Test Technology Standards Committee (IEEE-SA TTSC)

Meeting Minutes

April 13th, 2022

1 Name of group

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

2 Date and location of meeting

Wednesday, April 13th 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 April 13th, 2022, was taken from the WebEx attendance list.

Adam Cron	Heiko Ehrenberg	Mike Ricchetti
Adam Ley (VC)	Ian McIntosh (C)	Ric Dokken
Al Crouch	Jason Doege	Saman Adham
Bambang Suparjo	Jeff Rearick	Steve Sunter
Bradford Van Treuren	Michael Laisne	Tom Thompson (IEEE)
Erik Jan Marinissen	Michael Wahl (S)	

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

5 Call to order, Chair's remarks

The meeting was called to order at: (EDT) 11:02 AM, Wednesday, April 13th, 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 to fulfill their duty to inform. No comments were given.

5.3 Participant behavior slides

The presiding officer shared the participant behavior slide set.

6 Approval of the agenda

A motion for the approval of the agenda was made.

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

7 Approval of minutes of previous meetings

Minutes from regular meeting, January 19th, 2022

MOTION	Approval of the minutes
Mover	Adam Ley
Second	Heiko Ehrenberg
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. The draft of the P&P is posted on the iMeet site. Tom Thompson made a remark on the TTSC P&P that the review is in progress.	Ian McIntosh/ all	Forthwith
2	Create "cookbook" for how to startup a new (or revision) project/ working group. Live activity. It is developing to be an officer's handbook.	Ian McIntosh	Forthwith
3	Contact tool vendors such as Teradyne, Keysight, etc. to determine usage/interest in 1149.8.1. There were some comments from people since the last meeting. Contacted were some LinkedIn groups (such as JTAG and DFT Group) and the SMTA Association (smta.org); the latter of which has a testability guideline that refers to 1149.8.1.	Ian McIntosh	Forthwith

	Action	Who	When
4	Organize a subcommittee on languages to consider commonality and re-use and advise future TTSC policy. Ian McIntosh reported that there is a potential candidate. The item is close to be closed.	Ian McIntosh	Forthwith

9 Technical Topics

9.1 Standards Committee action requested/required

9.1.1 TTSC P&P

Expect a motion to approve an AudCom requested amendment to the updated TTSC P&P (ref https://ieee-sa.imeetcentral.com/p/aQAAAAAE4_JU). The AudCom reviewers rejected the removal of:

An ex-officio [voting] member is not subject to attendance or ballot requirements, if any.

The reason is that there is a conflict to 4.2 which states: *There are no attendance or voting requirements for ex-officio members.*

The solution suggested by Soo Kim via Tom Thompson was to change the paragraph 4.4. on ex-officio members to:

There are no ex-officio members.

Subsequently, all other references to ex-officio members need to be removed.

The reason is that the concept of ex-officio members was never considered in the TTSC. There is an ongoing discussion with AudCom on this subject to find an agreement before the next AudCom meeting in June, so that the P&P can then be sent to the board.

MOTION	The TTSC expresses its desire that the ex-officio clause is reduced to: *There are no ex-officio members.*
Mover	Adam Ley
Second	Bradford Van Treuren
Votes	No objections were raised.
Decision	Approved

9.1.2 P 1687

Motion to disband the P1687 Study Group and to instead form a Working Group.

MOTION	Disband the P1687 Study Group and commence the P1687 Working Group.
Mover	Jeff Rearick
Second	Adam Cron
Votes	No objections were raised.
Decision	Approved

Jeff Rearick is appointed as the interim chair of the WG. The kick-off meeting will be May 4th, 2022. Tom Thompson will send out a call for participation.

9.1.3   P1149.1

Heiko Ehrenberg provided a study group report on April 7th, 2022, via e-mail, giving a summary on the meetings of the study group since January 26th, 2022 (ref https://ieee-sa.imeetcentral.com/p/aQAAAAAE6-7O), and a draft PAR which is ready for submission to NesCom (see https://ieee-sa.imeetcentral.com/p/aQAAAAAE63Du). The section of Purpose was shortened, taking care of not limiting the scope of 1149.1, and a section on languages was added.

MOTION	Submission of the 1149.1 WG PAR to NesCom.
Mover	Heiko Ehrenberg
Second	Bradford Van Treuren
Votes	15 Yeah, 1 Abstain, 0 Nay
Decision	Approved

Adam Ley thanked Heiko Ehrenberg for his effort in leadership for continuing 1149.1.

9.1.4   P2427 ballot

Anthony Coyette informed Ian McIntosh by email that the ballot group is just being formed (ref https://ieee-sa.imeetcentral.com/p/aQAAAAAE7FYU). The start of the balloting process is delayed. The approval of sending the P2427 draft to ballot will be done via e-mail as soon as the forming of the group is done.

