Table 61–49 contains the level-3 codepoints specific to 10PASS-TS silent period bit parameters.

Table 61–49—Standard information field – 10PASS-TS NPar(3) coding -Silent period bit – Octet 1

Bits								
8	7	6	5	4	3	2	1	**10PASS-TS NPar(3)s - Octet 1**
x	x	x	x	x	x	x	x	Silence period length, bits 5 to 0, in steps of 10 seconds (from 10 seconds to 10 minutes)

61.3.8.7.4 Level-2 S field codepoints for 2BASE-TL

Tables 61–51 through 61–53 contain the level-2 codepoints specific to 2BASE-TL.

To support a wide range of data rates and multiple encodings, this section introduces a new way to encode data rates in G994.1 code points. This method of encoding rates is used for both the PMMS rates and the training rates. Data rates are encoded as a set of ranges, where each range is expressed as a 3-tuple (minimum, maximum, step). The 3-tuple represents all rates of the form (m+ks)(64kbit/s) where m is the minimum value, s is the step value, and k is the set of all integers greater than or equal to zero such that m+ks is less than or equal to the maximum value. Thus, for example, the 3-tuple (40, 70, 10) represents the rates (40)(64kbit/s), (50)(64kbit/s), (60)(64kbit/s), and (70)(64kbit/s).

Each data rate parameter can be expressed as a set of between 1 to 8 ranges, where the supported rates are the union of those supported by the individual ranges. Thus, for example, the 3-tuples (20,30,4), (40,70,10) represent the rates (20)(64kbit/s), (24)(64kbit/s), (28)(64kbit/s), (40)(64kbit/s), (50)(64kbit/s), (60)(64kbit/s), and (70)(64kbit/s). If all bits of the base data rate minimum and maximum extension are set to zero, then those rates are not supported for line probe. If only one range of rates is required, then only the octets associated with (min1,max1,step1) shall be sent.

Also, in many cases, the values in the data range 3-tuple can be less than or equal to 89 (representing the maximum data rate of 5696 supported by 2BASE-TL). When using G994.1 code point representation, only 6-bits are available for the value of an NPAR(3). To support numbers greater than 63, the value must be split across multiple octets. When encoding a data range using G994.1, 4-octets are used, where the first octet contains the highest order bit from each of the values in the 3-tuple.

The following definition is added to the G.994.1 code point definitions in §6.4.1 of G.991.2 for the support of the data rates specified in 2BASE-TL.

Version Number — This octet indicates the version number of the 2BASE-TL specification. This octet shall be set to a value of 1 for this version.

Base Data Rate Extension — These octets are used to specify payload rates, as follows:

The PMMS octets indicate rates for line probing segments. Note that while PMMS uses 2-PAM modulation, the PMMS symbol rates are specified assuming 32 TC-PAM encoding, so the PMMS symbol rate (in ksymbols/sec) would be equal to the (payload data rate (kbit/sec) + 8 kbit/s)/4 . Valid values for min and max shall be between 4 and 89, inclusive, and valid values for step shall be between 1 and 89, inclusive. The variables j_5 and j_6 associated with the PMMS rates shall be independent, and shall range from 1 to 8, inclusive. If only one

range of rates is required, then only the octets associated with (min1,max1,step1) shall be sent.

The training parameter octets indicate extended payload data rates supported.

In CLR, upstream training parameters indicate which data mode rates the STU-R is capable of transmitting and downstream training parameters indicate which data mode rates the STU-R is capable of receiving. If the optional line probe is used, the receiver training parameters will be further limited by the probe results. Valid values for minimum and maximum shall be between 3 and 60, inclusive, for 16-TCPAM and between 12 and 89, inclusive, for 32-TCPAM. Valid values for step shall be between 1 and 89, inclusive. The variables j_1, j_2, j_3 and j_4 associated with the training rates shall be independent, and shall range from 1 to 8, inclusive.

In CL, downstream training parameters indicate which data mode rates the STU-C is capable of transmitting and upstream training parameters indicate which data mode rates the STU-C is capable of receiving. Valid values for minimum and maximum shall be between 3 and 60, inclusive, for 16-TCPAM and between 12 and 89, inclusive, for 32-TCPAM. Valid values for step shall be between 1 and 89, inclusive. The variables j_1, j_2, j_3 and j_4 associated with the training rates shall be independent, and shall range from 1 to 8, inclusive. If optional line probe is used, the receiver training parameters will be further limited by the probe results.

