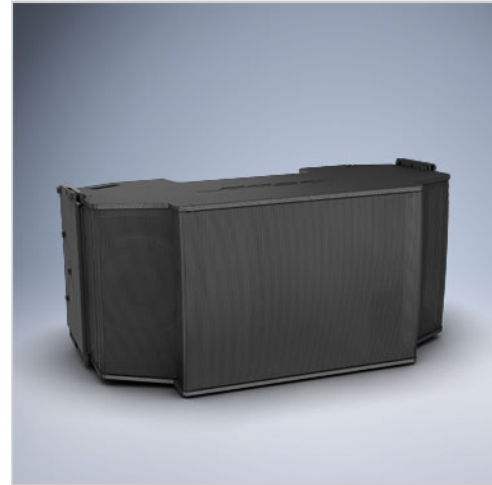


RoomMatch® RM284510 and RM452810 asymmetrical array modules

Key Features



TECHNICAL DATA SHEET

- **All the benefits of the original 20 RoomMatch array module loudspeakers** - Concert-quality sound quality for live music and outstanding spoken-word clarity with industry-leading seat-to-seat consistency
- **22 different horizontally asymmetrical coverage patterns** - Improves sound quality by reducing side-wall reflections in many room shapes
- **Industry's only large-format asymmetrical waveguides** - Pattern control down to 800 Hz to improve vocal clarity and intelligibility
- **Asymmetrical patterns improve stereo soundstage effects** – Particularly when used in long, narrow rooms
- **Simplifies installation for many room shapes** - Provides consistent seat-to-seat coverage without the need to “yaw-in” array aiming

Product Overview

RoomMatch asymmetrical array modules add to existing RoomMatch full-range modules to provide 22 modules with horizontally asymmetrical coverage patterns. For many room shapes, asymmetrical coverage patterns improve sound quality by reducing side-wall reflections without the need to “yaw in” array aiming. Additionally, asymmetrical coverage patterns provide enhanced stereo soundstage when used in left/right pairs, or true left/center/right systems, for many venue shapes.

Technical Specifications

Single Module Performance				
Frequency Response (+/-3 dB) ¹	60 Hz - 16 kHz			
Frequency Range (-10 dB)	55 Hz - 16 kHz			
Recommended High-Pass Protection Filter	50 Hz with minimum 24-dB / octave (4th order) slope			
Nominal Coverage Pattern (H x V) ²	28°+45° x 10° or 45°+28° x 10°			
Recommended Crossover Frequency	550 Hz (acoustic, active, external DSP)			
Long-Term Power Handling ³	Low Frequency		High Frequency	
	500 W (2000 W peak)		150 W (600 W peak)	
Nominal Impedance	4 Ω		8 Ω	
	LF No EQ	LF With EQ	HF No EQ	HF With EQ
Sensitivity (SPL / 1 W @ 1 m)	94 dB	93 dB	110 dB	106 dB
Maximum SPL @ 1 m ⁴	121 dB	120 dB	128 dB	134 dB
Calculated Maximum SPL @ 1 m, peak	127 dB	126 dB	138 dB	134 dB
Transducers				
Low Frequency	2 x Bose® LF10 high-excursion 10-inch woofers (3-inch voice coil)			
High Frequency	6 x Bose EMB2 extended-midrange compression driver (2-inch voice coil)			
Physical				
Enclosure	Baltic birch plywood, engineered plastics and steel frame			
Finish	Two-part spray polyurethane coating on plywood, black			
Grille	19-gauge (1.0 mm) perforated steel, powder-coated finish, black			
Environmental	Indoor use only			
Connectors	Two (2) parallel-wired Neutrik® Speakon NL4 connectors			
Suspension / Mounting	Integrated side-plate rigging hardware; optional array frame accessories			
Dimensions	17.9" H x 39.1" W x 23.6" D (455 mm H x 993 mm W x 598 mm D)			
Net Weight	123 lb (55.8 kg)			
Shipping Weight	180 lbs (81.6 kg) - approximate with wood pallet			
Product Code				
	RoomMatch® 284510		RoomMatch® 452810	
Black	626425-2750		626425-7250	

