



2011 – 2012 Officers

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Substations Annual Committee Meeting April/May 2013 Pittsburgh, PA

C0: DATA ACQUISITION, PROCESSING, AND CONTROL SYSTEMS SUBCOMMITTEE

Chair: C. Preuss

Vice Chair: Vacant

Secretary: H. Pinto

Online attendance was:

1. Mark Hadley

Local attendance

2. Craig Preuss (M)
3. James Bougie (M)
4. Mason Clark (M)
5. Mike Dood (M)
6. Richard Harada (M)
7. Marc LaCroix (M)
8. John McGuire (M)
9. Krista Gluchoski
10. Henry Pinto (M)
11. Craig Bryant (M)

Working Group Reports (See below)

New Business

- Discussed potential tutorials
 - Last tutorials were on substation automation three years ago and one other on 1615 when it was published?
 - Could do one from each working group
 - Immediate recommendations
 - IEEE 1615
 - IEEE 1815
 - Substation automation again
 - Others for future consideration
 - C37.240 when published
 - Time synch when it is published
 - 61850 implementation guide when it is published
- Discussed panel sessions
 - Easy to put together now
 - Need to decide early when they will be done
 - IEEE T&D Show and PES General Meeting are targeted conferences

C0 Meeting Notes

- Panelists only create presentation, “chair” needs presentation titles and description of session
- “Chair” needs to work with SUBS B0 TCPC – Markus Etter
- Marc LaCroix will look at creating one for cyber security and John McGuire offered to help
- Technical papers for PES
 - Any working group can write a technical paper to support the technical work of the working group
 - WGs are encouraged to cover technical topics being addressed in the work and can be used to get industry feedback.
 - IEEE T&D Show and PES General Meeting are targeted conferences
- Publicizing WG activities
 - IEEE SA call for participation—email contact Erin Spiewak e.spiewak@ieee.org
 - PES eNews Mel Okin melokin@gmail.com
- Awards
 - Outstanding WG award should be given to C12 for 1815
 - Floyd Greenway award was discussed, but no nominations presented
- Next meetings
 - September 8-12, 2013
 - Joint Meeting with PSRC
 - Albuquerque, New Mexico
 - January 2014
 - Joint Technical Committee Meeting
 - Location TBD
 - May 17-21, 2014
 - Substations Annual Committee Meeting
 - Portland, OR
- C37.238 will be revised and we have requested PSRC H to agree to joint sponsorship again
- Look at splitting C37.1 into one standard and one guide

C1: IEEE 1686 Standard For Substation IED Cyber Security**Chair: S. Sciacca****Vice Chair: M. LaCroix****Secretary:****Output: Standard****Expected Completion Date:**

Working group did not meet.

C2: IEEE 1613 Standard Environmental and Testing Requirements for Communications Networking Devices in Electric Power Substations**Chair: J. Tengdin****Vice Chair: L. Smith****Secretary:****Output: Standard update****Expected Completion Date:**

Working group did not meet.

C0 Meeting Notes

C2.1: IEEE 1613.1 Standard Environmental and Testing Requirements for Communications Networking Devices Installed in Transmission and Distribution Facilities**Chair: J. Tengdin****Vice Chair: J. Ramie****Secretary:****Output: New Standard****Expected Completion Date:**

Working group did not meet.

C3: IEEE C37.1 Standard for SCADA and Automation Systems**Chair: C. Preuss****Vice Chair:****Secretary: Vacant****Output: Standard**

Online attendance was:

1. Jim Evans
2. Tyler Stinson

Local attendance

3. Craig Preuss (M)
4. James Bougie (M)
5. Mason Clark
6. Marc LaCroix (M)
7. Tyler Stinson (M)
8. Tim Tibbals
9. Craig Bryant (M)
10. Henry Pinto (M)
11. Krista Gluchoski
12. Chad McBurnett
13. Rob Haberman
14. Michael Roos
15. Stephen Thunnel

1. Patent slides reviewed
2. Copyright slides reviewed
3. Reviewed submission from Jim Evans for proposed C37.1.1
 - a. 125 VDC battery on equalize will run up to 155 VDC
 - b. Is 100 VDC low enough? Go down to 90 V?
 - c. Need to discuss momentaries on AC and DC
 - d. 4.1.3 need more requirements based language
 - e. Clause 4 needs temperature and forward referenced to 4.3.1

