

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.7041/Y.1303

Amendment 3
(01/2015)

SERIES G: TRANSMISSION SYSTEMS AND MEDIA,
DIGITAL SYSTEMS AND NETWORKS

Data over Transport – Generic aspects – General

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

Internet protocol aspects – Transport

Generic framing procedure

Amendment 3

Recommendation ITU-T G.7041/Y.1303 (2011) –
Amendment 3

ITU-T G-SERIES RECOMMENDATIONS
TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

INTERNATIONAL TELEPHONE CONNECTIONS AND CIRCUITS	G.100–G.199
GENERAL CHARACTERISTICS COMMON TO ALL ANALOGUE CARRIER-TRANSMISSION SYSTEMS	G.200–G.299
INDIVIDUAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON METALLIC LINES	G.300–G.399
GENERAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON RADIO-RELAY OR SATELLITE LINKS AND INTERCONNECTION WITH METALLIC LINES	G.400–G.449
COORDINATION OF RADIOTELEPHONY AND LINE TELEPHONY	G.450–G.499
TRANSMISSION MEDIA AND OPTICAL SYSTEMS CHARACTERISTICS	G.600–G.699
DIGITAL TERMINAL EQUIPMENTS	G.700–G.799
DIGITAL NETWORKS	G.800–G.899
DIGITAL SECTIONS AND DIGITAL LINE SYSTEM	G.900–G.999
MULTIMEDIA QUALITY OF SERVICE AND PERFORMANCE – GENERIC AND USER-RELATED ASPECTS	G.1000–G.1999
TRANSMISSION MEDIA CHARACTERISTICS	G.6000–G.6999
DATA OVER TRANSPORT – GENERIC ASPECTS	G.7000–G.7999
General	G.7000–G.7099
Transport network control aspects	G.7700–G.7799
PACKET OVER TRANSPORT ASPECTS	G.8000–G.8999
ACCESS NETWORKS	G.9000–G.9999

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

Recommendation ITU-T G.7041/Y.1303

Generic framing procedure

Amendment 3

Summary

Amendment 3 to Recommendation ITU-T G.7041/Y.1303 (2011) adds payload types and mapping descriptions associated with generic framing procedure (GFP) encapsulation of two types of synchronization messages. The first type of synchronization message is the precision time protocol (PTP) message, used to provide time and phase synchronization. The second message type is the synchronization status message (SSM), which provides information regarding the quality of the clock source being used by the SSM source.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T G.7041/Y.1303	2001-12-14	15	11.1002/1000/5644
1.1	ITU-T G.7041/Y.1303 (2001) Amd. 1	2002-06-13	15	11.1002/1000/6062
1.2	ITU-T G.7041/Y.1303 (2001) Cor. 1	2003-03-16	15	11.1002/1000/6285
1.3	ITU-T G.7041/Y.1303 (2001) Amd. 2	2003-03-16	15	11.1002/1000/6284
2.0	ITU-T G.7041/Y.1303	2003-12-14	15	11.1002/1000/7082
2.1	ITU-T G.7041/Y.1303 (2003) Amd. 1	2004-10-07	15	11.1002/1000/7352
2.2	ITU-T G.7041/Y.1303 (2003) Amd. 2	2004-06-13	15	11.1002/1000/7353
2.3	ITU-T G.7041/Y.1303 (2003) Cor. 1	2005-01-13	15	11.1002/1000/7476
2.4	ITU-T G.7041/Y.1303 (2003) Amd. 3	2005-01-13	15	11.1002/1000/7475
3.0	ITU-T G.7041/Y.1303	2005-08-22	15	11.1002/1000/8528
3.1	ITU-T G.7041/Y.1303 (2005) Amd. 1	2006-03-29	15	11.1002/1000/8769
3.2	ITU-T G.7041/Y.1303 (2005) Cor. 1	2006-12-14	15	11.1002/1000/8997
3.3	ITU-T G.7041/Y.1303 (2005) Amd. 2	2007-07-29	15	11.1002/1000/9170
4.0	ITU-T G.7041/Y.1303	2008-10-07	15	11.1002/1000/9399
4.1	ITU-T G.7041/Y.1303 (2008) Amd. 1	2009-01-13	15	11.1002/1000/9655
4.2	ITU-T G.7041/Y.1303 (2008) Amd. 2	2010-07-29	15	11.1002/1000/10893
5.0	ITU-T G.7041/Y.1303	2011-04-13	15	11.1002/1000/11133
5.1	ITU-T G.7041/Y.1303 (2011) Amd. 1	2012-02-13	15	11.1002/1000/11506
5.2	ITU-T G.7041/Y.1303 (2011) Amd. 2	2012-10-29	15	11.1002/1000/11799
5.3	ITU-T G.7041/Y.1303 (2011) Amd. 3	2015-01-13	15	11.1002/1000/12378

