

**§ 299.605**

shall notify the railroad, in writing, within 45 days of receipt of the railroad's submission, and identify any deficiencies in the test plan. FRA will notify the railroad of any procedures to be submitted for review. The plan shall include the following:

- (1) A list of all tests to be conducted;
- (2) A summary statement of the test objectives;
- (3) A planned schedule for conducting the tests which indicates the sequence of testing and interdependencies; and
- (4) The approach taken for—
  - (i) Verifying results of installation tests performed by contractors and manufacturers;
  - (ii) Functional and performance qualification testing of individual safety-related equipment, facilities, and subsystems in accordance with § 299.605;
  - (iii) Pre-revenue service system integration testing of the system per § 299.607, that includes vehicle/track system qualification testing per § 299.609;
  - (iv) Simulated revenue operations of the system per § 299.611;
  - (v) Compliance with operating rules as per subpart E of this part;
  - (vi) Training and qualification of all personnel involved in the test program to conduct tests safely and in accordance with operating rules;
  - (vii) Verification of all emergency preparedness procedures; and
  - (viii) Field testing of the railroad's uncertified PTC system and regression testing of its FRA-certified PTC system, under § 299.201.
- (c) The railroad shall adopt and comply with the system-wide qualification test plan, including completion of all tests required by the plan.
- (d) After FRA review of the system-wide test plan, detailed test procedures as required by paragraph (b) of this section shall be submitted 15 days prior to testing to FRA in accordance with § 299.9 for review.
- (e) Each test procedure shall include the following elements:

- (1) A clear statement of the test objectives. One of the principal test objectives shall be to demonstrate that the railroad's system meets the safety design and performance requirements specified in this part when operated in

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the environment in which it will be used;

- (2) Any special safety precautions to be observed during the testing;
- (3) A description of the railroad property or facilities to be used to conduct the tests;
- (4) Prerequisites for conducting each test;
- (5) A detailed description of how the tests are to be conducted. This description shall include—
  - (i) An identification of the systems and equipment to be tested;
  - (ii) The method by which the systems and equipment shall be tested;
  - (iii) The instrumentation to be used and calibration procedures;
  - (iv) The means by which the test results will be recorded, analyzed and reported to FRA;
  - (v) A description of the information or data to be obtained;
  - (vi) A description of how the information or data obtained is to be analyzed or used;
  - (vii) A description of any criteria to be used as safety limits during the testing;
  - (viii) The criteria to be used to evaluate performance of the systems and equipment. If system qualification is to be based on extrapolation of less than full-level testing results, the analysis done to justify the validity of the extrapolation shall be described; and
  - (ix) Inspection, testing, and maintenance procedures to be followed to ensure that testing is conducted safely.
- (f) The railroad shall provide FRA notice at least 30 days in advance of the times and places of any domestic testing and notice at least 90 days in advance for testing not conducted domestically to permit FRA observation of such tests.

**§ 299.605 Functional and performance qualification tests.**

The railroad shall conduct functional and performance qualification tests, prior to commencing revenue operations, to verify that all safety-critical components meet all functional and all performance specifications.