

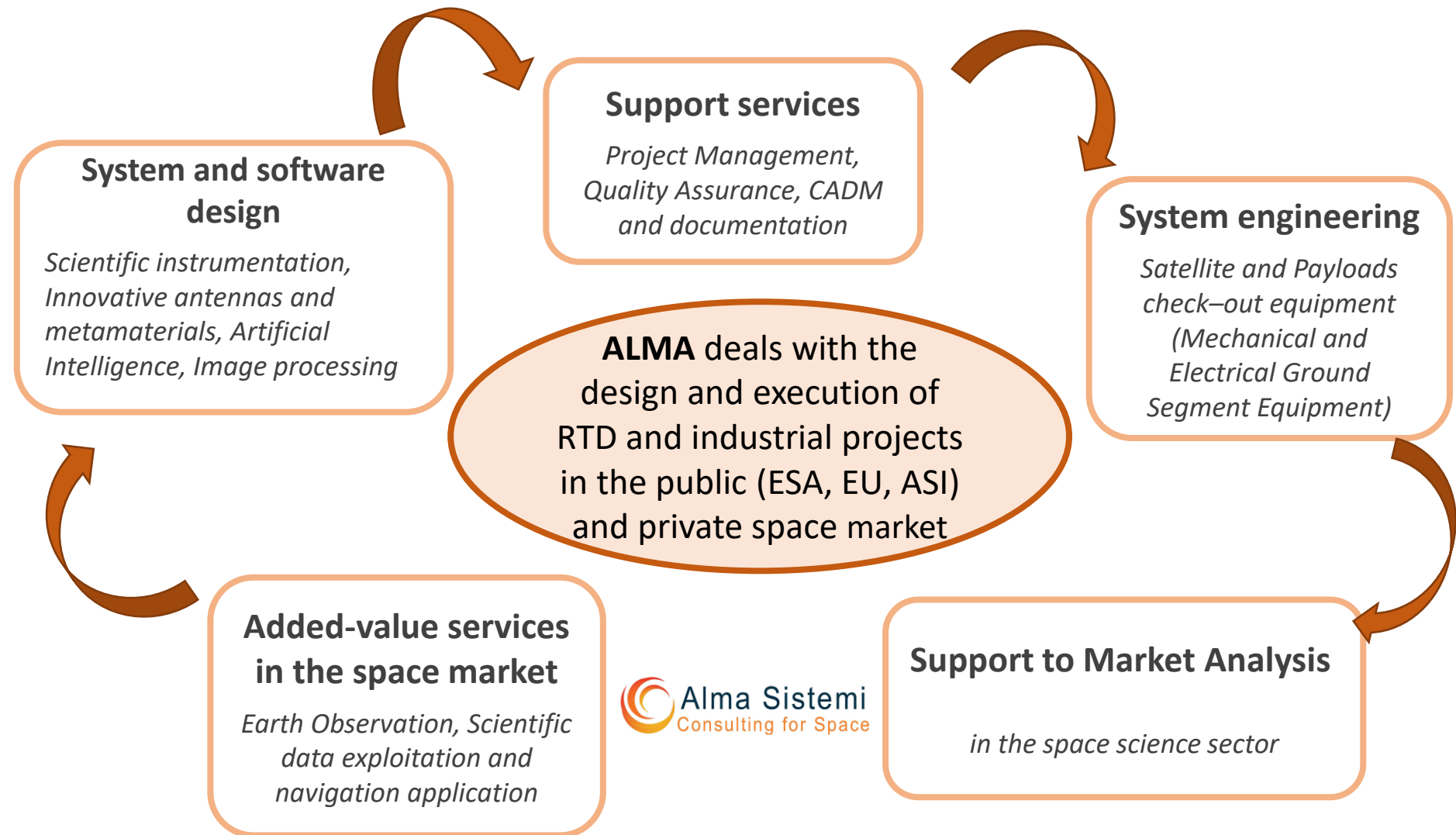


ALMA Sistemi S.r.l.

- ▶ Italian SME providing high level engineering in the space and defence market
- ▶ Established in 2005, 20 employees (plus 3 permanent consultants)
- ▶ Fast growing: 3,2 M€ (2023): 100% increase from 2022
- ▶ Certified ISO 9001:2015
- ▶ New premises in Rome (650 m²) fully owned
- ▶ Focus on industrial contracts (MGSE) and RTD projects

Customer	Completed Projects	On going projects
EC FP7 – Horizon 2020/Europe	9	4 (3 as coordinator) + 1 GAP
MGSE (Airbus, Thales, OHB) + ESA	8	7 (6 as Prime contractor) + 2
Italian / European Space Agency	4 / 2	1 (contract signature)
National RTD Programs	4	3 (coordinator)
Defense	1	1 (coordinator)

Alma offering



MGSE past contracts

ALMA Sistemi has a long-standing relationship on MGSE having provided Mechanical Engineering support to industrial contracts in the frame of European Space Agency programmes:

- *MeteoSat Third Generation (MTG) Spacecraft Transport Container – Customer: Thales Alenia Space, Cannes, France.*
- *MeteoSat Third Generation Platform Transport Container – Customer: OHB System AG, Bremen, Germany.*
- *MeteoSat Third Generation Platform Radiator Tilting Stands – Customer: OHB System AG, Bremen, Germany.*
- *EnMAP Mechanical Ground Support Equipment – Kayser-Threde GmbH, Munich, Germany.*
- *ExoMars Rover Transport Container – Airbus Defence & Space, Stevenage, UK.*

MGSE completed contracts

- *MetOp-2G MicroWaveSounder Mechanical Ground Support Equipment - Airbus Defence & Space, Portsmouth, UK.*
- *MetOp-2G Scatterometer Electronic System Mechanical Ground Support Equipment (BIOMASS MGSE Batch#3) Airbus Defence & Space, Friedrichshafen, DE.*
- *MetOp-2G Lifting and handling Mechanical Ground Support Equipment for Satellite A and B- Airbus Defence & Space, Friedrichshafen, DE.*
- *SpaceBUS NEO (NEOSAT) Solar Array Transport Container – Thales Alenia, Cannes, France.*
- *Cryostat trolley & stand for Physic Particle Accelerometer prototype and series production, European Spallation Source, Sweden.*
- *SpaceBUS NEO (NEOSAT) Satellite Transport Container (subcontractor) – Thales Alenia, Cannes, France.*
- *Copernicus CHIME Instrument MGSE (prime contractor) – OHB System AG, Oberpfaffenhofen, Germany delivered 2 Tilting Trolleys.*
- *Copernicus CHIME adapters (prime contractor) – OHB System AG, Oberpfaffenhofen, Germany.*

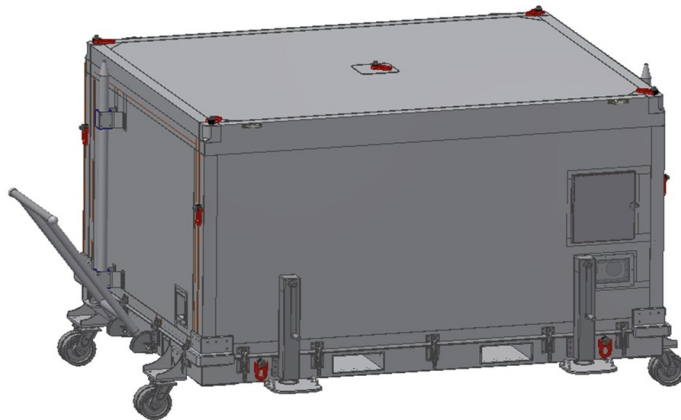
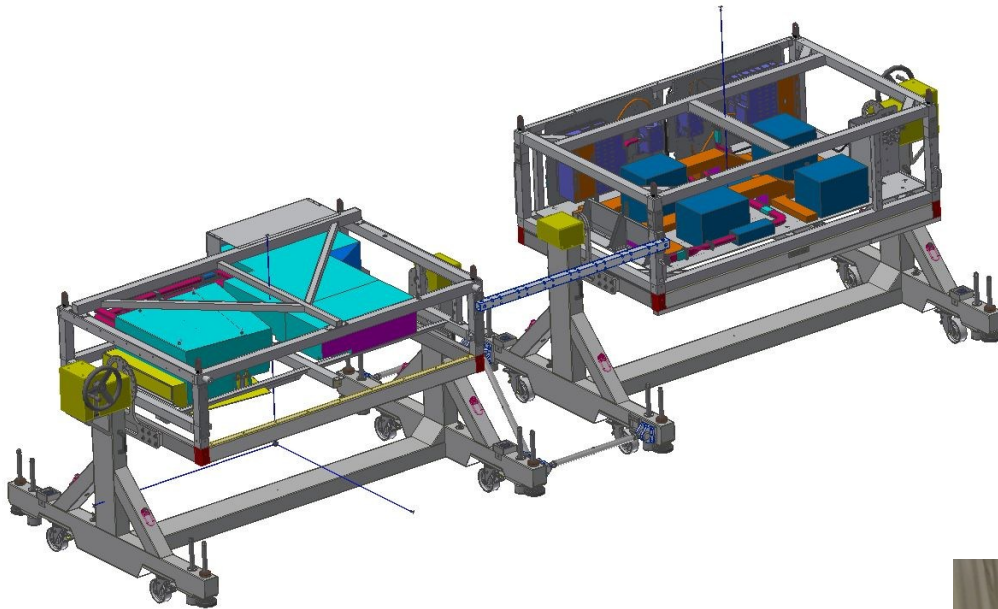
MGSE ongoing contracts

- *Copernicus CRISTAL Operational MGSE (prime contractor) – **Airbus Defence and Space, Immenstaad, Germany** (TRR-TRB phase);*
- *Copernicus LSTM MGSE Batch#1: Transport Container (prime contractor) – **Airbus Defence & Space Spain**. (CDR phase);*
- *Copernicus LSTM MGSE Batch#3: Spacecraft Adapters (prime contractor) – **Airbus Defence & Space Spain**. (TRR-TRB phase);*
- *ARIEL structural model MGSE (subcontractor) – **Airbus Defence & Space, Toulouse, France** (TRB phase);*
- *ROSE-L Thermal fixture MGSE (prime contractor) – **Thales Alenia Space, Rome, Italy** (TRR-TRB phase);*
- *CIMR S/C MGSE (prime contractor) - **Thales Alenia Space, Rome, Italy** (CDR).*
- *CIMR Instrument Transport Container (prime contractor) - **OHB, Milan, Italy** (design phase);*

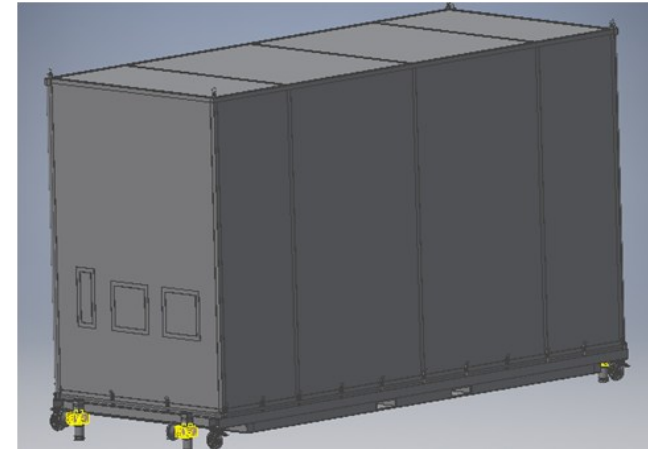
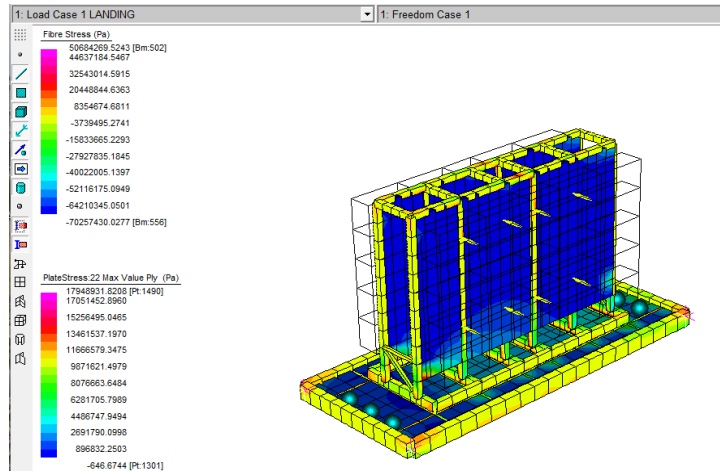
MGSE contracts supporting Quantum Innovation IKE (GR)

- *CHIME PROGRAM –Spacecraft MGSE SATInteg-1 (subcontractor to ADAMANT GR) Final customer:*
Thales Alenia Space, Cannes, France (Manufacturing phase).
- *CRISTAL IRIS Transport Container (prime contractor).*
Thales Alenia Space, Cannes, France (Manufacturing phase).