C0 Meeting Notes

- f. Table 16, 17 and 18 are missing – Chair will forward missing tables
 - g. Chair will provide draft of P1613.1 to Jim
 - h. Table 2 needs frequency requirements
 - i. Momentary change detect – remove because it is protocol specific? No – discuss how MCD requirements are hardware versus protocol
 - j. Chair to import Jim’s text into new Word template and forward in Word 2007 format
4. Reviewed testing presentation made by chair.
 - a. System test – may be done by vendor prior to FAT and/or is this the piece of getting the system up and running – Marc/Jim/Tim agreed to review and write
 - b. FAT does not address that there may not be a full complement of equipment
 5. RTDs and thermocouples
 - a. Jim found 12 parameters for RTDs
 - b. Several types of thermocouples
 - c. Reason to be generic
 - d. Will be added to the spec
 6. Henry Pinto and Craig Bryant volunteered to be chair.

C4: IEEE PC37.237 Time Tagging for Intelligent Electronic Devices (IEDs) – COMTAG
Joint with PSRC
Chair: M. LaCroix
Vice Chair:
Output: Standard

Working group met without the chair. The meeting was chaired by Craig Preuss and accomplished the following:

1. Review of problem statement
2. Edited text put together by the chair and forwarded revisions to chair.

C5: IEEE PC37.2 Standard for Electrical Power System Device Function Numbers, Acronyms, and Contact Designations
Chair: M. Dood
Vice Chair:
Output: Standard update

1. Review of Craig’s submittal for Disturbance Monitoring Equipment
2. Discussed remote I/O (RIO) and decided to add MU as merging unit as definition

C6 IEEE P1711.2 Standard for Serial SCADA Protection Protocol (SSPP)

C0 Meeting Notes

Chair: D. Whitehead
Vice-Chair:
Output: Standard

The C6 working group met under new work to revise the standard to account for known issues. The chair was not present for the meeting. The meeting was chaired by Craig Preuss.

Local attendance

1. Craig Preuss (M)
2. James Bougie (M)
3. Mike Dood (M)
4. Mason Clark
5. Krista Gluchoski
6. Henry Pinto (M)
7. Marc LaCroix (M)

1. Mark Hadley might be a good contact to get PNNL concerns about "hygiene"
2. Determined the PAR had been approved by NESCOM and needs to only be approved by SASB.
3. IEEE-SA was asked to provide a copy of the original 1711 and in Word document format.

C7 IEEE PC37.238 Standard Profile for Use of IEEE Std. 1588 Precision Time Protocol in Power System Applications

Chair: T. Tibbals
Vice Chair: M. Dood
Output: Standard
Established: 2013

Discussed IEC WG issues with the published standard:

1. Grandmasters shall support a SNMP MIB
2. Configurable VLANs
3. Announce messages from other grandmasters that do not support C37.238 shall be ignored

C8 IEEE 1615 Recommended Practice for Network Communications in Substations

Chair: J. Gould
Vice Chair: R. Haberman
Secretary:
Output: Standard
Established: 2011

1. Patent slides shown
2. HSR/PRP discussed and whether it was an ABB patent
3. Security
 - a. Stateful firewalls and application firewalls
 - b. Authentication systems
4. Craig Preuss volunteered to forward article on firewall hacking
5. Add data diode to standard?

C0 Meeting Notes

6. Add Intrusion Detection System to standard?
7. IEC 61850-90-4 has been published so can request from IEEE SA liaison Erin Spiewak
8. Overview of writing assignments
9. Craig Preuss needs to check on patents and what is "essential"

C9: IEEE 1646 IEEE Standard Communication Delivery Time Performance Requirements for Electric Power Substation Automation**Chair: J. Tengdin****Vice Chair: D. Holstein****Output: Standard****Established: 2009****Expected Completion Date: 2010.**

Working group did not meet.

C10: IEEE PC37.240 Standard for Cyber Security Requirements for Substation Automation, Protection and Control Systems**Joint Chair: T. Tibbals****Vice Chair:****Output: Standard joint with PSRC H13****Established: 2008****Expected Completion Date: 12/2012**

Working group did not meet.

C11: PC2030.101 IEEE Recommended Practice for the Design and Implementation of Time Synchronization Distribution Systems for Substation Automation**Chair: J. Bougie****Vice Chair:****Output: Standard****Established: 2012****Expected Completion Date:**

See detailed WG notes for attendance and more discussion.

