

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

Meeting Minutes

October 28, 2020

1. Name of group

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

2. Date and location of meeting

On Wednesday, October 28, 2020 via IEEE Meetings WebEx (teleconference).

3. Officer presiding, including the name of the secretary who wrote the minutes

The presiding officer was Adam Cron, TTSC Sponsor Chair. The recording secretary was Adam Ley.

4. Attendance, including affiliation

The roll was called. The following persons were present:

Name	Employer	Affiliation (if different from employer)	Role
Adam Cron	Synopsys		Chair
Adam Ley	ASSET InterTech		Secretary
Saman Adham	TSMC		Voting member
Alfred Crouch	Amida Technology Solutions		Voting member
Heiko Ehrenberg	Goepel electronic		Voting member
Erik Jan Marinissen	imec vzw	Technische Universiteit Eindhoven	Voting member
Greg Maston	(self)		Voting member
Ian McIntosh	Leonardo		Voting member
Sankaran Menon	Intel		Voting member
Jim O'Reilly	Intel		Voting member
Jason Peck	Texas Instruments		Voting member
Rajesh Raina	NXP Semiconductors		Voting member
Jeff Rearick	AMD		Voting member
Mike Ricchetti	Synopsys		Voting member
Steve Sunter	Mentor		Voting member
Bradford Van Treuren	VT Enterprises Consulting Services		Voting member
Tom Waayers	NXP Semiconductors		Voting member
Michael Wahl	University of Siegen		Voting member
Rik Dokken	Roguevation		Observer+
Rodolfo A. Fiorini	Politecnico di Milano		Observer+
Rolf Kühnis	Intel		Observer
Spencer Millican	Auburn University		Observer

Bambang Suparjo	Intel	Observer+
Soo Kim	IEEE	Staff
Tom Thompson	IEEE	Staff

+ having expressed interest, completion of attendance to next meeting satisfies the requirements to be a voting member

5. Call to order, Chair's remarks

The meeting was called to order at: (EDT) 11:04 AM, Wednesday, October 28, 2020.

The presiding officer shared the patents 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).

The Chair, while mentioning that, due to the current TTSC officer election progressing this may be his last meeting as Chair, thanked the Working Group for their participation and making his job easy.

6. Approval of minutes of previous meeting

The sponsor secretary reported that 3 issues of minutes for previous meetings had been submitted and were pending approval. These were made available to TTSC members and read to the meeting participants as follows:

- [TTSC meeting minutes 2020 07 08 as submitted 2020 10 28.pdf](#)
- [TTSC meeting minutes 2020 08 27 \(SM-1\) \(concluded 2020 09 07\) as submitted 2020 10 28.pdf](#)
- [TTSC meeting minutes 2020 08 27 \(SM-2\) \(concluded 2020 09 07\) as submitted 2020 10 28.pdf](#)

The sponsor secretary noted that these were thought to be complete and correct.

A motion for approval of the minutes of previous meeting 2020 07 08 was made, as follows:

MOTION	Approve the minutes of the meeting 2020 07 08.
Mover	Ian McIntosh
Second	Brad Van Treuren
Votes	The vote was not conducted on a roll call basis. No objections were raised.
Decision	Approved

A motion for approval of the minutes of previous meeting 2020 08 27 (SM-1)
(concluded 2020 09 07) was made, as follows:

MOTION	Approve the minutes of the meeting 2020 08 27 (SM-1) (concluded 2020 09 07).
Mover	Jim O'Reilly
Second	Sankaran Menon
Votes	The vote was not conducted on a roll call basis. No objections were raised.
Decision	Approved

A motion for approval of the minutes of previous meeting 2020 08 27 (SM-2)
(concluded 2020 09 07) was made, as follows:

MOTION	Approve the minutes of the meeting 2020 08 27 (SM-2) (concluded 2020 09 07).
Mover	Brad Van Treuren
Second	Michael Wahl
Votes	The vote was not conducted on a roll call basis. No objections were raised.
Decision	Approved

Accordingly, the minutes of these previous meetings, as approved, are finally recorded as follows:

- [TTSC meeting minutes 2020 07 08 as approved 2020 10 28.pdf](#)
- [TTSC meeting minutes 2020 08 27 \(SM-1\) \(concluded 2020 09 07\) as approved 2020 10 28.pdf](#)
- [TTSC meeting minutes 2020 08 27 \(SM-2\) \(concluded 2020 09 07\) as approved 2020 10 28.pdf](#)

