

Minutes of WG PC37.04
Standard for High Voltage Circuit Breaker
Monday 9 October, 2017
8 to 12 am
Portland, Maine

Stephen Cary – Chair - Roy Alexander – Vice Chair - John Webb - Secretary

I Welcome – IEEE C37.04 revision to include addendums, C37.06 and NEMA SG-4

II Introductions

Meeting opened with 97 individuals in attendance: 37 of 51 members and 56 guests. A quorum was present.

III A call for additions or corrections to the published minutes was made. Only correction to the minutes was to reflect the change to the PAR is 2017. A one year extension has been requested at the meeting.

IV No essential patent knowledge was called. No mention of applicable essential patents.

V Old Business

a. The PAR is valid through 2019, but current document expires at the end of 2018, at which time IEEE will administratively withdraw the standard and there will be no standard. It is important that the work finish before the document expires.

b. It was noted initial ballot comments had been mostly reviewed. The ballot 73% affirmative, 90% returned.

VI New Business: Comment Resolution

- a. Review of comments: J. Webb -- discussion of re-organization of clauses 7.4 & 7.5 under revision to document in response to comments.
- b. Discussion of trip-free requirements and reorganization of the document bringing to more prominent position.
- c. Discussion of temperature rise requirements and changes to previous version of C37.04 and current draft does adopt requirements of C37.100.1. Focus was likely that properly we should take exception to C37.100.1 with respect to different limits for aluminum. Members requested to vote on position on upcoming ballot. Lower temperature on Aluminum only. Lower temperatures on Aluminum and copper. Requirement to follow plating – lowest or highest temperature to apply if one side plated.
- d. Correct minimum arcing time to arcing time. Diverged into discussion on 'rating' arcing time on ms or cycles. Proposal to change back to cycles in tables of C37.04.
- e. Discussion of diagrams for bushing CT's: consensus was that needs to remain normative.
- f. [Further elaboration on status of NEMA SG-4 (from where CT bushing drawing originated),
- g. Santosh - elaborate on requirements (or lack of) for terminal loading on indoor breakers.
- h. Esco - Revision of manual releases. Discussion on need to differentiate between a local operating method and an emergency operation. [Dullni / Hua] Further Neil McCord will also add wording on situation where design of CB is such that *any* operation of the CB under certain conditions (e.g. no SF6) will damage the CB can be an exception to the manual operation clause.
- i. i-605: Balloting draft still has requirement for ground pad.

- n. Definitions are / will be harmonized with C37.100.5 where definitions overlap. Not removing definitions which may be useful to readers of C37.04 simply because they are picked up by C37.100.5, but we will not trigger 2 nearly identical definitions.
- o. i-596: 1200 kV will not be incorporated into this revision.
- p. i-244: Sound pressure levels with respect to dB vs. dBA,

Chair adjourned meeting at 12 pm

Attachments: (1) Membership and Attendance list.

Comment Resolution Group:

James van Light
Rich York
Alan Morse
Hua
Sushil Shinde
Jan Wisker
Cory Johnson
John Webb
Roy Alexander
Steve Cary

Perspective Membership changes – please contact Chair to finalize membership status.

Addition

Koustubh Ashtekar
Raymond Frazier
Paul Grein
Jeremy Hensberger
Thomas “Andy” Keels
Ted Olsen
Jan Weisker
Terry Woodyard
Wei Zhang.

Removal

Jean-Mark Biasse
J “Stan” Billings
Steven Brown
Victor Savulyak

Role	First Name	Last Name	Company	City	State	Country	
Chair	Stephen	Cary	GE Energy Management	Chapel Hill	NC	USA	X
Vice-Chair	Roy	Alexander	RWA Engineering	Cranberry Twp.	PA	USA	X
Secretary	John	Webb	ABB	Florence	SC	USA	X
Member	Arben	Bufi	Hitachi T&D Solutions, Inc.	Suwanee	GA	USA	X
Member	Ted	Burse	Powell Industries, Inc	Houston	TX	USA	X
Member	Eldridge	Byron	Schneider Electric	Smyrna	TN	USA	X
Member	Steven	Chen	Eaton Corporation	MOON TOWNSHIP	PA	USA	X
Member	Chih	Chow	PEPCO	Washington	DC	USA	X
Member	Michael	Christian	ABB	Lake Mary	FL	USA	X
Member	Patrick	Di Lillo	Consolidated Edison Co. of NY, Inc.	New York	NY	USA	X
Member	Robert	Foster	Megger	Paradise	CA	USA	X
Member	Douglas	Giraud	Powell Industries	Houston	TX	USA	X
Member	John	Hall	Tennessee Valley Authority	Chattanooga	TN	USA	X
Member	Helmut	Heiermeier	ABB	Baden	Other	Switzerland	X
Member	Christian	Heinrich	Siemens AG	Berlin	Other	Germany	X
Member	Victor	Hermosillo	GE Grid Solutions	Charleroi	PA	USA	X
Member	Alexander	Hoover	Siemens Industry	Richland	MS	USA	X
Member	Roy	Hutchins	Southern Company Services	Birmingham	AL	USA	X
Member	Todd	Irwin	GE Grid Solutions	Smithville	MO	USA	X
Member	Scott	Lanning	S&C Electric	Libertyville	IL	USA	X
Member	Brad	Leccia	Eaton	Moon Township	PA	USA	X
Member	Hua Ying	Liu	Southern California Edison	Pomona	CA	USA	X
Member	Vincent	Marshall	Southern Company Services	Forest Park	GA	USA	X
Member	Dave	Mitchell	Dominion Energy	Richmond	VA	USA	X
Member	Tom	Mulcahy	Dominion Virginia Power	Richmond	VA	USA	X
Member	Andrew	Peterson	ABB	Sanford	FL	USA	X
Member	Anthony	Ricciuti	Eaton Corporation	Moon Township	PA	USA	X
Member	Carl	Schuetz	American Transmission Company (AT Waukesha		WI	USA	X
Member	Devki	Sharma	Consultant	Byram	MS	USA	X
Member	Sushil	Shinde	ABB Inc.	Mt Pleasant	PA	USA	X
Member	Dean	Sigmon	Eaton Corporation	Greenwood	SC	USA	X
Member	Michael	Skidmore	AEP	Pickerington	OH	USA	X
Member	David	Stone	DTS Technical Services	Reading	MA	USA	X
Member	Vernon	Toups	Siemens	Richland	MS	USA	X
Member	James	van de Ligt	CANA High Voltage Ltd.	Calgary	AB	Canada	X
Member	Richard	York	Mitsubishi Electric Power Products In	Pittsburgh	PA	USA	X
Member	Xi	Zhu	GE Energy Management	Atlanta	GA	USA	X
Guest	Brad	Armstrong	Meramec Instrument Transformer Co	Cuba	MO	USA	X
Guest	Koustubh	Ashtekar	Eaton Corporation	Moon Township	PA	USA	X
Guest	Herman	Bannink	KEMA Netherlands	Zelhem	Other	Netherlands	X
Guest	Richard	Burge	Southern States, LLC	Hampton	GA	USA	X
Guest	Vincent	Chiodo	HICO	Pittsburgh	PA	USA	X
Guest	Simarjit	Chouhan	Crown Technical Systems	Vaughan	ON	Canada	X
Guest	Andrew	Chovanec	GE Power	Charleroi	PA	USA	X
Guest	Michael	Crawford	Mitsubishi Electric	Cranberry Twp	PA	USA	X

