Standards Subcommittee – Unapproved Minutes

April 15, 2015

San Antonio, TX

Chair: William Bartley  
Vice Chair: Kipp Yule  
Secretary: Jerry Murphy

The Chair, William Bartley opened the meeting calling a show of members to establish quorum which was not met.

Bill then requested a review of the Agenda; no vote was taken without quorum.

# Meeting Attendance

The Standards Subcommittee met on Wednesday, April 15, 2015, at 4:30 PM. A role call showed 23 of 46 members in attendance falling short of quorum at the beginning of meeting. Quorum was shortly achieved with arrival of additional members. Overall the attendance roll showed there were 82 attendees, 26 members, 56 guests, including 9 that requested membership upon tabulation of the circulated rosters with 2 being accepted by the chair.

# Approval of previous meeting minutes

The Chair asked if there were any comments or corrections to the previous meeting minutes of the Spring and Fall 2014 meeting in Savannah, GA and Washington DC respectively. There were no comments to the meeting minutes; a motion was made for approval and seconded then the minutes for both past meetings were approved by unanimous vote.

# Chair’s Remarks

Bill summarized the recent activities of the Transformer Standards activity for the six-month period October 2014 to March 31, 2015. In the last six months, two new Standards and one Revision were approved by Standards Board. In this same period, the Standards Board approved seven PARs for new standards or revisions to standards; five PAR modifications, and four PAR Extensions. The full Standards Report is available on the Transformers Committee website at the following link:

<http://www.transformerscommittee.org/meetings/S2015-SanAntonio/Minutes/S15-StandardsReport.pdf>

Bill shared the following reminders with the subcommittee from the Administrative Subcommittee.

1. Agendas must be approved and recorded in minutes as do the minutes.
2. Standards procedurally must be approved by the SC to proceed to SA ballot. This is not a technical review, but required to make advisement to all SC members.

# Working group reports

## Continuous Revision of C57.12.00

The purpose of this WG is to compile all the work being done in various TF/WG/SC’s for inclusion in the continuous revision of C57.12.00 in a consistent manner. This WG coordinates efforts with the companion Standard C57.12.90 so that they publish together.

Standard C57.12.00 was last published September 2010. A new PAR was requested in April 2011 and approved June 16, 2011 to cover the ongoing work for the continuous revisions. This PAR is good through December 31, 2015.

Here are key points of the ballot:

Ballot Opened 11- 7- 2014

Ballot Closed 12-30-2014

Number in the Ballot Pool 243

Affirmative Votes 201

Negative Votes with Comment 16

Negative Votes without Comment 1

Abstentions 6

Total Votes Received 224

Total Comments 163

Return Rate 92%

Affirmative Rate 92%

The Ballot Resolution Committee and myself are working through the comments. I estimate about 2/3 of the comments have been dealt with at this point. The target for recirculation # 1 is early June, which is open only for a 10 day period.

Respectfully submitted by Steven L. Snyder, WG Chair, on April 15, 2015

## Continuous Revision of C57.12.90-2006

The purpose of this WG is to compile all the work being done in various TF/WG/SC’s for inclusion in the continuous revision of C57.12.00 in a consistent manner. This is a working group by committee. There are no meetings held. This WG coordinates efforts with the companion Standard C57.12.90 so that they publish together.

**Summary**

The new PAR was approved on June 15, 2011. It is valid until Dec 31, 2015.

**Status**

The document was closed for new additions immediately after the Spring 2014 meeting in Savannah. The final draft was completed in July and submitted to IEEE-SA in August for Mandatory Editorial Coordination (MEC). The ballot pool was formed in early Oct 2014. The participant mix is 25% consultants, 30% producers, 24% users, & various others. The ballot was launched in early November, at the same time as PC57.12.00. The due date was extended twice, to allow for stragglers to get in their vote. The final end date was Dec 31, 2014. Here are some statistics:

240 balloters

91% response rate

90% approval rate

20 negatives (with 286 total comments)

2 negatives (without comment)

8 abstentions (1 with comments)

160 of 286 comments were editorial and I quickly took care of them myself. The remaining 126 comments are mostly technical and/or needed review by each WG/TF subject area.

