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ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.806

Amendment 1
(06/2004)

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

Digital networks – General aspects

Characteristics of transport equipment – Description methodology and generic functionality

Amendment 1

ITU-T Recommendation G.806 (2004) – Amendment 1

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
TESTING EQUIPMENTS	G.500–G.599
TRANSMISSION MEDIA CHARACTERISTICS	G.600–G.699
DIGITAL TERMINAL EQUIPMENTS	G.700–G.799
DIGITAL NETWORKS	G.800–G.899
General aspects	**G.800–G.809**
Design objectives for digital networks	G.810–G.819
Quality and availability targets	G.820–G.829
Network capabilities and functions	G.830–G.839
SDH network characteristics	G.840–G.849
Management of transport network	G.850–G.859
SDH radio and satellite systems integration	G.860–G.869
Optical transport networks	G.870–G.879
DIGITAL SECTIONS AND DIGITAL LINE SYSTEM	G.900–G.999
QUALITY OF SERVICE AND PERFORMANCE - GENERIC AND USER-RELATED ASPECTS	G.1000–G.1999
TRANSMISSION MEDIA CHARACTERISTICS	G.6000–G.6999
DIGITAL TERMINAL EQUIPMENTS	G.7000–G.7999
DIGITAL NETWORKS	G.8000–G.8999

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

ITU-T Recommendation G.806

Characteristics of transport equipment – Description methodology and generic functionality

Amendment 1

Summary

This amendment contains editorial and technical additions to the 02/2004 edition of ITU-T Rec. G.806.

Source

Amendment 1 to ITU-T Recommendation G.806 (2004) was approved on 13 June 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.

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.

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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.806

Characteristics of transport equipment – Description methodology and generic functionality

Amendment 1

1) Introduction

This amendment contains editorial and technical additions to the 02/2004 edition of ITU-T Rec. G.806.

2) Clause 6.2.3.1.1

Replace Table 6-6 as follows:

Table 6-6/G.806 – Clearing time requirements

Detector threshold	Set/Clear values associated with detector threshold	STM-N Multiplex section VC-4-Xc VC-4 VC-3	VC-2 VC-12 VC-11
10^{-3}	$10^{-3}/10^{-4}$	10 ms	40 ms
10^{-4}	$10^{-4}/10^{-5}$	100 ms	400 ms
10^{-5}	$10^{-5}/10^{-6}$	1 s	4 s
10^{-6}	$10^{-6}/10^{-7}$	10 s	40 s
10^{-7}	$10^{-7}/10^{-8}$	100 s	400 s
10^{-8}	$10^{-8}/10^{-9}$	1000 s	4000 s
10^{-9}	$10^{-9}/10^{-10}$	10 000 s	
NOTE – The values in this table for the clearing times are upper bounds. For STM-N and VC-4-Xc it is possible to reduce the maximum clearing times in column 3 by a factor between 1 and N (for STM-N multiplex section) or between 1 and X (for VC-4-Xc), respectively (but note that clearing times below 10 ms are not recommended).			

3) Clause 8.5.4.1.1

Replace Figure 8-15 as follows:

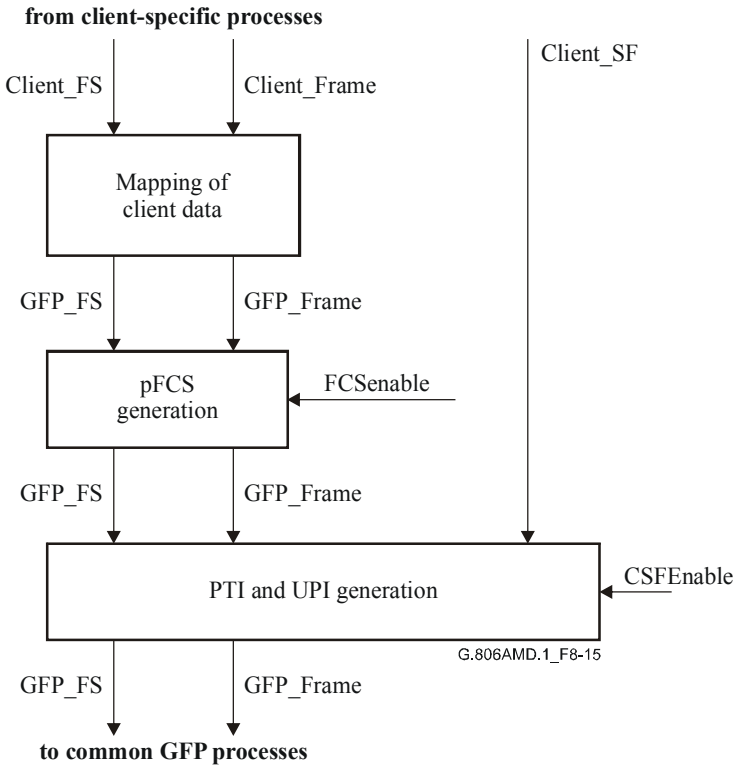

Figure 8-15/G.806 – Client-specific GFP-F source processes

*Replace the "***PTI and UPI generation***" process with the following:*

PTI and UPI generation: The PTI field of the GFP type header of an incoming GFP client data frame is set to "000". The UPI field of the GFP data frame type header is set according to the specific client signal and mapping. The UPI codes are defined in Table 6-3/G.7041/Y.1303.

In the case where Client_SF and CSFEnable are true, GFP client management frames are inserted instead of GFP client data frames. The PTI field of the GFP type header of the GFP client management frame is set to "100". The UPI field is set to "0000 0010". These UPI codes are defined in Table 6-4/G.7041/Y.1303. These GFP client management frames have no payload information field. They are generated as defined in 6.3.3/G.7041/Y.1303.

4) Clause 8.5.4.1.2

Replace Figure 8-16 as follows:

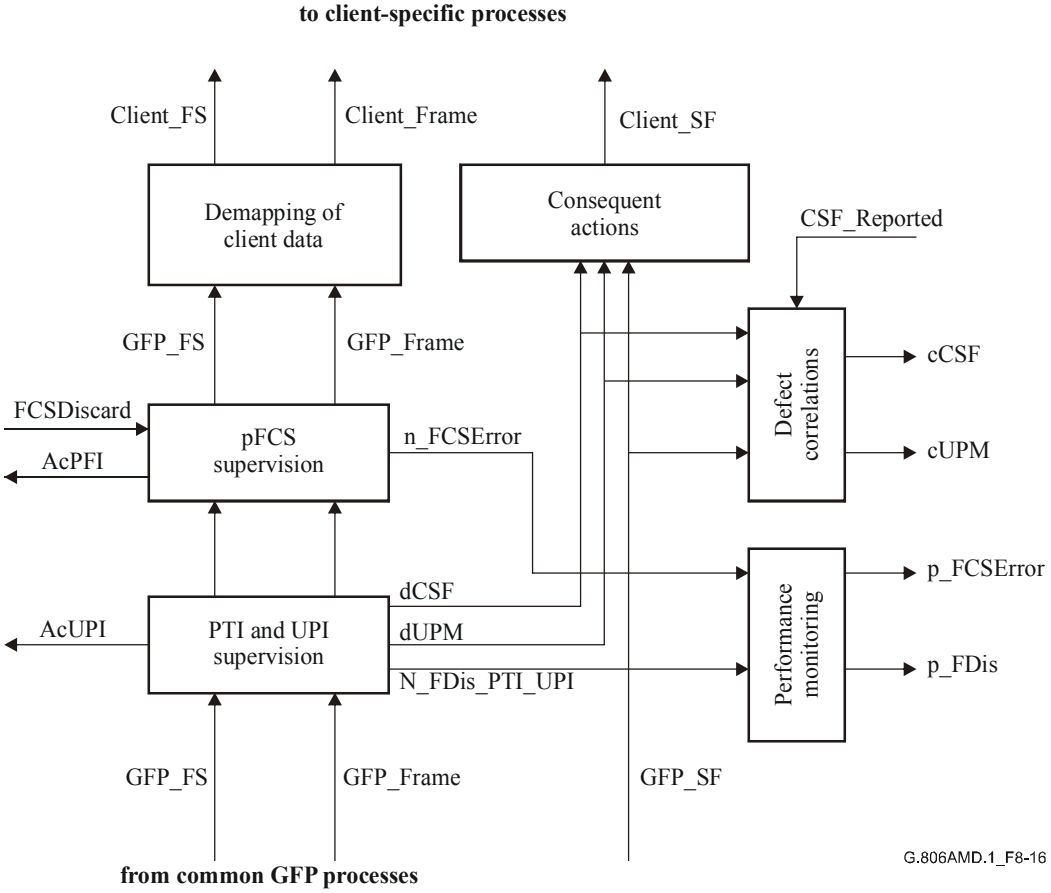

Figure 8-16/G.806 – Client-specific GFP-F sink processes

*Replace the second paragraph of the "***PTI and UPI supervision***" process*

"GFP frames with an accepted PTI (AcPTI, see 8.5.1.1) value of "100" are Client Management Frames (CMF). Received CMFs are forwarded to the application-specific CMF processing function. Application specific CMF processes are currently not defined for GFP-F, they are for further study."

with:

GFP frames with an accepted PTI (AcPTI, see 8.5.1.1) value of "100" are Client Management Frames (CMF). Received CMFs are checked for a UPI value of "0000 0010" for the dCSF defect detection and then discarded.

*Replace the "***Demapping of client data process***" as follows:*

Demapping of client data: The client data frame is extracted from the client payload information field of the GFP frame. One GFP frame results in one client frame. The mapping for the different client signals is defined in 7/G.7041/Y.1303.

*Add the following defect to the "***Defects***" process after the* **dUPM** *defect:*

dCSF: see 6.2.6.4

*Replace the "***Consequent Actions***"*

aClient_SF ← GFP_SF or dUPM

with:

aClient_SF ← GFP_SF or dUPM or dCSF

*Add the following defect correlation in the "***Defect correlations***" process after the* cUPM *defect correlation:*

cCSF ← dCSF and (not dUPM) and (not GFP_SF) and CSF_Reported

5) Clause 10.1.1.2

*Add the following notes at the end of the "***Received RI selection***" description before the "***Defects***" description and renumber accordingly:*

NOTE 12 – The purpose of the buffer is to provide the last-known received MST/RS_Ack to the source in the absence of any better information (e.g., in case all the members in the received direction have failed). This mechanism allows the source to continue to transmit without interruption during transient failures affecting the complete set of received path signal(s).

NOTE 13 – The buffer is set to the initial status at the startup of the adaptation function operation.

6) Clause VII.2.1

Replace the second paragraph

"These three steps can be taken in any order. This scenario will illustrate the order as mentioned above."

with:

These three steps can be taken in any order and the operation will be hitless for the client signal, irrespective of the order. This scenario will illustrate the order as mentioned above.

7) Clause VII.2.2

Replace the first paragraph

"In order to add a member, three items need to be provisioned: the source and the sink MI_ProvM and the path connectivity in between. These three operations can be done in any order."

with:

In order to add a member, three items need to be provisioned: the source and the sink MI_ProvM and the path connectivity inbetween. These three operations can be done in any order and the operation will be hitless for the client signal, irrespective of the order.

8) Clause VII.2.3

Replace the first paragraph of this clause as follows:

In order to delete a member, three items need to be provisioned: the source and the sink MI_ProvM and the path connectivity inbetween. These three operations can be done in any order, but only the removal of the member at the source end first will be hitless to the client signal. Both the taking down of the connection for the member, and the removal of the member at the sink end first will result in a temporary disruption of the client signal until the resulting MST=FAIL status for the member reaches the source end, and the member is removed from the active multiplex there (and CTRL=DNU is inserted). The subsequent removal of the member at the source will have no effect on the client signal.

9) New Appendix VIII

Add the following new Appendix VIII:

Appendix VIII

Consequent actions for signals with no AIS/FDI defined

In transport networks in the case of server layer defects, normally an AIS/FDI is generated for the downstream client signal at the Server/Client adaptation sink function. The AIS/FDI signal is an indication to the downstream network elements that the Client signal is missing due to a server layer defect. AIS/FDI suppresses downstream alarms and initiates protection/restoration actions at the client layer, if applicable.

Some client signals may not have an AIS/FDI signal defined due to various reasons (e.g., not needed in the original application of the client signal, the signal was originally at the bottom of the layer stack and it was not expected to be transported over a server layer).

In the case where no client signal AIS/FDI is available, but a downstream indication of the defect condition is needed (e.g., to trigger protection switching) the following actions can be considered at the output port for the client signal:

- Turn off the output transmitting device;
- Insert Error code (e.g., /V/, 10B_ERR for 1 GbE).

These actions are only possible in the case where a single instance of a client signal is transported over the output port, as all the client signal instances at the output port are affected by such actions. Note that these actions will result in server layer defects at the downstream input port which may lead to the wrong assumption that the server layer trail has a problem, which is not the case (see Figure VIII.1).

Other options are:

- Insert signal fail message (if defined for that particular client signal and a client management channel exists between the network elements, e.g., CSF in GFP).
- No action.

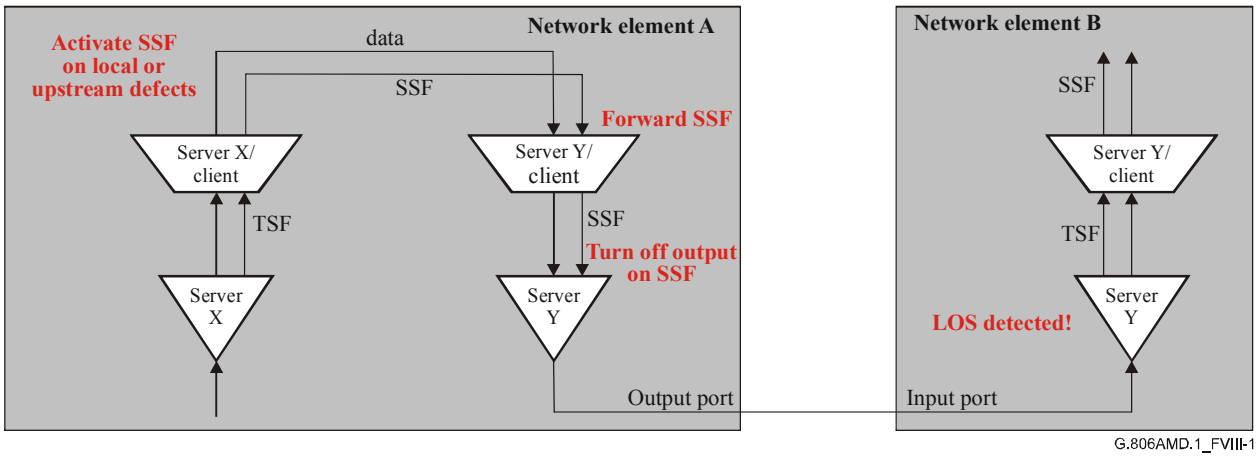

Figure VIII.1/G.806 – Example of "turn off output" action

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Series A	Organization of the work of ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
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	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
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