

IEEE NPEC Subcommittee SC-3
Operations, Maintenance, Aging, Testing, & Reliability
Meeting 19-1 Minutes



Tuesday Morning, 29 Jan, 2019
Charlotte, NC

Members Present:	George Ballassi	Clint Pierce
	John Beatty	Ted Riccio
	Suresh Channarasappa	John Stevens
	Tom Crawford (Chair)	Phil Ward
	Jacob Kulangara	Yvonne Williams (PC)
	Kirk Melson	Kiang Zee
Members Absent:	Gopal Aravapalli (C)	Ngola Otto
	Hamid Heidarisaifa (C)	James Parello (C)
	Sharon Honecker (C)	Craig Sellers (C)
	Jim Liming (C)	Rebecca Steinman
	Ed Mohtashemi	John Taylor (C)
	Joe Napper (C)	
Guests:	Khoi Nguyen	Malia Zaman
	Jorge Cintron Rivera	

^T Joined the meeting via the web-based Join Me interface.

1.0 Introduction

- **Opening Remarks and Meeting Agenda**

Meeting was called to order at 8:05 am by Tom Crawford, Chair.

Since the attendees are the same as those yesterday, Tom dispensed with the introductions.

Tom presented the draft agenda; compared to the usual agenda, the Patent Slides have been moved towards the beginning of the meeting. An additional item was added for discussion of the structure for SC3 folders in iMeet Central. John Stevens made a motion to accept the agenda as amended, seconded by Kiang Zee, and the revised agenda was approved by voice vote.

2.0 Secretary's Report

- **SC-3 Approval of S18-2 Meeting Minutes**

The SC3 18-02 draft meeting minutes were reviewed. For clarity, the * for telecom participants should be changed to T. Ted Riccio's name should be corrected in item 2. In the WG 3.2 notes, NECCOM should be changed to NesCom. It was noted during the

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discussion that the websites are given in the meeting minutes. Discussion concluded, Yvonne Williams made motion to accept the minutes as amended, John Stevens seconded, and the revised meeting minutes were approved by voice vote.

- **File structure for SC3 iMeet folders**

The folders that came “standard” but that are N/A for our work should be deleted. We do need folders for standards and for meetings. Much discussion provided some insights, but no other specific recommendations. The discussions centered on how to find information and that there may be merit to having a file appearing in two or more places.

- **Action Item Status**

18-2A -- getting access for everyone to iMeet Central. Action is generally done, but Jorge and Khoi need to be added. Tom added them during a break, and this action is CLOSED.

18-2B -- The standards schedule has been updated and placed in folder Standards Development in iMeet Central.

The updated action item list is provided in Attachment 4.

- **SC-3 Membership**

This meeting has a quorum, with 12 of 15 members; however, Ngola has resigned, so now 12 of 14 members. Ngola will be replaced by Khoi, with Jorge attending also (in training).

Tom encouraged members to bring in younger engineers to introduce to the subcommittee as well as other potential members.

We are still in need of a Secretary for SC-3.

- **Alligator Fund**

Tom explained the need and status of the alligator fund, and it was noted that the fund balance has not changed since the last meeting. We agreed, once again, that there would be no collection for this meeting. The Alligator Fund status is contained in Attachment 3.

3.0 Chair’s Report

- **Leadership Review / Membership**

The current officers are: Tom Crawford, Chair; and Rebecca Steinman, Vice Chair. A volunteer to fill the Secretary position is needed. Tom reiterated that new people need to step into the leadership roles, and that each committee member needs to push hard to bring in at least one potential new member.

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- **Leadership Telecons**

There were no Leadership telecons since the previous meeting.

- **NPEC Preparations**

There are no preview or work-in-progress activities associated with SC-3 this meeting. The fee for the meeting is \$100, which covers room costs and required meal fees from the hotel. The draft agenda was shown; breakfast is at 7:30 am.

It was noted that having advance information about the non-standard (technical) presentations would allow WG/SC attendees to plan to stay for the NPEC meetings. However, this information is often not known sufficiently in advance.

