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Single Event Effect microchip testing at the Texas A&M University Cyclotron Institute HENRY CLARK, SHERRY YENNELLO, Texas A&M University - Cyclotron Institute, TEXAS A&M UNIVERSITY - CYCLOTRON INSTITUTE TEAM — A Single Event Effect (SEE) is caused by a single, energetic particle that deposits a sufficient amount of charge in a device as it transverses it and upsets its normal operation. Soft errors are non-destructive and normally appear as transient pulses in logic or support circuitry, or as bit flips in memory cells or registers. Hard errors usually result in a high operating current, above device specifications, and must be cleared by a power reset. Burnout errors are so destructive that the device becomes operationally dead. Spacecraft designers must be concerned with the causes of SEE's from protons and heavy ions since commercial devices are typically chosen reduce the parameters of power, weight, volume and cost but have increased functionality, which in turn are typically vulnerable to SEE. As a result all mission-critical devices must be tested. The TAMU K500 superconducting cyclotron has provided beams for space radiation testing since 1994. Starting at just 100 hours/year at inception, the demand has grown to 3000 hours/year. In recent years, most beam time has been for US defense system testing. Nearly 15% has been provided for foreign agencies from Europe and Asia. An overview of the testing facility and future plans will be presented.

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