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Vesoljski sistemi - Slovar

Space systems - Glossary of terms

Raumfahrttechnik - Glossar

Système spatiale - Glossaire

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Space systems - Glossary of terms

Syst?e spatiale - Glossaire

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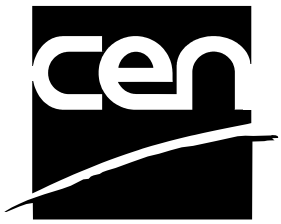

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Foreword

This document (EN 16601-00-01:2015) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16601-00-01:2015) originates from ECSS-S-ST-00-01C.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2015, and conflicting national standards shall be withdrawn at the latest by July 2015.

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This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This document supersedes EN 13701-2001.

This document has been developed to cover specifically space systems and has therefore precedence over any EN covering the same scope but with a wider domain of applicability (e.g. : aerospace).

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1
Scope

This document controls the definition of all common terms used in the European Cooperation for Space Standardization (ECSS) Standards System. Terms specific to a particular ECSS Standard are defined in that standard.

This document does not include the definition of terms used with their common meaning. In this case, the definition from the Oxford English Dictionary applies.

2
Terms, definitions and abbreviated terms

2.1 Terms and definitions

When using the ECSS standards, the following is the order of precedence of documents as the source of definition of terms:

1. the standard in question
2. the present Glossary of terms
3. the Oxford English dictionary.

A term used within a definition, which is defined elsewhere in this document is shown in boldface. A boldface term may be replaced within the definition by its own definition.

A concept that has a special meaning in a particular context is indicated by designating the context in angle brackets, < >, before the definition.

A document reference shown after a definition in square brackets, [ ], indicates that this definition is reproduced from the referenced document.

NOTE For example:

> **2.3.17 auditee**
> organization being audited
> [ISO 9000:2005]

All terms and their definitions appear in alphabetic order in clause 2.3 of this Glossary. However, wherever it is considered important to present together a set of terms that are interrelated (i.e. constitute a particular “view”), these terms and their definitions are repeated in standalone sections of this Glossary or in Annexes. For example, clause 2.2 collects together all terms that relate to the breakdown of the overall Space System.

2.2 Space system breakdown

2.2.1 Introduction

ECSS-S-ST-00C defines the highest-level system within a space project – i.e. the one at the mission-level - as the "Space System". The purpose of the present clause is to identify the breakdown of a typical space system and to define a set of standard terms for the constituent levels within the breakdown (see Figure 2-1).

In so doing, it is acknowledged that each distinct domain (i.e. space, ground and launcher) already has its own domain-specific terminology for its internal entities e.g. elements and systems. In the case of the launcher domain, this terminology has been formally defined and agreed at programme-level. It is not the intention to define new terms in this Glossary to supersede those already in universal use. Rather, the intention is to define a standard set of terms for the levels of the space system breakdown and then to show where the domain-specific entities fit into these levels. To this end, Annex B contains examples of entities from the three principal space system segments, mapped to the space system breakdown levels defined below.

The terms are defined in clause 2.2.2 to 2.2.7 and are listed not in alphabetic order but according to the hierarchy defined in Figure 2-1: Space system breakdown below.

- 2.2.2 defines generic terms
- 2.2.3 defines the space system
- 2.2.4 defines terms relating to the space segment
- 2.2.5 defines terms relating to the ground segment
- 2.2.6 defines terms relating to the launch segment
- 2.2.7 defines terms relating to the support segment

