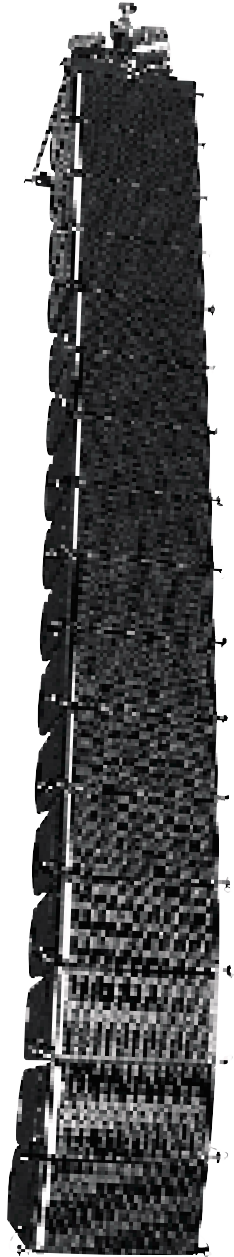




COHEDRA™
COMPACT



COHEDRA™ COMPACT

COHEDRA™

Short for Coherent Dynamic Response Array, COHEDRA™ is the next step up in the line array's evolutionary ascent. In fact, its remarkably innovative features catapult this technology into a new dimension. Born of the vision to bring to the world's stages a system offering utmost authenticity in natural-sounding, dynamic response, COHEDRA™ does this with greater range, handling ease and resistance to wind.

COHEDRA COMPACT™, in turn, packs this same premium technology into an even more compact and flexible format, bringing the benefits of advanced engineering to new and smaller application scenarios.



PHILOSOPHY.



**From Experience to Insight—
From Insight to Innovation**

In recent years, line arrays have sparked a revolution in the market for sound reinforcement systems. Offering far greater ranges, amazingly accurate directivity and fantastic audio results, they have edged out conventional PAs at major events. Designed for large-scale applications and featuring remarkably innovative technology, COHEDRA™ marks a huge stride in the development of line array systems.

Prompted by their experiences with COHEDRA™, an astonishing variety of users expressed the wish to enjoy the same great performance at smaller events.

They envisioned a lighter, even more compact system that despite its smaller size and weight advantage would offer the benefits of bona fide line array technology. They hoped for a system offering the ultimate in natural sound and response on a par with the awesome audio performance of the big COHEDRA™ system. They expected a system offering even greater flexibility for both flown and ground-stacked configurations. We satisfied all these demands, providing discerning users a great opportunity to invest in a very compact, next-generation line array that is sure to reap returns for many years to come—COHEDRA COMPACT™.



TECHNOLOGY.



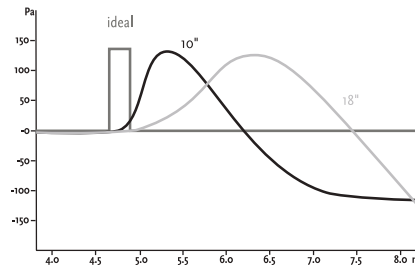
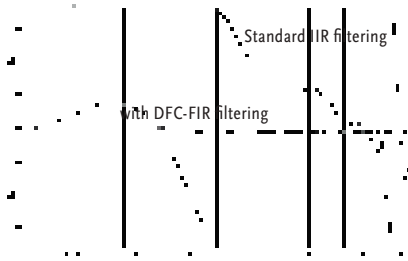
Natural-sounding response

is a hallmark feature of COHEDRA COMPACT™. To achieve this level of authenticity, our R&D engineers focused on three parameters: phase, moving masses and system limiting.

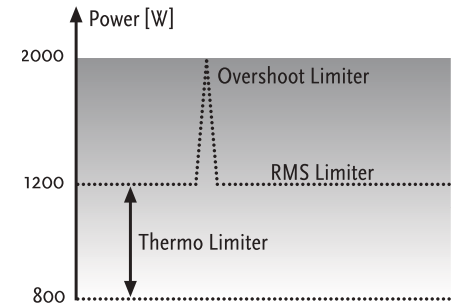
Greater range

Line arrays depend on coherent waves to attain greater ranges than conventional PAs. What sets COHEDRA COMPACT™ apart from earlier line arrays is its innovative approach to shaping this coherent wave front, ensuring the entire array renders a higher quality wave while actually extending near-field coverage.

NATURAL-SOUNDING RESPONSE



Woofers' transient response



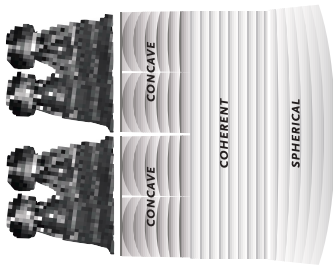
Overshoot Limiter

Audio systems' frequency and phase response are measurable performance parameters. Every inconsistency degrades the system's accuracy, thereby falsifying response. The Digital Field Controllers (DFC) employed with COHEDRA COMPACT™ systems feature FIR filtering. This technology linearizes frequency and phase response, comprehensively and in minute detail. DFC processing achieves coherent throw, ensuring frequencies arrive concurrently at the listener's location, and at consistent levels.

The transient responses of speakers and natural sound sources such as voices and instruments differ markedly. The different speakers in an audio system have different moving masses, meaning that the time it takes each speaker to achieve peak amplitude after this initial transient response varies. The COHEDRA COMPACT™ system is loaded with similarly sized speakers (8" and 10") to minimize this dynamic distortion.

Systems equipped with conventional analog or digital controllers are unable to render the full dynamic range of natural sound sources such as brief, percussive pulses and, particularly, the human voice. The Digital Field Controller's unique Overshoot Limiter allows these pulses to pass intact, largely preserving the original source's dynamics. If, on the other hand, a compressed sound is what you're after, you can use any outboard compressor to achieve this effect. The DFC ensures COHEDRA COMPACT™ yields a natural-sounding sonic image even when operated at its limits.

