

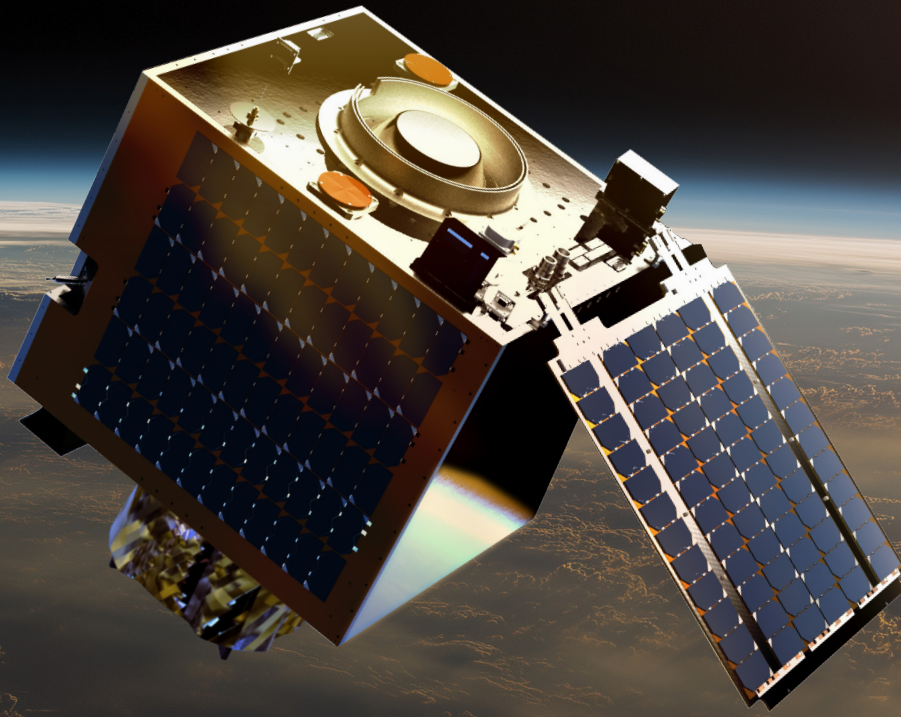


Image credit: SSTL

# CARB+ for High Resolution Colour Video Imaging

## Overview

The SSTL Carb+ platform is a compact, high-performance and flight-proven Earth observation spacecraft, combining advanced optical imaging with the affordability, agility and reliability for which SSTL is recognised worldwide.

Building on the successful Carbonite heritage, Carb+ has been developed to meet the demanding requirements of defence, security, civil government and commercial Earth observation missions.

The platform's operational heritage includes Tyche, the UK Space Command satellite launched in August 2024, demonstrating Carb+'s suitability for demanding operational missions and providing customers with confidence in a proven, flight-tested design.

## Robust by Design

Designed for reliability and operational resilience, Carb+ can be deployed as a standalone mission or as part of a larger constellation, providing the flexibility to meet a wide range of Earth observation requirements while increasing revisit rates and mission responsiveness.

A redundant spacecraft architecture eliminates credible single-point failures, providing high mission reliability throughout the mission lifetime.

## A Complete Mission Solution

Carb+ is available as a complete end-to-end mission solution, combining the spacecraft with all essential mission elements, including spacecraft operations, mission operations, mission planning, launch support, insurance and image processing.

Delivered through a single trusted supplier, this integrated approach enables customers to move rapidly from procurement to operational service while reducing programme risk and simplifying mission delivery.

## Applications

Carb+ supports a broad range of Earth observation missions across the defence, security, civil government and commercial sectors.

### Defence, Security and Civil Government:

- Sovereign Earth observation capability
- Defence and security operations
- Border and maritime surveillance
- Intelligence, surveillance and reconnaissance (ISR)
- Disaster response and civil resilience
- Environmental and climate monitoring

### Commercial:

- Mapping and geospatial services
- Infrastructure and asset monitoring
- Agriculture and forestry
- Environmental monitoring
- Insurance and risk assessment
- Natural resource management

Backed by more than four decades of satellite innovation, SSTL delivers proven, affordable and operationally effective space systems to customers worldwide.

## Payload

| Parameter        | Specification                                     |
|------------------|---------------------------------------------------|
| GSD              | <1m                                               |
| Imagery          | Optical, RGB Bayer Filter, NIR Filter             |
| Imaging Modes    | <i>Snap</i> Video, <i>Full</i> Video              |
| Frame rate       | 1-24 FPS                                          |
| Capture Duration | 1s (Snap), 60s (Full)                             |
| Swath            | 4.6 x 4.6km                                       |
| Throughput       | 30 x Snap and 4 x Full Videos per Day (Single GS) |
| Off-Pointing     | up to 45deg                                       |

## Platform

| Parameter       | Specification                                   |
|-----------------|-------------------------------------------------|
| Launch mass     | ~170kg                                          |
| Launch Vehicles | Eg. Falcon 9 Rideshare (Full Plate), PSLV, Vega |

## Platform cont . .

|                 |                                                 |
|-----------------|-------------------------------------------------|
| Launch Vehicles | Eg. Falcon 9 Rideshare (Full Plate), PSLV, Vega |
| Propulsion      | Water Resistojet, 110m/s                        |
| Pointing        | <0.03deg (1 $\sigma$ ) Absolute Error           |
| Agility         | up to 2.5deg/s                                  |
| Gelocalisation  | <250m CE90                                      |
| TTC             | S-Band                                          |
| Data Downlink   | X-Band, from 500Mbps                            |
| Data Storage    | 450GB                                           |
| Encyption       | AES-256                                         |
| Lifetime        | 5 Years                                         |
| Redundancy      | Redundant Bus Avionics & Downlink Chain         |
| Reference Orbit | 500km (LEO), SSO                                |
| Flight Heritage | 6 Launched, 3 In Build (Carbonite Family)       |



Image credit: SSTL