



VEBKO ONLINE HELP

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# Introducing “Transformer” Room

|           |                           |
|-----------|---------------------------|
| Category  | <b>tester</b>             |
| Section   | <b>Transformer Module</b> |
| Language  | <b>English</b>            |
| Generated | <b>2026-10-18</b>         |

Power transformer tests are performed in "Transformer" room. This room comprises of nine tabs. In "Test Object" tab, information and the nominal characteristics of the transformer are entered from the "Name Plate". In any of the "Vector Group, Turns Ratio and No Load", "Magnetic Balance", "Winding Resistance", "Continuity Tap Changer", "Leakage Reactance" and "Demagnetize" tabs, one of the tests of the transformer are performed. Also, in "Megger Test Report" tab it is possible to enter the insulation resistance test or "Megger". Also, In "Vector Group Check" it is possible to test the transformers vector group independently.

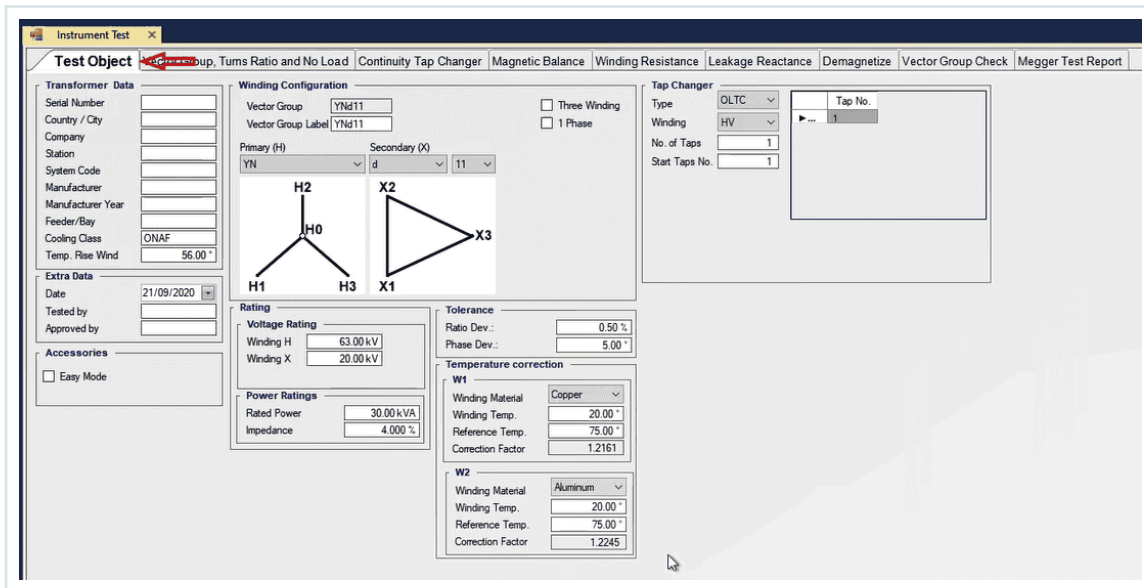


Figure 1

## 1 "Test Object" Tab

"Test Object" tab: as mentioned earlier, the nominal characteristics of the transformer being tested are entered in this tab. In "Transformer Data" section, a group of information including serial number, name of the manufacturer and name of the manufacturing country of the transformer as well as the location on which the transformer is used and the type of the cooling system of the transformer are entered. In "Extra Data" section, the date of performing the test in AD, the information regarding the person who is performing the test and the information regarding the supervisor are entered in "Date", "Tested by" and "Approved by" fields respectively.

