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BeiDou subdivision time code

北斗剖分时间码

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents" drafting: Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents: This document was proposed by the Equipment Development Department of the Central Military Commission: This document is under the jurisdiction of the National Beidou Satellite Navigation Standardization Technical Committee (SAC/TC544): This document was drafted by: Peking University, Beidou Fuxi Zhongke Digital Hefei Co., Ltd., Chinese People's Liberation Army Strategic Support Force Information Engineering University, Beijing Xuanji Fuxi Big Data Technology Co., Ltd: The main drafters of this document: Cheng Chengqi, Tong Xiaochong, Huang Qiaohua, Qu Tengteng, Zhou Xiang, Pu Guoliang, Lei Yi, Wu Xuemin:

The Beidou subdivision time code is a time segment expression code that uses a binary tree structure to divide the time axis: It is a useful supplement to , and has the consistency of time/period identification: As an important national space information infrastructure, the Beidou satellite navigation system is The most important means of collecting time information in the national spatio-temporal big data system, the Beidou subdivided time code is used as the representative of the Beidou satellite navigation system: It is a basic output of the positioning, navigation and timing (PNT) system, which assigns values to the time period of everything, and the purpose is to implement at the forefront of the information chain: The unified identification and expression of the current time period can quickly form the correlation system of time data in the whole information chain, so as to

provide various applications under the condition of big data: Provide better and more convenient time information basic services: The Beidou subdivision time code is used in conjunction with the Beidou grid position code to further improve the time The organization, processing, analysis, transmission and utilization efficiency of empty big data: Beidou split time code

1 Scope

GB/T 42578-2023 defines a way of writing time that is built for machines rather than for reading. Conventional timestamps encode a fixed resolution - a second, a millisecond - regardless of what is being described, and comparing or indexing them means parsing the whole string. A subdivision time code instead divides time hierarchically, so that a coarser interval is a prefix of every finer interval inside it, which makes range queries and containment tests cheap and makes storage proportional to the precision actually needed. This document specifies the selection of time granularity and the encoding rules for the BeiDou subdivision time code, covering the time and calendar system it rests on, the classification and forms of the code, and the positioning of time intervals within it. It applies to the representation of terminal time information in the BeiDou satellite navigation system and to the representation of dates and times derived from it. Under ICS 33.070.40 and CCS V70, it is written for the makers of BeiDou terminals, for the spatiotemporal data platforms that index large volumes of positioning records, and for the systems that have to join BeiDou time to other time references without ambiguity.

This document specifies the time granularity selection and encoding rules for Beidou split time code: This document is applicable to the representation of the terminal time information of the Beidou satellite navigation system, as well as the representation of various date and time information based on this:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document:

GB/T 39355-2020 Spatial data and information transmission system time code format (ISO 11104:2011, MOD)

3 Terms and Definitions

The following terms and definitions defined in GB/T 39355-2020 apply to this document: 3:1 time-point A time instant whose length is assumed to be zero: [Source: GB/T

7408-2005,3:26] 3:2 time scale timescale

a) A system for ordering events without ambiguity:

b) Choose a base unit of time (seconds), accumulated from a specific starting point: The dots on the time scale represent the time: year, month, day, Hours, minutes, seconds, and fractional seconds: [Source: GB/T 39355-2020, 3:2] 3:3 time interval timeinterval

a) The duration between two instants on the same time scale:

b) The difference between two points on a time scale or the time elapsed between two events: [Source: GB/T 39355-2020, 3:3] 3:

4 Time granularity timegranularity time resolution timeresolution The smallest time interval that can be resolved on the time axis: 3:5 single-granularity timecode
single-granularitytimecode Code that describes time interval information with only minimal time granularity: