

A350 S19.1 FATIGUE AND DAMAGE TOLERANCE CERTIFICATION

INTRODUCTION

ICEMM has participated in the Fatigue and Damage Tolerance analyses of the A350XWB S19.1 main components: Interface Fittings, APU Fittings and Frame 103 for Type Certification.

COMPLETED PROJECT

Client: Alestis Aerospace

Date: 2013-2014

- Fatigue and Damage Tolerance analyses of S19.1 main components: Interface Fittings, APU Fittings and Frame 103 for Type Certification.



Figure 1. General view of A350 S19.1

COMPLETED ACTIVITIES

- Fatigue & DT Spectrum Analysis
- Fatigue Life determination
- Crack Growth Analysis: analytical formulae and FE analysis
- Inspection Task determination
- Residual Strength calculation with Rcurve and K_{1c}
- Post-processing tools development with Python.
- Documentation.

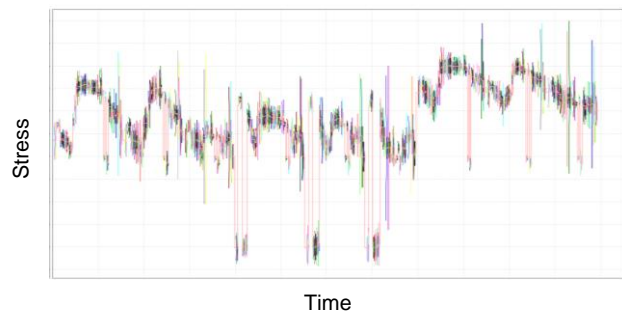


Figure 2. Fatigue Spectrum

TECHNOLOGY

Project has been calculated with ISAMI, based on Airbus methodologies. Finite Element Solver to obtain global stress states used has been NASTRAN and the pre/post processing has been carried out with PATRAN. Further investigation in crack growth has been studied with the Finite Element Solver tool ABAQUS version 6.12 Windows Platform and the pre/post processing has been carried out with ABAQUS CAE

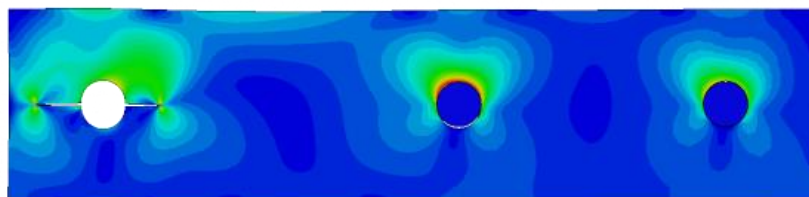


Figure 3. Crack growth analysis in a bolted plate