

+++Contact:  
Stacy Narine  
+1 347 694 0421  
Stacy.n@tendeg.com

## TENDEG 3m Aperture Perimeter Truss Reflector (PTR) Achieves TRL 6

*The tested PTR has been purchased by a U.S. DoD customer for a future flight mission*

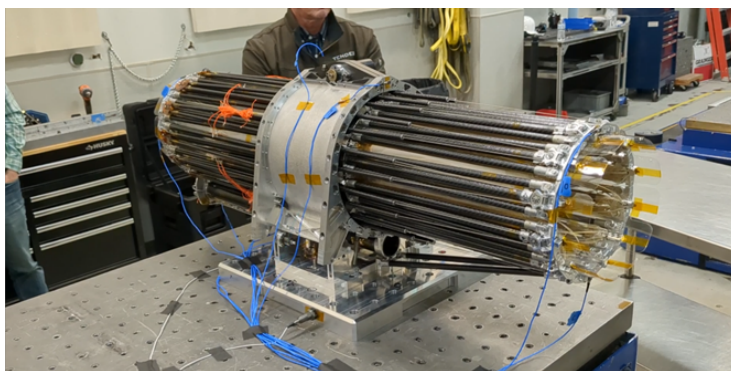
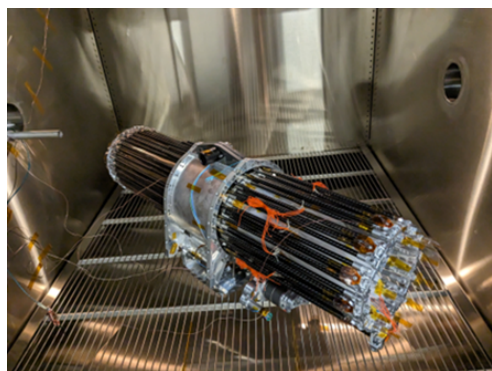
**LOUISVILLE, Colo. – December 27, 2023** – Tendeg is pleased to announce that their newest antenna has achieved Technology Readiness Level (TRL) 6. The new antenna is a 3m aperture perimeter truss reflector (PTR) with an incorporated gold wire reflective mesh.

The test unit is an offset fed configuration with a similar optical prescription to Tendeg’s flight heritage KaTENna architecture. It is designed to operate up to X-band frequencies.

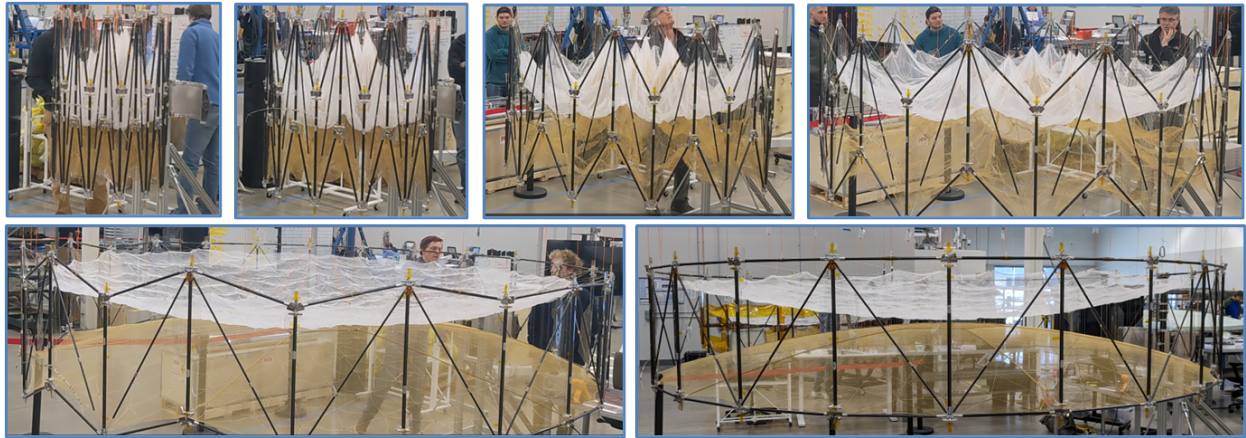
This PTR has done over 30 deployments and demonstrated repeatability over each deployment. The pre-environmental and post-environmental surface measurements were identical. The PTR was vibrated in each axis for both sine and random vibration. The vibration levels were enveloped by GEVS and SpaceX Falcon 9 Rideshare levels. The PTR was then thermal cycled 6 times from -50 to 70 deg C.

After environments, the PTR then successfully deployed its clamp band, then secondary release which resulted in a bloomed reflector and then a motorized truss deployment on a gravity offloader. After full deployment, the surface was scanned and compared to previous deployments and verified to meet mission requirements. The images below show the test configuration, deployment and surface scan with an RF simulation.

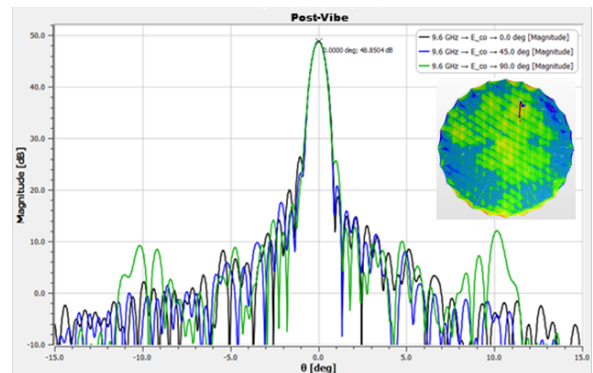
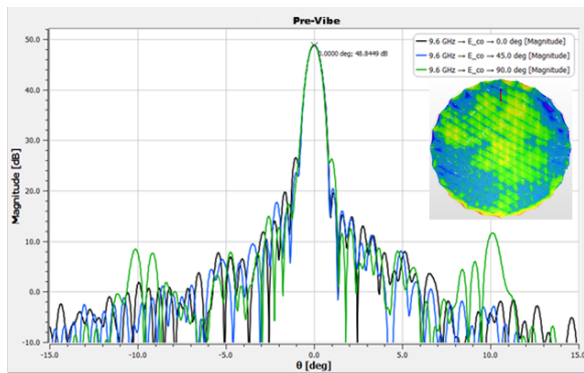
This specific unit was purchased by a U.S. DoD center for an upcoming proof of concept flight. Tendeg is also building a 3m Ka-band communications antenna for GEO and a 4m C-band SAR antenna for LEO. Studies are underway for 6-10m offset apertures and a 5-7m centered configuration.



The stowed PTR underwent vibration and thermal cycling testing.



After environmental testing a successful deployment was performed.



GRASP, using Gaussian feed, 9.6GHz:			
Configuration	Peak directivity (dB)	Loss from perfect parabolic (dB)	Loss from ideal faceted (dB)
Perfect parabolic	49.095	0.000	-
Ideal faceted	49.012	-0.083	0.000
Pre-Vibe	48.845	-0.250	-0.167
Post-Vibe	48.850	-0.245	-0.162

The post-environmental deployed surface was repeatable and met X-band requirements assuming a Gaussian feed

About Tendeg LLC:

Tendeg is a 100% employee-owned company with operations in Colorado, USA. The company has approximately 100 employees serving commercial and Government clients in the US and overseas. Tendeg has delivered over 12 satellite antennas on-orbit with over 20 antennas planned for the next year. Tendeg provides a diverse portfolio of antennas and payloads supporting communications, radar, national defense, earth science and lunar missions. Please visit our website [www.tendeg.com](http://www.tendeg.com).