



Mission Analysis

GAUSS Srl, born in 1990 as a University laboratory of Astrodynamics, continues its research in this valuable field, in partnership with renowned professors and scientists from all over the world, as the Company vision is to continually push forward and implement into real-life missions the innovative ideas emerged from international micro and nano-satellite community.

Based on the experience gained in over twenty years in this sector, GAUSS offers consultancy for mission analysis to clients that intend to build a satellite (micro, pico or nano) or a satellite constellation.

A feasibility study allows defining the mission's planning, to make a preliminary assessment of its costs and to analyze the risks at systems and subsystems levels.

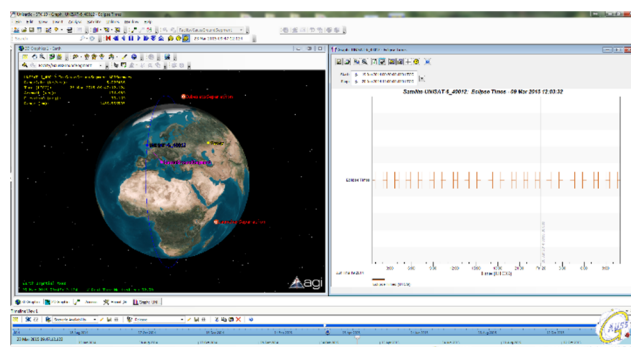
Complete Mission Design

In order to design a space mission there are many elements that should be taken into account.

GAUSS services include the complete design of a specific mission, based on the requirements of the client. Company engineers will work with the client personnel to understand the needs for the mission, in order to find the optimal solutions in terms of orbit, launcher choice, number of satellites, subsystems and payloads for the platform to accomplish the mission goals.

Every aspect of the mission is simulated, whether it is the evolution of orbit in the mission lifetime, the attitude dynamics of the platform, the RF coverage of the boarded communication systems, link and power budgets for accurate selection of relative subsystems, space debris assessment and active measures to comply with international regulations.

An essential part of the mission design is the risks mitigation, in terms of platform lifetime, based on an overall system quality control.



Typical mission design is divided into these WPs:

- Preliminary mission analysis;
- Simulation of performances, masses and volume, power, payload etc.;
- Reliable planning of the system components;
- Applicability tests (AIT Assembly Integration and Testing activities analysis);
- In-orbit phase (first acquisition, health check, nominal operations);
- After the mission accomplishment, creation of a report with all relevant data, to learn best practices for future missions.

A preliminary mission analysis would include:

- Feasibility study of the concept mission;
- Preliminary requirements for the mission: power, thermal, mass, volume and link budgets;
- OBDH preliminary requirements, including storage, command and control analysis;
- Preliminary 3D model for internal disposition of the different elements of the satellite and masses;
- Preliminary in orbit mission planning;
- Identification and definition of the critical points of the mission for risk mitigation;
- Initial project plan definition;
- Space Debris Analysis.

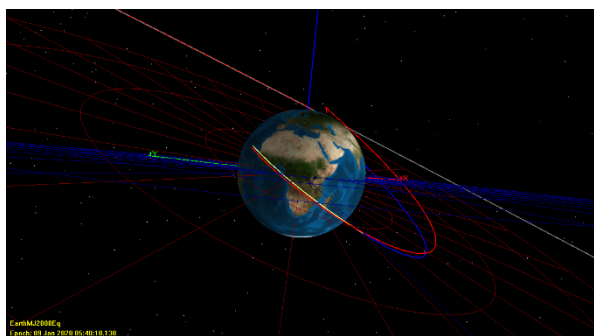


Astrodynamic Analysis

Company researchers have an extensive knowledge of typical LEO missions, constellation building as well as interplanetary objectives.

Many papers, several of which containing innovative solutions for micro and nano-satellites, have been published by GAUSS engineers on international scientific journals since the early 2000s.

Moreover, the Company collaborates with several key manufacturers of cutting-edge space technologies, such as miniaturized ADCS, OCS subsystems and low-thrust engines, which allow orbital and house-keeping maneuvers even for nano-platforms, where in the past such operations were restricted only to higher class satellites. Such abundance of available AOCS systems broaden the use of smaller satellites for more complicated missions, for which a careful mission analysis is an essential part.

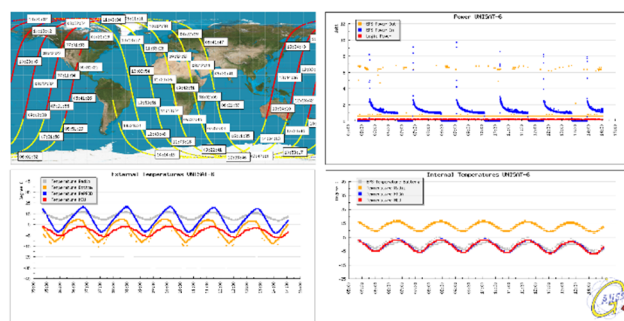


AIT Verification & Consulting

GAUSS may assist the customer in the last phases of the manufacturing and integration of the space platform, in order to verify that the planned mission requirements are met by the assembled hardware, and that system reliability is not hampered by quality deficiencies. GAUSS can help the client during the integration phases of the platform in the launcher, to assure any last minute operations are rigorously executed.

In-Orbit Operations

In-orbit operations allow to follow the goals of the defined mission, and to adjust parameters at subsystem level in order to maximize the mission achievements and lifetime, as to reduce overall mission costs and lower platform risks.



GAUSS personnel can provide an in-depth analysis of the near future orbital events with regard to the space platform, for subsequent mission planning and to avoid any potential harm to nominal operations.



These analyses shall include mission-critical aspects, like sun/shadow periods, high solar activity intervals, long-term temperature, attitude and RF power survey.

GAUSS can arrange automated solutions for satellite prediction, monitoring and tracking, in order to greatly reduce work force costs linked to the satellite orbital deployment.

