

White Rabbit PTP for NMI time and frequency dissemination

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White Rabbit Precision Time Protocol (WR-PTP/WR) is a sub-nanosecond synchronization technology developed in 2008 at CERN as an open source project involving multiple scientific laboratories and industrial partners. In 2020, WR was included as a “High Accuracy” option for the IEEE 1588-2019 PTP standard. WR exhibits impressive frequency instability performance (a few $1\text{e-}15$ @1 day of integration time) with traceability (< 200 ps) to UTC and greatly exploits the existing telecommunication networks. It is a highly competitive and scalable optical fiber-based alternative to the widely used Global Navigation Satellite System (GNSS) time service, for industrial and scientific applications. The talk will present the architecture of the deployed WR links, link calibration and the advancements of the technology.

Orateur: Dr KAUR, Namneet (NPL (UK))