

1) **Introduction of Members and Guests**

Mike Skidmore / Victor Hermosillo

Member introductions:

Introduction of new members: **Robert Foster**  
**John Eastman**

2) **Approval of Minutes of Previous Meeting**

Mike Skidmore / Victor Hermosillo

Approval of Minutes of Hilton Head, SC

Move: **John Webb**

Second: **Ken Edwards**

**Unanimous approval**

3) **Membership**

	ROLE AS MEMBERS	ROLE AS GUESTS	ROLE AS CORRESPONDING MEMBERS	REQUIRED* FOR QUORUM COUNT	TOTAL
HVCB Committee Roster	43	94	11	≥ 50% membership at meeting (≥ 22 members)	148
Attendance Recorded Pittsburgh, PA	<b>29</b>	<b>32</b>	<b>1</b>	<b>68%</b>	<b>62</b>

\*Quorum Count includes: Active Members, Chair, Secretary, and (Corresponding Members if present at the meeting)

4) **Chairman's Report**

Mike Skidmore / Victor Hermosillo

Chairman (Mike Skidmore): mikeskidmore@ieee.org

614-552-1472

Vice-Chairman (Victor Hermosillo): vfhermosillo@ieee.org

724-483-7875

- WG chairs need to email minutes of their WG meetings to the subcommittee secretary no later than OCT 19<sup>th</sup>, 2016.

5) **Reports of Working Groups**

a) **Technical Paper Reviews**

Kirk Smith

**One paper presented, to be approved next week**

b) **WG Activities**

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Document	Title	SubCommittee	WG Chair	PAR	IEEE Status	Activity
PC37.04	Standard for Ratings and Requirements for AC High Voltage Circuit Breakers with Rated Maximum Voltage above 1000 V	HVCB	Stephen Cary	PAR Expires 12-31-2017	Reaffirmed 2006 Document Expires 12/31/2018	Invitation to ballot opened 9-6-16 and closed on 9-26-16 64 members present, decided to go for ballot before Spring 2017 meeting.
C37.04-1999 Cor 1-2009	IEEE Standard for Rating Structure for AC High-Voltage Circuit Breakers Corrigendum 1	HVCB	Stephen Cary	Included on PC37.04 PAR	Document Expires 6/17/2019	Will be pulled into .04 – no update needed
C37.04a-2003	IEEE Standard Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis: Amendment 1 Capacitance Current Switching	HVCB	Roy Alexander	Included on PC37.04 PAR	Reaffirmed 2006 Document Expires 12/31/2018	Will be pulled into .04 – no update needed
C37.04b -2008	IEEE Standard for Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis Amendment 2: To Change the Description of Transient Recovery Voltage for Harmonization with IEC 62271-100	HVCB	Kirk Smith	Included on PC37.04 PAR	Document Expires 12/31/2018	Will be pulled into .04 – no update needed
C37.06.-2009 ANSI	IEEE Standard for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis - Preferred Ratings and Related Required Capabilities for Voltages Above 1000 V	HVCB	Mauricio Aristizabal	Included on PC37.04 PAR	Document Expires 9/11/2019	Needs amendment to address error in tables 6 and 7 for SLF reference - No update needed at this time - will be pulled into .C37.04
PC37.06.1	Recommended Practice for Preferred Ratings for High-Voltage (>1000 volts) AC Circuit Breakers Designated Definite Purpose for Fast Transient Recovery Voltage Rise Times	HVCB	Sushil Shinde	PAR Expires 12-31-2016	Document Expires 12/31/2018	Sponsor ballot opened 7-26-16 and closed on 8-25-16. PAR extension filed on 10-12-16 for 1 year extension. Received about 140 comments, 12-14 technical topics discussed. New version to be circulated November 2016
PC37.09	IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	HVCB	Xi Zhu	PAR Expires 12/31/2017	Reaffirmed 2007 Document Expires 12/31/2018	Sponsor ballot opened 7-25-16 and closed on 8-24-16. Approximately 440 comments received, WG reviewed selected comments during three sessions. WG will review and update dispositions and circulated new draft for ballot before Spring 2017.

