

PSCC Subcommittee WebEx Virtual Meeting Minutes - FINAL

Designation: PSCCC-F0	Name: IEEE Fiber Optics Subcommittee			
Meeting Location: WebEx	Meeting Time: 9 AM-12:00 PM-EDT	Meeting Date: 2021/12/09	Minutes Revised: 2022/01/26	Minutes Approved: 2022/03/31

Presiding Officer: Chair: Delavar Khomarlou, Vice Chair: Corrine Dimnik, Secretary: John Jones	Recorded by: John Jones, D. Khomarlou, Corrine Dimnik
---	--

Attendance: Total attendees = -20/30 + 2 Guests (M: Member, CM: Corresponding Member, G: Guest, I: IEEE)

Paul Baird from Prysmian will take over for Jim Ryan. Jim will retire.		Attending via Phone (P) / Web (W) or Local (L)/ Absent (A)	M/CM/ G/I
Name	Affiliation		
Austin Farmer	AFL	W	M
Jaclyn Whitehead	AFL	A	M
Mark Naylor	AFL	A	M
Robert (Bob) Kluge	ATC - Retired	W	M
Mike Warntjes	ATC	A	M
Corrine Dimnik	Kinetrics	W (host)	M
John Jones	PLP	W	M
Josep Martin Regalado	Prysmian	W	M
Jim Ryan	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	A	M
Tewfik Schehade	Independent Consultant	W	M
Delavar Khomarlou	Hydro One Networks	W	M
Brett Boles	Southern Company	A	M
Greg Bennett	Southern Company	W	M
Christopher E. Royer	AEP	A	M
Henson Toland	OFS Optics	W	M
Mike Riddle	Incab	W	M
Monty Tuominen	Bonneville Power - Retired	W	M (Ret)
Mike Kipness/Erin Spiewak	IEEE (liaison)	A	I
Denise Frey	Fiber Planners	A	M
Chitrand Bhatnagar	DuPont - Retired	A	M (Ret)
Paul Baird	Prysmian	W	M/G
Marie Henshaw	AFL	W	M
Peyton Campbell	AFL	W	M
Jacob Palmer	PLP	W	M

Guests (New and Old)			
Dan Baggett	AFL	A	G
Emma Fulina	Shanghai Electric Cable Research Institute (SECRI)	W	G
Dimitry Gilbert	Incab	A	G
Peter Weiman	OFS	A	G
Andrew Cresswell	Hubbell	W	G

Note:

Paul Baird – Prysmian will replace Jim Ryan – Prysmian when he retires in December 2021, hence M/G. He has been counted as Guest in the tally.

