions of direct radiation and horn loading.**”

The frequency modulation distortion products (Fig. 2) for the direct radiator are 25dB down. With a horn on the driver (Fig. 3), the distortion products are 50dB down. **So you have a 25dB improvement in distortion with a 15dB increase in efficiency.”**

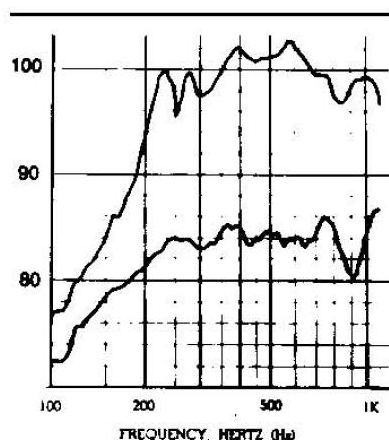


FIGURE 1: Response plots of a 4-inch driver mounted in a box (lower curve) and horn loaded (upper curve).

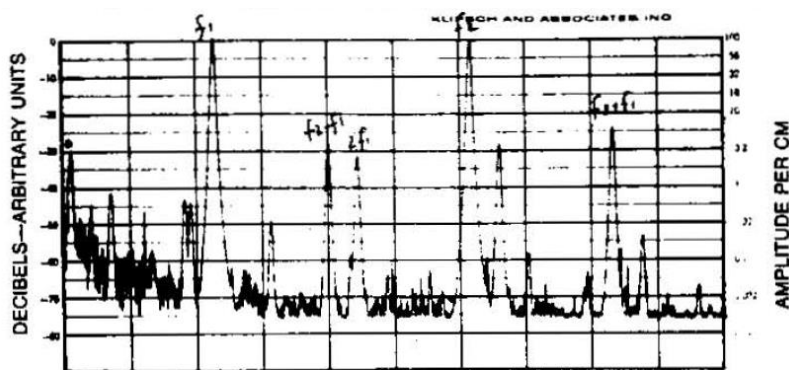


FIGURE 2: Spectrum analysis of the FM distortion products for the 4-inch driver as a direct radiator. The input frequencies are 210 and 600Hz. The FM sidebands are at $f_2 + f_1$ and $f_2 - f_1$.

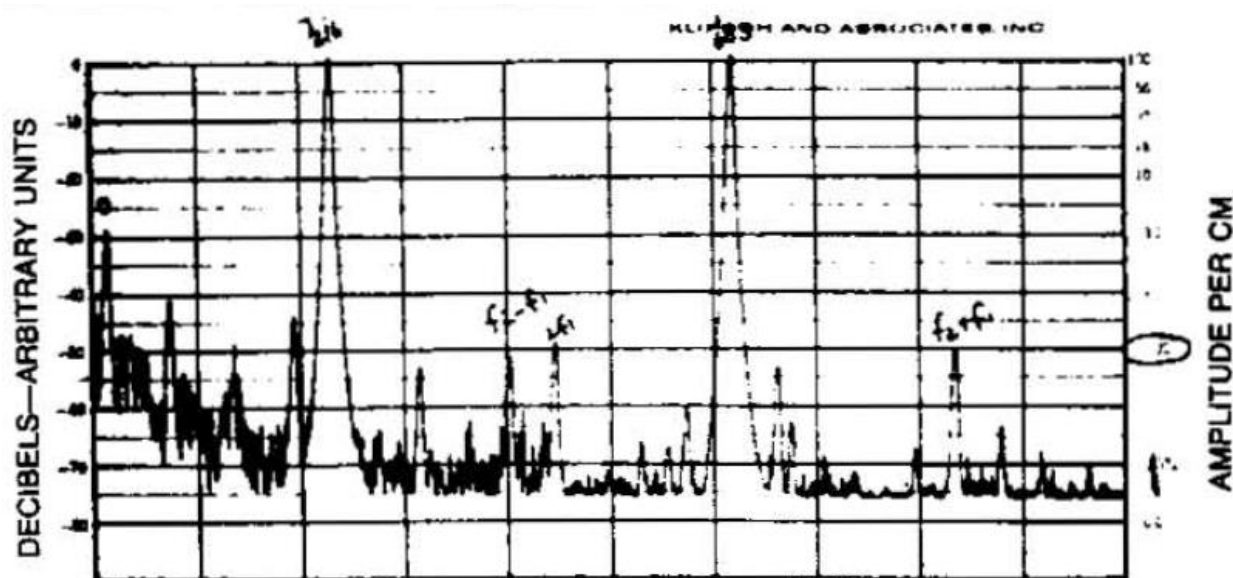


FIGURE 3: Spectrum analysis of the FM-generated sidebands for the horn loaded case. Notice that the sideband amplitudes are significantly lower for the horn case versus the direct radiator case.