MGSE: *MetOp-2G Scatterometer MGSE* (Airbus, DE)

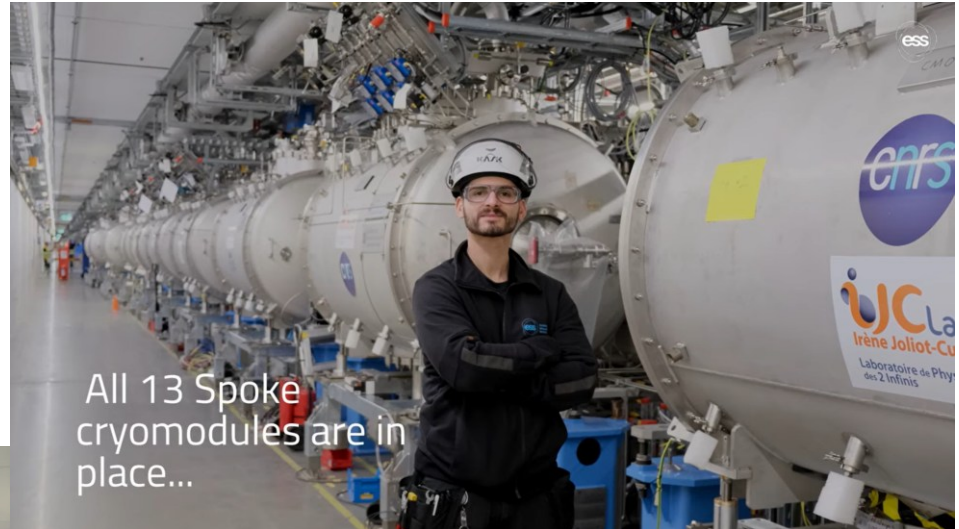
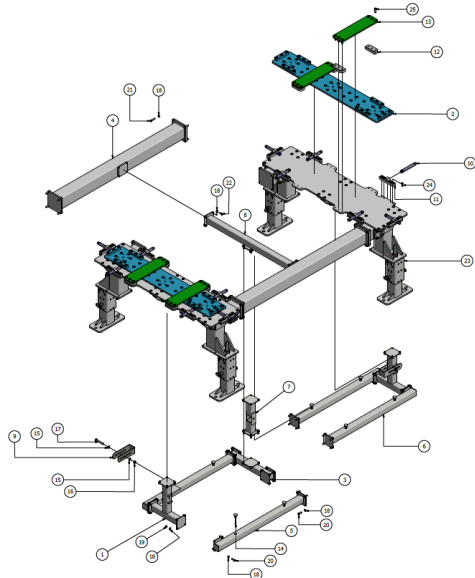


MGSE: Spacebus NEO Solar Array Transport Containers (TAS-F)

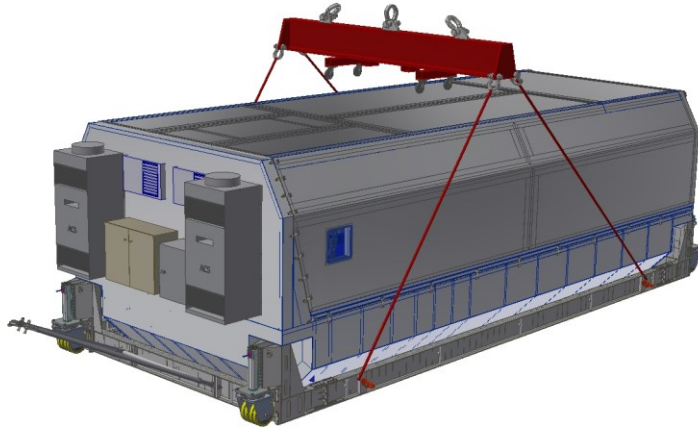


Dimension (L x W x H): 6,0 x 2,4 x 3.5 mt.

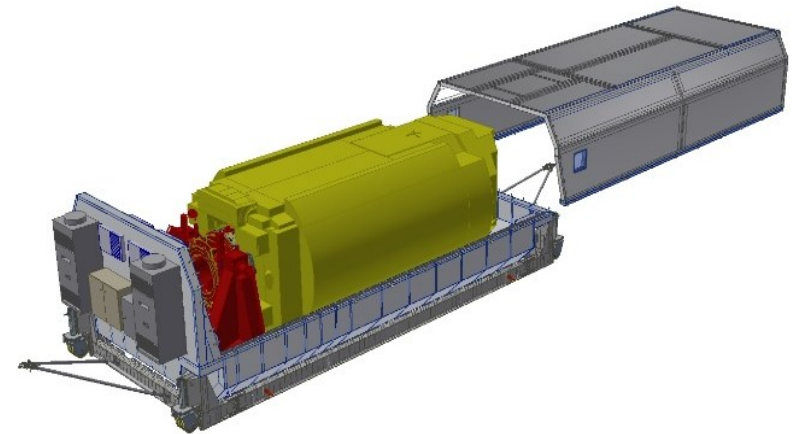
MGSE: Spoke Cryomodule trolley (European Spallation Source, SE)



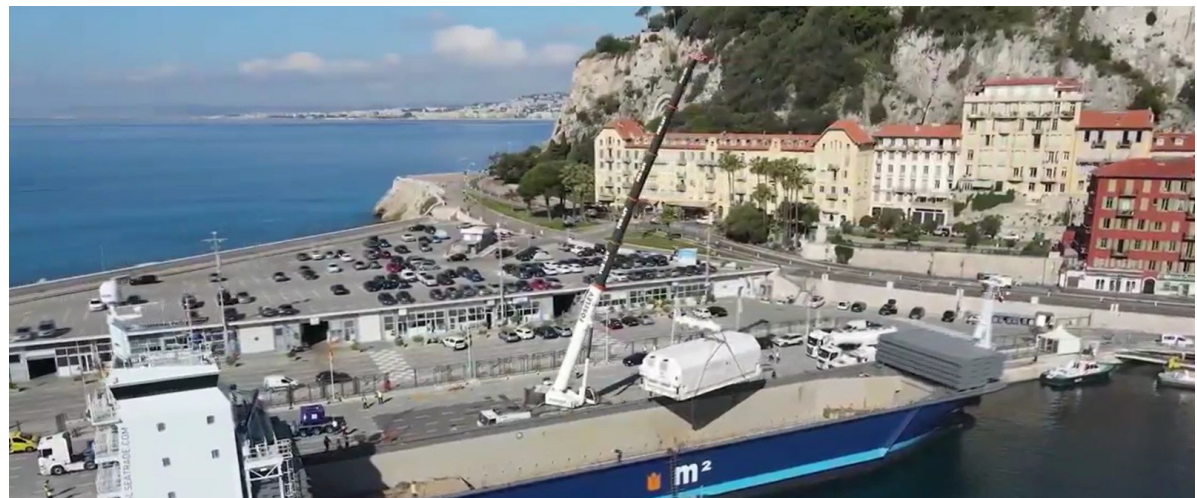
MGSE: *Spacebus NEO Satellite Transport Containers* (TAS-F)



Dimension (L x W x H): 13,0 x 5,4 x 4,2 mt.

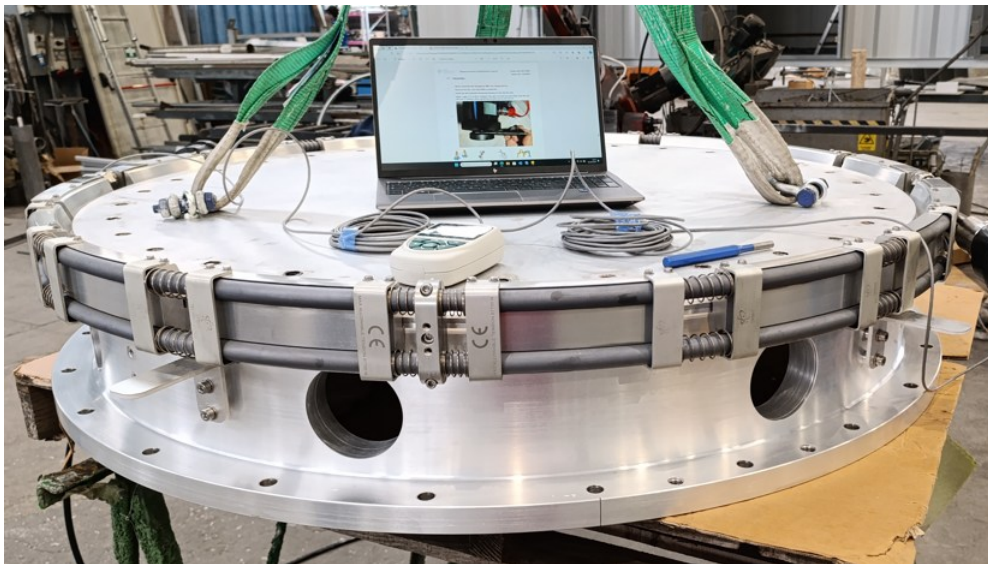


MGSE: *Spacebus NEO Satellite Transport Containers* (TAS-F)



GROUND HANDLING ADAPTER

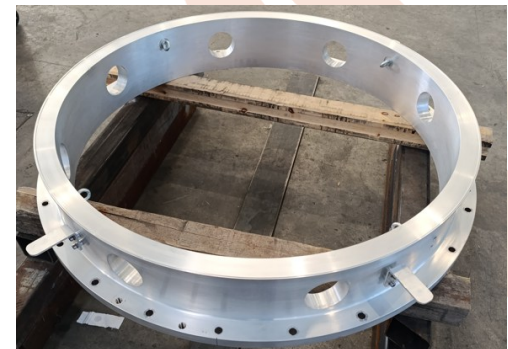
PROJECT:
LSTM



CUSTOMER: AIRBUS MADRID

MAIN FEATURES :

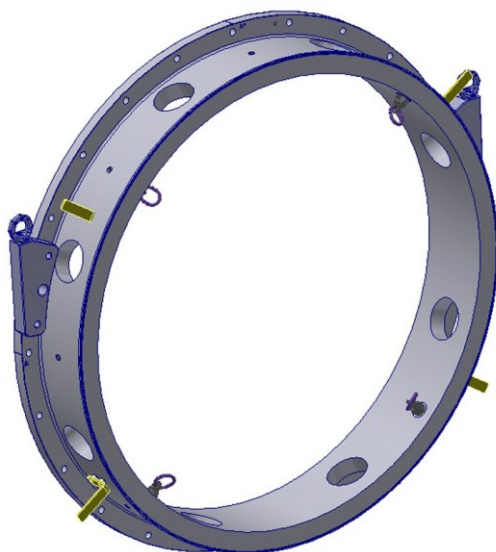
- Forged Al 6061 T6
- Clamp band i/f 1194mm
- SWL: 1460 kg
- Proof tested 4380 kg (in vertical and horizontal orientation)
- ISO 8 clean room level



