



PANARAY® LT 4402® Series III Mid/High-Frequency Loudspeaker

PROFESSIONAL SYSTEMS DIVISION

Product Overview

The Bose® Panaray® LT 4402®-III loudspeaker is a mid/high-frequency device designed for medium-to-long throw distances. The LT 4402-III loudspeaker offers a 44° horizontal by 38° vertical dispersion pattern which is well suited for highly reverberant spaces.

When arrayed correctly, LT 4402-III loudspeakers behave sonically as a large, single source of sound energy. This coherent wavefront provides full fidelity and even coverage at critical mid and high frequencies throughout the coverage area of the array.

Product Information

Each Panaray LT 4402-III loudspeaker uses two V2 mid-frequency drivers and a 1.4" compression driver mounted on a 40°H x 40°V constant directivity waveguide.

The LT 4402-III loudspeaker can be operated in passive or bi-amplified mode.

In passive mode, the internal passive crossover network is utilized, and a single amplified signal is connected to the loudspeaker.

In bi-amplified mode, the mid-frequency and high-frequency drivers are accessed through separate pins on the Neutrik NL4 connectors.

The 10-ply, marine-grade Baltic birch enclosure has sixteen threaded inserts, four each on the top, bottom and sides. Each hang point will accept standard SAE 3/8 - 16 rigging hardware.



Key Features

- Pattern control of 44°H x 38°V
- Designed for indoor and many outdoor applications*
- Coherent wavefront performance at critical mid- and high-frequencies
- Proprietary V2 mid-frequency engine with integrated heat sink provides smooth mid-band frequency response and high driver reliability
- Designed for medium-to-long throw distances
- 10-ply, marine-grade Baltic birch enclosure
- Sixteen stainless steel hang points
- Contoured, powder coated stainless steel grille
- Selectable passive and bi-amp modes
- Optional rigging accessories available from ATM Fly-Ware®

Applications

The LT 4402-III loudspeaker is ideal for medium-to-long throw applications such as:

- Stadiums
- Arenas
- Houses of worship
- Auditoriums
- Performing arts facilities
- Outdoor* event facilities

* LT loudspeakers can be installed outdoors under cover.



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Detailed Product Specifications – Acoustic

	Passive	Bi-amplified	
		Mid	High
Power Handling ¹	140W	140W	75W
Impedance	8Ω	8Ω	8Ω
Sensitivity ² (at 1W @ 1m)	108 dB-SPL	106 dB-SPL	107 dB-SPL
Maximum SPL ³ (pink noise @ 1m @ rated power)	130 dB-SPL 136 dB-SPL (Peak)	128 dB-SPL 134 dB-SPL (Peak)	126 dB-SPL 132 dB-SPL (Peak)
Recommended Crossover	Internal Crossover @ 1.6 kHz	Mid Frequency HPF: 160 Hz, Butterworth, 4th order LPF: 1600 Hz, Butterworth, 4th order	
		High Frequency HPF: 1600 Hz, Butterworth, 4th order LPF: 20 kHz, Butterworth, 4th order	
Frequency Range ⁴ (± 3 dB)	180 Hz - 16 kHz		
Beamwidth (-6 dB point, average 800 Hz - 5 kHz)	Horizontal: 44°, Vertical: 38°		

Additional Product Information

The Panaray® LT 4402®-III loudspeaker requires equalization through the use of Bose® active equalization or by using 4-6 bands of parametric equalization along with a high-pass filter and a low-pass filter. Equalization is required for both passive and bi-amplified configurations.

Active equalization for the LT 4402-III loudspeaker can be provided by using the Panaray LT 4402-III EQ card or the Panaray system digital controller with presets for each Panaray speaker and combination of speakers. A parametric equalizer can replicate the active equalization curve below along with a high-pass filter and low pass filter as shown.

