PC57.129

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Type of Project: Revision to IEEE Standard C57.129-2007
PAR Request Date: 20-Oct-2014
PAR Approval Date: 10-Dec-2014
PAR Expiration Date: 31-Dec-2018
Status: PAR for a Revision to an existing IEEE Standard
Root Project: C57.129-2007

1.1 Project Number: PC57.129
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: Converter Transformers for HVDC Applications

Changes in title: ~~Standard~~Converter ~~for~~Transformers ~~General Requirements and Test Code~~ for ~~Oil-Immersed~~ HVDC ~~Converter~~Applications~~Transformers~~

3.1 Working Group: HV Converter TR & Reactors - Req. & Test Code for HVDC Con. Xfmr Working Group (PE/TR/HVConv-WGC57.129)
Contact Information for Working Group Chair
Name: Richard Dudley
Email Address: richard.dudley@shaw.ca
Phone: 416-298-8108
Contact Information for Working Group Vice-Chair
None

3.2 Sponsoring Society and Committee: IEEE Power and Energy Society/Transformers (PE/TR)
Contact Information for Sponsor Chair
Name: Donald Platts
Email Address: donplatts@ieee.org
Phone: 610-657-4822
Contact Information for Standards Representative
Name: William Bartley
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4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 04/2016
4.3 Projected Completion Date for Submittal to RevCom: 05/2017

5.1 Approximate number of people expected to be actively involved in the development of this project: 20

5.2 Scope: This dual logo document applies to liquid-immersed three-phase and single-phase converter transformers for use in HVDC power transmission. It applies to transformers having two, three or multiple windings.
This standard does not apply to
- converter transformers for industrial applications
- converter transformers for traction applications

Changes in scope: This ~~standard~~dual ~~specifies~~logo ~~the~~document ~~electrical,~~applies ~~mechanical,~~to ~~and physical requirements of oil~~liquid-immersed ~~single~~three-phase and ~~three~~single-phase converter transformers~~.~~ ~~This~~for ~~standard~~use ~~does~~in ~~not~~HVDC ~~apply~~power transmission. It applies to ~~other~~transformers ~~devices~~having two, ~~such~~three ~~as~~or ~~the~~multiple ~~following:~~windings. ~~-~~This ~~Arc~~standard ~~furnace~~does ~~transformers~~not apply to - ~~Rectifier~~converter transformers for industrial ~~or~~applications ~~locomotive~~- converter transformers for traction applications

5.3 Is the completion of this standard dependent upon the completion of another standard: Yes
If yes please explain: IEC Revision proposal to merge IEC 61378-2 Ed. 1.0 CONVERTOR TRANSFORMERS - TRANSFORMERS FOR HVDC APPLICATIONS AND IEEE C57.129-2007 ON THE SAME SUBJECT into a dual logo document IEC 61378-57-129 Converter transformers for HVDC applications

5.4 Purpose: This document will not include a purpose clause.

5.5 Need for the Project: The standard is required by utility engineers in the specification and application of HVDC (high voltage direct current) converter transformers and by engineers of power transformer manufacturers in the design and testing of converter transformers. HVDC continues to increase its share of the power transmission market; bulk power transmission and "back to back" interconnections. Converter transformers are a major component of HVDC schemes.

5.6 Stakeholders for the Standard: Manufacturers of converter transformers, End users of HVDC transmissions, HVDC System providers, Consultants within HVDC

Intellectual Property
6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No
6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

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7.1 Are there other standards or projects with a similar scope?: No
7.2 Joint Development
Is it the intent to develop this document jointly with another organization?: Yes
Organization: IEC TC 14 Power Transformers
Technical Committee Name: MT 61378-2
Technical Committee Number: TC 14
Contact Name: Anders Lindroth
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8.1 Additional Explanatory Notes (Item Number and Explanation): Revision proposal to merge IEC 61378-2 Ed. 1.0 CONVERTOR TRANSFORMERS - TRANSFORMERS FOR HVDC APPLICATIONS AND IEEE C57.129-2007 ON THE SAME SUBJECT into a dual logo document IEC 61378-57-129 Converter transformers for HVDC applications
MT 61378-2 met in London on 6th and 7th February 2014 together with representatives of the IEEE HVDC converter transformers and smoothing reactors subcommittee of the IEEE transformers committee.
Following a detailed review of the differences between the IEC and IEEE standards on HVDC converter transformers the group concluded that a dual logo document incorporating revisions to both parent documents was technically possible and commercially desirable.
The primary areas for future discussion during the joint development and for improvements in the existing documents were:
* A clearer definition and treatment of load losses, in particular the effect of harmonics and the enhancement of the power frequency current required to take them into account in the temperature rise test.
* Definition of reference temperature for guaranteed losses, losses used during temperature rise tests and the calculation of impedance
* The effect of harmonics on hot spot temperatures.
* Measurement of load losses and impedance at harmonic frequencies, IEC requires measurement at two frequencies at 10-50% of full load current whereas IEEE requires measurement at all frequencies but only at a low current. Consideration needs to be give to the practical effects of higher harmonics.
* The definition of rated power, current and voltage.
* Polarity reversal test requirements and the relationship with working conditions and the importance of oil conductivity referring to the work of CIGRE JWG A2-B4.28 HVDC Converter Transformers and CIGRE JWG A2-D1.41 HVDC Transformer polarity reversal: Role of oil conductivity.
* Consequential modifications resulting from the planned publication of IEC/IEEE 65700-19-03 International Standard -- Bushings for DC applications.
* The effect of load current harmonics on load noise measurements.
* Consider the implication of the potential use of liquids other than mineral oil.
* Consider the different requirements of transformers for current source, symmetric voltage source and asymmetric voltage source converter stations. Particularly regarding the DC and polarity reversal test requirements.
Mr Anders Lindroth, ABB Transformers, Ludvika Sweden would be the convenor of the IEC MT, Mr Ulf Radbrandt would be the co-convenor from IEEE.
The scope of the joint document is proposed to be:
This dual logo document applies to liquid-immersed three-phase and single-phase converter transformers for use in HVDC power transmission. It applies to transformers having two, three or multiple windings.
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- converter transformers for industrial applications
- converter transformers for traction applications