

Annex C Distribution Subcommittee – Chair: Ed Smith

**October 30, 2019
Columbus, OH, USA**

**Chair: Ed Smith
Vice-Chair: Jerry Murphy
Secretary: Josh Verdell**

C.1 General Opening

Ed opened the meeting welcoming everyone to the meeting. Josh noted that rosters would not be checked for this meeting as the RFID badge system would be used to denote attendance. It was noted that paper rosters would be available after the meeting if the RFID was not working for anyone. Attendees of the meeting were informed that to request membership they needed to email the subcommittee secretary. To establish a quorum, a list of members was displayed and a count of was made. We did have a quorum with 40 members in attendance by count of those identified on a slide presented in the meeting. Recorded attendance gave 144 in attendance and 50 members.

The agenda was reviewed, a motion was made to approve by Dan Sauer, seconded by Gary Hoffman, and approved by unanimous acclamation of the members in attendance.

The Spring 2019 meeting minutes were reviewed, a motion was made to approve by Gary Hoffman, seconded by Kent Miller, and approved by unanimous acclamation of the members in attendance.

At this time, Ed Smith reviewed the copywrite requirements.

C.2 Working Group and Task Force Reports

██████████ C57.12.20 – Overhead Distribution Transformers – Al Traut

Al presented the following minutes from the working group meeting on October 28, 2019 at 11:00 a.m. with 67 in attendance. He noted that the current focus was reviewing the updated figures.

1. Call to order
The meeting was called to order by the Chair (Al Traut) at 11:00AM on Monday October 28th 2019. The roster was circulated followed by the introduction of attendees stating their name and company affiliation.
2. Confirmation of the essential patent statement and responses
There was a call for essential patent by the Chair. There were none brought forward. The Chair announced if there was one to let the Chair or Vice Chair know.
3. Quorum Verification
A members list was displayed and members were asked to raise their hands. **37 of 52** members were present. A Quorum was declared.
4. Approval of agenda for this meeting

The Chair sent out the Agenda prior to the meeting for review. He requested approval of the Fall 2019 Agenda. A motion was made by: Said Hachichi and seconded by: Igor Simonov for approval. Agenda for the Fall 2019 meeting in Columbus was approved with no negative votes.

5. Approval of minutes of the previous meeting

The Chair sent out the minutes prior to the meeting for review. He requested approval of the Minutes for the Spring 2019 meeting in Anaheim, CA. A motion was made by: Frederic Friend and seconded by John Chisholm for approval. The minutes for the Spring 2019 meeting in Anaheim were approved with no negative votes

6. Chair Report

The Chair announced the active PAR expires in 2023.

7. Old Business

Discussion: Cover Dielectric / Animal interference

Comments:

- Igor Siminov recommends adding dielectric requirements to the standard.
- Steve Shull questions the test method and gives previous experience on using an electric halo to test cover dielectric. Concerned about using a single point test apparatus and how the test method correlates to actual bird/squirrel issues.
- Al poses the question if this a topic we want to discuss in this document? And what would be the minimum requirements?
- Ali Ghafourian makes suggestion to create an informative annex with the gathered data
- Mike Thibault questions how this applies to IEEE 1656?
- Al proposes that there be a study group to look at this issue.
 - Members volunteered to create a task force: Leader – Steve Shull, Mike Thibault, Josh Verdell, Brian Wood, and guest Ramadon Issack

8. New Business

Since the WG removed internal tap changers, handholes in the cover are no longer required. A motion was made to remove hand holes from Clause 7.5.1 by Alan Wilks and seconded by Bruce Webb. The motion was unanimously passed.

A motion was made by Josh Verdell to amend footnote “a” in Fig 1&2 6 adding “for 150BIL and below”. Motion seconded by Dan Mulkey. The motion was unanimously passed.

9. Next meeting--date and location

The Next meeting will be the **2020 Spring: March 22 – 26; Charlotte, North Carolina USA**

The meeting was adjourned at 12:05PM

Submitted by: Kendrick Hamilton

██████ C57.12.28, .29, .30, .31 & C57.12.32 – Enclosure Integrity – Dan Mulkey

Dan Mulkey presented the following minutes from the working group meeting on October 28, 2019 at 8:00 a.m. in with 75 in attendance. Dan noted that C57.12.32 was recently published. During the working group meeting the group voted to move C57.12.30 and C57.12.31 to ballot by seeking the subcommittees approval. There was no discussion on this motion. The subcommittee voted unanimously to move these documents to ballot.