For this NPEC meeting, SC3 has no topics; for the 19-02 meeting, we anticipate doing a preview for 336 and hopefully for 577. For topics that SC3 might want to present (at some time), it was suggested that a subject be how Risk-informed approaches would be applied to affected NPEC standards. Kiang Zee is amenable to presenting on this subject eventually.

4.0 Working Group Reports

- **WG-3.1**

The WG met on Monday and continued review of the draft P336 revision. Subject to a check on an ANS 3.2 reference and updating to the current IEEE template format, the draft was approved for presentation to NPEC. The motion was made by Jacob, seconded by John Stevens, and approved by voice vote.

- **WG-3.2**

No update was provided from the WG. IEEE 692 expires in 2023.

- **WG-3.3**

The only standard in work is IEEE 577. The PAR has been approved, and work continued on the update. A working copy of IEEE 577 is in the iMeet workspace. IEEE 577 expires in 2022; IEEE 933 expires in 2023; and IEEE 352 expires in 2026.

- **WG-3.4**

WG 3.4 is also dormant. IEEE 1205 expires in 2024. Rebecca will reconstitute the WG in 2020.

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5.0 Liaison Reports

Liaison reports were provided as follows:

- NRC – Khoi provided highlights of his report; the full report is in Attachment 7.
- ASME – Ted indicated it will be provided in the meeting minutes. The report subsequently submitted by Craig Sellers is in Attachment 6.
- SCoRA – Kiang reported that the committee will be meeting in February. Their objective is to get cohesive risk-informed terminology.

6.0 Old Business

Tom reviewed the SC-3 Master Schedule, and the following changes were decided:

- For the schedule, change the date shown for each standard to Approved, rather than Published, since the approval date determines the revise-or-withdraw date.
- The reason for the dot shading in some of the boxes could not be determined. Delete the dots.
- For PARs, change the Expiration dates to just December/year, since PARs standardly expire in December of the given year.

ACTION: Tom to update the schedule format as above [ACTION 19-1-A].

A copy of the updated schedule is provided in Attachment 8. The current NPEC SC-3 Standards Schedule is provided in Attachment 5.

7.0 New Business

- The question of how to incorporate or integrate IEEE 1819 with other standards was discussed. Ted suggested that a required step for PARs should be to “evaluate IEEE 1819 applicability”.

ACTION: Tom to bring this up at AdCom [ACTION 19-1-B].

- Concern was raised for the reception of risk-informed applicability within NRC and the varying responses expressed in the past.

ACTION: Khoi to get with other NRC attendees and ensure they are all speaking with the same message. Khoi will also talk with Ken Miller on this topic, as he prepares the NRC report [ACTION 19-1-C].

- George suggested we do an NPEC presentation on IEEE 1819 impacts, then get information on specific standards that are affected within each SC, and get that information to the other subcommittees.

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8.0 Action Items

Yvonne reviewed the new action items from this meeting. The revised AI List is provided in Attachment 4.

9.0 Next Meeting

Tom reported that the next NPEC meeting (19-2) will be in Williamsburg, VA. This will be a Wed – Fri meeting schedule, which is being conducted on a trial basis at the request of SC-4. The intent is to allow additional meetings on the Tues of the meeting week, if an SC or WG so desires. The date in late July will be firmed up by NPEC and published in the near term.

Jacob moved to adjourn, John seconded. The motion was unanimously accepted, and the meeting adjourned at 11:45 AM.

Subsequently, during the ADCOM meeting, it was announced that there will be a \$5 Meeting Fee imposed on all those attending the SC and WG meetings. This fee is to be collected by each SC and submitted to NPEC. Tom passed this information along to those still in the WG session late on Tuesday afternoon.

