



NSAI
Standards

Irish Standard
I.S. EN 62343-5-1:2015

Dynamic modules - Part 5-1: Test methods - Dynamic gain tilt equalizer - Gain tilt settling time measurement

I.S. EN 62343-5-1:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 62343-5-1:2015

Published:

2015-03-13

This document was published under the authority of the NSAI and comes into effect on:

2015-03-31

ICS number:

33.180.01

33.180.99

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

EN 62343-5-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2015

ICS 33.180.99; 33.180.01

Supersedes EN 62343-5-1:2009

English Version

**Dynamic modules - Part 5-1: Test methods - Dynamic gain tilt
equalizer - Gain tilt settling time measurement
(IEC 62343-5-1:2014)**

To be completed
(IEC 62343-5-1:2014)

Dynamische Module - Teil 5-1: Prüfverfahren - Equalizer
zur Kompensation einer dynamischen Verstärkerkennlinie -
Messung der Einstellzeit der Verstärkerschräglage
(IEC 62343-5-1:2014)

This European Standard was approved by CENELEC on 2014-12-30. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 86C/1249/CDV, future edition 2 of IEC 62343-5-1, prepared by SC 86C "Fibre optic systems and active devices" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62343-5-1:2015.

The following dates are fixed:

- latest date by which the document has to be (dop) 2015-09-30
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2017-12-30
standards conflicting with the
document have to be withdrawn

This document supersedes EN 62343-5-1:2009.

This edition of EN includes the following significant technical changes with respect to the previous edition:

- a) change in the title;
- b) changes in performance parameter names

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62343-5-1:2014 was approved by CENELEC as a European Standard without any modification.

Annex ZA

(normative)

**Normative references to international publications
with their corresponding European publications**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62343	-	Dynamic modules - General and guidance	EN 62343	-
IEC 62343-1-3	-	Dynamic modules -- Part 1-3: Performance standards - Dynamic gain tilt equalizer (non-connectorized)	EN 62343-1-3	-

This page is intentionally left blank



IEC 62343-5-1

Edition 2.0 2014-11

INTERNATIONAL STANDARD



**Dynamic modules –
Part 5-1 Test methods – Dynamic gain tilt equalizer – Gain tilt settling time
measurement**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2014 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 14 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

More than 55 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.



IEC 62343-5-1

Edition 2.0 2014-11

INTERNATIONAL STANDARD



**Dynamic modules –
Part 5-1 Test methods – Dynamic gain tilt equalizer – Gain tilt settling time
measurement**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

R

ICS 33.180.01; 33.180.99

ISBN 978-2-8322-1959-1

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms, definitions, abbreviations and response waveforms	6
3.1 Terms and definitions	6
3.2 Abbreviations	7
3.3 Response waveforms	7
4 General information	8
5 Apparatus	9
5.1 Light source	9
5.2 Pulse generator	9
5.3 O/E converter	9
5.4 Temperature and humidity chamber	10
5.5 Oscilloscope	10
5.6 Temporary joints	10
5.7 Control system	10
5.8 Measurement setup	10
6 Procedure	11
6.1 Direct control type	11
6.1.1 Setup	11
6.1.2 Preparation	11
6.1.3 Wavelength setting	12
6.1.4 Pulse generator setting	12
6.1.5 Applying the driving pulse	12
6.1.6 Monitoring and recording the output signal from DGTE under test (DUT)	12
6.1.7 Calculation of the gain tilt settling time	12
6.2 Digital control type	12
6.2.1 Setup	12
6.2.2 Preparation	12
6.2.3 Wavelength setting	12
6.2.4 Sending command	12
6.2.5 Monitoring and recording the command complete flag	13
6.2.6 Calculation of the gain tilt settling time	13
6.3 Analogue control type	13
6.3.1 Setup	13
6.3.2 Preparation	13
6.3.3 Wavelength setting	13
6.3.4 Applying the control signal	13
6.3.5 Monitoring and recording the command complete flag	13
6.3.6 Calculation of the gain tilt settling time	13
7 Details to be specified	13
7.1 Apparatus	13
7.1.1 Light source	13
7.1.2 Pulse generator	14
7.1.3 O/E converter	14
7.1.4 Control system	14

7.2 Measurement conditions	14
Annex A (informative) Convergence criterion	15
Annex B (informative) Measurement examples.....	16
Annex C (informative) Gain tilt settling time for specific DGTEs	17
Annex D (informative) Necessity for the correction for temperature dependency	18
 Figure 1 – Response waveforms for direct control DGTEs	 7
Figure 2 – Response waveforms for digital control DGTEs.....	8
Figure 3 – Response waveforms for analogue control DGTEs	8
Figure 4 – Measurement setup for direct control	10
Figure 5 – Measurement setup for digital control.....	11
Figure 6 – Measurement setup for analogue control.....	11
Figure B.1 – Where insertion loss change is sufficient	16
Figure B.2 – Where insertion loss change is small	16
 Table 1 – Categorization of DGTE by the control method	 9

INTERNATIONAL ELECTROTECHNICAL COMMISSION

DYNAMIC MODULES –

Part 5-1 Test methods – Dynamic gain tilt equalizer – Gain tilt settling time measurement

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62343-5-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2009. It constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition:

- a) change in the title
- b) changes in performance parameter names.

The text of this standard is based on the following documents:

CDV	Report on voting
86C/1249/CDV	86C/1277/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62343 series, published under the general title *Dynamic Modules*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

DYNAMIC MODULES –

Part 5-1 Test methods – Dynamic gain tilt equalizer – Gain tilt settling time measurement

1 Scope

This part of IEC 62343 contains the measurement method of gain tilt settling time for a dynamic gain tilt equalizer (DGTE) to change its gain tilt from an arbitrary initial value to a desired target value.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62343, *Dynamic modules – General and guidance*

IEC 62343-1-3, *Dynamic modules – Part 1-3: Performance standards – Dynamic gain tilt equalizer (non-connectorized)*

3 Terms, definitions, abbreviations and response waveforms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62343 and IEC 62343-1-3 and the following apply.

3.1.1

T_c

convergence time

time to converge from the first hit at the target $\pm Y$ % to the stay within the deviation $\pm Y$ % in the optical power from the output port of DGTE at pre-determined wavelength

3.1.2

T_l

latency time

<direct and analogue control types> time between the application of control signal and the change in output optical power by $\pm X$ % of the initial power of DGTE at pre-determined wavelength

3.1.3

T_p

processing time

<digital control type> time between the application of control command and the change in output optical power by $\pm X$ % of the initial power of DGTE at pre-determined wavelength

3.1.4

gain tilt settling time

$(T_l \text{ or } T_p) + T_r + T_c$

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
-