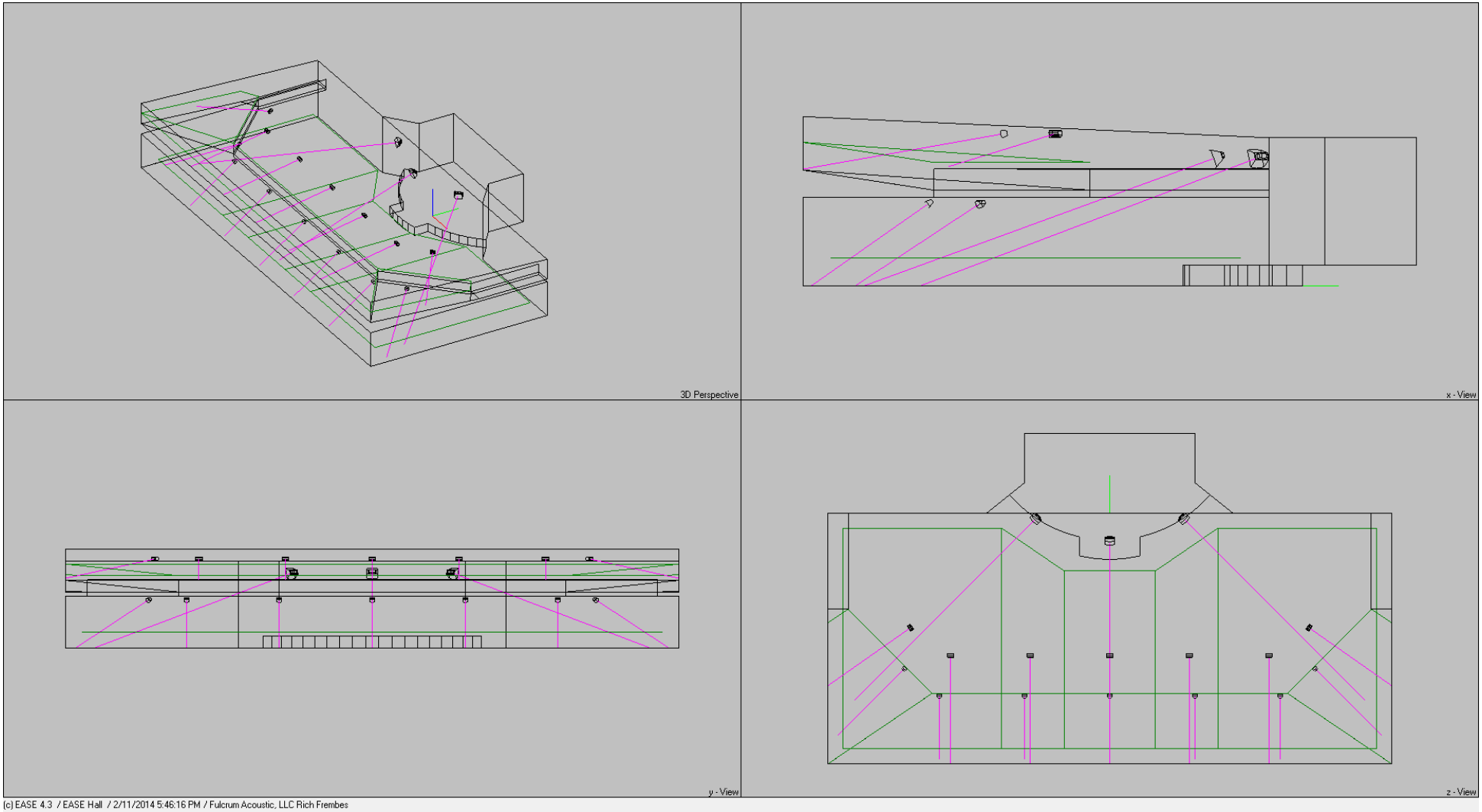
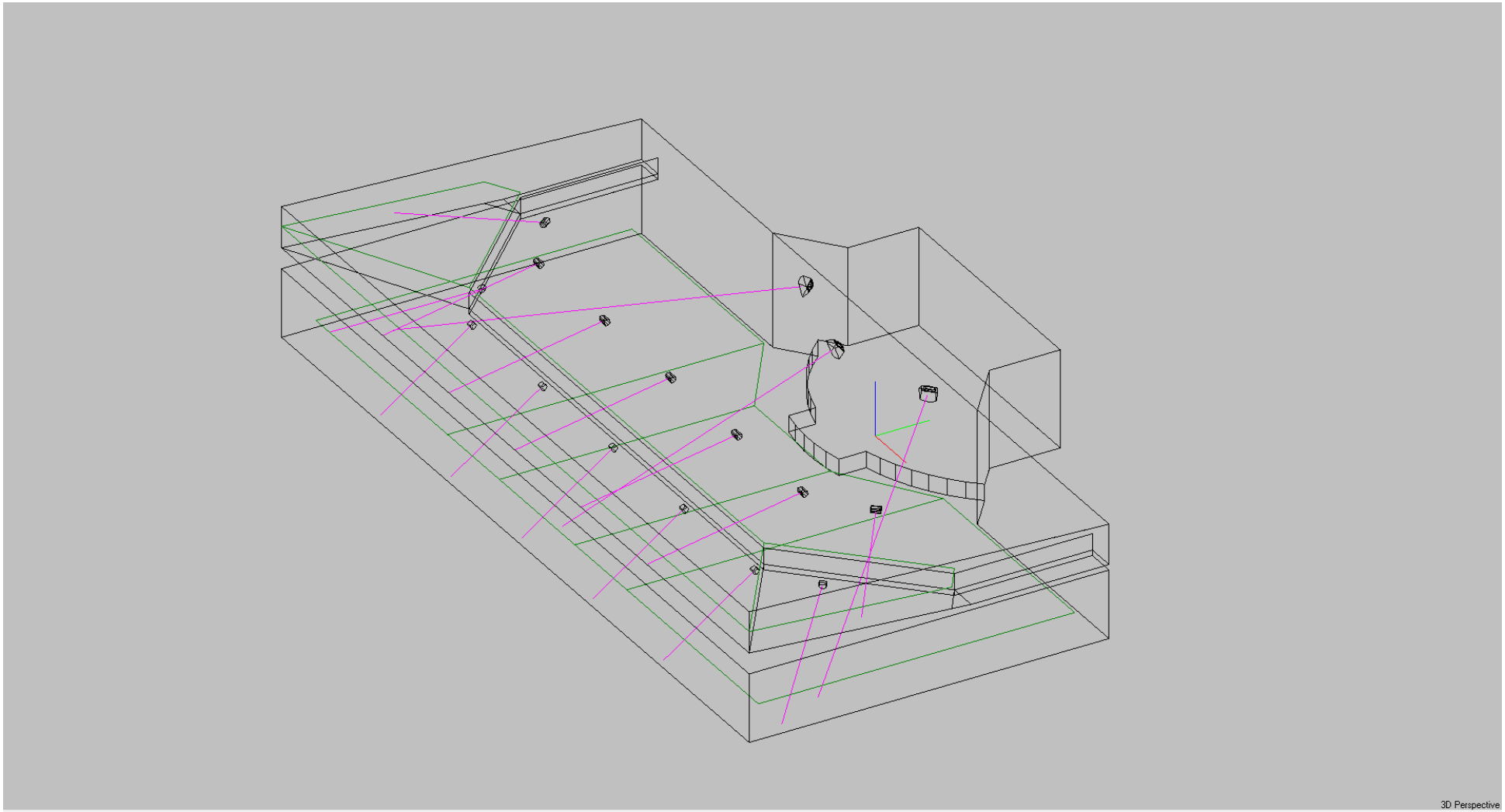
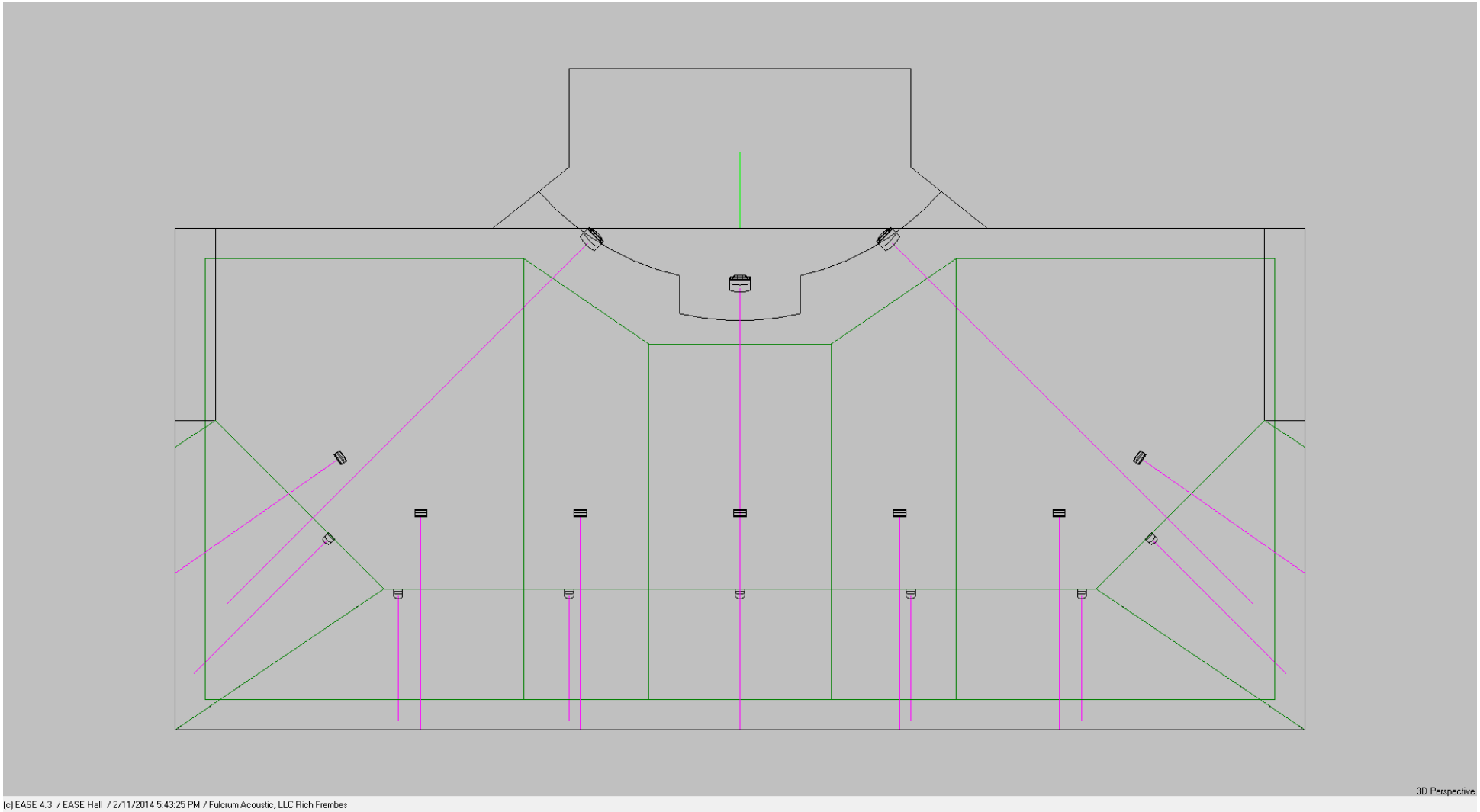
