

**WG: C37.010 - Circuit breaker application Guide**

**Chair: Helmut Heiermeier**

**Vice Chair: Xi Zhu**

**Secretary: Mike Skidmore**

**Location: Saint Pete Beach, FL**

**Participants: 89 participants (including Chair, Vice Chair, and Secretary)**

**42 members**

**47 guests**

- 1.) The meeting started with the chair introduction and introductions of the attendees. The chair asked all attendees to sign the roster and provide affiliation if not noted on the roster.
- 2.) The chairman reviewed the minutes of the meeting (MOM) from Asheville, NC. The MOM from Asheville was distributed to all committee members and guests of C37.010 on 9-30-14 after the fall meeting. The secretary also distributed the draft (MOM) on 4-21-15 to all members and guests listed on the committee roster. The meeting minutes are also posted on the IEEE PES Switchgear website.
- 3.) The chair entertained a motion from Roy Alexander to approve the MOM from Asheville. Leslie Falkingham seconded the motion. The motion passed unanimously.
- 4.) The PAR extension was approved and extended until December 2016.
- 5.) The chair updated the committee on the status of the working group and the work performed to date. Helmut said he will go over the re-ballot results, and review selected comments of the ballot recirculation and discuss updates on the completed document. C37.010 Draft 10 ballot was recirculated on 12-5-14 and ended on 1-4-15. Draft 7 was the first ballot. Draft 8 and 9 were reviewed and circulated within the working group for updates and improvements. Draft 10 was the ballot recirculated to the ballot group where 191 comments have been received.
- 6.) Helmut said in order to save time on the comments from the ballot recirculation the Chair (Helmut), Vice Chair (Xi), and Secretary (Mike Skidmore) met for 2 days to review and update the document. Many of the comments received from the recirculation were editorial and accepted. During this time, the Chair, Vice-Chair, and Secretary, reviewed approximately 135 comments out of 191. The chair showed slides on the types of comments received during the ballot recirculation.
- 7.) Helmut explained that many remarks received from the first and re-ballot did not seem to be addressed for several reason. One issue appears to be from how the document was uploaded into the ballot recirculation website. When it was uploaded, some parts seem to be slightly “altered” showing less than desirable information in the posted document. Helmut said he is not so sure what happened since the document he provided seemed to be “cleaner” than what he wanted to be posted for re-ballot. Also, some commented on the “clean” document versus the “tracked

changes document” so the pages and lines did not exactly match. Much of this needed to be deciphered during the review.

Also, many comments received were linked to sections of the document that had been moved or removed within the document, updated and/or added again. This work was completed in previous meetings within the working group. It was a mess to update and agree to wording changes when sections no longer existed within the document from draft 8 and 9 but were possibly inserted again later. When the document was compared to the first ballot it appeared (and is probably true) that some of the comments for the first ballot were never addressed.

8.) Helmut asked the committee what should be done with comments received after the ballot closed. John Webb advised Helmut that he could reject the comments or enter them as “rogue” comments into the system. Helmut said he would enter them into the system since the comments received would improve the document.

9.) From IEEE, the proposed path going forward was to:

- Correct spreadsheet from Sponsor Balloting, make sure all disposition status/detail match what is indicated in the draft and elaborate/edit any comments that RevCom may find unacceptable. (Comment: Per additional review with Erin Spiewak (IEEE), the working group (e.g. Chair) can’t go back and correct / update the entered “resolution of comments” for previous drafts, such as draft 7, at this point. From our understanding, once a “comment resolution” was entered into the system there is no known way to go back and update or correct the previously entered comment. This can only be updated (corrected) with future balloted documents which will be corrected later (e.g. draft 10, 11, etc...))
- Resolve comments from recirculation (191)
- Recirculate after creating D11 (including both the changes that were promised from the Sponsor Ballot and the recirc). Upload the 191 recirc comments, and attach the previous corrected comment file as an "additional file." IEEE advised us that they do not think we need to include all 698 comments, but just those that were incorrect or need additional explanation so it is acceptable to RevCom.
- Include a detailed explanation on the Cover Letter during the second recirculation to explain the above.