Guest	Philip	Fentress	Memphis Light, Gas & Water Div	Memphis	TN	USA	X
Guest	Raymond	Frazier	Ameren	St. Louis	MO	USA	X
Guest	Paul	Grein	Circuit Breaker Sales, Co, Inc. - Group	Gainesville	TX	USA	X
Guest	Jeremy	Hensberger	Mitsubishi Electric Power Products In	Warrendale	PA	USA	X
Guest	Jingxuan (Joann	Hu	RBJ Engineering Corporation	Winnipeg	MB	Canada	X
Guest	Jennifer	Hunter	MEPPI	Warrendale	PA	USA	X
Guest	Joseph	Jasinski	ITC Holdings Corp.	Novi	MI	USA	X
Guest	Cory	Johnson	BPA	Brush Prairie	WA	USA	X
Guest	Stephen	Kanty	Isberg & Associates, Inc.	Pleasanton	CA	USA	X
Guest	Thomas	Keels	Salt River Project	Phoenix	AZ	USA	X
Guest	Amir	Khosravi	BC Hydro	Burnaby	BC	Canada	X
Guest	SangTae	Kim	HICO America	Pittsburgh	PA	USA	X
Guest	David	Lemmerman	PECO/Exelon	Berwyn	PA	USA	X
Guest	Deepak	Mazumdar	Consultant	columbia	MO	USA	X
Guest	Neil	McCord	KEC Precision	Athens	GA	USA	X
Guest	Charles	Morse	Siemens Industry, Inc.	Arden	NC	USA	X
Guest	T	Olsen	Retired, formerly with Siemens Indus	York	PA	USA	X
Guest	Miklos	Orosz	Schneider Electric	Smyrna	TN	USA	X
Guest	Sean	Parsi	Kinectrics	Toronto	ON	Canada	X
Guest	Thomas	Pellerito	DTE Energy	Detroit	MI	USA	X
Guest	Alan	Peterson	Utility Service Corporation	Huntsville	AL	USA	X
Guest	Mark	Peterson	Xcel Energy	Denver	CO	USA	X
Guest	John	Phouminh	PEPCO HOLDINGS, INC.	WASHINGTON	DC	USA	X
Guest	Thomas	Rak	PG&E	San Francisco	CA	USA	X
Guest	Samala Santosh	Reddy	Powell Industries	Houston	TX	USA	X
Guest	Anthony	Ricci	FirstEnergy Corp.	Akron	OH	USA	X
Guest	Bobby	Rich	Dominion Virginia Power	Richmond	VA	USA	X
Guest	Brian	Roberts	Southern States, LLC	Hampton	GA	USA	X
Guest	Jon	Rogers	Siemens Energy, Inc	richland	MS	USA	X
Guest	Moin	Shaikh	Siemens	Madison	MS	USA	X
Guest	Robert	Smith	Retired	Ithaca	NY	USA	X
Guest	Don	Steigerwalt	Duke Energy	Charlotte	NC	USA	X
Guest	Chand	Tailor	Eaton Corporation	Greenwood	SC	USA	X
Guest	Jordan	Tsvetanoff	First Energy	Twinsburg	OH	USA	X
Guest	Jeffrey	Ward	Doble Engineering Company	Watertown	MA	USA	X
Guest	Robert	Warren	DNV GL - KEMA Laboratories	Chalfont	PA	USA	X
Guest	Casey	Weeks	Siemens Energy	Richland	MS	USA	X
Guest	Jan	Weisker	Siemens AG	Berlin	Other	Germany	X
Guest	Jerry	Wen	BC Hydro	Burnaby	Other	Canada	X
Guest	Terry	Woodyard	Siemens Industry Inc.	Wendell	NC	USA	X
Guest	Larry	Yonce	Eaton Corporation	Greenwood	SC	USA	X
Guest	Wei	Zhang	Hitachi HVB, Inc.	Suwanee	GA	USA	X

Meeting Attendance:	
Members:	51
Guests:	163

93
37
56