

Annex M Subsurface Transformers & Network Protectors Subcommittee

March 28, 2018
Pittsburgh, PA
Chair: Dan Mulkey
Vice Chair: George Payerle

M.1 Meeting Administration

Introductions – The meeting was called to order at 11:00 AM Wednesday, March 28, 2018 in the Monongahela Room of the Omni William Penn Hotel in Pittsburgh, PA. Introductions were made, and sign-in sheets were routed. The meeting agenda was approved.

Quorum – The members were listed on the screen and by a show of hands, it was determined that there was a quorum in attendance.

Members and Guests --There were 26 members and 33 guests in attendance. Their names can be found in the AM system. Five guests requested membership.

Approval of Minutes – The minutes from the Fall 2017 meeting in Louisville, KY were approved. They were motioned for approval by Alex Macias and seconded by Brian Klaponski. The subcommittee approved these without opposition.

M.2 Working Group and Task Force Reports

M.2.1 C57.12.23 Working Group Report – Single-Phase Submersible Transformer

Alan Traut, Chairman, Jermaine Clonts, Secretary.

Revision Due Date: **3/19/2019**

PAR Approval Date: **8/21/2014**

PAR Expiration Date: **12/31/2018**

Introductions – The meeting was called to order and everyone was asked to introduce themselves. Rosters were sent around

At the start of the meeting the working group was asked to disclose any essential patent claims. No essential patent claims were disclosed.

Quorum – We had 68 attendees 28 members present out of 40 active members, which gave us enough members to establish a quorum.

Approval of agenda - Edward Smith made a motion to approve the agenda, Dan Mulkey seconded the motion. The approval of the agenda was unanimous.

Approval of meeting minutes - Edward Smith made a motion to approve the Fall 2017 meeting minutes, Alejandro Macias seconded the motion. The approval of the meeting minutes was unanimous.

Chair Report – Alan talked about when the PAR expires and how long we have to complete our work. PAR expires December 31, 2018. 10-year life cycle of the standard is December 31, 2019. In addition, the document must be submitted to Revcom by October 15, 2018 or a PAR extension must be requested.

Old Business

Alan Traut asked the working group if we should change the year reference in regards to IEEE Standard 386. The working group agreed to change the year reference to the current revision by erasing the date.

Alan Traut reviewed the current draft which showed comments from previous meetings and reviewed which items have been changed in the current revision. Edward Smith made a motion to send draft six of the document for C57.12.23 to ballot. Dan Mulkey seconded the motion. The draft was unanimously approved to send to ballot.

A ballot resolution committee was formed and is composed of the following members. Alan Traut, Dan Mulkey, Giuseppe Termini, Josh Verdell, Fred Friend and Jermaine Clonts. Brian Klaponski made a motion to give the ballot resolution committee the authority to make changes to the document and use their judgment for which details need to be brought back to the working group for discussion. Mike Hardin seconded the motion. This was unanimously approved.

New Business

Discussion took place about which items should be included in the next revision. Brian Klaponski mentioned defining a leak test in detail. Mike Hardin mentioned adding horizontal tanks to the standard. Dan Mulkey mentioned that rectangular tanks fit within the scope of this document.

The next meeting will be held in Jacksonville, Florida at the Fall 2018 meeting.

M.2.2 Continuous Revision of C57.12.24 – Three-Phase Submersible Transformers

Giuseppe Termini, Chairman; George Payerle Secretary

Approved: **12/7/2016**

Revision Due Date: **12/7/2026**

PAR Approval Date:

PAR Expiration Date: **N/A**

The meeting was called to order at 1:45 pm in Conference Level Room A at the Omni William Penn Hotel in Pittsburgh, PA on Tuesday, March 27, 2018. The chair presented an agenda. Kent Miller moved to accept the agenda and Al Traut seconded. The motion passed unanimously.

Introductions were made. The Chair stated that the membership stands at 33. There were 27 members present at this meeting so there was a quorum. There were 44 guests in attendance. 12 guests requested membership. George Payerle acted as recording secretary. The chair stated that adjustments to the membership will be made based on attendance.

The Chair asked if there were any patent claims that needed to be mentioned. There were none. The Chair presented the meeting minutes of the previous meeting in Louisville, KY. Brian Klaponski moved to accept the minutes as presented. Kent Miller seconded. The motion passed unanimously.

