

**IEEE ComSoc Technical Sub-Committee on Power Line Communications  
Globecom 2004, Kick-Off Meeting  
Hyatt Regency Dallas, November 30, 2004**

**Present: 15 (7 academia, 6 industry, 2 consumer market)**

1. "Cañete" <francis@ic.uma.es>
2. "Chiani" <mchiani@deis.unibo.it>
3. "de la Peña" <fran@comunik.net>
4. "de Nardis" <lucadn@newyork.ing.uniroma1.it>
5. "di Benedetto" <dibenedetto@newyork.ing.uniroma1.it>
6. "Dominguez" <victor.dominguez@ds2.es>
7. "Fantacci" <fantacci@lenst.det.unifi.it>
8. "Fish" <rob@research.panasonic.com>
9. "Galli" <sgalli@research.telcordia.com>
10. "Griffin" <pete.griffin@radioshack.com>
11. "Merino" <daniel.merino@tecnocom.biz>
12. "Newman" <nemo@cise.ufl.edu>
13. "Rao" <rrao@ambientcorp.com>
14. "Safwat" <safwat@ee.queens.ca>
15. "Wenger" <brianw@copr.earthlink.net>

**IEEE ComSoc Representatives: 4**

Chair of the ComSoc Emerging Technologies Technical Committee  
"Cimini" <cimini@ece.udel.edu>

ComSoc President Elect

"Cheung" <nkc@research.telcordia.com>

Chair of the Communications Standards Committee

"Boutaba" <rboutaba@bbcr.uwaterloo.ca>

ComSoc Vice-President for Membership Development

"Gelman" <adg@research.panasonic.com>

**Conference call: 5 (2 academia, 3 industry)**

"Kerpez" <kkerpez@telcordia.com>

"Latchman" <latchman@list.ufl.edu>

"Lampe" <lampe@ece.ubc.ca>

"Renz" <bruce@amperion.com>

"Scaglione" <anna@ece.cornell.edu>

Meeting Secretary: Richard Newman

Agenda (per 11 November 2004 email):

1. defining scope of the sub-committee;
2. assigning of duties to members;
3. nomination of a standards liaison;
4. definition of a task force to interact with the Power Engineering Society (PES) ;
5. nomination of a FCC liaison;
6. other issues brought up by members.

I. Chair Stefano Galli welcomed the group and introduced Alex Gelman, Vice President for Membership of the Communication Society.

II. Gelman then provided a slide show and overview of the IEEE and the ComSoc, highlighting the recent involvement of the IEEE in PLC. Activities include:

- 2 special issues of the IEEE Communications Magazine
- Upcoming special issue of the IEEE JSAC (March 1, 2005 submission deadline)
- establishment of this subcommittee
- BoPL study group (in conjunction with IEEE-SA)
- Sponsorship of ISPLC in Vancouver (April, 2005)

What remains to be done at this point includes

- transitioning this subcommittee to a technical committee if stable and at least 40 members by next meeting (at ISPLC)
- JSAC series
- collaboration with PES, EMC, other IEEE societies
- technical activities (not standards)
- cosponsor and act as "technical conscience" of standards
- extend existing memorandum of understanding with EMC on radio to PLC

III. Galli expanded on the breadth and depth goals:

- touch all aspects of PLC: access, home networking, in-vehicle, ec.
- sponsor events (as TCPLC): conferences (e.g., ISPLC, workshops)  
He noted that ISPLC has support from PES currently (need to be TC to sponsor) via John Newberry. The proceedings will be in IEEE Explore database.
- support further publications and special issues (e.g., ComMag, JSAC)
- assemble panels for conferences
- encourage academic interest and research
- be involved (a bit more than is usual) with standards (John Newberry is running standards effort): issue white papers with recommendations to the standards body, run workshops on topics under consideration by standards body
- noted that PLC is a very interdisciplinary field: Antennas/propagation, power engineering, electromagnetic compatibility, communications, etc.

Committee involvement in various events was confirmed and new ideas proposed:

- JSAC special issue in 2005
- Joint PES/ComSoc workshop in Vancouver for ISPLC (a yearly event)
- Providing ComSoc's technical sponsorship to ISPLC
- Presence in GlobeCom 2005
- Presence in ICC 2006

IV. Galli noted that we needed to identify task forces and nominate candidates for the lead in each area. This is particularly urgent for the standards liaison, since the next meeting of the IEEE standards body for BPL will be in San Diego on 14 January 2005.

