

Editor's Report 60802 Draft 0.5

**January, 2019
IEEE802 Interim, Hiroshima**

Jordon Woods, Analog Devices



CONTENTS

FOREWORD	3
INTRODUCTION	3
1 Scope.....	3
2 Normative references	3
3 Terms, definitions, symbols and abbreviated terms	3
3.1 TSN-IA defined Terms	3
3.2 List of terms and definitions given in IEC 61784-2, IEEE 802, IEEE 802.3, IEEE 802.1Q and IEEE 802.1AS.....	3
3.3 Abbreviated terms and acronyms.....	3
3.4 Conventions	3
3.4.1 Conventions for (sub)clause selections of referenced documents.....	3
3.4.2 Convention for Capitalizations.....	3
Sequence.....	3
4 Overview of TSN in Industrial Automation.....	3
4.1 Control Loop Basic Model.....	3
4.2 Industrial Traffic Types	3
5 Conformance.....	3
5.1 Requirements Terminology.....	3
5.2 Profile Conformance Statement (PCS).....	3
6 Required Functions for an Industrial Network	3
6.1 PHY and MAC selection.....	3
6.1.1 General.....	3
6.1.2 IEEE 802.3-2015 Selections.....	3
6.2 IEEE 802.1 selection	3
6.2.1 General.....	3
6.2.2 Bridge selections.....	3
6.2.3 Applicable amendments to IEEE 802.1Q™-2018	3
6.2.4 Clock synchronization selection.....	3
6.2.5 Security selection.....	3
6.2.6 Other bridge functions	3
6.3 Other profiles.....	3
6.4 Bridge delay requirements	3
6.5 Network access	3
6.6 Bridge FDB requirements	3
6.7 Bridge resource requirements.....	3
6.8 Quantities	3
6.9 Management selection.....	3
6.9.1 General.....	3
6.9.2 Protocols.....	3
7 Overview of the Profiles	3
Annex A PCS proforma – Time-sensitive networking profile for industrial automation	3
A.1 Introduction	3
A.2 Abbreviations and special symbols	3
A.2.1 Status symbols.....	3
A.2.2 General abbreviations	3

Changes since last editor's report

- Since the report provided during 11/2018 IEEE Plenary Meeting in Bangkok:
 - <http://www.ieee802.org/1/files/public/docs2018/60802-woods-D04update-1018-v00.pdf>
- Section 6 - Required Functions for an Industrial network.
 - Completed standards-based view of required functions
 - Moved the “quantities” proposal back to section 6 based upon feedback in Bangkok.
 - Removed Device classes
- Annex A - PCS proforma
 - Initial cut of PCS proforma complete

Section 6

- Removed Table 4 - Device Classes
 - Found that mandatory features and optional features were identical between the bridge and the constrained bridge.
 - The editor believes that the correct place for this distinction would be in the PCS Proforma and considers this part of the on-going discussion regarding the “quantities” proposal.
- Moved the “quantities” text from Annex A back to section 6 based upon feedback in Bangkok
 - Current Proposal for quantities:
 - Define the relevant normative parameters;
 - Giving quantities is mandatory for conformance;
 - Define the required quantities for a limited set of different classes (optional);
 - Allow “wildcard” numbers for the defined parameters.
 - Align terminology (talker/producer, network diameter)

Annex A – PCS Proforma

- Included an initial contribution for the PCS Proforma:

A.4	Common requirements	3
A.4.1	Implementation identification.....	3
A.4.2	Profile summary, IEC/IEEE 60802	3
A.4.3	Implementation type	3
A.4.4	Common requirements— PHY and MAC.....	3
A.4.5	Common requirements— Bridges	3
A.4.6	Major capabilities—Bridges.....	3
A.4.7	IEEE Std 802.1Q requirements—Bridges.....	3
A.4.8	Time Synchronization Requirements	3
A.4.9	Security Requirements.....	3

Other Gaps (from Annex Z)

1. Regular synchronization of .1Qbv “tick” event to the 802.1AS-Rev clock
2. Distributed and Centralized model “UNI” may need to be expanded.
3. Need mechanism for identifying “In-sync” and “out of Sync” for all time-aware systems in the network.
4. Network diagnostic – base on Gunter’s contribution.
5. Synchronization – base on Gunter’s contribution.
6. Defined range of destination MAC address, do we get our own OUI
7. Do we need a standardized TLV for LLDP to identify the TSN domain
8. Do we need a section to distinguish between constrained devices vs other devices?
9. Management Reconciliation
 - <http://www.ieee802.org/1/files/public/docs2018/60802-Steindl-Configuration-0718-v02.pdf>
10. Need to identify network management access protocols and select data models for management.
11. Bridge FDB and resource requirements
12. Define procedures to implement hot-stand-by masters.
13. Do we need an IEC/IEEE translation dictionary?
14. Reference style IEC guides in the profile.
15. Editor’s note: Do we need a different class of device for constrained devices (two-port mac relays for instance) or a separate profile? (Table 12-24 in 802.1Q-2018 has an example of how this might be done)?
16. Do we need to specify link aggregation in support of event-based control?
 - <http://www.ieee802.org/1/files/public/docs2018/60802-stanica-event-based-control-1118-v02.pdf>
 - <http://www.ieee802.org/1/files/public/docs2018/60802-stanica-link-aggregation-1118-v02.pdf>
17. How do we deal with destination MAC address constraints
 - <http://www.ieee802.org/1/files/public/docs2018/60802-Steindl-DaMacConstraints-0718-v02.pdf>

Next Steps

- The editor wishes to move the current draft (D0.5) to task group ballot
 - Suggestions and comments are getting increasingly difficult to track
 - Need a better means to document consensus
 - Therefore, a more formal comment resolution is required.
- A reminder: task group ballot will follow IEEE process
 - This means all comments must be submitted per the ballot instructions
 - All comments must be submitted on the appropriate comment form:
<http://www.ieee802.org/1/files/private/commenting-tool/MyBallot-tools/>

Ballot Form (example)

	A	B	C	D	E	F	G
1	Task Force Review and Working Group Ballot comment input form						
2	First name			Surname		Affiliation	Phone
3	Jordon			Woods		Analog Devices Inc.	<input type="text"/>
4	Click on column headers for help						
5	Category	Page	Sub-clause	Line #	Comment	Proposed Change	Must Be Satisfied
6	Editorial	13	6.1.1	238	TBD should be an editor's note	Resolve the question or change to an editor's note	Yes
7	Technical	13	6.1.2	244	In table 8, the constraint "Applies only if 6.1.1 fulfilled" is non-specific.	As 6.1.1 is mandatory in the sense that one PHY must be selected, the constrain should be changed to "applies only if this PHY is selected"	Yes
8	Technical	14	6.1.2	246	In table 9, the constraint "Applies only if 6.1.1 fulfilled" is non-specific.	As 6.1.1 is mandatory in the sense that one PHY must be selected, the constrain should be changed to "applies only if this PHY is selected"	Yes
9	Technical	19	6.2.4.4	328	The maximum number of hops in a network is not a bridge or end station requirement.	Either remove the text or change the language to indicate that the text/table is informative	Yes
10	Technical	22	6.4	371	Table 22 indicates bridge delay is measure MII to MII. Figure 2 seems to indicate bridge delay is measure from time on the wire.	Update figure or table to be consistent.	Yes
11							

Thank you