RENKUS-HEINZ

Reference Point Arrays

T12 Series

HIGH-EFFICIENCY 2-WAY REFERENCE POINT ARRAYS

12” Woofer - 1” HF Complex Conic Loudspeakers

Uncompromised Performance - Unequalled Versatility

T12 series Reference Point Arrays use advanced technology and application-driven engineering to bring live sound closer to the ultimate reference point: reality. The process produces fully integrated electro-acoustic systems with signal processing, amplification, flying hardware and cabling all optimized to deliver superior fidelity and coverage.

Wherever the superior performance demanded by the audiences and operators cannot be met with a single loudspeaker, T12 series Reference Points Arrays are the choice for reference quality performance.

Applications

- Virtually any application where outstanding sonic performance is required and sound level and coverage needs cannot be satisfied with a single loudspeaker.
- Sound reinforcement systems in Houses of Worship, Performing Arts Centers, Sports Arenas, Theaters and other similiar venues.
- Large Audio Visual playback systems.

Advanced Complex Conic Horn Design

Designed around the spherical expansion of the acoustic pressure wave, Complex Conic horns provide constant beamwidth/directivity without the problems of conventional rectangular horns. With extended pattern bandwidth, lower distortion and minimal coloration, Complex Conic horns work better and sound far more natural than ordinary horns.

RPA Reference Point Arrays

The RPA process integrates loudspeakers, electronics, cabling and hardware to produce "plug 'N play" arrays that act as a single broadband acoustic source, assuring consistent performance while reducing installation and commissioning time.

TRAP (TRue Array Principle) Design

TRAP array module horn angles and enclosures are designed to place the acoustical centers as close together as physically possible. This practically eliminates interference between adjacent loudspeakers to produce a phase aligned wavefront having an absolute minimum of lobing. The result is no more "hot spots", no more "dead spots."

- **Compact 2-Way Reference Point Arrays**
  Factory assembled and tested PPA arrays provide “plug ‘n play” systems assuring consistent performance. Each RPA is designed, measured and installed as a complete system assuring optimum performance.
- **Choice of Horizontal Coverage Patterns**
  Choose between smooth, virtually lobe-free 80°, 120° and 160° Horizontal by 60° Vertical coverage patterns.
- **Exceptional Performance**
  Full-range 65 Hz to 18 kHz performance.
- **Exclusive Complex Conic Design**
  Provides constant beamwidth/directivity without the problems of conventional rectangular horns.
- **TRAP (True Array Principle) Design**
  Practically eliminates interference between adjacent loudspeakers that combine seamlessly to produce a phase aligned wavefront virtually free of lobing.

True Array Principle (TRAP) Design

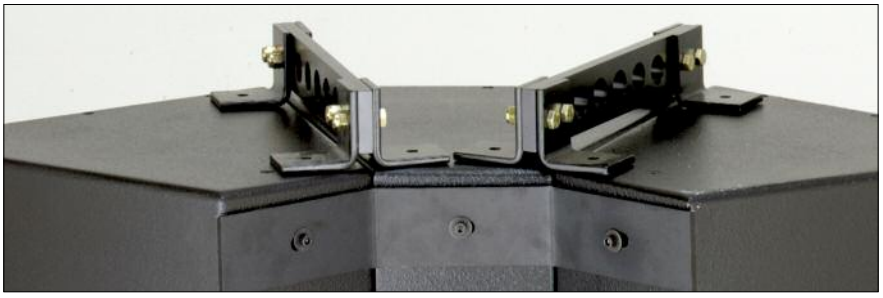
No matter how good a single conventional loudspeaker sounds, once it is used in a cluster or array, interaction with its neighboring loudspeakers produces undesirable lobing or comb filtering - which creates a profusion of "hot spots" and "dead spots" in the overlap areas, along with disturbing variations in frequency response from one location to another.

Electronics can improve the performance of any array. But only TRAP loudspeakers are engineered from the inside out to produce a single source of sound even in large arrays. The reason ordinary loudspeakers can't help interfering with each other in clusters is that their acoustic centers are widely spaced.

