

<p style="text-align: center;">Meeting of the IEC/IEEE 60802 Joint Project 2019-08-17</p>

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

TC65: Industrial-process measurement, control and automation

SC65C: Industrial communication networks

PT 60802: Time sensitive networking profile for industrial automation

Institute of Electrical and Electronics Engineers, Inc. (IEEE)

IEEE 802: LAN/MAN Standards Committee

IEEE 802.1: Higher Layer LAN Protocols Working Group

IEEE 802.1 TSN: Time-Sensitive Networking Task Group

Meeting: IEC/IEEE 60802 Joint Project

Meeting was based on the meeting announcement; see IEC collaboration tool <http://collaboration.iec.ch/> and <http://www.ieee802.org/1>

Date: 2019-07-17 — 2019-07-19

Location: Vienna, Austria

IEC WG9/PT 60802 Convenor and IEC/IEEE 60802 Joint Project chair: Ludwig Winkel

Daily minutes by: Josef Dorr

Minutes compiled by: Ludwig Winkel and Jessy Rouyer

Published minutes: Collaboration tool <http://collaboration.iec.ch/>, and IEEE 802.1 web site <http://www.ieee802.org/1/files/public/60802>

Ludwig Winkel, IEC WG9/PT60802 Convenor and IEC/IEEE 60802 Joint Project Chair (60802 Chair), and János Farkas, IEEE 802.1 TSN Task Group Chair (TG Chair), presided. Josef Dorr, IEC/IEEE 60802 Joint Project Secretary (60802 Secretary) wrote the minutes.

At the beginning of the meetings on each day:

- The IEEE-SA PatCom Patent Slides for Standards Development Meetings and the IEEE 802 Participation slide were presented (<http://standards.ieee.org/about/sasb/patcom/materials.html>).
- The Call for Potentially Essential Patents was made. There were no responses to the calls prior to the end of the week's session.
- The IEC WG9/PT60802 Convenor reminded the IEC participants that patent rules similar to those of IEEE-SA apply in IEC, reminded all that patents required for use of the IEC/IEEE 60802 profile must be announced to IEC and IEEE and made available using the IEC licensing form, and reminded that presentations shall not have copyright marks or confidentiality information.

- The agenda and the expected results of the day were reviewed and approved. The final agenda is in <http://www.ieee802.org/1/files/public/docs2019/admin-TSN-agenda-0719-v03.pdf> and also available at <https://1.ieee802.org/july-2019-plenary-meeting-in-vienna-austria-tsn-tg-agenda/>.

Draft minutes were reviewed at the end of the week's meetings under the lead of the 60802 Secretary.

Attendance:

Time-Sensitive Networking TG + IEC/IEEE 60802 Joint Project (Friday, 19-Jul-2019, 13:00 - 18:00)							
Time-Sensitive Networking TG + IEC/IEEE 60802 Joint Project (Friday, 19-Jul-2019, 08:30 - 12:00)							
IEC/IEEE 60802 Joint Project (Thursday, 18-Jul-2019, 08:00 - 12:30)							
IEC/IEEE 60802 Joint Project (Wednesday, 17-Jul-2019, 13:30 - 18:00)							
IEC/IEEE 60802 Joint Project (Wednesday, 17-Jul-2019, 10:30 - 12:30)							
Time-Sensitive Networking TG + IEC/IEEE 60802 Joint Project (Wednesday, 17-Jul-2019, 08:00 - 10:00)							
Last Name	First Name	Affiliation					
ADEMAJ	Astrit	TTTech Computertechnik AG	•	•	•	•	•
Belliardi	Rudy	Schneider Electric; IEC TC 65	•	•	•	•	•
Bernhard	Hans-Peter	Silicon Austria Labs SAL	•	•	•		
Bierschenk	Jens	Robert Bosch GmbH	•				
Boiger	Christian	b-plus GmbH	•			•	•
Bottorff	Paul	Hewlett-Packard Development Company, L.P.				•	•
Canchi	Radhakrishna	Kyocera International Inc.	•	•		•	
Chandran	Sarin	Broadcom Corporation	•				
Chang	Xin	Huawei Technologies Co. Ltd				•	•
Chen	David	Nokia				•	•
Chen	Feng	Siemens AG	•			•	•
Chen	Lihao	Huawei Technologies Co. Ltd	•	•	•		•
Congdon	Paul	Tallac Networks; Huawei	•				
Cummings	Rodney	National Instruments Corporation	•	•			
Dorr	Josef	Siemens AG	•		•	•	•
Duan	Shihui	China Academy of Information and Communications Technology (China Academy of TeleCommunication Research, MIIT) CAICT (CATR)	•	•	•	•	•
Enzinger	Thomas	B&R Industrial Automation	•	•	•	•	•
Farkas	Janos	Ericsson	•			•	•
Fincher	Scott	Extreme Networks	•				
Finn	Norman	Huawei Technologies Co. Ltd	•				•
Gunther	Craig	Robert Bosch GmbH	•				•
Haddock	Stephen	Stephen Haddock Consulting, LLC	•				
Han	Ruibo	China Mobile Communications Corporation (CMCC)	•				
Hantel	Mark	Rockwell Automation	•	•	•		•
Hasegawa	Akio	Advanced Telecommunications Research Institute International (ATR)	•		•		
Henry	Jerome	Cisco Systems, Inc.	•				•
Holness	Marc	Ciena Corporation	•				
Hopf	Daniel	Continental Automotive GmbH	•				
Hotta	Yoshifumi	Mitsubishi Electric Corporation	•		•	•	•
Huang	Qiang	CRRC Zhuzhou Institute Co.Ltd	•	•	•	•	•
Itaya	Satoko	National Institute of Information and Communications Technology (NICT)	•				
Ito	Yoshihiro	Nagoya Institute of Technology	•				
Joung	Jinoo	Sangmyung Univ.	•				•
Kabra	Lokesh	Synopsys, Inc.					•
Karl	Michael	Marvell Semiconductor, Inc.	•				
Katsalis	Kostas	Huawei Technologies Duesseldorf GmbH	•	•	•		
Kehrer	Stephan	Hirschmann Automation and Control, Inc.	•	•		•	•
Kim	Ryangsoo	ETRI	•				•
KONDO	Kenji	Yaskawa Electric Corp	•			•	•
KOTO	Hajime	National Institute of Information and Communications Technology (NICT)	•		•		
Lawlis	James	Ford Motor Company	•				