1. Dan Mulkey called the meeting to order at 8:00 AM.
2. Introductions were performed.
3. Membership changes were noted:
 - a. Removed: Ron Stahara
 - b. Added: Glenn Andersen, Jason Attard, Thomas Dauzat, James Dorsten, James Spaulding, and Liz Sullivan
4. Quorum was verified. The working group consisted of 61 members, requiring **31** for quorum. 34 members were confirmed at the time of counting. 47 members were confirmed afterwards through the roster.
5. Ed Smith made a motion, seconded by Igor Simonov, for approval of the minutes. No opposition was raised so the minutes were unanimously approved.
6. Dan Mulkey reviewed IEEE SA Copyright Policy and Essential Patent Claims. No issues were raised.
7. Ed Smith made a motion, seconded by Steve Shull, for approval of the agenda. No opposition was raised so the agenda was unanimously approved.
8. Status of Standards:
 - a. C57.12.28 Standard for Pad-Mounted Equipment – Enclosure Integrity, Published July 15, 2014, Revision Due: 12/31/2024
 - b. C57.12.29 Standard for Pad-Mounted Equipment – Enclosure Integrity for Coastal Environments, Published August 8, 2014, Revision Due: 12/31/2024
 - c. C57.12.30 Standard for Pole-Mounted Equipment – Enclosure Integrity for Coastal Environments, Published September 20, 2010, Revision Due: 6/17/2020
 - i. PAR expiration: 12/31/2023
 - d. C57.12.31 Standard for Pole Mounted Equipment – Enclosure Integrity, Published September 20, 2010, Revision Due: 6/17/2020, Corrigenda approved May 16, 2014
 - i. PAR expiration: 12/31/2023
 - e. C57.12.32 Standard for Submersible Equipment – Enclosure Integrity, Published 8/8/2019, Revision Due: 12/31/2029
9. Old business:
 - a. Israel Barrientos presented Taskforce 1 work on enclosure definition for C57.12.30 and C57.12.31.
 - i. “Enclosure: The manufacturer supplied tank, cover, cover retention and integral components (like sealed bushings or overpressure devices) or other housing containing the electrical equipment, its insulating medium

and internal components. The tank or housing includes permanent attachments such as weldments necessary for the proper handling , mounting, operation or upgrading of the equipment. This tank or other housing is typically located outdoors, above grade level, and not accessible to the general public, as some of its external components have high voltages during operation.”

- ii. Israel made a motion to accept the above proposed definition. Seconded by Al Traut.
- iii. **Motion** was unanimously approved.
- b. Justin Minikel presented Taskforce 2 work on the proposed wording for 5.4.3 Humidity test in C57.12.31.
 - i. “This test evaluates the performance of the coating system under controlled condensation conditions. Condensation may cause deterioration of the coating system impacting the useful service life of the equipment.”
 - ii. Justin Minikel made a motion to accept the above proposed wording. Seconded by Marty Rave.
 - iii. **Motion** was unanimously approved.
- c. Taskforce 2 discussed SCAB methods and parameters but due to the pressing need to complete the standard nothing was presented. Justin Minikel suggested that this work would be incorporated in STNP TF on Corrosion Effects in Subsurface Transformers.

10. New business:

- a. Tom Duzat made a motion to remove “bare” from before “substrate” in line 6, and before “substrate” in line 16 in Section 4.2.3 in C57.12.30. Seconded by Will Elliot.
 - i. There was a lot of discussion, the motivation to remove the word bare allows more flexibility to the utility.
 - ii. **Motion** passed: 20 in favor; 14 opposed.
- b. Mike Thibault made a motion to include 5 to 1 ratio in the third paragraph of Section 4.2.3 so it is consistent with the first paragraph. Seconded by Tom Duzat.
 - i. **Motion** passed unanimously.
- c. Dan Mulkey requested Tom Duzat to build table explaining the 5:1 ratio. Table to be circulated to members.
- d. Carlos made a motion to add the word “uncoated” before the word “material” in the substrate definition. Seconded by Ed Smith.
 - i. **Motion** passed: 35 in favor, 4 opposed.
- e. Jerry Murphy made a note that the C57.12.28 and C57.12.29 standards do not have the word uncoated included in the substrate definition.
- f. Ed Smith made a motion to go out for ballot for both C57.12.30 and C57.12.31. Seconded by Said Hachici.
 - i. **Motion** passed unanimously.
- g. Dan Mulkey asked for **ballot resolution committee volunteers: Jerry Murphy, Justin Minikel, Jeremy Van Horn, Dan Mulkey** volunteered.
- h. Jerry Murphy is made a motion to give authority to the ballot resolution committee to make non-technical edits, second by Mike Thibault
 - i. **Motion** passed unanimously.

