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Electro-Voice

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Project: Epworth United Methodist Church System Design Assist with Acoustical Predictions

Date: 11/20/2025

Version: 1

Software: EASE 5

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1 Scope of this Document

1.1 Venue Description

This worship space is a large, open room with bright and light aesthetics, and fan-shaped seating. The worship services incorporate speech, traditional music and light, contemporary music.

1.2 Design Philosophy

The underlying design principle for the proposed system is to deliver consistent loudness and tonality throughout the entire seating area, with sound that is natural, clear, and musical. All loudspeakers should be as inconspicuous as possible and blend in with the existing architecture.

1.3 Information Received

The proposed design is based on drawings and photos provided by Mid South Audio.

1.4 Design Assumptions

This model was built based on information provided by the Customer, which may differ from actual conditions of the venue. Some details which have not been considered significant for direct sound coverage may have been omitted. Audience areas have been estimated as approximate listening planes.

Predictions are intended for conceptual purposes and may not fully represent the actual system deployment in the final installation. Further detailed engineering, on-site measurements and commissioning may be required to validate these predictions and guarantee the expected performance.

This proposal should be further reviewed by a qualified Audio Professional with jurisdiction over the installation to consider:

- All positions, height, and angle measurements are approximate and preliminary. The Installer is responsible for final adjustments to match the "as-built" conditions of the venue.
- Coordination with other trades and architectural impact, including any conflicts with existing fixtures that may impede the direct coverage or correct performance of the loudspeakers.
- Required cabling, mechanical, thermal, and electrical infrastructure for appropriate system operation.
- Acoustical response of the room, weather conditions (cross-winds etc) and implications for clarity/intelligibility. As a Loudspeaker/Electronics Manufacturer, our scope is limited to providing Direct (First Arrival) SPL coverage predictions.
- Review of input program sources and the appropriate location of the loudspeakers to support the intended program.

