Minutes

USNC TAG SC17A: High-voltage Switchgear & Controlgear
USNC TAG SC17C: High-voltage Enclosed Switchgear & Controlgear

Place of Meeting:	Tropicana Las Vegas Hotel 3801 Las Vegas Blvd. South Las Vegas, NV 89109
Dates & Times	Monday, 27 September 2010 6:00 PM – 9:00 PM EST
Presiding Officer:	Larry Farr, TA [USNC TAG SC17A] Ted Burse, TA [USNC TAG SC17C]
NEMA Staff:	Gerard Winstanley (for Ken Gettman) 703-841-3254 ger_winstanley@nema.org

1. CALL TO ORDER

The meeting was called to order at 6:20 PM. A quorum was present.

2. CONDUCT OF MEETING

Staff reminded members that the meeting shall be conducted in accordance with NEMA *Guidelines for Conducting Meetings*.

3. APPROVAL OF PREVIOUS MINUTES

The minutes of the October 2009 teleconference of SC17A and SC17C TAG meeting were approved by correspondence.

4. ROSTER

Rosters were included in the agenda and members were asked to notify staff of any corrections.

5. APPROVAL OF THE AGENDA

The agenda was approved as submitted

6. REVIEW OF COMMENT DEVELOPMENT ON IEC DOCUMENTS

The members reviewed the US comments not accepted by the secretariat and developed a recommended response for each comment.

6.1. IEC - Working documents for SC 17A

WG-53 17A/928/CC

Comment 22: Since for the purposes of this standard a “short, specified” time interval is 35 ms, this should be the statement.
Proposed Change: In the first sentence, replace “short, specified” by “35 ms”. Delete the 2nd sentence.
Observation: The short timing interval is not the 35ms time constant.
Proposed US Response: No we do not accept. Three issues must be addressed in the next CD.
Short timing interval is not addressed in the document and must be.
Clause 5.1.1 with its 50 msec response time is in conflict with the 35 msec given in 3.12.
in 3.12 rms is without periods and 5.1.1 it has periods. Please correct.

Comment 50: The instructions for test are not complete.
Proposed Change: Add specification for mounting of circuit breaker, how electrically supplied or energized (volts, frequency, etc.) and any other characteristic that ensures representative testing for actual application.
Observation: These items are specified within clauses 4 & 6.
Proposed US Response: We accept.

PT-48 17A/921/CC

Comment 16: It seems that it would make more sense to define “close-open time” as the sum of the closing time and the opening time. The current definition ignores the closing response time of the switch.
Proposed Change: Incorporate the response time for closing into the definition.
Observation: The wording is based on the definition of high voltage circuit breaker 62271-100 3.7.143.
Proposed US Response: Accept.
My Observation: This definition is used in Clause 4.101 and the “Closing time” is used in combination with “close-open time” per the US comment.

MT-110 17A/938/CC

Comment 26: While the 3rd sentence references Cp, there is no specification as to the valueof Cp.
Proposed Change: Provide information as to the value of Cp.
Observation: C_P is to be calculated to achieve frequency as noted.
Proposed US Response: Accept.

MT-36 17A/930/CC

Comment 39: In paragraph 2 - A Circuit breaker is expected to meet all its ratings at rated Control Voltage, pressure etc, but as the voltage or pressure reaches toward the 85% it is no, longer required to meet it’s ratings?
Proposed Change: Delete the exception : The circuit breaker shall meet its ratings at all control power from 85% to 110% per IEC 62271-1 Clause 5.8.1 “A shunt closing release shall operate correctly…”
Observation: Not Acceptable: The intention with the paragraph is to permit tests with a higher control voltage such that the timing of the breaker is more consistent. This is used in for example T100a. It does not mean that the breaker does not meet its ratings.
Proposed US Response: Accept.

MT-46 17A/936/CC

Comment 58: In paragraph 1 - An overload needs to be provided in each phase of the controller circuit. Sometimes the SCPD is also the overload.
Proposed Change: Add: “An overload element shall be provided in each phase of the controller.”
Observation: clarified that overload is required however this may be accomplished with two phase sensing.
Proposed US Response: Not accepted. Need to add that in some countries local regulations require current sensing in all three phases.