Action items review

Action	Who	When
Organize a tiger team to work toward draft proposed common form letter for all calls for standard maintenance.	Adam Cron	Forthwith
Work toward draft proposed common P&P for all TTSC working groups on a staff-provided baseline and template.	Adam Cron/ Soo Kim	Forthwith
Take steps to initiate the elections process for TTSC so as to conclude by year end 2020 (for terms to begin on Jan 1, 2021)	Michael Laisne/ Adam Cron	Forthwith
Share draft email and spreadsheet templates useful for elections administration.	Adam Ley	Forthwith
Effect the approval of PAR extension for P1687.1	Alfred Crouch/ Adam Cron	Forthwith
Effect the approval of revision PAR for P1149.4 (with minor amendments as noted, pending identification of volunteer to chair)	Adam Cron	Forthwith
Submit draft PARs for P1450, P1450.1, P1450.6, P1581 (pending identification of volunteers to chair each)	Adam Cron	Forthwith
Inquire IEEE staff to see the current state of this matter (deprecating use of racially charged terminology in IEEE standards).	Soo Kim	Forthwith
All groups chairs are requested to consider/ survey their respective standards regarding use of racially charged terminology therein and take up the matter with their working groups or up the chain, as suitable.	All group chairs/ Adam Cron (follow up)	Forthwith

It was observed that several items were done and others were to be addressed in the due course of the offered agenda; all other items remaining open/ to carry over.

7. Approval of agenda

The presiding officer offered the following agenda:

- **Call to order, Chair's remarks**
(to include, in every session, patents slideset)
 - **Approval of agenda**
 - **Approval of minutes of previous meeting**
 - **Action items review**
 - **Technical topics**
 - SPONSOR ACTION REQUESTED/ REQUIRED*
 - **Maintenance Review**
*please expect to consider revision PARs (as linked below) *and* sponsor ballot for, the following standards that would otherwise expire at the end of 2021:*
 - P1450 (Dokken)
 - P1450.1 (Maston)
 - P1450.6 (Shaikh)
 - **Projects in Active Development**
please expect to consider Sponsor ballot (as linked below) for
 - P1149.7 (Peck)
 - REGULAR ORDER*
 - **Elections review**
please expect to review election need/ status for
(EO/EA, status and/or result)
 - TTSC (Laisne/Adham)
 - P2654 (Ehrenberg/)
 - P1687.1 (Crouch)
 - P2929 (Menon)
 - **Status of Projects in Active Development ([ref](#))**
groups have been requested to provide status updates by writing
 - P1149.4, P1149.7, P1450.6.2, P1500,
P1581, P1687.1, P1687.2,
P2427, P2654, P2929
 - **Status of Projects Recently Completed**
 - Std 1838
 - ~~■ **Status of Active Study Groups**~~
 - ~~■ **Proposals for New Activities**~~
- CARRYOVER BUSINESS*

- **Should Chairs be forwarding emails requests for SA Award nominations?**

REGULAR ORDER

■ **Maintenance review ([ref](#))**

without Sponsor 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**

without Sponsor action, the following standards will expire at the end of 2023:

- **1149.1 C/TT/Boundary Scan Architecture
IEEE Standard for Test Access Port and Boundary-Scan Architecture**

without Sponsor action, the following standards will expire at the end of 2024:

- **1687 C/TT/IJTAG
IEEE Standard for Access and Control of Instrumentation Embedded within a Semiconductor Device**

without Sponsor 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**

■ **New business**

- **Action items**
- **(Subcommittee reports)**
- **(Items reported out of executive session)**
- **Next meeting – date and location**
 - **TBA ~ Jan, 2021 ~ TBA,
by IEEE-SA meetings WebEx**

A motion to approve the agenda was heard and seconded. Agenda approved.

8. Technical topics**■ Maintenance Review**

*please expect to consider revision PARs (as linked below) *and* sponsor ballot for, the following standards that would otherwise expire at the end of 2021:*

- **P1450** ([ref](#)) ([link](#) ) (**Dokken**)

It was observed that the standard maintains wide circulation and use such that it merits to retain active status.