Prepared by Tom Crawford & Yvonne Williams.

iMeet Central SC-3 Workspace:

<https://iee-sa.imeetcentral.com/npecsc3/>

SC-3 Website information:

<http://sites.ieee.org/npec-sc3/>

NPEC Standards Website information:

<http://sites.ieee.org/pes-npec/npec-standards/>

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ATTACHMENTS

Attachment 1 Agenda	Attachment 2 Rolling Attendance	Attachment 3 Alligator Fund
Attachment 4 Action Items	Attachment 5 NPEC SC-3 Standards Status Spreadsheet	Attachment 6 ASME Liaison Report
Attachment 7 NRC Liaison Report	Attachment 8 SC-3 Standards Schedule	Attachment 9 IEEE Patent Slides

Attachment 1

Agenda – Meeting 19-1 – Charlotte, NC

NPEC Subcommittee SC-3, Operations, Maintenance, Aging, Testing, and Reliability

Meeting Date/Time:	Tuesday, 01/29/2019 0800-1200	Chairman :	Tom Crawford
		Vice Chair:	
		Secretary:	Rebecca Steinman

Desired Outcomes:	<ol style="list-style-type: none"> 1. Review status/activities of each SC Working Group 2. Review status of membership and officers succession 3. Update SC3 standards master schedule
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WHAT	WHO	WHEN
Welcome, Review Desired Outcomes <ul style="list-style-type: none"> • Meeting logistics • Patent Slides • Introductions 	T. Crawford All	0800 - 0810
Chairman’s Introduction <ul style="list-style-type: none"> • Opening remarks • Review/approve agenda 	T. Crawford	0810 - 0820
Secretary’s Report <ul style="list-style-type: none"> • Approval of SC3 18-2 Meeting Minutes • File Structure of SC-3 iMeet Central folders • Action Item review/status • SC3 membership review • Alligator fund report 	R. Steinman	0820 - 0850
Chairman’s Report <ul style="list-style-type: none"> • SC3 Leadership – Officers and succession planning • Leadership telecons – none held • NPEC meeting preparations 	T. Crawford	0850 - 0905
NPEC report – agenda for Wednesday meeting	T. Crawford	0905 - 0910
BREAK	All	0910 - 0930
Working Group Reports <ul style="list-style-type: none"> • WG-3.1 (Testing) – 336 expires in 2020, 338 in 2022, 1819 in 2026 • WG-3.2 (Security) – 692 expires in 2023 • WG-3.3 (Reliability) – 577 expires in 2022, 933 in 2023, 352 in 2026 • WG-3.4 (Aging) – 1205 expires in 2024 	Y. Williams T. Worrell J. Stevens R. Steinman	0930 - 0940 0940 - 0945 0950 - 1000 1000 - 1005
Liaison Reports <ul style="list-style-type: none"> • NRC Report • ASME Report • Other Risk-Informed Group Status 	N. Otto C. Sellers K. Zee	1005 - 1015 1015 - 1020 1020 - 1030
Old Business <ul style="list-style-type: none"> • Master schedule for Std review/updates • SC-3 website and iMeet Central accounts 	T. Crawford R. Steinman	1030 - 1040 1040 - 1105
New Business/Rumor Mill/Drumbeats <ul style="list-style-type: none"> • (TBD) 	T. Crawford	1105 - 1115
Review of Action Items	R. Steinman	1115 - 1125
Next meeting	T. Crawford	1125 - 1130
Meeting closeout/adjournment	T. Crawford	1130

NPEC Subcommittee SC-3
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Attendance

Last	First	SC-3 Member	2017-1	2017-2	2018-1	2018-2	2019-1
Aravapalli	Gopal	C					
Ballassi	George	X	X	X	X	X	X
Beatty	John	X			X	X	X
Channarasappa	Suresh	X	X		X	X	X
Crawford	Tom	X	X	T	X	X	X
Erinc	John				T	Resigned	
Heidarisaafa	Hamid	C			T		
Honecker	Sharon	C					
Kulangara	Jacob	X				T	X
Liming	Jim	C	X	X	Correspond	T	
Melson	Kirk	X				X	X
Muhtashemi	Ed	X	X	X			
Napper	Joe	C					
Otto	Ngola	X		Appointed	X	X	Resigned
Nguyen	Khoi						O
Parello	Jim	C					
Pierce	Clint	X	Appointed		X	X	X
Riccio	Ted	X	X		X	X	X
Rivera	Jorge A. Cintron						O
Steinman	Rebecca	X		X		X	
Stevens	John	X	X		X	T	X
Taylor	John	C					
Ward	Phil	X	Appointed	X			X
Williams	Yvonne	X	X	X		X	X
Zee	Kiang	X	X	X	X		X

Members are shown in **bold** and colored yellow as of end of most recent meeting.
Corresponding and Alternate members are shown in green.