Data rate selections shall be specified in MP and MS messages by setting the maximum and minimum rates to the same value.

Table 61–50—Standard information field – 2BASE-TL - NPar(2) coding – Octet 1

Bits								
8	7	6	5	4	3	2	1	**2BASE-TL NPar(2)s - Octet 1**
x	x	x	x	x	x	x	1	2BASE-TL Training mode[a]
x	x	x	x	x	x	1	x	2BASE-TL PMMS mode[a]
x	x	x	x	x	1	x	x	2BASE-TL Band A Operation
x	x	x	x	1	x	x	x	2BASE-TL Band B Operatiuon
x	x	x	1	x	x	x	x	PAF Available
x	x	1	x	x	x	x	x	PAF Enable
x	x	0	0	0	0	0	0	No parameters in this octet

[a]Only one of these bits shall be set at any given time.

Table 61–51—Standard information field – 2BASE-TL - NPar(2) coding – Octet 2

Bits								
8	7	6	5	4	3	2	1	**2BASE-TL NPar(2)s - Octet 2**
x	x	x	x	x	x	x	1	Regenerator silent period[a,b]
x	x	x	x	x	x	1	x	SRU[b]
x	x	x	x	x	1	x	x	Diagnostic Mode[b]
x	x	x	x	1	x	x	x	2BASE-TL Version Number
x	x	x	1	x	x	x	x	2BASE-TL Downstream training parameters
x	x	1	x	x	x	x	x	2BASE-TL Downstream training rates - 16-TCPAM
x	x	0	0	0	0	0	0	No parameters in this octet

[a]This bit shall be set to 0_b if the 2BASE-TL PMMS mode NPar(2) bit is set to 1_b or the 2BASE-TL Training mode NPar(2) bit is set to 1_b.
[b]The specification and use of regenerators is outside the scope of this standard.

Table 61–52—Standard information field – 2BASE-TL - SPar(2) coding – Octet 3

Bits								
8	7	6	5	4	3	2	1	**2BASE-TL SPar(2)s – Octet 3**
x	x	x	x	x	x	x	1	2BASE-TL Downstream training rates - 32-TCPAM
x	x	x	x	x	x	1	x	2BASE-TL Upstream training parameters
x	x	x	x	x	1	x	x	2BASE-TL Upstream training rates - 16-TCPAM
x	x	x	x	1	x	x	x	2BASE-TL Upstream training rates - 32-TCPAM
x	x	x	1	x	x	x	x	2BASE-TL Downstream PMMS parameters
x	x	1	x	x	x	x	x	2BASE-TL Downstream PMMS rates
x	x	0	0	0	0	0	0	No parameters in this octet

Table 61–53—Standard information field – 2BASE-TL SPar(2) coding – Octet 4

Bits								
8	7	6	5	4	3	2	1	**2BASE-TL SPar(2)s – Octet 2**
x	x	x	x	x	x	x	1	2BASE-TL Upstream PMMS parameters
x	x	x	x	x	x	1	x	2BASE-TL Upstream PMMS rates
x	x	x	x	x	1	x	x	2BASE-TL Downstream framing parameters
x	x	x	x	1	x	x	x	2BASE-TL Upstream framing parameters
x	x	x	1	x	x	x	x	PMI Aggregation Discovery[a]
x	x	1	x	x	x	x	x	Silent period[b]
x	x	0	0	0	0	0	0	No parameters in this octet

[a]This bit shall be set to 0_b if 2BASE-TL PAF Available NPar(2) bit or 2BASE-TL PAF Enable NPar(2) bit is set to 0_b.

[b]The silent period bit shall be set in CLR or CL message. Setting the bit in MS message requests a silence period, of 1-255 seconds long, as specified by the silence period length field. If the length is set to 0x00, the peer station shall remain silent for 10 minutes (640 s). The station that has invoked the silence period by transmitting MS may terminate the silent period prior to the requested length, by restarting the handshake session (sending activation tones). The silence period length shall be set to 0x00 in CLR and CL messages.