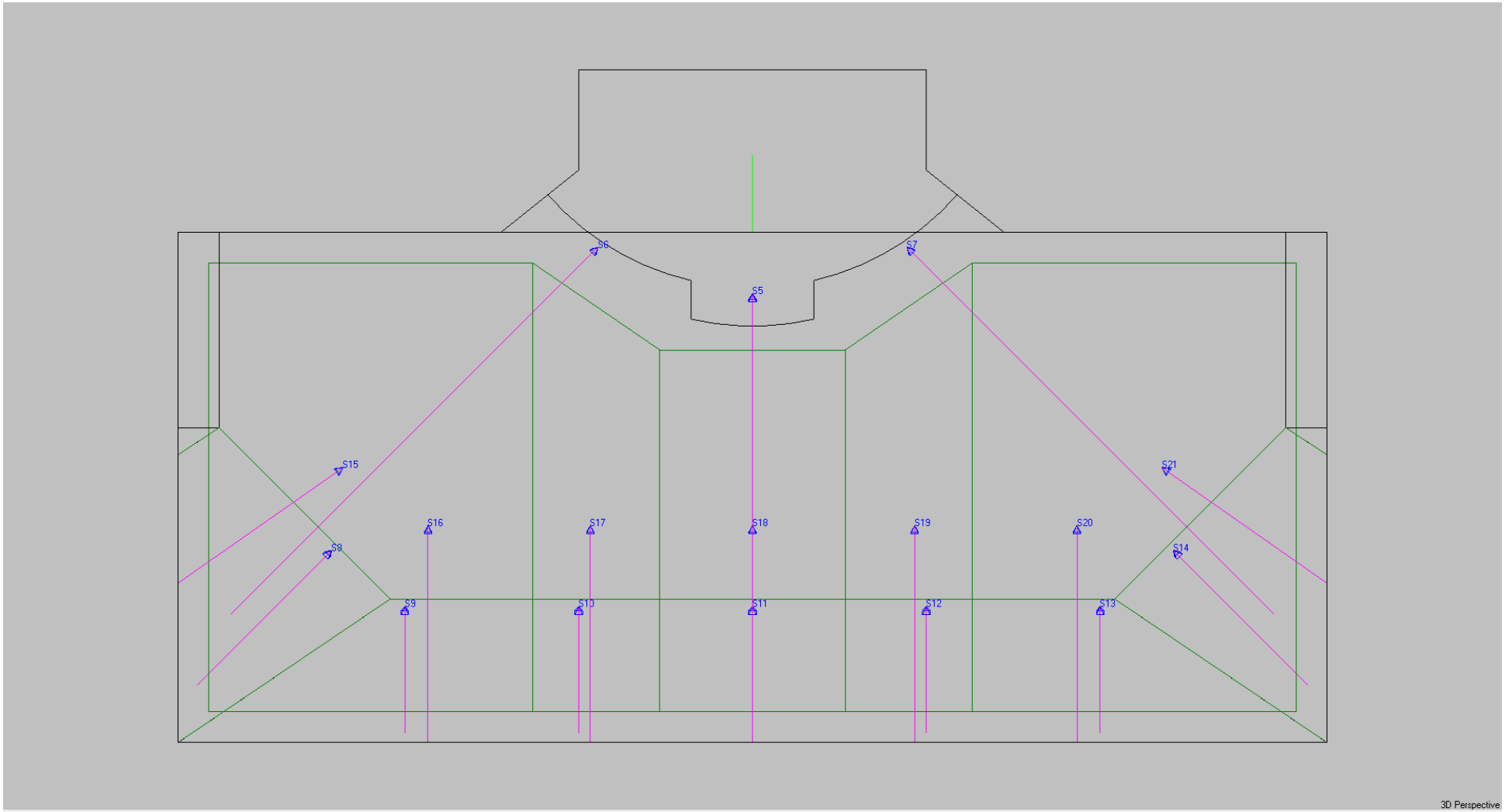
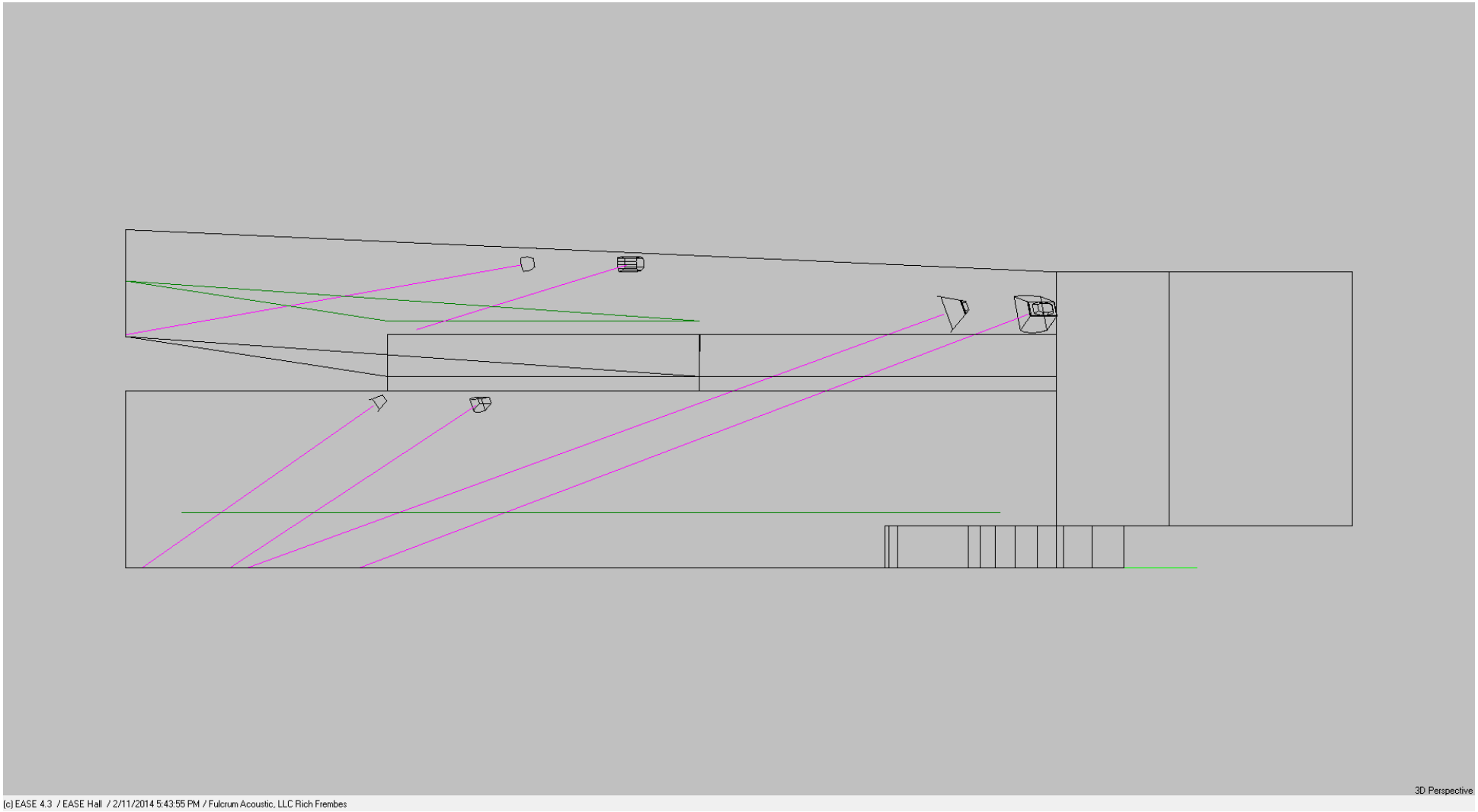
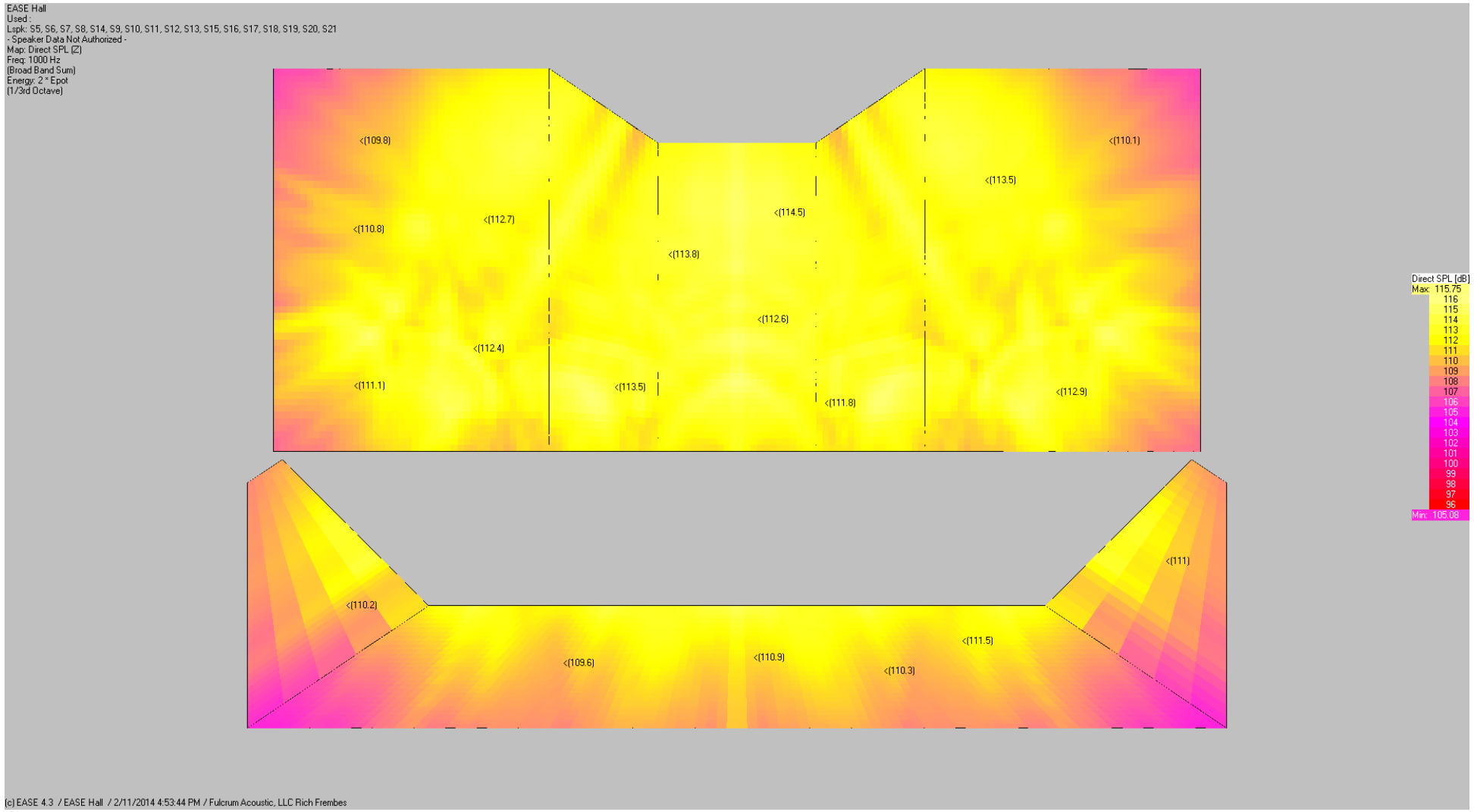