GROUND HANDLING ADAPTER

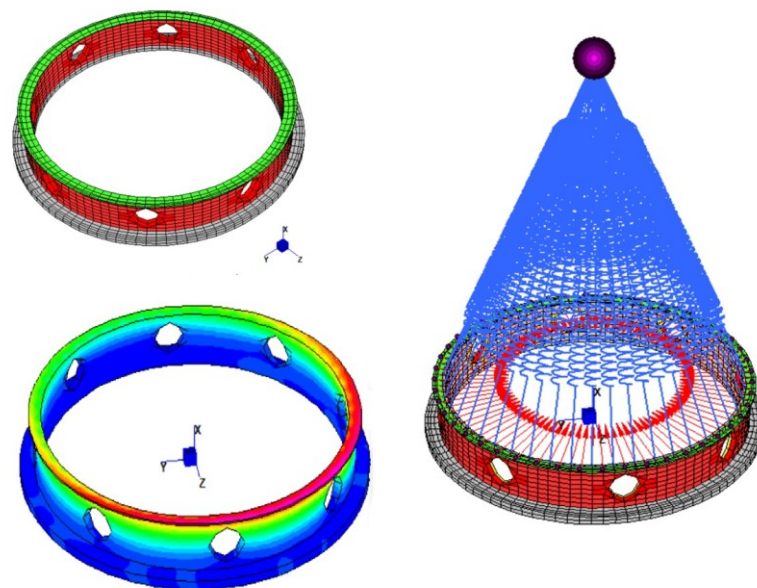
PROJECT:
LSTM

CAD MODEL



CUSTOMER: AIRBUS MADRID

FEM MODEL



TRASPORT CONTAINER FOR STRUCTURAL MODEL

PROJECT:



CUSTOMER: AIRBUS TOLOUSE

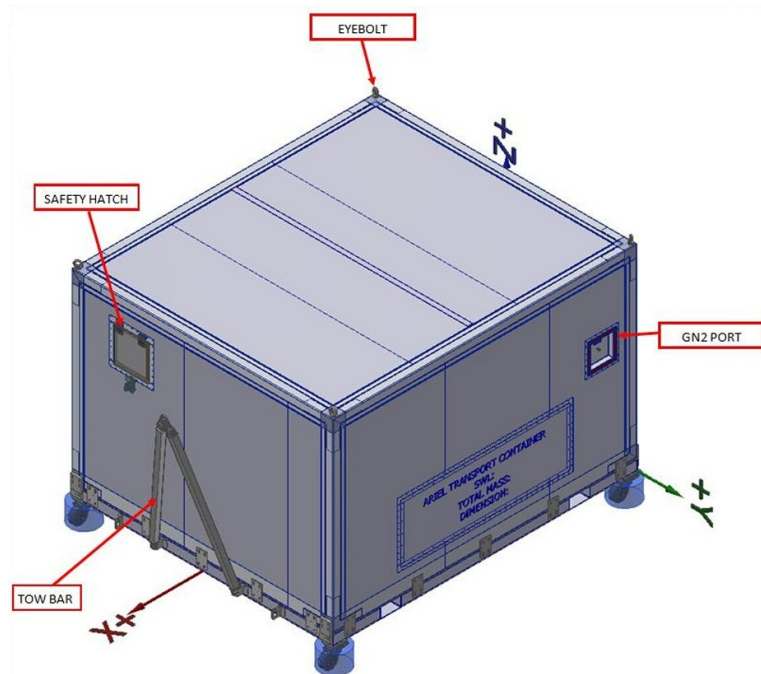
MAIN FEATURES:

- LxWxH = 3090x2550x2110 [mm]
- IATA compliant for flight transport
- Passive thermal controlled
- Nitrogen purging for the control of the internal environment
- SWL: 471,5 kg
- Proof tested: 707,25 kg
- Iso 8 clean room level



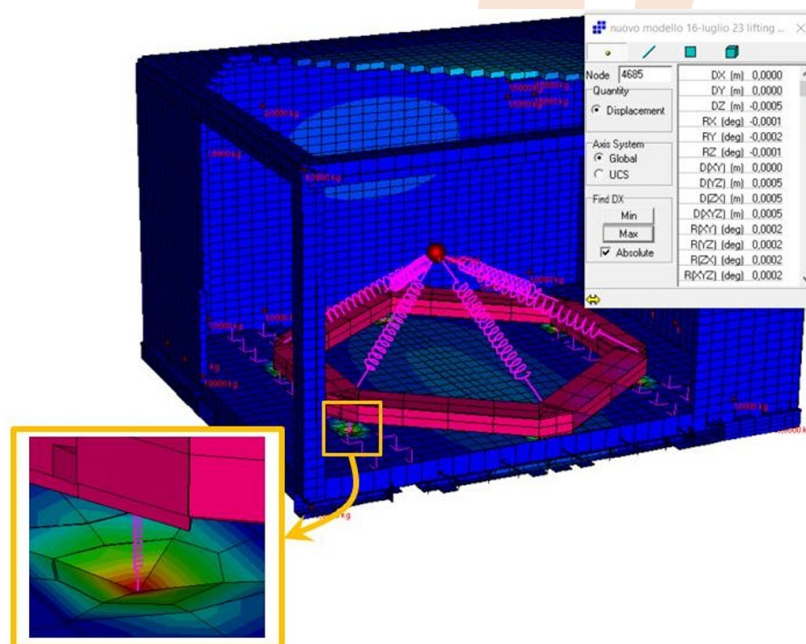
TRASPORT CONTAINER FOR STRUCTURAL MODEL

PROJECT:
ARIEL
CAD MODEL



CUSTOMER: AIRBUS TOLOUSE

FEM MODEL



TURN TABLE TROLLEY FOR FLIGHT INSTRUMENT

PROJECT: CHIME



CUSTOMER: OHB GERMANY

MAIN FEATURES:

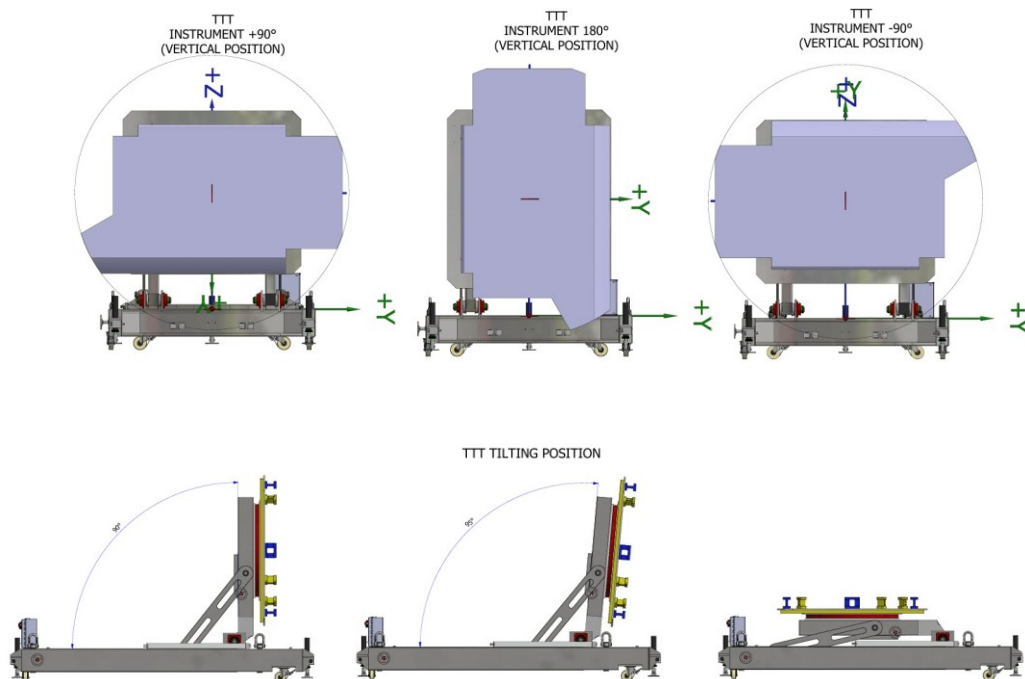
- Complete structure in stainless steel
- High standard for cleaning and cleanability
- Fully motorized for both movement;
- Tilting range for the payload: (0°;95°)
- Rotation range for the payload (-180°;+180°)
- SWL: 750 kg
- Proof tested: 1500 kg
- Iso 5 clean room level



TURN TABLE TROLLEY FOR FLIGHT INSTRUMENT

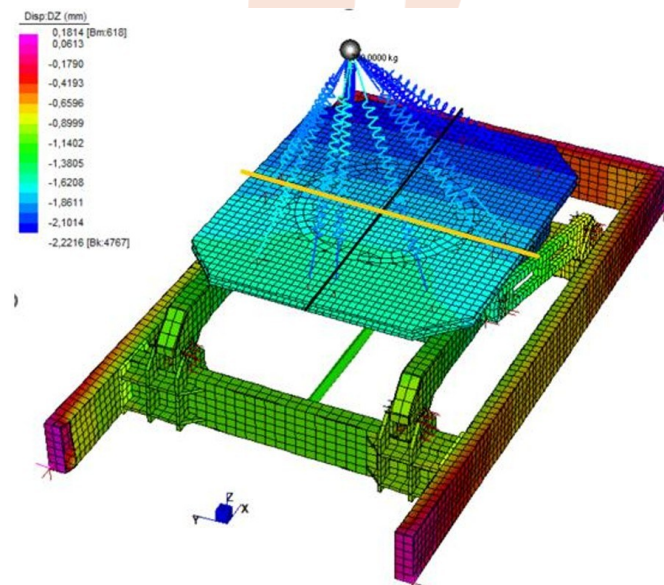
PROJECT: CHIME

CAD MODEL



CUSTOMER: OHB GERMANY

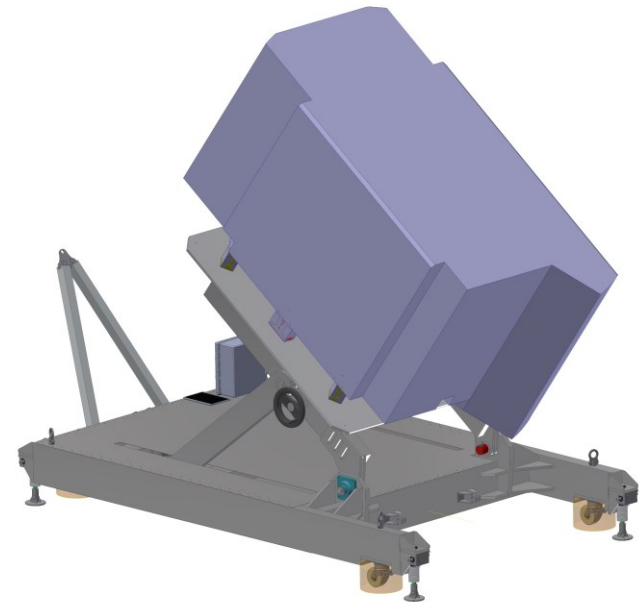
FEM MODEL



Ongoing Mechanical Ground Support Equipment contracts

CHIME Instrument MGSE

OHB-DE (Munich) – ongoing (TRB)



