

Recommendation

ITU-T L.340 (06/2023)

SERIES L: Environment and ICTs, climate change, e-waste, energy efficiency; construction, installation and protection of cables and other elements of outside plant

Maintenance and operation – Infrastructure maintenance

Maintenance of underground telecommunication facilities

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Environment and ICTs, climate change, e-waste, energy efficiency; construction, installation and protection of cables and other elements of outside plant

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Recommendation ITU-T L.340

Maintenance of underground telecommunication facilities

Summary

Underground facilities, such as tunnels, maintenance holes and handholes, deteriorating continuously with time. For example, cracks and water leakages occur and these phenomena degrade the safety and serviceability of the underground facilities. If the deterioration is neglected, large-scale repair and reinforcement measures may be required, which will increase future costs. Therefore, it is highly recommended that periodic inspection and timely maintenance are performed.

Safety management of telecommunication infrastructure facilities is described in general in ITU-T Recommendation L.330, but the detailed technologies and countermeasures for each facility are left for other Recommendations.

Recommendation ITU-T L.340 describes the inspection procedures, technologies and countermeasures for the maintenance of underground facilities as defined in Recommendation ITU-T L.330.

History*

Edition	Recommendation	Approval	Study Group	Unique ID
1.0	ITU-T L.340/L.74	2008-04-06	6	11.1002/1000/9328
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Keywords

Crack, deterioration, inspection, maintenance, underground facilities, water leakage.

* To access the Recommendation, type the URL <https://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID.

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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Recommendation ITU-T L.340

Maintenance of underground telecommunication facilities

1 Scope

This Recommendation describes detailed inspection technologies and countermeasures in case of deterioration of underground telecommunication facilities such as tunnels, maintenance holes and handholes. These inspection technologies and deterioration countermeasures are conducted when certain problems are identified during the regular inspection described in [ITU-T L.330]. This Recommendation covers:

- inspection technologies for tunnels, maintenance holes and handholes;
- countermeasures to prolong facility lifetime according to the inspection results;
- maintenance procedures to realize safe and effective facility management.

Appendix I provides the effective and quantitative maintenance technologies.

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.330] Recommendation ITU-T L.330 (2020), *Telecommunication infrastructure facility management*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 handhole [ITU-T L.330]

3.1.2 maintenance hole (manhole) [ITU-T L.330]

3.1.3 shield tunnel [ITU-T L.330]

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 concrete neutralization: Carbonation of concrete by attack from atmospheric carbon dioxide will result in a reduction in alkalinity of the concrete and increase the risk of reinforcement corrosion.

3.2.2 corrosion: Disintegration or deterioration of concrete or reinforcement by electrolysis or by chemical attack.

3.2.3 crack: An incomplete separation into one or more parts with or without space in between. Cracks are classified by direction, width and depth. The following adjectives can be used: longitudinal, transverse, vertical, diagonal and random.