INTERNATIONAL TELECOMMUNICATION UNION

ITU-T L.30

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OF ITU

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

Markers on marinized terrestrial cables

ITU-T Recommendation L.30

(Previously CCITT Recommendation)

ITU-T L-SERIES RECOMMENDATIONS

CONSTRUCTION, INSTALLATION AND PROTECTION OF CABLES AND OTHER ELEMENTS OF OUTSIDE PLANT

For further details, please refer to ITU-T List of Recommendations.

FOREWORD

The ITU-T (Telecommunication Standardization Sector) is a permanent organ of the International Telecommunication Union (ITU). The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

ITU-T Recommendation L.30 was prepared by ITU-T Study Group 6 (1993-1996) and was approved by the WTSC (Geneva, 9-18 October 1996).

NOTES

1. In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

2. The status of annexes and appendices attached to the Series L Recommendations should be interpreted as follows:

- an *annex* to a Recommendation forms an integral part of the Recommendation;
- an *appendix* to a Recommendation does not form part of the Recommendation and only provides some complementary explanation or information specific to that Recommendation.

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Recommendation L.30

MARKERS ON MARINIZED TERRESTRIAL CABLES

(Geneva, 1996)

Introduction

A marinized terrestrial cable is an underwater optical fibre cable construction, based on a conventional multi-fibre terrestrial cable core protected to withstand the marine environment, designed for unrepeated applications and tested for use in non-aggressive shallow waters, with a varying repair capability.

Cable markers are applied during cable manufacture and are used for length measurement purposes during laying, maintenance and/or recovery. Markers also warn of approaching joints and transitions.

It is recommended that

1 Land cables

(part of marinized terrestrial cables)

1.1 For identification purposes, the outer sheath of the cable should preferably have a distinctive colour (for example, yellow, orange, etc.), taking into account any requirements for UV protection, or a proper marking, if applicable.

1.2 In addition, the outer drum surface should be marked as an example "MARINIZED CABLE X-Y land section" (X-Y being the connection section length) on both sides of the drum.

2 Marinized terrestrial cables

2.1 Type of markers

The following markers as appropriate, can be applicable to marinized terrestrial cables. Each marking should be applied without any impairment on performances of cables and their handling performances during installation and recovery.

a) distance markers;

b) full line joint markers;

c) warning markers;

d) transition markers;

e) manufacturing joint markers.

2.2 Marker material

The material should be waterproof self-adhesive tape, typically of about 50 mm width and of 125 μm nominal thickness. The material should be identified clearly after being immersed for 24 hours in a saturated aqueous solution of H_2S at a temperature between 20 °C and 25 °C.

2.3 Distance marker

2.3.1 A distance marker shows the length from a point of origin with number(s) and/or characters. A distance marker should be applied to the cable typically every 2 km with an accuracy within ± 0.5%. The marker should consist of double-wrapped numbered and lettered tapes affixed to the cable as shown in Figure 1.

2.3.2 Where the marker is applied over armoured cable, the numbered and lettered tapes should be affixed over a helical lapping typically of yellow tape applied with a 50% overlap.

2.3.3 The direction of the counting should be as shown in Figure 2.

2.4 Factory joint marker

2.4.1 The factory joint marker should be applied to a cable joint referring to a complete or portion of a jointing of an optical fibre inside the cable and/or the protective elements of the fibre (i.e. tapes, armouring, etc.) during the manufacturing process.

2.4.2 A double-wrapped number tape or tapes should be affixed centrally, typically over the 450-mm middle wrapping. The joint marker should consist typically of five individual bands of blue tape affixed to the cable as shown in Figure 3. The middle band should consist of a helically lapped blue tape with a 50% overlap and with its extremities covered typically by a 50-mm wide double wrapping of the same type of tape. The four outer bands should consist typically of 50-mm double wrappings of blue tape.

2.4.3 Joints should be numbered sequentially.

2.5 Warning markers

2.5.1 A warning marker is applied to warn of the approach of an unusual point on cables, such as joint box or branching unit. A warning marker should consist typically of two bands of coloured tape affixed to the cable as shown in Figure 4. Each band should consist typically of a helically lapped tape with 50% overlap and with its extremities covered typically by a 50-mm double wrapping of black tape. The colour of the markers is typically:

- red at 6 km;
- yellow at 2 km;
- light green at 1 km.