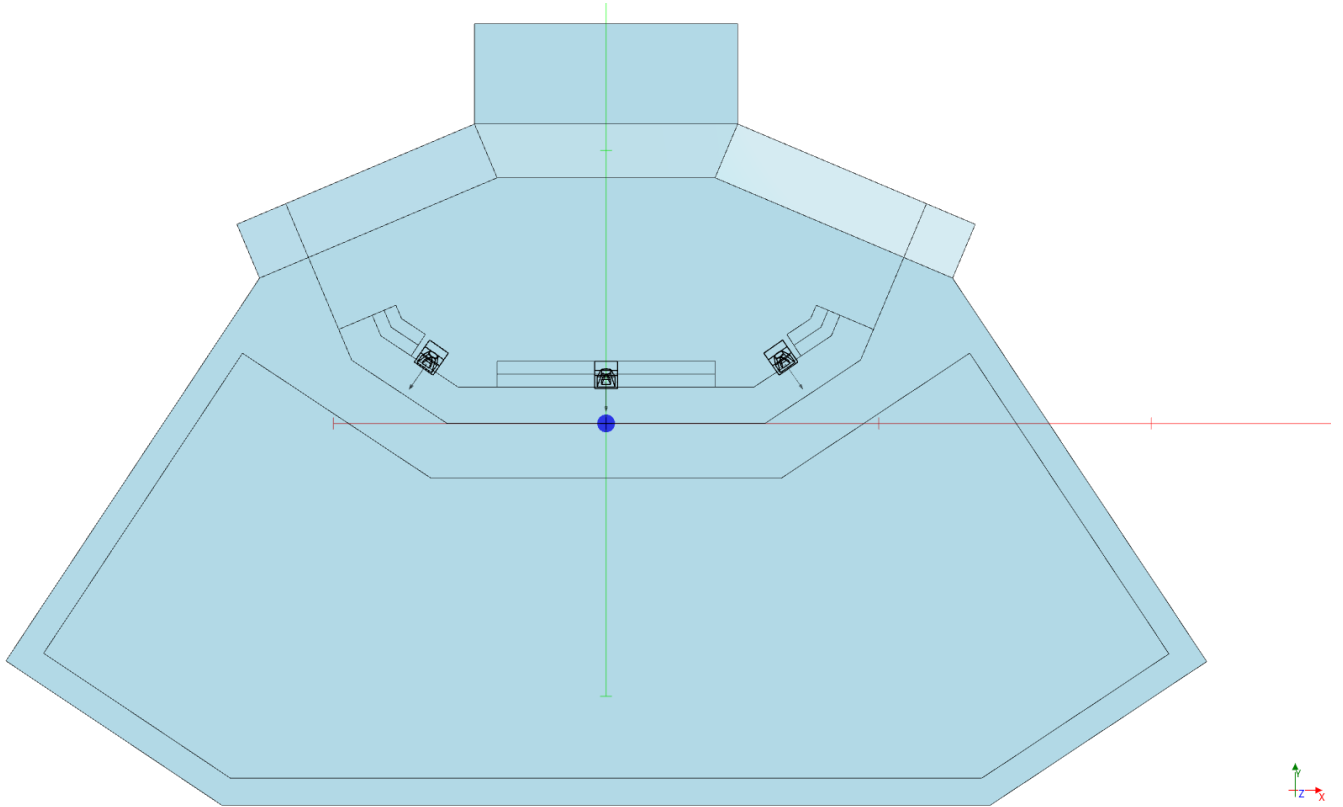
1.5 Structural Considerations

Bosch Security Systems / EVI Audio GmbH assumes no liability for the safety of rigging hardware supplied by other companies, methods used to mount and suspend loudspeakers, or the ability of the structure to support the load being attached to it. Please consult a Structural Engineer to obtain load weight restrictions and safety certification of the structure where the equipment is to be installed. The installer is responsible for the safety of the installation in observance of all applicable building codes.

