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Precise Time Calibration and
Deployments of White Rabbit
Switches for T-Refimeve**

**Rapport sur les
contributions**

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Accurate time and frequency transfer is essential for various applications including time and frequency metrology, and advanced scientific research such as high-energy physics, astronomy, quantum telecommunications. In France, the REFIMEVE infrastructure, led by Laboratoire de Physique des Lasers (LPL) and Laboratoire Temps Espace (LTE), distributes ultra-stable optical frequency signals generated by LNE-OP at LTE, Observatoire de Paris to more than 30 laboratories via the RENATER fiber network. The ongoing T-REFIMEVE project extends this capability to precise time and radio frequency transfer by integrating a White Rabbit (WR) network over unidirectional fiber links, targeting a time transfer accuracy below 10 ns level across more than 80 WR nodes interconnected over 5000 km of optical fibers network. To achieve this accuracy, it is essential to calibrate both instrumental and propagation delays. In this work, we present the methodology and realization of a test bench developed to calibrate instrumental delays of several tens (i.e., batch of 10) of White Rabbit Switches (WRS) in parallel before their deployment in the REFIMEVE network.

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