TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU

G.994.1 Amendment 3 (01/2005)

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

Digital sections and digital line system – Access networks

Handshake procedures for digital subscriber line (DSL) transceivers

Amendment 3: New codepoints

ITU-T Recommendation G.994.1 (2003) - Amendment 3

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ITU-T Recommendation G.994.1

Handshake procedures for digital subscriber line (DSL) transceivers

Amendment 3: New codepoints

Summary

This amendment adds the following functionality:

- Parameters to support the revision of G.991.2:
 - Annexes A and B PBO (power back-off);
 - new Annex G.
- Parameters to support the revision of G.992.3 Annexes J and M for upstream spectrum shaping.
- Parameters to support G.992.3 Annex C.B.

Source

Amendment 3 to ITU-T Recommendation G.994.1 (2003) was approved on 13 January 2005 by ITU-T Study Group 15 (2005-2008) under the ITU-T Recommendation A.8 procedure.

FOREWORD

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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.

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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.994.1

Handshake procedures for digital subscriber line (DSL) transceivers

Amendment 3: New codepoints

1) To support G.991.2 Annexes A/B power back-off, modify the following tables as shown with revision marks:

Table 11.16.1/G.994.1 – Standard information field – G.991.2 Annex A Downstream training parameters – NPar(3) coding – Octet 1

				Bi	ts				C 001.2 Annoy A downstream training NPay(2)s Octot 1
	8	7	6	5	4	3	2	1	G.991.2 Annex A downstream training NPar(3)s – Octet 1
_	х	х	0	х	х	х	х	х	PBO-1: Downstream PBO (dB) (bits 5-1 × 1.0 dB)
	x	x	1	х	x	х	х	x	Reserved for allocation by ITU-T

Table 11.16.2/G.994.1 – Standard information field – G.991.2 Annex A Upstream training parameters – NPar(3) coding – Octet 1

			Bi	ts				C 001.2 A many A mantanage training NDay(2) a Octob 1
8	7	6	5	4	3	2	1	G.991.2 Annex A upstream training NPar(3)s – Octet 1
х	х	0	х	х	х	х	x	PBO-1: Upstream PBO (dB) (bits 5-1 × 1.0 dB)
х	х	1	х	х	х	х	x	Reserved for allocation by ITU-T

Table 11.16.3/G.994.1 – Standard information field – G.991.2 Annex A Downstream PMMS parameters – NPar(3) coding – Octet 1

			Bi	ts				C 001.2 Annoy A downstream DMMS NDov(2) a Octot 1
8	7	6	5	4	3	2	1	G.991.2 Annex A downstream PMMS NPar(3)s – Octet 1
 х	х	0	х	х	х	х	х	<u>PBO-1</u> : Downstream PBO (dB) (bits $5-1 \times 1.0 \text{ dB}$)
x	x	1	х	х	х	x	x	Reserved for allocation by ITU-T

Table 11.16.4/G.994.1 – Standard information field – G.991.2 Annex A Upstream PMMS parameters – NPar(3) coding – Octet 1

			Bi					C 001.2 Anney A Unetween DMMS NDoy(2)s Octot 1
8	7	6	5	4	3	2	1	G.991.2 Annex A Upstream PMMS NPar(3)s – Octet 1
х	х	0	х	х	х	х	х	<u>PBO-1</u> : Upstream PBO (dB) (bits $5-1 \times 1.0$ dB)
х	x	1	х	х	х	х	x	Reserved for allocation by ITU-T

Table 11.18.1/G.994.1 – Standard information field – G.991.2 Annex B Downstream training parameters – NPar(3) coding – Octet 1

			Bi	ts				C 001.2 Annay P daymetraam training NPay(2)s Octot 1
8	7	6	5	4	3	2	1	G.991.2 Annex B downstream training NPar(3)s – Octet 1
х	х	0	х	х	х	х	х	<u>PBO-1</u> : Downstream PBO (dB) (bits $5-1 \times 1.0 \text{ dB}$)
х	х	1	х	х	х	х	x	Reserved for allocation by ITU-T

Table 11.18.2/G.994.1 – Standard information field – G.991.2 Annex B Upstream training parameters – NPar(3) coding – Octet 1

			Bi	its				C 001.2 A many B masture and training NB and 2 c Octob 1
8	7	6	5	4	3	2	1	G.991.2 Annex B upstream training NPar(3)s – Octet 1
х	х	0	х	х	х	х	x	<u>PBO-1</u> : Upstream PBO (dB) (bits $5-1 \times 1.0$ dB)
х	x	1	х	х	х	х	x	Reserved for allocation by ITU-T

Table 11.18.3/G.994.1 – Standard information field – G.991.2 Annex B Downstream PMMS parameters – NPar(3) coding – Octet 1

			Bi	ts				C 001.2 Anney D daymetreem DMMS NDer/2\s. Octot 1
8	7	6	5	4	3	2	1	G.991.2 Annex B downstream PMMS NPar(3)s – Octet 1
х	х	0	х	х	х	х	х	<u>PBO-1</u> : Downstream PBO (dB) (bits $5-1 \times 1.0 \text{ dB}$)
х	х	1	х	х	х	х	х	Reserved for allocation by ITU-T

Table 11.18.4/G.994.1 – Standard information field – G.991.2 Annex B Upstream PMMS parameters – NPar(3) coding – Octet 1

			Bi	ts				C 001 2 A P PMMC ND (2) O 1
8	7	6	5	4	3	2	1	G.991.2 Annex B upstream PMMS NPar(3)s – Octet 1
х	х	0	х	х	х	х	х	<u>PBO-1</u> : Upstream PBO (dB) (bits $5-1 \times 1.0$ dB)
х	х	1	х	х	х	х	x	Reserved for allocation by ITU-T

2) To support G.991.2 Annexes A/B power back-off, add the following new tables:

Table 11.16.1.10/G.994.1 – Standard information field – G.991.2 Annex A Downstream training parameters – NPar(3) coding – Octet 11

			Bi	ts				C 001.2 A many A daywardana an Ausining NBau(2) a Octob 11
8	7	6	5	4	3	2	1	G.991.2 Annex A downstream training NPar(3)s – Octet 11
х	х	0	х	х	х	х	х	PBO-2 (4-wire/m-pair): Downstream PBO (dB) (bits 5-1 × 1.0 dB)
x	х	1	х	х	х	х	x	Reserved for allocation by ITU-T

