

## **Trillium 240 Outperforms STS-2: Results of Two Tests by Erhard Wielandt**

Nanometrics' Trillium 240 seismometers were tested twice at the Black Forest Observatory (BFO) in Germany by one of the world's leading experts in Seismometry Professor Erhard Wielandt from the Institute of Geophysics at the Stuttgart University. Wielandt compared the Trillium 240 very-broad-band seismometer with the longstanding industry gold standard STS-2 by a broad range of functional criteria and concluded that the Trillium 240 demonstrates superior performance in several key areas. The tests were conducted first in late 2005 and then again in early 2007, and the final results were announced in a report *Two tests of the Trillium 240 very-broad-band seismometer* on October 4, 2007.

A very broadband low noise seismometer, the Trillium 240 is the newest member of the [Trillium family of seismometers](#) designed and manufactured by Nanometrics Inc. Until the Trillium 240, the availability of seismometers in this class was very limited and traditionally constrained by supply. Initially tested by Wielandt in 2005, the Trillium 240 seismometers exhibited remarkable improvements in 2007 by such criteria as installation and startup behaviour, calibration, spontaneous transients ("pop noise"), and sensitivity to magnetic field variations.

In particular, the test results demonstrated the excellent performance metrics of the Trillium 240 response of the U, V, W components on low-frequency calibration and the absolute calibration response of the N, E, Z outputs. In that, the typical noise level was about ten times higher on the horizontals than on the verticals for both instruments. Wielandt's tests also demonstrated that the new Trillium 240 seismometers were virtually free of pop noise, being noticeably better than the STS-2s. Furthermore, the tests revealed that the Trillium 240 was more sensitive to the magnetic field variations than other broadband seismometers at BFO. The tests also showed that the Trillium 240 outperforms the STS-2 when the geomagnetic field is reduced, i.e. when the geomagnetic component of the noise is removed the Trillium 240 traces are significantly quieter than those of the STS-2.

Wielandt found that the new Trillium 240 is very easy to set up, and that remote mass centering is remarkably fast and precise. He also commented on a few visible design improvements of the Trillium 240 that have proved to be very convenient and effective, namely, a very soft, flexible cable and a prefabricated thermal shield.

And finally, Trillium 240 seismometers clearly demonstrate superior lead delivery time. They can be delivered within 60-90 days, as compared to STS-2 seismometers that have a delivery lead time of 12-24 months.

To obtain the full report by Professor Wielandt, please [request a download via this page](#).