ARTC **Division / Business Unit:** Function: Engineering (All Disciplines) Document Type: **Equipment & System Type** Approval

EGP-21-01

Applicability

ARTC Network Wide

Publication Requirement

Internal

Primary Source

PP-122 (v2.1) AS 7702

Document Status

Version #	Date Reviewed	Prepared by	Reviewed by	Endorsed	Approved
1.8	03 Oct 24	Standards	Stakeholders	Manager Engineering Services	General Manager Technical Services and Assurance 29/10/2024

Amendment Record

Amendment Version #	Date Reviewed	Clause	Description of Amendment
1.0	02 Sep 11		Supersedes PP-122 version 2.1. Amendments to remove references to redundant positions and committee resulting from organisational restructure and minor editorial changes.
1.1	20 Jan 15		Document rebranded. Update to approval authorities, reference documents, and other minor editorial updates.
1.2	06 Mar 15	3, 4 & 7	Reference to RISSB Rail Equipment Type Approval Standard added.
1.3	26 Nov 15		Track and Civil and Structures items requiring product acceptance specified.

© Australian Rail Track Corporation Limited (ARTC)

Disclaimer

This document has been prepared by ARTC for internal use and may not be relied on by any other party without ARTC's prior written consent. Use of this document shall be subject to the terms of the relevant contract with ARTC.

ARTC and its employees shall have no liability to unauthorised users of the information for any loss, damage, cost or expense incurred or arising by reason of an unauthorised user using or relying upon the information in this document, whether caused by error, negligence, omission or misrepresentation in this document.

This document is uncontrolled when printed.

Authorised users of this document should visit ARTC's intranet or extranet (www.artc.com.au) to access the latest version of this document.

Safety and Systems

Procedure

Division / Business Unit: Function: Document Type: Enterprise Services Engineering (All Disciplines) Procedure

1.4	28 Mar 18	3, 6, 7, 8 & 9	Reference docs added (EGP2101F-02, EGP-01-01 & EGP0101F-02); Definitions added (Endorser, Equivalent Item, Trial Type Approval & Type Approval Categories for Existing Products); Procedure section updated to note EGP2101F-01 and EGP0101F-02 to be completed, and that GM Technical Standards approves minor Type Approvals, also added Regulator Notification requirement; Updated flow chart; Type approval process overview added.
1.5	18 Jun 18	9	Endorser's position title updated.
1.6	16 Apr 20	All	Scope updated for signalling and minor update to procedure.
1.7	14 Aug 20	2, 9, 10	Flow chart updated for current position titles
1.8	03 Oct 24	All	Process updated to clearly define each step and authority. Adding cybersecurity and ESG into consideration. Certificate types to align with AS 7702. Updating position titles.



Table of Contents

1	Intro	ntroduction4			
	1.1	Purpose	4		
	1.2	Scope	4		
	1.3	Responsibilities	4		
	1.4	Reference Documents	4		
	1.5	Definitions	5		
2	Туре	Approval Initiation	6		
3	Туре	Approval Classification	7		
	3.1	General	7		
	3.2	Flowchart	7		
4	Туре	Approval Certificates	9		
5	Туре	Approval Process	10		
	5.1	New Request	10		
	5.2	Review of Trials	12		
	5.3	Withdrawal of Certificate	14		
	5.4	Regulator Notification	14		

Division / Business Unit: Function: Document Type: Enterprise Services Engineering (All Disciplines) Procedure

1 Introduction

1.1 Purpose

The purpose of Equipment and Systems Type Approval (TA) is to ensure that any new and changes of equipment and systems introduced into the ARTC network are appropriate with regard to technical and safety performance, suitability and compatibility with existing equipment or systems.

1.2 Scope

The scope of this procedure is limited to the ARTC assets that comprise the ARTC owned, leased or managed Network. It generally covers:

- Equipment or systems imposing risks to safety and / or track performance.
- Wayside systems that have risks associated with the operation of trains or affect the performance of the track.

Items which are commercial of the shelf (COTS) products, complying to ARTC specifications or applicable Australian and International standard may not require type approval.

Final determination of whether any item requires type approval will be made by Engineering Services.

1.3 Responsibilities

Technical Services and Assurance is responsible for the governance of the TA process.

TA application for new items must have an ARTC sponsor. The application and all enquiries should be submitted to <u>Standards@ARTC.com.au</u>. The ARTC sponsor as stated on the EGP2101F-01 should liaise with the Supplier to provide information for the product to allow it to be assessed for the TA.

