with railroad safety, taking into consideration all changes in the method of operation and system functionalities, both within normal PTC system availability and in the case of a system failed state (unavailable), contemplated in conjunction with installation of the PTC system. The railroad submitting the RFA must, at FRA’s request, perform field testing in accordance with §236.1035 or engage in Verification and Validation in accordance with §236.1017.

(g) FRA may issue at its discretion a new Type Approval number for a PTC system modified under this section.

(h) Changes requiring filing of an RFA. Except as provided by paragraph (i), an RFA shall be filed to request the following:

1. Discontinuance of a PTC system, or other similar appliance or device;
2. Decrease of the PTC system’s limits (e.g., exclusion or removal of a PTC system on a track segment);
3. Modification of a safety critical element of a PTC system; or
4. Modification of a PTC system that affects the safety critical functionality of any other PTC system with which it interoperates.

(i) Discontinuances not requiring the filing of an RFA. It is not necessary to file an RFA for the following discontinuances:

1. Removal of a PTC system from track approved for abandonment by formal proceeding;
2. Removal of PTC devices used to provide protection against unusual contingencies such as landslide, burned bridge, high water, high and wide load, or tunnel protection when the unusual contingency no longer exists;
3. Removal of the PTC devices that are used on a movable bridge that has been permanently closed by the formal approval of another government agency and is mechanically secured in the closed position for rail traffic;
4. Removal of the PTC system from service for a period not to exceed 6 months that is necessitated by catastrophic occurrence such as derailment, flood, fire, or hurricane.

(j) Changes not requiring the filing of an RFA. When the resultant change to the PTC system will comply with an approved PTCS of this part, it is not necessary to file for approval to decrease the limits of a system when it involves the:

1. Decrease of the limits of a PTC system when interlocked switches, derail, or movable-point frogs are not involved;
2. Removal of an electric or mechanical lock, or signal used in lieu thereof, from hand-operated switch in a PTC system where train speed over such switch does not exceed 20 miles per hour, and use of those devices has not been part of the considerations for approval of a PTCS; or
3. Removal of an electric or mechanical lock, or signal used in lieu thereof, from a hand-operated switch in a PTC system where trains are not permitted to clear the main track at such switch and use of those devices has not been a part of the considerations for approval of a PTCS.

(k) Modifications not requiring the filing of an RFA. When the resultant arrangement will comply with an approved PTCS of this part, it is not necessary to file an application for approval of the following modifications:

1. A modification that is required to comply with an order of the Federal Railroad Administration or any section of part 236 of this title;
2. Installation of devices used to provide protection against unusual contingencies such as landslide, burned bridges, high water, high and wide loads, or dragging equipment;
3. Elimination of existing track other than a second main track;
4. Extension or shortening of a passing siding; or
5. The temporary or permanent arrangement of existing systems necessitated by highway-rail grade separation construction. Temporary arrangements shall be removed within six months following completion of construction.

§ 236.1023 Errors and malfunctions.

(a) Each railroad implementing a PTC system on its property shall establish and continually update a PTC Product Vendor List (PTCPVL) that includes all vendors and suppliers of
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each PTC system, subsystem, component, and associated product, and process in use system-wide. The PTCPVL shall be made available to FRA upon request.

(b)(1) The railroad shall specify within its PTCS all contractual arrangements with hardware and software suppliers or vendors for immediate notification between the parties of any and all safety-critical software failures, upgrades, patches, or revisions, as well as any hardware repairs, replacements, or modifications for their PTC system, subsystems, or components.

(2) A vendor or supplier, on receipt of a report of any safety-critical failure to their product, shall promptly notify all other railroads that are using that product, whether or not the other railroads have experienced the reported failure of that safety-critical system, subsystem, or component.

(3) The notification from a supplier to any railroad shall include explanation from the supplier of the reasons for such notification, the circumstances associated with the failure, and any recommended mitigation actions to be taken pending determination of the root cause and final corrective actions.

(c) The railroad shall:

(1) Specify the railroad’s process and procedures in its PTCS for action upon their receipt of notification of safety-critical failure, as well as receipt of a safety-critical upgrade, patch, revision, repair, replacement, or modification.

(2) Identify configuration/revision control measures in its PTCS that are designed to ensure the safety-functional requirements and the safety-critical hazard mitigation processes are not compromised as a result of any change and that such a change can be audited.

(d) The railroad shall provide to the applicable vendor or supplier the railroad’s procedures for action upon notification of a safety-critical failure, upgrade, patch, or revision for the PTC system, subsystem, component, product, or process, and actions to be taken until the faulty system, subsystem, or component has been adjusted, repaired or replaced.

