

Projet FP7 – TAUPE



Nom du projet	Transmissions in aircraft on unique path wires – TAUPE
Call	AAT-2007-4.2-04
Type de projet	Small or medium-scale focused research project
Rôle de la HES-SO	Participant
Chercheur impliqué	Marcos Rubinstein (HEIG-VD)
Participants	Labinal SA (France) – Coordinateur; Airbus operations sas (France); Diehl Aerospace gmbh (Germany); Hochschule Luzern (Switzerland); Haute Ecole Spécialisée de Suisse occidentale (Switzerland); ARTTIC (France); Ekis-romania s.r.l. (Romania); EADS deutschland gmbh (Germany); ASCOM (schweiz) ag (Switzerland); HORTEC b.v. (Netherlands); Hispano-suiza sa (France); Office national d'études et de recherches aérospatiales (France), Ecole polytechnique fédérale de Lausanne (Switzerland); Diseno de sistemas en Silicio s.a. (Spain); Université des sciences et technologies de Lille - Lille I (France), Thales avionics sa (France), Stichting nationaal Lucht- en ruimtevaartlaboratorium (Netherlands).
Budget global	5.45 millions euro / financement UE : 3.63 millions euro
Durée	36 mois, début le 1.9.2008
Résumé	<p>The technologies for power and data transmissions over unique path wires are strongly developed. The OPERA project made feasible High Speed/High Voltage transmissions for Power Line Communication. The U-Broad project demonstrated that Fast Ethernet (100 Mb/s) can be provided over existing telephone network cabling. But, even if these technologies have been rapidly exploited in the automotive sector, they cannot be implemented as- is in aircraft due to aeronautics-specific severe constraints (weight, space allocations and safety).</p> <p>From POA results, the All Electric Aircraft is replacing conventional systems (hydraulic and pneumatic) with electric systems. But it is currently facing a drastic issue: the increase of the number of wires (each electric system needs power supply and communication networks) with an impact on weight and space allocation. To save weight and space, the solution is to use a unique path wires to transmit power and data. But even if the related technologies are now mature, each technology has its own dedicated wires architecture. The aeronautic sector now needs innovative solutions to merge the architectures in one full avionics-shared electrical and numerical network. To enable the All Electric Aircraft, TAUPE will define a fully optimized avionic architecture for power and data transmission on unique path wires. From this optimized architecture, the related specifications will be provided (harness wiring and network equipments) and requirements for systems qualification delivered.</p>

The TAUPE results will address the ACARE SRA and the Workprogramme (the Cost Efficient Air Transport) considering (on the A320) the TAUPE's impact:

- weight reduction of 300 Kg approx (around 180 tonnes of fuel saved per day for the entire A320 fleet);
- easy and cost effective installation and retrofit with approx 30% of installation and retrofit time saved;
- cost effective maintenance time saved with approx 20% of maintenance time saved.

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<http://www.taupe-project.eu>