The floor was opened for task force area recommendations, from which we identified four primary areas:

- 1) IEEE Standards, together with PES, Ant. Propg., and EMC  
The intent is to obtain a voting seat on the standards body, with that person expressing the positions of this group to the standards body and acting as a liaison between the two groups.
- 2) External Relationships (fostering collaborations with other societies/committees, communications with non-IEEE organizations with interest in PLC, such as Opera, HomePlug Alliance, Power Utilities Alliance, etc.)
- 3) Events - help organize workshops, sponsor conferences, provide panels, participate in external events
- 4) Publications - provide candidates for associate editorships on IEEE journals, guest editors, referees for submitted publications (it was noted that some papers have been rejected for the editors' inability to find competent referees), raise PLC consciousness in publications.

V. The floor was opened for general discussions.

- Scaglione suggested that we should encourage more journal submissions, perhaps inviting the best papers from ISPLC to submit for a special issue.
- Lampe agreed but cautioned that securing some agreement to publish papers invited from ISPLC would not be so easy
- Scaglione noted that we should highlight unique aspects of PLC to attract scientific interest
- Latchman remarked that the IJCS in the UK recently had a special issue on PLC that had a good response to the call for papers and has been well received in general (he and Newman were among the four guest editors)
- de la Pena suggested that we announce the formation of this subcommittee in the Communications Magazine and/or newsletters
- Scaglione: propose TC members as editors, reviewers
- Galli: can provide lists for "Associate Editor for Emerging Technologies" and/or reviewers

- Scaglione: email suggestions to Galli; also propose papers for awards
- Safwat: our interest is not just in MAC and PHY, but also PLC networking?
- Galli: yes; standards mainly focus on MAC/PHY, but we are broader
- de la Pena suggested we introduce ourselves and our areas of interest better to identify possible candidates for the task forces.
- Galli: agree - also nominate self or others for positions.

## VI. Discussion turned to the BPL standards study group

- Gelman noted that there was great interest from industry (Arkadis - formerly Enikia, DS2, utilities, Telcordia), safety, ham operators. The conclusions were that the technology is about ready, and that standards are needed with sponsor (like IEEE 802)
- should have workshop at every standards meeting with PES and EMC to discuss topic of standards at that meeting: nothing to do with IP rights, issues only - open and technical discussions.
- the standards body will be 1 company-1 vote (this is a first time experiment for IEEE)  
Preliminary work has been done, and there is a white paper due in mid-December with recommendations on PHY, MAC, safety, interference, along with a map of worldwide activities, specs, etc. (Alan Wiener).
- Galli stated that we should appoint a liaison to the standards body (voting position) and help recruit officers for it. These should be neutral parties (e.g., academics, 3rd party industry like Telcordia), not stakeholders.
- de la Pena brought up the Power Utilities Alliance (Italy, Spain, Portugal, France, ...) for interaction.
- Gelman cautioned that IEEE can only deal with tax-exempt groups, but that organizations such as the PUA, PLCA, or HPA could join as voting members of the body.
- Dominguez pointed out that DS2 was involved in many organizations - he was president of ETSI standards body, involved in Measurements, and volunteered to seek reviewers, etc.
- Gelman observed that those with stakes are those with solutions, which they should propose to the standards bodies. Industry group will make interoperation standards. The IEEE body is the first stage. For example, HomePlug Alliance could endorse the IEEE standard and provide interop.
- Gelman noted that MAC and PHY were likely to be two separate groups.
- Several questioned why this should be - there is strong inter-layer interaction in PLC of necessity.
- Griffin offered that there is an "upper MAC" dealing with higher level concerns (scheduling, negotiations) and a "lower MAC" that deals with VCS, access, timing, retransmission, etc.
- Gelman solicited text to be given to Dominguez, who was editing the report.
- Galli suggested cross-layer approach vs. two OSI-like groups.