Footnotes:

- ¹ Frequency response and range measured on-axis with passive crossover in an anechoic environment.
- ² Left-of-center angle + right-of-center horizontal angles (stage view) x vertical angles (stage pairs reverse horizontal angles).
- ³ Bose extended-lifecycle test using pink noise filtered to meet IEC268-5, 6-dB crest factor, 500-hour full-power duration.
- ⁴ Maximum SPL calculated from sensitivity and power handling specifications, exclusive of power compression.

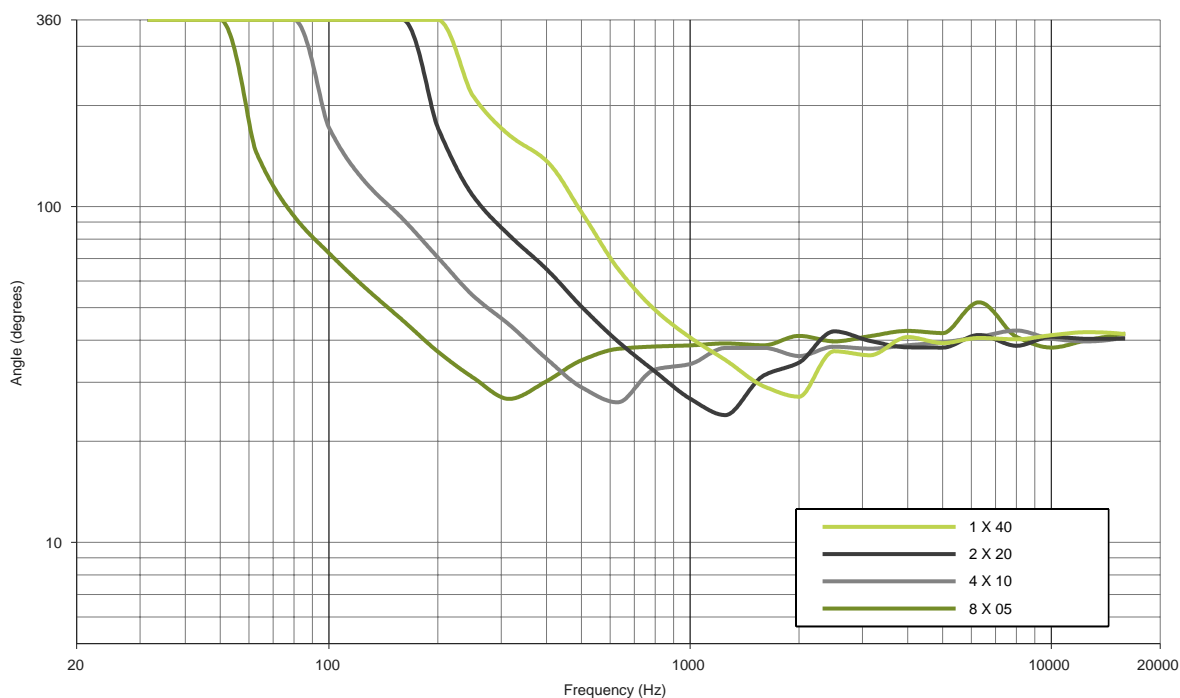
RoomMatch® RM284510 and RM452810 asymmetrical array modules