Recommended controller:

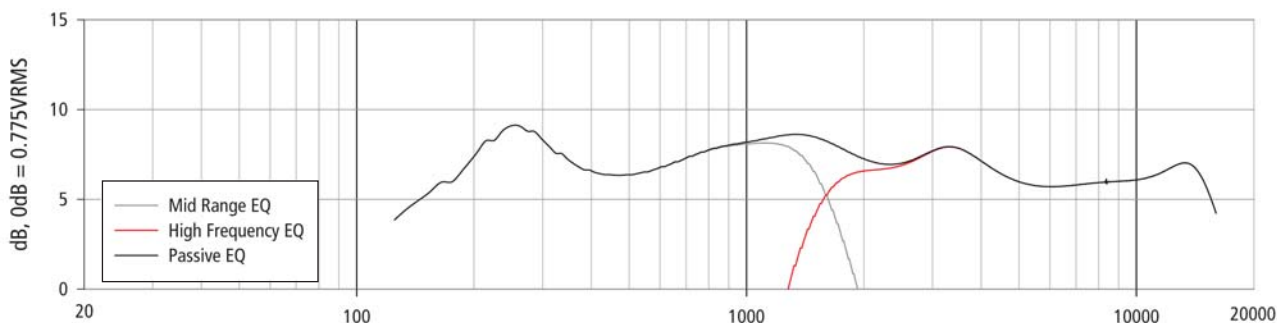
The Panaray system digital controller has a universal power supply for worldwide use. Variants of the product refer to the AC cord included with the product. There are five variations.

- Australia: PC 028024
- Europe: PC 028022
- North America: PC 028021
- Japan: PC 028025
- United Kingdom: PC 028023

Available EQ Cards:

- Panaray LT 4402-II/III active equalization card PC 011504
- LT mid-frequency EQ card PC 018485

Active Equalization Curves



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Driver complement:

Mid-frequency: Two V2 drivers per cabinet.

High-frequency: One 1.4" compression driver per cabinet.

Construction features:

10-ply, marine-grade Baltic birch enclosure with sixteen stainless steel hang points and a powder coated stainless steel grille.

Hang points:

Sixteen stainless steel threaded inserts – four top, four bottom, and four on each side – allow for easy rigging. The threaded inserts are SAE $\frac{3}{8}$ - 16 thread, with at least 18 usable threads.

Rigging:

Panaray® LT 4402®-III loudspeakers can be used with the ATM Fly-Ware® AFGS system. For more information contact ATM Fly-Ware at www.ATMflyware.com

Dimensions:

24"D x 18.5"W x 34"H
(610 mm x 471 mm x 884 mm)

Weight:

111 lb (50 kg)

Shipping weight:

142 lb (64 kg)

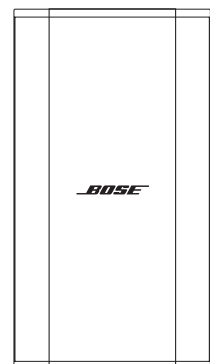
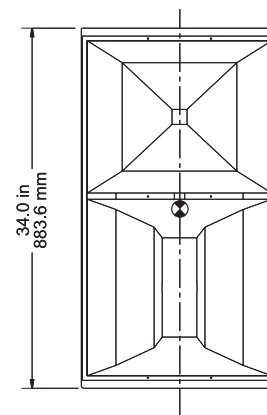
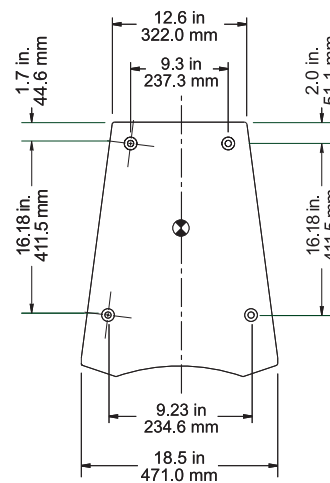
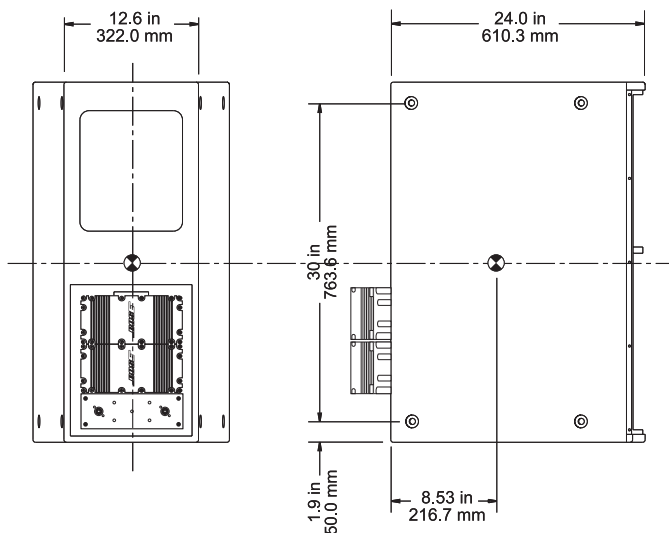
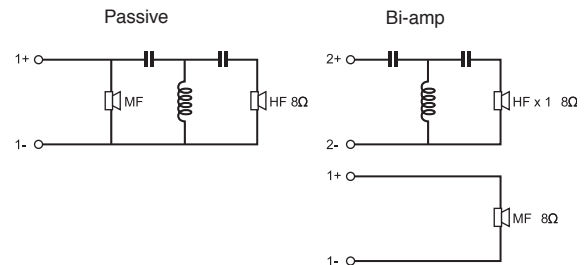
Finish:

Each loudspeaker is manufactured with a textured black polyurethane finish and contoured, powder coated stainless steel grille. Both cabinet and grille can be painted to match the surroundings.

Connectors:

Two Neutrik NL4 connectors wired in parallel with internal jumper for configuring passive and bi-amp modes.

NL4 Wiring Diagram:



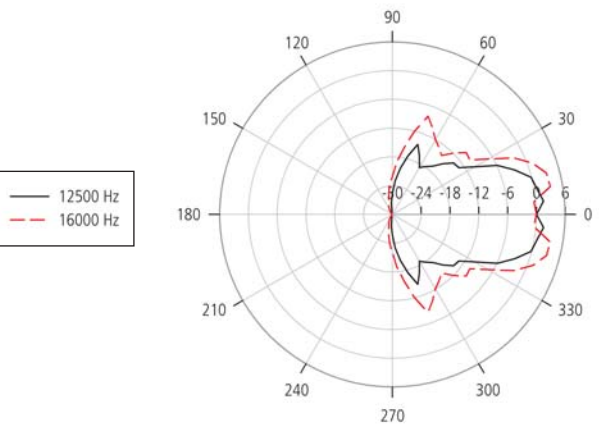
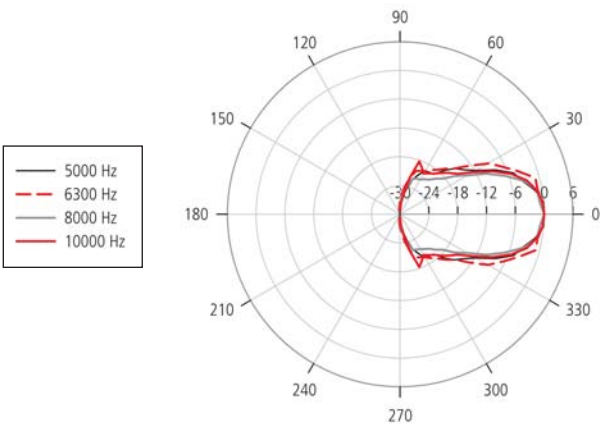
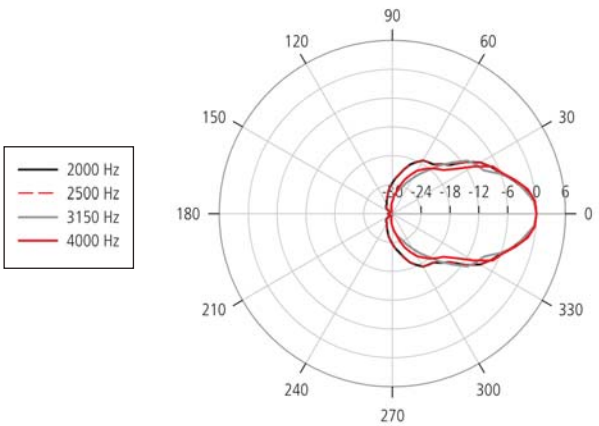
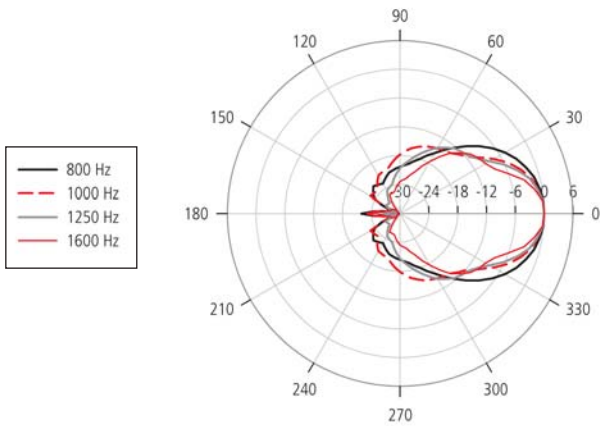
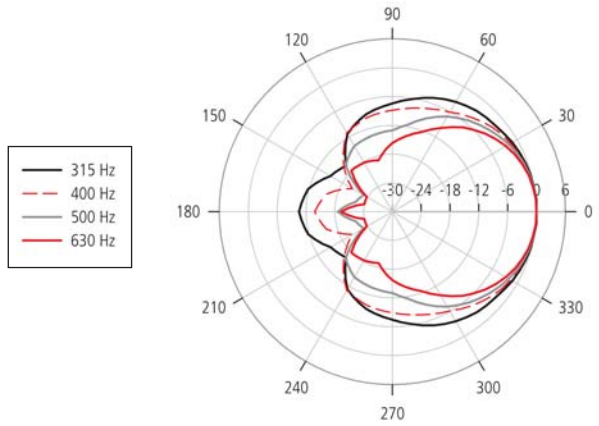
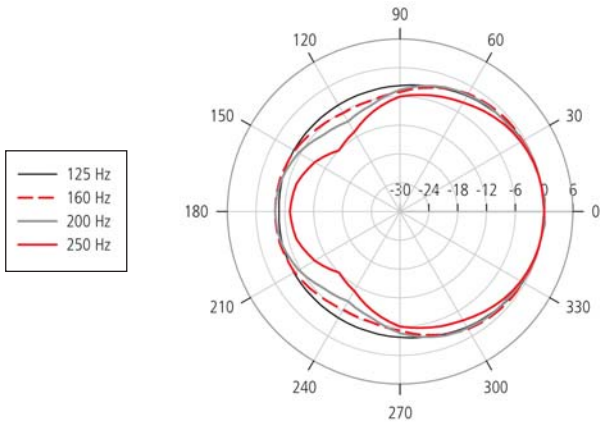
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Polar Plots 1/3 Octave Horizontal



