FL283T

Dual 8 inch Subcardioid Line Array Module



Overview

The FL283T is a subcardioid line array module intended for portable or permanent installation applications in a wide range of venues. It includes dual 8 inch horn-loaded woofers and three 1.4 inch compression drivers in a compact enclosure. The enclosure is shaped to accommodate up to 20 degrees of splay between adjacent enclosures, allowing for more sharply curved arrays than comparable line arrays. Each FL283T module is configured for full-range passive operation at 16 ohms, allowing up to eight units to be driven from a single power amplifier channel. Up to twelve modules may be suspended with a 10:1 design factor.

The FL283T incorporates Fulcrum's patented* *Passive Cardioid Technology*™ to overcome one of the major challenges of most line arrays: excessive rear LF radiation. Unlike active cardioid loudspeakers, Fulcrum's passive cardioid technology does not require an additional amplifier channel or additional enclosure volume to achieve its impressive low frequency directional control.

The subcardioid behavior is produced by a meticulously conceived acoustical circuit which balances the horn loading of the low frequency drivers, the enclosure depth and volume, and specially constructed rear-mounted ports which include a calibrated resistive element. By opting for a subcardioid pattern as opposed to a pure, hyper or super cardioid pattern, the rear rejection increases when the modules are deployed as a curved line array.

Fulcrum Acoustic's **TQ**™ processing is an integral part of the FL283T 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. Note that FL Series loudspeakers must use Level 1 processing. Please see fulcrum-acoustic.com/dsp.html for details.

Performance Specifications[1]

Operating Mode

Single-amplified w/ DSP

Operating Range [2]

54 Hz to 18.6 kHz

Nominal Beamwidth

Horizontal: 90°
Vertical: Array dependent; 20° maximum splay

Transducers

LF: (2) 8.0" ceramic magnetic cone driver, 2.0" voice coil
HF: (3) 1.4" titanium diaphragm, neodymium magnet compression driver

Power Handling @ Nominal Impedance [3]

89 V / 500 W @ 16 Ω

Nominal Sensitivity @ Input Voltage [4] (whole space)

One Module: 106 dB @ 4.00 V
Four Modules: 106 dB @ 4.00 V
Six Modules: 108 dB @ 4.00 V
Eight Modules: 111 dB @ 4.00 V
Twelve Modules: 113 dB @ 4.00 V

Nominal Maximum Continuous SPL (peak / continuous)

One Module: 139 dB / 133 dB
Four Modules: 145 dB / 139 dB
Six Modules: 148 dB / 142 dB
Eight Modules: 152 dB / 146 dB
Twelve Modules: 157 dB / 151 dB

Equalized Sensitivity @ Input Voltage [5]

One Module: 95 dB @ 4.00 V
Four Modules: 101 dB @ 4.00 V
Six Modules: 102 dB @ 4.00 V
Eight Modules: 105 dB @ 4.00 V
Twelve Modules: 106 dB @ 4.00 V

Equalized Maximum SPL [6] (peak / continuous)

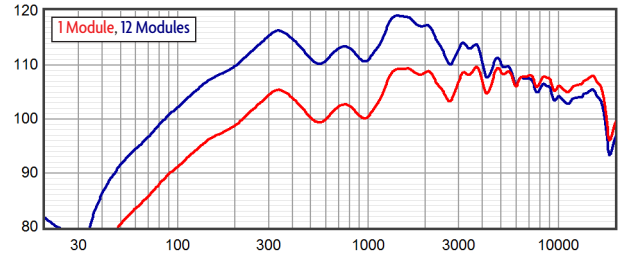
One Module: 128 dB / 122 dB
Four Modules: 140 dB / 134 dB
Six Modules: 143 dB / 137 dB
Eight Modules: 146 dB / 140 dB
Twelve Modules: 150 dB / 144 dB

