

SMPTE STANDARD

Quad 3 Gb/s Serial Digital
Interface for Stereoscopic
Image Transport



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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.

SMPTE ST 425-6 was prepared by Technology Committee 32NF.

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 Standard.

There is a need in the industry to have an interface for transporting stereoscopic images complying with the 4:2:2 and 4:4:4 10-bit or 12-bit image formats referenced by SMPTE ST 425-3, each of which can be transported by a dual-link SMPTE ST 424 serial interface.

Each Left Eye and Right Eye image is mapped onto four data streams according to the rules defined in SMPTE ST 425-3. The resulting eight data streams are then mapped into four 3G SDI links. Figure 1 gives an overview of the image mappings for 1080-line images and Figure 2 gives an overview of the image mappings for 2160-line images.

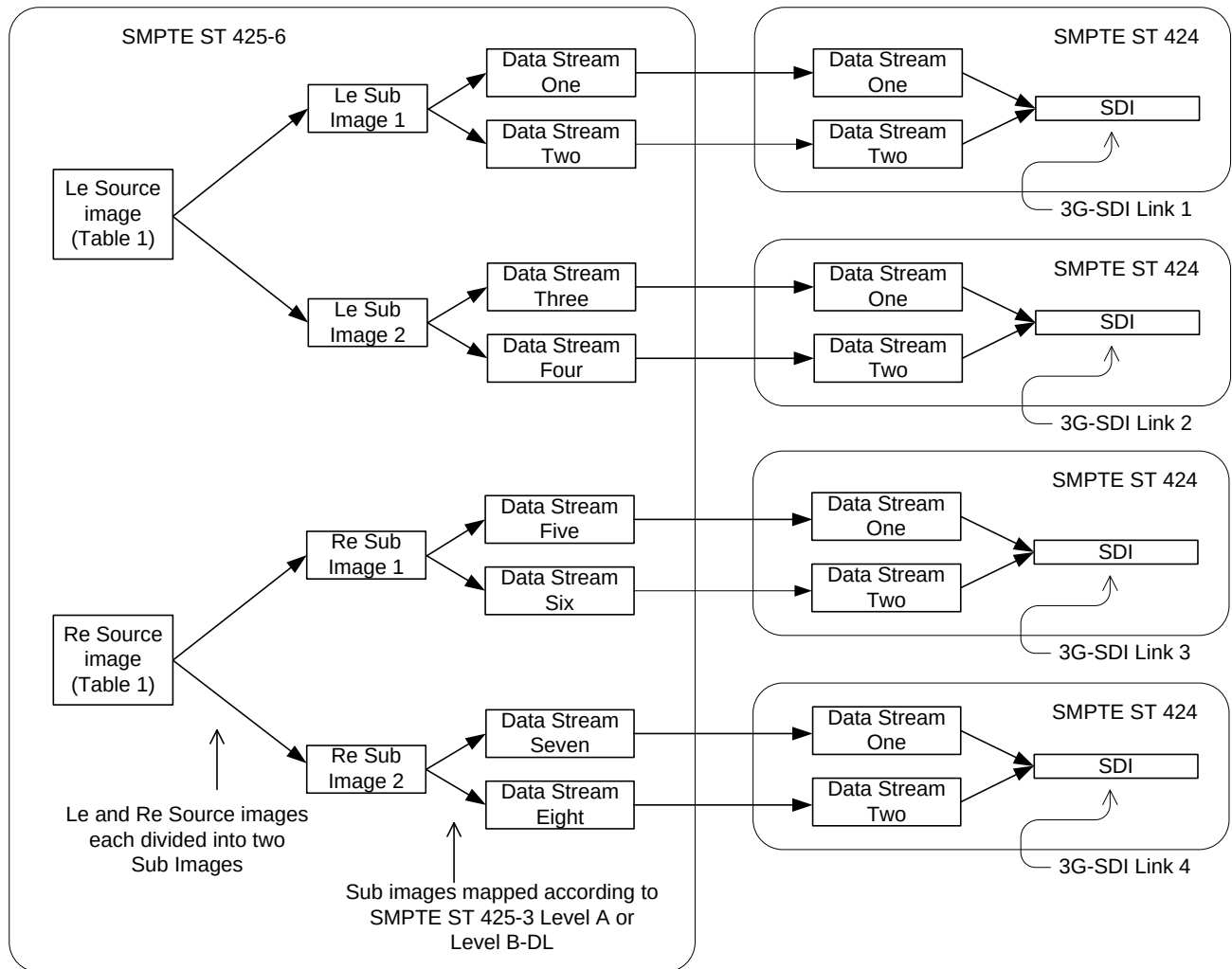


Figure 1 – Overview of the 1080-line Image Mapping

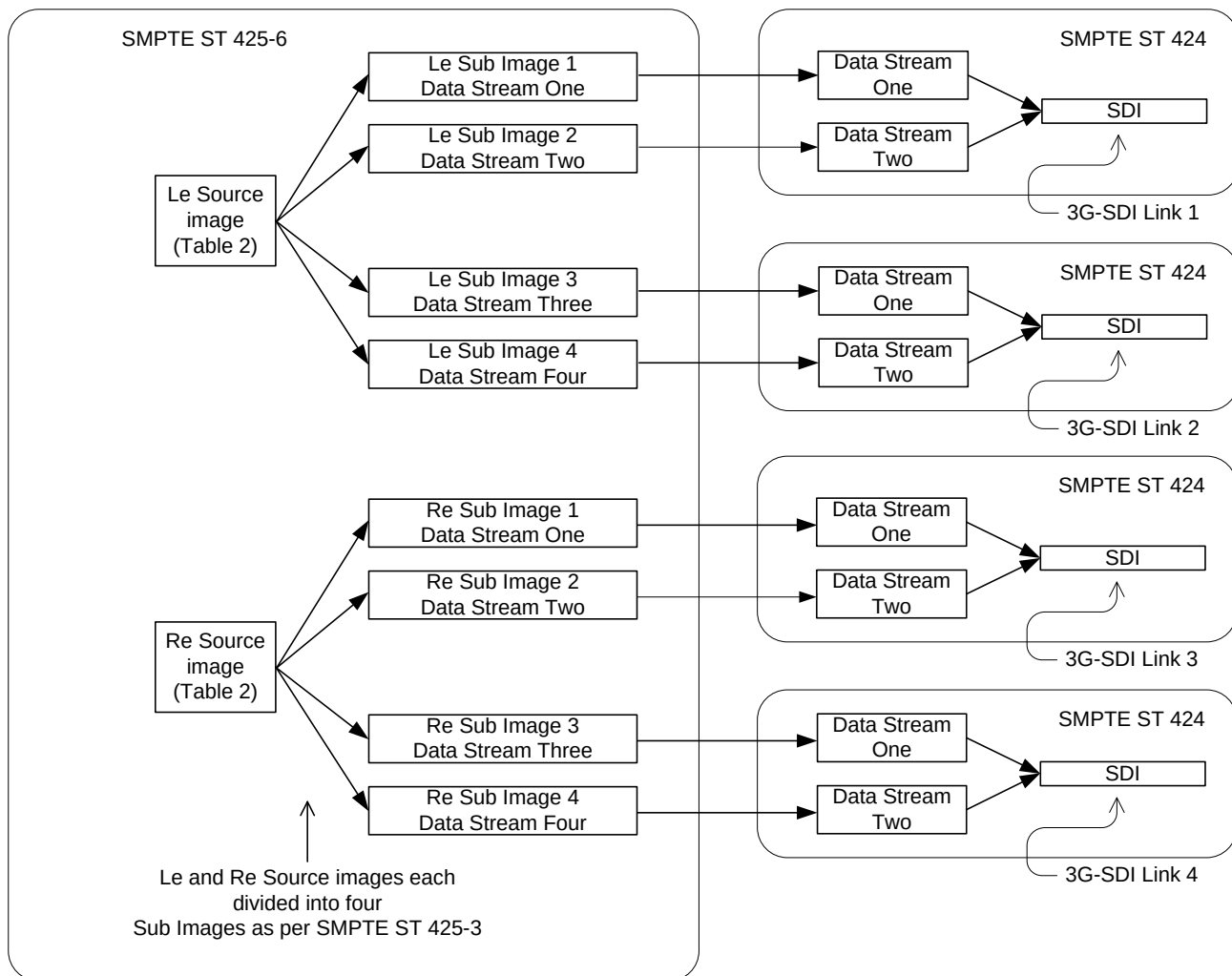


Figure 2 – Overview of the 2160-line Image Mapping

This standard also defines the payload identifier that will identify the Left/Right (L/R) eye images, audio and other associated ancillary data.

1 Scope

This standard defines a means of transporting stereoscopic images (Left eye and Right eye images) using an interface consisting of pairs of four data streams based on the SMPTE ST 425-3 data structures. The Left eye images are carried on four data streams of the interface and the Right eye images are carried on the other four data streams. The Left eye and Right eye images are each mapped onto the respective four data streams in accordance with the mapping rules of SMPTE ST 425-3.

The stereoscopic image formats to be transported using this standard are the 4:2:2 and 4:4:4 image formats enumerated in SMPTE ST 425-3. Mapping structures for the video essence and ancillary data are as defined in SMPTE ST 425-3.

This standard also defines the carriage of ancillary data such as the audio data, the audio control packets, the payload identifier and the time code.

It is not necessary for implementations to include support for all image formats, nor is it a requirement to support both mapping modes to conform to this standard. Implementers are encouraged to indicate supported formats and supported mapping modes in commercial publications.

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.

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; followed by 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 standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE ST 12-2:2014, Transmission of Time Code in the Ancillary Data Space