
**Space data and information transfer
systems — TC synchronization and
channel coding**

*Systèmes de transfert des données et informations spatiales —
Synchronisation TC et codage de canal*

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Reference number
ISO 22642:2015(E)

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Published in Switzerland

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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.

This International Standard cancels and replaces ISO 22642:2005 which has been technically revised. It also incorporates ISO 22642:2005/Cor.1:1997.

ISO 22642 was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 231.0-B-2, September 2010) 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*.

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Recommendation for Space Data System Standards

TC SYNCHRONIZATION AND CHANNEL CODING

RECOMMENDED STANDARD

CCSDS 231.0-B-2

BLUE BOOK
September 2010

AUTHORITY

Issue:	Recommended Standard, Issue 2
Date:	September 2010
Location:	

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 documents is detailed in the *Procedures Manual for the Consultative Committee for Space Data Systems*, and the record of Agency participation in the authorization of this document can be obtained from the CCSDS Secretariat at the address below.

This document is published and maintained by:

CCSDS Secretariat
Space Communications and Navigation Office, 7L70
Space Operations Mission Directorate
NASA Headquarters
Washington, DC 20546-0001, USA

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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.

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

FOREWORD

This document is a technical Recommended Standard for use in developing synchronization and channel coding systems and has been prepared by the Consultative Committee for Space Data Systems (CCSDS). The synchronization and channel coding concept described herein is intended for missions that are cross-supported between Agencies of the CCSDS.

This Recommended Standard establishes a common framework and provides a common basis for the synchronization and channel coding schemes to be used by space missions with the TC Space Data Link Protocol (reference [1]) over ground-to-space and space-to-space communications links. This Recommended Standard was developed from an older CCSDS Recommended Standard (reference [C2]), which defines essentially the same schemes but in a slightly different context.

This Recommended Standard does not change the major technical content defined in reference [C2], but the presentation of the specification has been changed so that:

- a) these schemes can be used to transfer any data over any space link in either direction;
- b) all CCSDS space link protocols are specified in a unified manner;
- c) the layered model matches the Open Systems Interconnection (OSI) Basic Reference Model (reference [2]).

Together with the change in presentation, a few technical specifications in reference [C2] have been changed in order to define all Space Data Link Protocols in a unified way. Also, some technical terms in reference [C2] have been changed in order to unify the terminology used in all the CCSDS Recommended Standards that define space link protocols and to define these schemes as general communications schemes. These changes are listed in annex D of this Recommended Standard.

Through the process of normal evolution, it is expected that expansion, deletion, or modification of this document may occur. This Recommended Standard is therefore subject to CCSDS document management and change control procedures, which are defined in the *Procedures Manual for the Consultative Committee for Space Data Systems*. Current versions of CCSDS documents are maintained at the CCSDS Web site:

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Questions relating to the contents or status of this document should be addressed to the CCSDS Secretariat at the address indicated on page i.

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DOCUMENT CONTROL

Document	Title	Date	Status
CCSDS 231.0-B-1	TC Synchronization and Channel Coding, Issue 1	September 2003	Original Issue
CCSDS 231.0-B-2	TC Synchronization and Channel Coding, Recommended Standard, Issue 2	September 2010	Current issue: – adds an option for repeated transmissions of Transfer Frames (note).

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

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