Bartolomeo
Your All-in-one Space Mission Solution

DEFENCE AND SPACE

Bartolomeo Team
4 June 2018
Bartolomeo is your satellite!

- Affordable access to space
- Frequent mission opportunities every 3 months
- Rapid deployment of payload in space
Bartolomeo unique characteristics

- Ability to host all payload sizes
- Best viewing conditions on ISS
- Highest data downlink rate on ISS
Flight Segment Design

Payloads

- Optical downlink for payload data
- Columbus module
- Bartolomeo platform

04 June 2018 Bartolomeo – Your All-in-one Space Mission Solution
Payload Launch

Unpressurized payload launch in ISS visiting vehicle trunk

Pressurized payload launch in ISS visiting vehicle pressurized compartment
Payload transfer through the ISS payload airlock

Image credit: NASA
Payload Installation

Payload installation by ISS Robotic Manipulation System

[Image credit: NASA]
Payload Retrieval

Payload / sample retrieval option through the payload airlock

[Image credit: NASA]
Sample return option with ISS returning vehicles

[Image credit: NASA]
Broadband Data Downlink Capability

- For broadband payload data, a commercial ground segment will be usable.
- 8 automated ground stations distributed worldwide allow a daily data downlink of up to 2 Terabyte.
- Around 100 GB of data can be provided through the ground segment within 45 minutes of data downlink.
- Secure data delivery to the customer through the Airbus cloud with appropriate data security measures.

[Image credit: DLR]
Bartolomeo Payload Accommodation

- Robotic standard interface
- Standard payload interface (mechanical / electrical)
- ESA Antenna
- Laser terminal
- 8 (Nadir-facing)
- Zenith
- Nadir
- Flight
Bartolomeo Payload Accommodation

Payload Resources

- **Field of view**
  - All Nadir and Zenith view
  - Some slots Ram view
- **Size**
  - 3 U \( \times \) \( 1000 \times 800 \times 800 \) mm
- **Mass**
  - 4 kg \( \cdots \) 450 kg
- **Power**
  - 120 Vdc operational power up to 800 W
  - Survival power for heaters
- **Data**
  - 1 Mbit/s \( \cdots \) 2 TByte/day
- **Return**
  - Payload/sample return
All-in-one Space Mission Service

**Payload transfer**
to the outside of the ISS

**Payload Operations**

**Mission Lead Time 1.5-2 Years**

Payload launch on any ISS servicing flight

**Mission Duration 1-7 Years**

Payload installation typically using the ISS’ robotic arm

Payload data processing and delivery
Bartolomeo Flight Contracts Available

› Critical Design Review successfully completed with NASA
› Bartolomeo scheduled for launch with SpX-20 in January 2020
› First payloads will be installed shortly thereafter
› Flight contracts can be signed today
Remote Sensing
Exploration Preparation
Exposure
Propulsion Testing
Robotics Testing
Astrophysics
Atmospheric Research
In-orbit Demo

MISSION
Bartolomeo operated aboard the ISS in low-Earth-orbit
(altitude: ~400 km)

- Bartolomeo in operation:
  - The ISS’ only unobstructed view of Earth and outer space...
  - ... and enables the hosting of external payloads in low-Earth-orbit

- i.e. approximately every 3 months (average)
- Payloads can be launched pressurised or unpressurised
- High performance optical data downlink: 1 – 2 Terabyte/day capacity is available during launch and in Space
- Versatile payload accommodation in the 5 – 450 kg range
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