GREATER RANGE



HF wave coupling with COHEDRA COMPACT™

As sound waves travel through the air, they incur losses in their energy density. As a coherent wave exits a wave transformer such as a speaker, inert air molecules at the upper and lower edge of the aperture bend it outwards. Its directivity spreads, forming a sort of spherical wave. Due to this dispersion of energy over a greater area, signal level decreases as distance increases, thereby reducing the range of the entire system. COHEDRA COMPACT™'s AcousticLens forms a concave wave. The aforementioned diffraction effects do not cause this wave to transition to a cylindrical wave until it is well out in front of the cabinet.

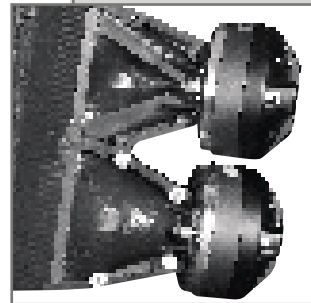
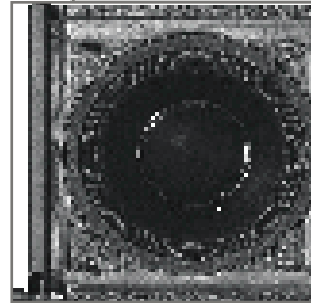
Waveform using conventional line array



Waveform using COHEDRA COMPACT™



Line arrays typically generate coherent wave fronts. So does COHEDRA COMPACT™, but not until the wave couples with neighboring mid/high units. This coherent wave front actually extends the near field. The sound pressure level remains directionally focused for a longer period of time, thereby attaining greater throw distance.





TECHNOLOGY.



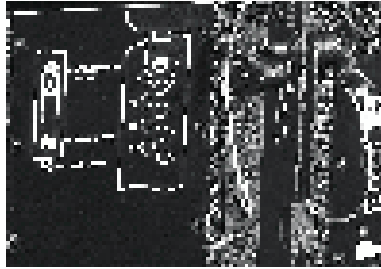
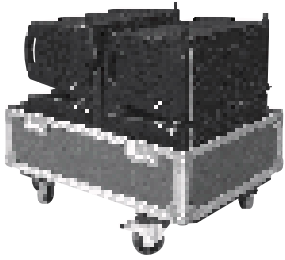
Easier handling

COHEDRA COMPACT™ offers the hands-on advantage. Easier and faster to set up and tear down, it can be handled safely by just two persons. And courtesy of a small footprint and standard case sizes, it's a real space-saver in transport.

Less sensitive to wind

Due to their crucial HF coupling, legacy line arrays are more sensitive to crosswinds than conventional PAs, particularly in the HF range. COHEDRA COMPACT™ was engineered specifically to counter this undesirable acoustical effect.

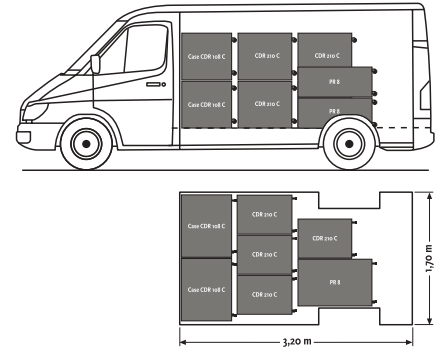
EASIER HANDLING



COHEDRA™ Curving Hardware

Two people can effortlessly handle COHEDRA COMPACT™ courtesy of its amazingly compact design and low weight of just 16.9 kg per mid/high unit. Designed to take up minimum space, the rig sets up on its own footprint.

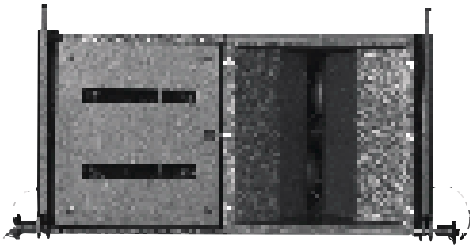
COHEDRA COMPACT™'s integrated rigging and curving hardware is tweaked for speedy set-up. A standard 2 x 8 system consisting of eight mid/high units and four CDR 210 C subwoofers per side can be rigged and flown in less than half an hour. In compression mode, COHEDRA COMPACT™'s curvaturer may be adjusted while the line array is flown. If you want to spare yourself the effort of curving the array using a lashing strap (compression mode), you can opt to set it up in fixed mode as pictured above.



The COHEDRA COMPACT™ transport system affords users fast handling and provides the components utmost protection. CDR 108 mid/high units are transported four to a case, along with the rigging frame. CDR 210 C subwoofers ship with a dolly sporting butterfly latches.

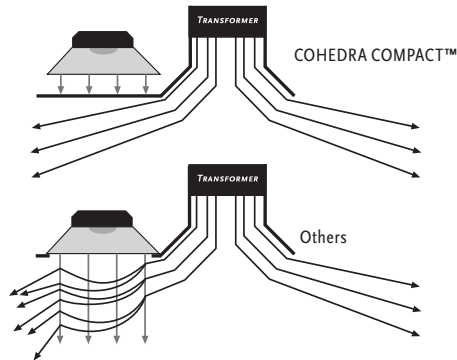
All components are sized in standard dimensions for space-saving transport. A 2 x 8 COHEDRA COMPACT™ system weighs in at about 850 kg and can readily be carted in a van.

