

# STRATOBUS™



STRATOBUS™  
6G Summit  
October 27<sup>th</sup> 2020

ThalesAlenia  
a Thales / Leonardo company  
Space

COMMERCIAL IN CONFIDENCE

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# Stratobus™

## Introduction

**Stratobus is fully autonomous, and can stay fix for a whole year**

- Best zone of operation is located between tropics

**Stratobus is located at 19 km (62 000 feet) altitude to avoid**

- Jet streams between 5 km and 15 km
- Commercial airplanes which are below 13 km

**Stratobus can overlook ground activities :**

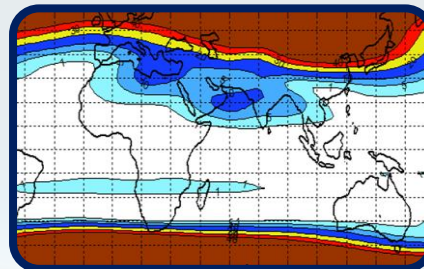
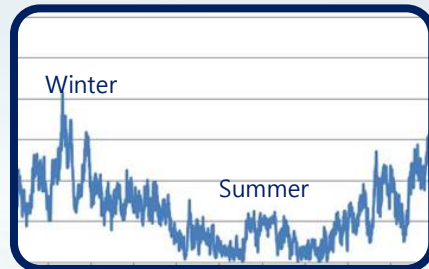
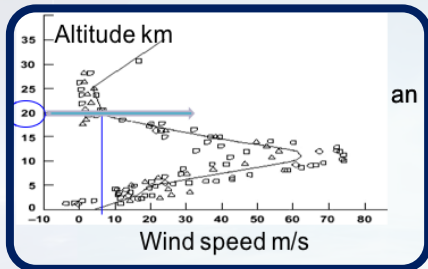
- At extended range : up to 500 km
- Accurately : because of its proximity

**Stratobus can lift powerful payloads radars/optics/telecom (250 kg, 5 kW)**



# Stratobus

## Stratosphere characteristics



### Lowest Altitude where Winds are Weaker

Higher than FL600  
(commercial aircraft route)

Higher than any cloud,  
typhoon or hurricane

### Repeatable Yearly Wind Pattern

Stronger winds during  
wintertime

Immune from  
uncertainties of  
tropospheric meteo

### Equatorial / Tropical Regions for Deployment

Strongest wind <  
maximum Stratobus™  
wind speed

### Harsh Environment

Down to -80°C

Up to +100°C

Low buoyancy

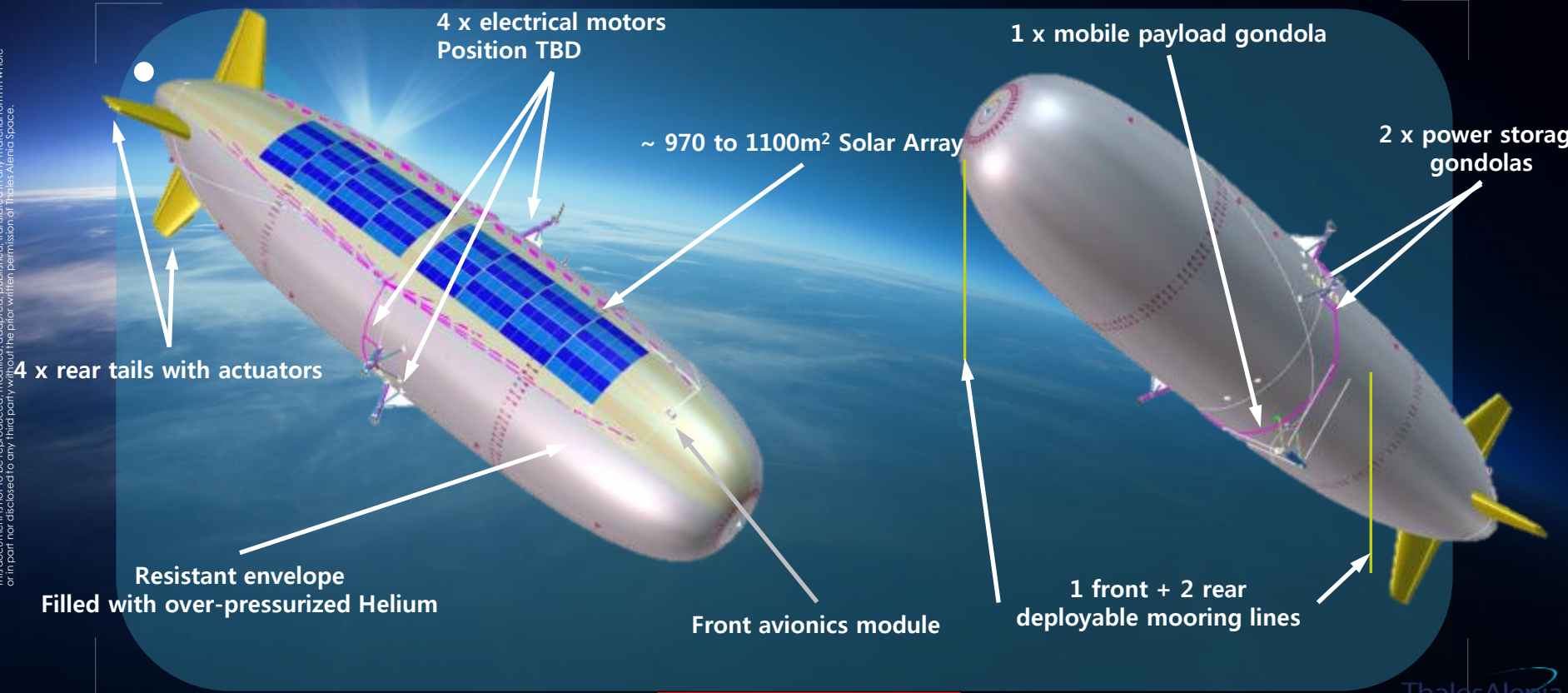
Radiation (UV)

