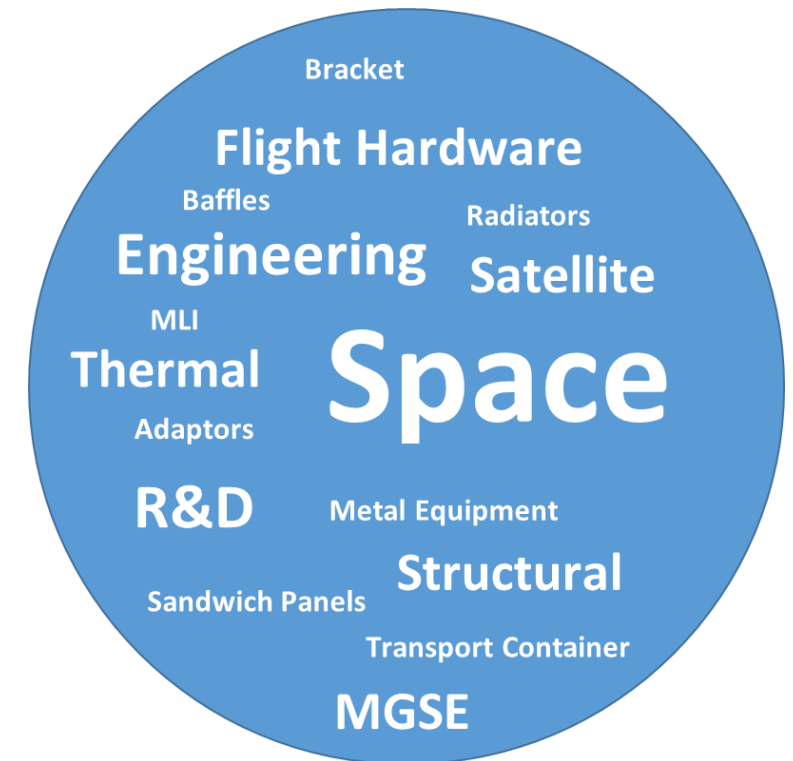


Company overview

Admatis Ltd.

Bárczy Tamás



General

Foundation: 2000

Owners: Hungarian private persons

Location: Miskolc, Hungary

Size: SME

Employees: young, highly educated

Position: prime in Hungary

Focus: space, engineering, project management

Certificates: AS/EN9100, ISO9001, CCR reg, Ncage code

Customers / Partners



Motto

„Whether you believe you can do a thing or not, you’re right”
Henry Ford

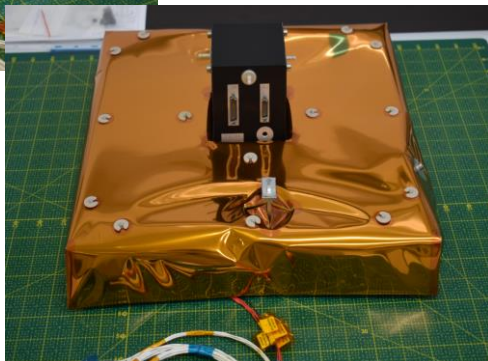
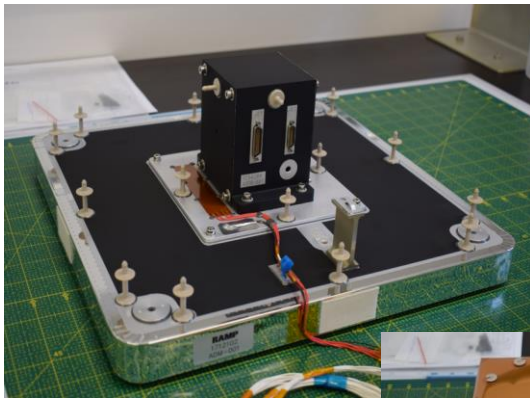
We believe we can do it.

Competencies

flight hardware
manned missions

flight hardware
unmanned mission

ground support
equipments



SPACE

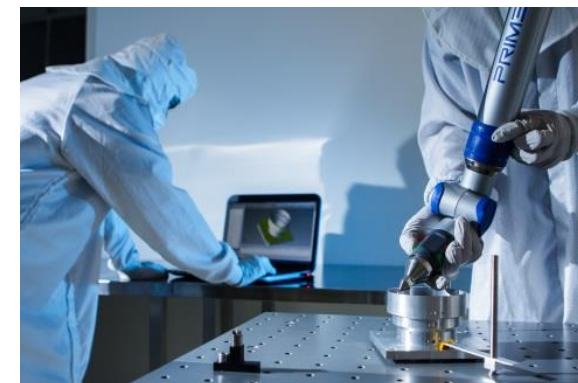
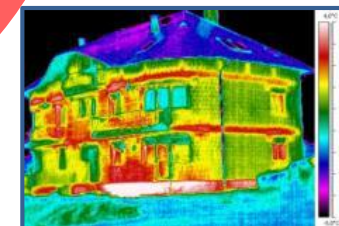
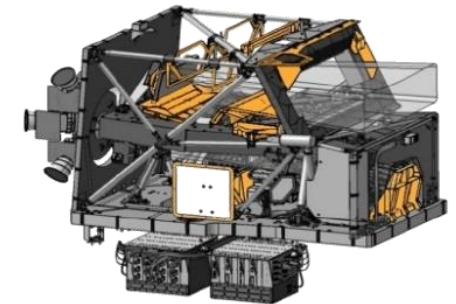
Subprime in Hungary
Mechanical and **Thermal**
engineering
CAD design
FEM analysis
ESA **documentation**
Project and PA **management**
Product **development**