- Newman echoed the strong interactions between lower MAC and PHY
- Scaglione noted that there are differences with the types of access required (QoS, e.g.)
- Galli expanded that to broadband vs. in-home vs. in-vehicle
- Gelman requested that Dominguez justify the interactions in the paper
- Griffin offered to contribute to the white paper, and asked if we could see the draft
- Dominguez agreed to make it available to the group
- Renz: Have attended BPL meetings, no rec yet that IEEE should involve itself in MAC/PHY standards. Is TC deciding to do this?
- Gelman: ComSoc has a representative to the study group. ComSoc decided a year ago to evolve a standard. Up until now, Gelman has been that rep, but from here out, the TCPLC will do that. Those with technologies should bring proposals.
- de la Pe\361a: Market, utilities, etc. expect and await a standard from IEEE - the time is right. EC is waiting to see what IEEE recommends.
- Fish: I serve on Electrical Power Research Institute (mostly US power and telecom companies) Research Group - EPRI looking for better technical information, wants solid data before selling to regulators for major change in business.
- Dominguez: ETSI supports standards initiatives in IEEE.

VII. Galli then refocused the group onto introductions so we could start nominations for positions and task force membership. He asked that we also state what we expect of TCPLC and what we bring.

Safwat - Queens U. (Canada) - MAC, N/W, cross-layer design, integration with wireless, internet. Will lead/serve on publications, serve on events.

Newman - U. Florida (USA) - have worked with Intellon on HomePlug 1.0 standard and now HomePlug AV, design, analysis, simulation of MAC and networking, security. Will lead/serve on events, serve on publications.

Dominguez - DS2 (Spain) - also very part-time university professor. Micro-electronic design, in-home, access, distribution PLC. Have 200 Mbps chips already. Chair of PLC committee at ETSI (same level as HyperLAN - over 80 companies). Wrote 2 ETSI standards. Chairing Regulatory Working Group (about 60 companies) CISPR - IEC - EMC issues for PLC. Have very broad interest. Will lead/serve on standards, publications, serve on events.

Boutaba - U. Waterloo (Canada) - will help create linkages with IEEE-SA

Gelman - Panasonic (USA), IEEE ComSoc VP for Membership Development. Interest in bringing together multiplexing.

Fish - Director of some R&D labs at Panasonic (Princeton, San Jose, Santa Barbara, ...) (USA) Interest in ubiquitous digital access. Has

- role in EPRI, Consumer Companies and Networking Conference chair.  
Will help in liaison to IEEE-SA.
- Canete - U. Malaga (Spain) - PhD in PLC. Cañete - U. Malaga (Spain) - PhD in PLC.  
Channel characterization, new technologies to measure and model PL channel and  
transmission techniques. Interest in proposing standard channel model.  
Will serve on standards and publication
- Rao - Ambient (USA) - communication tech/svcs, Boston area. Work with  
utility companies, data communications, N/W background.  
Standards are important. Will lead/serve on standards.
- Fantacci - U. Florence (Italy) - IEEE Trans. Commun. area editor for  
Wireless Networks and Systems. PHY layer, detection, integration  
of wireless with PLC.
- Chiani (?) - U. Bologna (Italy) - Chair of ComSoc Radio Communications  
Committee (RCC). PHY layer, modulation, coding. Curious about  
new problems.
- Galli - Telcordia (USA) - Gelman drafted to chair subcommittee on PLC  
as "disinterested party." PHY layer, access. Will serve with  
publications.
- Griffin - Radio Shack (USA) - on HomePlug Alliance board. Interested  
in invention and distribution. Has long history of bringing  
technology as products to consumers - the PC, e.g. Was involved  
in FCC regulations for the PC. Standards are important. Wants  
many suppliers of appropriate technologies for products. Will  
lead/serve on External Relations. Nominate Jim Mullenkopf for  
Standards lead.
- Wenger - Earthlink (USA) - on HomePlug Alliance board. Interest in  
in-home and access - unification of these - stronger possibility  
here - also coexistence issues.
- de la Pe\361a - Independent Advisor or EU (Spain) Involved with PLC since  
1999. Sees two opportunities: developing markets for access -  
increase competition; developing countries - give first access for  
phone (less than 10% phone penetration, over 80% power line there).  
Will lead/serve on External Relations.
- Scaglione - Cornell U. (USA) Academic interest, PHY layer mostly, signal  
processing.
- Lampe - U. British Columbia (Canada) - Conference Chair of ISPLC 2005 in  
Vancouver April 6-8, 2005 (<http://conferences.ece.ubc.ca/isplc2005>)  
Academic interest. Has worked for four years with German company  
on PLC access. Will lead/serve on Events, External Relations.
- di Benedetto - U. Rome la Sapienza (Italy) UWB, radio, MAC and N/W.
- de Nardis - U. Rome la Sapienza (Italy)
- Latchman - U. Florida (USA) Director of Laboratory for Information Systems  
and Technology (LIST). Worked four years with Intellon on HomePlug  
1.0 and HomePlug AV. Interest in control systems, MAC/PHY  
interactions, QoS over PLC, in-home and access PLC. Organized a  
workshop in Caribbean on Jan 27 2005 for PLC. CEO of Jamaica Online.