MT-47 17A/898/CC

Comment 17: Interrupting currents are out of synch with the applications, IEC standards and the IEEE standards referenced by the draft. The referenced duty is to C37.41 and IEC 60282-2, in which class B devices are typically rated 6500 A and higher. Therefore the duty in the draft standard should align with the reference standards (to the nearest R10-series interrupting rating). Furthermore, simplification of table 5 in this manner will simplify Table 12.
Proposed Change: All entries ">4 000 A" should read ">12 500 A". All entries <=4 000 A" should read "<=12 500A"
Observation: there is no technical reason to synch the interrupting currents of reclosers with other devices.
Furthermore, this proposed change would reduce the interrupting capability of reclosers.
Proposed US Response: Not accepted.

Comment 41: a): Sequence should not specifically be defined as four shots to lockout
Proposed Change: List sequence as "minimum O-t-CO" with open time interval t and any additional CO intervals to be defined by the manufacturer“
Observation: The purpose of this clause is to distinguish the operating sequences of the different types of equipment covered by this standard and to define the minimum required capability
Proposed US Response: Not accept.

Comment 72 : a): The section does not discuss specific requirements for the cutout recloser
Proposed Change: Add the section "The making current capability of the cutout mounted recloser results from a dependent closing operation from the dropped out position, using the fuse support or base identified in section 6.1.2. Making current tests shall be completed at the rated maximum voltage and rated interrupting current. The cutout mounted recloser shall close and interrupt the current according to the operating duty specified in section 4.105. The cutout mounted recloser and associated fuse support used in the test may be different from that used to demonstrate the standard operating duty“
Observation: see observation of comment #43
Observation #43: Accepted in principle: The decision of the DLMT is to prohibit dependent manual close operation into a potential fault. No fault close operation allowed for dependent manual operation.
Proposed US Response: Accept.

Comment 84: The proposed value of di/dt and the peak surge current is too low for adequate field performance.
Proposed Change: The present standard value of a di/dt of 10 to 15 kA/microsecond should be retained. The peak current should be increase to be no less than 20 kA.
Observation: The present peak current value is sufficient until experience with higher values is available.
Proposed US Response: Accept.

Comment 90: open tolerance, Motor generator sets will not hold voltage and currents that tight in some labs

Proposed Change: change to 15%-0% higher levels are acceptable by agreement
Observation: higher tolerance is always allowed with agreement of the manufacturer. This general problem needs to be addressed in a future revision to the standard.
Proposed US Response: Not accept.

6.2. IEC - Working documents for SC 17C

MT-14 17C/490/RCV

Comment 140: It is not clear from the text that the neutral of the supply is connected to the enclosure.
Proposed Change: The supply circuit shall be three-phase and all three phases of the switchgear and controlgear shall be energized. The neutral point of the supply circuit shall be connected directly to the enclosures earthing circuit and may be either isolated or earthed through and impedance.
Observation: Not accepted. Neutral can be floating.
Proposed US Response: To be determined after IEEE meeting.

