RoomMatch® RM356020 and RM603520

asymmetrical array modules

TECHNICAL DATA SHEET

Key Features

- **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]	35°+60° x 20° or 60°+35° x 20°			
Recommended Crossover Frequency	550 Hz (acoustic, active, external DSP)			
	Low Frequency		**High Frequency**	
Long-Term Power Handling[3]	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	108 dB	103 dB
Maximum SPL @ 1 m[4]	121 dB	120 dB	130 dB	125 dB
Calculated Maximum SPL @ 1 m, peak	127 dB	126 dB	136 dB	131 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	20.0" H x 39.1" W x 23.6" D (509 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® RM356020		**RoomMatch® RM603520**	
Black	626425-5960		626425-9560	

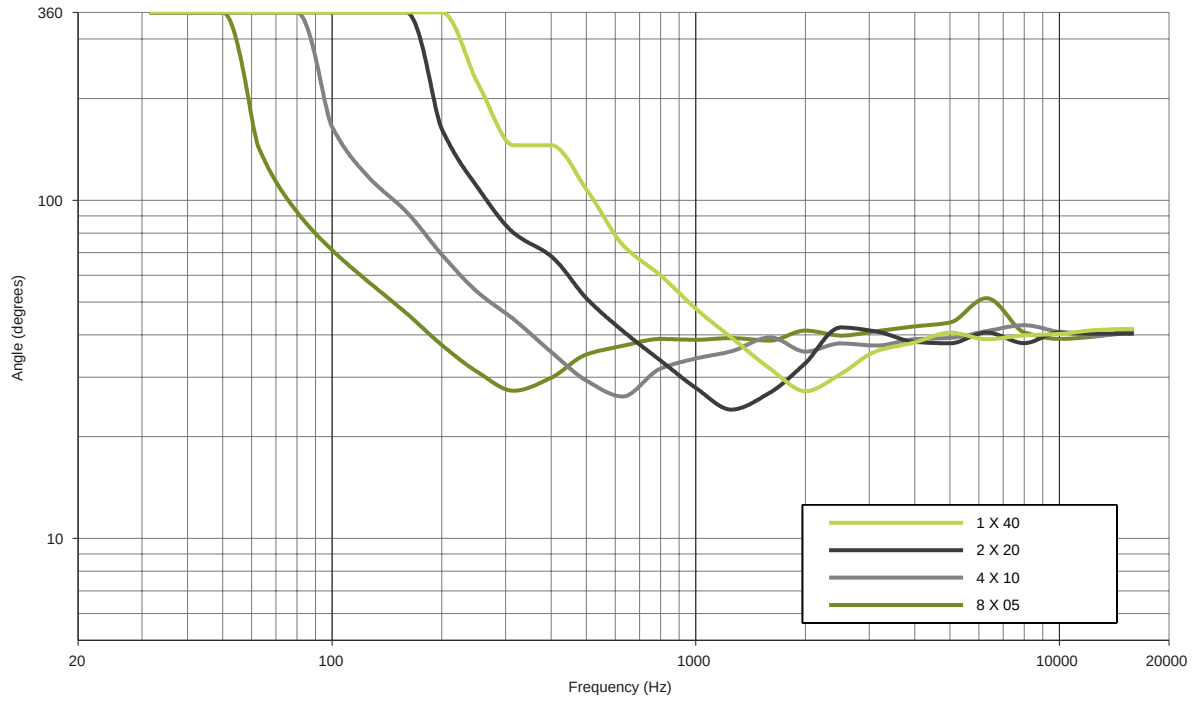
Footnotes:

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.

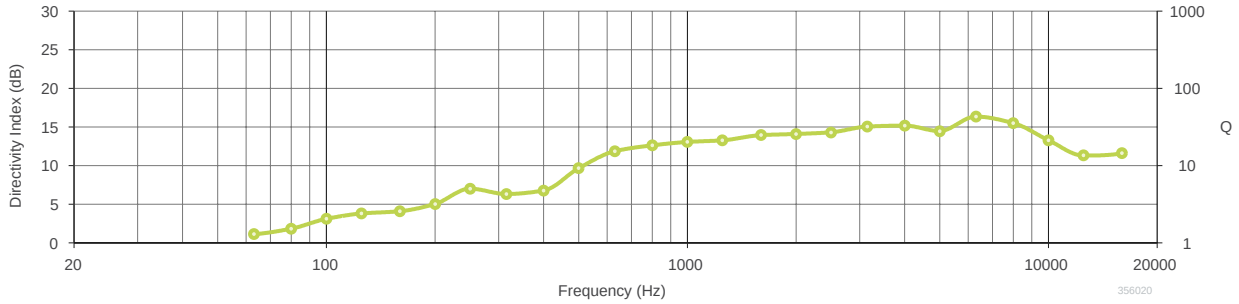
Multi-Module Performance, LF Section

Array Configuration				
Total Nominal Vertical Coverage Angle	40°	80°	120°	160°
Number of Modules in Array	2	4	6	8
Total Power Handling, Array LF Section	1000 W	2000 W		
50 Hz High-Pass				
Array LF Sensitivity	96 dB SPL	98 dB SPL		
Maximum Array SPL @ 1 m, continuous	126 dB SPL	131 dB SPL		
Maximum Array SPL @ 1 m, peak	132 dB SPL	137 dB SPL		
Maximum Array SPL @ 16 m	102 dB SPL	107 dB SPL		
80 Hz High-Pass				
Array LF Sensitivity	97 dB SPL	99 dB SPL		
Maximum Array SPL @ 1 m, continuous	127 dB SPL	132 dB SPL		
Maximum Array SPL @ 1 m, peak	133 dB SPL	138 dB SPL		
Maximum Array SPL @ 16 m	103 dB SPL	108 dB SPL		