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

Item no.	Notes	Action by
CALL TO ORDER	December 09, 2021 09:00 AM	D. Khomarlou
INTRODUCTIONS AND QUORUM	Quorum With 20 members on WebEx, no IEEE representative in this meeting.	
CHAIR'S REMARKS	<p>WebEx 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>Marie Henshaw (AFL), Jacob Plamer (PLP) have met the attendance requirement and are now members of the PSCCC-F0 subcommittee. Congratulations and we look forward to your contributions.</p> <p>Jim Ryan (Prysmian) who led the ADSS efforts and is one of the key contributors to PSCCC-F0 is retiring and Paul Baird is taking over from him. Congratulations on reaching this important milestone Jim and we will miss your valuable contributions.</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>Subcommittee officers need help since we are overwhelmed with our own work. 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). Per Josep Martin Regalado suggestion, we will add the names (no emails) of those in the BCC, so people know who has been emailed. This will keep us still compliant.</p>	D. Khomarlou
AGENDA APPROVAL	Agenda for the December 09, 2021 virtual meeting was sent to all members prior to the call. The agenda was approved. Jim Ryan approved, Corrine Dimnik Second it.	D. Khomarlou
APPROVAL OF PREVIOUS MINUTES	Draft Minutes of September 2021 virtual meeting have been placed in iMeetCentral. Minutes were approved in this meeting. Jack Roughan Approved, J. Jones Second it. These minutes will be posted in the IEEE PSCCC website for public access.	D. Khomarlou
IEEE 1138 News	IEEE 1138 was published on Nov 25, 2021. Congratulation goes to the entire subcommittee in general and the F2: 1138 OPGW Working Group in particular. [UPDATE: 1138 is 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	<p>IEEE 1595D6 was provided to members prior.</p> <p>IEEE 1595D6 balloting completed with 87% approval. There are minor changes to be made (editorial) and Jack Roughan, Linda Cai worked with Corrine Dimnik to address the 15 editorial comments.</p> <p>Plan to have re-circulation of the revised (IEEE 1595D7) in the week of Dec 13, 2021 for 10 days. [Update (Jan 25, 2022): Recirculation completed, and standard met the required votes, congratulations. Next step is to send for final IEEE edit before publication.]</p> <p>Based on IEEE recommendations and since it will take IEEE 4-6 months to publish, they asked chair to put a PAR extension. IEEE 1595 PAR extension has been approved and it is now valid until December 2022.</p>	Josep Martin Linda Cai/ Jack Roughan
1591.1 OPGW hardware	<p>Reviewed latest updates for DC testing. Plan to clean up and send to the working group for review and vote next meeting in March 2022.</p> <p>The temporary ground clamp applicable with hot line tool will either be added to a future revision. Also present to IEEE 524 for review. This may be considered for another standard that covers tools.</p> <p>This standard will be discussed in the newly formed 1591.x meetings.</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 by Jack Roughan.</p> <p>New Comments from 1591.x Meeting.</p> <p>Most significant change was removal of the High Temperature Test.</p> <p>Other Notes from September meeting (background Info): Review 5.2.1 – 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/ Alex L.
IEEE 524 liaison	<p>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. In the last meeting, there was a presentation IEEE 524 will meet as part of JTCM in early January 2022. Jack Roughan will represent PSCCC-F0 in-person.</p>	NA

Item no.	Notes	Action by
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>Jack Roughan /Linda Cai presentation/excel sheet (placed in iMeetCentral) comparing various sections in 1591.1, 1591.2, 1591.3 and 1591.4 and how they line-up or sometimes don't.</p> <p>There was discussion on combining all 1591.x standards into one large standard, but no consensus reached and that may not work with IEEE corporate.</p> <p>J. Jones to send a copy of 1591.1 to Jack to match numbering. Jack Roughan to send 1591.2 relevant wording of fiber optic test wording to J. Jones and Corrine.</p> <p>Current membership is 13: Jack Roughan, Linda Cai, Lemon Lu, Josep Martin Regalado, Tewfik Schehade, John Jones, Mark Naylor, Del Khomarlou, Corrine Dimnik, Denise Frey, Dan Baggett, Peyton Campbell, Gabriel Okafor.</p>	J. Roughan
IEEE 525 and PSCCC E0 Liaison	<p>Chair will attend IEEE 525 January 12 meeting a part of JTCM. A revised version of the Comment form will be presented to 525.</p> <p>IEEE525 – Began 2017 with updates. F0 coordinate with E0 and provided a set of comments. Latest spreadsheet summary was reviewed by Del (included in iMeetCentral). IEEE525 wish to continue to refer to Telcordia standards. There were some reinforcing words from E0 on grounding of cable shields (Copper or shielded fiber) at both ends within substation.</p> <p>Table Q – OFS contributed to the revision of the table and is provided to 525 as PSCCC-F0 contribution.</p> <p>PSCCC-E0 Wireline subcommittee works mostly with Copper pairs and issue with Copper (e.g. Telephone loop characteristics, Ground Potential Rise). E0 concerns on fiber optic were addressed before, not much to report. Utilities deal with ground potential rise. If any member is interested in acting as liaison to this group, please let the chair know. Currently chair is liaison but wants to change the arrangement due to workload.</p>	D. Khomarlou
IEC Liaison ITU Liaison	<p>Josep provided a presentation (placed in this document).</p> <p>The mechanical tests are being separated into individual tests for “maintenance reasons”.</p> <p>IEC 60794 -4- 10, OPGW harmonize with 1138, 2022 IEC 60794-4-20 ADSS review new creep test., 2022 IEC 60794-4-40? – OPPC – 2024 Corrine interested in attending. Question: Splice Closure standards. Josep provided existing IEC standards in an email form (also placed in the presentation section of the document).</p>	NA
IEEE 1222	<p>No New item for IEEE 1222. Congratulations Jim Ryan and welcome Paul Baird.</p>	J. Ryan/ P. Baird