Multi-Module Performance, LF Section

Array Configuration				
Total Nominal Vertical Coverage Angle	20°	40°	60°	80°
Number of Modules in Array	2	4	6	8
Total Power Handling, Array LF Section	1000 W	2000 W	3000 W	4000 W
50 Hz High-Pass				
Array LF Sensitivity	96 dB SPL	99 dB SPL	100 dB SPL	100 dB SPL
Maximum Array SPL @ 1 m, continuous	126 dB SPL	132 dB SPL	135 dB SPL	136 dB SPL
Maximum Array SPL @ 1 m, peak	132 dB SPL	138 dB SPL	141 dB SPL	142 dB SPL
Maximum Array SPL @ 16 m	102 dB SPL	108 dB SPL	111 dB SPL	112 dB SPL
80 Hz High-Pass				
Array LF Sensitivity	97 dB SPL	100 dB SPL	101 dB SPL	101 dB SPL
Maximum Array SPL @ 1 m, continuous	127 dB SPL	133 dB SPL	136 dB SPL	137 dB SPL
Maximum Array SPL @ 1 m, peak	133 dB SPL	139 dB SPL	142 dB SPL	143 dB SPL
Maximum Array SPL @ 16 m	103 dB SPL	109 dB SPL	112 dB SPL	113 dB SPL

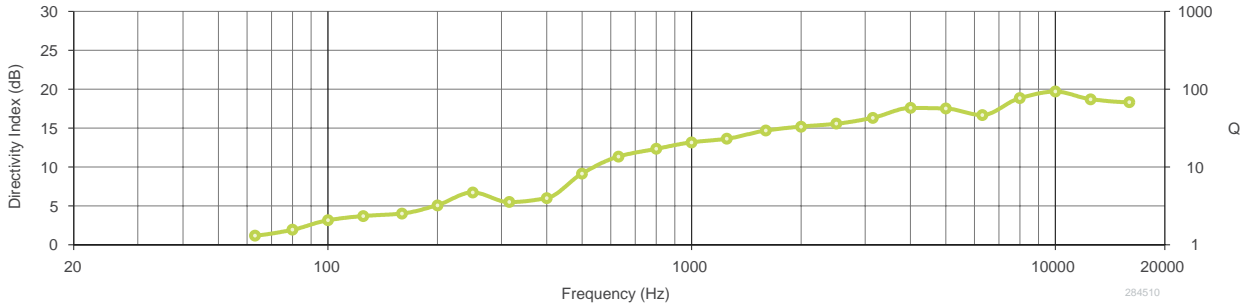
Multi-Module Vertical Beamwidth



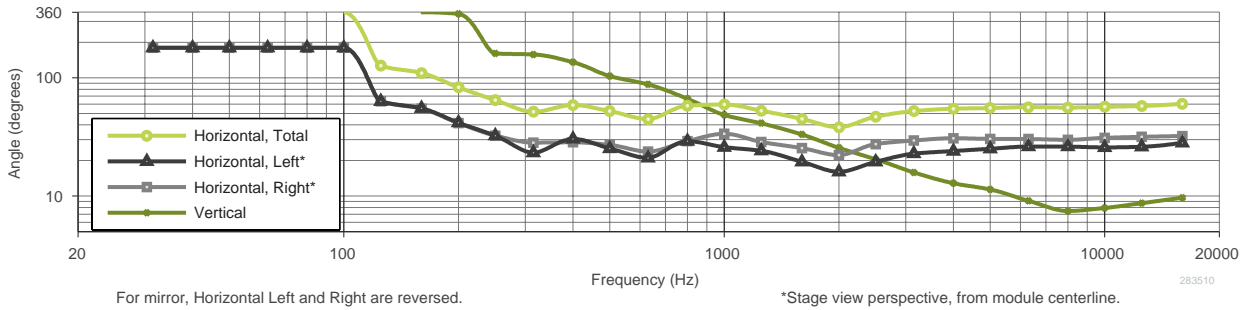
RoomMatch® RM284510 and RM452810 asymmetrical array modules



