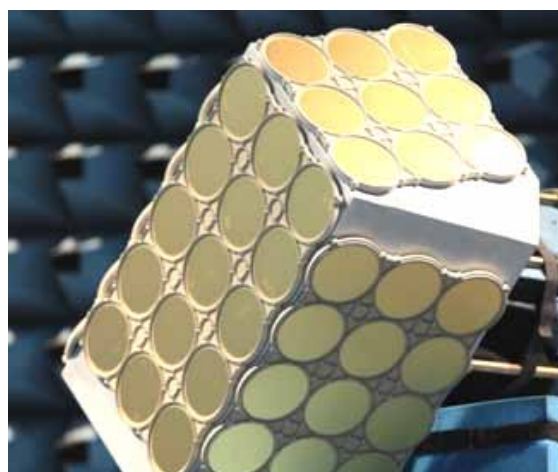
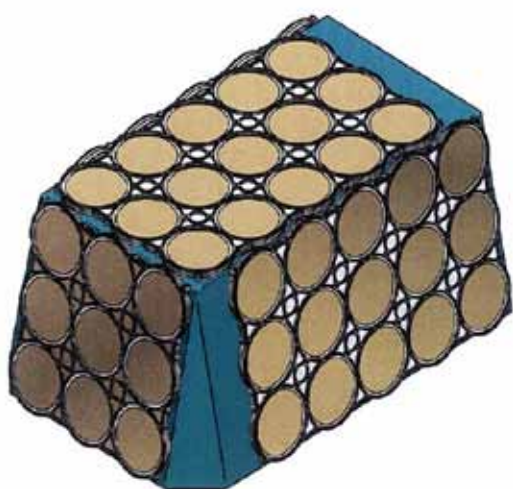


ADS-B

SATELLITE ANTENNA FOR SPACE-BASED ADS-B



Antenna prototype

OVERVIEW

ADS-B is a system for air traffic surveillance that relies on aircrafts transmitting their identity, position and other information derived from on board systems, thus enabling an accurate tracking. ADS-B signals are broadcasted automatically, periodically and continuously during all phases of the flight. Terrestrial ADS-B is at the moment in its start-up phase, so that procedural Air Traffic Management is the only available means in oceanic regions and continental regions with weak Air Traffic Control infrastructures. In addition, many oceanic Flight Information Regions exist which are not covered by terrestrial systems: full radar coverage for Air Traffic Management only exists in some specific high traffic density airspaces. Space based ADSB on a LEO satellite constellation could complement terrestrial

ADS-B and surfacer radar in order to further optimise the air traffic routing over non-radar airspace, reducing aircraft fuel consumption, flight time and greenhouse gas emissions, and at the same time increasing safety.

The prototype of the satellite ADS-B antenna realised by IMST operates at 1090 MHz. The antenna is a dedicated multi-beam design for a space based ADS-B system under development by TAS-D. It is composed of 4 antenna panels, delivering a total of 7 beams:

- 3 panels with 5x3 elements, generating 2 beams per panel.
 - 1 panel with 3x3 elements, generating 1 beam.
- These panels are based on PCB (Printed Circuit Board) technology.

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