11. Next meeting: March 24, 2020 in Charlotte, North Carolina, USA

- a. The following attendees requested membership and will be added to membership for the Spring 2020 meeting: Brad Kittrell and Ion Radu.

12. The meeting was adjourned at 9:08 am.

Submitted by: Audrey Seibert-Timmer

██████████ C57.12.34 – Three Phase Pad-Mount Transformers – Steve Shull

Scott Dhalke, for Steve, presented the following minutes from the working group meeting on October 28, 2019 at 3:15 p.m. with 88 in attendance. Scott noted that the working group might need to file for a PAR extension.

Steve Shull called the meeting to order at 3:15 P.M. EST. Steve Shull shared with the group that the Chair of C57.12.34 (Ron Stahara) had passed away on September 2019 due to medical complications. Ed Smith, Distribution Transformer Subcommittee Chair, announced that Steve Shull will assume the role of Chair of C57.12.34. Steve Shull announced that Scott Dahlke will assume the role of Vice-Chair/Secretary. Introductions were made and the rosters were circulated. The names of those in attendance are recorded in the AM system. To establish a quorum, a members list was displayed on the screen and those who saw their names were asked to stand. From the people standing, it was determined a quorum was established. Steve Shull presented the agenda and asked the group to review it to which Fred Friend made a motion to accept the Agenda as displayed. Jerry Murphy seconded the motion. The motion was approved unanimously. Steve Shull stated the minutes of the last meeting were posted on the TC website for the Working Group to review. Jerry Murphy made a motion to accept the previous Meeting Minutes. Marty Rave seconded the motion. The motion was approved unanimously. Essential Patent Statement information was displayed and a copy of the displayed information was circulated within the Working Group. The Chair stated, "If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair." The Copyright Policy Statement information was displayed and a copy of the displayed information was circulated within the Working Group.

Steve initiated the review of the latest draft revision of Annex A, starting with Section A4.6.

1. Section A.4.6 Loadbreak Two Position Switch Types – Jim Antweiler provided the schematics of three two position loadbreak switches. Jim Antweiler made a comment that there are two main types of two position loadbreak switches, "T" blade and "V" blade. Jim Antweiler also commented that by using three, two position loadbreak switches, the same combinations as the four position switches could be accomplished. The diagram table presented demonstrated this. Steve Shull would include this in the new draft of the standard
2. Jeff Schneider commented that there should be a note added to convey the fact that the operation of loadbreak switches under oil create arcing gases. As DGA analysis becomes more of a concern for users, the presence of these gases can unduly alarm a user. Steve Shull created a Task Force to generate proposed wording for the note using the base text

suggested by Jeff Schneider This would be presented at the next meeting. The following people are members of the Task Force:

