

10th International "Hiroshima" Symposium on the Development and  
Application of Semiconductor Tracking Detectors, Xi'an, China

Contribution ID: 76

Type: POSTER

## Aging and Environmental Tolerance of Optical Transmitter for the ATLAS Phase-I upgrade at LHC

*Saturday, 26 September 2015 19:44 (1 minute)*

The MTx optical transmitter is developed for the ATLAS phase-I upgrade required for environmental durability. The data transmission of up to 8 Gbps is conducted with VCSELs in TOSA packaging and the custom developed LOCld laser driver of CMOS process suitable for the Large Hadron Collider (LHC) environment. We discuss the MTx design and specification. Aging tests in 85°C/85%RH condition were conducted for the 10 Gbps VCSELs in bare-die and TOSA packages to evaluate non-hermetic tolerance. Tests with 30 MeV and 70 MeV protons were conducted for light degradation of the VCSELs and bit-error rates. The signal eye-diagrams of test samples were also investigated.

**Primary author:** HOU, Suen (Academia Sinica (TW))

**Co-authors:** WANG, C.H. (National United University (TW)); LIU, Chonghan (Southern Methodist University); YE, Jingbo (Southern Methodist University (US)); TENG, P.K. (Academia Sinica); CHANG, S.T. (Liverage); WANG, S.Y. (Liverage); HAYAMIZU, T. (CYRIC); LIU, Tiankuan (Southern Methodist University (US)); SAKEMI, Y. (CYRIC); YANG, Yi (National Cheng Kung University (TW))

**Presenter:** HOU, Suen (Academia Sinica (TW))

**Session Classification:** After dinner POSTER session, with drinks: (All presenters are requested/encouraged to attend their posters; All participants are requested to participate the session, with drinks!)

**Track Classification:** Radiation damage, Environmental radiation monitoring