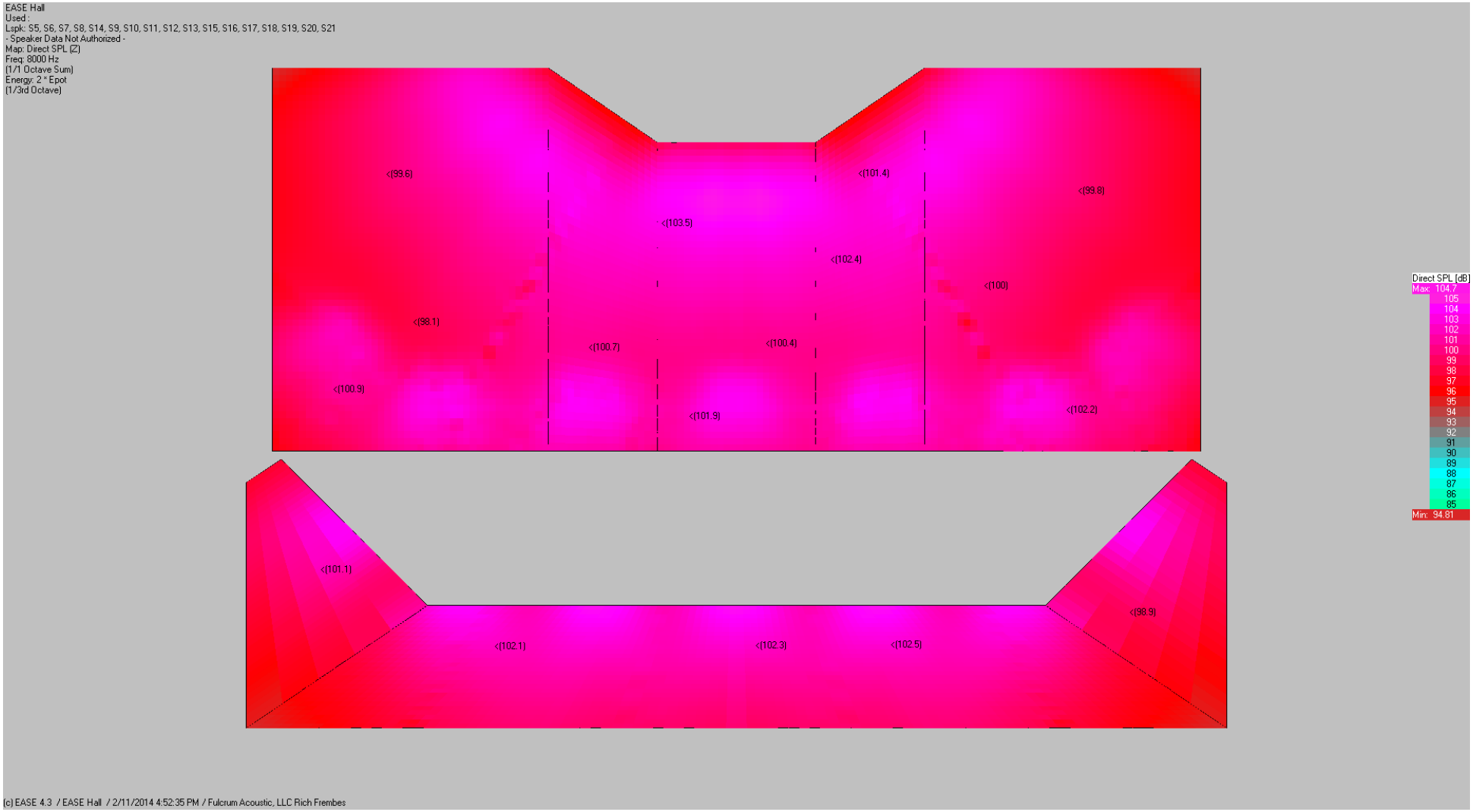


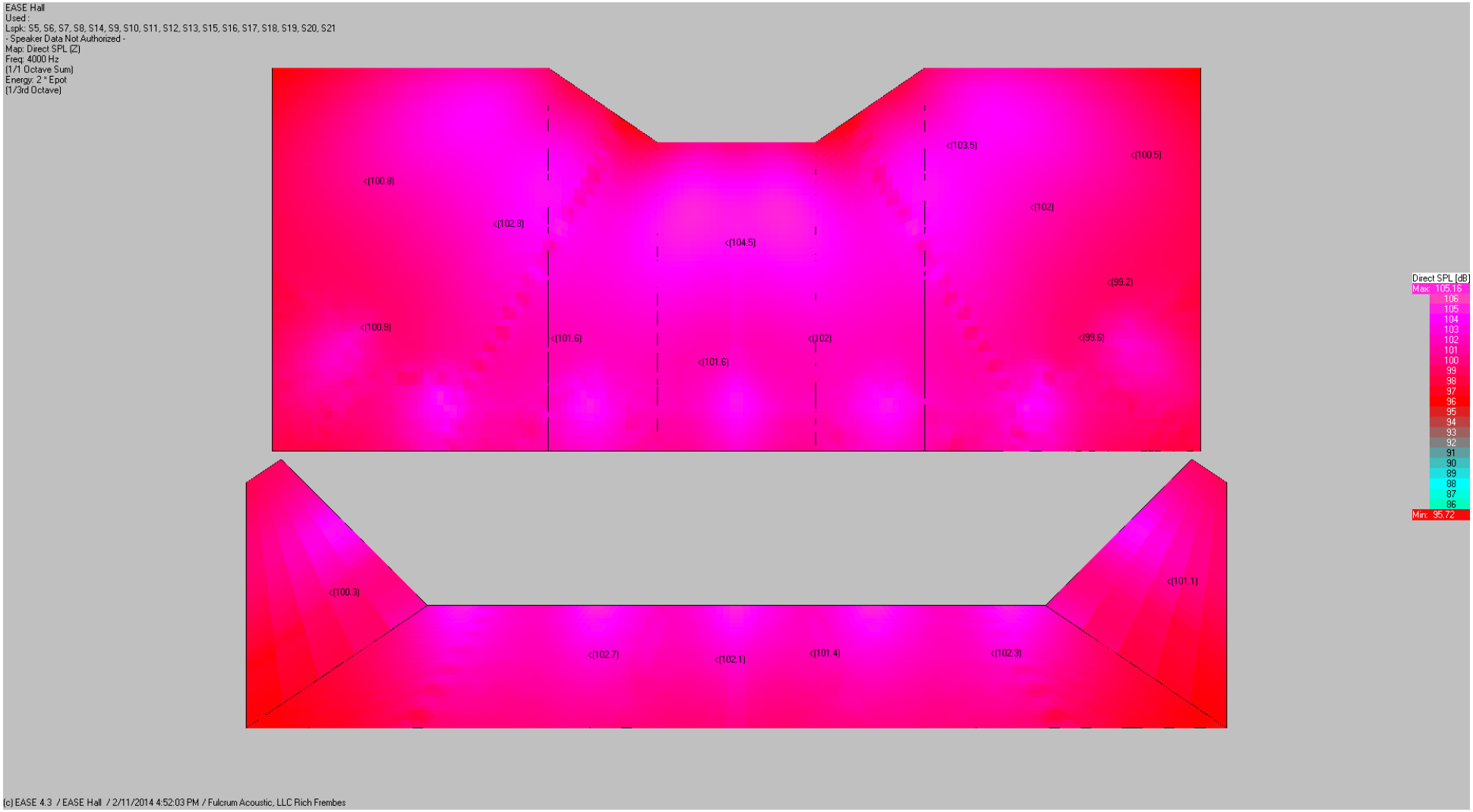


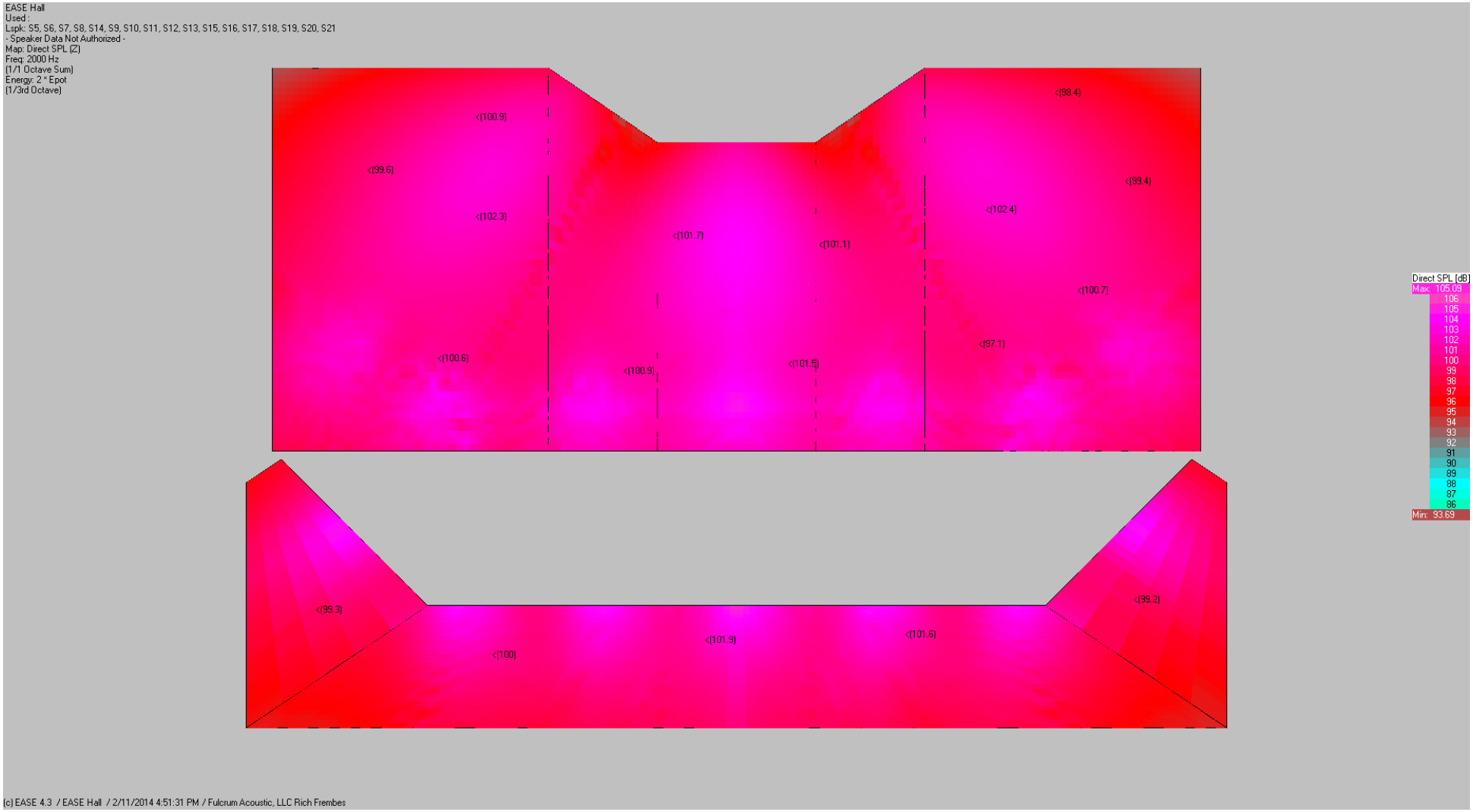


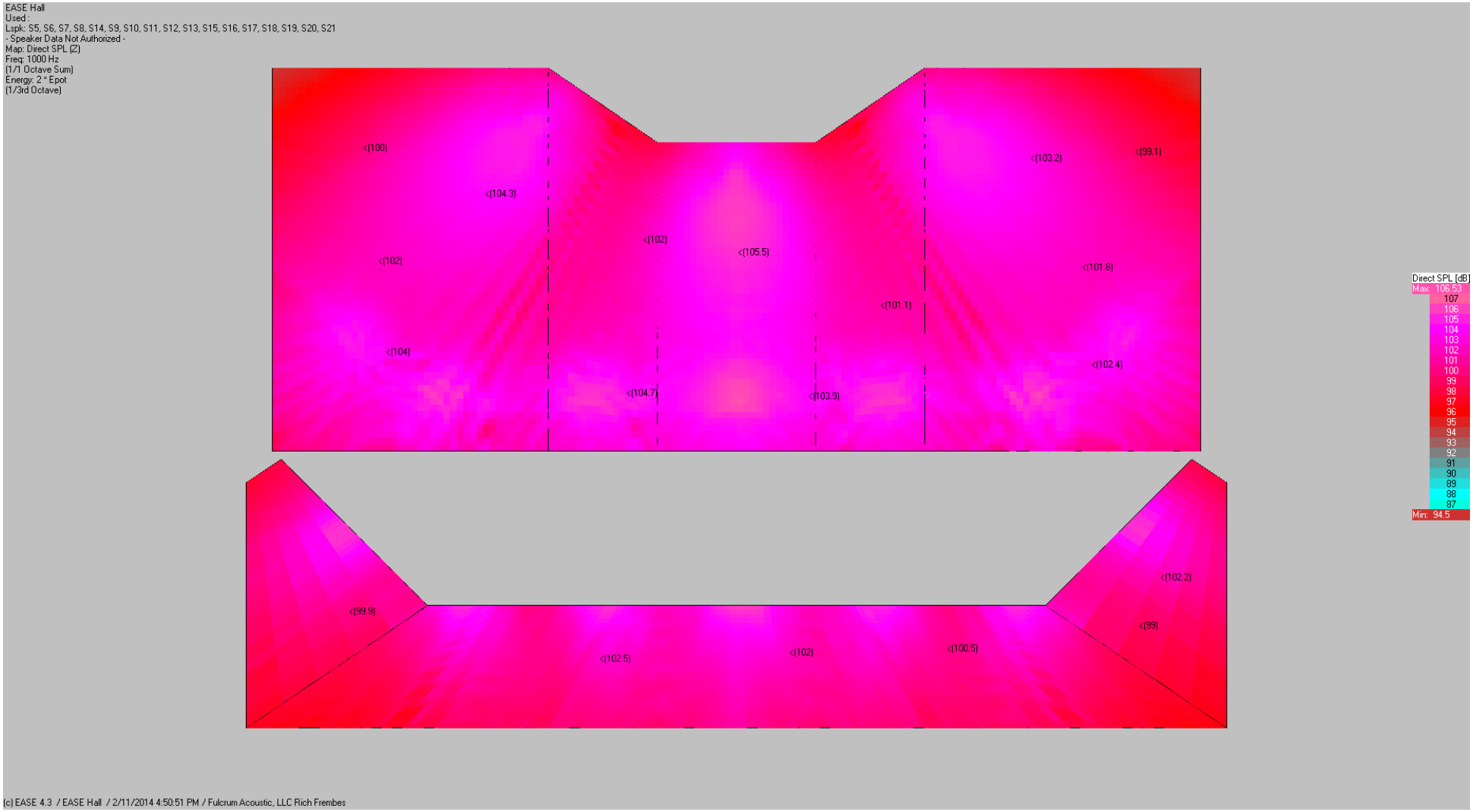


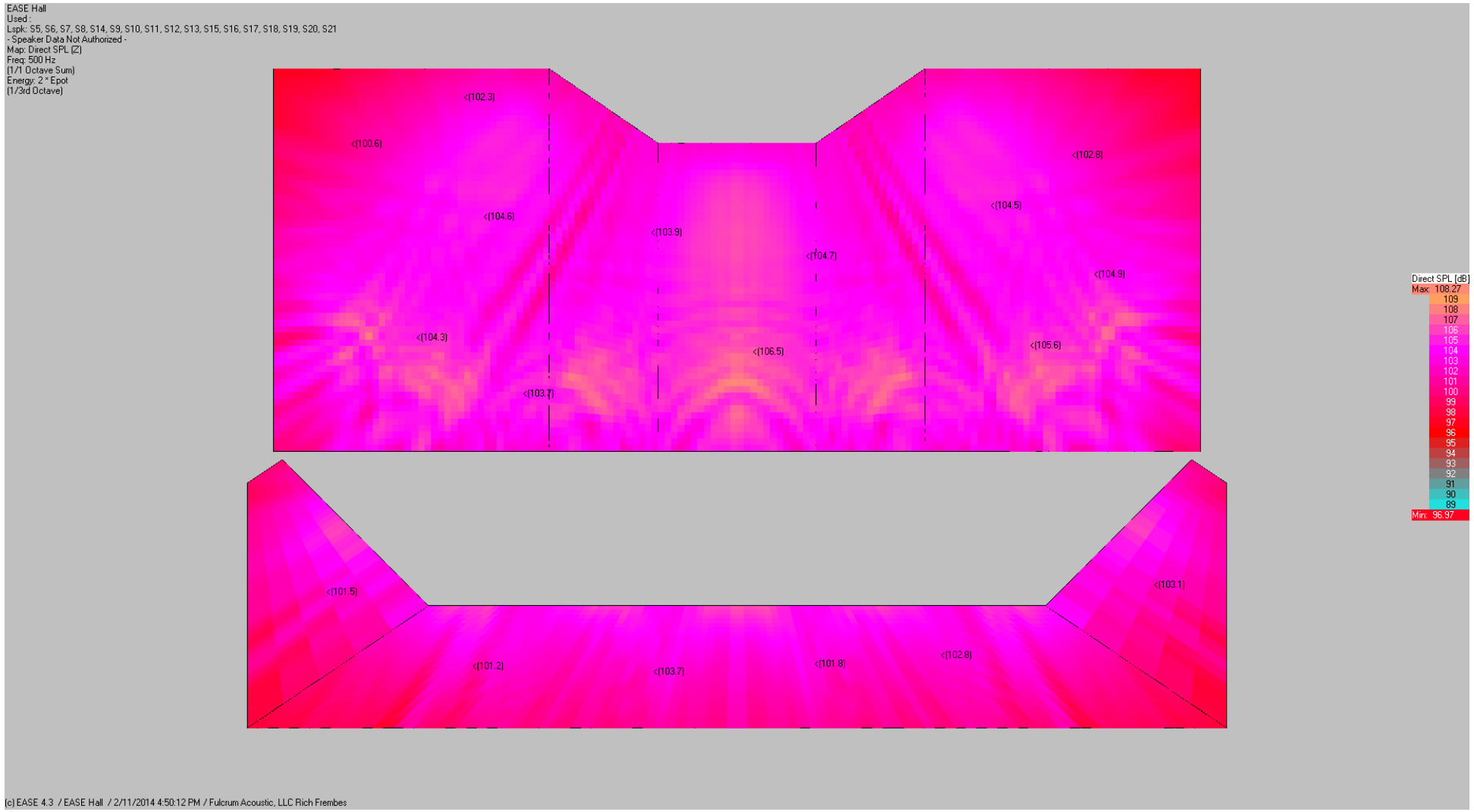

EASE Hall
Used :
Lspk: S5, S6, S7, S8, S14, S9, S10, S11, S12, S13, S15, S16, S17, S18, S19, S20, S21
- Speaker Data Not Authorized -
Map: Direct SPL (Z)
Freq: 1000 Hz
(Broad Band Sum)
Energy: 2 * Epot
(1/3rd Octave)
<(109.8)
<(110.1)
<(113.5)
<(114.5)
<(112.7)
<(110.8)
<(113.8)
<(112.6)
<(112.4)
<(111.1)
<(113.5)
<(111.8)
<(112.9)
<(111)
<(110.2)
<(111.5)
<(109.6)
<(110.9)
<(110.3)
Direct SPL [dB]
Max: 115.75
116
115
114
113
112
111
110
109
108
107
106
105
104
103
102
101
100
99
98
97
96
Min: 105.08
(c) EASE 4.3 / EASE Hall / 2/11/2014 4:53:44 PM / Fulcrum Acoustic, LLC Rich Frembes