61.3.8.7.5 Level-3 S field codepoints for 2BASE-TL

Tables 61–54 through 61–88 contain the level-3 codepoints specific to 2BASE-TL training parameter

Table 61–54—Standard information field – 2BASE-TL - Version Number- NPar(3) coding – Octet 1

Bits								2BASE-TL Version Number NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Version Number bits (6-1)

Table 61–55—Standard information field – 2BASE-TL - Downstream training parameters - NPar(3) coding – Octet 1

Bits								2BASE-TL downstream training NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x	0	x	x	x	x	x	Downstream PBO (dB) (bits 5-1 x 1.0 dB)
x	x	1	x	x	x	x	x	Reserved for allocation by IEEE 802.3

Table 61–56—Standard information field – 2BASE-TL - Downstream training rate - 16-TCPAM- NPar(3) coding – Octet 1

Bits								2BASE-TL downstream training rate - 16-TCPAM NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x						x	Downstream base data rate -16-TCPAM Minimum 1 (bit 7)
x	x					x		Downstream base data rate -16-TCPAM Maximum 1 (bit 7)
x	x				x			Downstream base data rate -16-TCPAM Step 1 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–57—Standard information field – 2BASE-TL - Downstream training rate - 16-TCPAM- NPar(3) coding – Octet 2

Bits								2BASE-TL downstream training rate - 16-TCPAM NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate -16-TCPAM Minimum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–58—Standard information field – 2BASE-TL - Downstream training rate - 16-TCPAM - NPar(3) coding – Octet 3

Bits								2BASE-TL downstream training rate - 16-TCPAM NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate -16-TCPAM Maximum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–59—Standard information field – 2BASE-TL - Downstream training rate - 16-TCPAM - NPar(3) coding – Octet 4

Bits								2BASE-TL downstream training rate - 16-TCPAM NPar(3)s Octet 4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate -16-TCPAM Step 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–60—Standard information field – 2BASE-TL - Downstream training rate - 16-TCPAM- NPar(3) coding – Octet j_1*4-3

Bits								2BASE-TL downstream training rate - 16-TCPAM NPar(3)s – Octet j_1*4-3
8	7	6	5	4	3	2	1	
x	x						x	Downstream base data rate extension -16-TCPAM Minimum j_1 (bit 7)
x	x					x		Downstream base data rate extension -16-TCPAM Maximum j_1 (bit 7)
x	x				x			Downstream base data rate extension -16-TCPAM Step j_1 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–61—Standard information field – 2BASE-TL - Downstream training rate - 16-TCPAM- NPar(3) coding – Octet j_1*4-2

Bits								2BASE-TL downstream training rate - 16-TCPAM NPar(3)s – Octet j_1*4-2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension -16-TCPAM Minimum j_1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–62—Standard information field – 2BASE-TL - Downstream training rate - 16-TCPAM - NPar(3) coding – Octet j_1*4-1

Bits								2BASE-TL downstream training rate - 16-TCPAM NPar(3)s – Octet j_1*4-1
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension -16-TCPAM Maximum j_1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–63—Standard information field – 2BASE-TL - Downstream training rate - 16-TCPAM - NPar(3) coding – Octet j_1*4

Bits								2BASE-TL downstream training rate - 16-TCPAM NPar(3)s Octet j_1*4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension -16-TCPAM Step j_1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–64—Standard information field – 2BASE-TL - Downstream training rate - 32-TCPAM- NPar(3) coding – Octet 1

Bits								2BASE-TL downstream training rate - 32-TCPAM NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x						x	Downstream base data rate -32-TCPAM Minimum 1 (bit 7)
x	x					x		Downstream base data rate -32-TCPAM Maximum 1 (bit 7)
x	x				x			Downstream base data rate -32-TCPAM Step 1 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–65—Standard information field – 2BASE-TL - Downstream training rate - 32-TCPAM- NPar(3) coding – Octet 2

Bits								2BASE-TL downstream training rate - 32-TCPAM NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate -32-TCPAM Minimum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–66—Standard information field – 2BASE-TL - Downstream training rate - 32-TCPAM - NPar(3) coding – Octet 3

Bits								2BASE-TL downstream training rate - 32-TCPAM NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate -32-TCPAM Maximum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–67—Standard information field – 2BASE-TL - Downstream training rate - 32-TCPAM - NPar(3) coding – Octet 4

Bits								2BASE-TL downstream training rate - 32-TCPAM NPar(3)s Octet 4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate -32-TCPAM Step 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–68—Standard information field – 2BASE-TL - Downstream training rate - 32-TCPAM- NPar(3) coding – Octet j_2*4-3

