

INTERNATIONAL
STANDARD

ISO
17809

First edition
2014-07-01

**Space data and information transfer
systems — Delta-differential one-way
ranging (Delta-DOR) operations**

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*Systèmes de transfert des données et informations spatiales —
Exploitation de mesures différentielles de distance par triangulation
(Delta DOR)*

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Reference number
ISO 17809:2014(E)

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Published in Switzerland

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of (ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

ISO 17809 was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 506.0-M-1, April 2011) 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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Space data and information transfer systems — Delta-differential one-way ranging (Delta-DOR) operations

1 Scope

Delta Differential One-Way Ranging (Delta-DOR) operations are applicable to space agencies that operate deep space missions that require accurate determination of the spacecraft position in the plane of the sky. For operations where these requirements do not capture the needs of the participating agencies, Delta-DOR operations may not be appropriate.

This International Standard addresses rationale, requirements and criteria that Delta-DOR operations processes should be designed to meet.

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 506.0-M-1, April 2011, Delta-Differential One Way Ranging (Delta-DOR) Operations

For the purposes of international standardization, the modifications outlined below shall apply to the specific clauses and paragraphs of publication CCSDS 506.0-M-1.

Pages i to vi

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

Page 1-3

Add the following information to the reference indicated:

[2] Document CCSDS 502.0-B-2, November 2009, is equivalent to ISO 26900:2012.

[3] Document CCSDS 503.0-B-1, November 2007, is equivalent to ISO 13536:2010.

Page D-1

Add the following information to the reference indicated:

[D6] Document CCSDS 505.0-B-1, December 2010, is equivalent to ISO 17107:2011.

Page D-2

Add the following information to the reference indicated:

[D11] Document CCSDS 301.0-B-4, November 2010, is equivalent to ISO 11104:2011.

[D12] Document CCSDS 910.11-B-1, August 2009, is equivalent to ISO 18439:2013.

3 Revision of publication CCSDS 506.0-M-1

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 506.0-M-1. To this end, NASA will act as a liaison body between CCSDS and ISO.

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Recommendation for Space Data System Practices

DELTA-DIFFERENTIAL ONE WAY RANGING (DELTA-DOR) OPERATIONS

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RECOMMENDED PRACTICE

CCSDS 506.0-M-1

MAGENTA BOOK

April 2011

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AUTHORITY

Issue:	Recommended Practice, Issue 1
Date:	April 2011
Location:	Washington, DC, 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 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:

ITeH STANDARD PREVIEW
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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 **Recommendations** and are not in themselves considered binding on any Agency.

CCSDS Recommendations take two forms: **Recommended Standards** that are prescriptive and are the formal vehicles by which CCSDS Agencies create the standards that specify how elements of their space mission support infrastructure shall operate and interoperate with others; and **Recommended Practices** that are more descriptive in nature and are intended to provide general guidance about how to approach a particular problem associated with space mission support. This **Recommended Practice** is issued by, and represents the consensus of, the CCSDS members. Endorsement of this **Recommended Practice** is entirely voluntary and does not imply a commitment by any Agency or organization to implement its recommendations in a prescriptive sense.

No later than five years from its date of issuance, this **Recommended Practice** 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.

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FOREWORD

Through the process of normal evolution, it is expected that expansion, deletion, or modification of this document may occur. This Recommended Practice 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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- Swedish Space Corporation (SSC)/Sweden.
- United States Geological Survey (USGS)/USA.

DOCUMENT CONTROL

Document	Title	Date	Status
CCSDS 506.0-M-1	Delta-Differential One Way Ranging (Delta-DOR) Operations, Recommended Practice, Issue 1	April 2011	Original issue

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