Discussion on the Key Points of Optical Cable Line Construction Technology in Optical Fiber Communication Engineering

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Abstract. In the construction process of optical fiber communication engineering, it is necessary to pay attention to how to improve the construction technology of optical cable line, so as to ensure the construction quality of optical fiber communication engineering. Based on the effective work practice, this paper summarizes the application precautions of optical cable line construction technology in optical fiber communication engineering, and also puts forward the technical points.

Keywords: Optical fiber communication, Optical cable line, Key points of construction

Introduction Optical fiber communication is a technology which uses optical fiber as transmission medium to realize communication signal transmission. In the optical fiber communication system, in order to ensure the demand of communication flow, we need to pay attention to the construction quality. To discuss the key points of construction technology and ensure the construction quality is the most urgent problem to be solved. This is discussed below.

The realization of optical fiber communication is conducive to its universal use in people's lives. Optical cable line can carry out optical wave transmission, which can be used in optical fiber communication engineering. Its function is to complete the remote transmission of data, to complete the transmission of optical fiber data on the Internet in China, to facilitate people's lives, and to improve the level of social science and technology. The laying of optical cable line plays an important role in the optical fiber communication project, which is related to the quality of the whole project and the practical quality after completion. In view of this, this paper will focus on the optical fiber communication engineering, in order to play a reference role for the future practical work.

1. Precautions for construction technology application

1.1. Clear line mark First of all, it is necessary to ensure the accurate indication of optical cable lines, so as to ensure that the construction personnel can quickly identify and accurately select during construction.

Secondly, the most appropriate and accurate line laying scheme is selected to ensure the simplicity of the signs in the whole process. The scope of the preparatory work is still relatively vague. It is
It is generally believed that, except for the steps that must be involved in our construction process, all the other preparatory work belongs to the preparatory work. In the normal construction process, the preparatory work can be divided into two parts. The first lies in the preparation and inspection of the construction tools and materials used, and the second lies in whether our construction environment meets the necessary conditions. When laying optical cables, the accuracy of signs shall be ensured no matter whether the pipes are laid below or the cables are directly buried. When setting up optical cable lines in outdoor conditions or in the field, the accuracy of Posts and the independence of posts shall be ensured. To ensure the safety and conspicuity of the ground signs, it is not allowed to set up warning signs on the walls of the buildings, mainly because the signs at this place are relatively hidden and hard to be found, which is difficult to reflect the striking effect, and the signs on the buildings are easy to be damaged, disassembled and hard to play the warning purpose of the signs. When carrying out the line signs, it is necessary to implement the principle of special line, pay attention to the regular and regular inspection of the lines while ensuring the lines are clear and definite, and take a timely rest and remedy in case of any damage, fuzziness and other problems of the signs.

1.2. Accurate distance measurement
In the arrangement of optical cable lines, the accuracy of measurement shall be ensured, the direction, distance and position of lines shall be ensured with scientific and appropriate safety distance, the field geology and mineral resources of the laying section shall be monitored, the high quality of optical cable laying shall be ensured, and the work safety of Construction Engineering and construction personnel shall be improved. Ensure that the optical cable is laid on the principle of important traffic lines, such as railway subgrade, and ensure that the actual length of laying is determined based on the measured distance. In general, when laying the urban optical cable communication pipeline Road, it is necessary to design the line based on the urban road line or pedestrian crossing. Therefore, the simulation scheme must be adopted in the construction preparation to improve the construction accuracy and ensure the comprehensive construction preparation through scientific experiments. During the actual optical cable laying operation, use the road excavation instrument to measure and draw lines within the deviation range of 100mm of the pipeline center line, thoroughly clean the thickness of sand and stone backfilled by the disease control pipeline, and compact the soil layer beyond the ground. Before laying the plastic pipe, the foundation shall be tamped and bedded with fine sand, the gap between the pipe groups shall be controlled reasonably, the joint pipe heads shall be staggered, the space support shall be carried out with the liner, the uniform shape shall be ensured, and the length of the extension pipe shall be controlled reasonably.

