

## **Approaches to alignment of airborne strapdown inertial navigation system of various accuracy classes on the moving base**

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*The paper focuses on methods of alignment of the strap-down inertial navigation system (SINS) on a moving base. A special feature of the methods is the direct estimation of the SINS errors in determining the horizontal accelerations of the aircraft relative to the corresponding signals of the Global Navigation Satellite System (GNSS). This approach allows us to reduce the time of the transient estimation process in comparison with the usual approach, when the Kalman filter is used. In addition, the volume of a priori information required for evaluation is reduced. The study gives the results of full-scale tests of systems of low and medium accuracy classes on the Mi-8 helicopter. Furthermore, the paper considers the issues of reducing the preflight preparation of the SINS due to the horizontal alignment on a fixed base, with the azimuthal alignment being carried out using the GNSS tracking angle and the subsequent evaluation of the drift angle from the SINS error measurements at speed relative to the GNSS.*

**Keywords:** SINS, alignment, INS/GNSS, navigation, AHRS

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