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**Space data and information transfer
systems — TC (telecommand) space data
link protocol**

*Systèmes de transfert des données et informations spatiales —
Protocole de liaison pour données spatiales TC (télécommande)*



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Foreword

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ISO 22664 was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 232.0-B-3, September 2015) 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 third edition cancels and replaces the second edition (ISO 22664:2013), which has been technically revised. It also incorporates the amendment ISO 22664:2013/Amd.1:2015.

STATEMENT OF INTENT

The Consultative Committee for Space Data Systems (CCSDS) is an organization officially established by the management of its members. 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 **Recommended Standards** and are not considered binding on any Agency.

This **Recommended Standard** is issued by, and represents the consensus of, the CCSDS members. Endorsement of this **Recommendation** is entirely voluntary. Endorsement, however, indicates the following understandings:

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FOREWORD

This document is a technical Recommendation for use in developing flight and ground systems for space missions and has been prepared by the Consultative Committee for Space Data Systems (CCSDS). The TC Space Data Link Protocol described herein is intended for missions that are cross-supported between Agencies of the CCSDS.

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- United States Geological Survey (USGS)/USA.

DOCUMENT CONTROL

Document	Title	Date	Status
CCSDS 232.0-B-1	TC Space Data Link Protocol, Recommended Standard, Issue 1	September 2003	Original Issue, superseded
CCSDS 232.0-B-2	TC Space Data Link Protocol, Recommended Standard, Issue 2	September 2010	Issue 2, superseded
CCSDS 232.0-B-3	TC Space Data Link Protocol, Recommended Standard, Issue 3	September 2015	Current issue: <ul style="list-style-type: none"> – adds specifications to support the Space Data Link Security Protocol; – removes obsolete informative annex detailing changes from Historical Recommendation CCSDS 202.0-B-3-S (1987–2005).

NOTE – Substantive changes from the previous issue are marked by change bars in the inside margin.

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1 INTRODUCTION

1.1 PURPOSE

The purpose of this Recommended Standard is to specify the Telecommand (TC) Space Data Link Protocol. This protocol is a Data Link Layer protocol (see reference [1]) to be used over ground-to-space or space-to-space communications links by space missions.

1.2 SCOPE

This Recommended Standard defines the TC Space Data Link Protocol in terms of:

- a) the services provided to the users of this protocol;
- b) the protocol data units employed by the protocol; and
- c) the procedures performed by the protocol.

It does not specify:

- a) individual implementations or products;
- b) the implementation of service interfaces within real systems;
- c) the methods or technologies required to perform the procedures; or
- d) the management activities required to configure and control the protocol.

1.3 APPLICABILITY

This Recommended Standard applies to the creation of Agency standards and to future data communications over space links between CCSDS Agencies in cross-support situations. The Recommended Standard includes comprehensive specification of the services and protocol for inter-Agency cross support. It is neither a specification of, nor a design for, real systems that may be implemented for existing or future missions.

The Recommended Standard specified in this document is to be invoked through the normal standards programs of each CCSDS Agency and is applicable to those missions for which cross support based on capabilities described in this Recommended Standard is anticipated. Where mandatory capabilities are clearly indicated in sections of the Recommended Standard, they must be implemented when this document is used as a basis for cross support. Where options are allowed or implied, implementation of these options is subject to specific bilateral cross support agreements between the Agencies involved.