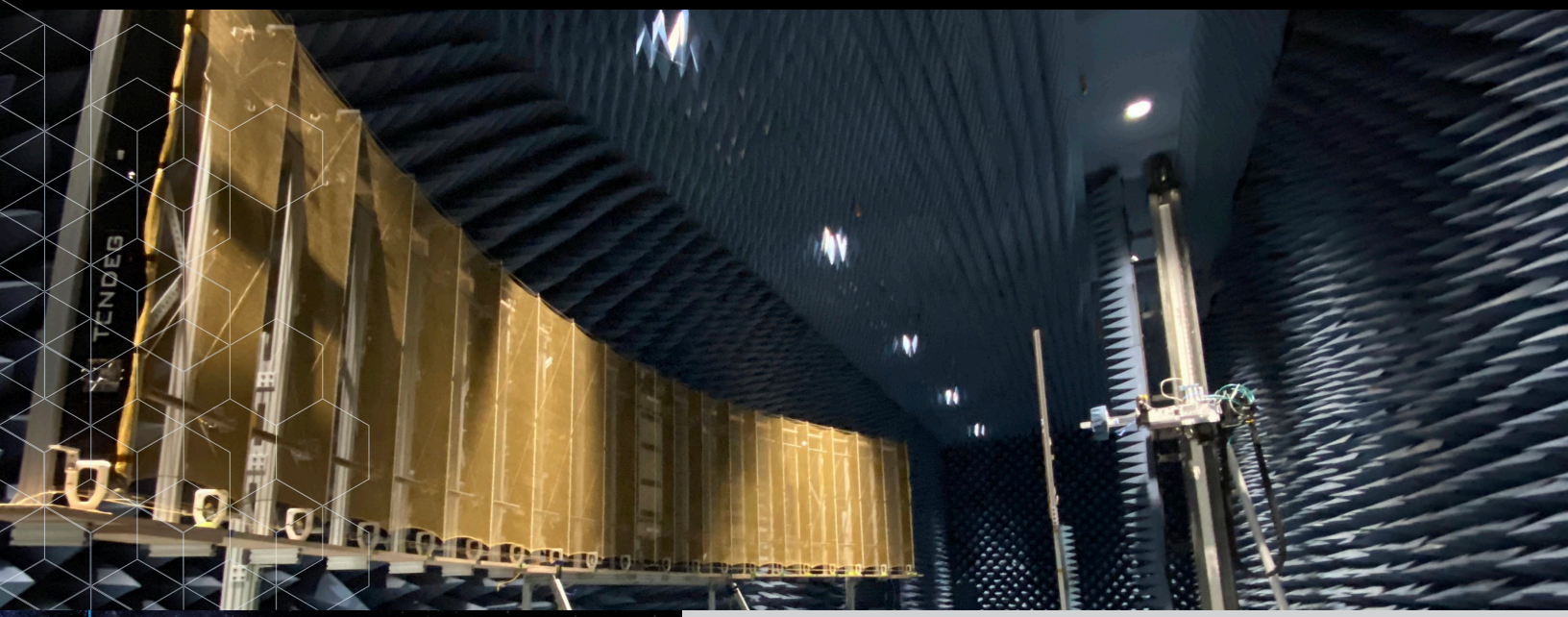
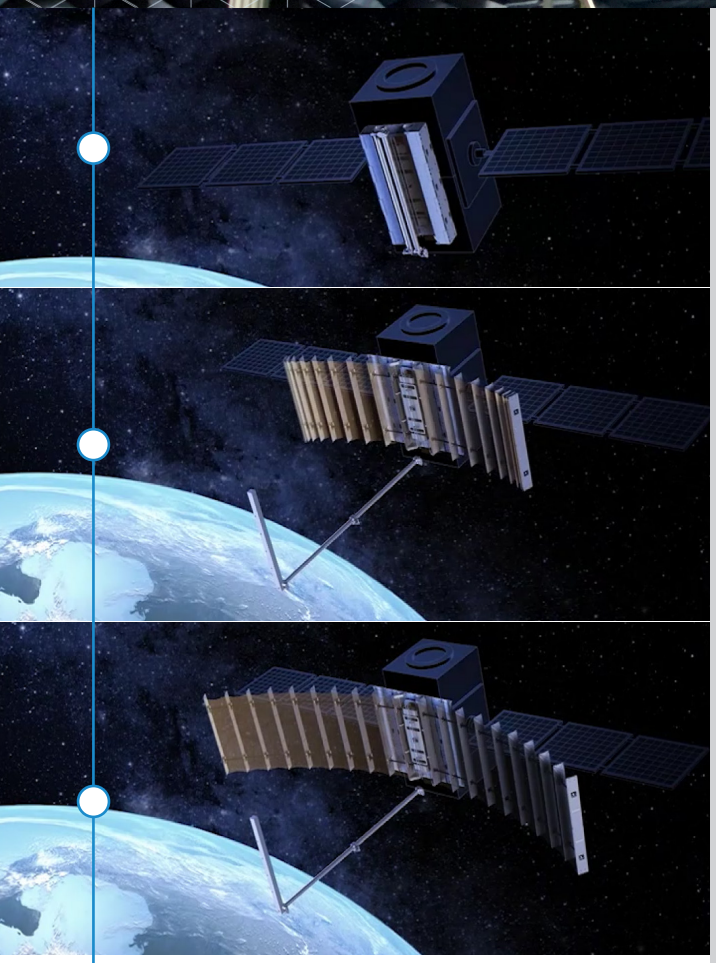
TENSAR
HIGH ASPECT RATIO PARABOLIC CYLINDRIC REFLECTOR

www.tendeg.com





TENSAR Deployment

KEY INFORMATION

Scalable Tensegrity Frame

- High aspect ratio, scalable parabolic cylindric antenna
- Supports HF to Q/V-bands, reflector sizes of +20m along the long axis
- Parabolic surface can be flat, singly or doubly curved
- Net shaping and structural stiffness allows surface precision up to Ka-Band
- Reflecting surface can be gold wire mesh, a passive reflectarray membrane, or folded rigid panels

