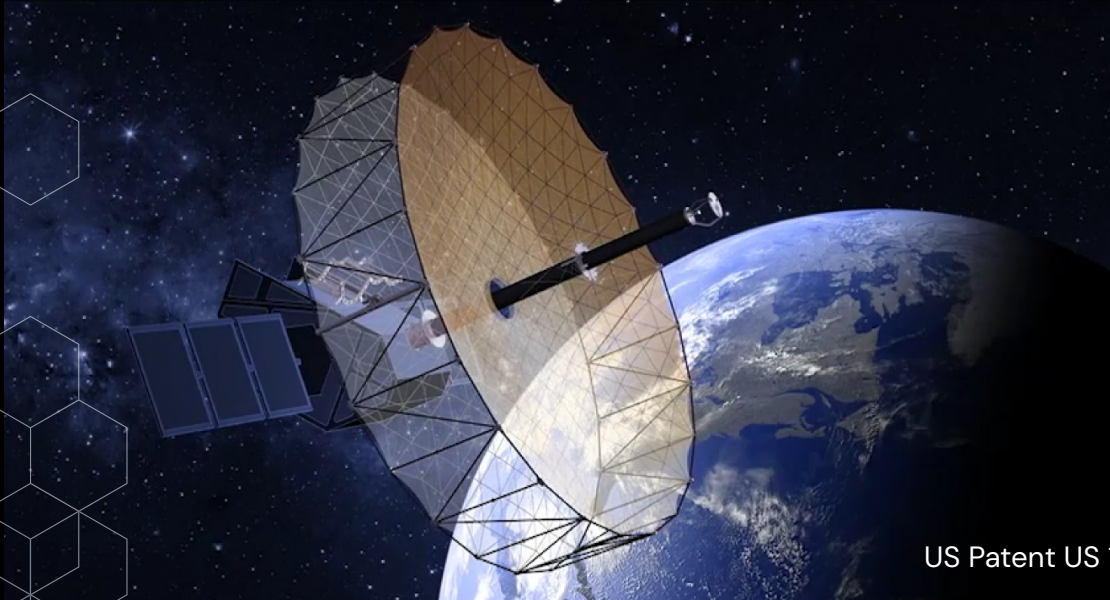


Ultra Stiff PTR CENTER-FED PERIMETER TRUSS REFLECTOR

www.tendeg.com



US Patent US 18/935,175

KEY INFORMATION

Ultra-Stiff Large Deployable Reflectors

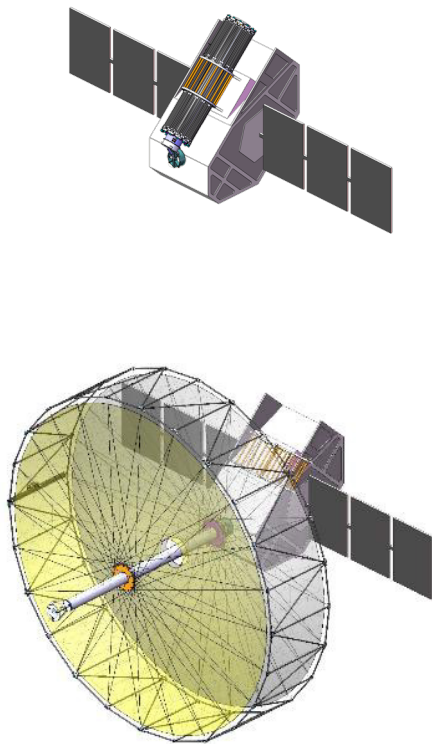
- Highly scalable, parabolic perimeter truss reflector with stiffening spokes
- Supports HF to Q/V-bands, reflector sizes of 2 to +20m in diameter
- Architecture enables high stiffness apertures
 - 5m reflectors have a first mode stiffness of >10Hz
 - 10m reflectors have a first mode stiffness of >5Hz
 - Spacecraft interface at reflector base is ideal for gimbaling
 - Enables fast slew rates, low MOI and rapid settling times
- Supports Cassegrain or ADE optics, can easily accommodate monopulse or LPDA feeds

System has reached TRL-4

- All critical components (mesh, truss, cords, feeds) are at TRL-8 or above

Established 5 meter point design

- Stowed volume (1.85m x Ø0.45m) fits on an ESPA class bus
- Gain of >52 dB at 10GHz
- Deployed stiffness > 10 Hz, <40kg mass

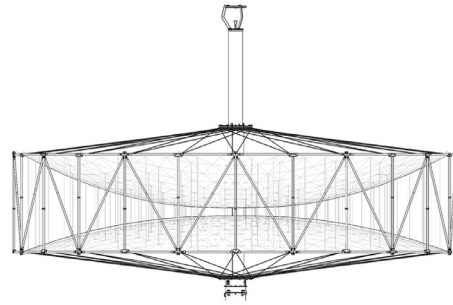


Ultra Stiff PTR Deployment

5m Ultra-Stiff Center fed Reference Design



Stowed



Deployed

- Maintains small stowed volume packaging
- Ø 5m reflector fits within an SmallSat Rideshare volumes, adaptable to multiple bus configurations
- Architecture enables best-in-class deployed stiffness, low settling times and low moment of inertia
- Net design allows tunable faceting for frequency performance

5m System Performance

Metric	Reference Design
Deployed Diameter	Set at: Ø 5m
f/D ratio	Set at: 0.45
Stowed Size	Ø0.45 x 1.85 m
Deployed 1st Mode	> 10 Hz
Pointing Accuracy	< 35 mdeg
Max Slew Rate	10 deg/s
Max Slew Accel.	5 deg/s ²
Peak Gain (10 GHz)	> 52 dB
RMS Surface Accuracy	< 0.25 mm
Mass	< 40 kg

Example Performance (Cut Plot at 10 GHz)

