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Standards

Irish Standard  
I.S. EN IEC 62343-2-1:2019

# Dynamic modules - Part 2-1: Reliability qualification - Test template

**I.S. EN IEC 62343-2-1:2019**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN IEC 62343-2-1:2019 is the adopted Irish version of the European Document EN IEC 62343-2-1:2019, Dynamic modules - Part 2-1: Reliability qualification - Test template

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN IEC 62343-2-1**

November 2019

ICS 33.180.01

Supersedes EN 62343-2:2014 and all of its amendments  
and corrigenda (if any).

English Version

**Dynamic modules - Part 2-1: Reliability qualification - Test  
template  
(IEC 62343-2-1:2019)**

Modules dynamiques - Partie 2-1: Qualification de fiabilité -  
Modèle d'essai  
(IEC 62343-2-1:2019)

Dynamische Module - Teil 2-1: Zuverlässigkeitsnachweis -  
Prüfvorlage  
(IEC 62343-2-1:2019)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 62343-2-1:2019 (E)****European foreword**

The text of document 86C/1567/CDV, future edition 1 of IEC 62343-2-1, 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 IEC 62343-2-1:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-07-21
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-10-21

This document supersedes EN 62343-2:2014 and all of its amendments and corrigenda (if any). This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to EN 62343-2:2014:

- a) addition of an Introduction to the background of this document;
- b) replacement of "Reliability qualification consideration" by "reliability qualification test consideration";
- c) deletion of the consideration of "Design 1" and "Design 2" and change of the contents of "Approach" in "Reliability qualification test considerations";
- d) deletion of the details in "Reliability qualification requirements" and replacement by "Reliability qualification test items";
- e) deletion of "Reliability calculations" from the sum of failure rates of constituting parts;
- f) integration of "Pass/fail criteria" and "Guidance of FMEA" into Annex B (informative);
- g) simplification of test items and conditions in Annex A and change of title of Annex A to "Examples of reliability qualification test conditions".

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-14	NOTE	Harmonized as EN 60068-2-14
IEC 61300 (series)	NOTE	Harmonized as EN 61300 (series)
IEC 61300-2-4	NOTE	Harmonized as EN IEC 61300-2-4
IEC 62005-9-1	NOTE	Harmonized as EN 62005-9-1
IEC 62572-3	NOTE	Harmonized as EN 62572-3

## **Annex ZA**

(normative)

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

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NOTE 1 Where 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](http://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	-

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**IEC 62343-2-1**

Edition 1.0 2019-09

# **INTERNATIONAL STANDARD**

## **NORME INTERNATIONALE**

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**Dynamic modules –  
Part 2-1: Reliability qualification – Test template**

**Modules dynamiques –  
Partie 2-1: Qualification de fiabilité – Modèle d'essai**



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**IEC 62343-2-1**

Edition 1.0 2019-09

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Dynamic modules –  
Part 2-1: Reliability qualification – Test template**

**Modules dynamiques –  
Partie 2-1: Qualification de fiabilité – Modèle d'essai**

INTERNATIONAL  
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INTERNATIONALE

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### DYNAMIC MODULES –

#### Part 2-1: Reliability qualification – Test template

#### 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.
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International Standard IEC 62343-2-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This first edition cancels and replaces the second edition of IEC 62343-2 published in 2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 62343-2:2014:

- a) addition of an Introduction to the background of this document;
- b) replacement of "Reliability qualification consideration" by "reliability qualification test consideration";
- c) deletion of the consideration of "Design 1" and "Design 2" and change of the contents of "Approach" in "Reliability qualification test considerations";
- d) deletion of the details in "Reliability qualification requirements" and replacement by "Reliability qualification test items";

- e) deletion of "Reliability calculations" from the sum of failure rates of constituting parts;
- f) Integration of "Pass/fail criteria" and "Guidance of FMEA" into Annex B (informative);
- g) Simplification of test items and conditions in Annex A and change of title of Annex A to "Examples of reliability qualification test conditions".

The text of this International Standard is based on the following documents:

CDV	Report on voting
86C/1567/CDV	86C/1594/RVC

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

This document 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 document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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- withdrawn,
- replaced by a revised edition, or
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## INTRODUCTION

Dynamic modules (DMs) are relatively new fibre optic devices. In the industry, there is no de-facto standard of reliability qualification test requirements for DMs. Also, there are many types and functions of DMs, such as optical path switching, wavelength management, chromatic dispersion management, optical channel power management, and optical channel powers and wavelength monitoring. Therefore, it is difficult to standardize the reliability qualification test requirements because their functionality is so diverse. For DMs, a reliability qualification test template rather than particular requirements has been standardized.

The first edition of IEC 62343-2, *Dynamic modules – Part 2: Reliability qualification*, was published in 2011, and the second edition was published in 2014. A survey on reliability qualification test items and conditions was carried out in Japan, China, North America and Europe in 2015 and 2016. The survey revealed that several reliability test conditions were inconsistent with those in IEC 62343-2:2014, and the responses indicated a lack of consensus. As a result of the discussion in SC 86C, it was agreed that it was impossible to unify the test conditions for the reliability qualification of DMs. Instead of a reliability qualification document, it was decided to prepare this template for a reliability qualification test for DMs. Consequently, IEC 62343-2:2014 will be withdrawn and replaced upon publication of this document.

## DYNAMIC MODULES –

### Part 2-1: Reliability qualification – Test template

#### 1 Scope

This part of IEC 62343 provides a reliability qualification test template for dynamic modules (DMs). The template describes the reliability qualification test items and provides information on requirements or options. Example test conditions are given for information purposes in Annex A.

For reliability qualification purposes, some information about the internal components, parts and interconnections is needed. These internal parts are treated as black boxes. This document gives requirements for the evaluation of DM reliability by combining the reliability of such internal black boxes.

The object of this reliability qualification test template is to provide a framework for the reliability qualification tests for DMs. Developers of reliability qualification tests for DMs determine the test conditions for each test item by referring to the examples in Annex A.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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*

#### 3 Terms, definitions and abbreviated terms

##### 3.1 Terms and definitions

For the purpose of this document, terms and definitions given in IEC 62343 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

##### 3.1.1

###### **failure**

non-compliance to product specification or change in parameters as set by the standard or agreed by the customer and supplier

##### 3.1.2

###### **qualification**

formal test process to determine whether or not the product is suitable for applications

Note 1 to entry: "Pass or fail" is the expected outcome.



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