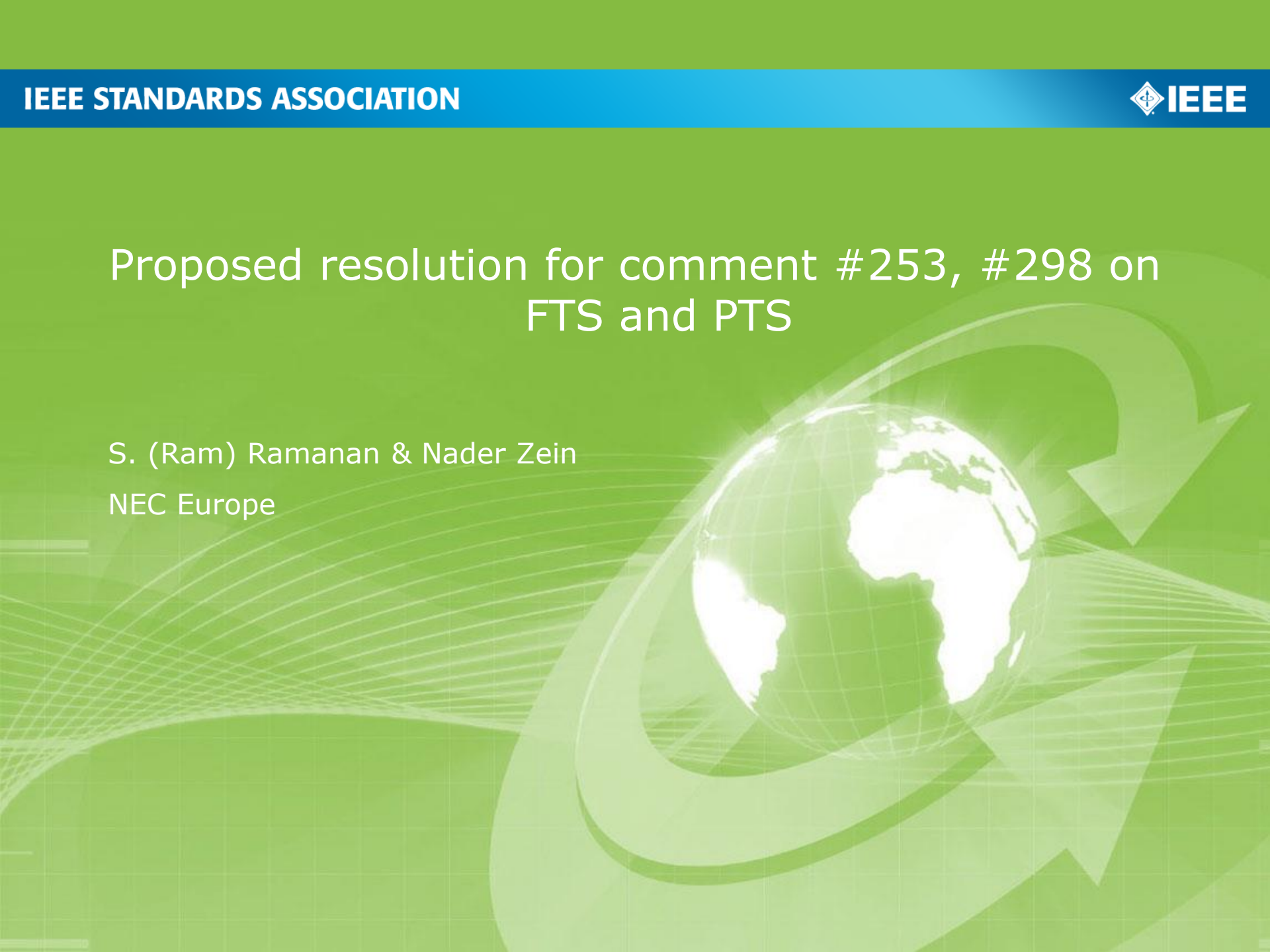


Proposed resolution for comment #253, #298 on FTS and PTS

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**Proposed resolution for comment #253, #298 on
FTS and PTS**

Date: 2019-01-08

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WG ballot comment #253, #298

						statement is not necessary						
04												
05	252	Editorial	Yes	43	8.5.2	23	"network-based" is wrong	Replace by "packet-based".	Accept	New	Jessy Rouyer	Nokia
	253	Technical	Yes	43	8.5.2	34	IEEE 1914.1 should be very careful about including the G 8275.2 profile with just a statement that "performance limitations need to be considered for each implementation". In the single-split (NFVI-I or NFVI-II) and double-split (NFVI-I) network models, there is extra challenge since RU is an involved slave. This fronthaul segment is precisely the coverage of the xRAN and 802.1CM specs. 802.1CM already states that G8275.2 is not suitable for fronthaul application. xRAN states the high risk in guaranteeing performance and keeps G 8275.2 as a FFS item. If 1914.1 still insists on including G8275.2, it must provide more content to state the risk, restriction and alignment with other standards.	Reconsider the need for G 8275.2 PTS as an option. At least, clearly state that support of G 8275.2 is "for further study" and align with 802.1CM and xRAN in terms of risk.	None	New	Jessy Rouyer	Nokia
								still open as G.8275.1 and G.8275.2 discussion				
06	298	Technical	Yes	43	8.5.2	34	G 8275.2 is not designed for more stringent time/phase	Remove supporting G 8275.2, or at least add a note stating that	None	New	Yong Fang XU	Nokia Shanghai Bell
07	1	Technical	Yes	44	8.5.3	23	Postponed from D2.0 WG ballot: #297	STILL OPEN: refer to #67	AIP	New	postponed from WG ballot for D2.0	
								still open as G.8275.1 and G.8275.2 discussion				

Discussions from 1914.1 conf call

Problems with ITU-T G.8271.2 and G.8275.2

Partial Timing Support (PTS) in NGFI - Stephan Roullot (Nokia): proposes to specify G.8275.1 as mandatory and G.8275.2 as optional.

Synchronization options: ITU -T G.8275.1 and T G.8275.1 - Karim Traore (Microsemi): proposes to keep at least one of G.8275.1 and G.8275.2 shall be supported.

<http://sites.ieee.org/sagroups-1914/p1914-1/ieee-p1914-1-tf-teleconference-materials/>.

No consensus was reached. On going discussions.

Proposed Resolution

FTS mandatory, PTS optional with additional clarifications about performance of PTS not guaranteed

- FTS shall be mandatory as specifications are mature while PTS should be optional as PTS is work in progress (not stable or mature) and PTS's synchronization characteristics should be described as FFS.

Implementation of proposed Resolutions/changes to 1914.1 D3.0 spec

8.5.1.2.2 NGFI TE Reference Values

17 e) |PGM_TE|. The specified TE is 30ns for ePRTC [B21] and, 100ns for PRTC [B20]. These
18 values include the TE from the combined T-GM.

19 Some example results for NGFI TE are given in Table H.1. The values that are assumed for each of the
20 above variables are shown in the table.

Propose to add the following Note after line 20 above

Note: This section considers Full Timing Support from the network as in G.8271.1[B11]. if Partial Timing Support from the network (e.g. G.8271.2) is used, the performance shall be for further study.

Resolutions/changes to 1914.1 D3.0 spec

8.5.2 Time Distribution Mechanism

Propose replacing the following text in page 26

37 a) Physical layer frequency support (e.g. SyncE) might not be required if G.8275.2 is used.

With

Physical layer frequency support (e.g. SyncE) may not be required if ITU-T G.8275.2 is used. However, if time distribution needs higher accuracy (e.g. $TE < 1\mu s$), SyncE or enhanced SyncE shall be required.

9.3 Synchronization (changes)

1914.1 D3.0 current text is highlighted yellow while new/revised proposed text in blue.

Changes to page 32 lines as shown below.

- 1 For **packet-based time distribution**, an FTN shall support at least one of the following PTP profiles, with the
2 optional exceptions that are listed henceforth. **replace to "IEEE1588-2008 based"**
- 3 a) ITU-T G.8275.1 PTP Telecom Profile for Phase/Time Synchronization with Full Timing Support
4 from the Network.
- 5 b) ITU-T G.8275.2 PTP Telecom Profile for Phase/Time Synchronization with Partial Timing
6 Support from the Network.
- 7 Exceptions:
- 8 a) Items that pertain only to Ethernet (e.g. Ethernet encapsulation format and multicast MAC
9 addresses) are not applicable if the NGFI transport layer is not Ethernet (e.g. for PTP-over-OTN
10 using OTU OSMC) **add following here**
11 **Note: These performance may also be used when G.8275.2 is used under the
understanding of undefined performance.**
- 12 **An FTN, operating as a PTP boundary clock or a PTP ordinary clock, shall satisfy at least one of the**
13 **following performance classes:** **propose to replace text;**
14 a) G.8273.2 Class B for cTE and dTE [B13] **An FTN, operating as a PTP boundary clock or a PTP**
15 b) G.8273.2 Class C for cTE and dTE [B14] **ordinary clock with G.8275.1 PTP Telecom Profile, shall satisfy**
at least one of the following performance classes:
- 16 **An FTN, operating as a PTP transparent clock, shall satisfy** **propose to replace text;**
17 a) G.8273.3 Class B for cTE and dTE [B15][B16] **An FTN, operating as a PTP transparent clock with G.8275.1**
PTP Telecom Profile, shall satisfy the following performance
class.
- 18 **9.3.2 Frequency Distribution**
Propose to add text
- 19 **An FTN** **Note: These performance may also be used when G.8275.2 is used under the**
understanding of undefined performance.

A.4 NGFI Conformance Statement proforma for FTN (changes)

1914.1 D3.0 current text is highlighted yellow while new/revised proposed text in blue.
Changes to page 42 lines as shown below.

			supported. For Class D: 100 μs		
--	--	--	--------------------------------	--	--

1 A.4.2 Interface rate

Item	Description	Subclause	Value/Comment	Status	Support
N.LR	FTN interface rate on the client side should support one of the following: 10Gbps, 25Gbps, 40Gbps, 100Gbps, 200Gbps, 400Gbps	9.2	Specify the frequency distribution method(s)	M	[] Yes [] No

Propose to add item of SyncE function to this list as not mentioned yet.
Description: NGFI networks compliant networking device shall support at G.8262/G.8262.1 and G.8264 if use G.8275.1 for time distribution method(s).
Value/Comment : Specify the frequency distribution method(s)
Status : "M"

2 A.4.3 Synchronization

Item	Description	Subclause	Value/Comment	Status	Support
N.S1	NGFI networks compliant networking device shall support at least one of G.8275.1 or G.8275.2	9.3	Specify the time distribution method(s)	M	[] Yes [] No
N.S2	NGFI networks compliant networking device shall meet G.8273.2 class B T-CC and T-BC, or class C T-T-BC or T-TSC, or G.8273.3 class B T-TC performance	9.3	Specify the performance class(es)	M	[] Yes [] No

missed terminology to "T-GM"

3

Propose to separate Item regarding the node of G.8273.2 ClassC.
Because, G.8273.2 ClassC need to support Enhanced SyncE (G.8262.1/G.8264).
Thus, G.8273.2 ClassC has different functionality from G.8273.2 ClassB.
to 65 Celsius.

Propose to separate Item regarding G.8275.2 support and this Item's status should be "O".
Because, In N.S2, the described node types are the node used in G.8275.1 PTP telecom profile. On the other hand, T-BC-A/P, T-TSC-A/P of G.8273.4 used in G.8275.2 is not mentioned. Therefore, G.8275.2 does NOT satisfy the requirement that Status be "M".

Subclause	Value/Comment	Status	Support
9.4	Specify the temperature range	O	[] Yes [] No

G.1.1 Timing Topology 1 (changes)

14 While Figure G.4 shows all FTN nodes as being PTP-aware, satisfaction of some TAE requirements could
15 also be achieved using G.8275.2 methods, under appropriate circumstances, even if some of the
16 intermediate nodes are not PTP-aware.

1914.1 D3.0 current text is highlighted yellow while new/ revised proposed text in blue.

Proposed text changes to page 66, line #14-16.

While Figure G.4 shows all FTN nodes as being PTP-aware, satisfaction of some TAE requirements could also be achieved Application Category "C1", "C2" or "D" for "TAE Requirements at the Radios"(Sec8.5.1 Table 4) using G.8275.2 methods, under appropriate circumstances, even if some of the intermediate nodes are not PTP-aware.

Some additional changes

While we are revising the spec for the proposed changes related to FTS/PTS, we identified some additional changes and refinement for the synchronisation sections that would improve readability of the specifications.

Some additional changes

Page 27, line #30

30 c) frequency recovery direct from GNSS **ToD**
In bullet point (c), ToD is information of time and status only, and
Freq recovery cannot be realized by "ToD". As "ToD" does not
include "timing information". ITU-T G.8271 does not define any
timing requirement for Time Messages "ToD".

Propose to replace **ToD** with **1PPS or Timing Signal**.

Also replace **ToD** in page 28, line#1 same as above.