SLOVENSKI STANDARD
SIST-TS CEN/TS 16501:2013

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Upravljanje zračnega prometa - Specifikacije za stopnje varovanja programske opreme

Air Traffic Management - Specification for software assurance levels

Flugverkehrsmanagement - Spezifikation für Software-Sicherheitsanforderungsstufen

Gestion du trafic aérien - Spécification des Niveaux d'assurance logicielle

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ICS:

03.220.50	Zračni transport	Air transport
35.240.60	Uporabniške rešitve IT v transportu in trgovini	IT applications in transport and trade

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TECHNICAL SPECIFICATION

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CEN/TS 16501

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ICS 35.240.60

English Version

Air Traffic Management - Specification for software assurance levels

Gestion du trafic aérien - Spécification des niveaux d'assurance logicielle

Flugverkehrsmanagement - Spezifikation für Software-Sicherheitsanforderungsstufen

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CEN/TS 16501:2013 (E)

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Foreword

This document (CEN/TS 16501:2013) has been prepared by Technical Committee CEN/TC 377 "Air Traffic Management", the secretariat of which is held by DIN.

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CEN/TS 16501:2013 (E)

Introduction

The European Union launched the "Single European Sky" (SES) Legislation in 2002, which was adopted in 2004.

The SES legislation is based on a framework of 4 regulations, which includes the Interoperability Regulation (EC 552/2004). The objective of the Interoperability Regulation is to ensure interoperability of the European Air Traffic Management Network (EATMN) consistent with air navigation services.

An increasing proportion of functions of the EATMN are implemented by software and these functions are becoming more safety-critical. It is therefore necessary to define guidance on how to standardise the assurances that may be provided for software.

1 Scope

This Technical Specification specifies the technical, operational and maintenance requirements for Software Assurance Levels to support the demonstration of compliance with some elements of the Essential Requirements "Safety" and "Principles governing the construction of systems" of the Regulation (EC 552/2004) of the European Parliament and of the Council on the interoperability of the European Air Traffic network ("the Interoperability regulation").

This Technical Specification on Software Assurance Levels (SWAL) is intended to apply to software that is part of the EATMN, focusing only on its "ground" segment and providing a reference against which stakeholders can assess their own practices for software specification, design, development, operation, maintenance, evolution and decommissioning.

Requirements in the present document which refer to "should" statements or recommendations in the normatively referenced material are to be interpreted as fully normative ("shall") for the purpose of compliance with the present document.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EUROCAE ED-153 (August 2009), *Guidelines for ANS software safety assurance*.[1]

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
ANS
Air Navigation Service

3.2
COTS
Commercial off the shelf software
commercially available application sold by vendors through public catalogue listings and not intended to be customised or enhanced

3.3
EATMN
European Air Traffic Management Network

3.4
EC
European Community

3.5
EU
European Union

3.6
EUROCAE
European Organisation for Civil Aviation Equipment

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[1] Published by: EUROCAE, 102 rue Etienne Dolet, 92240 Malakoff – France

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3.7
SES
Single European Sky

3.8
software
computer programmes and corresponding configuration data, including non-developmental software, but excluding electronic items, namely application specific integrated circuits, programmable gate arrays or solid-state logic controllers

Note 1 to entry: Non-developmental software includes proprietary software, COTS software, re-used software

3.9
SWAL
Software Assurance Level

4   Software Assurance Levels (SWAL)

4.1   General

The processes detailed below are those that are required in order to be able to provide assurance evidence for software in EATMN in compliance with the present document.

4.2   Allocation

The allocation of a Software Assurance Level shall comply with the requirements specified in ED-153.

The Grading Policy, i.e. the aim of a SWAL including what kind of overall objective is intended, shall comply with the requirements in ED-153, 3.6.4.0 and 3.6.4.1. "Independence in performing the prevention" in Table 11 (column 4) of 3.6.4.1 shall be understood as "Independence in checking the prevention".

NOTE   Examples of the use of the SWAL allocation process are described in ED-153, 3.6.3 and 3.6.1.0.

4.3   Likelihood assessment

Within the SWAL allocation process, for the assessment of the likelihood of an effect, ED-153, 3.6.2.1 shall apply.

4.4   Likelihood justification

The factors detailed in ED-153, 3.6.2.2. shall be considered when justifying the likelihood of an effect during the SWAL allocation process.

5   SWAL Objectives per Process

5.1   General

The identification of objectives applicable to each SWAL is addressed in ED-153, i.e. Clauses 4, 5 and 7 in terms of Primary Life Cycle Processes, Supporting Life Cycle Processes and COTS-related processes.

NOTE 1   If different assurance levels from other reference documents such as ED-109, EN 61508 are used, Annex A of ED-153 provides a method for gap analysis.

NOTE 2   Description and scenarios for roles and responsibilities are detailed in ED-153 Annex B.

5.2 Primary Life Cycle Processes

5.2.1 The Acquisition Process

The Acquisition Process that details the objectives and tasks that shall be complied with by the acquirer is specified in ED-153, 4.1. For objectives 4.1.2 and 4.1.3 of ED-153 independence is only required for SWAL 1 and 2.

5.2.2 The Supply Process

The Supply Process that details the objectives and tasks that shall be complied with by the supplier is specified in ED-153, 4.2.

5.2.3 The Development Process

The Development Process detailing the objectives and tasks that shall be complied with by the developer is specified in ED-153, 4.3. For objectives 4.3.1 and 4.3.2 of ED-153 independence is only required for SWAL 1 and 2.

5.2.4 The Operation Process

The Operation Process that details the objectives and tasks that shall be complied with by the operator is specified in ED-153, 4.4. For objectives 4.4.5 of ED-153 independence is only required for SWAL 1 and 2.

5.2.5 The Maintenance Process

The Maintenance Process that details the objectives and tasks that shall be complied with by the maintainer is specified in ED-153, 4.5. For objectives 4.5.2 and 4.5.5 of ED-153 independence is only required for SWAL 1 and 2.

5.3 Supporting Life Cycle Processes

5.3.1 The Documentation Process

The Documentation Process that details the objectives and tasks that shall be complied with by all concerned parties is specified in ED-153, 5.1.

5.3.2 The Configuration Management Process

The Configuration Management Process that details the objectives and tasks that shall be complied with by all concerned parties is specified in ED-153, 5.2. In addition, for SWAL 1, software configuration management shall be performed at executable level.

5.3.3 The Quality Assurance Process

The Quality Assurance Process that details the objectives and tasks that shall be complied with by all concerned parties is specified in ED-153, 5.3.

5.3.4 The Verification Process

The Verification Process that details the objectives and tasks that shall be complied with by all concerned parties is specified in ED-153, 5.4.

5.3.5 The Joint Review Process

The Joint Review Process that details the objectives and tasks that shall be complied with by all concerned parties is specified in ED-153, 5.6.