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Time-Sensitive Networking TG + IEC/IEEE 60802 Joint Project (Wednesday, 17-Jul-2019, 08:00 - 10:00)									
Last Name	First Name	Affiliation							
Lehment	Nicolas	NXP Semiconductors	•	•	•	•	•	•	•
Mangin	Christophe	Mitsubishi Electric Corporation	•	•	•	•	•	•	•
Mansfield	Scott	Telefon AB LM Ericsson	•						
Maruhashi	Kenichi	NEC Corporation	•						
McCall	David	Intel	•	•	•	•			
McMillan	Larry	Western Digital Corporation						•	•
Miao	xinyu	China Academy of Information and Communications Technology (China Academy of TeleCommunication Research, MIIT) CAICT (CATR)			•			•	•
Mueller	Sina	Hirschmann Automation and Control, Inc.					•	•	•
Mustala	Tero	Nokia	•						
Myers	Roy	INDEPENDENT	•						
Nakano	Hiroki	NETREQS Co., Ltd.	•						
Noseworthy	Bob	University of New Hampshire InterOperability Laboratory (UNH-IOL)	•	•			•		
ohue	hiroshi	panasonic	•	•					
Osagawa	Daisuke	Mitsubishi Electric Corporation	•	•	•	•	•	•	•
Pannell	Donald	NXP Semiconductors	•	•	•				
Parmar	Hari	Marvell Semiconductor, Inc.	•					•	
Petre	Razvan	Spirent Communications	•	•	•				
Potts	Michael	General Motors Company	•	•	•			•	
Proell	Dieter	Siemens AG	•				•	•	•
QIU	WEI	Huawei Technologies Co., Ltd	•						
Regev	Alon	Keysight Technologies	•	•	•	•			
Ren	Maohua	CRRC Zhuzhou Institute Co.Ltd	•	•	•			•	•
Rouyer	Jessy	Nokia	•				•	•	
Sato	Atsushi	Yokogawa Electric Corporation	•	•	•	•	•	•	•
Schewe	Frank	Phoenix Contact	•	•	•	•	•	•	•
Seewald	Maik	Cisco Systems, Inc.	•	•			•	•	
Sivakolundu	Ramesh	Cisco Systems, Inc.	•						
Soeda	Tatsuo	Yaskawa	•	•	•	•	•	•	•
Specht	Johannes	University of Duisburg-Essen and General Motors Company	•						•
Stanica	Marius	ABB AB	•	•	•	•	•	•	•
St-Denis	Bernie	NXP Semiconductors	•	•			•		
Steindl	Guenter	Siemens AG	•	•	•	•	•		•
Sun	Liyang	HUAWEI					•		
Takita	Daisuke	Mitsubishi Electric Corporation	•	•	•	•	•	•	•
Tarui	Isao	Mitsubishi Electric Corporation	•	•	•	•	•	•	•
traore	karim	Microchip/Microsemi Corporation	•						
Varga	Balazs	Ericsson AB	•	•	•	•	•	•	•
Wang	Xinyuan	Huawei Technologies Co. Ltd	•					•	
Winkel	Ludwig	Siemens AG	•	•	•	•	•	•	•
Wood	Graeme	British Standards Institution (BSi), Rockwell Corp	•	•	•	•	•	•	•
Woods	Jordon	Analog Devices Inc.	•					•	•
Yamaura	Takahiro	TOSHIBA Corporation	•	•				•	•
Yin	Yue	Huawei Technologies Co., Ltd	•						
Yoo	Hark	Electronics and Telecommunications Research Institute (ETRI)	•	•	•			•	•
YU	Yi	Rockwell Automation	•					•	•
Zein	Nader	NEC Europe (NLE)	•						
Zhao	William	Siemens AG					•	•	•
Zinner	Helge	Continental Automotive Systems AG	•						
Zuponic	Steven	Rockwell Automation					•	•	•

Wednesday 17 July 2019

8:00 AM call to order by the TG Chair and the 60802 Chair

The TSN TG and IEC/IEEE 60802 Joint Project had a joint meeting.

The TG Chair and the 60802 Chair:

- Welcomed the participants of the IEC/IEEE 60802 Joint Project, a joint effort of the:
 - IEC 65C WG9/PT 60802 (TSN) Project Team, led by Ludwig Winkel; and
 - IEEE 802.1 Time-Sensitive Networking Task Group, led by the TG Chair.
- Provided information about internet access, lunch, attendance log to the IEC/IEEE 60802 Joint Project.

Mark Hantel and the 60802 Chair reported on the IEC/IEEE Conformity Assessment (CA) status and activities. The CA activities will be continued with a July 22-24, 2019 face-to-face meeting in Vienna, Austria.

The 60802 Chair noted that the next IEC/IEEE 60802 Joint Project meeting will take place September 18-20, 2019 during the September 2019 IEEE 802.1 interim session in Edinburgh, UK. The meeting after that will take place November 12-15, 2019 during the November 2019 IEEE 802.1 plenary session in Waikoloa, HI, USA.

Jordon Woods, 60802 editor, presented *Editor's Report 60802 Draft 1.1*

<http://www.ieee802.org/1/files/public/docs2019/60802-woods-d1-1-update-0719-v01.pdf>

Stephan Kehrer presented *P802.1Qdj Amendment: Configuration Enhancements*

<http://www.ieee802.org/1/files/public/docs2019/dj-PAR-CSD-comments-0719-v01.pdf> to resolve comments received on the proposed PAR

<http://www.ieee802.org/1/files/public/docs2019/dj-draft-PAR-0519-v01.pdf> and CSD

<http://www.ieee802.org/1/files/public/docs2019/dj-draft-CSD-0519-v01.pdf>. led the discussion on the received comments on P802.1Qdj [PAR](#) and [CSD](#).

