



Australian Government

Department of Defence
Science and Technology

Buccaneer Main Mission

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Intelligence, Surveillance & Space Division

2019 CubeSat Innovation Workshop
UNSW Kensington
5th September 2019

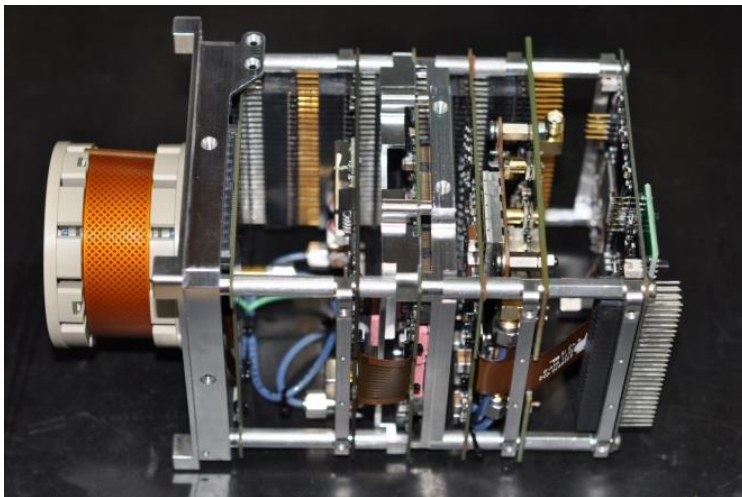
Buccaneer Main Mission (BMM)

- 6U CubeSat successor to Risk Mitigation Mission (2017)
- Launch: 2021 through US Partnership
- Primary objective: To contribute to JORN calibration research
- Payloads:
 - Primary: Digital High Frequency receiver
 - Secondary: Laser communications terminal
CubeSat identification

Buccaneer

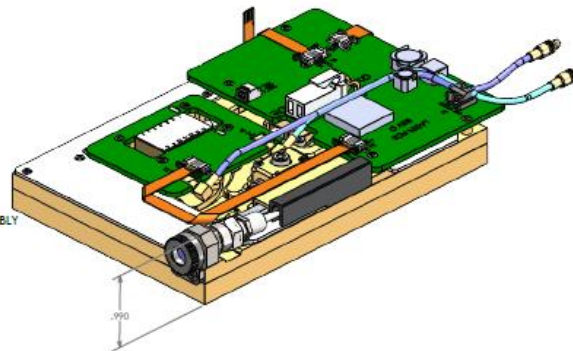
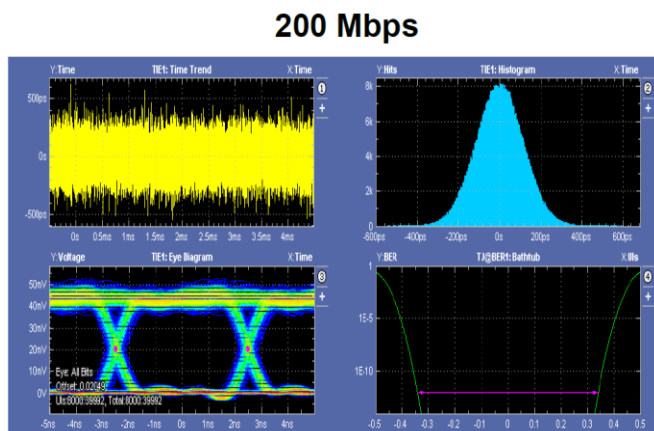
High Frequency Receiver

- **Objective:** Contribute to JORN calibration research
- Payload includes HF receiver, antenna, Kea GPS receiver & wide-view cameras
- Antenna deployment & payload commissioning de-risked during BRMM



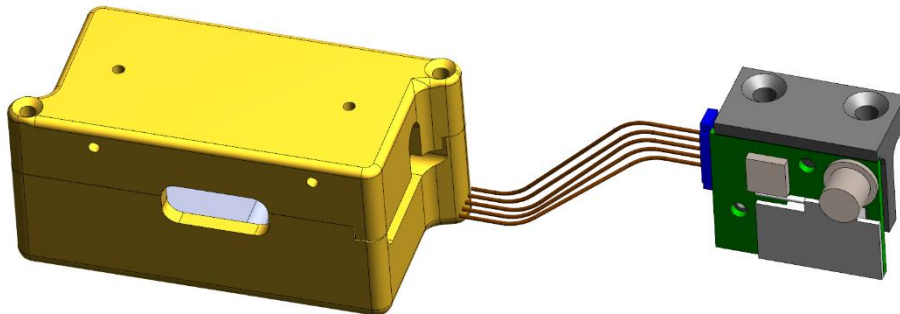
Laser communications

- **Objective:** Optical communications demonstration
- Laser module developed by Aerospace Corp (provided to DST via RSC MOU).
- UniSA developing modem firmware.
- Demonstrated >100 Mbps on AeroCube7-B and –C (2018).
- Pointing accuracy <0.025 deg required.