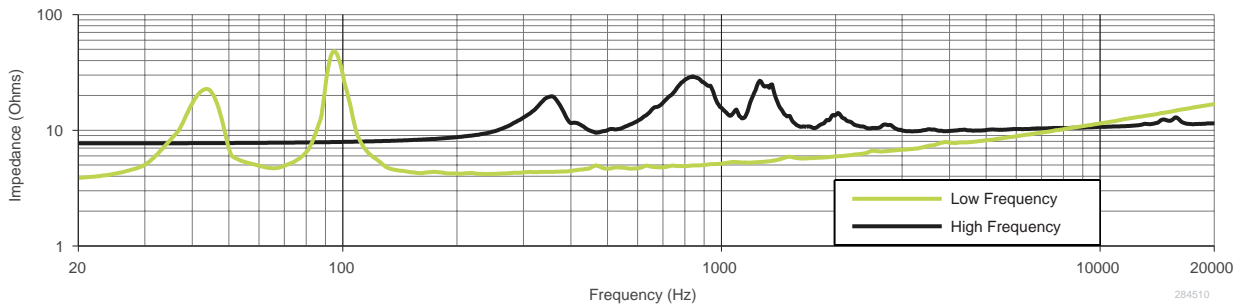
Directivity Index and Q



Beamwidth



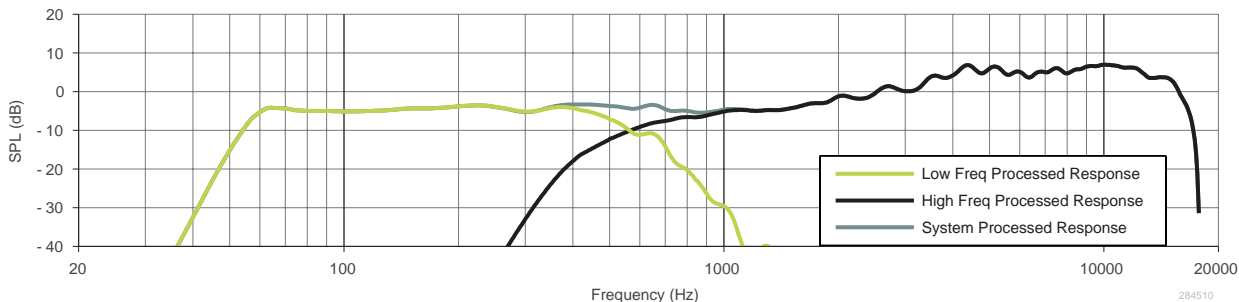
Impedance



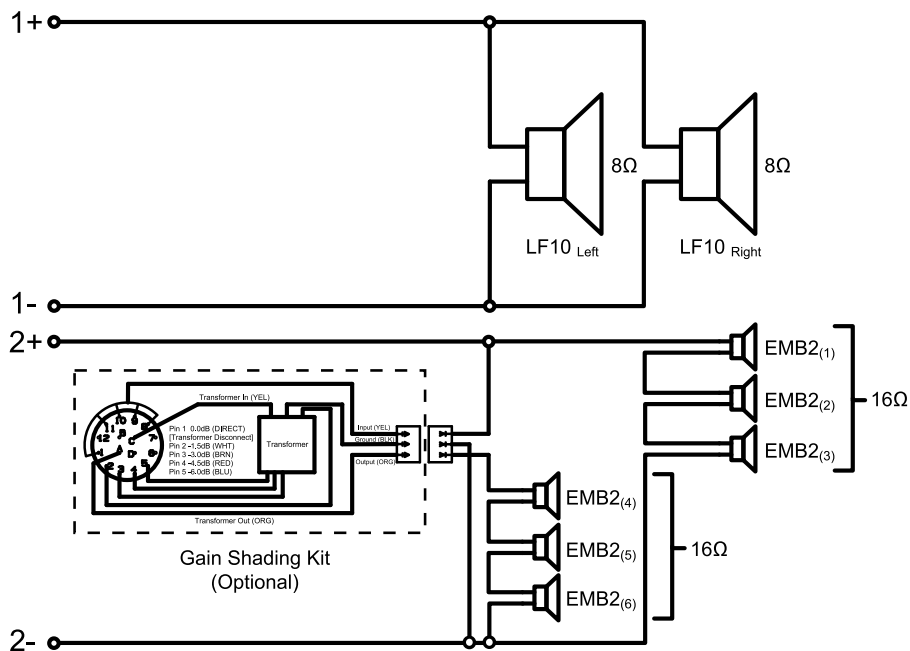
RoomMatch® RM284510 and RM452810 asymmetrical array modules



