DRAFT Minutes of Meeting: Orlando, FL—April 8th, 2025

Meeting Date: April 8th, 2025

Meeting Time: Session #1: 10:15 am – 12:00 pm EST
Session #2: 2:00 pm – 3:45 pm EST

Location: Wyndham Grand Orlando Resort Bonnet Creek (conference hotel), Orlando, FL

1) Call to Order

Meeting was called to order at 10:15 am EST

2) Introduction of Participants

Participants provided self-introductions with affiliations. There were 34 participants, plus the chair and the secretary.

3) Determination of Quorum

Quorum was met eventually with 16 of 28 voting members, plus 1 ex-officio member, before any significant actions were approved by the working group.

4) Approval of Meeting Agenda (R01)

Agenda R00 had been sent out to the working group before this meeting. Agenda R01 was presented to the WG, which included the additional item “Reworded PAR scope”. Agenda R01 was approved by the working group by consensus.

5) Presentation of the IEEE Policy Slides

IEEE Patent Policy: No issues reported
IEEE Copyright Policy: No issues reported
IEEE Participant Behavior: Reminder to behave provided

6) Approval of previous WG meeting minutes (Oklahoma City, Oktober 15th 2024)

Minutes had been sent out to the working group before this meeting. Motion to approve the minutes as sent out was made by Jeff Ward and seconded by Rama Lakshminarayana; motion carried with unanimous consent.

7) PAR scope rewordings

The rewordings of the PAR scope required by NESCOM during the PAR review process were presented to the WG. They were met with no objection or discussion.

8) Old business

a. <u>Clarification is required whether “in the field” also covers commissioning PD measuring performed after installation of the equipment, and whether this should be addressed in C37.303</u>

Consensus of the WG to this question is YES to the first part (“in the field” does indeed cover commissioning PD measuring performed after installation of the equipment) and NO to the second part (no need to address this specifically in C37.303).

Reasoning of the WG:

“In the field” is “in the field”; i.e., it does not matter if this test is called *commissioning PD measuring* or otherwise, as long as it is a) in the field, and b) on energized switchgear. In other words, *commissioning PD measuring* is merely a name circumstantially given to a test, but nothing that describes a specific set of test rules to be laid out in C37.303.

For the definition of "energized", the WG consents to use the definition given in the IEEE dictionary. Based on this definition, "energized" covers both energized by the grid and energized by test voltage sources.

b. Clarification is required whether the guide should include some information on how factory PD test compares to field PD test data, and whether this is relevant for C37.303.

Consensus of the WG is to provide some information on the comparison of factory PD test data to field PD test data in form of an informative Annex that is just a list of references to other standards. Nenad Uzelac and Falk Werner volunteered for this task.

Reasoning of the WG:

- Factory and lab testing are outside of the scope of PC37.303 anyways.
- C37.303 is intended mainly for people who are out in the field doing testing, who normally are not interested in factory/lab test reports and usually do not have them.
- It is generally difficult to compare factory/lab PD tests with field PD tests because the former are performed with calibrated instruments under clearly defined conditions, i.e. without many of the disturbances encountered when performing PD field tests.

9) New work items

a. Access to iMeetcentral

The WG was informed that iMeetcentral is now available.

b. Task group 1 reporting and discussion

The WG supplied the following comments to section 1, *Common Defects…*:

- Add *Solid insulation crack*
- Add *Floating potential/floating electrode*
- Add *for example* to the contents of 1.2 (i.e., "Degradation on insulation surfaces *for example* due to…")

The WG supplied the following comments to section 2, *Measurement Techniques…*:

- Add *Ultraviolet (UV)*
- Add *Chemical detection* (Ozone, decomposition products like hydrofluoric acid, etc.)
- Add *Capacitive Divider* (same concept as capacitive voltage indicator, e.g. VDIS described in IEC 62271-213)
- Add *High Frequency (HF) sensors*; this would cover detection with "hot stick"

The WG supplied the following comments to section 3, *Standard Methods…*:

- Remove *IEC 60694* (standard withdrawn)
- Correct the title of IEEE C37.20.9 to read *IEEE Standard for Metal-Enclosed Switchgear Rated 1 kV to 52 kV Incorporating Gas Insulating Systems*
- The number of standards as such is acceptable to make sure that best practices are captured.
- It might make sense to other documents that are not standards, e.g. scientific papers; care should be taken, however, to stay within the scope of PC37.303 as a guide for field PD testing, and to not overburden the reader with too many different referenced documents.

The WG also noted that no information was given regarding *Localization* (of PD), which was one of the tasks of the task group. It was agreed to contact the task group leader on this topic.

Falk Werner volunteered to join task group 1.

c. Task group 2 reporting and discussion

Task group 2 explained their presented document as follows: Their first goal had been to create a list of everything that in IEEE is considered a switchgear above 1000 Vac, the result of which was the content of their presented document. The next step would be to filter out everything where field PD testing after a review of the list by the WG.

The WG supplied the following comments:

- Add *cable terminations* and *surge arresters* because while these technically are no switchgear they are usually found within the confines of switchgear subject to field PD testing and as such fall into the scope of PC37.303.
- Expand the information provided with figures.
- Move from "*products* being PD tested" to "*equipment categories* being PD tested" to avoid that the word "product" is interpreted as "something […] that is marketed or sold as a commodity", to quote Merriam-Webster.

