

**Brno University of Technology**  
Faculty of Information Technology

**Report No.: AWKFC 01.2017**

Report type: **Final research report for project**

## **Turbulence Simulation**

### **KFC230 Turbulence Simulation**

**Annotation:**

The summary report introduces the research on KFC230 Turbulence Simulation. The Faculty of Information Technology, Brno University of Technology operates a full motion aircraft simulator capable of performing precision simulations accounting for various atmospheric turbulence effects. The full motion simulator uses a continuous turbulence model implementation according to MIL-HDBK-1797.

**Pages:** 3

**Appendices:** 0

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An integral part of industrial research and development is an experimental validation of the designed element's ability to withstand the effects of atmospheric turbulence. The Faculty of Information Technology, Brno University of Technology operates a full motion aircraft simulator capable of performing precision simulations accounting for various atmospheric turbulence effects. The aircraft simulation framework contains a high fidelity nonlinear dynamic model which generates input signals for the washout motion control algorithm. Its precision has a direct impact on the perception of the overall simulation accuracy.

The full motion simulator uses a continuous turbulence model implementation according to MIL-HDBK-1797 standard. Based on the aircraft altitude, velocity, attitude, user setting of wind speed at 20ft (low altitude model) and probability of exceedance (high altitude model), computes the turbulence model respective wind contributions to the translational and rotational velocities of the aircraft. The user is allowed to set turbulence parameters according to the requested 3 levels of turbulence severity: light, moderate and severe.

Following tasks have been performed within the KFC230 Turbulence Simulation:

### #1 Test Preparation and Use of the Facilities Turbulence Simulator

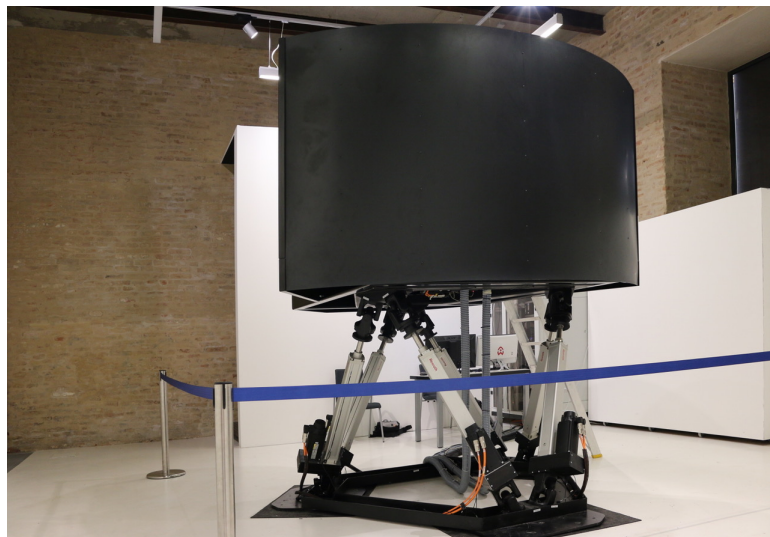


Figure 1 Full motion flight simulator for turbulence testing

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Hereby it is confirmed that on the 15<sup>th</sup> September 2017 the Supplier provided to the Buyer and the Buyer received and fully accepted following items:

Item	Description	Delivery Date
10	Test Prep and Use of the Facilities/Sim.	15/SEP/2017

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