1.4 Harmonisation

This procedure is intended to align with the principles of AS7702 Rail Equipment Type Approval.

ARTC is a signatory of the Product Type Approval Framework (PTAF) and intends to further develop this procedure in line with the PTAF as the PTAF develops to allow for a standardised approach to type approval between Rail Infrastructure Managers.

1.5 Reference Documents

The following documents support this procedure:

- AS 7702 Rail Equipment Type Approval
- RSK-PR-001 Risk Management Procedure
- IEC 61508 Functional safety: Safety-related systems
- FPR-PR-024 Purchasing Materials Procedure
- FPR-PR-025 Inventory Management
- EGP2101F-01 Type Approval Request Form



• EGP2101F-02 Equipment Feedback Form

1.6 Definitions

The following terms and acronyms are used within this document:

Term or acronym	Description
ARTC SMS	ARTC Safety Management System
ARTC Sponsor	An ARTC point of contact who represents the project / business group that initiates the proposal of new or modified product.
Endorser	The authority supporting the need for new equipment and systems into the ARTC network based on business benefit assessment.
Equivalent item	Item which has the same acceptable performance of all the functions, and ability to interface in the same way to other items that comprise the equipment or system.
ESG	Referring to ARTC's environmental, social and governance commitments outlined in the ESG Strategy to improve environmental performance, create positive social outcomes, and the internal governance systems that support responsible decision making.
PIP	Product Information Pack.
	The list of key safety and technical characteristics of a railway equipment product and the supplier's information.
Responsible Engineer	The engineer managing the submission on behalf of Engineering Services
Responsible Principal Engineer	The relevant discipline Principal Engineer
RFI	Request for Information
SFAIRP	So far as is reasonably practicable
SMEs	Subject matter experts
ТА	Type Approval
	Approval of a specific item of railway equipment, demonstrating SFAIRP that is fit for purpose for a defined application meeting the requirements as applicable to the network.
Responsible Approver	Manager Engineering Services

2 Type Approval Initiation

A Type Approval process can be initiated by the proposal of new or modified products.

Project or business unit to identify the need and intention for purchasing a new product or continuously using a modified product. This could be driven by:

- Asset performance analysis, e.g. Signal Fault Reduction Strategy initiative etc.
- Industry development of components, e.g. new rail fastening, LED signal head etc.
- Infrastructure enhancement, e.g. new crossing loop, new signalling system, timber to concrete sleeper upgrade etc.
- Rail Systems and Operational Technology introducing new equipment or system.
- New inventory that may need to be catalogued and warehoused.
- Management of existing inventory.



Note: The consideration may include Business Benefit assessment. Generally, the Project Engineer works with the Design Engineer to confirm the Business Benefit of the new system/equipment. Business Benefit Assessment is based on the information provided by the Supplier or as otherwise determined by the Designer.

The following should be considered before introducing the product to the network.

- Suitability for the task and environment.
- Substitution of an existing approved product
- Economy analysis (considering the life cycle of a product)
- *Note:* If it is unsure whether an item needs to be type approved contact Standards for further information.

3 Type Approval Classification

3.1 General

All applications for TA are classified into Class I (Significant) or Class II (Minor) case by case. Examples for each classification are summarised in Table 1.

Classification	Typical Examples
Class I	• First item from a new supplier except identified as Class II.
	New Technology or equipment except identified as Class II.
	 Existing equipment with major upgrade or new technology or change to system software except identified as Class II.
	Major safety system.
	 Specialist tools for systems, such as design tools, testing tools etc.
	 Any item for which there is no ARTC Standard or no Australian Standard or equivalent set of requirements.
	When regulator notification is required.
Class II	 Equivalent item to that already approved but provided by the same or an alternate supplier.
	 Updated or upgraded item to that already approved with no significant changes in functionality or design.
	 Variation to specification of an existing item that provides alternate functionality but with no significant change in materials or process (generally an extension of a range or family of products).
	 Item that only affects efficiency of infrastructure and does not directly contribute to safety or operational performance.
	 Support systems for equipment including non-destructive testing device, design aids/software and tools.

Table 1: Type Approval Classification

3.2 Flowchart

The following flowchart summarises the equipment and systems type approval process. Refer to 5.1 for a more detailed step by step description of the process.





4 Type Approval Certificates

Certificate will be granted after a successful completion of TA evaluation. Table 2 summarise all types of certificates based on the outcome of the evaluation.

