

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**G.8264/Y.1364**

**Amendment 1**  
(01/2015)

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DIGITAL SYSTEMS AND NETWORKS

Packet over Transport aspects – Synchronization, quality  
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Distribution of timing information through packet  
networks

**Amendment 1**

Recommendation ITU-T G.8264/Y.1364 (2014) –  
Amendment 1

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# Recommendation ITU-T G.8264/Y.1364

## Distribution of timing information through packet networks

### Amendment 1

#### Summary

Amendment 1 to Recommendation ITU-T G.8264/Y.1364 amends clause 11.1 and introduces clause 11.1.1.

#### History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T G.8264/Y.1364	2008-10-29	15	<a href="http://handle.itu.int/11.1002/1000/9420">11.1002/1000/9420</a>
1.1	ITU-T G.8264/Y.1364 (2008) Cor. 1	2009-11-13	15	<a href="http://handle.itu.int/11.1002/1000/10433">11.1002/1000/10433</a>
1.2	ITU-T G.8264/Y.1364 (2008) Amd. 1	2010-09-22	15	<a href="http://handle.itu.int/11.1002/1000/10927">11.1002/1000/10927</a>
1.3	ITU-T G.8264/Y.1364 (2008) Cor. 2	2012-02-13	15	<a href="http://handle.itu.int/11.1002/1000/11526">11.1002/1000/11526</a>
1.4	ITU-T G.8264/Y.1364 (2008) Amd. 2	2012-02-13	15	<a href="http://handle.itu.int/11.1002/1000/11525">11.1002/1000/11525</a>
2.0	ITU-T G.8264/Y.1364	2014-05-14	15	<a href="http://handle.itu.int/11.1002/1000/12192">11.1002/1000/12192</a>
2.1	ITU-T G.8264/Y.1364 (2014) Amd. 1	2015-01-13	15	<a href="http://handle.itu.int/11.1002/1000/12390">11.1002/1000/12390</a>

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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/11.1002/1000/11830-en>.

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# Recommendation ITU-T G.8264/Y.1364

## Distribution of timing information through packet networks

### Amendment 1

#### 1) Clause 11.1

*Move the last two paragraphs of clause 11.1 to a newly created clause 11.1.1, and modify the text as shown below:*

#### 11.1 Packet-level SSM

...

Figure 11-1 makes no reference to the specific type of channel that is used. In the case of SDH, dedicated overhead is present in the transport overhead. In the case of Ethernet, this does not exist, but a mechanism is required in order to provide this communication ability.

For the case of synchronous Ethernet SSM, the message channel is based on [IEEE 802.3] Link OAM and uses an IEEE organizational specific slow protocol (OSSP) to convey the QL of the respective Ethernet Physical signal.

~~Note, [IEEE 802.3] defines multiple slow protocols and allows different slow protocols to be used within a single system over a single link segment. With respect to the ESMC, implementations must respect that the QL applies to the physical layer clock and process the ESMC appropriately. For example, link aggregation (LAG) [IEEE 802.1AX] is another function that utilizes slow protocols and provides a mechanism for carrying MAC frames over a group of links. As noted in [IEEE 802.3] clause 57.2.2, LAG operates above OAM and hence above the ESMC. Since the ESMC is modelled on Link OAM, processing of ESMC messages is therefore required on each synchronous Ethernet enabled link in the LAG group.~~

~~It is also important to note that the use of parallel links, such as the case with LAG, needs to be carefully considered due to the potential for creation of timing loops (see clauses 5.13.2 and 5.13.3.1 of [ITU-T G.781]).~~

#### 11.1.1 ESMC operation with link aggregation (LAG)

[IEEE 802.3] defines multiple slow protocols and allows different slow protocols to be used within a single system over a single link segment. With respect to the ESMC, implementations must respect that the QL applies to the physical layer clock and process the ESMC appropriately. For example, link aggregation (LAG) [IEEE 802.1AX] is another function that utilizes slow protocols and provides a mechanism for carrying MAC frames over a group of links. As noted in [IEEE 802.3] clause 57.2.2, LAG operates above OAM and hence above the ESMC. Since the ESMC is modelled on Link OAM, processing of ESMC messages is therefore required on each synchronous Ethernet enabled link in the LAG group.

It is also important to note that the use of parallel links, such as the case with LAG, needs to be carefully considered due to the potential for creation of timing loops (see clauses 5.13.2 and 5.13.3.1 of [ITU-T G.781]). As noted in clause 5.13.2 of [ITU-T G.781], the concept of a "bundle" is introduced in cases where multiple timing links share the same synchronization source (i.e., the same EEC in the case of synchronous Ethernet). In this situation, which also applies to LAG, when a network element selects one port of a bundle as its synchronization input, it has to return DNU/DUS on all timing capable ports of the bundle. It is left to the operators either to configure several synchronous Ethernet enabled ports or only one synchronous Ethernet enabled port of the LAG.



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