Table 11.16.2.10/G.994.1 – Standard information field – G.991.2 Annex A Upstream training parameters – NPar(3) coding – Octet 11

				Bi					G.991.2 Annex A upstream training NPar(3)s – Octet 11
	8	7	6	5	4	3	2	1	G.991.2 Annex A upstream training NFar(5)s – Octet 11
	x	х	0	х	х	х	х	х	PBO-2 (4-wire/m-pair): Upstream PBO (dB) (bits 5-1 × 1.0 dB)
:	x	x	1	х	x	x	х	x	Reserved for allocation by ITU-T

Table 11.16.3.14/G.994.1 – Standard information field – G.991.2 Annex A Downstream PMMS parameters – NPar(3) coding – Octet 15

			Bi					C 001.2 Annoy A downstream DMMS NDoy(2)s Octot 15
8	7	6	5	4	3	2	1	G.991.2 Annex A downstream PMMS NPar(3)s – Octet 15
х	х	0	х	х	х	х	х	PBO-2 (4-wire/m-pair): Downstream PBO (dB) (bits 5-1 × 1.0 dB)
х	x	1	x	x	х	х	х	Reserved for allocation by ITU-T

Table 11.16.4.14/G.994.1 – Standard information field – G.991.2 Annex A Upstream PMMS parameters – NPar(3) coding – Octet 15

			Bi					G.991.2 Annex A upstream PMMS NPar(3)s – Octet 15
8	7	6	5	4	3	2	1	1 — G. 551.2 Annex A upstream I whyts W ar(5)s – Octet 13
х	х	0	х	х	х	х	х	PBO-2 (4-wire/m-pair): Upstream PBO (dB) (bits 5-1 × 1.0 dB)
х	x	1	x	x	х	х	х	Reserved for allocation by ITU-T

Table 11.18.1.10/G.994.1 – Standard information field – G.991.2 Annex B Downstream training parameters – NPar(3) coding – Octet 11

				Bi	ts				C 001.2 Annoy P downstroom training NPau(2)s Octot 11
	8	7	6	5	4	3	2	1	G.991.2 Annex B downstream training NPar(3)s – Octet 11
-	х	х	0	х	х	х	х	х	PBO-2 (4-wire/m-pair): Downstream PBO (dB) (bits 5-1 × 1.0 dB)
	х	х	1	х	х	х	х	х	Reserved for allocation by ITU-T

Table 11.18.2.10/G.994.1 – Standard information field – G.991.2 Annex B Upstream training parameters – NPar(3) coding – Octet 11

			Bi	ts				C 001 2 Annoy P unstream training NPay(2)s Octot 11
8	7	6	5	4	3	2	1	G.991.2 Annex B upstream training NPar(3)s – Octet 11
Х	х	0	х	х	х	х	х	PBO-2 (4-wire/m-pair): Upstream PBO (dB) (bits 5-1 × 1.0 dB)
x	х	1	х	х	х	х	x	Reserved for allocation by ITU-T

Table 11.18.3.14/G.994.1 – Standard information field – G.991.2 Annex B Downstream PMMS parameters – NPar(3) coding – Octet 15

			Bi	ts				G.991.2 Annex B downstream PMMS NPar(3)s – Octet 15
8	7	6	5	4	3	2	1	G.771.2 Annex D downstream I wivis IVF ar (3)s - Octet 15
х	х	0	Х	х	х	х	х	PBO-2 (4-wire/m-pair): Downstream PBO (dB) (bits 5-1 × 1.0 dB)
х	х	1	х	х	х	х	x	Reserved for allocation by ITU-T

Table 11.18.4.14/G.994.1 – Standard information field – G.991.2 Annex B Upstream PMMS parameters – NPar(3) coding – Octet 15

			Bi	ts				G.991.2 Annex B upstream PMMS NPar(3)s – Octet 15
8	7	6	5	4	3	2	1	
х	х	0	х	х	х	х	х	PBO-2 (4-wire/m-pair): Upstream PBO (dB) (bits 5-1 × 1.0 dB)
х	х	1	х	х	х	х	х	Reserved for allocation by ITU-T

Table 11.0.1/G.994.1 – Standard information field – SPar(1) coding – Octet 2

	x x x x x x x x x x x x x x x x x x x							SPay(1) a Oatot 2
8	7	6	5	4	3	2	1	SPar(1)s – Octet 2
х	х	х	х	х	х	х	1	G.991.2 – Annexes A/F
х	x	х	х	х	х	1	х	G.991.2 – Annexes B <u>/G</u>
x	х	х	х	х	1	х	x	Committee T1* MCM VDSL (Note 1)
х	х	х	х	1	х	х	х	Committee T1 SCM VDSL (Note 2)
x	х	х	1	x	х	х	х	ETSI MCM VDSL (Note 3)
x	х	1	х	х	х	х	х	ETSI SCM VDSL (Note 3)
х	1	х	х	х	х	х	х	Committee T1 enhanced SHDSL
х	0	0	0	0	0	0	0	No parameters in this octet

NOTE 1 – Use of this bit is defined in "Draft Trial-Use Standard For Telecommunication – Interface Between Networks and Customer Installation – Very High Bit-rate Digital Subscriber Line (VDSL) Metallic Interface – Part 3: Technical Specification for Multi-Carrier Modulation (MCM) Transceivers".

NOTE 2 – Use of this bit is defined in "Draft Trial-Use Standard For Telecommunication – Interface Between Networks and Customer Installation – Very High Bit-rate Digital Subscriber Line (VDSL) Metallic Interface – Part 2: Technical Specification for Single-Carrier Modulation (SCM) Transceivers".

NOTE 3 – Use of this bit is defined in ETSI TS 101270-2.