TOTAL PAYING ATTENDEES			11	8	9	10	11
TOTAL NON-PAYING ATTENDEES			0	0	0	0	2
TOTAL TELECON PARTICIPANTS			0	1	2	3	0
TOTAL ATTENDEES			11	9	11	13	13
TOTAL SC-3 MEMBERS		15					

Attachment 3

NPEC Subcommittee SC-3

Operations, Maintenance, Aging, Testing, and Reliability

Alligator Fund

The Alligator Fund is made up of voluntary contributions from SC-3 members to defray the cost of meeting rooms, refreshments, etc.

Meeting	Beginning Balance	Meeting Contributions	Expenses	Ending Balance
S10-1	\$694.66	\$220.00	\$380.90	\$533.76
S10-2	\$533.76	\$425.00	\$474.90	\$483.86
S11-1	\$483.86	\$200.00	\$14.00	\$669.86
S11-2	\$669.86	\$430.00	\$480.50	\$619.36
S12-1	\$619.36	\$340.00	\$203.00	\$756.36
S12-2	\$756.36	\$150.00	\$0.00	\$906.36
S13-1	\$906.36	\$0.00	\$0.00	\$906.36
S13-2	\$906.36	\$0.00	\$0.00	\$906.36
S14-1	\$906.36	\$0.00	\$0.00	\$906.36
S14-2	\$906.36	\$0.00	\$0.00	\$906.36
S15-1	\$906.36	\$0.00	\$0.00	\$906.36
S15-2	\$906.36	\$0.00	\$0.00	\$906.36
S16-1	\$906.36	\$0.00	\$0.00	\$906.36
S16-2	\$906.36	\$0.00	\$0.00	\$906.36
S17-1	\$906.36	\$0.00	\$65.19	\$841.17
S17-2	\$841.17	\$0.00	\$51.08	\$790.09
S18-1	\$790.09	\$0.00	\$52.16	\$737.93
S18-2	\$737.93	\$0.00	\$0.00	\$737.93
S19-1	\$737.93	\$0.00	\$0.00	\$737.93

Attachment 4

NPEC Subcommittee SC-3
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Action Items List

Item No.	Subcommittee 3.0 Actions	Owner	Due Date	Closure Comments
17-2-B	Submit at least one topic to the SC-3 chair that you as a SC member would like to see presented as a 1-hr SC-3 training/technical session at a future mtg.	All Members	11/30/17	S18-2: Keep this item open and reminder all members to contibute ideas.
18-1-B	Send an email to Corresponding members requesting that each update his/her status.	Tom	18-2 mtg.	Tom sent emails to the non-attending members and Corresponding members on 29 JAN 2018 requesting they update Roster information and state their intentions relative to continued membership and future participation. S18-2 Hamid Heidarisaafa, Jim Liming, Joe Napper, and Craig Sellers all responded that they wish to continue as Corresponding Members. Sharon Honecker and John Taylor did not respond, and an additional email was sent to them on 29 May 2019.
19-1-A	Update SC-3 Standards Schedule format as discussed during the 19-1 meeting.	Tom	19-2 mtg.	
19-1-B	Recommend to ADCOM that a required step in the PAR approval process be to evaluate IEEE 1819 applicability.	Tom	19-2 mtg.	Tom raised the topic during the 19-1 ADCOM meeting and it was agreed that a PAR Approval Checklist would be developed to address this and several other issues which have recently come up. This item is CLOSED.
19-1-C	Discuss the reception of risk-informed applicability with other NRC attendees, including Ken Miller, and insure they are all speaking the same message.	Khoi	19-2 mtg.	