Recommended Power Amplifier

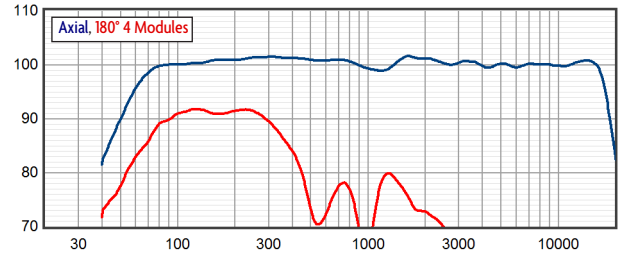
500 W to 1000 W @ 16 Ω

* US Patent # 10123111

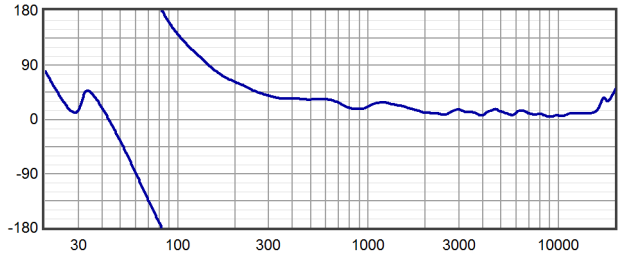
Axial Sensitivity (dB SPL, 4.0 V @ 1 m)[7, 8]



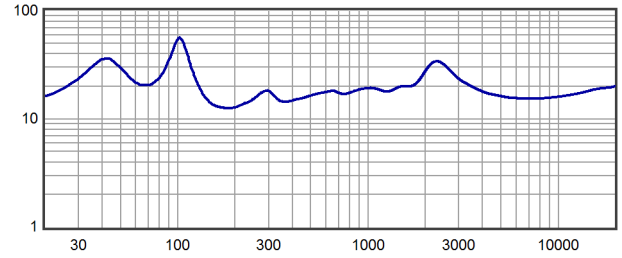
Axial Processed Response (dB)[7, 9]



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



Impedance (ohms)



Physical Specifications

Connections

(2) Neutrik NL4 Speakon
Pin 1+/-: Full Range Pin 2+/-: No Connection

Rigging System

Material: High grade steel & aluminum w/ anti-corrosion coating
Vertical Splay: 0° to 20° (omitting 18°) in 2° increments
Maximum Quantity of FL283T Per Array: 24
Note: the FL283T Rigging Calculator software MUST be consulted for any array with more than 8 modules

