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G.997.1

Amendment 1
(12/2003)

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

Digital sections and digital line system – Access networks

Physical layer management for digital subscriber line (DSL) transceivers

Amendment 1

ITU-T Recommendation G.997.1 (2003) – Amendment 1

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ITU-T Recommendation G.997.1

Physical layer management for digital subscriber line (DSL) transceivers

Amendment 1

Summary

This contribution contains Amendment 1 to ITU-T Rec. G.997.1.

This amendment contains:

– New bits in ATSE for support of new annexes of ITU-T Recs G.992.3 and G.992.5.

– New parameter for forcing a cold start in the context of automoding.

– Change to definition of MAXNOMPSD parameters to support different values per mode.

– Change and new parameters for support of L2 mode.

– New parameter to indicate the selection of upstream mask in ITU-T Recs G.992.3 and G.992.5 Annexes J and M.

Source

Amendment 1 to ITU-T Recommendation G.997.1 (2003) was approved on 14 December 2003 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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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, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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ITU-T Recommendation G.997.1

Physical layer management for digital subscriber line (DSL) transceivers

Amendment 1

1) Support of new working modes G.992.x in ATSE

Modify the representation of reserved bits in octets 5 and 7 of 7.3.1.1.1 as follows:

Octet 5

33 G.992.4 All Digital Mode operation with non-overlapped spectrum (Annex I/G.992.4).

34 G.992.4 All Digital Mode operation with overlapped spectrum (Annex I/G.992.4).

35 G.992.3 Reach Extended operation over POTS, Mode 1 (non-overlapped, wide upstream) (Annex L/G.992.3)~~Reserved~~.

36 G.992.3 Reach Extended operation over POTS, Mode 2 (non-overlapped, narrow upstream) (Annex L/G.992.3)~~Reserved~~.

37 G.992.3 Reach Extended operation over POTS, Mode 3 (overlapped, wide upstream) (Annex L/G.992.3)~~Reserved~~.

38 G.992.3 Reach Extended operation over POTS, Mode 4 (overlapped, narrow upstream) (Annex L/G.992.3)~~Reserved~~.

39 ~~Reserved.~~G.992.3 Extended upstream operation over POTS non-overlapped spectrum (Annex M/G.992.3).

40 G.992.3 Extended upstream operation over POTS overlapped spectrum (Annex M/G.992.3)~~Reserved~~.

Octet 7

49 G.992.5 All Digital Mode operation with non-overlapped spectrum (Annex J/G.992.5).~~Reserved~~

50 G.992.5 All Digital Mode operation with overlapped spectrum (Annex J/G.992.5).~~Reserved~~

51 G.992.5 Extended upstream operation over POTS non-overlapped spectrum (Annex M/G.992.5).~~Reserved~~

52 G.992.5 Extended upstream operation over POTS overlapped spectrum (Annex M/G.992.5).~~Reserved~~

53 Reserved.

54 Reserved.

55 Reserved.

56 Reserved.

NOTE – It is recommended that the bit 1 be used for the ANSI T1.413-1998 Standard. It is recommended that the bit 2 be used for the Annex C of TS 101 388 v1.3.1.

2) Automode cold start forced parameter

Add a new clause 7.3.1.1.10 with the following text:

7.3.1.1.10 Automode Cold Start Forced

This parameter is defined in order to improve testing of the performance of ATUs supporting automode when it is enabled in the MIB. The valid values are 0 and 1. A change in value of this parameter indicates a change in loop conditions applied to the devices under test. The ATUs shall

reset any historical information used for automode and for shortening G.994.1 handshake and initialization.

Automode is defined as the case where multiple operation-modes are enabled in the MIB in the G.997.1 "ATU Transmission System Enabling (ATSE)" table and where the selection of the operation-mode to be used for transmission does not only depend on the common capabilities of both ATUs (as exchanged in G.994.1), but depends also on achievable data rates under given loop conditions.

This parameter is mandatory at the Q interface for modems supporting automode.

3) Change to MAXNOMPSDds/MAXNOMPSDus definition

Change clauses 7.3.1.2.1 and 7.3.1.2.2 to:

7.3.1.2.1 Downstream Maximum Nominal Power Spectral Density (MAXNOMPSDds)

This parameter represents the maximum nominal transmit PSD in the downstream direction during initialization and showtime (in dBm/Hz). A single MAXNOMPSDds parameter is defined per mode enabled in the ATSE line configuration parameter. It ranges from –60 to ~~–40~~ –30 dBm/Hz, with 0.1 dB steps.

7.3.1.2.2 Upstream Maximum Nominal Power Spectral Density (MAXNOMPSDus)

This parameter represents the maximum nominal transmit PSD in the upstream direction during initialization and showtime (in dBm/Hz). A single MAXNOMPSDus parameter is defined per mode enabled in the ATSE line configuration parameter. It ranges from –60 to ~~–38~~ –30 dBm/Hz, with 0.1 dB steps.

4) Definition of L2 parameters

Change clause 7.3.1.1.7 to:

7.3.1.1.7 Maximum aggregate transmit power reduction per L2 request or L2 trim (L2-ATPR)

This parameter represents the maximum aggregate transmit power reduction (in dB) that can be performed in the L2 Request (i.e., at transition of L0 to L2 state) or through a single Power Trim in the L2 state. It ranges from 0 dB to 31 dB.

Add a new clause 7.3.1.1.9 with the following text:

7.3.1.1.9 Total maximum aggregate transmit power reduction in L2 (L2-ATPRT)

This parameter represents the total maximum aggregate transmit power reduction (in dB) that can be performed in an L2 state. This is the sum of all reductions of L2 Request (i.e., at transition of L0 to L2 state) and Power Trims. It ranges from 0 dB to 31 dB.

5) Upstream PSD mask selection parameter

Add a new clause 7.3.1.2.10 with the following text:

7.3.1.2.10 Upstream PSD mask selection

This configuration parameter defines which upstream PSD mask is enabled. This parameter is used only for Annexes J and M of ITU-T Recs G.992.3 and G.992.5. As only one selection parameter is defined in the MIB, the same selection value applies to all relevant modes enabled in the ATSE line configuration parameter. It ranges from 1 to 9 and selects the mask with the following definition.

Upstream PSD mask selection value	Selected mask	
	Annex J of G.992.3 and G.992.5	Annex M of G.992.3 and G.992.5
1	ADLU-32	EU-32
2	ADLU-36	EU-36
3	ADLU-40	EU-40
4	ADLU-44	EU-44
5	ADLU-48	EU-48
6	ADLU-52	EU-52
7	ADLU-56	EU-56
8	ADLU-60	EU-60
9	ADLU-64	EU-64

6) Update to paramater tables

Add the following rows in Table 7-9/G.997.1:

Category/Element	Defined in:	Q-Interface	U-C Interface	U-R Interface	T-/S-Interface
Line/ATU State					
ATU Transmission System Enabling (ATSE)	7.3.1.1.1	R/W (M)			R(O)
ATU Impedance State Forced (AISF)	7.3.1.1.2				R/W (M)
Power Management State Forced (PMSF)	7.3.1.1.3	R/W (M)			R/W (M)
Power Management State Enabling (PMMode)	7.3.1.1.4	R/W (M)			
L0-TIME	7.3.1.1.5	R/W (M)	R (O)		
L2-TIME	7.3.1.1.6	R/W (M)	R (O)		
L2-ATPR	7.3.1.1.7	R/W (M)	R (O)		
L2-ATPRT	7.3.1.1.9	R/W (M)	R (O)		
Loop Diagnostics Mode Forced	7.3.1.1.8	R/W (M)			R/W (M)
Automode Cold Start Forced	7.3.1.1.10	R/W (M)			R/W (O)
Power and Spectrum Usage					
MAXNOMPSD downstream	7.3.1.2.1	R/W (M)	R (O)		
MAXNOMPSD upstream	7.3.1.2.2	R/W (M)	R (O)		
MAXNOMATP downstream	7.3.1.2.3	R/W (M)	R (O)		
MAXNOMATP upstream	7.3.1.2.4	R/W (M)	R (O)		
MAXRXPWR upstream	7.3.1.2.5	R/W (M)	R (O)		
CARMASK downstream	7.3.1.2.6	R/W (M)	R (O)		
CARMASK upstream	7.3.1.2.7	R/W (M)	R (O)		
PSDMASK downstream	7.3.1.2.8	R/W(M)	R (O)		
RFIBANDS downstream	7.3.1.2.9	R/W(M)	R (O)		
Upstream PSD mask selection	7.3.1.2.10	R/W(M)	R (O)		

Add the following rows in Table 7-10/G.997.1:

Category/Element	G.992.1	G.992.2	G.992.3	G.992.4	G.992.5
Line/ATU State					
ATU Transmission System Enabling (ATSE)	Y	Y	Y	Y	Y
ATU Impedance State Forced (AISF)			Y (Annex A)	Y (Annex A)	Y (Annex A)
Power Management State Forced (PMSF)	Y	Y	Y	Y	Y
Power Management State Enabling (PMMode)	Y	Y	Y	Y	Y
L0-TIME			Y	Y	Y
L2-TIME			Y	Y	Y
L2-ATPR			Y	Y	Y
L2-ATPRT			Y	Y	Y
Loop Diagnostics Mode Forced			Y	Y	Y
Automode Cold Start Forced			Y	Y	Y
Power and Spectrum Usage					
MAXNOMPSD downstream			Y	Y	Y
MAXNOMPSD upstream			Y	Y	Y
MAXNOMATP downstream			Y	Y	Y
MAXNOMATP upstream			Y	Y	Y
MAXRXPWR upstream			Y	Y	Y
CARMASK downstream			Y	Y	Y
CARMASK upstream			Y	Y	Y
PSDMASK downstream					Y
RFIBANDS downstream					Y
Upstream PSD mask selection			Y		Y

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