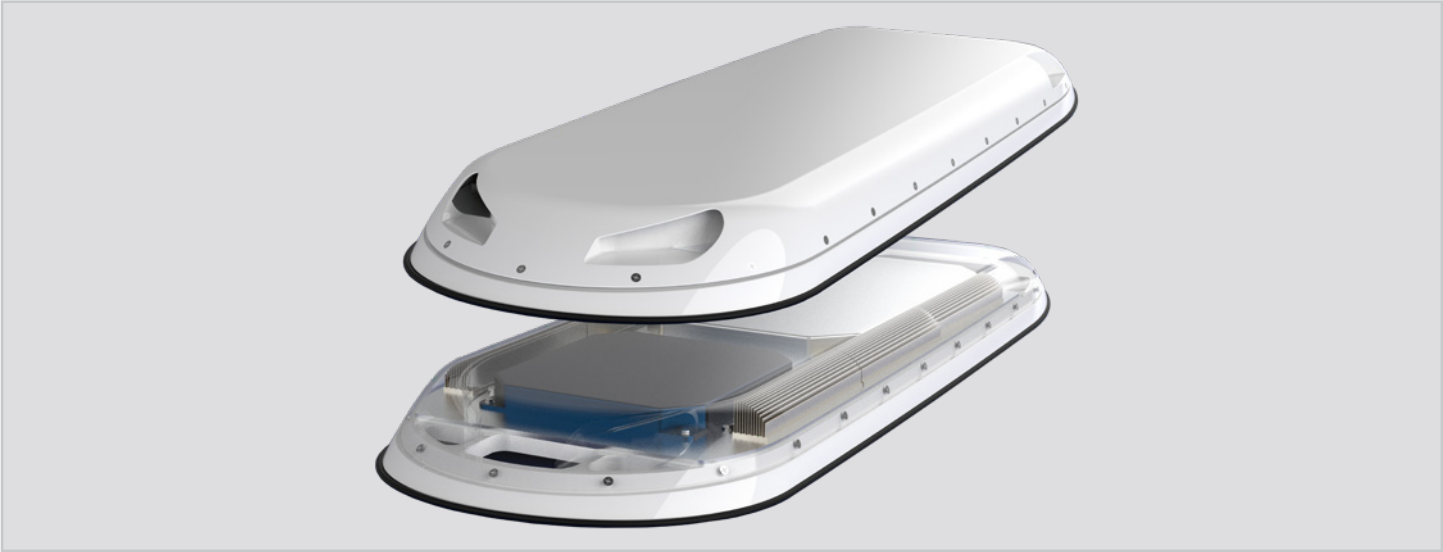
Thermal Management Solution for ESA SATCOM Applications



The functional and flexible design of our TMS supports the cooling and installation requirements of any system.

Size
The installation concept and initial technology development is based on business/regional/VIP jet applications in the typical L-band high-gain antenna footprint, which takes advantage of existing OEM provisions. The design is scalable for commercial aircraft installation in an ARINC 791- or 792-compliant configuration.

Aerodynamic Shape
The design focuses on providing the lowest possible radome profile. The radome component could even be integrated into the antenna structure and removed from the installation package.

The design is scaled down from the proposed commercial ESA antenna size for drag optimization.

Vents/Ducting
Cooling airflow and heat transfer simulation demonstrate optimized cooling performance. The venting design is based on streamline capture principle, avoiding ram-air pressure, and utilizing pressure differential.

The low-profile system, operating at or near the boundary layer, minimizes the effects of lift and drag. To optimize specific system cooling requirements, we offer flexibility of size, design, and vent locations.

Thermal Management Solution
An integrated isothermal transfer plate utilizes patented technology to transfer heat from the antenna(s).
Passive elements reject heat to surrounding environment.
An all-aluminum structure eliminates concerns about galvanic corrosion common to other heat transfer technologies. Amphenol CIT's Thermal Management Solution can be adapted to any antenna form factor and integrated into antenna support structure.

Interface to Aircraft
The integrated TMS installation concept uses standard hardware developed for L-band antenna installation. ARINC 791 or 792 packages would utilize Amphenol CIT's patented low-profile fittings for flush mounting of antenna and minimal overall installation height. Provisions for power, data, and RF can be configured as needed by system.

Sealing and Protection of Antenna
Screened inlets prevent debris ingress. The airflow path is segregated from the payload for protection from contaminants like FOD, de-icing fluid, and moisture.

Maintenance/Service
The use of passive components results in maximum reliability. Its modular design allows for repair, upgrade, and replacement at the sub-component level.

Incorporation of Other Cooling Technologies
Amphenol CIT's system offers flexibility to augment cooling performance for higher power consumption, including the incorporation of cooling fans.

Thermal Management Solution for ESA SATCOM Applications