Disposition:

- Updated PAR: <http://www.ieee802.org/1/files/public/docs2019/dj-PAR-0719-v01.pdf>
- Updated CSD: <http://www.ieee802.org/1/files/public/docs2019/dj-CSD-0719-v01.pdf>

Thomas Enzinger presented *OPC FLC Field Level Communications*

<http://www.ieee802.org/1/files/public/docs2019/60802-Enzinger-FLC-Introduction-0519-v03.pdf> and *FLC's needs and expectations of the IEC/IEEE 60802 profile (V1.0)*

<http://www.ieee802.org/1/files/public/docs2019/60802-Enzinger-FLC-Expectations-0719-v04.pdf>.

Disposition: Contributions and Draft comments from individuals working on OPC FLC are welcome. The presentation was continued on Thursday.

10:00 AM recess

10:30 AM call to order by the 60802 Chair

The IEC/IEEE 60802 Joint Project met separately from the TSN TG until Friday.

Günter Steindl presented *Topics from the Vienna preparation meeting*

<http://www.ieee802.org/1/files/public/docs2019/60802-Steindl-WhyQuantities-0719-v01.pdf> and *Conformance Class IEC/IEEE 60802 V0.5*

<http://www.ieee802.org/1/files/public/docs2019/60802-Steindl-et-al-ExampleSelection-0719-v05.pdf>.

Disposition: The latter contribution was discussed. The meeting agreed (none dissenting) to continue discussing and updating it in the afternoon.

12:00 – 1:30 PM recess

Günter Steindl continued leading the discussion on, and updating *Conformance Class IEC/IEEE 60802 V0.5* <http://www.ieee802.org/1/files/public/docs2019/60802-Steindl-et-al-ExampleSelection-0719-v05.pdf>.

Disposition: Continued later.

3:30 – 4:00 PM recess

Günter Steindl continued leading the discussion on, and updating *Conformance Class IEC/IEEE 60802 V0.5* <http://www.ieee802.org/1/files/public/docs2019/60802-Steindl-et-al-ExampleSelection-0719-v05.pdf>.

Disposition: Continued later.

6:00 PM recess

Thursday 18 July 2019

8:00 AM call to order by the 60802 Chair, 10:00 – 10:30 AM recess

Feng Chen presented *IEEE P802.1Qdd Resource Allocation Protocol (RAP) Introduction to Draft 0.0* <http://www.ieee802.org/1/files/public/docs2019/dd-chen-D0-0-introduction-0719-v01.pdf>.

Disposition: Further discussion needed.

Steve Zuponic and Mark Hantel presented *Data Sheets* <http://www.ieee802.org/1/files/public/docs2019/60802-Zuponic-Data-Sheet-Discussion-0719-v00.pdf>.

- The 60802 Chair noted that a normative example of an electronic data sheet is provided by the work of IEC SC3D with project number IEC 61360 describing the Common Data Dictionary (CDD). This database is hosted by the IEC Central office and is also used in collaboration with ISO. IEC SC3D also has a liaison with eCI@ss <https://www.eclass.eu/>. IEC TC65 ahG4 is promoting this CDD to be used for industrial automation including communication networks. *IEC 61987 - SC 65E/WG 2 - Common Data Dictionary (CDD - V2.0014.0016)* <https://cdd.iec.ch/cdd/iec61987/iec61987.nsf/TreeFrameset?OpenFrameSet&onqletactif=1> is a CDD example.

Disposition: Further discussion needed.

Thomas Enzinger continued presenting *FLC's needs and expectations of the IEC/IEEE 60802 profile* <http://www.ieee802.org/1/files/public/docs2019/60802-Enzinger-FLC-Expectations-0719-v04.pdf>.

Disposition: Contributions and Draft comments from people working on OPC FLC are welcome.

