

PSCC Subcommittee WebEx Virtual Meeting Minutes - DRAFT

Designation: PSCCC-F0	Name: IEEE Fiber Optics Subcommittee
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Meeting Location: Teams	Meeting Time: 9 AM-12:00 PM-EDT	Meeting Date: 2022/03/30-31	Minutes Revised: 2022/04/19	Minutes Approved: 2022/06/21
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Presiding Officer: Chair: Delavar Khomarlou, Vice Chair: Corrine Dimnik, Secretary: John Jones	Recorded by: John Jones, D. Khomarlou, Corrine Dimnik
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Attendance: Total attendees = 18/25 + 7 Guests (M: Member, CM: Corresponding Member, G: Guest, I: IEEE)

Paul Baird from Prysmian has taken over for Jim Ryan.		Affiliation	Attending via Phone (P) / Web (W) or Local (L)/ Absent (A)	M/CM/G/I
Austin Farmer	AFL	A	M	
Jaclyn Whitehead	AFL	A	M	
Mark Naylor	AFL	A	M	
Marie Henshaw	AFL	W	M	
Peyton Campbell	AFL	W	M	
Robert (Bob) Kluge	ATC - Retired	W	M	
Mike Warntjes	ATC	A	M	
Corrine Dimnik	Kinectrics	W (host)	M	
John Jones	PLP	W (secretary)	M	
Jacob Palmer	PLP	A	M	
Josep Martin Regalado	Prysmian	W	M	
Paul Baird	Prysmian	W	M	
Felix Chen	ZTT China	W	M	
Jack Roughan	ZTT China	W	M	
Linda Cai	ZTT China	W	M	
Lemon Lu	ZTT China	W	M	
Rabih Ghossein	HPS	A	M	
Gabriel Okafor	HPS	W	M	
Tewfik Schehade	Independent Consultant	W	M	
Delavar Khomarlou	Hydro One Networks	W	M	
Brett Boles	Southern Company	W	M	
Greg Bennett	Southern Company	A	M	
Christopher E. Royer	AEP	W	M	
Henson Toland	OFS Optics	W	M	
Mike Riddle	Incab	W	M	
Monty Tuominen	MWT Consulting LLC -BP (Retired)	A	M (Ret)	
Mike Kipness/Erin Spiewak	IEEE (liaison)	A	I	
Guests (New and Old)				
Dan Baggett	AFL	A	G	
Emma Fulina	Shanghai Electric Cable Research Institute (SECRI)	W	G	
Yi Guo	Shanghai Electric Cable Research	W	G	

	Institute (SECRI)		
Dimitry Gilbert	Incab	W	G
Christian Riddle	Incab	W	G
Andrew Cresswell	Hubbell	W	G
Yongxin	ZTT	W	G
Jeff Wang	ZTT	W	G

Note:

G→M : Guest is eligible to become member if requested.

