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

Installation of optical fibre cables inside sewer ducts

ITU-T Recommendation L.77



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ITU-T Recommendation L.77

Installation of optical fibre cables inside sewer ducts

Summary

ITU-T Recommendation L.77 describes methods to install optical cables inside sewer ducts, which applies to both the cable installation and the pre-installation of an infrastructure, if requested. This Recommendation covers both man- and non-man-accessible sewer ducts.

This Recommendation is not intended to address all of the safety concerns, if any, associated with its use. Therefore, it shall be the responsibility of the user of this Recommendation to establish appropriate health and safety practices and determine the applicability of regulatory limitations, if any, prior to its use.

Source

ITU-T Recommendation L.77 was approved on 29 May 2008 by ITU-T Study Group 6 (2005-2008) under the ITU-T Recommendation A.8 procedure.

FOREWORD

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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.

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Installation of optical fibre cables inside sewer ducts

1 Introduction

The installation of optical cables inside sewer ducts is basically a trenchless technique.

Optical cable installation in sewer ducts presents many advantages compared with traditional trench installation techniques, such as: less time for cable laying, not limited by weather conditions, increased protection of cable against damage, no traffic disruption, no noise pollution, no excavation, no damage to road surfaces and underground installations, no heavy equipment, no inconvenience to businesses or to citizens.

In general, there are two categories of sewers: man-accessible and non-man-accessible sewers.

The definition of whether a sewer is man-accessible or not depends not only on national regulations, but also on the individual regulations of different sewer network operators.

Usually, non-man-accessible sewers have diameters between 200 mm and 700 mm.

Installation in non-man-accessible sewers is carried out with the help of robots. In man-accessible sewers, both robot-assisted and manual installation of cables is feasible.

Basically, there are three different methods to install optical cables into sewer ducts:

- a) Special armoured optical cables, designed to be directly installed at the bottom of the sewers;
- b) Self-supporting optical cables, designed to be directly suspended at the top part of sewers;
- c) Traditional optical cables or micro-cables, designed to be installed in protective ducts which have to be installed before the cable installation.

NOTE 1 – The most important optical cable structures and related performances suitable for these kinds of installation techniques are described in [ITU-T L.78].

NOTE 2 – The sewer optical cables and/or related infrastructure should be designed and manufactured for an expected operating lifetime of at least 15 years. It should be possible to install or remove the cable to/from the sewer throughout the operation lifetime. The materials in the sewer optical cable and/or the related infrastructure shall not present a health hazard within its intended use.

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 L.1] ITU-T Recommendation L.1 (1988), *Construction, installation and protection of telecommunication cables in public networks*.
- [ITU-T L.10] ITU-T Recommendation L.10 (2002), *Optical fibre cables for duct and tunnel application*.
- [ITU-T L.12] ITU-T Recommendation L.12 (2000), *Optical fibre joints*.
- [ITU-T L.35] ITU-T Recommendation L.35 (1998), *Installation of optical fibre cables in the access network*.