Dimensions / Weight

See page 5

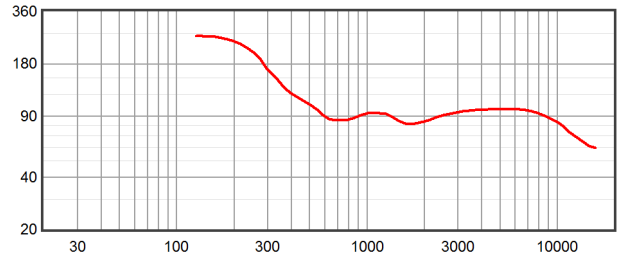
Finish

Black painted enclosure

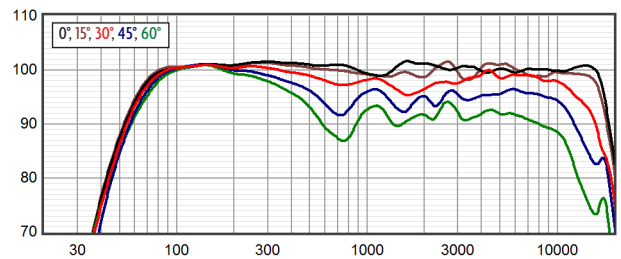
Accessories

Array frame, Ground stack kit, Four-module transport cart

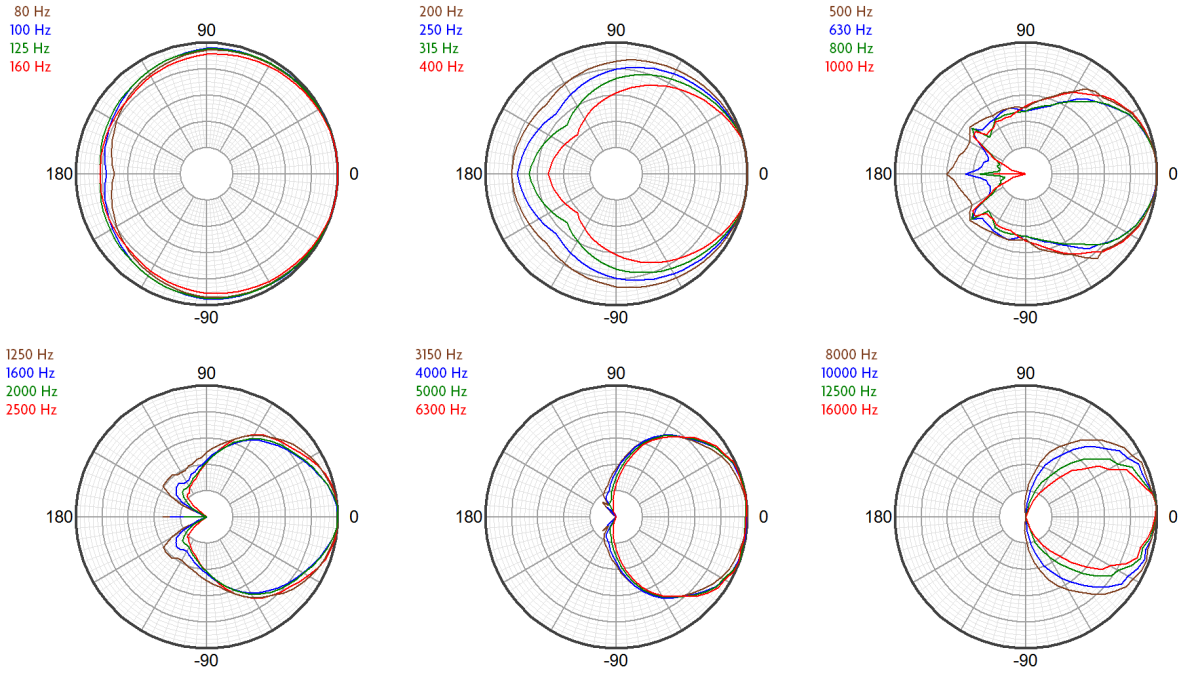
Horizontal Beamwidth[7, 12]



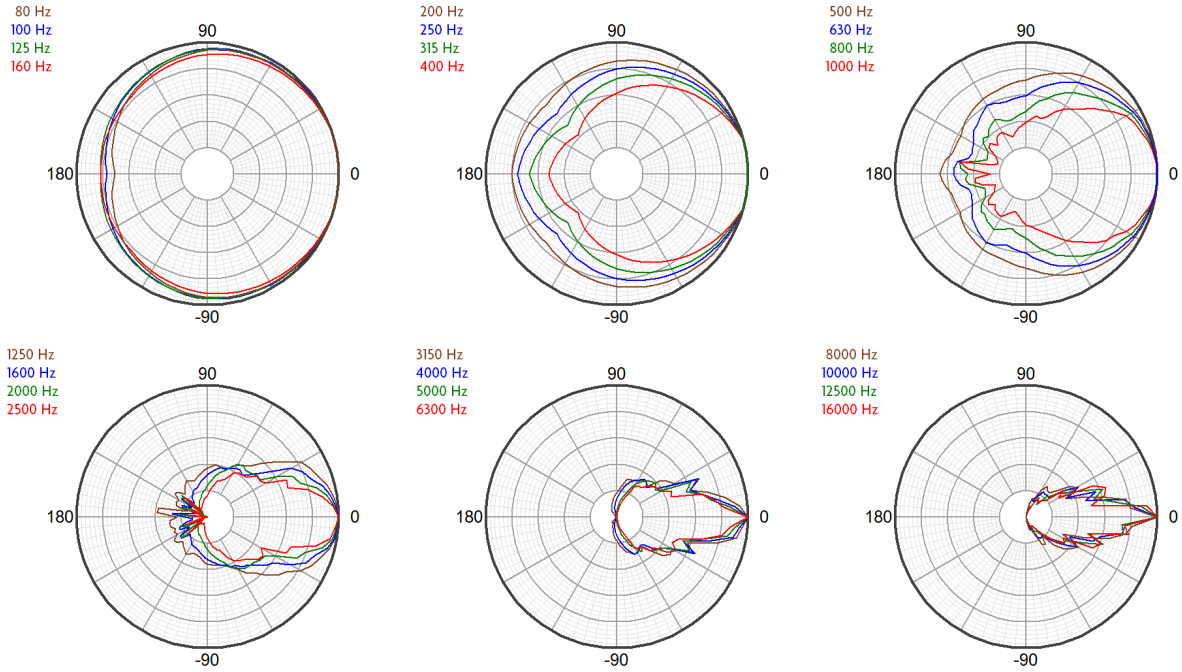
Horizontal Off Axis Response[7, 11]