Item no.	Notes	Action by
CALL TO ORDER	March 30, 2022 09:00 AM	D. Khomarlou
INTRODUCTIONS AND QUORUM	Quorum With 18 members and 7 guests on Teams for both days, no IEEE representative in this meeting. More than 50 % of members.	
CHAIR'S REMARKS	<p>Teams Meeting Welcome, the need to have virtual meetings in place of the face-to-face meeting given the COVID situation and hotel requirement for vaccine, etc...</p> <p>Andrew Cresswell (Hubbell) and Christian Riddle (Incab), Yongxin (ZTT) and Jeff Wang (ZTT) joined as new guests during this meeting. They will be guests and can join as voting members after three meetings.</p> <p>Qualified members added (3 meetings): Marie Henshaw, Peyton Campbell, Jacob Palmer</p> <p>Denise Frey will be concentrating on her business and will not be contributing much more to our group. The sheave requirements have been transferred to Tewfik Schehade.</p> <p>Paul Baird is taking over from Jim Ryan and will chair the ADSS Working group.</p> <p>Monty Tuominen association will be changed to MWT Consulting LLC –BP (Retired).</p> <p>IEEE SA Copyright policy for WG/subcommittee members was presented briefly. The Copyright presentation will be attached to these minutes for future reference.</p> <p>Members need to confirm iMeetCentral IEEE copyright policy or their iMeetCentral access may get suspended. Please let chair know if you don't have membership to iMeetCentral.</p> <p>Chair presentation has been placed in this document for your reference.</p> <p>PAR Rules. New rule – must allow publishing time “approximately 4 months” before the PAR deadline.</p> <p>Subcommittee officers need help since we are overwhelmed with our own work.</p> <p>Need one person to represent PSCCC-F0 in awards committee. Need one person to help Corrine, chair and secretary (John Jones) and use this experience to take one of the officers' positions in the near future.</p> <p>Corrine Dimnik, John Jones and I will maintain mailing list for all members and can send documents/info. For privacy, group emails will be sent as Blind Carbon Copy (BCC). We will include names and association (minus emails) in our correspondence and minutes.</p>	D. Khomarlou
AGENDA APPROVAL	Agenda for the March 30-31, 2022 virtual meeting was sent to all members prior to the call. The agenda was approved in this meeting.	D. Khomarlou
APPROVAL OF PREVIOUS MINUTES	Draft Minutes of Dec 9, 2021 virtual meeting have been placed in iMeetCentral and sent to members. Minutes were approved in the meeting on March 31, 2022. These minutes will be posted in the IEEE PSCCC website for public access.	D. Khomarlou
IEEE 1138 News	IEEE 1138 has been placed on nomination list for PES award	Corrine Dimnik
IEEE 1591.3 and 1594 Wrap Cable	Not Discussed in this meeting. Retirement of TIA-455-30 and replacement with TIA-455-204 applies to these two standards as well.	Mark Naylor

Item no.	Notes	Action by
IEEE 1595 Standard – 1595D6 OPPC –>Publication	Corrine confirmed no further updates from IEEE for 1595. Publishing target was Q1 2022.	Josep Martin Linda Cai/ Jack Roughan
1591.1 OPGW hardware	<p>Reviewed latest updates for DC testing.</p> <p>Vote for Hardware 1591.1 to retain full description of common tests (Aeolian Vibration and Galloping) Yes vote - retain No vote - refer back to IEEE Std 1138</p> <p>Majority Yes. Decided to keep document “as is” considering it is a base document for other hardware standards created by this working group. Cable standards will refer to 1138 and Hardware standards refer to 1591.1.</p> <p>March 31, 2022: 1591.1 Vote - Yes 23 (19 voting members + 4 guests) - No 0</p> <p>Follow Up – Fiber method – 1222 comparison to 1591.1 – Jack Roughan to provide comparison Corona Annex A – John Jones to contact Monty and Bruce.</p> <p>1591.1 PAR is valid until Dec. 2022 and we need to get this published soon.</p>	J. Jones / B. Kluge
OPPC Hardware 1591.4	<p>1591.4 OPPC Hardware draft was discussed briefly by Jack Roughan.</p> <p>Most significant change was removal of the High Temperature Test.</p> <p>Draft is uploaded to iMeetcentral. Chair to circulate via minutes.</p> <p>Background Information from September/December meeting: – optical monitoring reference to ADSS instead of OPGW. Will review with sub-group.</p> <p>Phase conductor – emergency current, working current (design current). Fault current.</p> <p>IEC – 61284 – repair rods. Can IEC 61284 Clause 14 be use for DC resistance testing? John Jones to see the information for 1591.1 and if it can be harmonized.</p>	L. Cai/ J. Roughan
IEEE 524 liaison	<p>No further discussion in this meeting due to time constraints.</p> <p>From Previous meeting in December 2021 (background info): Table: Comparison IEEE 524 and IEC 61328. Grounding discussion. Once we secure permission from IEEE 524, we can distribute to members.</p> <p>Jack Roughan and Bob Kluge will jointly work as liaison PSCCC-F0 to IEEE 524. Jack Roughan represented PSCCC-F0 in-person in January 2022 IEEE 524 meeting.</p>	NA
IEEE 1591.x Task Force Group	<p>Jack Roughan is leading the group.</p> <p>The purpose of the group is to try to harmonize all 1591.x hardware standards for different types of cables. Group is still open to accepting new members – a number of people in the meeting expressed interest.</p> <p>Current membership is 13: Jack Roughan, Linda Cai, Lemon Lu, Josep Martin Regalado, Tewfik Schegade, John Jones, Mark Naylor, Del Khomarlou, Corrine Dimnik, Denise Frey, Dan Baggett, Peyton Campbell, Gabriel Okafor.</p> <p>No further discussion in this meeting due to time constraints.</p>	J. Roughan