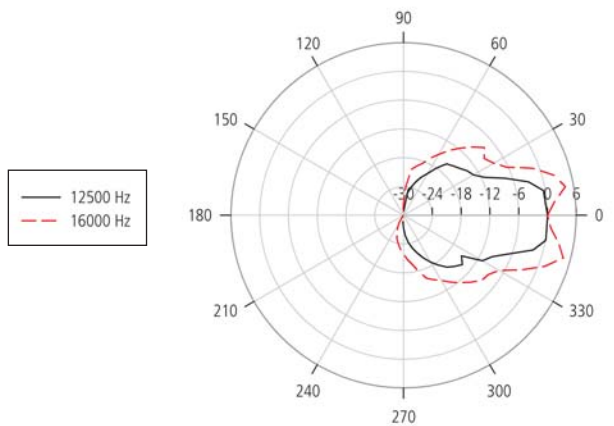
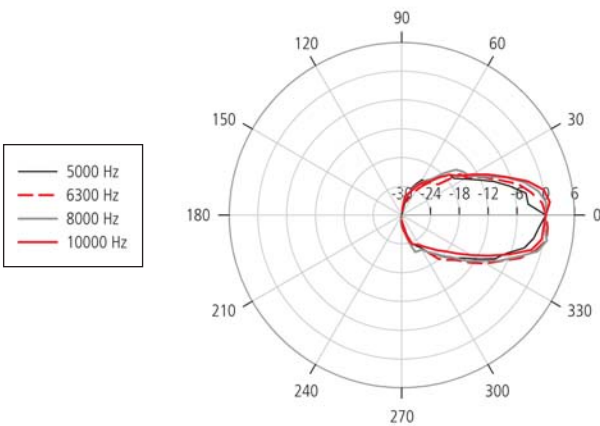
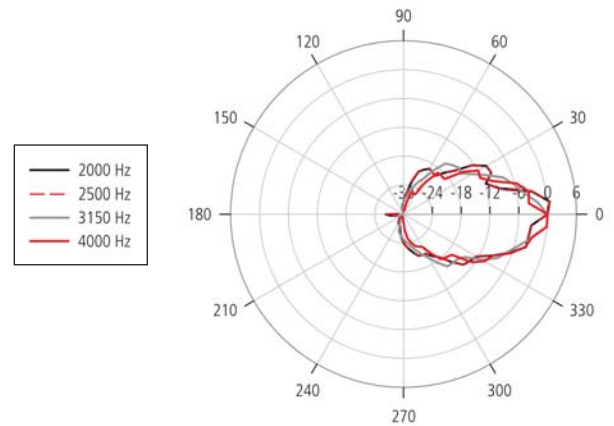
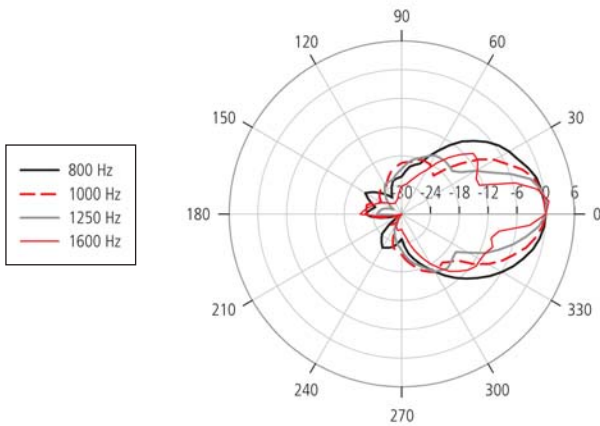
