

MINUTES
PSCC MEETING
At Joint PSCC/PSRC Meeting
Thursday, January 11, 2007
10 AM- 12 PM
Palo Verde I, Embassy Suites Hotel
Scottsdale, AZ

1. INTRODUCTION OF MEMBERS and GUESTS
2. APPROVAL OF MINUTES OF 2006 General Meeting
3. TOPICS TO BE ADDED UNDER 8. "OTHER BUSINESS":
4. CHAIRMAN'S COMMENTS F. Cleveland
5. TECHNICAL SESSION REPORTS
6. SUBCOMMITTEE REPORTS
 - A. Bibliography, Education & Recognition TBD
 - B. Power Line Carrier R.E. Ray
 - C. Radio TBD
 - D. Fiber Optics TBD
 - E. Wire Line P.E. Pool
 - F. New Concepts M. Chaturvedi
 - G. Communications Standards M. Chaturvedi
 - H. Security Risk Assessment F. Cleveland
 - I. Broadband Power-line Carrier T. Burns
 - J. P1777 F. Cleveland
7. LIAISON REPORTS
 - A. Technical Sessions Committee D. E. Nordell
 - B. PES Awards Committee D.J. Marihart
 - C. Power Engineering Education Committee J. E. Newbury
 - D. Power System Relaying Committee R.E. Ray
 - E. Standards Coordinating Committee M. Chaturvedi
 - F. PSEC Demand Side Management Subcommittee D.E. Nordell
 - G. EPRI Joe Hughes
 - H. UTC D.J. Marihart
 - J. CIGRE Göran Ericsson
 - K. IEC TC 57 (Power System Control/Comm)
 - M. IEEE/USA Communications & Information Policy S.A. Klein
 - N. SCC36 and UCA User's Group D.E. Nordell

8. Other Business :
9. Future Meetings
 - A. 2007 General meeting – June 24-28, Tampa
 - B. 2008 Joint technical committee meeting
 - C. T&D Exhibition and conference April 2008, Chicago
 - D. 2008 General Meeting, July, Pittsburg
 - E. 2009 General Meeting, July 26-30, Calgary

Attendance:

[To be added.]

Discussion:

Added agenda item PSCC long range planning

1. **Action:** Secretaries should “hound” the subcommittee chairs to provide reports right after the meetings, not just before the next meeting.
 - a. Wireline
 - b. BPL
 - c. New Concepts
 - d. Radio Subcommittee (Wireless P1777)
 - e. PLC
 - f. Fiber optics (Bill Byrd)
 - g. Security (no report this meeting)
2. Minutes of June 2006 were approved. R. Ray motion, T. Burns second.
3. Subcommittee Reports
 - a. Bibliography: The list of all papers published by the PSCC should be listed and posted on the PSCC web site.
 - **Action:** Frances will work with John (who is the editor of the Transactions) and Dan (who is TCPC) to determine which papers should be included. Stan Klein to prepare an initial draft bibliography from meeting minutes.
 - b. **Power Line Carrier:** Roger – rewriting the C93 standards
 - Working on oldest ones first C93.4
 - C93.1 CCVTs Couple Capacitor Voltage transformer
 - C93.3: line traps
 - C93.5: Terminal equipment
 - Next meeting will be in Nashville
 - c. Radio Subcommittee: Frances on P1777 – Wireless communications for power system operations
 - Joint working group with PSCC and Substations
 - First meeting held where the scope was discussed, the draft questionnaire was reviewed,

and the outline of the recommended practices document was reviewed and updated.