Item no.	Notes	Action by
IEEE 525 and PSCCCE0 Liaison	Chair will attend IEEE 525 meeting a part of JTTCM. A revised version of the Comment form was presented to 525 and they are supposed to come back with their responses. No further discussion in this meeting due to time constraints.	D. Khomarlou
IEC Liaison ITU Liaison	No new update No further discussion in this meeting due to time constraints.	NA
IEEE 1222	No New item for IEEE 1222.	P. Baird
Sheave Size Recommendation/ IEEE 524	Denise Frey final recommendation was passed on to Tewfik and he has made modifications that are included in this document. These modifications were discussed extensively in the meeting, but there was no definitive consensus. OPGW manufacturers – to review and consider reduced sheave diameter based on a small spatial angle. Prysmian has performed tests for SS buffer tube. 15" OD. Tests for aluminum tube. 30XD for Tangents <5 deg PSCCC-F0 needs to provide recommendations to 524 standards. Cable manufacturers to provide comments to Tewfik	
Presentation	Hydro Quebec study of OPGW fibre ageing was provided, but a softcopy can't be shared. Will include Corning Mechanical reliability white paper with this meeting as it is in public domain and can be shared.	
New /Other Business	Some of the ideas for new guide/standard/items to consider <ul style="list-style-type: none"> • OPPC/OPGW/ADSS/Skywrap End of Life Determination Tests • Navigational Marker Balls – potential added section for OPGW applications. • Anti-Galloping devices • Connectivity for OPGW – Splice Boxes • Isolated OPGW – • Live-line installation Items discussed in this meeting were with respect to the above:	
ITEMS REPORTED OUT OF EXECUTIVE SESSION	NA	

Item no.	Notes	Action by
CLOSING	<p>New Working Group Chair / Vice-Chair matrix for our PSCCC-F0 based on member inputs/agreements:</p> <p>1222 Paul Baird – Jacob Palmer 1138 Corrine - Marie Henshaw 1591.1 J. Jones - Robert Kluge 1591.2 J. Jones - Gabriel Okafor 1591.3 and 1594 - Mark Naylor - Austin Farmer 1591.4 and 1595 Jack Roughan - Josep Martin</p> <p>Should allocate more time in the next meeting to discuss new business areas and solicit ideas.</p> <p>New members have been added to iMeetCentral PSCCC-F0 and site has been restructured to reflect our sub-groups and standards.</p> <p>Please let chair know if you don't yet have access to iMeetCentral.</p>	
TIME OF FINAL ADJOURNMENT	Meeting was adjourned on March 31, 2022 at 12:15 EDT.	
NEXT MEETINGS	<p>Next Meeting will be a virtual meeting using Teams:</p> <p>June 21, 2022: 0900 - 12:00</p> <p>September Meeting – Charlotte or Atlanta depending on which one is easier to get to. In person. Tentatively week of September 26th, 2022.</p>	
MATERIAL TO BE PLACED IN iMeetCentral And Attached	<ol style="list-style-type: none"> 1. IEEE Copyright statement (included in this document) 2. IEEE Patent and duty to inform clause (included in this document) 3. Sheave Guidelines – Draft with changes from the meeting - Work In Progress 4. Corning Mechanical reliability white paper 	