MATERIAL SCIENCE

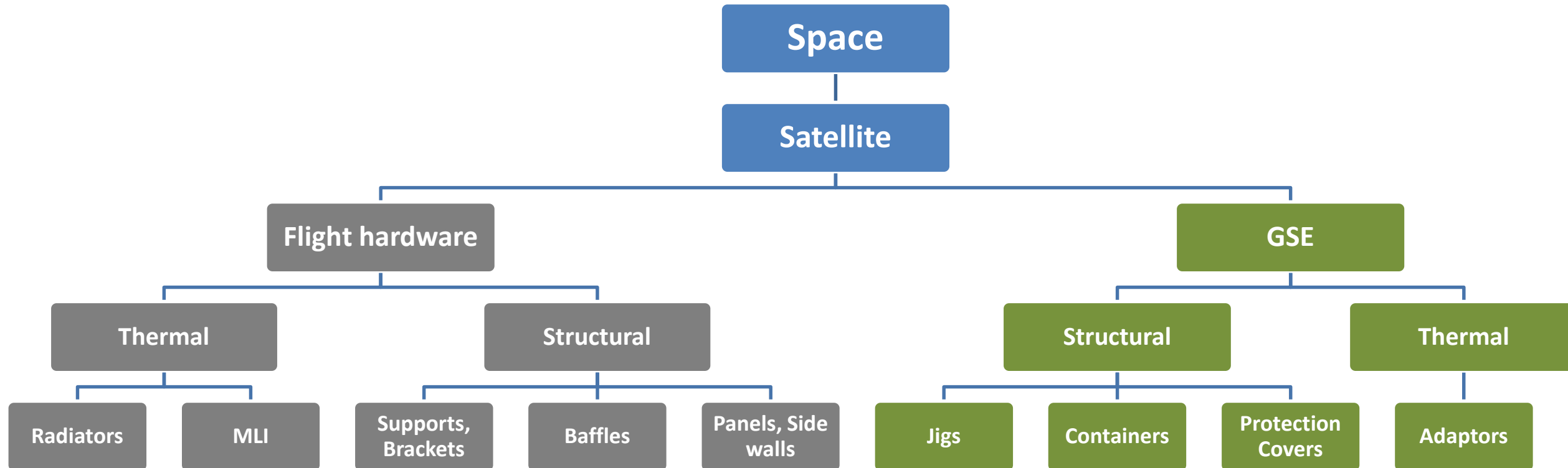
Materials R&D
Sandwich structure
Thermo-optical coatings
Conversion coatings as a
substitution of Alodine
Multi Layer Insulation, MLI
Metal foam

SERVICE

Cleanrooms (ISO8 – ISO6)
Thermal Vacuum Chamber
conversion coating
Painting
Thermal imaging
3D measurement