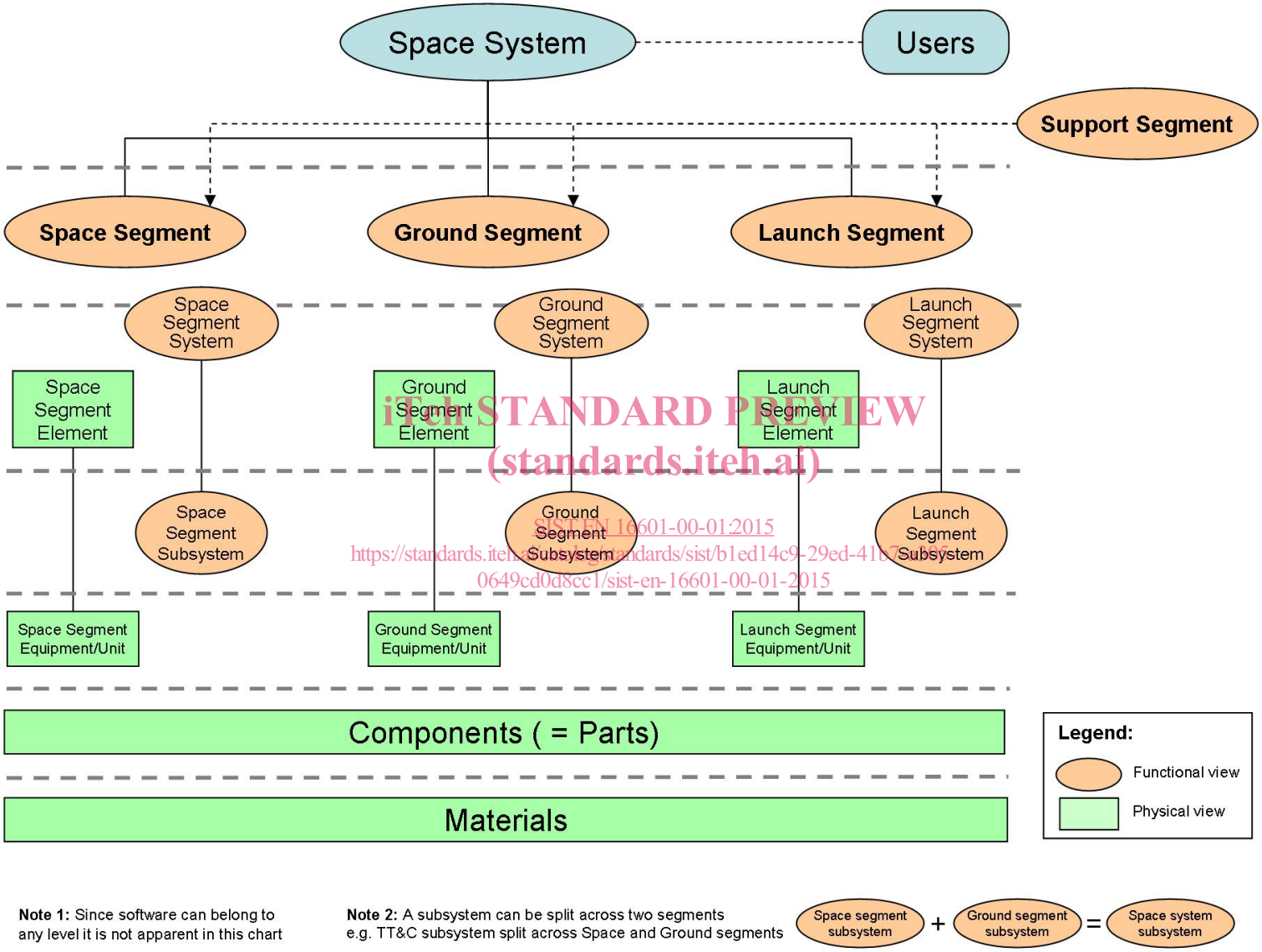

Figure 2-1: Space system breakdown

2.2.2 Definitions for generic terms

system

set of interrelated or interacting **functions** constituted to achieve a specified objective

segment

set of **elements** or combination of **systems** that fulfils a major, self-contained, subset of the **space mission** objectives

Examples are space segment, ground segment, launch segment and support segment.

element

combination of integrated **equipment, components** and **parts**

NOTE An element fulfils a major, self-contained, subset of a segment's objectives.

subsystem

part of a **system** fulfilling one or more of its **functions**

equipment

integrated set of **parts** and **components**

NOTE 1 An equipment accomplishes a specific function.

NOTE 2 An equipment is self-contained and classified as such for the purposes of separate manufacture, procurement, drawings, specification, storage, issue, maintenance or use.

NOTE 3 The term "unit" is synonymous with the term "equipment"

component

set of **materials,** assembled according to defined and controlled **processes,** which cannot be disassembled without destroying its capability and which performs a simple **function** that can be evaluated against expected **performance requirements**

NOTE 1 The term "part" is synonymous.

NOTE 2 The term "part" is preferred when referring to purely mechanical devices.

NOTE 3 The term "component" is preferred for EEE devices.

part

see "component"

material

raw, semi–finished or finished substance (gaseous, liquid, solid) of given characteristics from which processing into a **component** or **part** is undertaken

2.2.3 Definitions for space system

space system

system that contains at least a **space**, a **ground** or a **launch segment**

NOTE Generally a space system is composed of all three segments and is supported by a support segment.

2.2.4 Definitions for space segment

space segment

part of a **space system,** placed in space, to fulfil the **space mission** objectives

space segment system

system within a **space segment**

NOTE Examples are given in Annex B.1.

space segment element

element within a **space segment**

NOTE 1 A space segment element can be composed of several space segment elements, e.g. a spacecraft is composed of instruments, a payload module and a service module.

NOTE 2 Examples are given in Annex B.1.

stand-alone space segment element

space segment element that performs its **mission** autonomously

NOTE For example: satellite, rover, lander.

embedded space segment element

space segment element that performs its **mission** as part of another **space segment element**

NOTE For example: platform, module, instrument, payload.

space segment subsystem

subsystem within a **space segment**

NOTE Examples are given in Annex B.1.

space segment equipment

equipment within a **space segment**

NOTE Examples are given in Annex B.1.