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C37.09-1999 /Cor 1-2007	IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis – Corrigendum 1	HVCB	Mauricio Aristizabal	Included on PC37.09 PAR	Document Expires 12/31/2018	Will be pulled into C37.09 – no update needed
C37.09a-2005 Amendment to C37.09-1999	American National Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis Amendment 1: Capacitance	HVCB	Roy Alexander	Included on PC37.09 PAR	Reaffirmed 2007 Document Expires 12/31/2018	Status .09a will be pulled into C37.09. – no update needed
C37.09b-2010	IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis – Amendment 2: To Change the Description of Transient Recovery Voltage for Harmonization with IEC 62271-100	HVCB	Kirk Smith	Included on PC37.09 PAR	Document Expires 12/8/2020	Will be pulled into .C37.09 – no update needed
PC37.010	Application Guide for AC High-Voltage Circuit Breakers > 1000 Vac Rated on a Symmetrical Current Basis	HVCB	Helmut Heiermeier	PAR expires 12-31-2016	Reaffirmed 2005 Document Expires 12/31/2018	Two ballot recirculation since Spring meeting. Sponsor ballot opened on 5-19-16 and closed on 5-29-16. A 10 day ballot recirculation on 8-5-16 to 8-15-10. Document at RevCom and approved. No PAR extension needed. Final draft accepted by RevCom.
C37.011-2011	IEEE Guide for the Application of Transient Recovery Voltage for AC High-Voltage Circuit Breakers	HVCB	Denis Dufournet		Document Expires 12/31/2021	Draft document provided to study group on 9-16-16 for review. PAR to be requested at end of 2017, first meeting as WG is planned for spring of 2018. Draft was reviewed.
PC37.012	IEEE Application Guide for Capacitance Current Switching for AC High-Voltage Circuit Breakers	HVCB	Roy Alexander		Document Expires 3/31/2021	TF chaired by Roy Alexander was established to study updates to guide. Limit of current times frequency to be revised. Testing and analysis, prepare transactions paper as a basis. Also overvoltage factor. Objective to be done in two years. No PAR for project yet.

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62271-37-013 (Replaces C37.013 and C37.013a)	Standard for AC High Voltage (rated above 1000 V) Generator Circuit Breakers for Use With Generators Rated 10 MVA or More	HVCB	Mirko Palazzo		Document Expires 10/1/2025	P62271-37-013-2015/Cor 1 submitted. Published and active small corrigendum to correct figure number. FTIS circulation identified need for improvements, IEC has already accepted. Since joint IEC-IEEE then a PAR has to be submitted. Subcommittee to approve. A Motion unanimously passed to establish a PAR for future revisions to the document.
62271-37-082-2012	Standard for High-voltage switchgear and control gear - Part 37-082: Measurement of sound pressure levels on AC HVCB	HVCB	Leslie Falkingham		Document Expires 12/31/2023	Done - no update needed at this time
PC37.015-2009	IEEE Guide for the Application of Shunt Reactor Switching	HVCB	Anne Bosma	PAR Expires 12/31/2019	Document Expires 12/9/2019	Sponsor ballot opened on 6-30-16 and closed on 8-2-16. 40 members 20 guests. Quorum was met and comments to be uploaded to my ballot. Document to be recirculated in time for Spring 2018 meeting.
PC37.016	Standard for AC High Voltage Circuit Switchers Rated 15.5kV through 245kV	HVCB	Peter Meyer	PAR Expires 12/31/18	Document Expires 12/31/2018	Document is in draft form and reviewed at Fall 2016 meeting. WG chair not present at meeting. HVCB Chair said meeting minutes will be posted on IEEE PES switchgear website.
C37.017-2010	IEEE Standard for Bushings for High-Voltage [over 1000 V (ac)] Circuit Breakers and Gas-Insulated Switchgear	HVCB-GIS	Devki Sharma		Document Expires 9/30/2020	Parts to be pulled into .04 and .09. no action needed at this time
C37.081-1981	IEEE Guide for Synthetic Fault Testing of AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	HVCB	Mauricio Aristizabal		Reaffirmed 2007 Document Expires 12/31/2018	TF meeting held on 4-28-15. Motion was passed to support work of IEC 62271-101 into C37.09 - HVCB to let document expire. References to IEC 62271-101 will be used in C37.09.