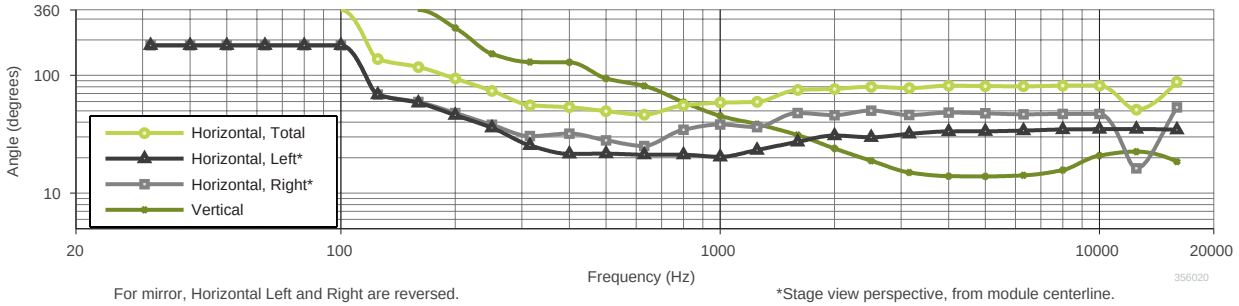
Multi-Module Vertical Beamwidth



Directivity Index and Q



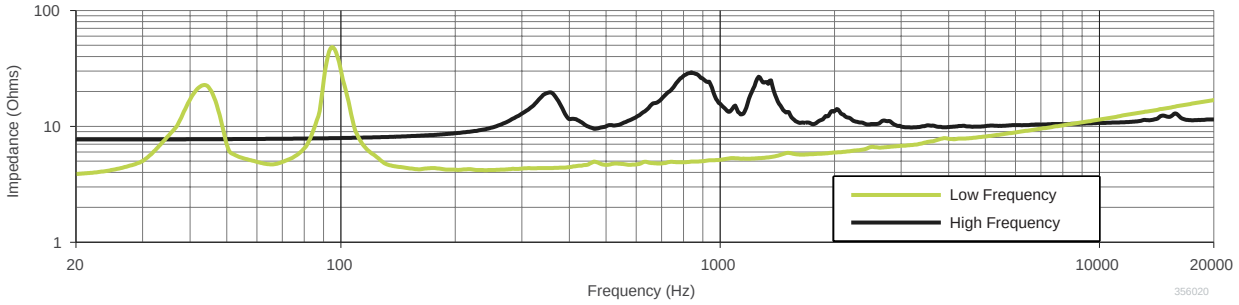
Beamwidth



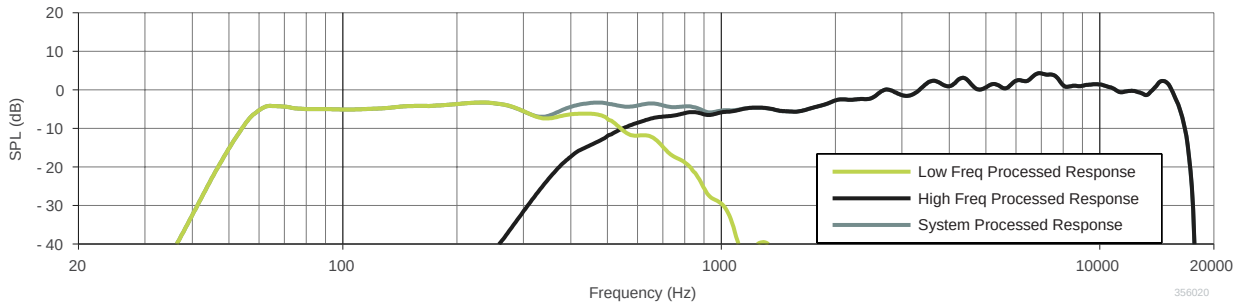
For mirror, Horizontal Left and Right are reversed.

*Stage view perspective, from module centerline.