LESS SENSITIVE TO WIND

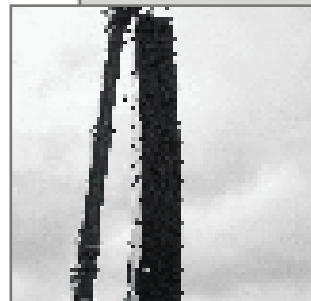
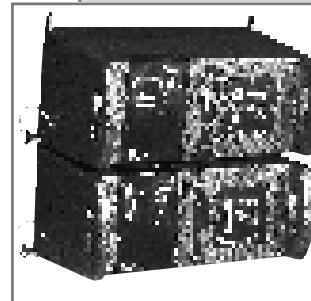
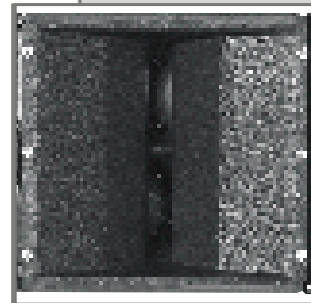
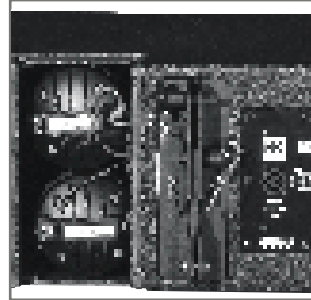


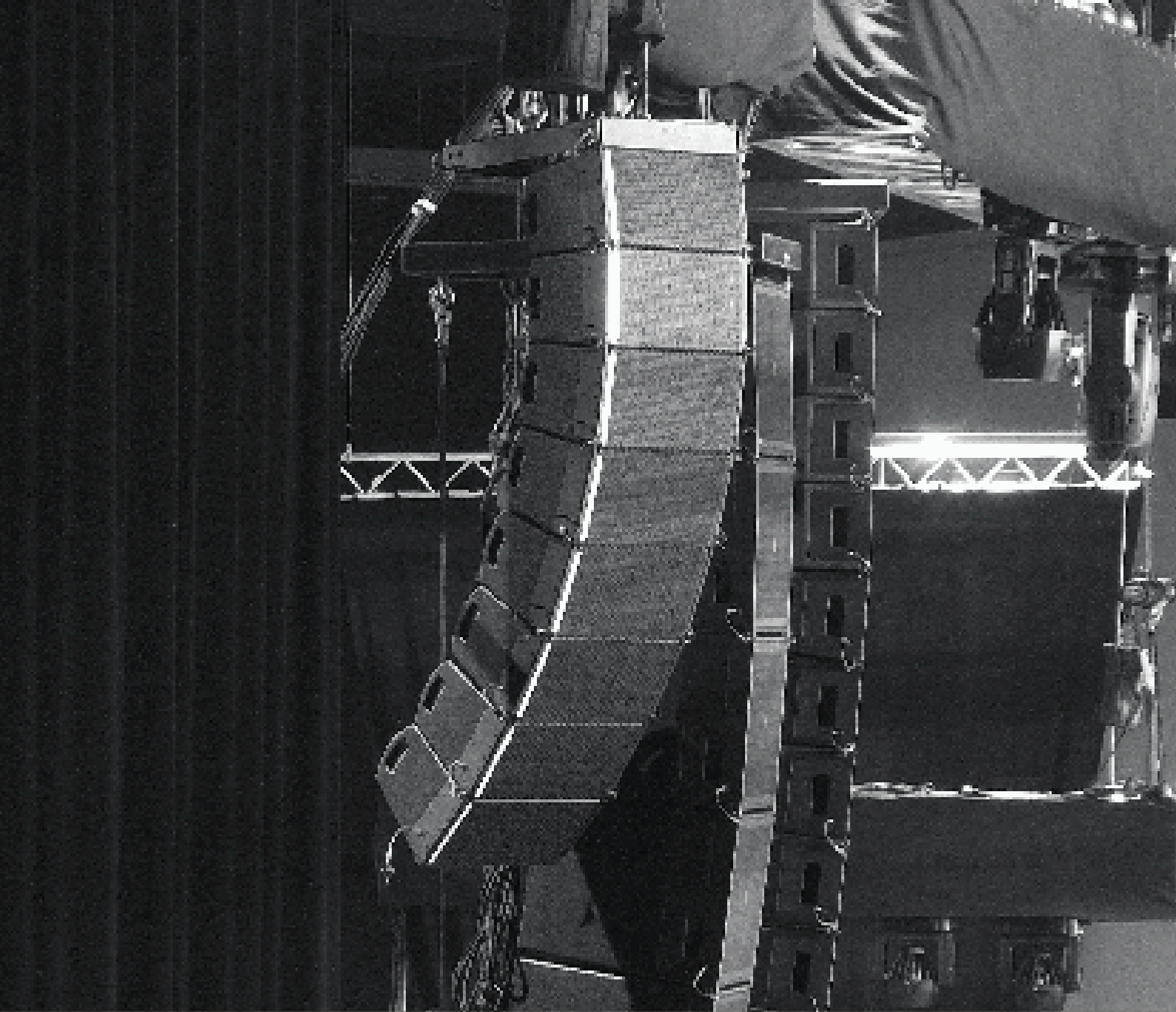
COHEDRA COMPACT™ CDR 108 C

COHEDRA COMPACT™ enclosures are loaded with a real constant directivity horn sited at the front end of an AcousticLens. This lens tightly focuses directivity as well as couples high frequencies with greater precision. Guiding high frequencies with this degree of exacting accuracy dramatically reduces sensitivity to wind, which is so often a drawback of other line arrays.