Item no.	Notes	Action by
Sheave Size Recommendation/ IEEE 524	<p>Denise Frey final recommendation was not available, and she was absent in the meeting.</p> <p>[Update Dec. 13,2021: Chair has requested if the final recommendation can be provided to Jack Roughan – our 524 liaison – to submit to IEEE 524 during JTCM in January 2022, but nothing has been received to date (Jan 25, 2022)].</p> <p>From Previous (September 2021 discussion):</p> <p>It was decided to make the table a “Guide” when passing on to IEEE 524 rather than a “Recommendation”.</p> <p>The new – revised - table stays consistent throughout with Metric units (Imperial units).</p> <p>Manufacturers to provide one final additional comments on or before December 2021 meeting on this Guide. Once approved by PSCCC-F0, it will be sent out to IEEE 524 for inclusion in their standard.</p>	
Presentation	<p>Will have presentations from members on areas that are interesting and educational. None in this meeting.</p>	
New /Other Business	<p>Some of the ideas for new guide/standard/items to consider</p> <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 <p>Items discussed in this meeting were with respect to the above:</p> <p>The need for a standard to identify tests on Splice Closures Underground applications and which standard they fall into OPGW End of Life studies and tests Greg Bennett (Southern Company)– 20 to 25 years OPGW expectancy. Del to circulate (once receives permission) a study by Hydro Quebec. Mike Riddle: Corning says life of optics 25 years. Fiber will still perform, but technology advancements make the fiber obsolete. Splice losses can increase over time. But if you resplice, it will be back to day one condition. Mechanical part to the cable has proven to last 100 years for strand. Del noted gel solidifying over time and exposure to cold temp – that locks the fiber. Corrine: Data from CEATI survey – help with asset management issues when it comes to assessing the End of Life (EOL) of OPGW, ADSS and Skywrap.</p>	
ITEMS REPORTED OUT OF EXECUTIVE SESSION	<p>NA</p>	
CLOSING	<p>We should allocate more time in the next meeting to discuss new business areas and solicit ideas.</p> <p>iMeetCentral PSCCC-F0 site has been restructured to reflect our sub groups and standards that we work in. Members are encouraged to look at the site and add/verify files/standards in each area.</p> <p>Please let chair know if you don't yet have access to iMeetCentral.</p>	
TIME OF FINAL ADJOURNMENT	<p>Meeting was adjourned on December 9, 2021 at 12:15 EDT.</p>	

Item no.	Notes	Action by
NEXT MEETINGS	Next Meeting will be a virtual meeting using Teams: Wednesday March 30, 2022: 0900 – 13:00 Thursday March 31, 2022: 0900 – 12:00	
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. IEC Liaison Presentation 	

Presentations

Note: A0 is the parent committee

PSCCC-Fo Membership Guidelines

1. Subcommittee (SC) members must be IEEE members.
2. Need to attend meetings in order to maintain subcommittee membership. If you have a reason to miss a meeting, please let one of the officers know.
3. **Corporate membership (i.e. having one person from a corporation attend and update others within the roster from that company) is not supported by IEEE, but there is flexibility.**
4. Members who are not attending meetings (without legitimate reason) or have lost interest or moved on to other positions could ask / have their membership changed to corresponding members or become "Past-Member". If SC officers initiate the change, they will try to contact the member and give ample time.
5. Members can be re-instated if they wish.
6. Guests are allowed. Need to attend 2 consecutive meetings and ask on third meeting (with no more than one consecutive "unexcused" missed meeting) before eligible for membership.

Page 5

PSCCC-Fo Membership Standards Association (SA) Guidelines

1. Standards Association (SA) membership preferred, but not mandatory.
2. If a member is not an SA member, they can't participate in ballot (except as in 5 below).
3. A non-SA member can vote on standard within the Fo.
4. An IEEE Member who is not an SA member can vote on standards ala carte if they pay a per-ballot fee.

