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| **itu-old** | INTERNATIONAL TELECOMMUNICATION UNION | | | | | | | COM 15 – LS 264 – E |
| **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2013-2016 | | | | |  | | |
| **English only**  **Original: English** | | |
| **Question(s):** | | 13/15 | | |  | | | |
| **Ref.: TD 381 (PLEN/15) Annex G** | | | | | | | | |
| **Source:** | | ITU-T Study Group 15 | | | | | | |
| **Title:** | | LS/r on fronthaul (reply to IEEE-802.1-LS023) | | | | | | |
| **LIAISON STATEMENT** | | | | | | | | | |
| **For action to:** | | | | - | | | | | |
| **For comment to:** | | | | - | | | | | |
| **For information to:** | | | | IEEE 802.1 | | | | | |
| **Approval:** | | | | ITU-T SG15 meeting (22 June – 3 July 2015) | | | | | |
| **Deadline:** | | | | - | | | | | |
| **Contact:** | | | Stefano Ruffini  Rapporteur Q13/15 | | | | Email: [stefano.ruffini@ericsson.com](mailto:stefano.ruffini@ericsson.com) | | |
| **Contact:** | | | Silvana Rodrigues  Associate Rapporteur Q13/15 | | | | Email: [silvana.rodrigues@idt.com](mailto:silvana.rodrigues@idt.com) | | |
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ITU-T Q13/15 thanks IEEE 802.1 for the information on your new work item on Time Sensitive Networking for Fronthaul.

Q13/15 would like to share some information that we believe might be of interest for IEEE 802.1.

Q13/15 is working at defining solutions to distribute accurate time synchronization (based on specific IEEE 1588 profiles and network solutions).

As an example the performance analysis that was recently concluded addressed the needs of applications requiring +/-1.5 µs accuracy. For this synchronization solution, the following Recommendations have been released; some of these have been recently amended or revised as indicated in the list below:

− Recommendation ITU-T G.8260, *Definitions and terminology for synchronization in packet networks*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11521>, Revision consented at this meeting: TD 386/P Rev1

− Recommendation ITU-T G.8261/Y.1361, *Timing and synchronization aspects in packet networks*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12015>

− Recommendation ITU-T G.8262/Y.1362, *Timing characteristics of a synchronous Ethernet equipment slave clock*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12389>

− Recommendation ITU-T G.8271/Y.1366, *Time and phase synchronization aspects of packet networks*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11527>

− Recommendation ITU-T G.8271.1/Y.1366.1, *Network limits for time synchronization in packet networks*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12034>

− Recommendation ITU-T G.8272/Y.1367, *Timing characteristics of primary reference time clocks*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12393>

− Recommendation ITU-T G.8273/Y.1368, *Framework of phase and time clocks*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12012> , Amendment 2 consented at this meeting: TD 410/P Rev1

− Recommendation ITU-T G.8273.2/Y.1368.2, *Timing characteristics of telecom boundary clocks and telecom time slave clocks*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12196> ; Amendment 2 consented at this meeting : TD 411/P Rev1