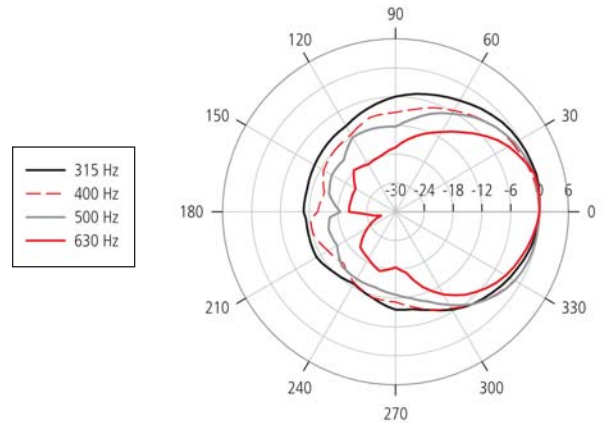
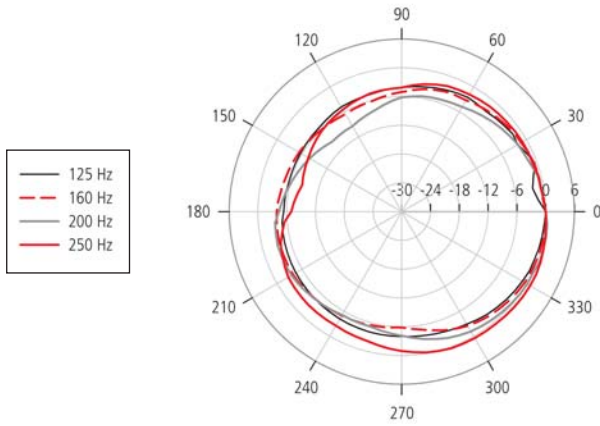
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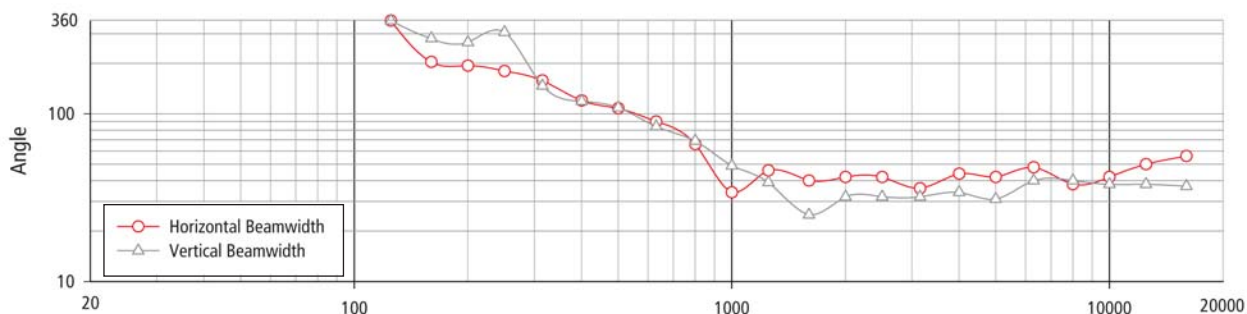