A motion in these regards was made as follows:

MOTION	Approve the revision PAR for P1450.
Mover	Jim O'Reilly
Second	Greg Maston
Votes	Approve 16, Disapprove 0, Abstain 1, Unheard 0.
Decision	Approved.


A required action in these regards was recorded as follows:

ACTION	Effect approval of revision PAR for P1450.
Who	Adam Cron
When	Forthwith

A required action in these regards was recorded as follows:

ACTION	Request IEEE editors prepare Word source, on current template, for revision draft to seed P1450.
Who	Soo Kim/ Tom Thompson
When	Upon PAR approval (NesCom)

*please expect to consider revision PARs (as linked below) *and* sponsor ballot for, the following standards that would otherwise expire at the end of 2021:*

- P1450.1 ([ref](#)) ([link](#) ) (Maston)

It was observed that the standard merits to retain active status.

A motion in these regards was made as follows:

MOTION	Approve revision PAR for P1450.1.
Mover	Greg Maston
Second	Jim O'Reilly
Votes	Approve 16, Disapprove 0, Abstain 1, Unheard 0.
Decision	Approved.


A required action in these regards was recorded as follows:

ACTION	Effect approval of revision PARs for P1450.1.
Who	Adam Cron
When	Forthwith

A required action in these regards was recorded as follows:

ACTION	Request IEEE editors prepare Word source, on current template, for revision drafts to seed P1450.1.
Who	Soo Kim/ Tom Thompson
When	Upon PAR approval (NesCom)

*please expect to consider revision PARs (as linked below) *and* sponsor ballot for, the following standards that would otherwise expire at the end of 2021:*

- P1450.6 ([ref](#)) ([link](#) ) (Shaikh)

It was observed that the standard maintains wide circulation and use such that it merits to retain active status. It was additionally observed that coordinated standards 1500 and 1450.6.2 are presently in revision.

A motion in these regards was made as follows:

MOTION	Approve revision PAR for P1450.6.
Mover	Greg Maston
Second	Adam Ley
Votes	Approve 15, Disapprove 0, Abstain 2, Unheard 1.
Decision	Approved.

A required action in these regards was recorded as follows:

ACTION	Effect approval of revision PARs for P1450.6.
Who	Adam Cron
When	Forthwith

A required action in these regards was recorded as follows:

ACTION	Request IEEE editors prepare Word source, on current template, for revision drafts to seed P1450.6.
Who	Soo Kim/ Tom Thompson
When	Upon PAR approval (NesCom)

Staff agreed to attend to getting source files updated to current template (Word), including the three above and the two others approved in recent meeting(s).

Adam Cron requested other organizing activities to include iMeetCentral, listserv, etc.

A required action in these regards was recorded as follows:

ACTION	Request IEEE editors prepare Word source, on current template, for revision drafts to seed P1149.4.
Who	Soo Kim/ Tom Thompson
When	Upon PAR approval (NesCom)

A required action in these regards was recorded as follows:


ACTION	Request IEEE editors prepare Word source, on current template, for revision drafts to seed P1581.
Who	Soo Kim/ Tom Thompson
When	Forthwith

A required action in these regards was recorded as follows:

ACTION	Create “cookbook” for how to startup a new (or revision) project/ working group.
Who	Adam Cron
When	Forthwith

■ Projects in Active Development

please expect to consider Sponsor ballot (as linked below) for

- P1149.7 ([link](#) ) (Peck)

WG Chair Jason Peck gave a brief report on draft status/ readiness for ballot = MEC done, draft D6 WG approved, ballot group formed.

It was observed that no normative changes had been made. Key changes (information) included adoption of “initiator/responder” (to deprecate

“master/slave” and additional informative material concerning multidrop topologies.

An inquiry was raised concerning whether the ballot was on entity basis (as for the standard on its initial approval) or individual basis. Individual basis was affirmed.

An inquiry was raised concerning whether a markup version of the draft would be available to ballot group members. It was affirmed that a markup version would be prepared for that purpose.

A motion in these regards was made as follows:

MOTION	Approve sponsor ballot P1149.7.
Mover	Jason Peck
Second	Adam Ley
Votes	Approve 16, Disapprove 0, Abstain 1, Unheard 0.
Decision	Approved.

