INTERNATIONAL TELECOMMUNICATION UNION

ITU-T G.7041/Y.1303

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Amendment 1
(06/2002)

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Digital terminal equipments – General

SERIES Y: GLOBAL INFORMATION INFRASTRUCTURE AND INTERNET PROTOCOL ASPECTS

Internet protocol aspects – Transport

Generic framing procedure (GFP)

Amendment 1

ITU-T Recommendation G.7041/Y.1303 (2001) – Amendment 1

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ITU-T Recommendation G.7041/Y.1303

General framing procedure (GFP)

Amendment 1

Summary

This amendment includes the specification for carrying DVB-ASI signals with GFP-T. In addition, it also includes a new figure to illustrate Client Management Frames.

Source

Amendment 1 to ITU-T Recommendation G.7041/Y.1303 was prepared by ITU-T Study Group 15 (2001-2004) and approved under the WTSA Resolution 1 procedure on 13 June 2002.

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.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

CONTENTS

ITU-T Recommendation G.7041/Y.1303

Generic framing procedure (GFP)

Amendment 1

1) References

Add the following reference:

– ETSI (CENELEC): EN 50083-9 (1998), *Cable distribution systems for television, sound signals and interactive multimedia signals; Part 9: Interfaces for CATV/SMATV Headends and Similar Professional Equipment for DVB/MPEG-2 transport streams (DVB Blue Book A010), Annex B, Asynchronous Serial Interface*.

2) Abbreviations

Add the following abbreviations:

ASI Asynchronous Serial Interface for DVB

DVB Digital Video Broadcast

3) Table 6-3

Modify Table 6-3/G.7041/Y.1303 as follows:

Table 6-3/G.7041/Y.1303 – User payload identifiers for GFP client frames

PTI = 000	
User payload identifier (binary) TYPE Bits <7:0>	**GFP frame payload area**
0000 0000 1111 1111	Reserved and not available
0000 0001	Frame-Mapped Ethernet
0000 0010	Frame-Mapped PPP
0000 0011	Transparent Fiber Channel
0000 0100	Transparent FICON
0000 0101	Transparent ESCON
0000 0110	Transparent Gb Ethernet
0000 0111	Reserved for future
0000 1000	Frame-Mapped Multiple Access Protocol over SDH (MAPOS)
0000 1001	Transparent DVB ASI

Table 6-3/G.7041/Y.1303 – User payload identifiers for GFP client frames

PTI = 000	
User payload identifier (binary) TYPE Bits <7:0>	**GFP frame payload area**
0000 1010 through 1110 1111	Reserved for future standardization
1111 0000 through 1111 1110	Reserved for proprietary use

4) New Figure 6-10

Add new Figure 6-10 as follows and renumber subsequent figures accordingly:

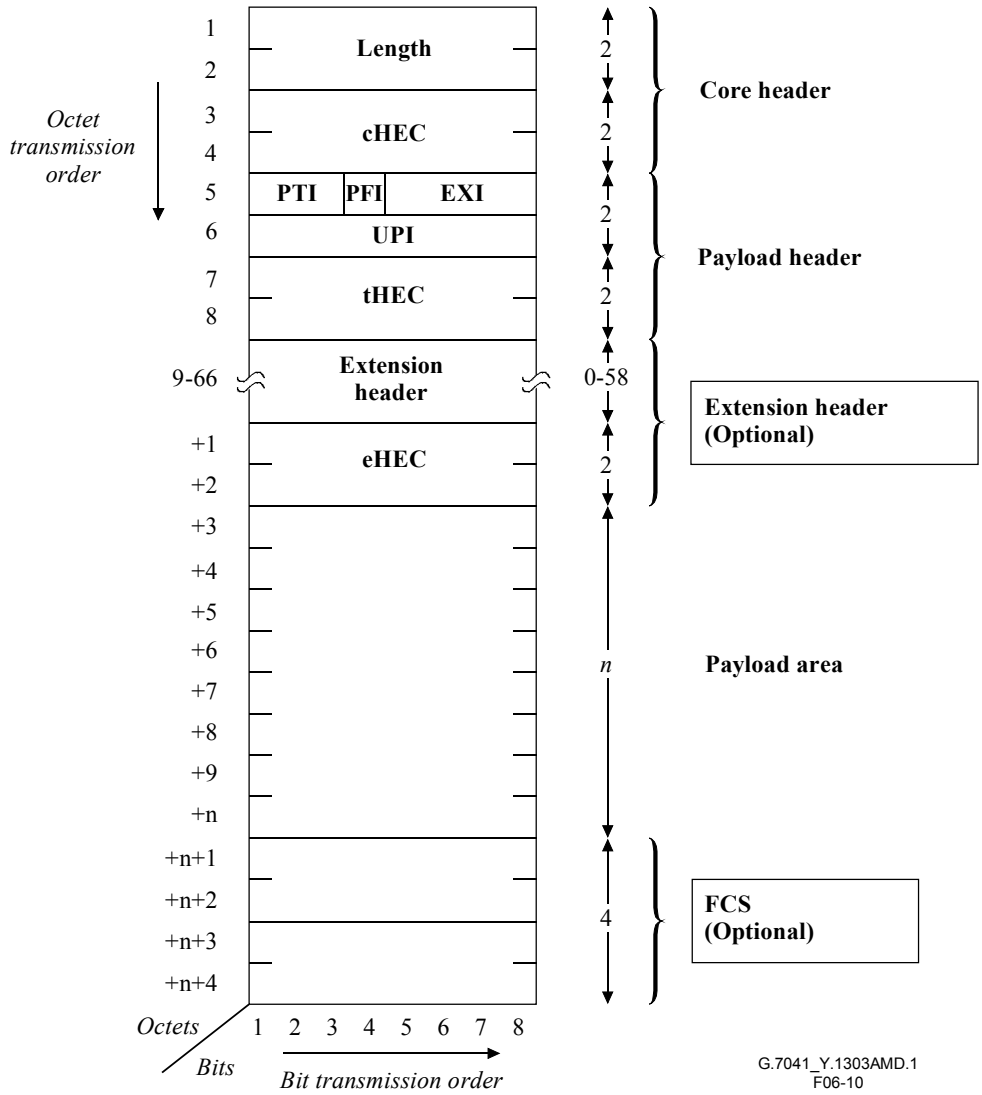

Figure 6-10/G.7041/Y.1303 – GFP client management frame

5) New clause 8.3.3.5

Add new clause 8.3.3.5 as follows:

8.3.3.5 DVB ASI payload

The running disparity aspects of the DVB ASI mapping in GFP shall adhere to the Fibre Channel standard, which are found in ANSI X3.230-1994, Fibre Channel Physical and Signaling Interface (FC-PH), Rev 4.3, section 11. On egress, 10B_ERR shall be re-coded into one of the following unrecognized 10B neutral disparity codewords, depending on beginning running disparity: 001111 0001 (RD-) or 110000 1110 (RD+).

6) New clause 8.4.2.5

Add new clause 8.4.2.5 as follows:

8.4.2.5 DVB ASI payload

DVB ASI output data rate (after 8B/10B encoding) shall be 270 Mbit/s ±100ppm, as specified in EN 50083-9 Appendix B. Output signal timing requirements are further specified by reference to Fibre Channel specification X3.230-1994.

A minimum of two /K28.5/ characters must occur between MPEG packets. Additional rate-adapting /K28.5/ characters may occur within or between packets. If rate adaptation is performed using /K28.5/ removal, rate adaptation shall be applied such that the receiving destination receives at least two /K28.5/ characters preceding each frame, as specified in EN 50083-9 Appendix B. If rate adaptation requires insertion of /K28.5/ characters, they may be inserted either between or within MPEG packets.

Depending on implementation, a continuous stream of 10B_ERR neutral disparity characters could be received or generated at egress (e.g. in response to received Client Signal Fail). In this case, rate adaptation may be performed by removing or inserting a 10B_ERR neutral disparity character after 12 consecutive 10B_ERR characters have been received and retransmitted.

7) New clause 8.5.5

Add new clause 8.5.5 and its subclauses as follows:

8.5.5 DVB ASI payload

8.5.5.1 DVB ASI Loss of Light (LOL)

By reference to Fibre Channel standards, DVB ASI Loss of Signal is an implementation-dependent option. When supported, applicable Loss of Light and Signal Detect requirements are found in sections 5.6, 6.2.3.2 and H.10 of ANSI X3.230-1994, Fibre Channel Physical and Signaling Interface (FC-PH), Rev 4.3.

Other implementation-dependent indications of a failed client signal (e.g. loss-of-clock from a SerDes) may be encoded as Client Signal Fail.

8.5.5.2 DVB ASI 8B/10B loss of synchronization

Per EN 50083-9 Appendix B, DVB ASI codeword synchronization shall be achieved on receipt of two /K28.5/ characters having the same alignment within 5 consecutive received characters. EN 50083-9 does not specify criteria for declaring loss of codeword synchronization. Fibre Channel criteria may not be applied since DVB ASI codeword synchronization and transmission is character-based, rather than 4-character transmission word-based. In the absence of guidance from EN 50083-9, ESCON/SBCON character-based codeword loss-of-synchronization criteria should be those specified in ANSI X3.296-1997, section 7.1.

8.5.5.3 DVB ASI output due to ingress or transport Signal Fail

The egress DVB ASI transmitter should continuously output the neutral disparity decoding for 10B_ERR, forcing Loss-of-Synchronization detection and any associated action at the downstream DVB ASI receiver. If the CSF condition persists, the client adaptation process may transmit nothing, forcing LOS detection and associated action at the downstream DVB ASI receiver.

8) Table IV.1

Modify Table IV.1/G.7041/Y.1303 as follows:

Table IV.1/G.7041/Y.1303 – SDH path capacity and number of superblocks per transparent GFP frame

Client un-encoded data rate	Example client signal	VC path size	Min. number of 65B blocks/GFP frame
160 Mbit/s	ESCON	VC-3-4v	1
216 Mbit/s	DVB ASI	VC-4- 2V	1
425 Mbit/s	Fibre Channel	VC-4-3v	13
850 Mbit/s	Fibre Channel / FICON	VC-4-6v	13
1000 Mbit/s	Gbit Ethernet	VC-4-7v	95
1700 Mbit/s	Fibre Channel	VC-4-12v	13
NOTE – The minimum number of superblocks shown here assumes a Null Extension Header and no optional payload FCS.			

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