Jerry Murphy (Chair)
Jeff Schneider
Gary King
Dan Mulkey
Suresh Babanna

3. Section A.4.7 Loadbreak Four Position Switch Types – No comments on this section.
4. Section A.4.8 De-Energized Under Insulating Fluid Tap Changer Switch – No Comments on this section.
5. Section A.4.8.1 De-energized Tap Changer – No comments on this section.
6. Section A.4.8.2 Dual Voltage (Series Multiple) Switch – No comments on this section.
7. Section A.4.8.3 Delta-Wye Switch – No comments on this section.
8. Section A.5.1 Liquid Level Indicating Devices – Gary King asked the group about the phrase “The indicating devices provide either a go or no go indication...”. Steve Shull commented that this phrase was added via a request from a member of the working group.
9. Section A.5.1.1 Tube Type Liquid Level Indicator – Gary King made a motion to remove this section from the annex. The motion was seconded by Jeff Schneider. The discussion revealed that this type of indicator although available was not being used on this type of transformer. The motion passed without opposition.
10. Section A.5.1.2 – Sight Plug Type Liquid Level Indicator – Fred Friend suggested the wording to be revised per the following: “This device is a plug equipped with a window, high contrast floating ball and reflector. It ~~is should be~~ located on the tank wall to view the desired liquid level and show a go or no go liquid level indication.”. The Working Group agreed with the wording change.
11. Section A 5.2.2 Auxiliary Contacts – Dan Mulkey asked the group if the liquid level indicators are specified with or without auxiliary contacts. The group answered that typically without auxiliary contact(s) is the most widely specified. However, Jerry Murphy commented on the fact that trend toward the future is for devices with auxiliary contacts. Dan Mulkey recommended the following first sentence be revised per the following: “Lever driven gauges ~~can be are often~~ equipped with integrated...”. The Working Group accepted the wording change.
12. Section A.6 Liquid Temperature Indicating Devices – No comments on this section.
13. Section A.6.1 Temperature Label – Dan Mulkey commented that in his past he only utilized the non-reversible temperature labels in order to indicate the maximum temperature seen. This started a short discussion on the types of temperature labels available but in the end the section was not changed.
14. Section A.6.2 Dial Type Visual Indicator – No comments on this section.
15. Section A.6.2.1 Auxiliary Contacts – Tom Callsen questioned what would be the nomenclature for a single pole double throw (SPDT) switches. Steve Shull suggested the following revised wording: “Dial indication thermometers ~~can be are often~~ equipped with integral switches that allow for limit alarm control functions. Adjustable ~~Single Pole Double Throw (SPDT)~~ switches may be connected to the movement for a high or low

temperature alarm, or to energize a fan circuit.” The group agreed with the revised wording.

16. Section A.6.2.2 Temperature Transmitter – Igor Simonov recommended to the group to replace the phrase “...a 4-20 mA current output...” with wording that would encompass other outputs. The group discussed the wording and Steve Shull revised per the following: “A temperature transmitter is an instrument that takes the input from a temperature sensor and converts the measurement to **an instrument voltage level, instrument current output** ~~a 4-20 mA current output~~, or a digital value. This was acceptable to the Working Group.
17. Section A.6.2.3 – Temperature Sensor – Fred Friend recommended the wording be revised per the following: “The temperature sensors can be a Resistance Temperature Detector (RTD), Thermistor, or Thermocouple which are **all-to-be** immersed in the insulating fluid of the transformer”. Steve Shull revised the wording as described. This was acceptable to the Working Group.
18. Section A.7 Special Accessory Cabinet – This section sparked a lot of discussion from the Working Group. Steve Shull assigned a Task Force for recommendation of wording and/or figures for this section to report to the Working Group next meeting. The following people are members of the Task Force:
 - Carlos Gaytan (Chair)
 - Christopher Sullivan
 - Tom Callsen
 - Igor Simonov
 - Pragnesh Vyas
19. Section A.8 thru A.10.2 – Due to time restraints, Steve will solicit comments from the Working Group before the next meeting and summarize these for presentation during this meeting.
20. The meeting was adjourned at 4:30 P.M. EST.

Submitted by: Scott Dahlke

█ C57.12.36 – Distribution Substation Transformers – Jerry Murphy

This working group did not meet.

█ C57.12.38 – Single-Phase Pad-Mounted Transformers – Ali Ghafourian

Marty Rave, for Ali, presented the following minutes from the working group meeting on October 28, 2019 at 11:00 a.m. with 76 in attendance. Marty noted that Jarrod Prince would be taking over as secretary of this working group.

The Chair called the meeting to order at 1:45 pm.

Meeting attendees introduced themselves including consultants providing their affiliations to the Working Group. Rosters were circulated to record the meeting attendance.

The Chair called for essential patents as required. No essential patents were brought forward. The Chair advised the Working Group participants of the IEEE-SA copyright policy, and the copyright presentation slides were shown to the Working Group.

A quorum was established with 27 of 39 Working Group members present.

The agenda for the meeting was presented, and Ed Smith offered a motion with a second from Josh Verdell to approve the agenda. The agenda was unanimously approved.