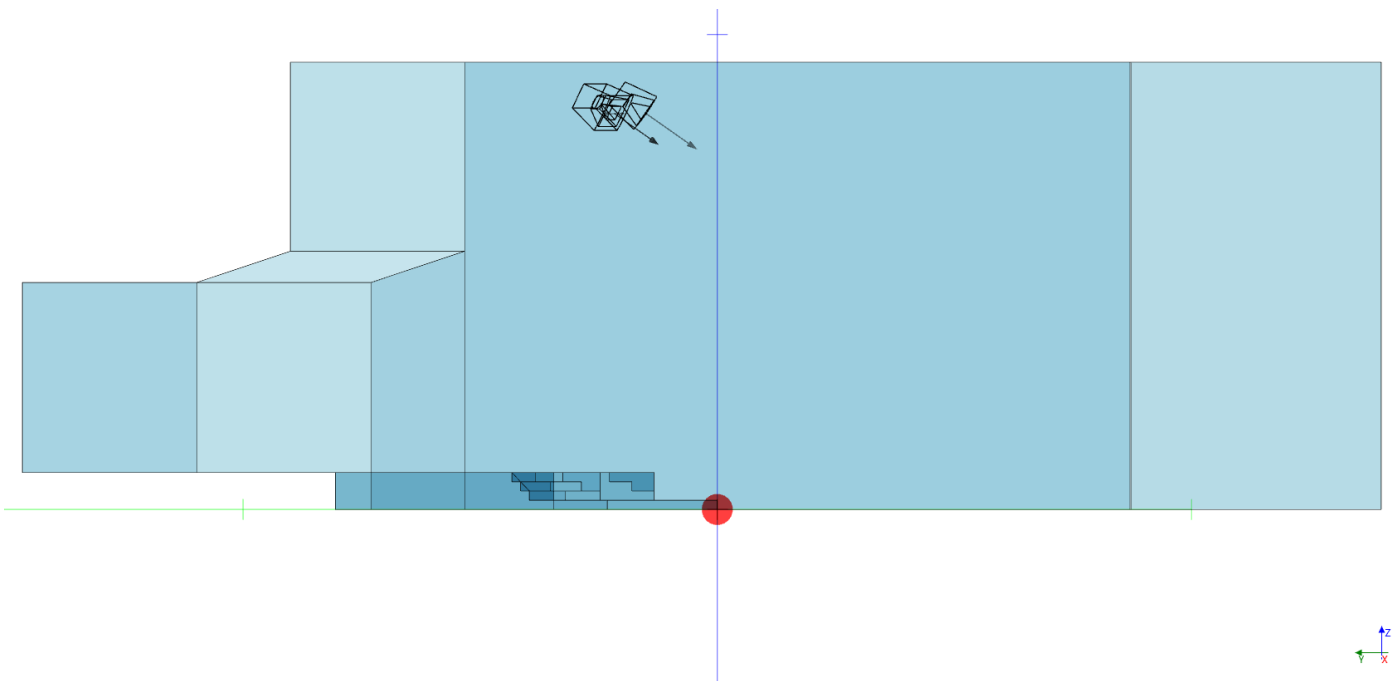


2 Model Views

2.1 Plan View



2.2 Side View



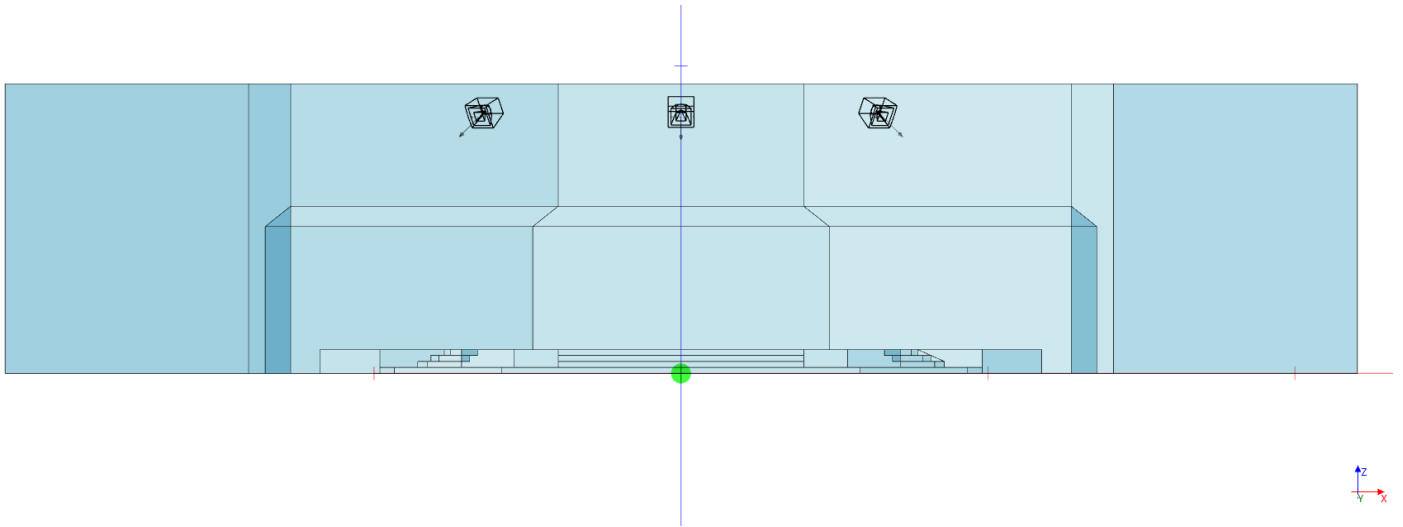


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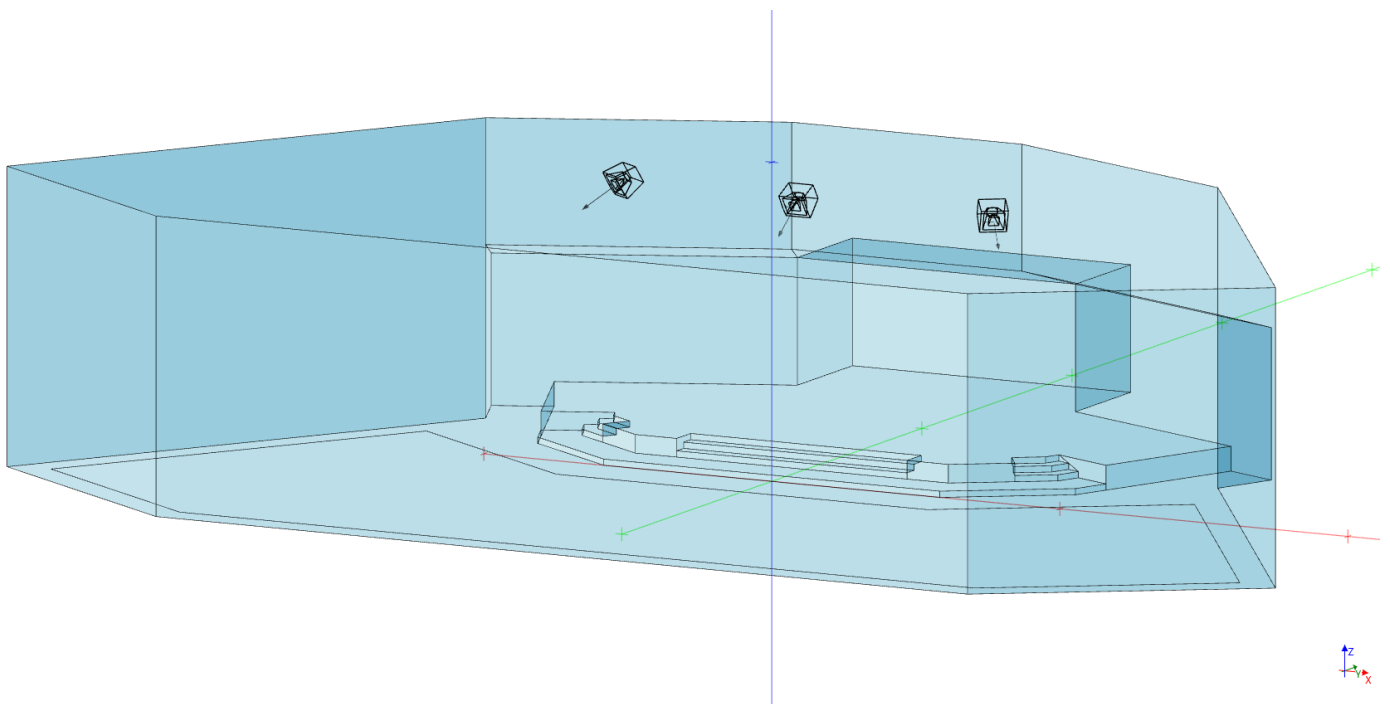


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2.3 End View



2.4 Other Views (Isometric, zoom on details, grid views, etc)





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Proposed loudspeakers will be white and will be suspended below the ceiling in these locations.