- Substantive comments of questionnaire to make it simpler
 - All sections of the recommended practices
 - The real-world experience of Hydro Quebec will be of great help in developing these recommended practices
- d. Wireline: P1590
- Also had input from Ontario Hydro to provide “real-world” experience of even blowing up equipment to give actual results
- e. New Concepts
- Group reviewed the list of possible topics and made comments on what to do next on them
 - One area of interest is impact of distributed generation on power system operations, such as the possible need for dynamic relaying. These all have communication requirements.
- f. Communication Standards
- g. Security Risk Assessment:
- This subcommittee can be used for education, but the risk assessment document has been stagnant
 - Security is a moving target
 - FERC may not accept the NERC CIP002-009
- h. Broadband Power Line Carrier (BPL)
- One WG (P1675) on hardware to protect the utility from any impacts from BPL
 - Second WG on how to measure EM emissions
 - Both WGs will meet in Las Vegas Feb 28-29, and will probably go to ballot after that meeting
 - 200 Mbps is the current state-of-the-art, but gigabits might be possible
 - Next steps:
 - Sit and wait to see where the industry goes
 - Determine what is in it for utilities: how utilities might use it
 - Presentation on BPL at next New Concepts Combo session? John and Terry to take this on.
4. Liaison Reports
- a. BPL Liaison: P1901 under ComSoc group is trying to develop MAC layer network for using BPL
- No engineering or science seems to be used
 - No technical discussion
 - Maybe later, PSCC will pick up the issues that P1901 cannot address
- b. IEEE/USA
- DySPAN is developing a more efficient method for using spectrum
 - Some spectrum needs to be quiet: is that a need that will be addressed.

5. PSCC Long Range Planning

- a. Frances will contact the TCAB to try to identify joint efforts with other Committees that may like to have communication expertise in particular WGs
- b. Use of BPL by CenterPoint will be part of the BPL Combo panel session – make sure a room is provided for this.
- c. John/Terry will put together a panel session focused on BPL
- d. Email any reactions/issues

Reports Attached

ADCOM notes

Wireline Subcommittee

Broadband over Power Line Carrier Subcommittee

Power Line Carrier Subcommittee

Fiber Optic Working Group

P1777

ADCOM Notes

1. **Frances** to contact the IEEE for clarification on what can be posted freely on PSCC web site, such as Combo presentations.
2. Web pages can be used:
 - a. Per meeting basis, post minutes and agendas on PSCC web site
 - b. Can put P1777 documents such as questionnaire on web site
 - c. Committee reports
3. PSCC – we are getting smaller – what should we do about it?
 - a. Most of the work is done by small groups that are doing their own thing
 - b. IEC is now doing much of the work that used to be done by the PSCC (e.g. UCA)
 - c. PSRC is doing their own communications work, rather than working with PSCC
 - d. Areas of needs are:
 - Sharing of communication channels without impacting each other
 - How to find out what other groups are doing

SC6 – WIRELINE SUBCOMMITTEE (WLS) REPORT

10 January 2007

The Wireline Subcommittee (SC6) met at the Embassy Suites Hotel in Scottsdale, AZ, on Monday 8 January with 11 members in attendance and on Tuesday 9 January with 10 members in attendance.

The current WLS activity is as follows:

- **P1590** *IEEE Recommended Practice for the Electrical Protection of Communication Facilities Serving Electric Supply Locations Using Optical Fiber Systems.*

The IEEE-SA Standards Board approved on 22 September 2005 the PAR for the revision of Standard 1590-2003 with a new title.

A draft of the document was provided in advance of the meeting. The SC received 5 contributions toward the revision of this document. The SC completed the review of 3 contributions at this meeting. The approved portions of these contributions will be added to the working draft. Further review will continue at the June meeting.

- **P1692** *IEEE Guide for the Protection of Communication Installations from Lightning Effects.*

The IEEE-SA Standards Board approved on 30 March 2006 the PAR for this new project. A draft of the document was provided in advance of the meeting. The SC received 1 contribution which was partially reviewed. The approved portions of this contribution will be added to the working draft. Further review will continue at the June meeting. Copies of the drafts will be sent to IEEE Surge Protective Devices Committee WG 3.6.10, at their request, for coordination purposes.

- **P487** *IEEE Recommended Practice for the Protection of Wire-Line Communication Facilities Serving Electric Supply Locations*

The ballot closed on 12/15/2006 with 47 affirmative votes, 4 negative votes with comments and 7 abstentions. There were a total of 143 comments. All were reviewed in their entirety at this meeting. The revised draft, P487D7, incorporating the resolution of the comments, will be submitted for a

recirculation ballot by early next month. We anticipate submitting a draft to IEEE-SA for board approval in early April 2007.

The Wireline Subcommittee (SC6) will meet at the 2007 PES General Meeting in Tampa. The SC requests a meeting room for 2 consecutive days preferably Tuesday and Wednesday (26-27 June 2007).

