

A Spanish SME in the space sector has developed a technology for Thermally Enhanced Additively Manufactured Structures (THEAMS) and is looking for partners to test and implement THEAMS in satellites

Summary

Profile type	Company's country	POD reference
Technology offer	Spain	TOES20240913015
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement with technical assistance Research and development cooperation agreement Investment agreement	• World
Contact Person	Term of validity	Last update
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General Information

Short summary

A Spanish SME in the space sector has developed a technology to manufacture topologically optimized aluminum structures, balancing mechanical properties and mass. These structures integrate thermal devices, achieving dual optimization of thermal and mechanical performance.

The SME is looking for technical partners or pioneers customers for their THEAMS (Thermally Enhanced Additively Manufactured Structures) to test and implement it in real life environments.

Full description

There is a clear trend towards compactness in satellites and other high added value devices.

This trend, combined with a more demanding scenario where high data processing rates are required, translates into a situation where the electronic components onboard the abovementioned devices are thermally stressed and therefore not delivering their full potential.

Current solutions are relying on traditional machining techniques which are not capable of dealing with the upcoming demands in terms of heat dissipation.

The technology developed by this Spanish SME addresses that high temperature problem by means of combining additive manufacturing and two-phase devices into single structures.

The company has a team of thermo-mechanical experts which have worked on some of the most relevant ESA missions over the past 10 years.

They are now looking for technological partners willing to test and implement their technology into the missions of the former (pioneer customers that can take advantages of the final developments stages of the technology to adequate them to their needs).

Advantages and innovations

- Mass reduction, thanks to topology optimization and the use of additive manufacturing: typically, 30% improvement or above.
 - Assembly, Integration and Testing effort reduction: no need to integrate the thermal solution on top of the original structure, but the hardware is delivered in a turnkey fashion.
 - Purely passive solution: no need to supply any power to make it work.
 - Enhanced cooling capabilities compared to those of the traditional structures: 20°C to 30°C decrease measured/calculated in typical space applications.
 - Economic benefits, which are linked to the temperature decrease that can be achieved thanks to the enhanced cooling capability: due to the link between the added value provided by a satellite – unit of data provided by a satellite – data processing capabilities of the satellite – power dissipated by the satellite – temperature reached on the electronic components of a satellite, a temperature reduction translates into a value increase. For a particular business case studied (telecommunications geostationary satellite), a 50% increase of value provided over its entire lifespan is expected if this technology is implemented.
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Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

IPR applied but not yet granted

IPR Notes

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**

IPR Notes

Partner Sought

Expected role of the partner

The profile of partners that is sought is in line with pioneer customers. These should provide:

- Requirements specifications
- Testing facilities
- Specific missions to perform IOD/IOV

Type of partnership

Commercial agreement with technical assistance

Research and development cooperation agreement

Investment agreement

Type and size of the partner

• **SME 50 - 249**

• **Big company**

Dissemination

Technology keywords

- **02009012 - Automotive engineering**
- **02011001 - Aeronautical technology / Avionics**
- **02011008 - Thermal insulation for space applications**

Targeted countries

- **World**

Market keywords

- **06003001 - Solar/thermal energy**
- **01006001 - Defence communications**
- **01005004 - Microwave and satellite components**

Sector groups involved

- **Aerospace and Defence**