7. OTHER SC17A AND SC17C ACTIVITIES

US Experts to SC17A and SC17C

TC17/SC17A/MT28	Kenneth E.	GETTMAN	TC17/SC17A/MT44 (Cap by-pass switches)	**VOLUNTEER NEEDED**	
TC17/SC17A/MT28	Mauricio	ARISTIZABAL	TC17/SC17A/MT45	Carl	REIGART
TC17/SC17A/MT28	R.K.	SMITH	TC17/SC17A/MT45	R.K.	SMITH
TC17/SC17A/MT30	Kenneth E.	GETTMAN	TC17/SC17A/MT46	Larry	FARR
TC17/SC17A/MT31	Kenneth E.	GETTMAN	TC17/SC17A/MT46	Carl A.	SCHNEIDER
TC17/SC17A/MT31	Thomas J.	TOBIN	TC17/SC17A/MT47	David	STONE
TC17/SC17A/MT32	Kenneth E.	GETTMAN	TC17/SC17A/MT49 1100 kV – 1200 kV	**VOLUNTEER NEEDED**	
TC17/SC17A/MT32	R.K.	SMITH	TC17/SC17A/MT51	Charles	BALL
TC17/SC17A/MT33	R.R.	FRONK	TC17/SC17A/MT51	Eldridge	BYRON
TC17/SC17A/MT33	Eric	FUJISAKI	TC17/SC17A/WG52	R.W.	LONG
TC17/SC17A/MT33	Kenneth E.	GETTMAN	TC17/SC17A/WG53	Kenneth E.	GETTMAN
TC17/SC17A/MT34	Larry	FARR	TC17/SC17A/PT42	Larry	FARR
TC17/SC17A/MT34	Kenneth E.	GETTMAN	TC17/SC17A/PT42	Carl A.	SCHNEIDER
TC17/SC17A/MT34	Carl A.	SCHNEIDER	TC17/SC17A/PT43	Paul	BARNHART
TC17/SC17A/MT34	David	STONE	TC17/SC17A/PT43	Larry	FARR
TC17/SC17A/MT36	Kenneth E.	GETTMAN	TC17/SC17A/PT43	Kenneth E.	GETTMAN
TC17/SC17A/MT36	**VOLUNTEER NEEDED**		TC17/SC17A/PT43	R.K.	SMITH
TC17/SC17A/MT36	R.W.	LONG	TC17/SC17A/PT43	Carl A.	SCHNEIDER
TC17/SC17A/MT37	Carl D.	REIGART	TC17/SC17A/PT62271-302	Frank	BLALOCK
TC17/SC17A/MT38	Ron	LAI	TC17/SC17A/PT62271-302	David	STONE
TC17/SC17A/MT38	James	Zahnen	TC17/SC17A/PT48	Ken	EDWARDS
TC17/SC17A/MT39	Lukas	ROTHLISBERGER	TC17/SC17A/PT50 (Application Guide)	Mauricio	ARISTIZABAL
TC17/SC17A/MT39	Dave	GIEGEL	TC17/SC17A/PT50 (Application Guide)	Larry	FARR
TC17/SC17A/MT40	Kenneth E.	GETTMAN	TC17/SC17A/PT50 (Application Guide)	R.K.	SMITH

TC17/SC17C/MT14	Ted A.	BURSE	TC17/SC17C/MT22	Eric	FUJISAKI
TC17/SC17C/MT14	Larry	FARR	TC17/SC17C/MT24	Patrick	FITZGERALD
TC17/SC17C/MT14	Kenneth E.	GETTMAN	TC17/SC17C/MT25	**VOLUNTEER NEEDED**	
TC17/SC17C/MT14	Carl A.	SCHNEIDER	TC17/SC17C/MT27	Patrick	FITZGERALD
TC17/SC17C/MT14	Sandeep	ZOPE	TC17/SC17C/MT27	Kenneth E.	GETTMAN
TC17/SC17C/MT15	**VOLUNTEER NEEDED**		TC17/SC17C/WG11	William	ACKERMAN
TC17/SC17C/MT15	Kenneth E.	GETTMAN	TC17/SC17C/WG11	Kenneth E.	GETTMAN
TC17/SC17C/MT16	Phil	BOLIN	TC17/SC17C/WG23	Kenneth E.	GETTMAN
TC17/SC17C/MT16	Kenneth E.	GETTMAN	TC17/SC17C/WG26	Eric	FUJISAKI
TC17/SC17C/MT16	John	BRUNKE	TC17/SC17C/AHG2	Ted A.	BURSE
TC17/SC17C/MT16	David	GIEGEL			
TC17/SC17C/MT18 (Cable Terminal >72,5kV)	**VOLUNTEER NEEDED**		TC17/SC17C/AG20 (advisory grp high voltage)	**VOLUNTEER NEEDED**	
TC17/SC17C/MT19	Kenneth E.	GETTMAN	TC17/SC17C/AG21 (advisory grp med voltage)	**VOLUNTEER NEEDED**	

7.3. Activities of IEC SC17A/MT28

Amendment 2 for 62271-101: Synthetic Testing – revisions are being considered addressing circuit-breakers fitted with parallel opening resistors, current injection and new UHV tables.