Future PSCC Meetings

2007 PES General Meeting – 24-28 June 2007 – Tampa, FL

2008 PSCC - PSRC Joint Meeting – 7-10 January 2008 – San Antonio, TX

2008 PES General Meeting – 20-24 July 2008 – Pittsburgh, PA.

Respectfully submitted,

Percy E. Pool, SC-6 Co-Chair

Larry Young, SC-6 Co-Chair

Report for the Broadband Power Line Carrier Subcommittee – Meeting held in Scottsdale, Arizona

P1675 (BPL Standard on Hardware and Installation) and P1775 (BPL Standard on Emissions) have been meeting in the same location to allow members who are in both groups to attend and only travel to one location. The last meeting was held in Piscataway, New Jersey at the IEEE offices the first week of November, 2006.

Status – Both P1675 and P1775 are nearing completion of their respective standards, and should start the balloting process this spring. The next meeting will be the last week of February in Las Vegas, and will again be a combined meeting with the groups meeting on consecutive days. A summary of the minutes from the last meetings are given below.

Liasion – P1901 (BPL Standard on the MAC and Phy Layers) meets several times throughout the year. The results of their meetings are not disseminated so there is little word of their progress, although it appears that their progress has been slow.

P1675 – BPL Standard on Hardware and Installation

The meeting was held in the Piscataway, New Jersey IEEE offices on November 2nd. The meeting started at 9 a.m. and lasted until 5:00 p.m. There were 16 people in attendance.

1. A motion was put on the table to restructure the standard.

This issue was discussed including pros and cons. A motion to reformat after all changes are made was put to vote, ayes carried.

2. Hardware portion of Standard – review draft

A discussion of the grounding system in Europe took place. It was described as a

two ground system where the MV utilizes a separate ground from any BPL equipment attached to the line. A motion was made for single ground and multi-ground solutions to be added to the standard the motion was seconded and was approved. Language can be put in the standard saying that a solution is applicable to a region, i.e. U.S., Europe, per IEEE representative.

Discussed various other aspects of the standard and resolved most issues.

3. Installation portion of Standard – review draft
 - a. Review the draft for installation of BPL equipment, underground, overhead, and in substations.

Discussed various other aspects of the standard and resolved most issues.

4. Meet with Standards Association staff to discuss balloting, formatting, and what else we need to do to be ready to turn this into a standard.

Matt Ceglia gave a presentation on “My Ballot”.

5. Plan for next meeting – The next meeting time and location will be another joint meeting with P1775. It will be on February 27 at the Red Rock Resort in Las Vegas. At this same time, a UPLC conference will be held but at a different location in Las Vegas.

P1675 – BPL Standard on Hardware and Installation

The meeting was held in the Piscataway, New Jersey IEEE offices on November 1st. The meeting started at 9 a.m. and lasted until 5:00 p.m. There were approximately 20 people in attendance.

Discussion of letter to EMC society. The Chair explained the background of the letter to the group and his previous meeting with the EMC society. The letter was presented to the group for discussion on each point. Comments were

incorporated into the letter.

Various issues were discussed during the meeting including; distance correction factors; informative section on field strength; Annex D: Radiated emission measurement uncertainty; informative section on typical installation; and Annex F.

Next meeting – It will be on February 28, 29 at the Red Rock Resort in Las Vegas. At this same time, a UPLC conference will be held but at a different location in Las Vegas.

Minutes of the Power Line Carrier Subcommittee Meeting for January 2007

The Power Line Carrier Subcommittee met on Monday January 8th in Scottsdale, AZ We had seven members present.

Work continued on the C93.4 standard which is titled "Standard for Power-Line Carrier Line-Tuning Equipment (30-500 kHz) Associated With Power Transmission Lines."

Discussion took place on many items in the document. Several changes were made and sections were added.

