
Space systems — Launch-vehicle-to-spacecraft flight environments telemetry data processing

Systèmes spatiaux — Traitement des données télémétriques des environnements de vol entre le lanceur spatial et le véhicule spatial



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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15862 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

Introduction

This International Standard addresses flight environment measurements, data processing and analysis, and reports of analysis results. If launch vehicle (LV) environmental specifications are exceeded, the LV and spacecraft (SC) agencies can perform an analysis to determine the cause of the problem.

Flight environments describe different types of flight mechanical and thermal environments. Measurement fields include parameters characterizing such environments as loads, vibration, shock, acoustics, steady-state pressure and temperature. Requirements include number, location, range and frequency of measurement devices.

Data processing and analysis include data pre-processing, data processing and formats of delivered data.

Flight measurement plan formats are provided.

The report on flight environment analysis results records all the above information.

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1 Scope

This International Standard provides basic requirements for the measurement of the spacecraft flight environments generated by the launch vehicle, telemetry data processing and formats of analysis reports.

This International Standard defines the field and number of measurement parameters, the principles of data processing, the format of delivered data and the content and the form of the flight environment analysis report.

Flight telemetry data are used to verify if flight environment conditions exceed pre-flight analyses and environmental test results. In the event of a launch failure, adequate flight environment data can assist in investigating and analysing failure causes.

This International Standard is applicable to commercial launch vehicles and related ground processing, no matter which launch vehicle agencies are selected.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

cut-off

load case when the engine thrust begins to decrease from current value to zero

2.2

ground transportation

spacecraft transportation at launch site

2.3

lift-off

launch vehicle motion when the vehicle's contact is terminated with launch pad or other support devices

NOTE This is commonly called "first motion" of the vehicle. Possible abnormal cut-off is also included.

2.4

load case

event in spacecraft service life during which essential mechanical environments are expected

2.5

maximum dynamic pressure phase

flight phase when dynamic pressure reaches its maximum value

2.6

minimum sampling frequency

minimum number of data points of measurement fields collected per second