

Abstract Submitted
for the TSF19 Meeting of
The American Physical Society

The Quality Control Test of Two ASICs For the ATLAS Liquid Argon Calorimeter Phase-I Upgrade ZHENGGUANG WANG, Southern Methodist University, SOUTHERN METHODIST UNIVERSITY TEAM¹ — The goal of this research is to control the quality of two ASICs (application specific integrated circuits) for the ATLAS system upgrade. In this research the targeted chips are LOCx2 and LOCId. Both are designed and fabricated in SMU. They are specifically for the ATLAS Liquid Argon Calorimeter (Lar) Phase-I trigger upgrade, where Lar provides precision measurements of photons and electrons and played an important role in the discovery of the Higgs Boson. We made a unique setup for the quality experiment of both ASICs. For LOCId, the main focus is the current in different channel. Several issues could happen to fail the quality test, including the short current, I2C error and Eye-Mask error. We had a resultant yield of 73.9%. About 5300 out of 7000 chips passed the quality control. For LOCx2, eye-mask and BER are checked during the experiment. 7000 chips are tested in total. 74% of them passed the eye diagram. The one passed the eye-diagram are then being tested with BER test setup and 80% of them passed the second test. The eventual yield of LOCX2 QC test is 59%. In general, we have completed the QC test for 7000 LOCId and 7000 LOCx2. LOCId test has been done and the QC test for LOCx2 is still ongoing.

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Date submitted: 30 Sep 2019

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