INTERNATIONAL TELECOMMUNICATION UNION

ITU-T G.707/Y.1322

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Amendment 1
(08/2004)

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Digital terminal equipments – General

SERIES Y: GLOBAL INFORMATION INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS AND NEXT GENERATION NETWORKS

Internet protocol aspects – Transport

Network node interface for the synchronous digital hierarchy (SDH)

Amendment 1

ITU-T Recommendation G.707/Y.1322 (2003) – Amendment 1

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ITU-T Recommendation G.707/Y.1322

Network node interface for the synchronous digital hierarchy (SDH)

Amendment 1

Source

Amendment 1 to ITU-T Recommendation G.707/Y.1322 (2003) was approved on 22 August 2004 by ITU-T Study Group 15 (2001-2004) under the ITU-T Recommendation A.8 procedure.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. 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 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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ITU-T Recommendation G.707/Y.1322

Network node interface for the synchronous digital hierarchy (SDH)

Amendment 1

1) Recommended VC-11 interconnecting rule

Clause 10.1.5 Mapping into VC-11

Replace:

NOTE – Refer to clause 9/G.803 for recommended selection criteria on the choice of primary rate mapping.

With:

Different structures are defined for the transport of 1544 kbit/s and 64 kbit/s client signals. To support 1544 kbit/s transport across SDH and PDH networks, the rule for interconnecting VC-11 mappings will be to use the 1544 kbit/s asynchronous mapping unless otherwise mutually agreed by the operators providing the transport. This SDH interconnection rule does not modify the mapping recommendations in ITU-T Rec. G.803. Refer to clause 9/G.803 for additional information on selection criteria and the choice of primary rate mappings.

2) Add a new Annex G for SHDSL based TU-12 transport

Add to clause 2, References

– ITU-T Recommendation G.991.2 (2003), *Single-pair high-speed digital subscriber line (SHDSL) transceivers.*

Add to clause 3, Terms and definitions

3.19 dSTM-12*NMi* interface: An SDH transmission interface which transports one or more TU-12, with SHDSL-based Section overhead. dSTM-*12NMi* interfaces are defined for SHDSL transport technologies. The number (*N*) of TU-12 in dSTM-12*NMi* interfaces provided by this Recommendation is limited to $N = 1$ to 9 inclusive. The number (*M*) of SHDSL wire pairs over which the dSTM-12*NMi* signal is transported is limited to $M = 1$ to 4 inclusive. The number (*i*) represents the presence or absence of an ($M \times i \times 8$) kbit/s DCC in the dSTM-12*NMi* signal; it is limited to $i = 0,..,7$ (single-pair mode), $i = 0,..,4$ (2-pair mode), $i = 0,..,3$ (3-pair mode) and $i = 0, 1, 2$ (4-pair mode). Not all combinations of *N* and *M* are allowed. Refer to Table G.1.

Add to clause 4, Acronyms and abbreviations

dSTM SHDSL based Synchronous Transport Module

Add new Annex G:

Annex G

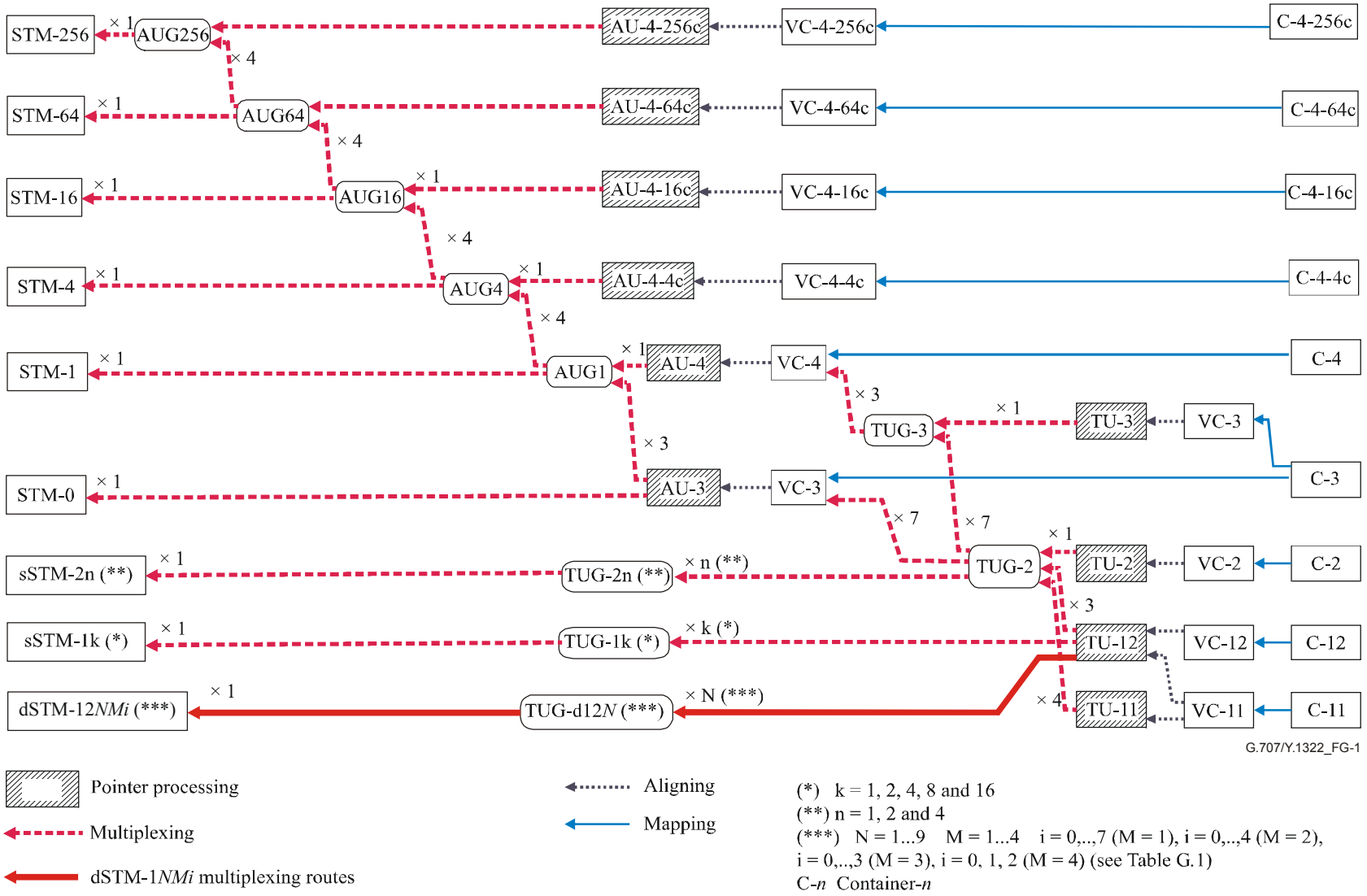
Mapping of *N* × TU-12 in *M* virtual concatenated SHDSL pairs (dSTM-12*NMi*)

Clause E.14/G.991.2 specifies the mapping of $N \times$ TU-12 (N = 1...9) into M (M = 1...4) virtual concatenated SHDSL wire pairs with an optional ($M \times i \times 8$) kbit/s DCC.

This annex specifies the associated additional multiplexing route and the SDH related signal names.

G.1 Multiplex structure

Figure G.1 shows, within the general SDH multiplexing scheme (including the one defined in ITU-T Rec. G.708 for sub-STM-0), the additional multiplexing route provided by E.14/G.991.2. I.e., the multiplexing routes of specific dSTM-12*NMi* (of order N = 1...9, M = 1...4 and i = 0,..,7 (single-pair mode), i = 0,..,4 (2-pair mode), i = 0,..,3 (3-pair mode) and i = 0, 1, 2 (4-pair mode)) via a Tributary Unit Group d12*N* (TUG-d12*N*).