Certificate type	Description
Full	The product is assessed as acceptable for an indefinite period network wide.
Provisional	The product is assessed as acceptable for trial purposes or when there are defined time constraints or other temporary constraints.
	Note: Upon a successful completion of the trial, it will be approved for a full certificate; If the trial deemed to be unsuccessful, it will be withdrawn to prevent future purchase however, the existing product can remain in track.
Restricted	The product is assessed as acceptable for an indefinite period but in a limited geographical, operational or system application.
Legacy	A legacy type approval certificate is used in situations where a product has previously been approved (may not have a certificate) but is prohibited from being used in new installations.
	Legacy items may continue to be used in existing installations where they are currently used and in renewals of that infrastructure, unless specified otherwise.
Withdrawn	A certificate can be withdrawn and no longer be used in new works or replacement installation.

Table 2: Type Approval Certificates

Note: <u>ESA-00-01</u> is a live list designed to capture all Signalling approved items. Some products will be added onto the list as a form of grant at the end of the TA process instead of issuing a Certificate.

5 Type Approval Process

5.1 New Request or Amendment of Existing TA

The following steps should be taken to assess a TA application.

- 1. Type Approval Request Form (EGP2101F-01) is filled out and submitted to Standards along with supporting documents for preliminary assessment. This is to understand the background and reasons for the proposed product / system.
- 2. The Supplier of the product provides detailed technical information to allow it to be assessed against operational and technical requirements. Provision of a Product Information Pack in accordance with AS 7702 is the default requirement for ARTC. Suppliers may request to vary from this with supporting reasons. ARTC, at its discretion, may accept or decline the submission or terminate the type approval process at any stage, with or without explanation.
- 3. The Engineering Services team evaluates if the TA is Class I or Class II.

Class I changes progress as per 5.1.1. Class II changes progress as per 5.1.2.

5.1.1 Class I

Following completion of Steps 1 to 3.

- 4. An Endorsement Panel is nominated by the responsible Principal Engineer, consisting of relevant stakeholders and their acceptance is sought. Ordinarily the stakeholders might include the following representatives.
 - SMEs
 - Work Health and Safety (if any related issues are identified)
 - Environment (if any related issues are identified, such as ESG, contamination, waste, toxins etc.)
 - Cyber security (if any related issues are identified, such as credentials, malware etc.)
 - Procurement and Supply
 - Standards
- Note: Engineering Services team may engage Independent Reviewer(s) if specialised expertise and technical knowledge are required to assist in conducting comprehensive assessments.
- 5. In addition to safety in design considerations (if available), the product is generally risk assessed against functionality, safety, environmental and relevant operation issues. An ARTC Risk Register accepted by SMEs shall be provided to demonstrate that any risks introduced by the products are controlled so far as is reasonably practicable (SFAIRP).
- Note: The risk assessment should use ARTC risk register template to capture relevant risk events including business risks. The risk workshop can be organised by the supplier or ARTC personnel with ARTC SMEs attendance.
- 6. The responsible Engineer reviews the submission in conjunction with the Endorsement Panel. Panel members are expected to endorse the TA from the perspective that is relevant

Division / Business Unit: Function: Document Type: Enterprise Services Engineering (All Disciplines) Procedure

to their role and expertise. RFIs and comments are captured in a register for record keeping. Conditions of Approval are developed based on constraints identified in the process (including risk assessment outcomes) to ensure safety and best practice.

The product is assessed against the following criteria but not limited to:

- Technical performance.
- Safety performance.
- Geographic and maintainability considerations.
- Compatibility with other interfacing systems or equipment.
- Harmonisation previous assessment and approval of the system or equipment by another major infrastructure owner or recognized certification body.
- 7. The submission is sent to the responsible Principal Engineer to review and make a recommendation for approval to the responsible approver. The following items should be provided to the Manger but not limited to:
 - EGP2101F-01 Type Approval Application Form
 - Draft Certificate (or equivalent)
 - ARTC Risk Register
 - Product information package
 - Panel endorsement along with Comment register (or equivalent)
- 8. The responsible approver confirms if Regulator Notification is required in accordance with the ARTC SMS (Manage Accreditation Variation & Change). Details are in Section 5.3.
- 9. Once the approval is granted, an ARTC Inventory Product number shall be obtained and added to the certificate.
- 10. The Equipment & System Register will be updated, Certificate will be published, and a Type Approval notification will be issued via email.
- *Note:* Gaining Type Approval is not implementation approval. The decision to implement new equipment or systems rests with Asset Management Authority.

Certificate of a product can be withdrawn based on unsatisfactory performance, lack of support from manufacturer / supplier or other reasons. Refer AS7702 Rail Equipment Type Approval for further information on withdrawal.