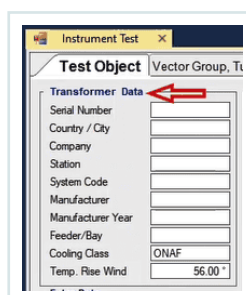
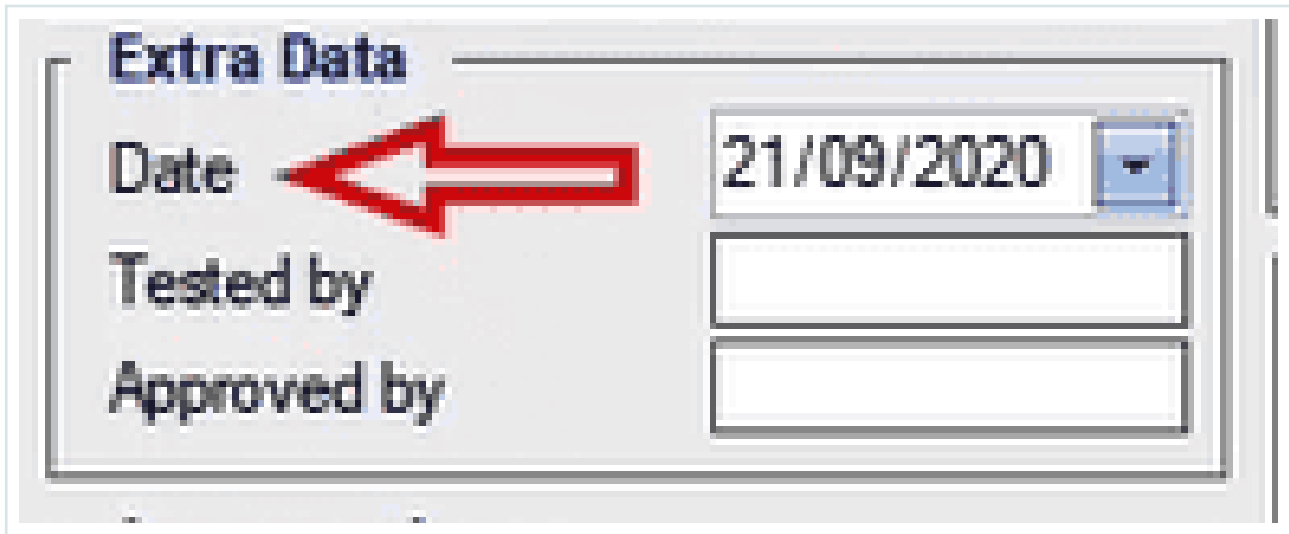
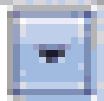


Figure 2



**Extra Data**

Date  21/09/2020 

Tested by

Approved by

Figure 3

By checking "Easy Mode" option in "Accessories" section, the wiring type of tests changes. This wiring is in accordance with the board which is designed by Vebko Company to test the transformer. This board is located on the front panel of the device and on it there are relays to do the wirings of the front panel of the device automatically which makes performing the test easier.



**Accessories**

☐ Easy Mode 

Figure 4

In "Winding Configuration" section, the vector group of the transformer as well as the type of wiring of its two ends are selected. The wiring type of the primary and secondary windings are entered in "Primary (H)" and "Secondary(X)" fields and if there is a third winding, its wiring type is entered in "Tertiary(Y)" field. If the transformer has three windings, by checking "Three Winding" option, the third winding is added while if the transformer is single-phase, "1phase" option should be checked. In "Rating" section, the nominal value of voltages and the apparent power of the transformer are specified. Also, in "Voltage Rating" field, the primary and secondary nominal voltages as well as the

third one, in case of its existence, are entered. In "Power Rating" field, the nominal power of the transformer as well as its impedance are entered in the corresponding fields in terms of KVA and percent, respectively.

