



## **Positioning and rate table as a tool to characterize the broadband transfer function of rotational sensors**

Theo Laudat (1), Felix Bernauer (2), Damien Ponceau (1), Frederic Guattari (1), Joachim Wassermann (2), and Heiner Igel (2)

(1) iXblue, 34 Rue de la Croix de Fer, 78100 Saint-Germain-en-Laye, France (theo.laudat@ixblue.com), (2) Department für Geo- und Umweltwissenschaften, Ludwig-Maximilians Universität München, Theresienstraße 41, 80333 München, Germany

Portable, broadband and highly sensitive rotational seismometers are now commercially available. With these sensors currently implemented on monitoring networks and their data contributing to the geophysical processing, the metrology of rotational seismometers becomes more and more relevant.

The sensing elements within these rotational seismometers are highly sensitive gyroscopes. The metrology of such sensors is usually performed with positioning and rate tables.

A key contributor to data quality is the calibration of the frequency response of rotational sensors. This paper describes how a positioning and rate table can be used to measure the frequency response of such devices.

This paper introduces results of this metrology as performed on a commercially available rotational seismometer with an iXblue EVO-10 single-axis positioning and rate table in a laboratory environment.

This paper explains the capabilities and limitations of such method including amplitude range, frequency range and linearity capability. The contributors to these limitations such as servo-noise, encoder resolution or sine quality are also explained. The possibility to implement such calibration method on the field is discussed.