1. Need secretary and vice chair
2. Reviewed PAR
3. Reviewed Craig Preuss email about changing to proposed .X's.
 - a. Proposal assumes system connecting clock to IED is OK.
4. Clock parameters to require
 - a. Slew rate
 - b. Drift
5. Discussed inviting clock companies to present at September meeting
 - a. Symmetricom will be contacted by Richard Harada
 - b. Arbiter will be contacted by Mike Dood
 - c. SEL will be contacted by Mike Dood

C0 Meeting Notes

- d. Presentations will discuss
 - i. Clock testing
 - ii. What requirements should be in place for clocks to be required to meet?
 - iii. How would you test the timing system
- e. Krista Gluchoski from IEEE-SA will check on IEEE-SA call for participation

C12: IEEE 1815 IEEE Standard for Electric Power Systems Communications - Distributed Network Protocol (DNP3)**Joint Chair: L. Smith****Vice Chair: R. Farquharson****Secretary: L. Cunningham****Output: Standard****Established: 2009**

See full WG meeting notes for meeting attendance and full discussion of activities.

1. Reviewed last meeting
2. Discussed DNP3 technical committee update
3. Application guide suggestions were not received.
 - a. Discussed resulted in Craig Preuss to send out another email suggesting the following topics to see if that would generate any interest:
 - i. IP address and DNP address assignment approaches
 - ii. Class reporting and default variations
 - iii. Using IEDs that are not conformance tested
 - iv. How do you calculate DNP3 bandwidth (added later after meeting)
4. Craig Preuss to send local attendance sheet to WG officers.
5. Why aren't Conformance Tests included in 1815-2012? Lorene Cunningham: The IED Conformance Tests are not up-to-date; they are currently being revised, and could not have been ready for 1815-2012.

C13: IEEE C37.115 IEEE Standard Test Method for Use in the Evaluation of Message Communications between Intelligent Electronic Devices in an Integrated Substation Protection, Control, and Data Acquisition System**Joint Chair: J. Tengdin****Vice Chair:****Output: Standard****Established:****Expected Completion Date:.**

Working group did not meet.

C14: IEEE P1815.1 Draft Standard for Exchanging Information between networks Implementing IEC 61850 and IEEE Std 1815 (DNP3)**Joint Chair: L. Smith****Vice Chair: R. Farquharson****Output: Standard**

C0 Meeting Notes

Established: 2010**Expected Completion Date: 2013**

See full meeting notes for meeting attendance.

1. Craig Preuss to send scan of local attendance to WG officers.
2. Craig Preuss action item to write a short definition of what an integration engineer might be to resolve comment
3. Comment status was reviewed
4. Joint use process starts after publication, according to Matt Ceglia from IEEE SA
5. Discussed some comments
6. Discussed schedule for recirculation since approximately 30% change in document a 20 day period was suggested by Matt Ceglia.

C15: PC2030.100 Recommended Practice for Implementing IEC 61850 Substation Automation Systems**Joint Chair: R. Liposchak****Vice Chair:****Output: Standard****Established: 2012****Expected Completion Date:**

The chair was unable to attend, so the meeting was chaired by Craig Preuss at the request of the chair.

Local attendance

1. Craig Preuss (M)
2. James Bougie (M)
3. Marc LaCroix (M)
4. Mason Clark
5. Richard Harada (M)
6. Craig Bryant (M)
7. Jonathan Goudy
8. Krista Gluchoski
9. Henry Pinto (M)
10. Mike Dood (M)
11. John McGuire

Reviewed draft provided by chair, but had issues since it was missing macros. Copied text from version provided to get back into the IEEE template file and then edited document with track changes turned on. Edited draft was provided to chair after the meeting.

C16: 2030.101 LEMNOS**Chair: J. McGuire****Vice Chair: B. Smith****Secretary: D. Hickman****Output: Standard****Established: 2013****Expected Completion Date:**

C0 Meeting Notes

In attendance at the face to face meeting in Pittsburgh were:

1. John McGuire
2. Craig Preuss
3. Jim Bougie
4. Richard Harada
5. Mike Dood
6. Marc Lacroix
7. Krista Gluchoski

Attending remotely via teleconference were:

1. Galen Rasche
2. Scott Sternfeld
3. Brian Smith
4. Tyler Stinson

The WG will hold additional teleconferences bi-monthly between now and the next face to face meeting September 8-12 in Albuquerque. When we have details for the date and time of the C16 meeting that week, I'll send an invitation. I will also send out teleconference invitations.