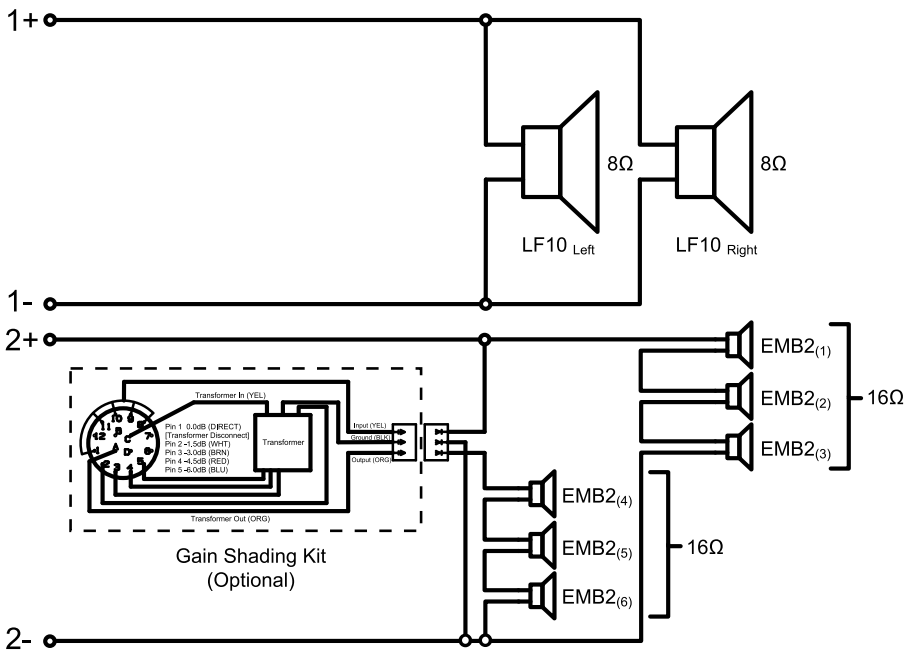
Impedance



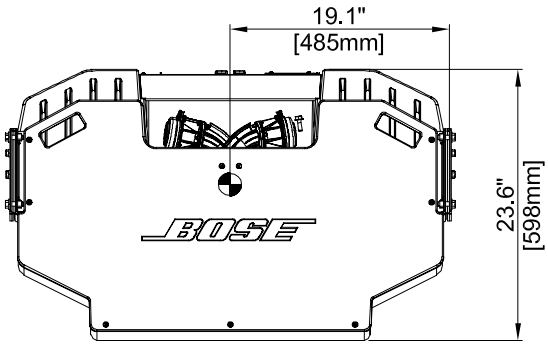
On-Axis Response



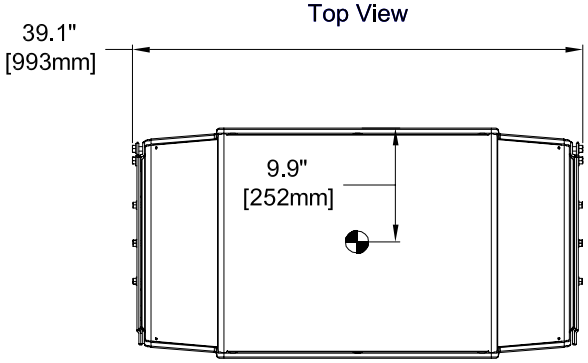
Wiring Diagram



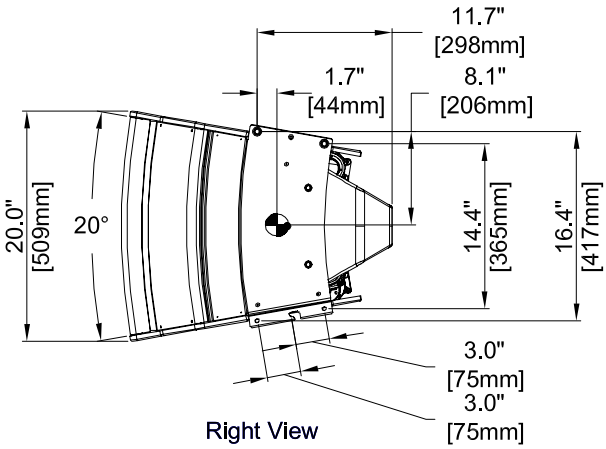
Mechanical Diagrams



Top View



Front View



Right View

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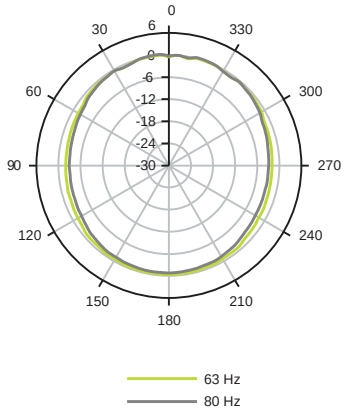
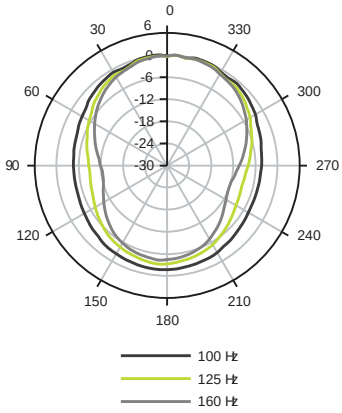
Horizontal Plots

