



ines
INSTITUT NATIONAL
DE L'ENERGIE SOLAIRE

liten
cea tech

STRATOBUS™ MODULE

The Stratobus™, an autonomous airship operating at an altitude of 18-20 kilometres above air traffic, will have multiple missions: observation, surveillance and telecommunications, all for a 5-year period. To ensure continuity in its missions, Stratobus™ must maintain its position and resist winds of up to 90 km/h: it is therefore equipped with 1000 m² of photovoltaic cells, placed on a quarter of the envelope surface, to provide the necessary electricity for the four electric motors, the energy storage system and the payload.

+ Permanent
Cover a zone of more than
100,000 km² in a stationary
area

+ Completely Autonomous
Exclusively powered by
Solar Energy

+ Multi-missions
Different services combine
simultaneously

**+ Low Investment &
Quick Deployment**

+ Networkable
Connected to satellites or
drones & other Stratobus™

+ Reconfigurable
Payloads easily switched for
new missions or technologies

+ Movable
Addresses services where and
when needs arise



Development of lightweight and flexible panels by CEA-Liten

SUCCESSFUL DEVELOPMENT OF A SPECIFIC MODULE DESIGNED FOR THE STRATOBUS™ AIRSHIP:

- Lightweight $<800 \text{ g/m}^2$
- High efficiency $>220 \text{ W/m}^2$ (AM0; 40°C)
- Large scale $>4\text{m}^2$ with 1 by-pass diode per cell.
- Resistance to stratospheric conditions: temperature, UV, Ozone, wind....
- Integrated electrical and mechanical interfaces.
- Terrestrial and low cost fabrication processes.

WHAT'S NEXT?

- PVA EQMs flight tests scheduled in 2020 on a small scale airship.
- Further developments will focus on the PVA/envelop interface.
- Integration of this technology on the Stratobus™ PFM for its first flight in 2022/2023.



MORE INFORMATIONS

- www.liten.cea.fr
- www.ines-solaire.org
- www.thalesgroup.com