NOTE – This figure is informative and shows the additional multiplexing routes added by this Recommendation (dSTM-12*NMi*).
It is adapted from ITU Recs G.707/Y.1322 and G.708.

Figure G.1/G.707/Y.1322 – Additional structure for dSTM

G.2 Mapping overview

Table G.1 provides an overview of the defined set of dSTM-12*NMi* signals. This table is based on Table E.41/G.991.2.

Table G.1/G.707/Y.1322 – Assignment of dSTM-12*NMi* names to *N* × TU-12/VC-12 connections over *M*-Pair SHDSL

Number (*N*) of TU-12 / VC-12 connections	Aggregate payload bit rate [kbit/s]	1-Pair SHDSL Size 1 × k_s bits of each payload sub-block with $k_s = i + n \times 8$ [bits] *M* = 1	2-Pair SHDSL Size 2 × k_s bits of each payload sub-block with $k_s = i + n \times 8$ [bits] *M* = 2	3-Pair SHDSL Size 3 × k_s bits of each payload sub-block with $k_s = i + n \times 8$ [bits] *M* = 3	4-Pair SHDSL Size 4 × k_s bits of each payload sub-block with $k_s = i + n \times 8$ [bits] *M* = 4
1	2304 + M × i × 8	n = 36; i = 0,..,7 dSTM-12110 to dSTM-12117	n = 18; i = 0,..,4 dSTM-12120 to dSTM-12124	n = 12; i = 0,..,3 dSTM-12130 to dSTM-12133	n = 9; i = 0,1,2 dSTM-12140 to dSTM-12142
2	4608 + M × i × 8	n = 72; i = 0,..,7 dSTM-12210 to dSTM-12217	n = 36; i = 0,..,4 dSTM-12220 to dSTM-12224	n = 24; i = 0,..,3 dSTM-12230 to dSTM-12233	n = 18; i = 0,1,2 dSTM-12240 to dSTM-12242
3	6912 + M × i × 8	–	n = 54; i = 0,..,4 dSTM-12320 to dSTM-12324	n = 36; i = 0,..,3 dSTM-12330 to dSTM-12333	n = 27; i = 0,1,2 dSTM-12340 to dSTM-12342
4	9216 + M × i × 8	–	n = 72; i = 0,..,4 dSTM-12420 to dSTM-12424	n = 48; i = 0,..,3 dSTM-12430 to dSTM-12433	n = 36; i = 0,1,2 dSTM-12440 to dSTM-12442
5	11 520 + M × i × 8	–	–	n = 60; i = 0,..,3 dSTM-12530 to dSTM-12533	n = 45; i = 0,1,2 dSTM-12540 to dSTM-12542
6	13 824 + M × i × 8	–	–	n = 72; i = 0,..,3 dSTM-12630 to dSTM-12633	n = 54; i = 0,1,2 dSTM-12640 to dSTM-12642
7	16 128 + M × i × 8	–	–	n = 84; i = 0,..,3 dSTM-12730 to dSTM-12733	n = 63; i = 0,1,2 dSTM-12740 to dSTM-12742
8	18 432 + M × i × 8	–	–	–	n = 72; i = 0,1,2 dSTM-12840 to dSTM-12842
9	20 736 + M × i × 8	–	–	–	n = 81; i = 0,1,2 dSTM-12940 to dSTM-12942
		If no data communication channel is used i = 0. If management, signalling, control and maintenance functions are to be transmitted over the Z-bits, *i* × 8 kbit/s per wire-pair are additionally required with i = 1,..,7 (1-pair), i = 1,..,4 (2-pair), i = 1, 2, 3 (3-pair) and i = 1, 2 (4-pair).			

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