1.3. Strengthen safety protection
When erecting the optical cable, it is necessary to pay attention to the outer protection of the optical cable, control the buffer protection measures inside the roller slide, avoid the cable scratch on the rough surface or ground construction process, prevent the surface water-proof performance from being damaged, avoid electric corrosion, and ensure the quality of light signal transmission. The assembly of joint box or connection of continuous contact shall be completed on the ground, and the continuous box shall be erected at a high place to prevent accidental collision or damage. The external interference factors must be considered in the optical cable installation, so the light passage shall not cross the densely populated or economic garden. Under the same conditions, the optical cable can be laid under the sidewalk or under the slow lane. At the same time, the safety distance between the optical cable and other pipelines shall be controlled, and the safety distance between the optical cable and gas pipeline and thermal pipeline shall be reasonably controlled. When laying the line, attention shall be paid to avoid passing through large industrial areas, high trees and forests, high buildings and other areas. If there is an existing power transmission line in the laying section, the erection interval shall be more than two meters, and the safe distance shall be selected in combination with the suspension height of the optical cable. At the same time, pay attention to the reasonable application of construction protection measures to determine the safety management around the optical cable. In case
of abnormal conditions, cut off the power supply in time to prevent sundries stacking and garbage burning around the optical cable line.

2 Analysis of key points of construction technology

2.1 Technical preparation before construction, sufficient preparation shall be carried out to fully monitor the quality of optical cable materials, mainly for single disk test.

Before the test, appearance test shall be carried out to prevent pollution and loss. Unqualified materials are not allowed to be used in the test, not to mention in the construction. When the optical cable is slightly worn, they must be recorded in a timely manner. The main contents of the test include: mechanical performance, geometric performance, transmission performance, reflection peak, etc. to ensure that the relevant parameters meet the basic requirements of the construction. For the tested optical cable, it is necessary to carry out the distribution test, to effectively distribute the length of the optical cable, the number of joints, etc., so as to form a reasonable control of the number of joints, reduce the workload of construction and laying, and improve the work efficiency.

2.2. Distribution plate During the construction, the construction personnel are required to control the total length of the cable reasonably on the construction site, and arrange the cable reasonably according to the laying position in the construction area, so as to ensure the minimum number of joints to obtain the best cable layout.

Before general distribution, the quality inspection of optical cable shall be carried out to ensure that it has qualified quality inspection certificate, and that the requirements of construction scheme are consistent with the actual parameters of optical cable. The quality of optical cable tray during transportation shall be controlled to ensure that it is undamaged without package falling off.

2.3. Route retest In the process of cable distribution, the specific location of laying should be determined according to the distance between the ground and the route to ensure the smooth construction.

In the implementation of route retest, it is necessary to make sure that the site construction personnel can go deep into the site, monitor the specific construction conditions, check the design scheme and the actual cable, and ensure that the retest is safe, convenient and economical. When there is a disconnection between the construction site and the design scheme, the optical cable design scheme can be optimized to ensure the feasibility of the optimized design scheme. After the cable route retest is completed, the cable construction drawing shall be drawn in combination with the actual spacing, and the total length of each section shall be marked, and the relevant laying requirements shall be listed. When there are building obstacles in the construction area, the drawings shall be marked, and the street position of the cable shall be reasonably and accurately marked.

Conclusion

In the construction of optical fiber communication engineering, it is necessary to grasp the key points of construction technology accurately and ensure the quality of each construction link strictly, so as to provide effective guarantee for the quality of the whole optical fiber communication engineering.

As a new communication technology, optical fiber communication mainly uses optical fiber as our network medium, and the transmission medium is mainly the light wave carrying information, which ultimately realizes the transmission of information. Up to now, it has become the largest real-time communication. The main technology used in the construction of optical fiber communication network is the laying of optical cable lines, which is the basic technology and the most critical technology of optical fiber supporting information industry. Optical cable line laying technology the quality of optical cable network construction is determined by the optical cable line laying technology. In the construction process, we are divided into four parts: preliminary preparation, route retest, optical cable monitoring, optical cable laying and so on. Each part ensures the construction safety of optical cable
This paper analyzes the key points of optical cable line construction technology in optical fiber communication engineering.

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