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Kalus Zenker - Upgrade of the LLRF system at ELBE

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The upgrade of the Low Level Radio Frequency (LLRF) system at the superconducting linear accelerator ELBE is about to being finished. A digital system based on MTCA.4 has been implemented and is going to replace the analogue system which is in operation since 20 years by the end of 2018. The digital system is capable for continuous wave (CW) operation and single cavity control.
The server application uses the open source project ChimeraTK and its OPC-UA adapter, that is based on the open source project open62541. This allows to integrate the digital LLRF into the existing ELBE control and machine protection system, that is based on a Siemens PLC (S7) infrastructure. Furthermore, the OPC-UA adapter of ChimeraTK allows to implement different additional clients of the ChimeraTK server application, such as the ELBE human machine interface used by the operators (WinCC, SCADA) or expert panels (e.g. LabView or Python).
The talk summarizes first results of the full integration test including LLRF controller optimization and amplitude and phase noise measurements. Furthermore, latest developments of the OPC-UA adapter and contributions to ChimeraTK are presented.

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