

PROJECT

ICOPE

Innovative COoling system for embedded Power Electronics

Funding: European (Horizon 2020)

Duration: Jun 2017 - May 2020

Status: Complete

Total project cost: €943,508

EU contribution: €786,165



Call for proposal: H2020-CS2-CFP04-2016-02

[CORDIS RCN : 211044](#)

Objectives:

The main goal of this project is the design of innovative and efficient air cooled heat sinks to cool the power electronics modules that are a key component of the more electrical aircraft power management centre design. The new design is expected to be developed in two stages:

1. The first one should be covered by the implementation of Annealed Pyrolytic Graphite (APG) and folded brazed fins
2. In the second stage the integration of Metal Matrix Composites (MMC) is expected

The final target of the development is the reduction of weight of the whole power management system (bay integrating four heat sinks), while maintaining an efficient and reliable cooling.

Coming from advances in the power semiconductors field, by the use of high-temperature and more efficient materials such as Silicon Carbide (SiC) and Gallium Nitride (GAN), the thermal management strategy could take into consideration the implementation of air cooled solutions, which are expected to reduce the overall weight comparing to liquid or two-phase flow solutions, while also adding some benefits in terms of reliability and maintenance aspects.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Universitat Politecnica De Catalunya

Address:

Calle Jordi Girona 31
8034 Barcelona
Spain

Organisation Website:

<http://www.upc.edu>

EU Contribution: €209,300

Partner Organisations:

Aavid Thermacore Europe Limited

Address:

Wansbeck Business Park 12
Ashington
NE63 8QW
United Kingdom

Organisation Website:

<http://www.thermacore-europe.com>

EU Contribution: €511,648

Schunk Carbon Technology Gmbh**Address:**

AU 62
4822 BAD GOISERN
Austria

EU Contribution: €65,217

Technologies:

Aircraft propulsion
Air-oil engine cooling system

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other