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# Space systems — Relative motion analysis elements after LV/SC separation

*Systèmes spatiaux — Éléments d'analyse de mouvement relatif après séparation du LV/SC*

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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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

Relative motion analysis predicts the relative distance after launch vehicle (LV) and spacecraft (SC) separation. The analysis result offers support to the mission design and operation.

This International Standard provides LV and SC operators and manufacturers with specific elements and procedures for performing relative motion analysis after LV and SC separation. The intent is to regulate a common basis and offer a direction.

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# Space systems — Relative motion analysis elements after LV/SC separation

## 1 Scope

This International Standard provides relative motion analysis elements after LV/SC separation, including analysis input, analysis principle, analysis method and analysis output. It is applicable to the mission design and verification for the prediction of relative motion after LV/SC separation.

This International Standard focuses on the relative motion between the objects involved in one launch mission. It does not cover the issues about the collision avoidance between newly launched objects and on-orbit ones.

## 2 Normative reference

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14303, *Space systems — Launch-vehicle-to-spacecraft interfaces*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14303 and the following apply.

**3.1**
**LV/SC separation**
event of disconnection between LV/SC under the control of LV

**3.2**
**relative motion analysis**
analysis to predict the relative distance of spacecraft(s) to objects (end stage of LV and others generated during the separation) after the LV/SC separation

**3.3**
**separation velocity**
relative speed to LV when separation is completed instantly

## 4 Abbreviated terms

LV launch vehicle

SC spacecraft

ICD interface control document

RMS root mean square

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