IEC 62343-2-1

Edition 1.0 2019-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

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

IEC 62343-2-1:2019-09 (en-fr)

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FOREWORD

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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

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- withdrawn,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

NOTICE

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.