The minutes of the 2018 Fall meeting in Jacksonville, FL have been posted on the website since shortly after that meeting for the Working Group members to review. There were no proposed changes to the meeting minutes. Ed Smith offered a motion with a second from Jerry Murphy to approve the meeting minutes. The meeting minutes were unanimously approved.

The Chair informed the Working Group members the PAR expires 12/31/22. The most recent standard was published in August 2014, and the next revision is due in December 2024.

Old Business:

Task Force 1

Craig DeRouen presented an informative annex proposal for accessories developed by the Task Force of Giuseppe Termini, Wes Suddarth, and Craig DeRouen. The Working Group recommended the photos of accessories in the informative annex proposal be converted to sketches/drawings to avoid potential copyright issues. The new task force members of Craig DeRouen (lead), Jim Spaulding, and Mike Thibault will review the informative annex proposal and investigate converting the photos to sketches/drawings. The informative annex proposal is included as a separate file accompanying the meeting minutes.

Task Force 2

Israel Barrientos presented recommendations for revisions to existing figures in C57.12.38 as the result of a review performed by the Task Force comprised of Jim Spaulding, Mike Thibault, and Israel Barrientos. The recommendations will be posted for Working Group member review. The recommendations are included as a separate file accompanying the meeting minutes.

Task Force 3

Jeremy Van Horn presented a revision proposal to C57.12.38 taking into consideration C57.12.39 developed by the Task Force of Carlos Gaytan, Jerrod Prince, and Jeremy Van Horn. Tom Callsen proposed Section 7.7.4 provide a maximum top liquid withstand temperature for gaskets. The revision proposal will be posted for Working Group member review. The revision proposal is included as a separate file accompanying the meeting minutes.

New Business:

Jarrod Prince volunteered and was accepted for the Secretary position of the Working Group.

A total of 14 persons requested Working Group membership which will be reviewed to determine who is eligible for membership at the next meeting.

The Chair announced the Working Group will meet at the Spring 2020 meeting in Charlotte, NC.

The Chair adjourned the meeting at approximately 2:45 pm.

Submitted by: Martin Rave

██████ C57.12.39 – Tank Pressure Coordination – Carlos Gaytan

This working group did not meet

██████ Task Force on Transformer Efficiency and Loss Evaluation – Phil Hopkinson

Phil presented the following minutes from the task force meeting on March 25, 2019 at 9:30 a.m. with 115 in attendance. Kevin Biggie noted this meeting time conflicted with another meeting that several people had to decide which meeting they needed to attend. Jerry Murphey noted that any scheduling conflicts needed to be brought to his attention.

1. Call to order and any Chair's remarks

- 9:30 am meeting was called to order

2. Quorum Verification

- Not a working group; Quorum is not necessary

3. Confirmation of the essential patent statement and responses

- Not a working group, no patents were discussed.

4. Approval of minutes of the previous meeting

- Minutes approved.

5. Approval of agenda for this meeting.

- Agenda was posted and followed for this meeting.

6. Data collection on Transformer loading

Dan Mulkey provided an update on loading data being collected by utilities and provided to the Task Force. No new data has been provided since the last meeting, but more is expected soon. Assistance in analyzing the data will be provided by Chris Bolduc at the Lawrence Livermore National laboratory. Mulkey identified some key points from the data collected so far:

- Annual Load Factor Summary
 - 0.3 is a reasonable number
 - Increases with increasing transformer size
 - Increases with increasing customer count
- We need more load data
 - Particularly for Peak / Nameplate

7. New Loads for Electric Vehicle Charging and HVAC

Phil Hopkinson raised the topic of new technologies, and the impact they could have on electricity demand and transformer loading. In particular, two significant growth technologies are (1) electric vehicle charging and (2) HVAC caused by a shift from oil and gas heating to electricity and a general increase in the demand for air conditioning. Loading for HVAC and

Electric Vehicle charging likely to increase residential electricity use by 10-40% based on starting point.

Electric appliances – kWh/yr.

