

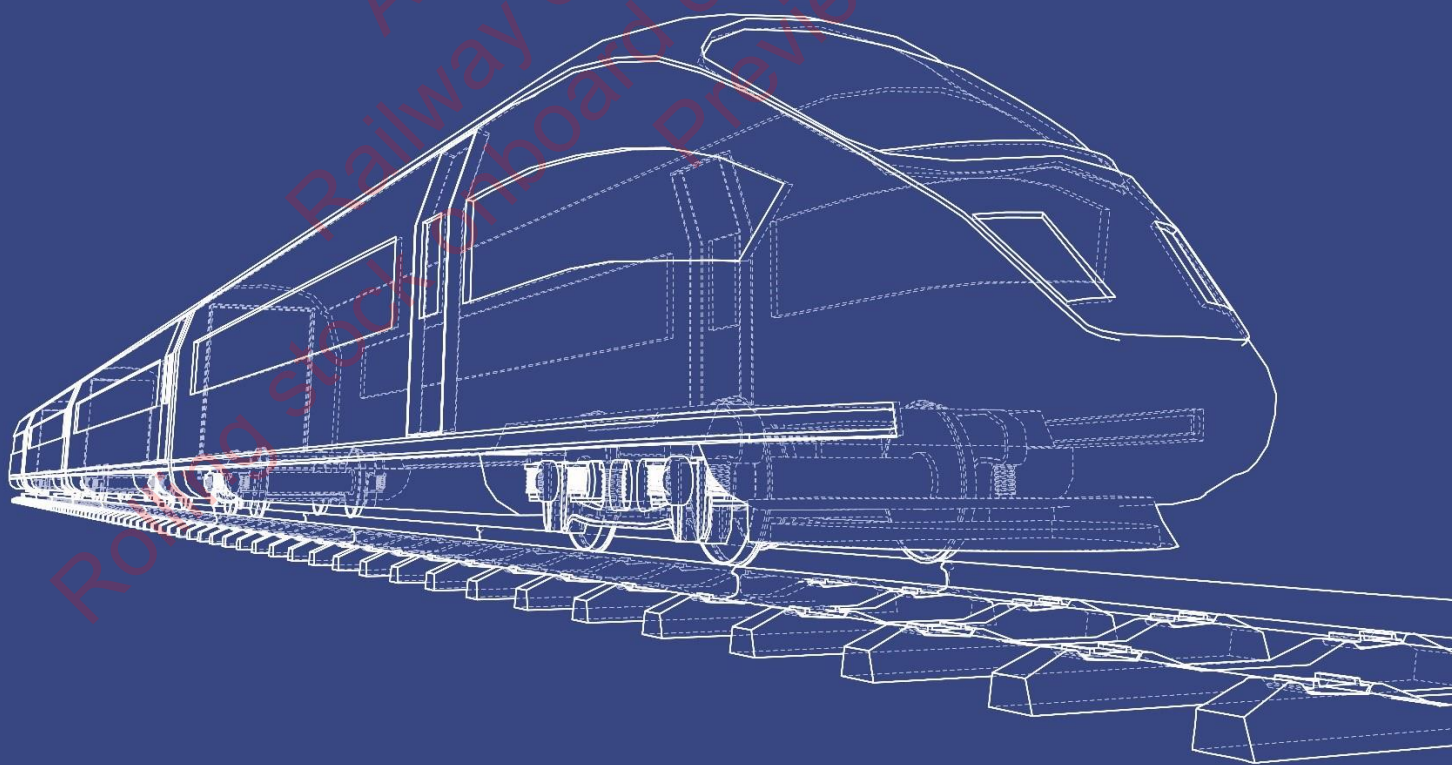
AS 7486:2022



Railway energy storage: Rolling stock onboard electrical energy storage

RiSSB
RAIL INDUSTRY SAFETY AND STANDARDS BOARD

Rolling Stock Standard



This Australian Standard® AS 7486 Railway energy storage: Rolling stock onboard electrical energy storage was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organisations:

AECOM

Aurizon

BHP

Caterpillar Inc

Central Queensland University

Metro Trains Melbourne

Public Transport Authority WA

Department of Transport (Vic)

Queensland Rail

Rail Projects Victoria

TfNSW

The Standard was approved by the Development Group and the Rolling Stock Standing Committee in June, 2022. On June 30, 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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This Standard was prepared by the Rail Industry Safety and Standards Board (RISSB) Development Group AS 7486 Railway energy storage: Rolling stock onboard electrical energy storage. Membership of this Development Group consisted of representatives from the organisations listed on the inside cover of this document

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 recognise 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 organisations where the risk may be shared.