For record keeping, all members must sign up through the 123 signup system. Instructions at this link describe how. <http://ewh.ieee.org/cmte/substations/ieee-sub123/ieee-sub123.htm> Please be sure to let us know when you have completed this step for membership in WGC16 so that we can finish configuring you for this group.

1. Introductions for today's meetings were John McGuire of EPRI as working group chair, Darren Hickman of Siemens/Ruggedcom as secretary, and Brian Smith of Enernex volunteered to be vice-chair to lead meetings in the absence of the chair.
2. The first PAR (project proposal) for a standard under this working group, 2030.102.1, IPSEC interoperable configuration profile (ICP) has been recommended for approval by NESCOM. Final approval is expected from the Substation committee board during their June meeting. The text of the final version was mailed to this list during the meeting this morning. This makes it relatively safe to move forward with project work in IPSEC and the submission of additional PARs for additional protocols.
3. In addition to working group chair, vice-chair, and secretary, additional roles are required. Members of this working group with a particular interest in developing a standard for a secure ICP for a specific protocol should volunteer to lead or participate with a subset of members in a task force. While the working group aligns to 2030.102 for multiple secure ICPs, task forces will align to specific protocols, e.g. 2030.102.2 for the SSH ICP. Please contact me with your individual areas of interest so we can get these task forces kicked off.
4. As of today, the priority order of security protocol ICP standards to be developed are:
 - a. 2030.102.1 IPSEC PAR submitted and recommended for approval by NESCOM
 - b. 2030.102.2 SSH PAR to be submitted based on IPSEC template
 - c. 2030.102.3 X.509 Please volunteer to lead this if you are a certificate guru for a control vendor
 - d. 2030.102.4 LDAP

C0 Meeting Notes

- e. 2030.102.5 Syslog Consensus of participating vendors required for success
 - f. 2030.102.6 SSL/TLS
 - g. Proposed SNMP from 1686 requirements
 - h. Proposed NTP from 1686 requirements
 - i. Proposed HTTP/SFTP
5. Test implementations are the ultimate validation that these standards can be utilized in production. We would like to reference test IPSEC implementations as soon as possible. Test implementations of other protocol ICP standards will be equally critical to industry integration of the standards. Please be looking for opportunities to fulfill this within your enterprise, or in partnership with customers or others.
 6. The IPSEC LEMNOS ICP will require a few modifications to offer best chance security. For example, the ICP specifies IKE v1 for compatibility as of its publication in 2011, however, 2030.102.1 should specify IKE v2 now. Members specifically interested in IPSEC should work on this in the 2030.102.1 task force.
 7. Jim Bougie and Craig Preuss suggested the scope of the working group projects may tie into other IEEE committee activities. After much discussion about modifying the scope or engaging these committees, it was determined that the chair would make initial contact with Transmission and Distribution (T&D), Power Systems Communications Committee (PSCC), and Protective System Relaying Committee (PSRC) to determine their interest in participation in and incorporation of the WGC16 effort. Emails were found and provided to the chair.

This may require PAR submissions through their processes and modifications and synchronization including changes to the existing PAR in Substations. That should not hinder project work, even if required. As a point of IEEE process, however, any additional PARs and the existing one must be synced and match the Mandatory Editorial Coordination (MEC) document before ratification.

C17: 1711.3 Standard for Secure SCADA Communications Protocol (SSCP)**Chair: M. Hadley****Vice Chair:****Secretary:****Output: Standard****Established: 2013****Expected Completion Date:**

Online attendance was:

1. Mark Hadley
2. Tien Van (M:wants to be member)
3. Andrew Wright (M)
4. Andrew West
5. John Tengdin (M)
6. John McGuire (M)

Local attendance

7. Craig Preuss (M)

C0 Meeting Notes

8. Mike Dood (M)
9. James Bougie (M)
10. Tim Tibbals (M)
11. Marc LaCroix
12. Joe Coholich
13. Mason Clark
14. Stephen Thunell
15. Rob Haberman
16. Matt Ceglia
17. Krista Gluchoski
18. Henry Pinto

Specification is available in internal format without copyright, but not in public domain. Copyright needs to be verified.

Matt Ceglia volunteered to check to see if IEEE-SA has an editor available, but the chair will try to get in first format for IEEE.

PAR will be submitted by tomorrow for June agenda.

Mark will try to get into IEEE format.