VERTICAL INTEGRATION STAND

PROJECT:
CRISTAL

CUSTOMER: AIRBUS GERMANY

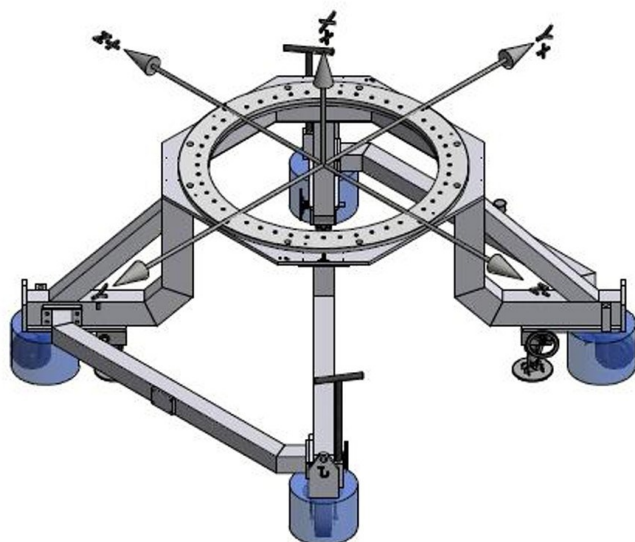
MAIN FEATURES:

- Atex compliant
- Designed to be used during the integration phases for the Cristal s/c in vertical position
- Designed to permit the charging of the propellant in the s/c on the launch site
- SWL: 2300 kg
- Proof tested: 4600 kg
- Iso 8 clean room level



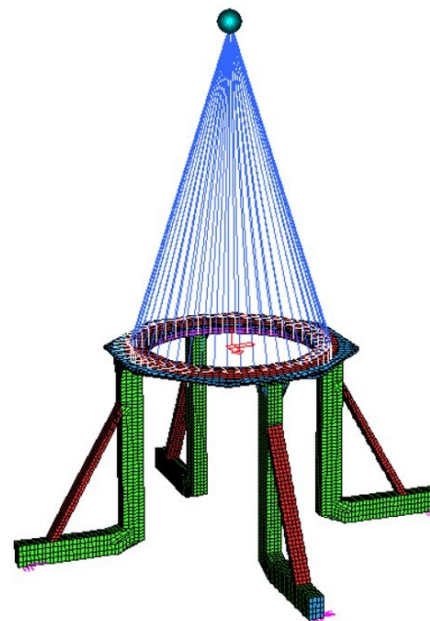
VERTICAL INTEGRATION STAND

PROJECT:
CRISTAL
CAD MODEL



CUSTOMER: AIRBUS GERMANY

FEM MODEL



LIFTING DEVICE

PROJECT:
CRISTAL



CUSTOMER: AIRBUS GERMANY

MAIN FEATURES:

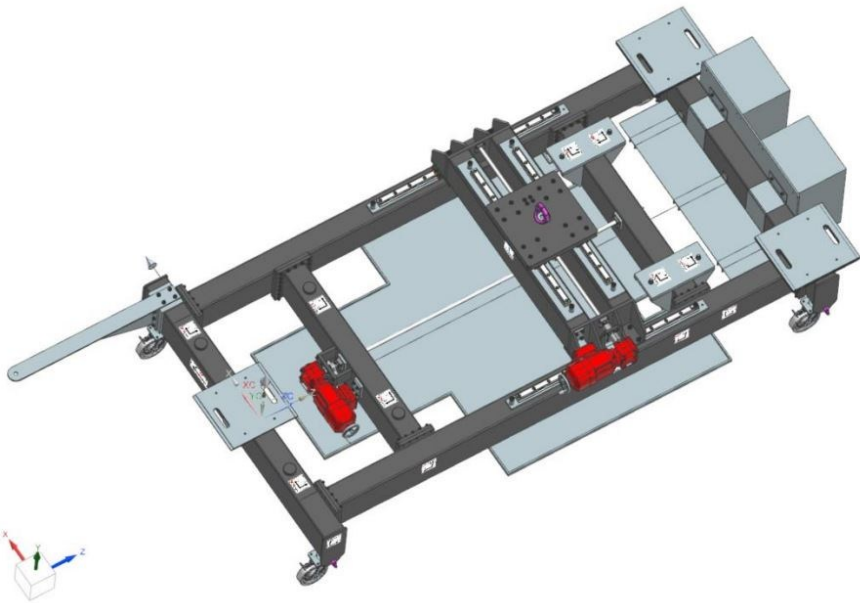
- Atex compliant
- Fully motorized along both axis
- Designed to be used during the integration phases for the Cristal s/c in vertical and horizontal position
- SWL: 2300 kg
- Proof tested: 4600 kg
- Iso 8 clean room level



Ongoing Mechanical Ground Support Equipment contracts

CRISTAL operational MGSE

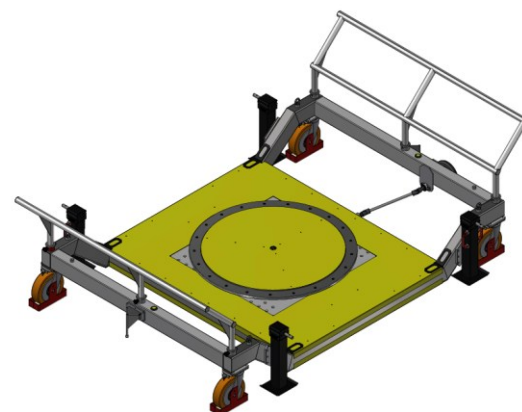
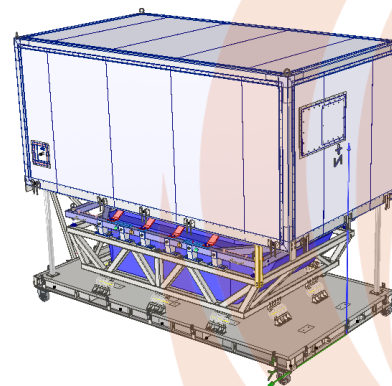
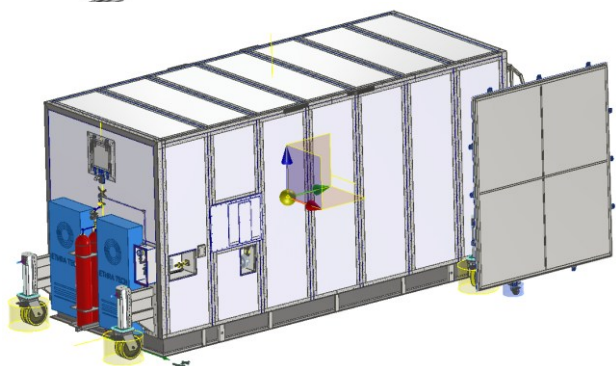
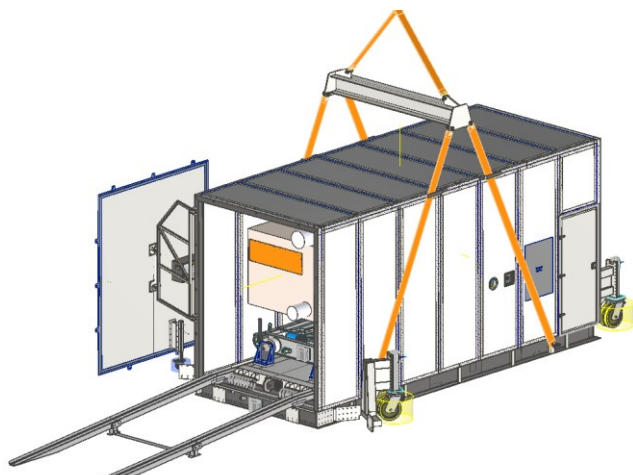
Airbus Defence & Space, DE (Friederishafen)



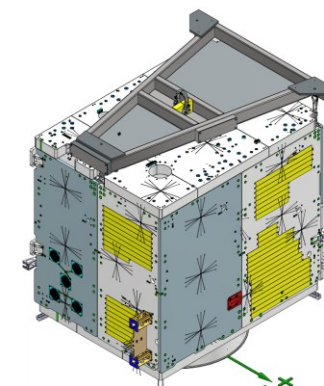
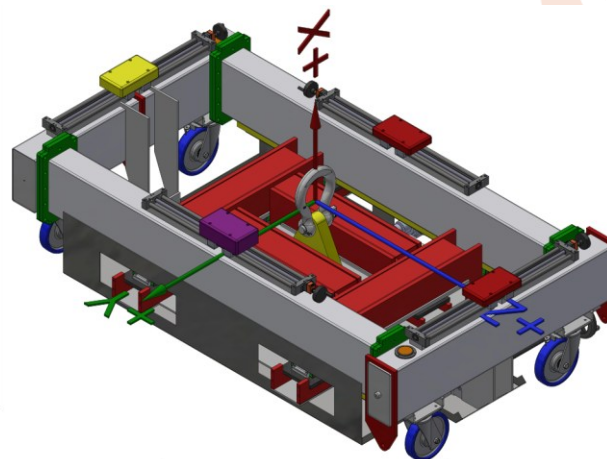
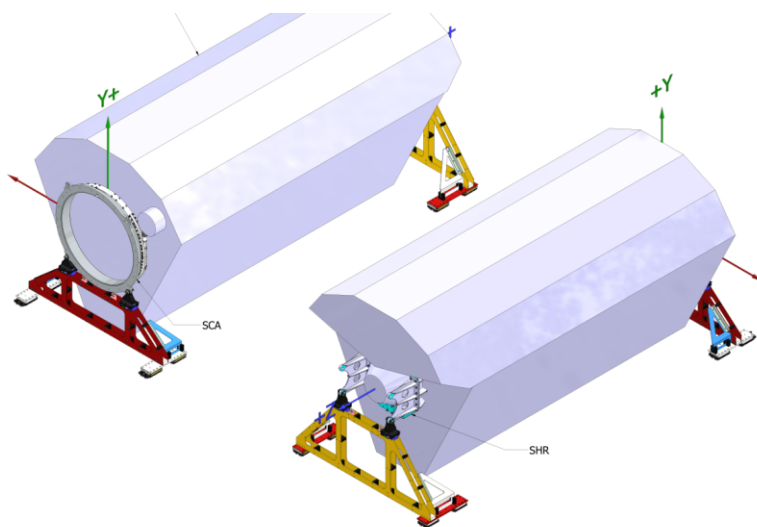
Lifting Device (motorized)



On going project...



On going project...



