

ICS 33.180.99

CCS M 33



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 43556.2-2023

**Maintenance technology of optical fibre and cable line - Part 2:
Water detection in underground closures with optical
monitoring system**

光纤光缆线路维护技术 第2部分：使用光学监测系统的地埋接头盒浸水监测

(English Translation)

Issued on: December 28, 2023

Implemented on: April 1, 2024

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Introduction
1 Scope
2 Normative references
3 Terms and Definitions
4 Abbreviations
5 Basic requirements for underground joint box water immersion monitoring
Appendix A (informative) List of comparisons between this document and ITU-TL:315:2018 structure numbers
Appendix B (Informative) Water Immersion Sensor

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document is Part 2 of GB/T 43556 "Optical Fiber and Cable Line Maintenance Technology", GB/T 43556 "Fiber Optic and Cable Line Maintenance Technology" Technique has published the following parts:

---Part 1: Fiber identification based on leaked light;

---Part 2: Underground joint box water immersion monitoring using optical monitoring system:

This document is modified to adopt ITU-TL:315:2018 "Water immersion monitoring of underground joint boxes using optical monitoring systems in optical network maintenance":

Compared with ITU-TL:315:2018, this document has many adjustments in structure: A comparison of the structural number changes between the two documents is at a glance:

See Appendix A for the table:

The technical differences between this document and ITU-TL:315:2018 and their reasons are as follows:

---Replaced ITU-TG:652~ITU-TG:657 (see 5.2:5) with normatively quoted GB/T 9771 (all parts), two There is no consistent correspondence between documents to adapt to my country's technical conditions and improve operability;

---Replaced IEC 60793-2-50 (see 5.2:5) with normatively referenced GB/T 9771 (all parts), there is no difference between the two documents Consistent correspondence relationship

to adapt to my country's technical conditions and improve operability;

---Replaced IEC 60794-1-31 (see 5.2:5) with the normatively cited YD/T 979: There is no consistent correspondence between the two documents:

relationship to adapt to my country's technical conditions and improve operability;

---Added the terms and definitions of "optical monitoring system" and "fiber preparation monitoring" (see Chapter 3) to facilitate usage guidance;

---Deleted the terms and definitions of "maintenance support, monitoring and testing system", "preventive maintenance" and "monitoring", the basic requirements of optical monitoring system Please modify it so that it will not be involved;

---Deleted the abbreviations "CRT", "CPU", "GP-IB" and "RL" and expressed them in Chinese;

---The basic requirements for the optical monitoring system have been changed, and the online monitoring function requirements have been added (see 5.1) to facilitate the use of guidance;

---The working principle has been changed and the RL type water immersion sensor has been deleted (see 5.2:1) to adapt to domestic practical application needs;

---Added an overview of test procedures (see 5.3:1) to facilitate usage guidance;

---The test wavelength requirements (see 5.3:2) have been changed to adapt to domestic practical application needs:

The following editorial changes have been made to this document:

---In order to coordinate with the existing standards, the name of the standard is changed to "Optical Fiber Cable Line Maintenance Technology Part 2: Use of Optical Monitoring Systems" Systematic underground joint box water immersion monitoring";

---Deleted the applicable fiber types in Table A:1 of Appendix A, without limiting fiber types (see B:4), to adapt to domestic practical applications need;

---The water penetration testing cycle in Appendix II has been deleted to meet the needs of domestic practical applications:

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

Introduction

With the in-depth implementation of Broadband China and smart cities, optical fiber and cable networks have become an important part of various industries such as communications, security, transportation, municipal administration, and national defense:

The most important medium for industrial information transmission, in the face of massive optical fiber and cable resources, it is necessary to improve the management, operation and maintenance methods and efficiency of optical fiber and cable and other dumb resources:

efficiency to better ensure the safe and efficient operation of optical fiber and cable networks: According to the different technologies used in fiber optic cable maintenance, GB/T 43556 "Optical Fiber "Optical Cable Line Maintenance Technology" is planned to consist of three parts:

---Part 1: Fiber identification based on leaked light: The purpose is to specify fiber identification technology for use in fiber optic cable line maintenance:

---Part 2: Water immersion monitoring of underground joint boxes using optical monitoring systems: The purpose is to specify optical monitoring systems based on Water immersion monitoring technology for underground joint boxes:

---Part 3: Optical cable identification for optical cable network construction and maintenance based on optical sensing technology: The aim is to specify optical sensing based Optical cable identification technology used in optical network construction and maintenance:

Fiber optic cable line maintenance technology Part 2: Buried joints using optical monitoring systems Box water immersion monitoring

1 Scope

This document specifies the optical monitoring system, water immersion sensors, test procedures and post-immersion procedures for monitoring the water immersion of underground optical cable splice boxes:

Basic requirements for processing:

This document is applicable to the water immersion monitoring of underground joint boxes during the construction and operation and maintenance of optical fiber cable lines:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations for undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 9771 (all parts) Single-mode optical fiber for communications YD/T 979 Technical requirements and inspection methods for optical fiber ribbons

3 Terms and definitions

The following terms and definitions apply to this document:

A system for the transmission system management subnet and access management network in the telecommunications management network:

Note: It consists of monitoring center and monitoring station:

sparefibermonitoring Monitor non-service optical fibers in optical cable lines:

Note: The wavelength used for fiber preparation monitoring can be the same as or different from the wavelength used for transmission services:

4 Abbreviations

The following abbreviations apply to this document:

IL: Insertion Loss (InsertionLoss)