2.5.2 The 6-km warning marker is not required where the length is less than 10 km.

2.6 Transition marker

2.6.1 The transition marker should be applied to warn of a change in cable type, for example from single armoured cable to double armoured cable. Cable transition can be achieved using either a transition cable or transition joint as mentioned in Recommendation G.972, item 5015. The transition marker, where permitted, typically should consist of two bands of helically lapped tape applied with a 50% overlap, with a width of typically 150 mm, on either side of the transition.

2.7 Full line joint marker

2.7.1 The full line joint marker should be applied to a cable in order to warn of the approach of a joint box during installation or recovery operations.

The joint marker should consist typically of five individual bands of blue tape affixed to the cable as shown in Figure 3. The middle band should consist of a helically lapped blue tape with a 50% overlap and with its extremities covered typically by a 50-mm wide double wrapping of the same type of tape. The four outer bands should consist typically of 50-mm double wrappings of blue tape.

2.7.2 A double wrapped number tape or tapes should be affixed centrally, typically over the 450 mm middle wrapping.

2.7.3 Joints should be numbered sequentially.

3 Requirements for numbered and lettered tapes

3.1 The tape should be typically yellow or orange, with the size and colour of characters (letters and numbers) typically of 24 mm black, printed at intervals typically of not more than 12.5 mm throughout its length.

3.2 When more than one character is required, the printed tapes should be affixed so that the characters are side by side.

3.3 The tapes should adhere firmly without entrapped air.

4 Alternative markers

Alternative markers can be considered, which are equivalent to the above, noting the possible advantages of the proposed markers.

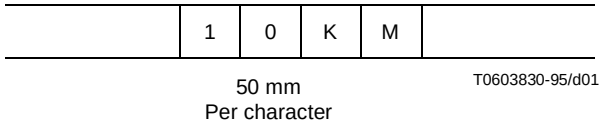

Figure 1/L.30 – Distance markers (km)

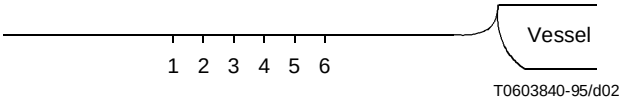

Figure 2/L.30 – Direction of marker count

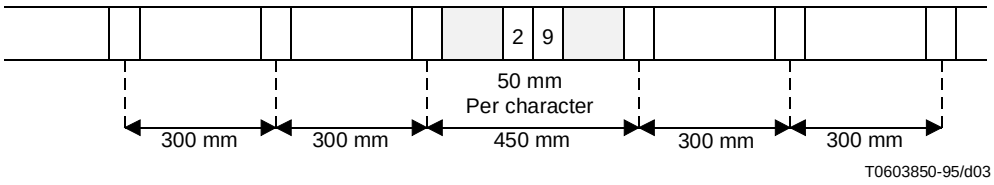

Figure 3/L.30 – Joint markers

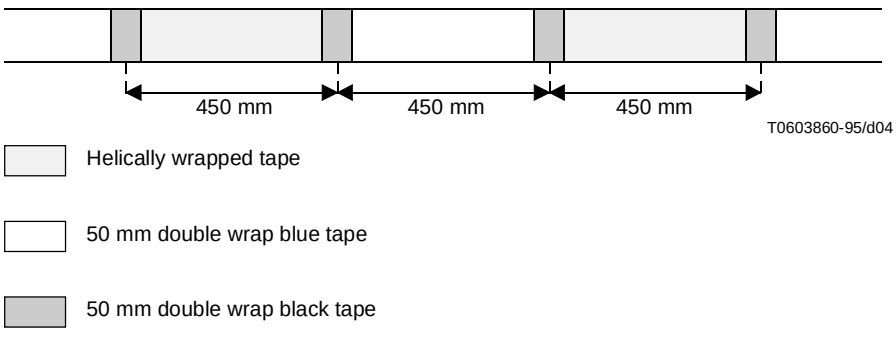

Figure 4/L.30 – Warning markers

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