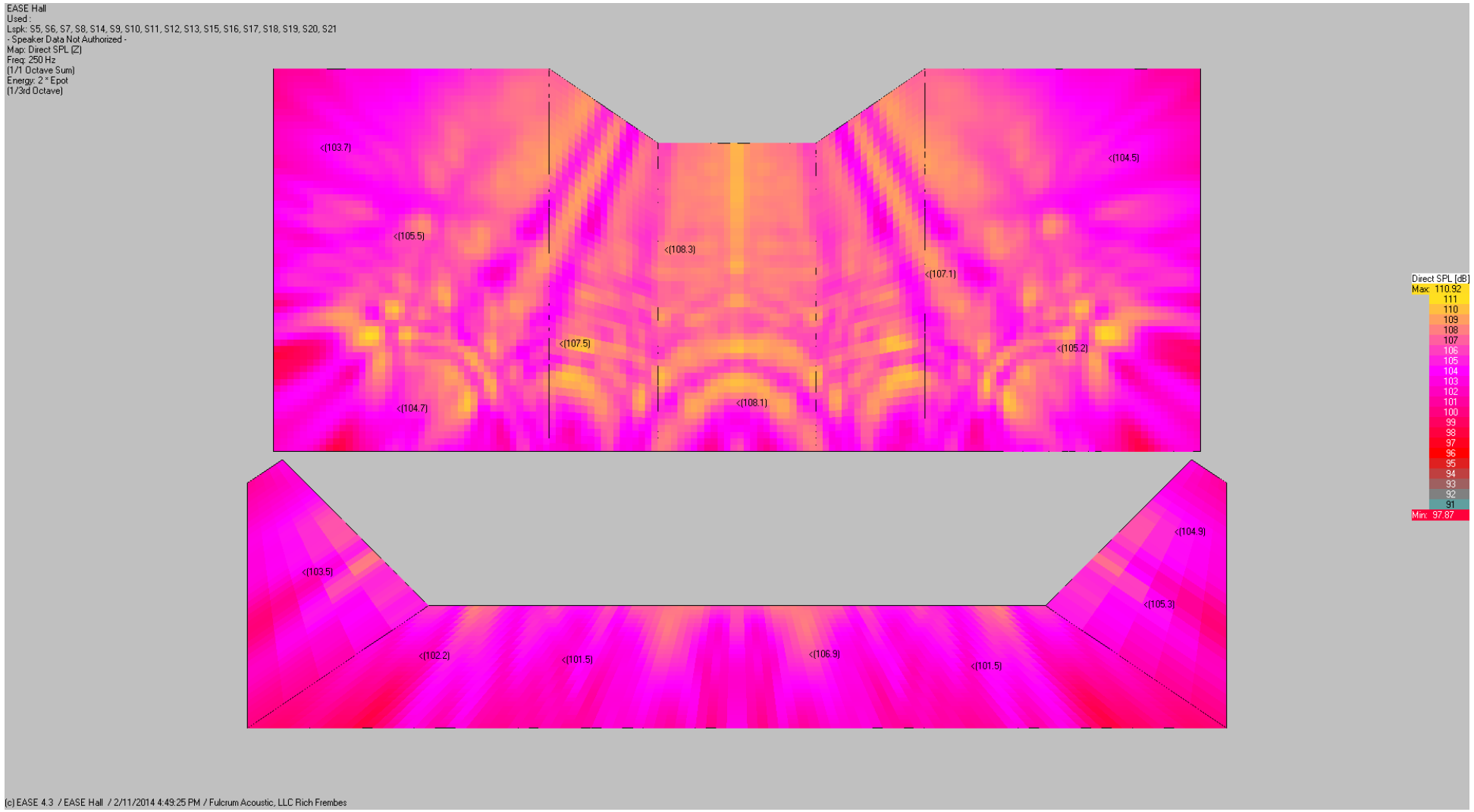

EASE Hall
Used :
Lspk: S5, S6, S7, S8, S14, S9, S10, S11, S12, S13, S15, S16, S17, S18, S19, S20, S21
- Speaker Data Not Authorized -
Map: Direct SPL (Z)
Freq: 8000 Hz
(1/1 Octave Sum)
Energy: 2 * Epot
(1/3rd Octave)
<(99.6)
<(101.4)
<(99.8)
<(103.5)
<(102.4)
<(100)
<(98.1)
<(100.7)
<(100.4)
<(100.9)
<(101.9)
<(102.2)
<(101.1)
<(98.9)
<(102.1)
<(102.3)
<(102.5)
Direct SPL [dB]
Max: 104.7
105
104
103
102
101
100
99
98
97
96
95
94
93
92
91
90
89
88
87
86
85
Min: 94.81
(c) EASE 4.3 / EASE Hall / 2/11/2014 4:52:35 PM / Fulcrum Acoustic, LLC Rich Frembes


EASE Hall
Used :
Lspk: S5, S6, S7, S8, S14, S9, S10, S11, S12, S13, S15, S16, S17, S18, S19, S20, S21
- Speaker Data Not Authorized -
Map: Direct SPL (Z)
Freq: 4000 Hz
(1/1 Octave Sum)
Energy: 2 * Epot
(1/3rd Octave)
<(100.8)
<(102.8)
<(103.5)
<(100.5)
<(102)
<(104.5)
<(99.2)
<(100.9)
<(101.6)
<(101.6)
<(102)
<(99.6)
<(100.3)
<(102.7)
<(102.1)
<(101.4)
<(102.3)
<(101.1)
Direct SPL [dB]
Max: 105.16
106
105
104
103
102
101
100
99
98
97
96
95
94
93
92
91
90
89
88
87
86
Min: 95.72
(c) EASE 4.3 / EASE Hall / 2/11/2014 4:52:03 PM / Fulcrum Acoustic, LLC Rich Frembes


EASE Hall
Used :
Lspk: S5, S6, S7, S8, S14, S9, S10, S11, S12, S13, S15, S16, S17, S18, S19, S20, S21
- Speaker Data Not Authorized -
Map: Direct SPL (Z)
Freq: 2000 Hz
(1/1 Octave Sum)
Energy: 2 * Epot
(1/3rd Octave)
<(100.9)
<(99.6)
<(102.3)
<(101.7)
<(101.1)
<(98.4)
<(99.4)
<(102.4)
<(100.7)
<(97.1)
<(100.6)
<(100.9)
<(101.5)
<(99.3)
<(100)
<(101.9)
<(101.6)
<(99.2)
Direct SPL [dB]
Max: 105.09
106
105
104
103
102
101
100
99
98
97
96
95
94
93
92
91
90
89
88
87
86
Min: 93.69
(c) EASE 4.3 / EASE Hall / 2/11/2014 4:51:31 PM / Fulcrum Acoustic, LLC Rich Frembes


EASE Hall
Used :
Lspk: S5, S6, S7, S8, S14, S9, S10, S11, S12, S13, S15, S16, S17, S18, S19, S20, S21
- Speaker Data Not Authorized -
Map: Direct SPL (Z)
Freq: 1000 Hz
(1/1 Octave Sum)
Energy: 2 * Epot
(1/3rd Octave)
<(100)
<(104.3)
<(102)
<(104)
<(102)
<(105.5)
<(104.7)
<(103.9)
<(103.2)
<(99.1)
<(101.8)
<(101.1)
<(102.4)
<(99.9)
<(102.5)
<(102)
<(100.5)
<(102.2)
<(99)
Direct SPL [dB]
Max: 106.53
107
106
105
104
103
102
101
100
99
98
97
96
95
94
93
92
91
90
89
88
87
Min: 94.5
(c) EASE 4.3 / EASE Hall / 2/11/2014 4:50:51 PM / Fulcrum Acoustic, LLC Rich Frembes


EASE Hall
Used :
Lspk: S5, S6, S7, S8, S14, S9, S10, S11, S12, S13, S15, S16, S17, S18, S19, S20, S21
- Speaker Data Not Authorized -
Map: Direct SPL (Z)
Freq: 500 Hz
(1/1 Octave Sum)
Energy: 2 * Epot
(1/3rd Octave)
<(102.3)
<(100.6)
<(102.8)
<(104.5)
<(104.6)
<(103.9)
<(104.7)
<(104.9)
<(104.3)
<(106.5)
<(105.6)
<(103.7)
<(101.5)
<(103.1)
<(101.2)
<(103.7)
<(101.8)
<(102.8)
Direct SPL [dB]
Max: 108.27
109
108
107
106
105
104
103
102
101
100
99
98
97
96
95
94
93
92
91
90
89
Min: 96.97
(c) EASE 4.3 / EASE Hall / 2/11/2014 4:50:12 PM / Fulcrum Acoustic, LLC Rich Frembes


EASE Hall
Used :
Lspk: S5, S6, S7, S8, S14, S9, S10, S11, S12, S13, S15, S16, S17, S18, S19, S20, S21
- Speaker Data Not Authorized -
Map: Direct SPL (Z)
Freq: 250 Hz
(1/1 Octave Sum)
Energy: 2 * Epot
(1/3rd Octave)
<(103.7)
<(104.5)
<(105.5)
<(108.3)
<(107.1)
<(107.5)
<(105.2)
<(104.7)
<(108.1)
<(104.9)
<(103.5)
<(105.3)
<(102.2)
<(101.5)
<(106.9)
<(101.5)
Direct SPL [dB]
Max: 110.92
111
110
109
108
107
106
105
104
103
102
101
100
99
98
97
96
95
94
93
92
91
Min: 97.87
(c) EASE 4.3 / EASE Hall / 2/11/2014 4:49:25 PM / Fulcrum Acoustic, LLC Rich Frembes

SPEAKER: FULCRUM AUDIO

TQ Install Series:

Item	Speaker Model	Group	x [ft]	y [ft]	z [ft]	Hor [°]	Ver [°]	Rot [°]
S5	AH96	MAINS	0	-8	18	0	-20	0
S6	AH96	MAINS	-20	-2	18	-45	-15	0
S7	AH96	MAINS	20	-2	18	45	-15	0
S8	CX896	U-BALC	-54.5	-41.25	11.5	-45	-25	0
S9	CX896	U-BALC	-45	-48.5	11.5	0	-35	0
S10	CX896	U-BALC	-22.5	-48.5	11.5	0	-35	0
S11	CX896	U-BALC	0	-48.5	11.5	0	-35	0
S12	CX896	U-BALC	22.5	-48.5	11.5	0	-35	0
S13	CX896	U-BALC	45	-48.5	11.5	0	-35	0
S14	CX896	U-BALC	54.5	-41.25	11.5	45	-25	0
S15	DX896_rot90	O-BALC	-53	-30.5	21.5	-55	-10	90
S16	DX896_rot90	O-BALC	-42	-38	21.5	0	-10	90
S17	DX896_rot90	O-BALC	-21	-38	21.5	0	-10	90
S18	DX896_rot90	O-BALC	0	-38	21.5	0	-10	90
S19	DX896_rot90	O-BALC	21	-38	21.5	0	-10	90
S20	DX896_rot90	O-BALC	42	-38	21.5	0	-10	90
S21	DX896_rot90	O-BALC	53	-30.5	21.5	55	-10	90

** Click Speaker Model Number for LINK to .pdf of Product Spec Sheet*

AH96

High Efficiency Full-Range Coaxial Horn

tq install™ SERIES

Overview

The AH96 is a bi-amplified 2-way, high sensitivity, arrayable coaxial horn loudspeaker that provides a precise 90° x 60° pattern with control to below 300 Hz, low frequency extension to 94 Hz, and extremely high output with modest amplifier power. Its unique **Compression Head**™ horn architecture provides exceptional low frequency loading to its twin 10-inch low frequency compression drivers, while a pair of **Oculus**™ phase plugs extends the 10s' high frequency response to smoothly mesh with a 4 inch diaphragm high frequency compression driver. The AH96's unique 60° compact trapezoidal shape allows it to be deployed with its trapezoidal profile vertically oriented (90°H x 60°V) for stand-alone use, in distributed systems, or in vertical arrays; or with its trapezoidal profile horizontally oriented (60°H x 90°V) for use in horizontal tight-packed arrays.

Sound, innovative acoustical design combined with Fulcrum Acoustic's **TQ**™ processing leads to exceptional clarity and precise transient response, even at very high sound pressure levels. The required digital signal processing can be provided by one of many supported platforms.

The AH96 is particularly effective in acoustically challenging spaces where broadband pattern control is necessary, and in applications requiring high acoustic output and high fidelity. Its **Compression Head**™ horn architecture provides easy access to the drivers, so the AH96 can be conveniently serviced while flown. Its clean aesthetic and relatively compact size complements many architectural styles, which facilitates acceptance by interior designers and architects. This makes it the perfect choice for houses of worship, sports facilities, theaters, night clubs, theme parks, and more.

Performance Specifications[1]

Operating Mode
Bi-amplified w/ DSP

Operating Range [2]
94 Hz to 19 kHz

Nominal Beamwidth
90° x 60°

Transducers
LF: 2x 10.0" ceramic magnet cone driver, 3.0" voice coil
HF: 4.0" titanium diaphragm, neodymium magnet compression driver

Power Handling @ Nominal Impedance [3]
LF: 75 V / 700 W @ 8 Ω
HF: 40 V / 200 W @ 8 Ω

Nominal Sensitivity @ Input Voltage [4] (whole space)
LF: 106 dB @ 2.83 V
HF: 107 dB @ 2.83 V

Nominal Maximum Continuous SPL
LF: 134 dB
HF: 130 dB

Equalized Sensitivity @ Input Voltage [5]
104 dB @ 2.83 V

Equalized Maximum SPL [6]
134 dB

Recommended Power Amplifiers
LF: 700 W to 1400 W @ 8 Ω
HF: 200 W to 400 W @ 8 Ω

Physical Specifications

Connections
(2) Neutrik NL4 Speakon
Pin 1+/-: LF
Pin 2+/-: HF

Mounting / Suspension Points
(16) M10 eye bolt angle points, (2) M10 yoke points

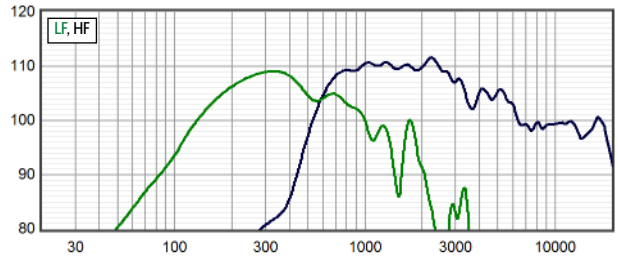
Dimensions / Weight
See page 5

Finish
Black painted enclosure w/ matte black grille, or
White painted enclosure w/ matte white grille