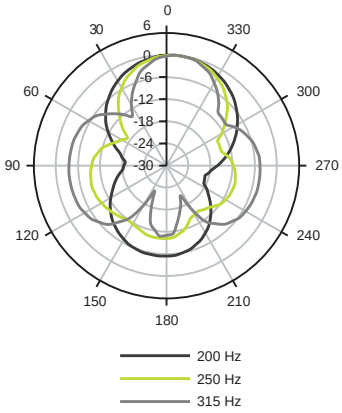
63 Hz Octave Band



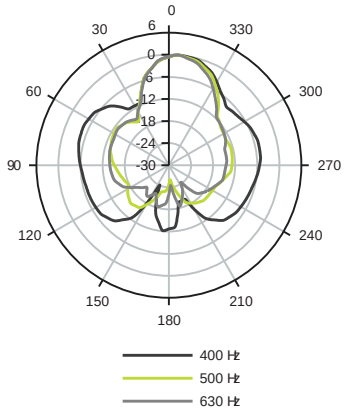
125 Hz Octave Band



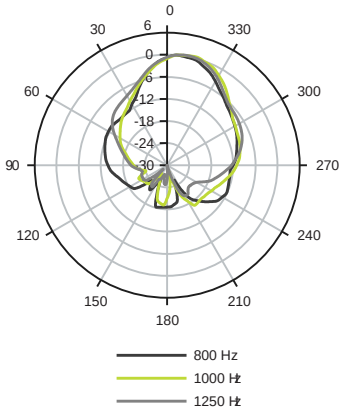
250 Hz Octave Band



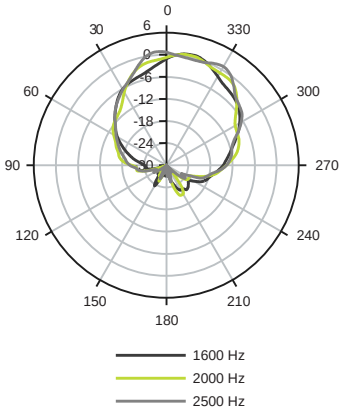
500 Hz Octave Band



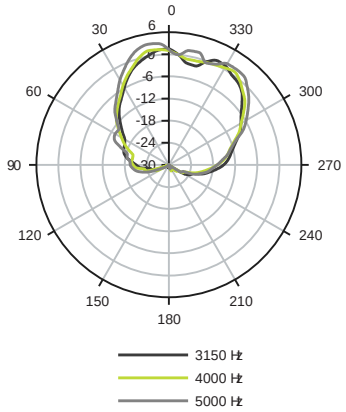
1000 Hz Octave Band



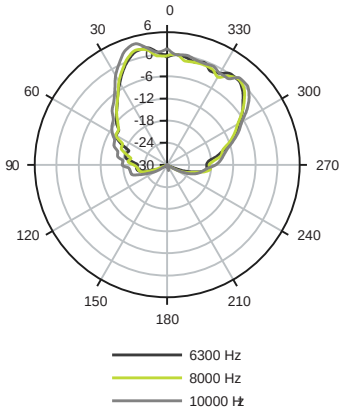
2000 Hz Octave Band



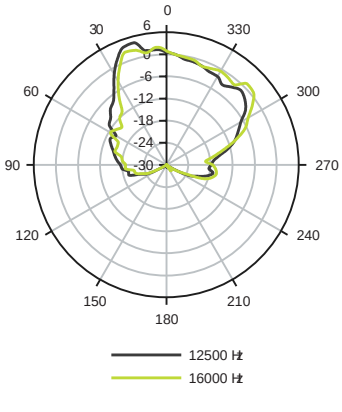
4000 Hz Octave Band



8000 Hz Octave Band



16000 Hz Octave Band



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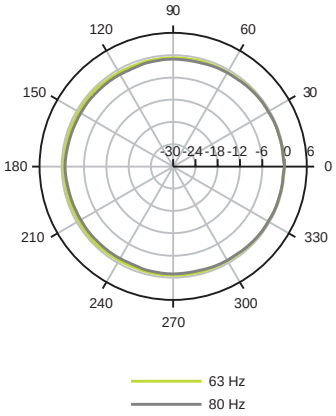
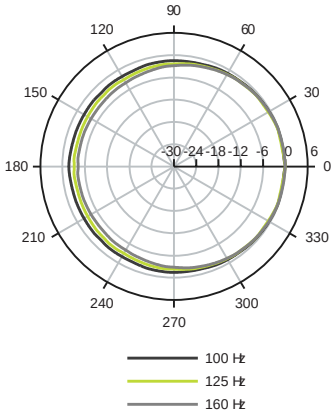
Vertical Plots