Assignments were made as follows to be completed before the next meeting:

1. Assigned figures to Trench to provide for tests in 6.2.1.7 on harmonic distortion and 6.2.1.8 on Intermodulation distortion.
2. Search the document for "rms" and remove the term everywhere in the document. This task has been completed in Draft 2.
3. Drain coil tests will be put in an informative annex C. The reason for putting them there is that it is information that is at present not in C93.1 but will be added on rewrite of that standard. The assignment was given to Trench to write these tests. The tests are for insertion loss and impedance.
4. Ametek was assigned the task of writing the design & production tests for hybrids.
5. Power Comm was assigned the task of writing the design tests for the matching transformers.
6. Trench was assigned the task of writing the design tests for hi-low pas filters.
7. Trench was assigned the task of writing the design test for measurement of two-frequency isolation on two-frequency line tuners.
8. Other smaller assignments show up in the comments on Draft 2 of the document.

The next meeting of the PLC Subcommittee will be on May 14, 2007 in Nashville, TN. The meeting will be in conjunction with the PSRC meeting and will be held on Monday.

Roger E. Ray
Chair of the PLC Subcommittee

IEEE Fiber Optic Working Group Meeting

March 21, 2007

Phoenix, AZ

Arizona State University Campus

Attendee's:

Bob Bratton

Tewfik Schehade

Monty Tuominen

Greg Bennet

Bob Emerson

Magdi Ishac

Tom Alderton

Craig Pon

Curt Turner

John Jones

Suggested next meeting date and location: October 2,3 in Atlanta.

Notes for IEEE meeting 3/21/07:

Day 1

Meeting opened at 9:00. Spoke about existing specifications and updated a list for the group. Craig Pon's list was updated during this time.

IEEE 1222 – under development. Information is gathered, but spec needs to be organized and formatted. Curt/Monty to co-chair. Curt and Monty to get out action items (who and what) for next meeting by 5/30, sooner if possible.

Action item – Tom Green - to send IEC information for ADSS standard to the group – this was action item from 11/2006.

Action item – Tom Alderton – Update Craig Pon's table to make references to IEC, Cigre, etc....Also update spec numbers.

IEEE 1138 – Tom is chairing 1138 task force. Ready for balloting. Pre-ballot review to be completed by 6/07.

IEEE 1591.1, 1591.2, 1591.3 - John Jones coordinating. Under development.

IEEE 1594 – in balloting. Brian Herbst pushing through.

Began JLJ's changes for 1591.1 hardware standard – This updated version 11.0b draft was distributed about 2 weeks before the meeting. The changes included adjustments from the previous meeting and general clean up. Added or deleted items were discussed as well.

JLJ to compare IEC 61284 once more and make final adjustments.
Craig Pon Commented that we should search for other standards to compare.

ACTION ITEM: Members to submit suggested standards to compare – submit suggestion and copy (if available) of pertinent section to JLJ.

Section 4.2.2 - Tom Alderton recommended to reference IEC 61897 for Stockbridge Style Dampers.

Different standards should be gathered to compare differences to fiber specs. Specifically, can we refer to IEC 61089? Regarding tensile testing of cables: do we keep the 95% rating or go with 100%?

Action Item: Curt Turner to suggest overload factor for Comealong.

Action Item: Tewfik to check Acceptance Criteria for section 6.

1:30 – 2:30 – tour of ASU's test facilities.

2:30 – resume discussions - continue with JLJ's changes for 1591.1.

Action Item: Section 7.1, Craig Pon to compare IEC version of ANSI C-119 and 61089. Report back to JLJ.

Review and finalize load procedure and Relative Measurement.

Action item – Craig Pon - Change figure XX to be made up of suspension/DE assembly, and

show current is going through the DE assembly and Suspension. (Per Monty's

drawing on white-board).

Section 7.3 – Renamed Fault Current Test to Short Circuit test

Action item – Curt Turner - Clean-up Come-along section.

Day 2

8:30 - setup

9:00 – Monty presented ADSS Locating Guide & EF3D.

