
Space data and information transfer systems — Time code formats

*Systèmes de transfert des informations et données spatiales —
Formats des codes horaires*

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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 11104 was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 301.0-B-3, January 2002) 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 11104:1991), which has been technically revised.

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Space data and information transfer systems — Time code formats

1 Scope

This International Standard specifies the requirements for time code formats for space data and information transfer systems for civil space applications.

The scope and field of application are furthermore detailed in subclauses 1.1 and 1.2 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 301.0-B-3, January 2002, *Recommendations for space data system standards — Time code formats*.

For the purposes of international standardization, the modifications outlined below shall apply to the specific clauses and paragraphs of publication CCSDS 301.0-B-3.

Pages *i* to *v*

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

3 Revision of publication CCSDS 301.0-B-3

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 301.0-B-3. 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

TIME CODE

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CCSDS RECOMMENDATION FOR TIME CODE FORMATS

AUTHORITY

Issue:	Blue Book, Issue 3
Date:	January 2002
Location:	Not Applicable

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 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.

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This Recommendation is published and maintained by: (standards.iteh.ai)

CCSDS Secretariat
 Program Integration Division (Code M-3)
 National Aeronautics and Space Administration
 Washington, DC 20546, USA

CCSDS RECOMMENDATION FOR TIME CODE FORMATS

STATEMENT OF INTENT

The Consultative Committee for Space Data Systems (CCSDS) is an organization 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:

- o 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.
- o Whenever an Agency establishes a CCSDS-related **standard**, the Agency will provide other CCSDS member Agencies with the following information:
 - The **standard** itself. ([standards.iteh.ai](https://standards.iteh.ai/catalog/standards/sist/a244050e-8e03-4e79-986b-3a6fbc75770/iso-11104-2003))
 - The anticipated date of initial operational capability.
 - The anticipated duration of operational service.
- o 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 canceled.

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.

CCSDS RECOMMENDATION FOR TIME CODE FORMATS

FOREWORD

This document is a technical Recommendation for time code formats and has been prepared by the Consultative Committee for Space Data Systems (CCSDS). The set of time code formats described in this Recommendation is the baseline concept for time representation in data interchange applications that are cross-supported between Agencies of the CCSDS.

This Recommendation establishes a common framework and provides a common basis for the formats of time code data. It allows implementing organizations 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 and may incorporate features not addressed by this 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:

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<http://www.ccsds.org/>

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

CCSDS RECOMMENDATION FOR TIME CODE FORMATS

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

Member Agencies

- 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.
- 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 Centre (CRC)/Canada.
- Communications Research Laboratory (CRL)/Japan.
- Danish Space Research Institute (DSRI)/Denmark.
- European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)/Europe.
- European Telecommunications Satellite Organization (EUTELSAT)/Europe.
- Federal Service of Scientific, Technical & Cultural Affairs (FSST&CA)/Belgium.
- Hellenic National Space Committee (HNSC)/Greece.
- Indian Space Research Organization (ISRO)/India.
- Institute of Space and Astronautical Science (ISAS)/Japan.
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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.

CCSDS RECOMMENDATION FOR TIME CODE FORMATS

DOCUMENT CONTROL

Document		Date	Status and Substantive Changes
CCSDS 301.0-B-1	Time Code Formats, Issue 1	January 1987	Original Issue (superseded).
CCSDS 301.0-B-2	Time Code Formats, Issue 2	April 1990	Issue 2 (superseded).
CCSDS 301.0-B-3	Time Code Formats, Issue 3	January 2002	Current issue (supersedes Issue 2)

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