International Telecommunication Union

# ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

# G.997.1

**Amendment 6**

(03/2016)

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

Digital sections and digital line system – Metallic access networks

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# Physical layer management for digital subscriber line transceivers

## Amendment 6

Recommendation ITU-T G.997.1 (2012) – Amendment 6

International Telecommunication Union

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# Recommendation ITU-T G.997.1

## Physical layer management for digital subscriber line transceivers

## Amendment 6


**Summary**

Amendment 6 to Recommendation ITU-T G.997.1 (2012) contains:

– The reporting of the number of Reed-Solomon code word per DTU.

– The definition of the LOM failure (correction).


**History**

| Edition | Recommendation | Approval | Study Group | Unique ID* |
|---|---|---|---|---|
| 1.0 | ITU-T G.997.1 | 1999-07-02 | 15 | 11.1002/1000/4723 |
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| 2.2 | ITU-T G.997.1 (2003) Amd. 2 | 2005-01-13 | 15 | 11.1002/1000/7492 |
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| 5.0 | ITU-T G.997.1 | 2009-04-22 | 15 | 11.1002/1000/9676 |
| 5.1 | ITU-T G.997.1 (2009) Cor. 1 | 2009-11-13 | 15 | 11.1002/1000/10417 |
| 5.2 | ITU-T G.997.1 (2009) Amd. 1 | 2010-06-11 | 15 | 11.1002/1000/10416 |
| 5.3 | ITU-T G.997.1 (2009) Amd. 2 | 2010-11-29 | 15 | 11.1002/1000/11016 |
| 5.4 | ITU-T G.997.1 (2009) Amd. 3 | 2011-06-22 | 15 | 11.1002/1000/11130 |
| 5.5 | ITU-T G.997.1 (2009) Cor. 2 | 2011-10-29 | 15 | 11.1002/1000/11397 |
| 5.6 | ITU-T G.997.1 (2009) Amd. 4 | 2011-12-16 | 15 | 11.1002/1000/11398 |
| 5.7 | ITU-T G.997.1 (2009) Amd. 5 | 2012-02-13 | 15 | 11.1002/1000/11504 |
| 6.0 | ITU-T G.997.1 | 2012-06-13 | 15 | 11.1002/1000/11645 |
| 6.1 | ITU-T G.997.1 (2012) Amd. 1 | 2012-12-07 | 15 | 11.1002/1000/11798 |
| 6.2 | ITU-T G.997.1 (2012) Amd. 2 | 2013-04-22 | 15 | 11.1002/1000/11893 |
| 6.3 | ITU-T G.997.1 (2012) Amd. 3 | 2013-08-29 | 15 | 11.1002/1000/11996 |
| 6.4 | ITU-T G.997.1 (2012) Amd. 4 | 2015-02-13 | 15 | 11.1002/1000/12374 |
| 6.5 | ITU-T G.997.1 (2012) Amd. 5 | 2015-11-06 | 15 | 11.1002/1000/12566 |
| 6.6 | ITU-T G.997.1 (2012) Amd. 6 | 2016-03-29 | 15 | 11.1002/1000/12798 |

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

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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.

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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, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

# Recommendation ITU-T G.997.1

## Physical layer management for digital subscriber line transceivers

## Amendment 6

### 1) The reporting of the number of Reed-Solomon codeword per DTU

### 1.1) Clause 7.5.2.6.6

*Add clause 7.5.2.6.6:*

#### 7.5.2.6.6 Actual number of Reed-Solomon codeword per DTU (RSPERDTU)

This parameter reports the actual number of Reed-Solomon codeword per DTU used in the latency path in which the bearer channel is transported. The value ranges from 1 to 64 in steps of 1.

### 1.2) Tables 7-30 and 7-31

*Modify Tables 7-30 and 7-31 as follows:*

**Table 7-30 – Channel test, diagnostic and status parameters**

| Category/Element | Defined in clause: | Q-Interface | U-C Interface | U-R Interface | T-/S-Interface | G-Interface |
|---|---|---|---|---|---|---|
| (...) | | | | | | |
| INTLVBLOCK | 7.5.2.6.5 | R (M) | | R (O) | | R (O) |
| RSPERDTU | 7.5.2.6.6 | R (M) | | R (O) | | R (O) |
| ***Actual latency path*** | | | | | | |
| (...) | | | | | | |

