



# PANARAY® LT 9403

## Full Range Loudspeaker

### PROFESSIONAL SYSTEMS DIVISION

## Product Overview

The Bose® Panaray LT 9403 loudspeaker is a 3-way, high SPL, full-range loudspeaker system designed for indoor medium venue applications. The LT 9403 offers a 93° horizontal by 49° vertical dispersion which provides consistent on-and-off axis response.

The LT 9403 is available in both black and white and features a contoured front profile designed for aesthetic appeal. It also includes an easy to remove rotatable waveguide allowing the loudspeaker to be mounted either vertically or horizontally.

The LT 9403 is an ideal solution where high SPL, full-range response and directivity control are required without the need for additional bass augmentation.

## Product Information

Each Panaray LT 9403 loudspeaker is a full-range, three-way device that uses a 15" woofer, a V2 mid-frequency driver and a 1.0" compression driver mounted on a 90°H x 40°V constant directivity horn.

The LT 9403 loudspeaker can be operated in a 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 low-frequency and mid/high-frequency drivers are accessed through separate pins on the NL4 connectors.

The LT 9403 loudspeaker employs 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 recommended for both passive and bi-amplified configurations.

The 13-ply Baltic birch enclosure has sixteen threaded inserts, four each on the top, bottom and sides. Each hang point will accept standard SAE ½" – 16 rigging hardware.



## Key Features

- Pattern control of 93°H x 49°V
- Designed for indoor applications
- Constant directivity waveguide provides a high degree of pattern control
- Proprietary V2 mid-frequency engine with integrated heat sink provides smooth mid-band performance and high driver reliability
- 13-ply Baltic birch enclosure
- 16 steel hang points
- Contoured powder coated steel grille
- Selectable passive (full-range) and biamp modes
- Rotatable wave guide allows the cabinet to be positioned vertically or horizontally.
- Removable rear panel allows for easy service
- Designed for medium throw distances
- Available in black and white
- Optional rigging accessories available from ATM Flyware®

## Applications

Panaray LT loudspeakers are well suited for professional installations such as:

- Houses of worship
- Auditoriums
- Performing arts facilities
- Dance clubs
- Live sound venues
- Sports facilities
- Transportation facilities



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### Detailed Product Specifications

	PASSIVE Full Range	BI-AMPLIFIED	
		Low	Mid/High
Power Handling <sup>1</sup>	500W	300W	100W
Impedance	8 Ω	8 Ω	8 Ω
Sensitivity <sup>2</sup> (at 1W @ 1m)	94 dB-SPL	93 dB-SPL	101 dB-SPL
Maximum SPL <sup>3</sup> (pink noise @1m @ rated power)	121 dB-SPL 127 dB-SPL (Peak)	118 dB-SPL 124 dB-SPL (Peak)	121 dB-SPL 127 dB-SPL (Peak)
Recommended Crossover Frequency	Internal Crossover: Low Frequency @ 300Hz Mid/High Frequency @ 1.8 kHz	<b>HPF:</b> 300 Hz, 2nd Order or better <b>LPF:</b> 1800 Hz, 2nd Order or better	<b>HPF:</b> 1800 Hz 2nd Order or better <b>LPF:</b> 20 kHz, 2nd Order or better
Frequency Range <sup>4</sup> (± 3dB)	50 Hz - 16 kHz		
Beamwidth (-6dB point, average 800 - 5 kHz)	Horizontal: 93°, Vertical: 49°		

<sup>1-4</sup> See "How our loudspeakers are measured" on page 8.

### Additional Product Information

The Panaray® LT 9403 loudspeaker employs 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 recommended for both passive and bi-amplified configurations. Active equalization for the LT 9403 loudspeaker can be provided by using the Panaray system digital controller or ControlSpace™ ESP-88.