The WG then engaged in a discussion on how to link the equipment categories with the methodologies (of field PD testing), with the following results:

- Add a new chapter "Application guide" or the similar that provides the link between equipment categories and methodologies and that is placed after the chapters that describe the methodologies and the product categories ("nuts and bolts first"), thus expanding the scope of task group 2.

Caleb Essel, Henning Milnikel and Falk Werner volunteered to join task group 2.

d. Task group 3 reporting and discussion

The WG supplied the following comments:

- Add *electrical load.*
- Expand the chapter to cover "Environmental *and operational* conditions".
- General idea of what constitutes an environmental or operational condition within the confines of C37.303: Conditions that, when they change, affect the outcome of a PD test performed on the identical same equipment.

The WG then engaged in a discussion on how to structure this chapter, with the following results:

- First, gather all the relevant environmental and operational conditions data; then, describe their impacts on a), measuring testing, and b), equipment/interpretation; for this purpose, add two sub-chapters "Impact on measuring/testing" and "Impact on the equipment/interpretation".
- The impact of each condition cannot be quantified in a meaningful way because it depends on the test method used, the equipment tested, etc.; i.e., attempting to quantify the impact of each condition would lead to exponential growth of the number of scenarios to be dealt with in C37.303, which contradicts the applicability of the document by testing personnel in the field. Therefore, a list of the conditions together with a qualitative description of their impact is considered the best approach, possibly with the addition of a qualitative tendency.

Mark Heiny and Adrian Lopez volunteered to join task group 3.

e. Task group 4 reporting and discussion

The WG supplied the following comments to the first report:

- Make the actual report shorter/briefer/more to the point; detailed data like raw data, pictures, graphs, etc. should be added in an annex.
- Provide clearer indication if the report is about a base line measurement or a follow-up measurement.
- The description given in C37.303 of the contents and structure of the report should be similar to nameplate content descriptions in other standards; i.e., create a list of report items that should always be present, create separate list of additional report items that might make sense situationally, etc.
- The report should not contain a "recommendations" clause; instead, it should only focus on the information that substantiates the findings: what happened, under which conditions, etc.
  However, a reference to C37.303's chapter on "Recommended Actions" might make sense as part of the report.

Due to time constraints, only the beginning of the second report could be reviewed and discussed by the WG.

The WG supplied the following comment:

- Change the title "Condition assessment", then add two sub-chapters "Periodic measuring" and "Continuous monitoring"

Albert Livshitz volunteered to join task group 4.

f. CIGRE liaison report by Nenad Uzelac

Ongoing work: CIGRE D1-78, which is characterization of alternative gases

Upcoming work: Proposal between A3 and D1 "Testing requirements for gas insulated switchgear with rated voltages less than or equal to 245 kV"—will probably be approved this year, will become a working group before the end of the year; Nenad will keep an eye on it and inform the WG when that CIGRE working group has been formed and will provide a link to the convener.

g. Other topics

No other topics were discussed.

10) Next meeting

Will be a virtual meeting, probably in June 2025.

11) Adjourn

Meeting adjourned at 3:45 pm EST.

LastName, FirstName	Employer	Affiliations other than employer	Participant type
Lopez, Adrian	Spike Electric	none	Chair
Milnikel, Henning	Siemens AG	none	Secretary
Bartels, Andreas	Powell Industries	none	Voting member
Boyce, Russell	Eaton Corp.	none	Voting member
Cantu, Jared	Omicron	none	Voting member
Cohn, Bob	Powercon Corp.	none	Voting member
Door, Jeffrey	The HJ Family of Companies	none	Voting member
Gagnon, Hubert	NDB Technologies	none	Voting member
Hartmann, Oliver	Siemens Industry	none	Voting member
Lakshminarayana, Rama	Doble Engineering	none	Voting member
Mucha, Martin	G&W Electric	none	Voting member
Shiller, Paul	FirstPowerGroup LLC	none	Voting member
Shirode, Aniket	ABB	none	Voting member
Trichon, François	Schneider Electric	none	Voting member
Uzelac, Nenad	G&W Electric	none	Voting member
Ward, Jeff	Retired	none	Voting member
Flowers, Keith	Siemens Industry	none	Voting member (ex-officio)
Alexander, Brian	S&C Electric Company	none	Non-voting member
Banda, Marco	Spike Electric	none	Non-voting member
Bouche, Nick	Switchgear Power Systems	none	Non-voting member
Buel, Tanner	S&C Electric Company	none	Non-voting member
Essel, Caleb	Spike Electric	none	Non-voting member
Harley, Jack	FirstPowerGroup LLC	none	Non-voting member
Heiny, Mark	ABB	none	Non-voting member
Hook, Dan	Group CBS	none	Non-voting member
Kasonga, Mick	Oncor Electric	none	Non-voting member
Livshitz, Albert	Qualus Services	none	Non-voting member
Lyu, Soung Hwan	Federal Pacific	none	Non-voting member
Marynchak, Michael	HICO America	none	Non-voting member
McGlown, Kevin	JST Power	none	Non-voting member
Mgunda, McPharlen	HICO America	none	Non-voting member
Myers, Tad	SRP	none	Non-voting member
Santos, Leonel	Schneider Electric	none	Non-voting member
Tuthill, Bryan	Volta LLC	none	Non-voting member
VanGaasbeck, Joe	Powercon Corp.	none	Non-voting member
Werner, Falk	Doble Engineering	none	Non-voting member