



SLS LS8695 True Planar Ribbon Ribbon Line Source Array

True line source benefits of the LS8695's direct radiating PRD500 planar ribbon drivers

The LS8695 is a true line source array with high performance ribbon tweeters and extremely high sensitivity/output capabilities developed for a wide range of professional applications where the highest quality and intelligibility of sound is required at large distances. LS8695 will project tightly condensed in the vertical plane a beam of sound without any interactions with surfaces, thus achieving outstanding intelligibility even in highly reverberant or “complex” venues.

Unique Features

- Planar ribbon high frequency line source module
- Direct radiating PRD 500 ribbon tweeters deliver unsurpassed sound quality
- High resolution composite paper cone woofers
- True line source behaviour due to precise acoustical coupling of individual PRD500 high frequency transducers
- Cylindrical wave radiation in near field zone with 3 dB loss per doubling of distance as opposed to 6 dB loss of a point source system
- Extremely effective in highly reverberant or elongated, confined spaces
- Outstanding intelligibility at large distances
- Very low energy loss
- Even and easily predictable coverage
- Very low deviation between near field/ far field SPL dramatically reduces listener's fatigue
- Incredible feedback immunity at distances down to 0.5m, up to 5 dB higher gain before feedback than with a point source system

The LS8695 is the first and only professional line array system that delivers a true line source performance in compact enclosure. The LS8695 high frequency module features a continuous array of nine PRD500 planar ribbon transducers, designed and made by SLS Loudspeakers. The unique design and properties of the planar ribbon drivers allow precise acoustical coupling of the array and hence, full utilization of the line source benefits. There is a principal difference between LS8695 system and an array implementing traditional compression drivers. Contrary to vague descriptions, accompanying some line array products, an array of compression drivers, regardless of use of complex manifolds, air channels, fins, interfaces, etc., cannot, by laws of sound wave propagation, create a coherent, continuous, flat source of sound, which is absolutely necessary for a true line source system. As a result many line arrays suffer from inconsistent and chaotic dispersion, energy leakage and lobing. Fig.1 and Fig2 clearly demonstrate the difference in dispersion between the LS8695 and a poorly coupled line array of the same size at 5kHz. These results were generated using Loudspeaker Line Array Simulator, a program developed by SLS Loudspeakers for comprehensive line array analysis and design.

Besides true line source benefits, the LS8695's direct radiating PRD500 planar ribbon drivers deliver phenomenally accurate and transparent sound.

The LS8695 has eight high resolution 6.5" composite cone woofers that handle the line source performance below 1.3 kHz. Carefully designed crossover provides optimal and seamless transition between driver modules. Extremely stiff, well braced Enclosure with standard NeverMar® finish, insures smooth and tight bass reproduction down to 80Hz.

When the line is oriented vertically, the long radiating elements of the LS8695 create a cylindrical wave that propagates by expanding in the horizontal plane, rather than the vertical. Thus, the LS8695 radiates a vertically confined sound wave that, according to geometrical relationships, loses 3 dB in level with each doubling of the distance. A line source has a certain relationship between its length, frequency and distance, at which it behaves as a line source rather than a point source (near field). With the increase of distance or decrease of the frequency, or line length, the line source gradually loses its unique radiation properties and becomes a regular point source (far field). For example, the near field of the LS8695 at 5000 Hz extends up to 70 feet. Two LS8695 stacked vertically have the near field extending up to 140 feet at 5000 Hz. Loudspeaker Line Array Simulator software allows accurate prediction of a line array dispersion and coverage. Additionally the program plots the frequency response of the system along five user defined listening planes (lines in 2D vertical plane representation).

True line source benefits of the LS8695's direct radiating PRD500 planar ribbon drivers

Fig.1 and Fig.3 depict coverage and on-axis SPL/distance patterns of the LS8695 and a point source system respectively. Here, the remarkable properties of the LS8695 are clearly seen. All levels are relative to the reference on-axis point at 100 ft and 0dB SPL. The condition was chosen that both systems deliver 0dB reference level at 100ft at 5 kHz. We can see that while SPL levels at 100ft are identical, the dispersion patterns and SPL distribution is totally different. The LS8695 creates 18 dB SPL above reference at 1m (3.34ft). The point source system creates 30 dB SPL at the same distance of 1m! The results are striking. The point source system has 12 dB higher front/back SPL difference. Furthermore, the point source system must deliver and withstand 16 times more power than the LS8695 in order to achieve the same SPL level at 100 ft/5kHz.