Ozone

# Platform development

## Platform main characteristics

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# Stratobus™ : A Multi-Mission Solution



## Telecommunication

Cellular 4G/5G/6G, internet, backhauling, broadcasting



## Environmental

Pollution, GHG monitoring, Heat island, Fire detection



## Navigation

Local improvement of GPS (availability, accuracy)



## Surveillance (ISR)

Land/maritime, piracy, borders, disaster, crime, industrial



## Defense

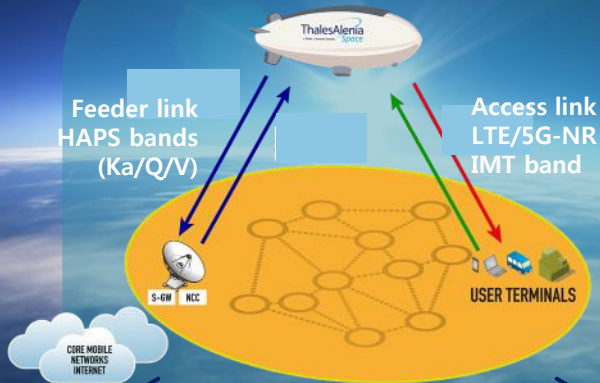
Airborne Communication node, COMINT, Early Warning, ..

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# Stratobus™ telecom commercial missions

Markets to be addressed

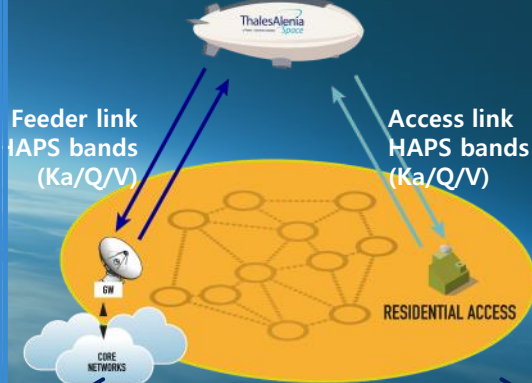
## Mobile broadband access



From **100 to 400km** depending on :

- \* **spectrum availability :**
  - Band type : 700 MHz, 2GHz, 3.5 GHz ?
  - Channel : 5 MHz, 10 MHz, 20 Mhz ?
- \* **Targeted total capacity**
  - typical **1 to 10 Gbps** range

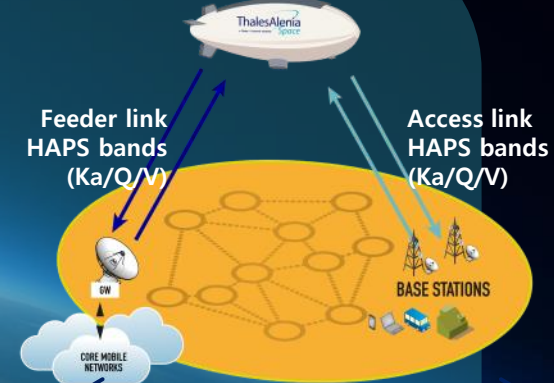
## Fixed broadband access



**Up to 100km**

Total capacity **above 30 Gbps**

## Backhauling



**Up to 100km**

Total capacity **above 30 Gbps**

- **No terrestrial infrastructure to build**
- **Large coverage on day one**
- **Complement incumbent partial coverage**
- **Fully 5G compliant & integrated**
- **Low latency**
- **Spectrum resources optimization**

# Stratobus™ telecom missions

Antenna preliminary performances (S-band, 70 km)

## Beam performance

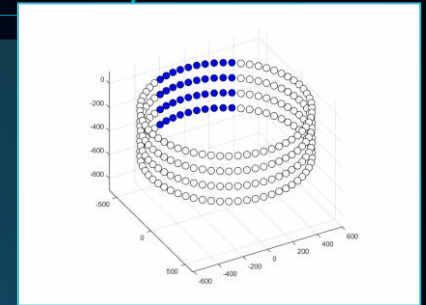
- 30 beams on external crown (40 elements/beam)
- 15 beams on internal crown (40 elements/beam)
- 10 beams bore sight (20 elements/beam)