On-Axis Response



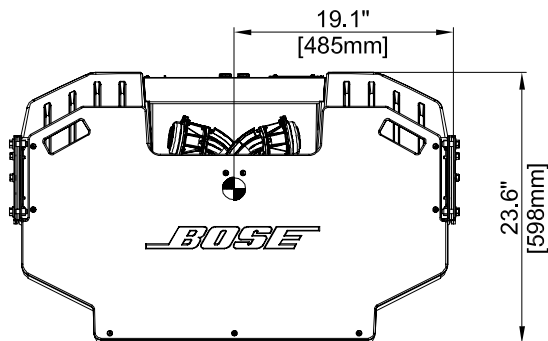
Wiring Diagram



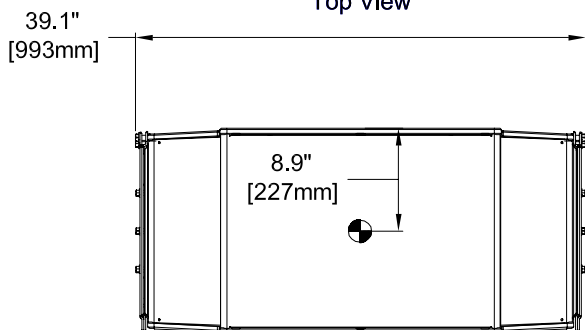
RoomMatch® RM284510 and RM452810 asymmetrical array modules



