

Test Technology Standards Committee (IEEE-SA TTSC)

Meeting Minutes

January 19th, 2022

1 Name of group

The Test Technology Standards Committee (IEEE-SA Sponsor C/TT) met.

2 Date and location of meeting

Wednesday, January 19th, and Wednesday, February 2nd, 2022, via IEEE Meetings WebEx (teleconference).

3 Officers

The presiding officer was Ian McIntosh, TTSC Chair. The recording secretary was Michael Wahl.

4 Attendance roster

The roll from January 19th, 2022, was taken from the WebEx attendance list.

Adam Cron	Ian McIntosh (C)	Pady Kannampalli
Adam Ley (VC)	Jason Doege	Ric Dokken
Al Crouch	Jason Peck	Saman Adham
Anthony Coyette	Jeff Rearick	Steve Sunter
Bambang Suparjo	Jim O'Reilly	Tom Thompson (IEEE)
Erik Jan Marinissen	Linzhong Meng	Tom Waayers
Glen Pfausch	Michael Laisne	Vladimir Zivkovic
Greg Maston	Michael Wahl (S)	
Heiko Ehrenberg	Mike Ricchetti	

The roll from February 2nd, 2022, was taken from the WebEx attendance list.

Adam Cron	Greg Maston	Mike Ricchetti
Adam Ley (VC)	Heiko Ehrenberg	Ric Dokken
Ananthashayna Mosale	Ian McIntosh (C)	Saghir Shaik
Anthony Coyette	Jeff Rearick	Steve Sunter
Bambang Suparjo	Michael Laisne	Tom Thompson (IEEE)
Glen Pfausch	Michael Wahl (S)	

C: Chair, VC; Vice Chair, S: Secretary

5 Call to order, Chair's remarks

The meeting was called to order at: (EST) 11:04 AM, Wednesday, January 19th, 2022. It was continued on (EST) 12:02 February 2nd, 2022. The meeting was recorded for writing the minutes. The recording will be deleted immediately after the minutes have been written.

5.1 Patent slides

The presiding officer shared the patent slide set and provided opportunity for those present to fulfill their duty to inform. None present identified any potentially essential patent claim(s)/patent application claim(s). No comments were given.

5.2 Copyright slides

The presiding officer shared the copyright slide set and provided opportunity for those present to comment. No comments were given.

6 Approval of the agenda

A motion for the approval of the agenda was made.

MOTION	Approval of the agenda
Mover	Adam Ley
Second	Al Crouch
Votes	No objections were raised.
Decision	Approved

7 Approval of minutes of previous meetings

Minutes from regular meeting, October 20th and November 3rd, 2021

MOTION	Approval of the minutes
Mover	Adam Ley
Second	Adam Cron
Votes	No objections were raised.
Decision	Approved

8 Action items review

	Action	Who	When
1	Work toward draft proposed common P&P for all TTSC working groups on a staff-provided baseline and template. A draft of the P&P was placed on the iMeet server. Although it is mostly done, there are still questions open, in particular to open-source issues. The members of the TTSC should comment on a short-term basis.	Ian McIntosh/ all	Forthwith

	Action	Who	When
2	Create “cookbook” for how to startup a new (or revision) project/ working group. This is being built up in the iMeet site as a collection of notes under the heading of “Officer’s Handbook”. It is an ongoing task.	Ian McIntosh	Forthwith
3	Clarify whether the term of a study group is a maximum of 6 months or a minimum of 6 months. There is clearly a maximum of 6 month for a study group.	Ian McIntosh	Completed
4	Contact tool vendors such as Teradyne, Keysight, etc. to determine usage/interest in 1149.8.1. No progress. Pady Kannampalli offered to support for finding suitable contacts within Teradyne. Erik Jan Marinissen has contacts to Teradyne, Keysight, and Advantest. He also suggested that the other members in the group should assist Ian McIntosh. A short discussion on the purpose of the standard and what happens after the expiration of the standard followed. This activity is preemptive to forming a WG.	Ian McIntosh	Forthwith
5	Organise a subcommittee on languages to consider commonality and re-use and advise future TTSC policy. See 5.1	Ian McIntosh	Forthwith
6	Provide a link to the P&P on the iMeet site.	Ian McIntosh	Completed
7	Review draft of the SC P&P (2020 Baseline). See 5.1 (agenda)/9.1(minutes)	TTSC	Forthwith

9 Technical Topics

9.1 Standards Committee action requested/required

9.1.1 Subcommittee on languages

Ian McIntosh presented what a language sub-committee would be tasked to:

- Consider the desire expressed at the "Talk to TTSC" panel for a common language or reduced set of extensible languages for standards within TTSC.
- Evaluate existing popular EDA languages and languages currently used by standards within TTSC for potential interoperability, extensibility and re-use across standards.