A required action in these regards was recorded as follows:

ACTION	Effect approval for Sponsor ballot for P1149.7.
Who	Adam Cron
When	Forthwith

■ **Elections review**

*please expect to review election need/ status for
(EO/EA, status and/or result)*

● **TTSC (Laisne/Adham)**

Michael Laisne, Elections Officer, noted that the election was in progress. Having received nominations and having notified nominees, with accept/decline due Nov 4 (it was observed that none had accepted nomination for Chair as yet (with 4 remaining uncommitted).

- **P2654 (Ehrenberg/)**

The need to organize the intended election was raised/ volunteers needed. Heiko Ehrenberg offered to sit as Elections Auditor/ Sankaran Menon offered to sit as Elections Auditor.

A required action in these regards was recorded as follows:

ACTION	Conduct P2654 Elections
Who	Ehrenberg/ Menon
When	Forthwith

- **P1687.1 (Crouch)**

The need to organize the intended election was raised. Action required in within the next few weeks.

A required action in these regards was recorded as follows:

ACTION	Organize P1687.1 Elections
Who	Crouch
When	Forthwith

- **P2929 (Menon)**

The need to organize the intended election was raised. Action required in within the next few weeks.











An inquiry was raised concerning requirement for Vice Chair to have IEEE/ IEEE-SA memberships; it was affirmed.

A required action in these regards was recorded as follows:

ACTION	Organize P2929 Elections
Who	Menon
When	Forthwith


■ Status of Projects in Active Development (ref) ([link](#) )

groups have been requested to provide status updates by writing

- P1149.4 ([link](#) ) , P1149.7 ([link](#) ) , P1450.6.2 ([link](#) ) , P1500 ([link](#) ) ,
P1581 ([link](#) ) , P1687.1 ([link](#) ) , P1687.2 ([link](#) ) ,
P2427 ([link](#) ) , P2654 ([link](#) ) , P2929 ([link](#) )

Reports (as linked) were submitted by the respective WG chairs.

■ Status of Projects Recently Completed

- Std 1838 ([link](#) )

Having been approved on Nov 6, 2019, the standard was subsequently published on Mar 13, 2020 and is now available for purchase. The working group is inactive since then, but interested parties are requested to continue to pay attention to opportunities to present and explain the new standard.

See written report (as linked) submitted by Erik Jan Marinissen.

■ Status of Active Study Groups

There were no active study groups at the time of this meeting.

■ Proposals for New Activities

There were no proposals for new activities at the time of this meeting.

CARRYOVER BUSINESS

- **Should Chairs be forwarding emails requests for SA Award nominations?**

The propriety of such forwards was questioned on the basis that it makes it look like chairs are shilling for nominations of themselves. Staff noted that the current practice, as such, arose to ensure that listservs are for WG use (IEEE staff will not use reflectors except to address WG business).

In this light, inquiries were raised as to best practices/ suggestions for how WG chairs should make such forwards. The idea of a disclaimer “not a solicitation” was raised, which could be included in the request to forward so that senders forward would include the same.

Some expressed that it would be desirable that IEEE make such calls for nominations directly, as such are relevant to the IEEE-SA program as a whole; note also that, as such, there should not be a need to block that use.

It was also inquired as to why IEEE-SA does not broadcast to all members. Staff observed that not all participants to standards are IEEE-SA. But, it was noted that participants might be identified through myProject rostering (and it was further noted that there is an annual requirement to submit rosters).


Staff to advise further.

A required action in these regards was recorded as follows:

ACTION	Inquire IEEE staff as to alternatives to requesting Sponsor and WG email forwards of items such as requests for awards nominations; else request that such items are formatted in such a way that they do not suggest self-promotion on the part of those asked to do the forwards.
Who	Soo Kim/ Tom Thompson
When	Forthwith

A required action in these regards was recorded as follows:

ACTION	Communicate expectations concerning submission of WG rosters to IEEE-SA.
Who	Soo Kim/ Tom Thompson
When	Forthwith

- Maintenance review ([ref](#)) ([link](#) )
without Sponsor 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**
without Sponsor action, the following standards will expire at the end of 2023:
 - **1149.1 C/TT/Boundary Scan Architecture
IEEE Standard for Test Access Port and Boundary-Scan Architecture**
without Sponsor action, the following standards will expire at the end of 2024:

- **1687 C/TT/IJTAG**
IEEE Standard for Access and Control of Instrumentation Embedded within a Semiconductor Device
without Sponsor 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

Further discussion/ action for standards requiring maintenance was deferred to next meeting in interest of time.

