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Applications of waveform digitizers at the TPS and TLS control systems

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The retrieved waveform data include pulse magnet power supply waveforms, fast current transformer waveforms, wall current monitor waveform, RF power waveforms, beam signals, and more. These waveforms are crucial for diagnosing subsystem abnormalities and for long-term observation during routine beam operations. Various types of digitizers, capable of remotely accessing waveforms, have been deployed in the TPS and TLS control systems. To enhance data acquisition capabilities and stability, the waveform digitizers have replaced outdated oscilloscopes that were damaged due to prolonged use. Each type of waveform digitizer is equipped with specific sampling rates and data lengths based on the signal properties and intended applications. High-sampling-rate (10 GSPS) digitizers are applied to capture detailed beam-related signals, while universal-sampling-rate (125/500 MSPS) digitizers are employed to record long-term signal variations in a single acquisition. This paper describes the applications of these digitizers and the development of integrated graphical user interfaces for the TPS and TLS control systems.

Footnotes

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LaTeX

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