10.) Discussion of selected Comments:

So far all comments from the ballot recirculation have been “accepted” or “accepted in principal” except for two or three that were rejected:

The chair discussed a comment received about 5.2.8 (service capability). He indicated that C37.010 uses information that is defined in C37.04. This comment was out of scope for C37.010 and was rejected.

The chair discussed a comment received about waiting to align C37.010 with C37.04 and other documents. This issue (i-431) was rejected. This issue was discussed in several working group meetings before and it was determined to proceed forward the best way possible without the updates to .04 and other documents, since there is much work to be done. The chair said again

that we can't wait on the completion of all other documents until the last minute to make updates into C37.010.

The chairman provided an explanation of Asymmetrical test procedure. A presentation was given to address the comment received about 5.10.2.1. and figure 5 of draft 10. The presentation is attached.

Some suggested that he should add the information within the presentation as an annex or improve wording in 5.10.2.1. There was some concern if the color parts of the graphs in the presentation would show up in the document once printed. The chair said he would look into this and improve wording or possibly create an annex.

Helmut needs to fix Figure 8. "1.57" in the figure is in the wrong place and needs to be on loop 2 of the graph.

Roy Alexander asked if .010 should ask .04 to provide information (maybe on the nameplate) such as (duration of last half wave) to use the figures as listed in .010 per clause 5.10.2. He believes the method is more exact than the older total current method approach.

Roy offered to help review this section in more detail.

Gilbert Carmona and Roy said that maybe later it would be good to compare the older total current method to the new approach as listed in clause 5.10.2. Helmut said this would be a good idea but there is no time to add this information to the document.

11.) Helmut discussed that some comments received related to US versus Metric [SI] – The official ruling from IEEE is that Metric [SI] should be used. It is up to the sponsor of the working group to determine if US/Imperial values should also be included as brackets within the document next to Metric [SI] units. Does this mean at every and each place? Does it mean for every and each dimension? Helmut asked for the opinion of the working group. The working group said it is best to use metric. Helmut asked if someone could review the document and examples and update the sections as needed to include metric units of measurement.

Donald Swing offered to help. Later James van de Ligt also offered to help review and correct the document. Helmut is to send the document to both individuals to review and update.

12.) Future work/open points. The chair plans to resolve all comments by the end of May 2015.

13.) Preparation for next ballot. The chair plans to have another ballot recirculation by June of 2015.

14.) The working group committee agreed to adjourn meeting.

15.) All slides provided at the meeting are included as attachments.

#### Meeting Roster – Saint Pete Beach, FL

First Name	Last Name	Role	Company	4/27/2015
Mehmet	Adanur	Guest	Southern Company Services	
Syed Shahab Uddin	Ahmed	Member	Siemens Energy Inc	X