Page 6

PSCCC-Fo Report From Parent Subcommittee (A0)

- Awards Committee - Still Need representative.
- P&P manual: Being revised and updated by A0 officers. Draft is ready.
- PSCCC Website - Updated to include PSCCC-Fo and Minutes. Work in progress.
- iMeetCentral - Changed the areas to match our structure. Please populate.
- IEEE National Standard Adoption - IEEE is pushing for this. We successfully argued that it is not applicable to our standards due to requirements for type testing.
- China Satellite committees - Was approved in A0, details haven't been worked out.
- IEEE standards integration effort taken up by A0 - No new update: Started as an effort to identify all the standards that have points of overlap with PSCCC-Fo work. Mostly in IEEE PES ICC subcommittee D.

Page 7

PSCCC-Fo 2021 Accomplishments/Goals /Update (1/2)

Major Accomplishment: Congratulations: Publication of IEEE 1138 - November 2021

Completion of the standard: IEEE 1595 OPPC standard for publication in 2021. Comments were minimal and first balloting was successful.

IEEE 1595 PAR extension has been approved to December 2022.

OPPC attachment hardware standard: 1591.4 PAR is valid until 2023.

Provide a recommendation to T&D IEEE 524 group on sheave and bull wheel sizes for installation of aerial fiber optic cables (OPGW, ADSS, helically Wrapped and OPPC). Final product must be acceptable to manufacturers as well as end users and installation service providers. **Finalize Denise Frey recommendation post September 2021 meeting in this meeting.**

Page 8

PSCCC-Fo 2021 Accomplishments/Goals /Update (1/2)

Major Accomplishment: Congratulations: Publication of IEEE 1138 - November 2021

Completion of the standard: IEEE 1595 OPPC standard for publication in 2021. Comments were minimal and first balloting was successful.

IEEE 1595 PAR extension has been approved to December 2022.

OPPC attachment hardware standard: 1591.4 PAR is valid until 2023.

Provide a recommendation to T&D IEEE 524 group on sheave and bull wheel sizes for installation of aerial fiber optic cables (OPGW, ADSS, helically Wrapped and OPPC). Final product must be acceptable to manufacturers as well as end users and installation service providers. **Finalize Denise Frey recommendation post September 2021 meeting in this meeting.**

Page 8

PSCCC-Fo 2021 Goals /Update (2/2)

Harmonization of all 1591.x standards in 1591.x ad-hoc working group/task force.

IEEE 1591.1 OPGW hardware PAR expires in Dec 2022, so we need to move to get it to publication.

Agree upon new business/standards to tackle. Splice box (there is an IEC standard, study on aerial fiber cable EOL, ...

Liaison closely with IEC. Liaison closely with PSCCC-E0 Wireline subcommittee.

IEEE D2 525: Cables in Power stations. New response to 525 comment resolution provided and will be discussed in January 2022 D2 525 meeting. Chair will attend.

Liaison with IEEE 524 on their cable installation practices for overhead fiber cables.

New technical areas for regular (informal) educational presentations by members. We will not post the presentations in order to avoid IEEE copyright conflicts.

Page 9

IEEE Fiber Optic Subcommittee Structure (Supplementary Slide)

We are loosely broken into the following Working Groups as far as parent committee is concerned:

- F1: IEEE 1222 All Dielectric Self-Supporting Cable (1222 ADSS cable)
- F2: IEEE 1138 Optical Ground Wire (responsible for 1138)
- F3: IEEE 1591.1 OPGW & 1591.2: ADSS attachment Hardware
- F4: IEEE 1594 Helically Applied (Wrapped) Fiber Optic Cable (1594 cable and 1591.3 attachment hardware)
- F5: IEEE 1595 Optical Phase Conductor Cable (1595 cable and 1591.4 attachment hardware)

We have an ad-hoc taskforce/WG set up (January 2021) to look at all 1591.x standards and perhaps bring them all under one umbrella and harmonize them.

The delineation between SC and WG and officers' responsibilities is not as strict and formal as prescribed in Ao P&P manual.

Page 11

Josep Martin Regalado Presentation on IEC Documents.



