

International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.984.1
Amendment 1
(10/2009)

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DIGITAL SYSTEMS AND NETWORKS

Digital sections and digital line system – Optical line
systems for local and access networks

Gigabit-capable passive optical networks (GPON):
General characteristics

Amendment 1

Recommendation ITU-T G.984.1 (2008) –
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Recommendation ITU-T G.984.1

Gigabit-capable passive optical networks (GPON): General characteristics

Amendment 1

Source

Amendment 1 to Recommendation ITU-T G.984.1 (2008) was agreed on 9 October 2009 by ITU-T Study Group 15 (2009-2012).

FOREWORD

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1) Clause I.3.1, Common functions

a) *Modify the text immediately following Figure I.8 to read:*

"The GPON real-time management clock service is shown in Figure I.9. The OLT receives real-time clock data (typically using NTP, over an Ethernet interface via UDP over IP). The OLT thereby maintains its own internal RTC, which it uses to timestamp all manner of event data. Other methods of establishing the OLT RTC are possible, see Figure I.10a.

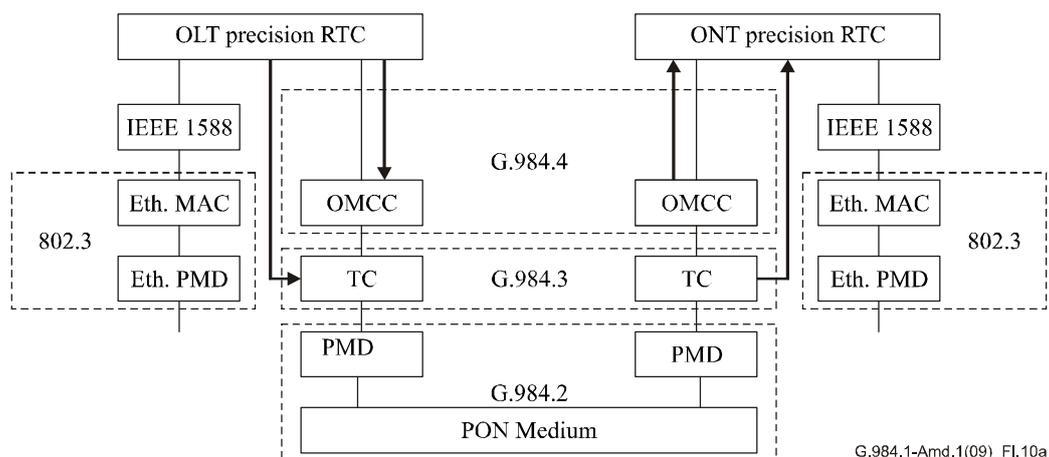
The ONT does not extend this RTC for the purposes of management. Rather, its performance-monitoring and event-collection processes are synchronized with those of the OLT via the OMCI. The OLT routinely collects all of this data every 15 minutes and logs it with the OLT RTC."

b) *Change the title of Figure I.9 to read:*

"Figure I.9 – Real-time management clock service"

c) *Insert the following text and figure immediately after Figure I.10:*

For applications where the ONT requires a very accurate real-time clock with phase errors in the nanoseconds range, the following precision real-time clock is defined. The OLT obtains a precise real-time clock, typically using IEEE 1588, optionally with some additional assistance of the previously mentioned network clock service. The OLT then passes this clocking information to the ONTs using a combination of the TC layer and the OMCI layer. The TC-layer provides a very accurate local time using the G-PON superframe counter. The OMCI-layer communicates the offset between the local time and the global time from the OLT to the ONT. The ONT can then calculate the precise time, and establish its precision RTC. If the ONT must pass the precision RTC on to client equipment, it can support the IEEE 1588 protocol towards the UNI side.



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Figure I.10a – Precision real-time clock service

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