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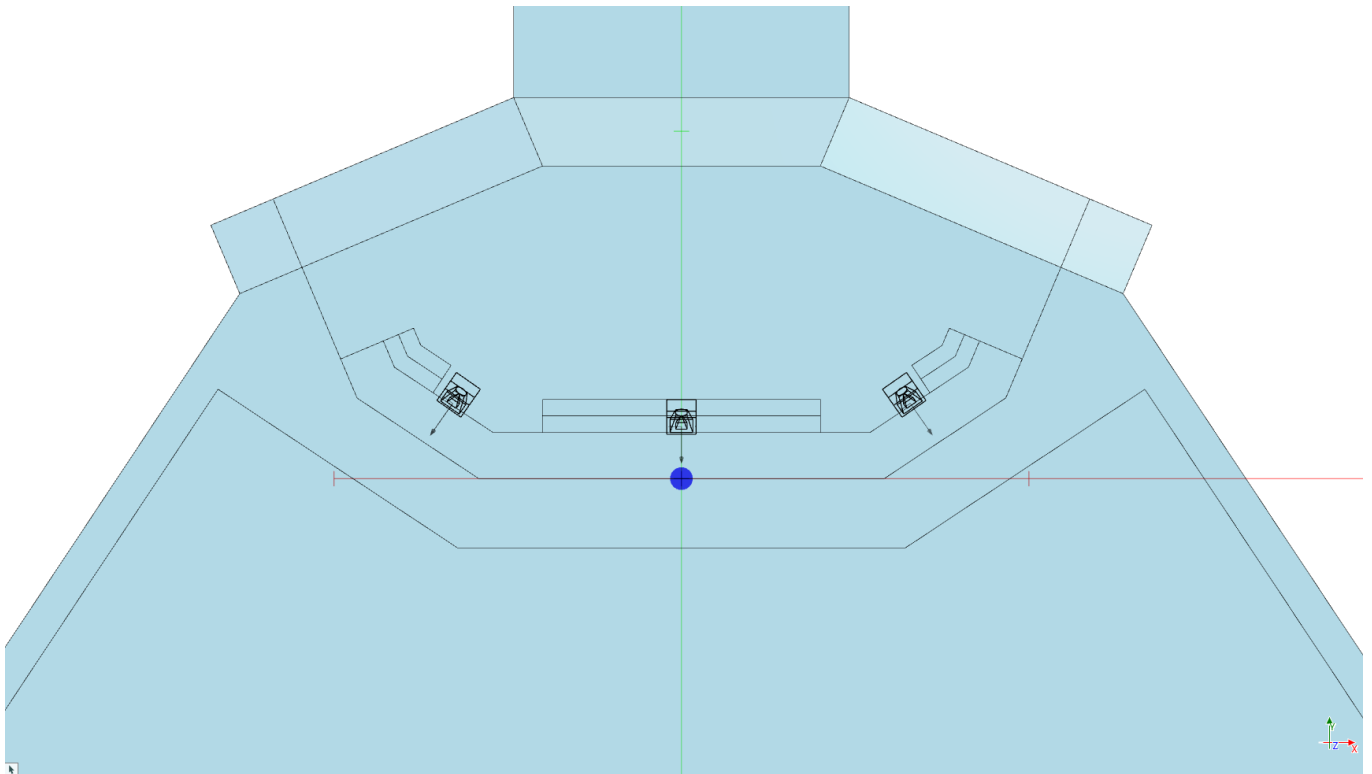
3 Loudspeaker Positioning

**To be considered preliminary and verified against on-site conditions*

*** Orientation angles are not absolute; instead, focus on where the loudspeakers are aimed (refer to views from the previous section) and ensure they are directed towards the intended target.*

3.1 Room Origin Reference

This model was created using center line of the room and junction of the first step and the floor as the origin point for reference locations.





3.2 Speaker List – Cluster / Array Details

Label	Speaker Model	Position X	Position Y	Position Z	Orientation Ver. [°]	Orientation Hor. [°]	Orientation Rot. [°]	Total Gain [dB]	Total Delay [ms]	Headroom [dB]
Center	EVH-1152D-96	0'-0"	4'-6"	25'-0"	-35	0	90	-0.5	0	0.5
Left	EVH-1152D-96	-19'-9"	6'-6"	25'-0"	-30	-35	90	0	0	0
Right	EVH-1152D-96	19'-9"	6'-6"	25'-0"	-30	35	90	0	0	0

Field verify locations for best coordination with existing ceiling elements.



4 Direct SPL Coverage

*Maps shown are limited to the first arrival energy over the selected frequency range and do not include the room's acoustical reflections or impact due to specific weather conditions.