IEC SC86A WG3 (Optical Cables) Liaison report Oct 2021

IEC SC86A WG3 meeting hold on Oct 15th-18th 2021 by Zoom. 52 members from 15 countries attended

RELEVANT TOPICS TO IEEE PES PSCCC-FO GROUP

- Live Testing: Some tests (crush, bend, impact) have “before vs after” performance monitoring whereas others have “during”. No consistency across documents. To have in mind when updating test methods
- Stability date for IEC 60794-1-2X Test methods for mechanical (1-21), environmental (1-22), electrical (1-24) in 2022. Speed up splitting (see next slides). Once 1-YYY are published 1-2X will be withdrawn
- IEC 60794-1-219 Material compatibility test (F19). FDIS out for comment – due by 5th Nov 2021
- IEC 60794-1-220 Salt spray Corrosion test (F20). CDV approved. Issued as FDIS. IEC 60794-4-10 does not refer to this test – consider it for future
- IEC 60794-1-401 SCT OPGW/OPPC/OPAC (H1) → Published. Stability date 2024
- IEC 60794-1-402 Lightning OPGW/OPPC/OPAC (H2) → Published. Stability date 2024
- IEC 60794-1-404 Current-temperature (F19). CDV approved. Issued as FDIS.
- IEC 60794-4-10 OPGW. Stability date 2022 (*To be reviewed next year. I'll try to harmonize with IEEE 1138*)
- IEC 60794-4-20 ADSS. Stability date 2022 (*ADSS creep according to IEEE 1222 accommodated in current standard*)

9.14 Creep

There is no pass/fail criterion for creep. This parameter is an engineering guidance to the behaviour of the cable during its working life. The cable creep behaviour should be determined using a test method agreed between the customer and the supplier. Suitable tests are IEC 60794-1-21, method E32 or found in IEC 61395.

- IEC 60794-4-10 OPPC→ Published. Stability date 2024

Next meeting: Spring 2022 (virtual). Possible dates: 4th April or 9th May (to be agreed)

IEC SC86A WG3 (Opt Cables) Liaison report Oct 2021



Table – IEC 60794-1-21 to IEC 60794-1-1xx series cross reference

New IEC 60794-1-1xx series number	Title	Previous 60794-1-21 series number	New IEC 60794-1-1xx series number	Title	Previous 60794-1-21 series number
60794-1-101	Tensile performance	Method E1		<i>Method A: Three-point bend</i>	<i>Method E17A</i>
60794-1-102	Abrasion	Method E2		<i>Method B: Cantilever bend</i>	<i>Method E17B</i>
	<i>Method A: Abrasion resistance of optical fibre cable sheaths</i>	Method E2A		<i>Method C: Buckling bend</i>	<i>Method E17C</i>
	<i>Method B: Abrasion resistance of optical fibre cable markings</i>	Method E2B	60794-1-118	Bending under tension	Method E18A
60794-1-103	Crush	Method E3	60794-1-119	Aeolian vibration	Method E19
	<i>Method A: Plate/plate</i>	Method E3A	60794-1-120	Cable coiling performance	Method E20
	<i>Method B: Mandrel/plate</i>	Method E3B	60794-1-121	Sheath pull-off force for optical fibre cable for use in patch cords	Method E21
60794-1-104	Impact	Method E4	60794-1-122	Buffered fibre movement under compression in optical fibre cables for use in patch cords	Method E22
60794-1-105	Stripping force stability of cabled optical fibres	Method E5A	60794-1-123	Microduct route verification test	Method E23
60794-1-106	Repeated bending	Method E6	60794-1-124	Installation test for microduct cabling	Method E24
60794-1-107	Torsion	Method E7	60794-1-125	Rip cord functional test	Method E25
60794-1-108	Flexing	Method E8	60794-1-126	Galloping	Method E26
-	Snatch (deleted)	Method E9	60794-1-127	Indoor simulated installation test	Method E27
60794-1-110	Kink	Method E10	60794-1-128	Cable and fibre mechanical reliability test	Method E28
60794-1-111	Bend	Method E11	60794-1-129	Straight midspan access to optical elements	Method E29
	<i>Method A: Standard test procedure</i>	Method E11A	60794-1-130	Coefficient of friction between cables	Method E30
	<i>Method B: Alternative test procedure</i>	Method E11B	60794-1-131	Microduct inner clearance test	Method E31
-	Cut-through resistance (deleted)	Method E12	60794-1-132	Creep Test (for ADSS)	Method E32
60794-1-113	Shotgun damage	Method E13	60794-1-133	Multiple cable coiling and uncoiling performance	Method E33
	<i>Method A: Shotgun test</i>	Method E13A	60794-1-134	Coefficient of dynamic friction between cables	Method E34
	<i>Method B: Shotgun simulation</i>	Method E13B	60794-1-135	Sheave test (primarily for OPGW and OPAC)	Method E18B

