SMPTE ST 331:2011
Amendment 1:2023

SMPTE STANDARD

Elements and Metadata Definitions for the SDTI-CP – Amendment 1

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Foreword

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Normative text is text that describes elements of the design that are indispensable or contains the conformance language keywords: "shall", "should", or "may". Informative text is text that is potentially helpful to the user, but not indispensable, and can be removed, changed, or added editorially without affecting interoperability. Informative text does not contain any conformance keywords.

All text in this document is, by default, normative, except: the Introduction, any clause explicitly labeled as "Informative" or individual paragraphs that start with "Note:"

The keywords "shall" and "shall not" indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted.

The keywords "should" and "should not" indicate that, among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

The keywords "may" and "need not" indicate courses of action permissible within the limits of the document.

The keyword "reserved" indicates a provision that is not defined at this time, shall not be used, and may be defined in the future. The keyword "forbidden" indicates "reserved" and in addition indicates that the provision will never be defined in the future.

A conformant implementation according to this document is one that includes all mandatory provisions ("shall") and, if implemented, all recommended provisions ("should") as described. A conformant implementation need not implement optional provisions ("may") and need not implement them as described.

Unless otherwise specified, the order of precedence of the types of normative information in this document shall be as follows: Normative prose shall be the authoritative definition; tables shall be next; then formal languages; then figures; and then any other language forms.

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1 Scope

This amendment adds normative references and definitions for two types of System Item Metadata, one a PTP Timestamp and the other an SMPTE ST 12-3 Time Code.

2 Add Normative References

The following normative references are added at the end of Clause 3:

IEEE 1588-2019, IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems

SMPTE ST 12-3:2016, Time Code for High Frame Rate Signals and Formatting in the Ancillary Data Space

3 Add System Item Metadata Definitions

The following text is added as Clause 9.11:

9.11 PTP Timestamp Metadata

Type value = $8a_h$

Tag value: $07.02.01.01.01.09.00.00_h$

This metadata consists of a 16-byte field with the first 10 bytes coding a PTP Timestamp as specified in IEEE 1588-2019. The last 6 bytes of the metadata format are reserved for future use and shall be null filled.

NOTE The metadata is organized as MSB first to comply with IEEE 1588-2019 convention.

The following text is added as Clause 9.12:

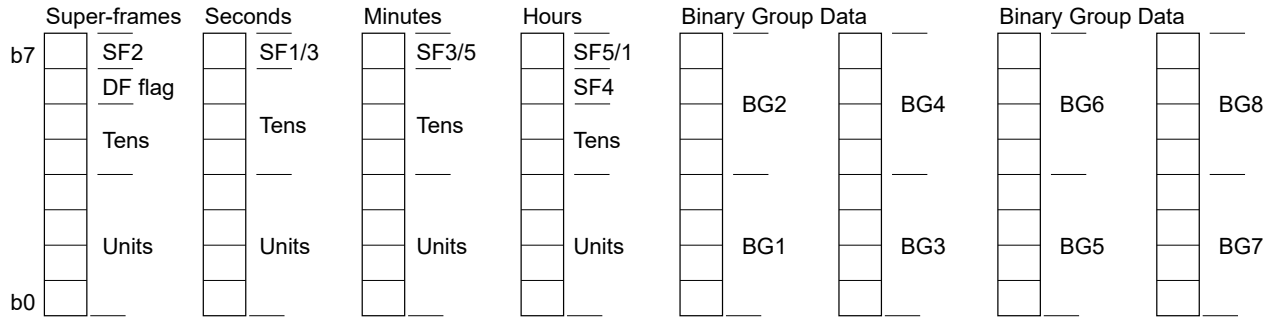
9.12 SMPTE ST 12-3 Time Code Metadata

Type value = $8b_h$

Tag value: $07.02.01.01.01.0a.00.00_h$

This metadata consists of a 16-byte field with the first 8 bytes coded with the data from the SMPTE ST 12-3 time code specification and is shown in Figure 11. The last 8 bytes of the metadata format shall be null filled.

NOTE The metadata is organized as LSB first to comply with SDI convention.



KEY

- DF flag: Drop frame flag;
- SF1/3: Sub-frame 1 (120, 120DF, 96, 72 frames), Sub-frame 3 (100 frames);
- SF2: Sub-frame 2;
- SF3/5: Sub-frame 3 (120, 120DF, 96, 72 frames), Sub-frame 5 (100 frames);
- SF4: Sub-frame 4;
- SF5/1: Sub-frame 5 (120, 120DF, 96, 72 frames), Sub-frame 1 (100 frames).

Figure 11 — Illustration of the ST 12-3 time code data format

The order of transmission is bit b0 of the leftmost word first finishing with bit b7 of the rightmost word.