INTERNATIONAL STANDARD

ISO 13419

Second edition 2003-02-15

Space data and information transfer systems — Packet telemetry

Systèmes de transfert des informations et données spatiales — Télémesure par paquets

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<u>ISO 13419:2003</u> https://standards.iteh.ai/catalog/standards/sist/29f375ad-f3d2-4f02-8cdb-786412d44da4/iso-13419-2003



Reference number ISO 13419:2003(E)

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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.

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.

International Standard ISO 13419 was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 102.0-B-5, November 2000) and was adopted (without modifications except those stated in Clause 2 of this International Standard) by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 13, *Space data and information transfer systems*.

This second edition cancels and replaces the first edition (ISO 13419:1997), which has been technically revised.

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Space data and information transfer systems — Packet telemetry

1 Scope

This International Standard specifies the requirements for spacecraft packet telemetry systems.

The scope and field of application are furthermore detailed in subclauses 1.2 and 1.3 of the enclosed CCSDS publication.

2 Requirements

Requirements are the technical recommendations made in the following publication (reproduced on the following pages), which is adopted as an International Standard:

CCSDS 102.0-B-5, November 2000, Recommendation for space data system standards — Packet telemetry.

For the purposes of international standardization, the modifications outlined below shall apply to the specific clauses and paragraphs of publication CCSDS 102.0-B-5.

Pages i to vi

vi <u>ISO 13419:2003</u> https://standards.iteh.ai/catalog/standards/sist/29f375ad-f3d2-4f02-8cdb-

This part is information which is relevant to the CCSDS publication only.

Page 1-4

Update and add the following information to the references indicated in 1.7:

- [2] Document CCSDS 101.0-B-5, June 2001, is equivalent to ISO 11754:2003.
- [3] Document CCSDS 301.0-B-2, April 1990, is equivalent to ISO 11104:1991.
- [4] Document CCSDS 202.0-B-3, June 2001, is equivalent to ISO 12172:2003.
- [6] Document CCSDS 701.0-B-3, November 1992, is equivalent to ISO 13420:—¹⁾.
- [8] Document CCSDS 103.0-B-2, June 2001, is equivalent to ISO 17433:2003.
- [9] Document CCSDS 713.0-B-1, May 1999, is equivalent to ISO 15891:2000.

¹⁾ To be published. (Revision of ISO 13420:1997)

3 Revision of publication CCSDS 102.0-B-5

It has been agreed with the Consultative Committee for Space Data Systems that Subcommittee ISO/TC 20/SC 13 will be consulted in the event of any revision or amendment of publication CCSDS 102.0-B-5. To this end, NASA will act as a liaison body between CCSDS and ISO.

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Consultative Committee for Space Data Systems

RECOMMENDATION FOR SPACE DATA SYSTEM STANDARDS



CCSDS 102.0-B-5

BLUE BOOK

November 2000



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AUTHORITY

Issue: Date: Location:	Blue Book, Issue 5 November 2000 Boulder, Colorado, USA	

This document has been approved for publication by the Management Council of the Consultative Committee for Space Data Systems (CCSDS) and represents the consensus technical agreement of the participating CCSDS Member Agencies. The procedure for review and authorization of CCSDS Recommendations is detailed in reference [1], and the record of Agency participation in the authorization of this document can be obtained from the CCSDS Secretariat at the address below.

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Program Integration Division (Code MT)⁴¹⁹⁻²⁰⁰³ National Aeronautics and Space Administration Washington, DC 20546, USA

STATEMENT OF INTENT

The **CONSULTATIVE COMMITTEE FOR SPACE DATA SYSTEMS (CCSDS)** is an organisation officially established by the management of member space Agencies. The Committee meets periodically to address data systems problems that are common to all participants, and to formulate sound technical solutions to these problems. Inasmuch as participation in the CCSDS is completely voluntary, the results of Committee actions are termed **RECOMMENDATIONs** and are not considered binding on any Agency.

This **RECOMMENDATION** is issued by, and represents the consensus of, the CCSDS Plenary body. Agency endorsement of this **RECOMMENDATION** is entirely voluntary. Endorsement, however, indicates the following understandings:

- Whenever an Agency establishes a CCSDS-related STANDARD, this STANDARD will be in accord with the relevant **RECOMMENDATION**. Establishing such a STANDARD does not preclude other provisions which an Agency may develop.
- Whenever an Agency establishes a CCSDS-related STANDARD, the Agency will
 provide other CCSDS member Agencies with the following information:
 - the STANDARD itself tandards.iteh.ai)
 - the anticipated date of initial operational capability.
 - the anticipated duration of operational service.