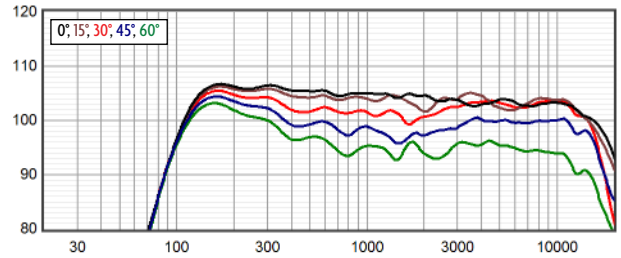
Options

Terminal strip input, Custom color finish,
Weather-resistant (WR) enclosure

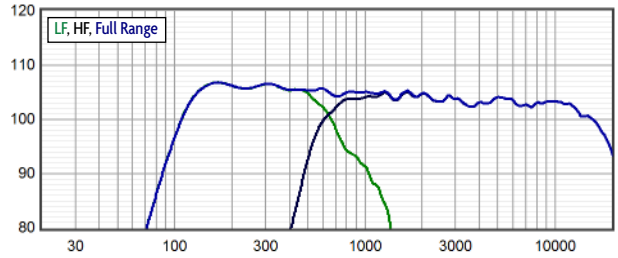
Axial Sensitivity (dB SPL, 2.83 V @ 1 m)[7, 8]



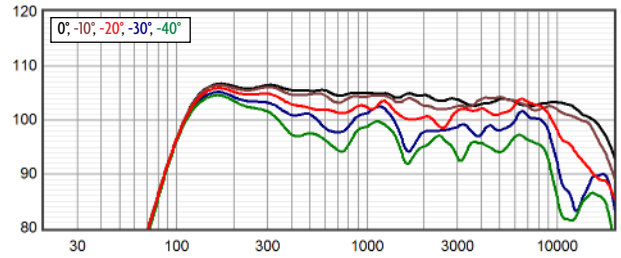
Horizontal Off Axis Response[7, 11]



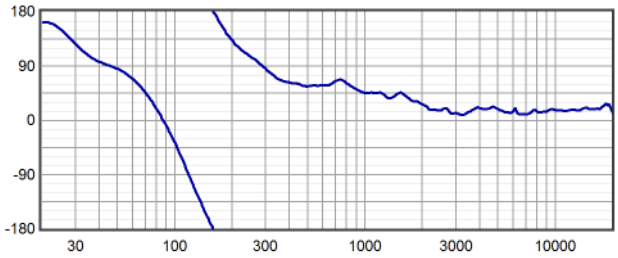
Axial Processed Response (dB)[7, 9]



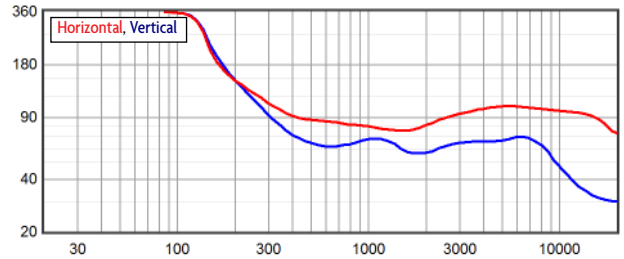
Vertical Off Axis Response[7, 11]



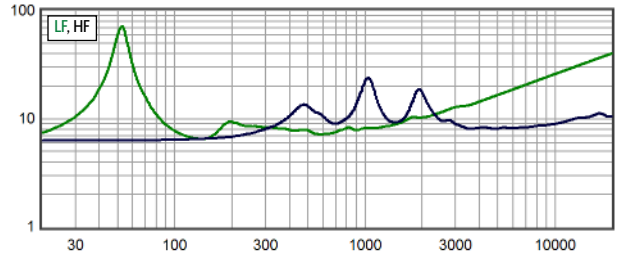
Axial Processed Phase Response (degrees)[7, 10]



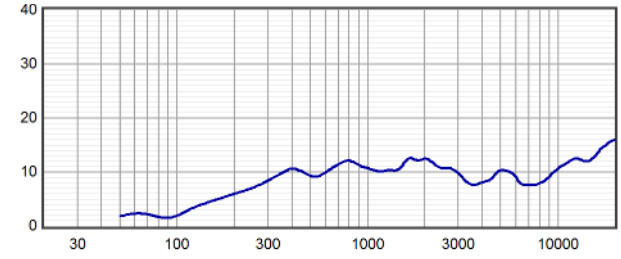
Beamwidth[7, 12]



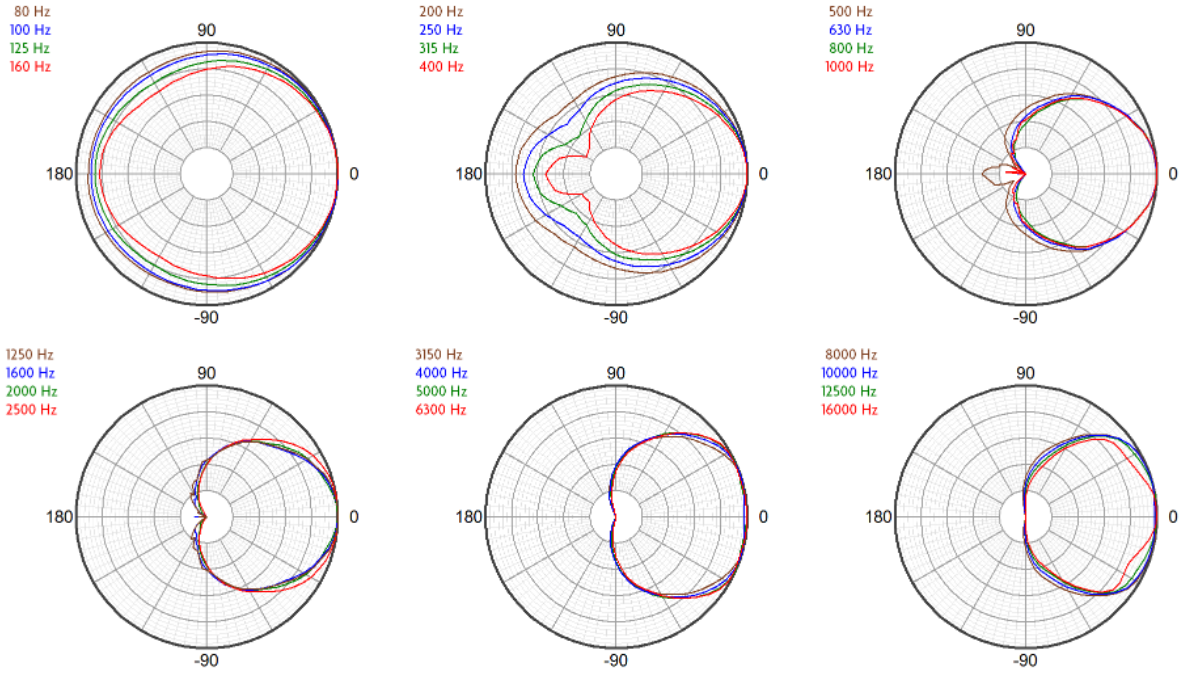
Impedance (ohms)



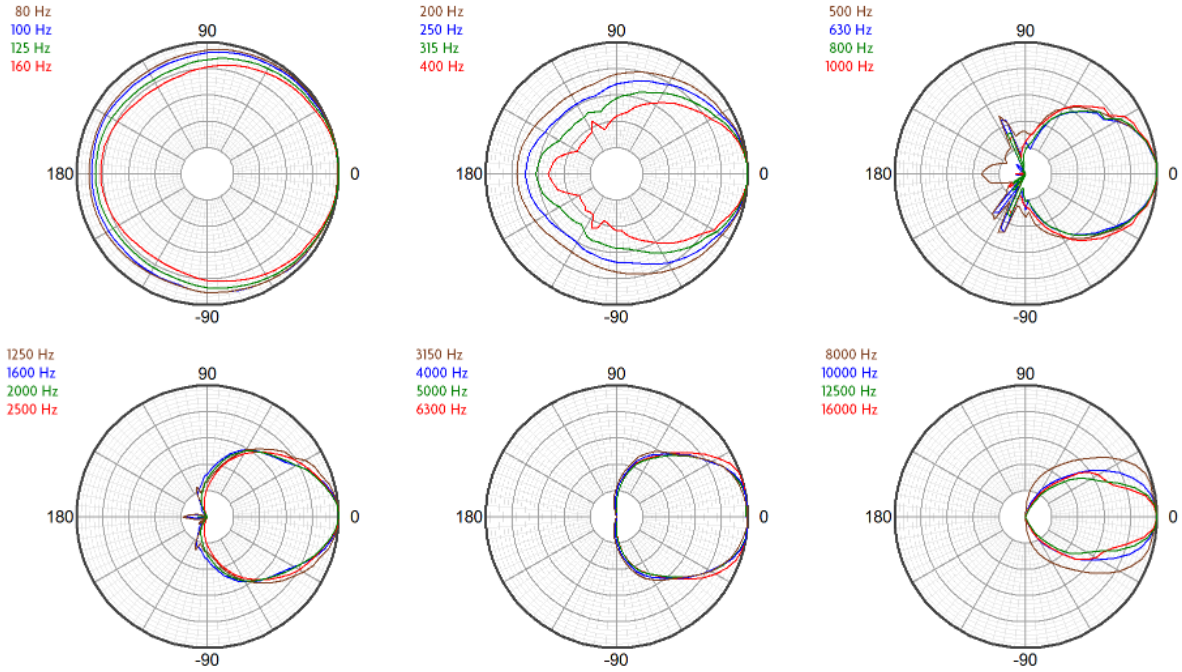
Directivity Index (dB)[13]



Horizontal Polar Response (30 dB Scale, 6 dB per Major Division)



Vertical Polar Response (30 dB Scale, 6 dB per Major Division)



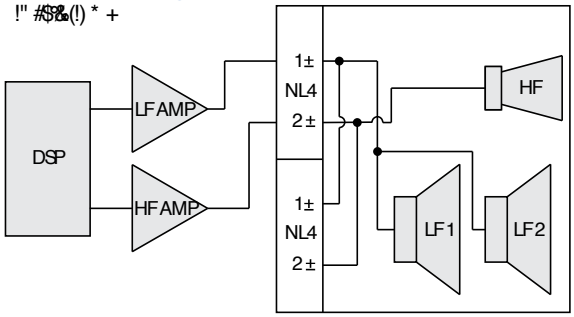
Technologies

The AH96's **Compression Head**™ horn architecture couples a trapezoidal enclosure housing a pattern-control horn bell and rear-facing 10 inch drivers, with a "compression head" – a removable acoustical labyrinth resembling the cylinder head of an engine. The compression head accurately positions two **Oculus**™ phase plugs in front of the 10 inch cones, and delivers their output coherently to the entry of the horn bell, by way of an integral folded horn throat.

This unique arrangement allows a horn with an effective length of 1.0 m (39.3 in) to be housed within an enclosure with a depth of only 0.54 m (21.3 in). Further, it allows the low frequency drivers and horn throat to fit completely within the vertical envelope of the horn bell; which in turn allows the angled top and bottom walls of the enclosure to double as the vertical walls of the low frequency horn. In tight packed arrays, the walls of adjacent AH horns are perfectly parallel and separated by just two thicknesses of birch plywood, providing the most ideal array geometry possible.

The **Oculus**™phase plug employs two radially asymmetrical slots, precisely shaped and positioned to gather the pressure from the 10 inch driver's hemispherical compression chamber and deliver it in planar phase to a rectangular horn throat. The rectangular output of the phase plug is only 6.3 cm (2.5 in) wide, which allows the sound waves to pass through the compression head's two 90 degree bends without any loss of sound power.

Connection Diagram



Mechanical Specification Drawings

2D and 3D DXF dimensional drawings are available for download at www.fulcrum-acoustic.com/support .

Notes

[1] **Performance Specifications** *All acoustic specifications rounded to nearest whole number. External DSP with Fulcrum Acoustic-provided settings is required to achieve the specified performance.*

[2] **Operating Range** *The frequency range within which the processed response is within 10 dB of the average.*

[3] **Power Handling** *Based on the AES power handling of the transducers.*

[4] **Nominal Sensitivity** *The 1-meter-referenced SPL produced by a 1 watt band limited pink noise signal, with no processing applied.*

[5] **Equalized Sensitivity** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which produces a total power of 1 watt, in sum, to the loudspeaker subsections.*

[6] **Equalized Maximum SPL** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which drives at least one subsection to its rated power.*

[7] **Resolution** *All response graphs are subjected to 1/6 octave cepstral smoothing with a gaussian weighting function.*

[8] **Axial Sensitivity** *The SPL plotted against frequency for a 1 watt swept sine wave, referenced to 1 m with no signal processing.*

[9] **Axial Processed Response** *The axial magnitude response with recommended signal processing applied.*

[10] **Axial Processed Phase Response** *The axial phase response with recommended signal processing applied, and latency removed.*

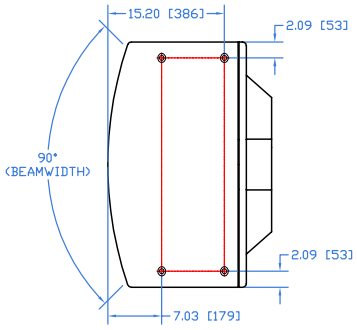
[11] **Horizontal / Vertical Off Axis Responses** *The magnitude response at various angles off axis, with recommended signal proceessing applied.*

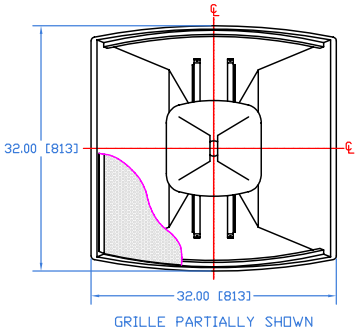
[12] **Beamwidth** *The angle between the -6 dB points in a loudspeaker's polar response.*

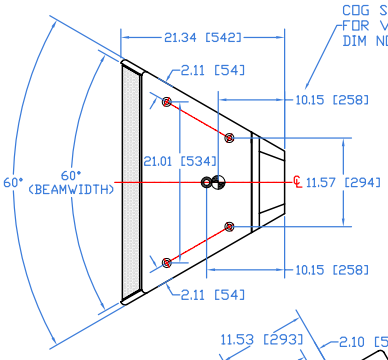
[13] **Directivity Index (D_i)** *The ratio of the on-axis sound pressure squared to the spherical average of the sound pressure squared at a particular frequency expressed in dB. To convert the directivity index to directivity factor (Q) use the formula* $10^{Di/10}$.

