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# NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA



# GB/T 34829-2017

## Space station specification for utilization payload data communication

空间站应用有效载荷数据通信规范

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## Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard proposed by the Chinese Academy of Sciences. This standard by the National Space Science and Application Standardization Technical Committee (SAC/TC312) centralized. This standard was drafted by the Chinese Academy of Sciences Space Applications Engineering and Technology Center. The main drafters of this standard. Yan Lei, Cao Suzhi, Gong Yongsheng, Wu Shaojun, room light. Space Station Application Payload Data Communications Specifications

## 1 Scope

China's national specification for data communication with the utilization payloads on a space station. It covers how experimental payloads exchange data with the station and with the ground. A space station is, in operational terms, a laboratory rented out to experimenters who are not aboard. The science payloads come from many institutions, are built to many different conventions, are installed and removed over the station's life, and their operators are on the ground wanting their data and wanting to command their apparatus. A common data communication specification is what makes that manageable: it fixes the interface a payload must present, the protocols and formats it must use, and the service the station undertakes to provide, so that a new experiment can be accommodated without redesigning the station's systems each time. For China's station programme this is the document that turns a spacecraft into a facility that outside users can build for.

This standard specifies the space station application payload data communication process of various types of interfaces from the physical layer to the application layer data gauge Fan, and provides MIL-STD-1553B interface, FC-AE-1553 interface, Ethernet interface, RS422 interface related content. This standard only Provides wired transmission of data communication norms, does not require wireless data communication norms. This standard applies to the space station application of payload and application of information systems and applications between the payload and the test cabinet data pass letter. Application of data communication between payload reference to this standard.

## 2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document. GJB289 digital time division instructions/response multiplexing data transmission bus GJB727 Aerospace Measurement and Control System Terms and Abbreviations Spacecraft measurement and control and data management - Part 6. Subcontract telemetry Spacecraft measurement and control and data management - Part 7. Subcontract remote control GJB5186.1-2003 Digital Time Division/Command Response Multiplexer Data Bus Test Method Part 1. Remote Terminal Validity test method Fiber Channel Physical and Signaling Interfaces Part 1 .FC-PH Fiber Channel Physical and Signaling Interfaces Part 2 .FC-PH-

2 Fiber Channel Physical and Interface Signals Part 3 .FC-PH-3 ANSI CITS 450-2009 Information Technology Fiber Channel Physical Interface 4 (FC-PI-4) [Informationtechnology- FiberChannel-PhysicalInterface-4 (FC-PI-4)] ANSI INCITSTR-42-2007 Information Technology Fiber Channel Avionics Environment Upper Layer Protocol (FC-AE-1553) [INCITS technicalreportforinformationtechnology-Fiberchannel-Avionicsenvironment-Upper layerprotocol (FC-AE-1553)] ANSI/T IA/EIA-422-B RS422 Electrical Protocol Standard (Electrical Characteristics of Balanced Volume Dig- italInterfaceCircuits) IEEE Std 802.3TM-2005 Ethernet Protocol Standard [IEEE Telecommunications for Information Technology-Telecom- munications and information exchange between systems-localand metropolitanareanetworks-Spe- cificrequirements-Part

3.Carriersensemultipleaccesswithcolisiondetection (CSMA/CD) access methodandPhysicallayerspecifications] IEEE std802.3ab-1999

4 Category 5 balanced copper transmission Gigabit Ethernet physical layer standard [Information technology-Telecommunications and information exchange between systems-Local and metropolitanare networks-Specific requests-Supplement to Carrier Sense Multiple Access withColisionDetection (CSMA/CD) AccessMethod and PhysicalLayerSpectifications-Physical LayerParametersandSpecificationsfor1000Mb/sOperationOver4-PairofCategory5Balanced CopperCabling, Type1000BASE-T]