Table 11.18.0.1/G.994.1 – Standard information field – G.991.2 Annex B – SPar(2) coding – Octet 2

				Bi	Bits 5 4 3 2 1 x x x x 1 x x x 1 x x x 1 x x x 1 x x x x x x x x x x x x x x x x x x				C 001 2 Armor B CDov(2) a Cotot 2
8	7	7	6	5	4	3	2	1	G.991.2 Annex B SPar(2)s – Octet 2
х	2	ζ.	х	х	х	х	х	1	Upstream framing parameters
х	: >	ς.	х	x	х	х	1	х	Dual-Mode TPS-TC Parameters
х	2	ĸ	х	х	х	1	х	х	Multiple-Pair Operation parameters
х	2 3	C	x	x	1	х	x	х	<u>Downstream extended training rates – 16-TCPAM symmetric (Annex G)</u> Reserved for allocation by ITU T
х	2 3	C	x	1	х	х	x	х	<u>Downstream extended training rates – 32-TCPAM symmetric (Annex G)</u> Reserved for allocation by ITU T
х	2 3	ĸ	1	x	х	х	x	х	<u>Upstream extended training rates – 16-TCPAM symmetric (Annex G)</u> Reserved for allocation by ITU-T
х	2	ζ.	0	0	0	0	0	0	No parameters in this octet

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^{*} T1 standards are maintained since November 2003 by ATIS.

4) To support G.991.2 Annex G, add the following new tables:

Table 11.18.0.2/G.994.1 – Standard information field – G.991.2 Annex B – SPar(2) coding – Octet 3

	x x x x x x x x 1 x x x x x 1 x x x x x					C 001.2 Annoy P CPou(2) a Octob.2		
8	7	6	5	4	3	2	1	G.991.2 Annex B SPar(2)s – Octet 3
х	х	х	х	Х	х	х	1	Upstream extended training rates – 32-TCPAM symmetric (Annex G)
х	х	x	х	х	х	1	х	Downstream extended PMMS rates (Annex G)
х	х	x	х	х	1	х	х	Upstream extended PMMS rates (Annex G)
х	х	x	х	1	х	х	х	Reserved for allocation by ITU-T
х	х	x	1	х	х	х	х	Reserved for allocation by ITU-T
х	х	1	х	х	х	х	х	Reserved for allocation by ITU-T
х	х	0	0	0	0	0	0	No parameters in this octet

Table 11.18.10/G.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet 1

			Bi	its				G.991.2 Annex G downstream extended training rate – 16-TCPAM
8	7	6	5	4	3	2	1	symmetric NPar(3)s – Octet 1
х	х						х	Downstream base data rate - Minimum 1 (bit 7), 16-TCPAM symmetric PSD
х	х					х		Downstream base data rate – Maximum 1 (bit 7), 16-TCPAM symmetric PSD
х	x				х			Downstream base data rate – Step 1 (bit 7), 16-TCPAM symmetric PSD
х	Х	х	х	х				Reserved for allocation by ITU-T

Table 11.18.10.1/G.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet 2

			Bi	its				G.991.2 Annex G downstream extended training rate – 16-TCPAM		
8	7	6	5	4	3	2	1	symmetric NPar(3)s – Octet 2		
х	х	х	х	х	х	х	Х	Downstream base data rate – Minimum 1 (bits 6-1), 16-TCPAM symmetric PSD (Note)		
NOT	Е –	The	rat	es a	re d	leter	mine	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.		

Table 11.18.10.2/G.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet 3

			Bi	its				G.991.2 Annex G downstream extended training rate – 16-TCPAM			
8	7	6	5	4	3	2	1	symmetric NPar(3)s – Octet 3			
х	х	х	х	x	х	х	х	Downstream base data rate – Maximum 1 (bits 6-1), 16-TCPAM symmetric PSD (Note)			
NOT	OTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.										

Table 11.18.10.3/G.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet 4

			Bi	its				G.991.2 Annex G downstream training rate – 16-TCPAM symmetric		
8	7	6	5	4	3	2	1	NPar(3)s – Octet 4		
х	Х	х	Х	Х	Х	х	х	Downstream base data rate – Step 1 (bits 6-1), 16-TCPAM symmetric PSD (Note)		
NOT	Е –	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.								

Table 11.18.10. $j_1 \times 4 - 4/G$.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet $j_1 \times 4 - 3$

	x x					G.991.2 Annex G downstream training rate – 16-TCPAM symmetric		
8	7	6	5	4	3	2	1	NPar(3)s – Octet $j_1 \times 4 - 3$
х	х						х	Downstream base data rate extension – Minimum j_1 (bit 7), 16-TCPAM symmetric PSD
х	х					х		Downstream base data rate extension – Maximum j_1 (bit 7), 16-TCPAM symmetric PSD
х	х				х			Downstream base data rate extension – Step j ₁ (bit 7), 16-TCPAM symmetric PSI
х	х	х	х	х				Reserved for allocation by ITU-T

Table 11.18.10. $j_1 \times 4 - 3/G$.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet $j_1 \times 4 - 2$

		_	Bi	its				G.991.2 Annex G downstream training rate – 16-TCPAM
8	7	6	5	4	3	2	1	symmetric NPar(3)s – Octet $j_1 \times 4 - 2$
Х	х	х	х	х	х	х	х	Downstream base data rate extension – Minimum j ₁ (bits 6-1), 16-TCPAM symmetric PSD (Note)
NO	ГЕ –	· Th	e rat	tes a	re c	lete	rmin	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.10. $j_1 \times 4 - 2/G$.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet $j_1 \times 4 - 1$

				Bi	its				G.991.2 Annex G downstream training rate – 16-TCPAM symmetric
	8	7	6	5	4	3	2	1	NPar(3)s – Octet $j_1 \times 4 - 1$
	х	х	х	х	х	х	х	х	Downstream base data rate extension – Maximum j_1 (bits 6-1), 16-TCPAM symmetric PSD (Note)
NC)Tl	Е —	The	e rat	es a	ire c	lete	rmine	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.10. $j_1 \times 4 - 1/G$.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet $j_1 \times 4$

			Bi	its				G.991.2 Annex G downstream training rate – 16-TCPAM symmetric
8	7	6	5	4	3	2	1	$NPar(3)s - Octet j_1 \times 4$
х	х	х	х	х	х	х	х	Downstream base data rate extension – Step j_1 (bits 6-1), 16-TCPAM symmetric PSD (Note)
NOT	Е –	The	e rat	es a	re c	lete	rmine	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.11/G.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet 1

