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Improved Local Oscillator Rear Transition Module for 704.42 MHz LLRF Control System at ESS

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This paper describes the changes in the design of the MTCA-complaint Local Oscillator (LO) Rear Transition Module (RTM) board providing low phase noise clock and heterodyne signals for the 704.42 MHz Low-Level Radio Frequency (LLRF) control system at the European Spallation Source (ESS). Global chip shortage, as well as experience gained during the production and operation of Revision 1.2, influenced the modifications implemented in Revision 1.3.

The changes include a Field Programmable Gate Array (FPGA) Integrated Circuit (IC) offering more logic cells. Additional resources will be used to integrate new functionality, improving the performance of the module. The board reliability was also improved. A watchdog circuit controlling the proper operation of the module was added, and a more advanced reset scheme was implemented.

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Footnotes

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Yes

Primary author: RUTKOWSKI, Igor (Warsaw University of Technology)

Co-authors: CZUBA, Krzysztof (Warsaw University of Technology); GRZEGRZOLKA, Maciej (Warsaw University of Technology)

Presenter: RUTKOWSKI, Igor (Warsaw University of Technology)

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