E. coli AntiMicrobial Satellite (EcAMSat):
Science Payload System Development and Test

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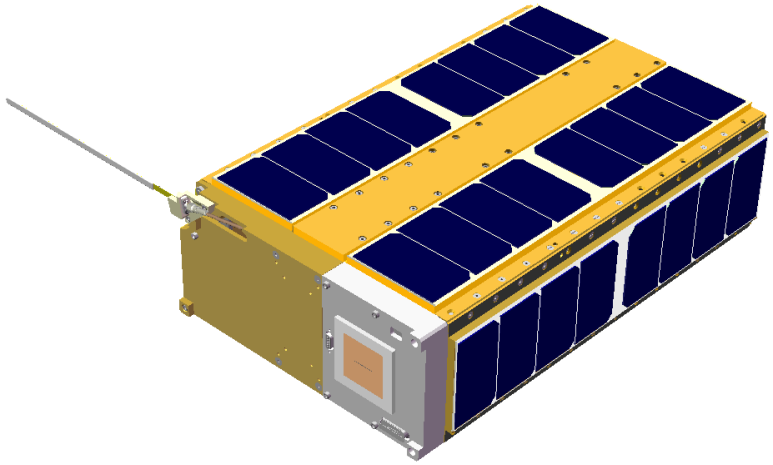
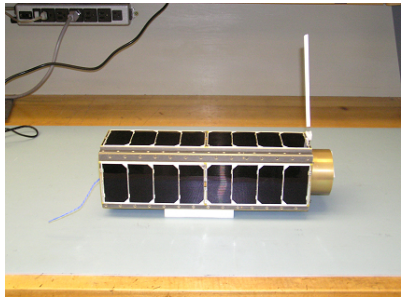
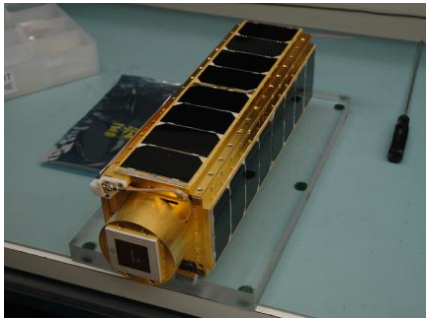