That's why we designed TRAP horns and enclosures to align the acoustic centers. The horn angles are matched to the trapezoidal enclosures, which are designed to place the drivers as close together as physically possible. All sound originates from the same spot, so interference between adjacent horns is practically eliminated.

Arrays of TRAP loudspeakers produce a phase aligned wavefront with uniform frequency response across the coverage area. Below the horn's cutoff frequency, RPA signal processing eliminates low frequency interference and can improve pattern control. The result is great sound at every seat -- no more "hot spots" and "dead spots" in the overlap areas and disturbing variations in frequency response from one location to another.

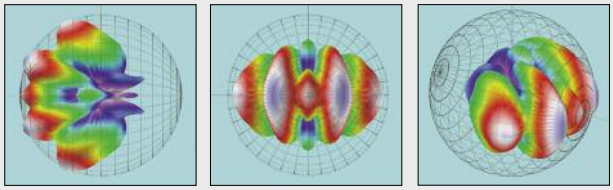
Rear view of T12/6-3(T) Reference Point Array with RHANG12-3 hanging hardware.



Close up view of the RHANG12-3 hanging hardware.

Conventional Cluster Performance

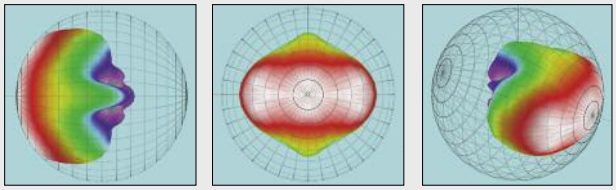
Overhead View | Front (on axis) View | 3-D View



In clusters, conventional loudspeakers can't help interfering with each other.

TRAP (True Array Principle) Cluster Performance

Overhead View | Front (on axis) View | 3-D View



TRAP loudspeakers work together to produce a coherent wavefront.

Reference Point Arrays

Cut the complexity of working with multi-speaker clusters until they're as easy to work with as a single loudspeaker. That's the concept driving Renkus-Heinz engineering as we develop each new Reference Point Array (RPA).

When the entire system comes from one source, it can function as a single acoustic source. RPA integrated systems engineering expands on our proprietary TRue Array Principle (TRAP) that practically eliminates interference between adjacent horns. Complex Conic horns provide constant beamwidth/ directivity without the problems of conventional horns.

We control the location and orientation of each array element with purpose-designed, precision R-Hang hardware. At our automated test and measurement facility, we dial in the parameters for Array-Specific Processing, optimizing low frequency directionality, wavefront coherency and cluster integration.

We make sure that each carefully processed signal is delivered to the right set of transducers with internal intelligent amplification or rack mount amplifier/controllers with pre-configured wiring.

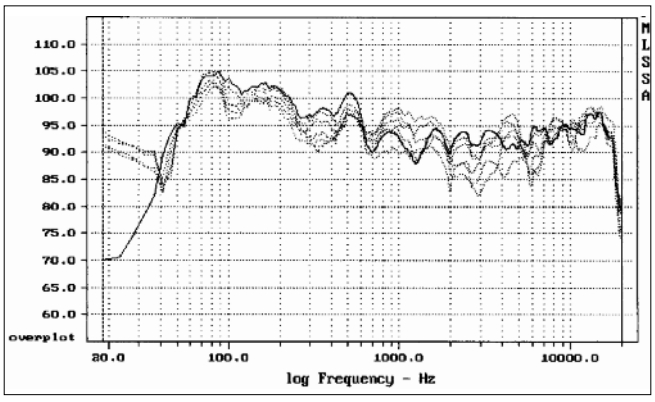
Before we ship any RPA, the entire array is assembled and its performance verified. When your RPA arrives at the job site, all you do is re-assemble the speakers and hardware. Then plug it in, turn it on and walk the room. Like hundreds of designers, operators, owners and audiences around the world, you'll be delighted with the results.