9.2   Common P&P for WGs

Ian McIntosh reported that a draft is available on the iMeet site (ref https://ieee-sa.imeetcentral.com/p/aQAAAAAEckAS). The biggest issue is about the clauses to open-source leadership. There are a couple of notes attached/embedded to the draft. After the approval of the TTSC P&P we will provide a WG P&P which is most probably the common one. This minimizes the number of changes for the study groups becoming a WG. Probably we will be able to agree on that P&P on the next meeting.

Jeff Rearick plan concerning 1687 is to have the P&P directly in place. Ian McIntosh will tidy up the draft and Jeff Rearick will review it and propose it to 1687.

9.3   Language Subcommittee

Right now, this is work in progress. The chair has still to be named. Tom Thomson confirmed that iMeet and ListServ for the subcommittee can be created.

9.4   Election's review

Currently there are no elections in process.

P1149.7 and P1500 will probably complete before they require elections.

P2654 and the TTSC need to be set up this year. This needs to be done on the next meeting.

P1687.2 is due for elections in the beginning of 2023, according to Steve Sunter.

Adam Ley suggested that he will create a schedule for all events such as elections and PAR expiring dates for the WGs and the TTSC.

9.5   Status of projects in active development

9.5.1   P1149.1

Heiko Ehrenberg submitted a report on the study group and the submission of the PAR was approved.

9.5.2   P1149.7

Adam Ley stated that there is no change from last time. Recirculation of 2nd draft will start soon.

9.5.3   P1500

Mike Ricchetti said that the recirculation will be closed in three days and that up to now there has been only one comment.

9.5.4   P1450.1

No news.

9.5.5   P1450.6

No news.

9.5.6   P1687.1

Simplifying assumption to stick to 1687.1 instead of solving the 2654 problem, but being compatible with 2654. Both WGs are in alignment. Right now, P1687.1 is going through some practical examples, such as I2C. The group was urged to initiate a ballot before PAR expiry at year end.

9.5.7   P1687.2

Steve Sunter: The WG agreed that an extension is needed. Although the draft will go to ballot at the end of this year, the WG will apply for an extension of two years to be sure that there is

no need for another extension. Reworking the EBNF has taken some time, but it is in a much better shape.

9.5.8   P2427

Anthony Coyette has provided Ian a written summary. They are in the process of forming the ballot group and expect to go for ballot in the next weeks.

Tom Thompson reminded the participants in the meeting that everybody has to register in myProject for a ballot explicitly, even if they are member of the working group or the TTSC. He also stated that the ballot group formation for P2427 closes on May 6th.

9.5.9   P2654

Ian McIntosh reported that the group will be not ready for ballot at the current time scale of the PAR. It is planned to apply for an extension of two years. Bradford Van Treuren said that the biggest holdup is the interaction with P1687.1. They are waiting for the extensions and generalizations of P1687.1 to be compatible with P2654.

9.6   Maintenance review

9.6.1   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
  The process of looking for members is ongoing, among others at SMTA.ORG. It is also open who might lead this activity.

9.6.2   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
  Ian McIntosh suggested to look for a study group for 1149.6 at the end of the year to have enough time to complete the work before expiration of the standard.
  Adam Ley reminded, that on the last meeting the TTSC had discussed to start a SG five years in advance to the expiration date. Referring to 1149.6 he suggested to start the process now. No one of the participants of the meeting was prepared to take the lead. We will look for interested persons in the other WGs, as the previous officers are no longer available.
  M. Wahl added that the chair was William Eklow, the vice chair was Carl Barnhart and the editor was Kenneth P. Parker.

9.6.3   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

10 New Business

None

11 Any other business

None

12 Subcommittee reports

None

13 Items reported out of executive sessions

None

14 New Action Items

- Ian McIntosh will take care of the draft of the common P&P.
- Adam Ley will summarize the expiration terms of the officers of the WGs.

15 Next meeting

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

16 Adjourn

MOTION	To adjourn
Mover	Michael Wahl
Second	Al Crouch
Votes	No objections were raised.
Decision	Approved

The meeting was adjourned at 11:59 EDT.

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

Voting Members have attended at least three of the last 5 meetings.

17.1.2 Non-voting members

First name	Name	Affiliation
Mudasir	Ahmad	Google
Deepak	Asnani	Google
Rodolfo A.	Fiorini	Politecnico di Milano
Akshay	Gupta	Synopsys
Rolf	Kühnis	Intel Corporation
Spencer	Millican	Auburn University
Linzhong	Meng	Institute of Software Chinese Academy of Science
Ananthashayana	Mosale	Intel Corporation
Glenn	Pfautsch	Charter College;Stevens Henager College
John	Potter	Anora
Vladimir	Zivkovic	Infineon

Non-voting members have at least attended one meeting.