

## IEEE Product Safety Engineering Society

IEEE PSES TSTC

Meeting Minutes: 30 May 2012

Members present: Don Gies (Alcatel-Lucent), Philip Havens (Littelfuse), Al Martin (TE Connectivity), Mick Maytum, Paul Ng (GE Energy), Dan Roman (Dialogic), Peter Tarver (Enphase Energy), Anne Venetta-Richard (Alcatel-Lucent), Jim Wiese (Adtran).

Members absent: Tim Ardley (Adtran), Peter Lim (Alpha Technology), Doug Parker (Adtran), Joe Randolph (Randolph Telecom), Gary Schrempp (Dell), Tom Smith (TJS Technical Services Inc), Steve Zugay (Cree),

### 1. Attendance/Introductions

Attendees introduced themselves. Randy Ivans (UL) joined as a guest.

### 2. Previous meeting minutes (Attached)

The minutes from the last meeting were approved as submitted

### 3. New business

### 4. Discussion – AC Power Cross Considerations for Non-Telecom Signaling Lines (e.g. Ethernet, Alarms) Run in Outside Plant – J. Wiese, M. Maytum, P. Havens (background information was attached to the agenda)

Jim Wiese: Has been working on the issue of an outside plant Ethernet protector, and was looking for help. There is probably no primary protector on an Ethernet line. A UL PAG for POE said don't do overvoltage test. But for regular Ethernet, do need to do overvoltage tests. Tom Burke (UL) said the issue needed to go to a standards committee. There is no requirement to label which Ethernet ports going to the outside plant. Need to get this sorted out

Randy: Don't focus on PAG, but focus on the requirements you would like to have.

Jim: In GR1089, only have 120 V power cross for types 3B and 5B ports

Don: In the old Bell system, alarm lines [which could run to wireless installations] had primary protectors. Do the best you can with what's out there. Don't do induction on shorter lines. Assume that lines running outside the building need power cross

Jim: If the cable run is less than 500 ft you don't need power cross, and a modified lightning test should apply. Any location should be tested for 120 V power cross.

Don: If you don't know where an outside piece of equipment will be located, use primary protection [because you don't know what the environment is]. You may be sent to NEC article 800.

Jim: The PAG is confusing

Randy: That's why you need to say what the requirements should be. Trying to interpret a PAG is trying to interpret an interpretation.

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Peter: If have a SELV port going outside a building, it becomes TNV1. A standards change isn't needed, just a position statement that says based on this criteria, any port that goes outside is subject to clause 6 [60950] evaluation.

Don: We probably aren't going to be able to change the standards.

Jim: We could put together a position that would allow UL to put out a new PAG. Basically just the US and Canadian deviations are affected.

Don: We've been looking at this issue for years, so maybe could influence the IEC to make a change.

Philip: What is a conservative approach?

Don: If I have a product that goes outside [e.g. wireless backhaul] and the product could go into many places, I design for the worst case. Wires may run in conduit, but that doesn't exempt you. Generally do both primary and secondary protection.

Philip: Do we need a 600 V power cross?

Don: I'm presently in a campus environment. There is a substation between me and the other buildings. There are overhead transformers. So I could be exposed to 600 V.

Peter: There was a case in Mexico where a truck hit a cross-connect box that took out a PBX. For UL60950 clause 6 can do a construction-only path.

Randy: If you know something is going to be exposed, then clause 6 applies. What do you do about lines where you don't know what the exposure is? Ethernet used to run only inside buildings. But now Ethernet can be in a cabinet down the block.

Don: Original phone lines had isolation transformers. Cable companies ran coax, which don't have isolation transformers. Alarm lines don't have isolation. Do they need it? Probably not.

Philip: IEEE 802.3 requires isolation transformers.

Randy: Alarm circuits have to meet NEC article 800, if run outside building. In that case they need to have a primary protector.

Jim: We have no clue where the alarm circuits will go.

Don: For alarm circuits, you are typically directed to article 800. Coax circuits don't need a primary protector.

Jim: Our manuals say that Ethernet ports are for intrabuilding use only, but we are finding that Ethernet lines are being strung out to external buildings.

Don: What is rationale for having to test is lines are in a metal conduit?

Randy: If it's buried, a backhoe could go through the conduit.

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Jim: Our issue is that outside Ethernet lines are often wrapped around the power lines. Get power induction in addition to lightning and power cross exposure. A 120 V power fault should be done as a minimum.

Don: If the installation is done for you, it should meet the code.

Jim: Installation can be done by the IT people, who are not familiar with the code.

Peter: The code doesn't say that if Ethernet runs between buildings, it needs protection.

Don: May need a label on the port stating that the line must not be run outside the building.

Philip: Who is going to read that?

Jim: Protectors intended for data lines are sometimes used, and these haven't been evaluated for power cross. Isolation transformers would be good.

Don: You are talking about equipment that could be sold to anyone, not just carriers?

Jim: Yes. UL 497B assumes no power cross.

Don: What about manufacturers of equipment that is not classically telecom [e.g. routers]? I assume that equipment for residential use may be run outside.

Randy: We have seen Ethernet lines run from cabinets to the house. The homeowner will plug his equipment into this line, and the equipment isn't protected. PBX systems had cards for inside and outside lines. Phones for use with these systems had to have protection, because they could be plugged into a regular phone line [unless they were proprietary phones, which wouldn't work on regular phone lines].

For Ethernet, may need to do something with the code.

Jim: New technology Ethernet allows lines to go farther, which will increase exposure. Users tend to ignore warnings about connecting lines to the outside. Schools are the biggest problem, since they use a lot of temporary buildings that are connected to the main buildings via an outside line.

Peter: I will send a link out to the presentation I gave on how 60950 addresses the issue.

Mick: NTT uses power transfer across isolation barriers.

Jim: We have handled the POE issue. The handshaking was the sticking point. What level of isolation is needed?

Mick: The PAG refers to a TR [temporarily rejected] document, which is a failed standard.

Don: Discuss this at the next meeting? [Yes]

Randy: Could open a project for this in the TIA TR41.

Don: How much participation would you get from manufacturers of things like routers? Concern is untrained people installing communications lines.

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Peter: A recognized problem with telecom equipment. The construction-only path was put in by the IT industry, but now there is IT equipment that has telecom-like exposure to lightning and power cross.

Don: I've had a case where equipment used cheaper copper and a right-angle connector which would open up under testing and arc, by-passing the protection. It would pass the construction condition, but still had a problem.

Philip: How does something that passes construction path fail under testing?

Don: Construction is a check-list. Actual testing can surface problems. The issue is unintended consequences - what happens if a line is connected in an unexpected way.

### 5. IEC TC108 National Committee Activity – D. Gies, T. Smith

Tom Smith has been working with the Canadian National Committee on the two proposals we sent to TC108. US TAG mentioned our proposals in the minutes from the Melburn meeting.

- a. TSTC Proposal for IEC 60950-22– Battery Cabinet Ventilation has been submitted to US TAG. Don has been corresponding with Tom Burke (UL) on this. Tom commented that there was support to move the proposal to TC108, but the proposal should align more to the TC108 style. This proposal will also be on the agenda for the Canadian National committee meeting April 26.
- b. TSTC Proposal for IEC 60950-22 – Outdoor Enclosure Metals. The proposal is to exclude need for testing certain metals. Submitted to US TAG. The feedback is that it looks too North-American centric. Tom's comment on the IEC 60950 proposal also applies to this proposal.

### 6. ATIS/Telcordia Activity

New Telcordia GR-3171-CORE, Issue 1, Generic Requirements for Network Elements Used in Wireless Networks Physical Layer Criteria. (Don Gies)

Don has been sending out the latest proposal for the group to review and make suggestions. Forward any questions to Don.

Will discuss ATIS work at the next meeting.

### 7. IEC 62368-1 – Impact on Telecom Industry.

There has been much discussion from the industry as to whether IEC 62368-1, "Audio, Information and Communication Technology Equipment – Part 1: Safety Requirements," should be globally adopted as national safety standards, replacing IEC 60950-1 and IEC 60065.

We have heard pros and cons for adoption. The pros tendency is that there are more options available for service-access equipment, whereas the cons tendency is that there are additional tests that will add expense to testing and certification.

With respect to the telecom industry, what are the pros and cons for adopting IEC 62368-1?

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8. Additional agenda items
9. Old Business
  - a. Smart Grid Issues
    - Peter: What we are discussing could have an impact on the Smart Grid.
    - Don: It's not just service provider equipment, but also appliances, and parking lot charging stations [which have communications for billing purposes].
  - b. 380 V DC power systems
    - Nothing
  - c. Lightning/Ground potential rise discussions
    - Nothing

**Next meeting: Wednesday, June 27, 2012.**

Respectfully submitted,

Al Martin  
Secretary

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Guest: Jack Burns, Dell, IEEE PSES, VP Technical Activities

Chair: Peter Tarver

Vice Chair: Don Gies

Secretary: Al Martin

- 1) UL Standards Technical Panel for Subjects 60950-1, -21, -22, -23
- 2) TIA TR 41.7, TR41.7.1
- 3) IEEE Surge Protective Devices Committee
- 4) ATIS Protection Engineers Group
- 5) ITU-T, SG5, WP1
- 6) Canadian National Subcommittee for IEC TC108
- 7) TIA TR 41.7.10 (Smart Grid)
- 8) US TAG to IEC TC 108

Other LinkedIn members:

hifi cha, China (Independent Consumer Electronics Professional)

**IEEE Product Safety Engineering Society**  
Jeff Whitmire (Manager, Regulatory Compliance at Adtran)

**Telecommunications Technical Activities Committee Roster**