■ **New business**

A question was raise concerning whether separate listservs could be established for working members versus for those interested only in receiving meeting minutes.

A required action in these regards was recorded as follows:

ACTION	Address listserv question offline (can a WG have two listservs= one for full participants versus one for parties who wish to receive only meeting minutes?).
Who	Sankaran Menon/ Adam Cron
When	Forthwith

9. Action items

New actions items, as mentioned above, and four carry overs, are recorded in the action summary table appended at the end of these minutes.

Subcommittee reports

Other than as given above, under various subheadings, no further subcommittee reports were given.

10. Items reported out of executive session

There was no executive session and, as such, no items were reported out of executive session.

11. Recesses and time of final adjournment

A motion for adjournment was heard and seconded. Adjournment approved.

Meeting adjourned at: (EDT) 12:00 PM, Wednesday, October 28, 2020.

12. Next meeting--date and location

Adam Cron offered Jan 27, 2021 as a proposed date for next meeting. No objections were heard.

As offered, the next meeting is to be arranged as follows:

NEXT MEETING	
Location	Via IEEE-SA Meetings WebEx
When	(EDT) 11:00 AM, Wednesday, January 27, 2021

Action Summary Table

Action	Who	When
Organize a tiger team to work toward draft proposed common form letter for all calls for standard maintenance.	Adam Cron	Forthwith
Work toward draft proposed common P&P for all TTSC working groups on a staff-provided baseline and template.	Adam Cron/	Forthwith
Inquire IEEE staff to see the current state of this matter (deprecating use of racially charged terminology in IEEE standards).	Soo Kim	Forthwith
All groups chairs are requested to consider/ survey their respective standards regarding use of racially charged terminology therein and take up the matter with their working groups or up the chain, as suitable.	All group chairs/ Adam Cron (follow up)	Forthwith
Effect approval of revision PAR for P1450.	Adam Cron	Forthwith
Request IEEE editors prepare Word source, on current template, for revision draft to seed P1450.	Soo Kim/ Tom Thompson	Upon PAR approval (NesCom)
Effect approval of revision PAR for P1450.1.	Adam Cron	Forthwith
Request IEEE editors prepare Word source, on current template, for revision drafts to seed P1450.1.	Soo Kim/ Tom Thompson	Upon PAR approval (NesCom)
Effect approval of revision PAR for P1450.6.	Adam Cron	Forthwith
Request IEEE editors prepare Word source, on current template, for revision drafts to seed P1450.6.	Soo Kim/ Tom Thompson	Upon PAR approval (NesCom)

Action	Who	When
Request IEEE editors prepare Word source, on current template, for revision drafts to seed P1149.4.	Soo Kim/ Tom Thompson	Upon PAR approval (NesCom)
Request IEEE editors prepare Word source, on current template, for revision drafts to seed P1581.	Soo Kim/ Tom Thompson	Forthwith
Create “cookbook” for how to startup a new (or revision) project/ working group.	Adam Cron	Forthwith
Effect approval for Sponsor ballot for P1149.7.	Adam Cron	Forthwith
Conduct P2654 Elections	Ehrenberg/ Menon	Forthwith
Organize P1687.1 Elections	Crouch	Forthwith
Organize P2929 Elections	Menon	Forthwith
Inquire IEEE staff as to alternatives to requesting Sponsor and WG email forwards of items such as requests for awards nominations; else request that such items are formatted in such a way that they do not suggest self-promotion on the part of those asked to do the forwards.	Soo Kim/ Tom Thompson	Forthwith
Communicate expectations concerning submission of WG rosters to IEEE-SA.	Soo Kim/ Tom Thompson	Forthwith
Address listserv question offline (can a WG have two listservs= one for full participants versus one for parties who wish to receive only meeting minutes?).	Sankaran Menon/ Adam Cron	Forthwith

History of these minutes

Meeting notes recorded by: Adam Ley.

Minutes submitted by: Adam Ley, TTSC Sponsor Secretary; February 10, 2021.

Minutes amended by: Adam Ley, TTSC Sponsor Secretary; February 10, 2021.

Minutes (as amended) approved by: motion of TTSC Sponsor; February 10, 2021.