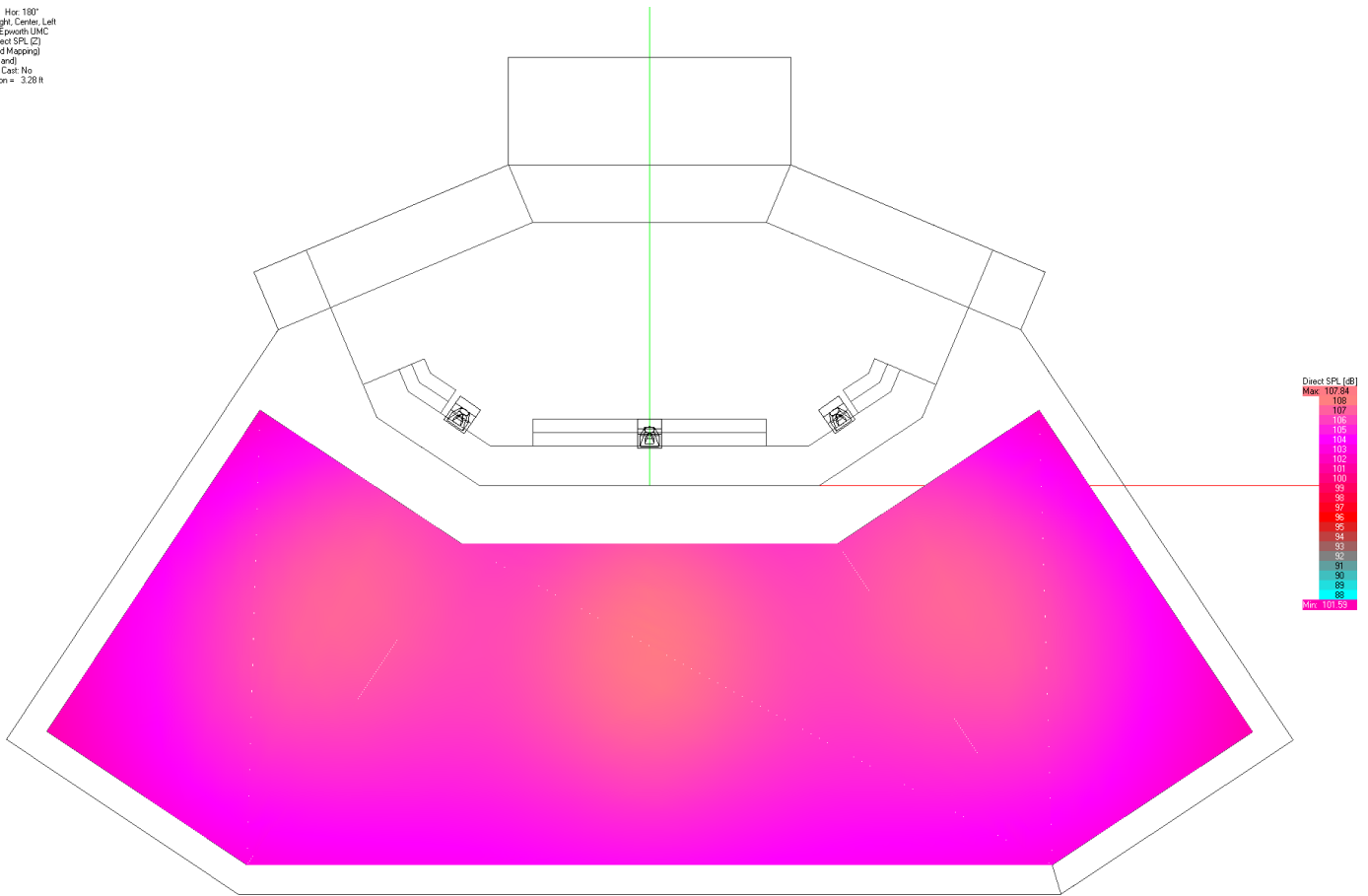
**A-weighted or Z-weighted. If A-weighted, include: "A-weighting is a frequency weighting to account for the relative loudness perceived by the human ear, de-emphasizing the low frequencies below 500 Hz"

All maps are Z-weighted, unless otherwise noted.

4.1 Broadband direct SPL program capability of the system across its usable frequency range.

EASE - Broadband SPL Sum

View: 90° Hor: 180°
Lspk: Right, Center, Left
Project: Epworth UMC
Map: Direct SPL (Z)
(Standard Mapping)
(Broad Band)
Shadow Cast: No
Resolution = 3.28 ft