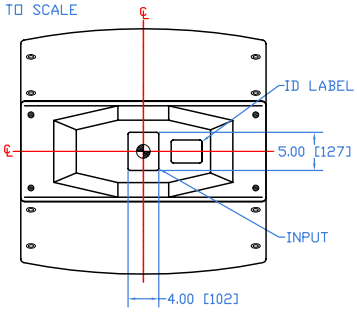
Notes:
1. Net Weight = Approx. 115 lb / 52.2 kg
2. Ship Weight = Approx. 129 lb / 58.5 kg
3. Symbol ◎ = M10 eye bolt angle point
4. Symbol ◘ = M10 nut plate
5. Symbol ⊕ = CoG
6. Symbol ● = Compression Head attachment point; do not use for suspension

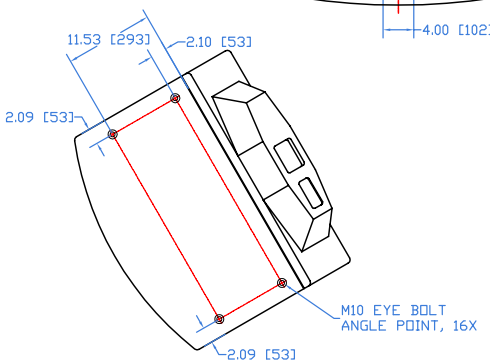
REVISIONS		
REV	DESCRIPTION	APPR / DATE
1	NEW ISSUE	RAF 5/30/12
2	ADDED YOKE POINTS	RAF 5/23/13











THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES TOLERANCE IN INCHES .X±.1 .XX±.015 .XXX±.005 FRACTIONS ±1/32 ANGLES ±1/2° (X.XX) = REF DIMS NO TOLERANCE IMPLIED TSC = THEORETICAL SHARP CORNER DIMENSIONS ACROSS CENTERLINES TO BE SYMETRICAL	STATUS RELEASED	FULCRUM ACOUSTIC, LLC 670 LINWOOD AVE, LINWOOD, MA 01525 USA
THIS DRAWING IS THE PROPERTY OF FULCRUM ACOUSTIC, AND SHALL NOT BE COPIED, REPRODUCED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOU WRITTEN AUTHORIZATION. DO NOT SCALE DRAWING.		APPROVALS / DATE DRAWN: RAF 5/30/12 CHECKED: DWG 5/30/12 DES ENG: MFG ENG:	TITLE: Mechanical Spec, AH96 A SHEET 1 OF 1 SCALE: 1:20 DWG. NO. 820-100-057 REV 2

Drawing is reduced. Do not scale.

CX896

8 inch Coaxial Loudspeaker

tq install™ SERIES

Overview

The CX896 is a coaxial loudspeaker that provides the output capability of a traditional 8 inch 2-way, horn-loaded-HF loudspeaker, but in a much more compact enclosure. Its coaxial transducer can be rotated in 45° increments, which allows its coverage to be tailored to best suit an application's requirements. The enclosure's 30° vertically trapezoidal shape allows mounting very close to ceilings or under balconies with minimal effect on sight lines.

Fulcrum Acoustic's **TQ**™ processing is an integral part of the CX896 design. Sound, innovative acoustical design combined with state of the art digital processing leads to exceptional clarity and precise transient response, even at very high sound pressure levels. The required digital signal processing can be provided by one of many supported platforms.

The CX896's 90° x 60° high frequency horn is particularly effective for fill systems where targeted pattern control is desirable. In addition, its 16 ohm nominal impedance makes it an excellent solution for high fidelity, foreground distributed systems where a high loudspeaker-to-amplifier ratio is desirable.

Performance Specifications[1]

Operating Mode
Single-amplified w/ DSP

Operating Range [2]
84 Hz to 20 kHz

Nominal Beamwidth (rotatable)
90° x 60°

Transducers
HF/LF: Coaxial 1.7" titanium diaphragm compression driver; 8.0" woofer, 2.0" voice coil; single neodymium magnet

Power Handling @ Nominal Impedance [3]
63 V / 250 W @ 16 Ω

Nominal Sensitivity @ Input Voltage [4] (whole space)
103 dB @ 4.00 V

Nominal Maximum Continuous SPL
127 dB

Equalized Sensitivity @ Input Voltage [5]
95 dB @ 4.00 V

Equalized Maximum SPL [6]
119 dB

Recommended Power Amplifier
250 W to 500 W @ 16 Ω

Physical Specifications

Connections
(2) Neutrik NL4 Speakon
Pin 1+/-: Full Range
Pin 2+/-: NC

Mounting / Suspension Points
(2) M6 yoke points, (2) M6 pull back points,
(4) M6 t-nuts for third-party pan/tilt mounts

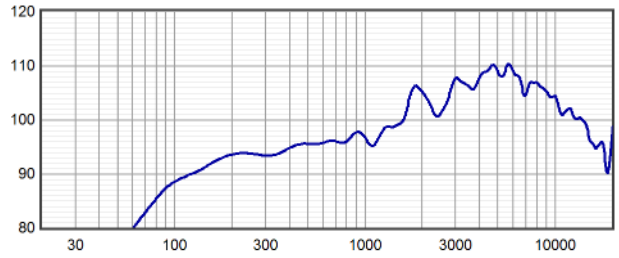
Dimensions / Weight
See page 5

Finish
Black painted enclosure w/ matte black grille, or
White painted enclosure w/ matte white grille

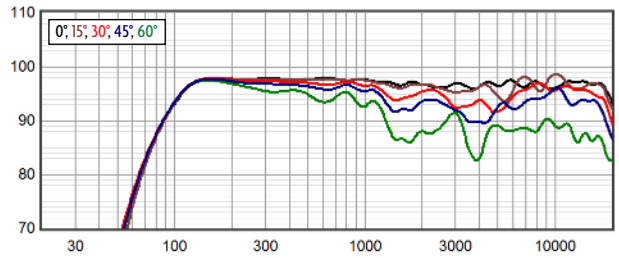
Options

CX896 U Bracket [YK1408], Terminal strip input,
Custom color finish, Weather-resistant (WR) enclosure

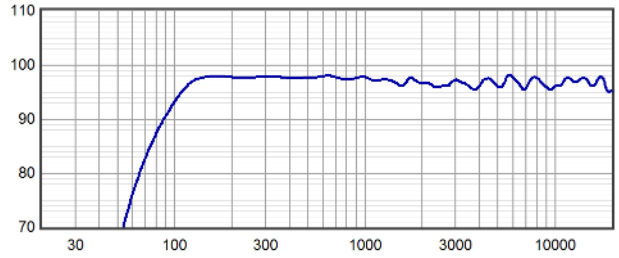
Axial Sensitivity (dB SPL, 4.00 V @ 1 m)[7, 8]



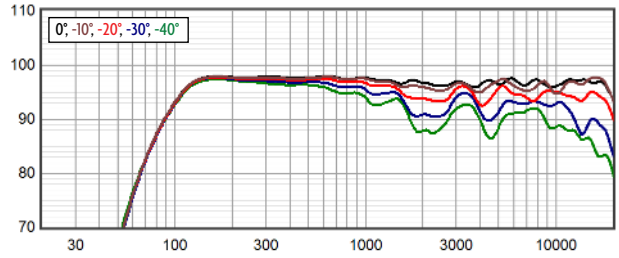
Horizontal Off Axis Response[7, 11]



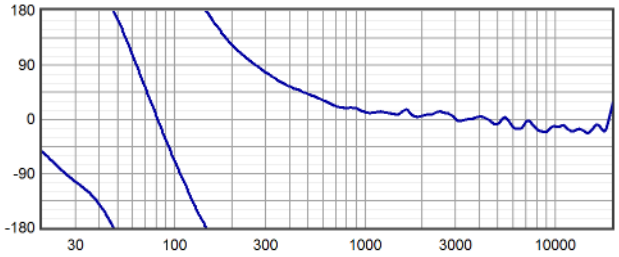
Axial Processed Response (dB)[7, 9]



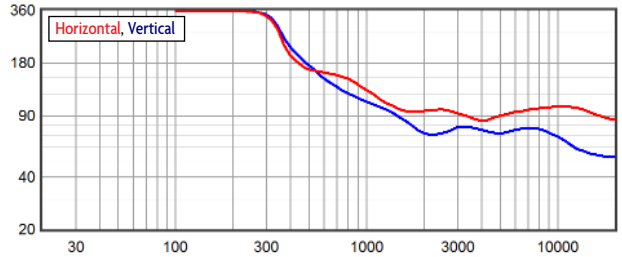
Vertical Off Axis Response[7, 11]



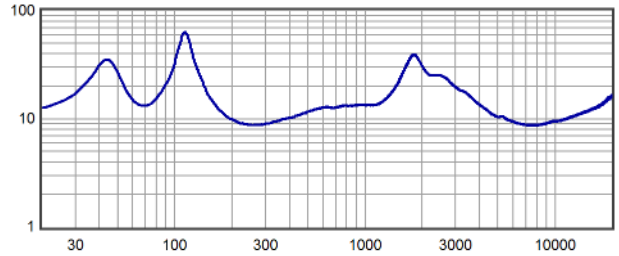
Axial Processed Phase Response (degrees)[7, 10]



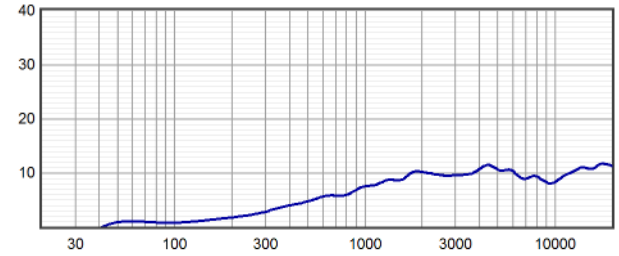
Beamwidth[7, 12]



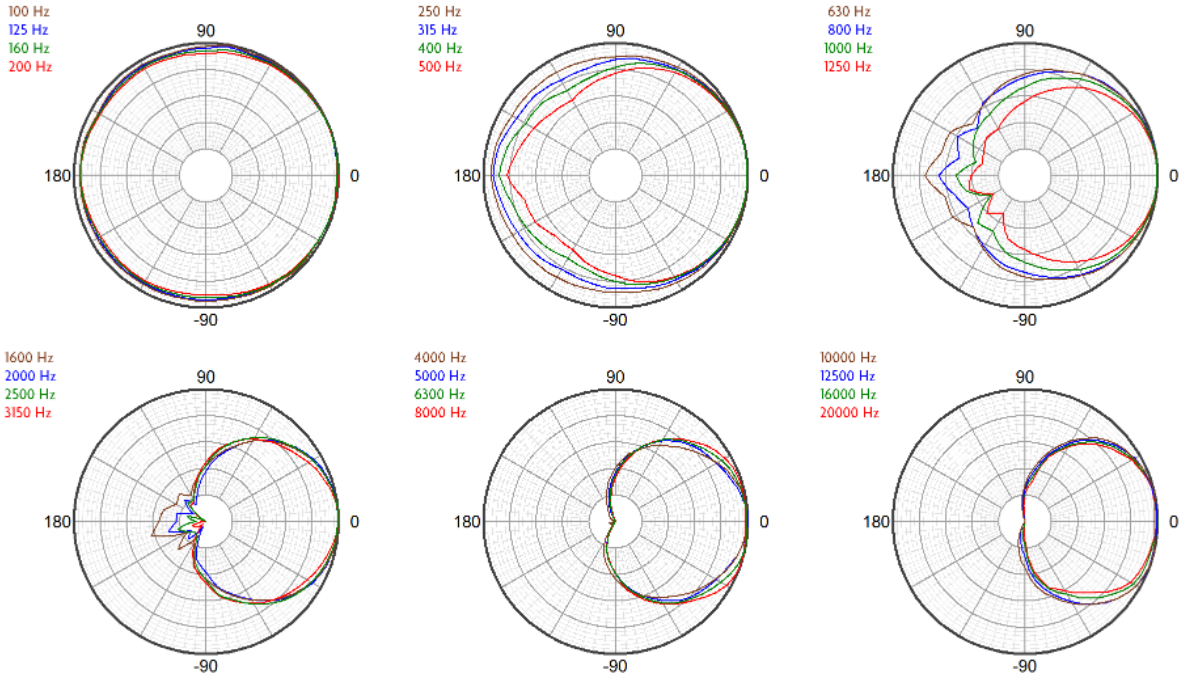
Impedance (ohms)



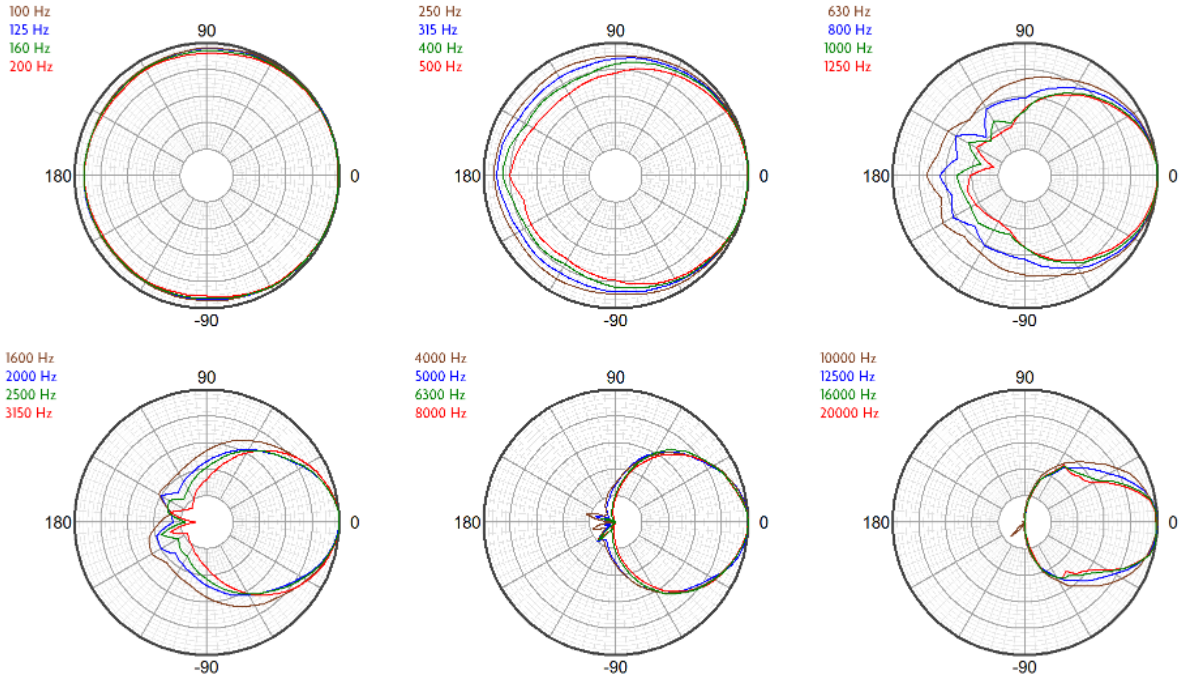
Directivity Index (dB)[13]



Horizontal Polar Response (30 dB Scale, 6 dB per Major Division)



Vertical Polar Response (30 dB Scale, 6 dB per Major Division)



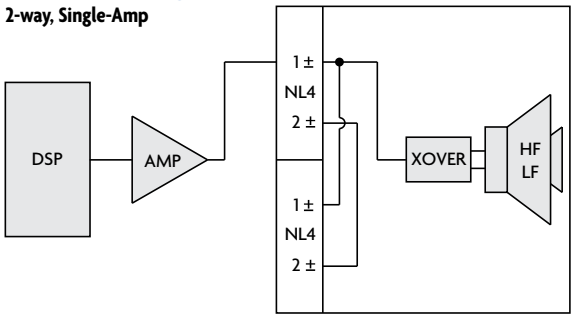
Technologies

The CX896 includes a neodymium-based coaxial transducer which allows the compression driver diaphragm to be positioned very close to the woofer voice coil. This allows the system to maintain coherent summation and consistent off axis response through a passive crossover, allowing it to be powered with a single amplifier channel.