Attachment 5

SC-3 "Operations, Maintenance, Aging, Testing & Reliability"
Chair: Tom Crawford

PROJECT	Year	Standard Expiration	Re-Affirmation	PAR Expiration	TITLE	Regulatory Guide	Working Group	Chair	Cycle Year	N18-2	N19-1	N19-2	N20-1	Status/Comments
336	2010	2020		Dec-2020	IEEE Standard Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities	1.30 - 1972	1	Y. Williams	9					PAR approved by ADCOM at 16-02 and submitted to RevCom. PAR approved by SB 9/22/16
338	2012	2022		Dec-2022	IEEE Standard Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Station Safety Systems	1.118 - 1995	1	Y. Williams	7	PAR				Published on 23 March 2012 PAR Approved 9/27/2018
352	2016	2026		N/A	IEEE Guide for General Principles of Reliability Analysis of Nuclear Power Generating Stations and Other Nuclear Facilities		3	J. Stevens	3					Standard revision approved by SB Dec. 7, 2016 Standard revision approved by SB Sept, 2016
577	2012	2022		Dec-2022	IEEE Standard Requirements for Reliability Analysis in the Design and Operation of Safety Systems for Nuclear Power Generating Stations		3	J. Stevens	7					Approved by SASB Aug. 30, 2012 Published on Oct. 19, 2012 PAR approved by Std Brd 3/8/2018
692	2013	2023		Dec-2022	IEEE Standard Criteria for Security Systems for Nuclear Power Generating Stations		2	R. Flowers	6					Issued by Sd bd Aug. 2013. Published on 30 Sept 2013 PAR approved 9/27/2018
933	2013	2023		N/A	IEEE Guide for Definition of Reliability Program Plans for Nuclear Generating Stations and Other Nuclear Facilities		3	J. Stevens	6					Approved by SA BD on Dec. 11, 2013 Published 10 Jan 2014
1205	2014	2024		N/A	IEEE Guide for Assessing, Monitoring, and Mitigating Aging Effects on Class 1E Equipment used in Nuclear Power Generating Stations	1.218 - 2012	4	R. Steinman	5					Approved by SB March 27, 2014 Published 16 May 2014
1819	2016	2026		N/A	Standard for Risk-Informed Categorization and Treatment of Electrical Equipment in Nuclear Facilities		1	Y. Williams	3					Standard revision approved by SB Sept, 2016

Attachment 6

ASME Liaison Report January 2019

The OM Committee reorganized its structure and Subgroup ISTE has been designated Subcommittee Risk-Informed Activities (SC-RIA). SC-RIA has resolved all comments on OM Code, Subsection ISTE, "Risk-Informed Inservice Testing" Revision 4 and Subsection ISTE was balloted and approved by BNCS. Subsection ISTE is planned to be published in the next edition of the OM Code.

SC-RIA is not meeting until active work for the subcommittee is identified.

Craig Sellers

Chair Subcommittee Risk-Informed Activities

Attachment 7

NRC Liaison Report - IEEE NPEC 19-1 Meeting – Jan 2019

1. Operating Reactors
 - a. Turkey Point Subsequent License Renewal (SLR) Application submitted January 2018 and accepted for review on 5/2/18. Peach Bottom SLR application was accepted for review in August 2018. Surry SLR application arrived October 2018 and application was accepted for review in December 2018.
 - b. Revised Model Safety Evaluation, TSTF-505 Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4B," was published in Nov 2018 (ADAMS Accession No. ML18269A041)
 - c. Battery TS LCO implementation – LCO 3.8.4
 - d. Open Phase Condition – Public meetings were held in September and October 2018 to obtain feedback from industry to support the NRC staff's technical evaluation report. Staff is working on completing the technical evaluation report. A public meeting is expected in February 2019.
 - e. EQ - Inspections are ongoing. Public meetings with industry were held in July and December 2018.
 - f. All licensees have declared compliance with post-Fukushima Orders EA-12-049 (Mitigating Strategies) and EA-12-051 (Spent Fuel Pool Level Instrumentation).
 - g. The Commission approved the transfer of the Vermont Yankee nuclear power plant operating license from Entergy to NorthStar. Entergy requested the transfer to NorthStar to decommission the plant, which ceased operations in December 2014.
 - h. The Commission has renewed the operating licenses for the Indian Point nuclear power plant, Unit 2 and Unit 3, located in Buchanan, N.Y. The renewed licenses enable the licensee to operate the reactors through April 30, 2024, for Unit 2, and April 30, 2025, for Unit 3.
 - i. In December 2018, the Commission has renewed the operating license of the Waterford Steam Electric Station for an additional 20 years. Waterford's license will now expire Dec. 18, 2044.
 - j. In December 2018, the Commission has renewed the operating license of the River Bend Nuclear Generating Station for an additional 20 years. River Bend's license will now expire Aug. 29, 2045.
2. New Reactors
 - a. For APR1400 Design Certification Review, final SER was issued in October 2018 and rulemaking activities are ongoing.
 - b. NuScale Design Certification Review is ongoing. ACRS Full Committee Meeting on Chapter 8 (Electric Systems) took place in September 2018.
3. Advanced Reactors
 - a. Several non-LWR reactor designers have formally notified the NRC of their intent to engage in regulatory interactions, including Oklo, Xe-100, Molten Chloride Fast Reactor, and Kairos Power Fluoride Salt-Cooled High Temperature Reactor.
 - b. Periodic stakeholder meetings were held in September and December 2018 to discuss non-LWR topics of interest.