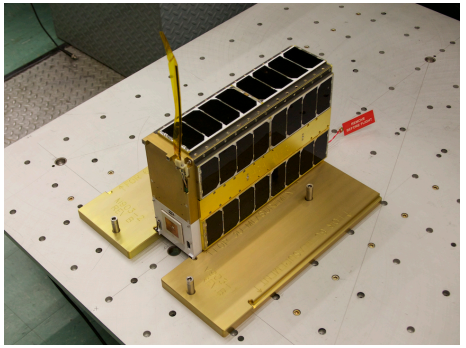
A History of NanoSats at ARC



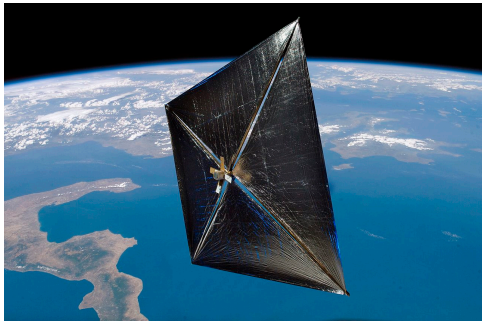
GeneSat-1 - 2006



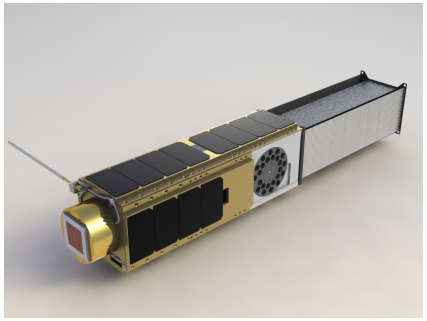
PharmaSat- 2009