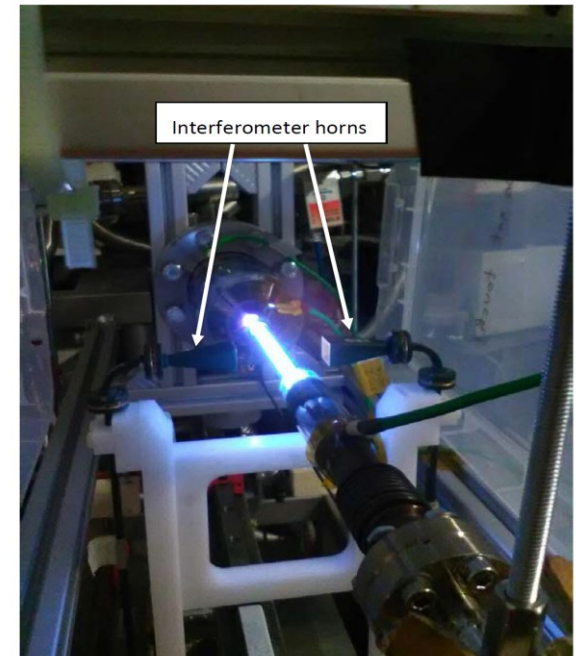
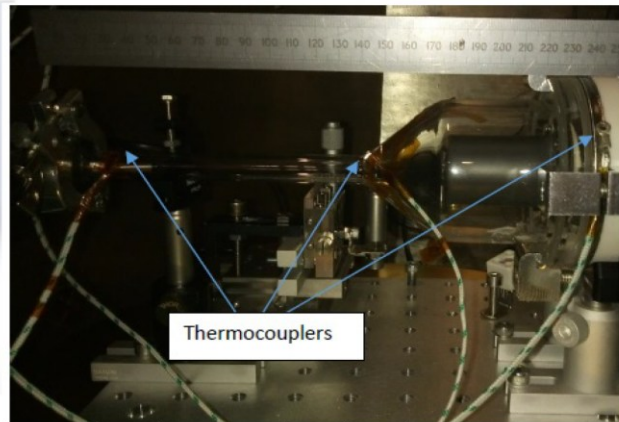
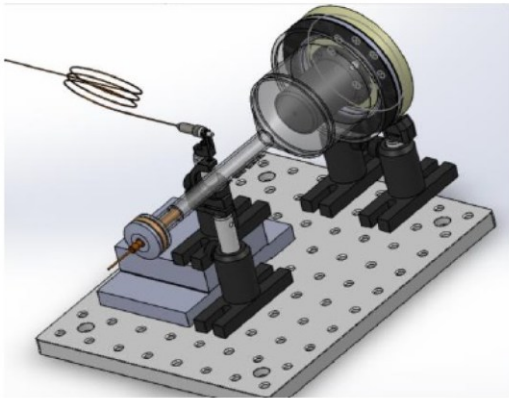
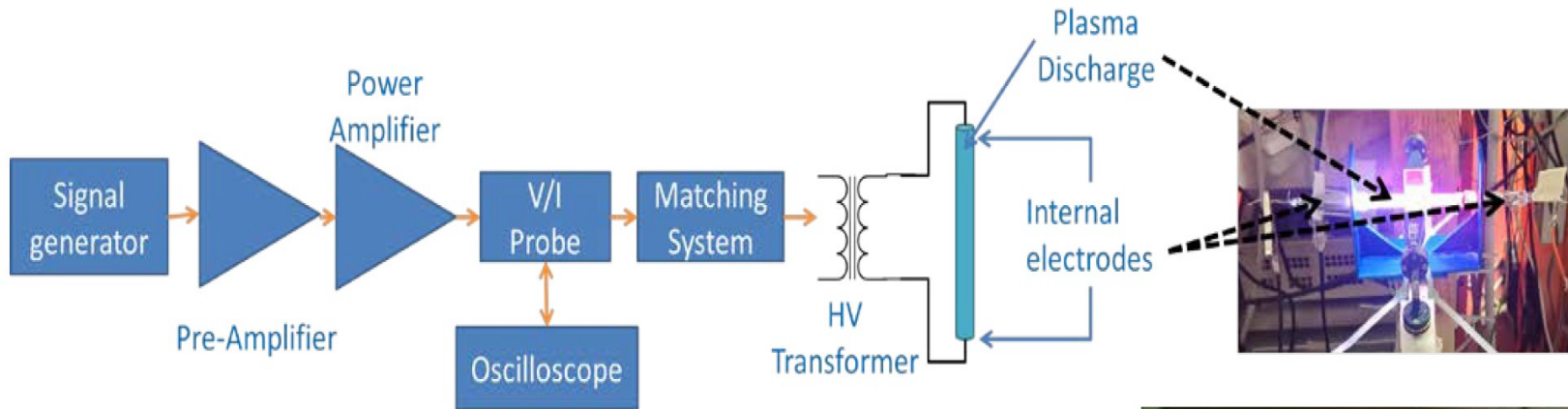
Ongoing RTD Projects

- **H2020-eUMaP** – *Development of Utilities Management Platform for the case of Quarantine and Lockdown.* (www.eumap-project.eu)
- **H2020-EYE** – *Economy bY space. Monitoring economic trend under crisis situations including the spread of Covid-19 pandemic using space assets.* (www.economy-by-space.eu)
- **HORIZON-MSCA-2021-SE-01-01-ERA4CH** – *Earthquake Risk plAtform For european cities Cultural Heritage protection.*
- **Legge 808/85 – Bando 2019 – Progetto ANEMONE** - *ANtEnna Metamateriale OriENtabile Elettronicamente – Cofunded by Italian Ministry of Economic Development (MISE)*
- **HORIZON-EIC-2022-PATHFINDEROPEN-01-01 PULSE** – *Plasma reconfigurable metasurface technologies.* (www.pulse-pathfinder.eu)
- **METEORITE (PNRR)** – X-band metamaterial lens.
- **SMART (PNRR)** – Ku band metamaterial lens.

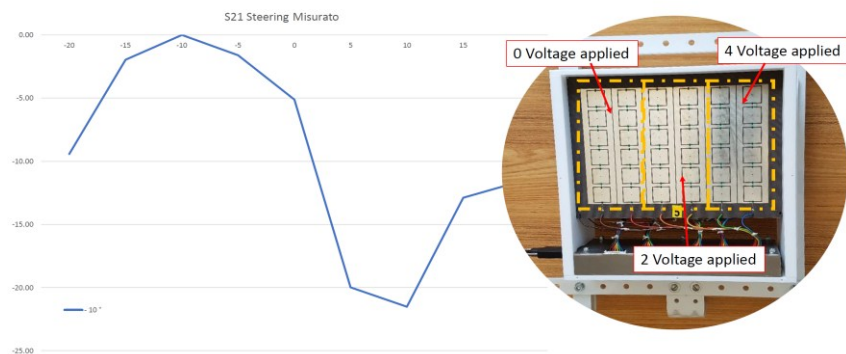
New RTD & engineering Projects

- **Horizont Europe - DETECTOR** – *Development and demonstration of scientific instrumentation for Geology and Archaeology. GAP phase, 12 partners from Italy, Greece, Cyprus, Spain, Argentina, USA. KO 1st September 2025.*
- **ASI – MERLIN** – *Metamaterial lens and reflector for Ka/Ku bands in cooperation with University Roma3 and CNR-IMM Istituto per la Microelettronica e Microsistemi,. Contract signature. KO planned Mid July 2025.*
- **Telespazio – Lunar Communication and Navigation System (LCNS)** *Engineering support for on board software, EGSE and TT&C PDR data package documents. Order signed, KO planned June 2025.*
- **Elettronica – CORAL Steering Turret** – *Design and verification of a test system for missile air-to-air and ground-to-air aerial countermeasures. Order signed, KO planned in June 2025.*

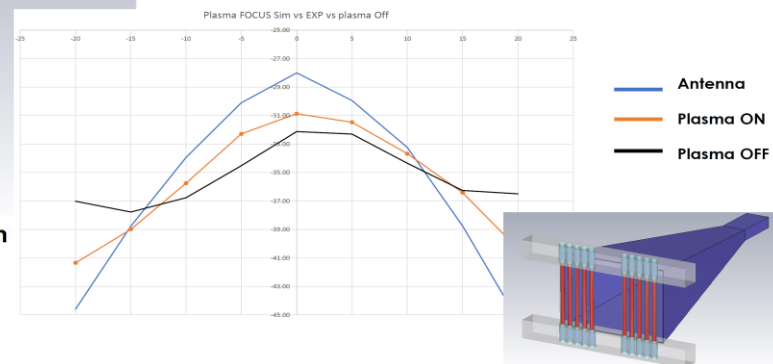
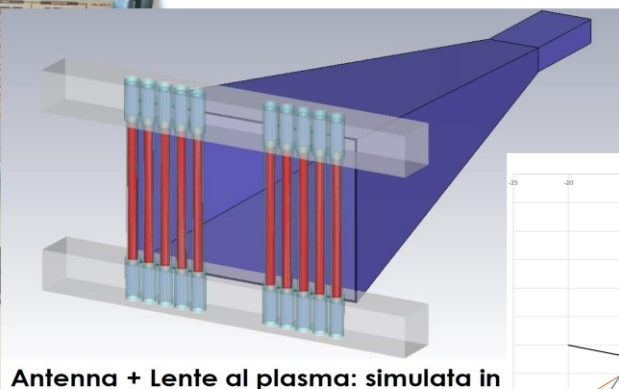
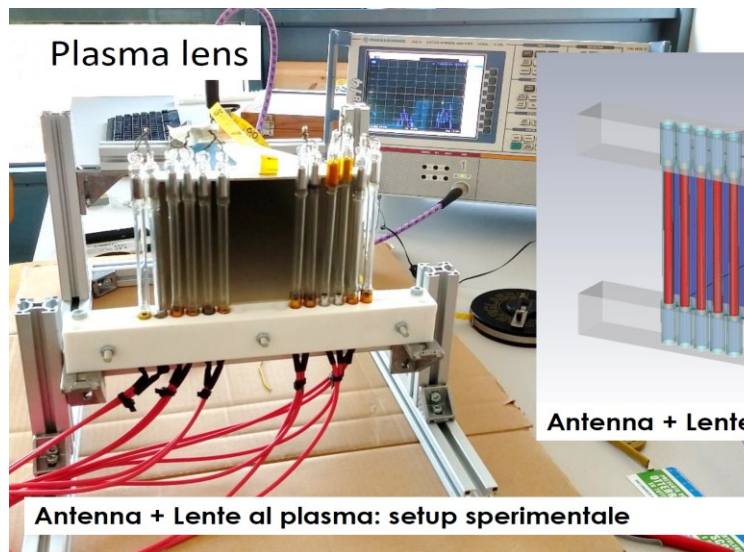
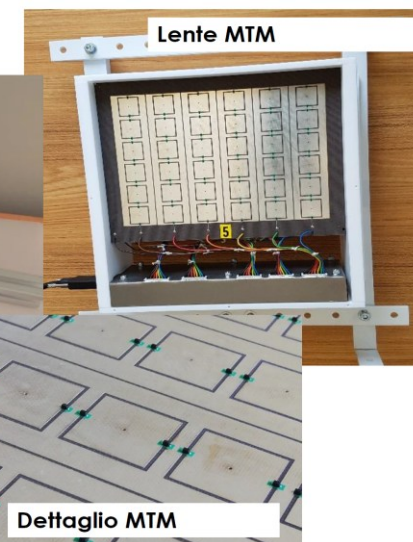
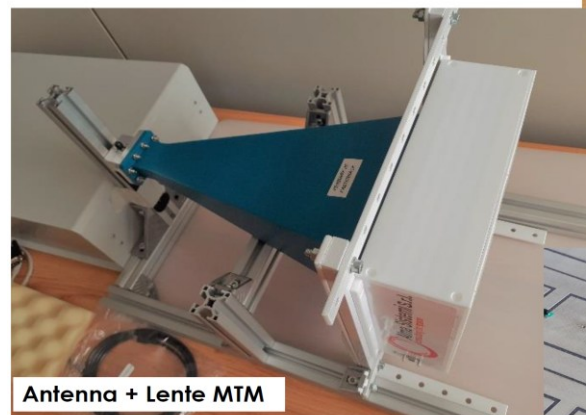
RTD Projects: PATH