Meeting Material

IEEE Copyright

IEEE-SA Copyright Policy

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1591.4 Test Section

IEEE P1591.4/D2 March 2022

- 1 **5. Tests**
- 2 Please refer to Clause 5 of IEEE Standard [1591.1](#) (OPPC instead of OPGW)
- 3
- 4 **5.1 Classification of tests**
- 5 **5.2 Please refer to Clause 5.1 of IEEE Standard [1591.1](#) (OPPC instead of OPGW) General**
- 6 **guidelines for optical measurements**
- 7 A procedure for optical measurements and fiber preparation is described in this subclause for reference
- 8 throughout this standard. The summary of qualification tests in Table 3 reference this subclause for optical
- 9 testing in accordance with this paragraph.
- 10 An assumption for the tests for this standard is that the cables include the most bend-sensitive fiber for the
- 11 application. The optical performance of bend-insensitive fiber can mask improper compatibility between
- 12 cable and hardware. If bend-insensitive fiber is used, this shall be declared to the end user, and attention shall be
- 13 paid to mechanical deformities of the optical buffer units.
- 14 **5.2.1 Procedure for optical measurements and fiber preparation**
- 15 Please refer to Clause 5.2.1 of IEEE Standard [1591.2](#) ([OPPC](#) instead of ADSS)
- 16
- 17 **5.2.2 Acceptance criteria**
- 18 Please refer to Clause 5.2. of IEEE Standard [1591.2](#) ([OPPC](#) instead of ADSS)
- 19
- 20 Unless otherwise stated, a permanent or temporary increase in optical attenuation greater than 0.1 dB/km
- 21 within the cable and hardware test sample under test at nominally 1550 nm for concatenated single mode fibers
- 22 shall constitute failure. When measuring fibers not concatenated, the maximum individual fiber attenuation
- 23 shall not exceed 0.1 dB at 1550 nm for single mode fiber and the average increase of all fibers under test shall

Sheave Guidelines – Work in Progress – Tewfik

Prysmian has performed tests for SS buffer tube. 15” OD.
Tests for Aluminium tube.
30 x D for Tangents < 5 degree

Interim modifications on March 31, 2022

Proposed IEEE Sheave Guidelines for ADSS/OPGW/OPPC Installations

Cable Type	Spatial Angle**	Spans	Pulling/Stringing Tension *	Minimum Sheave Size(BOG)***
ADSS	≤ 10°	≤ 91.4 M (300 ft)	≤ 2.7 kN (600 lb)	Greater of either 254 mm (10") or Cable OD x 20
ADSS	≤ 20°	≤ 91.4 M (300 ft)	≤ 2.7 kN (600 lb)	Cable OD x 30
ADSS	≤ 20°	≥ 91.4 M (300 ft)	≤ 2.7 kN (600 lb)	Cable OD x ??
ADSS	≥ 20°	Any span	≤ 2.7 kN (600 lb)	Cable OD x 40
OPGW & OPPC	≤ 20°	≤ 91.4 M (300 ft)	≤ 10% of RTS to a maximum of 4.5 kN (1,000 lb)	558 mm (22")
OPGW & OPPC	> 20°	Any span		Cable OD x 40

*Pulling /Stringing Tension is defined as ...

**Spatial angle is the vector resultant of vertical elevation, line angle, horizontal angle at loading of stringing condition.

***For ADSS and OPGW, the Bottom of the Groove (BOG), otherwise also known as the Root Diameter, of a sheave should be 40 times the cable diameter or larger. Smaller sheaves may be permitted with written notification from the cable manufacturer. Considerations of cable design, cable diameter, installation tension, number of angles in a segment, and size of angles will determine if notification is needed by the manufacturer.