Attachment 7

4. Rulemaking
 - a. The Commission has voted on the final rule on Mitigation of Beyond-Design-Basis Events. Comments from the Commission are being considered to inform the final rule.
4. Research
 - a. NRC's Office of Research is in the process to endorse IEEE 741 (Appendix A related to DVR and LOV) and is awaiting publication of IEEE 946 to initiate the process for endorsing the standard.
 - b. RG 1.89 – ongoing periodic review published Dec 2018.
5. Part 21

The following Part 21 Reports were issued in the past 6 months (more information available on the NRC website under the Part 21 Reports webpage):

- a. 2018-11-00 - Interim Report Related to Failure of a Diesel Generator Pressure Switch
 - b. 2018-12-00 - Notification of 10 CFR 21 Defect – Failure of Relays to Change State
 - c. 2018-13-00 - Potential Part 21 on Dedicated Items not Available for PMI Testing (NUPIC)
 - d. 2018-16-02 - Part 21 Report of Westinghouse 7300 Circuit Card Increased Failure Rate
 - e. 2018-17-00 - Potential Defect in AC Voltage Sense Board
 - f. 2018-20-00 - Selector Switch Shorted due to Incorrect Hardware
 - g. 2018-21-00 - Failed Fuse Leads to Loss of Safety Function (A LER which also satisfies the evaluation, notification and reporting requirements under 10 CFR 21)
 - h. 2018-22-00 - Reportable Notification on a Motor Operated Potentiometer P/N 72-07900-100-ESI
 - i. 2018-23-00 - Interim 10 CFR 21 Report for General Electric Hitachi (GEH) Relay Contact Cartridge DJ148C6159P001
 - j. 2018-24-01 - Updated Interim Notification Report for Potential Part 21 with Exelon PowerLabs Failure Analysis
 - k. 2018-25-01 - 10 CFR Part 21 Notification of Deviation, Dry Type Transformer Serial # 24-26458
 - l. 2018-26-00 - Interim Report from ABB Motors and Mechanical Inc. (formerly Baldor Electric Company) on three AC electric motors
 - m. 2018-27-00 - ITT Conoflow GT25 Series Current to Pressure Transducer Failure to Comply with EQ Test Report Specifications
 - n. 2018-28-00 - Fisher Digital Valve Controllers 6000/6200 Series not Environmentally Qualified
 - o. 2018-30-01 - 10 CFR 21 Reportable Condition on EMD Fuel and Soakback Pumps
 - p. 2018-32-00 - Part 21 Report Related to Relay Chatter in Safety-Related Radiation Monitoring Systems
6. Generic Communications
 - a. IN 18-09 - Electrical Arc Flash Caused by Foreign Material Damages Fire Door
 - b. RIS 18-05 - Supplier Oversight Issues Identified During Recent NRC Vendor Inspections