Reached TRL-6 in 2024 at C-Band

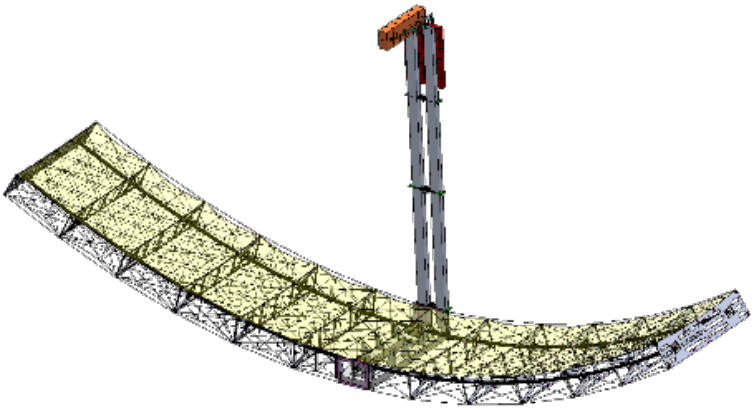
- Baseline demonstration deployed a 1.4m x 7m parabolic surface and feed boom
- Measured 43 dB gain with a C-band feed
- Demonstration article sized for an ESPA class bus (stows in a 1.4 x 0.5 x 0.2 m volume)
- Deployed stiffness >1 Hz first mode and <25 kg mass

US Patent US 11,239,567 B2

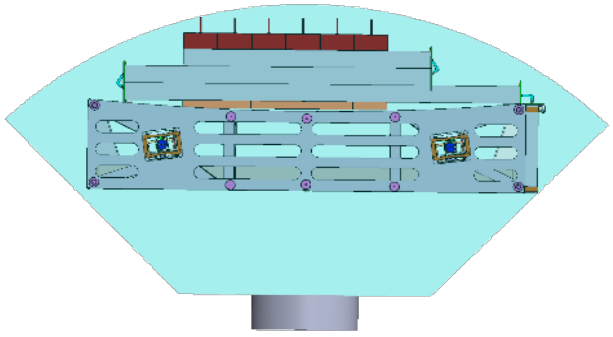
TENDEG
INNOVATION DEPLOYED

TENSAR 12x2m L-band Design

- 12m x 2m, offset fed antenna system design completed for NASA SBIR Phase III
- Stow Volume 0.85m x 2.2m x 0.8 m
- System Mass ~70 Kg
- Improvements possible with a more mature feed design

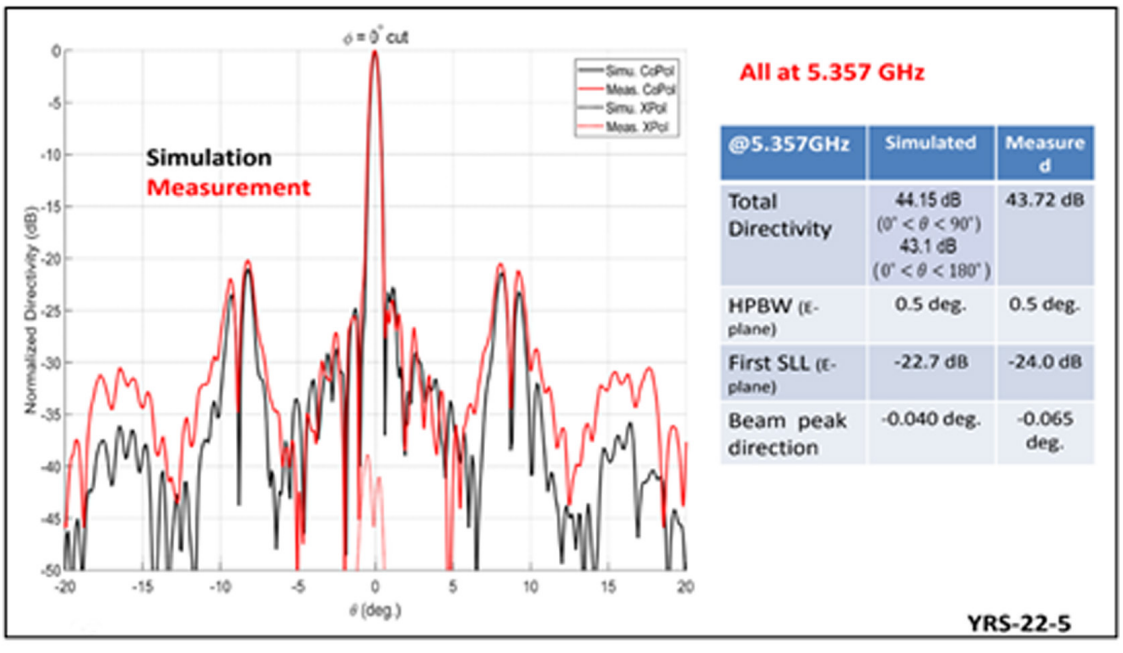


Deployed



Stowed
(in ride share volume)

Measurements vs Simulation Results



@5.357GHz	Simulated	Measured
Total Directivity	44.15 dB ($0^\circ < \theta < 90^\circ$) 43.1 dB ($0^\circ < \theta < 180^\circ$)	43.72 dB
HPBW (E-plane)	0.5 deg.	0.5 deg.
First SLL (E-plane)	-22.7 dB	-24.0 dB
Beam peak direction	-0.040 deg.	-0.065 deg.