			Bi	ts				G.991.2 Annex G downstream training rate – 32-TCPAM symmetric
8	7	6	5	4	3	2	1	NPar(3)s – Octet 1
х	Х						х	Downstream base data rate – Minimum 1 (bit 7), 32-TCPAM symmetric PSD
х	х					х		Downstream base data rate – Maximum 1 (bit 7), 32-TCPAM symmetric PSD
x	х				х			Downstream base data rate – Step 1 (bit 7), 32-TCPAM symmetric PSD
х	Х	х	Х	Х				Reserved for allocation by ITU-T

Table 11.18.11.1/G.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet 2

				Bi	its				G.991.2 Annex G downstream training rate – 32-TCPAM symmetric
	8	7	6	5	4	3	2	1	NPar(3)s – Octet 2
	х	х	х	х	х	х	х	х	Downstream base data rate – Minimum 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)
N	ОТ	E –	The	e rat	tes a	ire (lete	rmin	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.11.2/G.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet 3

			Bi	its				G.991.2 Annex G downstream training rate – 32-TCPAM
8	7	6	5	4	3	2	1	symmetric NPar(3)s – Octet 3
х	х	х	х	х	х	х	х	Downstream base data rate – Maximum 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)
NOT	E –	The	e rat	tes a	are c	lete	rmin	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.11.3/G.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet 4

				Bi	ts				G.991.2 Annex G downstream training rate – 32-TCPAM
	8	7	6	5	4	3	2	1	symmetric NPar(3)s – Octet 4
	х	х	х	х	х	х	х	х	Downstream base data rate – Step 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)
N	OT	Е —	The	e rat	es a	ire c	lete	rmin	ned by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.11. $j_2 \times 4 - 4/G$.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet $j_2 \times 4 - 3$

			Bi	its				G.991.2 Annex G downstream training rate – 32-TCPAM
8	7	6	5	4	3	2	1	symmetric NPar(3)s – Octet $j_2 \times 4 - 3$
x	х						х	Downstream base data rate extension – Minimum j_2 (bit 7), 32-TCPAM symmetric PSD
х	х					х		Downstream base data rate extension – Maximum j_2 (bit 7), 32-TCPAM symmetric PSD
х	х				х			Downstream base data rate extension – Step j ₂ (bit 7), 32-TCPAM symmetric PSD
х	х	х	х	х				Reserved for allocation by ITU-T

Table 11.18.11. $j_2 \times 4 - 3/G$.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet $j_2 \times 4 - 2$

			Bi	its				G.991.2 Annex G downstream training rate – 32-TCPAM symmetric
8	7	6	5	4	3	2	1	NPar(3)s – Octet $j_2 \times 4 - 2$
х	х	х	х	х	х	х	х	Downstream base data rate extension – Minimum j ₂ (bits 6-1), 32-TCPAM symmetric PSD (Note)
NOT	Е –	The	e rat	es a	re c	lete	rmine	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.11. $j_2 \times 4 - 2/G$.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet $j_2 \times 4 - 1$

			Bi	its				G.991.2 Annex G downstream training rate – 32-TCPAM symmetric
8	7	6	5	4	3	2	1	NPar(3)s – Octet $j_2 \times 4 - 1$
х	х	х	х	х	х	х	х	Downstream base data rate extension – Maximum j ₂ (bits 6-1), 32-TCPAM symmetric PSD (Note)
NOT	`E –	The	e rat	tes a	ire c	lete	rmin	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.11. $j_2 \times 4 - 1/G$.994.1 – Standard information field – G.991.2 Annex G Downstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet $j_2 \times 4$

						G.991.2 Annex G downstream training rate – 32-TCPAM symmetric		
8	7	6	5	4	3	2	1	NPar(3)s – Octet $j_2 \times 4$
х	х	х	х	х	х	х	Х	Downstream base data rate extension – Step j_2 (bits 6-1), 32-TCPAM symmetric PSD (Note)
TO	E –	The	e rat	tes a	ire c	lete	rmine	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.12/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet 1

	Bits								G.991.2 Annex G upstream training rate – 16-TCPAM symmetric NPar(3)s –
8	3	7	6	5	4	3	2	1	Octet 1
×	ζ	x						х	Upstream base data rate – Minimum 1 (bit 7), 16-TCPAM symmetric PSD
×	ζ	x					х		Upstream base data rate – Maximum 1 (bit 7), 16-TCPAM symmetric PSD
×	ζ	x				х			Upstream base data rate – Step 1 (bit 7), 16-TCPAM symmetric PSD
×	ζ	x	x	х	х				Reserved for allocation by ITU-T

Table 11.18.12.1/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet 2

			Bi	its				G.991.2 Annex G upstream training rate – 16-TCPAM symmetric NPar(3)s -
8	7	6	5	4	3	2	1	Octet 2
х	х	х	х	х	х	х	Х	Upstream base data rate – Minimum 1 (bits 6-1), 16-TCPAM symmetric PSD (Note)
OTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.								

Table 11.18.12.2/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet 3

			Bi	ts				G.991.2 Annex G upstream training rate – 16-TCPAM symmetric NPar(3)s –		
8	7	6	5	4	3	2	1	Octet 3		
х	х	х	х	х	х	х	х	Upstream base data rate – Maximum 1 (bits 6-1), 16-TCPAM symmetric PSD (Note)		
IOT.	OTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.									

Table 11.18.12.3/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet 4

				Bi	its				G.991.2 Annex G upstream training rate – 16-TCPAM symmetric NPar(3)s –
	8	7	6	5	4	3	2	1	Octet 4
	х	х	х	х	х	х	х	х	Upstream base data rate – Step 1 (bits 6-1), 16-TCPAM symmetric PSD (Note)
N	NOTE – The rates are determined by								ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.12. $j_3 \times 4 - 4/G$.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet $j_3 \times 4 - 3$

			Bi	its				G.991.2 Annex G upstream training rate – 16-TCPAM symmetric NPar(3)s –
8	7	6	5	4	3	2	1	Octet $j_3 \times 4 - 3$
х	х						х	Upstream base data rate extension – Minimum j ₃ (bit 7), 16-TCPAM symmetric PSD
х	х					x		Upstream base data rate extension – Maximum j_3 (bit 7), 16-TCPAM symmetric PSD
х	х				х			Upstream base data rate extension – Step j ₃ (bit 7), 16-TCPAM symmetric PSD
х	х	х	х	х				Reserved for allocation by ITU-T

Table 11.18.12. $j_3 \times 4 - 3/G$.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet $j_3 \times 4 - 2$

			Bi	its				G.991.2 Annex G upstream training rate – 16-TCPAM symmetric NPar(3)s –	
8	7	6	5	4	3	2	1	Octet $j_3 \times 4 - 2$	
х	х	х	х	х	х	х	х	Upstream base data rate extension – Minimum j ₃ (bits 6-1), 16-TCPAM symmetric PSD (Note)	
NOT	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.								