FW: IEC standard for Splice box



Martin Regalado Jose Maria
To: Sentencia Joan

Reply Reply All Forward
mi 24/11/20

Aumenta la lista
Pop

From: Martin Regalado Jose Maria
Sent: miércoles, 24 de noviembre de 2021 17:00
To: KHOMARLOU Delavar <Delavar.khमारलु@HydroOne.com>
Subject: RE: IEC standard for Splice box

Hi Del

I'm working for IEC SC80A (WG3 optical cables). There is a brother sub committee SC80B that deals with interconnecting devices and passive components, and this includes joint boxes.

There is a particular standard IEC 61300-1:2016 that provides general information and guidance for the basic test and measurement procedures (IEC 61300-2 and IEC 61300-3 series) for these interconnecting devices and passive components. The most useful ones and applicable to Joint boxes are [link](#):

- IEC 61300-2-1 Vibration
- IEC 61300-2-4 Cable retention test
- IEC 61300-2-5 Torsion test
- IEC 61300-2-7 Bending moment
- IEC 61300-2-9 Shock
- IEC 61300-2-10 Crush and load resistance test
- IEC 61300-2-11 Axial Compression
- IEC 61300-2-12 Impact test
- IEC 61300-2-17 Cold
- IEC 61300-2-18 Dry heat
- IEC 61300-2-19 Damp heat
- IEC 61300-2-21 Composite temperature/humidity cyclic test
- IEC 61300-2-22 Temperature cycling test
- IEC 61300-2-23 Sealing for non-pressurized closures of fibre optic devices
- IEC 61300-2-26 Salt mist
- IEC 61300-2-28 Corrosive atmosphere (sulphur dioxide)
- IEC 61300-2-31 Free fall test
- IEC 61300-2-33 Assembly and disassembly of fibre optic mechanical splices, fibre management systems and closures re-entry test
- IEC 61300-2-34 Resistance to solvents and contaminating fluids of interconnecting components and closures
- IEC 61300-2-37 Cable bending for fibre optic closures
- IEC 61300-2-38 Sealing for pressurized fibre optic closures
- IEC 61300-2-40 Damp heat, cyclic
- IEC 61300-2-47 Thermal shocks
- IEC 61300-2-48 Temperature humidity cycling

A part from this, there is IEC 60529 that defines the testing methods for the IP XY (joint box protection degree)

September 30, 2021

Proposed IEEE Sheave Guidelines

Cable type	Spatial Angle*	Span Distance	Maximum Pulling/Stringing/Sagging Tension	Minimum Sheave size (BOG)**
ADSS	≤ 20°	≤ 91 m (300 ft)	≤ 2667 N (600 lb)	Cable OD x 30
ADSS	> 20°	any span	≤ manufacturer's specification	Cable OD x 40
OPGW & OPPC	≤ 20°	≤ 91 m (300 ft)		56 cm (22 in)
OPGW & OPPC	>20°	any span		Cable OD x 40

*Spatial angle includes vertical elevation, line angle, horizontal angle, or a combination.

**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 permission is granted by the manufacturer.

Clarifications:

Sheaves can be lined or unlined. Lined sheaves can be neoprene (yellow) or urethane (black). Unlined is preferred if in good condition and clean.

The tension shall be lowest during the pulling/stringing process, then increased to achieve the sagging tension.

Question for the Committee:

For future consideration from the cable manufacturers:

ADSS ≤ 10° ≤ 300 ft ≤ 600 lb Greater of either 10" or Cable OD x 20

MAINTENANCE SCHEDULE FOR STANDARDS UNDER PSCCC-F0

PRIORITY	DUE DATE	STANDARD NUMBER	STANDARD TITLE	LAST PUBLISHED 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 final comment resolution step with mostly editorial comments.	PAR extension to Dec 2022 requested. 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 2019 Exp. 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.

PRIORITY	DUE DATE	STANDARD NUMBER	STANDARD TITLE	LAST PUBLISHED DATE	ACTION (DEV / REVISION / COMMENTS ONLY)	COMMENTS
	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.

Other Guidelines for IEEE Meetings

All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.

See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and “Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy” for more details.