- **Action item** – group to pursue referencing guide/program – Suggestion put forth to put reference in IEEE 1222 and 1591.1 to the extent that “if desired to put cable into a higher voltage potential than cable is rated for, see BPA guide...referenced in Appendix, or Bibliography.”
- **Action item – John Jones** to assign someone to create 1591.2 (ADSS hardware std.) from 1591.1 (OPGW hardware std.)
- Action Item – John Jones to hand off 1591.3 (Wrap Hardware) to Curt Turner for AFL support.
- Action Item – JLJ Consider common test descriptions to reduce test steps for each hardware component.
- JLJ to check Acceptance Criteria for section 9.1, 1138

IEEE P1777

Meeting Minutes

January 10, 2007

I. Attendees

Name	Company	Email
Marc Lacroix	Hydro Quebec	Lacroix.Marc@hydro.qc.ca
Frances Cleveland	Xanthus Consulting	fcleve@xanthus-consulting.com
Mike Dood	SEL	mikedo@selinc.com
Tim Tibbals	SEL	tinti@selinc.com
Ken Fodero	SEL	Kenfo@selinc.com
Chris Huntley		c.huntley@ieee.org
Stan Klein	OSECS	Stan@osecs.com
John Newbury	Open University, Manchester	J.E.Newbury@open.ac.uk
Damien Tholomier	Areva	Damien.tholomier@areva-td.com
Randy Hamilton	Basler Electric	RandyHamilton@basler.com
Joe Gould	RuggedCom	JoeGould@ruggedcom.com
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Terry Burns	APS	Terrence.Burns@aps.com
Dac-Phuoc Bui	Hydro Quebec	bui.dac-phuoc@hydro.qc.ca

II. Agenda

1. Introduction
2. Presentation of this new working group
3. Scope of P1777
4. Methodology
5. Schedule
6. Anticipated outline of the recommended practice

III. Introduction

P1777 is a joint Working Group sponsored by the Power System Communications (PSCC) and Substations Committee (C0 – Data Acquisition, Processing and Control Systems Subcommittee)

Co-chaired by:

- o Frances Cleveland (PSCC Committee)
- o Marc Lacroix (Substations Committee)

The goal of this working group is to produce a "Recommended Practices for Using Wireless Data Communications in Power System Operation"

These Recommended Practices will provide guidelines and recommended practices to utilities on potential uses of the various wireless technologies in different arenas of power system operations.

They will also identify the issues and concerns that need to be evaluated and/or tested on individual implementations.

These Recommended Practices describe and make recommendations on the

- o functional,
- o performance,
- o Security,
- o on-site testing issues

related to using wireless data communication technologies.

These Recommended Practices will cover different aspects of power system operations:

- o electric power substations
- o underground vaults,
- o along transmission and distribution circuits,
- o generation and distributed generation plants,
- o other electric power environments

These recommended practices focus on the newer wireless data communication technologies such as:

- o WiFi,
- o Bluetooth,
- o Zigbee,
- o WiMax,
- o cellular phone

x people were present.

IV. Methodology

- o Find authors to contribute for the different topics
- o Send a questionnaire to the utilities to have an idea of the existing status of Wireless communication
- o Use the results of the consultation to describe use cases in the final document

V. Questionnaire

The questionnaire was reviewed:

- o The questionnaire should be reworked in order to suggest a few answers for each question (check box or scrolling list)
- o Evaluate the use of a WEB site to compile the results (Monkeysurvey)

VI. Project Schedule

Activities	Target Date
Receive comments regarding the questionnaire	January 19, 2007

Finalize the questionnaire	January 31, 2007
Start sending the questionnaire to the utilities	February 2nd, 2007
Closing date is one month after sending the questionnaire	March 2nd, 2007
Compile the results	June 8, 2007
First draft of the recommended practice	January 31, 2008
Final draft of the recommended practice	March 28, 2008
End of balloting of the recommended practice	November 28, 2008

VII. P1777 Outline and Assignment

Section Title	Responsible
1. Introduction	
2. Description of wireless technologies and architecture	John Newbury
3. Description of applications that can benefit from wireless technologies	Damien Tholomier
4. Present use of wireless in utilities	Damien Tholomier
5. Description of new capabilities which might become feasible if wireless communications were available	Marc Lacroix
6. Expected benefits from the use of wireless communications	Ken Fodero
7. Possible concerns about using wireless communications	Frances Cleveland, Stan Klein
8. Quality of Service	Joe Gould
9. Environmental	Joe Gould
10. Security, reliability, performance and availability requirements	Frances Cleveland
11. Management issues and policies	Joe Hughes, Frances Cleveland
12. Present standardisation activities	Future

VIII. Next meeting

To be determined

Minutes prepared by: Marc Lacroix