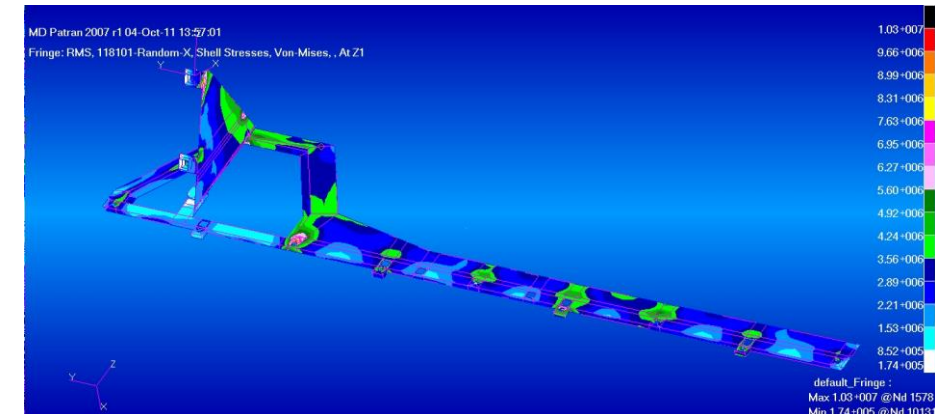
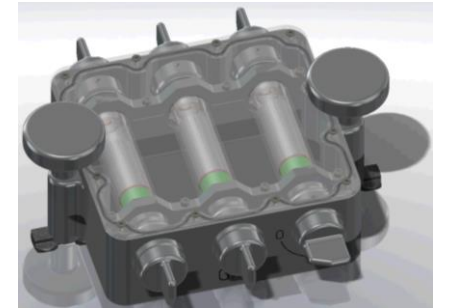
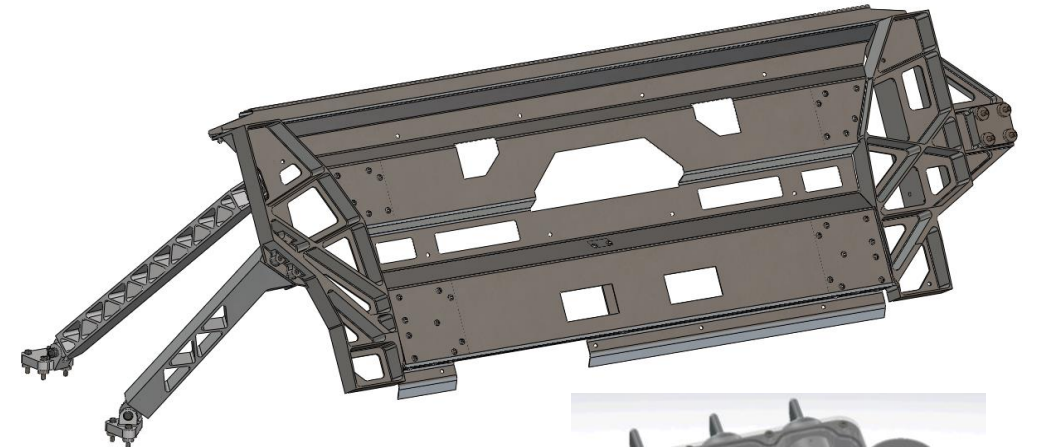
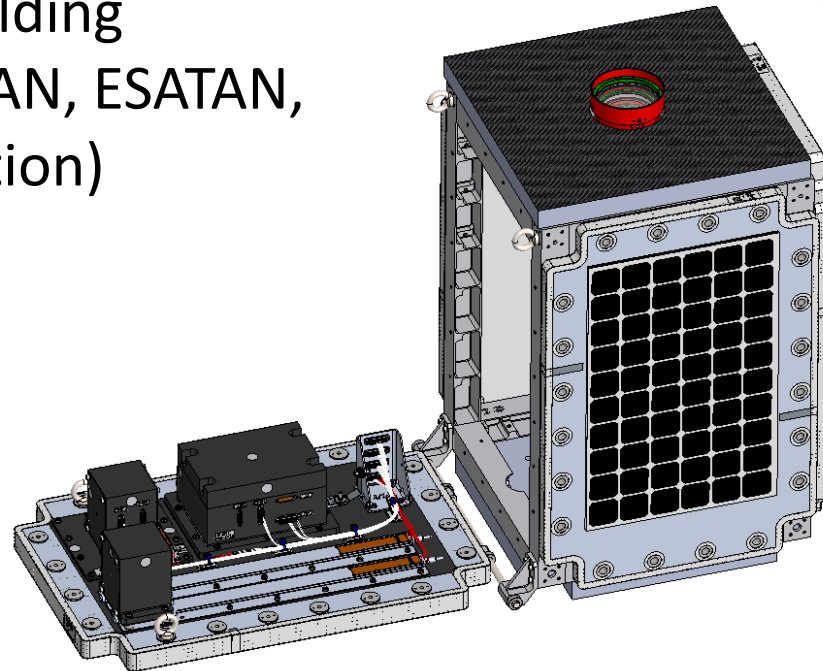
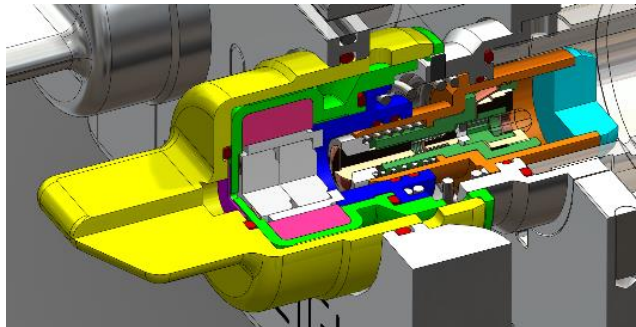


Competencies



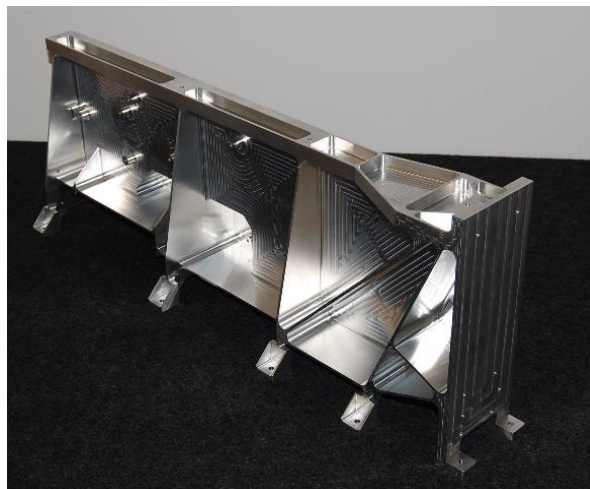
**NO IPR constraints.
All IPRs owned by ADMATIS.**

- Building Requirements Specification (mechanical and thermal hardware at equipment level, MGSE)
- CAD design (SOLIDWORKS)
- Structural and Thermal FE model (GMM and TMM) building
- FEM analysis (NASTRAN, ESATAN, SOLIDWORKS Simulation)