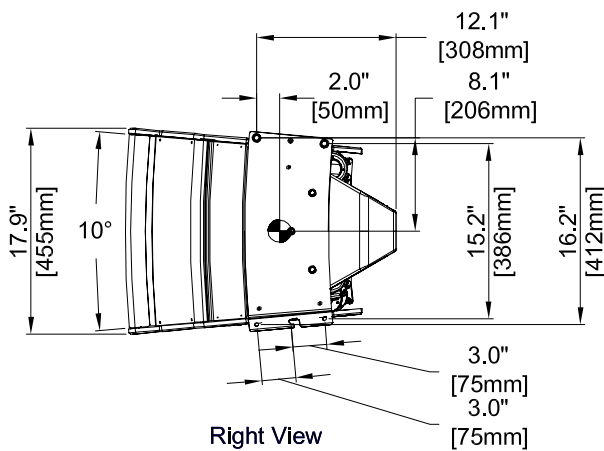
Mechanical Diagrams



Top View



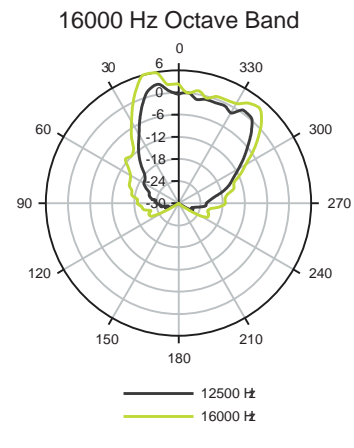
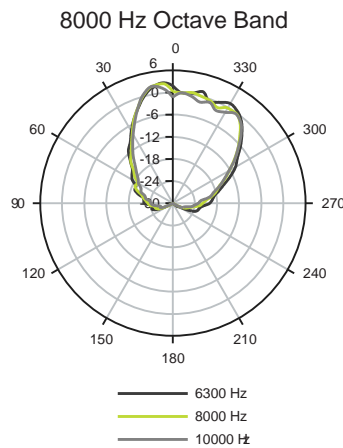
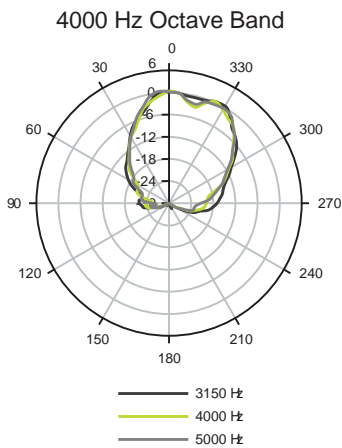
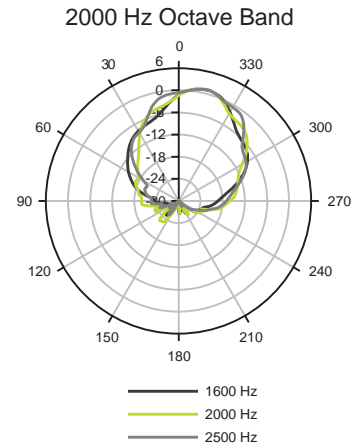
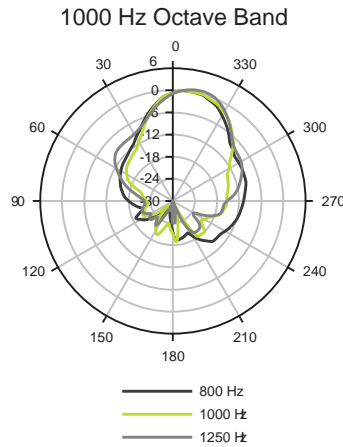
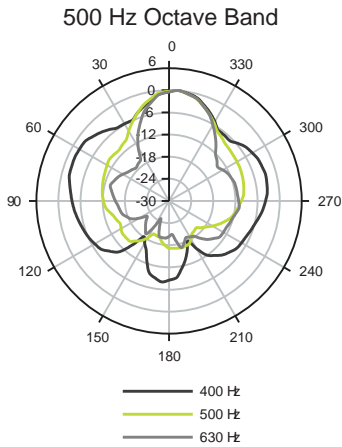
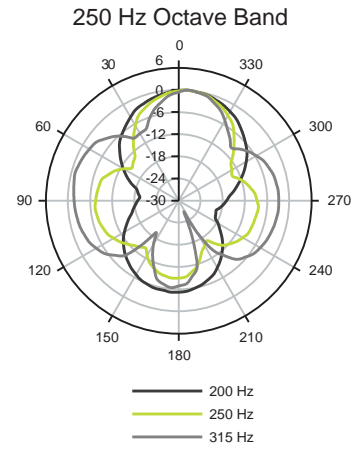
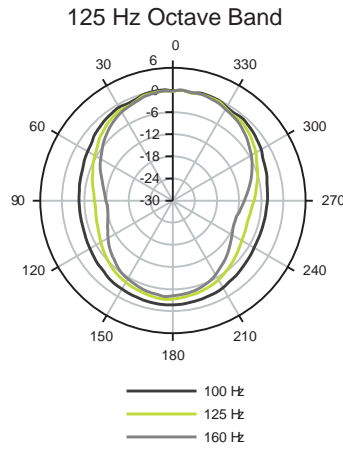
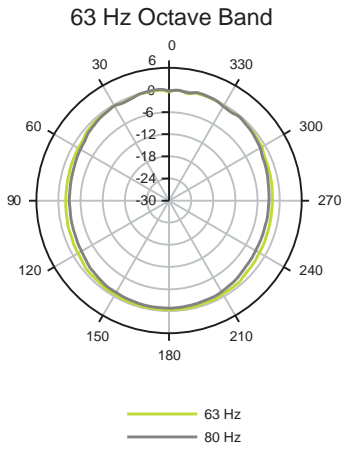
Front View



