

WG C57.12.90 Sect. 11 - Temperature Rise Tests
Ballot Survey Summary 11.1 and 1.1.2.2 – September 28, 2011

The survey was conducted via email of the C57.12.90 Section 11.0 Working Group. Of the 30 WG members, 20 responded to the survey satisfying the quorum requirement. A two-thirds majority of the respondents approved the proposed modification. Below are the survey results:

- 10 - Approved
- 2 - Approved with comment
- 6 - Disapproved
- 2- Abstained
- Approval Ratio = 12/18 = 66.7%

Following is the Ballot Survey of the Working Group. Proposed text highlighted in yellow.

Ballot Survey

Clause	IEEE C57.12.90-2010	April 2011 Proposal
11.1	Tests shall be made by one of the following methods: <ul style="list-style-type: none"> a) Actual loading b) Simulated loading <ul style="list-style-type: none"> 1) The short-circuit method, in which appropriate total losses are produced by the effect of short-circuit current 2) The loading back (opposition) method, in which rated voltage and current are induced in the transformer under test 	Tests shall be made by one of the following methods: <ul style="list-style-type: none"> a) Actual loading b) Simulated loading <ul style="list-style-type: none"> 1) The short-circuit method, in which appropriate total losses are produced by the effect of short-circuit current 2) The loading back (opposition) method, in which rated voltage and current are induced in the transformer under test. <p>The loading back method shall be preferred whenever possible and mandatory for Class I and Class II transformers rated 1500 kVA, 3-phase and 500 kVA , 1-phase and lower.</p>
11.1.2.2	Duplicate transformers may be tested by connecting their respective high-voltage and low-voltage windings in parallel (see Figure 28 and Figure 29). Transformers shall be tested with the combination of connections and taps that give the highest average winding temperature rise. This process will generally involve those connections and taps resulting in the highest losses.	Duplicate transformers may be tested by connecting their respective high-voltage and low-voltage windings in parallel (see Figure 27 and Figure 28). Otherwise, both transformers shall have the same voltage ratings (high and low), and the transformer being tested shall have a KVA rating equal or higher than the transformer under test. Even a slight voltage difference (may be up to 10%) can be accepted and compensated by the circulating current source. Transformers shall be tested with the combination of connections and taps that give the highest average winding temperature rise. This will generally involve those connections and taps resulting in the highest losses.

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Comments on the Ballot Survey are as follows:

From: "[Castellanos Gonzales, Juan G \(GE Energy, Non-GE\)](#)" ...
To: Paulette Payne Powell <papayne@ieee.org>
Subject: RE: Survey for C57.12.90 Proposal Sub-clauses 11.1 and 11.1.2.2 Reminder
Date: Sep 26, 2011 4:52 PM

Hi Paulette,

Below I list my votes and comments:

Sub-clauses 11.1

Disagree. The loading back method should not be made "mandatory", since there is not always a duplicate or similar auxiliary transformer available.

Counter-proposal:

The loading back method shall be preferred whenever possible for Class I and Class II transformers rated 1500 kVA, 3-phase and 500 kVA 1-phase and lower.

Sub-clauses 11.1.2.2

Disagree. The proposal is not clear enough in order to be incorporated as part of the standard. First initially it says both transformers shall have the same voltage ratings, but later accepts a "slight voltage difference (may be up to 10%)"; Second, it is not clear which transformer is referring to with the wording "transformer being tested", or "transformer under test". What is the difference between them?

Counter-proposal:

Leave the clause as it is right now.

From: Tom Holifield <tholif@howard-ind.com>
To: Paulette Payne Powell <papayne@ieee.org>
Subject: RE: Survey for C57.12.90 Proposal Sub-clauses 11.1 and 11.1.2.2 Reminder
Date: Sep 21, 2011 6:20 PM

Clause 11.1:

Disagree. I don't think the loading back method should be mandatory.

Clause 11.1.2.2:

Disagree. The language is not clear and confusing.

From: Steve L Snyder <steve.l.snyder@us.abb.com>
To: Paulette Payne Powell <lettspaul@earthlink.net>
Subject: Re: Survey for C57.12.90 Proposal Sub-clauses 11.1 and 11.1.2.2
Date: Sep 14, 2011 2:03 PM

Comments on the proposed changes in Section 11 of Standard C57.12.90.

11.1 I will support the additional text that states "the loading back method shall be preferred whenever possible." I could never support making this a mandatory requirement due to constraints placed on the manufacturers, as well as for safety considerations.