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 Specific service arrangements shall be made via memoranda of agreement. Neither this RECOMMENDATION nor any ensuing STANDARD is a substitute for a memorandum of agreement.

No later than five years from its date of issuance, this **RECOMMENDATION** will be reviewed by the CCSDS to determine whether it should: (1) remain in effect without change; (2) be changed to reflect the impact of new technologies, new requirements, or new directions; or (3) be retired or cancelled.

In those instances when a new version of a **RECOMMENDATION** is issued, existing CCSDS-related Agency standards and implementations are not negated or deemed to be non-CCSDS compatible. It is the responsibility of each Agency to determine when such standards or implementations are to be modified. Each Agency is, however, strongly encouraged to direct planning for its new standards and implementations towards the later version of the **RECOMMENDATION**.

FOREWORD

This document is a technical **RECOMMENDATION** for use in developing packetised telemetry systems and has been prepared by the **CONSULTATIVE COMMITTEE FOR SPACE DATA SYSTEMS** (CCSDS). The Packet Telemetry concept described herein is the baseline concept for spacecraft-to-ground data communication within missions that are cross-supported between Agencies of the CCSDS.

This **RECOMMENDATION** establishes a common framework and provides a common basis for the data structures of spacecraft telemetry streams. It allows implementing organisations within each Agency to proceed coherently with the development of compatible derived Standards for the flight and ground systems that are within their cognizance. Derived Agency Standards may implement only a subset of the optional features allowed by the **RECOMMENDATION**.

Through the process of normal evolution, it is expected that expansion, deletion or modification to this document may occur. This **RECOMMENDATION** is therefore subject to CCSDS document management and change control procedures which are defined in Reference [1]. Current versions of **CCSDS** documents are maintained at the **CCSDS** Web site:

(stanhtp://www.tcsds.org/)

Questions relating to the contents <u>orostatus20f3</u>this document should be addressed to the CCSDS Secretariat/at-the-addresse-indicated-on/pagef175ad-f3d2-4f02-8cdb-786412d44da4/iso-13419-2003

At time of publication, the active Member and Observer Agencies of the CCSDS were:

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- Agenzia Spaziale Italiana (ASI)/Italy.
- British National Space Centre (BNSC)/United Kingdom.
- Canadian Space Agency (CSA)/Canada.
- Centre National d'Etudes Spatiales (CNES)/France.
- Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)/Germany.
- European Space Agency (ESA)/Europe.
- Instituto Nacional de Pesquisas Espaciais (INPE)/Brazil.
- National Aeronautics and Space Administration (NASA)/USA.
- National Space Development Agency of Japan (NASDA)/Japan.
- Russian Space Agency (RSA)/Russian Federation.

Observer Agencies

- Austrian Space Agency (ASA) Austria. DARD PREVIEW
- Central Research Institute of Machine Building (TsNIIMash)/Russian Federation.
- Centro Tecnico Aeroespacial (CTA)/Brazil.
- Chinese Academy of Space Technology (CAST)/China.
- Commonwealth Scientific and Industrial Research Organization (CSIRO)/Australia.
- Communications Research Laboratory (CRL)/Japan. 9-2003
- Danish Space Research Institute (DSRI)/Denmark.
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- European Telecommunications Satellite Organization (EUTELSAT)/Europe.
- Federal Service of Scientific, Technical & Cultural Affairs (FSST&CA)/Belgium.
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- Korea Aerospace Research Institute (KARI)/Korea.
- Ministry of Communications (MOC)/Israel.
- National Oceanic & Atmospheric Administration (NOAA)/USA.
- National Space Program Office (NSPO)/Taipei.
- Swedish Space Corporation (SSC)/Sweden.
- United States Geological Survey (USGS)/USA.

November 2000

DOCUMENT CONTROL

FIRST ISSUE Α.

DOCUMENT REFERENCE:	CCSDS 102.0-B-1
TITLE:	Recommendation for Space Data System Standards:
	Packet Telemetry, Issue 1
DATE:	May 1984

B. **ISSUE 2**

DOCUMENT REFERENCE: CCSD	S 102.0-B-2					
TITLE:	Recommendation	for	Space	Data	System	Standards:
	Packet Telemetry, I	ssue	2			
DATE:	January 1987					

DATE:

iTeh STANDARD PREVIEW

(standards.iteh.ai) С. **ISSUE 3**

DOCUMENT REFERENCE: CCSDS 102.0-B-3 TITLE: https://standards.iteh.ai/cataloRecommendationaford2SpacecdData System Standards: 786412dPacket Telemetry, Issue 3 November 1992 DATE:

D. **ISSUE 4**

DOCUMENT REFERENCE:	CCSDS 102.0-B-4
TITLE:	Recommendation for Space Data System Standards:
	Packet Telemetry, Issue 4
DATE:	November 1995

UPDATES: (Significant changes are identified by change bars in the outside margin.)

Changes not Compatible with the Previous Issue

The option of Source Packet Segmentation has been eliminated.

Editorial Changes

The definition of Source Packet Grouping has been clarified. Minor format changes have been made based on the specifications of the CCSDS Publications Manual.

CCSDS 102.0-B-5

E. ISSUE 5

DOCUMENT REFERENCE: TITLE AND ISSUE: DATE: CCSDS 102.0-B-5 Packet Telemetry, Issue 5 November 2000

Changes Compatible with the Previous Issue

An option to carry CCSDS Network and IP packets in CCSDS Version 1 Frames has been added.

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CONTENTS

1 INTRODUCTION 1-1 1.1 PURPOSE 1-1 1.2 SCOPE 1-1 1.3 APPLICABILITY 1-1 1.4 RATIONALE 1-2 1.5 STRUCTURE OF THE DOCUMENT 1-2 1.6 CONVENTIONS AND DEFINITIONS 1-3 1.7 REFERENCES 1-4 2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.2 SOURCE PACKET 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 2.5 APPLICATION NOTES 2-3 3.1 PACKET PRIMARY HEADER (DS.Itch.al) 3-2 3.2 PACKET DATA FIELD 3-1 3.1 PACKET DATA FIELD 3-1 4.1 GENERAL 4-1 4.1 GENERAL 4-1 4.1 GENERAL 4-1 4.1 GENERAL 50 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM 4-1	Se	ction		Page
1.1 PURPOSE 1-1 1.2 SCOPE 1-1 1.3 APPLICABILITY 1-1 1.4 RATIONALE 1-2 1.5 STRUCTURE OF THE DOCUMENT 1-2 1.6 CONVENTIONS AND DEFINITIONS 1-3 1.7 REFERENCES 1-4 2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 2.5 APPLICATION NOTES 2-3 3.1 PACKET PACKET 3-1 3.1 PACKET DATA FIELD 3-2 3.2 PACKET DATA FIELD 3-1 3.1 PACKET TRONKRY HEADER '05.75a/- PdD-402-402-402-402-402-402-402-402-402-402	1	INT	RODUCTION	1-1
1.2 SCOPE 1-1 1.3 APPLICABILITY 1-1 1.4 RATIONALE 1-2 1.5 STRUCTURE OF THE DOCUMENT 1-2 1.6 CONVENTIONS AND DEFINITIONS 1-3 1.7 REFERENCES 1-4 2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 3 SOURCE PACKET 3-1 3.1 PACKET PRIMARY HEADER CIS.Itch.atl) 3-2 3.2 APPLICATION NOTES 2-3 3 SOURCE PACKET 3-1 3.1 PACKET PRIMARY HEADER CIS.Itch.atl) 3-2 3.2 PACKET DATA FIELD 3-1 3.1 PACKET TRANSFER FRAME 3-1 4 OTHER TYPES OF PACKETS: standardsst/20075ad-6d-2402-8cdb 4-1 4.1 GENERAL 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGR		1.1	PURPOSE	1-1
1.3 APPLICABILITY 1-1 1.4 RATIONALE 1-2 1.5 STRUCTURE OF THE DOCUMENT 1-2 1.6 CONVENTIONS AND DEFINITIONS 1-3 1.7 REFERENCES 1-4 2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.3 SOURCE PACKET 2-1 2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 2.5 APPLICATION NOTES 2-3 3.1 PACKET PRIMARY HEADER CLS. Iteln.atl 3-2 3.2 PACKET DATA FIELD 3-1 3.1 PACKET DATA FIELD 3-2 3.2 PACKET DATA FIELD 3-2 3.2 PACKET DATA FIELD 3-4 4 OTHER TYPES OF PACKETTS standards/siz/29675ad-6d2-4f02-8db- 4-1 4.1 GENERAL 3419:2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME 5-1 5.1 TRANS		1.2	SCOPE	1-1
1.4 RATIONALE 1-2 1.5 STRUCTURE OF THE DOCUMENT 1-2 1.6 CONVENTIONS AND DEFINITIONS 1-3 1.7 REFERENCES 1-4 2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 2.6 SOURCE PACKET 3-1 3.1 PACKET PRIMARY HEADER (IS.Iteln.at) 3-2 3.2 APPLICATION NOTES 2-3 2.4 SHARING TRANSMISSION RESOURCES 2-3 3.5 PACKET PRIMARY HEADER (IS.Iteln.at) 3-2 3.2 APACKET PRIMARY HEADER (IS.Iteln.at) 3-2 3.2 PACKET DATA FIELD 3-6 ISO 134192003 3-6 3-6 4 OTHER TYPES OF PACKETS (ISOURCE) 1349-2003 4-1 4.1 GENERAL 7-641244darkes13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4).		1.3	APPLICABILITY	1-1
