

IEEE Product Safety Engineering Society

Minutes of the IEEE PSES TSTC teleconference held Wednesday, February 25 at 11:00 AM EST, for one hour 45 minutes.

1. Attendance/Introductions

Members present: Don Gies (Alcatel-Lucent), Al Martin (retired), Paul Ng (GE Energy), Joe Randolph (Randolph Telecom), Dan Roman (Colgate Palmolive), Svetlana Ulemek (Burndy), Anne Venetta-Richard (Alcatel-Lucent), Jim Wiese (Adtran).

Members absent: Tim Ardley (Adtran), Philip Havens (Littelfuse), Peter Lim (Alpha Technology), Mick Maytum (MJMaytum), Doug Parker (Adtran), Gary Schrempp (Dell), Tom Smith (TJS Technical Services Inc), Peter Tarver (Enphase Energy), Steve Zugay (Cree).

2. Meeting arrangements

Don Gies supplied the call-in number:
Bridge No. (Toll Free): 1-800-771-8734
International Access: +1-647-723-3953
Access Code: 5825978

3. Previous meeting minutes (attached)

4. New business?

ISPCE 2015 Papers (meeting in Chicago)

Don going, delivering 2 papers: New requirements for venting battery cabinets; and with Dheena Moongilan, the use of corona testing for product safety.

Don: Dheena thought that hipot testing was destructive, so proposed the coronal test as an alternative. For coronal testing we set up a test: We used microphones to detect sound. We applied voltage and increased it until heard discharge (end of test). Could this be useful as an alternative safety test? Maybe for high voltage products.

Joe: Rich Nute did a presentation on hipot testing - should check this before disussing hipot tests (especially if he's in the audience)

Dan is also presenting: Introduction to the household appliance standard.

Joe won't be there (nothing to present).

5. Draft IEC standards

a. IEC 60950-22 CDV – Batteries, DC surge voltage of 1.5 kV

Don: Vendors claiming compliance to the -22 std, but listed battery cabinets are blowing up. Telecom issues get no visibility at standards committee meetings. Our contribution is now at CDV. Got call wondering what's up with this. Telcordia has a test for battery cabinets, involving pumping hydrogen into the enclosure. This test procedure would have to be adopted by IEC, and that could be difficult. Only Telcordia does this test. In the CDV there was a proposal for a test on DC lines of 1500 V. Possibly these circuits could be treated as having a separate DC power supply.

Jim: The surge voltage test on DC lines was eliminated from GR 1089. Many vendors fought this. Chris Chrisanthou insisted on it, but it was accepted only for installations with floating battery (which is not supposed to be done). So why would IEC add that test?

Don: There is an assumption of a 1.5 kV voltage on mains.

Jim: The standard says to state the assumed voltage – it could be zero

Don: Don't want manufacturer to declare voltage – want a defined value

Jim: Isn't IEC value 500 V?

b. New RFT standard – IEC 62368-3.

Don: I didn't find any contradictions between IEC 62368 and the ATIS documents

Jim: If you have an environment in which you control all aspects of the installation, you could meet all requirements. But network guys don't have control of the environment – they have a hodge-podge of equipment. The -21 document requires the equipment to do things it can't do.

Jim: The -21 standard says that only RFTV listed equipment can be connected to an RFTV network.

Don: There is no expectation that equipment installers will have read the standard.

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Jim: The TNV network has been controlled by Telcordia standards. There's only a problem if try to use -21. The ATIS standard says that all equipment must be listed, but it won't meet -21.

Joe: We have a mess with -21. Can we fix it, or are we stuck?

Don: The IEC mess was put into IEC 62368. The secretariat for IEC 62368 is UL. Most of the UL guys aren't telecom, so chances of getting it fixed are slim. An Australian guy asked why the higher current levels. UL hasn't supplied rationale.

Joe: ATIS is sending letters to IEC asking for the -21 and the -3 problems to be fixed; also one for definitions.

Don: Question was raised about whether you needed a signal on RFT circuit. You don't.

Joe: I'm bothered that a standard was written that doesn't match the network. Assuming that -21 standard will be adopted, will a D3 deviation go forward?

Jim: Philip Havens agreed to fix K.50, which is where -21 came from.

Don: If ITU adopts something it can be passed to the IEC.

Jim: ATIS needs an address for the person to whom the ATIS letters should be sent.

Don: As far as I know I'm the only one who has gone through the documents. I couldn't find any conflicts.

