

# Performance Summary of the ESS Phase Reference Line

*Tuesday, October 24, 2023 2:00 PM (30 minutes)*

The Phase Reference Line (PRL) of the European Spallation Source (ESS) is a passive system based on a single 1-5/8" coaxial rigid line installed at the tunnel ceiling above the beamline. It is supported by temperature and gas pressure control systems with active electronics installed in the ESS Klystron Gallery Hall. The length of the PRL is around 580 meters. The system is temperature stabilized ( $\pm 0.1$  deg C) and includes an inner-line gas pressure stabilization to assure synchronization accuracy. The PRL was designed to distribute 352 MHz and 704 MHz reference frequencies from a Master Oscillator to 56 tap points in the tunnel. Each tap point has several (3 or 6) signal outputs, giving 294 of the total output number. The system was installed, and the power level and phase drift performance was tested recently. This contribution covers the summary of the PRL project, including the performance test results.

## Keyword

Phase reference

**Primary author:** CZUBA, Krzysztof (WUT)

**Co-authors:** Mr KRISHNA BHATTACHARYYA, Anirban (European Spallation Source); SIKORA, Dominik (Warsaw University of Technology); JENSEN, Morten (European Spallation Source); Mr JATCZAK, Paweł (Warsaw University of Technology); Mr PAPIS, Radosław (Warsaw University of Technology)

**Presenter:** CZUBA, Krzysztof (WUT)

**Session Classification:** Timing

**Track Classification:** Timing