RPA's are the best example of how advanced technologies, real world experience and intelligent system design can provide both uncompromising audio fidelity and unsurpassed practicality - starting with EASE, which includes single-source data for RPA's. You'll save hours of installation and troubleshooting time, while delivering results that are superior to "handmade" arrays using conventional components

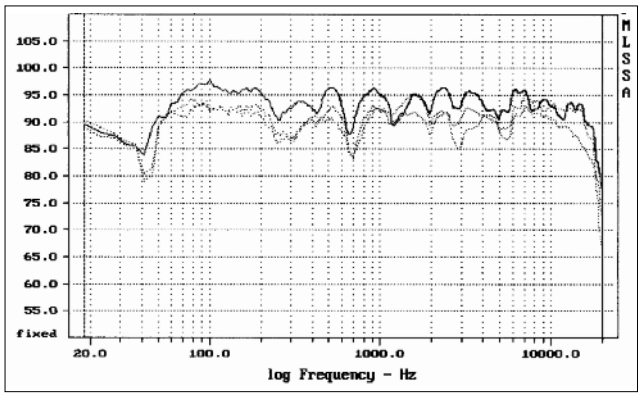
2-wide T12 Array

3-wide T12 Array

4-wide T12 Array



3-wide RPA Array measured without RPA processing.



3-wide RPA Array measured with RPA processing.

TECHNICAL SPECIFICATIONS

T12/6-2(T) 2-Wide Reference Point Array

A complete T12/6-2(T) Reference Point Array consists of:
2 TRX121T/6 Full-range loudspeakers
1 RHANG12-2 Hanging hardware
Interconnecting cables, system preparation & testing

Frequency Response: 65 to 18 kHz
Coverage: 80° H by 60° V
Maximum SPL: 129 dB program,132 dB peak
Dimensions: 26 1/2" H x 29" W x 16 1/2" D (67.3 cm x 73.7 cm x 41.9 cm)
Weight: 90 Lbs. (40.8 kg) with hanging hardware

T12/6-3(T) 3-Wide Reference Point Array

A complete T12/6-3(T) Reference Point Array consists of:
3 TRX121T/6 Full-range loudspeakers
1 RHANG12-3 Hanging hardware
Interconnecting cables, system preparation & testing

Frequency Response: 65 to 18 kHz
Coverage: 120° H by 60° V
Maximum SPL: 131dB program,134 dB peak
Dimensions: 26 1/2" H x 39 1/4" W x 17 1/2" D (67.3 cm x 99.7 cm x 44.5 cm)
Weight: 138 Lbs. (62.6 kg) with hanging hardware

T12/6-4(T) 4-Wide Reference Point Array

A complete T12/6-4(T) Reference Point Array consists of:
4 TRX121T/6 Full-range loudspeakers
1 RHANG12-4 Hanging hardware
Interconnecting cables, system preparation & testing

Frequency Response: 65 to 18 kHz
Coverage: 160° H by 60° V
Maximum SPL: 132 dB program,135 dB peak
Dimensions: 26 1/2" H x 45 1/2" W x 21 1/2" D (67.3 cm x 115.6 cm x 54 cm)
Weight: 184 Lbs. (83.5 kg) with hanging hardware

T12 series RPAs require a dual-channel amplifier; minimum recommended RMS power ratings are 500 W/ch @ 8 ohms, 750 W/ch @ 4 Ohms, 900 W/ch @ 2 Ohms. An associated processor/controller is also required.

TRX121T/6 Loudspeakers

Sensitivity: 99 dB (1W/1m)
Max SPL: 126 dB program, 129 dB peak
Dispersion: 40° H by 60° V
Freq. Response: 65 Hz to 18 kHz
HF Driver: 1" SSD202-8 driver, 8 Ohms; 40 W RMS, 80 W program
LF Driver: 12" model SSL12-12, 250 W RMS @ 8 Ohms, 500 W program
Enclosure: Multi-ply hardwood, perforated metal grille

Power : 500 W program at 8 Ohms
Connectors : Screw terminals & looping Neutrik 4-pin SpeakOn style connectors
Finish: Black, white or custom color paint Natural (unfinished); Weather Resistant
Dimensions: 26 1/2" H x 15 1/4" W x 13 3/4" D (67.3 cm x 38.7 cm x 34.9 cm)
Weight: 40 Lbs (18.1 kg) net

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