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C37.081a-1997	Supplement to IEEE Guide for Synthetic Fault Testing of AC HVCB Rated on a Symmetrical Current Basis	HVCB	Mauricio Aristizabal		Reaffirmed 2007 Document Expires 12/31/2018	TF meeting held on 4-28-15. Motion was passed to support work of IEC 62271-101 into C37.09 - HVCB to let document expire. References to IEC 62271-101 will be used in C37.09.
C37.083-1999	IEEE Guide for Synthetic Capacitive Current Switching Tests of AC High-Voltage Circuit Breakers	HVCB	Mauricio Aristizabal		Reaffirmed 2007 Document Expires 12/31/2018	TF meeting held on 4-28-15. Motion was passed to support work of IEC 62271-101 into C37.09 - HVCB to let document expire. References to IEC 62271-101 will be used in C37.09.
C37.10-2011	IEEE Guide for Investigation, Analysis, and Reporting of Power Circuit Breaker Failures	HVCB	Bill Bergman		Document Expires 12/31/2021	No Action needed at this time
PC37.10.1-2000	IEEE Guide for the Selection of Monitoring for Circuit Breakers	HVCB	Dave Mitchell	PAR Expires 12-31-2018	Reaffirmed 2006 Document Expires 12/31/2018	Ballot invitation submitted on 8-30-16 and closed on 9-29-16. PAR extended to 12-31-2018. 26 attending, 16 members. Since quorum wasn't met in the WG meeting, HVCB subcommittee unanimously passed a motion from the WG to go to ballot.
C37.11	Standard Requirements for Electrical Control for AC High-Voltage (>1000V) Circuit Breakers	HVCB	John Webb		Reaffirmed 2003 Document Expires 12/31/2024	No updated needed at this time. Document published.
PC37.12-2008	IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 Volts)	HVCB	John Webb	PAR Expires 12/31/2018	Document Expires 12/31/2018	Plan is to ballot before Spring of 2017. WG reviewed current draft document at meeting. Discussion about quantification of SF6 gas amount in breakers was added to the document. Similar information could be considered later for C37.04/37.09. Last round of circulation and review before ballot.

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PC37.12.1-2007	IEEE Guide for High Voltage (>1000V) Circuit Breaker Instruction Manual Content	HVCB	Ken Edwards	PAR Expires 12/31/2020	Document Expires 12/31/2020	Sponsor ballot opened 9-14-16 WG Met Monday. Chair discussed scheduling conflicts, 5 members and had no quorum. Need to improve scheduling. WG discussed comments at meeting.
PC37.100.5	Draft Standard for Definitions for High Voltage Circuit Breakers Above 1000V	ADSCOM	Tom Mulcahy	PAR Expires 12/31/2018	NEW	Moved to Adscm. To be removed from HVCB table Spring of 2017 9 attendees, 4 WG members, revise PAR done and approved June 30, 2016, 251 comments 121 balloters. To establish comment resolution committee. Conflict with C37.20.10, kept terms that duplicate. Goal is to have single document with all definitions.
C37.20.6-2007	4.76 kV to 38 kV Rated Grounding and Testing Devices Used in Enclosures	ADSCOM joint HVCB/SA	T. W. Olsen		Document Expires 2026	Done - Published
C37.59-2007	Requirements for Conversion of Power Switchgear Equipment	ADSCOM joint HVCB, SA, and LVSD	Dean Sigmon			
C37.122-2010	Standard for High Voltage Gas-Insulated Substations Rated above 52 kV	Joint SUB/SWG HVCB	Jon Brunke			Done – Published – No update provided at meeting. Will start revision in 2016.
C37.122.3-2011 (was P1712)	IEEE Guide for Sulphur Hexafluoride (SF6) Gas Handling for High-Voltage (over 1000 Vac) Equipment	Joint SUB/SWG HVCB	Gordon van der Zel (Jeff Nelson)		Document Expires 2021	Done - Published

Note: Only those working groups with PAR information are currently active.

**6) Reports of AdsCom WG/TF/Study Group**

- Capacitance Switching WG (PC37.100.2) Neil McCord  
Held meeting in Pittsburg and Roy Alexander helped to review documents. A draft was circulated by e-mail to all members. Plan is to make updates and then recirculate document.

- Common Requirements WG (C37.100.1) David Stone

Document submitted to RevCom and waiting for comments.

- Standard for Definitions WG (C37.100.5) Tom Mulcahy  
Update already provided in working group activities table listed above.

- New TF for Alternative Gasses to SF6 Nenad Uzelac  
Chair held two meetings and reviewed all contributions to date. Presented advantages and disadvantages of existing options based on study by current zero club. Pat Dilillo asked for volunteers to review the available documents (32 documents total). Please contact Pat Dilillo if interested in working on TF.

- New TF for C37.012 (Guide for Cap Current Switching) Roy Alexander  
• Update already provided in working group activities table listed above.

- New TF SF6 Nameplate Quantities Eldridge Byron  
Eldridge did not request another slot for spring 2017 meeting. Information has been added to specification guide PC37.12-2008 as a start. More information is likely to be added later to other documents. EPA attended meeting. HVCB chair will request meeting minutes from TF Chair.