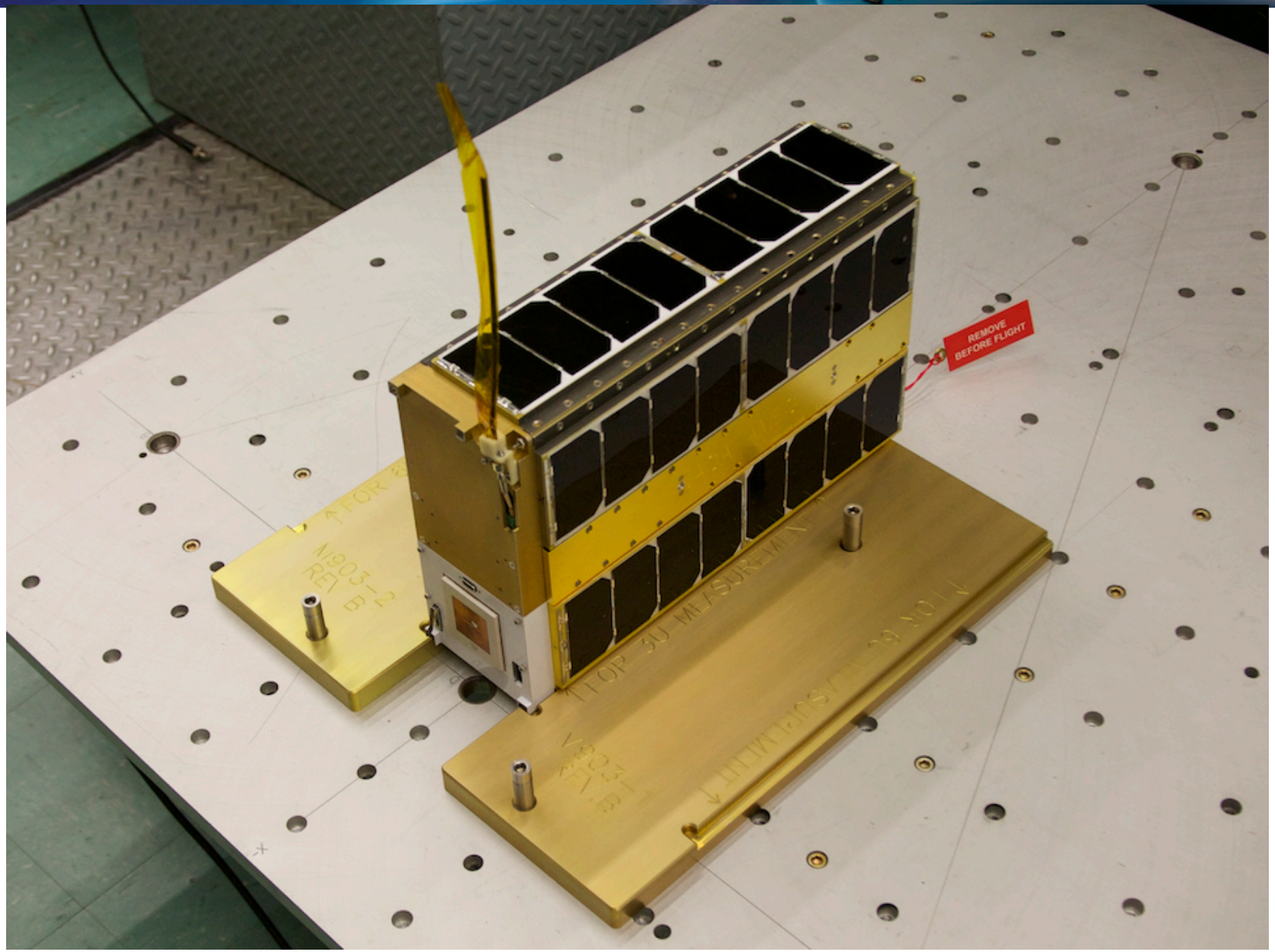
EcAMSat



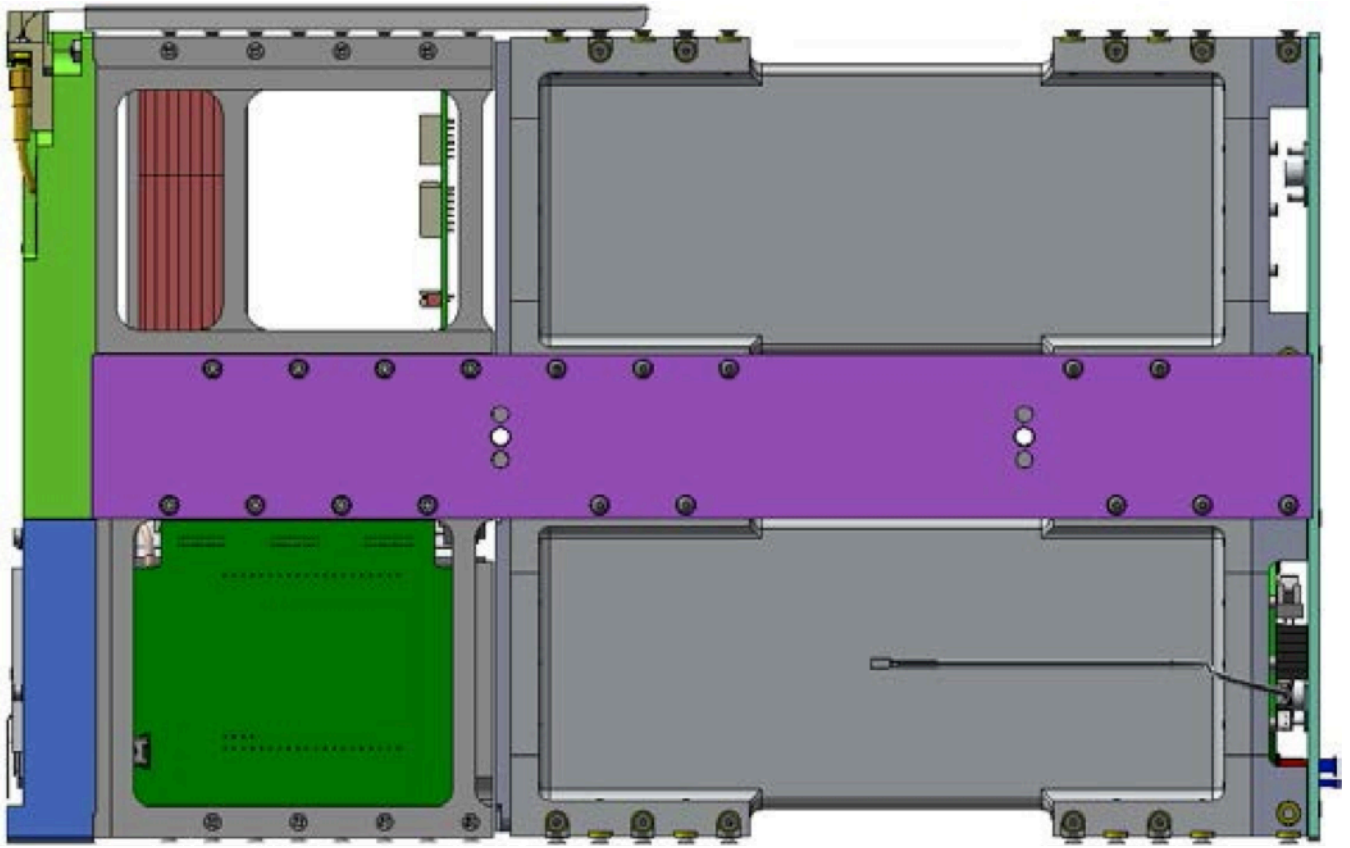
NanoSail-D2 - 2010



O/OREOS - 2010

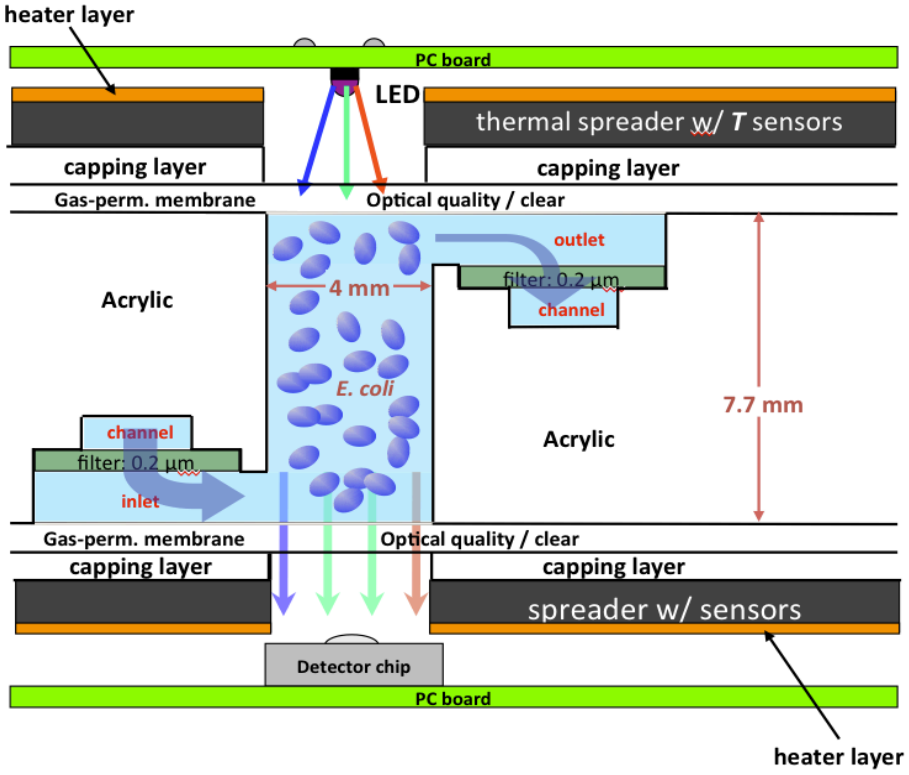

REMOVE
BEFORE FLIGHT

