AS 7666:2022

Australian STANDARD®

Train protection and control interoperability

RISSB
RAIL INDUSTRY SAFETY AND STANDARDS BOARD

Train control systems Standard

This Australian Standard® AS 7666 Train protection and control interoperability was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organizations:

Aurizon	Doc Frank Rail Services	KPMG
Metro Trains	PTA WA	PTV
Queensland Rail	Rail Assurance Consulting	SYSTRA Scott Lister
The Rail Tram and Bus Union	Transport for NSW	

The Standard was approved by the Development Group and the Train Control Standing Committee in June, 2022. On June 22, 2022 the RISSB Board approved the Standard for release.

This Standard was issued for public consultation and was independently validated before being approved.

Development of the Standard was undertaken in accordance with RISSB's accredited process. As part of the approval process, the Standing Committee verified that proper process was followed in developing the Standard

RISSB wishes to acknowledge the positive contribution of subject matter experts in the development of this Standard. Their efforts ranged from membership of the Development Group through to individuals providing comment on a draft of the Standard during the open review.

I commend this Standard to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.

Deb Spring
Chief Executive Officer
Rail Industry Safety and Standards Board

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Notice to users

This RISSB product has been developed using input from rail experts from across the rail industry and represents good practice for the industry. The reliance upon or manner of use of this RISSB product is the sole responsibility of the user who is to assess whether it meets their organization's operational environment and risk profile.

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AS 7666:2013	November 26,2013	2013 edition superseded (aged review)

Approval

Name	Date
Rail Industry Safety and Standards Board	22/06/2022

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This Standard was prepared by the Rail Industry Safety and Standards Board (RISSB) Development Group AS 7666 Train protection and control interoperability. Membership of this Development Group consisted of representatives from the organizations listed on the inside cover of this document.

Objective

The objective of this Australian Standard is to provide the railway industry with guidance including a framework and process for planning and implementing any change to a TPC system where the change has potential to impact interoperability. In particular, this Standard will support the introduction of next generation train protection and control technologies such as in-cab signalling, which have been rolled out across rail networks within Australia.

Compliance

There are four types of provisions contained within Australian Standards developed by RISSB:

1. Requirements.
2. Recommendations.
3. Permissions.
4. Constraints.

Requirements – it is mandatory to follow all requirements to claim full compliance with the Standard. Requirements are identified within the text by the term 'shall'.

Recommendations – do not mention or exclude other possibilities but do offer the one that is preferred. Recommendations are identified within the text by the term 'should'.

Recommendations recognize that there could be limitations to the universal application of the control, i.e. the identified control is not able to be applied or other controls are more appropriate or better.

Permissions – conveys consent by providing an allowable option. Permissions are identified within the text by the term 'may'.

Constraints - provided by an external source such as legislation. Constraints are identified within the text by the term 'must'.

For compliance purposes, where a recommended control is not applied as written in the standard it could be incumbent on the adopter of the standard to demonstrate their actual method of controlling the risk as part of their WHS or Rail Safety National Law obligations. Similarly, it could also be incumbent on an adopter of the standard to demonstrate their method of controlling the risk to contracting entities, or interfacing organizations where the risk may be shared.

RISSB Standards address known hazards within the railway industry. Hazards, and clauses within this Standard that address those hazards, are listed in Appendix A

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Preface

The aim of train control and protection (TPC) interoperability is to enable the various railway operating systems and infrastructures to work together in such a way that, to the end user, the transfer between systems and infrastructures appears seamless. AS 7450, which this document supports, provides the Australian rail industry with a process for addressing the interoperability of current and future systems, assets or processes.

TPC systems are an essential enabler for the safe and efficient movement of rail traffic between networks, and the protection of track workers in the rail corridor. Continued development and implementation of new technologies (e.g. ETCS and CBTC systems) provides new opportunities and risks to interoperability.

TPC systems which do not achieve the required level of interoperability can be a barrier to achieving the required operational outcomes. The appropriate consideration in the specification, design, operation and management of TPC systems is therefore crucial to achieving interoperability.

1 Scope and general

1.1 Scope

This Standard provides requirements and guidance to the Australian rail industry on the implementation of AS 7450 to train protection and control (TPC) systems.

This Standard is intended to be applied by rail transport organizations (RTOs) when implementing a new, or changes to, TPC systems.

This Standard describes considerations for TPC interoperability covering:

(a) key interfaces for TPC interoperability;

(b) development of a system integration management plan covering the requirements of a new or modified TPC system, including operational and functional requirements;

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document:

- AS 7450 Rail systems interoperability
- AS 7473 Complex system integration in railways

NOTE: Documents for informative purposes are listed in Appendix C Bibliography at the back of the Standard.