1.5 STRUCTURE OF THE DOCUMENT. 1-2 1.6 CONVENTIONS AND DEFINITIONS 1-3 1.7 REFERENCES 1-4 2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.2 SOURCE PACKET 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 3.5 APPLICATION NOTES 2-3 1.6 SOURCE PACKET 3-1 3.1 PACKET PRIMARY HEADER CIS.Itch.al) 3-2 3.2 PACKET DATA FIELD 3-1 3.1 PACKET DATA FIELD 3-6 3.2 PACKET DATA FIELD 3-6 3.2 PACKET DATA FIELD 3-6 4.0 OTHER TYPES OF PACKET Standard set 29075ad-6d2-402-8cdb- 4-1 4.1 GENERAL 3-6 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM 4-1 4.3 INTERNET PROTOCOL ATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAM		1.4	RATIONALE	1-2
1.6 CONVENTIONS AND DEFINITIONS 1-3 1.7 REFERENCES 1-4 2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.3 SOURCE PACKET 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 3.1 PACKET PRIMARY HEADER OS.ITCH.21) 3-2 3.2 PACKET PRIMARY HEADER OS.ITCH.21) 3-2 3.4 OTHER TYPES OF PACKETS Schandrukskei 29075ad-6d2-402-8cdb- 4-1 4.1 GENERAL 786412044da4/so-13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET 5-1 5.1 TRANSFER FRAME 5-1		1.5	STRUCTURE OF THE DOCUMENT	1-2
1.7 REFERENCES 1-4 2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.2 SOURCE PACKET 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 3 SOURCE PACKET 3-1 3.5 APPLICATION NOTES 2-3 3 SOURCE PACKET 3-1 3.1 PACKET DATA FIELD 3-1 3.1 PACKET DATA FIELD 3-2 3.2 PACKET DATA FIELD 3-6 4 OTHER TYPES OF PACKETS standards/sti20675ad-6d2-4f02-8edb- 4-1 4.1 GENERAL 78/0412044da6/soc13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4) 4-1 4.4 ENCAPSULATION PACKET 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME DATA FIELD 5-10 5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3		1.6	CONVENTIONS AND DEFINITIONS	1-3
2 OVERVIEW 2-1 2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.2 SOURCE PACKET 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 3 SOURCE PACKET 3-1 3.1 PACKET PRIMARY HEADER (ds.itch.al) 3-2 3.2 PACKET DATA FIELD 3-1 3.1 PACKET DATA FIELD 3-1 3.2 PACKET DATA FIELD 3-2 3.4 OTHER TYPES OF PACKETS (standards/size29675ad-fbd2-4602-8cdb- 4-1 4.1 GENERAL 786412d446ad-8cs13419-2003 4-1 4.1 GENERAL 786412d44dad-8cs13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.4 4.3 INTERNET PROTOCOL DATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME DATA FIELD 5-10 5.2 TRANSFER FRAME DATA FIELD 5-10 5.4 <t< td=""><td></td><td>1.7</td><td>REFERENCES</td><td>1-4</td></t<>		1.7	REFERENCES	1-4
2.1 THE PACKET TELEMETRY CONCEPT 2-1 2.2 SOURCE PACKET 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 3.5 APPLICATION NOTES 2-3 3.5 APPLICATION NOTES 3-1 3.1 PACKET PRIMARY HEADER CLS.ItCH	2	OVI	CRVIEW	2-1
2.2 SOURCE PACKET 2-1 2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 3 a a 1 Ten STANDARD PREVIEW 3-1 3.1 PACKET PRIMARY HEADER CLS. Itch.all 3-2 3.2 PACKET DATA FIELD 3-6 ISO 134192003 3-6 4 OTHER TYPES OF PACKETS symptomic divisit/291375ad-Bd2-4102-8cdb- 4.1 GENERAL 786412d44da/rso-13419-2003 4.1 GENERAL 786412d44da/rso-13419-2003 4.1 GENERAL 786412d44da/rso-13419-2003 4.1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM (IPV4) 4.1 4.2 CCSDS NETWORK PROTOCOL DATAGRAM (IPV4) 4.1 5.1 TRANSFER FRAM		2.1	THE PACKET TELEMETRY CONCEPT	2-1
2.3 TRANSFER FRAME 2-2 2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 3.5 APPLICATION NOTES 2-3 3.1 TRANSFER FRAME 3-1 3.1 PACKET PRIMARY HEADER IDS.IICH.21) 3-2 3.2 PACKET DATA FIELD 3-6 4 OTHER TYPES OF PACKETS visuadards/sist/290375ad-Ed2-402-8cdb- 4-1 4.1 GENERAL 786412d44daf/so-13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM 4-1 4.4 4.3 INTERNET PROTOCOL DATAGRAM (IPV4) 4-1 4.4 ENCAPSULATION PACKET 5-1 5.1 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME SECONDARY HEADER 5-3 5.2 TRANSFER FRAME DATA FIELD 5-10 5.		2.2	SOURCE PACKET	2-1
2.4 SHARING TRANSMISSION RESOURCES 2-3 2.5 APPLICATION NOTES 2-3 11 Ch STANDARD PREVIEW 3-1 3 SOURCE PACKET 3-1 3.1 PACKET PRIMARY HEADER OS. Itch.all 3-2 3.2 PACKET DATA FIELD 3-2 3.2 PACKET DATA FIELD 3-6 4 OTHER TYPES OF PACKETS (standar/siz)29575ad-Bd2-4f02-8cdb- 4-1 4.1 GENERAL 786412d44daf/so13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX 1-1 1-1 Figure 1-1 <		2.3	TRANSFER FRAME	2-2
2.5 APPLICATION NOTES 2-3 3 SOURCE PACKET 3-1 3.1 PACKET PRIMARY HEADER OS.Itch.al) 3-2 3.2 PACKET DATA FIELD 3-6 ISO 13419:2003 4 OTHER TYPES OF PACKETS standards/sist/29875ad-Bd2-402-8cdb 4-1 4.1 GENERAL 786412d44da4/soc13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4) 4-1 4.4 ENCAPSULATION PACKET 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME DATA FIELD 5-3 5.2 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure 1-1 1-1 Bit Numbering Convention 1-3 2-1 2-2 Example of Telemetry Data System 2-1 2-3		2.4	SHARING TRANSMISSION RESOURCES	2-3
3 SOURCE PACKET 3-1 3.1 PACKET PRIMARY HEADER (DS.Itch.al) 3-2 3.2 PACKET DATA FIELD 3-1 3.1 DACKET DATA FIELD 3-2 3.2 PACKET DATA FIELD 3-2 3.2 PACKET DATA FIELD 3-6 1 GENERAL 3-6 4.1 GENERAL 786412044da4/so-13419-2003 4.1 4.1 GENERAL 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME S-1 5.1 TRANSFER FRAME S-1 5.1 TRANSFER FRAME SECONDARY HEADER 5-3 5.2 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX Interview 2-1 1-1 Bit Numbering Convention 1-3		2.5	APPLICATION NOTES. iTeh STANDARD PREVIEW	2-3
3.1 PACKET PRIMARY HEADER OS.ITCH.21) 3-2 3.2 PACKET DATA FIELD 3-6 ISO 13419-2003 3-6 4 OTHER TYPES OF PACKETS estandards/sist29B75ad-Bd2-4f02-8cdb- 4-1 4.1 GENERAL 786412d44da4/so-13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME 5-3 5.2 TRANSFER FRAME 5-3 5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure 1-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data Flow 2-4 3 <t< td=""><td>3</td><td>SOU</td><td>RCE PACKET</td><td>3-1</td></t<>	3	SOU	RCE PACKET	3-1
3.2 PACKET DATA FIELD		3.1	PACKET PRIMARY HEADER CIS.Iten.al)	3-2
4 OTHER TYPES OF PACKETS V:standassiv29575ad-Ed2-402-8cdb- 4-1 4.1 GENERAL 786412d44da/iso-13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME PRIMARY HEADER 5-3 5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX 1-1 Figure 1-1 1-1 Bit Numbering Convention. 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data Flow. 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2		3.2	PACKET DATA FIELD	3-6
4.1 GENERAL 78412d44da4/iso-13419-2003 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4) 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME 5-3 5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data System 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2	1	οτι	<u>150 15415.2005</u>	11
4.1 OLIVERAL. 4-1 4.2 CCSDS NETWORK PROTOCOL (NP) DATAGRAM. 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME 5-3 5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure 1-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data System 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2	4	011 4 1	GENERAL 786412d44da4/iso-13419-2003	⊥-₽