Table 11.18.12. $j_3 \times 4 - 2/G$.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet $j_3 \times 4 - 1$

			Bi	its				G.991.2 Annex G upstream training rate – 16-TCPAM symmetric NPar(3)s –		
8	7	6	5	4	3	2	1	Octet $j_3 \times 4 - 1$		
х	X	х	х	х	х	х	х	Upstream base data rate extension – Maximum j ₃ (bits 6-1), 16-TCPAM symmetric PSD (Note)		
NO	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.									

Table 11.18.12. $j_3 \times 4 - 1/G$.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 16-TCPAM symmetric – NPar(3) coding – Octet $j_3 \times 4$

				Bi	its				G.991.2 Annex G upstream training rate – 16-TCPAM symmetric NPar(3)s –	
	8	7	6	5	4	3	2	1	Octet $j_3 \times 4$	
	х	х	х	х	х	х	х	х	Upstream base data rate extension – Step j_3 (bits 6-1), 16-TCPAM symmetric PSD (Note)	
N	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.									

Table 11.18.13/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet 1

			Bi	its				G.991.2 Annex G upstream training rate – 32-TCPAM symmetric NPar(3)s –
8	7	6	5	4	3	2	1	Octet 1
х	Х						х	Upstream base data rate – Minimum 1 (bit 7), 32-TCPAM symmetric PSD
х	х					х		Upstream base data rate – Maximum 1 (bit 7), 32-TCPAM symmetric PSD
х	х				х			Upstream base data rate – Step 1 (bit 7), 32-TCPAM symmetric PSD
х	x	x	х	x				Reserved for allocation by ITU-T

Table 11.18.13.1/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet 2

			Bi	its				G.991.2 Annex G upstream training rate – 32-TCPAM symmetric NPar(3)s –	
8	7	6	5	4	3	2	1	Octet 2	
х	х	х	х	х	х	х	х	Upstream base data rate – Minimum 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)	
NOT	OTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.								

Table 11.18.13.2/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet 3

				Bi	ts				G.991.2 Annex G upstream training rate – 32-TCPAM symmetric NPar(3)s –
	8	7	6	5	4	3	2	1	Octet 3
	х	х	x	х	х	x	х	х	Upstream base data rate – Maximum 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)
NO)T	Е —	The	e rat	es a	re c	lete	rmin	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.13.3/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet 4

				Bi	ts				G.991.2 Annex G upstream training rate – 32-TCPAM symmetric NPar(3)s –
	8	7	6	5	4	3	2	1	Octet 4
	х	х	х	х	х	х	х	х	Upstream base data rate – Step 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)
N	NOTE – The rates are determined							rmin	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.13. $j_4 \times 4 - 4/G$.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet $j_4 \times 4 - 3$

			Bi	its				G.991.2 Annex G upstream training rate – 32-TCPAM symmetric NPar(3)s -
8	7	6	5	4	3	2	1	Octet $j_4 \times 4 - 3$
х	х						х	Upstream base data rate extension – Minimum j_4 (bit 7), 32-TCPAM symme PSD
х	х					х		Upstream base data rate extension – Maximum j ₄ (bit 7), 32-TCPAM symme PSD
x	х				х			Upstream base data rate extension – Step j ₄ (bit 7), 32-TCPAM symmetric PS
х	х	x	х	x				Reserved for allocation by ITU-T

Table 11.18.13. $j_4 \times 4 - 3/G$.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet $j_4 \times 4 - 2$

				Bi	its				G.991.2 Annex G upstream training rate – 32-TCPAM symmetric NPar(3)s –		
	8	7	6	5	4	3	2	1	Octet $j_4 \times 4 - 2$		
	х	х	х	х	х	х	х	х	Upstream base data rate extension – Minimum j_4 (bits 6-1), 32-TCPAM symmetric PSD (Note)		
N	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.										

Table 11.18.13.j₄ \times 4 – 2/G.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet j₄ \times 4 – 1

		_	Bi	Bits 5 4 3 2 1 x x x x x x			G.991.2 Annex G upstream training rate – 32-TCPAM symmetric NPar(3)s –	
8	7	6	5	4	3	2	1	Octet $j_4 \times 4 - 1$
х	х	х	х	х	х	х	х	Upstream base data rate extension – Maximum j ₄ (bits 6-1), 32-TCPAM symmetric PSD (Note)
NOT	Е –	The	e rat	tes a	ire c	lete	rmin	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.13. $j_4 \times 4 - 1/G$.994.1 – Standard information field – G.991.2 Annex G Upstream extended training rates – 32-TCPAM symmetric – NPar(3) coding – Octet $j_4 \times 4$

		Bits 7 6 5 4 3 2 x x x x x x x							G.991.2 Annex G upstream training rate – 32-TCPAM symmetric NPar(3)s –		
	8	7	6	5	4	3	2	1	Octet $j_4 \times 4$		
	х	х	х	х	х	х	х	х	Upstream base data rate extension – Step j_4 (bits 6-1), 32-TCPAM symmetric PSD (Note)		
No	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.										

