

STY-CATR-0300-OB-S1

Ø12" (Ø300mm) Quiet Zone, Open Bed Compact Range

STY-CATR-0300-OB-S1 is an open bed compact range system designed for quick far-field over-the-air antenna testing outside a traditional anechoic chamber. The system uses a rolled edge reflector and specially designed corrugated wide angle feed horns to deliver a circular quiet zone of around Ø 12" [300 mm]. The reflector is machined from a single block of aluminum with superb surface accuracy and is treated with chemical film for corrosion resistance. The reflector can be purchased separately under model STY-CATR-RER-0300-S1.

By default, the system is configured with a 2-Axis, elevation over azimuth positioner. The positioner is controlled with easy-to-use software and GUI that allows the user to take measurements quickly with minimal setup. The positioner is designed to accept the mounting of Eravant's mmWave mini VNA extender Tx and Rx modules. A list of available extender module kits is provided in the subsequent pages.

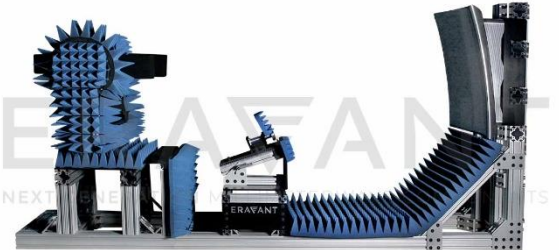
The reflector, positioner, and feed antenna system are all installed and aligned on a custom-built, modular, sturdy aluminum T-slotted frame structure. RF absorbers are set in critical areas to reduce the impact of reflections and interference of the open-bed metal structure on the quiet zone quality.

Electrical Specifications:

Parameter	Specification
Frequency Range	24 to 330 GHz
Quiet Zone Shape	Circular
Quiet Zone Size	Ø12" [300 mm]
Feed Layout	Center Fed
Feed Antenna Polarization	Linear
Absorber Reflectivity (Pyramid)	-40 dB typ @ 18 GHz -50 dB typ @ 40 GHz -45 dB typ @ 100 GHz

Mechanical Specifications:

Item	Specification
Reflector Dimensions	Approx. 24.5" [0.62 m] x 24.5" [0.62 m]
System Dimensions	Approx. 97.5" [2.48 m] x 30.1" [0.77 m] x 51.3" [1.3 m]
System Weight	Approx. 700 lbs. [318 kg]
Outline	TY-CATR-0300-OB



ECCN

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FEATURES

- Ø12" (300mm) Quiet Zone
- High Surface Accuracy of Reflector
- Compact Size
- Easily Configurable with Eravant Tx/Rx Modules for mmWave Coverage from 50 to 330 GHz

APPLICATIONS

- mmWave OTA Pattern and Gain Testing

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Positioner Specifications:

Item	Specification
Resolution	0.02°
Travel Range	Azimuth: ± 90° Elevation: ± 90°
Max AUT Size	Ø12" [300 mm]
Max AUT Weight	20 lbs. [9.1 kg]

Base Configuration Included Components:

Item	Eravant Model Number	Quantity
Rolled Edge Reflector, 300 mm Quiet Zone	STY-CATR-RER-0300-S1	1
Open-Bed Frame Structure		1
Absorber Set		1
2-Axis Elevation over Azimuth Positioner	STY-POS-EZM-500-N1	1

VNA Frequency Extension Kits:

Kit	Frequency	Components	Model Number	Kit Requirement	Quantity
WR-28 Extension^{2,6}	26.5 to 40 GHz	20-55 GHz Tx VNA Extender Module ³	STO-20355315-T-E1	OPTIONAL	1
		20-55 GHz Rx VNA Extender Module ³	STO-20355315-R-E1	OPTIONAL	1
		WR-28 Standard Gain Horn	SAZ-2410-28-S1	OPTIONAL	1
		WR-28 CATR Feed Horn⁵	SAX-FH328-S1	REQUIRED	1
		WR-28 Mode Transition	SWT-28328-SA	REQUIRED	1
		WR-28 to 2.92mm Adapters ⁴	SWC-28KF-E1	OPTIONAL	2
		1.85mm to 2.92mm Adapters ⁴	SCT-KFVF-UB	OPTIONAL	2
WR-22 Extension^{2,6}	33 to 50 GHz	20-55 GHz Tx VNA Extender Module ³	STO-20355315-T-E1	OPTIONAL	1
		20-55 GHz Rx VNA Extender Module ³	STO-20355315-R-E1	OPTIONAL	1
		WR-22 Standard Gain Horn	SAZ-2410-22-S1	OPTIONAL	1
		WR-22 CATR Feed Horn⁵	SAX-FH250-S1	REQUIRED	1
		WR-22 Mode Transition	SWT-22250-SB	REQUIRED	1
		WR-22 to 2.4 mm Adapters ⁴	SWC-222F-E1	OPTIONAL	2
		1.85 mm to 2.4 mm Adapters ⁴	SCT-2FVF-UB	OPTIONAL	2
WR-19 Extension^{2,6}	40 to 60 GHz	WR-19 Standard Gain Horn	SAZ-2410-19-S1	OPTIONAL	1
		WR-19 CATR Feed Horn⁵	SAX-FH219-S1	REQUIRED	1
		WR-19 Mode Transition	SWT-19219-SB	REQUIRED	1
		WR-19 to 1.85 mm Adapters ⁴	SWC-19VF-E1	OPTIONAL	2

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Kit	Frequency	Components	Model Number	Kit Requirement	Quantity
WR-15 Extension^{2,6}	50 to 75 GHz	WR-15 Tx VNA Extender Module ⁷	STO-1520305-T-E1	OPTIONAL	1
		WR-15 Rx VNA Extender Module ⁷	STO-1520305-R-E1	OPTIONAL	1
		WR-15 Standard Gain Horn	SAZ-2410-15-S1	OPTIONAL	1
		WR-15 CATR Feed Horn⁵	SAX-FH165-S1	REQUIRED	1
		WR-15 Mode Transition	SWT-15165-SB	REQUIRED	1
WR-12 Extension^{2,6}	60 to 90 GHz	WR-12 Tx VNA Extender Module ⁷	STO-1220305-T-E1	OPTIONAL	1
		WR-12 Rx VNA Extender Module ⁷	STO-1220305-R-E1	OPTIONAL	1
		WR-12 Standard Gain Horn	SAZ-2410-12-S1	OPTIONAL	1
		WR-12 CATR Feed Horn⁵	SAX-FH141-S1	REQUIRED	1
		WR-12 Mode Transition	SWT-12141-SB	REQUIRED	1
WR-10 Extension^{2,6}	75-110 GHz	WR-10 Tx VNA Extender Module ⁷	STO-1020305-T-E1	OPTIONAL	1
		WR-10 Rx VNA Extender Module ⁷	STO-1020305-R-E1	OPTIONAL	1
		WR-10 Standard Gain Horn	SAZ-2410-10-S1	OPTIONAL	1
		WR-10 CATR Feed Horn³	SAX-FH110-S1	REQUIRED	1
		WR-10 Mode Transition	SWT-10110-SB	REQUIRED	1
WR-08 Extension^{2,6}	90-140 GHz	WR-08 Tx Module ⁷	STO-0820300-T-E1	OPTIONAL	1
		WR-08 Rx Module ⁷	STO-0820300-R-E1	OPTIONAL	1
		WR-08 Standard Gain Horn	SAZ-2410-08-S1	OPTIONAL	1
		WR-08 CATR Feed Horn⁵	SAX-FH094-S1	REQUIRED	1
		WR-08 Mode Transition	SWT-08094-SB	REQUIRED	1
WR-06 Extension^{2,6}	110-170 GHz	WR-06 Tx Module ⁷	STO-0620300-T-E1	OPTIONAL	1
		WR-06 Rx Module ⁷	STO-0620300-R-E1	OPTIONAL	1
		WR-06 Standard Gain Horn	SAZ-2410-06-S1	OPTIONAL	1
		WR-06 CATR Feed Horn⁵	SAX-FH075-S1	REQUIRED	1
		WR-06 Mode Transition	SWT-06075-SB	REQUIRED	1
WR-05 Extension^{2,6}	140-220 GHz	WR-05 Tx Module ⁷	STO-0520300-T-E1	OPTIONAL	1
		WR-05 Rx Module ⁷	STO-0520300-R-E1	OPTIONAL	1
		WR-05 Standard Gain Horn	SAZ-2410-05-S1	OPTIONAL	1
		WR-05 CATR Feed Horn⁵	SAX-FH059-S1	REQUIRED	1
		WR-05 Mode Transition	SWT-05059-SB	REQUIRED	1
WR-03 Extension^{2,6}	220-330 GHz	WR-03 Tx Module ⁷	STO-03203N05-T-E1	OPTIONAL	1
		WR-03 Rx Module ⁷	STO-03203N05-R-E1	OPTIONAL	1
		WR-03 Standard Gain Horn	SAZ-2410-03-S1	OPTIONAL	1
		WR-03 CATR Feed Horn⁵	SAX-FH039-S1	REQUIRED	1
		WR-03 Mode Transition	SWT-03039-SB	REQUIRED	1

