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**Code for acceptance of optical fiber submarine cable systems  
engineering**

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### 1 General

1.0.1 In order to unify and standardize the construction of submarine optical cable projects, so that submarine optical cable projects comply with relevant national policies, advanced technology, reasonable economy, safety and reliability, energy saving and environmental protection, this specification is formulated.

1.0.2 This specification is applicable to the engineering acceptance of submarine optical

cable lines and digital signal transmission systems of submarine optical cables and related auxiliary systems.

1.0.3 The equipment of submarine optical cable projects constructed in areas with seismic fortification intensity 7 and above shall meet the seismic performance requirements of communication networks.

1.0.4 In addition to conforming to this specification, the acceptance of submarine optical cable projects should also comply with the relevant current national standards.

#### **2.1.1 Submarine repeater**

Submarine optical signal amplification equipment composed of one or several regenerators or optical amplifiers and other related devices.

#### **2.1.2 Repeated submarine cable system with relay submarine cable system**

Submarine optical cable transmission system using submarine optical repeater in the submarine line.

#### **2.1.3 Repeaterless submarine cable system**

Submarine optical cable transmission system without submarine optical repeater in the submarine line.

#### **2.1.4 beach manhole**

The man well installed on the landing beach of the submarine optical cable is used to terminate the submarine optical cable and connect the land optical and cable.

#### **2.1.5 submarine cable landing point cable landing point**

The location of the joint point between the submarine optical cable and the land optical cable is generally located on the beach manhole.

#### **2.1.6 submarine cable landing station cable landing station**

Terminal station for submarine fiber optic cable systems. Submarine optical cable terminal equipment, monitoring equipment and remote power supply equipment can be installed in the submarine optical cable landing station.

#### **2.1.7 sea wall**

A dyke on the coast to keep out the sea.

#### **2.1.8 Submarine cable segment**

The collection of all submarine cable system components between two adjacent submarine cable terminal equipment connected on the same pair of optical fibers.

#### **2.1.9 Anchorage area**

A special area at sea where designated ships can drop anchor.

#### **2.1.10 landing section landing section**

The submarine optical cable laid in the section from the beach man's well to the water depth of 5m.

#### **2.1.11 remote power supply system power feeding system**

A power supply system that provides power to submarine equipment using the loop formed by the conductor in the submarine optical cable and the earth.

#### **2.1.12 cable route desktop study**

According to the design of the topology structure of the submarine optical cable system, through the collection and analysis of existing geophysical data, marine environmental elements and marine development activities, one or more technically and economically feasible submarine optical cable routing schemes are proposed.

#### **2.1.13 Ocean route survey route survey**

Using geological sampling, geophysical surveying, on-site observation and other professional technical methods, conduct on-the-spot investigations on the routing scheme proposed by the routing pre-selection tabletop research, and determine the best routing scheme after comprehensive evaluation and comparison of the obtained data, and provide for the optical cable project. Design and construction provide scientific and technical basis.

### **2.2 Symbols**

English abbreviation English name Chinese name ASE Amplified Spontaneous Emission Amplified spontaneous emission BER Bit Error Ratio bit error rate BU Branch Unit subsea branch unit C-OTDR Coherent Optical Time-Domain Reflectometer Coherent Optical Time Domain Reflectometer ODF Optical Distribution Frame Optical Distribution Frame OSNR Optical Signal to Noise Ratio Optical Signal to Noise Ratio OTDR Optical Time-Domain Reflectometer Optical Time Domain Reflectometer PFE Power Feeding Equipment Remote power supply equipment PMD Polarization Mode Dispersion Polarization Mode Dispersion QQ factor Q value SDH Synchronous Digital Hierarchy synchronous digital system SESR Severely Errored Second Ratio Severely Errored Second Ratio WDM Wavelength Division Multiplexing

### **3.1 General provisions**

3.1.1 When inspecting equipment and equipment, the representative of the construction party or the representative of the supervisor and the construction party should be present at the same time.

3.1.2 Appearance inspection should be carried out for equipment and equipment, and the specifications and models should be checked, and the quantity should be counted. When abnormalities are found, key inspections should be carried out.

### **3.2 Equipment inspection**

3.2.1 The equipment specifications, models and quantities shall meet the requirements of the order contract and design documents.

3.2.2 The outer packaging of the equipment should be complete, without damage, without signs of moisture, fire, etc., and without obvious dents.

#### **3.2.3 The equipment should be checked and checked according to the packing list, and records should be made.**

3.2.4 After the inspection of the equipment, it should be classified and stored, marked, indicating the type and quantity of the equipment, and attention should be paid to the storage of small parts to prevent loss.

3.2.5 After unpacking and inspecting the goods, the on-site cleaning work should be done well, and it should be confirmed by the construction party or supervisor.

3.2.6 Check the factory test records of the equipment, which shall comply with the equipment order contract and design requirements.

### **3.3 Equipment inspection**

3.3.1 The specifications, models and quantities of the equipment shall meet the requirements of the order contract and design documents.

3.3.2 The inspection of terrestrial optical cables, optical fiber distribution frames and terrestrial optical cable splice boxes shall comply with the relevant provisions of the current national standard "Code for Acceptance of Communication Line Engineering" GB 51171.

3.3.3 Optical cable terminal boxes, land cable splice boxes and beach splice boxes shall meet the following requirements.

1 All functional modules should be complete and the box body intact.

2 Plastic parts should have no burr, no air bubbles, no cracks and voids, no warping, no impurities and other defects.