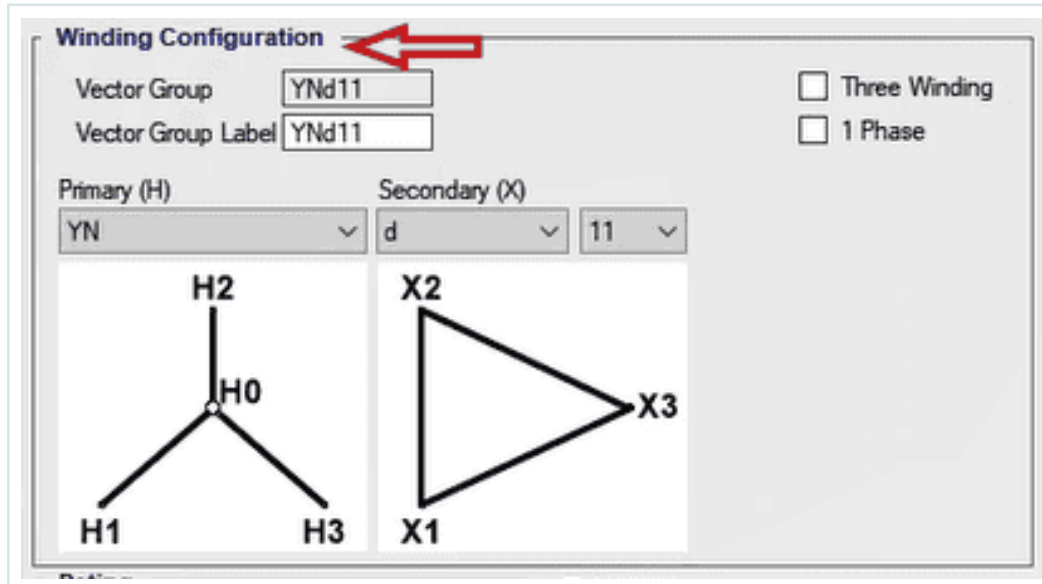


Figure 5

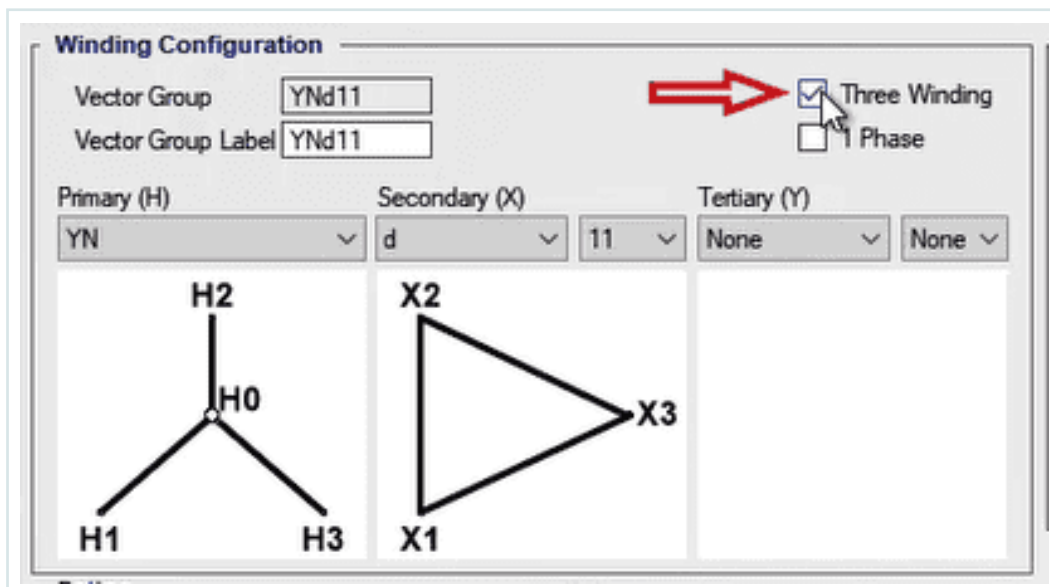


Figure 6

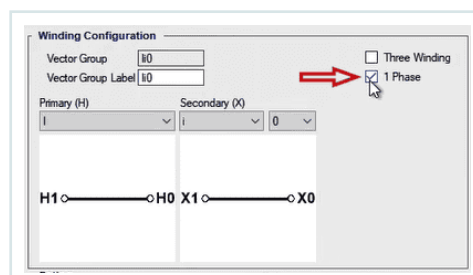


Figure 7

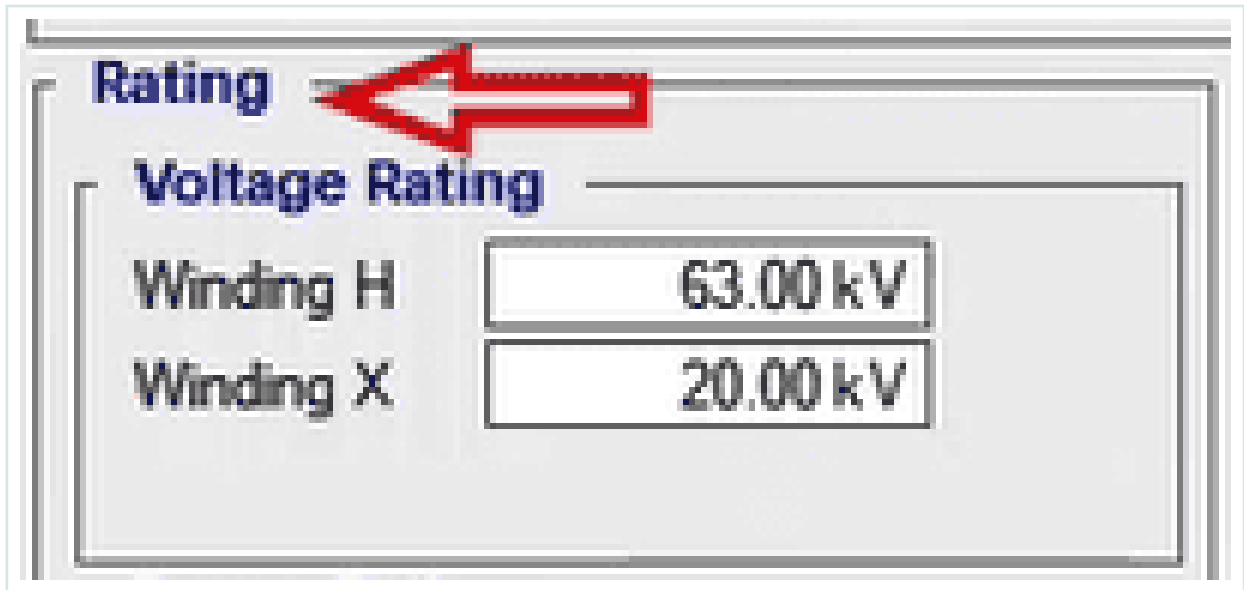


Figure 8

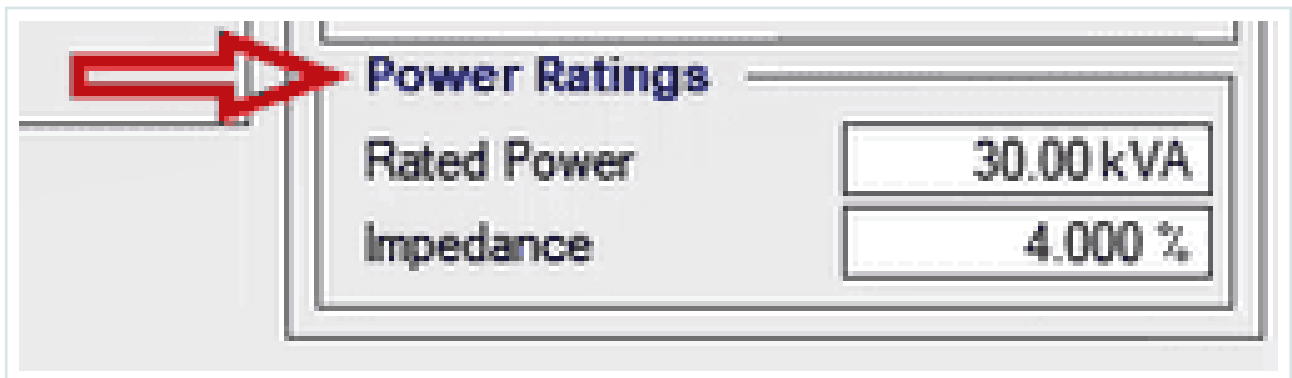


Figure 9

The information regarding the tap changer of the transformer needs to be entered in "Tap Changer" section. The tap changer type is selected from among "OLTC (On-Load