**Table 7-31 – Support of channel test, diagnostic and status parameters per Recommendation**

| Category/Element | ITU-T G.992.1 | ITU-T G.992.2 | ITU-T G.992.3 | ITU-T G.992.4 | ITU-T G.992.5 | ITU-T G.993.2 | ITU-T G.998.4 |
|---|---|---|---|---|---|---|---|
| (...) | | | | | | | |
| INTLVBLOCK | | | | | | Y | |
| RSPERDTU | | | | | | | Y |
| ***Actual latency path*** | | | | | | | |
| (...) | | | | | | | |

## 2) Addition of LOM failure

### 2.1) Clause 7.1.1.1.4

*Add clause 7.1.1.1.4:*

#### 7.1.1.1.4 Loss-of-margin (LOM) failure

A LOM failure is declared when a re-initialization is triggered by a persistent near-end *lom* defect, except when an LOS or LOF defect or failure is present (see LOS and LOF definitions above). A LOM failure is cleared when LOS or LOF failure is declared, or after 10 ± 0.5 s of no LOM defect.

### 2.2) Clause 7.1.1.2.4

*Add clause 7.1.1.2.4:*

#### 7.1.1.2.4 Loss-of-margin (LOM-FE) failure

A far-end loss-of-margin – LOM-FE failure is declared when a re-initialization is triggered by a persistent far-end *lom* defect, except when an LOS-FE or LOF-FE defect or failure is present (see LOS and LOF definitions above). A far-end LOM failure is cleared when far-end LOS or LOF failure is declared, or after 10 ± 0.5 s of no far-end LOM defect.

### 2.3) Table 7-10

*Modify Table 7-10 as follows:*

**Table 7-10 – Line failures**

| Category/Element | Defined in clause: | Q-Interface | U-C Interface | U-R Interface | T-/S-Interface |
|---|---|---|---|---|---|
| ***Near-end (xTU-C) failures*** | | | | | |
| Loss of signal (LOS) | 7.1.1.1.1 | R (M) | R (O) | | R (O) |
| Loss of frame (LOF) | 7.1.1.1.2 | R (M) | R (O) | | R (O) |
| Loss of power (LPR) | 7.1.1.1.3 | R (M) | R (O) | | R (O) |
| Loss of margin (LOM) | 7.1.1.1.4 | R (M) | R (O) | | R (O) |
| ***Far-end (xTU-R) failures*** | | | | | |
| Loss-of-signal (LOS-FE) failure | 7.1.1.2.1 | R (M) | | R (O) | R (O) |
| Loss-of-frame (LOF-FE) failure | 7.1.1.2.2 | R (M) | | R (O) | R (O) |
| Loss-of-power (LPR-FE) failure | 7.1.1.2.3 | R (M) | | R (O) | R (O) |
| Loss-of-margin (LOM-FE) failure | 7.1.1.2.4 | R (M) | | R (O) | R (O) |
| ***Initialization failures*** | | | | | |
| Line init (LINIT) failure | 7.1.1.3 | R (M) | | | R (O) |

## 2.4) Table 7-11

*Modify Table 7-11 as follows:*

**Table 7-11 – Support of line failures per Recommendation**

| Category/ Element | ITU-T G.992.1 | ITU-T G.992.2 | ITU-T G.992.3 | ITU-T G.992.4 | ITU-T G.992.5 | ITU-T G.993.2 |
|---|---|---|---|---|---|---|
| ***Near-end failures*** | | | | | | |
| Loss of signal (LOS) | Y | Y | Y | Y | Y | Y |
| Loss of frame (LOF) | Y | Y | Y | Y | Y | Y |
| Loss of power (LPR) | Y | Y | Y | Y | Y | Y |
| Loss of margin (LOM) | Y | Y | Y | Y | Y | Y |
| ***Far-end failures*** | | | | | | |
| Loss-of-signal (LOS-FE) failure | Y | Y | Y | Y | Y | Y |
| Loss-of-frame (LOF-FE) failure | Y | Y | Y | Y | Y | Y |
| Loss-of-power (LPR-FE) failure | Y | Y | Y | Y | Y | Y |
| Loss-of-margin (LOM-FE) failure | Y | Y | Y | Y | Y | Y |
| ***Initialization failures*** | | | | | | |
| Line init (LINIT) failure | Y | Y | Y | Y | Y | Y |

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