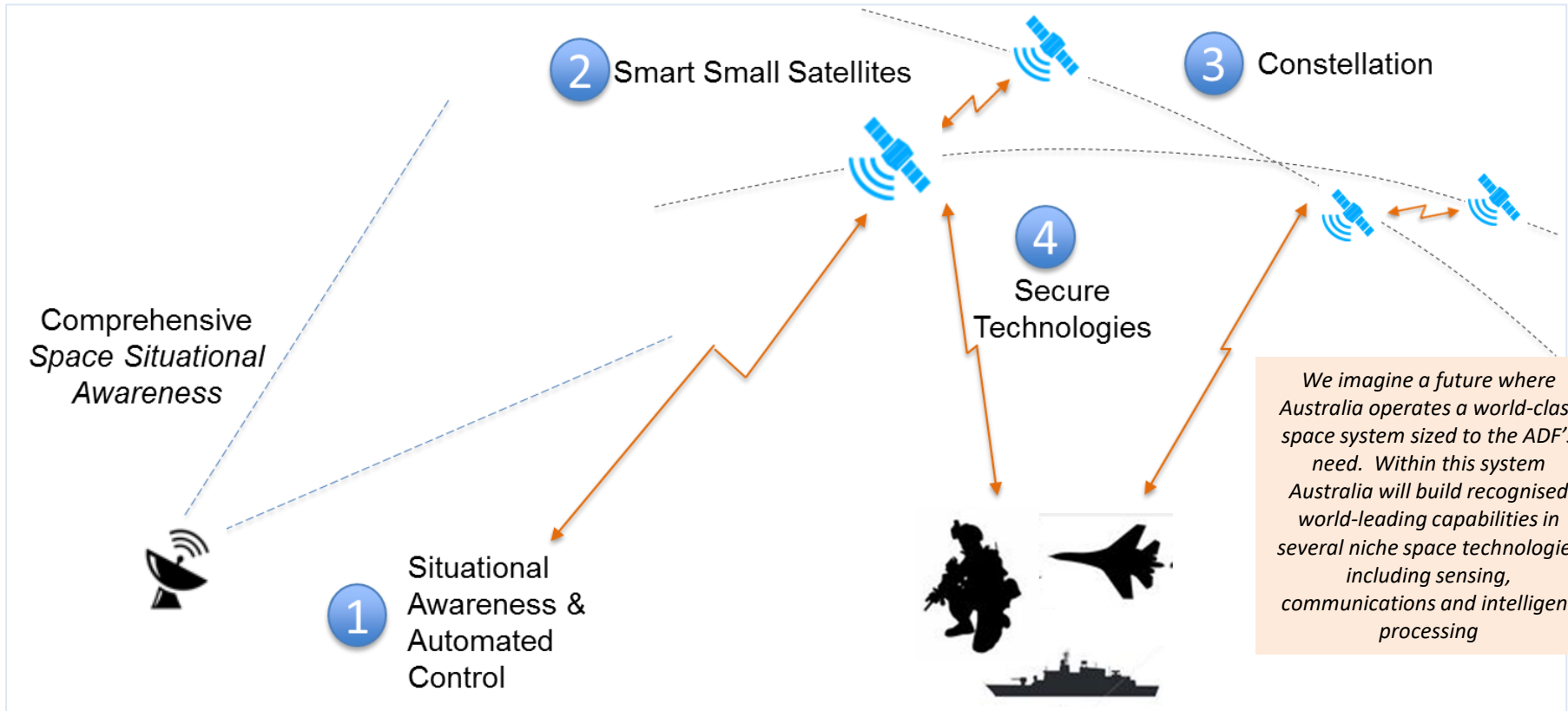
CubeSat Identification Tag (CUBIT)

- **Objective:** Enable unequivocal, early identification of BMM satellite.
- Developed by SRI International (provided to DST through RSC MOU).
- Self-contained system, requires no interface with Cubesat.
- SRI's 50m Stanford Dish receives signal



Defence S&T Strategy for Space

Vision of a *Resilient Affordable Space System* to become a *Space Enabled Force*



S&T program develops & demonstrates core space technologies