

CSA 85 - Column Speaker Array

INTRODUCTION

Designed with the very latest electroacoustic techniques, Outline's **CSA 85 System** is a two-way versatile, open modular loudspeaker system, built for use when assembling sound systems with controlled dispersion, able to keep sound emission (even at low frequencies), within a set area.

CSA 85 is a really innovative tool which Outline puts at audio system designers' disposal. In expert hands, it's able to give highly effective results, ensuring very high sound quality. This system ensures no-compromise performance which can be tailor-made for all sound reinforcement

requirements, according to individual necessities.

For example, the fibre-glass horn (100° x 50°) offers a great advantage for installation in small rooms or those with low headroom, as it can be rotated through 90° to ensure the required dispersion no matter what position the cabinet is installed in (horizontal or vertical).

CSA 85 cabinets are built in 15mm plywood with rounded edges and finished with black scratch-proof paint: standard fittings include Outline's "Fast Hanger" rigging system.



APPLICATIONS

The most typical use is for dancefloors indoors or out, where sound spill must be avoided in a particular direction: the **CSA 85 System** allows high SPL to be obtained, but only where necessary.

The high directivity which can be obtained with a suitably configured **CSA 85 System** allows it to be used in extremely reverberating venues, such as for example indoors sports arenas and churches, and also to obtain medium and long-throw systems.

In all the more particular applications, such as the assembly of Line Array systems to control sound emission, the overall system will be put together according to a carefully studied design, to ensure that specific results are achieved.

The use of Outline's **DPA Series** power amplifiers will allow to adopt particular configurations for the delays of the various sections or systems, giving more effective emission control.



INSTALLATION SERIES

PROCESSING AND AMPLIFICATION

The amplification of a loudspeaker system such as **CSA 85** will vary according to the circumstances and based on the configuration chosen and the use it will be put to.

Based on the use of high quality power amplifiers with high dynamic capacity, the system must be driven in such a way as to exploit all its components' acoustic potential to the utmost.

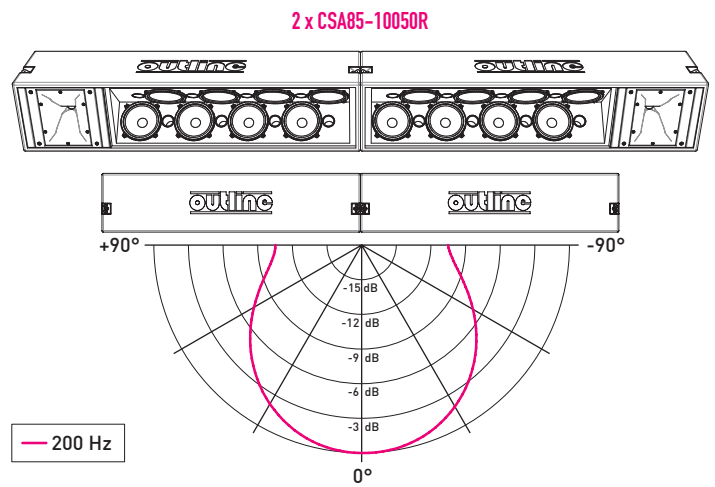
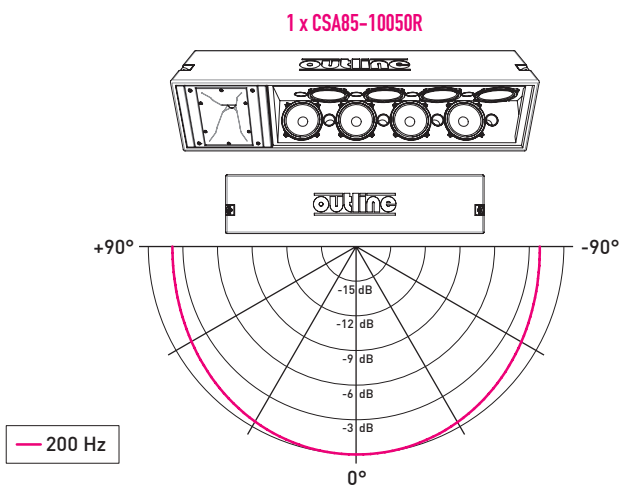
DISPERSION CHARACTERISTICS

The tight spacing among the acoustic centres of the eight 5-inch woofers ensures a perfect coupling for mid-high frequencies, while the control of low frequencies can be achieved by pairing two enclosures to form a column array.

