

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

L.36

(01/2015)

SERIES L: CONSTRUCTION, INSTALLATION AND
PROTECTION OF CABLES AND OTHER ELEMENTS OF
OUTSIDE PLANT

Single-mode fibre optic connectors

Recommendation ITU-T L.36

ITU-T

Recommendation ITU-T L.36

Single-mode fibre optic connectors

Summary

Recommendation ITU-T L.36 describes the main features of fibre optic connectors, in terms of types, fields of application, configurations and technical aspects. Further, this Recommendation examines the optical, mechanical and environmental characteristics of fibre optic connectors, advising on general requirements and test methods.

While taking into account Recommendation ITU-T G.671 as far as the transmission parameters are concerned, this Recommendation is based on the most recent work carried out within IEC SC86B Working Groups 4 and 6, namely the IEC 61300 and IEC 61753-series.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T L.36	1998-10-09	6	11.1002/1000/4508
2.0	ITU-T L.36	2008-01-08	6	11.1002/1000/9324
3.0	ITU-T L.36	2015-01-13	15	11.1002/1000/12412

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

© ITU 2015

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

Table of Contents

		Page
1	Scope.....	1
2	References.....	1
3	Definitions	3
	3.1 Terms defined elsewhere	2
	3.2 Terms defined in this Recommendation.....	3
4	Abbreviations and acronyms	3
5	Conventions	3
6	General information.....	3
7	Types and configurations.....	3
	7.1 Fibre types	4
	7.2 Cable types	4
	7.3 Fibre alignment system.....	4
	7.4 Fibre and ferrule end-face finish	4
	7.5 Coupling mechanism	5
8	Characterization parameter definitions.....	5
	8.1 Optical parameters.....	5
	8.2 Mechanical parameters	5
	8.3 Environmental parameters.....	6
9	Performance criteria and test methods.....	6
	9.1 Optical performance requirements	6
	9.2 Mechanical performance requirements	7
	9.3 Environmental performance requirements	9
10	Connector identification	11
	Appendix I – Overview of international and regional conventions for colour coding of single-mode fibre optic connectors.....	12
	Appendix II – Methodology for estimating reflectance from optical connector end-face contamination	13
	Bibliography.....	15

Recommendation ITU-T L.36

Single-mode fibre optic connectors

1 Scope

This Recommendation:

- gives general information on fundamental types of fibre optic connectors, their field of application and the main requirements about their characteristics in terms of optical, mechanical and environmental behaviour;
- makes a classification of these components in terms of the configurations used into fibre optic plants;
- gives a general description of the basic principles of operation and of technologies of fabrication of fibre optic connectors;
- describes all the most important optical parameters and gives general specifications on the optical, mechanical and environmental performance of fibre optic connectors;
- describes the main test methods of fibre optic connectors;
- is limited to factory installed connectors; these are connectors that have been applied to the fibre and/or cable in a controlled factory environment. Field mountable connectors, which are to be applied to the fibre and/or cable by an installer in field conditions, are outside the scope of this Recommendation.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- | | |
|---------------|---|
| [ITU-T G.652] | Recommendation ITU-T G.652 (2009), <i>Characteristics of a single-mode optical fibre and cable.</i> |
| [ITU-T G.653] | Recommendation ITU-T G.653 (2010), <i>Characteristics of a dispersion-shifted, single-mode optical fibre and cable.</i> |
| [ITU-T G.654] | Recommendation ITU-T G.654 (2012), <i>Characteristics of a cut-off shifted single-mode optical fibre and cable.</i> |
| [ITU-T G.655] | Recommendation ITU-T G.655 (2009), <i>Characteristics of a non-zero dispersion-shifted single-mode optical fibre and cable.</i> |
| [ITU-T G.656] | Recommendation ITU-T G.656 (2010), <i>Characteristics of a fibre and cable with non-zero dispersion for wideband optical transport.</i> |
| [ITU-T G.657] | Recommendation ITU-T G.657 (2012), <i>Characteristics of a bending-loss insensitive single-mode optical fibre and cable for the access network.</i> |
| [ITU-T G.671] | Recommendation ITU-T G.671 (2012), <i>Transmission characteristics of optical components and subsystems.</i> |