Bits								2BASE-TL downstream training rate - 32-TCPAM NPar(3)s – Octet j_2*4-3
8	7	6	5	4	3	2	1	
x	x						x	Downstream base data rate extension -32-TCPAM Minimum j_2 (bit 7)
x	x					x		Downstream base data rate extension -32-TCPAM Maximum j_2 (bit 7)
x	x				x			Downstream base data rate extension -32-TCPAM Step j_2 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–69—Standard information field – 2BASE-TL - Downstream training rate - 32-TCPAM- NPar(3) coding – Octet j_2*4-2

Bits								2BASE-TL downstream training rate - 32-TCPAM NPar(3)s – Octet j_2*4-2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension -32-TCPAM Minimum j_2 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–70—Standard information field – 2BASE-TL - Downstream training rate - 32-TCPAM - NPar(3) coding – Octet j_2*4-1

Bits								2BASE-TL downstream training rate - 32-TCPAM NPar(3)s – Octet j_2*4-1
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension -32-TCPAM Maximum j_2 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–71—Standard information field – 2BASE-TL - Downstream training rate - 32-TCPAM - NPar(3) coding – Octet j_2*4

Bits								2BASE-TL downstream training rate - 32-TCPAM NPar(3)s Octet j_2*4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension -32-TCPAM Step j_2 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–72—Standard information field – 2BASE-TL - Upstream training parameters - NPar(3) coding – Octet 1

Bits								2BASE-TL upstream training NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x	0	x	x	x	x	x	Upstream PBO (dB) (bits 5-1 x 1.0 dB)
x	x	1	x	x	x	x	x	Reserved for allocation by IEEE 802.3

Table 61–73—Standard information field – 2BASE-TL - upstream training rate - 16-TCPAM-NPar(3) coding – Octet 1

Bits								2BASE-TL upstream training rate - 16-TCPAM NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x						x	Upstream base data rate -16-TCPAM Minimum 1 (bit 7)
x	x					x		Upstream base data rate -16-TCPAM Maximum 1 (bit 7)
x	x				x			Upstream base data rate -16-TCPAM Step 1 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–74—Standard information field – 2BASE-TL - upstream training rate - 16-TCPAM-NPar(3) coding – Octet 2

Bits								2BASE-TL upstream training rate - 16-TCPAM NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate -16-TCPAM Minimum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–75—Standard information field – 2BASE-TL - upstream training rate - 16-TCPAM - NPar(3) coding – Octet 3

Bits								2BASE-TL upstream training rate - 16-TCPAM NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate -16-TCPAM Maximum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–76—Standard information field – 2BASE-TL - Upstream training rate - 16-TCPAM - NPar(3) coding – Octet 4

Bits								2BASE-TL upstream training rate - 16-TCPAM NPar(3)s Octet 4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate -16-TCPAM Step 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–77—Standard information field – 2BASE-TL - Upstream training rate - 16-TCPAM-NPar(3) coding – Octet j_3*4-3

Bits								2BASE-TL upstream training rate - 16-TCPAM NPar(3)s – Octet j_3*4-3
8	7	6	5	4	3	2	1	
x	x						x	Upstream base data rate extension -16-TCPAM Minimum j_3 (bit 7)
x	x					x		Upstream base data rate extension -16-TCPAM Maximum j_3 (bit 7)
x	x				x			Upstream base data rate extension -16-TCPAM Step j_3 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–78—Standard information field – 2BASE-TL - Upstream training rate - 16-TCPAM-NPar(3) coding – Octet j_3*4-2

Bits								2BASE-TL upstream training rate - 16-TCPAM NPar(3)s – Octet j_3*4-2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension -16-TCPAM Minimum j_3 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–79—Standard information field – 2BASE-TL - Upstream training rate - 16-TCPAM - NPar(3) coding – Octet j_3*4-1

Bits								2BASE-TL upstream training rate - 16-TCPAM NPar(3)s – Octet j_3*4-1
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension -16-TCPAM Maximum j_3 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–80—Standard information field – 2BASE-TL - Upstream training rate - 16-TCPAM - NPar(3) coding – Octet j_3*4

Bits								2BASE-TL upstream training rate - 16-TCPAM NPar(3)s Octet j_3*4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension -16-TCPAM Step j_3 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–81—Standard information field – 2BASE-TL - Upstream training rate - 32-TCPAM-NPar(3) coding – Octet 1