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

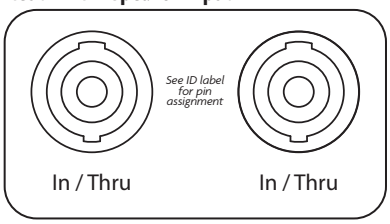


Vertical Polar Response (30 dB Scale, 6 dB per Major Division)



Connections

Neutrik NL4 Speakon Input



Mechanical Specification Drawings

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

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.*

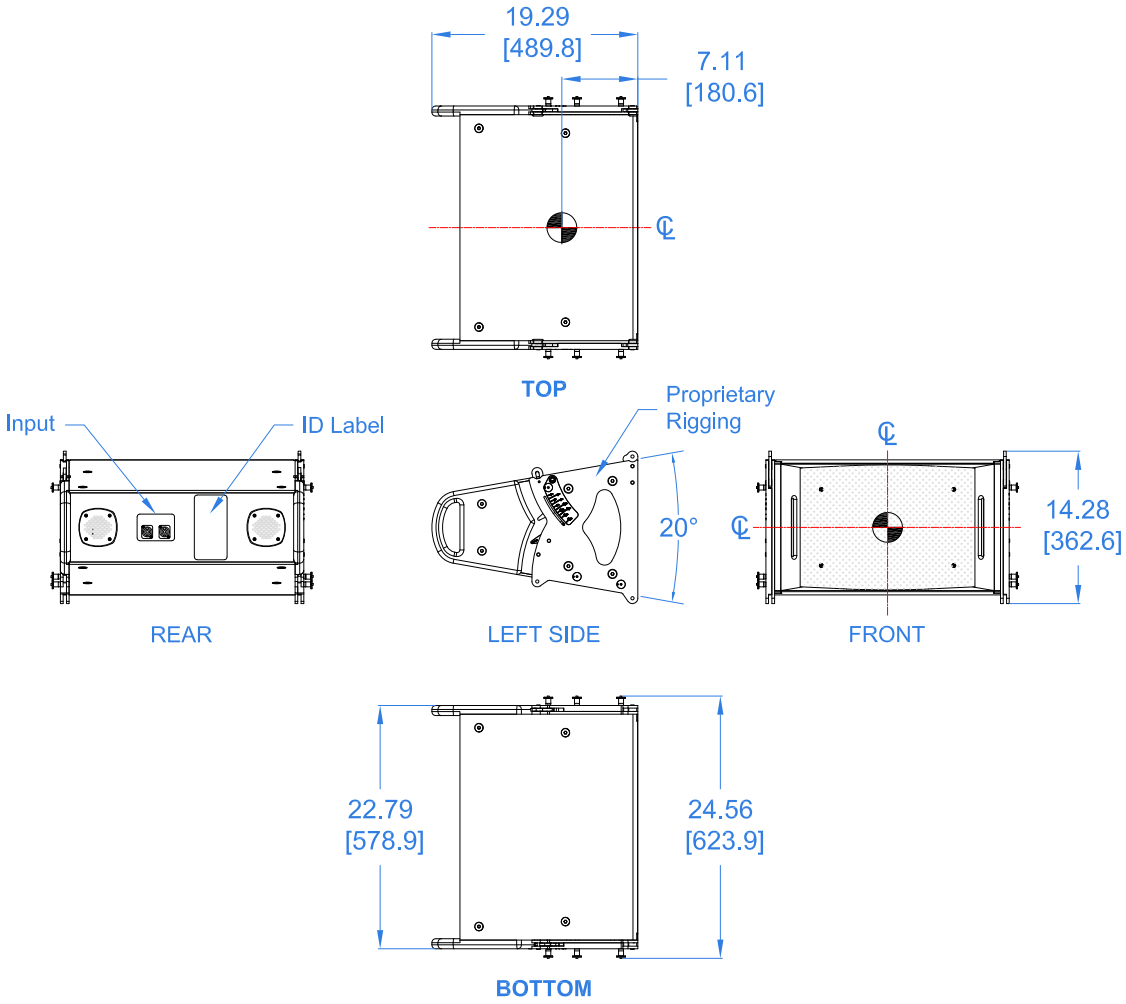
[11] **Horizontal / Vertical Off Axis Responses** *The magnitude response at various angles off axis, with recommended signal proceessing applied.*

