

# 1 PUBLISHABLE SUMMARY

The start date of the Eco-Design ITD activity is the 1<sup>st</sup> of October 2008. The main activities carried out on the 2013 period were as follows.

## ED 0 – Management

During the 2013 period management activities include preparation, organisation and holding of management meetings (SC, PMC) as defined in the MQP. Six SC meetings (from number 24 to 29), six EDA PMC meetings and EDS PMC meetings were held along the period.

A significant effort has been spent to support the CSJU on upper level management activity and elaboration and update of programme documentation:

- Participation to ITD Coordination meetings.
- Elaboration of updates of CS level documents such as CSMM and CSDP.

A support to the two 2013 CfP launch (CfP 14 to 15) and to the CSJU management and monitoring of ongoing projects has been carried out.

As previous year, effort was carried out for the revision of contractual and governance documentation for the last period 2013-2015 (e.g. CA, GA, AIP, etc...) following evolution of planning and technical evolutions.

Elaboration of the Half Year Assessment Report and holding of the Intermediate Progress Review held on the 1<sup>st</sup> of October, were carried out in accordance with the SoW.

A significant effort was spent on the management of budget to end of the project, covering partners' budget as well as members' budget. This led to the production of an update of Annex 1A and of Annex 1B for the last GAM covering period 2013-2015 beginning of 2013 and initiation of update end of 2013.

## EDA – Eco-Design for Airframe

The main EDA achievements or activities during the 2013 period are the following:

- In WP A.2.x, continuation and completion of the work carried out to mature EDA technologies to TRL 5; technology roadmaps updated when necessary; preparation and update of documents for the progress of the TRL levels and the technologies used for production of demonstrators.
- In WP A.2.x, release of the Synthesis Reports at T0+60 months (deliverables); activities are supported by CfP projects on going or launched on 2013 (for the latter, in cooperation with WP A.5/A.6).
- In WP A.3.1:
  - Elaboration of the second version of the aerospace LCA Data Base integrating innovative technologies developed within EDA.
  - Delivery of simplified LCA tools based on GaBi and Atalys, respectively ENDAMI (it **EN**vironmental **DA**ta **M**odels and **I**nterface development) and LEAF (too**L** for **E**co-designing **A**ir**F**rame).
  - In WP A.3.1.2, consolidation of reference parts list; realisation of eco-assessments on reference parts made of baseline technologies; release of the final deliverable (to be improved beginning of 2014).
- In WP A.3.2:
  - Elaboration of the progress reports #2 in WP A.3.2, A.3.2.1 and A.3.2.2;
  - Continuation of the work on extrapolation to industrial conditions for a selection of technologies in the fields of structural composites and structural metallics; activities are supported by CfP projects launched at Call #13 (2012-3) and #14 (2013-1).
- In WP A.3.3:

- Continuation of the work carried out to build eco-design guidelines: identification and collation of general definitions, information and requirements for:
  - Green Design,
  - Eco-Design,
  - Design for Environment (DfE),
  - Design for Recycling (DfR).
- Structure definition of the Eco-Design guideline with three different input types:
  - Information coming from WP A.3.1 (partially available at this stage),
  - Information coming from 2 specific CfP projects focused on Eco-Design Guidelines: NEMESIS and AiMeRe; as those CfP projects will not be finished before May 2014, WP A.3.3 has been extended until end of June 2014 (T0+69); final deliverable DA33-01 to WP A.3 has been postponed as well.
- In WP A.5/A.6:
  - Continuation of the demonstration preparation (WP A.5) activities depending on each demonstrator.
  - Start of demonstration (WP A.6) activities for most of the equipment demonstrators and airframe demonstrators.

Notes:

- Equipment demonstrator I3 (acoustic treatments to be integrated at the rear cone of air conditioning system fans) has been completed at the end of 2011.
- Manufacturing of equipment demonstrators A5 (nacelle composite component demonstrator) and H3 (engine parts & specimen manufactured with EMB & SLM processes) have been completed at the end of 2013. Some remaining tests have to be carried out on demonstrator A5 in 2014.
- Most of PDRs (Preliminary Design Reviews) and CDRs (Critical Design Reviews) have been passed, except for:
  - Airframe demonstrators: B1 subscale flat fuselage stiffened panels (for the NLC-FOKKER part), I2 mid-cabin cabinet and F3 A/C ventral Door;
  - Equipment Demonstrators: C2 and H1
- Demonstration activities are highly linked with technology development activities.
- In some cases, demonstration main steps (manufacturing, testing etc.) are carried out by Partner(s) in a CfP project, e.g.:
  - A3 stiffened conical skin
  - D1 green PU seating cushions for airliner
  - K1 shelf removal assembly

## **EDS – Eco-Design for Systems (Small Aircraft)**

The work performed in 2013 consisted in pursuing the common activities towards completion (WP S.1), refining the characterization of the business jet sub-systems architectures (WP S.2) and continuing the preparation of the bench related activities (WP S.3 and WP S.4).

In 2013, WP S.1 secured major progress in the activities related to the creation of the simulation models, and the tool chain demonstrator is now positioned for operational use in 2014 (WP S.1.1). Based on a finalized definition of the Generic Architecture, intense rig implementation activities took place in order to allow GA equipment integration on the ETB (WP S.1.3). And the activities pertaining to the development of the subsystems populating the architectures which will undergo tests (WP S.1.5) continued throughout 2013. In parallel, the modelling activities centered around the GA continued throughout 2013 (WP S.1.6).

The main activity within WP S.2 continued to be the characterization of the main sub-systems populating the Business Jet architecture candidates (WP S.2.3). In parallel, the development of the associated equipment items which populate the test architecture continued (WP S.2.4) in a solid pace. The modelling activities related to the Business Jet configuration also significantly progressed, most notably on the Thermal Model (WP S.2.5).

The WP S.3 (Electrical Test Bench) activities continued in 2013. The manufacturing operations continued (WP S.3.3) and the core test means have been delivered and integrated. The first integrations of Equipment Under Test have been performed in 2013 (WP S.3.4). The definition of the electrical tests was completed and came to closure on September 2013 (WP S.3.2). On the way to ETB validation, the first preparation tests have been performed to be ready for a start of the GA test campaign in March 2014 (WP S.3.5).

The WP S.4 (Thermal Test Bench) activities continued in 2013 with the finalization of the definition of the bench systems (WP S.4.1) and the thermal tests to be performed (WP S.4.2). The manufacturing of the thermal bench, its ancillaries and specific components came also to its end in 2013 (WP S.4.3) and the integration of the thermal bench components into the infrastructure of the Flight Test Facility saw major progress (WP S.4.4). The Thermal Tests and Validation activity (WP S.4.5) gradually started as test hardware was progressively made available and put in place.