

Working Group D2 Cable Systems (IEEE 525)
Meeting Notes of May 20, 2014 – Portland, OR

Chair: Debra Longtin
Vice Chair: Steve Shelton
Secretary: Brian Farmer
Tech. Editor: Adam Zook

Meeting called to order by the Chair, Deb Longtin at 8:05, welcoming members and guests.

Total attendance: 38; Members 15; Corresponding Members 2; Guests 21

Quorum was present (needed 13 members)

Barac, Radoslav	Member
Buhle, Kevin	Member
Bryant, Craig	Guest
Campbell, Jim	Guest
Chavis, Michael	Guest
Ciurdar, Nel	Guest
Cruz, Leonardo	Guest
Detwiler, Jessica	Guest
Dood, Michael	Guest
Easley, Kevin	Guest
Farmer, Brian	Secretary
Gaetz, Alan	Member
Gravelle, Joseph	Member
Graves, Arthur	Guest
Hoffman, Zack	Guest
Holcombe, Charles	Guest
Hooley, Ben	Guest
Largent, Bruce	Guest
Longtin, Debra	Chair

Madigan, Ryan	Guest
Moreau, DJ	Member
Nadeau, Mike	Member
Nuckles, Kim	Member
Patel, Shashi	Corresponding Member
Patel, Shashikant	Member
Preuss, Craig	Corresponding Member
Proios, Thomas	Guest
Schneider, Mike	Guest
Shelton, Steven	Vice Chair
Simonson, Rick	Guest
Spiewak, Erin	Guest
Stephens, Brian	Guest
Strahl, Kenneth	Member
Thompson, Bill	Member
Tibbals, Tim	Guest
Watkins, Diane	Member
Wirtz, Craig	Guest
Zook, Adam	Member

The statement was read regarding call for acknowledgement of any potentially essential patents. Slides were provided on pages 26 & 27 of the meeting booklet.

Introduction of all attendees were made.

Brian reviewed the meeting notes from the Nashville October, 2013.

Overall schedule was briefly reviewed. **The chair would like to vote on whether to go to ballot at the fall meeting.** PAR expires 12/15.

Current draft: The latest draft is named **P525 3-2014.docx**, posted on the website under Password Protected Files. [WGD2 Cable Systems in Substations](#)

1. Overall Status: The biggest open item is the set of comments received from the Fiber Optic Subcommittee (generally on Sections 5 & 6). Craig Preuss reviewed the comments last December and had some unresolved items. Needs discussion and direction by overall working group. While a lot of the text is informational or tutorial in nature, the way the document is structured it seemed appropriate to leave it where it is. Acknowledged that some of the write up may not be needed for this guide. For example, we don't need to provide an example for each specific application, just the general type of application, like outdoor. Try to minimize repetition.
2. Since there were a lot of new members and guests, the group did an overall review of the organization of the document sections and annexes
3. **Communications:** The group performed an item by item review of Craig's review and questions related to the comments submitted by the Fiber Optic Subcommittee (Sections 5, 6 & Annex I). This allowed for working group members to also contribute. Most all items were resolved. The group also reviewed comments related to communications as submitted on spreadsheets, as requested at the last meeting.

Of specific note:

- Added clause 5.9.3 Coax Cables: Testing of PLC based systems- refer to IEEE 643 Clause 10.1.2.2.
 - Added paragraph under Annex I regarding level of redundancy.
 - **Craig** to develop additional text on non-metallic armored cable for 6.2.10.
 - **Kevin Buhle** to verify if IEEE 1202 has the "70,000 BTU Cable Tray Propagation Test" so IEEE 1202 can replace reference to IEEE 383, which no longer has a flame test, in Section 5.2.
 - The NEC is often referred to in Sections 5 & 6. This is of concern since this is not just a US standard. The issue of its use was tabled due to lack of time.
4. **Large scale example**, Annex P: DJ Moreau and Craig Preuss had reviewed and agreed upon a fiber system (communications layout) diagram. This will replace Fig. P4 SCADA Cable Diagram. Craig recommended, and the group agreed, to group cables into common types. The new table will have ID, type, location, applications, and comments, such as length restrictions. Craig had the table about half done. Should probably update Annex O to the same format. (Not assigned to anyone.)

DJ needs cable type, outer diameter, minimum bending radius and maximum pulling tension for each yard cable going to the control house in order to finish his calculations.

Noted: Add a statement that this is an example only, cable characteristics will vary by manufacturer.

Action item: Craig to complete the table and get to DJ Moreau. **DJ** to complete the calcs. **Ben Hooley** agreed to help DJ complete the calcs. Target completion is June 30.

5. **Specific Comments:** Remaining comments submitted via spreadsheets were reviewed. Most were from Steve Shelton and Kevin Buhle. (Thanks for the thorough review!). All comments were addressed. Resulting actions include:
- Alan Gaetz to provide updated figure P2 (control house vs. control building) to Adam Zook
 - As part of completing calcs for Annex P, need to clarify which breakers have fiber and which have copper for their control circuits. (Harmonize tables, text and calcs.)
6. **Short Circuit Capability:** It was brought up prior to the meeting that there may be an error in equations C.20, C.21 & C.22 – discrepancy with IEEE 242. The constant shown in 525 may be for aluminum instead of copper, and also may be off by a factor of 100. Need to check and clarify aluminum vs copper and metric vs. imperial units. Much discussion ensued, but the item could not be definitively resolved at the meeting. If the equations are wrong, the calculations in Annex O and P would have to be redone. One reference is to check charts in ICEA P-32-382. **DJ & Shashi Patel** to discuss and try to resolve. May be able to eliminate equation C.22. If calculations need to be updated, Shashi will do Annex O and DJ will do Annex P.
7. **Due Dates:** Aug. 1, Open items to be resolved and any text changes sent to Adam at adam.j.zook@gmail.com with copy to Deb at dlongtin@atcllc.com and Brian at bkf1@pge.com
- Sept. 1, Final version of document to be available on webpage.
8. Next meeting will be in Nashville, TN, October 6-9, 2014.

Meeting adjourned at 5:00.

Respectfully submitted by Brian Farmer, Secretary