



# PUBLISHABLE SUMMARY REPORT

**Grant Agreement number:** CS-GA-2009-267522

**Project acronym:** FATIGUE TEST

**Project title:** Fatigue test of sensor integrated CFRP aircraft panels with stiffeners

**Funding Scheme:** CleanSky

**Date of latest version of Annex I against which the assessment will be made:**

**Periodic report:** Final

**Period covered:** 1<sup>st</sup> October 2011 to 31<sup>st</sup> December 2013

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## 1 PUBLISHABLE SUMMARY

The main objective of the Fatigue test project, was to increase the understanding of composite aerostructures fatigue behaviour. To achieve this goal, an instrumented test panel was devised and tested under static and fatigue conditions.

The instrumentation in the panel was based on acoustic and fibre optic sensors provided by the Topic Leader. These had to be integrated within the panel laminate, which in case of the optic fibres proved to be a significant challenge.

A comprehensive study had to be performed, towards developing a manufacturing sequence which could guarantee a reliable integration of the optical fibres. These are extremely fragile and are easily damageable when demoulding the components.

After a series trials, a relatively reliable process was developed and the final test panel produced.

Following on the manufacturing of an appropriate test panel, the test campaign was initiated, associated with a comprehensive NDT inspection campaign of the various testing phases.

This campaign collected a significant amount of data that will be useful for future analysis, and to improve the knowledge of composites fatigue behaviour.

