

## IEEE Product Safety Engineering Society

IEEE PSES TSTC

Meeting Minutes: 28 November 2012

Members present: Don Gies (Alcatel-Lucent), Peter Lim (Alpha Technology), Al Martin (TE Connectivity), Mick Maytum, Paul Ng (GE Energy), Joe Randolph (Randolph Telecom), Anne Venetta-Richard (Alcatel-Lucent), Jim Wiese (Adtran)

Members absent: Tim Ardley (Adtran), Philip Havens (Littelfuse), Doug Parker (Adtran), Dan Roman (Dialogic), Tom Smith (TJS Technical Services Inc), Peter Tarver (Enphase Energy), Steve Zugay (Cree), Gary Schrempp (Dell),.

### 1. Attendance/Introductions

Attendees introduced themselves.

### 2. Previous meeting minutes

The minutes from the last meeting was approved as submitted

### 3. New business

Discussion:

Cell towers typically have 8 hrs backup, but diesel backup generators are not common. Most towers went down during Sandy.

Don will be an adjunct professor at New Jersey Institute of Technology [NJIT], with a focus on transients in power systems.

What is the hot topic? Exploding battery cabinets, falling remote radio heads. Lightning? Power faults?

Don: Battery cabinet issues for discussion. What do you do for grounding and isolation in proximity to a battery?

### 4. Follow up from ISPCE 2012- Portland

a. Technical Committee Meeting [Joe, Peter, Paul attended]

Highlights of meeting [Joe Randolph]: Ivan [??] Gave our TAC kudos for our activity.

A workshop may be scheduled in Vancouver [topic under consideration – may be risk assessment].

### 5. ISPCE 2012 “Best Paper” – Joe Randolph – “Introduction to Lightning and AC Power Fault Surge Protection for Telecom Signaling Cables”

Summary: Copy sent out to the TAC for review. An introductory paper. Emphasized that lightning almost never hits a cable directly – mainly by induction or GPR. Inside cables affected as well as outside cables. Gave a rough description of surges that could be expected. Described how a primary protector could convert a common mode surge to transverse. Walked through 3 representative circuits. Pointed out that a circuit like Ethernet that has common mode immunity can be damaged if a primary protector is installed. Argued that

## IEEE Product Safety Engineering Society

damage is caused by current flow [voltage can cause flashover, but it's the resulting current flow that does the damage]. Joe showed a picture of a chip with the top blown off, and concluded that it got hit with a big surge.

Surges on the mains may cause problems on the telecom circuits [Al mentioned the NTT paper on this subject]. This could be a topic for future discussion.

Jim: Had a customer who had primary protectors blow up fairly regularly due to lightning, so they removed them. Then the line cards blew up.

Mick: IEC now talks about conversion of longitudinal to transverse surges.

Mick: Series isolation barriers an issue – how voltage distributes across them, and the possibility of breakdown.

Joe: Could have a strike which both couples into a line, and also induces a GPR surge [superposition]. The two could either add or subtract.

Joe: Have evidence of ports that can withstand 6 kV still blowing up.

### 6. IEC 62368 – MOV requirements – Mick Maytum

Failure: Apply 2x equipment rated voltage to equipment for 4 hrs, and wait for MOV to fail. Many MOVs have thermal link protection. Need to test the link under high current.

Paul Ng: Is there a test for this in a standard?

Mick: Could be in the audio-visual standard

Paul: Do a VDE test in which the voltage from a stiff source is slowly increased. This causes the MOV to heat. Question is whether fire occurs.

Mick: Need a component test that reflects equipment issues.

Paul: MOV with thermal protection protects against long term heating, but not against short-term high current surges.

Joe: If you provide safeguard, do you need to test [e.g. the construction path in IEC60950]?

### 7. US TAG for TC108 Activity

Update battery section.

### 8. Additional agenda items

### 9. Old Business

#### a. ATIS/Telcordia Activity

i. New Telcordia GR-3171-CORE, Issue 1, Generic Requirements for Network Elements Used in Wireless Networks Physical Layer Criteria. Issue 1 was issued on 16 October 2012. The TSTC was represented on this standard's TTF and had reviewed and provided input to this standard.

## IEEE Product Safety Engineering Society

GR-3171-CORE has been published.

ii. GR-487-CORE re-write. Two issues were discussed at last month's meeting:

[1] Lifting Details Requirements for Equipment under 90.7 kg/200 lbs that are hoisted to heights. See the attached photo of the squashed truck hit by a falling remote radio head, and the draft re-write, Section 3.13 on the lifting details section.

[2] Harmonizing the battery section with the TSTC's proposal to the IEC on battery ventilation. See the draft re-write of the battery section of the standard, Section 3.24 and our committee's proposal, as it has been sent to the ANSI/US TAG for TC 108. ATIS doesn't have anything on this.

b. AC Power Cross Considerations for Non-Telecom Signaling Lines (e.g. Ethernet, Alarms) Run in Outside Plant.

c. Smart Grid Issues

d. 380 V DC power systems

e. Solar panel integration

f. IEC 62368-1 – Impact on Telecom Industry.

There have 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?

Don: Discussion of surface temperature of radio heads. In some cases IEC 60950 has restrictions which can be avoided using IEC 62368-1 procedures.

Next meeting – Proposed Wednesday, 23 January 2013. We have been very good this year! Let's reward ourselves by taking the holiday season off!

Respectfully submitted,

Al Martin  
Secretary

Participant	Employer	Telephone	E-mail	IEEE Member?	PSES Member?	Linkedin Subgroup	Other Committee
Tim Ardley	Adtran		tim.ardley@adtran.com				
Don Gies	Alcatel-Lucent	+1-908-582-5978	don.gies@alcatel-lucent.com	X	X	X	8
Phillip Havens	Littelfuse	+1-214-450-9658	phavens@littelfuse.com			X	2
Peter Lim	Alpha Technologies	+1-604-638-8687	peter.lim@alpha.ca				
Al Martin	Tyco Electronics	+1-650-361-5822	amartin@tycoelectronics.com	X		X	3
Mick Maytum	Retired	+44-1234-838589	m.j.maytum@ieee.org				3,5
Paul Ng	Lineage Power	+1-972-244 9492	paul.s.ng@ge.com				
Doug Parker	Adtran						
Joe Randolph	Randolph Telecom	+1-781-721-2848	jpr@randolph-telecom.com	X	X	X	
Dan Roman	Dialogic	+1-973-967-6485	dan.roman@ieee.org	X	X	X	
Gary Schrempp	Dell	+1-512-724-3757	gary_schrempp@dell.com	X	X	X	
Tom Smith	TJS Technical Services	+1-403-612-6664	tsmith@tjstechnical.com			X	6
Peter Tarver	Enphase Energy	+1-707-763-4784	ptarver@enphaseenergy.com	X	X	X	
Anne Venetta-Richard	Alcatel-Lucent						
Jim Wiese	Adtran	+1-256-963-8431	jim.wiese@adtran.com			X	2,4
Steve Zugay	Cree	+1-919-850-6219	szugay@bellsouth.net			X	

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**