4.2 CCSDS NET WORK FROTOCOL DATAGRAM (IPV4). 4-1 4.3 INTERNET PROTOCOL DATAGRAM (IPV4). 4-1 4.4 ENCAPSULATION PACKET. 4-2 5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME 5-3 5.2 TRANSFER FRAME SECONDARY HEADER 5-3 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure 1-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data Flow 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2		ч.1 Л 2	CCSDS NETWORK PROTOCOL (NP) DATAGRAM	4-1 /_1
4.3 INTERVETTION OCCOL DATAGRAM (II V4)		т .2 ДЗ	INTERNET PROTOCOL DATAGRAM (IPV A)	4-1 1_1
5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME PRIMARY HEADER 5-3 5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure 1-1 1-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data Flow 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2		т.5 Л Л	ENCAPSULATION PACKET	- -1 /2
5 TRANSFER FRAME 5-1 5.1 TRANSFER FRAME PRIMARY HEADER 5-3 5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure 1-1 1-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data Flow 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2		7.7		+-2
5.1 TRANSFER FRAME PRIMARY HEADER 5-3 5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure I-1 1-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data Flow 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2	5	TRA	NSFER FRAME	5-1
5.2 TRANSFER FRAME SECONDARY HEADER 5-9 5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure I-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data Flow 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2		5.1	TRANSFER FRAME PRIMARY HEADER	5-3
5.3 TRANSFER FRAME DATA FIELD 5-10 5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES I-1 Bit Numbering Convention 1-3 2-1 2-2 Example of Telemetry Data System 2-4 3-3 Source Packet Format 3-1 5-2		5.2	TRANSFER FRAME SECONDARY HEADER	5-9
5.4 OPERATIONAL CONTROL FIELD 5-11 5.5 FRAME ERROR CONTROL FIELD 5-12 ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES I-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format		5.3	TRANSFER FRAME DATA FIELD	5-10
5.5 FRAME ERROR CONTROL FIELD		5.4	OPERATIONAL CONTROL FIELD	5-11
ANNEX A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES A-1 INDEX I-1 Figure 1-1 1-1 Bit Numbering Convention 1-3 2-1 CCSDS Packet Telemetry Data System 2-1 2-2 Example of Telemetry Data Flow 2-4 3-3 Source Packet Format 3-1 5-1 Transfer Frame Format 5-2		5.5	FRAME ERROR CONTROL FIELD	5-12
INDEXI-1Figure1-11-1Bit Numbering Convention.1-32-1CCSDS Packet Telemetry Data System2-2Example of Telemetry Data Flow.2-43-3Source Packet Format3-15-1Transfer Frame Format5-2	Aľ	NNEX	A INSERTION AND EXTRACTION OF PACKETS FROM FRAMES	A-1
Figure1-1Bit Numbering Convention.1-32-1CCSDS Packet Telemetry Data System2-12-2Example of Telemetry Data Flow.2-43-3Source Packet Format3-15-1Transfer Frame Format5-2	IN	DEX		I-1
1-1Bit Numbering Convention.1-32-1CCSDS Packet Telemetry Data System2-12-2Example of Telemetry Data Flow.2-43-3Source Packet Format3-15-1Transfer Frame Format5-2	<u>Fi</u>	gure		
2-1CCSDS Packet Telemetry Data System2-12-2Example of Telemetry Data Flow2-43-3Source Packet Format3-15-1Transfer Frame Format5-2	1-1	l Bi	Numbering Convention	1-3
2-2Example of Telemetry Data Flow.2-43-3Source Packet Format	2-1	CC	CSDS Packet Telemetry Data System	2-1
3-3Source Packet Format3-15-1Transfer Frame Format5-2	2-2	2 Ex	ample of Telemetry Data Flow	2-4
5-1 Transfer Frame Format	3-3	3 So	urce Packet Format	3-1
	5-1	l Tra	ansfer Frame Format	5-2

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