7.4. Activities of IEC SC17A/WG30

Switchgear fuse combinations 62271-107 – second edition is at the CD stage, comments to be discussed at the Seattle meeting during October. New chapters or clauses are being added for:

- 4.11 Rated filling levels for insulation and/or operation
- 5.19 X-rays
- 5.20 Corrosion
- 6.10 Additional tests on auxiliary and control circuits
- 6.11 X-radiation test procedure for vacuum interrupters
- 12 Environment

7.5. Activities of IEC SC17A/WG31

Switchgear with combined functions 62271-108 – no new activity

7.6. Activities of IEC SC17A/MT32

maintenance of 62271-110 (former 61233) – document at CD stage with comments to be discussed at the Seattle meeting during October.

7.7. Activities of IEC SC17A/MT33

Maintenance of 62271-300 – Seismic: no new activity since publication.

7.8. Activities of IEC SC17A/MT34

Larry Farr, Hugh Ross, Carl Schneider, David Stone, Alan Storms - updating of 62271-1. Document to add 1000 kV and 1200 kV is at CDV stage. Additional work being done to address BIL and power switching based on CIGRE recommendations; and to address UK concern with effect of solar radiation on gas-filled equipment.

7.9. Activities of MT SC17A/MT36

Maintenance of 62271-100 – continuing work to update the document, proposals being discussed on "break time", use of SF6, humidity testing, short-line fault testing and other topics. Amendment at CD stage with comments to be discussed at the Seattle meeting during October.

7.10. Activities of IEC SC17a/MT37

Maintenance of 62271-104 – no current activity

7.11. Activities of IEC SC17A/MT38

Kirk Smith - Maintenance of 62271-301 – no current activity

7.12. activities of IEC sc17a/mt40

Maintenance of 62271-310 (MCB Endurance) – no updates to report

7.13. activities of IEC SC17A/MT47

Efforts to product 62271-111 as adoption of IEEE C37.60 for reclosers. CDV stage draft is approved for distribution for vote and comment.

7.14. Activities of IEC SC17A/Project Team 62271-302

Frank Blalock, Dave Stone – 62271-302: High voltage alternating current circuit-breakers with intentionally non-simultaneous pole operation – published as Technical Report

7.15. Activities of PT 50 - Application guide to IEC 62271-1 and IEC 62271-100 based on CIGRE TB 304 and 305

No activity reported.

7.16. Activities of IEC SC17C/WG11

William Ackerman (IEEE), Pete Dwyer – Communication for HV SG Assemblies
Document published in 6/06 – Maintenance date 2012. No recent activity.

7.17. Activities of IEC SC17C/MT14

Ted Burse, Pete Dwyer, Larry Farr, Anthony Hansen - Revision of IEC 62271-200 CDV was approved, after addressing comments the draft will be distributed as FDIS.

7.18. Activities of IEC SC17C/MT15 & 16

Phil Bolin, Pete Dwyer – revision of IEC 62271-203 – CDV was approved, is ready to be distributed as FDIS.

7.19. Activities of IEC SC17C/MT19

Gettman – revision of 62271-304 (old 60932) (severe climatic conditions)
- the publication has been published as a Technical Report

7.20. activities of IEC SC17c/wg22

Work proceeding to update 62271-210: Seismic – 2nd CD comments are being addressed.

7.21. activities of IEC sc17c/WG23

EMF: 62271-208 published as a Technical Report. No recent activity.

7.22. Activities of ACOS – report of sc17a representative

Advisory Committee on Safety for IEC Standardization Management Board. Major projects include:

- Flammability of enclosure material for large appliances
- Guide for limits on touch temperatures
- Guide for risk analysis to address safety in standards

8. NEW HVDC TECHNICAL COMMITTEE

The committee work is progressing with projects (see document list above) being established or considered for the following:

- design of ground electrodes for high-voltage direct current (HVDC) links
- High Voltage Direct Current (HVDC) Substation Audible Noise
- Guidelines on Asset Management of HVDC Installations
- Electromagnetic Environment Criterion for High-voltage Direct Current (HVDC) Overhead Transmission Lines
- Reliability and availability evaluation of HVDC systems.