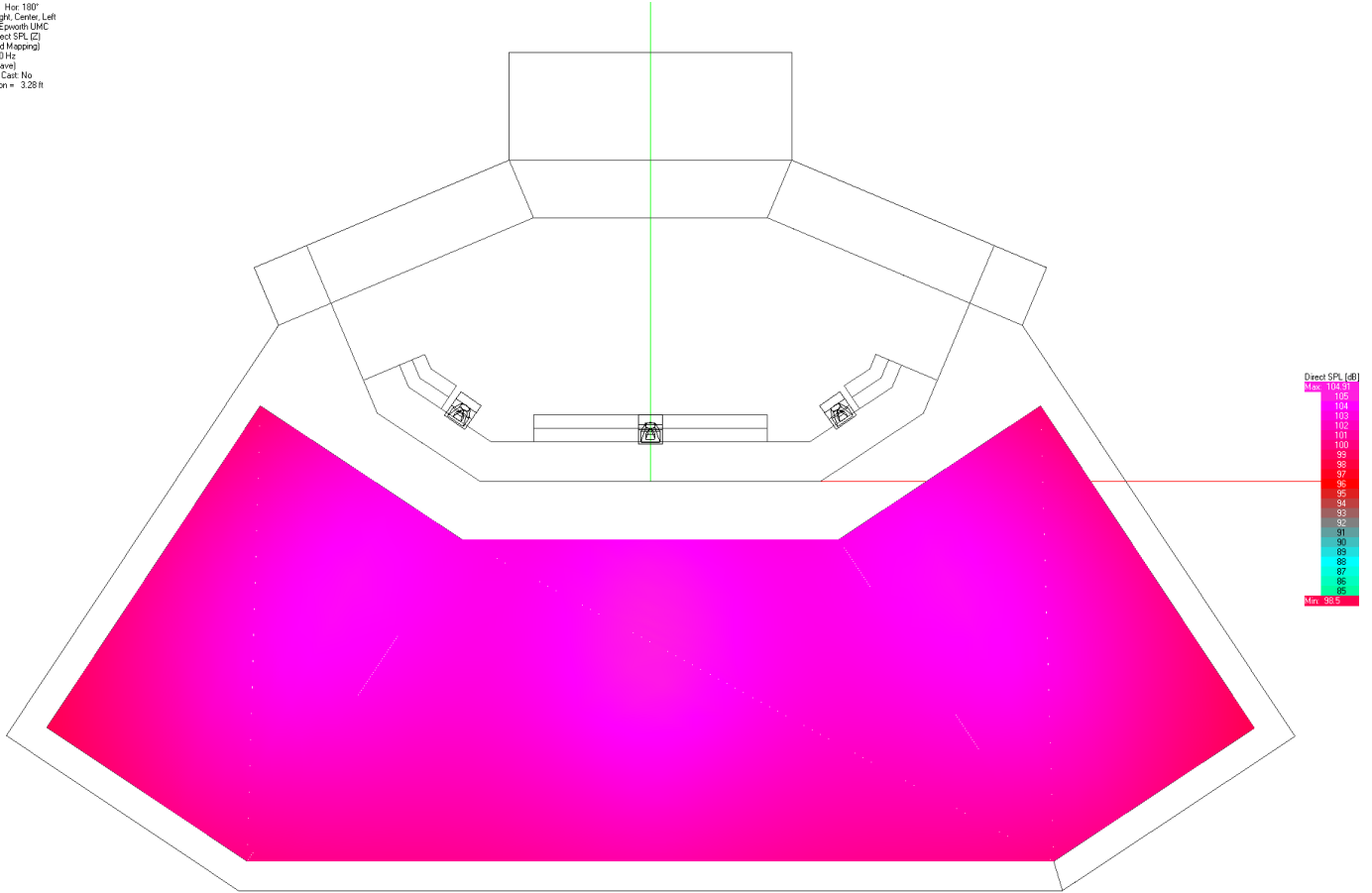




4.2 Mid-Bass coverage in the perceived LF range

EASE - 500Hz 3-Octave Sum

Ver: 90° Hor: 180°
Lspk: Right, Center, Left
Project: Epworth UMC
Map: Direct SPL (2)
(Standard Mapping)
Freq: 500 Hz
(3/1 Octave)
Shadow Cast: No
Resolution: 2.28 ft