Machining

- Internal or external suppliers
- 3, 4 and 5 axis machines
- TRL9
- Machining dimensions up to 6000x4500x1500 mm
- Tolerance up to 0.005 mm



Surface treatment

Conversion coatings

Types	trivalent chromium coating (SURTEC650) and hexavalent chromium coating (Alodine 1200)
Bath dimensions	950 x 500 x 180 mm
Alloys to be coated	1xxx, 2xxx, 5xxx, 6xxx and 7xxx series of aluminum alloys
Technology	manual, not automatic

Properties

Colour	pale or dark grey
Coating weight	0.1 – 0.5 g/m ²

Qualification

Corrosion	168h / 72h NSS and 240h humidity test
Bake-out	72h, 60°C, 10 ⁻⁵ mbar
TVC	100 cycles ±100°C

Compliance

Standard	ECSS-Q-ST-70-14C, prEN4729 and SP-ADST-1000112306 by Airbus
Acceptance	by ESA and Airbus

Reference

Project	Sentinel-2 flight hardware accepted by Airbus and ESA
---------	---



Painting

Paint systems

Hardware size	max. 2m ²
Painting booth	ISO Class 8 grade
Masking	yes
Paints	MAP PU1, MAP SG121FD, MAP PUK, Aeroglaze Z306
Primer	yes but not necessary
Technology	manual, not automatic
Overpainting	within few hours of chromating
Curing	in ISO Class 8 clean room or fast curing

Qualification

Corrosion	240h humidity test
Bake-out	72h, 60°C, 10 ⁻⁵ mbar
TVC	100 cycles ±100°C
Adhesion	cross-cut and peel test

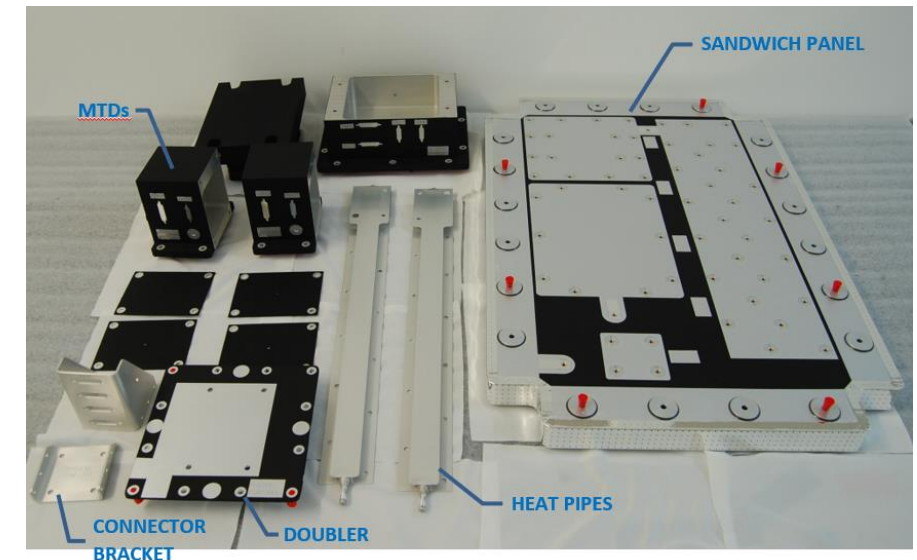
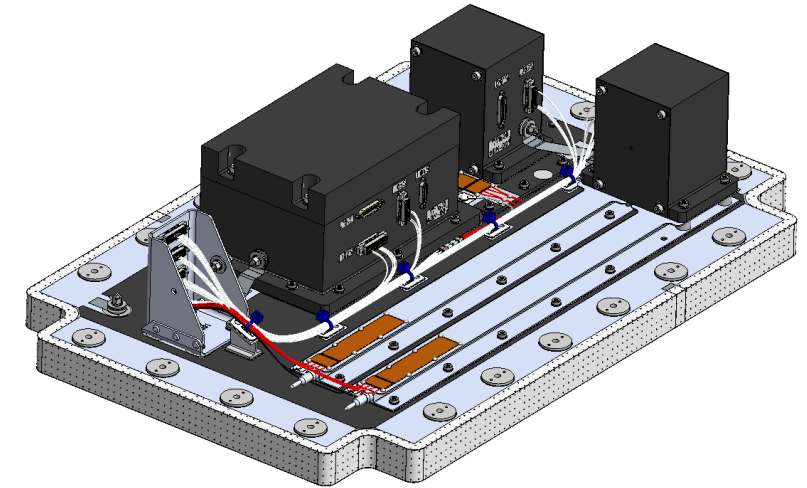
Compliance

Acceptance	by ESA and Airbus
------------	-------------------



Radiator panel

Plate material:	Sandwich with Al honeycomb and facesheets
Conversion coating:	Trivalent chromium (SurTec 650 system)
Thermo-optical coatings:	SSM, black or white paints
Heat distribution:	Doublers and Heat Pipes
Heat load:	Foil heaters
Thermal control and monitoring:	Thermistors and thermocouples
Electrical parts:	ESCC wires, connectors, connector bracket, grounding studs and washers
Other:	Edge closure, grounding