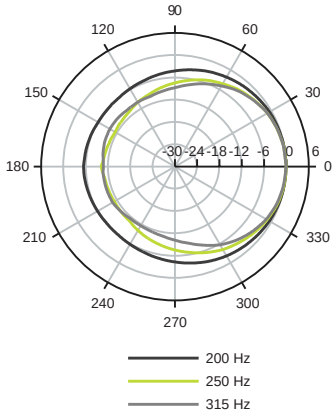
63 Hz Octave Band



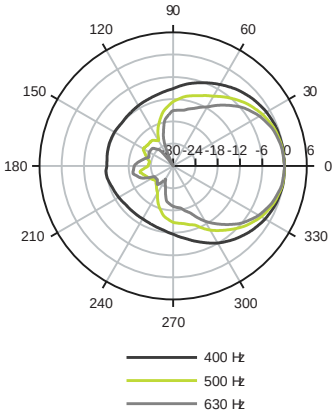
125 Hz Octave Band



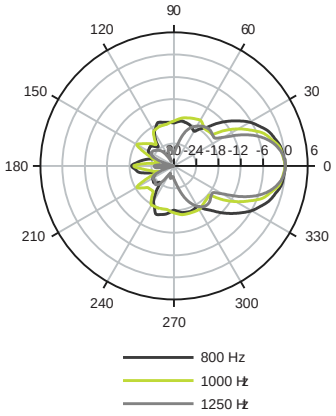
250 Hz Octave Band



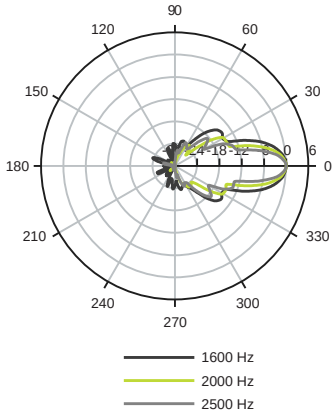
500 Hz Octave Band



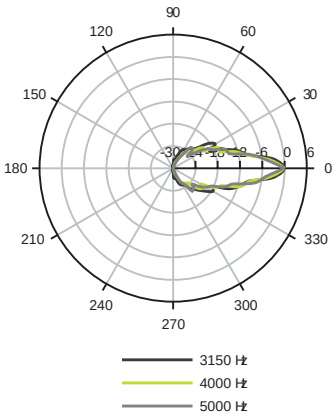
1000 Hz Octave Band



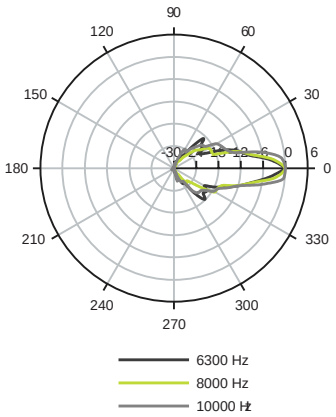
2000 Hz Octave Band



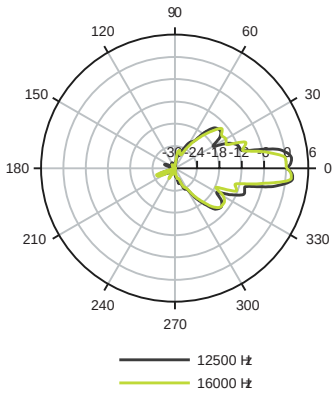
4000 Hz Octave Band



8000 Hz Octave Band



16000 Hz Octave Band



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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 103 dB SPL in free field with 1 W input, and be capable of producing peak output of 131 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 35°+60° horizontal x 20° vertical or 60° +35° horizontal x 20° 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 20.0 x 39.1 x 23.6 in (509 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® RM356020 or RM603520 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