Günter Steindl continued leading the discussion on, and updating *Conformance Class IEC/IEEE 60802 V0.5* <http://www.ieee802.org/1/files/public/docs2019/60802-Steindl-et-al-ExampleSelection-0719-v05.pdf>.

Disposition: Continued later.

12:00 PM recess

Friday 19 July 2019

8:30 AM call to order by the TG Chair and the 60802 Chair, 10:00 – 10:30 AM recess

The TSN TG and IEC/IEEE 60802 Joint Project had a joint meeting.

The TG Chair and the 60802 Chair summarized the work performed so far in this session.

Jordon Woods, 60802 editor, presented and led a *discussion* on Annex Z of <http://iee802.org/1/files/private/60802-drafts/d1/60802-d1-0.pdf>.

Disposition: Annex Z was updated.

Lihao Chen presented *TSN Configuration Interaction*
<http://www.iee802.org/1/files/public/docs2019/new-chen-TSN-Configuration-Interaction-0719-v01.pdf>.

Disposition: Further discussion needed.

Mark Hantel presented *TSN Domains vs. TSN-IA Domains*
<http://www.iee802.org/1/files/public/docs2019/60802-Hantel-TSN-Domains-vs-TSN-IA-Domains-0719-v00.pdf>.

Disposition: Further discussion needed.

12:00 PM recess

1:00 PM call to order by the 60802 Chair, 3:00 - 3:45 PM recess

Jordon Woods, 60802 editor, presented *Management Model*
<http://www.iee802.org/1/files/public/docs2019/60802-woods-ManagementModel-0719-v00.pdf>.

Disposition: Further discussion needed.

Günter Steindl continued leading the discussion on, and updating *Conformance Class IEC/IEEE 60802 V0.5* <http://www.iee802.org/1/files/public/docs2019/60802-Steindl-et-al-ExampleSelection-0719-v05.pdf>.

Disposition: Further discussion needed. Updated *Conformance Class IEC/IEEE 60802 V1.0*: <http://www.iee802.org/1/files/public/docs2019/60802-Steindl-et-al-ExampleSelection-0719-v10.pdf>.

Future meetings/teleconferences

The next teleconference will be held August 5, 2019.

Any Other Business

No further business was discussed in this session.

4:10 PM adjournment

Annex A
Final Agenda -> to be updated

**Meeting Agenda of IEC 65C/WG9.PT 60802 and the
 IEC/IEEE 60802 Joint Project of IEEE 802.1
 held in Salt Lake City (UT), at 2019-05-22... -24**

Ludwig Winkel (Convenor IEC SC65C/WG9 and chair IEC/IEEE
 60802 Joint Project);
 János Farkas (TG chair of IEEE 802.1 TSN)
 Common session of "IEC/IEEE 60802 Joint Project" & "TG TSN"

Rev rev02

Key: means

Wed	22-05-19 [h:min] [min]	Topics	Responsible	
Room	8:00 - 8:10	10	Welcome and organizational issues (IEEE intro, IEC intro)	Ludwig, János
	8:10 - 8:15	5	Membership, attendees registration (IEEE imat), roster; administrivia	János, Ludwig
	8:15 - 8:20	5	Agenda	Ludwig, János
	8:20 - 8:20			
	8:20 - 8:25	5	Status of Conformity Assessment (CA) activity	Ludwig, Mark
	8:25 - 8:30	5	Next meetings (Friday of Vienna meeting)	Ludwig, János
	8:30 - 9:00	30	Editor's report on Comment resolution process	Jordon
	9:00 - 10:00	60	Draft 1.0 TG ballot comment resolution	Jordon
	10:00 - 10:35	35	Break	
	10:35 - 10:35			
	10:35 - 10:35			
	10:35 - 11:40	65	Draft 1.0 TG ballot comment resolution	Jordon
	11:40 - 12:00	20	TSN Domain	Mark
	12:00 - 13:40	100	Lunch	
	13:40 - 15:00	80	Quantities discussion	Stephan, Günter