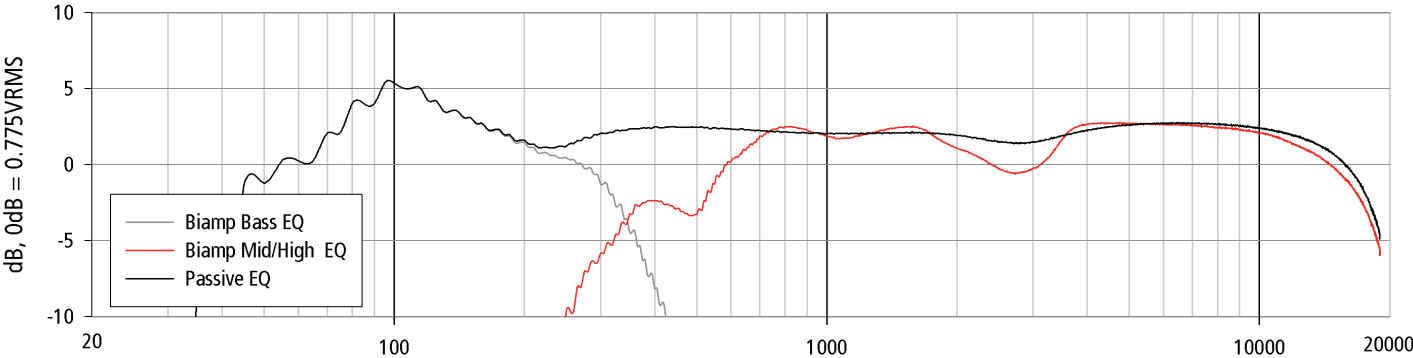
Recommended controller:

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

### Active Equalization Curves



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### Driver complement:

Low-frequency: One 15" woofer  
Mid-frequency: One V2 driver  
High-frequency: One 1.0" compression driver

### Construction features:

Cabinet: 13-ply Baltic birch enclosure with 16 steel hang points.  
Waveguide: 10-ply Baltic birch construction  
Grille: Powder coated steel

### Hang points:

Sixteen 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 9403 loudspeakers can be used with the ATM Fly-Ware® AFGS system. For more information contact ATM Fly-Ware at [www.ATMflyware.com](http://www.ATMflyware.com)

### Dimensions:

22.2"D x 24.10"W x 34.4"H  
(564mm x 612mm x 873mm)

### Weight:

Product: 135 lb. (61 kg) Shipping: 160 lb. (73 kg)

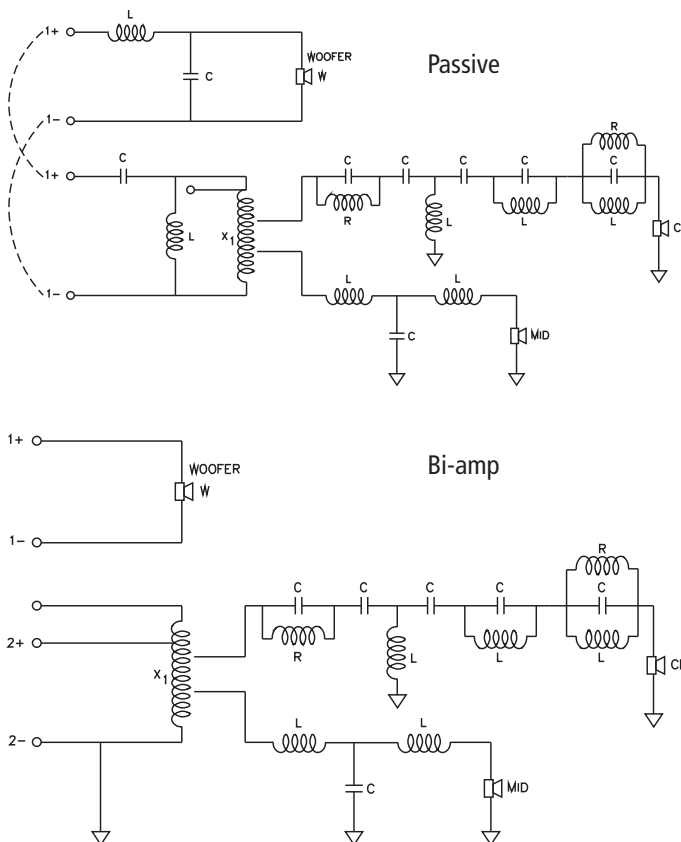
### Finish:

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

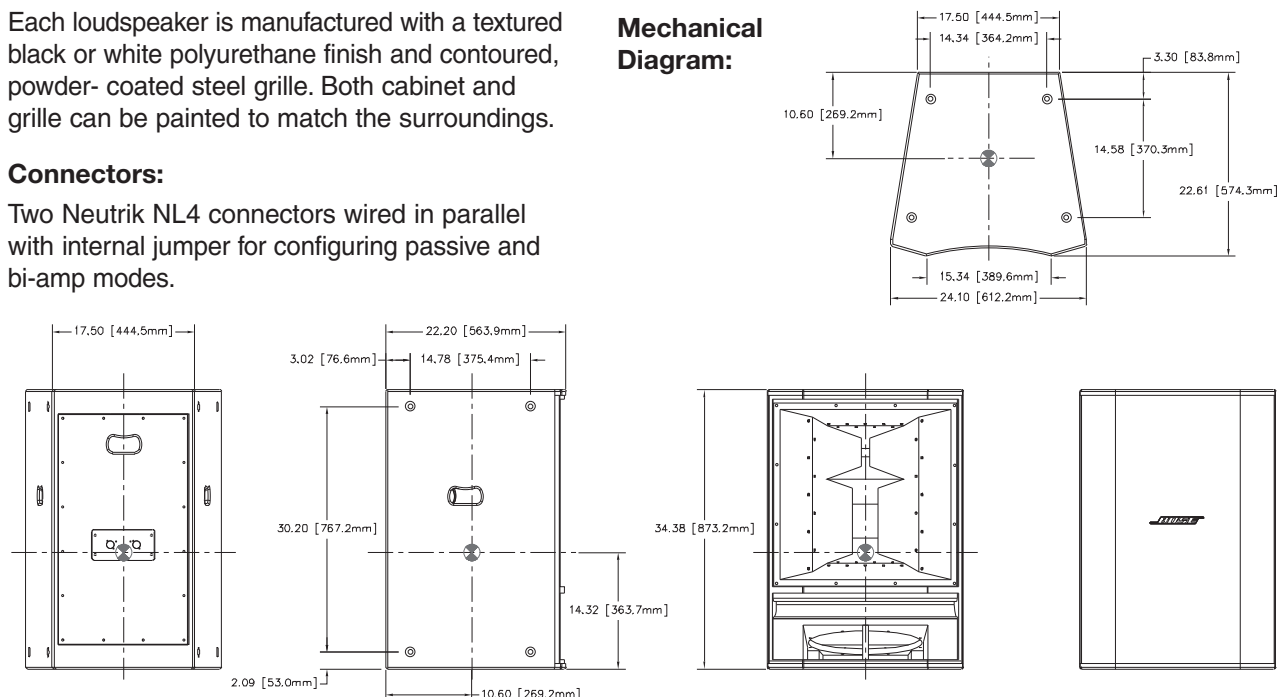
### Connectors:

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

### NL4 Wiring Diagrams:



### Mechanical Diagram:



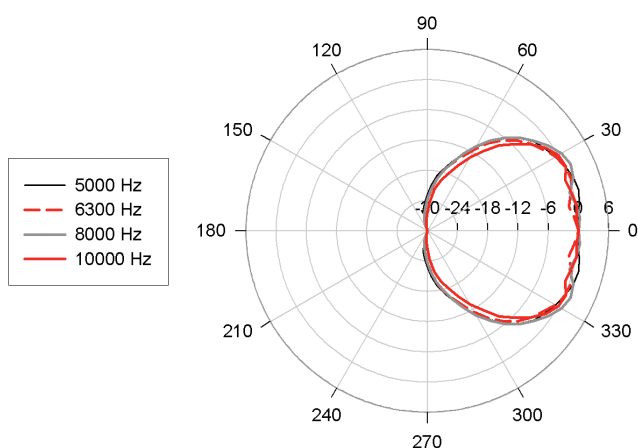
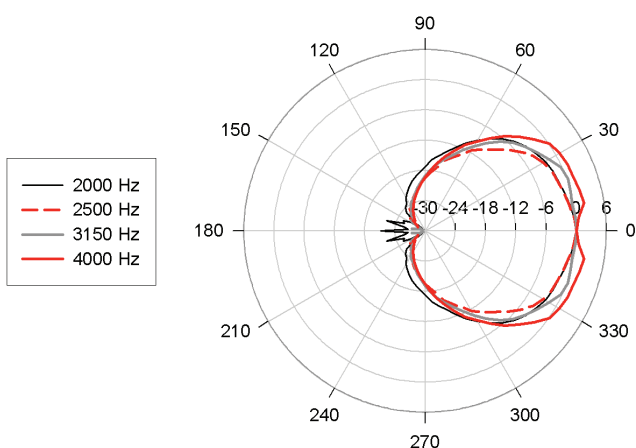
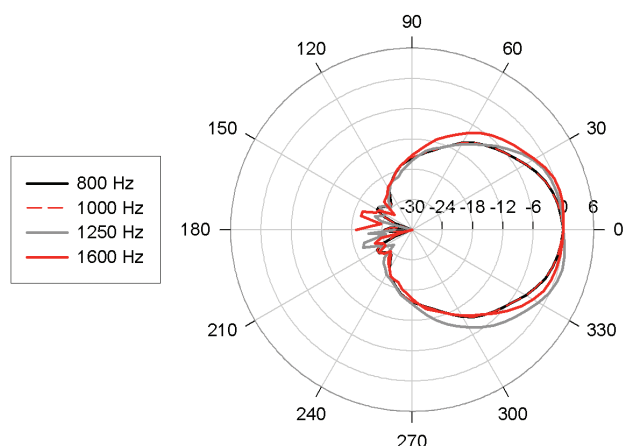
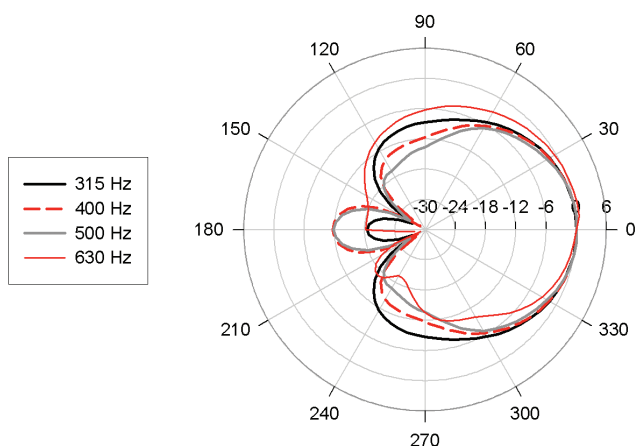
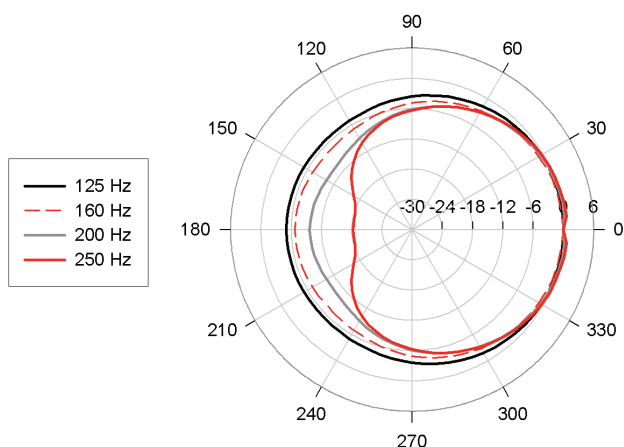
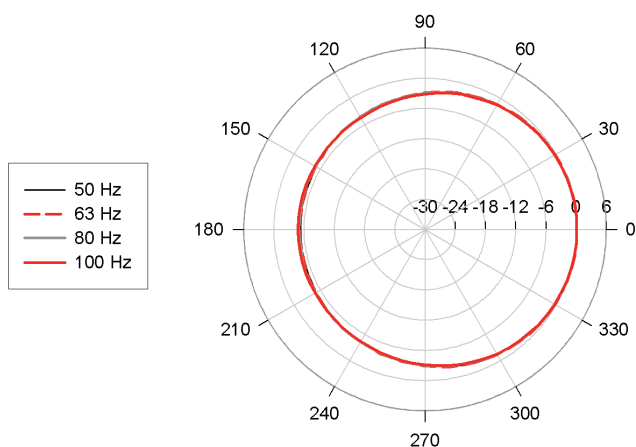
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### Polar Plots 1/3 Octave Horizontal



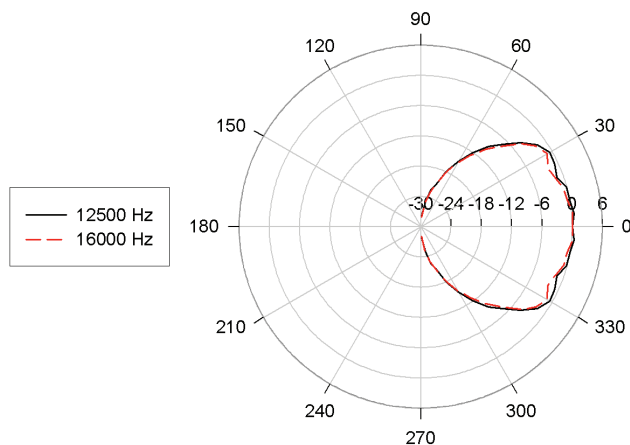
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## Full Range Loudspeaker

