

PC37.74 WG Meeting

4/30/12 – St Pete Beach, FL

The meeting was called to order by Steve Meiners, Chair, at 8:04 AM

Introductions were made.

The patent slides no longer are presented due to the AMS sign-in system and the required acknowledgement requirements.

The roster was circulated and the members and guests introduced themselves.

Draft 7 was sent out through the AMS system, but there were problems due to the sending of multiple e-mails with attachments crashing the system. One WG member did not receive the mailing, but no other problems reported.

The minutes for the last meeting were submitted for approval. Moved to approve by Kirk Smith and seconded by Tim Royster. All WG members present were in agreement.

Comments were incorporated, except for transformer magnetizing. Also there were some questions about fuse applications – X/R for load switching. (6.7.5.4) Language should agree with C37.41, and the language from C37.41 has been sent to Steve, who will review and make changes if required.

All other issues were incorporated or deferred. Comment resolution sheet was also circulated with Draft 7 to the WG and all that commented by ballot.

Column U of the comment spreadsheet reflects what was changed to be made in draft. The tracking changes feature was enabled in the Draft 7 document, showing what has changed from Draft 6, the balloted copy.

Table 8 – Many comments concerning the footnotes, these were reviewed and proposed resolution given in Draft 7. Request was made to WG to review table 8 for correct transcription from previous version (which had been converted out of text). Mr. Meiners reformatted Table 8 to clarify and improve the header. The change was well accepted by WG members present at meeting.

From previous assignment Mr. Ball had reviewed document and given decision on normative or informative notes, etc, this was Task 1. All these have been incorporated into Draft 7.

Request to go out to ballot in June/July timeframe, require the WG needs to review and digest all changes in Draft 7. Comments are due back by the end of May. The revision on transformer magnetizing and C37.41 will be incorporated into new draft within a week or two and then circulated to WG.

Mr. Ball made a presentation on “Rated Unloaded Transformer Switching Current”, which described the lack of coordination between IEEE 2147 and C37.74 which “leads to absurd test requirements” and makes it difficult, if not impossible, for test laboratories to perform certification tests. Mr. Ball presented four possible solutions to this dilemma.

C37.74 has been previously instructed by ADSCOM to “consider” incorporation of the contents of C37.100.1 (ADSCOM, 10-1-09) and IEEE1247 (could not find citation), which uses a multiplication factor of 5000 up to 500kVA and 3000 for over 500kVA, based on 2.5% exciting current.

C37.74 assumes an exciting current of 3.5% of rated load-interrupting current. This leads to a rated transformer magnetizing switching current rating of 21A for a 600A switch as an example.

Using the 3,000 factor from IEEE 1247, the required making current is 63,000 amperes. This lack coordination between C37.74 & IEEE-1247 presents a certification issue.

Suggestion for changes to C37.74 Draft 7, these were given in the presentation by Mr. Ball.

- Remove the 3000 and 5000 factors. Change rating basis from a rated current to a rated kVA size.
- Make test current half of the through-fault current of the rated kVA size.
- Consider referring to C57.12.34, Table 2.
- Keep the old test and preferred currents now shown in C37.74 current copy.

Solutions proposed as a result from WG discussion.

- 1) Keep old test and preferred currents shown in C37.74
 - No technical justification to do this
 - This does not coordinate with C37.100.1 or other switch standards
- 2) Keep the preferred currents now shown in 74, and require only opening, not closing on the test current
 - This gets by the problem with mixing 74 currents values and 1247 test method.
 - Does not reflect the real world condition.
- 3) Drop the preferred current values in C37.74 and follow 1247
 - 1247 assumes that a switch that passes the load switching test can switch a transformer up to 38kV or up to 2500kVA
 - Larger transformers per 1247
 - Test circuit is not the same as an actual transformer.
- 4) Change rating from current to kVA size.

Summary of choices

- a) Keep the old test method preferred currents now shown in C37.74.
 - Add informative note on the consideration for future work by 1247, on magnetizing current, and Wind Farm applications.
 - Linear circuit.
 - Remove existing reference to 1247
 - Keep 7, 14, 21 amps
 - These test circuits were shown in C37.72
- b) Keep C37.74 currents for opening, but don't do closing, with test method from 1247.
- c) Use 1247.
- d) Change from current to KVA size, but do away with testing, above 2500kVA or 38kV and state that the test is under consideration.

It was proposed that the WG keep the historic C37.74 test values for transformer magnetizing. Individual transformers, vs. connected load or multiple transformers on common feed is an issue with the 1247 method. 25X load current, declining to 12X. Values now are based on 3.5%.

It was mentioned that the old method does not represent switching actual transformer magnetizing current. One transformer manufacture shows values similar to 1247 (up to about 2.5%). Changes in standards would require changes in nameplates. ADSCOM directive is to coordinate with 1247.

It was suggested that the WG could say that fault making duty of switch is sufficient for magnetizing.

Frank Muench moved to adopt option a) as stated above and allow editors to implement Don Martin seconded. The vote passed with 2 no's, no abstentions. – Motion carried.

Steve will try to circulate the revisions including the transformer magnetizing testing section this week. Currently Draft 7 has been circulated to WG and need to begin reviewing this draft, the new draft with the inclusion of the transformer mag testing will be circulated ASAP. We then will need WG to review this new draft and return all comments by end of May any no response will be taken as an agreement. Meeting the end of May will allow completion of draft and submission for recirculation ballot in June/July timeframe. Our PAR runs out end of Dec this year so we need to move forward.

Meeting was adjourned at 9:45 AM. (Moved by Jim Swank, seconded by Jeff Geiger)

Meeting attendance is given below.

Role	First Name	Last Name	Company	4/30/2012
Guest	Robert	Smith	Eaton Corporation	X
Member	Walt	Von Miller	Delta Technology Consulting, Inc.	
Member	Frank	DeCesaro	Cooper Power Systems	X
Guest	Robert	Brown	Hubbell Power Systems	
Member	Edward	Jankowich	Jankowich Consulting LLC	X
Member	Donald	Martin	G&W Electric Co.	X
Member	David	Stone	DTS Technical Services	X
Guest	Pete	Dwyer	Dwyer Enterprises	
Guest	Ted	Burse	Powell Industries, Inc	
Member	James	Swank	Cooper Power Systems	X
Member	Timothy	Royster	Dominion Virginia Power	X
Member	Frank	Muench	Cooper Power Systems	X
Guest	Frank	Lambert	Georgia Tech / NEETRAC	
Guest	Francois	Soulard	Hydro-Quebec	X
Member	Jan	Zawadzki	Powertech	X
Guest	Peter	Glaesman	Reuel, Inc.	X
Guest	Paul	Barnhart	Underwriters Laboratories	
Member	Larry	Davis	Reuel Inc	
Member	Craig	Befus	BC Hydro	X
Member	Raymond	Capra	Consultant	
Guest	Marcel	Fortin	BPR Energy Inc	
Member	Charles	Ball	S&C Electric Company	X
Member	Chris	Ambrose	Federal Pacific (Division of Electro-Mechanical Corp.)	X
Guest	Edward	Steele	Thomas & Betts / Joslyn Hi-Voltage	
Member	Jeffrey	Gieger	Thomas & Betts	X
Member	Tim	Taylor	Thomas & Betts	X
Guest	Larry	Putman	Powell Electrical Systems Inc.	X
Chair	Steven	Meiners	GE	
Member	Nenad	Uzelac	G&W Electric	X
Guest	Dan	Gardner	Thomas & Betts	
Guest	Connie	Taylor	Pacific Gas & Electric Co.	
Member	Fernando	Calderon	AC Electric Systems	
Guest	Tyrone	Meeks	S&C Electric Company	
Member	George	House	Yaskawa Electric America	
Member	William	Walter	We-Energies	X
Guest	Gerard	Schoonenberg	Eaton	
Member	Scott	Reed	S&C Electric Company	X

Guest	Harold	Hirz	Thomas and Betts	
Guest	Lawrence	Farr	Eaton Electrical	
Guest	Edgar	Dullni	ABB	X
Guest	Herman	Bannink	KEMA Netherlands	
Guest	Antone	Bonner	Cooper Power Systems	X
Member	Jerry	Baskin	Federal Pacific	X
Guest	Mari	Estep	NV Energy	
Guest	Mark	Feltis	Schweitzer Engineering Laboratories, Inc	X
Guest	Dudley	Marshall	Hubbell Power Systems	
Guest	Karl	Pilz	Siemens Energy Inc.	
Guest	Chris	Lettow	S&C Electric Company	X
Guest	Sachin	Puranik	Hubbell Power Systems	
Guest	Daniel	Landreman	Cooper Power Systems	
Chair	Steven	Meiners	GE	X
Guest	Reid	Herzog	OG&E	X
Guest	Andrew	Swisher	Southern California Edison	
Guest	Herbert	Martinez	Southern California Edison	
Guest	Jason	Stevens	Reuel Inc	
Guest	Ruben	Del Valle Jr.	NV Energy	
Guest	Kenneth	Lee	Thomas & Betts Corporation	
Guest	Tom	Hawkins	Siemens	
Guest	Victor	Sanchez	ABB Inc	X
Guest	Robert	Traska	Trinetics/Maysteel	
Guest	Douglas	Fitchett	American Electric Power Co	X
Guest	William	Glennon	Schweitzer Engineering Labs	X
Guest	Arthur	Jur	Eaton Corporation	X
Guest	Wangpei	Li	Eaton	X