Table 11.18.14/G.994.1 – Standard information field – G.991.2 Annex G Downstream Extended PMMS rates – NPar(3) coding – Octet 1

			Bi	its				C 001 2 Annay C daymetraam DMMS rate NDay(2)s Octat 1		
8	7	6	5	4	3	2	1	G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet 1		
x	х						х	Downstream base data rate – Minimum 1 (bit 7), 32-TCPAM symmetric PSD		
x	x					х		Downstream base data rate – Maximum 1 (bit 7), 32-TCPAM symmetric PSD		
x	x				х			Downstream base data rate – Step 1 (bit 7), 32-TCPAM symmetric PSD		
x	х	х	х	х				Reserved for use by ITU-T		

Table 11.18.14.1/G.994.1 – Standard information field – G.991.2 Annex G Downstream Extended PMMS rates – NPar(3) coding – Octet 2

		Bits 7 6 5 4 3 2 1 x x x x x x x x						G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet 2			
8	7	6	5	4	3	2	1	G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet 2			
х	х	х	х	х	х	х	х	Downstream base data rate – Minimum 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)			
NOT	OTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.										

Table 11.18.14.2/G.994.1 – Standard information field – G.991.2 Annex G Downstream Extended PMMS rates – NPar(3) coding – Octet 3

			Bits 7 6 5 4 3 2 x x x x x x x						G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet 3			
	8	7	6	5	4	3	2	1	G.991.2 Annex G downstream r wivis rate ivrar(3)s – Octet 3			
	х	х	х	х	х	х	х	х	Downstream base data rate – Maximum 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)			
N	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.											

Table 11.18.14.3/G.994.1 – Standard information field – G.991.2 Annex G Downstream Extended PMMS rates – NPar(3) coding – Octet 4

				Bi	ts				G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet 4		
	8	7	6	5	4	3	2	1	G.991.2 Annex G downstream PMWIS rate NPar(3)s – Octet 4		
	х	х	х	Х	Х	х	х	х	Downstream base data rate – Step 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)		
N	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.										

Table 11.18.14. $j_5 \times 4 - 4/G.994.1 - Standard information field - G.991.2$ Annex G Downstream Extended PMMS rates - NPar(3) coding - Octet $j_5 \times 4 - 3$

			Bi	its				G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet $j_5 \times 4 - 3$
8	7	6	5	4	3	2	1	
х	х						х	Downstream base data rate extension – Minimum j_5 (bit 7) 32-TCPAM symmetric PSD
х	х					х		Downstream base data rate extension – Maximum j_5 (bit 7) 32-TCPAM symmetric PSD
х	х				х			Downstream base data rate extension – Step j_5 (bit 7) 32-TCPAM symmetric PSD
х	х	х	х	x				Reserved for allocation by ITU-T

Table 11.18.14. $j_5 \times 4 - 3/G.994.1 - Standard information field - G.991.2$ Annex G Downstream Extended PMMS rates - NPar(3) coding - Octet $j_5 \times 4 - 2$

		Bits 7 6 5 4 3 2 x x x x x x							C 001 2 Annoy C downstroom PMMS roto NPor(3)s Octot i > 4 2		
	8	7	6	5	4	3	2	1	G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet j ₅ × 4 – 2		
	х	х	х	х	х	х	х	х	Downstream base data rate extension – Minimum j ₅ (bits 6-1) 32-TCPAM symmetric PSD (Note)		
NC	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.										

Table 11.18.14. $j_5 \times 4 - 2/G$.994.1 – Standard information field – G.991.2 Annex G Downstream Extended PMMS rates – NPar(3) coding – Octet $j_5 \times 4 - 1$

			Bi					G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet j ₅ × 4 – 1			
8	7	6	5	4	3	2	1	G.991.2 Annex G downstream r MMS rate Nr ar(3)s – Octet 15 x 4 – 1			
х	х	х	х	х	х	х	х	Downstream base data rate extension – Maximum j_5 (bits 6-1) 32-TCPAM symmetric PSD (Note)			
NOT	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.										

Table 11.18.14.j₅×4 – 1/G.994.1 – Standard information field – G.991.2 Annex G Downstream Extended PMMS rates – NPar(3) coding – Octet j₅×4

				Bi	ts				G.991.2 Annex G downstream PMMS rate NPar(3)s – Octet j ₅ × 4			
	8	7	6	5	4	3	2	1	G.991.2 Annex G downstream Fivilits rate NFar(5)s – Octet 15 x 4			
:	х	х	х	х	х	х	х	х	Downstream base data rate extension – Step j_5 (bits 6-1) 32-TCPAM symmetric PSD (Note)			
NC	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.											

Table 11.18.15/G.994.1 – Standard information field – G.991.2 Annex G Upstream Extended PMMS rates – NPar(3) coding – Octet 1

			Bi	its				G.991.2 Annex G upstream PMMS rate NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
х	х						х	Upstream base data rate – Minimum 1 (bit 7), 32-TCPAM symmetric PSD
x	х					х		Upstream base data rate – Maximum 1 (bit 7), 32-TCPAM symmetric PSD
x	x				х			Upstream base data rate – Step 1 (bit 7), 32-TCPAM symmetric PSD
x	x	x	х	х				Reserved for use by ITU-T

Table 11.18.15.1/G.994.1 – Standard information field – G.991.2 Annex G Upstream Extended PMMS rates – NPar(3) coding – Octet 2

			Bits 6 5 4 3 2 1 × × × × × ×					G.991.2 Annex G upstream PMMS rate NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	G.991.2 Annex G upstream PMWS rate NPar(5)s – Octet 2
х	х	х	х	х	х	x	х	Upstream base data rate – Minimum 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)
NOT:	Е –	The	e rat	tes a	ire c	lete	rmin	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.15.2/G.994.1 – Standard information field – G.991.2 Annex G Upstream Extended PMMS rates – NPar(3) coding – Octet 3

	Bits 7 6 5 4 3 2 x x x x x x x :							C 001.2 Annoy C unstream DMMS rate NDow(2)s Octob.2
8	7	6	5	4	3	2	1	G.991.2 Annex G upstream PMMS rate NPar(3)s – Octet 3
х	х	х	х	х	х	х	х	Upstream base data rate – Maximum 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)
OT	(1212)							ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 11.18.15.3/G.994.1 – Standard information field – G.991.2 Annex G Upstream Extended PMMS rates – NPar(3) coding – Octet 4

				Bi	its				C 001 2 A man C masters m DMMS mate NDon(2)s Outst A
	8	7	6	5	4	3	2	1	G.991.2 Annex G upstream PMMS rate NPar(3)s – Octet 4
	х	х	х	х	х	х	х	х	Upstream base data rate – Step 1 (bits 6-1), 32-TCPAM symmetric PSD (Note)
1	NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.								