2.2.5 Definitions for ground segment

ground segment

part of a **space system,** located on ground, which monitors and controls **space segment element(s)**

NOTE A ground segment is composed of one or more ground segment elements.

ground segment system

system within a **ground segment**

NOTE Examples are given in Annex B.2.

ground segment element

element within a **ground segment**

NOTE 1 A ground segment element can be composed of several ground segment elements, e.g. a ground station network is a ground segment element that can be composed of a set of ground stations and a communication network.

NOTE 2 Examples are given in Annex B.2.

ground segment subsystem

subsystem within a **ground segment**

NOTE Examples are given in Annex B.2.

ground segment equipment

equipment within a **ground segment**

NOTE Examples are given in Annex B.2.

2.2.6 Definitions for launch segment

launch segment

part of a **space system** which is used to transport **space segment element(s)** into space

NOTE 1 A launch segment is composed of one or more launch segment elements.

NOTE 2 A launch segment is composed of the integrated launcher and the facilities needed for manufacturing, testing and delivering launcher elements.

launch segment system

system within a **launch segment**

NOTE Examples are given in Annex B.3

launch segment element

element within a **launch segment**

NOTE 1 A launch segment element can be composed of several launch segment elements, e.g. a launcher is a launch segment element that is composed of several launch segment elements, such as stage, engine and upper part.

NOTE 2 Examples are given in Annex B.3.

launch segment subsystem

subsystem within a **launch segment**

NOTE Examples are given in Annex B.3.

launch segment equipment

equipment within a **launch segment**

NOTE Examples are given in Annex B.3.

2.2.7 Definitions for support segment

support segment

generic infrastructure and services used to support the **development** and operation of **space system elements**

NOTE 1 Examples are ground stations and associated networks, orbit computing facilities, test centres, astronaut centre, launch facilities (e.g. Plestek, Baikonour, Guiana Space Centre).

NOTE 2 Items can be part of other segments during their development and later become part of the support segment when used (e.g. a tracking network).

2.3 Terms and definitions

2.3.1 acceptance

<act> act by which the **customer** agrees that the **product** is designed and produced according to its **specifications** and the agreed **deviations** and **waivers**, and it is free of **defects** when delivered by the **supplier**

2.3.2 acceptance

<process> that part of the **verification** process which demonstrates that the **product** meets specified **acceptance margins**

2.3.3 accident

undesired event arising from operation of any **project**-specific item that results in

a. human death or injury,

b. loss of, or damage to, **project** hardware, software or facilities that can then affect the accomplishment of the mission,

c. loss of, or damage to, public or private property, or

d. detrimental effects on the **environment**.

NOTE Accident and mishap are synonymous.

2.3.4 active redundancy

redundancy where all entities are operating and the **system** can continue to operate without downtime or defects despite the loss of one or more entities

2.3.5 actuator

device that transforms an input signal into motion

2.3.6 alert

formal notification to users, informing them of **failures** or **nonconformance** of items, already released for use or not, which could also be present on other items already delivered [e.g. items with identical **design** concept, **materials**, **components** or **processes**]

NOTE An alert can also be raised when a deficiency in the specified requirements, which can affect the fitness for purpose in the defined application, has been identified.

2.3.7 allowable load

maximum load that can be permitted in a structural part for a given operating **environment** to prevent rupture, collapse, detrimental deformation or unacceptable crack growth

NOTE Adapted from ISO 14623:2003.

2.3.8 analysis

<verification> **verification** method utilizing techniques and tools to confirm that **verification requirements** have been satisfied

NOTE 1 Examples of techniques and tools are mathematical models, compilation similarity assessments and validation of records.

NOTE 2 Adapted from ISO 10795:2011.

2.3.9 anomaly

any deviation from the expected situation

NOTE An anomaly justifies an investigation that might lead to the discovery of a nonconformance or a defect.

2.3.10 applicable document

document that contains **provisions** which, through reference in the source document, constitute additional **provisions** of the source document

NOTE Adapted from ISO 10795:2011.

2.3.11 approval

formal agreement by a designated management official to use or apply an item or proceed with a proposed course of action

NOTE 1 Approvals must be documented.

NOTE 2 Approval implies that the approving authority has verified that the item conforms to its requirements.

2.3.12 assembly

<act> physically combining **parts**, **components**, **equipment** or **segment elements** to form a larger entity

2.3.13 assurance

planned and systematic activities implemented, and demonstrated as needed, to provide adequate confidence that an entity fulfils its **requirements**

2.3.14 audit

systematic, independent and documented **process** for obtaining **audit evidence** and evaluating it objectively to determine the extent to which **audit criteria** are fulfilled

NOTE 1 Internal audits, sometimes called first-party audits, are conducted by, or on behalf of, the organization itself for management review and other internal purposes, and may form the basis for an organization's declaration of conformity. In many cases, particularly in smaller organizations, independence can be demonstrated by the freedom from responsibility for the activity being audited.

NOTE 2 External audits include those generally termed second- and third-party audits. Second-party