

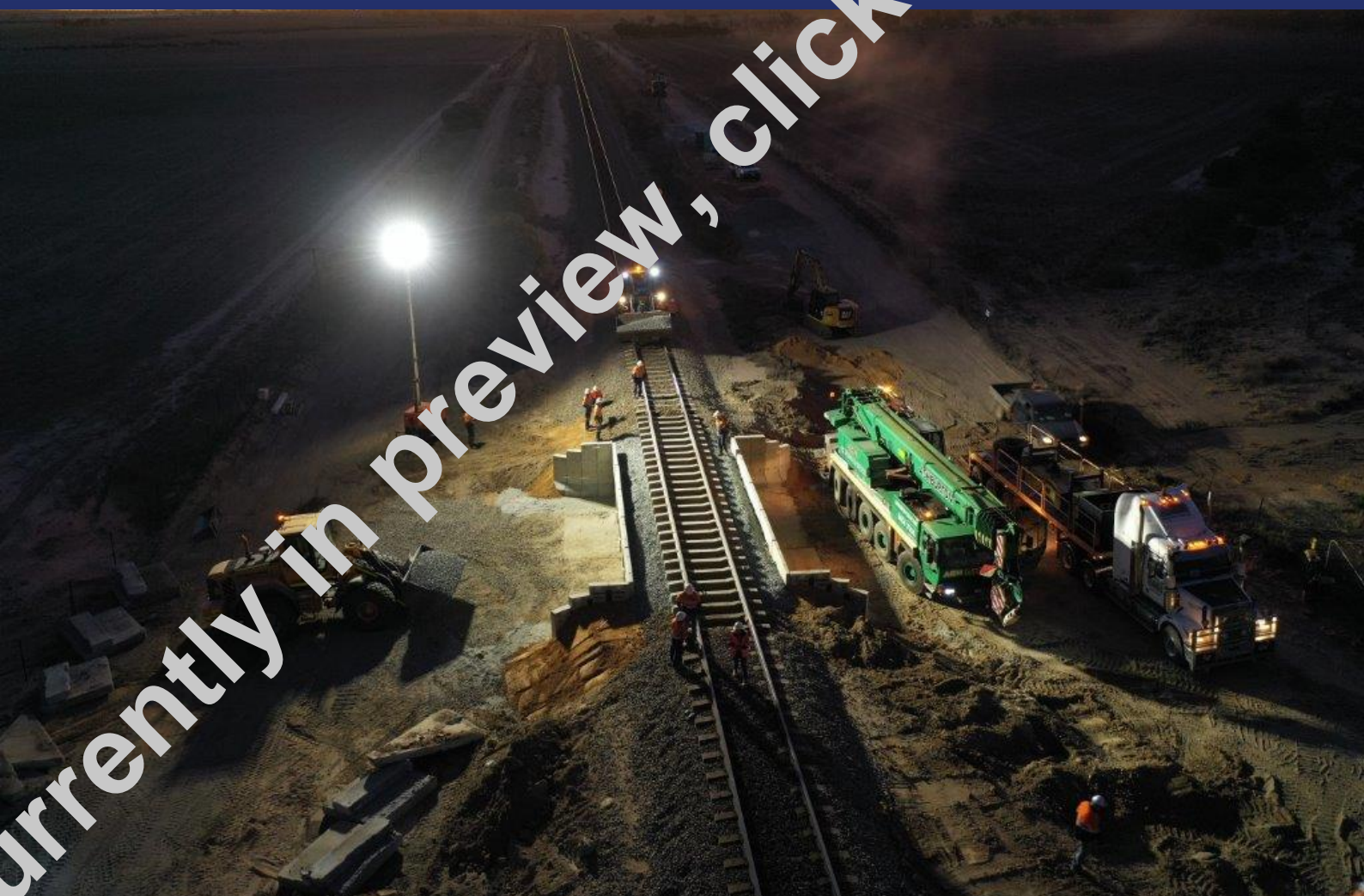


Railway networks – Remotely piloted aircraft systems (Drones) Operational requirements

RiSSB

RAIL INDUSTRY SAFETY AND STANDARDS BOARD

Operations Standard



This Australian Standard® AS 7460 Railway networks – Remotely piloted aircraft systems (Drones) – Operational requirements was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organisations:

Airsight Australia	ARC Infrastructure	ARTC
AUAV	Aurizon Network	Australian Industry Standards
Central Queensland University	Hoverscape	Metro Trains Melbourne
Omni Rail Group	Pacific National	Sydney Trains
Tobruk Security	Transport for NSW/Line	Monash University

The Standard was approved by the Development Group and the Operations Standing Committee in February, 2021. On March 24, 2021 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
Exec. Chair / CEO
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 7460 Railway networks – Remotely piloted aircraft systems (Drones) – Operational requirements. Membership of this Development Group consisted of representatives from the organisations listed on the inside cover of this document.

Objective

The objective of this Standard is to define the requirements for participants in the rail transport industry, bringing together the requirements of professional aviation and rail safety to manage risks and safety in the operation of remotely piloted aircraft systems (drones).

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 define 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 organisations 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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Foreword

The adoption of remotely piloted aircraft systems (RPAS) and the evolution of payload capabilities to accomplish a myriad of operational activities has been rapid. This has been accompanied by fast-paced technology innovation and RPAS usage being governed by a dynamic regulatory environment.

To name but a few, some of the current uses of RPASs in the rail industry include:

- remote survey, condition inspection and cataloguing of rail, infrastructure, and overhead live environment assets – for planning and monitoring when in operation;
- delivery and application of chemicals and coatings to elevated assets and rail corridors where it is high risk or hazardous for personnel to carry out similar work;
- overhead surveillance for security inspection, crowd control, and deterrence;
- overhead inspection of incidents and working in conjunction with emergency services for co-ordination of first responders;
- survey and identification of dangerous terrain and natural hazards to rail environments before, during and after floods and bushfires;
- flying a “cell in the air” repeater to achieve coverage in highly mountainous terrain where mobile train radio base stations have been destroyed by bushfires.

To achieve safe and successful RPAS operations within the rail industry it is necessary to leverage advances in RPAS technology (particularly where these advances contribute to increased safety) and apply the mature, safety oriented, engineering principles of the rail industry in their operation.

RPAS operations within rail environments also span two critical infrastructure industries - rail and aviation. Along with national, state and local laws RPAS operators and their personnel are subject to a complex range of legislative obligations covering a multitude of domains.

This Standard therefore sets a baseline for the safe operation of RPAS in the Australian rail industry, bringing together the requirements of professional aviation and rail safety by defining operational requirements that:

- ensure the safety of workers, RPAS crew, the general public and airspace users;
- accommodate the rapidly evolving regulatory environment;
- encourage and enable continued innovation in the RPAS industry;
- form a foundation for best practice, advocacy, and public awareness;
- demonstrate that the rail industry had adopted a risk-based, industry standard approach to RPAS operations; and
- demonstrates professional application of RPAS assets and services to deliver operational value, risk mitigation and return on investment.

1 Scope and general

1.1 Scope

This Standard provides:

- (a) requirements for the operation of remotely piloted aircraft systems (RPAS) by RPAS operators within the railway network; and
- (b) requirements for rail transport operators (RTOs) to manage the hazards imposed by RPAS use generally (whether that be by RPAS operators or the general public) and specifically those hazards identified in Appendix A.

1.2 Exclusions

This Standard does not seek to repeat the requirements specified by the Civil Aviation Act, Civil Aviation Regulations (CAR), Civil Aviation Safety Regulations (CASR), Airspace Act or subordinate regulatory requirements and guidance specified by the Australian Civil Aviation Safety Authority (CASA).

To be noted is that many of the requirements of this Standard, in meeting and exceeding the requirements of legislation and regulation do have underpinning and corresponding requirements from aviation law.

If any part of this Standard, presently or in the future, conflicts with the requirements of legislation and regulation, then the law takes precedence.

This Standard does not seek to include the requirements of the Australian Communications and Media Authority (ACMA) regarding radio frequency spectrum usage.

This Standard applies specifically to remotely piloted aircraft systems. It does not apply to other classes of remotely piloted systems (for example underwater or land based), nor does it apply to any other aerial system such as balloons, rockets or pyrotechnics.

1.3 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:

- Civil Aviation Safety Regulations (CASR) 1998 Part 101, Civil Aviation Safety Authority (CASA)
- Part 101 (Unmanned Aircraft and Rockets) Manual of Standards (MOS) Instrument 2019 as amended and in force as at 20 December 2019, Compilation 1, 23 January 2020, Civil Aviation Safety Authority (CASA)
- Advisory Circular AC 101-01v3.0, Remotely piloted aircraft systems - licensing and operations, Civil Aviation Safety Authority (CASA), December 2019
- AS 7470 Human Factors Integration in Engineering Design – General Requirements
- AS 7633 Railway Infrastructure: Clearances.

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