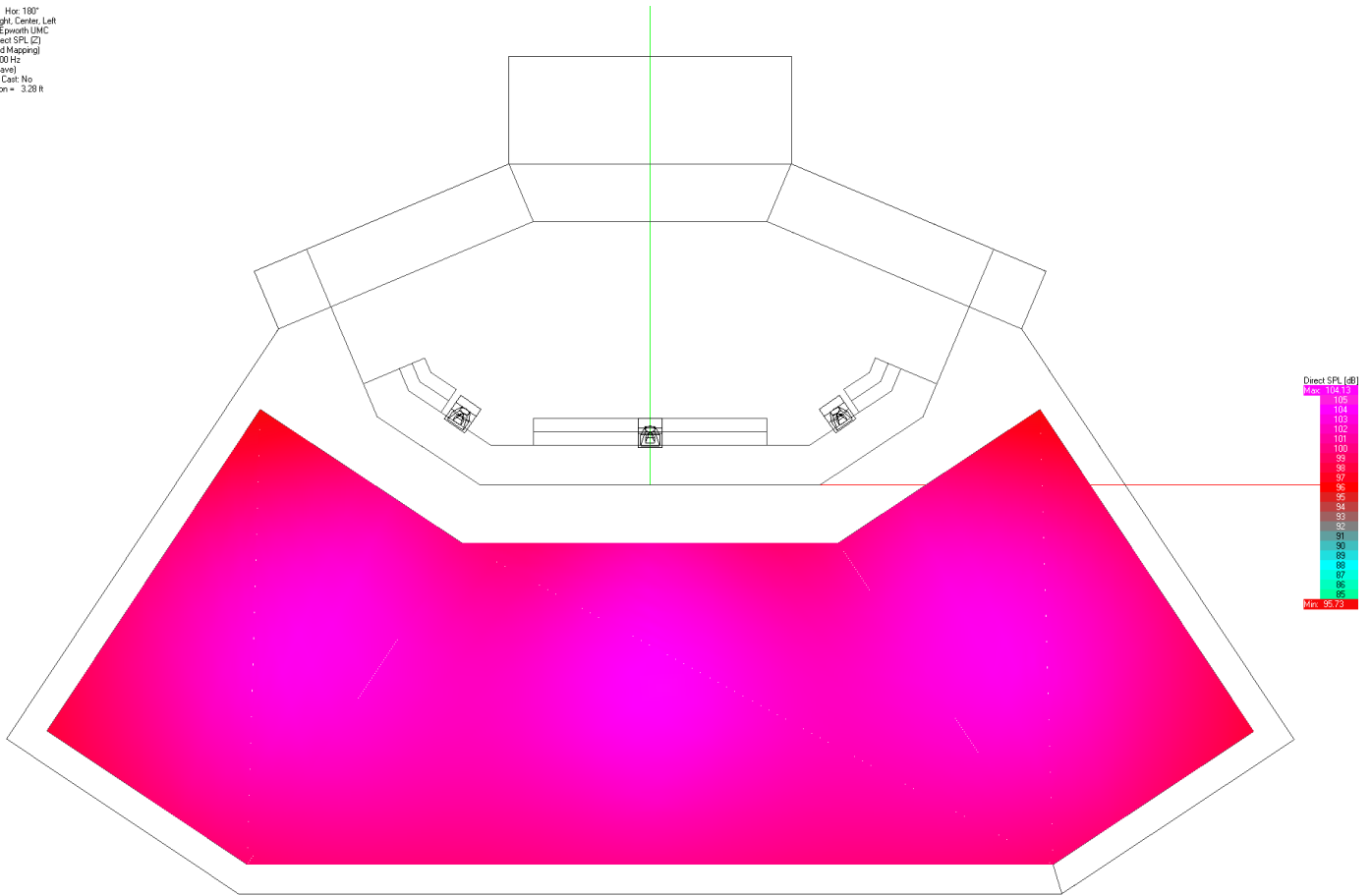




4.3 Mid-Frequency coverage in the perceived Mid range

EASE - 2000Hz 3-Octave Sum

Ver: 90° Hor: 180°
Lspk: Right, Center, Left
Project: Epworth UMC
Map: Direct SPL (Z)
(Standard Mapping)
Freq: 2000 Hz
(3/1 Octave)
Shadow Cast: No
Resolution: 3.28 ft