[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. 66.0 lb / 29.9 kg
2. Symbol ⌖ = CoG

REVISIONS		
REV	DESCRIPTION	APPR / DATE
1	NEW ISSUE	DEW 6/21/19
2	ANNOTATION UPDATES	RAF 1/13/20
3	UPDATE NOTES	RAF 2/14/26

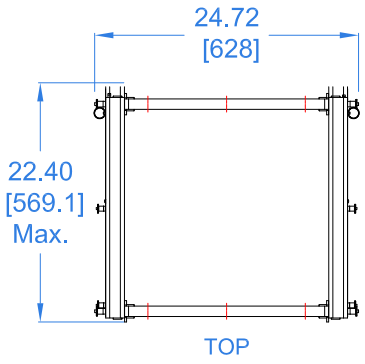


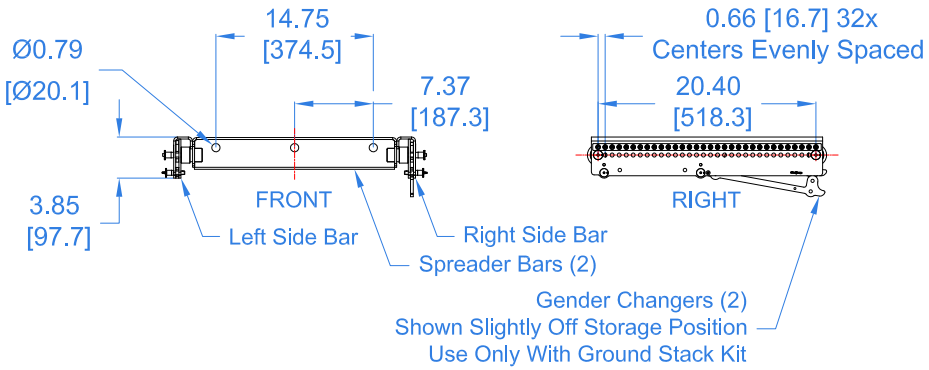
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		DRAWN: DEW 6/21/19	
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		DES ENG:	B SHEET 1 OF 1 SCALE: 1:16
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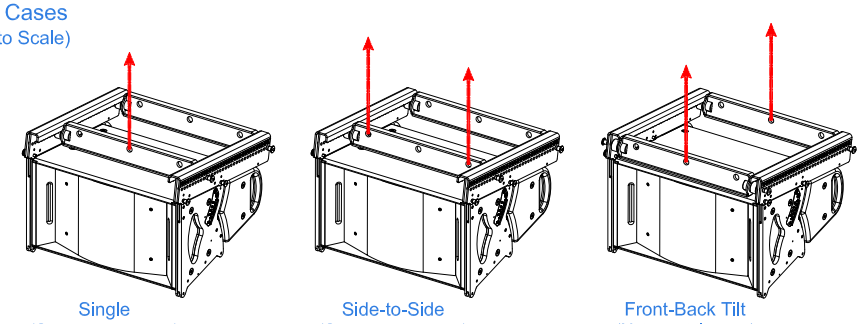
Notes:
1. Net Weight = Approx. 39.8 lb / 18.0 kg
2. Use minimum 5/8 in / 16 mm anchor shackle in spreader bar pick points