RTD Projects: Metamaterial & Plasma Antenna

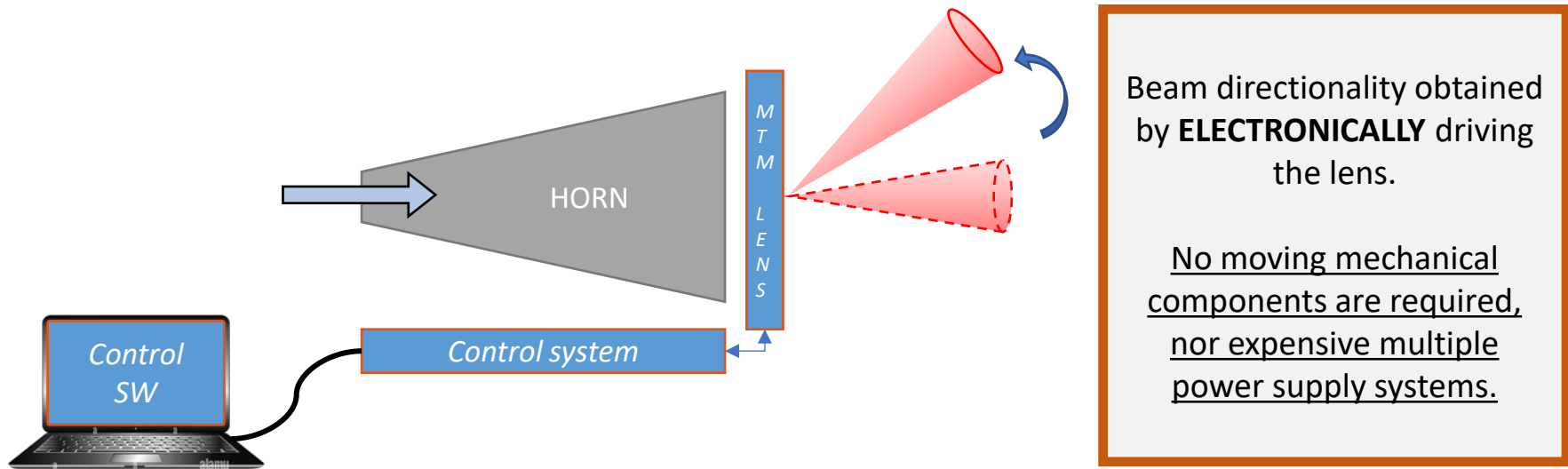


Metamaterials lens



Directive Antennas based on metasurface lens

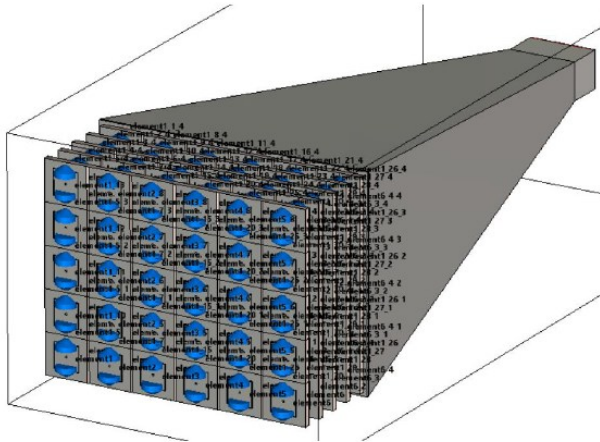
The goal of this R&D activity is to **design, manufacture** and **test MTM/MTS lens** capable of both transmitting and receiving in the Ku/K/Ka band. **Electronically controlled metasurface technology** is used to create the lens.



- Projects:
 - ANEMONE (L 808/85 – MISE) (Ku band: 12-18 GHz), technology varactor
 - METEORITE (PNRR) (X band: 7-12 GHz), technology pin-diodes
 - SMART (PNRR) (Ka band: 24-26 GHz), mixed technology varactor & pin-diodes
 - PULSE (Horizon Europe), (8-12 GHz) technology plasma elements and metasurfaces

Ongoing RTD Projects: ANEMONE

ANEMONE (12.4 – 18 GHz)



3D printed support

Diagramma di radiazione 3D 14.0 GHz
(steering 12°)

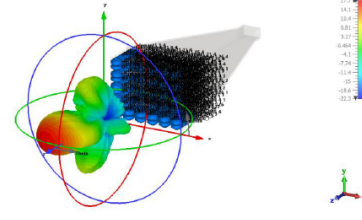
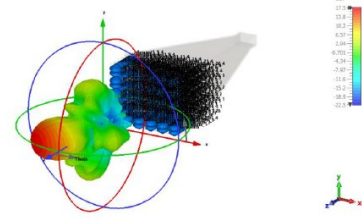
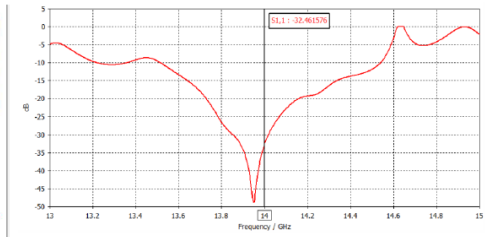


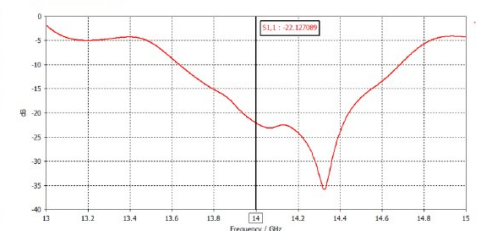
Diagramma di radiazione 3D 14.0 GHz
(steering 22°)



	1	2	3	4	5	6
Steering 10°	2.37	2.62	2.40	0.86	0.51	0.35
Steering 20°	2.08	1.45	0.66	0.45	0.41	2.49

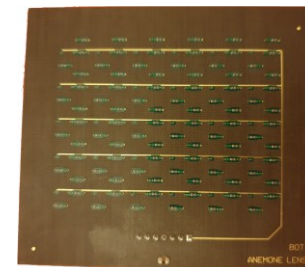
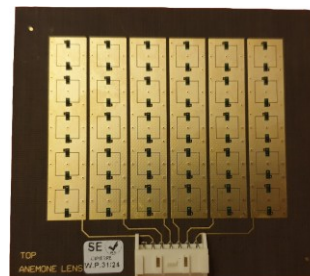
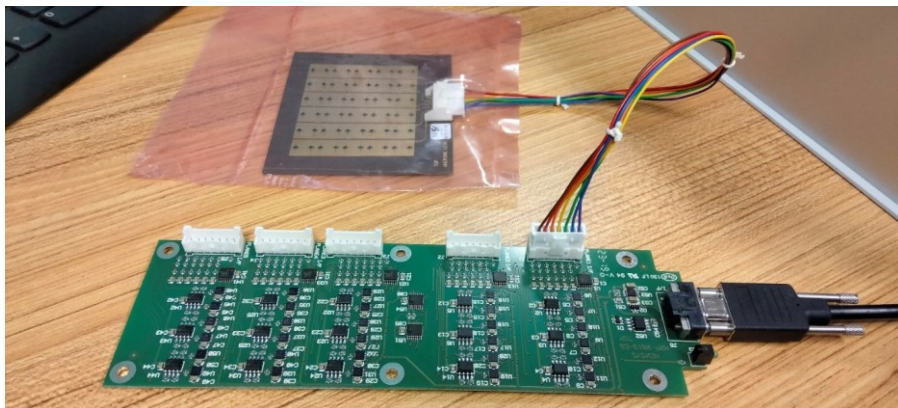


	1	2	3	4	5	6
Steering 10°	2.37	2.62	2.40	0.86	0.51	0.35
Steering 20°	2.08	1.45	0.66	0.45	0.41	2.49

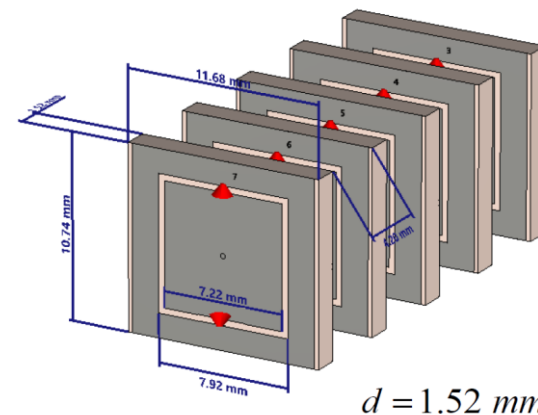
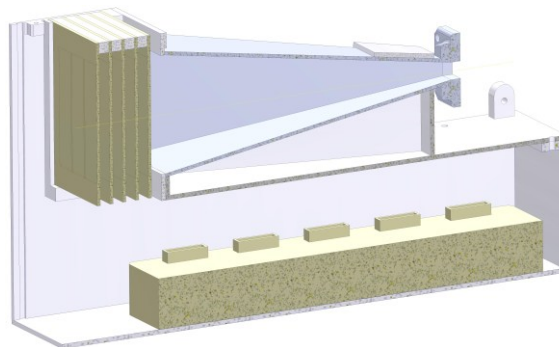
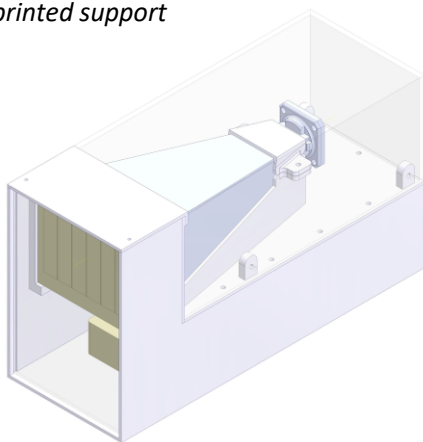


Ongoing RTD Projects: ANEMONE

ANEMONE (12.4 – 18 GHz)



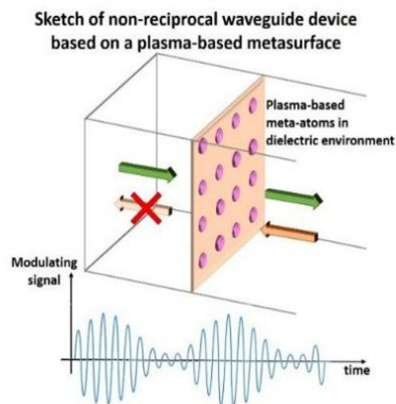
3D printed support



Ongoing RTD Projects: PULSE

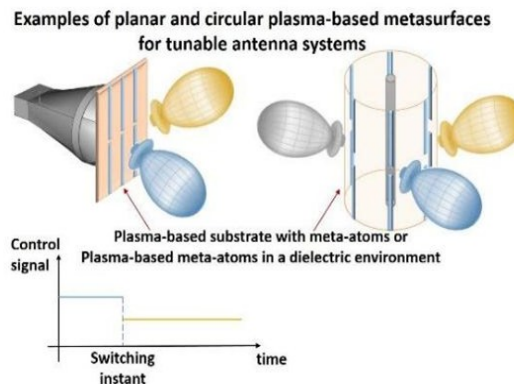
PULSE (8.2 – 12.4 GHz)

Application 1: Tunable lenses for antennas



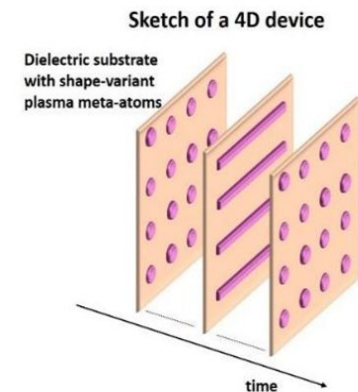
Approach: Plasma meta-atoms in dielectric environment/
plasma substrates with conventional meta-atoms
TRL: 2 to 4

Application 2: Non-reciprocal devices (magnet-less isolator for waveguides)



