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Dynamic modules - Part 3-3: Performance specification templates - Wavelength selective switches

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EUROPEAN STANDARD

EN IEC 62343-3-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2020

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Supersedes EN 62343-3-3:2014 and all of its amendments and corrigenda (if any)

English Version

**Dynamic modules - Part 3-3: Performance specification
templates - Wavelength selective switches
(IEC 62343-3-3:2020)**

Modules dynamiques - Partie 3-3: Modèles de spécification
de performance - Commutateurs sélectifs en longueur
d'onde
(IEC 62343-3-3:2020)

Dynamische Module - Teil 3-3: Vorlagen für
Leistungsspezifikationen - Wellenlängenselektive Schalter
(IEC 62343-3-3:2020)

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Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 86C/1648/FDIS, future edition 2 of IEC 62343-3-3, 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 62343-3-3:2020.

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) 2021-02-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-05-14

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IEC 60793-2-50	NOTE	Harmonized as EN IEC 60793-2-50
IEC 60869-1	NOTE	Harmonized as EN IEC 60869-1
IEC 60876-1	NOTE	Harmonized as EN 60876-1
IEC 61300 (series)	NOTE	Harmonized as EN 61300 (series)
IEC 61300-3-4	NOTE	Harmonized as EN 61300-3-4
IEC 61300-3-20	NOTE	Harmonized as EN 61300-3-20
IEC 61753-081-2	NOTE	Harmonized as EN 61753-081-2
IEC 61753-083-2:2007	NOTE	Harmonized as EN 61753-083-2:2008 (not modified)
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IEC 61753-1	NOTE	Harmonized as EN IEC 61753-1
IEC 61754 (series)	NOTE	Harmonized as EN 61754 (series)
IEC 61978-1	NOTE	Harmonized as EN 61978-1
IEC 62343-4-1	NOTE	Harmonized as EN 62343-4-1

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Dynamic modules –
Part 3-3: Performance specification templates – Wavelength selective switches**

**Modules dynamiques –
Partie 3-3: Modèles de spécification de performance – Commutateurs sélectifs
en longueur d'onde**



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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Dynamic modules –

Part 3-3: Performance specification templates – Wavelength selective switches

Modules dynamiques –

Partie 3-3: Modèles de spécification de performance – Commutateurs sélectifs en longueur d'onde

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DYNAMIC MODULES –**Part 3-3: Performance specification templates –
Wavelength selective switches****FOREWORD**

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International Standard IEC 62343-3-3 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 2014. This edition constitutes a technical revision.

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

- a) modification of the normative references;
- b) modification of the terms and definitions.

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

FDIS	Report on voting
86C/1648/FDIS	86C/1655/RVD

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.

INTRODUCTION

A wavelength selective switch (WSS) is a dynamic module (DM), which is mainly used in a reconfigurable optical add-drop multiplexer (ROADM) system to switch a particular wavelength signal to any output ports in DWDM networks. The WSS has one input port and a plurality of output ports (i.e. $1 \times N$ WSS) and can be used in reverse, with N input ports and one output port, depending on its application. It is controlled with software, which determines any wavelength signal among a DWDM signal from one input port to switch to a particular output port in case of $1 \times N$ application.

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DYNAMIC MODULES –

Part 3-3: Performance specification templates – Wavelength selective switches

1 Scope

This part of IEC 62343 provides a performance specification template for wavelength selective switches. The object is to provide a framework for the preparation of detail specifications on the performance of wavelength selective switches.

Additional specification parameters are often included for detailed product specifications or performance specifications if necessary. However, specification parameters specified in this document are not removed from the detail product specifications or performance specifications.

The technical information regarding wavelength selective switches and their applications in DWDM systems with single-mode fibres are described in IEC TR 62343-6-4.

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 61290-7-1, *Optical amplifiers – Test methods – Part 7-1: Out-of-band insertion losses – Filtered optical power meter method*

IEC 61300-2-14, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-14: Tests – High optical power*

IEC 61300-3-2, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-2: Examination and measurements – Polarization dependent loss in a single-mode fibre optic device*

IEC 61300-3-6, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-6: Examinations and measurements – Return loss*

IEC 61300-3-14, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-14: Examinations and measurements – Error and repeatability of the attenuation settings of a variable optical attenuator*

IEC 61300-3-21, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-21: Examinations and measurements – Switching time*

IEC 61300-3-29, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-29: Examinations and measurements – Spectral transfer characteristics of DWDM devices*

IEC 61300-3-32, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-32: Examinations and measurements – Polarization mode dispersion measurement for passive optical components*

IEC 61300-3-38, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-38: Examinations and measurements – Group delay, chromatic dispersion and phase ripple*

IEC 61753-021-2, *Fibre optic interconnecting devices and passive components performance standard – Part 021-2: Grade C/3 single-mode fibre optic connectors for category C – Controlled environment*

IEC 62074-1, *Fibre optic interconnecting devices and passive components – Fibre optic WDM devices – Part 1: Generic specification*

IEC 62343, *Dynamic modules – General and guidance*

IEC 62343-1, *Dynamic modules – Part 1: Performance standards – General conditions*

IEC 62343-5-2, *Dynamic modules – Part 5-2: Test methods – 1 x N fixed-grid WSS – Dynamic crosstalk measurement*

ITU-T Recommendation G.694.1, *Spectral grids for WDM applications: DWDM frequency grid*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in IEC 62343 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>

4 Test report

Fully documented test reports and supporting evidence shall be prepared and be available for inspections as evidence that the tests have been carried out and complied with.

5 Performance requirements

5.1 Dimensions

Dimensions shall comply with either an appropriate IEC interface standard or with those given in the manufacturer's drawings where the IEC interface standard does not exist or cannot be used.

5.2 Sample size

The test sample size and sequencing requirements for the module components shall be defined in the relevant specification.

5.3 Test details and requirements

Requirements are given only for non-connectorized WSS devices. For connectorized components, the connector performances shall be in compliance with IEC 61753-021-2.

A minimum length of fibre or cable of 1,5 m per port shall be included in all tests.