

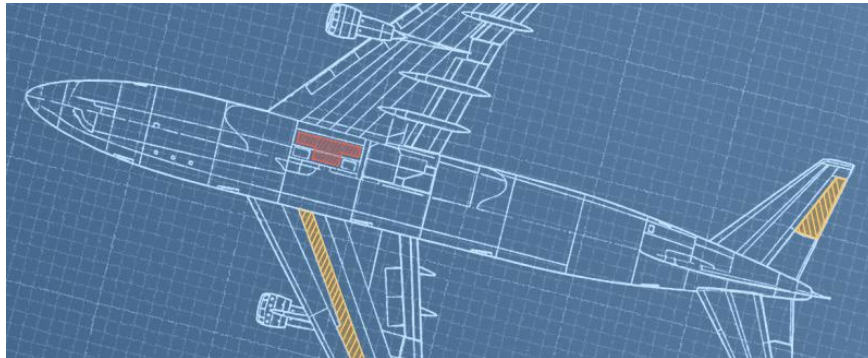


REMAP: REAL-TIME CONDITION-BASED MAINTENANCE FOR ADAPTIVE AIRCRAFT MAINTENANCE PLANNING

PROJECT OBJECTIVES

The H2020 ReMAP project will contribute to reinforce the European leadership in aeronautics by developing an open-source solution for aircraft maintenance, the Integrated Fleet Health Management (IFHM) system. By replacing fixed-interval inspections with adaptive condition-based interventions, ReMAP will have an estimated benefit to the European aviation of more than 700 million Euros per year. This is due to a direct decrease in maintenance costs, reduced unscheduled aircraft maintenance events, and increased aircraft availability. ReMAP's IFHM will be available for certification and reliable implementation on diverse aircraft systems and structures.

Based on the collaboration of thirteen industrial and academic European partners the objectives of the project are related to several domains: sensorization, electronics, modelling, algorithmic, statistics, data management, risk management ... The layout of all these activities are focused on driving concrete actions towards the certification of Condition Based Maintenance (CBM).



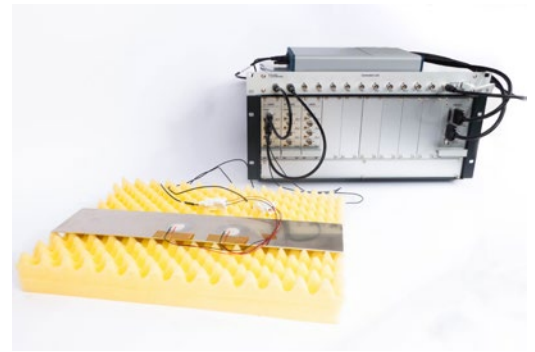
CEDRAT TECHNOLOGIES (CTEC) CONTRIBUTION

In the frame of ReMAP project, CTEC is responsible for managing the activities about the sensing techniques for Structural Health Monitoring (SHM) in partnership with ENSAM, SMARTEC and Patras University. It is anticipated that SHM is one key technology to make CBM possible.

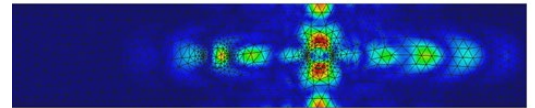
This will lead to a selection and development of relevant sensors for damage monitoring as well as the definition of accurate processes to integrate them on composite structures. In particular for CTEC that takes care of ultrasonic and low frequency acoustic SHM, this step includes theoretical studies about wave propagation, coupling, and transient electro-mechanical simulations. Reproducibility is checked by experimental testing. As a supplier CTEC is also asked for designing and producing an electronic device to allow the transducers to run in either pitch catch or pulse echo modes. CTEC Lamb Wave Detection System or LWDS is redefined according to this requirements to make a complete electronic device adapted for SHM applications. Reliability and reproducibility are the guidelines of CTEC activities and development.

PARTNERS LIST:

- **TU DELFT** - Technische Universiteit Delft
- **ATOS** - Atos Spain
- **CTEC** - Cedrat Technologies
- **ENSAM** - École Nationale Supérieure d'Arts et Métiers
- **EMBRAER** - Embraer Portugal S.A.
- **IPN** - Instituto Pedro Nunes
- **KLM** - Koninklijke Luchtvaart Maatschappij N.V.
- **ONERA** - Office National d'Études et de Recherches
Aerospaciales
- **OPTIMAL** - Optimal Structural Solutions
- **STEC** - Smartec
- **UTRCI** - United Technologies Research Centre Ireland
- **UC** - Universidade de Coimbra
- **UPAT** - University of Patras



*Test bench of Lamb wave emission and acquisition
with LWDS*



Wave propagation in composite plate, 100kHz

More information on [ReMAP website](#)



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