AS 4933.1—2000
(Incorporating Amendment No. 1)

Australian Standard™

Digital television—Requirements for receivers

Part 1: VHF/UHF DVB-T television broadcasts

Standards Australia

This Australian Standard was prepared by Committee CT/2, Broadcasting and Related Services. It was approved on behalf of the Council of Standards Australia on 24 December 1999 and published on 30 March 2000.

The following interests are represented on Committee CT/2:

Australian Broadcasting Authority
Australian Broadcasting Corporation
Australian Caption Centre
Australian Chamber of Commerce and Industry
Australian Communications Authority
Australian Electrical and Electronic Manufacturers Association
Australian Information Industry Association
Australian Subscription Television and Radio Association
Community Broadcasting Association of Australia
Consumer Electronics Suppliers Association, Australia
Consumers Telecommunications Network, Australia
Department of Communications, Information Technology and the Arts, Australia
Department of Industry Science and Resources (Commonwealth), Australia
Electronic Services Industry Association, Australia
Federation of Australian Commercial TV Stations
Ministry of Commerce New Zealand
National Transmission Agency, Australia
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Optus Communications, Australia
Special Broadcasting Service, Australia
Television New Zealand
Telstra Corporation, Australia

Additional interests participating in the preparation of this Standard:

Austar Entertainment
Consultants
Foxtel
Intermedia
JJB Associates
Matsushita Electric Co (Aust)
Modern Antenna Systems
Motorola Semiconductor Products
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We also welcome suggestions for the improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.com.au, or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CT-002, Broadcasting and Related Services. It is the result of a consensus among the representatives to the Joint Committee to produce it as an Australian Standard.

A1 *This Standard incorporates Amendment No. 1 (July 2001). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

The objective of this Standard is to provide television receiver manufacturers with the technical specifications and requirements of digital television receivers in order to achieve successful reception from free-to-air DTTB transmissions that comply with the Australian DTTB transmission Standard, AS 4599 — 1999, *Digital television — Terrestrial broadcasting — Characteristics of digital terrestrial television transmissions.*

Some interoperability considerations are included for DVB-S Satellite and DVB-C Cable transmissions in Australia. Other interoperability issues including Datacasting will be addressed in other parts of this Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

CONTENTS

FOREWORD

A1 Digital terrestrial television broadcasting (DTTB) based on the DVB-T* system has been adopted for Australia; however, it should be noted that the international DVB Standards and related ETSI, IEC/ISO and ITU-R documents provide a range of operational choices.

Most implementations of digital television systems around the world operate on pay satellite and cable systems where compatibility between transmission and reception equipment is generally under the control of a single system operator. This is known as a 'vertical' market.

In contrast, no single operator will be in control of the Australian implementation of the digital terrestrial television broadcasting system. There will be multiple free-to-air services and multiple receiver/decoder manufacturers, as well as subscription television services and datacasting services delivered in the digital television broadcasting environment. Domestic digital television receivers are expected to be available from a wide range of manufacturers through many retail suppliers; this is known as a 'horizontal' market.

Consumers will expect a choice of receiving equipment from many manufacturers, ranging from fully integrated receivers with cathode ray tubes or other display devices to modular set-top-box receivers intended for connection to a separate display and sound reproduction system. This equipment will be expected to satisfactorily receive digital terrestrial television broadcasts from a choice of broadcasters each possibly using a different brand of encoding and transmission equipment.

A separate Australian Standard, AS 4599, details information specific to the transmission aspects of the Australian adaptation of the relevant ETSI DVB-T Standards. For an overview on DVB documents the reader is referred to the technical report from DVB: TR 101 200 V1.1.1 (1997-09); 'Digital Video Broadcasting (DVB), A guideline for the use of DVB specifications and Standards'.

This Standard aims to provide the necessary information so that any digital terrestrial television receiving equipment made for the Australian system will operate satisfactorily on Australian digital terrestrial television broadcast transmissions.

While some receiver requirements are nominated to be essential, in general, it will be a marketing choice by the manufacturer as to how the various receiver models operate with a variety of conditions.

In Australia, Single Frequency Network environments are planned in which receivers will be expected to operate. Information on the allocation of channels and implementation of SFNs is available from the Australian Broadcasting Authority.

Conformance testing related to this standard is the responsibility of the supplier and/or manufacturer.

DTTB is a rapidly evolving technological environment and, consequently, international and Australian standards are constantly under revision. Care should be taken to ensure that the most recent developments are considered when interpreting this or related standards.

Readers are urged to contact Standards Australia regarding the status of this standard or AS 4599.

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* DVB-T: Digital Video Broadcasting (project) – Terrestrial. The DVB Project Office is co-located at the headquarters of the European Broadcasting Union in Geneva, Switzerland. Their web site is http://www.dvb.org.

STANDARDS AUSTRALIA

Australian Standard

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A1

1 SCOPE AND APPLICATION

1.1 Scope

This Standard defines both essential and optional requirements for DVB-T compliant digital broadcast television receivers for Australia with the capability of receiving Standard or High Definition Television via terrestrial broadcasting services. Optional requirements include interactivity, datacasting services, surround sound, multi lingual and appropriate interfaces for ancillary equipment. Specifications for subscription/pay services should be obtained from the operators of those services.

NOTE: See Appendix A for abbreviations and a glossary of terms used in this Standard.

1.2 Application

Australian digital terrestrial transmissions will include SD and HD TV pictures, and sound in MPEG-1 Layer II and AC-3 (Dolby® Digital) formats.

A range of receiving equipment may be available either in modular or fully integrated forms that extend from low-cost limited-facility with a standard definition video and monophonic sound output to premium full-facility receiver providing high definition display with full surround sound. Modular equipment may be set-top box style integrated-receiver-decoders or plug-in PC card tuner-decoders.

While this Standard seeks to identify minimum essential requirements for reception, demodulation and decoding of television broadcasts complying with the Australian implementation of DVB-T, additional information and recommendations are provided to clarify preferred implementation if a feature is included in the receiver's design.

Equipment must be capable of simultaneously decoding from the transport stream, a video stream, an associated audio stream and associated teletext subtitles and optionally bit-mapped subtitle closed captions. The decoded information shall be presented in a time-synchronized manner suitable for a display device and sound reproduction system.

If necessary, the video may require to be spatially format converted ('scaled'), as the received format may be different to the display format. For example, if a digital terrestrial set-top-box receiver is connected to a standard 4:3 television, down-scaling will be required to display a high definition 16:9 program.

Correspondingly, the received audio channels may need to be processed or mixed to suit the available sound reproduction equipment.

