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IEC 62402:2019, MOD
(ICS 45.040)

SINGAPORE STANDARD

Obsolescence management – Railway

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Contents

Page

National Foreword

This Singapore Standard was prepared by the Working Group on Railway Obsolescence Management set up by the Technical Committee on Railway Systems under the purview of Transportation Standards Committee.

This standard is a modified adoption of IEC 62402:2019, “Obsolescence management”, published by the International Electrotechnical Commission.

This standard aims to promote common understanding and consistency in the definition of terms and in establishing requirements and guidelines for obsolescence management of railway systems.

In this standard, certain modifications due to national requirements and the particular needs of the railway industry have been made. These technical deviations and additional information have been added directly to the clauses to which they refer, and are marked by vertical bar on the left margin of the standard, adjacent to the text that was changed. A complete list of modifications, together with their justification, is given in Annex ZB.

In preparing Clause ZA5.5 and Clause ZA5.6 of this standard, materials and figures from Clause 3.4 and Clause 3.5 of “Obsolescence risk assessment process best practice” by F J Romero Rojo, R Roy and S. Kelly from the Journal of Physics: Conference Series 364 were adapted into this standard.

Acknowledgement is made for the use of information from the above publications.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as “mature standards”. Mature standards will not be subject to further review unless there are requests to review such standards.*

2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*

3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

Obsolescence management – Railway

0 Introduction

For the purposes of this document, obsolescence management is a discipline used at all phases of an item's life cycle to ensure an item and its sub items can continue to fulfil their requirements over their expected service life.

This document takes a different view of obsolescence from the standard dictionary definition. Instead of an item becoming outdated or no longer used, this document views obsolescence as the transition of a required item still in use from available to unavailable from the manufacturer. Any item that remains in use will be subject to obsolescence. Obsolescence manifests itself as difficulty in obtaining supplies, spares and/or support.

This document defines the requirements for managing the obsolescence of any type of item. Obsolescence management helps prevent unnecessary losses (for example loss of commercial service or capability) and treat risks associated with obsolescence. The assessment of risk associated with obsolescence takes account of factors including but not limited to: the likelihood of an item becoming obsolete during its expected service life, the likelihood of an impact occurring during that projected service life, and the severity of that impact. Obsolescence management treats risks associated with obsolescence by reducing the likelihood or severity of impact, or both.

It has become essential to include obsolescence management within planning activities from the earliest life cycle phases. The guidance provided in this document could be characterised as strategic obsolescence management when obsolescence management is planned and implemented during the early life cycle phases.

Even though this situation may not be a direct case of obsolescence, this document will also be of assistance in the management of items that have diminished manufacturing sources and materiel shortages that can result in long lead times, reduced availability and ultimately obsolescence of those items.

Managing obsolescence contributes to the dependability of an item, particularly supportability, which is defined as the 'ability to be supported to sustain the required availability with a defined operational profile and given logistic and maintenance resources. As such, obsolescence management may be performed as part of an overall dependability management programme as described in IEC 60300-1 [1][1].

The hallmark of effective and efficient supply support is the ability to deliver the right products to the right place, at the right time, in the right quantity as and when demanded by the user at an optimised and reasonable cost. Supply Chain Performance is a leading indicator for the maintainability and sustainability of a system. The growing utilisation of electronic technology in Rapid Transit System (RTS) and rail infrastructure has undeniably enhanced operating efficiency and safety for the railway sectors, while also improving the passenger experience. However, increased electronics with software interface and differences in proprietary product life cycle in the railway system have posted a key challenge of Diminishing Manufacturing Sources and Material Shortages (DMSMS) leading to parts' obsolescence.

Most electronic component and equipment manufacturers focus on their next-generation products and on emerging technologies to provide new revenue streams driven by fast-moving consumer markets [18]. Railway assets are typically designed to last for 15 to 30 years, obsolescence of these components during the railway asset's lifetime is inevitable and need to be proactively managed as an integral part of the Design, Build, Operations and Maintenance phases, to minimise its impact on asset life and the potentially high sustenance costs. See normative Annex ZA for railway

[1] Numbers in square brackets refer to the Bibliography.

obsolescence management strategies to reduce obsolescence in the planning and design phase of an item's life cycle, railway obsolescence management framework and risk assessment.

1 Scope

This document provides requirements and guidance for obsolescence management applicable to any organisation that is dependent on another organisation to obtain value from the usefulness of the items that it provides. A cost-effective obsolescence management process and the activities used to implement the process are applicable throughout all phases of an item’s life cycle.

This document covers the following areas:

- establishing an obsolescence management policy;
- establishing an infrastructure and an organisation;
- developing an obsolescence management plan (OMP);
- developing strategies to minimise obsolescence during design;
- determining an obsolescence management approach;
- selecting obsolescence resolution and implementation;
- measuring and improving the performance of the outcomes of the obsolescence management activities.

Guidance on obsolescence management is included as notes, in the informative annexes and references in the Bibliography.

2 Normative references

There are no normative references in this document.