The compression driver's 1.75 inch diameter diaphragm operates to a relatively low frequency. This allows the high frequency horn to smooth the polar response of the low frequency section in the frequency range where the horn would otherwise cause shadowing. The coaxial woofer's large radiating surface works in conjunction with the HF horn to improve directional control at the low frequency limit of the horn's operating range, increasing directional control beyond what can be accomplished by the horn alone.

Connection Diagram

2-way, Single-Amp



Mechanical Specification Drawings

2D and 3D DXF dimensional drawings are available for download at www.fulcrum-acoustic.com/support .

Notes

[1] **Performance Specifications** *All acoustic specifications rounded to nearest whole number. External DSP with Fulcrum Acoustic-provided settings is required to achieve the specified performance.*

[2] **Operating Range** *The frequency range within which the processed response is within 10 dB of the average.*

[3] **Power Handling** *Based on the AES power handling of the transducers.*

[4] **Nominal Sensitivity** *The 1-meter-referenced SPL produced by a 1 watt band limited pink noise signal, with no processing applied.*

[5] **Equalized Sensitivity** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which produces a total power of 1 watt, in sum, to the loudspeaker subsections.*

[6] **Equalized Maximum SPL** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which drives at least one subsection to its rated power.*

[7] **Resolution** *All response graphs are subjected to 1/6 octave cepstral smoothing with a gaussian weighting function.*

[8] **Axial Sensitivity** *The SPL plotted against frequency for a 1 watt swept sine wave, referenced to 1 m with no signal processing.*

[9] **Axial Processed Response** *The axial magnitude response with recommended signal processing applied.*

[10] **Axial Processed Phase Response** *The axial phase response with recommended signal processing applied, and latency removed.*

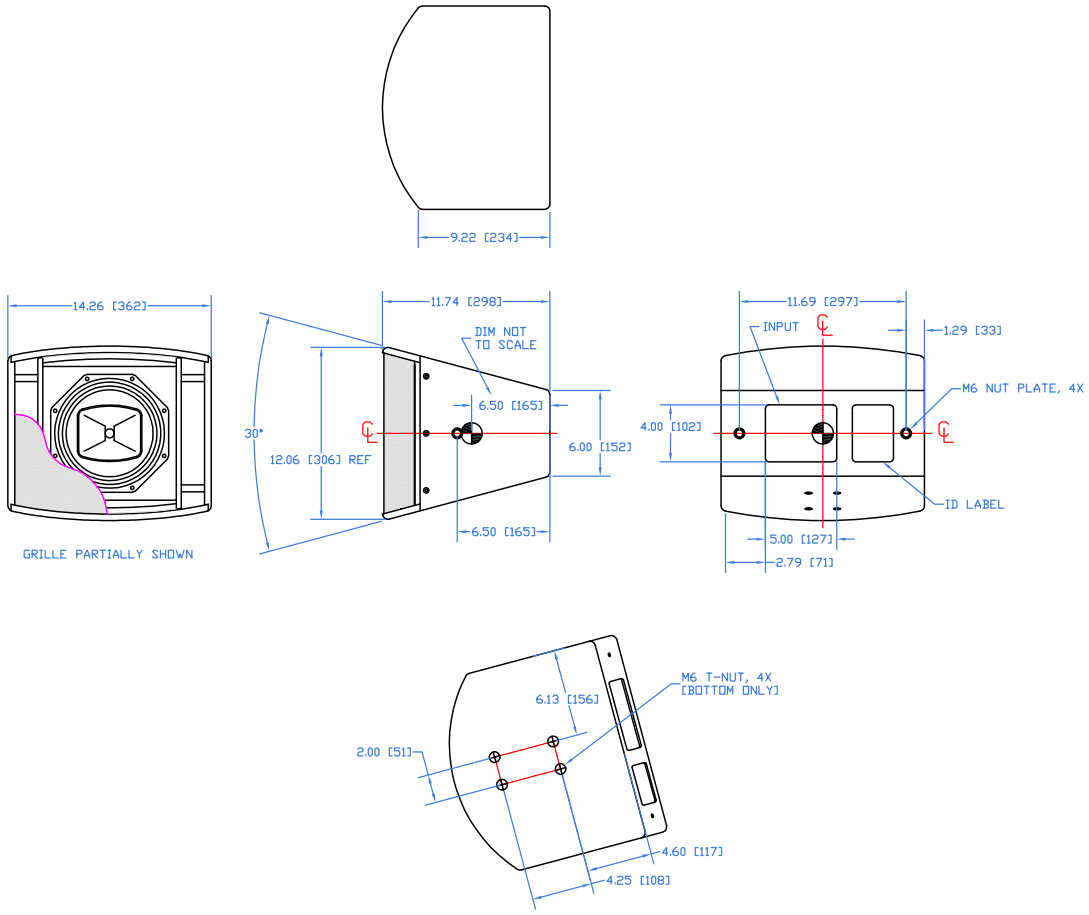
[11] **Horizontal / Vertical Off Axis Responses** *The magnitude response at various angles off axis, with recommended signal proceessing applied.*

[12] **Beamwidth** *The angle between the -6 dB points in a loudspeaker's polar response.*

[13] **Directivity Index (Di)** *The ratio of the on-axis sound pressure squared to the spherical average of the sound pressure squared at a particular frequency expressed in dB. To convert the directivity index to directivity factor (Q) use the formula* $10^{Di/10}$.

Notes:
1. Net Weight = Approx. 17.0 lb / 7.7 kg
2. Ship Weight = Approx. 22.0 lb / 10.0 kg
3. Symbol ⊙ = M6 nut plate
4. Symbol ⊕ = M6 t-nut for third party pan/tilt mounts
5. Symbol ◓ = CoG

REVISIONS		
REV	DESCRIPTION	APPR / DATE
1	RELEASE TO PRODUCTION	RAF 11/6/09
2	CORRECT REAR HEIGHT DIMENSION	RAF 12/11/09
3	ADD SHIPPING WEIGHT	RAF 12/5/11
4	OMNIMOUNT TO "THIRD PARTY" IN NOTE 4	RAF 1/13/12



THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES TOLERANCE IN INCHES .X±.1 .XX±.015 .XXX±.005 FRACTIONS ±1/32 ANGLES ±1/2° (X.XX) = REF DIMS NO TOLERANCE IMPLIED TSC = THEORETICAL SHARP CORNER DIMENSIONS ACROSS CENTERLINES TO BE SYMETRICAL	STATUS RELEASED	FULCRUM ACOUSTIC, LLC 670 LINWOOD AVE, LINWOOD, MA 01525 USA
THIS DRAWING IS THE PROPERTY OF FULCRUM ACOUSTIC, AND SHALL NOT BE COPIED, REPRODUCED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOU WRITTEN AUTHORIZATION. DO NOT SCALE DRAWING.		APPROVALS / DATE DRAWN: DWG 2/10/09 CHECKED: RAF 6/12/09 DES ENG: MFG ENG:	TITLE: Mechanical Spec, CX896 A SHEET 1 OF 1 SCALE: 1:12 DWG. NO. 820-100-026 REV 4

Drawing is reduced. Do not scale.

DX896

Dual 8 inch Coaxial Loudspeaker

tq install™ SERIES

Overview

The DX896 coaxial loudspeaker provides the output capability of a dual 8 inch loudspeaker in an enclosure size typically associated with a single 8 inch, 2-way system. Its coaxial transducer can be rotated in 45° increments, which allows its coverage to be tailored to best suit an application's requirements, and its dedicated low frequency transducer provides additional low frequency directivity and mid bass impact. The enclosure's 25° rear chamfers allow it to be mounted close to walls; alternatively the enclosure may be rotated for mounting close to ceilings and under balconies. When rotated, the DX896's low profile also makes it very useful as a high output front fill system when placed on the edge of or installed into a stage apron.

Fulcrum Acoustic's **TQ**™ processing is an integral part of the DX896 design. Sound, innovative acoustical design combined with state of the art digital processing leads to exceptional clarity and precise transient response, even at very high sound pressure levels. The required digital signal processing can be provided by one of many supported platforms.

The DX896's 90° x 60° high frequency horn is particularly effective for systems where targeted pattern control is desirable. This makes it an ideal choice for small live reinforcement systems, nightclubs, restaurants, theme parks, A/V screening rooms, and more.

Performance Specifications[1]

Operating Mode
Single-amplified w/ DSP

Operating Range [2]
72 Hz to 20 kHz

Nominal Beamwidth (rotatable)
90° x 60°

Transducers
LF: 8.0" ceramic magnet woofer, 2.0" voice coil
HF/LF: Coaxial 1.7" titanium diaphragm compression driver; 8.0" woofer, 2.0" voice coil; single neodymium magnet

Power Handling @ Nominal Impedance [3]
63 V / 500 W @ 8 Ω

Nominal Sensitivity @ Input Voltage [4] (whole space)
100 dB @ 2.83 V

Nominal Maximum Continuous SPL
127 dB

Equalized Sensitivity @ Input Voltage [5]
97 dB @ 2.83 V

Equalized Maximum SPL [6]
124 dB

Recommended Power Amplifier
500 W to 1000 W @ 8 Ω

Physical Specifications

Connections
(2) Neutrik NL4 Speakon
Pin 1+/-: Full Range
Pin 2+/-: NC

Mounting / Suspension Points
(12) M6 eye bolt angle points, (2) M6 yoke points, (1) M6 pull back point, (4) M8 t-nuts for third-party pan/tilt mounts

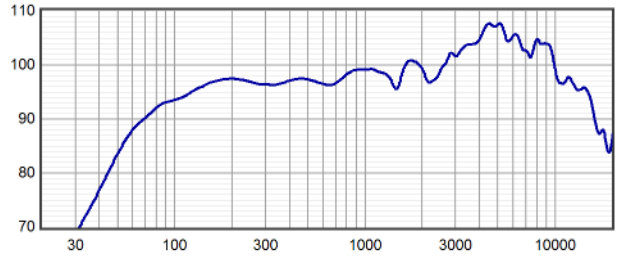
Dimensions / Weight
See page 5

Finish
Black painted enclosure w/ matte black grille, or
White painted enclosure w/ matte white grille

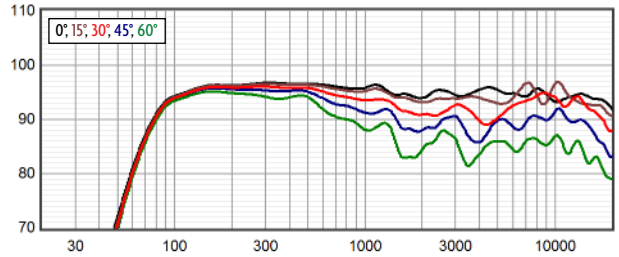
Options

DX896 U Bracket [YK2008], Terminal strip input,
Custom color finish, Weather-resistant (WR) enclosure

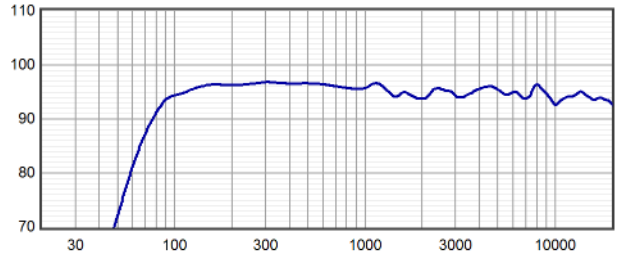
Axial Sensitivity (dB SPL, 2.83 V @ 1 m)[7, 8]



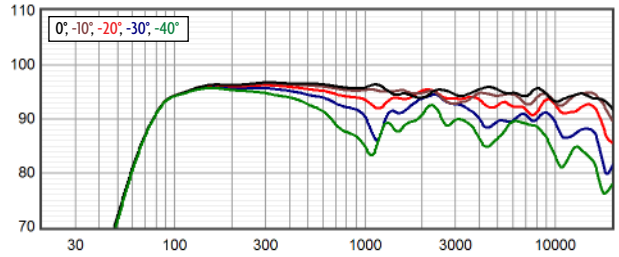
Horizontal Off Axis Response[7, 11]



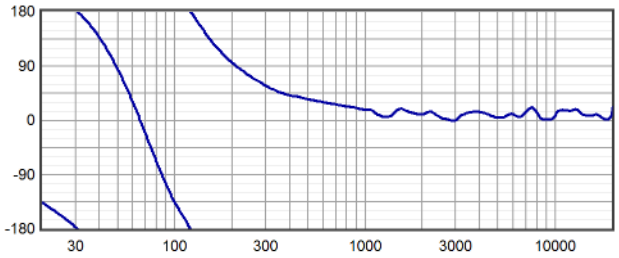
Axial Processed Response (dB)[7, 9]