Bits								2BASE-TL upstream training rate - 32-TCPAM NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x						x	Upstream base data rate -32-TCPAM Minimum 1 (bit 7)
x	x					x		Upstream base data rate -32-TCPAM Maximum 1 (bit 7)
x	x				x			Upstream base data rate -32-TCPAM Step 1 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–82—Standard information field – 2BASE-TL - Upstream training rate - 32-TCPAM-NPar(3) coding – Octet 2

Bits								2BASE-TL upstream training rate - 32-TCPAM NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate -32-TCPAM Minimum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–83—Standard information field – 2BASE-TL - Upstream training rate - 32-TCPAM - NPar(3) coding – Octet 3

Bits								2BASE-TL upstream training rate - 32-TCPAM NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate -32-TCPAM Maximum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–84—Standard information field – 2BASE-TL - Upstream training rate - 32-TCPAM - NPar(3) coding – Octet 4

Bits								2BASE-TL upstream training rate - 32-TCPAM NPar(3)s Octet 4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate -32-TCPAM Step 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–85—Standard information field – 2BASE-TL - Upstream training rate - 32-TCPAM-NPar(3) coding – Octet j_4*4-3

Bits								2BASE-TL upstream training rate - 32-TCPAM NPar(3)s – Octet j_4*4-3
8	7	6	5	4	3	2	1	
x	x						x	Upstream base data rate extension -32-TCPAM Minimum j_4 (bit 7)
x	x					x		Upstream base data rate extension -32-TCPAM Maximum j_4 (bit 7)
x	x				x			Upstream base data rate extension -32-TCPAM Step j_4 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–86—Standard information field – 2BASE-TL - Upstream training rate - 32-TCPAM-NPar(3) coding – Octet j_4*4-2

Bits								2BASE-TL upstream training rate - 32-TCPAM NPar(3)s – Octet j_4*4-2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension -32-TCPAM Minimum j_4 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–87—Standard information field – 2BASE-TL - Upstream training rate - 32-TCPAM - NPar(3) coding – Octet j_4*4-1

Bits								2BASE-TL upstream training rate - 32-TCPAM NPar(3)s – Octet j_4*4-1
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension -32-TCPAM Maximum j_4 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–88—Standard information field – 2BASE-TL - Upstream training rate - 32-TCPAM - NPar(3) coding – Octet j_4*4

Bits								2BASE-TL upstream training rate - 32-TCPAM NPar(3)s Octet j_4*4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension -32-TCPAM Step j_4 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Tables 61–89 through 61–116 contain the level-3 codepoints specific to 2BASE-TL PMMS parameters

Table 61–89—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 1

Bits								2BASE-TL downstream PMMS NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x	0	x	x	x	x	x	Downstream PBO (dB) (bits 5-1 x 1.0 dB)
x	x	1	x	x	x	x	x	Reserved for allocation by IEEE 802.3

Table 61–90—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 2

Bits								2BASE-TL downstream PMMS NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	0	0	0	0	0	0	Downstream PMMS duration unspecified by terminal
x	x	x	x	x	x	x	x	Downstream PMMS duration (bits 6-1 x 50 ms)
x	x	1	1	1	1	1	1	Reserved for allocation by IEEE 802.3

Table 61–91—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 3

Bits								2BASE-TL downstream PMMS NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	0	0	0	x	x	x	Downstream PMMS scrambler polynomial Index (i2, i1, i0)
x	x	1	1	1	1	1	1	Reserved for allocation by IEEE 802.3

Table 61–92—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 4

Bits								2BASE-TL downstream PMMS NPar(3)s – Octet 4
8	7	6	5	4	3	2	1	
x	x	1	x	x	x	x	x	Worst-case PMMS target margin (dB) (bits 5-1 x 1.0 dB - 10 dB)
x	x	0	0	0	0	0	0	No parameters in this octet

Table 61–93—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 5

Bits								2BASE-TL downstream PMMS NPar(3)s – Octet 5
8	7	6	5	4	3	2	1	
x	x	1	x	x	x	x	x	Current-condition PMMS target margin (dB) (bits 5-1 x 1.0 dB - 10 dB)
x	x	0	0	0	0	0	0	No parameters in this octet

