

Testing of Accelerometer Transverse Sensitivity Using Elliptical Orbits

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Abstract: For appropriate application of an accelerometer, it is required to test the accurate magnitude and direction of its transverse sensitivity. The current testing methods usually adopt circular and linear orbits as acceleration inputs, both of which require accurate relative phases and amplitudes of the acceleration components. The elliptical orbit however is much easier to obtain. The method of determining the transverse sensitivity by an ellipse in proportion with the motion orbit and a straight line passing through the origin is investigated. The results of the elliptical orbit method match well with the current circular orbit method and have a good consistency at different shapes and orientations of elliptical orbits.

Keywords: Elliptical orbit; Transverse sensitivity; Sensitivity component; Accelerometer