Heating	11,600
Water Heating	4,600
Electric Vehicles	2,800
Air Conditioning	2,000
Refrigerator	1,200

EV Charger Types & Transformer Loading:

- a) Class 1 is only 1 kW, uses 120V 1Ø, and takes forever. Can be added to and used at any home.
- b) Class 2 is better but can go up to 6 kW, uses 240V 1Ø, and still takes a long time. Can be added to and used at some homes.
- c) Class 3 is fast but is a very big load, needs at least 240V 1Ø, but bigger/quicker ones require 208V 3Ø or 480V 3Ø. Usually will require an additional distribution transformer.

8. Thought Experiment on Dual Rated Distribution Transformers

Mr Hopkins, Mr. Mulkey and Mr. Traut outlined a concept for a dual kVA rating nameplate for transformers. A transformer capable of operating at higher temperatures would be able to achieve a higher kVA rating.

- Mineral Oil + Thermally upgraded kraft paper is 120 Thermal Class
- Ester + Thermally upgraded kraft paper is 140 Thermal Class
- Maximum peak load 200% of nameplate kVA

kVA 65/85C Rise	15/22		25/34		50/60		100/118	
Winding Rise C	47	85	53	85	65	85	65	85
% Impedance	2.19	3.30	2.12	2.93	1.95	2.37	2.73	3.25
% Regulation	2.02	3.12	1.88	2.66	1.68	2.07	2.15	2.60
Total Watts	233	490	332	599	564	800	1073	1514

- Example designs use natural ester + thermally upgraded kraft paper 140 thermal class
- Base kVA based on 65C winding rise and meets DOE minimum efficiency
- Thermal kVA based on 85C winding rise
- Reference temperature for losses based on winding rise + 20C

- 15 and 25kVA designs are constrained by minimum mechanical requirements
- Voltage regulation based on 0.85 power factor

- **Transformer Design Considerations**
 - ✓ Material selection to meet desired thermal class
 - ✓ Thermal design differences for different liquids
 - ✓ Coil ducting practice (size, quantity and location) to support higher loads
 - ✓ Component selection for higher continuous loads (leads, bushings, switches, etc)
 - ✓ Switching and load interrupting at higher loads and liquid temperatures.
 - ✓ Under oil fuse and LV breaker operation. Is de-rating required for higher oil temperatures?
 - ✓ Gaskets and seals for different liquids and temperatures
 - ✓ Gas space volume, liquid level and tank pressure coordination
 - ✓ Maximum conductor temperatures under long duration short circuit
- **Transformer Application Considerations**
 - ✓ Conductor sizing for transformer installation
 - ✓ External fuse selection
 - ✓ Maximum voltage drop at peak loads
 - ✓ External transformer touch temperature (eg, padmounts)

9. Department of Energy – efficiency requirements.

Jeremy Domm from the Department of Energy explained the Governments program for energy efficiency of transformers. The requirements are reviewed on a regular multi-year timeframe with input from users and manufacturers.

10. Documents

All documents from this meeting will be posted on the IEEE Distribution Transformers Subcommittee website:

<https://www.transformerscommittee.org/subcommittees/distributiontransfsc/>

11. Next meeting--date and location

No additional comments before adjournment. Next meeting is in Charlotte, North Carolina in Spring 2020

Submitted by: Phil Hopkinson

PC57.167 – Guide for Monitoring Distribution Transformers – Gary Hoffman

Gary presented the following minutes from the working group meeting on October 29, 2019 at 4:45 p.m. with 101 in attendance. After the working group report, Markus Stank asked a question concerning LTC devices installed on Distribution Transformers or Line Voltage Regulators. Phil Hopkinson make a comment asking where such devices belonged in regard to standards development. Ed Smith asked Marcus to meet with him after the meeting to discuss what needed to be done with this topic.

1. Call to order and Chair's remarks – Called to Order at 4:45PM by Gary Hoffman
2. Quorum Verification – Took count with 36 members and had a Quorum. The Rosters was circulated.

