

Ghalam LLP

Joint venture

JSC NC KGS and Airbus Defense & Space.

Founded in 2010.

Main activities

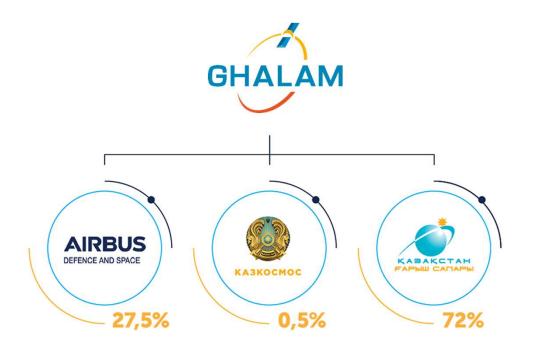
Systems engineering of spacecrafts

Production of spacecraft components: metal structural elements, cable products, screen-vacuum thermal insulation, solar sensors, electronics modules

Assembly, integration and testing of spacecraft weighing up to 6 tons and with a maximum size of 3x3x6 m

Production of spacecraft for scientific and technological purposes, remote sensing of the Earth and communications

Production of industrial products



Main divisions:

Special Design and Technology Bureau

Assembly, Integration and Tests complex for Spacecrafts (AITC SC)

Metalworking shop

Harness workshop

Multi-layers insulation workshop

Electronics manufacturing workshop

Production of solar sensors

3D printing site

Laboratory of Mechanical and Thermal Testing (TestLab)

Assembly and functional test site (Highbay)

Facility for measurement of massinertia properties (MPM)

Electromagnetic compatibility test site (EMC)

Thermal-vacuum test site

Vibration test site (VIB)

Compact antenna test range facility (CATR)

Acoustic test site (RAC)

Services provided:
Space industry

Special Design and Technology Bureau

- Custom development of space subsystems and components: nano- and micro-class;
- Design and development of Earth remote sensing systems: design, assembly, testing of spacecraft service platforms in classes from 3 to 800 kg;
- Development of on-board control systems, software, power supply systems for special purposes;
- Design and development of high precision opto-mechanical instruments and systems for astronomical, space and military applications;
- Custom development of ground segments based on SDR software-defined radio system.







Precision mechanics department:
Metalworking shop

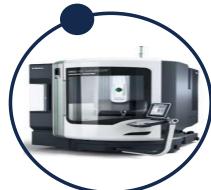
• DMU85 milling machining center;

- DMF 180 milling machining center;
- CTX 800 turning center;
- CTX beta 2000 turning-milling center;
- Mitutoyo CRYSTA Apex 9206.

Certified workshop

The latest equipment









5-axis processing

Measurements on 5 axes



Harness workshop

Harness production includes:

- cable cutting
- soldering
- crimp contact and connectors
- cable laying on the layout
- electrical tests
- quality control checks

Cable cutting machine Laselec MRO-200

Scope:
Space system,
ground
equipment,
aviation and
transport











Multi-layers insulation (MLI)

Work on the production of MLI to ensure the necessary temperature conditions of the spacecraft include:

- cutting
- packing
- edging
- installation Velcro technology
- installation of grounding system
- quality control checks

Orders for global projects: NEOSAT, **ONEWEB**



Electronics manufacturing workshop

The electronics workshop is designed to manufacturing, assembly and testing electronic productions. Electronics manufacturing include:

- applying solder paste
- installation of SMD components
- · melting of solder paste
- wave soldering of TNT components
- washing / cleaning the PCB
- automatic optical inspection
- repair of electronic components
- optional x-ray
- quality control checks

Scope of application: space systems, ground equipment, aviation and transport





Production of solar sensors

The production site of solar sensors is designed to assemble the sensor which ensures the satellite orientation in safe mode.

Solar sensors production include following operations:

- · harness system configuration
- electrical and mechanical installation
- mechanical coating
- gluing elements, applying varnish
- quality control checks





3D printing site

The system works
with any highquality powder
metal with a
melting point of up
to 3500 ° C

- Designed for the manufacture of various parts of high quality metal with complex geometry and high quality in terms of fidelity
- The printing process uses the technology of additive laser melting of reactive and non-reactive type powder raw materials

Module performance: build from 2 to 20 cm³/ h

Laser power: 400 W

The system is equipped with a quality control module.