15:00 - 15:00			
15:00 - 15:00			
15:00 - 15:30	30	Break	
15:30 - 15:30			
15:30 - 15:30			
15:30 - 17:50	140	Draft 1.0 TG ballot comment resolution	Jordon
17:50 - 17:50			
17:50 - 17:50			
17:50 - 18:00	10	Review of minutes of the day	Josef
18:00		Recess of 60802 JP meeting	

Thu	23-05-19	[h:min]	[min]	Topics	Responsible
Room	8:00 - 8:10		10	IEEE Intro, Review Agenda; expected results of the day	Ludwig
	8:10 - 10:00		110	Draft 1.0 TG ballot comment resolution	Jordon
	10:00 - 10:00				
	10:00 - 10:30		30	Break	
	10:30 - 10:30				
	10:30 - 12:00		90	Draft 1.0 TG ballot comment resolution	Jordon
	12:00 - 12:00				
	12:00 - 12:00				
	12:00 - 12:00				
	12:00 - 13:30		90	Lunch	
	13:30 - 13:30				
	13:30 - 15:00		90	Draft 1.0 TG ballot comment resolution	Jordon
	15:00 - 15:00				
	15:00 - 15:00				
	15:00 - 15:30		30	Break	
15:30 - 15:30					

15:30 - 17:50	140	Draft 1.0 TG ballot comment resolution	Jordon
17:50 - 17:50	0	Distributed Stream Configuration in Industrial Automation	Josef
17:50 - 18:00	10	Review of minutes of the day	Josef
18:00		Recess of 60802 JP meeting	

Fri	24-05-19	[h:min]	[min]	Topics	Responsible
Room	8:00 - 8:05		5	Review Agenda; expected results of the day	Ludwig, János
	8:05 - 8:15		10	Recap past days	Ludwig, János
	8:15 - 8:15		0	Discussion on draft profile document Annex Z	Jordon
	8:15 - 8:15		0	Liaison	Liaison partners
	8:15 - 8:15		0	Any other business	Ludwig, János
	8:15 - 8:15				
	8:15 - 10:05		110	PAR on Engineering (SDN topic)	Stephan
	10:05 - 10:35		30	Break	
	10:35 - 11:45		70	PAR on Engineering (SDN topic)	Stephan
	11:45 - 11:45				
	11:45 - 11:45				
	11:45 - 13:15		90	Lunch	
	13:15 - 13:15		0	OPCUA FLC (Vision, Members, Structure, ...)	Thomas
	13:15 - 14:15		60	Distributed Stream Configuration in Industrial Automation	Josef
	14:15 - 15:00		45	Draft 1.0 TG ballot comment resolution	Jordon
	15:00 - 15:30		30	Break	
	15:30 - 16:30		60	Draft 1.0 TG ballot comment resolution	Jordon
	16:30 - 16:30				
	16:30 - 16:30				

	16:30 - 16:50	20	Review of the minutes	Josef
	16:50		Adjournment of IEC/IEEE 60802 JP meeting	

<u>1st Names in the Agenda</u>	<u>Name</u>	<u>Affiliation</u>	<u>Position in the joint project</u>
Ludwig	Winkel	Siemens AG	Convenor IEC SC65C/MT9 and chair IEC/IEEE 60802 Joint Project
János	Farkas	Ericsson	Chair IEEE 802.1 TG TSN
Jordon	Woods	Analog Devices	Editor, IEEE 802.1 voter
Josef	Dorr	Siemens AG	Secretary
Mark	Hantel	Rockwell Automation	Web master, IEC/AVNU ALLIANCE Liaison officer, IEEE 802.1 voter
Astrit	Ademaj	TTTech	IEEE 802.1 individual
Günter	Steindl	Siemens AG	IEC expert, IEC/PI Liaison officer
Yoshifumi	Hotta	Mitsubishi Electric	IEC expert, IEC/CC-Link Liaison officer
Stephan	Kehrer	Hirschmann	IEC expert,
Thomas	Enzinger	B&R Industrial Automation GmbH	IEC expert,