

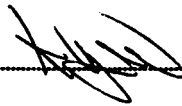
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Business Process Document

Layout of overhead line equipment

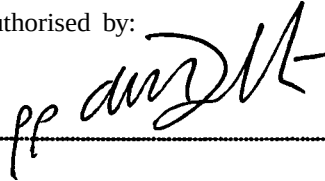
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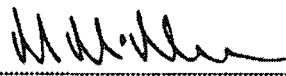
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1 Purpose

This document is for use by both Railway and Contractor's staff when producing overhead line equipment layouts. It supplements the approved design drawings and explains the principles to be followed in applying them, so that overhead line equipment designs will be the simplest and most economical in form and in layout, consistent with safety and the required standard of performance.

2 Scope

This document applies to 25 kV A.C. Overhead Line Equipment designed for use on Network Rail

3 Reference documentation

BR12034/17	Railway Electrification, 25kV A.C. Design, Acceptance Parameters:
NR/SP/ELP/21078	Design of Return Conductor Systems for A.C. Electrified Lines
NR/SP/ELP/21085	Design of Earthing and Bonding systems for 25kV A.C Electrified Lines
NR/GN/ELP/27039	Wind Loading on Overhead Line Equipment and Structures
NR/SP/ELP/27215	Design of Overhead Line Structures
	Department of Transport "Railway Construction and Operation Requirements: Structural and Electrical Clearances" Published by Her Majesty's Stationery Office 1977, ISBN 0 11 550443 5.

4 Definitions

For the purpose of this document the following speed definitions shall apply:

Less than 160km/h	Slow speed
Above 160km/h	High speed
OOR	Out of running

5 Basic information

5.1 Simplification of layout

Whilst largely outside the direct control of the technical departments, the greatest scope for economy lies in simplification of the layout to be electrified and reduction of the overhead equipment provided, to the minimum necessary for the efficient operation of the railway. Every opportunity shall be taken, therefore, to question the necessity for wiring all but the minimum number of running lines, connections and sidings.

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5.2 Wind

[NR/GN/ELP/27039](#) *Wind Loading on Overhead Line Equipment and Structures* shall be used to determine Design contact wire windspeed. The Design contact wire windspeed shall then be used when determining structure spacing and subsequent loading calculations.

5.3 Obstructions

Along track survey shall record the position of all obstructions, and shall be used when determining structure siting restrictions. Structures should not be placed within 5m of any obstruction where possible. Careful avoidance of obstructions may significantly reduce later construction cost.

5.4 Speed

The layout design shall provide overhead line equipment suitable for the operating speeds shown in the Line Speed Profile, or wherever else defined or stated.

5.5 Rolling stock

The standard kinematic envelope dimensions shown in Reference I shall be used except where a larger kinematic envelope appropriate to the specific scheme has been provided.

Lateral end and centre throws, and vertical centre throw shall be added to produce a swept envelope on horizontal and vertical curves.

6 Application of designs

6.1 Approved designs

Only design arrangements and assemblies in the approved current design range shall be employed. It is recognised additions to this range will be required to deal with special circumstances arising in the course of work. In many cases these additions will consist of revisions to existing drawings, and in others completely new designs may be required. In all cases proposals for new designs shall be submitted to the Overhead Line Design Engineer.

6.2 Type of equipment

Three types of equipment may be allocated according to performance requirements and economies to be achieved:

- a) Balance Weighted Sagged Simple Equipment is the preferred option for speeds up to 200 km/h. Shallow curved registrations with restricted uplift may be used for speeds up to 160 km/h.