

## Technical Report

### Electromagnetic compatibility (EMC)

#### **Part 3.6: Limits—Assessment of emission limits for the connection of distorting installations to MV, HV and EHV power systems**



### **TR IEC 61000.3.6:2012**

This Joint Australian/New Zealand Technical Report was prepared by Joint Technical Committee EL-034, Power Quality. It was approved on behalf of the Council of Standards Australia on 20 March 2012 and on behalf of the Council of Standards New Zealand on 2 April 2012.

This Technical Report was published on 24 April 2012.

---

The following are represented on Committee EL-034:

Australian Chamber of Commerce and Industry  
Australian Industry Group  
Australian Information Industry Association  
Bureau of Steel Manufacturers of Australia  
Consumer Electronics Suppliers Association  
Consumers Federation of Australia  
Electrical Regulatory Authorities Council  
Electricity Engineers Association, New Zealand  
Energy Networks Association  
Engineers Australia  
Lighting Council of Australia  
Ministry of Economic Development, New Zealand  
National Measurement Institute  
New Zealand Coordinating Committee on Power and Telecommunication Systems  
New Zealand Electric Fence Energiser Manufacturers Standards WG  
Telstra Corporation  
University of Canterbury, New Zealand  
University of Wollongong

---

### **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 Standards may also be withdrawn.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.saiglobal.com.au](http://www.saiglobal.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://www.standards.co.nz) and looking up the relevant Standard in the on-line catalogue.

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.

---

## Technical Report

### Electromagnetic compatibility (EMC)

#### **Part 3.6: Limits—Assessment of emission limits for the connection of distorting installations to MV, HV and EHV power systems**

Originated in Australia as AS 2279.2—1979.  
Previous edition AS/NZS 61000.3.6:2001.  
Second edition 2012.

#### **COPYRIGHT**

© Standards Australia Limited/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, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140.

## PREFACE

This Technical Report was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-034, Power Quality, to supersede AS/NZS 61000.3.6:2001, *Electromagnetic compatibility (EMC)—Part 3.6: Limits—Assessment of emission limits for distorting loads in MV and HV power systems (IEC 61000-3-6:1996, MOD)*. AS/NZS 61000.3.6:2001 will be made available superseded.

The objective of this Technical Report is to provide guidance on principles that can be used to determine the requirements for the connection of distorting installations to MV, HV and EHV public power systems.

This Technical Report is identical with, and has been reproduced from IEC/TR 61000-3-6, Ed.2.0 (2008), *Electromagnetic compatibility (EMC)—Part 3-6: Limits—Assessment of emission limits for the connection of distorting installations to MV, HV and EHV power systems*. The IEC processes related to development and approval of a Technical Report are subject to a more moderate level of transparency and consensus than the processes related to developing and approving a normative Standard.

As this Technical Report is reproduced from an International Technical Report, the following applies:

- (a) Its number appears on the cover and title page while the International Technical Report number appears only on the cover.
- (b) A full point substitutes for a comma when referring to a decimal marker.

The normative reference in the source document has not been adopted as an Australian or Australian/New Zealand Standard.

The term ‘informative’ has been used in this Technical Report to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

## CONTENTS

	<i>Page</i>
1 Scope.....	8
2 Normative references .....	9
3 Terms and definitions .....	9
4 Basic EMC concepts related to harmonic distortion .....	13
4.1 Compatibility levels .....	13
4.2 Planning levels .....	14
4.3 Illustration of EMC concepts .....	16
4.4 Emission levels .....	17
5 General principles .....	18
5.1 Stage 1: simplified evaluation of disturbance emission .....	18
5.2 Stage 2: emission limits relative to actual system characteristics.....	19
5.3 Stage 3: acceptance of higher emission levels on a conditional basis.....	19
5.4 Responsibilities .....	19
6 General guidelines for the assessment of emission levels .....	20
6.1 Point of evaluation.....	20
6.2 Definition of harmonic emission level.....	20
6.3 Assessment of harmonic emission levels.....	21
6.4 System harmonic impedance.....	22
7 General summation law .....	24
8 Emission limits for distorting installations connected to MV systems.....	25
8.1 Stage 1: simplified evaluation of disturbance emission .....	25
8.2 Stage 2: emission limits relative to actual system characteristics.....	27
8.3 Stage 3: acceptance of higher emission levels on a conditional basis.....	31
8.4 Summary diagram of the evaluation procedure .....	32
9 Emission limits for distorting installations connected to HV-EHV systems .....	33
9.1 Stage 1: simplified evaluation of disturbance emission .....	33
9.2 Stage 2: emission limits relative to actual system characteristics.....	33
9.3 Stage 3: acceptance of higher emission levels on a conditional basis.....	36
10 Interharmonics .....	36
Annex A (informative) Envelope of the maximum expected impedance .....	38
Annex B (informative) Guidance for allocating planning levels and emission levels at MV .....	39
Annex C (informative) Example of calculation of global MV+LV contribution .....	45
Annex D (informative) Method for sharing planning levels and allocating emission limits in meshed HV – EHV systems .....	46
Annex E (informative) List of symbols and subscripts.....	54
Bibliography.....	57

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

[Product Page](#)

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