Performance: normal-efficiency (10 ply)

high-efficiency (20 ply)

Appication: internal and external blankets

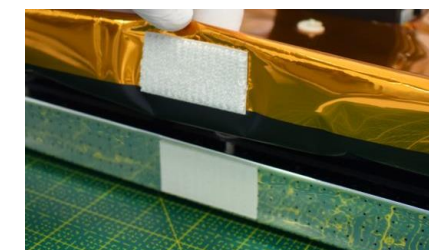
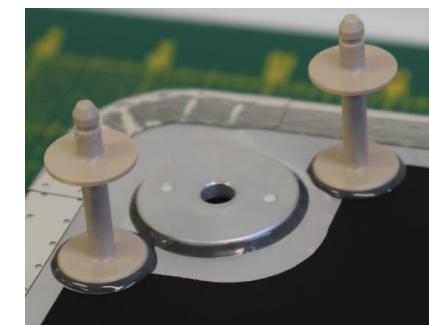
PROCESSES:

Manufacturing: manual cutting,
custom perforation

Assembly: blanket pinning,
blanket-to-blanket bonding by PSA,
Velcro application by PSA,
thermo-optical tape application

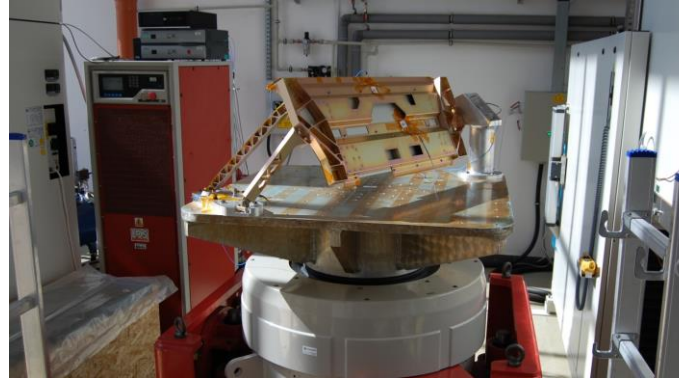
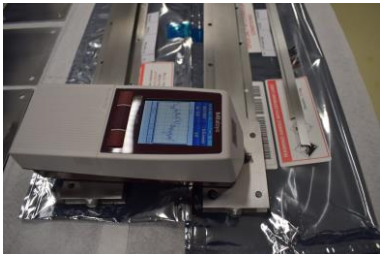
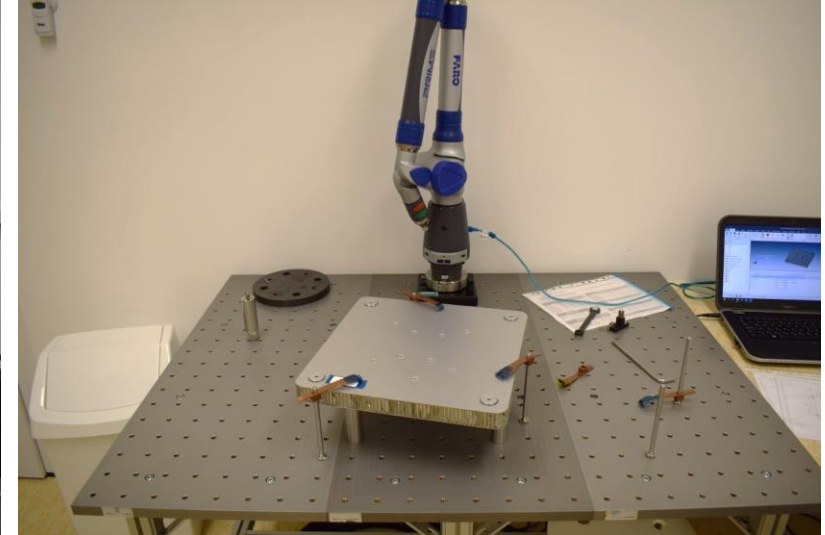
Grounding: grounding with Al foil and
removable fasteners or fixed rivet

Attachment: standoff bonding with paste
adhesive,
blanket fixation by Velcros and
standoffs



Verification

- CMM with 1800x800mm granite table. Accuracy is ~5micron.
- Portable Measuring Arm with ~1800mm volume. Accuracy is ~27microns.
- LDS shaker 35kN with slip table and head expanders
- Surface Roughness measurement
- Detailed visual inspections by optical microscope
- Cleanliness measurement by portable particle counter



Ongoing activities

JUICE PEP MLI

Build-to-spec. STM and FH delivery.

Partner: [ESA](#), [University of Bern](#)

Implementation: 2019 - 2020

ARIEL

Payload consortium member. Build-to-spec.

