

Classification Table of Optical Cables for Broadcasting and Telecommunications



Article Overview

Optical cables are classified by mode of propagation, refractive index profile, material, and application, with single-mode and multimode fibers being the primary categories.

1. Classification by Mode of Propagation

- **Single-Mode Fiber (SMF):** Transmits a single light ray, ideal for long-distance communication such as telecommunication networks and internet backbones. It has a thin core of about 8–10 micrometers, minimizing signal dispersion and allowing high-speed, long-range transmission .
- **Multimode Fiber (MMF):** Carries multiple light rays simultaneously, suitable for short-distance communication like LANs. The core is larger, typically 50–62.5 micrometers, which allows multiple modes but results in higher dispersion and shorter transmission distances . Multimode fibers are further divided into OM1, OM2, OM3, OM4, and OM5, with increasing bandwidth and distance capabilities .

2. Classification by Refractive Index Profile

- **Step-Index Fiber:** Core has a uniform refractive index with a sharp boundary to the cladding. It is simple and cost-effective but has higher signal dispersion, suitable for low-cost or short-range systems .
- **Graded-Index Fiber:** Core refractive index gradually decreases from the center to the edge, reducing modal dispersion and improving signal clarity. It is suitable for...

Article Content

Dec 20, 2025

ITU-T Tutorial on Optical Fibre Cables and Systems

An ITU-T handbook “Optical fibres, cables and systems” offers a functional grouping of Study Group 15 Recommendations on optical

Aug 27, 2025

Handbook Optical fibres, cables and systems

The optical fibres are specified in ITU-T with reference to the geometrical, optical, transmission and mechanical attributes listed in

Jun 25, 2026

Major Recommendations: Optical

G.656 The characteristics of a single-mode optical fibre and cable which has the positive value of the chromatic dispersion coefficient

May 23, 2026

ITU iLibrary | Optical Fibres, Cables and Systems

The Handbook is intended as a guide for technologists, middle-level management, as well as regulators, to assist in the practical

Aug 29, 2025

Understanding and Selecting Optical Fibre and Cable

In this document, the relationship between the cable features, followed standards, test parameters, and acceptance criteria are

Dec 15, 2025

Types Of Optical Fiber Cable: Duct, Aerial, Armoured & Unarmoured ...

Optical fiber cable types explained — uni-tube vs multi-tube, armoured vs unarmoured, duct & aerial, up to 144 fibres.

Feb 07, 2026

Types Of Fiber Optic Network Classification

Optical networks are the backbone of modern telecommunications, with each category serving a specific purpose and geographical

May 24, 2026

Fiber-optic communication

An optical fiber patching cabinet. The yellow cables are single-mode fibers; the orange and blue cables are multi-mode fibers:

Mar 24, 2026

Fiber Optic Cable Types: Single-Mode, Multimode, and Beyond – A ...

Discover fiber optic cable types, including single-mode (OS1, OS2) and multimode (OM1, OM2, OM3, OM4, OM5),

May 25, 2026

Optical fiber tables and chromatic dispersion specs

Introduction Within a PMD clause, there are several tables where chromatic dispersion (CD) specs occur: Optical fiber and cable

Apr 21, 2026

Classification Standards for Optical Cable Grades and Applications

This article explains eight of the most important global fiber and cable standards — ITU-T, IEC, TIA, ISO/IEC, and Telcordia —

Apr 01, 2026

Recommendation ITU-T G Suppl. 47 (03/2025)

Supplement 47 to ITU-T G-series Recommendations provides information on the general transmission characteristics of single-mode

Sep 30, 2025

Types of Optical Cables, Features, and Operating Principles

Fibre optic cables are essential components of modern telecommunications. They ensure high-speed data

Sep 08, 2025

Classification of Optical Fibers, Optical Fiber Bundles and Cables

However, from the perspective of the prior art, optical cables are common connecting lines in current optical communication

Jun 22, 2026

Fiber Optic Cable Types Explained: Choosing the Right Fiber Cable

Fiber Optic Patch Cable Types and How to Choose the Right One? Fiber optic cables come in various types based on

Jan 13, 2026

Fiber Optic Cable Types: Comprehensive Guide

Explore the different types of fiber optic cables and understand which type suits your specific needs for speed, distance,

Nov 20, 2025

Fiber Optic & Cable Standards Guide | FiberMania Standards

Get a complete guide to fiber optic & related products standards—from basics to advanced, covering all key details for

May 29, 2026

Fiber-optic cable

Different types of cable are used for fiber-optic communication in different applications, for example long-distance

Feb 22, 2026

OPTICAL FIBER CLASSIFICATIONS UNDER ISO 11801 & EN

SINGLE-MODE GLASS FIBRE OS Single mode fibres are governed by two different regulatory documents: ITU-T standards or

Feb 09, 2026

The Fiber Optic Association

More FOA Standard FOA-7: Mode Conditioning For Testing Multimode Fiber Optic Cables (Mandrel wrap, encircled flux) FOA

Jun 15, 2026

Optical Wavelength Band 101: Definition, Classification and ...

This optical band allows fiber cable and transmission devices to operate more efficiently. Based on the wavelength

Dec 20, 2025

FIBER OPTICAL COMMUNICATIONS (R17A0418)

UNIT I general Optical Fiber communication system, advantages of optical fiber communications. Optical fiber wave guides-

Sep 04, 2025

Comprehensive Guide to Optical Transceiver Classifications and

They are widely used in data centers, telecommunications networks, and industrial communication systems.

Jul 06, 2026

Optical Fiber Types & Standards | G652D, G657A2, OM4 Fiber

This guide explains different optical fiber types including G652, G657, and OM1-OM4. Learn how to choose the right

Aug 04, 2025

Chapter 1 Principles of Transmission

Chapter 1 Principles of Transmission Chapter 1 provides the main concepts related to signal transmission through metallic and

Dec 26, 2025

Fiber Optic Cable Buying Guide

Fiber Optic Cable Buying Guide Understand how to choose fiber optic cable by comparing single-mode vs. multimode, network

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.greatpremiersolutions.co.za>

Email: sales@greatpremiersolutions.co.za

Phone: +27 82 914 3675

Address: Unit 5, Silicon Heights, 22 Electron Avenue, Cape Town, 8001, South Africa

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