

WHITE PAPER: THE JBL PROJECT EVEREST CONSTANT IMAGING SYSTEM

By John Eargle

Introduction:

Digital recording has refocused interest on microphone techniques in the studio, and today's critical listener is more aware than ever before of such qualities in a recording as imaging, depth, and space perspectives. These terms are largely subjective and probably cannot be precisely defined. However, they do refer to certain attributes in a recording which generally have to do with the subtleties of microphone placement in a natural acoustical environment.

The stability of the "stereo stage" has long been a concern. Almost all well designed loudspeakers can provide stable stereo images for a listener located precisely on the plane of symmetry. But even slight movements off that plane may result in a significant shifting of those phantom images.

Some loudspeakers which have a wide radiation pattern tend to produce a rather "spacey" sound, inasmuch as they may bring into play considerable local room reflections. Many listeners at non-center positions mistake this for cues in the recording itself, and such loudspeakers often give the impression of richness in ambience, but of course without precision of localization.

The chief design aim in this Project Everest system has been to widen the area over which the listener can perceive accurate stereo imaging. This has been accomplished through precise shaping of the system's polar response, largely by means of a unique defined coverage high-frequency horn design.

Another design aim has been to provide wide dynamic range so that the high crest factors in modern digital recordings can be reproduced with low distortion. The system has a sensitivity of 100 dB SPL, referred to one watt at one meter, and this allows amplifiers of only moderate power ratings to drive the system to very high acoustical levels. Rated system program power input is a generous 300 watts, so each channel can produce peak acoustical levels of 115 dB SPL at a distance of three meters!

In this White Paper, we will discuss the various design aspects of the system, with particular emphasis on its unique polar characteristics.