STM, PVM and FH delivery of:

- Radiators (50K)
- Thermal strap
- Transport container, Trolleys, handling devices, adaptors

Partner: [ESA](#), [UCL](#), [RAL](#)

Implementation: 2019 - 2027

COMET INTERCEPTOR (COCA)

Build-to-spec. EM, STM and FM delivery of:

- MLI
- Radiators
- CSU survival heaters module
- Metallic support brackets

Partner: [ESA](#), [University of Bern](#)

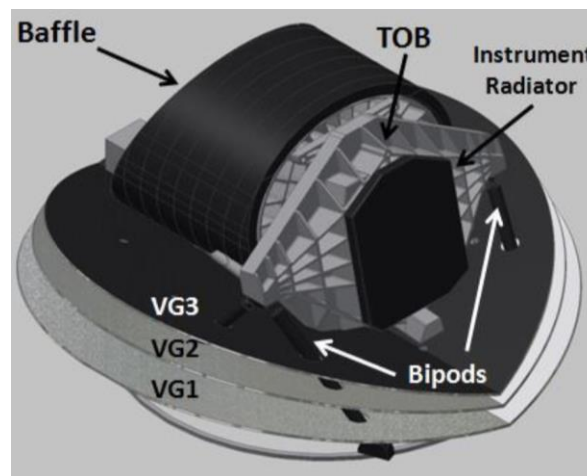
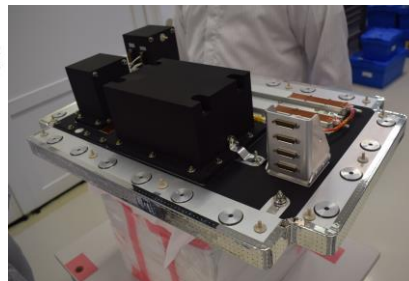
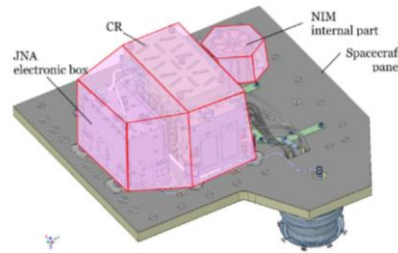
Implementation: 2020 - 2025

JUICE SWI THERMAL DUMMIES

Build-to-spec.

Partner: [ESA](#)

Implementation: 2020



MLI DEVELOPMENT (THIN, MBA, MAPS, CAMS)

Build-to-spec. EM and STM.

Partner: [ESA](#)

Implementation: 2017 - 2021

ENVIRONMENTAL FRIENDLY CONVERSION COATING DEVELOPMENT FOR LARGE PARTS (ECD 3)

Technology qualification.

Partner: [ESA](#)

Implementation: 2019 - 2020

CLEAN SPACE, DESIGN FOR REMOVAL

Build-to-spec. Feasibility study and prototype of marker.

Partner: [ESA](#)

Implementation: 2019 - 2021

TRANSPORT CONTAINER DEVELOPMENT

Build-to-spec. STM.

Partner: [National](#)

Implementation: 2019 - 2020

Edge technologies with low TRL

MULTIFUNCTIONAL METAL FOAM RADIATOR AND STRUCTURAL ELEMENTS

Partner: H-2020, national

Implementation: 2015 - 2017

MARKER DEVELOPMENT FOR FUTURE SATELLITE TO SUPPORT NAVIGATION OF CHASER – SPACE DEBRIS REMOVAL AFTER END-OF-LIFE

Passive emitting materials (thin films and phosphorescent paints)

Clean Space program

Partner: ESA

Implementation: 2019 (2020 – 2021)

