Minutes of Meeting 3. October. 2012

WG: C37.09 - IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis

Chair: Xi Zhu
Location: San Diego
Participants: 28 members
23 guests

1.) The chair started the meeting with the introduction of all participants.

2.) The chair reviewed the agenda for the meeting. The next Nescom meeting is October, 15th 2012.

3.) The chair reviewed an example of a par provided by Jeff Nelson for C37.04.

4.) Comments were made if the existing document had a purpose. It was discussed that a purpose for the document is not required.

5.) The committee reviewed the title and modified it to match similarities of C37.04. The new or proposed title for the document and PAR is listed in the slide attachments below. (The Powerpoint slides attached show the original one the chair created and the revision after the discussion with the WG)

6.) The existing scope for the document and PAR was reviewed and revised at the meeting. Details of the revisions are listed in the slide attachments listed below.

7.) There was some discussion if the following parts of the existing scope should be included in the new scope.

The tests are divided into the following classifications:
a) Design tests (Referred to in IEC 60056-1987 and IEC 60694-1996 as Type Tests)
b) Production tests (Referred to in IEC 60056-1987 and IEC 60694-1996 as Routine Tests)
c) Tests after delivery
d) Conformance tests

Several committee members though that “Tests after delivery” and “Conformance tests” are similar and should be combined. The final document will include the list as shown below in the attached PowerPoint slides.

8.) Stan Billings asked if the scope should include references to C37.100.1. The committee decided we did not need this information in the scope for PAR but will review the proposal details on a later date.

9.) The chair reviewed the list of general topics that need to be addressed in C37.09. The list is attached in the PowerPoint slides below. He asked for comments and other information that needs to be added into C37.09.

9.) Ken Edwards asked the document include “piecemeal testing.” For example, there is nothing in C37.09 that suggests tests or retests that should be performed if a design slightly changes. For example, if a mechanism design changes what re-tests need to be addressed if any. This may be address as an “extension of type tests.” The chair documented the comments and this will be addressed in C37.09. but more details are needed.

10.) The committee discussed and agreed that “Multi-Part Tests” need to be addressed in the document. One example of this is a 4 parameter TRV tests split into a part A and part B test. The chair will review this information.

11.) Some asked that shunt reactor test information be added to the document. Some suggested that maybe we should include IEC test procedures. The chair will review and consider adding to the document.

12.) The chair discussed that parts of C37.081, 081a, and 083 be added to the document. Maybe IEC 62271-101 for synthetic testing be added to the scope since the documents may die and go away until a new one is created. The committee will consider this during the document review. The PAR was modified to include this work under ‘needs for the project’ section.

9.) Jeff Nelson recommended that NESCOM be approved in March of 2013 instead of October 15th of 2012. This will allow an extra year for the work. The chair and others agreed it would be a good idea to wait to allow more time for the document to be updated. Therefore, the chair decided to submit the PAR in January 2013.

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

C37.09 Standard Test Procedure
(Revision Discussion)

Chair: Xi Zhu
Vice Chair: Victor Hermosillo
Secretary: Mike Skidmore

Agenda

- Introductions
- WG Membership / Guest (Sign in sheet)
- Topics for Discussion
  - **PAR Discussion**
    - To be submitted by Oct. 15 to NesCom
    - Details
      - Title
      - Scope
      - Needs for the project
  - **Any Other Topics**
    - Critical current
    - Service capability, 800% cumulative current
    - Denis presentation on Splitting Test Duties
    - Synthetic Test…

PAR Discussion

A PAR Example: C37.04 by Jeff Nelson

Details to be discussed:

- 2.1 Title
- 5.2 Scope
- 5.5 Needs for the Project

PAR Discussion – Title (Clause 2.1)

Existing Title from C37.09-1999 (R2007)

IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis

Proposed Revision:

~~IEEE~~ Standard for Test Procedures for AC High-Voltage Circuit Breakers ~~Rated on a Symmetrical Current Basis~~ with Rated Maximum Voltage above 1000 V

PAR Discussion – Scope (Clause 5.2)

Existing Scope from C37.09-1999 (R2007)

This test procedure summarizes the various tests that are made on ac high-voltage indoor and outdoor circuit breakers, except for generator circuit breakers, which are covered in IEEE Std C37.013-1997. It describes accepted methods used in making the tests and specifies the tests that will verify assigned ratings under ANSI/IEEE standards. This procedure does not preclude the use of other equivalent or more effective methods of demonstrating ratings.