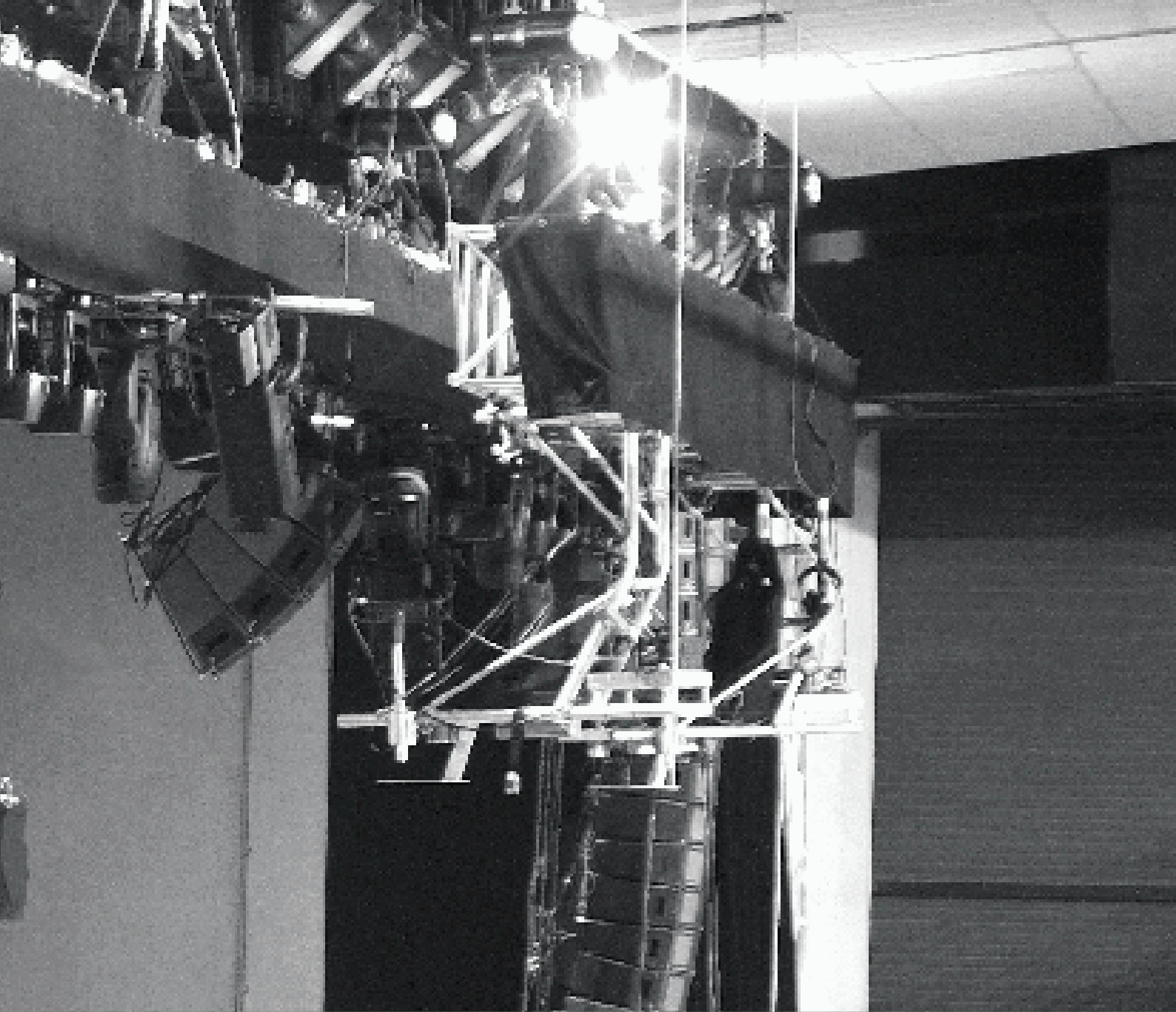


When frequencies radiated by a high frequency driver cross the high-energy output of an oscillating midrange speaker, it has a negative impact on HF response (Doppler effect). COHEDRA COMPACT™'s 8" midrange operates in a compression chamber located on the side of the tweeter. This largely precludes undesirable reciprocal action between midrange and high frequency waves, ensuring the tweeter's output frequencies remain stable and therefore more wind-resistant.





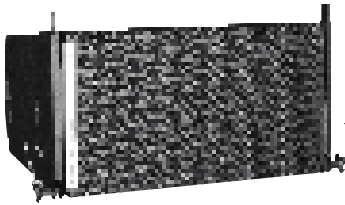
COMPONENTS.



Speakers & Accessories

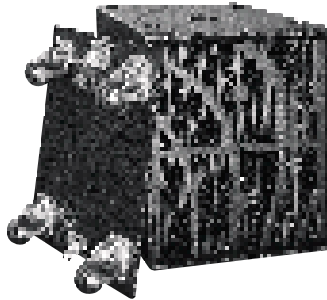
COHEDRA COMPACT™ is a self-contained system comprising precision-matched components and accessories. This compatibility among elements ensures you enjoy COHEDRA™-class sound and handling.

SPEAKERS



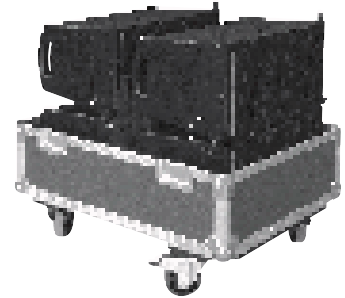
CDR 108 C

1 x 8" / 2 x 1" line array mid/high unit with a 100° horizontal angle of radiation. An array composed of CDR 108 C mid/high unit offers the ultimate in natural-sounding dynamic response and greater range. This vast improvement in performance comes courtesy of COHEDRA™ AcousticLens technology, for the 1" drivers true CD horn design, and an 8" midrange speaker boasting a compression chamber. Rigging hardware with quick release pins is fully integrated in the housing, as is a passive crossover with a corner frequency of 800 Hz.



CDR 210 C

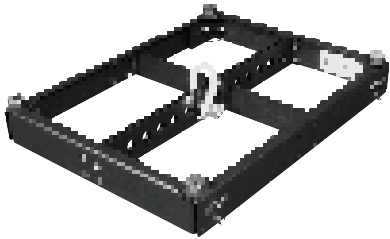
These direct-radiating 2 x 10" subwoofers deliver exceedingly faithful impulse response for powerful and natural-sounding low-end performance. The compact dimensions and integrated rigging hardware afford maximum flexibility for both flown and ground-stacked configurations. The CDR 210 C serves as the base for the CDR 108 C mid/high unit. A special coating protects the loudspeakers against dirt and moisture. A dolly with 80 mm casters and butterfly latches is factory included; a protective cover is optionally available.