Directivity > 18 dBi for low elevation

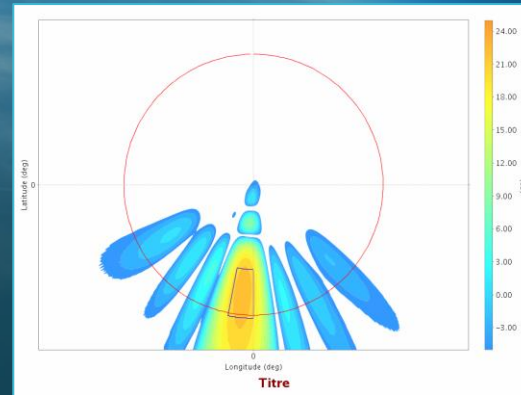
Secondary lobes optimization

PIRE : >23dBW

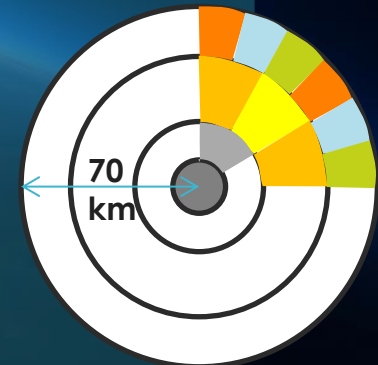
G/T : >-8dBK



Active elements in function of the beam



External crown beams

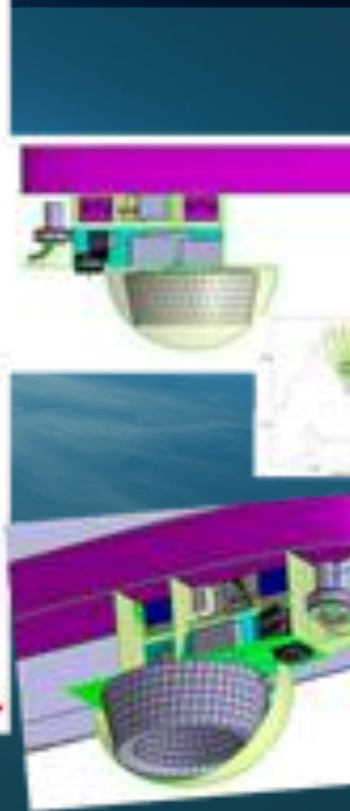
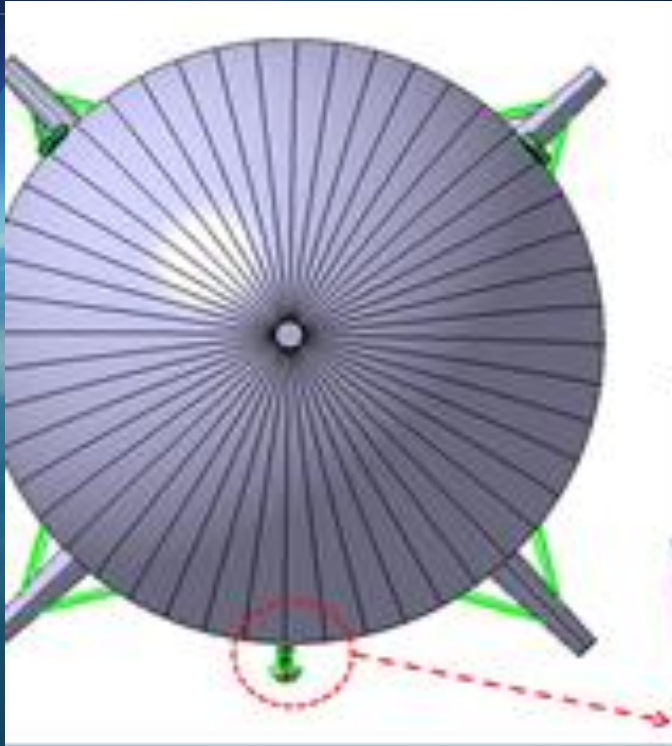


Coverage split



# Stratobus™ telecom missions

## Implementation



Hand-Held



CPEs (Customer Premises Equipment)

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# Stratobus missions for Environment

## Disaster Relief

### Stratobus can be deployed before/during/after

- Stratobus is immune to hurricanes and fully autonomous (power, connectivity)
- Repositioning of Stratobus only takes few hours/days

### Stratobus specific mission for Disaster Relief

- 5G coverage for coordination of all Emergency Teams (Firemen, Police, medical, NGO ..)
- Broadcast of information for safe spot locations, practical roads, ..... for Public Address
- Can limit the extend and the cost of damages

### Typical payload

- EO/IR (and/or hyperspectral) and 5G PPDR payload
- Provide instantaneous real time pictures/data to evaluate damages and mapping



**THANK YOU**

The image features a dark blue background with a network of glowing blue nodes and lines. The nodes are connected by thin white lines, forming a complex web. The background shows a satellite view of Earth from space, with the curvature of the planet and the atmosphere visible. The overall aesthetic is futuristic and technological.