Australian/New Zealand Standard™

Earth potential rise—Protection of telecommunications network users, personnel and plant

Part 2: Application guide





AS/NZS 3835.2:2006

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ET-007, Coordinating Committee on Power and Telecommunications. It was approved on behalf of the Council of Standards Australia on 10 April 2006 and on behalf of the Council of Standards New Zealand on 14 April 2006. This Standard was published on 27 September 2006.

The following are represented on Committee ET-007:

Australian Communications and Media Authority Co-opted Member Electrical Regulatory Authorities Council Energy Networks Association NZCCPTS Telecommunications Carriers

Additional Interests:

Energex Queensland Rail Electranet (South Australia)

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 04472.

AS/NZS 3835.2:2006

Australian/New Zealand Standard™

Earth potential rise—Protection of telecommunications network users, personnel and plant

Part 2: Application guide

First published as AS/NZS 3835.2:2006.

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

PREFACE

This Standard was prepared by the joint Standards Australia/Standards New Zealand Technical Committee ET-007-01, Earth Potential Rise, Coordination of Power and Telecommunications Systems. This Standard supersedes in part the EPR Code, Issue 1, 1984 (published jointly by the Australian Telecommunications Commission ATC (now Telstra Corporation) and ESAA (now ENA Energy Network Association).

In New Zealand, this Standard supersedes the Application Guide for EPR, August 1989, published by the New Zealand Committee for the Co-ordination of Power and Telecommunications Systems (NZCCPTS).

The objective of this part of AS/NZS 3835 is to serve as an application guide for personnel responsible for safety in the application of AS/NZS 3835.1 Part 1: *Code of practice*.

Preparation of this Standard was undertaken to update the technical content of the original EPR Code and to remove those contractual and procedural matters better dealt with elsewhere.

This Standard makes reference to publications prepared by the NZCCPTS. Enquiries concerning these publications should be directed to the secretary of NZCCPTS. Contact details for the secretary and details of NZCCPTS publications are available at the web site http://www.nzccpts.co.nz. Some publications are available as free downloads from the above web site.

This Standard is Part 2 of a Series dealing with Earth Potential Rise (EPR). This Standard when complete will consist of the following parts:

AS/NZS	
3835	Earth potential rise—Protection of telecommunications network users, personnel and plant
3835.1	Part 1: Code of practice
3835.2	Part 2: Application guide (this Standard)
3835.3	Part 3: Isolation arrangements for paired cable telemetering telecontrol service in LV areas and HV sites
HB 219	Earth potential rise—Protection of telecommunications network users, personnel and plant—Worked examples for the application guide

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.

Statements expressed in mandatory terms in notes to figures, are deemed to be requirements of this Standard. 'Shall' indicates a requirement is mandatory, while 'should' indicates a recommendation and good practice.

CONTENTS

		Page
SECTIO	ON 1 SCOPE AND GENERAL	
1.1		5
1.2	APPLICATION	
1.3	REFERENCED DOCUMENTS	
1.5	REFERENCED DOCUMENTO	
SECTIO	ON 2 DEFINITIONS	
	DEFINITIONS	7
SECTIO	ON 3 EPR AND GENERAL	
3.1	DESCRIPTION OF EPR	8
3.2	SOME EPR HAZARD SITUATIONS TO CONSIDER	9
3.3	CONSIDERATION OF POWER UTILITY CONSTRUCTION PROPOSALS	13
	ON 4 EPR HAZARD VOLTAGE LIMITS	
4.1	INTRODUCTION	
4.2	RISK OF EPR HAZARD	
4.3	AUSTRALIAN EPR HAZARD VOLTAGE LIMITS	
4.4	BASIS OF AUSTRALIAN EPR HAZARD VOLTAGE LIMITS	
4.5	NEW ZEALAND EPR HAZARD VOLTAGE LIMITS	
4.6	BASIS OF NEW ZEALAND EPR HAZARD VOLTAGE LIMITS	17
SECTIO	ON 5 ASSESSMENT OF EPR	
5.1	EPR ASSESSMENT PROCESS	1 0
5.2	COMBINED EPR AND LFI EFFECTS	
5.3	HAZARD CALCULATIONS IN SMALL INSTALLATIONS	
5.4	ELECTRODES	
5.5	ESTIMATION OF EARTH FAULT CURRENTS	
5.6	SURFACE VOLTAGE GRADIENTS	
5.7	LIMITS FOR APPLYING THE SIMPLIFIED CALCULATIONS	
5.8	EPR IN LARGE SUBSTATIONS	
5.9	EARTH SYSTEM IMPEDANCE	
5.10	DETERMINATION OF PROSPECTIVE FAULT CURRENT (Initial estimate).	
5.11		
		= 0
SECTIO	ON 6 FIELD TESTS AND MEASUREMENTS	
6.1	INTRODUCTION	
6.2	OBJECTIVES OF FIELD TESTS	31
6.3	METHODOLOGY	
6.4	CURRENT INJECTION TESTS	
6.5	SELECTION OF THE APPROPRIATE INJECTION METHOD	37
6.6	CURRENT SOURCES	38
6.7	REMOTE CURRENT ELECTRODE	40
6.8	MEASURING GRID IMPEDANCE	
6.9	MEASURING SURFACE VOLTAGE GRADIENTS	
6.10	INTERFERENCE ELIMINATION	47
6.11	INTERPRETATION OF RESULTS	48
6.12	CONSIDERATION IN CONJUNCTION WITH LOW FREQUENCY	
	INDUCTION (LFI)	
6.13	SAFETY PRECAUTIONS	52



	This is a free preview.	Purchase the e	entire publication	at the link below:
--	-------------------------	----------------	--------------------	--------------------

Product Page

- Dooking for additional Standards? Visit Intertek Inform Infostore
- Dearn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation