Abstract Submitted for the DNP12 Meeting of The American Physical Society

Efficiency Studies of the PHENIX Resistive Plate Chambers ARIC TATE, Abilene Christian University, PHENIX COLLABORATION — At Brookhaven National Laboratory the PHENIX experiment on the Relativistic Heavy Ion Collider (RHIC) studies polarized p+p collisions in an effort to better understand the contribution of sea quarks to the spin structure of the proton. To enable PHENIX to measure these contributions a trigger upgrade was needed to improve the ability of the data acquisition system to select single high transverse momentum muon events. A key component to the trigger upgrade was the addition of two stations of Resistive Plate Chambers (RPCs) in each muon arm. These chambers were installed and fully implemented prior to the last RHIC run. To ensure that the RPCs will continue to perform efficiently many tests have been done, both on the installed chambers and spare chambers on a cosmic test stand. An efficiency versus high voltage test was run with the cosmic stand as well as an efficiency versus threshold test to try and maximize efficiency without gaining noise. A noise versus threshold scan helped determine at what threshold the RPCs best perform. These tests help us to operate the RPCs at a high efficiency and low noise manner. The analysis and results of these tests will be presented.

> Aric Tate Abilene Christian University

Date submitted: 01 Aug 2012

Electronic form version 1.4