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Space systems — Disposal of orbital launch stages

Systèmes spatiaux — Élimination des étages orbitaux de lanceurs



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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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The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

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Introduction

A launch vehicle stage plays a critical role in moving a spacecraft toward or into its final mission orbit. Once the spacecraft has been delivered to the desired orbit, the stage can be separated from the spacecraft. If the stage itself is in orbit and is deactivated at this point, it becomes another object added to the growing population space debris – an uncontrolled object that may threaten operating satellites for the remainder of the stage's orbit lifetime. And a launch vehicle stage may also be a source for large numbers of smaller threatening objects if residual propellants, pressure vessels or other sources of stored energy explode or if it is involved in a collision with another object.

This International Standard is one of several standards focused on minimizing the growth of space debris, and removing orbital launch stages from orbit or moving them to non-threatening orbits at the end of their missions is an important component of this strategy. This International Standard provides guidance on how a spacecraft owner and a launch service provider can work together to develop spacecraft deployment options leading to removal of an orbital launch stage either by re-entering the stage into the atmosphere in a short time or by leaving the stage in or moving the stage to an orbit that does not intersect regions of heavy use by satellite missions for a very long time. This International Standard also calls for eliminating all sources of stored energy remaining in the stage prior to its final disposal (except in cases where the stage will execute a controlled re-entry into the atmosphere).