Full Scale Test of SSP 34m blade, edgewise loading LTT - Data Report 1

This report is a part of the research project “Eksperimentel vingeforskning: Strukturelle mekanismer i nutidens og fremtidens store vinger under kombineret last” where a 34m wind turbine blade from SSP-Technology A/S has been tested in edgewise direction (LTT). The applied load is 60% of an unrealistic extreme event, corresponding to 75% of a certificated extreme load. This report describes the background, the test set up, the tests and the results. For this project, a new solution has been used for the load application and the solution for the load application is described in this report as well. The blade has been submitted to thorough examination. More areas have been examined with DIC, both global and local deflections have been measured, and also 378 strain gauge measurements have been performed. Furthermore Acoustic Emission has been used in order to detect damage while testing new load areas. The global deflection is compared with results from a previous test and results from FEM analyses in order to validate the solution as to how the gravity load on the blade was handled. Furthermore, the DIC measurement and the displacement sensors measurements are compared in order to validate the results from the DIC measurements. The report includes the results from the test and a description of the measurement equipment and the data acquisition.

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