From 3U to 6U



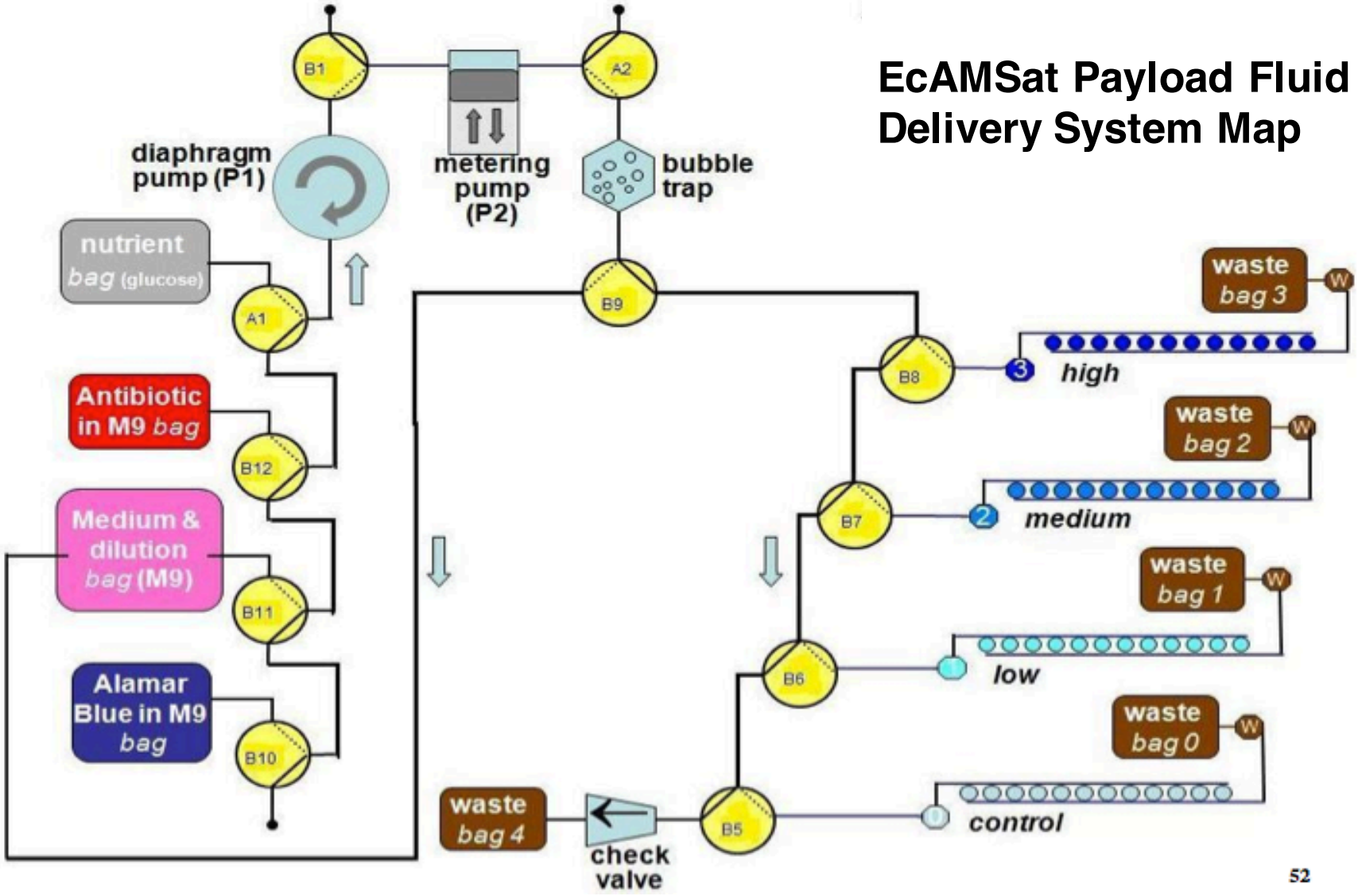
Payload

- Determine how microgravity alters the antibiotic resistance of uropathogenic E. coli (UPEC) to Gentamycin
- PharmaSat payload, with finer filter size to accommodate change from yeast to E. coli (0.45 µm to 0.2 µm)
- E. coli population is measured using optical density of well, utilizing Alamar Blue dye.

