International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.8273/Y.1368
Amendment 2
(08/2015)

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DIGITAL SYSTEMS AND NETWORKS

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SERIES Y: GLOBAL INFORMATION
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Summary

Amendment 2 to Recommendation ITU-T G.8273/Y.1368 (2013) adds:

−   Clause A.6 "Clocks containing Media Converters"

−   Appendix III "Synchronous Ethernet transient testing methodology".

History

Edition	Recommendation	Approval	Study Group	Unique ID[*]
1.0	ITU-T G.8273/Y.1368	2013-08-29	15	11.1002/1000/12012
1.1	ITU-T G.8273/Y.1368 (2013) Cor. 1	2014-05-14	15	11.1002/1000/12195
1.2	ITU-T G.8273/Y.1368 (2013) Amd. 1	2015-01-13	15	11.1002/1000/12394
1.3	ITU-T G.8273/Y.1368 (2013) Amd. 2	2015-08-13	15	11.1002/1000/12544

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[*] 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/11.1002/1000/11 830-en.

FOREWORD

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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.

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As of the date of approval of this Recommendation, ITU had not 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.8273/Y.1368

Framework of phase and time clocks

Amendment 2

1)   Clause A.6

Add the following clause A.6 after clause A.5:

A.6   Clocks containing media converters

Some clocks may use alternative physical layer technology to inter-connect to the next clock in the chain. For example, the input may be Ethernet and the output may be microwave. To simplify the measurement of these devices, the performance can be measured as a back-to-back pair, such that the measurement reference points are the Ethernet interface of the first media converter, and the Ethernet output port of the second device (as shown in Figure A.6-1). It may also be possible to measure a chain of such devices in the same way.
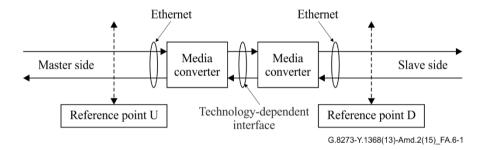

G.8273-Y.1368(13)-Amd.2(15)_FA.6-1

Figure A.6-1 – Demarcation of measurement points for testing media converter nodes

The appropriate budget allocation for a back-to-back pair, or for a chain of such devices, is for further study and will be described in the relevant clock specification.

2)   Appendix III
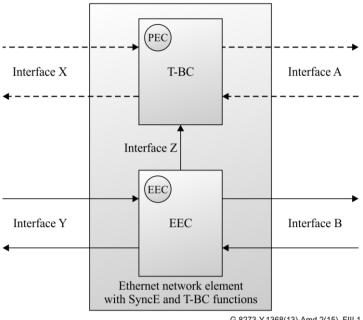
Add the following Appendix III after Appendix II:

Appendix III

Synchronous Ethernet transient testing methodology

(This appendix does not form an integral part of this Recommendation.)

This appendix addresses the test method to measure the effects of a SyncE transient being received from an upstream T-BC. Note that the output signal is measured without a measurement filter. The timing of events in each of the test methods should be accurate to within ±1%.

A model for the T-BC is shown in Figure III.1; this does not imply any implementation.

G.8273-Y.1368(13)-Amd.2(15)_FIII.1

Figure III.1 – Example NE with EEC and T-BC functions

For all the test methods, the output performance is described in the relevant clock specification. For example, in the case of a T-BC, it is described in Annex B of [ITU-T G.8273.2].

Method 1

1)   Input an ideal SyncE signal with QL-PRC at interface Y and an ideal IEEE 1588 signal at interface X;

2)   Wait for the T-BC to be fully stabilized;

3)   Start the SyncE transient input signal pattern (e.g., ITU-T G.8262 transient noise) at interface Y, and send ESMC with QL-EEC at interface Y between 1800 ms and 2000 ms after the start of the transient based on the time of holdover message of [b-ITU-T G.781];

4)   Wait until 15 seconds (the longest duration before the second transient) after the start of the SyncE transient;

5)   Send ESMC with QL restored to QL-PRC at interface Y after the 15 s mark of step 4, between 180 ms and 500 ms based on the time of the switching message of [b-ITU-T G.781];

6)   Wait 85 seconds and end the test.

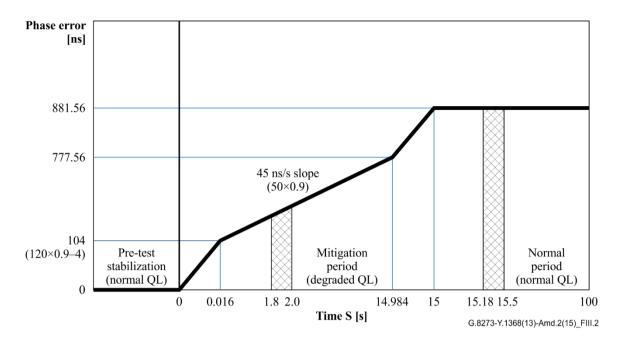The SyncE transient input signal pattern is shown in Figure III.2

Figure III.2 – Method 1 SyncE Transient Input Pattern

Method 2

1) Input an ideal SyncE signal with QL-PRC at interface Y and an ideal IEEE 1588 signal at interface X;

2) Wait for the T-BC to be fully stabilized;

3) Disconnect the input SyncE link at interface Y;

   NOTE 1 – Disconnecting the SyncE link can be accomplished by several methods (e.g., disconnecting the cable, disabling the port, etc.).

4) After 15 seconds, restore the input SyncE link at interface Y;

5) Wait 85 seconds and end the test.

NOTE 2 – This test may not be applicable or possible in all circumstances. For example, if the SyncE and PTP messages are provided via a common physical port, the SyncE cannot be disconnected without also disconnecting the PTP.

Method 3

1) Input an ideal SyncE signal with QL-PRC at interface Y and an ideal IEEE 1588 signal at Interface X;

2) Wait for the T-BC to be fully stabilized;

3) Input ESMC with QL degraded to QL-EEC at interface Y;

4) After 15 seconds, restore the input ESMC with QL restored to QL-PRC at interface Y;

5) Wait 85 seconds and end the test.

3) Bibliography

Create a Bibliography after Annex III, with the following entry:

[b-ITU-T G.781]   Recommendation ITU-T G.781 (2008), *Synchronization layer functions*.

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