BSI Standards Publication

Space engineering — Control engineering handbook

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National foreword

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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Ingénierie spatiale - Manuel d'ingénierie du contrôle

Raumfahrttechnik - Handbuch zur Regelungstechnik

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European Foreword

This document (CEN/TR 17603-60:2022) has been prepared by Technical Committee CEN/CLC/JTC 5 "Space", the secretariat of which is held by DIN.

It is highlighted that this technical report does not contain any requirement but only collection of data or descriptions and guidelines about how to organize and perform the work in support of EN 16603-60.

This Technical report (CEN/TR 17603-60:2022) originates from ECSS-E-HB-60A.

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

Introduction

Control engineering, particularly as applied to space systems, is a multi-disciplinary field. The analysis, design and implementation of complex (end to end) control systems include aspects of system engineering, electrical and electronic engineering, mechanical engineering, software engineering, communications, ground systems and operations – all of which have dedicated ECSS engineering standards and handbooks. This Handbook is not intended to duplicate them.

This Handbook focuses on the specific issues involved in control engineering and is intended to be used as a structured set of systematic engineering provisions, referring to the specific standards and handbooks of the discipline where appropriate. For this, and reasons such as the very rapid progress of control component technologies and associated "de facto" standards, this Handbook does not go to the level of describing equipment or interfaces.

This Handbook is not intended to replace textbook material on control systems theory or technology, and such material is intentionally avoided. The readers and users of this Handbook are assumed to possess general knowledge of control systems engineering and its applications to space missions.

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Scope

This Handbook deals with control systems developed as part of a space project. It is applicable to all the elements of a space system, including the space segment, the ground segment and the launch service segment.

The handbook covers all aspects of space control engineering including requirements definition, analysis, design, production, verification and validation, transfer, operations and maintenance.

It describes the scope of the space control engineering process and its interfaces with management and product assurance, and explains how they apply to the control engineering process.