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Australian/New Zealand Standard™

**Information technology— Generic
coding of moving pictures and
associated audio information**

Part 1: Systems

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Australian/New Zealand StandardTM

**Information technology—Generic
coding of moving pictures and
associated audio information**

Part 1: Systems

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT-001, Information Systems—Interconnections. This Standard is identical with and has been reproduced from ISO/IEC 13818-1:2000, *Information technology—Generic coding of moving pictures and associated audio information, Part 1: Systems*, and Technical Corrigendum 1:2002 which is bound at the back of this Standard.

The objective of this Standard is to specify the systems layer of the coding. It was developed principally to support the combination of the video and audio coding methods defined in Parts 2 and 3 of ISO/IEC 13818.

This Standard is Part 1 of AS/NZS 13818, *Information technology—Generic coding of moving pictures and associated audio information*, which is published in parts as follows:

- Part 1: Systems (this Standard)
- Part 2: Video
- Part 3: Audio
- Part 4: Conformance testing
- Part 5: Software simulation
- Part 6: Extensions for DSM-CC
- Part 7: Advanced audio coding
- Part 9: Extension for real time interface for systems decoders
- Part 10: Conformance extensions for digital storage media control and control

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<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
ISO/IEC 11172	Information technology—Coding of moving pictures and associated audio for digital storage media at up to about 1.5 Mbit/s	4230	Information technology—Coding of moving pictures and associated audio for digital storage media at up to about 1.5 Mbit/s
11172-1	Part 1: Systems	4230.1	Part 1: Systems
11172-2	Part 2: Video	4230.2	Part 2: Video
11172-3	Part 3: Audio	4230.3	Part 3: Audio

ISO/IEC

13818	Information technology— Generic coding of moving pictures and associated audio information	13818	Information technology—Generic coding of moving pictures and associated audio information
13818-2	Part 2: Video	13818.2	Part 2: Video
13818-3	Part 3: Audio	13818.3	Part 3: Audio
13818-6	Part 6: Extensions for DSM-CC	13818.6	Part 6: Extensions for DSM-CC
13818-7	Part 7: Advanced Audio Coding (AAC)	13818.7	Part 7: Advanced Audio Coding (AAC)
14496	Information technology—Coding of audio-visual objects	14496	Information technology—Coding of audio-visual objects
14496-1	Part 1: Systems	14496-1	Part 1: Systems
14496-2	Part 2: Visual	14496-2	Part 2: Visual
14496-3	Part 3: Audio, Amendment 1: Audio extensions	14496-3	Part 3: Audio, Amendment 1. Audio extensions

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INTRODUCTION

The systems part of this Recommendation | International Standard addresses the combining of one or more elementary streams of video and audio, as well as other data, into single or multiple streams which are suitable for storage or transmission. Systems coding follows the syntactical and semantic rules imposed by this Specification and provides information to enable synchronized decoding of decoder buffers over a wide range of retrieval or receipt conditions.

System coding shall be specified in two forms: the **Transport Stream** and the **Program Stream**. Each is optimized for a different set of applications. Both the Transport Stream and Program Stream defined in this Recommendation | International Standard provide coding syntax which is necessary and sufficient to synchronize the decoding and presentation of the video and audio information, while ensuring that data buffers in the decoders do not overflow or underflow. Information is coded in the syntax using time stamps concerning the decoding and presentation of coded audio and visual data and time stamps concerning the delivery of the data stream itself. Both stream definitions are packet-oriented multiplexes.

The basic multiplexing approach for single video and audio elementary streams is illustrated in Figure Intro. 1. The video and audio data is encoded as described in ITU-T Rec. H.262 | ISO/IEC 13818-2 and ISO/IEC 13818-3. The resulting compressed elementary streams are packetized to produce **PES packets**. Information needed to use PES packets independently of either Transport Streams or Program Streams may be added when PES packets are formed. This information is not needed and need not be added when PES packets are further combined with system level information to form **Transport Streams** or **Program Streams**. This systems standard covers those processes to the right of the vertical dashed line.

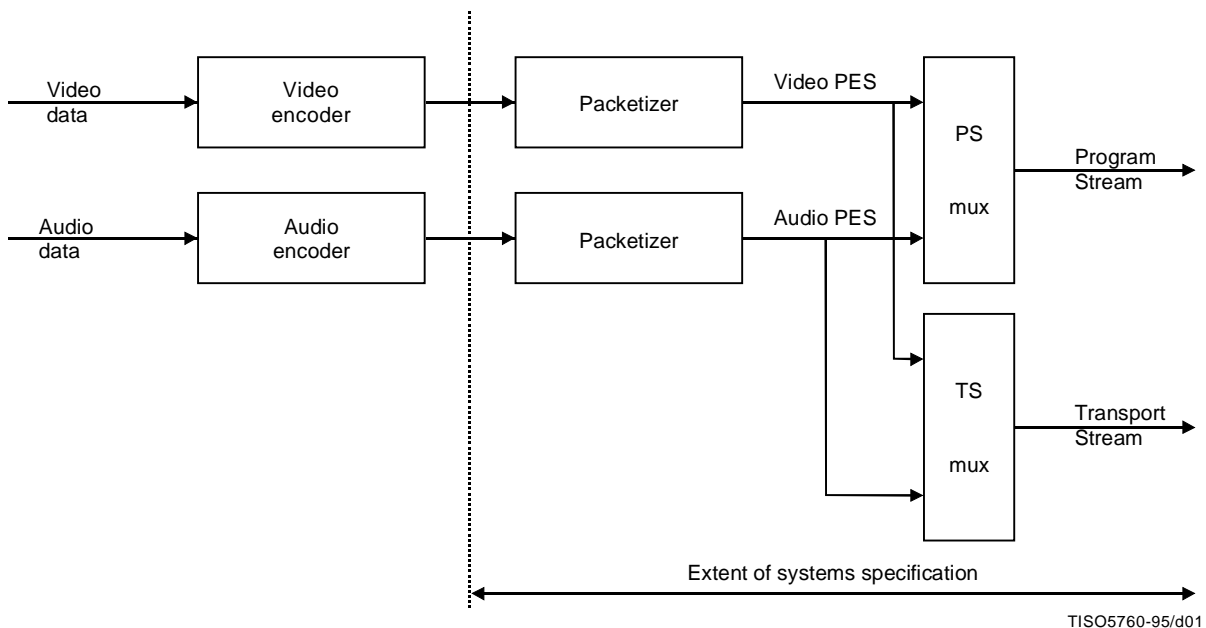


Figure Intro. 1 – Simplified overview of the scope of this Recommendation | International Standard

The **Program Stream** is analogous and similar to ISO/IEC 11172 Systems layer. It results from combining one or more streams of PES packets, which have a common time base, into a single stream.

For applications that require the elementary streams which comprise a single program to be in separate streams which are not multiplexed, the elementary streams can also be encoded as separate Program Streams, one per elementary stream, with a common time base. In this case the values encoded in the SCR fields of the various streams shall be consistent.

Like the single Program Stream, all elementary streams can be decoded with synchronization.