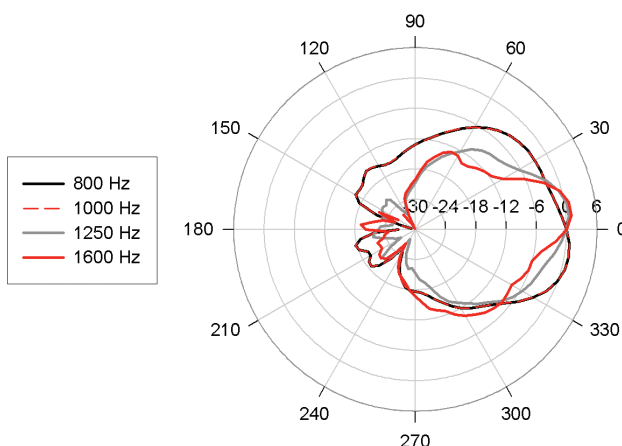
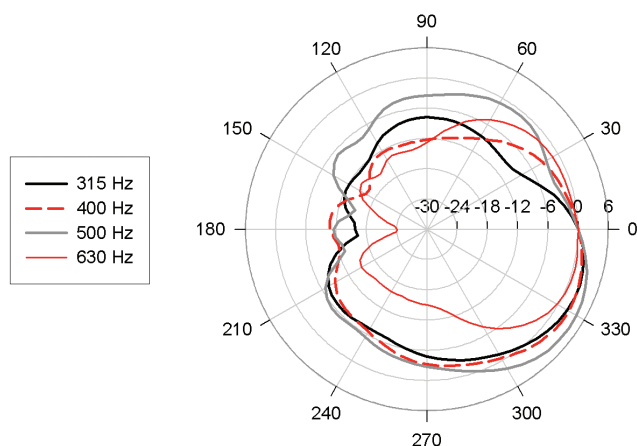
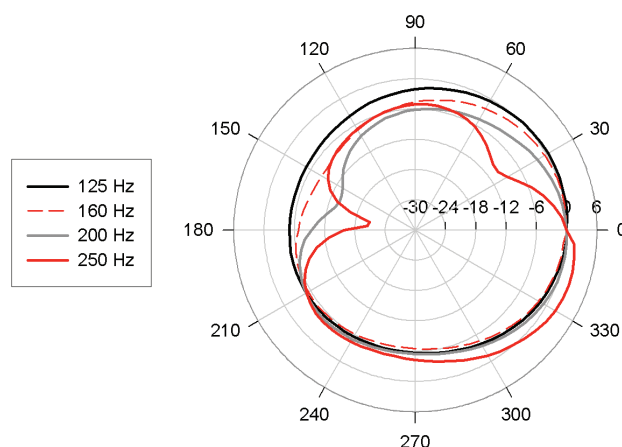
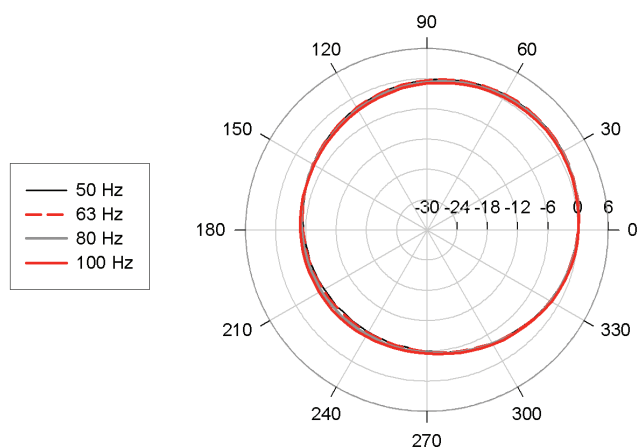
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### Polar Plots 1/3 Octave Horizontal *continued*



