

2007 IEEE I&CPS Annual Meeting

Power Systems Engineering Committee

1668 Working Group “Recommended Practice for Voltage Sag and Interruption Ride-Through Testing for End Use Electrical Equipment Less than 1,000 Volts”

Chair
Doug Dorr

Secretary
Mark Stephens

Meeting Agenda

William Tomison Room
Sutton Place Hotel
Edmonton, Alberta, Canada
Monday May 7th, 2007
5:00 pm – 6:00 pm

Attendees:

Name	Affiliation	E-mail
Doug Dorr	EPRI	d.dorr@ieee.org
Mark Stephens	EPRI	mstephens@epri.com
Scott Anderson	SRP (via phone)	swanders@srpnet.com
Mike Hittel	GM Word Wide Facilities	Mike.hittel@ieee.org

1.0 Call to Order

2.0 Introduction of Members and Guests

3.0 Approval of previous meeting minutes

The meeting minutes were reviewed along with discussions related to the points in raised in the meeting minutes. The previous meeting minutes were approved.

4.0 Objectives and Par Review

Reviewed objectives for test protocol similar to SEMI F47. The working groups task is to look at the proposed outline to see if we have everything covered to see if we have everything covered.

Mike asked if SEMI F47 or other standards have made a difference in coordination on the utility side. Scott said that this normally not the case since reliability is the major driver.

5.0 Outline Development

Scott Anderson reviewed a straw man outline for IEEE P1668.

1. Purpose and Scope (Slide 2)

- The purpose and scope should be very clear and concise explicitly stating the primary goals of the standard
 - Is there a need for both a purpose and scope?
 - F47/42 have both, IEC has just a scope
- What are the most important items to include here?
 - IEEE 1668 is not an industry specific standard
 - Test method is part of the standard
 - Test levels are representative of real world sags, including three phase sags
 - Description of equipment covered

Doug noted that the descriptive test from the PAR must be included in the standard. We will need this information in the descriptive introduction.

2. Limitations (Slide 3)

< Doug: This will be part of the descriptive intro >

- Is there a need for a separate section of what the standard will not cover?
 - SEMI documents cover this well, IEC does not
- What PQ events are not covered by this standard?
- Not a safety standard

3. References (Slide 4)

- What standards should be referenced?
 - IEEE 1100: IEEE recommended Practice for Powering and Grounding Sensitive Electronic Equipment (IEEE Emerald Book)
 - Others?
 - Safety standards?
 - IEC 61000-4-34?
 - SEMI F47-0706

4. Definitions (Slide 4)

- Should some definitions be included regardless of reference?
 - Use IEEE 1100 for voltage sag (IEC uses “Voltage Dip”)

- What else?
 - Interruption? Calibration? Malfunction? Immunity? Failure?

5. Slides 5 and 6: Electrical Environment

- Should a separate section be included describing the electrical environment?
- At user level, transmission level or both?
 - EPRI DPQII? Do we need new data?
 - How much detail should be included in explaining the environment?
 - What % of sags are single, phase-phase, three phase?
 - Phasor diagram examples
 - Average time voltage takes to decrease to sag level
 - Average time at reduced voltage
 - Average time voltage takes to return to normal
 - Unusual sags (Slow voltage recovery)
- Should users be encouraged to obtain data from their own geographical area?
- Voltage sags only?
 - What about.....Momentary interruptions? Impulsive transients (cap bank switching)? Overvoltage? Swells?
- United States Only (for the electrical environment)?
 - <Doug noted that for starters North American PQ data should be considered since it is an IEEE standard.>

<Mike noted that knowing what happened at the load side or on the utility system is important. This section should contain a per unit transformation between utility and end use sections. >

<Doug noted that the answers to all questions here would probably be “Yes” and this is a good section for a reference paper. An action item was added to develop this paper>.

6. Slide 7: Test Levels

- Curve or test points?
- < A discussion of the test point or curve representation>
- One level or multiple test levels?
- Should there be a user defined level?
- < Should we have a characterization methodology as well?>
- Single phase, phase-phase, three phase?
- 50 and 60 Hz? Cycles and/or Hz?
- What process should be used in determining the different test levels?
 - The test levels should be representative of the electrical environment but to what degree?
- Should the testing go beyond voltage sags?

- Momentary interruptions? Impulsive transients?

<The group agreed that characterization should be included rather than just test points.>

< The group agreed that this effort should be focused on sags only at this time.>

< Doug recommended that we include three phase sags in the test protocol as well. He noted experience with equipment testing >.

7. Slide 8: Test Procedure

- Test procedure must test to the levels stated in the “Test Levels” section, including three phase tests.
- Should examples of acceptable test methods be shown?
- Should these test methods be dependent on the type of equipment under test? For example, should only specific test methods be allowed for three phase equipment.
- Should safety considerations be addressed here?
- Should test setup requirements be included here or in a separate section?
- Review SEMI F42 section 9/10 for inclusion

<Scott noted that it will be worthwhile to list different EUTs and the preferred test methodology.>

8. Slide 9: Testing Equipment Requirements

- Sag testing equipment must be able to generate sags representative of the IEEE 1668 test levels/curve
- Should different test equipment be allowed based on the type of equipment under test?
- What are the equipment requirements? How specific does the standard need to be?
- Review SEMI F42 section 6 and IEC 61000-4-34 for inclusion

<Doug – Its important to note that this is where the IEEE patent slides come into play. If there is anything in the document rating to patents pendings or patents, these have to be researched or closed before we develop this chapter>.

9. Slide 10: Test Reports and Certification

- Review SEMI F42 section 12, SEMI F47-0706 sections 7.9/10 and IEC 61000-4-34 section 10 for inclusion
- Should there be a separate section for evaluating test results

<Mark – we need to address development of the test plan as well.>

6.0 Review of Existing Standards

Mark quickly reviewed issues related to test methods versus equipment performance.

7.0 Action Items

Item	Description	Responsibility
1	Develop and abstract on the electrical environment for paper for reference. This may need to include AOV to the paper as well. PES may have some AOV papers published that could be referenced.	Scott Anderson <Others to be assigned>
2	Working group needs to review the straw man outline and including F42 sections 9 and 10 related to safety.	All working group members
3	Review test equipment patents to make sure that we are not driving anyone toward specific test hardware.	Mark Stephens
4	The next meeting will be held on June 7 th , 2007. Schedule a web meeting.	Mark Stephens
5	Elevate this effort to the main committee to the main committee and get information out to the PCIC (Petro-Chemical Industrial Conference).	Doug Dorr
6	Next face to face meeting end of September in New Orleans.	

8.0 Adjourn