3. Approval of agenda for this meeting. No Objections. Motion by Steve Shull, and Second by Ed Smith– Unanimously Approved
4. Approval of S19 PC57.167- Guide for Monitoring Distribution Transformer Minutes Spring 2019. No Objections. Motion by Jerry Murphy, and Second by Steve Shull – Unanimously Approved.
5. Call for Patents was disclosed.
6. Discussed Copy Right Policy.
7. Task Force Reports was presented as follows:
 - 7.1. Justification for monitoring, Mulkey
 - 7.2. Key monitoring parameters and their tolerance, Murphy
 - 7.3. Method of alert, and Telemetry- Thibault
8. New Business
Comments:
 - a) Discussed adding Voltage Regulators. Agreed not to add it at this time since it was not part of the PAR.
 - b) Discussed adding Distribution Transformers with tap changers 10MVA and lower. Agreed to take it to the Distribution Transformer Committee to for discussion.
9. Next meeting is in Charlotte, NC
10. Adjournment

Submitted by: Gustavo Leal

██████ C57.12.35 – Bar Coding for Transformers and Regulators– Rhett Chrysler

Rhett presented the following minutes from the working group meeting on October 29, 2019 at 1:45 p.m. with 33 in attendance. The PAR for this group was approved and this was the first meeting of this working group.

1. Chair called the meeting to order at 1:45pm. Attendees introduced themselves
2. Total attendance of 33. 11 of 20 members present and quorum was met. 3 guests requested membership.
3. Chair called for identification of essential patents pertaining to the work of this TF. None brought forward to the TF. Copyright policy presented.
4. Motion to approve meeting agenda by Fred Friend, 2nd by Darren Brown, Approved unanimously.
5. Motion to approve Spring 2019 (Anaheim, CA) meeting minutes by Jerry Murphy, 2nd by Dan Mulkey, Approved unanimously
6. Chair Report
 - a. Chair asked for a volunteer to fill Vice Chair role formerly held by Guisepp Termini.
 - b. PAR for revision of C57.12.35 approved on 6/13/19 with an expiration date of 12/31/2023. Title and Scope in the approved PAR as follows:
Title

IEEE Standard Information Coding for Distribution Transformers and Step-Voltage Regulators

Scope

This standard sets forth information code requirements for overhead, pad-mounted, and subsurface distribution transformers and step-voltage regulators. Included are requirements for data content, symbology, layout, and life expectancy. This standard assumes the existence of user databases so information codes need only carry basic identification data.

7. Old Business (None)
8. New Business
 - a. Formed an Editorial Task Force – Darren Brown, Ed Smith, Alan Traut. TF to review document and recommend editorial changes to draft D1.
 - b. Formed a Task Force on QR Code technology to collect and present QR information – Mike Thibault, Dan Mulkey, Israel Barrientos. Rhett Chrysler to conduct survey of DT and STNP subcommittee users to see who is using QR codes, how they are used and what information is contained on it.
 - c. Task Force on RFID technology – No interest at this time. Prefer to develop QR first then come back to RFID. Tabled for future consideration.
 - d. TF work should be complete by January 31, 2020
9. Next meeting March 2020 Charlotte, NC

Meeting adjourned at 2:30pm.

Submitted by: Alan Traut

C.3 Old Business

- No old business was discussed

C.4 New Business

- Phil Hopkinson addressed the group concerning the work being done on core gassing and that a working group covering low frequency dielectric test had voted to add design tests to C57.12.00 concerning core gassing.
 - Gary Hoffman made the following motion with Phil Hopkins second.
 - Distribution Subcommittee to state that they have no objection to the addition of design tests for core gassing being added to C57.12.00 and C57.12.90
 - Discussion took place concerning this motion
 - Steve Snyder made a comment concerning looking to recent issues.

- Josh Verdell made a comment concerning whether this group had adequate understanding of the update.
- Gary called the motion to question with Dan Sauer second. The call to question was passed unanimously.
- 33 voted for the motion, 2 voted opposed to the motion, 1 voted in abstention.
- This motion passed.
- Phil Hopkinson addressed the group concerning a task force working to potentially change the routine impulse test done by manufacturers.
 - Phil noted that the current test was not adequate to predict satisfactory field performance.
 - The new testing would more closely simulate field connections by using a special termination configuration.
 - Phil would like for people from this subcommittee to assist in testing to generate more data.
 - Phil would like to get this data in time to provide more information at the Charlotte meeting.
 - The stated goal of this work is to improve design performance in the field.

C.5 Chairman's Closing Remarks and Announcements

Ed had no closing comments to the SC except to note that the next meeting would be in Charlotte, NC, in the Spring of 2020.

C.6 Adjournment

Ed adjourned the meeting as provided in the meeting agenda at 10:15am.