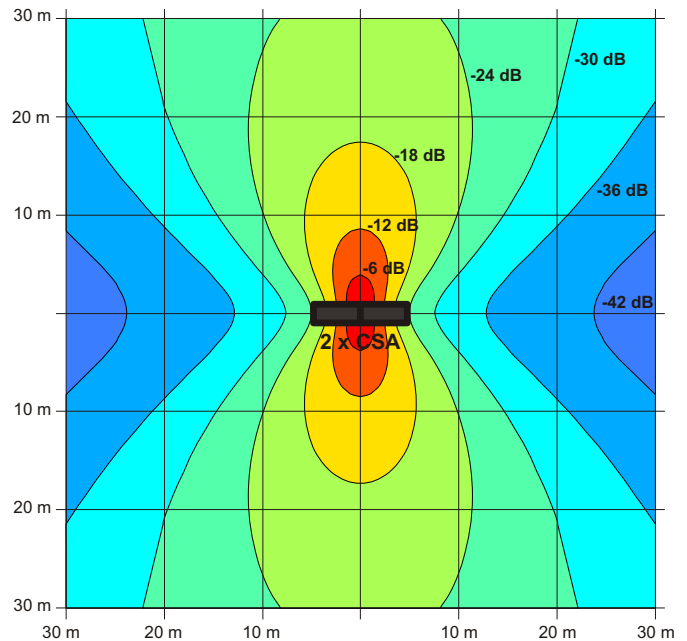
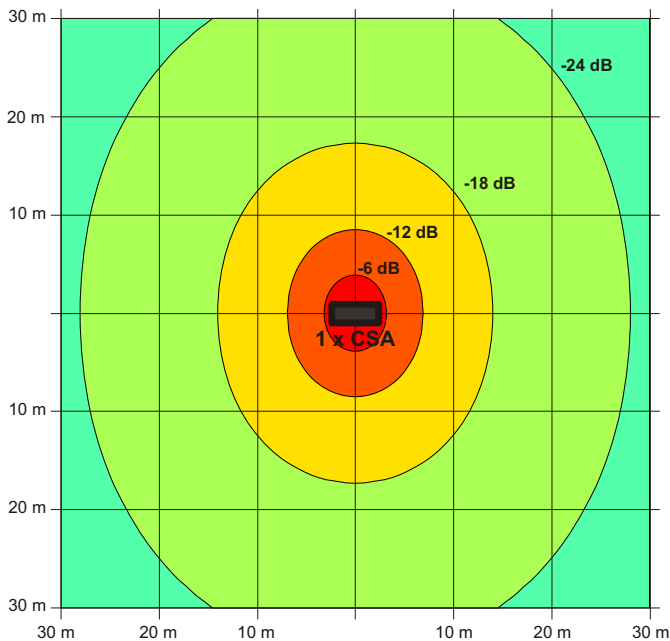
The correct operation of CSA 85 is also necessarily linked to the use of a digital processor for active filtering of the signal, which is then fed to the system's various sections.

If used by experienced technicians, sophisticated electronics such as Outline's DPA Series power amplifiers (including a full 96 kHz sampling rate DSP with software control) will ensure results which are above or at least completely in line with those required.

The so-formed system (view image below) can be ceiling-mounted and pointed down to reach a uniform sound coverage on the floor while limiting the dispersion on the main axis of the enclosures.



CSA coupling - LF simulation (200Hz)
CSA array suspended 2m over the simulation plane



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TECHNICAL SPECIFICATIONS

FREQUENCY RESPONSE	-10 dB ± 3 dB	120 Hz - 20 kHz 150 Hz - 20 kHz
AVERAGE DISPERSION	500 Hz - 10 kHz > 5 kHz 500 Hz - 4 kHz	100° x 70° (H x V) 60° x 46° (H x V) 108° x 79° (H x V)
X-OVER	LF - Low-Pass HF - High-Pass	Linkwitz-Riley 24dB @ 1.8 kHz Linkwitz-Riley 24dB @ 1.6 kHz
IMPEDANCE NOM (min)	LF HF	16 Ω (15 Ω @ 70 Hz) 8 Ω (7 Ω @ 8.5 kHz)
SENSITIVITY (dB SPL @ 1m, 1W, Free-field)	LF HF	96.5 dB SPL 104.4 dB SPL
POWER - W AES (peak)	LF HF	400 W (1600 W) 60 W (240 W)
MAX CALC. SPL @ 1m, Free-field, RMS (peak)	LF HF	122.5 dB SPL (128.5 dB SPL peak) 122.2 dB SPL (128.2 dB SPL peak)
TRANSDUCERS & LOADING	LF HF	8 x 5" hybrid horn-bandpass loaded woofers 1 x 1" throat, horn loaded, compression driver
RECOMMEND AMPs & DSP	Outline's DPA Series	
CONNECTORS	2 x NL4 LF HF	pin 1+ (pos); pin 1- (neg) pin 2+ (pos); pin 2- (neg)
WEIGHT	24 kg (52.9 lb)	
DIMENSIONS	H W D	110 cm (43.3") 25 cm (9.8") 25 cm (9.8")
SHIPPING WEIGHT	25 kg (55.1 lb)	
SHIPPING DIMENSIONS	H W D	113 cm (44.5") 27 cm (10.6") 27 cm (10.6")

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