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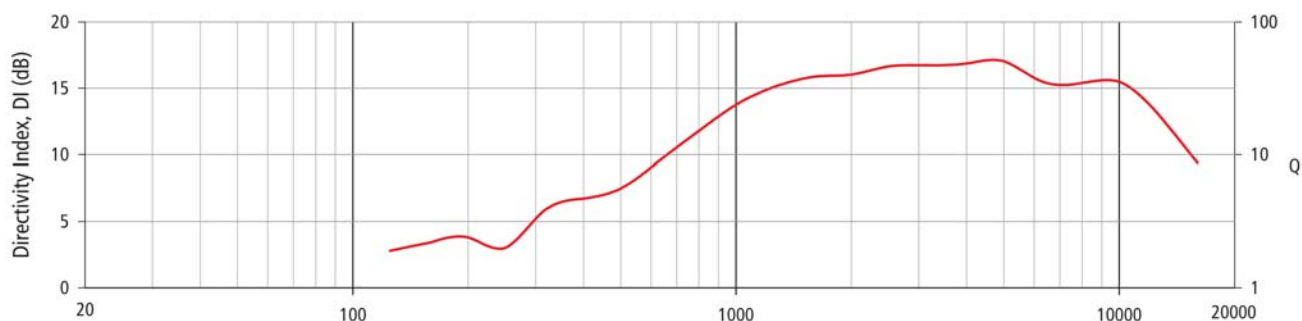
Polar Plots 1/3 Octave Vertical