### Polar Plots 1/3 Octave Vertical



*continued on page 6*

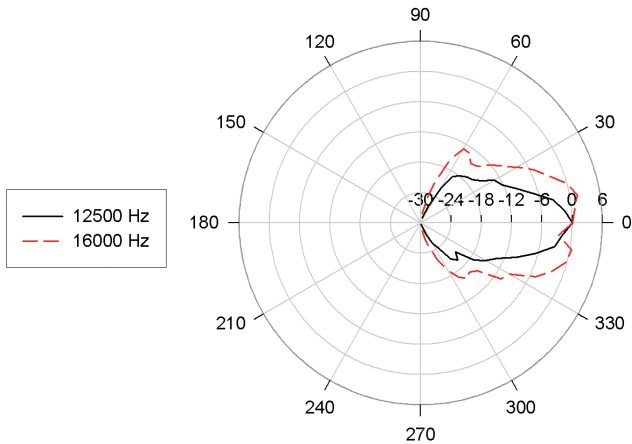
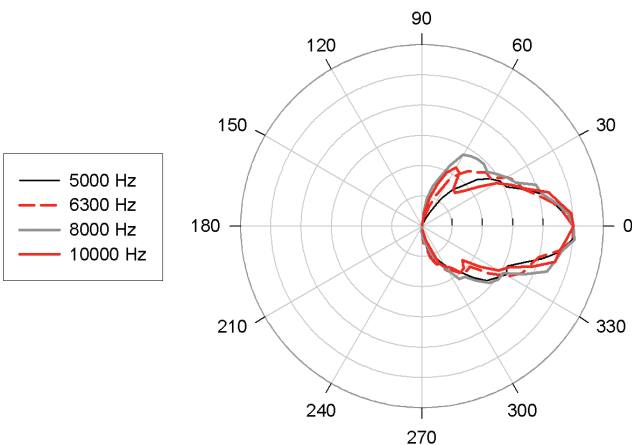
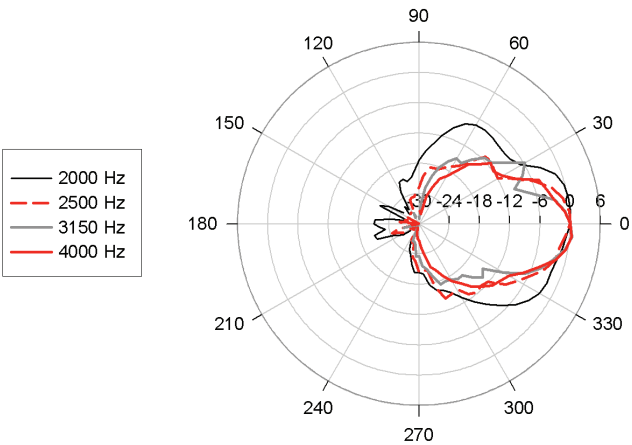
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## Full Range Loudspeaker



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### Polar Plots 1/3 Octave Vertical *continued*



