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Magnetic Measurement and Cold Test Results of the Mu2e Transport Solenoid Coils

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The magnet system of the Muon to electron (Mu2e) experiment at Fermilab consists of three solenoid magnets: the Production Solenoid (PS), the Transport Solenoid (TS), and the Detector Solenoid (DS). The s-shaped TS consists of 52 superconducting coils which are grouped in units of 2-5 coils. The units undergo an acceptance testing campaign which includes a liquid helium temperature cold test and room-temperature magnetic axis measurements using a vibrating stretched wire. In the cold test, units are energized to 120% of nominal current to study quench performance and splice resistance. The magnetic axis measurements ensure the coils are aligned within the tolerances required for efficient muon transmission through the TS. The TS magnetic model is updated with the as-built coil positions to ensure the magnetic requirements for the experiment are met. Results from all units and the as-built magnetic model will be presented.

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