

IEEE PES Switchgear Committee, HVCB, C37.04 Meeting in Las Vegas

1. Welcome and introductions of all participants. The WG meeting was attended by 55 participants; 38 members and 17 guests.
2. Jeff Nelson, the chair, is presiding the meeting.
3. The WG Chair reviewed IEEE Policy on patents and Guidelines for IEEE WG Meetings
4. Meeting minutes from Spring meeting were approved as amended. (Clarified that draw out equipment should be part of switchgear assemblies.) To be re-sent to Ken Edwards to publish on website.
5. C37.04a to include C0 definition.
6. C37.06.1 to be included in C37.04 only if C37.06.1 is done before C37.04. Otherwise will include C37.06.1 in next revision of C37.04.
7. PAR title was agreed upon: "Standard Ratings and Requirements for AC High Voltage Circuit Breakers with rated maximum voltage above 1000 V"
8. Scope was agreed upon:

“This standard applies to ac high-voltage circuit breakers with rated maximum voltage above 1000 V. It establishes a rating structure, preferred ratings, construction and functional component requirements.
This standard encompasses:

 - Three pole circuit breakers used in three-phase systems
 - Single pole circuit breakers used in single-phase systems
 - Attachments for these circuit breakers, such as bushings, current transformers, interlocks, shunt trips, etc. and auxiliary equipment sold with the circuit breakers such as closing relays and structural steel supports.

This standard does not cover circuit breakers used at frequencies other than 50 Hz or 60 Hz or generator circuit breakers that are covered in IEEE Std C37.013.”
9. It was agreed to move Human operator dependent manual operation of circuit breakers into the mechanism section, not scope...questioned if IEEE endorses this type of operation.
10. Controlled Synchronous Switching (CSS) was discussed: agreed that the requirements for CSS may be more detailed than C37.04 should cover.
11. It was agreed to leave out a purpose, since this is not needed for the PAR.
12. Reviewed volunteer assignments.
13. Motion to adjourn.
14. Slides from meeting are attached.
15. Attendees list from meeting is attached.

High-Voltage Circuit Breaker Standard Working Group C37.04 Revision

Chair – Jeffrey Nelson, TVA


Vice-Chair – Mike Crawford, MEPPI

27 September 2010

Las Vegas, Nevada

- Introductions
- Patent Slides

IEEE Patent Slides

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- **Advise the WG attendees that:**
 - The IEEE's patent policy is consistent with the ANSI patent policy and is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
 - Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
 - There may be Essential Patent Claims of which the IEEE is not aware. Additionally, neither the IEEE, the WG, nor the WG chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.

IEEE Patent Slides

- **Instruct the WG Secretary to record in the minutes of the relevant WG meeting:**
 - That the foregoing information was provided and that slides 1 through 4 (and this slide 0, if applicable) were shown;
 - That the chair or designee provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard
 - Any responses that were given, specifically the patent claim(s)/patent application claim(s) and/or the holder of the patent claim(s)/patent application claim(s) that were identified (if any) and by whom.

IEEE Patent Slides

- The WG Chair shall ensure that a request is made to any identified holders of potential essential patent claim(s) to complete and submit a Letter of Assurance.
- It is recommended that the WG chair review the guidance in *IEEE-SA Standards Board Operations Manual 6.3.5* and in FAQs 12 and 12a on inclusion of potential Essential Patent Claims by incorporation or by reference.

Note: **WG** includes Working Groups, Task Groups, and other standards-developing committees with a PAR approved by the IEEE-SA Standards Board.

Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy. Participants:

- “Shall inform the IEEE (or cause the IEEE to be informed)” of the identity of each “holder of any potential Essential Patent Claims of which they are personally aware” if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
 - “Personal awareness” means that the participant “is personally aware that the holder may have a potential Essential Patent Claim,” even if the participant is not personally aware of the specific patents or patent claims
- “Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of such potential Essential Patent Claims” (that is, third parties that are not affiliated with the participant, with the participant’s employer, or with anyone else that the participant is from or otherwise represents)

Participants, Patents, and Duty to Inform

- **The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group**

Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2

- **Early identification of holders of potential Essential Patent Claims is strongly encouraged**
- **No duty to perform a patent search**

Patent Related Links

- All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development.
- Patent Policy is stated in these sources:
IEEE-SA Standards Boards Bylaws
<http://standards.ieee.org/guides/bylaws/sect6-7.html#6>
- IEEE-SA Standards Board Operations Manual
<http://standards.ieee.org/guides/opman/sect6.html#6.3>
- Material about the patent policy is available at
<http://standards.ieee.org/board/pat/pat-material.html>

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at patcom@ieee.org or visit <http://standards.ieee.org/board/pat/index.html>

This slide set is available at <http://standards.ieee.org/board/pat/pat-slideset.ppt>

Call for Potentially Essential Patents

- 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:
 - Either speak up now or
 - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible or
 - Cause an LOA to be submitted

Other Guidelines for IEEE WG Meetings

- **All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.**
 - **Don't discuss the interpretation, validity, or essentiality of patents/patent claims.**
 - **Don't discuss specific license rates, terms, or conditions.**
 - Relative costs, including licensing costs of essential patent claims, of different technical approaches may be discussed in standards development meetings.
 - Technical considerations remain primary focus
 - **Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.**
 - **Don't discuss the status or substance of ongoing or threatened litigation.**
 - **Don't be silent if inappropriate topics are discussed ... do formally object.**

See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and "Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy" for more details.

New FAQ

12a. How should Working Groups handle Letters of Assurance when re-using portions of a non-IEEE standard in a [Proposed] IEEE Standard?