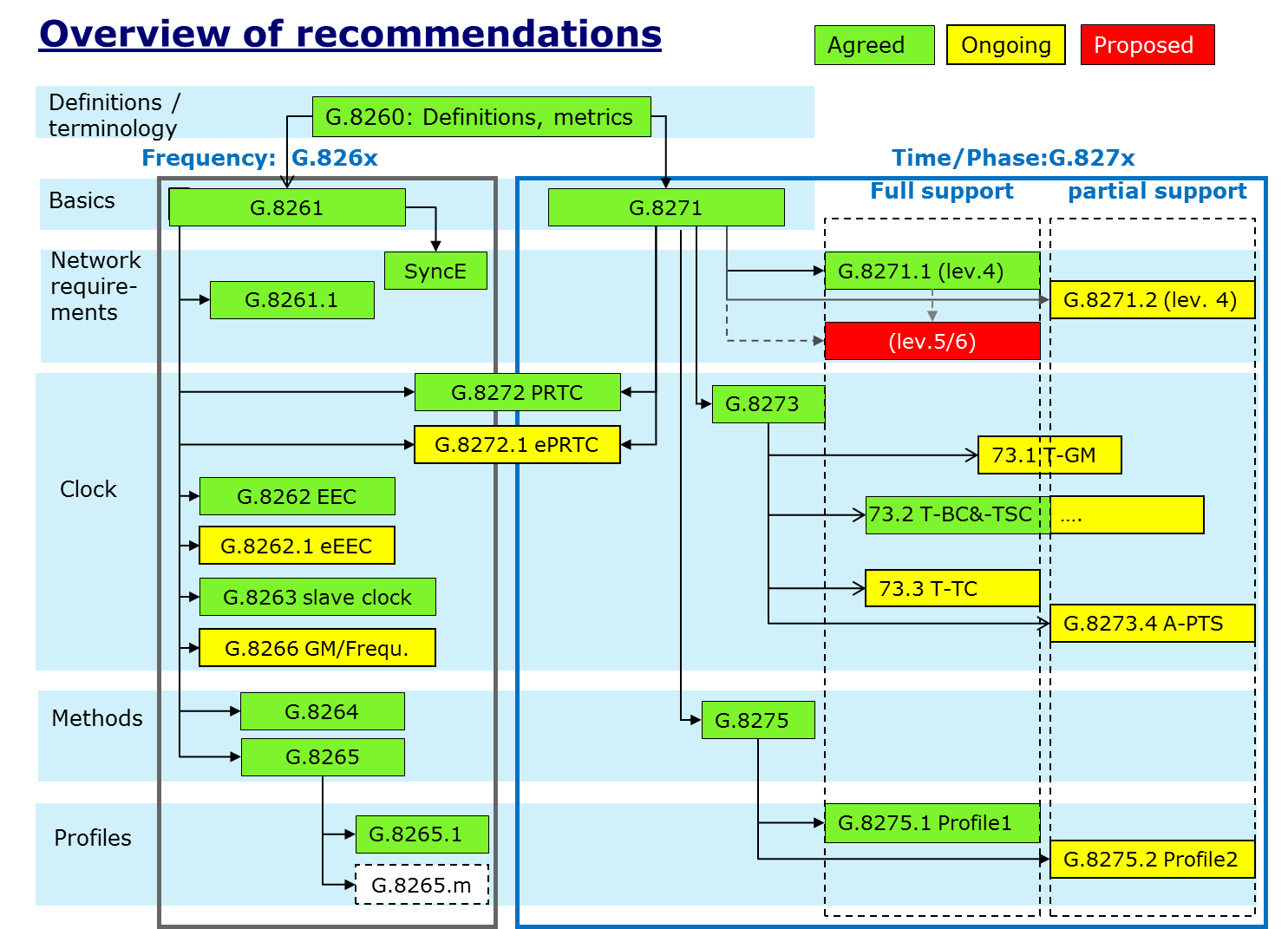
− Recommendation ITU-T G.8275/Y.1369, A*rchitecture and requirements for packet-based time and phase distribution*, <http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12011>

− Recommendation ITU-T G.8275.1/Y.1369.1, *Precision time protocol telecom profile for phase/time synchronization with full timing support from the network*, <http://www.itu.int/rec/T-REC-G.8275.1-201407-I/en>

We would in particular highlight the work done in ITU-T G.8271 and ITU-T G.8271.1 to identify the sources of time error and related time error budgeting in typical telecom network deployments.

Finally, we would like to mention that Q13/15 is currently working on defining solutions to carry more accurate time synchronization, including cases when meeting a maximum relative phase deviation might be sufficient (the target requirement is still under discussion, values as low as +/- 100 ns have been suggested). This work includes also the definition of an enhanced version of Synchronous Ethernet.

For your information the following figure summarizes the relevant time and frequency synchronization Recommendations developed or under study by Q13/15.



We look forward to continuing our good working relationship with the IEEE 802.1.

Attach:

1. Draft revised Recommendation ITU-T G.8260  
(Consented, 3 July 2015) (TD386/PLEN Rev.1)

2. Draft Amendment 2 to Recommendation ITU-T G.8273/Y.1368 (2013)  
(Consented, 3 July 2015) (TD410/PLEN Rev.1)

3. Draft Amendment 2 to Recommendation ITU-T G.8273.2/Y.1368.2 (2014)  
(Consented, 3 July 2015) (TD411/PLEN Rev.1)

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