Paul: A note could be put in the standard about North American practices

Jim: RFTV circuit must comply with the whole standard, not just -21

Paul: If I'm in a country that has no legacy network, would there be a problem?

Jim: If you control the whole network, you could meet the standard. But you probably couldn't find equipment manufacturers that make equipment that meets -21. -21 says that you must use the voltage rating of any network component. Cable is rated for 300 V, but 400 V is possible conductor-to-conductor. 80% of equipment being deployed now is 200 V to ground, 400 V conductor-to-conductor. Wiring is rated for 300 V, but in fact it can withstand much more. But the standard says that network cable has to be rated for the network voltage.

Joe: I thought that the issue went way back.

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Jim: No. Traditionally a network could have 200 V to ground if current was limited to 10 mA. Old T1 was +/- 130 V. Then HDSL equipment came out which used only negative voltage, to prevent corrosion. Telcordia said that if a GFI was installed that limited current to 10 mA, then no problem. In early 2000, some companies wanted to use +/- 200 V. Now there is a lot of this equipment.

Don: Can we agree that we have no issue with load equipment (i.e equipment that will take in power)?

Jim: RFTV can only be connected to RFTV.

Don: If I need to put a new source on legacy equipment, the power supply must meet requirements of network.

Jim: For equipment rating, up to the year 2000 UL1459 could be used. Equipment complying with UL1459 had no problem for listing. UL60950 states that only TNV1, TNV2, and TNV3 circuits are allowed. Span powered equipment couldn't meet UL60950-1, so a desk standard (UL2391) was created to be used in conjunction with UL60950-1 to list span powered equipment. So now everyone uses this combination.

Joe: If I look for information in applicable standards, do desk standards come up?

Jim: OSHA says that listed equipment is allowed, but the listing must say which standards apply. UL doesn't list to a standard, they list to a category. The category designation says what documents apply. Randy Ivans created category using the standards UL60950-1 (as appropriate) and UL2391. Other NRTLs can't list to a category. They have to list to a standard, which gave UL an unfair advantage.

Don: UL said that North American experts wouldn't support national differences being moved to the base document.

Jim: GR1089 is incompatible with the National Electric Code, but it has an exemption from the Code.

Don: The -3 standard will look much like it does now. If the ITU sends its fix to the IEC, then maybe it will be incorporated into the base doc. We don't want listed equipment that wouldn't meet all applicable standards.

Jim: Networks may not allow equipment on the network that isn't compatible with legacy ratings. Networks worry about people who use leased lines connecting equipment that isn't compatible with legacy ratings.

Jim: The networks are using existing copper pairs to supply power to fiber optic systems. It's possible to power 15 kW cabinets this way.

Jim: Equipment now is being deployed based on GR1089, UL60950-1 and UL2391. If UL2391 goes away, there's a big problem.

Don: There is equipment listed to -21 requirements

Jim: This equipment comes nowhere near meeting -21 requirements. I don't know how it managed to get listed.

Joe: Can UL PAGS be used?

Jim: UL PAGS can be used at the discretion of the NRTLs. So all NRTLs can now list to UL2391 + UL60950-1.

Jim: An ILEC can't impose requirements on CLEC that is any more stringent than they apply to themselves.

Joe: When UL2391 was done, did it comprehend +/- 190 V?

Jim: No, only -190 V. But now everyone deploys +/- 190 V. The ATIS standard now allows +/- 190 V.

Don: What happens if a legacy network is not compatible with the latest stuff?

Jim: If arcing occurs on a pair when +/- 190 V is applied, then an installer just moves to another pair. More and more deployment is from remote huts. No pulp insulated cable is going into these, so arcing is not a problem.

Jim: There is no way to get cable rated for +/- 190 V, even if it will withstand several thousand volts. Listing is possible for Class A1 or A3 equipment.

Don: I was asked to join the WG for the RFT standard. There AC coax power is considered to be safe.

c. IEC 62949/Ed1

6. Protection of DC feeds to radio equipment at the top of towers – Al Martin

This is an issue that has a lot of interest with outdoor wireless installations.

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- a. What protection is typically installed on equipment that will be located at the top of towers, and is any consideration given to the height of the tower?
- b. What lightning waveshape is considered when designing protection for equipment to be located at tower tops?
- c. Is there any information about the failure of installed protection to protect equipment located at tower tops?

7. Additional agenda items

8. Old Business

Next meeting – Proposed **Wednesday, 22 April 2015**. (no meeting in March because the normal time conflicts with PEG)

Respectfully submitted

Al martin, Secretary