Mid/High Case

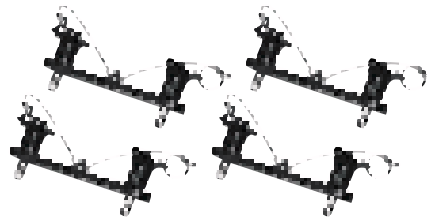
A heavy-duty flight case with the standard loading gauge (W x H x D including casters: 60 x 70 x 80 cm) serves to transport COHEDRA COMPACT™ mid/high units. Each case accommodates four CDR 108 C mid/high units and a standard rigging frame.

ACCESSORIES



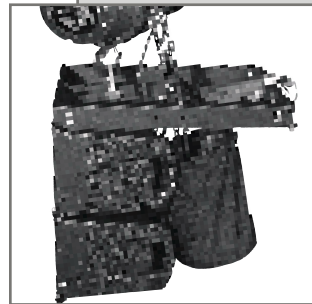
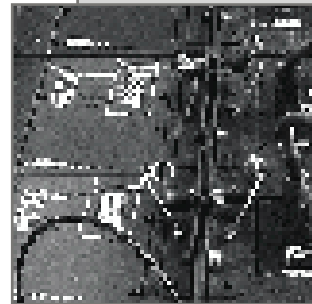
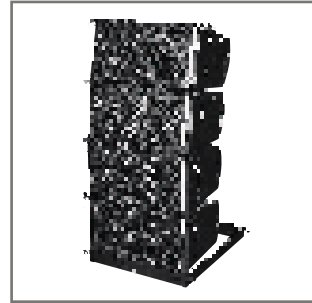
COHEDRA COMPACT™ Standard Rigging Frame

The Standard Rigging Frame with 350 kg carrying capacity is designed to fly up to 16 CDR 108 C mid/high units or six CDR 210 C subwoofers, or equivalent combinations of the two. It offers 14 pick points for setting the array's angle of tilt. In ground-stacked configurations, the rigging frame serves as the base for the mid/high units.



COHEDRA COMPACT™ Connector Set

This connector set serves to attach CDR 210 C subwoofers to the standard rigging frame and to secure the cabinets in a ground-stacked array to enhance each stack's stability. A connector set comprises four steel plates with quick release pins.





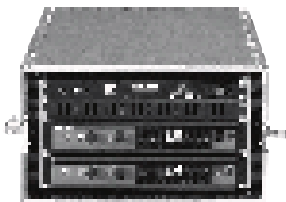
COMPONENTS.



POWER & CONTROLLING

The power racks are key elements of the system's underlying sound reinforcement concept. They guarantee peak performance, swift and dependable handling, as well as compatibility among systems deployed throughout the COHEDRA™ user network.

POWER RACKS



COHEDRA™ Engine

Featuring a shock-mount case sized as a handy truck pack, the rugged PR 8 Power Rack is designed to withstand the rigors of the road. The combination of VX 2400 power amps, Digital Field Controller, filter sets and PB 5 Patchbay forms an inseparable unit, serving as the standardised engine that powers every COHEDRA™ and COHEDRA COMPACT™ system. This setup affords the best possible sound quality and compatibility among users' rigs worldwide.



COHEDRA™ PR 8

Power Rack for eight CDR 108 C and four CDR 210 C enclosures. 16 CDR 108 C or 8 CDR 210 C cabinets may be employed in pure mid/high-range or sub mode, respectively.

- 1 Shock-mount rack, 6 U, 100 mm Blue Wheels.
- 1 Digital Field Controller (DFC)
- 2 VX 2400 power amps
- 1 PB 5 Patchbay
- 1 PS 32 power supply



VX 2400

The VX 2400 is a high-performance power amp boasting excellent bench-test ratings and impressive sonic performance, including crisp top end and tight, fast low-end response. The power amp delivers a mighty 2 x 2000 watts of peak performance at a crest factor of 18 dB. Ample headroom, the DFC's audiophile Overshoot Limiters, and the speakers combine to treat listeners to a dynamic and very natural-sounding sonic image.

CONTROLLING



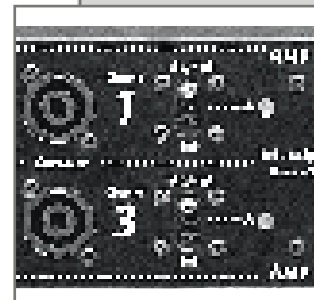
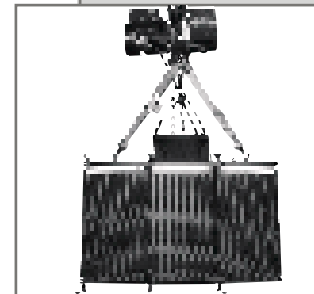
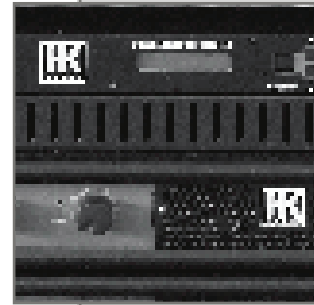
DFC

With the help of the Digital Field Controller, COHEDRA COMPACT™ can be operated as a “virtual” active three-way sound reinforcement system. The DFC splits the full-range input signal into three frequency bands – low, mid and high. For each frequency band, settings for frequency amplitude, phase response, and limiter are stored in separate filter sets. Middle and high frequency bands are blended at the DFC’s output, while the bass has its own output. The DFC is now ready for bi-amping. With its specially developed PC Controlling Software and the Remote Interface, this device offers comprehensive, intuitive control for demanding sound reinforcement challenges.



PB 5

Reconfiguring without rewiring. The PB 5 interfaces all of COHEDRA COMPACT™’s components. It provides analog and digital input ports as well as four speaker outputs that connect to four single NL 4 Speakon® connectors or to NL 8 multi-outs. Selector switches assign the mid/high signal or subwoofer signal to any power amp channel (speaker pair). This lets you configure any number of rack setups, swiftly and easily. For larger arrays, we recommend connecting speakers via NL 8 multi-outs, which are split at the cabinets’ end mid/high or subwoofer splitters.





