

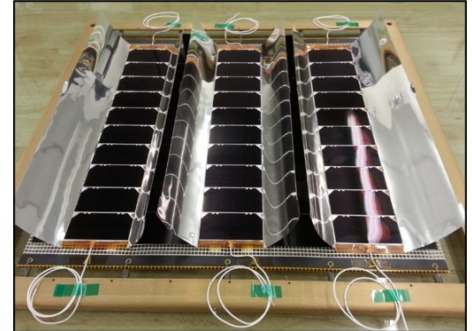


SOLAR ARRAYS

Flexible Advanced Concentrator Technology (FACT)

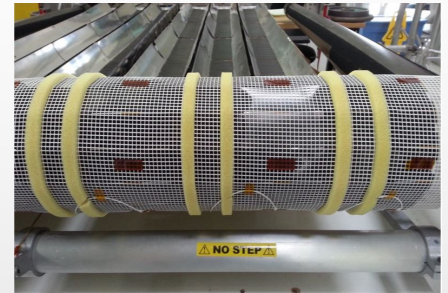
- + Redwire Space has developed and patented a high-performance Flexible Advanced Concentrator Technology (FACT) that significantly reduces the overall cost of space solar array systems by replacing every other row of solar cells with low-cost, lightweight deployable mirror elements.

The FACT concentrator technology is compatible with all space solar cell systems (XTJ, ZTJ and IMM), and its innovative design makes it applicable to both flexible solar arrays (rolled or z-folded) and planar rigid arrays. FACT is an affordable, practical, high-efficiency concentrator blanket assembly for high-performance solar arrays. FACT coupled to an ultra-lightweight solar array structural platform (such as Redwire Space's Roll Out Solar Arrays [ROSA]) provides game-changing performance metrics in terms of affordability, ultra-lightweight, compact stowage, user-friendly off-pointing tolerance, low operating temperature (illumination area equals radiative area), high voltage compatibility, and high radiation hardness. The FACT concentrator technology is applicable to all missions (LEO, MEO, GEO, Interplanetary, Deep Space/LILT Operation, Solar Electric Propulsion).



APPLICATIONS

- + Flexible Solar Arrays (Rolled or Z-folded)
- + Rigid Panel Solar Arrays
- + Missions: LEO, MEO, GEO, Interplanetary, Deep Space
- + Extreme Environment Solar Arrays (high temperature, ultra-low temperature, LILT)
- + Ultra-High Power Space Station or Space Tug Capability
- + Electric Propulsion Direct Drive (high voltage)



FEATURES

Increased Solar Array Affordability

- + 40% fewer solar cells required to produce equivalent "non-concentrated" power
- + 25%-35% solar array cost savings

Ultra-lightweight

- + 10% mass savings of "non-concentrated" solar array blanket

Compact Stowage

- + 40 W/m³ (FACT on ROSA - rolled configuration)

Modular and Scalable

- + FACT concentrator modules can be implemented on all configurations and sizes of ROSA flexible solar arrays as well as rigid solar arrays

Flexible Advanced Concentrator Technology (FACT) Solar Arrays are export controlled through an ECCN (Export Control Classification Number) issued by the United States Department of Commerce, ECCN 7A104. Export shipment requires successful application for an export license.



MADE IN THE USA

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FEATURES Continued

Wide Off-Pointing Acceptance Angles

- + Solar array pointing tolerance is large
- + Alpha ± 10 degrees before non-cosine losses
- + Beta: typical cosine loss solar array behavior

Low Cell Operation Temperature

- + Integral radiator within FACT module
- + Illumination area = Radiative area
- + ~ 75°C operating temperature

High Voltage Compatibility

- + FACT concentrators are compatible with high-voltage SEP missions
- + High-voltage testing (plasma environment) performed at JPL

High Deployment Reliability

- + Integral spring elements within the concentrator assemblies self-deploy the FACT reflectors after the assembly is un-rolled or the array is deployed

MARKETS SERVED

- + Low Earth Orbit (LEO)
- + Middle Earth Orbit (MEO)
- + Geosynchronous Earth Orbit (GEO)
- + Interplanetary Orbit
- + Deep Space (LILT)

MISSION HERITAGE

- + Implemented on DART impactor spacecraft
- + Qualification: Robust testing (Functional array deployment/retraction, Launch Vibration, Thermal Cycling, Thermal functional array deployments, Electrical verification)

For more information about our space capabilities,

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HERITAGE

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