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). 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.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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 received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

© ITU 2015

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

Recommendation ITU-T G.7041/Y.1303

Generic framing procedure

Amendment 3

1) Clause 2, References

Add the following new references to clause 2:

[ITU-T G.781] [Recommendation ITU-T G.781 \(2008\), Synchronization layer functions.](#)

[ITU-T G.8275.1] [Recommendation ITU-T G.8275.1 \(2014\), Precision time protocol telecom profile for phase/time synchronization with full timing support from the network.](#)

2) Clause 4, Abbreviations and acronyms

Add the following acronym definitions to clause 4:

PTP Precision Time Protocol

SSM Synchronization Status Message

3) Clause 6.1.3.1, Client data frames

Add two new PTI definitions to Table 6-3 as follows:

Table 6-3 – User payload identifiers for GFP client frames

PTI = 000 and 101 (See Notes 2 and 3)	
Type bits <7:0>	GFP frame payload area
	.
	.
	.
0001 0110	Precision time protocol (PTP) message
0001 0111	Synchronization status message
0001 0110 0001 1000 through 1110 1111	Reserved for future standardization
	.
	.
	.

4) Add new clause

Add new clause 7.10 as follows:

7.10 Precision time protocol

The precision time protocol (PTP) uses packets to communicate highly accurate frequency, phase and time-of-day information. PTP messages are encapsulated in GFP-F frames as illustrated in Figure 7-13. The content of the PTP common message header and message fields are defined in [ITU-T G.8275.1]. The types of PTP messages used for a given application are defined in the Recommendation associated with that application.

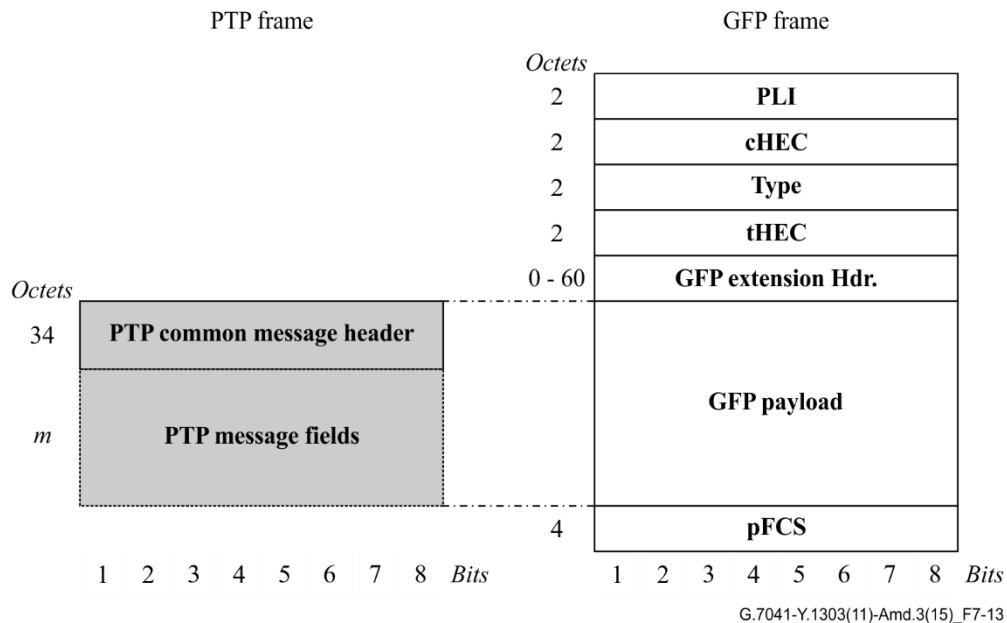


Figure 7-13 – PTP message mapping into GFP-F

5) Add new clause

Add new clause 7.11 as follows:

7.11 Synchronization status messages

A synchronization status message (SSM) provides information regarding the quality of the clock source being used by the SSM source. An SSM is encapsulated in GFP-F frames as illustrated in Figure 7-14. The contents of the SSM are defined in [ITU-T G.781].