Attached are two files of comments, divided into editorial and non-editorial. Also attached is the balloted version with proposed changes in red due to the ballot resolution. Here is a brief summary of the open issues:

• Changing all “oil” to “insulating liquid”. Is this the right thing to do?

• Some embedded figures and equations need changed, but don’t have the source files.

• Sound testing at 50 Hertz. Is this allowed or not?

• All comments for Mark Perkins WG need addressed.

• Hot resistance measurements, particularly for distribution transformers.

• Changes to impulse testing (increased waves, tap position, etc).

• Pre-set versus post-set methods of short-circuit testing, and which is preferred.

• Updated references to C57.12.00.

• New proposed items which are to be carried over to WG’s for future consideration.

Respectfully submitted by Stephen Antosz, WG Chair, on April 9, 2019

Steve asked the subcommittee for guidance in changing the term “oil” to “fluid.”

Bruce Forsyth, Jane Verner, Gary Hoffman and Patrick McShane commented with regard to how to resolve the issue.

## Continuous Revision of C57.152 – Jane Verner

Nothing was reported as the working group did not meet.

## C57.163 – Guide for Establishing Power Transformers Capabilities while under Geomagnetic Disturbances – Jane Verner

Call to Order

The meeting was called to order by the Chair at approximately 8:00 am. This was the second face to face meeting, but our 11th WG meeting for this proposed Transformer Guide. We had two web meetings since our Fall 2014 meeting in Washington DC.

Attendance

We began with introductions including affiliations of all. A total of 143 people were present; 38 Members and 105 Guests, of which 25 requested membership. (15 were approved as new Members.) A quorum was established. A complete list of attendees is located at the end of the minutes.

Minutes

The January 26 Meeting Minutes were unanimously approved, (moved by Ramsis Girgis and 2nd by Rogerio Verdolin). The Unapproved Minutes were previously distributed to members & guests, and posted on the Transformers Committee website.

Discussion

Agenda was accepted with no objections. Jane then led a discussion on the Straw Ballot of Draft 2.1. We received more than 300 comments on the straw ballot of the Draft Guide of Establishing Power Transformer Capability while under Geomagnetic Disturbances, Draft 2.1. A significant effort was made to incorporate all the comments and strengthen the document. The ballot resolution committee included balanced industry representatives, Gary Hoffman (APT), Ramsis Girgis (ABB), Kiran Vedante (ABB), Johannes Raith (Siemens), David Bertagnolli (ISO NE), Waldemar Ziomek (CG Power System) Peter Balma (Consultant), Sanjay Patel (SMIT) Bill Bartley (Consultant) and Jane Verner (PEPCO). Draft 2.2 was an interim “working draft”, used by the ballot resolution committee. The finished product was Draft 2.3

Due to the document size, an email distribution of Draft 2.3 was not feasible. Instead, Draft 2.3 was posted on the Transformer Committee website a few days before the meeting (with both a track changes version and a clean version - password protected). The meeting agenda and a spreadsheet of all comments were also posted to the website. The straw ballot had 43 voters with 11 no comments, 29 Approved with comments and 3 Disapprove with comments. The overall vote on the straw ballot was affirmative.

The chair then opened the floor for comments on Draft 2.3

**Clause 7.1.4.4.1 Transformer winding design**

* If the HV winding of the transformer is connected in delta, the transformer is not susceptible to GIC and shall be considered to be in Classification A.
* In transformers with core types other than the three-phase three-limb core, if the LV winding of the transformer is delta-connected, or if the transformer has a delta connected tertiary winding, the transformer may be susceptible to possible significant winding overheating and shall be considered to be in Classification D.