RF Cables:

Item	Model Number	Kit Requirement
SMA Cable, 60", Armored, Phase Stable ⁸	STQ-CW-SMSM060-F2-A-PS	OPTIONAL
2.92 mm Cable, 60", Armored, Phase Stable ⁸	STQ-CW-KMKM060-F2-A-PS	OPTIONAL
2.4 mm Cable, 60", Armored, Phase Stable ⁸	STQ-CW-2M2M060-F2-A-PS	OPTIONAL
1.85 mm Cable, 60", Armored, Phase Stable ⁸	STQ-CW-VMVM060-F2-A-PS	OPTIONAL

- 2) VNA extender and coaxial AUT/feed horn connecting cables are not included. Eravant can supply appropriate armored, phase stable cables suitable for the CATR. See RF Cables section for optional suggested cables to purchase.
- 3) The 20-55 GHz extender modules are optional and not necessary if the CATR is directly connected to a 40/50/67 GHz VNA with coaxial ports and matching cables and adapters.
- 4) Waveguide to coax adapters and coaxial adapters required will vary depending on customer VNA coaxial interface. Alternative configurations, such as WR-28 to 1.85mm adapters for direct connection to a 67 GHz VNA with 1.85mm ports, are available from Eravant.
- 5) CATR feed horns are designed and optimized specifically for Eravant’s CATR reflector design and are not sold separately unless as a replacement.
- 6) For all extension kits, the feed horn and mode transition must be purchased from Eravant to enable functionality of the CATR for the specified frequency range as these are specially designed and optimized by Eravant for exclusive use with the CATR. All other components in the kit are optional if the customer has their own alternatives.
- 7) WR-15 through WR-05 extender modules are optional and not necessary if the customer has existing VNA extender modules from other suppliers. However, the mounting plate on the feed horn pedestal and gimbal will need to be customized to accommodate other manufacturer extender modules, please contact Eravant to discuss a customized solution.
- 8) Custom cable lengths are available under different model numbers, please contact Eravant for more details.