***APPLICATIONS &
SOFTWARE.***



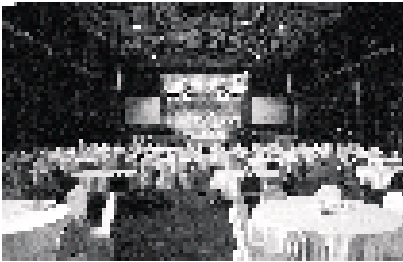
APPLICATIONS

A fixture at major events, line arrays are increasingly being deployed at smaller events. With its unobtrusive visuals and the audio qualities of a bona fide line array, this breed of rig brings tremendous benefits to smaller sound reinforcement scenarios. Competition being what it is, every PA rental outfit seeking to plant a firm foothold in the market is compelled to deploy line arrays for these events.

Software

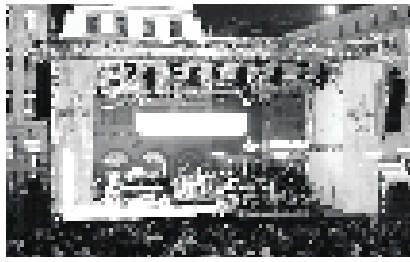
Acoustic simulation software has long been used to assist with the permanent installation of speaker system in rooms and halls. Since line arrays have such precise directivity and the ability to extend the near field, it is necessary that they be matched exactly to the live venues in which they are used, and that is why we developed COHEDRA™ Acoustic Prediction Software, or CAPS for short.

APPLICATIONS

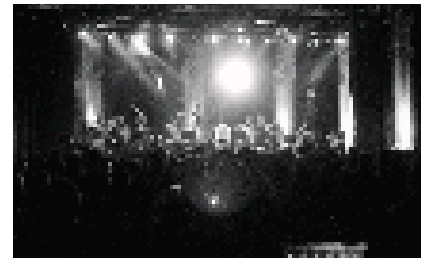


Ever more industry events are being staged at locations with interesting or unusual ambience. Unfortunately, poor acoustics coupled with gala bands, MCs and soft-spoken public speakers with pin microphones are often a challenge for audio engineers wanting to treat everyone in the audience to good sound. The hosts of such events demand utmost speech intelligibility – not too loud up front; loud and clear in back. Conventional sound reinforcement systems have faced this challenge with mixed results.

COHEDRA COMPACT™, in contrast, makes it easy to drastically reduce undesirable reverberation, thereby greatly enhancing speech intelligibility. COHEDRA COMPACT™'s extended near field ensures the signal level is distributed far more evenly from front to back. And its sleek look satisfies event the demand for an unobtrusive sound system.



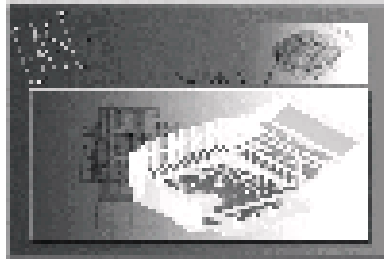
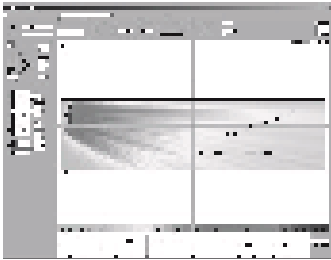
Gigs in clubs and smaller-to-medium-sized venues with audiences of 1,000 to 2,000 are common sound reinforcement scenarios. Particularly on tour, sound techs are compelled to deal with conditions that change daily. Venues frequently lack rigging points and poor acoustics due to architectural drawbacks yield appalling reverberation times, driving engineers to distraction and turning audiences off. This is where COHEDRA COMPACT™ shines. Its awesomely fast and natural-sounding dynamic response and extended near field ensures the signal remains punchy and transparent all the way to the back reaches of the hall. Regardless of configuration – ground stacks or flown rigs – its amazing ease of use affords swift and simple handling, speedy set-up and tear-down, and stress-less nights on the job.



Sound engineers often tend to relish open-air gigs because of a happy circumstance - the absence of reflective surfaces. After all, tweaking a good-sounding mix is a lot more fun than battling annoying reverb bouncing off the walls of a hall. However, open air venues have their shortcomings, particularly greater throw distances and considerable depletion of sound pressure levels over this distance. Conventional PA systems lose 6 dB with each doubling of the distance from the source. The greater the distance to the rig, the thinner the soundscape. The aforementioned near field extension compensates for this effect, so that distance-driven degradation is closer to 3 rather than 6 dB.

The sonic image remains fresh and crystal-clear even behind the FOH tower. What's more, since mobile stages are frequently unable to handle heavy loads, COHEDRA COMPACT™ offers the additional advantage of being extraordinarily light.

CAPS – COHEDRA™ Acoustic Prediction Software

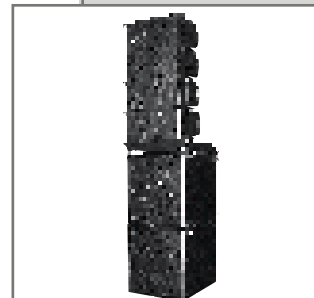
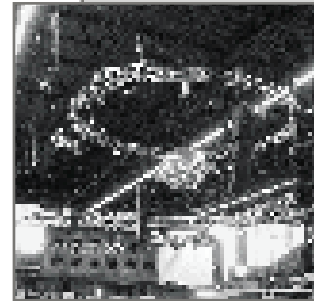


