

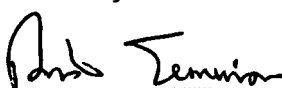
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Business Process Document

Management of signalling power supplies

Endorsement & Authorisation

Endorsed by:

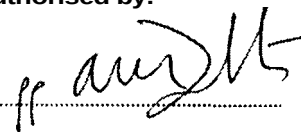


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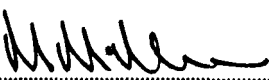
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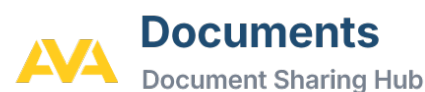
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APPENDIX A : Responsibilities

I Purpose

This document provides guidance on the responsibilities associated with the management of signalling power supplies. The document ensures that members of the engineering function understand their responsibilities within the current organisation.

2 Scope

This standard applies to the management of signalling power supply distribution installations as defined by Railway Group Standards. The aim of this document is to define:

Functional Boundaries for Signalling Power Supplies

Technical Responsibilities

Process for Business Planning

This document should be read in conjunction with the asset responsibility matrix.

3 Reference documentation

[NR/GN/ELP/27244](#) Guidance for Signalling Power Supplies

[NR/GN/ELP/00015](#) Guidance Note for Signalling Power Supply Design

[NR/SP/ELP/21085](#) Design of Earthing & Bonding Systems for 25kV AC Electrical Lines

[NR/SP/ELP/21032](#) Earthing Systems for D.C. Traction Substations, Track Paralleling Huts & Similar Equip Locations.

[BS EN 50122-1](#) Railway applications. Fixed installations. Protective provisions relating to electrical safety and earthing

[GI/RT7017](#) Signalling and Safety Related Telecommunications Power Supplies and Circuits

4 Abbreviation and Definitions

CPC Circuit protective conductor.

DNO Distribution Network Operator.

ECR Electrical Control Room

FLC Full Load Current

FSP	Functional Supply Point
NRG	National Records Group
PSP	Principal Supply Point
Railway Standards	A Standard which focuses on the requirements for equipment installed in the Railway environment, e.g. Railway Group Standards or Network Rail Company Standards.
TEPE	Territory Electrification and Plant Engineer
T/J	Transformer Rectifier
UPS	Uninterruptible Power Supply

5 Application of this Standard

This standard applies to members of the engineering function.

This standard does not apply to the management of signalling functional circuits.

6 Engineering Demarcation

Signalling power supplies exist to distribute electricity to signalling equipment. The first point of connection downstream of the distribution voltage is the boundary i.e. the Functional Supply Point (FSP). Equipment downstream of this “FSP” is signalling functional circuits.

For example, many 650V distribution systems would be provided with fuses within each apparatus case, power cables which loop in and out and step down transformers. These items are designated power supply equipment so the boundary is the transformer secondary. Clearly, there will be some E&P equipment located in signalling accommodation in many instances i.e. the FSP will not, generally, be an installation in its own right. Apparatus cases with T/Js or similar equipment are representative of such an installation.

Items such as location case lamp supplies or anti-condensation heaters, which are derived from the functional circuits, are designated Signalling equipment.

Signalling functional circuits normally operate at 110V a.c. / 130V d.c. or below.

All equipment upstream of the FSP is to be managed by E&P. These include lineside cabling and the equipment for fault detection or system switching.

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In an equipment room, where an earthed supply is provided to an isolating transformer the first point of connection downstream of the transformer providing the utilisation voltage for the functional circuits must be considered the boundary.

UPS equipment will normally be upstream of FSPs and therefore the responsibility of the E&P Engineer. This does not include local UPS equipment and battery chargers provided to ensure the safety integrity of specific signalling equipment. Such equipment remains the responsibility of the Signal Engineer and includes items such as level crossing batteries and chargers, point batteries and chargers, mini supplies for stick circuits and block batteries etc.

In all installations or controls centres, earthed distribution systems are clearly not signalling equipment. Power circuits in buildings, including REBs, for small power, heating and lighting, however they are derived – are not signalling functional circuits.

The text that follows describes the consequence of the selection of the boundary at this point and it's implications for members of the Engineering organisation. Engineering, in the context of this document, may be categorised into four areas: Budgeting, Renewal Decisions, Performance and Solution Specification. Before these are described, the technical divisions need to be understood. These are described in the following diagrams.