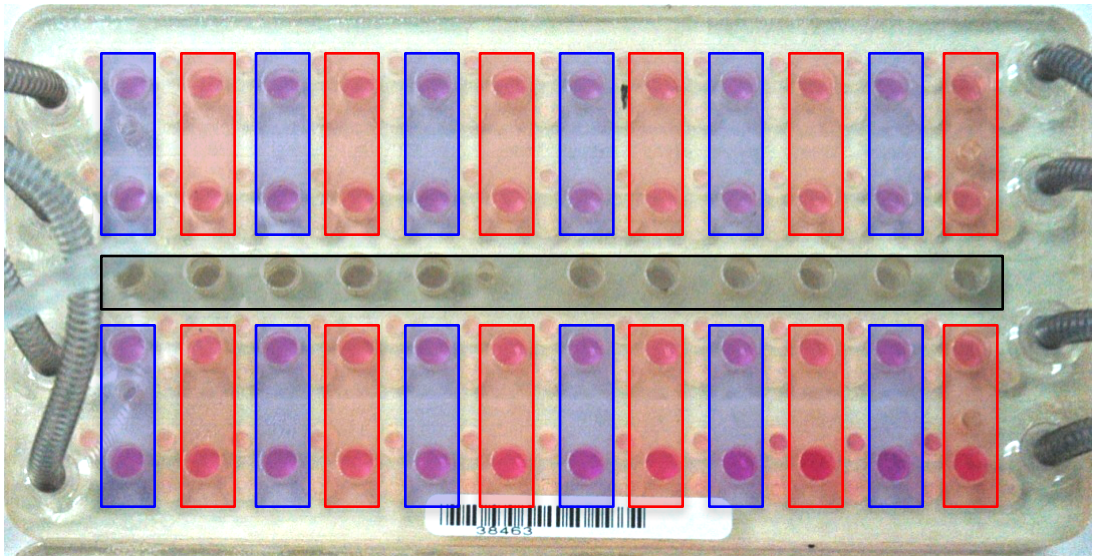


Fluidics System Overview

EcAMSat Payload Fluid Delivery System Map

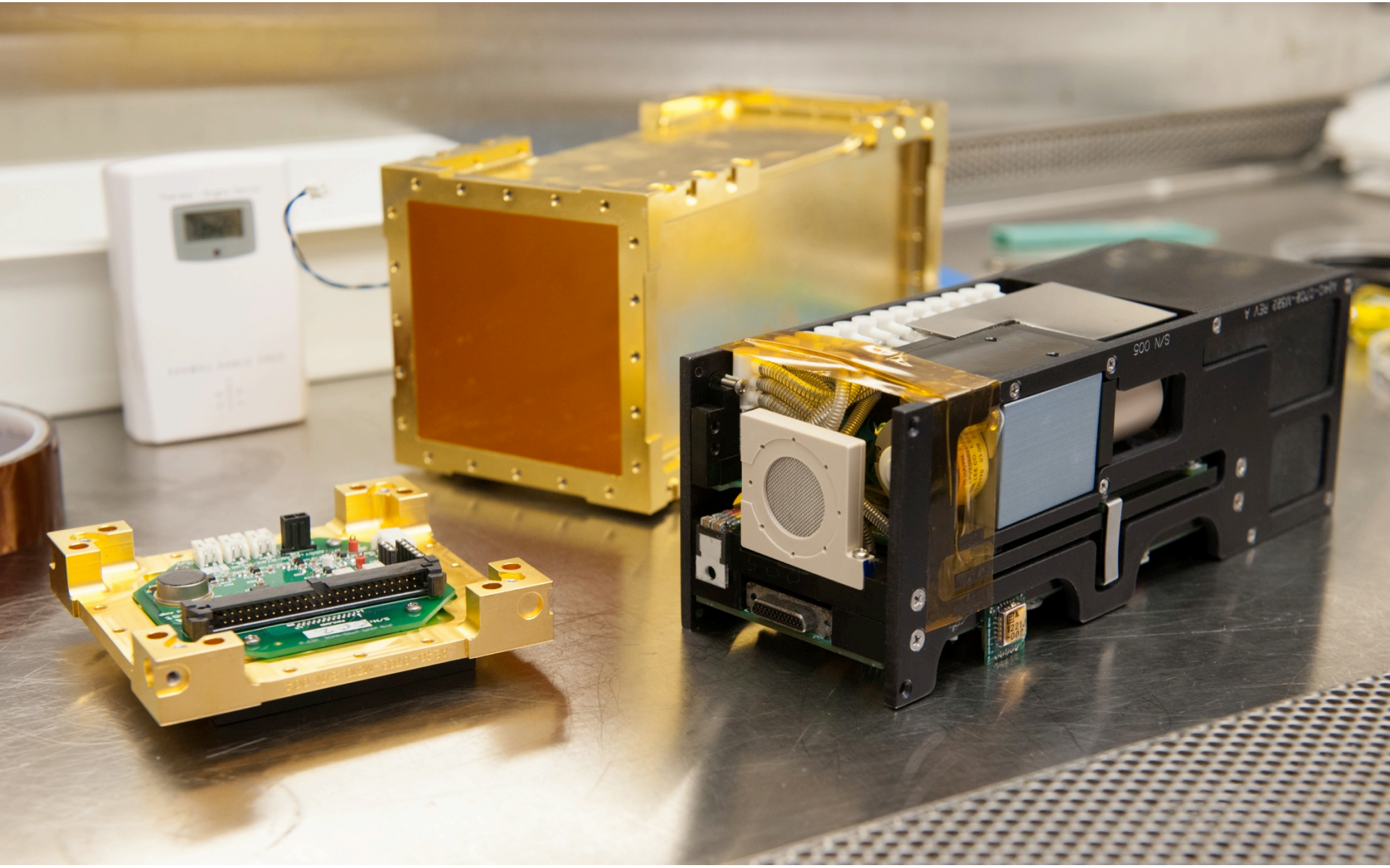


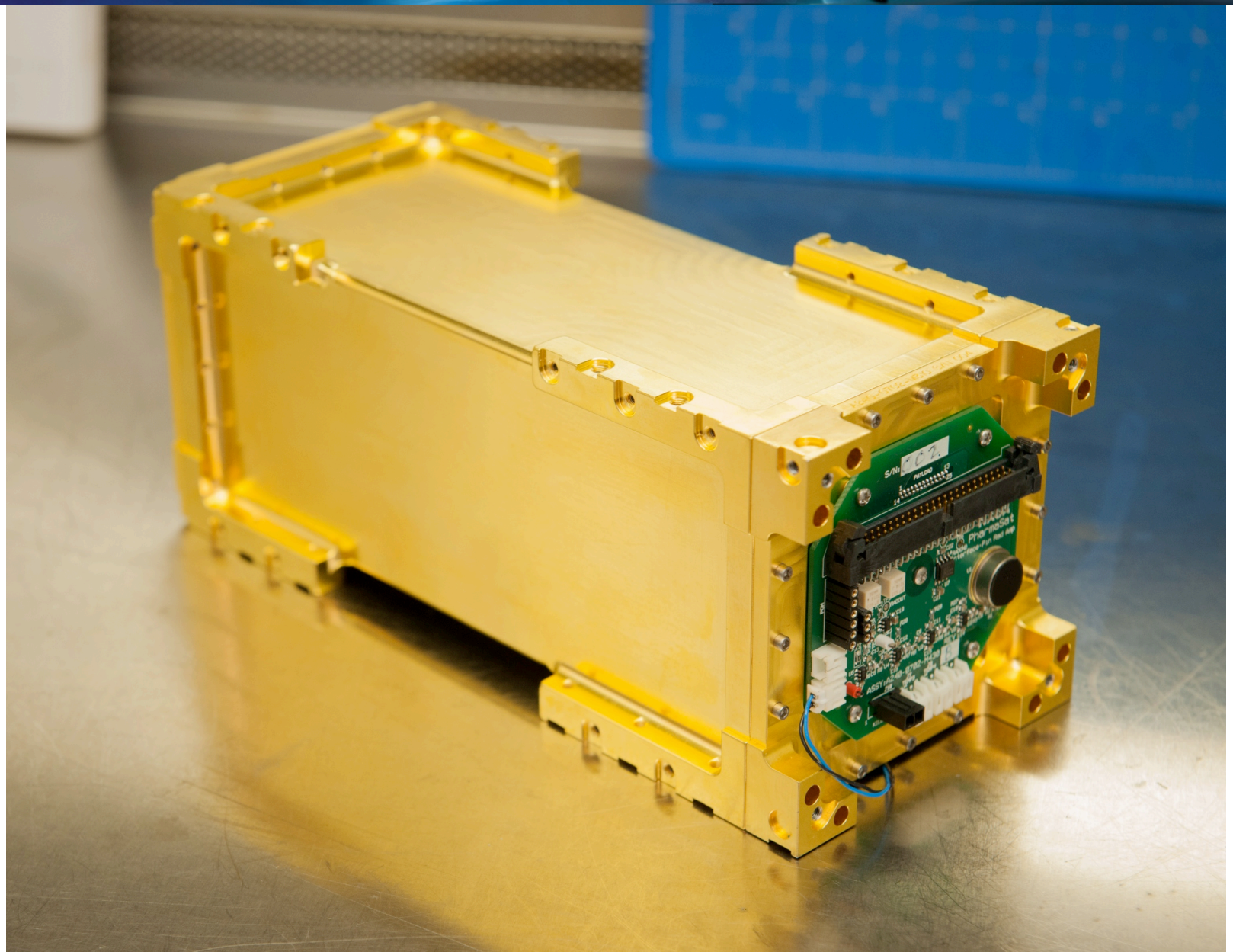
EcAMSat Fluidic Card



12 wells per bank:
- 6 wild type strain
- 6 mutant rpoS strain

4240-0702-M322 REV A
005 N/S


S/N 006


S/N:
PHILSA
PhoneSat

What is in store for EcAMSat

- **Finding a launch for a 6U in a suitable orbit**
  - Thermal considerations
  - Lack of 6U deployers
- **Ongoing payload evaluation**
  - Enhancing reliability of fluidics system
  - Optimizing the fluidics timeline to ensure optimal fluid exchange and minimize backpressure and filter clogging
- **Flight hardware**
  - Ready for flight, waiting in bonded storage