Chinastandards.org

ICS 49.020
CCS V 70

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

chinastandards.org - PREVIEW

GB/T 32302-2015

Interface requirements between launch vehicle and spacecraft

运载火箭与航天器接口要求

Issued on: December 31, 2015 **Implemented on: July 1, 2016**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine;
Standardization Administration of the PRC

Preview: page 1 of 4 shown, 25 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-32302-2015

Table of Contents

chinastandards.org · PREVIEW

Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed by China Aerospace Science and Technology Corporation. This standard is nationalized by the National Aeronautical Technology and Its Application Standardization Technical Committee (SAC/TC425). The drafting of this standard. Beijing Aerospace Systems Engineering Research Institute. The main drafters of this standard. Luo Heng, Zheng Liwei, Li Dan, Hu Wei, Lei Kai, Zhang Yibo, Li Jun, Li Guoyi, Sun Mu, He Wei, Wu Yitian, Liu Jian, Liu Bing, Wang Xu, Cheng Xin, Xu Shan Shu, Xie Xuan. Requirements for Launch Vehicle and Spacecraft Interface

1 Scope

China's national standard for the interface between a launch vehicle and the spacecraft it launches. It specifies the interface requirements between the two, the methods by which those interfaces are verified - by analysis and by test - and the requirements for the joint operations of vehicle and spacecraft at the launch site, and it applies to the identification, verification and inspection of the interface relationship between a launch vehicle and any spacecraft it carries. The interface it governs is one of the most consequential in engineering, and it is unusual in that the two sides of it are built by organisations that may never work together again. A satellite operator buys a launch, and the vehicle and the payload are designed years apart by different companies in different countries; what makes them fit is a document. The interface has several layers and each is a place where two independently designed systems must agree. Mechanically, the spacecraft sits on a payload adapter, and the standard defines that adapter as the structure connecting the spacecraft to the launch vehicle together with the separation device that releases it. Structurally, the vehicle imposes loads and vibration on the spacecraft and the spacecraft's stiffness affects the vehicle's own dynamics, so each must be designed for the other. Electrically there are umbilical connections, separation signals and radio frequency

Preview: page 2 of 4 shown, 25 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-32302-2015

compatibility to agree. Environmentally the fairing must protect the payload thermally and acoustically. And operationally the two teams share a launch pad for weeks. The document that records all of it is the interface control document, and the standard is built around the review sequence - preliminary and critical design review, preliminary and final mission analysis review - at which it is agreed and frozen. Issued on 31 December 2015 and in force since 1 July 2016.

This standard specifies the interface requirements between the launch vehicle and the launched spacecraft (hereinafter referred to as the Arrow). The interface verification method (including Analysis and testing), as well as launch field equipment arrow joint operation requirements. This standard applies to the identification, verification and inspection of the interface relationship between the launch vehicle and the various spacecraft.

chinastandards.org · PREVIEW

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 32455 Carrier Terminology

3 Terms and definitions

GB/T 32455 Definitions and the following terms and definitions apply to this document.

3.1 Spacecraft bracket (spacecraft adapter) payloadadaptor Connecting the structure of the spacecraft and launch vehicle and the Arrow Connection Unlocking Device.

4 Abbreviations

The following abbreviations apply to this document. CDR

--- Critical Design Review (CriticalDesignReview) EMC

--- Electromagnetic Compatibility (ElectromagneticCompatibility) EMI

--- electromagnetic interference (ElectromagneticInterference) EIRP

--- Equivalent radiant power (EffectiveIsotropicRadiatedPower) FMAR

--- Final Task Analysis Review (FinalMissionAnalysisReview) ICD

--- interface control file (InterfaceControlDocument) PDR

--- Preliminary Design Review (PreliminaryDesignReview) PMAR

--- Preliminary Task Analysis Review (PreliminaryMissionAnalysisReview) RF

--- radio frequency (RadioFrequency)

Preview: page 3 of 4 shown, 25 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-32302-2015

Chinastandards.org

5.1 Documentation requirements

5.1.1 The spacecraft system generally provides the following requirements for the carrier rocket system as follows:

a) technical requirements for spacecraft on launch vehicles;

b) spacecraft load coupling model;

chinastandards.org · PREVIEW

Preview: page 4 of 4 shown, 25 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-32302-2015