REVISIONS		
REV	DESCRIPTION	APPR / DATE
1	NEW ISSUE	DEW 1/13/20
2	UPDATE NOTES	RAF 2/14/26





Use Cases
(Not to Scale)



Single
(Gravity sets tilt angle)

Side-to-Side
(Gravity sets tilt angle)

Front-Back Tilt
(Motors set tilt angle)

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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

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TITLE: Mechanical Spec, FL283T Array Frame

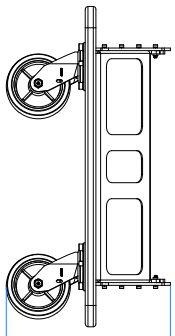
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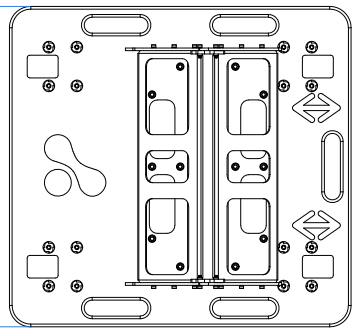
DWG. NO. 820-300-030 | REV 2

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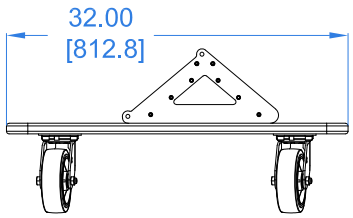
Notes:
1. Net Weight = Approx. 60.0 lb / 27.2 kg

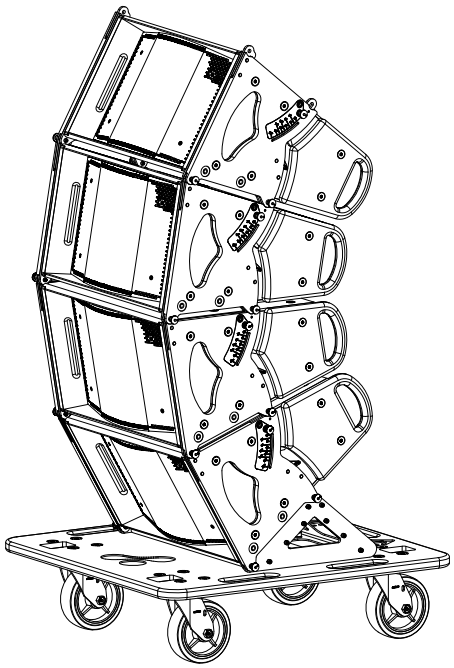
REVISIONS		
REV	DESCRIPTION	APPR / DATE
1	NEW ISSUE	DEW 1/13/20
2	UPDATE NOTES	RAF 2/14/26

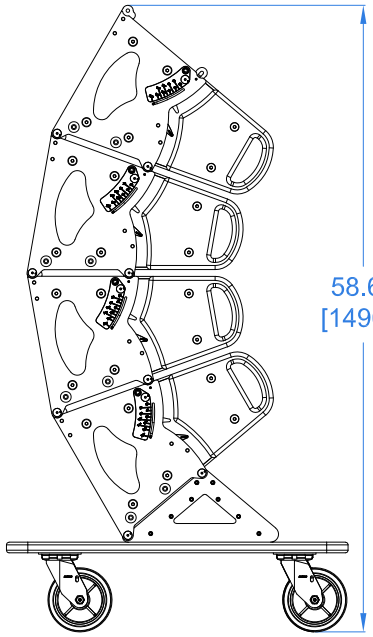




15.37
[390.3]







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		CHECKED: RAF 1/13/20	
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