Table 61–94—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 6

Bits								2BASE-TL downstream PMMS NPar(3)s – Octet 6
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	1	Reserved for allocation by IEEE 802.3
x	x	x	x	x	x	1	x	Transmit Silence
x	x	x	x	x	1	x	x	Reserved for allocation by IEEE 802.3
x	x	x	x	1	x	x	x	Reserved for allocation by IEEE 802.3
x	x	x	1	x	x	x	x	Reserved for allocation by IEEE 802.3
x	x	1	x	x	x	x	x	Reserved for allocation by IEEE 802.3
x	x	0	0	0	0	0	0	No parameters in this octet

Table 61–95—Standard information field – 2BASE-TL - Downstream PMMS rates - NPar(3) coding – Octet 1

Bits								2BASE-TL downstream PMMS NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x						x	Downstream base data rate- 32-TCPAM Minimum 1 (bit 7)
						x		Downstream base data rate- 32-TCPAM Maximum 1 (bit 7)
x	x				x			Downstream base data rate- 32-TCPAM Step 1 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–96—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 2

Bits								2BASE-TL downstream PMMS rates NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate- 32-TCPAM Minimum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–97—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 3

Bits								2BASE-TL downstream PMMS rates NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate- 32-TCPAM Maximum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–98—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet 4

Bits								2BASE-TL downstream PMMS NPar(3)s Octet 6
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate- 32-TCPAM Step 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–99—Standard information field – 2BASE-TL - Downstream PMMS rates - NPar(3) coding – Octet j_5*4-3

Bits								2BASE-TL downstream PMMS NPar(3)s – Octet j_5*4-3
8	7	6	5	4	3	2	1	
x	x						x	Downstream base data rate extension - 32-TCPAM Minimum j_5 (bit 7)
x	x					x		Downstream base data rate extension - 32-TCPAM Maximum j_5 (bit 7)
x	x				x			Downstream base data rate extension- 32-TCPAM Step j_5 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–100—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet j_5*4-2

Bits								2BASE-TL downstream PMMS rates NPar(3)s – Octet j_5*4-2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension - 32-TCPAM Minimum j_5 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–101—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet j_5*4-1

Bits								2BASE-TL downstream PMMS rates NPar(3)s – Octet j_5*4-1
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension - 32-TCPAM Maximum j_5 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–102—Standard information field – 2BASE-TL - Downstream PMMS parameters - NPar(3) coding – Octet j_5*4

Bits								2BASE-TL downstream PMMS NPar(3)s Octet j_5*4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Downstream base data rate extension - 32-TCPAM Step j_5 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–103—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 1

Bits								2BASE-TL upstream PMMS NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x	0	x	x	x	x	x	Upstream PBO (dB) (bits 5-1 x 1.0 dB)
x	x	1	x	x	x	x	x	Reserved for allocation by IEEE 802.3

Table 61–104—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 2

Bits								2BASE-TL upstream PMMS NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	0	0	0	0	0	0	Upstream PMMS duration unspecified by terminal
x	x	x	x	x	x	x	x	Upstream PMMS duration (bits 6-1 x 50 ms)
x	x	1	1	1	1	1	1	Reserved for allocation by IEEE 802.3

Table 61–105—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 3

Bits								2BASE-TL upstream PMMS NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	0	0	0	x	x	x	Upstream PMMS scrambler polynomial Index (i2, i1, i0)
x	x	1	1	1	1	1	1	Reserved for allocation by IEEE 802.3

Table 61–106—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 4

Bits								2BASE-TL upstream PMMS NPar(3)s – Octet 4
8	7	6	5	4	3	2	1	
x	x	1	x	x	x	x	x	Worst-case PMMS target margin (dB) (bits 5-1 x 1.0 dB - 10 dB)
x	x	0	0	0	0	0	0	No parameters in this octet

Table 61–107—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 5

Bits								2BASE-TL upstream PMMS NPar(3)s – Octet 5
8	7	6	5	4	3	2	1	
x	x	1	x	x	x	x	x	Current-condition PMMS target margin (dB) (bits 5-1 x 1.0 dB - 10 dB)
x	x	0	0	0	0	0	0	No parameters in this octet

Table 61–108—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 6

Bits								2BASE-TL upstream PMMS NPar(3)s – Octet 6
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	1	Reserved for allocation by IEEE 802.3
x	x	x	x	x	x	1	x	Transmit Silence
x	x	x	x	x	1	x	x	Reserved for allocation by IEEE 802.3
x	x	x	x	1	x	x	x	Reserved for allocation by IEEE 802.3
x	x	x	1	x	x	x	x	Reserved for allocation by IEEE 802.3
x	x	1	x	x	x	x	x	Reserved for allocation by IEEE 802.3
x	x	0	0	0	0	0	0	No parameters in this octet