AEROGEL BASED INSULATION FOR SATELLITES

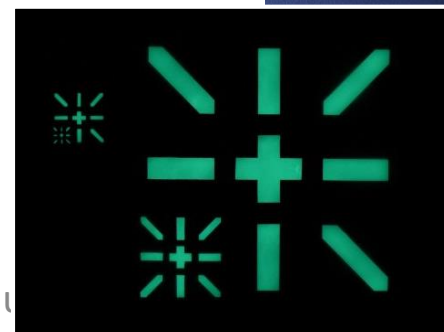
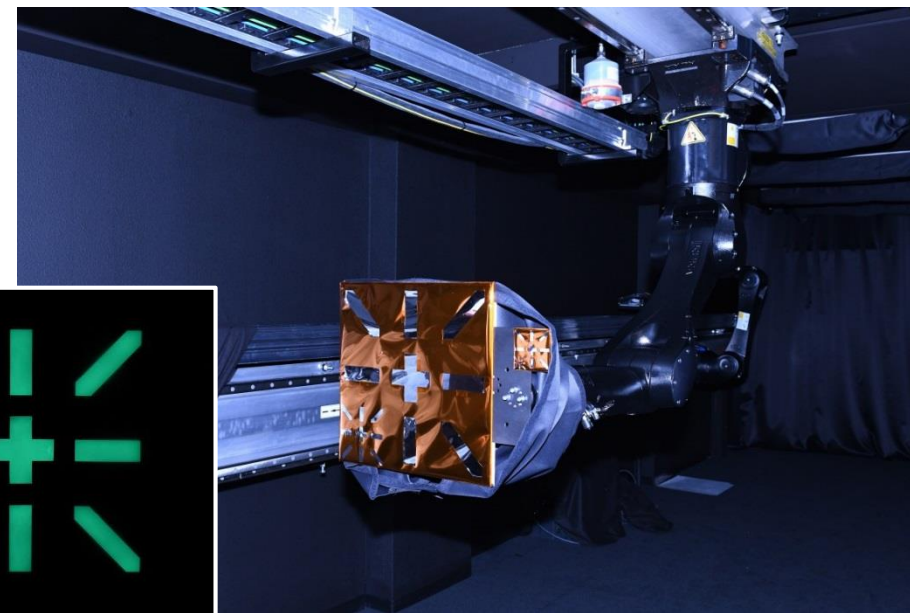
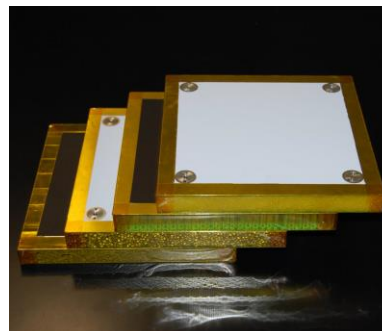
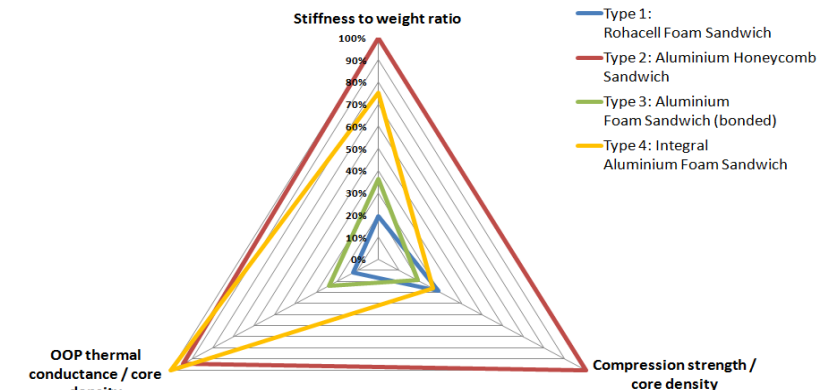
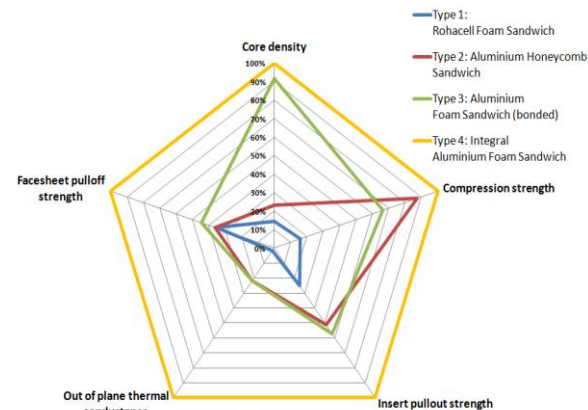
Partner: ESA, TAS

Implementation: 2019 - 2021

MLI – NEW SPACER MATERIALS, NEW FIXATION

Partner: ESA, TAS

Implementation: 2019 - 2021



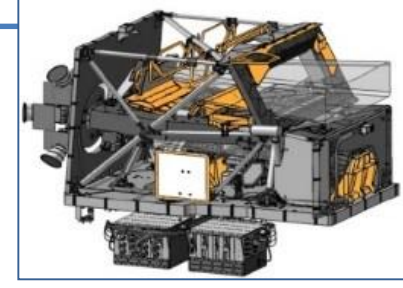
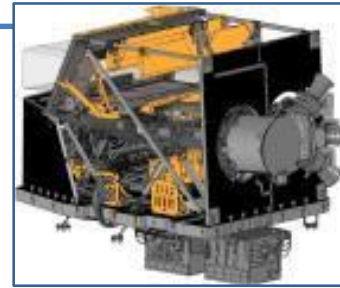
References

EQUIPMENTS FOR SENTINEL-2 SATELLITES

Metallic Mechanical and Thermal Hardware are designed, manufactured, tested and delivered by ADMATIS.

Partner: [Airbus](#)

Implementation: [2009-2018](#)

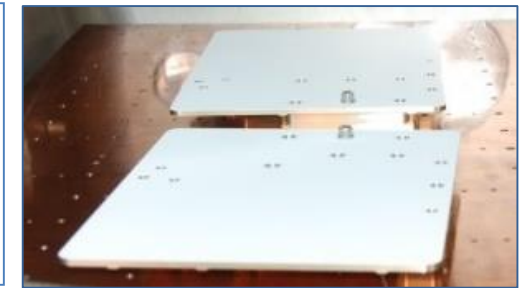
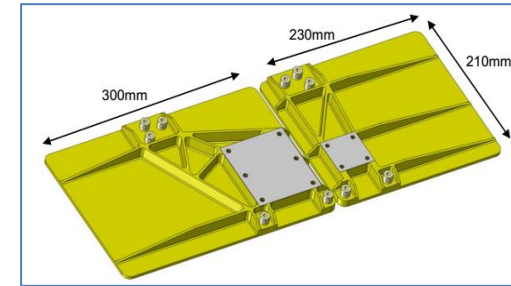


CHEOPS

FPA and FEE radiator development to CHEOPS satellite.

