

Category 2 Standard

S2530 Irregular adjustments to the signalling system

(Formerly E7502)



Please read the Written Notices
attached to this standard

Issue No.: A3

Issue date: February 2014
Review date: February 2019

MAYOR OF LONDON

 **Documents**
Document Sharing Hub



Contents

1	Purpose	3
2	Scope	3
2.1	General	3
2.2	Implementation	3
3	Requirements	3
3.1	General requirements	3
3.2	Reporting and attending the incident	4
3.3	Criteria for irregular adjustment.	4
3.4	Irregular adjustment following failure or damage	5
3.5	Irregular adjustment following alleged design error	5
3.6	Verification	6
3.7	Safety Considerations	6
4	Responsibilities	6
5	Supporting information	7
6	References	7
6.1	References	7
6.2	Abbreviations	8
6.3	Definitions	8
6.4	Person accountable for the document	9
6.5	Document history	9
7	Appendix 1: Tables 1 and 2	9
8	Current Written Notices attached to this standard are:	18

1 Purpose

- 1.1 The purpose of this Standard is to define the requirements when it becomes necessary to make irregular adjustments to the vital signalling system in order to restore service in the event of failure conditions.

2 Scope

2.1 General

2.1.1 This Standard applies only when:

- a) The signalling has become incapable of operating in accordance with its intended specification (whether through failure, damage, design error, or any other reason); and
- b) The signalling can only be returned to a functional state in the immediate short term by means of an 'irregular adjustment'; and
- c) The risk involved in implementing and operating the irregular adjustment is tolerable, and is as low as reasonably practicable having regard to the arrangements that will be necessary to implement it, the likely duration for which it will be in use and the likely consequences if the irregular adjustment is not carried out.

- 2.1.2 This standard does not apply to planned alterations to the signalling system, which shall be carried out in accordance with S2532, Alterations to the Signalling System.

- 2.1.3 This standard applies to the fixed signalling installation (i.e. it excludes any train carried elements).

- 2.1.4 This standard applies to all sections of railway where London Underground is the Infrastructure Manager under Railways and other Guided Transport Systems (Safety) Regulations, SI 2006 no. 599, unless a formal concession to operate differently has been granted.

2.2 Implementation

This Standard shall be applicable from the date of issue.

3 Requirements

3.1 General requirements

- 3.1.1 Achievement of signalling's primary safety function of safeguarding train movements against collision and derailment normally requires it to be maintained in such a way as to ensure on-going compliance with an authorised design and an authorised set of adjustment criteria. This standard, however, deals with the exceptional circumstances when it may be appropriate temporarily to operate outside of these normally rigid constraints, in order to achieve a wider set of safety objectives.

- 3.1.2 Some of the circumstances necessitating 'irregular adjustments' are predictable and sufficiently consistent to permit specific approaches to be defined. Where this is not possible, this standard defines a general procedure to be followed.

- 3.1.3 All irregular adjustments, whether prescribed or ad-hoc, must be managed within the escalation framework defined in this standard, to ensure that they are properly

considered and authorised by appropriately competent and accountable persons prior to implementation.

3.2 Reporting and attending the incident

The incident shall be reported and managed in accordance with S2531, Incident management and preservation of evidence for signalling and train control systems, and, if applicable, the London Underground Rule Book.

3.3 Criteria for irregular adjustment.

3.3.1 Irregular adjustments may be appropriate when:

- a) A failure of signalling equipment (either 'right side' or 'wrong side'):
 - 1) Causes (or may cause) major disruption of train movements, leading to significant indirect risk; and
 - 2) Timely restoration of signalling functionality can be achieved by means of an irregular adjustment, and cannot reasonably be achieved by other means.
- b) A design error in the signalling is discovered or suspected, such that:
 - 1) Continued operation of the affected signalling is not permissible; and
 - 2) Withdrawal from use causes (or may cause) major disruption of train movements, leading to significant indirect risk; and
 - 3) Timely restoration of signalling functionality (either complete or partial, in either normal or degraded mode) can be achieved by means of an irregular adjustment, and cannot reasonably be achieved by other means.

Note: Significant indirect risk includes overcrowding, passenger distress or other factors such as human errors while the railway is being operated in degraded mode.
--

3.3.2 When a failure occurs, or a design error comes to light the Duty Signal Incident Manager (DSIM) shall:

- a) Take all necessary steps to secure the safety of the railway and preserve evidence, in accordance with S2531.
- b) Consider if an irregular adjustment may be appropriate, in accordance with the criteria in 3.3.1a) or b) and if so;
- c) Consider whether any of the 'particular circumstances' detailed in attachments 2 and 3 apply.

3.3.3 If the DSIM considers that the criteria in 3.3.1 a) or b) for the possible application of an irregular adjustment apply, and is satisfied the application of an irregular adjustment is appropriate in accordance in 3.3.2, the DSIM shall contact the Duty Signal Manager (DSM), where required by Appendix 1 Tables 1 and 2, and reach complete agreement on whether an irregular adjustment is appropriate, having regard to:

- a) The indirect risks, as noted in 3.3.1.
- b) The competence of staff available.
- c) The time for which adjustment would need to be in place.

- d) Alternative strategies for dealing with the failure.
- e) The requirement for monitoring, if necessary.

Before reaching the agreement, the DSM shall consult with the Duty Senior Signal Engineer (DSSE), where required by Appendix 1. The DSSE shall involve the accredited Lead Maintenance Assurance Engineer or the Design Authority for the system where he considers that action is necessary with regard to the adjustment involved,

3.3.4 Irregular adjustments shall be made in accordance with:

- a) 3.4 for failed or inoperative equipment.
- b) 3.5 for a design error.