- Submit to TTSC, by Q4 2022, a proposal of a policy for selecting/adopting languages and the criteria for creation of new Domain Specific Languages.

A lively discussion started on the topic which resulted in this modified requirement list:

- Consider the desire expressed at the "Talk to TTSC" panel for a common language or reduced set of extensible languages for standards within TTSC.
- Document the scope/purpose of existing languages used by standards within TTSC.
- Evaluate existing popular EDA languages and languages currently used by standards within TTSC for potential interoperability, extensibility and re-use across standards.
- Submit to TTSC, by Q4 2022, a proposal of a policy for selecting/adopting languages and the criteria for creation of new Domain Specific Languages.

MOTION	Form a language study group
Mover	Michael Laisne
Second	Al Couch
Votes	No objections were raised.
Decision	Approved

9.1.2 Update of the SC P&P

The number of terms of office raised an intensive discussion on whether we could change 'three' terms (as in the baseline) to 'two' even though it is not strictly a modifiable part of the text. We concluded that while it would be a relatively minor deviation and probably acceptable, we were generally OK with leaving it at "three" (and that's what's in the P&P submitted to AudCom).

The result of the discussion ON SECTION 3.2 is:

*"The term of office for each officer **should** be no more than **three** consecutive terms in the same office..."*

MOTION	Accept the sentence as stated above
Mover	Jim O'Reilly
Second	Ric Dokken
Votes	No objections were raised.
Decision	Approved

MOTION	Re-convene the meeting on February 2 nd , 2022, same time.
Mover	Michael Wahl
Second	Adam Ley
Votes	No objections were raised.
Decision	Approved

Continuation of the meeting

Ian McIntosh reported, that since the first part of the meeting, he has updated SC P&P. Besides some minor editorial changes, the following substantial changes were suggested:

a) Section 7.1.2 *Actions Requiring Approval by a Two-thirds Vote*

c) *Approval of termination of the Standards Committee **or subgroup**.*

Remove "or subgroup".

b) Section 6.4 Minutes

60 is the default in the template and the allowable edit is only to reduce that figure – it is not possible to increase it. Rik Dokken had noted that many people wouldn't be able to recall accurately what had happened in the meeting after 60 days, but in the end, we decided to leave it at 60.

*Minutes shall be published to meeting attendees with in **60** calendar days of the end of the meeting.*

MOTION	Update the P&P as written above
Mover	Adam Ley
Second	Greg Maston
Votes	yes:12, abstain: 0, no:1
Decision	Approved

9.2 Election's review**9.2.1 P1450**

Ric Dokken reported that the elections were completed and the officers are in place. The results were reported to TTSC via the reflector before the end of 2021. Adam Ley confirmed this as election administrator.

9.2.2 P2427

Heiko Ehrenberg stated that the election process is completed.

9.2.3 P1149.4

Bambang Suparjo stated that the elections are completed: Chair is Bambang Suparjo and Vice Chair is Heiko Ehrenberg. The Secretary will be appointed. Adam Ley confirmed this as election administrator.

9.2.4 P1149.7

Adam Ley stated that they had completed a 2nd recirculation. It will be issued in the 1st quarter. It seems that a reelection is not necessary because the standard is close to be finished.

9.2.5 P1500

P1500 is in the recirculation stage, so a reelection is not needed because the standard is close to be finished (Q1/Q2 2022). Recirculation in Q1.

9.2.6 P1687.2

A reelection is necessary in 2023.

9.3 Status of projects in active development**9.3.1 P1687**

Jeff Rearick: The study group revised to PAR. Changes were made to distinguish P1687 from 1149.1 and that the scope section was changed. There were several minor changes.

MOTION	Submission of the P1687 PAR to NESCOM
Mover	Jeff Rearick
Second	Michael Laisne
Votes	yes:13, abstain: 0, no:0
Decision	Approved

9.3.2 P1149.1

Heiko Ehrenberg reported, that they had the first meeting last week. Regular meetings start next week.

9.3.3 P1149.4

Adam Cron: Ongoing business

9.3.4 P1149.7

Adam Ley stated that they had completed a 2nd recirculation. It will be issued in the 1st quarter. There are some “must be satisfied” comments but can go to RevCom without further SC action.

9.3.5 P1500

Completed recirculation with 1 “must be satisfied” comment, can go to RevCom without SC action.

9.3.6 P1450.1

Greg Maston: No progress.

9.3.7 P1450.6

Saghir Shaik: Not much activities

9.3.8 P1687.1

Michael Laisne: Intensive work, but not in the state to have a first draft ready on a short-term notice. The PAR will expire at the end of the year, so completing the ballot before expiration seems to be unlikely.

