

10.2 Distribution Transformer Subcommittee Report

J. Edward Smith - Chairman

(edsmith@h-jenterprises.com)

The Distribution Transformer Subcommittee has a total of 14 Active Working Groups, 9 of those working Groups meet in Jackson.

Subcommittee Meeting Wednesday March 16, 2005 at 3:00pm

33 Members

12 Guests

1 Guest Requesting Membership

45 TOTAL

10.2.1 Chair's Remarks & Announcements:

Review of Administrative Committee meeting highlights

- Future Meetings
- New Members
- Transformer Standards Activity
- A request for patent disclosure concerns was made with none being indicated.
- The Unapproved Las Vegas minutes were approved with no corrections.

Special Working Group Activity

Those Working Groups that met in Jackson along with the minutes of each are as follows. . .

Six of these standards are currently in the balloting process or just completed the balloting process with two others to be balloted in the near future

10.2.2 Working Group Reports

10.2.2.1 C57.12.20 Overhead Distribution Transformers

(Alan Wilks & Tommy Cooper Co Chairs

(awilks@ermco-eci.com & Tommy.cooper@faypwc.com)

PAR Status: Current

PAR Expiration Date: 12/31/ 2005

Current Standard Date: 1999

Current Draft Being Worked On: 10d Dated 03/05

Meeting Time: 09:30am, Monday, March 14, 2005

Attendance: 34 Total

19 Members

15 Guests

0 Request for membership

Issues, Remarks & Announcements:

Alan Wilks called the WG C57.12.20 meeting to order at 9:30am, introductions were made and rosters were circulated. The minutes of the fall 04 meeting in Las Vegas were reviewed and approved. Alan then reminded everyone of the IEEE policy on patents and none were reported.

Old Business: The update on the Dielectric Test paragraph for single bushing transformers with the high voltage terminal permanently grounded has been permanently moved to the Sub Committee for Dielectric

Tests. The re-circulation ballot status: 95% return with 3 negatives reduced to 2 negatives. Editorial changes made, and one dissenter present objected to the definitions 3.1 and 3.2 saying that these needed to be in the section pertaining to cover retention tests, not in the general definitions. Alan told him that the definitions were in the section and IEEE made him move them. He informed the dissenter that his concerns would be addressed in the next revision. Alan then went over the comments from the SCC14 committee and everyone agreed that some of the comments would have to be answered by the C57.12 Committee.

New Business: Alan plans to submit draft 10d to RevCom for their next meeting before our fall meeting. On the PRD issue, the WG agreed for Tommy to survey the four manufacturers to see if they could meet -40° to +120°C. Ali's motion to try for -20°C to +120°C was defeated. Jerry Corkran wanted to survey users on the use of a ground strap on the secondary side of 277 volt transformers, Tommy will send out a survey as soon as Jerry gets him the info. The meeting was adjourned at 10:40 am.

10.2.2.3 C57.12.XX Single-Phase Padmounted Distribution Transformers Combined C57.12.25 & C57.12.21

Ali Ghafourian & Ignacio Ares Co Chairs

(aghafourian@ermco-eci.com & Ignacio_ares@fpl.com)

PAR Status: Approved 12/08/1998 (For combining Standards C57.12.25 & C57.12.21)

PAR expiration Date: TBD

Current Standard Date: 1995

Current Draft Being Worked on: #05-2, Dated: March 2005

Meeting Time: 11:00am, Monday, March 14, 2005

Attendance: 32 Total

17 Members

14 Guests

1 Request for membership

Issues, Remarks & Announcements:

The WG met and discuss and approved the minutes of the Las Vegas meeting.

Six Handouts were given:

- 1) Meeting Agenda
- 2) Minutes of Las Vegas meeting
- 3) Drafts dated March 2005 to be renamed 05-2
- 4) Proposal from Tommy Holifield for table 1
- 5) System Voltage proposal from Tom Holifield for table 2
- 6) Transformer Voltage proposal from Tom Holifield for table 2

The WG chains also discussed the recent request by IEEE for identification of any patents related to WG work. None were identified by the group.