Right View

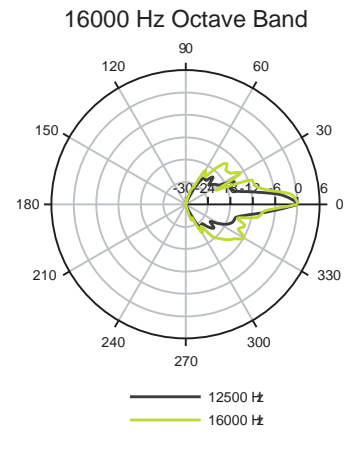
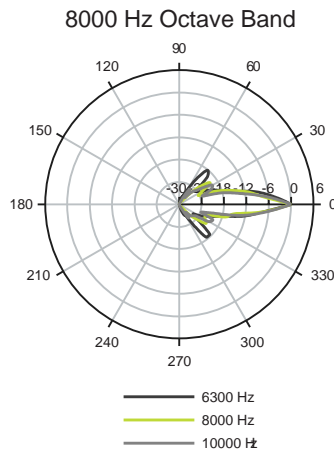
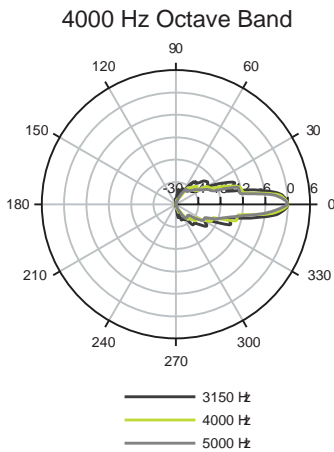
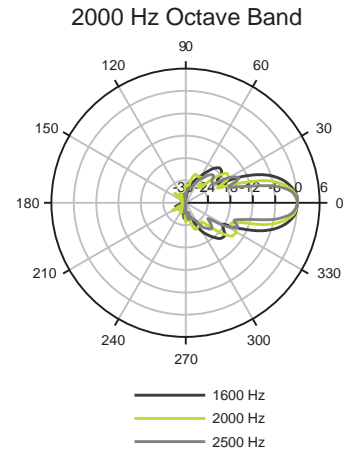
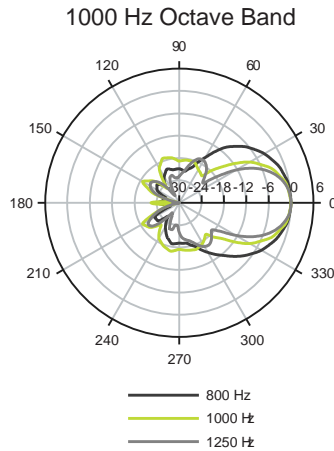
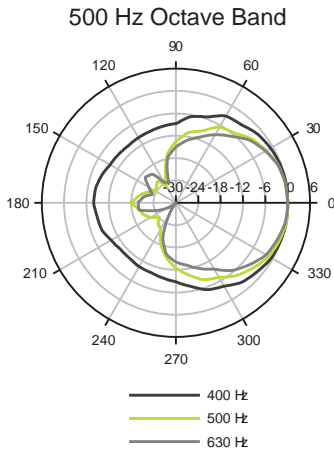
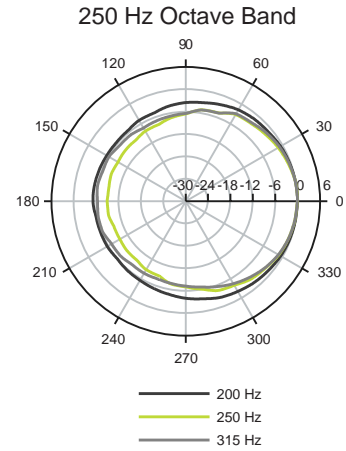
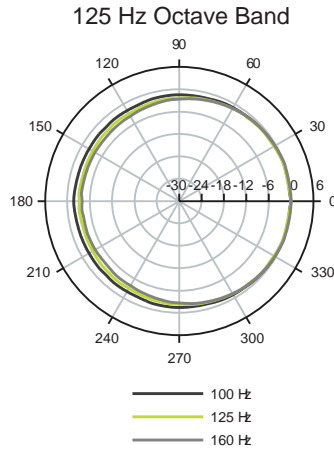
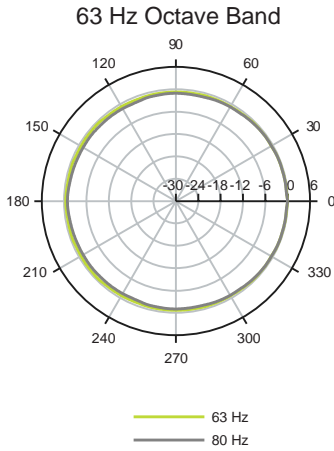
RoomMatch® RM284510 and RM452810 asymmetrical array modules