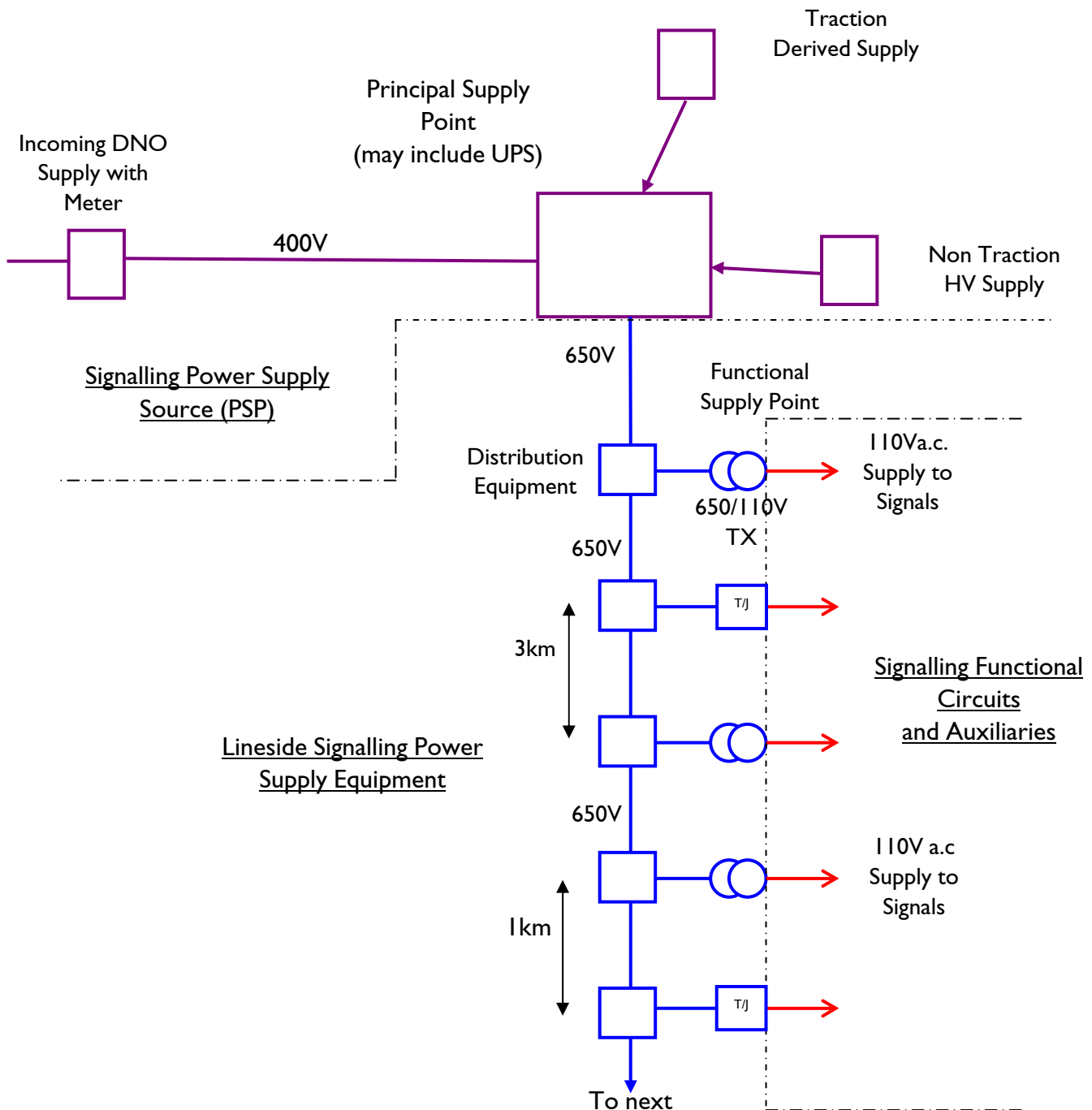


Figure 1: Example Division of Responsibilities for Lineside Signalling Power Supplies Distribution System

The dividing line for asset stewardship will be the FSP which in this case is the output terminals of the load transformer. Connections to the secondary side of TXs will be Signalling. For a classic design with location cases, a consequence of the location of the FSP is that E&P assets will be mounted within signalling accommodation in most instances.