Dynamic modules - General and guidance

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NATIONAL FOREWORD

See Eesti standard EVS-EN 62343:2013 sisaldab Euroopa standardi EN 62343:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 62343:2013 consists of the English text of the European standard EN 62343:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.08.2013.	Date of Availability of the European standard is 30.08.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 33.180.01, 33.180.99

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62343

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English version

Dynamic modules - General and guidance

(IEC 62343:2013)

Modules dynamiques - Généralités et lignes directrices (CEI 62343:2013)

Dynamische Module - Allgemeines und Leitfaden (IEC 62343:2013)

This European Standard was approved by CENELEC on 2013-07-10. 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.

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CENELEC

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

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Ref. No. EN 62343:2013 E

Foreword

The text of document 86C/1055/CDV, future edition 1 of IEC 62343, 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 62343:2013.

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)	2014-04-10
– latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-07-10

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 62343:2013 was approved by CENELEC as a European Standard without any modification.

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

IEC 61290	NOTE	Harmonised as EN 61290 (series).
IEC 61291	NOTE	Harmonised as EN 61291 (series).
IEC 61300	NOTE	Harmonised as EN 61300 (series).
IEC 61753	NOTE	Harmonised as EN 61753 (series).
IEC 62342-2	NOTE	Harmonised as EN 62342-2.
IEC 62343-3-1:2010	NOTE	Harmonised as EN 62343-3-1:2010 (not modified).
IEC 62343-5	NOTE	Harmonised as EN 62343-5 (series).

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60050-731	-	International Electrotechnical Vocabulary (IEV) - Chapter 731: Optical fibre communication	-	-
IEC/TR 61931	-	Fibre optic - Terminology	-	-
IEC 62343-1	series	Dynamic modules - Performance standards	EN 62343-1	series
IEC 62343-3	series	Dynamic modules - Performance specification templates	EN 62343-3	series
IEC Guide 107	-	Electromagnetic compatibility - Guide to the drafting of electromagnetic compatibility publications	-	-

CONTENTS

INTRODUCTION

This International Standard applies to dynamic devices as defined in IEC/TS 62538. It contains general guidance for the IEC 62343 series related to dynamic devices, and definitions which apply to dynamic devices. The dynamic module, or device, has two distinguishing characteristics: dynamic and module.

“Dynamic” highlights the functions of the products to include “tuning, varying, switching, configuring, and other continuous optimization,” often accomplished by electronics, firmware, software or their combinations. The dynamic device usually has a certain level of intelligence to monitor or measure the situation and make decisions for necessary (optimization) actions. The behaviour of dynamic modules may be characterized by transient characteristics as the dynamic module undergoes tuning, switching, configuring and other continuous optimization. Characterization of transient characteristics will be considered in individual dynamic module standards.

“Module” defines that the products covered by the standard are the integration of active and passive components (either or both), through interconnecting materials or devices. The controlling electronics can be inside or outside the optical package (that contains all or most of the optical components and interconnection). The product can look like a small printed wiring board (PWB or child-board with mounted optical module) or a small box (housing) with optical components and electronics enclosed. In the former case, it is more like an assembly (generally not packaged in a box or housing) than a module (generally packaged in a box or housing).

For historical reasons and convenience, a dynamic module or device is referred to as a dynamic module in the IEC 62343-X series.

The number of dynamic modules and devices is rapidly growing as optical communications networks evolve. The following list provides some examples of the products covered by the IEC 62343-X series. It should be noted that the list is not exhaustive and the products to be covered are not limited by the listed examples:

- channel gain equalizer;
- dynamic channel equalizer;
- dynamic gain tilt equalizer;
- dynamic slope equalizer;
- tuneable chromatic dispersion compensator;
- polarization mode dispersion compensator;
- reconfigurable optical add-drop multiplexer;
- switch with monitoring and controls;
- variable optical attenuator with monitoring and controls.

The IEC 62343 series will cover performance templates, performance standards, reliability qualification requirements, hardware and software interfaces, and related testing methods.

A complete set of standards related to a dynamic module or device should include the following:

- optical performance standards;
- reliability qualification standards;
- optical performance specification templates;
- hardware and software interface standards;
- test methods;

- technical reports.

The safety standards related to dynamic modules are mostly optical power considerations, which are covered by IEC TC 76: Optical radiation safety and laser equipment.

Only those dynamic modules for which standards are complete or in preparation are included in Clause 3. To reflect the rapidly growing market for dynamic modules, additional terms and definitions will be added in subsequent revisions as the series expands.

It should be noted that optical amplifiers could be regarded as dynamic modules. They are not included in the IEC 62343-X series, but are covered in their own series of IEC standards.

DYNAMIC MODULES – GENERAL AND GUIDANCE

1 Scope and object

This International Standard applies to all commercially available optical dynamic modules and devices. It describes the products covered by the IEC 62343-X series, defines terminology, fundamental considerations and basic approaches.

The object of this standard is to

- establish uniform requirements for operation, reliability and environmental properties of DMs to be implemented in the appropriate DM standard,
- provide assistance to the purchaser in the selection of consistently high-quality DM products for his particular applications, as well as in the consultation of the appropriate specific DM standard(s).

This standard covers performance templates, performance standards, reliability qualification requirements, hardware and software interfaces and related testing methods.

Since a dynamic module integrates an optical module/device, printed wiring board, and software/firmware, the standards developed in the series will mimic appropriate existing standards. On the other hand, since "dynamic module" is a relatively new product category, the dynamic module standards series will not be bounded by the existing practices where requirements differ.

The safety standards as related to dynamic modules are mostly optical power considerations, which is covered by IEC TC 76: Optical radiation safety and laser equipment.

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 60050-731, *International Electrotechnical Vocabulary – Chapter 731: Optical fibre communication*

IEC/TR 61931, *Fibre optic – Terminology*

IEC 62343-1 (all parts), *Dynamic modules – Optical performance standards*

IEC 62343-3 (all parts), *Dynamic modules – Optical performance specification templates*

IEC Guide 107, *Electromagnetic compatibility – Guide to the drafting of electromagnetic compatibility publications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.