The WG discussion centered around the various proposals for tables 1 & 2. Working Group Chairs will incorporate the comments into the next draft.

The WG is working toward a WG ballot after the next meeting.

The meeting adjourned at 12:15 P.M.

C57.12.28, C57.12.29, C57.12.31 & C57.12.32 Represent Cabinet integrity Standards and are handled under one basic working group.

10.2.2.4 C57.12.28 Pad-Mounted Equipment Enclosure Integrity

Bob Olen & Dan Mulkey Co Chairs

(bolen@cooperpower.com & dhm3@pge.com)

PAR Status: Approved

PAR expiration Date: May 09, 2007

Current Standard Date: ANSI/NEMA 1999

Current Draft Being Worked on: D 2.0 Dated: December 2004

Meeting Time: March 15, 2005 Time: 8:00 AM

Attendance: 50 Total

24 Members

26 Guests

4 Guest Requesting Memberships

Issues, Remarks & Announcements:

The re-circulation ballot was successfully completed on 1/27/2005 with 68 affirmatives, 0 negatives and 1 abstention (the 1 negative ballot received on the original ballot was withdrawn).

All required documents have been sent to REVCOM to pursue final publication.

10.2.2.5 C57.12.29 Pad-Mounted Equipment Enclosure Integrity for Coastal Environments

Bob Olen & Dan Mulkey Co Chairs

(bolen@cooperpower.com & dhm3@pge.com)

PAR Status: Approved by NES Com May 23, 2002

PAR expiration Date: May 09, 2007

Current Standard Date: ANSI/NEMA 1999

Current Draft Being Worked on: 1.5 Dated: December 2004

Meeting Time: March 15, 2005 Time: 8:00 AM

Attendance: 50 Total

24 Members

26 Guests

4 Guest Requesting Memberships

Issues, Remarks & Announcements:

The re-circulation ballot was successfully completed on 1/27/2005 with 59 affirmatives, 0 negatives and 1 abstention.

All required documents have been sent to REVCOM to pursue final publication.

10.2.2.6 C57.12.31 Pole Mounted Equipment Enclosure Integrity

Bob Olen & Dan Mulkey Co Chairs

(bolen@cooperpower.com & dhm3@pge.com)

PAR Status: Approved by NESCOM N/A

PAR expiration Date: N/A

Current Standard Date: 2002 Published March 7, 2003

Current Draft Being Worked on: Dated :

Meeting Times: ***DID NOT MEET***

10.2.2.7 C57.12.32 Submersible Equipment Enclosure Integrity

Bob Olen & Dan Mulkey Co Chairs
(bolen@cooperpower.com & dhm3@pge.com)
PAR Status: Approved by NESCOM N/A
PAR expiration Date: N/A
Current Standard Date: 2002 Published March 7, 2003
Current Draft Being Worked on: Dated :
Meeting Times: ***DID NOT MEET***

10.2.2.8 C57.12.33 Guide For Distribution Transformer Loss Evaluation

Don Duckett & Tom Pekarek Co Chairs
(don.duckett@fpc.com & tipekarek@firstenergycorp.com)
PAR Status: PAR extension renewed for two years
PAR expiration Date: December 2004
Current Standard Date: October 2001
Current Draft Being Worked On: #9 Dated April 2003
Meeting Date: ***DID NOT MEET***

WORK ON THIS STANDARD HAS NOW BEEN REACTIVATED

10.2.2.9 C57.12.34 Three-Phase Padmounted Distribution Transformers

Ron Stahara & Steve Shull Co Chairs
(rjstahara@msn.com & sshull@empiredistrict.com)
PAR Status:
PAR expiration Date:
Current Standard Date: March 8, 2005
Current Draft Being Worked On: N/A See Below
Meeting Time: March 14, 2005 Time: 1:45 PM
Attendance: 43 Total
23 Members
11 Guests
9 Guest Requesting Memberships

Issues, Remarks & Announcements

The C57.12.34 standard has been published and a new PAR is in the process for the next revision of this standard. The scope of the next revision has been changed to increase the kVA size from 2500 to 5000 and the low voltage to include 15 kV class equipment.

Ron Stahara called the meeting to order, introductions were made, and an attendance roster was circulated. The minutes were reviewed and Gerry Paiva's name spelling was corrected. The minutes were then approved as corrected. Ron reviewed the IEEE Patent Policy and asked the group if there were any patents that needed to be disclosed. None were announced to the group. Ron announced to the group that the C57.12.34 was published on March 8, 2005 with the printed version available on March 29, 2005.

The wording on the new PAR was reviewed and discussed. There were no changes suggested.

A questionnaire concerning the high/low voltage barrier on deadfront units and the impedance levels was circulated among the user group of the Transformer Committee. The result of this questionnaire was discussed. Gerry Paiva voiced opposition to the removing the high/low

voltage barrier due to construction considerations. He explained that if this barrier were removed there would not be a demarcation point between the sections thus decreasing the safety to operating personnel as well as removing the fastener provisions which prevents access to the high voltage area. After some discussion, Ron asked everyone to study this further and be prepared to vote on the item at the next meeting. The impedance issue was also discussed with the same conclusion in that everyone would research this subject and be prepared to vote on it at the next meeting.

Ali Ghafourian suggested that as we develop the new standard we consider using the livefront / deadfront terminology that is defined in the new C57.12.80 document. Ron said that we would obtain a copy of this to review the applicable items for this standard.

10.2.2.10 C57.12.35 Bar Coding For Distribution Transformers

Lee Matthews & Giuseppe Termine Co Chairs

(lmattews@howard-ind.com & Giuseseppe.termine@peco-energy.com)

PAR Status: New for Revision

PAR expiration Date: December 31, 2009

Current Standard Date: 1996 (R2004)

Current Draft Being Worked On: NEW

Meeting Time: March 15, 2005 Time: 3:15 PM

Attendance: 25 Total

12 Members

13 Guests

5 Guest Requesting Memberships

Issues, Remarks & Announcements:

Request for Patient issues was requested. None were stated

PAR for revision was granted March 4, 2005 and expires December 31, 2009

Remainder of the meeting was review and comments of draft 1

Meeting adjourned at 3:55pm

10.2.2.11 C57.12.36 Distribution Substation Transformers

John Rossetti & David Aho - Co Chairs

(jrossetti@mlgw.org & daho@cooperpower.com)

PAR Status: PAR Approved June 2002

PAR expiration Date: December 2006

Current Standard Date: NEW Standard Under Development

Current Draft Being Worked On: #08

Meeting Date: march 15, 2005 Time: 11:00AM

Attendance: 38 Total

17 Members

18 Guests

2 Guest Requesting Membership

Issues, Remarks & Announcements:

Main Meeting Summary:

The unapproved minutes from the F04 Las Vegas meeting were approved with one correction to reflect the correct PAR expiration date of 12/2006. The patent policy was discussed and no issues were identified.

The focus of the meeting was to review the key pieces of feedback received from the IEEE editorial board and the working group members. The editorial feedback focused on adhering to the IEEE 2005 Style Manual. Their suggestions will require some minor restructuring of the document, correcting document references, proper draft labeling, add copyright statements, and reorganization of clauses. Most of these changes have already been completed.

Key pieces of the working group feedback focused on a variety of functional issues. Clarifications were made to terminology and for specific sections that are meant to provide more guidance versus specific standard requirements. Besides the specific agenda topics, working group feedback in a few additional areas of the document were discussed.

For the most part, all issues were addressed in a manner that should allow this revised draft to be balloted.

Specifics covered during the meeting were as follows:

The first comment was in regards to specifically identifying **tap voltage levels**. John Rossetti referenced, and passed around, some historical information from a Westinghouse reference regarding tap voltage level selection. It was agreed to keep the increments and percentages as currently stated. There was also some debate over the use of taps, compensate versus regulate, and the impact this could have on core over-excitation if the transformer is not properly designed. Input was requested to suggest any change in wording.

One comment regarding **routine tests**, and whether there should be a reference to either distribution or power levels was addressed. The WG felt the routine test requirements should be clarified in C57.12.00 and dealt with in another working group. It was concluded that these transformers should be tested as a distribution unit although a user may specify something else if desired.

Creating a **definition for a Distribution Substation transformer**, beyond what's currently in the scope, stirred up some lively conversation. Reference was made to the definitions in C57.12.80 for Distribution and Power transformers. The definition proposed in the draft was modified and simplified. John Rossetti will work to get a definition added to C57.12.80 for this particular application. This discussion led into an issue of product and application exclusions, specifically GSU's, since the standard references both step-up and step-down applications. A question was raised if all GSU applications (i.e.: small diesel gen sets) should be part included in the list of excluded transformers identified in the scope. At this point, GSU applications will not be added to the list of exclusions.

A suggestion was made to keep the **impedance values** (table 4.5) in sync with those stated in C57.12.10. Some members didn't like the impedance range defined for kVA ratings less than 750 kVA, although this is consistent with what's listed in the new 3PH Padmount standard, C57.12.34.

Bushing and cable support requirements (clause 5.2.2) were modified to make it clear that the user is responsible for defining their requirements.

The section for **junction boxes** (clause 5.3.1) was modified to change terminology and clarify the various options. Reference to a cabinet will be changed to “Air Terminal Chamber” which is more of an industry standard doesn’t carry any implicit security or environmental ratings.

Lifting, Moving, and Jacking Facilities (clause 5.5) were discussed. A suggestion was made to try and keep requirements in sync with C57.12.10. At this point the existing wording will not be modified. A suggestion was made to define the free clearance variables for F, G, and H in figure 5.4, but the WG felt there wasn’t a need to change the figure or define these values. Also the beveled edge shown in the figure is not a requirement for these size transformers due to the typical base construction and user expectations. The hold down provisions defined under tank construction (clause 5.10.4) was reviewed to make sure requirements and guidelines are clear.

Tank pressure withstand & manhole size requirements (clause 5.10). After a good debate, the general feeling was not to modify the withstand requirements. There didn’t appear to be any conflict with the inert gas system requirements (clause 5.9.2) although the wording will be modified to clarify requirements and pressure levels. The minimum manhole size was challenged but it was felt that this shouldn’t be increased due to limited available cover space on smaller units.

Surge arresters, mounting, and grounding requirements (clause 5.14) were revised to clarify that the user must define their specific requirements.

Lastly the **Loading** (clause 5.16) was reviewed due to a comment made that the wording was too vague, but currently there aren’t any suggestions for a rewrite.

There were a number of other editorial issues addressed throughout the meeting. Thanks to everyone for reviewing the draft, providing constructive feedback, and contributing to active meeting participation. The meeting adjourned at 12:18pm.

10.2.2.12 C57.15-200XStep-Voltage Regulators

(Craig Colopy & Gael Kennedy Co Chairs

(ccolopy@cooperpower.com & grkennedy@nppd.com)

PAR Status: Active

PAR Expiration Date: April 2004

Current Standard Date: C57.15 – 1999 – Published April 2000

Current Draft Being Worked On: Draft 4 Dated: October 2004

Meeting Date: March 15, 2005 Time: 13:45

Attendance: 23 Total

17 Members

5 Guests

1 Guest Requesting Membership

Issues, Remarks & Announcements:

- Introduction of all Present
- Routing of Attendance Sheets
- Minutes of the Last Meeting 10/26/04 **Approved** (moved, 2nd by Ron Staraha)