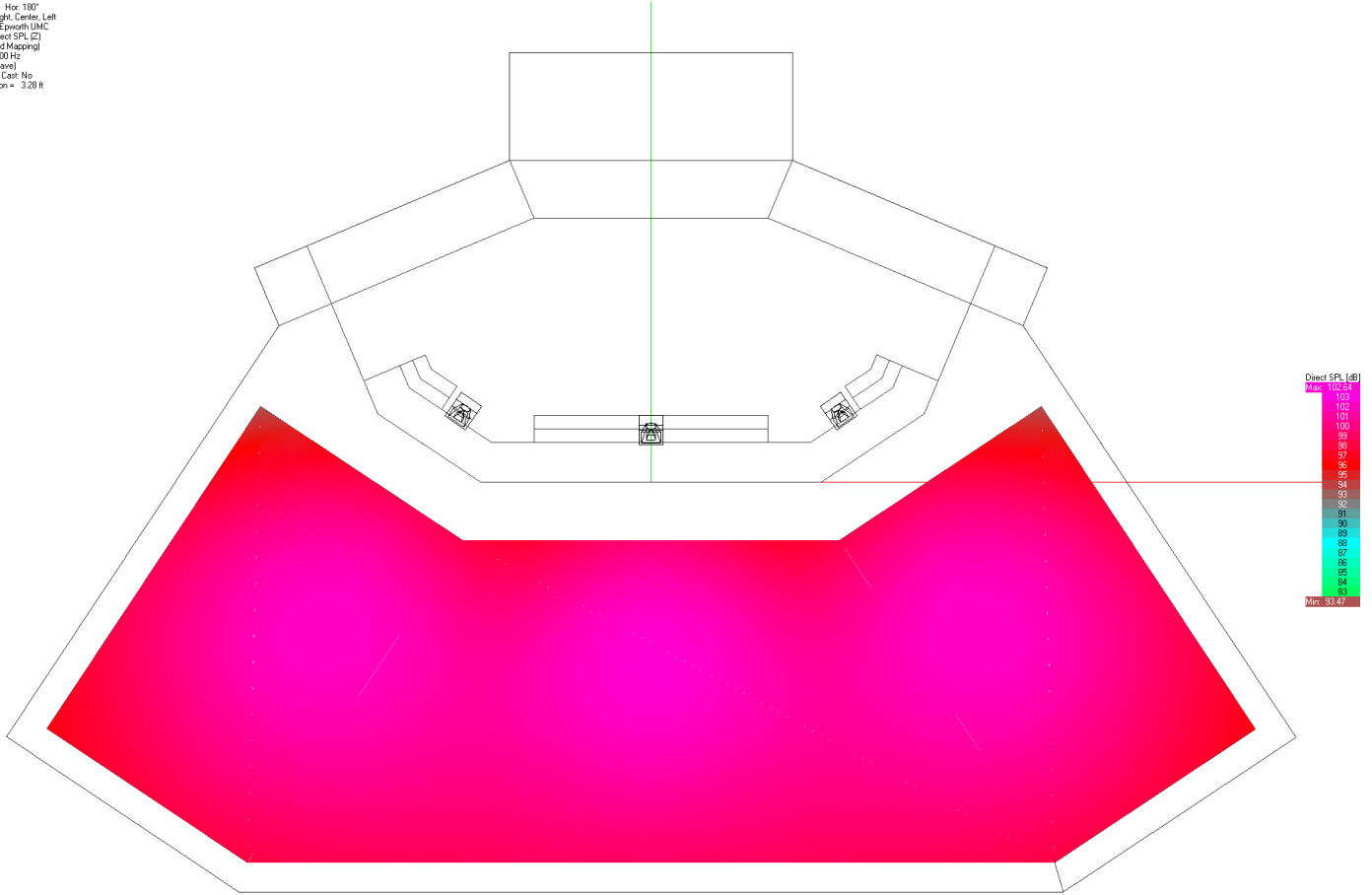




4.4 Mid-Highs behavior in the perceived HF range

EASE - 5000Hz 3-Octave Sum (includes air absorption)

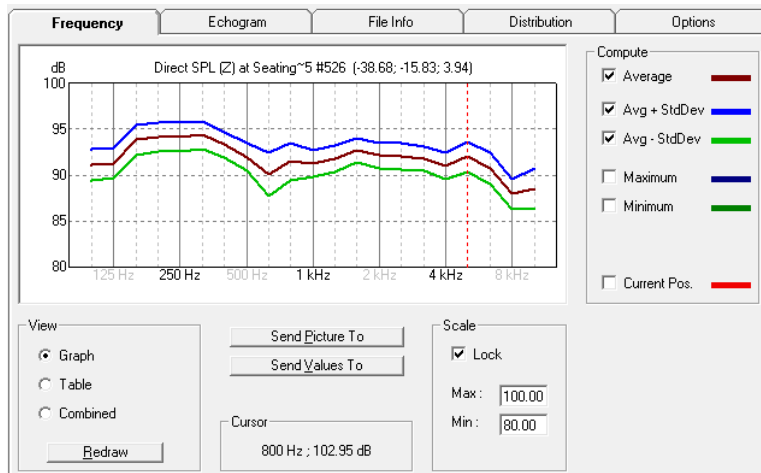
Ver: 90° Hor: 180°
Lspk: Right, Center, Left
Project: Epworth UMC
Map: Direct SPL (Z)
(Standard Mapping)
Freq: 5000 Hz
(3/1 Octave)
Shadow Cast: No
Resolution: 3.28 ft



(c) EASE 5-TE / Epworth UMC / 11/20/2025 10:10:23 AM / BOSCH SECURITY SYSTEMS BT-CD/MKAT

4.5 Observations and Interpretations of Coverage Maps

Note the consistency across all frequency bands. This indicates that both the loudness and tonality will be consistent throughout the room.





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5 Electronics and Amplification

5.1 DSP routing approach

Routing to each loudspeaker will be performed in the amplifier DSP section. The amplifier can be fed with a mono or stereo signal from the in-room mixing console. The signal can be analog or Dante. The amplifier has eight analog mic/line inputs, which can also provide for several direct inputs that could bypass the mixing console for simple setups, like a single microphone. This could be controlled via a simple wall control. Note that no controls have been included in the current design but can be added.

5.2 Amplification

All loudspeakers will be powered in bi-amp mode (separate amp channels for high-frequency and low-frequency) and will be powered by a single Dynacord IX30:8 amplifier.



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6 Bill Of Materials

See additional document for a list of all loudspeakers, accessories, and electronics related to this design.