Horizontal Plots



RoomMatch® RM284510 and RM452810 asymmetrical array modules

Vertical Plots



RoomMatch® RM284510 and RM452810

asymmetrical array modules Architects' and Engineers' Specifications

The 2-way, full-range array module loudspeaker shall contain six (6) 2-inch titanium-diaphragm compression drivers mounted to a continuous-arc diffraction-slot manifold. The manifold will provide acoustic summation that is free from significant peaks or dips in response, from 500 Hz to 16 kHz, and exit into a constant-directivity waveguide with effective pattern control to approximately 1 kHz. The low-frequency section shall contain two (2) 10-inch cone transducers with 3-inch voice coils, with each woofer contained in a separate vented enclosure. The array module will require external, active digital signal processing for transducer crossover and frequency response equalization.

The array module loudspeaker shall meet the following performance specifications: On-axis system frequency response shall be 60 Hz to 16 kHz (+/- 3 dB) with recommended crossover and active equalization. The low-frequency sensitivity shall be 93 dB SPL in free field with 1 W input, and be capable of producing peak output of 126 dB SPL on axis at 1 meter, with recommended equalization. The high-frequency sensitivity shall be 106 dB SPL in free field with 1 W input, and be capable of producing peak output of 134 dB SPL on axis at 1 meter, with recommended equalization. The low-frequency section shall have a long-term power handling rating of 500 W and a nominal input impedance of 4 ohms. The high-frequency section shall have a long-term power handling rating of 150 W and a nominal input impedance of 8 ohms. Power handling will be rated using IEC 268-5 pink noise, 6-dB crest factor, for 100 hours, with recommended EQ. The nominal coverage pattern shall be 28°+45° horizontal x 10° vertical or 45° +28° horizontal x 10° vertical as required.

The array module loudspeaker shall be constructed of 11-ply Baltic birch plywood, protected by a polyurethane coating, for top and bottom waveguide sections, engineered-plastic composites for the woofer enclosures, and steel spar beams connecting the integral side-plate steel rigging hardware. The rigging hardware shall support up to 8 similar array module loudspeakers with a 10:1 Safety Factor. The woofer and waveguide sections will be protected by separate 19-gauge (1.0 mm) perforated steel grilles with powder-coated finish. Input connectors shall be two (2) parallel-wired Neutrik® NL4 Speakon® connectors. The finish will be black (paintable).

Loudspeaker dimensions shall be 17.9 x 39.1 x 23.6 in (455 x 993 x 598 mm) and net weight shall be 123 lb. (55.8 kg).

The 2-way, full-range array module loudspeaker shall be the Bose® RoomMatch® RM284510 or RM452810 as required.



Additional Notes

- **Environment:** Measured at 10 m. Responses are time-windowed and processed to eliminate room effects, approximating an anechoic environment
- **Beamwidth:** 1/3 octave band smoothed beamwidth of single module measured at 10 m. Angle determined as -6dB point from the peak
- **On-Axis Response:** 1/10 octave band smoothed response with recommended active EQ
- **Horizontal/Vertical Plots:** 1/3 octave band smoothed polar responses with recommended active EQ applied to the module
- **Multi-Module Vertical Beamwidth:** 1/3 octave band smoothed beamwidth of an array simulated in the far field. Angle determined as -6dB point from the peak
- **Array LF Sensitivity:** On axis SPL of an array with 1 W input for the entire array LF section. Simulated using Modeler® software at 16 m and referenced to 1 m
- **Maximum Array SPL @ 1 m:** Maximum SPL calculated from sensitivity and power handling specifications, exclusive of power compression