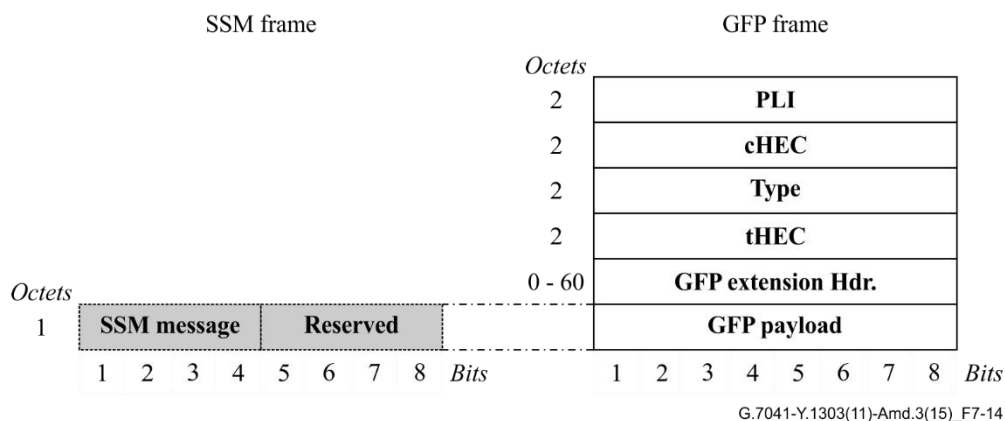


Figure 7-14 – SSM mapping into GFP-F

ITU-T Y-SERIES RECOMMENDATIONS
**GLOBAL INFORMATION INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS AND NEXT-
GENERATION NETWORKS**

GLOBAL INFORMATION INFRASTRUCTURE	
General	Y.100–Y.199
Services, applications and middleware	Y.200–Y.299
Network aspects	Y.300–Y.399
Interfaces and protocols	Y.400–Y.499
Numbering, addressing and naming	Y.500–Y.599
Operation, administration and maintenance	Y.600–Y.699
Security	Y.700–Y.799
Performances	Y.800–Y.899
INTERNET PROTOCOL ASPECTS	
General	Y.1000–Y.1099
Services and applications	Y.1100–Y.1199
Architecture, access, network capabilities and resource management	Y.1200–Y.1299
Transport	Y.1300–Y.1399
Interworking	Y.1400–Y.1499
Quality of service and network performance	Y.1500–Y.1599
Signalling	Y.1600–Y.1699
Operation, administration and maintenance	Y.1700–Y.1799
Charging	Y.1800–Y.1899
IPTV over NGN	Y.1900–Y.1999
NEXT GENERATION NETWORKS	
Frameworks and functional architecture models	Y.2000–Y.2099
Quality of Service and performance	Y.2100–Y.2199
Service aspects: Service capabilities and service architecture	Y.2200–Y.2249
Service aspects: Interoperability of services and networks in NGN	Y.2250–Y.2299
Enhancements to NGN	Y.2300–Y.2399
Network management	Y.2400–Y.2499
Network control architectures and protocols	Y.2500–Y.2599
Packet-based Networks	Y.2600–Y.2699
Security	Y.2700–Y.2799
Generalized mobility	Y.2800–Y.2899
Carrier grade open environment	Y.2900–Y.2999
FUTURE NETWORKS	Y.3000–Y.3499
CLOUD COMPUTING	Y.3500–Y.3999

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

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	Telecommunication management, including TMN and network maintenance
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Terminals and subjective and objective assessment methods
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks, open system communications and security
Series Y	Global information infrastructure, Internet protocol aspects and next-generation networks
Series Z	Languages and general software aspects for telecommunication systems