Attachment 8

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SC-3 Standards Schedule

	WG 3.1	WG 3.2	WG 3.3	WG 3.4
2017-1	336		352	
2017-2	336		577	
2018-1	336		577	
2018-2	336		577	
2019-1	336		577	
2019-2	338		577	
2020-1	338	692	577	
2020-2	338	692	577	
2021-1	338	692	933	1205
2021-2	338	692	933	1205
2022-1	338	692	933	1205
2022-2	338	692	933	1205
2023-1	1819	692	933	1205
2023-2	1819		352	
2024-1	1819		352	
2024-2	1819		352	
2025-1	1819		352	
2025-2	1819		352	
2026-1	336		352	
2026-2	336		352	
2027-1	336			
2027-2	336			
2028-1	336			
2028-2	336		577	
2028-1	338		577	
2028-2	338		577	
2028-1	338		577	
2028-2	338		577	
2029-1	338		577	
2029-2	338		577	

STD	Approved	Expires	Age as of: 01/30/2019	Time left (yrs)
336	09/30/2010	09/30/2020	8.3	1.7
338	03/23/2012	03/23/2022	6.9	3.1
352	12/07/2016	12/07/2026	2.1	7.9
577	10/19/2012	10/19/2022	6.3	3.7
692	09/30/2013	09/30/2023	5.3	4.7
933	01/10/2014	01/10/2024	5.1	4.9
1205	05/16/2014	05/16/2024	4.7	5.3
1819	09/22/2016	09/22/2026	2.4	7.6

Balloting
and
Approval
Includes:

- 1 Preview, ballot pool, ballot, receive comments
- 2 Resolve comments, recirc
- 3 Submit to/ revcom approval/publish

Instructions for the WG Chair

The IEEE-SA strongly recommends that at each WG meeting the chair or a designee:

- **Show slides #1 through #4 of this presentation**
- **Advise the WG attendees that:**
 - IEEE's patent policy is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
 - Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
 - There may be Essential Patent Claims of which IEEE is not aware. Additionally, neither IEEE, the WG, nor the WG Chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- **Instruct the WG Secretary to record in the minutes of the relevant WG meeting:**
 - That the foregoing information was provided and that slides 1 through 4 (and this slide 0, if applicable) were shown;
 - That the chair or designee provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard
 - Any responses that were given, specifically the patent claim(s)/patent application claim(s) and/or the holder of the patent claim(s)/patent application claim(s) that were identified (if any) and by whom.
- The WG Chair shall ensure that a request is made to any identified holders of potential essential patent claim(s) to complete and submit a Letter of Assurance.
- It is recommended that the WG Chair review the guidance in *IEEE-SA Standards Board Operations Manual* 6.3.5 and in FAQs 14 and 15 on inclusion of potential Essential Patent Claims by incorporation or by reference.

Note: **WG** includes Working Groups, Task Groups, and other standards-developing committees with a PAR approved by the IEEE-SA Standards Board.

Participants have a duty to inform the IEEE

- Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
- Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims

**Early identification of holders of potential
Essential Patent Claims is encouraged**

Ways to inform IEEE

- **Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or**
- **Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or**
- **Speak up now and respond to this Call for Potentially Essential Patents**

If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair

Other guidelines for IEEE WG meetings

- **All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.**
 - **Don't discuss the interpretation, validity, or essentiality of patents/patent claims.**
 - **Don't discuss specific license rates, terms, or conditions.**
 - Relative costs of different technical approaches that include relative costs of patent licensing terms may be discussed in standards development meetings.
 - **Technical considerations remain the primary focus**
 - **Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.**
 - **Don't discuss the status or substance of ongoing or threatened litigation.**
 - **Don't be silent if inappropriate topics are discussed ... do formally object.**

For more details, see *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and *Antitrust and Competition Policy: What You Need to Know* at <http://standards.ieee.org/develop/policies/antitrust.pdf>

Patent-related information

The patent policy and the procedures used to execute that policy are documented in the:

- ***IEEE-SA Standards Board Bylaws***
(<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>)
- ***IEEE-SA Standards Board Operations Manual***
(<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>)

Material about the patent policy is available at
<http://standards.ieee.org/about/sasb/patcom/materials.html>

**If you have questions, contact the IEEE-SA
Standards Board Patent Committee
Administrator at patcom@ieee.org**