The tests are divided into the following classifications:

a) Design tests (Referred to in IEC 60056-1987 and IEC 60694-1996 as Type Tests)

b) Production tests (Referred to in IEC 60056-1987 and IEC 60694-1996 as Routine Tests)

c) Tests after delivery

d) Conformance tests

PAR Discussion – Scope (Clause 5.2)

Existing Scope Part 1

This test procedure summarizes the various tests that are made on ac high-voltage indoor and outdoor circuit breakers, except for generator circuit breakers, which are covered in IEEE Std C37.013-1997. It describes accepted methods used in making the tests and specifies the tests that will verify assigned ratings under ANSI/IEEE standards. This procedure does not preclude the use of other equivalent or more effective methods of demonstrating ratings.

Revision on Part 1:

- This standard applies to ac high-voltage circuit breakers with rated maximum voltage above 1000 V. ~~This test procedure standard~~ It defines ~~summarizes the~~ various tests that are made on ac high-voltage ~~indoor~~ ~~and outdoor~~ circuit breakers, except for generator circuit breakers, which are covered in IEEE Std 62271-37-013 (formerly C37.013-~~1997~~). It describes accepted methods used in making the tests and specifies the tests that will verify assigned ratings under ANSI/IEEE standards. This procedure does not preclude the use of other equivalent or more effective methods of demonstrating ratings.

PAR Discussion – Scope (Clause 5.2)

Revision on Part 1:

- This standard applies to ac high-voltage circuit breakers with rated maximum voltage above 1000 V. ~~This test procedure standard~~ It defines ~~summarizes the~~ various tests that are made on ac high-voltage ~~indoor and outdoor~~ circuit breakers, except for generator circuit breakers, which are covered in IEEE Std 62271-37-013 (formerly C37.013~~-1997~~). It specifies the tests and describes the accepted methods used to ~~describes accepted methods used in making the tests that are required to and specifies the tests that will~~ verify assigned ratings defined in C37.04. It also describes test procedures associated with production and field installation. ~~under ANSI/IEEE standards. This procedure does not preclude the use of other equivalent or more effective methods of demonstrating ratings.~~

PAR Discussion – Scope (Clause 5.2)

Existing Scope Part 2

The tests are divided into the following classifications:

a) Design tests (Referred to in IEC 60056-1987 and IEC 60694-1996 as Type Tests)

b) Production tests (Referred to in IEC 60056-1987 and IEC 60694-1996 as Routine Tests)

c) Tests after delivery

d) Conformance tests

Revision on Part 2:

The tests are divided into the following classifications:

a) Design tests (Referred to in IEC62271-100 (ed2.0) and IEC62271-1(ed1.0) as Type Tests)

b) Production tests (Referred to in IEC62271-100 (ed2.0) and IEC62271-1(ed1.0) as Routine Tests)

c) Tests after delivery

d) Conformance tests

PAR Discussion – Scope (Clause 5.2)

Revision on Part 2:

The tests are divided into the following classifications:

a) Design tests ~~(Referred to in IEC62271-100 (ed2.0) and IEC62271-1(ed1.0) as Type Tests)~~

b) Production tests ~~(Referred to in IEC62271-100 (ed2.0) and IEC62271-1(ed1.0) as Routine Tests)~~

~~c) Tests after delivery~~

cd) Conformance tests

d) Field tests

PAR – Needs for the Project (Clause 5.5)

This document will be revised, in particular, to reflect new and updated test methods and procedures. This revision will also include the changes made in C37.04 and C37.017. It will also incorporate all previously published errata, corrigenda and amendments of C37.09 as well as relevant portions of NEMA Std. SG4-2009, IEEE Std. C37.06-2009, C37.081, C37.081a, and C37.083.

PAR – Needs for the Project (Clause 5.5)

This project will be a general revision which will also incorporate:

- **amendments IEEE Std C37.04a-2003**
- **amendments IEEE Std C37.04b-2008,**
- **IEEE Std C37.04-1999/Corrigendum 1-2009,**
- **IEEE Std C37.04-1999/ Errata - 2005**
- **relevant portions of NEMA Std SG4-2009, Jeff to provide details?**
- **IEEE Std C37.06-2009**
- **amendments IEEE Std C37.09a-2003**
- **amendments IEEE Std C37.09b-2008,**
- **IEEE Std C37.09-1999/ Errata – 2007**
- **New bushing standard…**
- **….**

Reminder List – future topics

- Critical current (Roy)
- Service capability, 800% cumulative current
- Splitting Test Duties (Denis)
- Synthetic Test (refer to IEC62271-101, eliminate C37.081, C37.081a, C37.083) (Mauricio)
- ….to be continued…
- Define "piecewise" testing, v.g. tests on same interrupter with different tanks, alternative mechanisms, extension of type tests.
- Multi-part testing
- Inductive load switching (refer to IEC Std.)
- Separate demonstration of each pole to clear

