International Telecommunication Union

ITU-T G.8262/Y.1362

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Amendment 1

(04/2008)

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Packet over Transport aspects – Quality and availability targets

SERIES Y: GLOBAL INFORMATION INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS AND NEXT-GENERATION NETWORKS

Internet protocol aspects – Transport

Timing characteristics of synchronous Ethernet equipment slave clock (EEC)

Amendment 1

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ITU-T Recommendation G.8262/Y.1362

Timing characteristics of synchronous Ethernet equipment slave clock (EEC)

Amendment 1

Summary

This amendment contains several additions/deletions to Recommendation ITU-T G.8262/Y.1362 in order to align Recommendations ITU-T G.8262/Y.1362, G.8261/Y.1361 and G.8264/Y.1364. Annex A has been moved in to Recommendation ITU-T G.8264/Y.1364.

Source

Amendment 1 to Recommendation ITU-T G.8262/Y.1362 (2007) was approved on 29 April 2008 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.

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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Timing characteristics of synchronous Ethernet equipment slave clock (EEC)

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This amendment contains several additions/deletions to Recommendation ITU-T G.8262/Y.1362 in order to align Recommendations ITU-T G.8262/Y.1362, G.8261/Y.1361 and G.8264/Y.1364. Annex A has been moved in to Recommendation ITU-T G.8264/Y.1364.

1 Clause 2, references

Insert the following reference to clause 2:

[ITU-T G.8264] Recommendation ITU-T G.8264/Y.1364 (2008), *Timing distribution through packet networks*.

2 Clause 4, abbreviations

Change the abbreviation of EEC in clause 4 to:

EEC Synchronous Ethernet Equipment Clock

3 Clause 10.2, EEC-Option 2

Add the following text to clause 10.2 after Figure 9.

The masks in Figures 8 and 9 are used to verify wander tolerance and measure TDEV transfer and they do not represent the network wander limit needed to be met for the payload wander accumulation requirement. In practice, this will not cause loss of synchronization at an EEC, as the network wander tolerance limit in Figure 9 is within the pass band of the EEC-Option 2 clock. However, it will cause higher wander accumulation.

4 Clause 12, interfaces

Add the following text to clause 12, before the Note:

Ethernet copper interfaces allow half duplex mode and collisions on a line which could squelch the signals and destroy the timing, therefore synchronous Ethernet interfaces must work only in full-duplex and have a continuous bit stream.

5 Clause 12.1, external synchronization interfaces

Replace the existing first paragraph in clause 12.1 with the following:

Synchronization Ethernet equipment will require a range of external synchronization interface types to be supported that will allow synchronization to be derived from an [ITU-T G.812] SSU/BITS clock, from the output of an [ITU-T G.813] SEC or from another synchronous Ethernet equipment as specified in this Recommendation.

6 Annex A, reference source selection mechanism

Annex A has been moved into [ITU-T G.8264]; the title of Annex A is kept in this Recommendation with the following note pointing it to [ITU-T G.8264].

NOTE – This annex has been moved into [ITU-T G.8264].

7 Appendix I, network applications and requirements for clocks specified in ITU-T G.8262/Y.1362

Replace the existing Appendix I with the following:

Appendix I

Hybrid network elements (NEs) using STM-N and Ethernet (ETY) interfaces

The EEC clocks may support the use of hybrid NEs at any place in a synchronization chain as shown in Appendix XII of [ITU-T G.8261]. Figure I.1 illustrates a hybrid NE and timing relations between the equipment clock (EC) and STM-N and ETY interfaces.

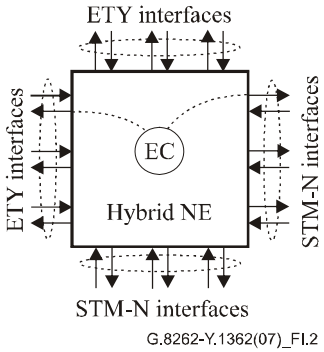

Figure I.1 – Hybrid NE using STM-N and Ethernet (ETY) interfaces

For hybrid NEs, timing transfer may be supported from any type of input interface to any type of output interface as shown in Table I.1.

Table I.1 – Combination of input and output ports for timing distribution

Timing input	Timing output
STM-N	STM-N
STM-N	ETY
STM-N	T4
ETY	STM-N
ETY	ETY
ETY	T4
T3	STM-N
T3	ETY

The use of ETY interfaces for timing distribution and the use of hybrid NEs should not require modifications of deployed SDH NEs or clocks (PRC, SSU), e.g., no new SSM code point for STM-N interfaces. Code point "0000" should also not be used.

8 Appendix II, relationship between requirements contained in this Recommendation and other key synchronization related Recommendations

Delete the following existing last paragraph in Appendix II:

It is important to note that while the requirements in this Recommendation define the performance of synchronous Ethernet equipment clocks, additional work is ongoing to develop additional Recommendations to describe additional network element functionality necessary to completely integrate EEC clocks within existing SDH-based synchronization networks.

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