Renz - Imperion (USA), PES. Interested in standards so industry can go forward.

VIII. Intros over, summarized the candidates for the four task forces:

- 1) IEEE Standards  
Canete, Dominguez, Fish, Mullenkopf, Rao.
- 2) External Relationships  
de la Pena (EU), Griffin (US), Lampe.
- 3) Events  
Dominguez, Lampe, Newman, Safwat
- 4) Publications  
Dominguez, Galli, Newman, Safwat.  
(late nomination) Fantacci

- Galli proposed that when meeting minutes are finished, they will be shared with other members who could not attend, and other candidates will be solicited. After that, Committee Chair will appoint 1 officer per activity. Every officer will have the support of the task force and will report to the committee chair.

IX. Lampe described ISPLC. He is General Chair. It will be at UBC in Vancouver April 6-8. He encouraged submissions. This is the first time ISPLC will be in North America. This provides increasing visibility of PLC in academia, helping move standards along. Would like 2-3 panels for the 2 1/2 day symposium - in applications, standardization, wireless vs. PLC, other. He asked TCPLC for help organizing panels. Also, there will be an opportunity for companies to exhibit their products. He also noted that ICC 2005 will be held in Seoul Korea, 16-20 May 2005 ([www.icc05.org/main/main.html](http://www.icc05.org/main/main.html)) and the next IEEE GlobeCom will be 28 November- 2 December 2005 in St. Louis, MO. These will consider PLC submissions and panels.

X. After a short break for lunch, we resumed with discussions of the positions and responsibilities, and the things that the subcommittee could do to move PLC along.

- Galli - need to get a voting IEEE-SA rep soon; also, would like to have more than one for MAC, PHY, etc. Really, for all positions would like a task force to support designated person.  
One thing we can do is sponsor FCC personnel to come to workshops, conferences, since we are non-profit.
- Dominguez - I will be at Net@Home meeting in Nice later this week, will advertise ISPLC, invite exhibitors.
- Safwat - working with Fantacci (Program Chair) for AdHoc Networks

Symposium, part of WirelessCom in Hawaii 15-16 June 2005. There is interest in channel models. Submission date is Feb. 15, 2005.

([http://ad hoc-symposium.site.uottawa.ca/site\\_07/aboutus.html](http://ad hoc-symposium.site.uottawa.ca/site_07/aboutus.html))

- ICC 2006 is in Turkey - is there local interest in Turkey about PLC we can get involved? Lampe recalled a Turkish professor at ISPLC a few years back, will check.
- Newman asked if we could get a website for TCPLC. Galli responded that IEEE would set one up (once TCPLC is official), but there is some overhead involved. It may be better to do it at a university site. Lampe agreed to set one up.

XI. Meeting adjourned.

Action items are

1. Galli will report to the Publications Board shortly.
2. Get minutes out, correct them
3. Add any more nominees for the four task forces. Galli will review and appoint one main person per area, with the rest participating as a task force.
4. Lampe will set up a website for TCPLC
5. Standards Rep will attend meeting in January, report back.
6. Dominguez will make study group white paper available to TCPLC.
7. Events Rep will coordinate formation of one or more panels for ISPLC with Lampe.
8. Members will submit language to Dominguez for study group report on deviating from the OSI-approach followed by standards in addressing PHY and MAC separately. Recommendations will be made to the IEEE-SA to address cross-layer approach.

FINAL DRAFT - Newman 2004.12.15