Table 61–109—Standard information field – 2BASE-TL - Upstream PMMS rates - NPar(3) coding – Octet 1

Bits								2BASE-TL upstream PMMS NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x						x	Upstream base data rate- 32-TCPAM Minimum 1 (bit 7)
x	x					x		Upstream base data rate- 32-TCPAM Maximum 1 (bit 7)
x	x				x			Upstream base data rate- 32-TCPAM Step 1 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–110—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 2

Bits								2BASE-TL upstream PMMS rates NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate- 32-TCPAM Minimum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–111—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 3

Bits								2BASE-TL upstream PMMS rates NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate- 32-TCPAM Maximum 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–112—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet 4

Bits								2BASE-TL upstream PMMS NPar(3)s Octet 6
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate- 32-TCPAM Step 1 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–113—Standard information field – 2BASE-TL - Upstream PMMS rates - NPar(3) coding – Octet j_6*4-3

Bits								2BASE-TL upstream PMMS NPar(3)s – Octet j_6*4-3
8	7	6	5	4	3	2	1	
x	x						x	Upstream base data rate extension - 32-TCPAM Minimum j_6 (bit 7)
x	x					x		Upstream base data rate extension - 32-TCPAM Maximum j_6 (bit 7)
x	x				x			Upstream base data rate extension - 32-TCPAM Step j_6 (bit 7)
x	x	x	x	x				Reserved for allocation by IEEE 802.3

Table 61–114—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet j_6*4-2

Bits								2BASE-TL upstream PMMS rates NPar(3)s – Octet j_6*4-2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension - 32-TCPAM Minimum j_6 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–115—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet j_6*4-1

Bits								2BASE-TL upstream PMMS rates NPar(3)s – Octet j_6*4-1
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension - 32-TCPAM Maximum j_6 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Table 61–116—Standard information field – 2BASE-TL - Upstream PMMS parameters - NPar(3) coding – Octet j_6*4

Bits								2BASE-TL upstream PMMS NPar(3)s Octet j_6*4
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Upstream base data rate extension - 32-TCPAM Step j_6 (bit 1-6)[a]

[a]Note that the rates are determined by combining (bit 7) and the 6-bits in this octet to create a 7-bit number.

Tables 61–117 through 61–122 contain the level-3 codepoints specific to 2BASE-TL framing parameters

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Table 61–117—Standard information field – 2BASE-TL - Downstream framing parameters - NPar(3) coding – Octet 1

Bits								2BASE-TL Downstream framing NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x					x	x	Sync Word (bits 14 and 13)
x	x			x	x			Stuff Bits (bits 1 to 2)
		x	x					Reserved for allocation by IEEE 802.3

Table 61–118—Standard information field – 2BASE-TL - Downstream framing parameters - NPar(3) coding – Octet 2

Bits								2BASE-TL Downstream framing NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Sync Word (bits 12 to 7)

Table 61–119—Standard information field – 2BASE-TL - Downstream framing parameters - NPar(3) coding – Octet 3

Bits								2BASE-TL Downstream framing NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Sync Word (bits 6 to 1)

Table 61–120—Standard information field – 2BASE-TL - Upstream framing parameters - NPar(3) coding – Octet 1

Bits								2BASE-TL Upstream framing NPar(3)s – Octet 1
8	7	6	5	4	3	2	1	
x	x					x	x	Sync Word (bits 14 and 13)
x	x			x	x			Stuff Bits (bits 1 to 2)
		x	x					Reserved for allocation by IEEE 802.3

Table 61–121—Standard information field – 2BASE-TL - Upstream framing parameters - NPar(3) coding – Octet 2

Bits								2BASE-TL Upstream framing NPar(3)s – Octet 2
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Sync Word (bits 12 to 7)

Table 61–122—Standard information field – 2BASE-TL - Upstream framing parameters - NPar(3) coding – Octet 3

Bits								2BASE-TL Upstream framing NPar(3)s – Octet 3
8	7	6	5	4	3	2	1	
x	x	x	x	x	x	x	x	Sync Word (bits 6 to 1)