Table 11.18.15. $j_6 \times 4 - 4/G.994.1 - Standard information field - G.991.2$ Annex G Upstream Extended PMMS rates - NPar(3) coding - Octet $j_6 \times 4 - 3$

			Bi	its				C 001 2 Amore Company DMMS wate NDay(2) a Cotat : MA 2
8	7	6	5	4	3		G.991.2 Annex G upstream PMMS rate NPar(3)s – Octet $j_6 \times 4 - 3$	
х	х						х	Upstream base data rate extension – Minimum j_6 (bit 7) 32-TCPAM symmetric PSD
х	х					х		Upstream base data rate extension – Maximum j ₆ (bit 7) 32-TCPAM symmetric PSD
x	x				х			Upstream base data rate extension – Step j ₆ (bit 7) 32-TCPAM symmetric PSD
х	x	х	х	х				Reserved for allocation by ITU-T

Table 11.18.15. $j_6 \times 4 - 3/G$.994.1 – Standard information field – G.991.2 Annex G Upstream Extended PMMS rates – NPar(3) coding – Octet $j_6 \times 4 - 2$

			Bi	its				C 001.2 A man C machine DMMS made ND m/2 m Outed: v. 4 . 2	
8	7	6	5	4	3	2	1	G.991.2 Annex G upstream PMMS rate NPar(3)s – Octet $j_6 \times 4 - 2$	
х	х	х	х	х	х	х	х	Upstream base data rate extension – Minimum j_6 (bits 6-1) 32-TCPAM symmetric PSD (Note)	
NOTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.									

Table 11.18.15. $j_6 \times 4 - 2/G$.994.1 – Standard information field – G.991.2 Annex G Upstream Extended PMMS rates – NPar(3) coding – Octet $j_6 \times 4 - 1$

			Bi	its				COOL 2 Assess Considerate DMMC and ADD and 2 Assess Assess Assess	
8	7	6	5	4	3	2	1	G.991.2 Annex G upstream PMMS rate NPar(3)s – Octet $j_6 \times 4 - 1$	
х	х	х	х	х	х	х	х	Upstream base data rate extension – Maximum j_6 (bits 6-1) 32-TCPAM symmetric PSD (Note)	
TON	OTE – The rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.								

Table 11.18.15. $j_6 \times 4 - 1/G$.994.1 – Standard information field – G.991.2 Annex G Upstream Extended PMMS rates – NPar(3) coding – Octet $j_6 \times 4$

			Bi	ts		3 2 1 x x x		C 001 2 Annay C unstream PMMS rate NPay(3)s Octot ; VA
8	7	6	5	4	3	2	1	G.991.2 Annex G upstream PMMS rate NPar(3)s – Octet $j_6 \times 4$
х	х	х	х	х	х	x	х	Upstream base data rate extension – Step j_6 (bits 6-1) 32-TCPAM symmetric PSD (Note)
TO	Е –	The	e rat	es a	re c	lete	rmine	ed by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

5) To support upstream spectral shaping in G.992.3 Annexes J and M, modify the following tables:

Table 11.35/G.994.1/G.994.1 - Standard information field - G.992.3 Annex J NPar(2) coding

			Bi	its				C 002 3 Annoy I NPor(2)s
8	7	6	5	4	3	2	1	G.992.3 Annex J NPar(2)s
х	х	х	х	х	х	х	1	NTR
x	х	х	х	х	х	1	х	Short initialization
x	х	х	х	х	1	х	х	Diagnostics mode
x	х	х	х	1	х	х	х	Reserved for allocation by PSD shape support
x	х	х	1	х	х	х	х	Reserved for allocation by ITU-T
x	х	1	х	х	х	х	х	Reserved for allocation by ITU-T
х	х	0	0	0	0	0	0	No parameters in this octet

Table 11.49/G.994.1/G.994.1 - Standard information field - G.992.3 Annex M NPar(2) coding

			Bi	<pre></pre>				C 002 2 Armer M NDay(2)
8	7	6	5	4	3	2	1	G.992.3 Annex M NPar(2)s
х	х	х	х	х	Х	х	1	NTR
х	x	х	х	х	х	1	х	Short initialization
х	x	х	х	х	1	х	х	Diagnostics mode
х	x	x	х	1	х	х	х	Reserved for allocation by PSD shape support
х	x	х	1	х	х	х	х	Reserved for allocation by ITU-T
х	x	1	х	х	х	х	х	Reserved for allocation by ITU-T
х	х	0	0	0	0	0	0	No parameters in this octet

6) To support upstream spectral shaping in G.992.3 Annexes J and M, add the following new tables:

Table 11.36.0.1/G.994.1 – Standard information field – G.992.3 Annex J SPar(2) coding – Octet 2

		x x 1 x x : x x 1 x x x :						C 002.2 Ammon I SDon(2) a Octot 2
8	7	6	5	4	3	2	1	G.992.3 Annex J SPar(2)s – Octet 2
х	х	х	Х	х	Х	Х	1	Submode PSD shape
х	x	x	х	х	х	1	x	Reserved for allocation by ITU-T
х	x	x	х	х	1	х	x	Reserved for allocation by ITU-T
x	x	x	х	1	х	х	х	Reserved for allocation by ITU-T
х	x	x	1	х	х	х	х	Reserved for allocation by ITU-T
х	x	1	х	х	х	х	x	Reserved for allocation by ITU-T
х	х	0	0	0	0	0	0	No parameters in this octet

Table 11.36.7/G.994.1 – Standard information field – G.992.3 Annex J Submode PSD shape NPar(3) coding – Octet 1

			Bits 5 4 3 2 1					G.992.3 Annex J Submode PSD shape NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	G.332.3 Annex 3 Submode 1 SD shape W ar (3)s - Octet 1
х	Х	х	х	х	х	х	х	Tone index n (bits 6 to 1, coded as $n-1$)

Table 11.36.7.1/G.994.1 – Standard information field – G.992.3 Annex J Submode PSD shape NPar(3) coding – Octet 2

			Bi	its				G.992.3 Annex J Submode PSD shape NPar(3)s – Octet 2			
8	7	6	5	4	3	2	1	G.992.3 Annex J Submode FSD snape IVF ar (5)s - Octet 2			
х	х	х	х	х	х	х	х	PSD at this Tone index n (bits 6 to 1, coded as n)			

Table 11.36.7.2 \times (j - 1)/G.994.1 – Standard information field – G.992.3 Annex J Submode PSD shape NPar(3) coding – Octet 2 \times (j - 1) + 1

				Bi	ts				C 002.2 A I Colour I. DCD days ND (2) O (4.4.2 x/C - 1) 1	
	8	7	6	5	4	3	2	1	G.992.3 Annex J Submode PSD shape NPar(3)s – Octet $2 \times (j-1) + 1$	
	х	х	х	х	х	х	х	х	Tone index n (bits 6 to 1, coded as $n-1$)	
N	NOTE – j is the number of subca						of	subc	arrier indices used to specify the spectral shape.	