- Question on any Patent conflict or infringements given to group – No responses
- Letter on extension of PC57.15 to Dec 2006 displayed
- Comments on comparing to items in 12.90

Comments on Draft 4.0 as received

List middle initials to names of committee members for consistence

Change ground symbol on fig 1 & 2, 3.54 and 3.55

Temperature rise dependent upon insulation - Table 2

Definition comment – use of the ‘usually’ on ratings, revised wordage in 3.54 and 3.54

Clarify the kVA and Amps limitations on 7.2(a) and 7.2(b)

Editorial – comments include text size: use of may, must, and shall: 8.9.4 formula 29 check characters needed Mass kg vs. lb:

Table 19 and discussion - awareness on angle differences and possibility of confusion was discussed. Need input from the group.

There was a concern with title of Document and the PAR Scope and Purpose, What it says concerning the purpose and scope on the PAR versus the Document? Don’t match – a revision to the PAR is being requested.

Comment on Dual Logo Standard – IEEE and IEC, referencing the IEC Application Guide for Regulators within a Standard.

The corrected Draft, which will now be 5, will be sent out to all members of the committee for a 45 day comment period. Please return all comments to Craig as soon as possible.

Motion from Lee Mathews to adjourn, 2nd, Tom Basset and passed.

10.2.2.13 C57.12.37 Electronic Reporting of Test Data (formerly P1388)

Richard Hollingsworth & Thomas Callsen Co Chairs

(rhollin@howard-ind.com & Thomas.Callsen@ExelonCorp.com)

PAR Status: Submitted for editorial review and balloting

PAR Expiration Date: December 2005

Current Standard Date: Published under IEEE Std. 1388-2000

Current Draft Being Worked On:

Meeting Date: March 15, 2005

Time: 9:30am

Issues, Remarks & Announcements:

Ballot Results:

78 eligible people in the ballot group

57 affirmative votes

2 negative votes with comments

0 negative vote without comments

2 abstention votes

=====

61 votes received - 78% returned

3% abstention

The 75% affirmation requirement is being met.

57 affirmation votes
2 negative votes with comments

=====

59 votes - 96% affirmative

Editorial had 1 comment – agreed and corrected

SCC14 had 3 comments –

agreed with 1 and it has been corrected

2 comments had to do with industry definitions. I provided SCC14 with documents showing the approved definition. SCC14 rejected the explanation. I sent to subcommittee chairmen and IEEE liaison.

Dave Ringle reviewed and sent document to RevCom.

Minutes:

- Membership introduction with rosters passed around.
- Review of IEEE Patent Policy – No Patents reported
- Review of the PAR Status. Comments and discussion made concerning the SCC14 negatives on definitions.
- Comparison of C57.12.37 Data Set and the requirements of C57.15-1999 (Step Voltage Regulators) paragraph 8.9.5 (Certified Test Data).
- After discussion on the reorganization of the document, to determine how to handle the various different data fields, a vote favored the use of “Normative” Annexes.
- Discussion was held on including Dry Type - Distribution Transformers and Power Transformers. The suggestion was made and agreed upon to not include Power Transformers at this time. A subsequent suggestion was made to include the Dry Type, but not under the next PAR.
- In Summation: After the existing PAR is complete, a new PAR will be requested that will include Step Voltage Regulators.
- We request a time slot for the Fall 2005 meeting in Memphis Tennessee.
- Having no further business, the meeting was adjourned.

10.2.2.13 C57.144 Guide to Metric Conversion of Transformer Standards

Tim Olson Chair

tolson@hydro.mb.ca

PAR Status: Active

PAR Expiration Date: April 2006

Current Standard Date: New Document

Current Draft Being Worked On: D5 Dated: March 10, 2004

Meeting Date: Time:

Meeting Times: ***DID NOT MEET***

10.2.3 Subcommittee Old Business:

None reported

10.2.4 Subcommittee New Business:

None reported