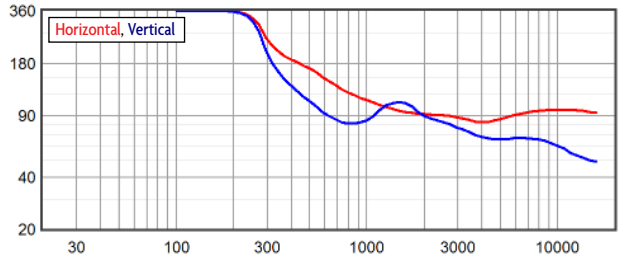
Vertical Off Axis Response[7, 11]



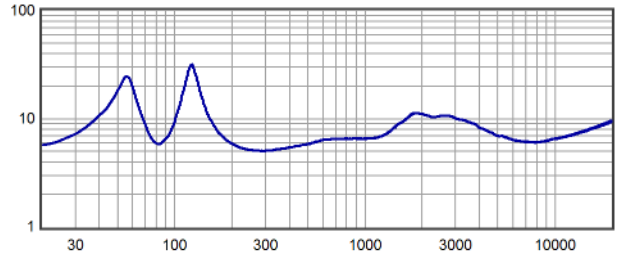
Axial Processed Phase Response (degrees)[7, 10]



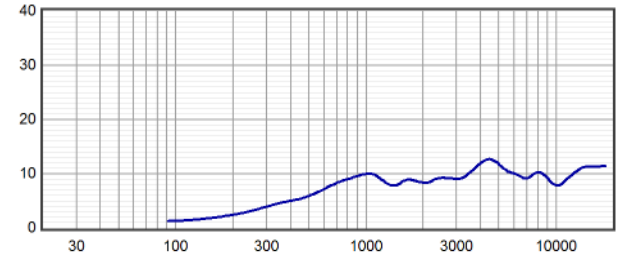
Beamwidth[7, 12]



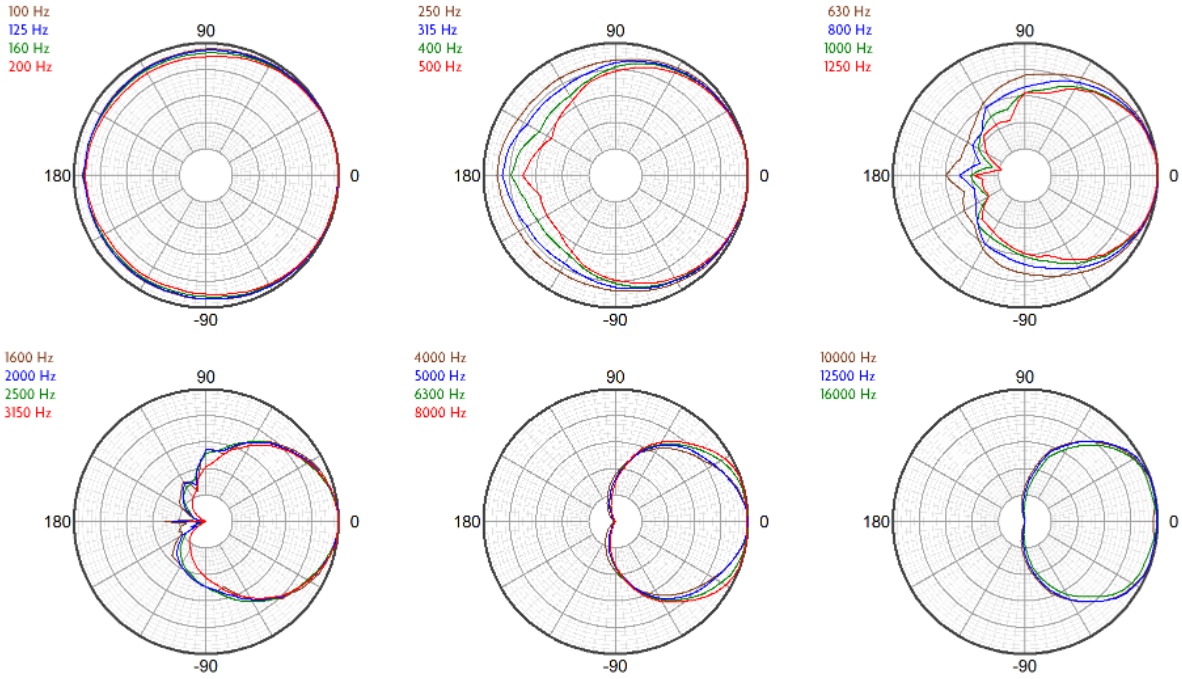
Impedance (ohms)



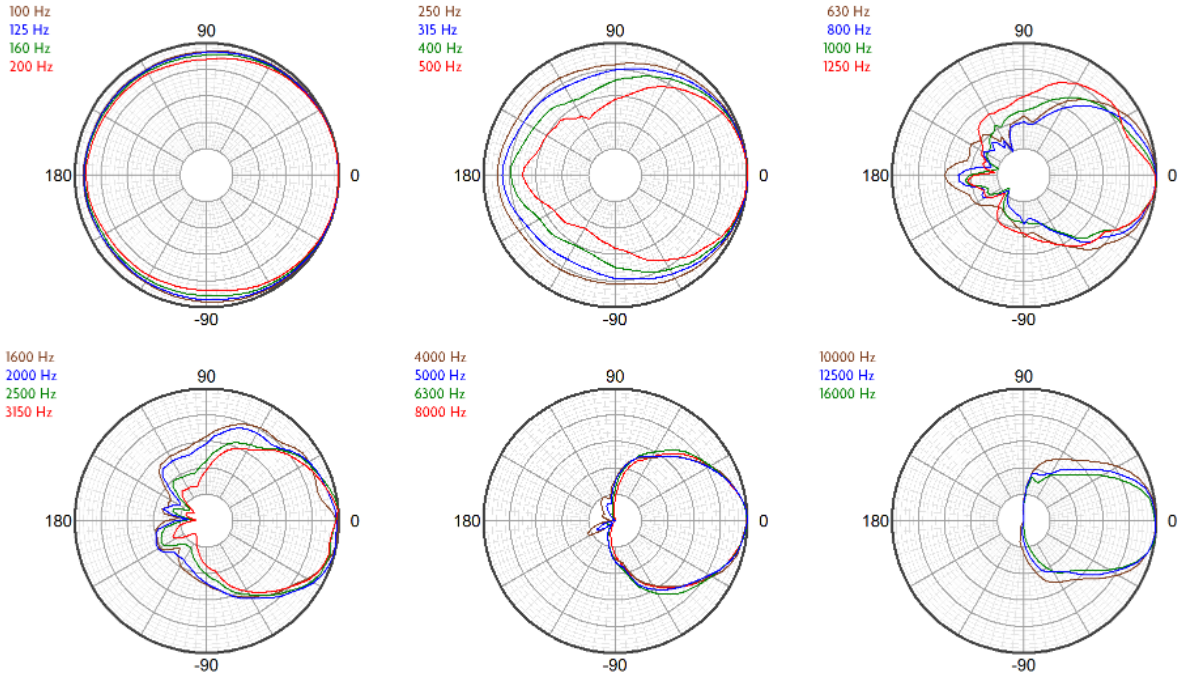
Directivity Index (dB)[13]



Horizontal Polar Response (30 dB Scale, 6 dB per Major Division)



Vertical Polar Response (30 dB Scale, 6 dB per Major Division)



Technologies

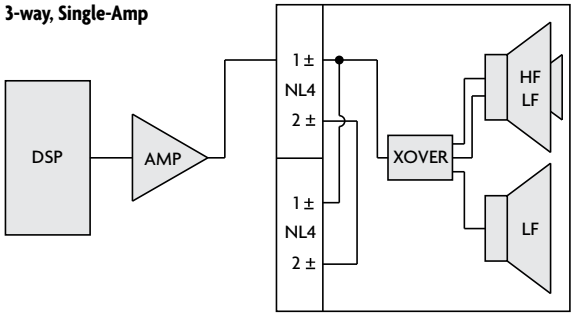
The DX896 includes a neodymium based coaxial driver, which allows the compression driver diaphragm to be positioned very close to the woofer voice coil. This allows the system to maintain coherent summation and consistent off axis response through a 3-way passive crossover, allowing it to be driven with a single amplifier channel.

The compression driver's 1.75 inch diameter diaphragm operates to a relatively low frequency. This allows the high frequency horn to smooth the polar response of the low frequency section in the frequency range where the horn would otherwise cause shadowing. The coaxial woofer's large radiating surface works in conjunction with the HF horn to improve directional control at the low frequency limit of the horn's operating range, increasing directional control beyond what can be accomplished by the horn alone.

The two low frequency devices both operate down to the lowest frequencies, resulting in mutual coupling that provides unusually high efficiency and impact in the critical 80 Hz to 500 Hz range.

Connection Diagram

3-way, Single-Amp



Mechanical Specification Drawings

2D and 3D DXF dimensional drawings are available for download at www.fulcrum-acoustic.com/support .

Notes

[1] **Performance Specifications** *All acoustic specifications rounded to nearest whole number. External DSP with Fulcrum Acoustic-provided settings is required to achieve the specified performance.*

[2] **Operating Range** *The frequency range within which the processed response is within 10 dB of the average.*

[3] **Power Handling** *Based on the AES power handling of the transducers.*

[4] **Nominal Sensitivity** *The 1-meter-referenced SPL produced by a 1 watt band limited pink noise signal, with no processing applied.*

[5] **Equalized Sensitivity** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which produces a total power of 1 watt, in sum, to the loudspeaker subsections.*

[6] **Equalized Maximum SPL** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which drives at least one subsection to its rated power.*

[7] **Resolution** *All response graphs are subjected to 1/6 octave cepstral smoothing with a gaussian weighting function.*

[8] **Axial Sensitivity** *The SPL plotted against frequency for a 1 watt swept sine wave, referenced to 1 m with no signal processing.*

[9] **Axial Processed Response** *The axial magnitude response with recommended signal processing applied.*

[10] **Axial Processed Phase Response** *The axial phase response with recommended signal processing applied, and latency removed.*

[11] **Horizontal / Vertical Off Axis Responses** *The magnitude response at various angles off axis, with recommended signal proceessing applied.*

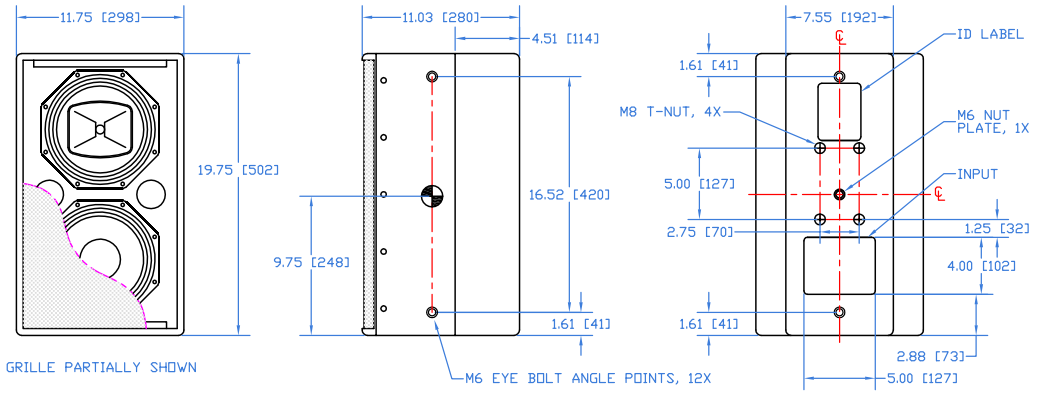
[12] **Beamwidth** *The angle between the -6 dB points in a loudspeaker's polar response.*

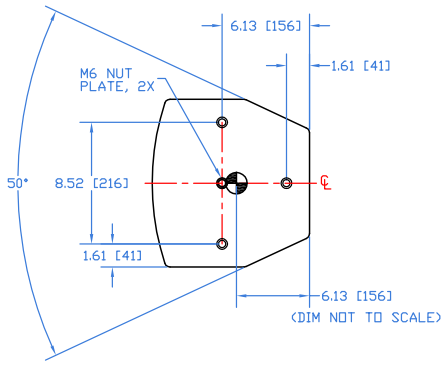
[13] **Directivity Index (Di)** *The ratio of the on-axis sound pressure squared to the spherical average of the sound pressure squared at a particular frequency expressed in dB. To convert the directivity index to directivity factor (Q) use the formula* $10^{Di/10}$.

Notes:
1. Net Weight = Approx. 31.0 lb / 14.1 kg
2. Ship Weight = Approx. 36.0 lb / 16.3 kg
3. Symbol ◎ = M6 eye bolt angle point
4. Symbol ⊙ = M6 nut plate
5. Symbol ⊕ = M8 t-nut for third party pan/tilt mounts
6. Symbol ◓ = CoG

REVISIONS

REV	DESCRIPTION	APPR / DATE
2	ALIGNED PRIMARY EB ANGLE POINTS AND NUT PLATES W/ COG, ADDED REAR NUT PLATE FOR PULL BACK POINT, ADDED COG, ADDED OMNI 60 POINTS	RAF 1/7/10
3	ADD SHIPPING WEIGHT	RAF 12/7/11
4	OMNIMOUNT TO "THIRD PARTY" IN NOTE 5	RAF 1/13/12





THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES TOLERANCE IN INCHES .X±.1 .XX±.015 .XXX±.005 FRACTIONS ±1/32 ANGLES ±1/2° (X.XX) = REF DIMS NO TOLERANCE IMPLIED TSC = THEORETICAL SHARP CORNER DIMENSIONS ACROSS CENTERLINES TO BE SYMETRICAL	STATUS RELEASED	FULCRUM ACOUSTIC, LLC 670 LINWOOD AVE, LINWOOD, MA 01525 USA
THIS DRAWING IS THE PROPERTY OF FULCRUM ACOUSTIC, AND SHALL NOT BE COPIED, REPRODUCED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOU WRITTEN AUTHORIZATION. DO NOT SCALE DRAWING.		APPROVALS / DATE DRAWN: DWG 4/29/09 CHECKED: RAF 5/3/09 DES ENG: MFG ENG:	TITLE: Mechanical Spec, DX896 B SHEET 1 OF 1 SCALE: 1:12 DWG. NO. 820-100-027 REV 4

Drawing is reduced. Do not scale.