

Guidance

G0635

Signalling product approval

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1 Purpose

The purpose of this document is to provide guidance to all those with responsibilities under procedure [PR0635](#), Signalling Product Approval.

2 Scope

- 2.1 This Guidance applies to the procedure PR0635, Signalling Product Approval. It provides guidance on when PR0635 should be applied and it provides guidance on the execution of the prerequisites and each step in the procedure.
- 2.2 Where it is helpful, text from PR0635 is repeated in order to align the guidance with the appropriate section in the procedure. Such text is placed in a box together with a reference to the section number or numbers within PR0635, for example:

[2.1] This procedure applies to all instances of Product Change.....
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3 Guidance

3.1 Introduction and background

- 3.1.1 PR0635 was created by the Head of Signalling Engineering (HoSE) to assist in discharging the mandatory requirements defined in [S1011](#), Product Acceptance and Registration, for the approval of signalling, control and information (S,C&I) assets.
- 3.1.2 S1011 requires that all product changes are assessed to determine their:
- a) Business justification and commercial acceptability
 - b) Engineering and safety acceptability
 - c) Operational and maintenance readiness
- S1011 also details the process for approving and registering products on the Approved Products Register (APR), available at www.lu-apr.co.uk.
- 3.1.3 PR0635 also addresses parts of [S1538](#), Assurance, in respect of approvals related to S,C&I assets.
- 3.1.4 The need for a product change may arise from any of a number of sources, e.g. a need identified through reliability issues with a current asset, a bright idea for improving performance or directly reducing costs, an offering from a new or existing supplier, a new requirement in support of a project, obsolescence of existing equipment. Regardless of the source, all product change that could affect S,C&I assets should be approved through PR0635.

3.2 Scope and applicability of PR0635

- 3.2.1 This section gives guidance on what is and isn't required to be approved through PR0635. Where there is doubt about whether product approval is required, advice should be sought from the Signalling Product Approval (SPA) Secretariat (using the [Signalling Product Approval](#) mailbox) or by completing and submitting form [F5439](#), Initial Submission Form (ISF).
- 3.2.2 Although entitled 'Signalling Product Approval', PR0635 is not limited to 'signalling' or to 'products'. The term 'signalling' in the title is used to mean the asset area of

S,C&I, i.e. all assets under the jurisdiction of the HoSE. Section 2 of PR0635 details the products and product changes it applies to; further guidance on these is given below.

3.2.3 PR0635 defines a product as:

[2.2] Note: Product: A manufactured item (including any embedded software or firmware) proposed for use as, or part of, an S,C&I asset.

Under this definition the term 'product' includes components, sub-assemblies, assemblies, modules, equipments, units, indeed any part of a signalling, control or information system. A product can be anything from the smallest part, e.g. a screw, to a whole product as supplied by a manufacturer, e.g. a condition monitoring system. One product can be part of another product, which itself can be part of a larger product and so on. For example, a bearing can be part of a motor, which is itself part of a trainstop. If in doubt, refer to the SPA Secretariat for guidance.

3.2.4 The scope of PR0635 is defined as:

[2.1] This procedure applies to all instances of Product Change (defined in section 2.2 below) whether for use on fixed LU infrastructure or on Rolling Stock running on LU infrastructure. However, it excludes those Product Changes which are subject to approval by a Signalling System Review Panel or System Review Panel which has delegated responsibility from the Head of Signalling Engineering (HoSE).

Product change made within project programmes is often approved via System Review Panels (SRP), both single and multi-disciplinary in nature, which operate to the same basic principles as described in this document. Where approvals are handled by SRPs, PR0635 is not applicable as SRPs have their own procedures.

Where a product change submitted through PR0635 is found to be either multi-disciplinary or requiring of approval expertise only available from an SRP, the product change may be delegated to a suitable Signalling System Review Panel (SSRP) or SRP.

PR0635 defines its scope as being all product change which means any change associated with a product, being made by anyone. The categories of product change are as follows:

[2.2, i] New products, i.e. those not previously accepted for use on LU,

Products completely new to LU come into this category; examples include: a new type of track relay, a new type of cable securing clip.

PR0635 is not intended to be retrospectively applied to products already in use at the time of its first issue; such products can be assumed to have 'grandfather rights', i.e. they have been used safely and reliably on LU for a number of years. However, if a change is proposed to a system that contains products that have 'grandfather rights' this will be either a product change (see commentary on [2.2, ii]) or a new application (see commentary on [2.2, iv]) and PR0635 will need to be followed.

[2.2, ii] Changes to products currently in use on LU,

This category is for changes to products currently in use and includes both physical changes, for example a change to the design of the proving rod in a J-style trainstop, and non-physical changes such as updated software, firmware or data.

Changes to drawings used for a product's manufacture are included in this category, even if there is no current requirement to manufacture. Minor drawing changes and corrections which cannot affect the manufactured product are not included and can be approved at the next highest management level.

[2.2, iii] Changes to the competence requirements, processes, materials, consumables, tools, plant and equipment used for the manufacture, supply, application design, installation, testing, commissioning, operation, maintenance, repair, overhaul, decommissioning and disposal of products currently in use on LU,

This category covers any other changes associated with a product which could change its risk profile. Examples include: a new material used in its manufacture, a change to test equipment used in its testing and commissioning, a change to the maintenance regime, a change in overhaul procedure, a change of manufacturer or manufacturing facility. Note that changes to the support documentation for a product are included in this category, for example, manuals (operating, maintenance, repair, overhaul), handbooks, work instructions, training material and maintenance schedules.

