

International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.994.1
Amendment 2
(08/2013)

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

Digital sections and digital line system – Metallic access
networks

Handshake procedures for digital subscriber line
transceivers

**Amendment 2 – Extended duration of new
functionality O-P-VECTOR 1**

Recommendation ITU-T G.994.1 (2012) –
Amendment 2



ITU-T G-SERIES RECOMMENDATIONS

TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

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| INTERNATIONAL TELEPHONE CONNECTIONS AND CIRCUITS | G.100–G.199 |
| GENERAL CHARACTERISTICS COMMON TO ALL ANALOGUE CARRIER-TRANSMISSION SYSTEMS | G.200–G.299 |
| INDIVIDUAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON METALLIC LINES | G.300–G.399 |
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For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T G.994.1

Handshake procedures for digital subscriber line transceivers

Amendment 2 – Extended duration of new functionality O-P-VECTOR 1

Summary

Amendment 2 to Recommendation ITU-T G.994.1 (2012) covers the following code point assignments for new functionality O-P-VECTOR 1:

1. New code point for the extended duration of O-P-VECTOR 1.
2. New code point for use of O-P-VECTOR 1 flag tones only.

History

| Edition | Recommendation | Approval | Study Group |
|---------|-----------------------------|------------|-------------|
| 1.0 | ITU-T G.994.1 | 1999-07-02 | 15 |
| 1.1 | ITU-T G.994.1 (1999) Cor. 1 | 2000-04-04 | 15 |
| 2.0 | ITU-T G.994.1 | 2001-02-09 | 15 |
| 3.0 | ITU-T G.994.1 | 2002-07-29 | 15 |
| 4.0 | ITU-T G.994.1 | 2003-05-22 | 15 |
| 4.1 | ITU-T G.994.1 (2003) Amd. 1 | 2004-02-22 | 15 |
| 4.2 | ITU-T G.994.1 (2003) Amd. 2 | 2004-06-13 | 15 |
| 4.3 | ITU-T G.994.1 (2003) Amd. 3 | 2005-01-13 | 15 |
| 4.4 | ITU-T G.994.1 (2003) Amd. 4 | 2006-01-13 | 15 |
| 5.0 | ITU-T G.994.1 | 2007-02-13 | 15 |
| 5.1 | ITU-T G.994.1 (2007) Amd. 1 | 2007-11-22 | 15 |
| 5.2 | ITU-T G.994.1 (2007) Amd. 2 | 2008-04-13 | 15 |
| 5.3 | ITU-T G.994.1 (2007) Amd. 3 | 2009-03-22 | 15 |
| 5.4 | ITU-T G.994.1 (2007) Amd. 4 | 2009-06-29 | 15 |
| 5.5 | ITU-T G.994.1 (2007) Amd. 5 | 2010-04-22 | 15 |
| 5.6 | ITU-T G.994.1 (2007) Amd. 6 | 2010-11-29 | 15 |
| 5.7 | ITU-T G.994.1 (2007) Amd. 7 | 2011-04-13 | 15 |
| 5.8 | ITU-T G.994.1 (2007) Cor. 1 | 2011-10-29 | 15 |
| 5.9 | ITU-T G.994.1 (2007) Amd. 8 | 2011-12-16 | 15 |
| 6.0 | ITU-T G.994.1 | 2012-06-13 | 15 |
| 6.1 | ITU-T G.994.1 (2012) Amd.1 | 2012-10-29 | 15 |
| 6.2 | ITU-T G.994.1 (2012) Amd. 2 | 2013-08-29 | 15 |

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). 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, 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/>.

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Recommendation ITU-T G.994.1

Handshake procedures for digital subscriber line transceivers

Amendment 2 – Extended duration of new functionality O-P-VECTOR 1

1) Extended duration of O-P-VECTOR 1 (new functionality)

Modify Table 11.68.10 as follows:

**Table 11.68.10 – Standard information field – ITU-T G.993.2
ITU-T G.993.5 NPar(3) coding Octet 1**

| | | Bits | | | | | | ITU-T G.993.2 Vectoring NPar(3)s – Octet 1 |
|---|---|------|---|---|---|---|---|---|
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| x | x | x | x | x | x | x | 1 | Downstream vectoring |
| x | x | x | x | x | x | 1 | x | Upstream vectoring |
| x | x | x | x | x | 1 | x | x | Pilot sequence length multiple of 4 |
| x | x | x | x | 1 | x | x | x | Upstream FDPS |
| x | x | x | 1 | x | x | x | x | <u>8192 superframes duration for O-P-VECTOR 1</u> Reserved for allocation by ITU-T |
| x | x | 1 | x | x | x | x | x | <u>Use of O-P-VECTOR 1 flag tones only</u> Reserved for allocation by ITU-T |
| x | x | 0 | 0 | 0 | 0 | 0 | 0 | No parameters in this octet |

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