

IEEE Product Safety Engineering Society

IEEE PSES TSTC

Meeting Minutes: 25 July 2012

Members present: Don Gies (Alcatel-Lucent), Tom Smith (TJS Technical Services Inc), Al Martin (TE Connectivity), Joe Randolph (Randolph Telecom), Mick Maytum, Anne Venetta-Richard (Alcatel-Lucent), Peter Tarver (Enphase Energy).

Members absent: Tim Ardley (Adtran), Peter Lim (Alpha Technology), Philip Havens (Littelfuse), Doug Parker (Adtran), Dan Roman (Dialogic), Steve Zugay (Cree), Paul Ng (GE Energy), Gary Schrempp (Dell), Jim Wiese (Adtran).

1. Attendance/Introductions

Attendees introduced themselves.

2. Previous meeting minutes were distributed for comment

The wrong minutes were sent out by accident. July 2012 minutes will be distributed for comments at September 2012 meeting.

3. New business

None

4. Lightning-Induced Ground Potential Rise (GPR) – A. Martin.

Paper published in InCompliance Magazine.

Al Martin – Lightning/potential gradient can cause damage through grounding.

Al Martin – with grounds 30 feet apart, you can develop around 30,000 V potential. NTT study found several thousand volts.

Al Martin – What are the characteristics of GPR? Al reviewed graphs and distribution diagrams from his paper. Types of lightning include positive surge and negative surge.

Al Martin – What can you use these plots for? To show whether your protection is adequate or not.

Joe Randolph – Referenced Al Martin's paper in upcoming paper at the IEEE Symposium on Product Compliance Engineering. What does the voltage gradient look like with respect to distance?

Al Martin – Voltage gradient follows $1/r$ fall off from the source.

Al Martin- 100 ft for lightning strike, with lightning rods 30 ft apart, you can develop high potentials. In vicinity of strike, everything is non-linear due to soil breakdown.

Al Martin – layering of the soil. If you are going to design protection, a ballpark assumption of 10kV covers most applications. If you are within 100 ft of a lightning strike, you will probably have problems.

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Cow Conductivity: Joe Randolph – lower potential in cows for lightning current to go through cow than to go through ground.

Joe Randolph – 300 ft is typical zone for current entering ground.

Don Gies – Si the current drop off like an e-field strength relationship? Al – from resistivity.

Don - Does the resistivity vary greatly enough for lightning to know the difference? Al – yes.

Al Martin – reiterated $1/r$ dropoff, not $1/r^2$

Don Gies – So, with protectors, we usually expect the surge to be induced on the telecom lines. What we are saying is that potential is induced on the ground with respect to the conductors. Al, Joe – Correct, “like coming in through the back door.”

5. Battery explosions – Don Gies

Don discussed recent battery cabinet explosion in North American cellular service provider network, and power cabinet with sealed, air-conditioned lead acid battery compartment.

Next meeting: Wednesday, 26 September 2012

Respectfully submitted,

Don Gies
Vice Chairman

Participant	Employer	Telephone	E-mail	IEEE Member?	PSES Member?	LinkedIn Subgroup	Other Committee
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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)

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Jeff Whitmire (Manager, Regulatory Compliance at Adtran)

Telecommunications Technical Activities Committee Roster