Roy	Alexander	Member	RWA Engineering	X
Michael	Anderson	Member	Retired	
Mauricio	Aristizabal	Member	ABB	X
Aasim	Atiq	Guest	Siemens Energy	X
Roy	Ayers	Guest	Nashville Electric Service	
William	Bane	Guest	Nashville Electric Service	
Amildo	Barrio	Guest	Parsons	
George	Becker	Member	Electric Power Research Institute	
Robert	Behl	Member	ABB	
W.J. (Bill)	Bergman	Member	PowerNex Associates Inc.	
Stan	Billings	Member	Mitsubishi Electric PP	X
Anne	Bosma	Member	ABB AB	X
Cody	Brehm	Member		
Jeffrey	Brogdon	Guest	Georgia Transmission	X
Steven	Brown	Member	Allen & Hoshall	X
Raymond	Browning	Guest	FirstEnergy Corp.	
Arben	Bufi	Member	Hitachi HVB, Inc.	X
Eldridge	Byron	Member	Schneider Electric	X
Donald	Cantrelle	Guest	Georgia Power	X
Gilbert	Carmona	Member	Southern California Edison	X
Stephen	Cary	Member	GE Energy Management	X
Steven	Chen	Member	Eaton Corporation	X
Chih	Chow	Member	PEPCO	X
Michael	Christian	Member	ABB	X
Roggero	Ciofani	Guest	Altalink	
Lucas	Collette	Guest	Mitsubishi Electric	X
Dave	Collette	Guest	Mitsubishi Electric	X
Lee	Cox, Jr.	Guest	Efacec	
Michael	Crawford	Guest	Mitsubishi Electric	
David	Dart	Guest	NOJAPower	
Jerod	Day	Guest	Vacuum Interrupters, Inc.	
Patrick	Di Lillo	Member	Consolidated Edison Co. of NY, Inc.	X
Denis	Dufournet	Member	Alstom Grid	X
Edgar	Dullni	Member	ABB	
Carolyn	Durham	Guest	Entergy	
Bernie	Dwyer	Guest	PECO	X
John	Eastman	Member	INCON	X
Ken	Edwards	Member	Bonneville Power Administration	X
Leslie	Falkingham	Member	Vacuum Interrupters Limited	X
Thomas	Field	Member	Entergy	
Lori	Fish	Guest	Entergy	
Sergio	Flores	Guest	Schneider Electric Inc. USA	X
Shane	Ford	Guest	Nashville Electric Service	
Robert	Foster	Guest	Megger	
Paul	Fox	Guest	Schneider Electric	
Douglas	Giraud	Guest	Powell Electrical Systems	X
John	Hall	Guest	Tennessee Valley Authority	X
Daryl	Hallmark	Guest	Southern Company Services	
John	Harley	Guest	FirstPower Group LLC	
Helmut	Heiermeier	Chair	ABB	X
Christian	Heinrich	Guest	Siemens AG	X
Charles	Hendrickson	Guest	Arizona Public Service Company	X
Jeremy	Hensberger	Guest	Mitsubishi Electric Power Products Inc.	X
Victor	Hermosillo	Member	Alstom Grid	X
Jingxuan (Joanne)	Hu	Guest	RBJ Engineering Corporation	X
Roy	Hutchins	Guest	Southern Company Services	X
Todd	Irwin	Member	Alstom Grid Inc	

