

# SMPTE REGISTERED DISCLOSURE DOCUMENT

## MXF OP-1a Interoperability Specification for AVC-ULTRA



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This document is NOT a Standard, Recommended Practice or Engineering Guideline, and does NOT imply a finding or representation of the Society.

Errors in this document should be reported to the proponent identified below, with a copy to [eng@smpte.org](mailto:eng@smpte.org).

All other inquiries in respect of this document, including inquiries as to intellectual property requirements that may be attached to use of the disclosed technology, should be addressed to the proponent identified below.

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## Introduction

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

Operational Pattern 1a (OP-1a) is defined as a conformance point of an MXF file and specifies the minimum constraints on the exchange of an MXF file with a single item and a single package. The purpose of this RDD is to specify additional constraints on OP-1a implementations to facilitate interoperability of MXF file exchanges.

This RDD provides the specification for implementing an MXF OP-1a file to encapsulate AVC-ULTRA encoded video essence, data essence, and uncompressed PCM audio essence. AVC-ULTRA is name of Panasonic implementations of H.264/AVC codec.

The Essence Container is interleaved Frame wrapped MPEG Picture Element, ANC Frame Element, and each channel of AES3 Frame wrapped Element. Each Index Table segment is placed in the separate Partition immediately following the essence they Index.

SMPTE RDD 26 specifies the OP-1b implementation for tape-less camera recording. OP-1a files specified in this document may be generated from OP-1b files conforming to SMPTE RDD 26.

## 1 Scope

This RDD provides the specification for implementing an MXF OP-1a file that encapsulates AVC-ULTRA encoded video essence, data essence originally carried in ancillary packets, uncompressed PCM audio essence.

This document specifies the structure of the MXF OP-1a file, partitioning, Essence Containers, and the structures and the implementations of the Header Metadata and Index Table.

## 2 Normative References

Note: All references in this document to other SMPTE documents use the current numbering style (e.g. SMPTE ST 378:2004) although, during a transitional phase, the document as published (printed or PDF) may bear an older designation (such as SMPTE 378M-2004). Documents with the same root number (e.g. 378) and publication year (e.g. 2004) are functionally identical.

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

SMPTE ST 377-1:2011, Material Exchange Format (MXF) – File Format Specification

Amendment 1:2012 to SMPTE ST 377-1:2011

Amendment 2:2012 to SMPTE ST 377-1:2011

SMPTE ST 378:2004, Television — Material Exchange Format (MXF) — Operational Pattern 1a (Single Item, Single Package)

SMPTE ST 379-2:2010, Television — Material Exchange Format (MXF) — MXF Constrained Generic Container