9. TAG OPERATING PROCEDURE

As a reminder, the viability of the TAG is dependent on voting members of the TAG submitting responses when notification has been transmitted that voting is required. The usefulness of the TAG is dependent on participation in the development of US proposals and US positions, comments and voting on IEC draft documents. As these documents are being considered with increasing frequency for adoption in the US as National Standard, it is important that US concerns, from general interest, users and manufacturers, be identified and efforts expended to address those concerns.

TAG members may be provided copies of draft IEC documents and may be provided copies of pertinent IEC published documents (including standards, technical reports, etc.) that are necessary to carry on the function of the TAG. Those who are not TAG members are not to be provided copies of any IEC documents (draft or published) on a regular basis, but at the discretion of the TAG Secretary they may be provided a copy of a particular document to as to obtain better representation of US interests on that specific topic.

NEMA Workspaces – The posting of IEC documents and other pertinent material is on the NEMA Workspaces under either SC17A or SC17C. Members should contact staff if there are any questions or access difficulties.

10. OTHER

- Members are invited to discuss how to engage additional groups of individuals to participate in the TAG. Of particular interest are consultants, contractors and utilities. We do have some members in those categories but it would be helpful to expand that representation.
- It is noted that the next plenary of IEC SC17A and SC17C will be in Seattle during the October 2010 IEC General Meeting. This may provide an opportunity for additional members to participate in the meeting as delegates or observers. It should also be noted that there is still an opportunity to be a meeting sponsor to assist with funding of the costs for the meeting, anticipated to be the largest in IEC history with over 90 committees and as many as 2500 to 3000 delegates. Please contact staff if you have any questions.

11. TIME AND PLACE OF NEXT MEETING

The next meeting will be at the IEEE/PEC Switchgear Committee meeting in Orlando, FL on May 15-19, 2011.

12. ADJOURNMENT

The meeting was adjourned at 7:30 PM.

Reported by:

Gerard Winstanley CRS 10/13/10
Acting Secretary
NEMA

cc: J. Caskey
K. Gettman

ANNEX

Attendance

MEMBER	ATTENDED	MEMBER	ATTENDED
Bill Ackerman		Chris Lettow	
John Angelis		Kevin Lippert	
Mauricio Aristizabal	Yes	Albert Livshitz	
Charles Ball	Yes	R. William Long	Yes
Paul Barnhart	Yes	Alan Manche	
L. Ron Beard		Donald Martin	
W. J. Bergman		Frank Mayle	Yes
Sonya Bird		Deepak Mazumdar	
Philip Bolin		Nigel McQuin	
Antone Bonner	Yes	Steven Meiners	Yes
John Brunke		Michael Mendik	
Ted Burse	Yes	Dolores Mercier	
Eldridge Byron	Yes	Peter Meyer	Yes
John Caskey		Paul Notarian	
Frank DeCesaro		T. W. Olsen	Yes
Patrick Di Lillo		Mike Orosz	Yes
Glenn Dorsey		Iulian Profir	
Denis Dufournet		Lukas Rothlisberger	
Ken Edwards	Yes	Brian Savaria	
Larry Farr	Yes	Carl Schneider	Yes
Patrick Fitzgerald		Ned Simon	
Eric Fujisaki		R. Kirkland Smith	Yes
Ken Gettman		David Stone	Yes
David Giegel		Lori Tennant	
Jodi Haasz		Thomas Tobin	
Mel Hopkins		John Webb	Yes
Chad Kennedy		Gerard Winstanley	Yes
Darrell Kirkendall		Sandeep Zope	
J. Koepfinger			
GUESTS			
Allan Peterson - Utillity Service Corp.	Yes	David Lemmerman – PECO/Exelon	Yes
Alan Storms - Consultant	Yes		