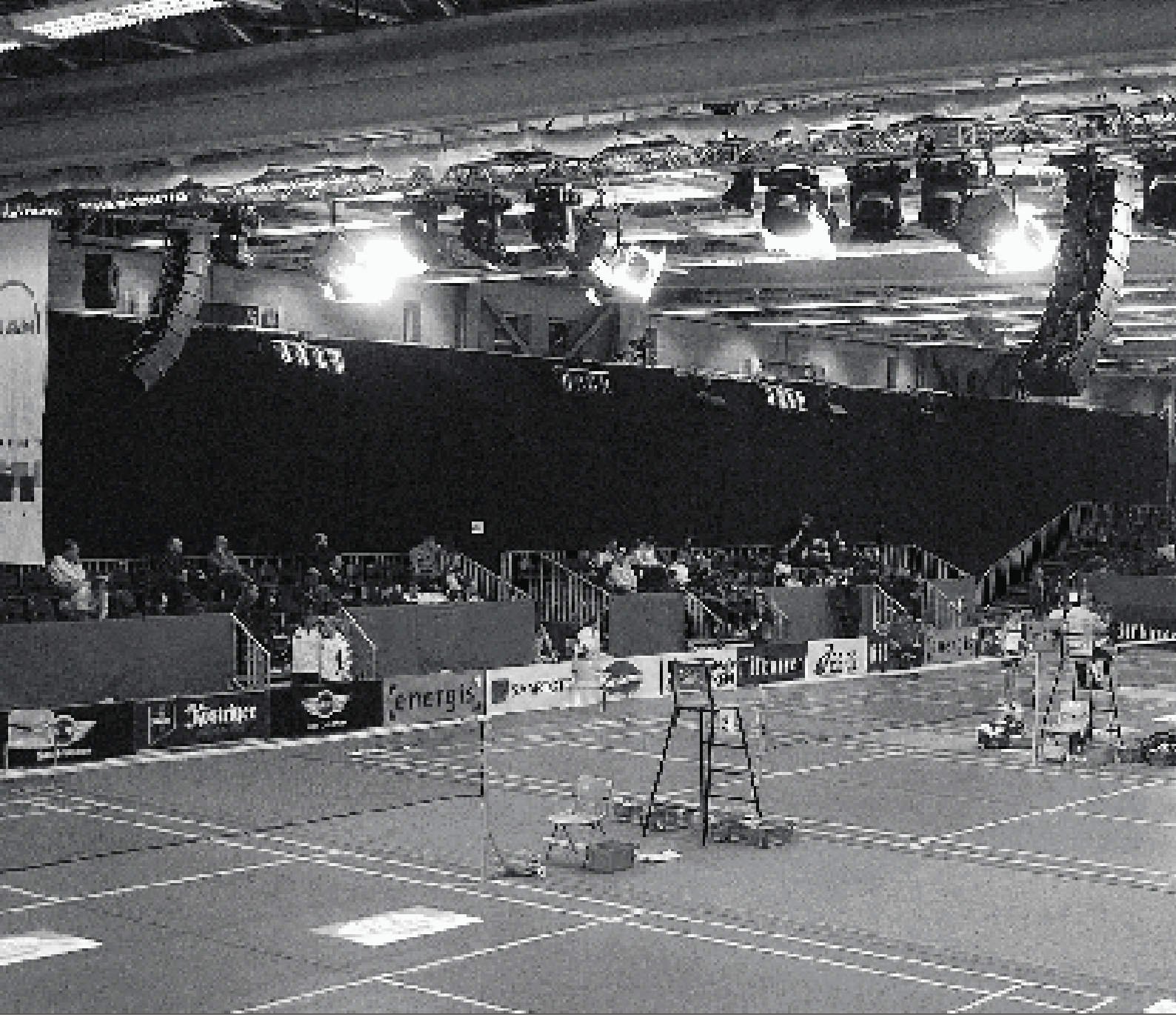
Designed to generate two-dimensional simulations, CAPS predicts the COHEDRA COMPACT™ mid/high array's reflectivity in a given room. Its cross section view panel lets you easily and quickly generate venues with up to three audience areas/levels. The Rigging menu provides insight into the array's height, weight and center of gravity, as well as the curving angles between individual CDR 108 C mid/high units. The application simulates rigs comprising up to 16 CDR 108 C cabs.

The Setup menu lets you get creative. This is where the angles for curving the rig and the resultant sound projection data are computed and displayed. The software provides insight into delay times and sound pressure levels at the audience positions.

All this yields reliable predictions on obtainable SPL (peak/continuous/A-weighted). Accurate analysis in 1/3 octave steps is available and two-dimensional mapping with an optimizing function is also possible.

For more detailed simulations, we recommend the venue calculation software EASE (version 4.0 or higher) by Software Design Ahnert GmbH. The dedicated EASE-DLL allows you to compute COHEDRA COMPACT™ line arrays in three dimensions, which is often needed for sophisticated installations and demanding sound reinforcement projects.

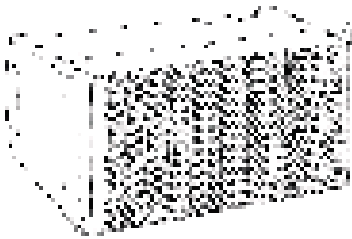




***TECHNICAL DATA &
HKADEMY.***



Line arrays are high-performance tools, and users require skills and know-how to employ them to maximum effect. The HKademy offers operator seminars to this end. Over the course of several days training, sound techs gain the knowledge they need to make the most of line arrays' benefits.



CDR 108

| | |
|------------------------------|---|
| Nominal power: | 250 W RMS, 500 W Prog. |
| Frequency range +/- 3 dB: | 88 Hz – 19 kHz |
| SPL, 1W@1m*: | 107 dB |
| SPL, max. SPL @ 1m*: | 136 dB@10%THD** |
| Nominal impedance: | 16 ohms |
| Speaker: | 1 x 8" with compression chamber |
| High-frequency driver: | 2 x 1" with COHEDRA™ Acoustic Lens |
| Horn: | 100° CD horn |
| Crossover frequency: | 800 Hz, 12 dB/ octave |
| Connections: | 2x Speakon NL 4 |
| Housing: | 15 mm (5/8"), 13-ply birch plywood |
| Finish: | Acrylic enamel, black |
| Protective grille: | Steel grille |
| Rigging hardware: | Integrated rigging attachments |
| Adjustable curvature angles: | 0°, 1.5°, 3°, 4.5°, 6°, 7.5°, 9° |
| Weight: | 17.9 kg (40 lbs) |
| Dimensions (W x H x D): | 50 x 26 x 32.5 cm 19-5/8" x 10-1/4" x 12-3/4" |
| Accessories: | Rigging/Stacking Frame for flying up to 16 CDR 108 Touring Flight Case for four CDR 108 |

CDR 210 C

| | |
|----------------------------|--|
| Nominal power : | 600 W RMS, 1200 W Prog. |
| Frequency range +/- 3 dB : | 104 dB |
| SPL, max. SPL@1m*: | 139 dB @ 10% THD*** |
| Nominal impedance: | 8 ohms |
| Speakers: | 2 x 10" |
| Crossover frequency: | Controlled by DFC filter set |
| Connections: | 2 x Speakon NL 4 |
| Housing: | 19 mm (3/4"), 13-ply birch plywood |
| Finish: | Acrylic enamel, black |
| Protective grille: | Steel grille |
| Rigging hardware: | Integrated rigging attachments |
| Weight: | 48 kg (70.4 lbs) |
| Dimensions (W x H x D): | 60 x 50 x 63 cm 23-5/8" x 19-11/16" x 24-13/16" |
| Recommended Power Racks: | HK AUDIO® PR 8, PR 16 |

*1) SPL specs in half-space

**2) measured with four CDR 108s

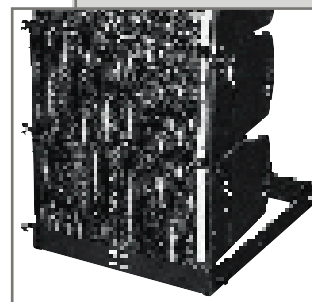
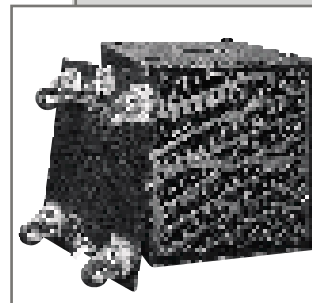
***3) measured with four CDR 210 Cs

Standard System

A COHEDRA Compact™ Standard System comprises:
 16 CDR 108 C Mid/High Units
 4 Mid/High Flight Cases
 8 CDR 210 C Subwoofers
 2 PR 8s
 2 Standard Rigging Frames
 4 Connector Sets

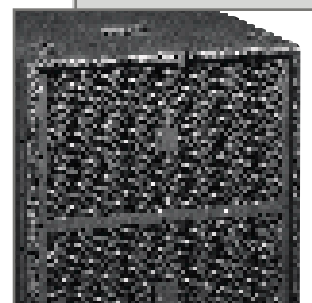
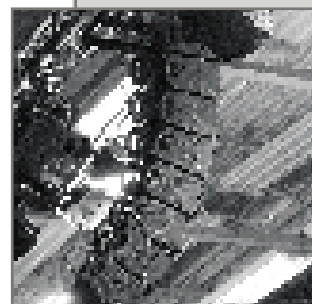
The system requires 240 x 208 cm in a truck's cargo bay, at a weight of approx. 850 kg.

SPECIFICATIONS



| Technical Specifications | VX 2400 |
|-------------------------------|--|
| Class: | H |
| Continuous power @ 8 ohms: | 750 W x 2 |
| Continuous power @ 4 ohms: | 1200 W x 2 |
| Continuous power bridged: | 2400 W @ 8 ohms |
| Peak power @ 8 ohms: | 1200 W x 2 |
| Peak power @ 4 ohms: | 2150 W x 2 |
| Peak power bridged: | 4,350 W @ 8 ohms |
| Frequency response (+/- 1dB): | 20 – 20,000 Hz |
| Signal-to-noise ratio: | -106 dB |
| THD - 20Hz-20kHz: | < 0.1% @ 4 ohms |
| Input impedance, bal./unbal.: | 20,000/10,000 ohms |
| Input sensitivity: | 1.4 V RMS |
| Input gain (dB): | 39 dB |
| Stereo / Mono / Bridge: | S/M/B |
| Protection: | DC, Load, Thermal |
| Limiter: | Peak |
| Cooling: | Int. fan, front to back |
| Inputs: | 2 x XLR, 2x 1/4" Jack, (un)balanced |
| Outputs: | 2 x Speakon® NL 4, 2 x Binding Post |
| Power consumption: | 1130 W typ / 1800 W max |
| 2-Ohm / 4-Ohm mode : | 4 ohms min. load |
| Dimensions (W x H x D): | 48.3 x 8.9 x 43.9 cm |
| | 19" x 3-1/2" x 17-3/10" |
| Weight: | 19.8 kg (43.5 lb) |

| Technical Specifications | DFC |
|---------------------------|--|
| Analog input: | 3-pin XLR f |
| Digital input: | 3-pin XLR f |
| Data format: | AES-EBU |
| Sampling rate: | 44.1 kHz |
| Input level (nom./max.): | 0 dBV / + 24 dBV |
| Output level (max.): | + 10 dBV |
| Output impedance: | 47 ohms |
| Outputs: | LF- Out, 3-pin XLR m MF- Out, 3-pin XLR m HF- Out, 3-pin XLR m |
| Frequency response: | 10 Hz - 20 kHz (±2 dB) |
| Dynamic range: | -128 dB (unweighted) |
| Resolution A/D converter: | 24 Bit |
| Resolution D/A converter: | 20 Bit |
| Weight: | 3 kg (6.6 lb) |
| Dimensions (W x H x D): | 48.2 x 4.4 x 22.7 cm |
| | 19" x 1-3/4" x 9" |





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