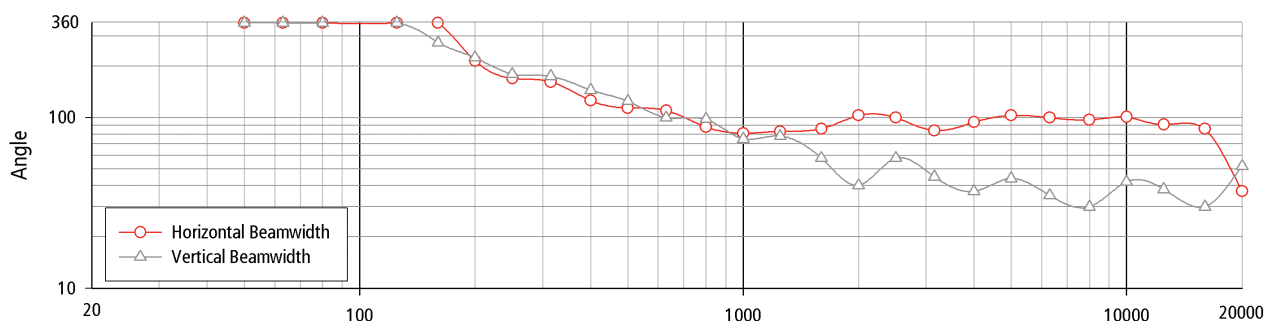
# PANARAY® LT 9403

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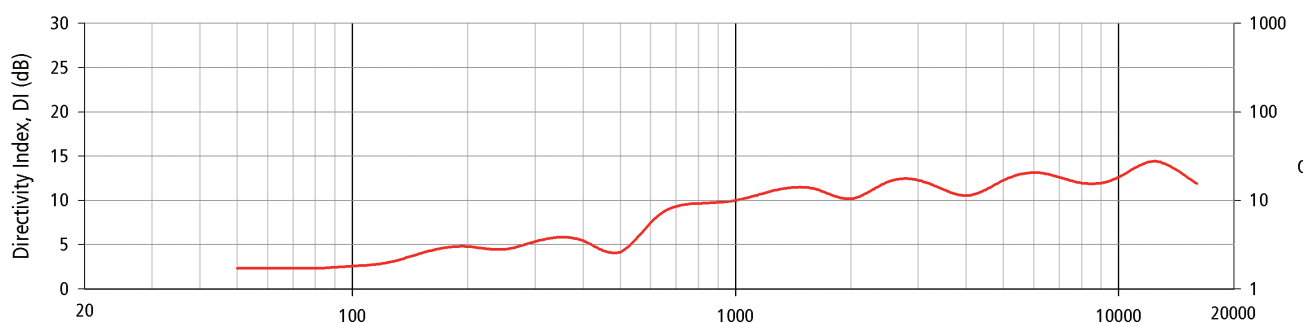
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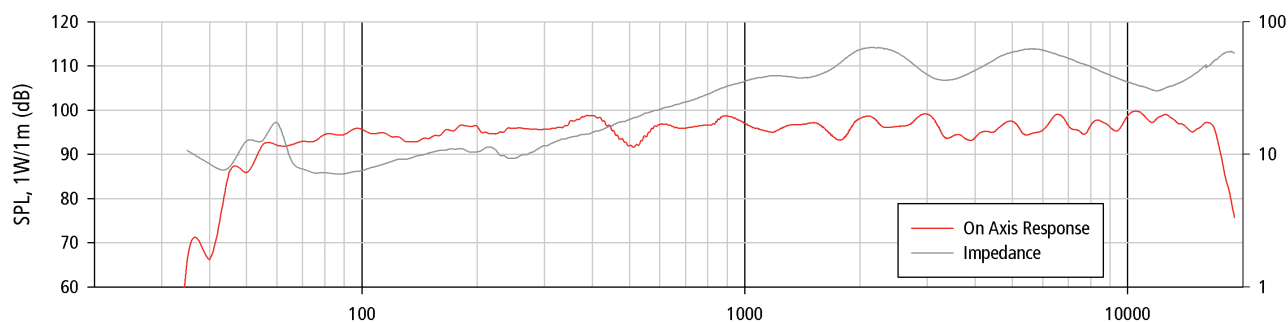
### Beamwidth



### Directivity Index and Q



### On Axis Response – Impedance vs. Frequency





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### Engineers and Architects Specifications

The full-range device shall be a 3-driver system as follows: The transducer complement shall consist of one low-frequency driver, one mid-frequency driver and one high power compression driver mounted vertically, such that directional characteristics provide a smooth response.

The array enclosure shall be composed of 13-ply Baltic birch with 16 steel hang points and a paintable, contoured steel grill with outer dimensions of 22.2"D x 24.10"W x 34.4"H (564mm x 612mm x 873mm) its weight shall be 135 lb. (61kg).

Nominal horizontal beamwidth shall be 93 degrees and nominal vertical beamwidth shall be 49 degrees (-6db point, 800Hz – 5kHz).

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

All versions of this product shall bear the CE mark.

The loudspeaker shall be the Bose® Panaray® LT 9403 loudspeaker.

### Technical Literature

Panaray LT Reference Guide

### Safety and Regulatory Compliance

The LT 9403 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 9403 product, and it complies with the standard as set forth in EIA-636.

### Warranty

The Bose Panaray LT 9403 Full Range loudspeaker is covered by a 5-year transferable limited warranty.

### Product Codes

LT 9403	Black	037828
LT 9403	White	037829

### Replacement Parts

LT 9403 grille ( <i>includes screws</i> )	PN 286533
Replacement screws for grille	PN 276847
Replacement logo	PN 276848
Input connector panel	PN 286535
Crossover board	PN 286537
Screws, mount, woofer	PN 286538
Woofer	PN 286542
Compression driver	PN 286543
Diaphragm for compression driver	PN 286544
V2 assembly	PN 276850

### 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.