Partner: [ESA](#) , [University of Bern](#)

Implementation: [2013-2017](#)

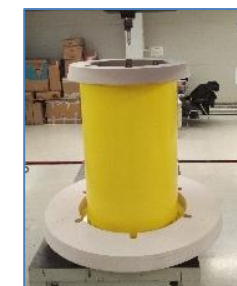


Machining Jig Cone

MGSE for METOP program in a build-to-print cooperation.

Partner: [RUAG](#)

Implementation: [2017](#)

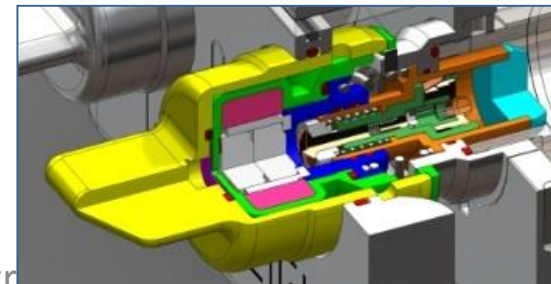


FOCUS

Foaming experiments on board of ISS in February 2010.
Scientific background and hardware development.

Partner: [European Space Agency \(ESA\)](#)

Implementation: [2007-2010](#)



Software

1. servers with Linux and Windows
2. laptops with Windows, MS Office and ESET
3. SolidWorks Premium 3D CAD
4. SolidWorks Simulation Premium
5. NASTRAN
6. ESATAN
7. LabView
8. MS SharePoint
9. Microsoft Project

Premises

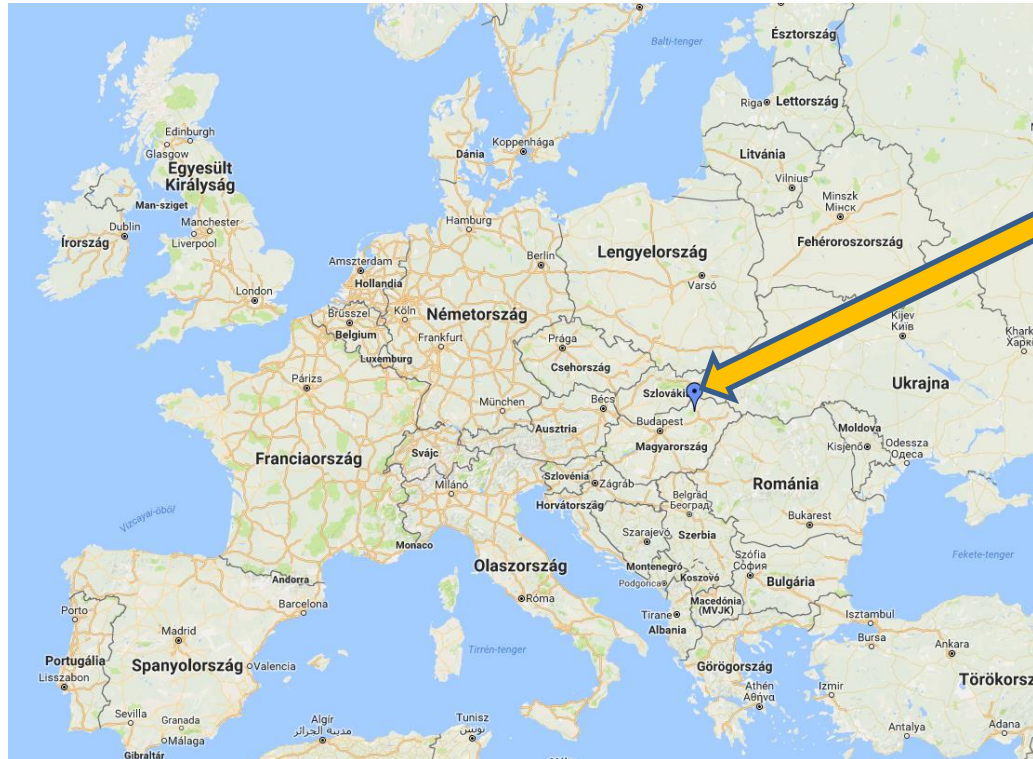
1. Clean room for manufacturing and assembly (ISO8)
2. Clean room for cleaning and packaging (ISO8)
3. Surface treatment line and chemical laboratory
4. Conference room equipped with teleconf
5. Storage rooms with controlled environment

Equipment

1. Clean Bench (ISO5)
2. Surface treatment line for SURTEC and Alodine
3. Painting booth
4. Curing booth
5. MLI assembly area
6. TVC for bake-out, thermal cycling and thermal balance tests
7. CMMs for 3D measurement (portable arm, bridge, optical for large hardware)
8. NSS chamber
9. Humidity chamber
10. Thermal imaging
11. Microscope
12. Analytical scale
13. CNC mill

At our partners (HUNSPACE)

1. Vibration test house (University of Dunaújváros)
2. Mechanical test house (University of Miskolc)
3. Metal machining (several)



ADMATIS

5. Kando Kalman street
3534 Miskolc
Hungary

Tamás BÁRCZY

general manager

tamas.barczy@admatis.com

www.admatis.com

+36 46 898-154