Existing PSCCC-F0 Working Group Matrix from our parent Committee to be revised:

F, Fiber Optic Subcommittee					Del Khomarlou	Corrine Dimnik		
F1	Standard	1222	ADSS		Jim Ryan	Josep Martin		
F2	Standard	1138	OPGW		Jaclyn Whitehead	Tewfik Schehade		
F3	Standard	1591.1, 1591.2	ADSS OPGW HW		John Jones	Robert Kluge		
F4	Standard	1594, 1591.3	FOxMrap		Mark Naylor	Austin Farmer		
F5	Standard	1595, 1591.4	OPPC		Felix Chen	Josep Martin		

MAINTENANCE SCHEDULE FOR STANDARDS UNDER PSCCC-F0

PRIORITY	DUE DATE	STANDARD NUMBER	STANDARD TITLE	LAST PUBLISH ED DATE	ACTION (DEV / REVISION / COMMENTS ONLY)	COMMENTS
	New PAR submitted June 2024	IEEE-1138-2021	IEEE Standard for Testing and Performance for Optical Ground Wire (OPGW) for Use on Electric Utility Power Lines	2021	Published in 2021	Published in November 2021.
	No Active PAR Published in 2020	IEEE 1222-2011	IEEE Standard for Testing and Performance for All-Dielectric Self-Supporting (ADSS) Fiber Optic Cable for Use on Electric Utility Power Lines	2020	Published 2020	Published 2020
	No Active PAR. Published in 2020	IEEE 1594-2008	IEEE Standard for Helically Applied Fiber Optic Cable Systems (Wrap Cable) for Use on Overhead Utility Lines	2008		Published in 2020
1	Active PAR.Ext PAR to Dec. 2022	IEEE 1595-DRAFT	Draft Standard for Testing and Performance for Optical Phase Conductor (OPPC) for Use on Electrical Utility Power Lines		Standard is in IEEE publication process via REVCOM	Expect to be sent to IEEE for publication in Jan 2022.
2	Active PAR Ex. Dec. 2022	IEEE 1591.1-2012	IEEE Standard for Testing and Performance of Hardware for Optical Ground Wire (OPGW)	2012		
	No Active PAR Published in 2020	IEEE 1591.3-2011	IEEE Standard for Qualifying Hardware for Helically-Applied Fiber Optic Cable Systems (WRAP Cable)	2011	Published 2020	Published in 2020
3	PAR Approval May 2019Exp. Dec. 2023	IEEE 1591.4-DRAFT	Standard for Testing and Performance of Hardware for Optical Fiber Composite Overhead Phase Conductor (OPPC)			Standard under development
	NA	IEEE 1591.2-2017	IEEE Standard for Testing and Performance of Hardware for All-Dielectric Self-Supporting (ADSS) Fiber Optic Cable	2018	No new Activity	May be revised as part of 1591.x task force work.
	Published Date: Apr. 2017	IEEE 524-2016	IEEE Guide for the Installation of Overhead Transmission Line Conductors		For comment only	Liaison Report
	NA	IEEE 524-2016	IEEE PSCCC-F0 recommendation for sheave sizing		Information to be provided for inclusion in IEEE 524.	Manufacturer/end-user agreement sought in PSCCC-F0. To be provided in Q1 2022.
	NA	IEEE 525-2016	IEEE Guide for the Design and Installation of Cable Systems in Substations		For comment only	Liaison Report Table Q updated Comment resolution pending

* * *

Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy.

- Participants [**Note: Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2**]:
 - “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
 - “Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of potential Essential Patent Claims” (that is, third parties that are not affiliated with the participant, with the participant’s employer, or with anyone else that the participant is from or otherwise represents)
- The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group
- Early identification of holders of potential Essential Patent Claims is strongly encouraged
- No duty to perform a patent search

Patent Related Links

All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development. Patent Policy is stated in these sources:

- IEEE-SA Standards Boards Bylaws (Clause 6) <http://standards.ieee.org/develop/policies/bylaws/sect6-7.html>
- IEEE-SA Standards Board Operations Manual (Clause 6.3) <http://standards.ieee.org/develop/policies/opman/sect6.html>
- 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 or visit” <http://standards.ieee.org/about/sasb/patcom/index.html>

This patent information (slide set) is available at: <https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.ppt>

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 (LOA): • Either speak up now, 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 Cause an LOA to be submitted

Don’t discuss the interpretation, validity, or essentiality of patents/patent claims.

Don’t discuss specific license rates, terms, or conditions. • Relative costs, including licensing costs of essential patent claims, of different technical approaches may be discussed in standards development meetings. • Technical considerations remain 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.

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