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INTERNATIONAL STANDARD

Dynamic modules – Part 3-2: Performance specification templates – Optical channel monitor

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FOREWORD

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International Standard IEC 62343-3-2 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

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

CDV	Report on voting
86C/1324/CDV	86C/1371/RVC

Full information on the voting for the approval of this document 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 website 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- withdrawn,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.

INTRODUCTION

An optical channel monitor (OCM) is a dynamic module that measures the optical characteristics, mainly power and frequency, of each channel present in a dense wavelength division multiplexing (DWDM) transmission line. The OCM is typically connected to an optical tap coupler which directs to the OCM anywhere between 1 % and 5 % of the optical signal in the fibre-optic transmission line. The data reported by the OCM are used in a reconfigurable optical add/drop multiplexer (ROADM) to dynamically equalize the power in the optical channels and to monitor the performance of the channels continuously over the lifetime of the system.

DYNAMIC MODULES –

Part 3-2: Performance specification templates – Optical channel monitor

1 Scope

This part of IEC 62343 provides a performance specification template for optical channel monitors. The objective of this performance specification template is to provide a framework for the performance specification of the optical channel monitor.

Additional specification parameters may be included for detailed product specifications or performance specifications. However, specification parameters specified in this document should not be removed from the detail product specifications or performance specifications.

This document outlines the parameters that are used to specify the performance of the optical channel monitor.

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 61280-2-9, *Fibre optic communication subsystem test procedures – Part 2-9: Digital systems – Optical signal-to-noise ratio measurement for dense wavelength-division multiplexed systems*

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

IEC 62343, *Dynamic modules – General and guidance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62343 and IEC 61280-2-9 apply.

4 Performance specification template

This specification template is a comprehensive compilation of all the performance parameters that may be relevant to optical channel monitors. Table 1 includes a column that indicates if a parameter is required or optional. The required parameters include the performance

parameters that are deemed necessary to form a minimal specification. The optional parameters can be specified in addition to the required parameters depending on the specific requirements of the transmission system for which it is designed.

The product specification template is given in Table 1. The R/O column refers to whether that particular specification item could be considered required or optional. The notation of "na" signifies that no specification is provided in that cell. All Min. and Max. cells left blank shall be filled in with a specification.

Table 1 – Optical channel monitor specification template

No.	Parameter name	R/O	Min.	Max.	Unit	Test method	Notes
1	Input channel plan	R			THz		a
2	Channel frequency range	O			THz	IEC 62074-1	b
3	Input channels frequency spacing tolerance	R	n/a	± val.	THz	Under consideration	c, f
4	Input channels power dynamic range	R			dB	Under consideration	
5	Input channels non-uniformity	R	n/a		dB	Under consideration	
6	Input adjacent channels non-uniformity	O	n/a		dB	Under consideration	
7	Input channels non-uniformity for channel identification	O	n/a		dB	Under consideration	c
8	Input adjacent channels non-uniformity for channel identification	O	n/a		dB	Under consideration	c
9	Input total band power dynamic range for channel measurements	O			dBm	Under consideration	
10	Input total band power dynamic range for total band power measurements	O			dBm	Under consideration	
11	Input OSNR dynamic range	R			dBm	Under consideration	
12	Input channels bit rates	O			Gb/s		d
13	Reference measurement bandwidth	R	nominal value			IEC 61300-3-29, IEC 62074-1	e
14	Noise equivalent bandwidth	O	nominal value			Under consideration	e
15	Channel power absolute error	R	n/a	± val.	dB	Under consideration	
16	Channel power relative error	R	n/a		dB	Under consideration	
17	Channel power variability	R	n/a		dB	Under consideration	
18	Channel power resolution interval	O	n/a		dB	Under consideration	
19	Channel power polarization dependent error	O	n/a		dB	Under consideration	
20	Total band power absolute error	O	n/a	± val.	dB	Under consideration	
21	Total band power relative error	O	n/a		dB	Under consideration	
22	Total band power variability	O	n/a		dB	Under consideration	
23	Total band power resolution interval	O	n/a		dB	Under consideration	
24	Frequency absolute error	O	n/a	± val.	GHz	Under consideration	f
25	Frequency relative error	O	n/a		GHz	Under consideration	
26	Frequency variability	O	n/a		GHz	Under consideration	
27	Frequency resolution interval	O	n/a		GHz	Under consideration	
28	Frequency polarization dependent error	O	n/a		dB	Under consideration	
29	OSNR absolute error	O	n/a	± val.	dB	Under consideration	f
30	OSNR relative error	O	n/a		dB	Under consideration	