The Chair stated that there was an addition to the agenda to include a presentation by Bob Kinner on corrosion resistance.

The latest revision of C57.12.24 was published in 2016. At this time, the WG is acting as a task force and conducting a continuous improvement discussion in preparation for requesting a PAR. The purpose of the task force is to identify topics and changes for the next revision.

Bob Kinner presented information on corrosion resistance and cathodic protection. The presentation was followed by a group discussion. The Chair thanked Bob Kinner for his presentation. He also thanked Brian Klaponski who arranged to have Bob and Patrick Ho do presentations at both C57.12.24 and C57.12.40 WG meetings. Bob's presentation will be sent to the WG attendees.

The action items from the previous meeting in Louisville were reviewed and discussed. The Chair stated that Paul Chisolm reviewed the comments that were received from the last balloting process and there are no issues that needed to be considered in the next standard revision. Jeremy Van Horn reviewed Table 6 of the standard regarding the minimum material thickness of the tank and suggested that the Metric to English conversion values should be reevaluated. The Chair suggested Jeremy to review the conversion values against the requirements of IEEE standard C57.144, Guide for Metric Conversion of Transformer Standards and report the results at the next WG meeting. Israel Barrientos agreed to work with Jeremy on this effort.

Also, at the last WG meeting in Louisville, a suggestion was made to create a material compatibility table between the transformer tank and the hardware and components that are either attached or welded to the tank; e.g.: parking stands, drain valves, PRVs, etc. Tom Dauzat and Babanna Suresh worked on such compatibility table which was presented for discussion. Tom stated that GE and Florida Power & Light did a tremendous amount of research and testing on material compatibility. The stainless grades that seem to be used the most are 304L, 316L, and 409. However, there are some limitations on the use 409 steel due to the availability in sheet sizes used for the construction of larger transformer units. Mike Hardin stated that he has worked with a lot of 409 steel with good results and said that the key in using 409 steel is to properly apply the paint coating. Dan Mulkey also reported similar good results using 409 steel at PG&E.

Alex Macias made a motion to continue to work on and expand the material compatibility table to perhaps be incorporated in the next revision of the standard. Said Hachichi seconded, and the motion was approved unanimously. The Chair stated that the work on the material compatibility table may also apply to the C57.12.23 and C57.12.40 standards. Tom Dauzat agreed to lead the effort to work on and expand the table to be reviewed at the next meeting. The Chair suggested that other individuals from both utilities and manufacturers should assist Tom. The following individuals agreed to assist: Babanna Suresh, Mike Thibault, Anil Dhawan, John Vartanian, Will Elliott, Jim Spaulding and Brian Klaponski.

Tom Dauzat suggested that the utilities volunteers should forward him information related to hardware and components that are either attached or welded to the transformer tank via email: Thomas.dauzat@ge.com. He also suggested to send pictures of the actual components that are attached to the tank.

The meeting was adjourned at 3:00 PM. The next meeting will be in Jacksonville, FL on October 16, 2018.

M.2.3 Continuous Revision of C57.12.40 – Secondary Network Transformers

Brian Klaponski, Chairman; Giuseppe Termini, Secretary

Revision Due Date: **12/31/2027**

PAR Approval Date:

PAR Expiration Date: **N/A**

The group met on Tuesday, March 27, 2017 at 11:00 am with 19 members and 27 guests. Six (6) guests requested membership.

The Chair stated that the C57.12.40 standard was successfully published in September 2017.

The group is not technically a Working Group since there is no active PAR.

The purpose of this meeting was to continuously revise the standard. Because the new revision of our standard was just published, this meeting was used to have a discussion in regards to the direction of our next revision.

Patent issue was discussed. There is a potential patent issue which was mentioned. The Chair declared that there are three patents that could impact this WG; GE, ABB, and Carte each have a patent regarding a high energy tank. No discussion has taken place as yet.

An agenda was presented and approved and introductions were made.

Time frame and plan of group was discussed. When the standard went to ballot, a corrosion expert sent in a negative ballot stating that some of the corrosion terminology was not in proper technical language. It was discussed that the working group should take this comment under consideration and determine if anything needs to be changed or improved in the standard since corrosion is a major concern for many users of this equipment.