11.1.2.2 I will support the suggested change, although I think the wording needs some slight improvement. Perhaps the phrase "transformer being tested" could be replaced with "supply transformer".

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From: MarcelFortin <fortin.marcel@videotron.ca>
To: 'Paulette Payne Powell' <lettpaul@earthlink.net>
Subject: RE: Survey for C57.12.90 Proposal Sub-clauses 11.1 and 11.1.2.2
Date: Sep 14, 2011 7:15 AM

Hi Paulette,
I apologize for de delays,
Regarding clause 11.1.2.2: 2nd sentence: Otherwise, both transformers shall have the same voltage ratings (high and low), and the transformer being tested shall have a KVA rating equal or higher than the transformer under test. ,...

It is not necessary that both transformers have the same voltages ratings. Both transformers shall have approximately the same turn ratios and the loading transformer voltage ratings shall be at least equal to the transformer being tested. It is the loading transformer that shall have kVA ratings at least equal to the transformer being tested.

Rewrite proposal: **Both transformers shall have approximately the same turn ratios and the loading transformer voltages ratings shall be at least equal to the tested transformer voltages ratings. The loading transformer shall have a kVA rating equal or higher than the tested transformer.**

From: Joseph Melanson <joem-bj@msn.com>
To: Paulette Payne Powell <lettpaul@earthlink.net>
Subject: Re: Survey for C57.12.90 Proposal Sub-clauses 11.1 and 11.1.2.2
Date: Sep 11, 2011 6:41 AM

Paulette,
I support the proposals as written. The only question I have is the need to include Class II in the clause if the KVA is limited to 1500. I have not seen any 1500 kVA, 115 kV units.

From: Hasse Nordman <hasse.nordman@fi.abb.com>
To: Paulette Payne Powell <lettpaul@earthlink.net>
Cc: <List Server for list+active+chair+TempRise+ieee-transformers@123signup9.com, list+active+vicechair+TempRise+ieee-transformers%ABB@de.abb.com@nse3.abb.com>
Subject: Re: Survey for C57.12.90 Proposal Sub-clauses 11.1 and 11.1.2.2
Date: Sep 6, 2011 3:13 AM

Dear Paulette,

Clause 11.1

Disagree. Will agree if the last sentence of "April 2011 Proposal" is changed as follows:
"The loading back method should be preferred whenever possible for Class I and Class II transformers rated 1500 kVA, 3-phase and 500 kVA , 1-phase and lower."
I cannot see the value added by the wordings "shall" and "and mandatory"

Clause 11.1.2.2

Disagree. Will agree when the following sentence is clarified: "...and the transformer being tested shall have a KVA rating equal or higher than the transformer under test."
Which one of the transformers is the "transformer being tested" and "the transformer under test"? Obviously, we are talking about the both duplicate transformers "being tested"?

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From: "Stephen (Steve) Antosz" <santosz@comcast.net&g...>
To: 'Paulette Payne Powell' <lettpaul@earthlink.net>
Subject: RE: Survey for C57.12.90 Proposal Sub-clauses 11.1 and 11.1.2.2
Date: Sep 5, 2011 2:49 PM

Paulette,

Clause 11.1 - I approve, but have not had any involvement with small transformers and the loading back method. Moreover, I wonder how many Class II transformers are 1500 kVA and below.

Clause 11.1.2.2 – Disapprove. The proposed text is confusing to me. The word “Otherwise” should be clarified. Otherwise refers back to what? It is not obvious to me, having not been involved with this discussion before. Add a sentence or more explanation as to what this stipulation is allowing, such as; “Otherwise if the transformers are not exact duplicates, then ...”

Also it is confusing ... “the transformer being tested shall have a kVA rating equal or higher than the transformer under test”. Isn't the transformer being tested the same as the transformer under test? If so, then how could the kVA be different? Something is wrong with this wording and it needs clarified. The Figure numbers in C57.12.90-2010 are 28 & 29, not 27 & 28.

From: "Platts, Donald W" <dwplatts@pplweb.com>
To: Paulette Payne Powell <lettpaul@earthlink.net>
Subject: RE: Survey for C57.12.90 Proposal Sub-clauses 11.1 and 11.1.2.2
Date: Sep 2, 2011 2:13 PM

I vote DISAGREE

The wording as published in the 2010 revision is correct, and should not be changed