The LS8695 can be used alone in average size venues for speech or music reproduction. Stacking the LS8695 results in larger depth and most importantly larger height of the coverage area, higher SPL output and better vertical control at lower frequencies. The LS8695 can be augmented with any SLS pro subwoofers for a full range high impact reproduction.

The LS8695 can be oriented vertically and horizontally depending on the system application and goals that a designer wants to achieve. The possibilities virtually have no limitations.

Fig.1 LS8695 vertical dispersion plot at 5 kHz

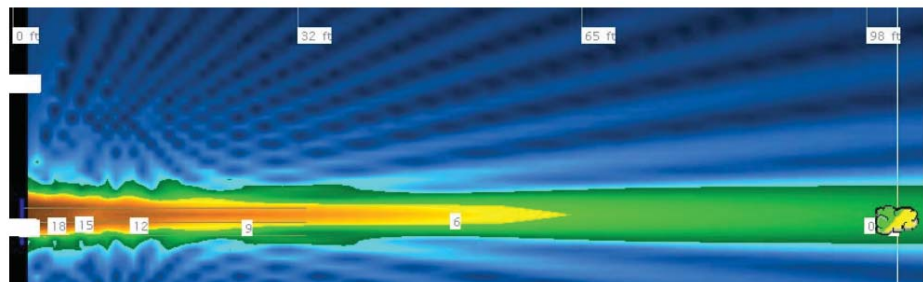


Fig.2 Vertical dispersion plot of poorly coupled line array with compression drivers at 5 kHz

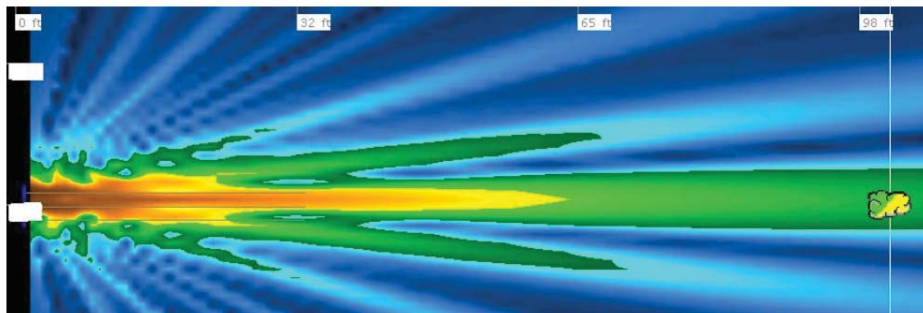
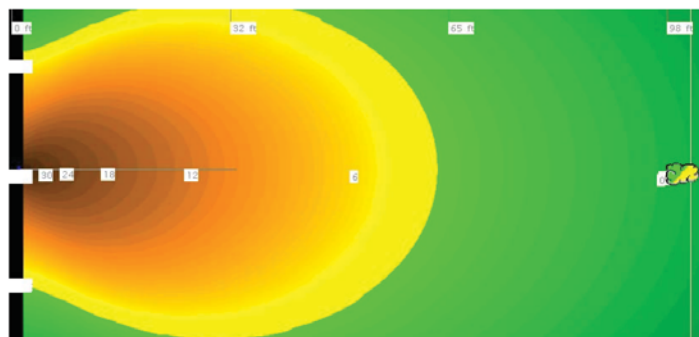


Fig.3 Point source system vertical dispersion plot





LS8695 Specifications

Parameters	LS8695
Effective frequency range	80 Hz- 20 kHz
Power handling, W	400 W RMS, 1600 W Peak
Sensitivity, measured at 4m, equivalent to 2.83V/1m	104 dB
Max. continuous SPL	128 dB
Vertical dispersion	2° (1° in each direction from the line end point)
Horizontal dispersion	120 °
Nominal impedance, ohms	4
Dimensions, HxWxD	55.5"(141cm) 11.5"(29.2cm) x12"(30.5cm)
Weight	110 lbs (50 kg)