Approach: time-modulated plasma meta-atoms in dielectric environment
TRL: 2 to 4

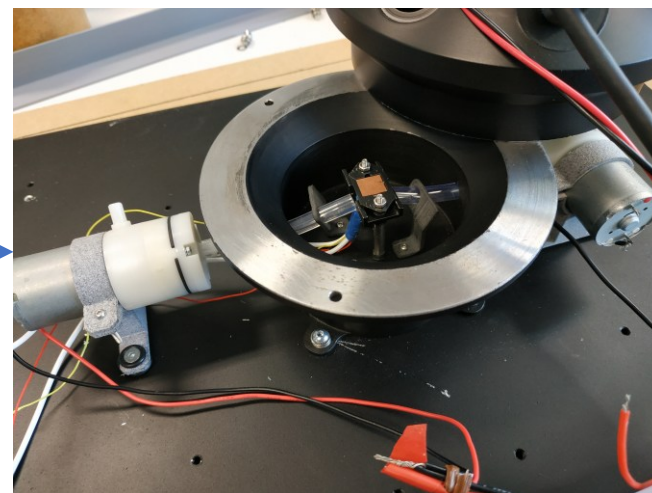
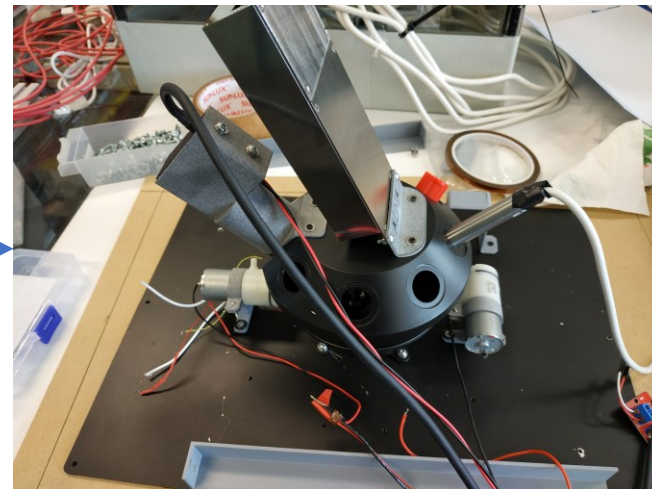
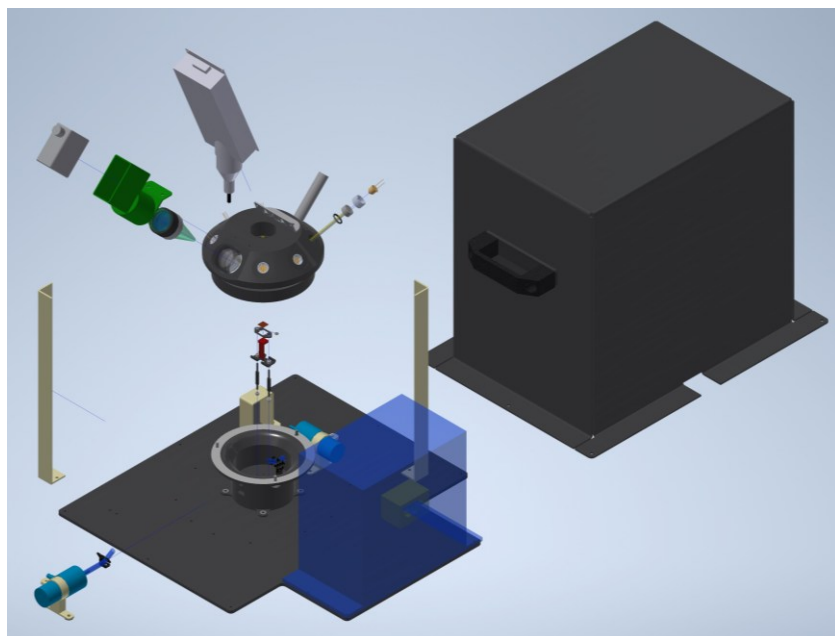
Application 3: 4D devices (multi/wideband device)



Approach: single time-variant meta-atom in dielectric environment with plasma shape-variant meta-atoms
TRL: 1 to 3

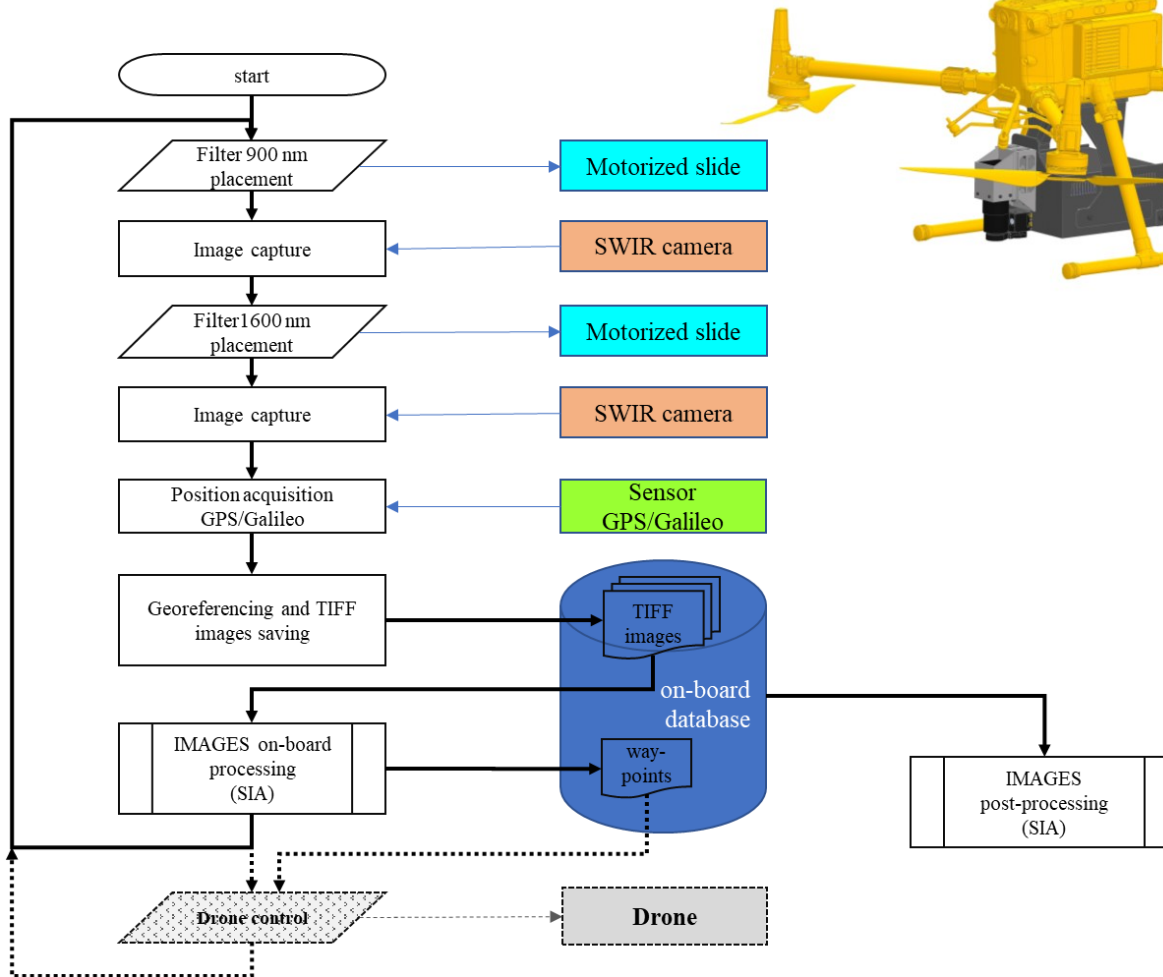
RTD Projects: IN TIME

Miniaturized luminescence dating instrument for Mars and Earth dating applications.



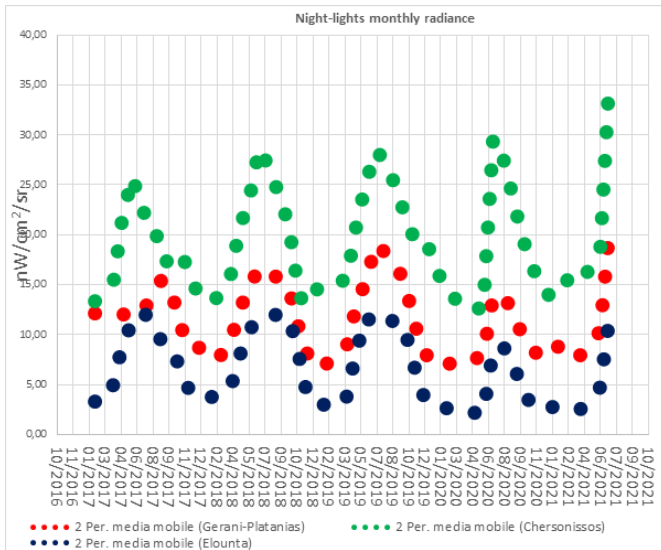
RTD Projects: PEDROS

Drone Sensor for forest fire investigation.



RTD Projects: EYE

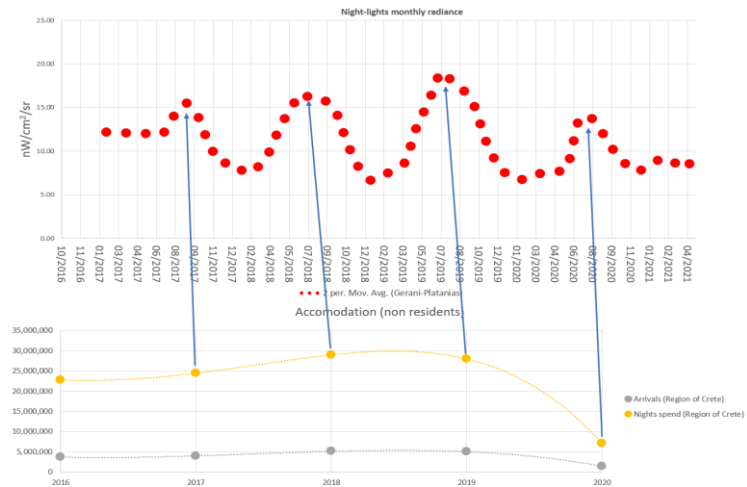
Automate image processing supported by artificial intelligence algorithms and forecasting models to assess the impact on the economy of the Covid-19 epidemic at different scale.



Night light recorded in different sites in Crete 2016-21.