RISSB Standards address known hazards / hazardous events within the railway industry. Where applicable to this Standard, these are listed in Appendix A: Australian Rail Risk Model (ARRM).

Contents

Introduction.....	6
1 Scope and general	8
1.1 Scope	8
1.2 Out of scope	8
1.3 Normative references.....	8
1.4 Terms, definitions, and abbreviated terms	9
2 Energy storage system (ESS) general context	13
2.1 Applications and purpose of the ESS within rolling stock	13
2.2 Description of the ESS within rolling stock	13
2.3 Systems interfacing with the ESS	16
3 ESS requirements and specification	18
3.1 General design principles.....	18
3.2 Assessment to inform ESS selection and implementation.....	18
3.3 Operational requirements for energy and power performance	23
3.4 Interoperability	24
3.5 Environment.....	25
3.6 Rail vehicle certification and compliance.....	28
3.7 Testing.....	28
3.8 Construction.....	28
3.9 Installation	29
3.10 Maintenance	29
3.11 Disposal.....	30
4 Safety.....	32
4.1 General.....	32
4.2 Collision and crash worthiness.....	32
4.3 Electric shock and short circuit Protection.....	33
4.4 Thermal runaway, fire and explosion	35
4.5 Toxic and corrosive material	39
4.6 Component and release at velocity and fluid release at pressure.....	39
4.7 Handling and storage.....	40
4.8 Dynamic stability	40
4.9 Out of gauge	41
4.10 Structural	41
4.11 Electromagnetic compatibility.....	42
4.12 Acoustic noise.....	42
4.13 Functional failure	42
4.14 Human performance	43
4.15 Software and cyber security.....	44
4.16 Hazardous materials	44

Appendix contents

Appendix A	Hazard register (informative).....	46
Appendix B	Bibliography	49

AS 7486:2022
Railway energy storage:
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Preview

Introduction

This standard supports Australian rolling stock operators (RSO) to specify and utilize onboard batteries and electric double-layer capacitors (EDLC) used mainly for traction purposes (propulsion and braking) so that they are used safely, effectively, and reliably in the Australian context and networks, throughout the life of the energy storage system (ESS). This document provides a basis for RSOs, vehicle manufacturers, and ESS manufacturers to understand and communicate the requirements on ESS.

This is done through guiding the understanding of:

- (a) the ESS's contribution to rolling stock performance goals;
- (b) the ESS's interface with onboard and offboard systems;
- (c) the rolling stock operational context;
- (d) international and national standards related to rolling stock with onboard ESS.

Adherence to this RISSB standard does not ensure compliance with the national law, national guidelines, standards, and codes of practice. However, this standard supports the duties under the Rail Safety National Law by articulating potential hazards arising from the ESS in the operational context.

Design principles are presented to support the elimination or mitigation of safety risk to be safe, so far as is reasonably practicable (SFAIRP). Where applicable, this standard also directs the reader to existing standards that can provide specific requirements and information.

This standard builds on existing national and international standards by providing additional guidance and requirements for ESS. The main existing international standards relevant to onboard ESS using batteries are IEC 62864-1, IEC 61881-3, and IEC 62928. Performance based requirements, recommendations, and guidance will not replicate existing published requirements and recommendations.

Note that IEC 62864-1 presents the relationship between the standards in terms of levels of systems and subsystems.

- (a) Level 1 is the vehicle/system interface.
- (b) Level 2 is system and interfaces.
- (c) Level 3 is components.
- (d) Level 4 is subcomponents.