The Working Group Chair shall initiate a request for a Letter of Assurance from holders of potential Essential Patent Claims when re-using portions of an existing non-IEEE standard in a [Proposed] IEEE Standard. Any patent letters of assurance (or patent declarations) given to the developer of the non-IEEE standard cannot be stated to also apply to the [Proposed] IEEE Standard. In addition, there are specific requirements that must be incorporated into an IEEE Letter of Assurance in order for it to have the possibility of becoming an Accepted IEEE Letter of Assurance.

- Minutes of previous meeting
- Working Group Membership
- Status of action items from last meeting
 - First draft of revision to C37.04
 - Draft of PAR
 - WG members submit suggestions for revision
- Review scope of revision


Scope of Revision

- General revision
- Incorporate C37.06
- Incorporate parts of NEMA SG 4
- Incorporate C37.04a
- Incorporate C37.04b
- Incorporate relevant portions of the C37.04 Corrigendum

Proposed Standard Outline

- 
1. Overview
 2. References
 3. Definitions
 4. Service Conditions
 5. Description of Ratings & Capabilities
 6. Preferred Ratings
 7. Construction & Functional Components
 8. Nameplate Markings
 9. Current Transformers

Potential Annexes

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- A. Bibliography
 - B. TRV Symbols for Two-Parameter Method (Annex A from C37.06)
 - C. TRV Symbols for Four-Parameter Method (Annex B from C37.06)
 - D. Special Application – Repetitive Duty Circuit Breakers for Arc Furnace Switching - Section 5 of NEMA SG4
 - E. Free Standing Current Transformers

Project Authorization Request (PAR)

Old Title

Standard Rating Structure for AC High-Voltage
Circuit Breakers

New Title

Standard Ratings and Requirements for
AC High-Voltage Circuit Breakers with rated
maximum voltage above 1000 V

PAR – Old Scope



C37.04 Existing Scope

1. Scope

This standard establishes a symmetrical current rating structure and construction requirements for all indoor and outdoor types of ac high-voltage circuit breakers rated above 1000 V. It is only applicable to three-pole circuit breakers used in three-phase systems and single-pole circuit breakers used in single-phase systems. This standard does not cover circuit breakers used at frequencies other than 50 Hz or 60 Hz, or generator circuit breakers that are covered in IEEE Std C37.013-1997.



C37.06 Existing Scope

1.1 Scope

This standard applies to all indoor and outdoor types of ac high-voltage circuit breakers rated above 1000 V and rated on a symmetrical current basis.

PAR – New Scope

1.1 Scope

This standard applies to all indoor and outdoor types of ac high-voltage circuit breakers rated above 1000 V and rated on a symmetrical current basis. It establishes a symmetrical current rating structure, preferred ratings, construction and functional component requirements for all indoor and outdoor types of breakers.

This standard encompasses:

- Three pole circuit breakers used in three-phase systems
- Single pole circuit breakers used in single-phase systems
- Attachments for these circuit breakers, such as bushings, current transformers, interlocks, shunt trips, etc. and auxiliary equipment sold with the circuit breakers such as closing relays and structural steel supports.

This standard does not cover circuit breakers used at frequencies other than 50 Hz or 60 Hz, or generator circuit breakers that are covered in IEEE Std C37.013.

PAR – Purpose



- There is not a purpose in the current C37.04, but there is one for C37.06
- Purpose for C37.06

1.2 Purpose

Inconsistency in application of preferred ratings of high-voltage circuit breakers may result in wrong application of interrupting current and voltage levels.

The recommendations outlined in the following clauses are intended to provide consistent functionality for high-voltage circuit breakers rated above 1000 V.



PAR – Need for Project

This project will be a general revision which will also incorporate amendments IEEE Std C37.04a-2003 and IEEE Std C37.04b-2008, incorporate relevant portions of IEEE Std C37.04-1999/Corrigendum 1-2009, incorporate relevant portions of NEMA Std SG4-2009, and incorporate IEEE Std C37.06-2009.

Volunteer Assignments

2. Normative References

- Devki Sharma

3. Definitions, acronyms and abbreviations

- Devki Sharma
- Bill Long

4. Service Conditions

- Devki Sharma
- Bill Bergman
- Steve Lambert

Volunteer Assignments

5. Description of Ratings and Capabilities

- Steve Lambert
- John Webb
- Kirk Smith (TRV)
- Paul Leufkens (TRV)

Volunteer Assignments

6. Preferred Ratings

- Hua Liu
- Devki Sharma
- Bill Bergman
- Steve Lambert
- Georges Monitillet
- Eldridge Byron (MV)
- Bob Behl (MV)
- Kirk Smith (TRV)
- Paul Leufkens (TRV)

Volunteer Assignments

7. Construction & Functional Components

- Bill Bergman
- John Webb
- Steven Chen
- Bill Long
- Eldridge Byron
- Bob Behl

8. Nameplates

- Bill Bergman

EMC Requirements of C37.100.1

- John Webb

Volunteer Assignments

Long Line TRV Task Force

- Roy Alexander, Chair
- Denis Dufournet
- Mauricio Aristizabal
- Xi Zhu
- Daryl Hallmark
- **KEN EDWARDS**

Volunteer Assignments

Mechanism Types Task Force

- Bob Behl
- Steven Chen
- Albert Livshitz
- Bill Long
- John Webb (Chair)

End Slide

- Review & discuss PC37.04-D1
- Old Business
- New Business
- Future Meeting
 - May 2011 – Lake Buena Vista, FL

High Voltage Circuit Breaker Standard WG Meeting --- C37.04 Revision
27 September 2010 -- Las Vegas, Nevada

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