Preparatory study for the review of
EC Regulation 548/2014 on transformers
Stakeholder kick off meeting

State of art in CENELEC TC 14 standardization

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What has been done?

- ✓ **EN 50588-1/2015** "Medium voltage transformers 50 Hz, with highest voltage for equipmentnot exceeding 36 kV - Part 1: General requirements" + EN 50588-1 A1/2016
- ✓ **EN 50629/2015** "Energy performance of large power transformers (Um > 36 kV or Sr ≥ 40 MVA)" + EN 50629 A1/2016
- ✓ **EN 60076-19/2016** "Power transformer - Part 19: Rules for the determination of uncertainties in the measurement of losses in power transformers and reactors

- ✓ EN 60076 Series - Power transformers

- ✓ A **Secretariat Enquiry** on the use of EN 50588-1:2015 and EN 50629:2015 was circulated with deadline 2016/05/31 (TC14/Sec/0490/DC) for defining the scope of the standardization work relating to the COMMISSION REGULATION (EU) No 548/2014

What has been done?

EN 50588-1 + A1

- ✓ Exception definitions
- ✓ Procedures and methods to measure and calculate: load losses, no load losses and PEI (+ EN 60076-1)
- ✓ Tolerances and uncertainties
- ✓ Specific criteria to be met by laboratories involved in the verification of the declared data
- ✓ Test report
- ✓ Liquid immersed Single phase <= 100 kVA (typically 15, 33kVA)
- ✓ Double/double voltage
- ✓ Um > 36 kV (CZ)

What has been done?

EN 50629 + A1

- ✓ Exception definitions
- ✓ Procedures and methods to measure and calculate: load losses, no load losses and PEI (+ EN 60076-1) (modified)
- ✓ Tolerances and uncertainties
- ✓ Specific criteria to be met by laboratories involved in the verification of the declared data
- ✓ Test report
- ✓ Rated power lower than 4 MVA
- ✓ Single phase
- ✓ Autotransformers and separate winding transformers having three windings
- ✓ Transformer asset data pro-forma

What has been done?

EN 60076-19

✓ Standard uncertainty calculation

TC14/Sec/0490/DC

✓ List with 62 items

What we learned?

- The devil is in the details*
- Synchronization with EC is hard because of respective formal procedures

(* Cesar Santos citation)

Work plan

- WG21 – «MPT» (M. Sacotte FR)
- WG29 – «LPT» (F. Mauri IT)
- WG32 - «Umbrella» (F. Mauri IT)
- WG31 – «Uncertainty» (A. Bergman SE)
- WG30 – «VRDT» M. Heinz DE)

- Requirements
- Detailed list of specific issues will be addressed
- Expectations

Work plan

On the **short term**:

- by the first months 2017, WG32 will produce a Technical Specification addressing Energy Performance of all power transformers in the scope of CLC/TC 14 with the goal to support the 2017 review of the Regulation also collecting the inputs coming from WG21 and WG29
- WG21 and WG29 will support WG32 for the topics in their respective revised scopes and will take care, if needed, to further amendments of actual standard EN 50629 and EN 50588-1

On the **long term** the future structure of standardization documents supporting the Commission Regulation (EU) No 548/2014 will to have a common umbrella document energy performance of all power transformers in the scope of CLC/TC 14 and specific documents addressing energy performance and other specific standardization need of specific categories of transformers according with the following table.

Work plan

Who	Transformer categories in the scope	Doc	2017	At the publication of the revised Regulation
WG32	Medium and large power transformer	Umbrella standard	**TS** 50XXX-1	**EN** 50XXX-1
WG21	Liquid immersed power transformers with Sr ≤ 3150 kVA AND Um ≤ 36 kV Dry type power transformers	Specific standard	Draft EN 50XXX-2	EN 50XXX-2
WG29	Liquid immersed power transformers with Sr > 3150 kVA OR Um > 36 kV	Specific standard	Draft EN 50XXX-3	EN 50XXX-3
…	…	Specific standard	Not foreseen	EN 50XXX-4

Requirements

- Small MPT: Separate losses
- Other T: PEI
- Timing and aligment with CLC
- NO other environmental impacts than losses

Detailed lists…

- TC14/Sec/0490/DC

- Proposal for:

  - Repaired transformer definition
  - Dual voltage transformer definition
  - Cooling consumption treatement at KPEI
  - Declaration of conformity template
  - Simplification of the rating plate
  - Minimum performances
  - Exception list

Expectations from the preparatory study

- **To provide**:
  - The impact of size (including safety clearences), weight and costs of TIER2
  - The impact on the structure
  - the economic impact of current and potential scenarios (T1, T2, T2')
  - A system approach
- **To support** market surveillance importance

Expectations from the Regulation revision

- **To clear**
  - exemption for size and weight of transformers
  - how manage possible extemptions
  - declared value definition confirmation
  - which data shall be made public and how in the perpesctive of datacollection
  - transitional rules to manage possible TIER2 modifications

- **To support** market surveillance importance


CONVOI
EXCEPTIONNEL


15
KVA
TDL
IHF