9.3.9 P1687.2

Steve Sunter: Active group, closing on the editor. Ballot expected in Q3/Q4. Possibly a PAR extension is necessary to have time the for review of the comments and recirculation.

9.3.10 P2427

Anthony Coyette reported that they have around 30 persons attending. Expect to be ready for balloting in April 2022.

9.3.11 P2654

Ian McIntosh reported that the group will be ready for ballot when the PAR expires, which is the end of this year, so there is need for a PAR extension.

9.4 Maintenance review**9.4.1 Without SC action, the following standards will expire at the end of 2022:**

- 1149.8.1 C/TT/Boundary Scan Architecture
IEEE Standard for Boundary-Scan-Based Stimulus of Interconnections to Passive and/or Active Components
This topic was discussed in the section Action items.

9.4.2 Without SC action, the following standards will expire at the end of 2025:

- 1149.6 C/TT/1149.6
IEEE Standard for Boundary-Scan Testing of Advanced Digital Networks
Saghir Shaik will look for a candidate for taking care of the standard.

9.4.3 Without SC action, the following standards will expire at the end of 2027:

- 1149.10 C/TT/HJTAG
Standard for High-Speed Test Access Port and On-chip Distribution Architecture
- 1450.4 C/TT/P1450.4
Standard for Extensions to Standard Test Interface Language (STIL) (IEEE Std 1450-1999) for Test Flow Specification
- 1804 C/TT/FACR 1804
Standard for Fault Accounting and Coverage Reporting (FACR) for Digital Modules

A general discussion followed with the result that we should form study groups in the fifth year of the lifetime of a standard so that the WG has full four years to complete its work before the standard expires.

10 New Business

10.1 Required training for WG officers

IEEE expects that the courses on working group chair fundamentals, such as *Conflict in Interest*, *Working Group Fundamentals* and *Integrity in Action* are taken by all WG officers within 60 days of appointment.

10.2 Common P&P for the WGs

A draft is available on the iMeet site. Once AUDCOM has accepted the TTSC P&P, it is expected to submit an aligned version of all WP P&P. This means that all WG P&P needs to be checked against the 2020 baseline P&P and possibly updated.

11 Any other business

None

12 Subcommittee reports

None

13 Items reported out of executive sessions

None

14 New Action Items

15 Next meeting

The next meeting will take place on April 13th, 2022, same time.

16 Adjourn

MOTION	To adjourn
Mover	Adam Ley
Second	Michael Wahl
Votes	No objections were raised.
Decision	Approved

The meeting was adjourned at 12:58 EST.

History of these minutes

- Meeting notes recorded by: Michael Wahl
- Minutes submitted by: Michael Wahl, TTSC Secretary

17 Appendix**17.1 IEEE TTSC Membership****17.1.1 Voting Members**

First name	Name	Company	
Saman	Adham	Taiwan Semiconductor Manuf. Corp.	M
Adam	Cron	Synopsys, Inc.	M
Alfred	Crouch	Amida Technology Solutions	M
Anthony	Coyette	ON Semiconductor	M
Ric	Dokken	Roguevation, Inc.	M
Heiko	Ehrenberg	Goepel electronics LLC	M
Neil	Jacobson	Formidable Engineering Consultants	M
Michael	Laisne	Renesas	M
Adam	Ley	ASSET InterTech, Inc.	M
Erik Jan	Marinissen	imec / TU Eindhoven	M
Greg	Maston	Self employed	M
Ian	McIntosh	Leonardo S.p.A.	M
Sankaran	Menon	Intel Corporation	M
Jim	O'Reilly	Intel Corporation	M
Jason	Peck	Texas Instruments Inc.	M
Rajesh	Raina	NXP Semiconductors	M
Jeff	Rearick	Advanced Micro Devices (AMD)	M
Mike	Ricchetti	Synopsys, Inc.	M
Saghir	Shaikh	Broadcom Corporation	M
Steve	Sunter	Mentor, a Siemens Business	M
Bambang	Suparjo	Intel Corporation	M
Bradford	Van Treuren	VT Enterprises Consulting Services	M
Tom	Waayers	NXP Semiconductors	M
Michael	Wahl	University of Siegen	M

Voting Members Have attended at least three consecutive meetings

17.1.2 Non-voting members

First name	Name	Company	
Mudasir	Ahmad	Google	O
Deepak	Asnani	Google	O
Jason	Doege		O
Rodolfo A.	Fiorini	Poitecnico di Milano	O
Akshay	Gupta	Synopsys	O
Rolf	Kühnis	Intel Corporation	O
Spencer	Millican	Auburn University	O
Linzhong	Meng		O
Ananthashayana	Mosale	Intel Corporation	O
Glen	Pfausch		O
John	Potter	Anora	O
Vladimir	Zivkovic		O

Observers Have not (yet) attended three consecutive meetings and have no right to vote