

AS/NZS 4414:1996

Australian/New Zealand Standard[®]

**Ghost-cancelling reference signal
for Australian and New Zealand PAL
television broadcasting systems**

STANDARDS AUSTRALIA ✓

STANDARDS NEW ZEALAND ✓



Documents

Document Sharing Hub

AS/NZS 4414:1996

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee RC/5, Radiocommunications—Infrastructure. It was approved on behalf of the Council of Standards Australia on 10 May 1996 and on behalf of the Council of Standards New Zealand on 22 May 1996. It was published on 5 September 1996.

The following interests are represented on Committee RC/5:

Airservices Australia
 AUSTEL
 Australasian Railway Association
 Australian Broadcasting Authority
 Australian Broadcasting Corporation
 Australian Chamber of Commerce and Industry
 Australian Electrical and Electronic Manufacturers Association
 Consumer Electronics Suppliers Association
 Department of Communications and the Arts
 Department of Defence
 Electronic Services Industry Association
 Federation of Australian Commercial TV Stations
 Ministry of Commerce, New Zealand
 National Transmission Agency
 Optus Communications
 Special Broadcasting Service
 Spectrum Management Agency
 Telstra Corporation

Additional interests participating in preparation of Standard:

Consultants
 Equipment manufacturers
 ITC (UK)
 Television service providers

Review of Standards. To keep abreast of progress in industry, Joint Australian/New Zealand Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Joint Standards and related publications will be found in the Standards Australia and Standards New Zealand Catalogue of Publications; this information is supplemented each month by the magazines 'The Australian Standard' and 'Standards New Zealand', which subscribing members receive, and which give details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Joint Standards, addressed to the head office of either Standards Australia or Standards New Zealand, are welcomed. Notification of any inaccuracy or ambiguity found in a Joint Australian/New Zealand Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

AS/NZS 4414:1996

Australian/New Zealand Standard[®]

**Ghost-cancelling reference signal
for Australian and New Zealand PAL
television broadcasting systems**

PUBLISHED JOINTLY BY:

STANDARDS AUSTRALIA
1 The Crescent,
Homebush NSW 2140 Australia

STANDARDS NEW ZEALAND
Level 10, Standards House,
155 The Terrace,
Wellington 6001 New Zealand

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee RC/5 on Radiocommunications—Infrastructure.

The Standard defines the characteristics of ghost cancelling reference (GCR) signals that can be used by appropriate receiving apparatus to reduce or eliminate received ghost images on the analogue PAL television systems used in Australia and New Zealand. The Standard specifies a GCR signal that may, at the broadcaster's option, be inserted into the television signal at a point before the signal is radiated or transmitted.

Because this Standard defines a signal that is inserted into the vertical interval of a PAL television signal, it should be read in conjunction with the appropriate television system Standard, as referenced in Clause 2.

The Standard has been derived from the revision of ITU-R Recommendation BT.1124 that was agreed at the October 1994 Working Party 11C meetings of the International Telecommunications Union's Radiocommunications (ITU-R) sector. The parts of the ITU-R Recommendation used in this document are those which pertain to the 625 line implementation of GCR System C.

This Standard includes two appendices which provide information on the operation of 'ghost cancellers' and a recommendation that 'set top' ghost cancelling equipment should be labelled to provide consumers with advice about the capabilities of such equipment of passing teletext and stereo sound signals.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

© Copyright — STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Users of Standards are reminded that copyright subsists in all Standards Australia and Standards New Zealand publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia or Standards New Zealand may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia or Standards New Zealand. Permission may be conditional on an appropriate royalty payment. Australian requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia. New Zealand requests should be directed to Standards New Zealand.

Up to 10 percent of the technical content pages of a Standard may be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia or Standards New Zealand.

Inclusion of copyright material in computer software programs is also permitted without royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia or Standards New Zealand at any time.

CONTENTS

	<i>Page</i>
1 SCOPE AND APPLICATION	4
2 REFERENCED DOCUMENTS	4
3 DEFINITIONS	5
4 SPECIFICATION FOR GCR SIGNAL	5

APPENDICES

A OPERATION OF GHOST-CANCELLING SYSTEMS	10
B TRANSMISSION OF VERTICAL INTERVAL AND OTHER NON-VIDEO SIGNALS THROUGH GHOST-CANCELLING SYSTEMS	13

First published as AS/NZS 4414:1996.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Ghost-cancelling reference signal for Australian and New Zealand PAL television broadcasting systems****1 SCOPE AND APPLICATION**

1.1 Scope This Standard describes the characteristics of a ghost-cancelling reference (GCR) signal to be inserted into the radiated or transmitted signals of the analogue television systems used in Australia and New Zealand. The reference signal can be used to enable appropriately equipped receivers to reduce or eliminate the effects of ghosting on the displayed pictures.

It does not cover digital television applications.

1.2 Application This Standard applies to the baseband element of radiated or transmitted television signals. These include: terrestrial broadcasting in the VHF/UHF broadcasting bands; MDS bands; and cable transmission systems.

The Standard is to be used with the analogue PAL television systems used in Australia and New Zealand.

NOTES:

- 1 Appendix A describes the operation of a ghost-cancelling system.
- 2 Appendix B provides information on the transmission of vertical interval and other non-video signals through ghost-cancelling systems.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS 2839	Colour television receivers—General requirements and selected performance parameters—Limits and methods of measurement
NZS 6605	Compatibility of television broadcast receivers with broadcast signals
ITU-R Recommendation BT.1124	'Reference signals for Ghost Cancelling in Television', Geneva 1995, as amended during the October 1994 Working Party 11A meeting. (Reference document WP11C/temp/5(rev 1))
Recommendation BS.707	Transmission of Multi-sound in Terrestrial Television Systems PAL B, G, H, I and SECAM L
Other document	Emission Standard for the Australian Terrestrial Television Service, 6th Edition, Department of Transport and Communications, Canberra, March 1989 (reprinted August 1993)