

## 8th Beam Telescopes and Test Beams Workshop



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# Measurements performed with a test DAQ system developed for the CMS Phase-2 outer tracker upgrade

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The CMS detector at the LHC is foreseen to experience a major upgrade in order to cope with increased radiation flux due to the high-luminosity operation phase of the accelerator. The CMS tracker will be replaced completely, introducing a new module concept in the outer part of the subsystem, which will exploit the strong magnetic field inside the CMS detector to select high transverse momentum particles locally and send the corresponding information to the triggering system thus enhancing the efficiency of the latter.

In order to allow for module prototyping and production testing, an intermediate DAQ system, referred to as  $\mu$ DTC, was developed. The system allows for prototype configuration, control, monitoring and read-out, and provides all the necessary infrastructure for the module qualification. This talk will briefly describe the upgrade project with a focus on the existing module prototypes and the structure of the FPGA firmware developed for the  $\mu$ DTC. A sequence of test beam measurement campaigns was carried out using the aforementioned DAQ system, and the results obtained from two of them will be presented.

**Primary author:** HARANKO, Mykyta (DESY)

**Presenter:** HARANKO, Mykyta (DESY)

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