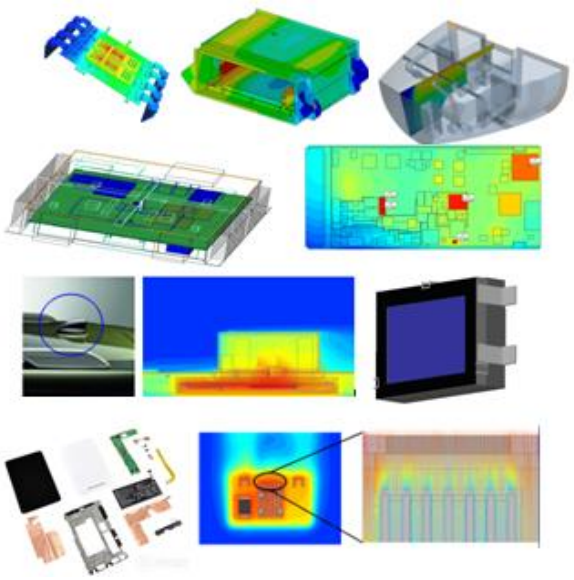
EPSILON
ALCEN

digital for physics

25 years of expertise in the field of thermal electronic systems



Reliability of on-board electronic equipment in harsh ambient environments and / or confined spaces

Modeling / Simulation
3D digital modeling / simulation, thermal and fluid architectures, definition of boundary conditions, solar radiation

Thermal management
Identification of hot spots,
Design of a thermal control, optimization of thermal and fluidic designs, system integration

Multi-physical analyzes
Thermal, fluidic, mechanical analyzes

Multi-level analyzes
From the electronic component to the rack

Thermal and fluid tests
Thermal and fluid measurements (thermocouples, IR camera, flowmeters, pressure sensors, etc.)

Training
Approved organization Electronic thermal training

The miniaturization of products, the race to increase performance and therefore the power consumed and, in parallel, an objective of mass reduction require an optimization of heat exchanges at all scales (from the elementary component to the electronic rack via electronic equipment).

For 25 years, EPSILON has participated in the design and optimization of electronic systems in harsh environments (aeronautics, space, transport, urban furniture) by a mixed approach, modeling-simulation and physical measurements.

For this, EPSILON calls upon unique know-how and proven technologies:

- Modeling of heat fluxes and simulation of system temperatures by different methods, the complexity of which will depend on the details requested (system modeling, 3D modeling, multi-physical approach, multi-level modeling);
- Innovative thermal control solutions in order to propose appropriate thermal architectures taking into account cost, mass and volume constraints;
- Thermal characterizations to improve the accuracy of the models;
- Tests to readjust the models and / or validate the behavior of the system.

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EPSILON-Groupe ALCEN

EPSILON is a company of the ALCEN group which meets different needs for the design and optimization of systems for large industrial sectors (energy, aeronautics, space, transport).

EPSILON has chosen expertise by cultivating certain specialties for many years while having the operational performance of an industrial and high-tech group like ALCEN. Its positioning in both "services" and "products" is unique in the field of engineering and allows its engineers to express all their talents.

EPSILON is developing in the fields of physics, scientific IT and products around three competence centers:

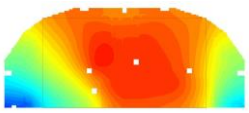
- EPSILON PHYSICS: dedicated to physical engineering,
- EPSILON IT: dedicated to industrial and scientific IT,
- EPSILON SYSTEM: dedicated to testing, designing and integrating test benches.

THEY TRUST US

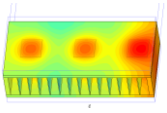
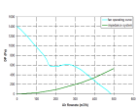
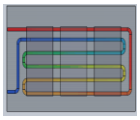
RENAULT, ACTIA, SAFRAN, ecrin SYSTEMS, SoftBank Robotics, AIRBUS GROUP, SUNNA DESIGN, THALES, ECA GROUP ELTA

EXAMPLES OF REFERENCES

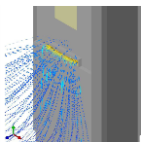
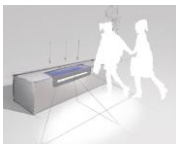
Electronic systems integration in the automotive field (antennas, navigation systems, dashboard, etc.)

Selection and optimization of **cooling technologies** for power electronics boxes

Optimization of thermal and fluid behavior of systems in external environment (charging stations and rental of electric vehicles, public lighting system)

Connected systems and the general public with on-board electronics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