**Transformer Design Susceptibility to Effects of GIC**

* Comment - What Category would fit if this delta connected winding configuration is combined with a three-limb core, for a three-phase transformer? Category IV of II? Refer to line 1-3 on page 30.
* Resolution - Under "transformer type" Transformers with core types other than the three phase three limb cores with magnetic steel bolts through the core limbs or yokes are susceptible to overheating during core saturation and should be considered in Classification C but to be more conservative we agreed to Classification D..

**Clause 9.1 Monitoring – The following second paragraph is new**

* Users should monitor a rapid change in transformer MVAR losses in a short time (approximately 10 minutes) as well as on line temperature alarms. Depending on the transformer design and actual GIC magnitudes and duration, the tie-plate or other structural part maximum temperatures could possibly reach levels that would produce small magnitudes of hydrocarbons; this should be of little consequence to the reliability of the transformer. If on line Dissolved Gas Analysis (DGA) monitors are available this data should be reviewed to determine if the GIC had any impact on the transformers or manual insulating liquid samples can be taken and analyzed.

**GIC Level – Based Susceptibility** are determined by Location, Ground Resistance, etc. with the following classifications that align with other industry thresholds.

* Low <15 Amperes per phase
* Medium 15 – 75 Amperes
* High Susceptibility >75 Amperes

**Total GIC Susceptibility - Table 2 was updated to summarize the Design Based and GIC Based Susceptibility Classifications.**

**Clause 8.2. –**The temperature differential should be 15°C; not 10C.

**WG Ballot**

After completing a review of the comments on Draft 2.3, Rogerio Verdolin (member) made a Motion to approve the Draft (once all the comments are included – which will be called Draft 2.4) and start the formal IEEE SA Ballot. The motion was seconded by Brian Penny (member). The motion carried with 35 affirmatives, no negatives, and 3 abstentions (Bartley, Platts and one other, due to Not enough time to review). The Chair thanked everyone that contributed to the Draft, and stated that the formal Invitation to Join the Ballot Pool will be forthcoming in the very near future.

**Adjournment**

Motion to adjourn was made and seconded, and unanimously approved. The meeting adjourned at approximately 9:15 AM.

Respectfully Submitted by William H. Bartley, P.E., WG Secretary

Jane made a motion to the subcommittee to take the draft to SA ballot. The motion passed unanimously with no dissents or abstentions.

## TASK FORCE for Comparison of IEEE & IEC Standards for Cross Reference

The task force meeting was held at 4.45 p.m. on April 14, 2015. 3 of 13 members were present, quorum was not achieved. 11 guests also attended, for a total attendance of 14. 1 guest requested membership.

A summary of the Task Force activities was presented which was followed by two presentations on comparison of IEEE and IEC standards. The first presentation was done by Hasse Nordman on temperature rise requirements in C57.12.00 (2010) & C57.12.90 (2010) and IEC 60076-2(2011).

The second presentation was by Dejan Susa and covered important differences between C57.91 (2011) and IEC 60076-7(2005).

Presentations are posted on the Transformers Committee website.

Jose Valencia volunteered to take up comparison of the dry type transformer standard C57.12.01-1 and IEC 60076-11.

The task force meeting was adjourned at 6.05 p.m.

Respectfully submitted by Vinay Mehrotra on April 15, 2015

# Old Business

* Kipp Yule is chair of a task force to develop a white paper that will capture the practice of WHAT GOES WHERE regarding content guidelines for GENERAL REQUIREMENTS (Base), PRODUCT Standards (Covers the electrical, physical, mechanical, configuration, specific characteristics of narrow group of product), and EVERYTHING ELSE (Guides, Trial Use Guides, Task Force Documents, and etc.). Kipp gave a presentation of how he is approaching the task of “what goes where” that will be posted on the committee website and solicited volunteers from the subcommittee.
* Steve Antoz will chair a task force to document the “unwritten rules” concerning C57.12.00 & 12.90; and how we can improve the process. Steve had no progress to report and solicited volunteers from the subcommittee.

# New Business

* None

# Adjournment

The meeting and was adjourned by the Chair without objection at 5:08 p.m.

Respectfully submitted by Jerry R. Murphy, Standards SC Secretary