The minutes of the October 31, 2017, meeting in Louisville, KY were reviewed. George Payerle (Carte) made a motion to approve those Minutes. Jim Dorsen (Alabama Power) seconded the motion and the minutes were approved unanimously.

The remainder of the meeting consisted of a presentation on corrosion by Patrick Ho, from Powertech Lab. There was discussion on the information and a question and answer session followed the presentation.

The meeting was adjourned at 12:15 pm with the next meeting set for Jackson, FL in October 2018.

M.2.4 -C57.12.44 Working Group Report – Secondary Network Protectors

Mark Faulkner, Chairman, Alex Macias, Secretary

Revision Due Date: **12/31/2024**

PAR Approval Date: **3/26/2015**

PAR Expiration Date: **12/31/2019**

Meeting Date: 03/26/2018 Time: 4:45– 6:00

Meeting Place: Omni William Penn Hotel, Conference Center B (CL), Pittsburgh, Pennsylvania

Meeting Administration:

- The meeting was called to order at 4:48 PM
- Attendance
 - *Rosters passed out*
 - *Roster Scanned and Sent to DHM*
- Introductions
 - *Membership Displayed*
- Essential Patents Disclosure
 - *None cited*
- Quorum Determination
 - *30 individuals attended the meeting*
 - *Membership stands at 17; members present 13*
 - *Quorum met*
 - *Those that have requested membership and have attended two consecutive sessions will be members at next meeting.*

- *6 Membership Requests will be reviewed*
- Approval of the last meeting minutes
 - Mark Faulkner presented the meeting agenda to the WG for review and acceptance.
 - Brian Klaponki motioned to approve the meeting agenda as presented
 - Lee Welch, seconded the motion
 - Motion was approved unanimously; No one opposed.
- IEEE patent presentation presented – none reported.

Meeting address items left for discussion from the New Orleans

Item #1 – Draft 1 of Standard

- A copy will be sent for review/comments to WG and Editorial Review
- All remarks will be included Draft 2 and sent out prior to next meeting and reviewed in the next meeting.

Item #2 – 7.5 percent minimum trip

- Mark investigated and found nothing on the origins of the 7.5 percent minimum trip.
 - ConEd confirmed that their latest specification revision 21 is at 10%, however noted that their refurbished network protectors min. trip required was relaxed in this revision due to age of components used in this process, in order to provide some margin.
- This was followed with a general discussion among the manufacturers and end users; included revisions of ConED 5103 revision 19, 20 and 21. It concluded that the 7.5% will remain as written in the standard.

Item #3 – Terminal Markings

- Discussion to either keep terminal pad drawing in body of standard or annex; decision to remain in standard.

Item #4 – Dimensions

- Dan Mulkey stated the metrics dimensions need correcting
- Mark/Doug to review and finalize all measures
- Doug to redrawn all illustrations to equivalent font and line weights

Item #5 – Inclusion of 600V

- Igor requested table 3 include 600V
 - Request accepted and updated

Item #6 – New Business (HV network protector – greater than 600V)

- Lee Welch asked a general question in the meeting about utilization of large MV network protectors by end user or being fabricated by manufacturers
 - This was tabled for future revision consideration of standard.

Next meeting:

Jackson, FL.

Oct. 14th-18th, 2018

M.3 Old Business

None

M.4 New Business

Brian Klaponki suggested that we petition Powertech that Patrick Ho be allowed to continue to attend the Transformers Committee Meetings. George Payerle is to write a letter to that effect.

Brian also suggested that the rule on photography should not apply to our meetings. Gary Hoffman and Malia Zaman weighed in on the issue as well. The end result of the discussion was that if no standard is being discussed there is no problem with recording. So no pictures in WG, pictures ok in a TF.

Mike Thibault said that he wants the SC STNP to work with the Distribution SC on the Guide for Monitoring distribution transformers. It is a pre-par task force. The details will be worked out in a WG. Jim Dorsten moved that this SC co-sponsor a guide for monitoring distribution transformers with the distribution committee. Mike Thibault seconded. The motion passed unanimously. Dan said that the new group will have to report to both Subcommittees. Gary Hoffman asked that someone from SC STNP become an officer in the Distribution SC. Anyone interested should see Gary.

The meeting was adjourned at 12:15 with the next meeting to take place on October 17, 2018