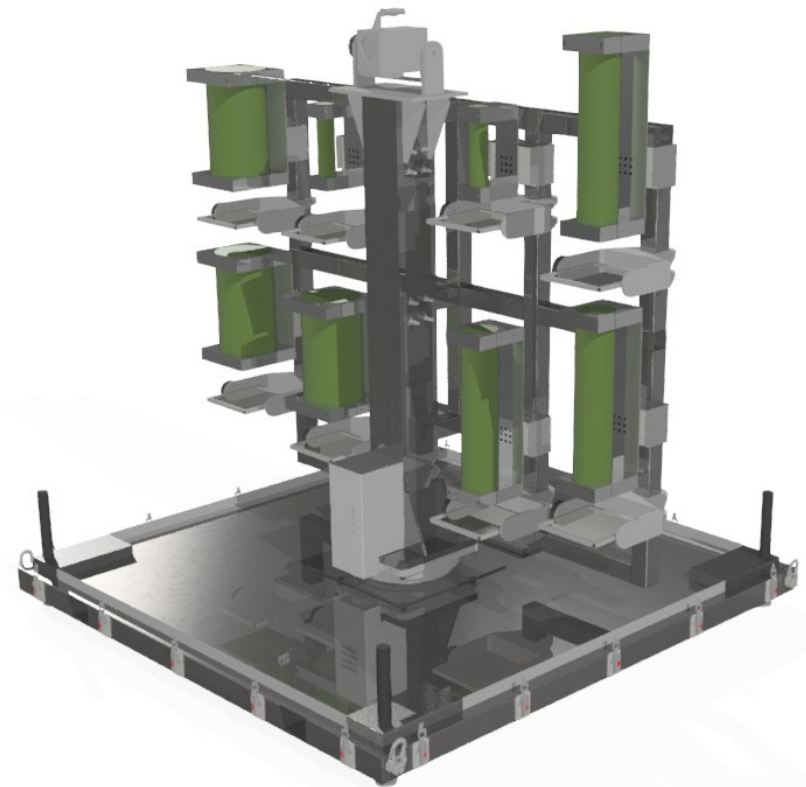
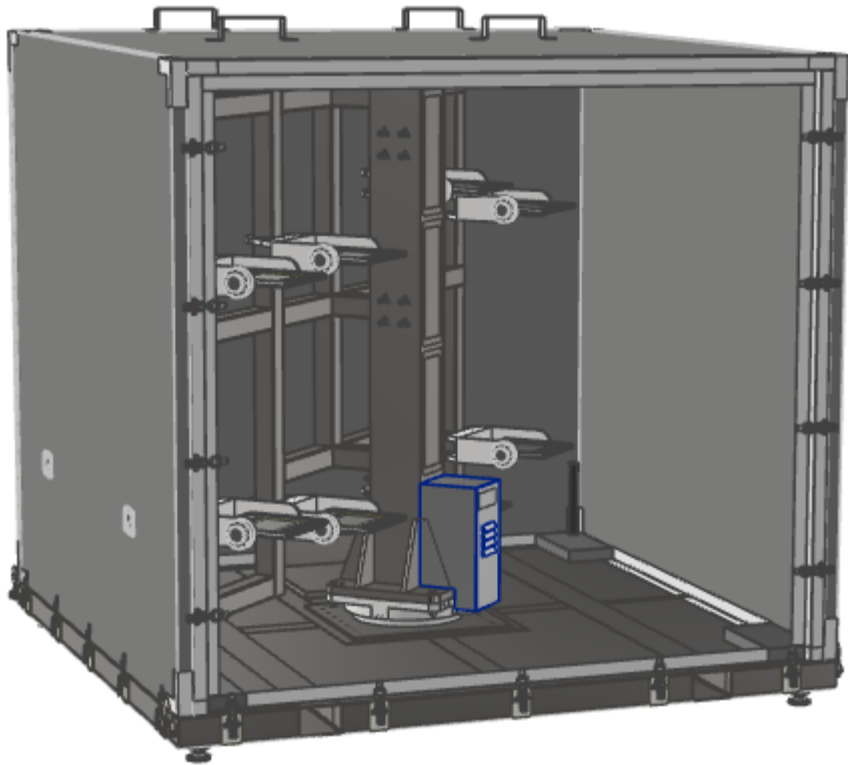


Example of a nightlights monthly composite raster for the city of Heraklion in Crete island.

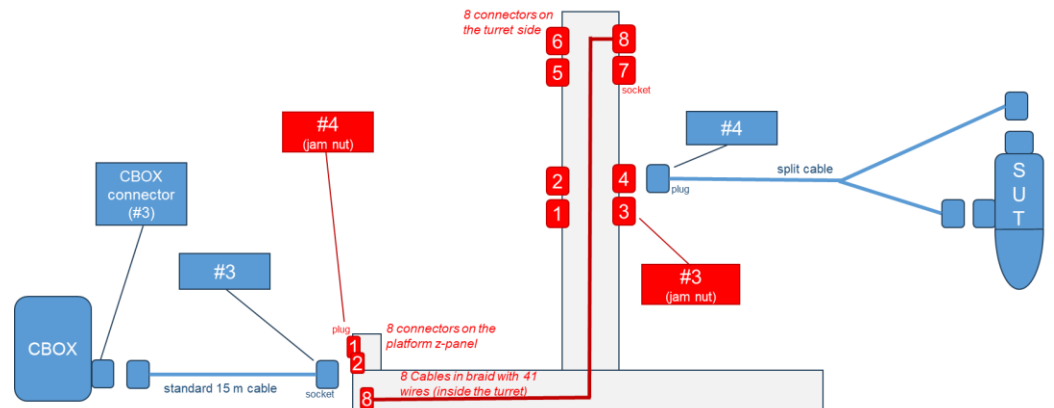
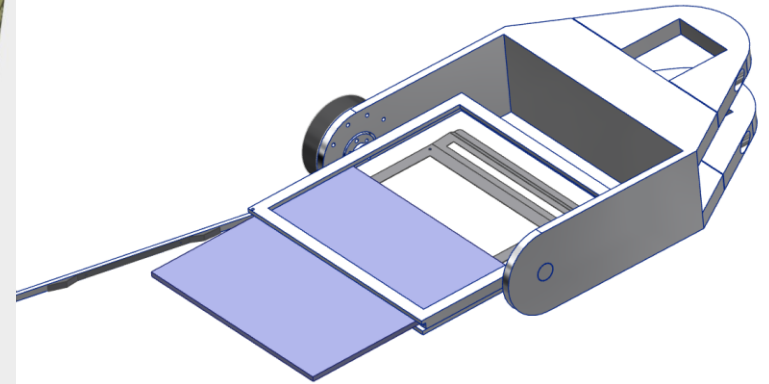
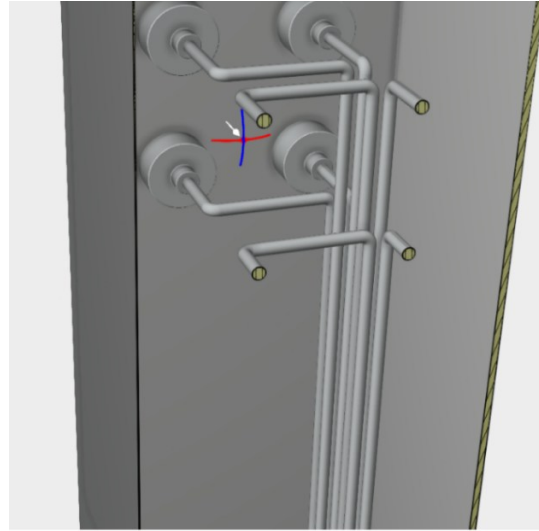
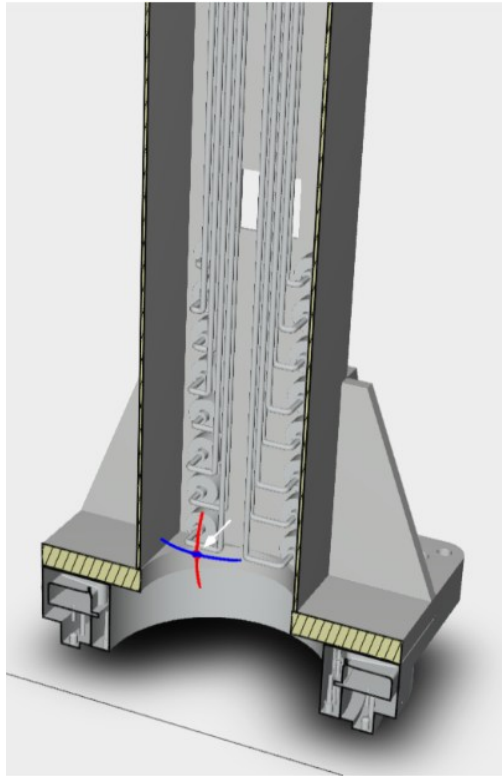


Yearly aggregated economic data related to accommodation and arrivals of non-residents for Crete compared with Night Light indicator of the same period.

Defence project: steering turret Coral



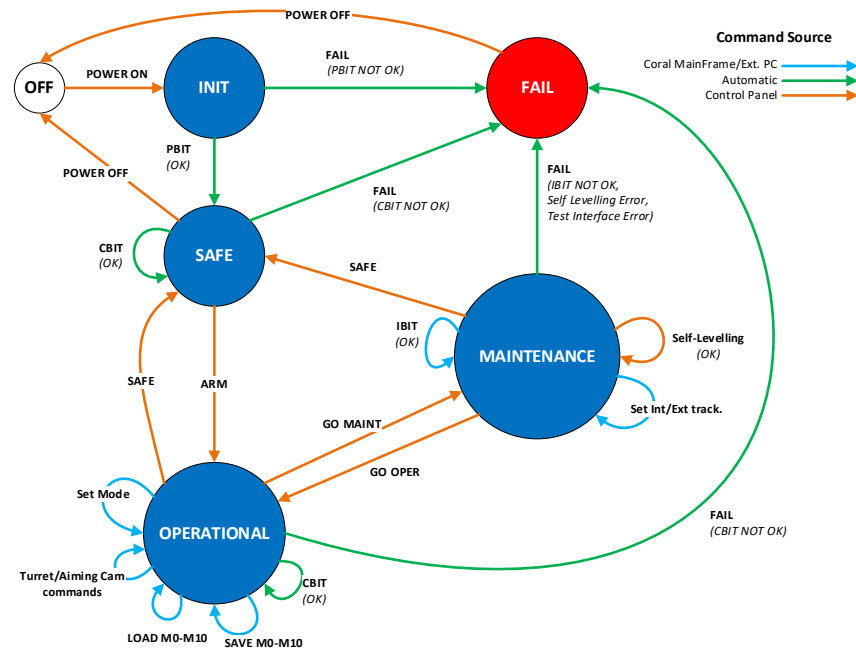
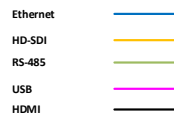
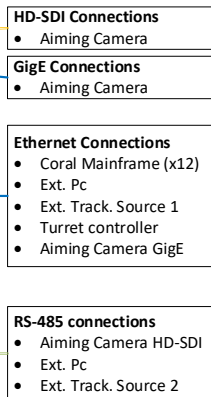
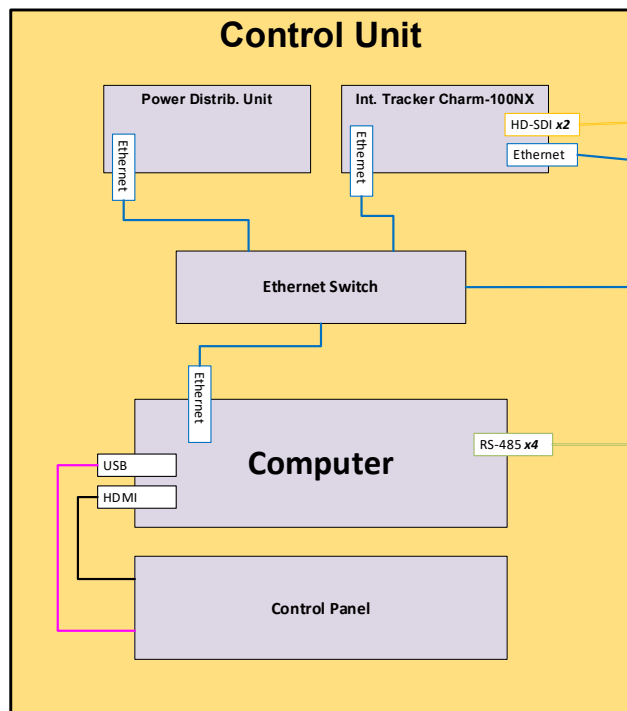
Defence project: steering turret Coral



#3_{in} - Souriau Series 851 07EC 20-41S 50

#4_{in} - Souriau Series 851 07EC 20-41P 50

Defence project: steering turret Coral



Customers



Contact info

Legal Premises:

Via Dei Nasturzi 4
00012 GUIDONIA (Rome)

Main offices:

1) Via Giacomo Peroni 400-402
Building 3B, 1st Floor
00131 Roma
Tel: +39 06 95550355
Fax: +39 0774 1920603

2) SS 17Bis Km 41.970
67100 Bazzano (AQ)

Contact:

Alessio Di Iorio (CEO)

Tel +39 335 6317013 ,

E-mail: adi@alma-sistemi.com



Web site: www.alma-sistemi.com

E-mail: info@alma-sistemi.com