Click to add title

- January 24, 2013 deadline for submittal of PAR

Meeting Roster (C37.09) – San Diego 10-3-12

Role	First Name	Last Name	Company	City	State	Country	San Diego 10/3/2012
Chair	Xi	Zhu	HICO America	Murrysville	PA	USA	X
Secretary	Michael	Skidmore	AEP	Pickerington	OH	USA	X
Vice-Chair	Victor	Hermosillo	Alstom Grid	Charleroi	PA	USA	X
Guest	Doug	Edwards	Siemens Industries, Inc.	Wendell	NC	USA	X
Guest	Richard	York	TE Connectivity	Shanghai, P.R. China	Other	China	X
Guest	Antonio	Mannarino	PSE&G	Springfield	NJ	USA	X
Guest	Stephen	Lambert	Shawnee Power Consulting, LLC	Williamsburg	VA	USA	X
Guest	Ronald	Esco	Eaton Corporation	Greenwood	SC	USA	X
Guest	Dave	Mitchell	Dominion	Richmond	VA	USA	X
Guest	Donald	Cantrelle	Georgia Power	Forest Park	GA	USA	X
Guest	Vincent	Marshall	Southern Company Services	Forest Park	GA	USA	X
Guest	Neil	McCord	Southern States	Hampton	GA	USA	X
Guest	Gilbert	Carmona	Southern California Edison	Pomona	CA	USA	X
Guest	Dave	Riffe	Westinghouse Electric Company	New Stanton	PA	USA	X
Guest	Lisa	Yacone	IEEE-SA	Piscataway	NJ	USA	X
Guest	Cody	Brehm	American Transmission Company	Milwaukee	WI	USA	X
Guest	John	Shullaw	GE Energy - Industrial Solutions	West Burlington	IA	USA	X
Guest	Dave	Collette	Mitsubishi Electric	Warrendale	PA	USA	X
Guest	Erin	Spiewak	IEEE	Piscataway	NJ	USA	X
Guest	Lise	Phan	Parcific Gas and Electric Company	Oakland	CA	USA	X
Guest	Wangpei	Li	Eaton	Horseheads	NY	USA	X
Guest	William	Bane	Nashville Electric Service	Nashville	TN	USA	X
Guest	Andrew	Crane	Consumers Energy	Ann Arbor	MI	USA	X
Guest	Anton	Janssen	Liander	Arnhem	Other	Netherlands	X
Guest	Ricardo	Martinez	CFE-LAPEM	IRAPUATO, GTO	GU	Mexico	X
Member	Ken	Edwards	Bonneville Power Administration	Vancouver	WA	USA	X
Member	Mauricio	Aristizabal	ABB	Pittsburgh	PA	USA	X
Member	Robert	Smith	Eaton Corporation	Horseheads	NY	USA	X
Member	Roy	Alexander	RWA Engineering	Cranberry Twp.	PA	USA	X
Member	Miklos	Orosz	Schneider Electric	Nashville	TN	USA	X
Member	Stan	Billings	Mitsubishi Electric PP	Warrendale	PA	USA	X
Member	Albert	Livshitz	Schneider Electric Services	Loveland	OH	USA	X
Member	Anne	Bosma	ABB AB	Ludvika	Other	Sweden	X
Member	Denis	Dufournet	Alstom Grid	Villeurbanne	Other	France	X
Member	Michael	Sigmon	Eaton Corporation	Greenwood	SC	USA	X
Member	Chih	Chow	PEPCO	Washington	DC	USA	X
Member	Hua Ying	Liu	Southern California Edison	Pomona	CA	USA	X
Member	Arben	Bufi	HITACHI HVB, INC.	Suwanee	GA	USA	X
Member	Jeffrey	Nelson	Tennessee Valley Authority	Chattanooga	TN	USA	X
Member	Helmut	Heiermeier	ABB	Baden	Other	Switzerland	X
Member	Anthony	Ricciuti	Eaton Corporation	Moon Township	PA	USA	X
Member	John	Webb	ABB	Florence	SC	USA	X
Member	Thomas	Pellerito	Detroit Edison	Detroit	MI	USA	X
Member	Patrick	Di Lillo	Consolidated Edison Co. of NY, Inc.	New York	NY	USA	X
Member	Roderick	Sauls	Southern Company Services	Birmingham	AL	USA	X

Member	**Wes**	**Wadsworth**	**Hitachi HVB, Inc.**	**Suwanee**	**GA**	**USA**	**X**
Member	**Li**	**Liu**	**Eaton**	**Moon Township**	**PA**	**USA**	**X**
Member	**Bjorn**	**Lofgren**	**Siemens Energy**	**Richland**	**MS**	**USA**	**X**
Member	**Jon**	**Rogers**	**Siemens Energy, Inc**	**richland**	**MS**	**USA**	**X**
Member	**Sushil**	**Shinde**	**ABB Inc.**	**Mt Pleasant**	**PA**	**USA**	**X**
Member	**Carl**	**Schuetz**	**American Transmission Company (ATC)**	**Waukesha**	**WI**	**USA**	**X**