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Space systems — Estimation of orbit lifetime

Systèmes spatiaux — Estimation de la durée de vie en orbite

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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 third edition cancels and replaces the second (ISO 27852:2016) edition, which has been technically revised.

The main changes are as follows:

— clarified that this document does not apply to non-LEO protected regions (e.g. GEO);

— harmonized terms and definitions with those in ISO 24113;

— updated to harmonize with IADC [1] and United Nations [2] –[3] guidelines;

— added a subclause on the use of the recommended solar forcing dataset for the Coupled Model Intercomparison Project 6.

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Constraining estimated orbit lifetime of human-made objects is increasingly important as space debris continues to increase (as documented in Annex A) and as such is one of the central tenets of the global space debris mitigation strategy. This document is a supporting document to ISO 24113, its derivative spacecraft disposal standard ISO 23312 and launch vehicle upper stage disposal technical report ISO/TR 20590. The purpose of this document is to provide a common, consensus-based approach to determining orbit lifetime, one that is sufficiently precise and easily implemented for the purpose of demonstrating conformity with ISO 24113. This document offers standardized guidance and analysis methods to estimate orbital lifetime for all LEO-crossing orbit classes. This document only deals with orbit lifetime issues (orbit decay out of orbits crossing the LEO protected region); for other important requirements related to how long a space object will, or will not, cross or occupy a protected region, the user is directed to ISO 24113 and its derivative ISO 23312.