[2.2, iv] New applications of products currently in use on LU, extending their existing approval scope,

This is for the use of existing approved products but in a new application, i.e. to use its existing design functions to perform a new role. For example, a power supply unit currently used for powering a position detector being used to power a track circuit, or a lamp currently used in short range colour light signals being used in ground signals.

[2.2, v] Temporary deployment of the above change types (i, ii, iii and iv above), e.g. for trials or testing.

It is sometimes beneficial to test/trial new or changed products and/or their associated processes on the operational railway for a defined finite period, for example to check suitability or to obtain operational data or assurance evidence. Approval under PR0635 is required for these trials, though the assurance requirements may be less onerous than for permanent deployment; see section 3.3 of this guidance document for more details.

[2.2, vi] Non-S,C&I changes of the types described in i, ii, iii, iv, and v above which could impact on existing S,C&I assets.

Product changes made by other disciplines (track, civils, etc) can sometimes have an impact on S,C&I assets. Where this is the case, such product change should be assessed by the HoSE under PR0635. An example of such a change is the Flatmesh structural monitoring system, fitted adjacent to signalling assets.

3.2.5 PR0635 does not replace or overlap the existing processes for the approval of Works (Concept Design, Design Compliance, Consent to Test, etc) as required by S1538. Rather, it is focused on products and their proposed use which, once

approved, enable products to be used in specific applications and schemes. It can be thought of as placing products on the shelf, ready to be used in systems and schemes. This concept links well with the three stages of acceptance defined for signalling in BS EN 50129:

- a. Generic product: Defines basic characteristics, e.g. functionality and environmental limits, and is aimed at particular types of application, though no application is defined at this level. Sets general product restrictions on use.
- b. Generic application: Defines the use of the generic product in a particular class of application with common functions. Sets the restrictions on its use in specific applications.
- c. Specific application: Defines the use of the generic product and its generic application in a specific installation, or several identical installations.

As an example, for a new product in a new scheme, PR0635 will apply to the generic product and generic application acceptances but its approval in the specific scheme will be via the Works Approval process. For changes driven by maintenance initiatives, which will usually be more minor in nature, PR0635 will also be applicable to the specific application stage (as the Works Approval process is not used by COO-APD). This is summarised in the table below.

	Programmes	Maintenance-driven changes
Generic Product Acceptance	PR0635 (or SRP)	PR0635
Generic Application Acceptance	PR0635 (or SRP)	PR0635
Specific Application Acceptance	Works Approval (S1538)	PR0635

In all cases, appropriate combining of submissions and approvals can be made. For example, for a maintenance-driven product change for a single application type, a single safety and compliance submission may suffice.

3.3 Testing, trials and pilots

- 3.3.1 It is sometimes beneficial for the purpose of testing, checking suitability, validation of requirements or evidence gathering, to test a product change or some part of a product change on the operational railway prior to a submission for full approval.
- 3.3.2 Where it is proposed to remove the product change from the operational railway at the end of the testing, the exercise is called a trial. Where it is proposed not to remove the product change from the operational railway at the end of the testing, the exercise is called a pilot.

- 3.3.3 When a trial is proposed, its purpose should be clearly recorded in the application for the product change. The application will need to confirm the pass/fail criteria, detail the arrangements for executing the trial and dealing with any issues that may arise.
- 3.3.4 The assurance requirements for trials and pilots are different but both will be based on the associated risk and both will be determined by the Signalling Product Approval Filter Meeting (SPAFM) in the same way as for product change not being trialled or piloted. However, as a general guide, the differences will be as follows:
- i. For a pilot, full product approval will be required because the installation is permanent.
 - ii. For a trial where the operational railway will be relying on the correct operation of the product change, the requirements for operations and maintenance support may be relaxed, and the safety analysis can usually be confined to the trial period rather than the whole lifecycle but, otherwise, the requirements will be as for full approval.
 - iii. For a trial where the operational railway will not be relying on the correct operation of the product change, the requirements for assurance may be restricted to the safety of the railway during the trial only.
- 3.3.5 Note that the risks assessed for trials may be different from those for full deployment of the product. For example, during a trial there may be additional risks due to staff undertaking testing, test equipment deployed, additional tasks placed on train operators, etc., that are not present during full deployment, but during full deployment the whole product lifecycle will need to be assessed.

3.4 Procedure flowchart

- 3.4.1 The signalling product approval procedure has 7 stages, as follows:

1. Proposing the Product Change
2. Sponsoring the Product Change
3. Applying for Product Change Approval
4. Setting the Product Change Approval Level and Assurance Requirements
5. Making the Product Change Assurance Case
6. Assessing the Assurance Case and Approving the Product Change
7. Registering the Approval/Rejection of a Product Change

- 3.4.2 These stages are shown on a flowchart (provided in section 7.1 of PR0635) and repeated below for ease of reference. Section 3.5 of this guidance document provides commentary and guidance on each stage of the procedure.