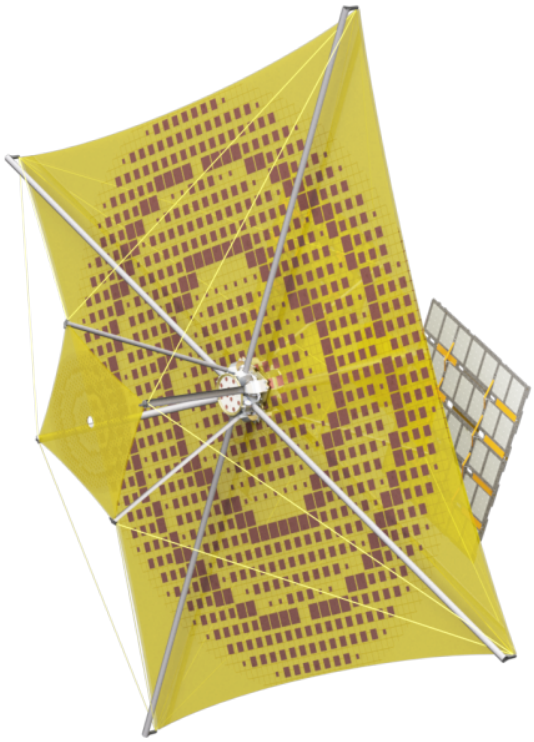
MMA Design

T-DaHGR Antenna



DEPLOYABLE REFLECTARRAY ANTENNAS TO SUPPORT LARGE BANDWIDTHS

Current state-of-the-art mesh antennas use ribbed umbrella and hoop structures for deployment. While these are potentially scalable to some extent, they inherently have high parts counts and require significant touch labor at a high number of attach points to form the desired mesh surface. These systems have constraints on their stowed volume which present challenges with small launch vehicle fairings and dispensers. The DaHGR sets a new standard for deployable antennas with 1/3 the parts count, less than 1/5 the volume (with a more favorable/flexible aspect ratio), and 1/3 the cost of current SOA deployable mesh antennas.

The T-DaHGR antenna solution combines the best attributes of successfully flown solutions, but with advantages in performance, compaction and simplicity, and significantly reduces the development and implementation risk by leveraging proven technologies. A large, space-fed reflectarray provides bandwidths achievable by reflectarrays, and can be configured to support larger bandwidths, to easily support a multitude of mission requirements.

Key specifications include:

- Cassegrain and prime offset fed reflector configurations supported
- UHF-Ka band
- High stiffness
- Low RF losses
- Thermally stable
- 1-25m² aperture
- 0.5m² – 1.00 m²/U packing efficiency
- 1U – 25U volume
- 2:1 aspect ratio apertures