



# **IEC TC14 Power Transformers**

**Chairman: Christoph Ploetner, DE**

**Secretary: Mick Maghar, UK**

**Report to  
IEEE Transformers Committee  
Fall Meeting 2019  
Columbus, OH**



# General Information TC 14

- **Membership (countries)** **48**
  - **P - Members** **36**
  - **O - Members** **12**
- **Registered experts** **318 (2018:268 +19%)**
- **Currently active MT, PT, WG, AHG** **14**
- **Documents in charge of (TR, TS, IS)** **40**
  - **to be maintained / in development** **32 / 8**
  - **IEC/IEEE common documents** **6**
- **Last plenary meeting** **Sep 2019 in Paris**
- **Next plenary meeting** **Sep 2020 in New Delhi**



# Publications in 2019

- **IEC/IEEE 60214-2 Tap-changer application guide**
  - Convener: Axel Kraemer, DE
  - Dual Logo document published June 2019
  
- **IEC TR 60076-26 Functional requirements of insulating liquids for use in power transformers**
  - Convener: Kevin Rapp, US
  - to be published Nov 2019



# Revisions in progress

- **IEC 60076-1 General**
  - Convener Paul Jarman, UK
  - Third meeting held in September
  
- **IEC 60076-2 Temperature rise**
  - Convener Dejan Susa, NO
  - Second meeting held in September
  
- **IEC 60076-4 Guide to LI and SI testing**
  - Convener Thang Hochanh, CA
  - First CD to be published before end 2019



# Revisions in progress

- **IEC 60076-5 Ability to withstand short circuit**
  - Convener Jean-Christophe Riboud, FR
  - Major revision – 10 meetings held so far.
  - First CD expected in 2020
- **IEC 60076-6 Reactors**
  - Convener Rob Verhoeven, NL
  - First CD expected in 2020
- **IEC 60076-19 Uncertainties in Loss Measurement**
  - Project put on hold due to unexpected retirement of convener
  - Project re-start scheduled for 2020



# New documents

- **IEC TS 60076-24 Voltage Regulating Distribution Transformers (VRDT)**
  - Convener Michel Heinz, GER
  - CDV published and voting closed
  - Publication in 2020
  
- **IEC 60076-25 Neutral Grounding Resistors**
  - Convener Hakam El Assad, FR
  - First CD recently published – commenting will close Dec 13<sup>th</sup>



## **New standard series 60076-22**

- **IEC 60076-22-x Transformer and Reactor Fittings**
  - 1 **Protective devices** published
  - 2 **Radiators** published
  - 3 **Liquid to air coolers** published
  - 4 **Liquid o water coolers** published
  - 5 **Pumps** CDV published
  - 6 **Fans** CDV published
  - 7 **Accessories and fittings** FDIS to be published in Nov.
  - 8 **Electronic monitoring equipment** NP to file

**Development of series to be completed in 2020!** <sup>7</sup>



# Completed Ad Hoc Group

- **Ad Hoc Group 36**

- Coordination of thermal requirements in existing standards**

- Convener: Rick Marek, US
    - Task: Develop a new structure for future IEC TC14 thermal standards
    - Consider entire material in existing standards plus latest developments and industry interests (high and low temperature, different types of liquid)
    - Report presented during plenary meeting in September
    - Revisions/developments of future IEC thermal standards will follow AHG 36 recommendation
    - Proposal: Better coordination of thermal evaluation of materials with IEEE – consider Dual Logo documents with C57.100 / C57.154<sup>8</sup>





# Continuing Ad Hoc Group

- **Ad Hoc Group 35**

## **Functional classification of power transformers**

- Convener: Angelo Baggini, IT
- Report on classification of power transformer technologies in terms of functionality. Include new technologies (power electronics...)
- Report presented during plenary meeting in September
- Decision to extend life of AHG 35 with task to further work on the modification of the scope of TC 14 – well coordinated with neighbour TCs (define clear boundaries)



# New Joint Ad Hoc Group

- **Joint Ad Hoc Group 7 – SC36 / TC14**  
**To produce the framework of standard or technical report for dimensional standardization of transformer bushings**
  - Convener Flavio Mauri, IT
  - Three meetings held



# Joint Working Group TC38/TC14 with IEEE PC57.13.8

- **IEC Joint Working Group 56 (TC38 / TC14) together with IEEE PC57.13.8 to develop Dual Logo standard **IEC/IEEE 63253-5713-8****  
***Station Service Voltage Transformers (SSVT)***
  - IEEE PC57.13.8 approved project although it is already working on such standard for several years
  - IEC voting on common development also positive
  - IEC Convener: Ross McTaggart, CA
  - IEEE WG C57.13.8 Chair: David Wallach, US
  - Membership: 31x IEEE + 21x IEC = 52
  - First common meeting held 2019, July 24-25 in Milano



# IEC / IEEE Dual Logo Documents

## Available dual logo documents: 6

- IEC/IEEE 60076-16 Wind turbine transformers
- IEC 60076-21 – IEEE Std. C57.15 Step voltage regulators
- IEC/IEEE 60076-57-1202 Phase shifting transformers
- IEC 62032 – IEEE C57.135 Guide for Phase shifting transformers
- IEC/IEEE 60076-57-129 HVDC Transformers
- IEC/IEEE 60214-2 Tap changer application guide

## Dual logo documents in development / agreed to develop: 2

- IEC/IEEE 63253-5713-8 Service station voltage transformers (SSVT)
- IEC/IEEE 60214-1 Tap changer performance requirements (2021)

## Potential subjects for dual logo documents in near and far future

- Tank rupture mitigation, Submersible transformers, Neutral grounding devices, ...???



# IEC / IEEE Dual Logo Documents

## **Suitable “fields” for dual logo documents**

- Special transformers beyond “main stream”
- Specific products
- Specific performance requirements

## **Observations**

- Development process smoothing out
- Maintenance process not yet explored (different life cycle definitions!)
- Separation process not clear (it may become relevant once in a while)

## **Suggestions**

- Do not overstress collaboration with too many projects
- Consider available resources (...that seem to reduce)
- Nevertheless, move carefully forward where and when it makes sense