3.3.5 The exact details of temporary wiring alterations and other changes, where appropriate, shall be explicitly documented (e.g. as a coloured circuit drawing). All changes shall be recorded to enable reinstatement to take place.

3.3.6 Where normal design arrangements cannot be restored within 48 hours, the Professional Head of Signalling and Lead Maintenance Assurance Engineer (APD) shall be informed not later than the next working day

3.4 Irregular adjustment following failure or damage

3.4.1 If the incident is not one of the particular circumstances listed in Appendix 1, tables 1 and 2, or if there is doubt, the DSM shall escalate the matter to the DSSE to determine the required action. The DSSE shall involve the Professional Head of Signalling or Lead Maintenance Assurance Engineer (APD) and the Design Authority for the system where he considers that action is necessary with regard to the adjustment involved.

3.4.2 The authority to make an irregular adjustment shall be recorded on an AWC issued in accordance with S2531, Signalling and signalling control safety critical processes. The AWC shall normally be issued by the DSM.

3.5 Irregular adjustment following alleged design error

3.5.1 The Duty Signal Incident Manager (DSIM) shall

- a) make technical arrangements for affected equipment to be taken out of service, or
- b) agree with the Train Service representative specific restrictions to be placed on the affected equipment's use, pending senior level engineering agreement on the seriousness of the alleged design error, and shall inform the DSM.

The DSM shall contact the DSSE who shall confer with the Design Authority.

3.5.2 Restrictions shall be confirmed or modified after discussion with, as a minimum, the Design Authority. The DSSE, or at his direction the DSM, shall arrange for any changes to methods of working resulting from the investigation.

3.5.3 Temporary solutions shall be dealt with as follows:

- a) The exact details of the proposed temporary change shall be explicitly documented (e.g. as a coloured circuit drawing, in case of wiring changes).
- b) This change documentation shall be prepared either:

- 1) By an authorised representative of the Design Authority; or
 - 2) By the DSM, in response to telephoned direction, but only when the DSSE agrees the simplicity of the change and the urgency of the solution, and the Design Authority cannot provide the drawing.
- c) The DSSE, in consultation with the Design Authority, shall determine the necessity and arrangements for checking and approving the design changes.
- d) The outcomes of c) shall be reported to the accredited Asset Engineer and Lead Maintenance Assurance Engineer (APD) or a specialist engineering deputy nominated by that Engineer not later than the next working day.

Note: All persons concerned with the checking, approval and implementation of proposals shall operate within the limits of their competence and shall seek guidance from their peers, if necessary.

3.5.4 The DSSE, in consultation with the DSM, shall nominate a competent person to test the temporary arrangement. Necessary correlation shall be carried out before implementing any change. The implementation of corrective action shall be authorised by the issue of an AWC in accordance with S2531 and carried out in accordance with documents in 3.5.3 defining the approved modification.

3.5.5 A permanent solution shall then be sought from the Design Authority, in accordance with normal design practice.

3.6 Verification

3.6.1 Compliance with the requirements of this standard shall be demonstrated to LU by the Assurance Regime set up by each Supplier contracted to LU. Additionally LU may audit compliance as part of its surveillance regime.

3.7 Safety Considerations

3.7.1 The improper control of irregular adjustments may lead directly or indirectly to train collision or derailment, or serious loss of process.

3.7.2 The carrying out of irregular adjustments may involve risks, e.g. in access and in manual or mechanical lifting, which need to be assessed, together with all other relevant factors, in considering the conduct and feasibility of the work.

4 Responsibilities

The Professional Head of Signalling (PHoS) is the person within LU with responsibility to:

- a) Determine the technical contents of the standards;
- b) Advise on the correct interpretation of and approval of concessions to standards;
- c) Resolve any conflicting issues with standards and other related safety matters;
- d) Ensure that an appropriate level of surveillance of compliance to standards is undertaken.

Lead Maintenance Assurance Engineer (LMAE) is responsible for undertaking independent assurance of Incident Management and Maintenance Delivery undertaken by the Asset Performance Directorate.

Duty Senior Signal Engineer (DSEE) is accredited by the Professional Head of Signalling to meet requirements for second level escalation via the Emergency On Call Roster (EOCR). This is the person:

- to whom serious and complex incidents are escalated
- from whom advice and guidance is sought in the management and resolution of failures and incidents
- from whom advice, guidance and authorisation is sought when situations arise that are not covered by standards and procedures

Duty Signal Manager (DSM) is the person accredited to meet the requirements for first level escalation via the EOCR and for authorising and actioning specific irregular adjustments in accordance with this standard.

Duty Signal Incident Manager (DSIM) is the on-duty signalling competent person in Asset Performance Directorate responsible for management of first line Signalling System failures and for authorising and actioning specific irregular adjustments in accordance with this standard.

Technical Officer (TO) is the signalling competent person in APD responsible for first line maintenance and faulting of the signalling system and for actioning specific irregular adjustments in accordance with this standard.

5 Supporting information

Tables 1 and 2 (Appendix 1) define particular circumstances and required actions when irregular adjustments may need to be made.

6 References

References in the text are made to latest editions unless specific editions are cited. Where references are made to other corporate engineering documents which are not yet published, existing documents shall be followed until new documents have been authorised for use.

Note: References to particular EC Directives and Regulations, Acts of Parliament, Statutory Instruments or Common Law are made only if the subject demands them. Users of engineering standards are bound by all the relevant requirements of the law, regardless of whether or not there is any reference to them in the standards.

6.1 References

6.1.1 Statutory documents

Document no.	Title
SI 2006 no. 599	Railways and other Guided Transport Systems (Safety) Regulations