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Space systems — Safety requirements —

Part 1: System safety

Systèmes spatiaux — Exigences de sécurité —

Partie 1: Sécurité système

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

This second edition cancels and replaces the first edition (ISO 14620-1:2002), which has been technically revised.

The main changes compared to the previous edition are as follows:

— definitions have been revised; and

— the document has been aligned with the ISO/IEC Directives Part 2, 2016 edition.

A list of all parts in the ISO 14620 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is one of the series of space standards intended to be applied together for the management, engineering and product assurance in space projects and applications.

Space systems — Safety requirements —

Part 1: System safety

1 Scope

1.1 General

This document defines the safety programme and the technical safety requirements that are implemented in order to comply with the safety policy as defined in ISO 14300-2. It is intended to protect flight and ground personnel, the launch vehicle, associated payloads, ground support equipment, the general public, public and private property, and the environment from hazards associated with space systems. Launch site operations are described by ISO 14620-2 and flight safety systems in ISO 14620-3.

The safety policy is applied by implementing a system safety programme, supported by risk assessment, which can be summarized as follows.

a) Hazardous characteristics (system and environmental hazards) and functions with potentially hazardous failure effects are identified and progressively evaluated by iteratively performing systematic safety analyses.

b) The potential hazardous consequences associated with the system characteristics and functional failures are subjected to a hazard reduction sequence whereby:

   1) hazards are eliminated from the system design and operations;

   2) hazards are minimized and

   3) hazard controls are applied and verified.

c) The risks that remain after the application of a hazard elimination and reduction process are progressively assessed and subjected to risk assessment, in order to:

   1) show compliance with safety targets;

   2) support design trades;

   3) identify and rank risk contributors;

   4) support apportionment of project resources for risk reduction;

   5) assess risk reduction progress; and

   6) support the safety and project decision-making process (e.g. waiver approval, residual risk acceptance).

d) The adequacy of the hazard and risk control measures applied are formally verified in order to support safety validation and risk acceptance.

e) Safety compliance is assessed by the project and safety approval obtained from the relevant authorities.

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