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Development of BPM electronics for TRIUMF's BL4N

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The BL4N beamline at TRIUMF, currently under development, will transport proton beam from the 500 MeV cyclotron to an ISOL target station. The peak beam current will be varied from 1 to 100 microamps, and the beam position must be measured over a 10mm range. The beam position is measured using inductive pick-ups and a new narrowband frontend. The electronics consist of a crossbar-switched front-end, FPGA-based down-conversion and position calculation, and an SoC module for nonlinear corrections and device readout. This report presents the design and testing of the BPM electronics, including benchtop validation and beam test results. Measurements of position sensitivity, beam current dependence, and non-linearity are included.

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

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