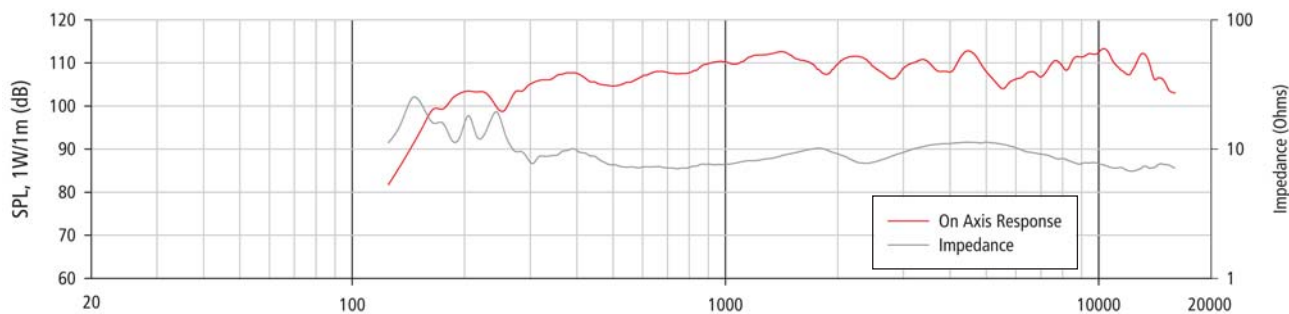
Beamwidth



Directivity Index and Q



On-Axis Response – Impedance vs. Frequency



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Engineers' and Architects' Specifications

The mid/high-frequency device shall be a multiple driver system as follows: The transducer complement shall consist of two mid-range drivers and one high-power compression driver mounted vertically, such that directional characteristics provide a smooth response.

The array enclosure shall be composed of 10-ply, marine-grade Baltic birch with 16 stainless steel hang points and a paintable, contoured, powder coated stainless steel grille, with outer dimensions of 24"D x 18.5"W x 34"H (610 mm x 471 mm x 884 mm); its weight shall be 111 lb (50 kg).

Nominal horizontal beamwidth shall be 44 degrees and nominal vertical beamwidth shall be 38 degrees (-6 dB point, 800 Hz – 5 kHz).

The loudspeaker shall comply with ANSI/EIA 636 for electrical and mechanical safety and with EU EMC directive 89/336/EEC.

All versions of this product shall bear the CE mark.

The loudspeaker shall be the Bose® Panaray® LT 4402®-III loudspeaker.

Technical Literature

Panaray LT Reference Guide
Panaray LT Array Guide
Designing Panaray LT Systems
Panaray LT Sample Clusters

Available at pro.bose.com

Safety and Regulatory Compliance

The LT 4402-III loudspeaker complies with ANSI/EIA-636 *Recommended Loudspeaker Safety Practices* and with EU EMC Directives 89/336/EEC for CE marking.

Safety Features

EIA-636: *Recommended Loudspeaker Safety Practices*
This document is a set of guidelines related to the safe design and testing of loudspeakers and their components set by the Electronics Industry Association. Although one cannot list a product to the standard, Bose has performed the tests outlined for the LT 4402 product, and it complies with the standard as set forth in EIA-636.

Warranty

The Bose Panaray LT 4402-III mid/high-frequency loudspeaker is covered by a 5-year transferable limited warranty.

Replacement Parts

LT 4402-III grille (includes screws)	PN 276844
Replacement screws for grille	PN 276847
Replacement logo	PN 276848
Input panel with crossover board	PN 276852
Compression driver	PN 276860
Diaphragm for compression driver	PN 276861
Compression driver plate with screws	PN 276849
V2 assembly with drivers	PN 276850

All replacement parts are available through authorized Bose Service Centers.

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How our loudspeakers are measured

1. Power Handling

Full-bandwidth pink noise, meeting the IEC Standard #268-5, is applied to the loudspeaker and amplified to a level at the loudspeaker terminals corresponding to the power handling of the loudspeaker. The loudspeaker must show no visible damage or measurable loss of performance after 100 hours of continuous testing.

2. Sensitivity

Full-bandwidth pink noise is applied to the loudspeaker with its active equalization curve and amplified to a level at the loudspeaker terminals corresponding to 1 watt as referenced to the nominal impedance. The average sound pressure level (dB-SPL) is measured at 1 meter from the speaker in an anechoic environment.

3. Maximum SPL

Full-bandwidth pink noise is applied to the loudspeaker with its active equalization curve and amplified to a level at the loudspeaker terminals corresponding to the long-term rated power handling of the speaker. The average sound pressure level (dB-SPL) is measured at 1 meter from the speaker in an anechoic environment.

4. Frequency Range

Sine waves are injected into the loudspeaker and the level is adjusted to 1W, as referenced to the nominal impedance, and the level measured at 1m. Resulting graph is smoothed by 0.05 octave-band.