**7) Reports of CIGRE**

- a) A3.29 Deterioration of ageing substation equipment Denis Dufournet  
Final Draft to Study Committee in June 2016

- b) A3.30 Overstresses in S/E equipment. Denis Dufournet  
Technical Brochure foreseen mid 2017

- c) JWG A3/B4.34 Technical requirements and specifications of state-of-the-art DC switching equipment. Jingxuan (Joanne) Hu  
Final version before end of 2016

- d) TF2 (SC121A – AG4) Arc – Flash Detection Function and Devices Albert Livshitz  
No update provided at meeting.

- e) WG A3-38 “Shunt Capacitor Switching in distribution and transmission systems: Verification by tests and performance in service” Denis Dufournet

Kick off meeting in Paris, August 2016. Next meeting December 2016/January 2017, Daniel Desmond of S&C and Roy Alexander are listed as representatives form USA.

8) **Old Business**

- a) <https://development.standards.ieee.org/my-site/open-ballot-invitations>
- b) Senior membership +15 in 2015, +16 in 2016, 69 senior members total in Subcommittee.

9) **New Business**

- a) Presentation Reminder – Vacuum Interrupters 101  
(Thursday October 13, 2016 (11:45 AM to 2:45 PM)) Leslie Falkingham
  - b) Subcommittee officer rotation ends 2019 Mike Skidmore
- Chair: Mike Skidmore  
Secretary: Victor Hermosillo
- c) Chair information required to report at next meeting Mike Skidmore

Report for Active:  
Par Expires:  
Ballot Date:  
Completion:

Information will be posted in meeting minutes by HVCB subcommittee chair in new format for all future meetings. Webpage has status for all documents. Different fields depending on document status as active/inactive. Standardize how information is reported. Spreadsheet that can be incorporated into meeting minutes. Needs for next meeting based on the information contained in this file.

Chair showed subcommittee an example of spreadsheet during meeting. Such information is needed to update PES switchgear website. The chair will review the possibility of adding the spreadsheet to “central desktop” so WG can access to update the information.

- d) General Discussions on Ballot Invitation Process Mike Skidmore
- Chair review IEEE-SA website and discuss ballot invitation process.
- e) Discussion - Coordination of Standards Ted Burse



There are two documents that are linked (C37.04 and C37.09). These are out of synchronicity in advancement. There is a strong chance that both will not be released simultaneously and he expressed his concern that there will be revisions. Ted urged the subcommittee to put together a plan to make them coincide to be released in proper order and at the right time. The chair agreed but many of the documents have critical timelines but better coordination is needed.

- f) Discussion - PC37.20.7 – Guide for Testing Switchgear Rated up to 52kV for Internal Arcing Faults

John Webb

John Webb explain that a WG amended a PAR to include outdoor circuit breakers using enclosures according to C37.04. Concern was express that the scope overlaps between SA (Switchgear Assemblies) and HVCB (High Voltage Circuit Breakers) and PC37.20.7 may need to be an AdsCom document. HVCB to take this to AdsCom to resolve scope conflict. Chair agreed to discuss this issue with AdsCom.

- g) Motion to go to ballot for C37.10.1

Dave Mitchell

Dave explained there was low attendance and no quorum to vote on draft 5 and he was unable to go to ballot. Dave offered a Motion that HVCB Subcommittee to go to ballot with draft 5. Re-open for 14 days to allow more individuals to sign-up for ballot. Motion put forth by Dave Mitchel, second by Eldridge Byron. Motion unanimously passed. Motion attached.

- h) A motion was made by John Webb for the task force to submit a PAR for revision of IEEE/IEC 62271-37-013. Motion unanimously passed

## 10) Future Meetings

- a) Spring 2017: Hilton Charlotte University Place, Charlotte, NC - April 23<sup>rd</sup> to 28<sup>th</sup>, 2017
- b) Fall 2017: Marriott Portland Sable Oaks, Portland, ME - October 8<sup>th</sup> to 13<sup>th</sup>, 2017
- c) Spring 2018: Disney's Contemporary Resort, Lake Buena Vista, FL - April 22<sup>nd</sup> to 27<sup>th</sup>, 2018
- d) Fall 2018: Kansas City Marriott Downtown, Kansas City, MO - October 14<sup>th</sup> to 18<sup>th</sup>, 2018
- e) Spring 2019: Hilton, Burlington, VT - April 28<sup>th</sup> to May 1<sup>st</sup>, 2019
- f) Fall 2019: Catamaran Resort, San Diego, CA – October 6<sup>th</sup> to 10<sup>th</sup>, 2019

## 11) Adjourn