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AS ISO/IEC 13818.7—2006

Australian Standard™

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

Part 7: Advanced Audio Coding (AAC)

This Australian Standard was prepared by Committee IT-029, Coded Representation of Picture, Audio and Multimedia/Hypermedia Information. It was approved on behalf of the Council of Standards Australia on 12 May 2006.
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PREFACE

This Standard was prepared by the Standards Australia Committee IT-029, Coded Representation of Picture, Audio and Multimedia/Hypermedia Information to supersede AS ISO/IEC 13818.7—2005.

This Standard is identical with, and has been reproduced from ISO/IEC 13818-7:2006, *Information technology—Generic coding of moving pictures and associated audio information,* Part 7: *Advanced Audio Coding (AAC)*.

The objective of this Standard is to provide the Australian multimedia industry with the MPEG-2 audio non-backwards compatible standard called MPEG-2 Advanced Audio Coding, AAC [1], a higher quality multichannel standard than achievable while requiring MPEG-1 backwards compatibility.

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13818	Information technology—Generic coding of moving pictures and associated audio information	13818	Information technology—Generic coding of moving pictures and associated audio information
13818-1	Part 1: Systems	13818.1	Part 1: Systems
13818-3	Part 3: Audio	13818.3	Part 3:Audio
14496	Information technology—Generic coding of audio-visual objects	14496	Information technology—Generic coding of audio-visual objects
14496-3	Part 3: Audio	14496.3	Part 3: Audio

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INTRODUCTION

The standardization body ISO/IEC JTC 1/SC 29/WG 11, also known as the Moving Pictures Experts Group (MPEG), was established in 1988 to specify digital video and audio coding schemes at low data rates. MPEG completed its first phase of audio specifications (MPEG-1) in November 1992, ISO/IEC 11172-3. In its second phase of development, the MPEG Audio subgroup defined a multichannel extension to MPEG-1 audio that is backwards compatible with existing MPEG-1 systems (MPEG-2 BC) and defined an audio coding standard at lower sampling frequencies than MPEG-1, ISO/IEC 13818-3.

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NOTES

AUSTRALIAN STANDARD

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

Part 7:
Advanced Audio Coding (AAC)

1 Scope

1.1 General

This International Standard describes the MPEG-2 audio non-backwards compatible standard called MPEG-2 Advanced Audio Coding, AAC [1], a higher quality multichannel standard than achievable while requiring MPEG-1 backwards compatibility. This MPEG-2 AAC audio standard allows for ITU-R “indistinguishable” quality according to [2] at data rates of 320 kbit/s for five full-bandwidth channel audio signals.

The AAC decoding process makes use of a number of required tools and a number of optional tools. Table 1 lists the tools and their status as required or optional. Required tools are mandatory in any possible profile. Optional tools may not be required in some profiles.

Table 1 — AAC decoder tools

Tool Name	Required / Optional
Bitstream Formatter	Required
Noiseless Decoding	Required
Inverse quantization	Required
Rescaling	Required
M/S	Optional
Prediction	Optional
Intensity	Optional
Dependently switched coupling	Optional
TNS	Optional
Filterbank / block switching	Required
Gain control	Optional
Independently switched coupling	Optional

1.2 MPEG-2 AAC Tools Overview

The basic structure of the MPEG-2 AAC system is shown in Figure 1 and Figure 2. As is shown in Table 1, there are both required and optional tools in the decoder. The data flow in this diagram is from left to right, top to bottom. The functions of the decoder are to find the description of the quantized audio spectra in the bitstream, decode the quantized values and other reconstruction information, reconstruct the quantized spectra, process the reconstructed spectra through whatever tools are active in the bitstream in order to arrive at the actual signal spectra as described by the input bitstream, and finally convert the frequency domain spectra to the time domain, with or without an optional gain control tool. Following the initial reconstruction and scaling of the spectrum reconstruction, there are many optional tools that modify one or more of the spectra in order to provide more efficient coding. For each of the optional tools that operate in the spectral domain, the option to “pass through” is retained, and in all cases where a spectral operation is omitted, the spectra at its input are passed directly through the tool without modification.

AS ISO/IEC 13818.7-2006, Information technology - Generic coding of moving pictures and associated audio information Advanced Audio Coding (AAC)