SMPTE ST 2081-30:2017

# SMPTE STANDARD

# Transport of Multiple 3Gb/s or 1.5Gb/s signals on a 6G-SDI link



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## Foreword

SMPTE (the Society of Motion Picture and Television Engineers) is an internationally-recognized standards developing organization. Headquartered and incorporated in the United States of America, SMPTE has members in over 80 countries on six continents. SMPTE's Engineering Documents, including Standards, Recommended Practices, and Engineering Guidelines, are prepared by SMPTE's Technology Committees. Participation in these Committees is open to all with a bona fide interest in their work. SMPTE cooperates closely with other standards-developing organizations, including ISO, IEC and ITU.

SMPTE Engineering Documents are drafted in accordance with the rules given in its Standards Operations Manual. This SMPTE Engineering Document was prepared by Technology Committee 32NF



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## Intellectual Property

At the time of publication no notice had been received by SMPTE claiming patent rights essential to the implementation of this Engineering Document. However, attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SMPTE shall not be held responsible for identifying any or all such patent rights.

## Introduction

This section is entirely informative and does not form an integral part of this Engineering Document.

SMPTE ST 2081-30 defines the transport of two 3G-SDI signals or four 1.5G-SDI (HD-SDI) signals on a Single-link 6 Gb/s [nominal] SDI bit-serial interface.

### Combination

The signals are combined to form a 40-bit virtual interface at 148.5 (x1/1.001) MHz

### Multiplex

The 40-bit virtual interface is multiplexed onto a single 6G-SDI 10-bit interface in the order data stream four, data stream two, data stream three, data stream one.

## 1 Scope

This Standard defines the combination of four HD-SDI signals or two 3G-SDI signals into a 6G-SDI interface.

- **MODE 1:** Carriage of two SMPTE ST 425-1 3G-SDI signals on a 6G-SDI 10-bit interface as defined in section 6 Single-link 6G-SDI 10-bit Multiplex

- **MODE 2:** Carriage of four SMPTE ST 292-1 HD-SDI signals on a 6G-SDI 10-bit interface as defined in section 6 Single-link 6G-SDI 10-bit Multiplex

## 2 Conformance Notation

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 section 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.

## 3 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this engineering document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this engineering document are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE ST 292-1:2012, 1.5 Gb/s Signal/Data Serial Interface

SMPTE ST 352:2013, Payload Identification Codes For Serial Digital Interfaces

SMPTE ST 425-1:2014, Source Image Format and Ancillary Data Mapping for the 3 Gb/s Serial Interface

SMPTE ST 2081-10:2015, 2160-line and 1080-line Source Image and Ancillary Data Mapping for single-link 6G-SDI

## 4 Mode 1 Carriage of two SMPTE ST 425-1 3G-SDI signals on a single 6G-SDI link

### 4.1 2 x SMPTE ST 425-1 (3G-SDI) Dual-Stream Mapping

Two parallel 20-bit interfaces of the same line and frame structure, having frame, line and word synchronization and each constructed of two 10-bit data streams, data stream one and data stream two, in