Table 11.36.7.2 \times (j - 1) + 1/G.994.1 – Standard information field – G.992.3 Annex J Submode PSD shape NPar(3) coding – Octet 2 \times (j - 1) + 2

				Bi	ts				C 002 2 Amount I Submode DCD about NDay(2) a Code(2 to (3 1) + 2	
	8	7	6	5	4	3	2	1	G.992.3 Annex J Submode PSD shape NPar(3)s – Octet $2 \times (j-1) + 2$	
	х	х	х	Х	Х	х	х	х	PSD at this Tone index n (bits 6 to 1, coded as n)	
1	NOTE $-j$ is the number of subca						of	subc	earrier indices used to specify the spectral shape.	

Table 11.50.0.1/G.994.1 – Standard information field – G.992.3 Annex M SPar(2) coding – Octet 2

			Bi	ts				C 002.2 Amor. M CDou/2) a Oo4o4.2
8	7	6	5	4	3	2	1	G.992.3 Annex M SPar(2)s – Octet 2
х	х	х	х	х	х	х	1	Submode PSD shape
x	х	х	х	х	х	1	х	Reserved for allocation by ITU-T
х	х	х	х	х	1	х	х	Reserved for allocation by ITU-T
x	х	х	х	1	х	х	х	Reserved for allocation by ITU-T
x	х	х	1	х	х	х	х	Reserved for allocation by ITU-T
х	х	1	х	х	х	х	х	Reserved for allocation by ITU-T
х	x	0	0	0	0	0	0	No parameters in this octet

Table 11.50.7/G.994.1 – Standard information field – G.992.3 Annex M Submode PSD shape NPar(3) coding – Octet 1

			Bi	ts				G.992.3 Annex M Submode PSD shape NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	G.992.3 Annex M Submode FSD snape NF ar (3)s - Octet 1
х	х	х	Х	х	х	х	х	Tone index n (bits 6 to 1, coded as $n-1$)

Table 11.50.7.1/G.994.1 – Standard information field – G.992.3 Annex M Submode PSD shape NPar(3) coding – Octet 2

			Bi	ts				G.992.3 Annex M Submode PSD shape NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	G.572.5 Annex W Submode 13D snape W ar(5)s - Octet 2
х	х	х	х	х	х	х	х	PSD at this Tone index n (bits 6 to 1, coded as n)

Table 11.50.7.2 \times (j - 1)/G.994.1 – Standard information field – G.992.3 Annex M Submode PSD shape NPar(3) coding – Octet 2 \times (j - 1) + 1

				Bi	ts				C 002 2 A M Colon de DCD de ND(2) O (2 1) + 1		
	8	7	6	5	4	3	2	1	G.992.3 Annex M Submode PSD shape NPar(3)s – Octet $2 \times (j-1) + 1$		
	x	х	х	х	х	х	х	х	Tone index n (bits 6 to 1, coded as n − 1)		
N	NOTE $-j$ is the number of subca						of	subc	arrier indices used to specify the spectral shape.		

Table 11.50.7.2 \times (j - 1) + 1/G.994.1 – Standard information field – G.992.3 Annex M Submode PSD shape NPar(3) coding – Octet 2 \times (j - 1) + 2

				Bi	ts				C 002 2 A M C L. DCD ND (2) O (2 1) 1.2	
	8	7	6	5	4	3	2	1	G.992.3 Annex M Submode PSD shape NPar(3)s – Octet $2 \times (j-1) + 2$	
· ·	х	х	х	х	Х	х	х	х	PSD at this Tone index n (bits 6 to 1, coded as n)	
NOTE – j is the number of subcarrier indices used to specify the spectral shape.										

7) To support new Annex C.B to G.992.3, modify Table 11.42 as shown with revision marks and add new Table 11.42.6:

Table 11.42/G.994.1 – Standard information field – G.992.3 Annex C SPar(2) coding – Octet 1

			Bi	its				C 002.2 Ammon C SPon(2) - Octob 1
8	7	6	5	4	3	2	1	G.992.3 Annex C SPar(2)s – Octet 1
х	х	х	Х	Х	х	х	1	Spectrum bounds upstream
x	х	х	х	х	х	1	х	Spectrum shaping upstream
x	х	х	х	х	1	х	х	Spectrum bounds downstream
x	х	x	х	1	х	х	х	Spectrum shaping downstream
x	х	x	1	х	х	х	х	Transmit signal images above the Nyquist frequency
x	х	1	х	х	х	х	х	Sub-annexReserved for allocation by ITU-T
x	х	0	0	0	0	0	0	No parameters in this octet

Table 11.42.6/G.994.1 – Standard information field – G.992.3 Annex C Sub-annex NPar(3) coding – Octet 1

			Bi	ts				C 002 2 A C C . L NB (2) O 1
8	7	6	5	4	3	2	1	G.992.3 Annex C Sub-annex NPar(3)s – Octet 1
х	х	х	х	х	Х	х	1	CA
х	x	x	х	х	х	1	х	CB
х	x	x	х	х	1	х	х	Reserved for allocation by ITU-T
х	x	x	х	1	х	х	х	Reserved for allocation by ITU-T
х	x	x	1	х	х	х	х	Reserved for allocation by ITU-T
х	x	1	х	х	х	х	х	Reserved for allocation by ITU-T
х	x	0	0	0	0	0	0	No parameters in this octet

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