

Written Notice	LU Ref. No.: LU-WN-01350
	Suppliers Ref. No.:

1	Written Notice Completed By																									
	Person Accountable	Phil Carmichael																								
	Directorate	Capital Programmes Directorate																								
	Date Issued	12/06/2015																								
2	Details of the standard Requiring Clarification																									
	Title:	Requirements for 750V Traction Power Supplies and Insulation Levels																								
	Standard Reference No.	1-122																								
	Issue No.	A1																								
	Clause/Paragraph No.:	Clause 3.2.1 Table 1																								
3	Details of Definitive LU Interpretation of Requirements																									
	Title of Written Notice	Corrections to 1-122 A1 Clause 3.2.1 Table 1																								
This change brings Cat. 1 Standard 1-122, with respect to highest permissible voltages, in to line with BS EN 50163 which permits maximum regenerative braking voltages up to 1000V. This change does not make an assessment of any asset's capability to withstand higher voltages. The project implementing any change in system operating voltages is responsible for undertaking an asset review to identify incompatibility. Replace existing Clause 3.2.1 Table 1 with the following: <table border="1"> <thead> <tr> <th>Definition</th><th>630V system (V d.c.)</th><th>750V system (V d.c.)</th></tr> </thead> <tbody> <tr> <td>Highest non-permanent voltage (duration < 5 min, including regenerative braking events)</td><td>1000</td><td>1000</td></tr> <tr> <td>Highest permanent voltage</td><td>900</td><td>900</td></tr> <tr> <td>Maximum traction rectifier output voltage (un-loaded)</td><td>790</td><td>850</td></tr> <tr> <td>Maximum traction rectifier output voltage (lightly loaded)</td><td>670</td><td>800</td></tr> <tr> <td>Rated traction rectifier output voltage (fully loaded)</td><td>630</td><td>750</td></tr> <tr> <td>Nominal voltage</td><td>630</td><td>750</td></tr> <tr> <td>Lowest permanent voltage</td><td>450</td><td>450</td></tr> </tbody> </table> Table 1 – Traction operating voltages			Definition	630V system (V d.c.)	750V system (V d.c.)	Highest non-permanent voltage (duration < 5 min, including regenerative braking events)	1000	1000	Highest permanent voltage	900	900	Maximum traction rectifier output voltage (un-loaded)	790	850	Maximum traction rectifier output voltage (lightly loaded)	670	800	Rated traction rectifier output voltage (fully loaded)	630	750	Nominal voltage	630	750	Lowest permanent voltage	450	450
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Standard



Category: Cat 1

Number: 1-122

Issue no: A1

Issue date: July 2010

London Underground

Requirements for 750V Traction Power Supplies and Insulation Levels

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A Standard is defined as:

A mandatory document which sets out minimum requirements expressed as outputs; or a mandatory document which defines an interaction or commonality which meets a defined LU requirement.

Authorised by:	<u>E Goddard</u> The Chief Engineer	Date:	<u>13-11-2008</u>
Approved by:	<u>P Carmichael</u> The Power Engineer	Date:	<u>13-11-2008</u>
Standard owner:	<u>P Carmichael</u> The Power Engineer	Date:	<u>13-11-2008</u>



1 Purpose

- 1.1** The purpose of this Standard is to define the requirements for traction supply voltages and insulation levels associated with operating the railway at a nominal 750V d.c. level.
- 1.2** The standard also includes the requirements for dual voltage capability of power supplies to enable migration from the existing 630V d.c. operation to the future operation at 750V d.c. and to align with our future line upgrade aspirations.
- 1.3** It should be noted that compliance with this Category 1 standard is mandatory.

Note: To rationalise existing standards LU intend to provide Written Notices for all existing engineering standards that mention operational traction voltages and insulation withstand levels so as to alert readers to this new standard.

2 Scope

- 2.1** This Standard shall apply to traction power supply equipment, Electrical Track Equipment (ETE), conductor rail, and all other equipment connected to and operating over, the dc traction supplies for all LU lines.
- 2.2** This Standard shall apply to all LU suppliers.
- 2.3** This Standard supersedes all pre-existing requirements in existing standards with regard to DC traction voltages and insulation levels.
- 2.4** This Standard supports the following LU Policies:

Note: The identification of Policies shown below shall have no material impact upon Infraco or other Suppliers beyond the obligations already contained in this Category 1 Standard. They are provided for LU reference purposes only.

Number	Title	Version
1-01102-001	Health, Safety & Environment	A2
1-01103-001	Company Planning	A1
1-01103-002	Management of Technology	A1
1-01105-004	System Optimisation	A1

3 Requirements

The requirements in this standard are based on British and European Standards. These are referenced in this standard. However, the requirements stipulated in this LU Category 1 Standard shall take precedence over the British and European Standards.

3.1 LU Traction Supply System

For dc traction supplies of a 4-rail nature, where there are both positive and negative conductor rails are provided, the conductor rails are notionally earthed via bleed resistors for the purposes of earth fault detection. Irrespective of whether the traction supplies are 630V or 750V the bleed resistor ratio shall be maintained for both traction supply voltage systems.