(e) After the product is placed in service, the railroad shall maintain a database of all safety-relevant hazards as set forth in the PTCS and those that had not previously been identified in the PTCS. If the frequency of the safety-relevant hazard exceeds the thresholds set forth in the PTCS, or has not been previously identified in the appropriate risk analysis, the railroad shall:

(1) Notify the applicable vendor or supplier and FRA of the failure, malfunction, or defective condition that decreased or eliminated the safety functionality;

(2) Keep the applicable vendor or supplier and FRA apprised on a continual basis of the status of any and all subsequent failures; and

(3) Take prompt counter measures to reduce or eliminate the frequency of the safety-relevant hazards below the threshold identified in the PTCS.

(f) Each notification to FRA required by this section shall:

(1) Be made within 15 days after the vendor, supplier, or railroad discovers the failure, malfunction, or defective condition. However, a report that is due on a Saturday or a Sunday may be delivered on the following Monday and one that is due on a holiday may be delivered on the next business day;

(2) Be transmitted in a manner and form acceptable to the Associate Administrator and by the most expeditious method available; and

(3) Include as much available and applicable information as possible, including:

(i) PTC system name and model;

(ii) Identification of the part, component, or system involved, including the part number as applicable;

(iii) Nature of the failure, malfunctions, or defective condition;

(iv) Mitigation taken to ensure the safety of train operation, railroad employees, and the public; and

(v) The estimated time to correct the failure.

(4) In the event that all information required by paragraph (f)(3) of this section is not immediately available, the non-available information shall be forwarded to the Associate Administrator as soon as practicable in supplemental reports.
(g) Whenever any investigation of an accident or service difficulty report shows that a PTC system or product is unsafe because of a manufacturing or design defect, the railroad and its vendor or supplier shall, upon request of the Associate Administrator, report to the Associate Administrator the results of its investigation and any action taken or proposed to correct that defect.

(h) PTC system and product suppliers and vendors shall:
   (1) Promptly report any safety-relevant failures or defective conditions, previously unidentified hazards, and recommended mitigation actions in their PTC system, subsystem, or component to each railroad using the product; and
   (2) Notify FRA of any safety-relevant failure, defective condition, or previously unidentified hazard discovered by the vendor or supplier and the identity of each affected and notified railroad.

(i) The requirements of this section do not apply to failures, malfunctions, or defective conditions that:
   (1) Are caused by improper maintenance or improper usage; or
   (2) Have been previously identified to the FRA, vendor or supplier, and applicable user railroads.

(j) When any safety-critical PTC system, subsystem, or component fails to perform its intended function, the cause shall be determined and the faulty product adjusted, repaired, or replaced without undue delay. Until corrective action is completed, a railroad shall take appropriate action to ensure safety and reliability as specified within its PTCSP.

(k) Any railroad experiencing a failure of a system resulting in a more favorable aspect than intended or other condition hazardous to the movement of a train shall comply with the reporting requirements, including the making of a telephonic report of an accident or incident involving such failure, under part 233 of this chapter. Filing of one or more reports under part 233 of this chapter does not exempt a railroad, vendor, or supplier from the reporting requirements contained in this section.

§ 236.1025 [Reserved]

§ 236.1027 PTC system exclusions.
   (a) The requirements of this subpart apply to each office automation system that performs safety-critical functions within, or affects the safety performance of, the PTC system. For purposes of this section, “office automation system” means any centralized or distributed computer-based system that directly or indirectly controls the active movement of trains in a rail network.
   (b) Changes or modifications to PTC systems otherwise excluded from the requirements of this subpart by this section do not exclude those PTC systems from the requirements of this subpart if the changes or modifications result in a degradation of safety or a material decrease in safety-critical functionality.
   (c) Primary train control systems cannot be integrated with locomotive electronic systems unless the complete integrated systems:
      (1) Have been shown to be designed on fail-safe principles;
      (2) Have demonstrated to operate in a fail-safe mode;
      (3) Have a manual fail-safe fallback and override to allow the locomotive to be brought to a safe stop in the event of any loss of electronic control; and
      (4) Are included in the approved and applicable PTCDP and PTCSP.
   (d) PTC systems excluded by this section from the requirements of this subpart remain subject to subparts A through H of this part as applicable.

§ 236.1029 PTC system use and en route failures.
   (a) When any safety-critical PTC system component fails to perform its intended function, the cause must be determined and the faulty component adjusted, repaired, or replaced without undue delay. Until repair of such essential components are completed, a railroad shall take appropriate action as specified within its PTCSP.

   (b) Where a PTC onboard apparatus on a controlling locomotive that is operating in or is to be operated within a PTC system fails or is otherwise cut-out while en route (i.e., after the train has departed its initial terminal), the