5.1.2 Class II

Following completion of Steps 1 to 3.

- 4. A Class II TA may require additional assessment such as panel review or risk assessment on a case-by-case basis. The responsible Principal Engineer confirms the additional assessment requirements if there are any.
- 5. The submission is sent to the responsible Principal Engineer to review and make a recommendation for approval to responsible approver. The following items should be provided to the Manger but not limited to:
 - EGP2101F-01 Type Approval Application Form
 - Draft Certificate (or equivalent)
 - Product information
 - Additional supporting documents as required (if applicable)
- 6. Responsible approver confirms if Regulator Notification is required in accordance with the ARTC SMS (Manage Accreditation Variation & Change). Details are in Section 5.3.
- 7. Once the approval is granted, an ARTC Inventory Product number shall be obtained and added to the certificate.
- 8. The Equipment & System Register will be updated, Certificate will be published, and a Type Approval notification will be issued via email.

5.2 Review of Provisional Type Approval

The following steps should be taken to review an existing provisional TA upon its expiry date.

- 1. Project or business unit to submit a Equipment Feedback Form (EGP2101F-02) 3 months prior to the expiry date of the Certificate, along with the following information but not limited to:
 - Trial set up details (e.g. Photographs of the trial site)
 - Known issues in the duration of the trial.
 - Inspection record
 - Performance review report
 - On-site testing and results (if available)
 - Demonstrating the product meets expectations.
 - Suitability and compatibility as stated in the Certificate.
 - Identifying additional risks (if applicable).
 - Risk assessment for additional risks (if applicable).

- 2. The responsible Engineer reviews the trial in conjunction with the SMEs to identify if additional risks are introduced. These could be caused by product modifications and / or changes to network applicability. If no additional risk is identified, proceed to step 4.
- 3. An ARTC Risk Register accepted by SMEs shall be provided to demonstrate that any additional risks introduced by the products are controlled so far as is reasonably practicable (SFAIRP).
- 4. The responsible Engineer to make a recommendation for amending the trial to a full certificate to the responsible Principal Engineer. The following items should be provided to the Manger but not limited to:
 - Draft Certificate
 - Supporting documents if applicable (e.g. Risk assessment, SME review, Manuals, emails etc.)
- 5. If the trial deemed to be unsuccessful, refer to Section 5.3 to withdraw the Provisional Certificate.
- 6. The responsible Principal Engineer to make a recommendation for approval to responsible approver and confirm if Regulator Notification is required in accordance with the ARTC SMS (Manage Accreditation Variation & Change). Details are in Section 5.4.
- 7. Once a Full Certificate is granted, an ARTC Inventory Product number shall be obtained and added to the certificate if not already.
- 8. The Equipment & System Register will be updated, Certificate will be published, and a Type Approval notification will be issued via email.

Note: A new Type Approval Application Form (EGP2101F-01) needs to be filled out if modifications of the trial product occur. This includes revised design resulting from in service performance.

5.3 Withdrawal of Certificate

An approved certificate can be withdrawn due to unsatisfactory performance, lack of support from manufacturer / supplier or other reasons. Following the processes below to request a certificate withdrawal.

- 1. Project or business unit to submit a request of withdrawal along with reasons and evidence (e.g. photos of faulty product, reports on poor performance etc.).
- 2. The responsible Engineer to review the request, the following criteria should be checked before proceeding to the responsible Principal Engineer for approval.
 - ARTC Inventory Product number
 - Implementation (e.g. remove or retain the existing installations)

The following documents should be provided to the Manger for consideration but not limited to:

- Equipment Feedback Form (EGP2101F-02) to request the withdrawal
- Supporting documents (emails, reports, photos etc.)
- 3. The responsible Principal Engineer to make a recommendation for approval to responsible approver.
- 4. Once the withdrawal of a certificate is granted, the Equipment & System Register will be updated, Certificate will be removed, and a Type Approval notification will be issued via email.
- 5. Once the withdrawal is granted, the ARTC Inventory Product number shall be removed.
- 6. An email from Standards to inform the supplier / manufacturer of the withdrawal.

5.4 Regulator Notification

Notification to the regulator includes a specified notification period, generally 28 days. The person responsible for the Regulator Notification shall advise <u>standards@artc.com.au</u> of:

- The date on which the Regulator was notified
- The date the notification period ends

A Type Approval requiring Regulator notification will not come into effect until the end of the required notification period unless early acceptance is received.