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## First experiences with the new Pilot-Tone-based eBPM system in Elettra Storage Ring

*Tuesday, 10 September 2024 16:00 (1h 30m)*

This paper presents the first experiences acquired with the new eBPM system based on pilot tone compensation, developed for Elettra 2.0. After the successful delivery of seven complete systems, belonging to a pre-series production within the signed partnership with Instrumentation Technologies, we started their integration in the current machine, in order to gain experience and develop all the functionalities required for the future commissioning of the new accelerator, scheduled for 2026.

To do so, an entire section of Elettra storage ring has been equipped with the new systems: eight Libera Electron units have been replaced by eight Pilot Tone Front End (PTFE) and four digital platforms (DAQ10SX). Tests were carried out during dedicated machine shifts, focusing on integration with the new global orbit feedback at different data rates (10 kHz, 100 kHz and turn-by-turn), with and without pilot tone compensation. Nevertheless, triggered acquisitions were made in order to test first turn capability of the system. Another unit has been attached to a pair of spare pick-ups (low-gap BPMs), in order to continue the development of new features and to provide different types of data (raw ADC data, turn-by-turn calculated positions, etc.) for machine physics studies, even during user-dedicated shifts.

### Footnotes

### Funding Agency

### I have read and accept the Privacy Policy Statement

Yes

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