Carlos	Isaac	Guest	Oncor Electric Delivery	
Richard	Jackson	Member	Detroit Edison	
Anton	Janssen	Guest	Liander	
Cory	Johnson	Member	BPA	
Wolfgang	Jung	Guest	Siemens AG	X
Jayamali	Kasige	Guest	Crown Technical Systems	X
Carl	Kurinko	Guest	ABB Inc.	
Thomas	Lagerstrom	Guest	Pedersen Power Products	
Stephen	Lambert	Member	Shawnee Power Consulting, LLC	
Matthew	Lawrence	Guest	Doble Engineering	
David	Lemmerman	Guest	PECO/Exelon	X
Werner	Lesse	Guest	Siemens AG	
Wangpei	Li	Guest	Eaton	
Qian	Li	Guest	Powertech Labs INC.	X
Hua Ying	Liu	Member	Southern California Edison	X
Li	Liu	Member	Eaton	
Albert	Livshitz	Member	CE Power Solutions	X
Bjorn	Lofgren	Member	Siemens Energy	
Russell	Long	Member	Retired	X
Jess	Mains	Guest	ABB Inc	
Antonio	Mannarino	Guest	PSE&G	
Vincent	Marshall	Guest	Southern Company Services	X
Gary	Martin	Member	Entergy	X
Ricardo	Martinez	Guest	CFE-LAPEM	
Peter	Marzec	Guest	S&C Electric Co.	X
John	Marzula	Guest	Mitsubishi	
Frank	Mayle	Member	Technibus, Inc.	X
John	McClelland	Guest	Technibus	X
Neil	McCord	Guest	Southern States	X
Timothy	McGee	Guest	Siemens Energy	X
Dave	Mitchell	Member	Dominion	X
Georges	Montillet	Member	GFM Consulting LLC	
Stephanie	Montoya	Member	Southern California Edison	
Tom	Mulcahy	Member	Dominion	X
Volney	Naranjo	Guest	Megger	
Jeffrey	Nelson	Member	Tennessee Valley Authority	
Joe	Nims	Guest	Allen & Hoshall	
Mirko	Palazzo	Member	ABB	
Amit	Patel	Guest	GE	X
Shawn	Patterson	Member	US Bureau of Reclamation	X
Thomas	Pellerito	Member	DTE Energy	X
Alan	Peterson	Guest	Utility Service Corporation	
Lise	Phan	Member	Parcific Gas and Electric Company	
Cornelius	Plath	Guest	Omicron electronics	
Iulian	Profir	Guest	Rockwell Automation	X
Reynaldo	Ramos	Member	Southern Company	
Samala Santosh	Reddy	Guest	Powell Industries	X
Frank	Ricard	Guest	FirstPower Group LLC	
Anthony	Ricciuti	Member	Eaton Corporation	
Dave	Riffe	Guest	Westinghouse Electric Company	X
Julian	Rizo	Guest	Xcel Energy	X
Brian	Roberts	Guest	Southern States, LLC	X
Jon	Rogers	Member	Siemens Energy, Inc	X
Ian	Rokser	Guest	Eaton Corp	X
Ben	Rosenkrans	Guest	Eaton Corporation	
Charles	Ross	Member	PGH Wong Engineering	
Roderick	Sauls	Member	Southern Company Services	X

Robert	Sazanowicz	Guest	The United Illuminating Company	X
Daniel	Schiffbauer	Guest	Toshiba International Corporation	X
Carl	Schuetz	Member	American Transmission Company (ATC)	X
Jon	Schumann	Member	American Transmission Company	X
Mike	Seabrook	Guest	GE	
Devki	Sharma	Member	Consultant	X
Harish	Sharma	Guest	Southern Company	X
Sushil	Shinde	Member	ABB Inc.	X
John	Shullaw	Guest	GE Energy Management - Industrial Solutions	X
Sunita	Singh	Guest	Bechtel OG&C	
Michael	Skidmore	Secretary	AEP	X
Robert	Smith	Guest	Eaton Corporation	X
Zachary	Smith	Member	Mitsubishi Electric Power Products, Inc.	
Erin	Spiewak	Guest	IEEE	
Don	Steigerwalt	Member	Duke Energy	X
David	Stone	Guest	DTS Technical Services	X
Donald	Swing	Guest	Powell Industries	X
Chand	Tailor	Guest	Eaton Corporation	X
Humayun	Tariq	Guest	American Electric Power	X
Jey	Thayalan	Guest	Schneider Electric	
Jean-Marc	Torres	Guest	EATON	X
Vernon	Toups	Guest	Siemens	X
Stephen	Tyler	Guest	Dominion	
James	van de Ligt	Member	CANA High Voltage Ltd.	X
Steve	Vatterott	Guest	ABB Inc.	
Wes	Wadsworth	Guest	Hitachi HVB, Inc.	
John	Webb	Member	ABB	X
Casey	Weeks	Guest	Siemens Energy	X
Jan	Weisker	Member	Siemens AG	X
Jerry	Wen	Guest	BC Hydro	X
Matthew	Williford	Guest	Schneider Electric	X
Terry	Woodyard	Guest	Siemens Industry Inc.	X
Oon	Yek	Guest	Pacific Gas & Electric	
Dong Sun	Yoon	Guest	HICO America	
Richard	York	Guest	Consultant	X
Jiong	Zhang	Member	MEPPI	X
Wei	Zhang	Guest	Hitachi HVB, Inc.	X
Xi	Zhu	Vice-Chair	GE Energy Management	X

“X” - individual was at the meeting in Saint Pete