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Scintillator-based muon detector/tail catcher with SiPM readout

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Extruded scintillator with wavelength shifting (wls) fiber for light collection and silicon avalanche photo-detection (SiPMs), followed by modest amplification remains an attractive candidate for large area counters such as are required for muon detectors/tail catchers for collider detectors. We report on R&D for the optimization of such detectors which has included the development of ad hoc SiPMs and frontend electronics with 12 bit waveform digitization at 100 –200 MHz. Bias voltage is generated locally and provision is made for on board data storage and fast transfer to a local PC for immediate analysis. In addition to describing the data collection and counter assembly we will present representative data results from tests performed at the Fermilab Test Beam Facility.

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