Laboratory of Mechanical and Thermal Testing (TestLab)

Test Lab designed to conduct full environmental tests for small spacecraft and industrial or military products up to 100 kg.

Testlab includes the following test sites:

- Thermovacuum chamber ACS HVT 400-60100 MC
- Climatic chamber Excal 4024-HE
- Vibration system V8-440 HBT600Combo
- Mass Measurement Equipment Schenck type M3



Assembly and functional test site (Highbay)

Satellite Assembly, Integration & Tests facilities

- Sizes: 21 × 72 × 13 m
- Cleanliness Class: ISO 8

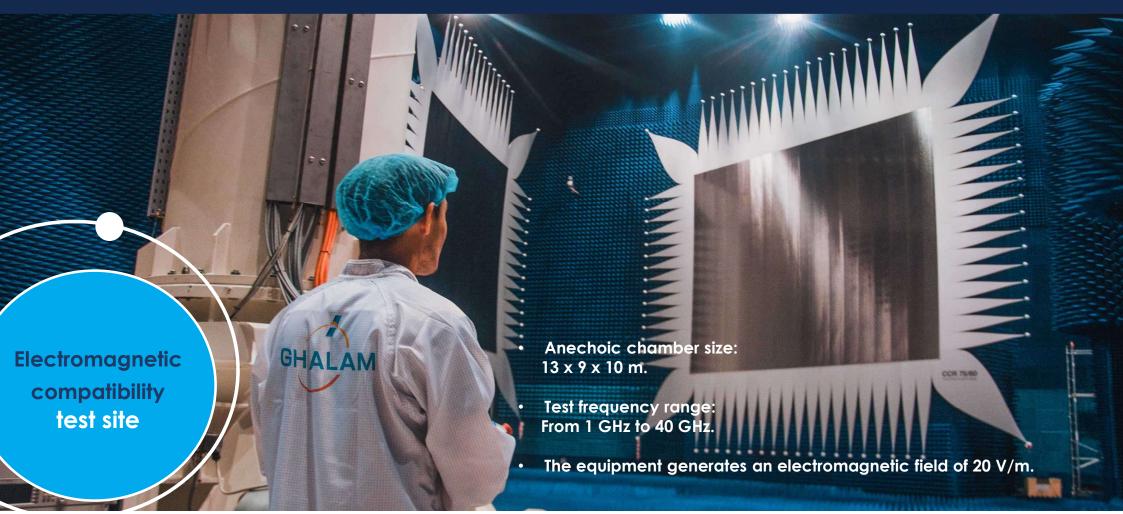
Measurement range: up to 3600 kg (6000 kg with L-adapter)

- Maximum turnover moment: > 1500 Nm
- Maximum tilting moment: > 4000 Nm
- Maximum center of gravity height: 3400 mm.

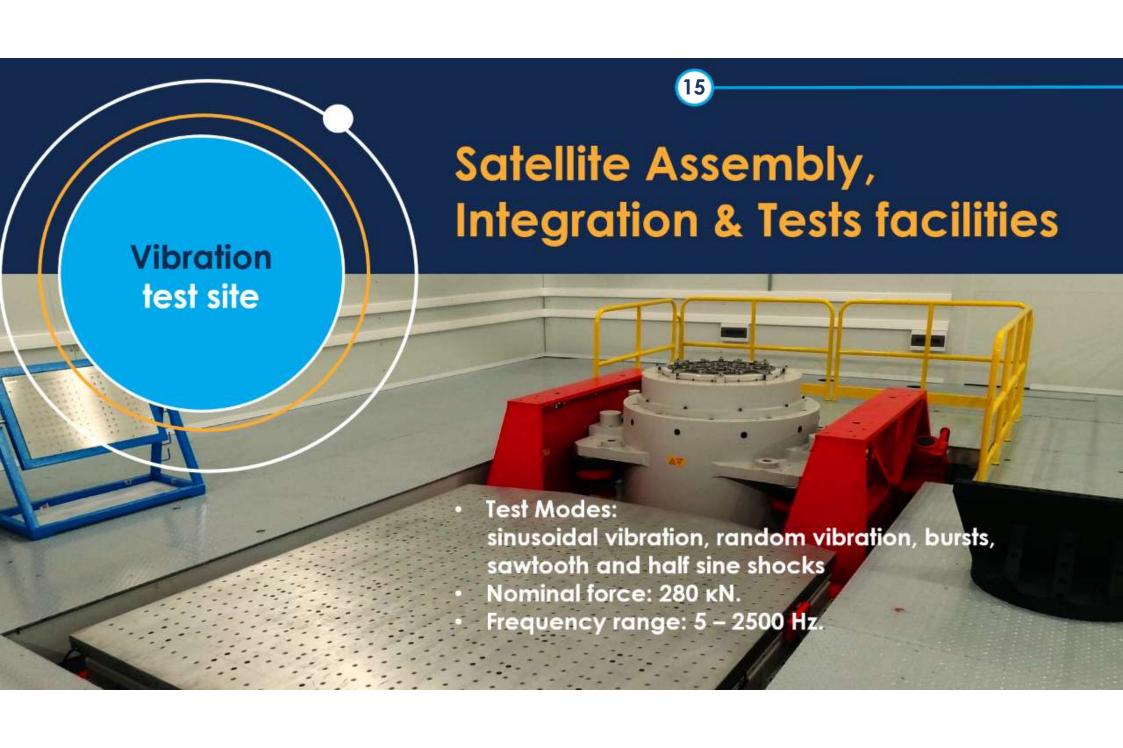
Site of
Measurement of
inertial mass
characteristics of
spacecraft

Satellite Assembly, Integration & Tests facilities

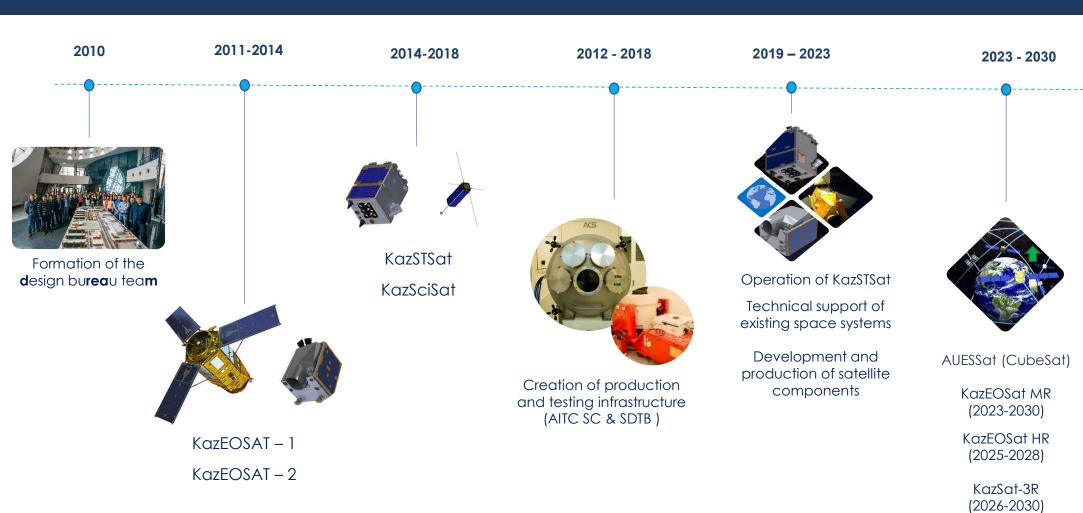
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EXPERIENCE AND PLANS IN AEROSPACE INDUSTRY



Our strengths

- Specialists trained in Airbus, Latelec, Cetim, Laroche, DMG MORI, SSTL and other leading European enterprises.
- Certified supplier of satellite components for Airbus.
- Production sites equipped with the latest high-tech equipment.
- Internal processes certified according to ISO 9001, ECSS, Airbus standards.











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