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Vibration Effects on Systematic and Accidental Errors for MEMS-based Inertial Measurement Units

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Abstract

The effects of environmental vibrations on the performances of a MEMS-based IMU are investigated; an innovative procedure is proposed to evaluate the sensing error variations with respect to its systematic and accidental components. The environmental vibration is simulated by means of the dynamic spectrum provided by standard normative for aeronautic applications. Results show that the vibration is able to modify the sensing performances of the IMU.

Keywords: *MEMS, environmental vibrations, reliability, environmental parameters, simulation, performance.*