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mmWave Extension Kit Component Photos:



TX/RX VNA Extender Module



Mode Transition



CATR Feed Horn

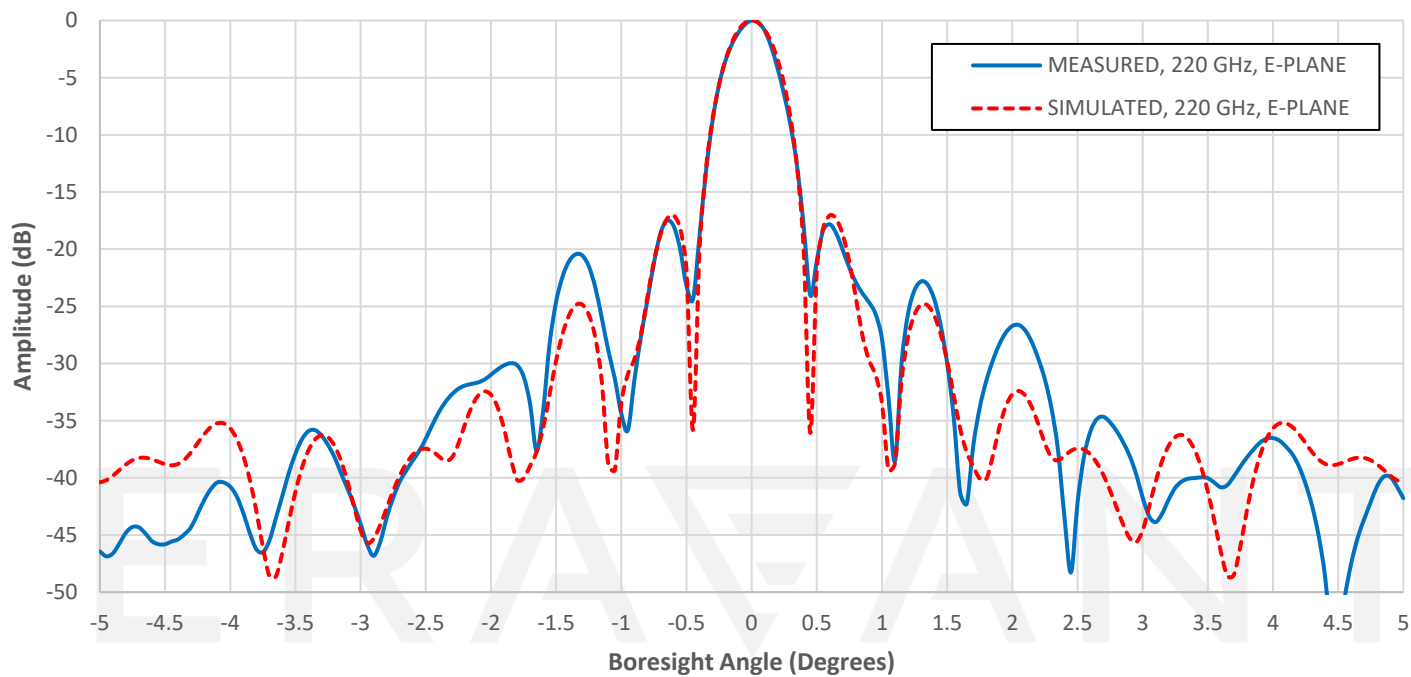


Standard Gain Horn

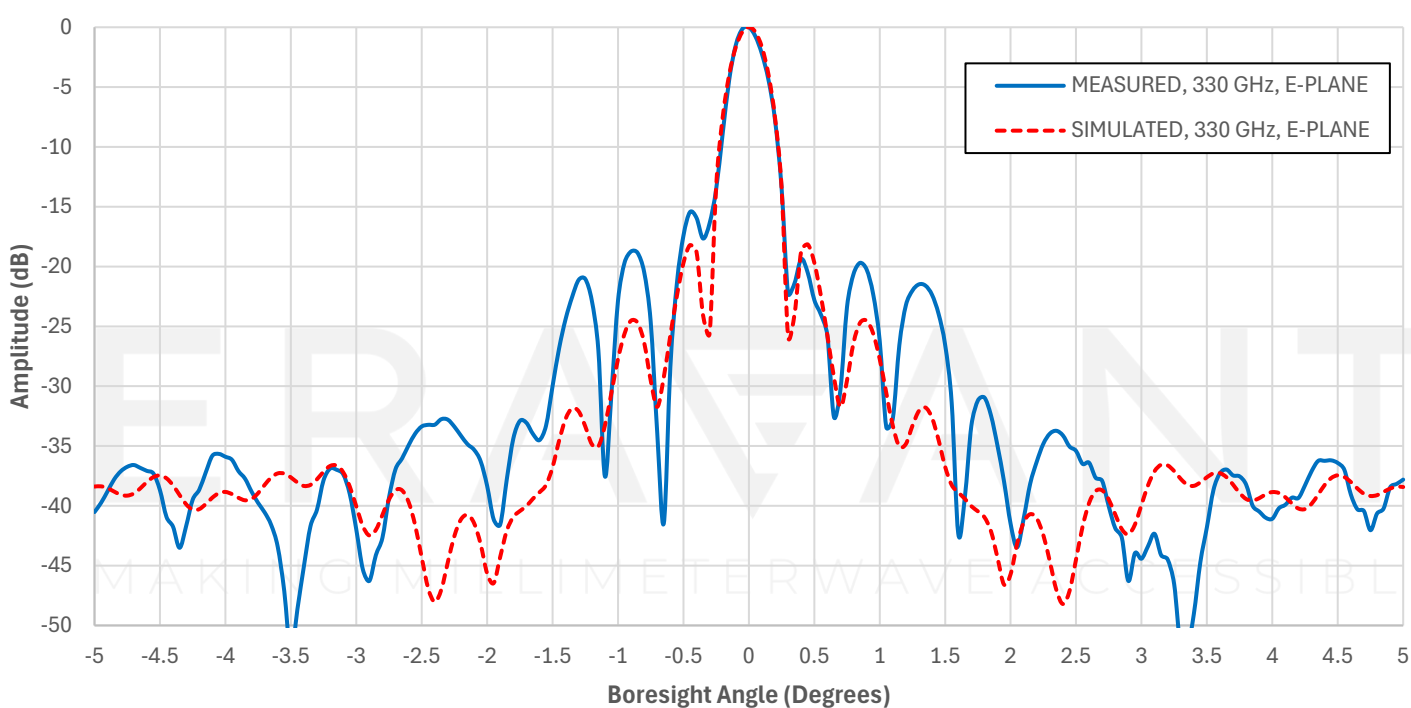
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Pattern Test Results on the Compact Range:

SAY-224334503-03-S1, E-Plane Measured vs Simulated Pattern, 220 GHz

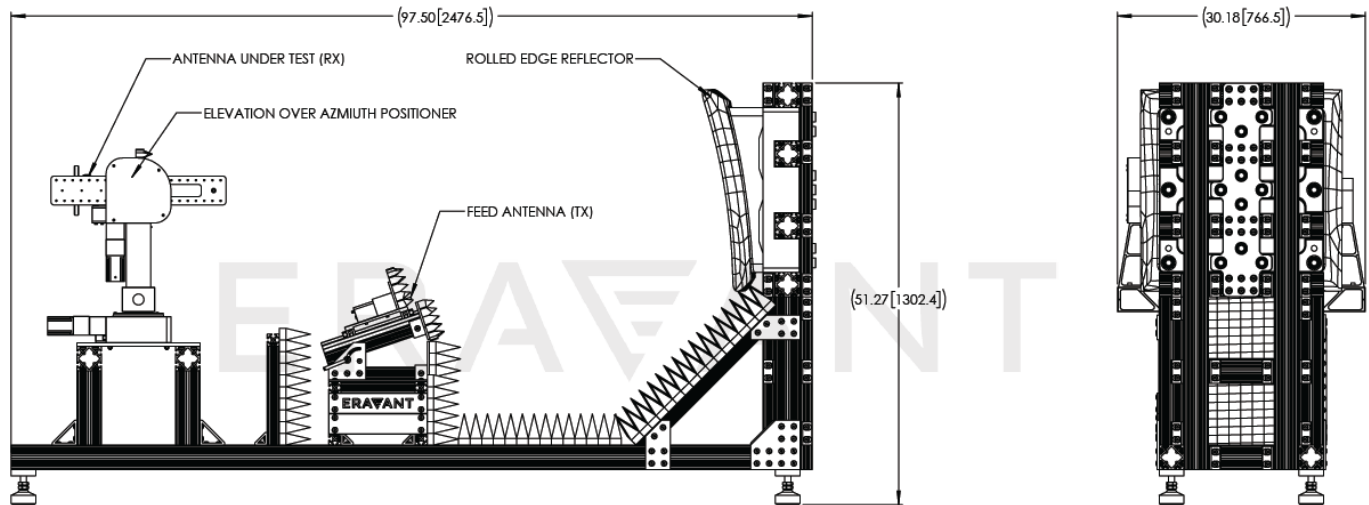


SAY-224334503-03-S1, E-Plane Measured vs Simulated Pattern, 330 GHz

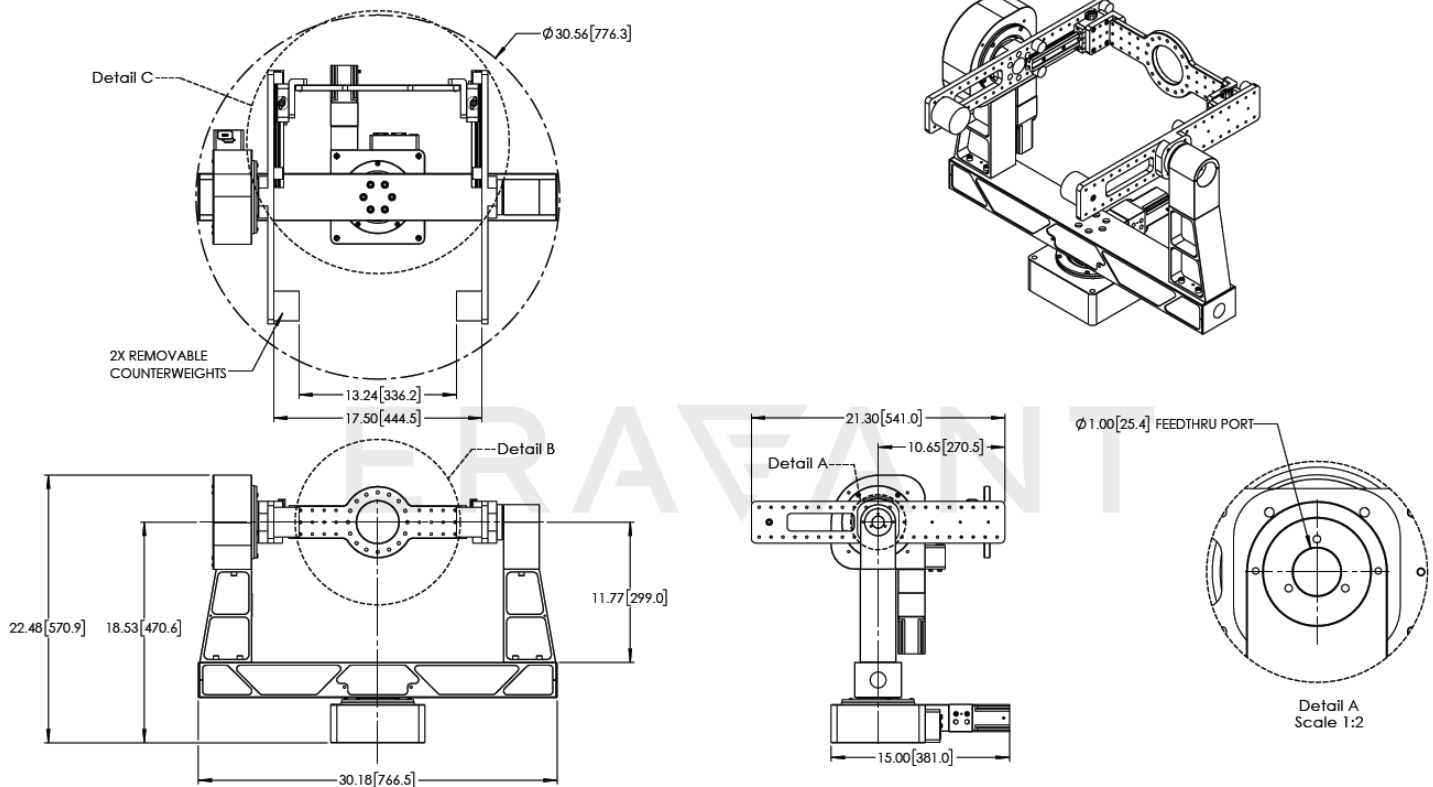


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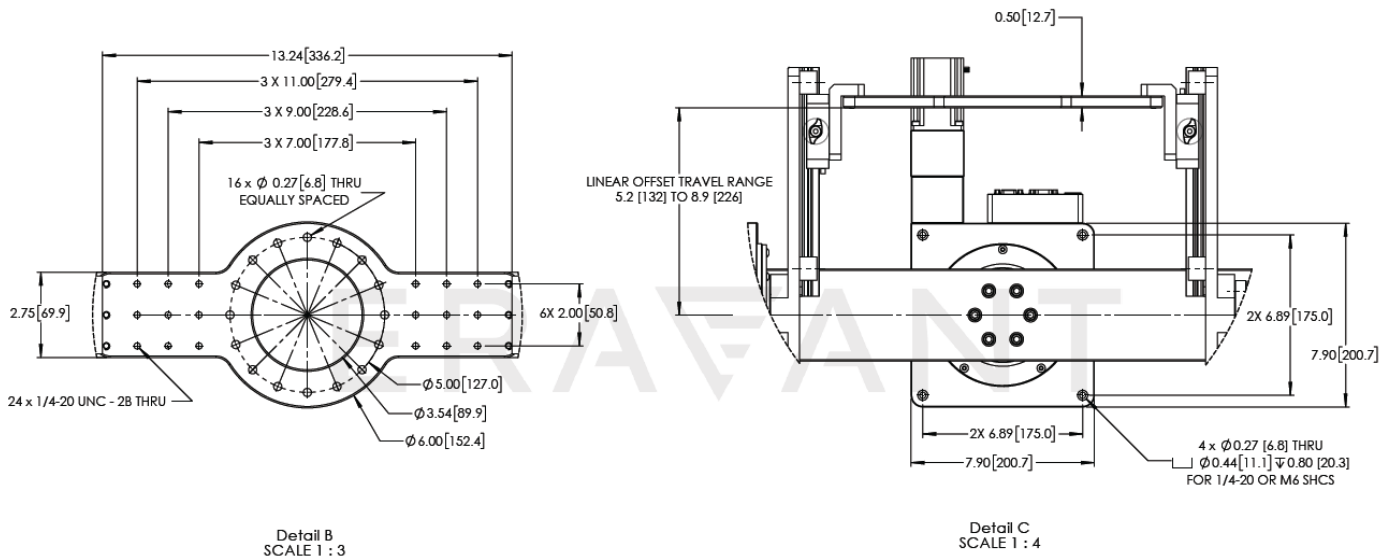
Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



Positioner Outline:



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NOTE:

- Eravant reserves the right to change the information presented without notice.

CAUTION:

- The reflector is very delicate, great care must be taken to avoid damaging, denting, or scratching the surface. Any damage to the surface will severely impact the accuracy of the reflector.