Tap Changer)" and "DETC (De-Energized Tap Changer)" in "Type" field. In "Winding" field, it is required to specify that at which side of the transformer winding is the tap changer located. In "No. of Taps" field, the number of taps of the tap changer are entered while in "Start Tap No." it is specified that from what number the transformer taps to begin are. In the next step it is necessary to enter the voltage of every tap which can be done in multiple ways.

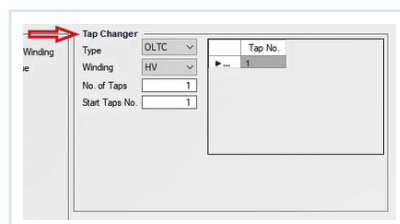
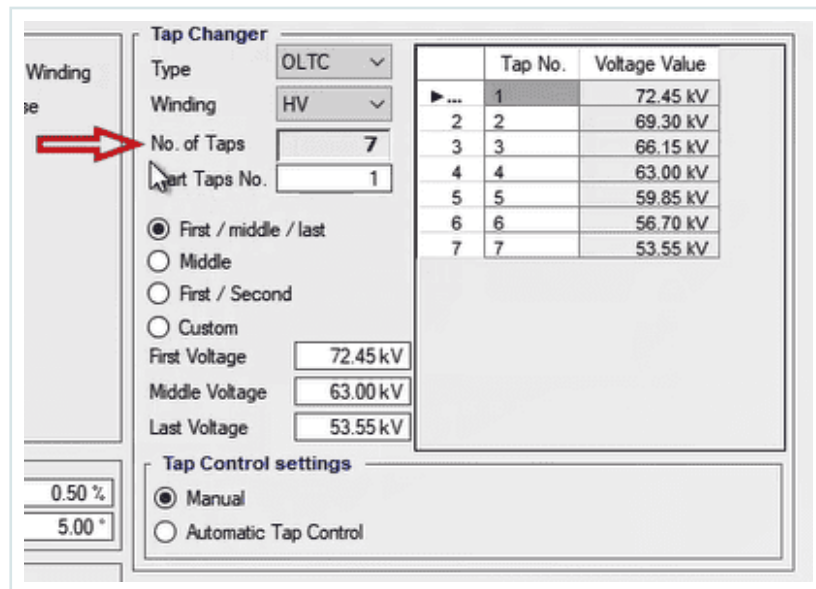


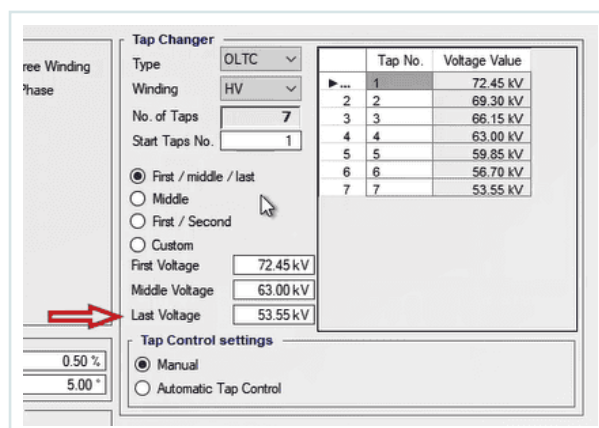
Figure 10



| Tap No. | Voltage Value |
|---------|---------------|
| 1       | 72.45 kV      |
| 2       | 69.30 kV      |
| 3       | 66.15 kV      |
| 4       | 63.00 kV      |
| 5       | 59.85 kV      |
| 6       | 56.70 kV      |
| 7       | 53.55 kV      |

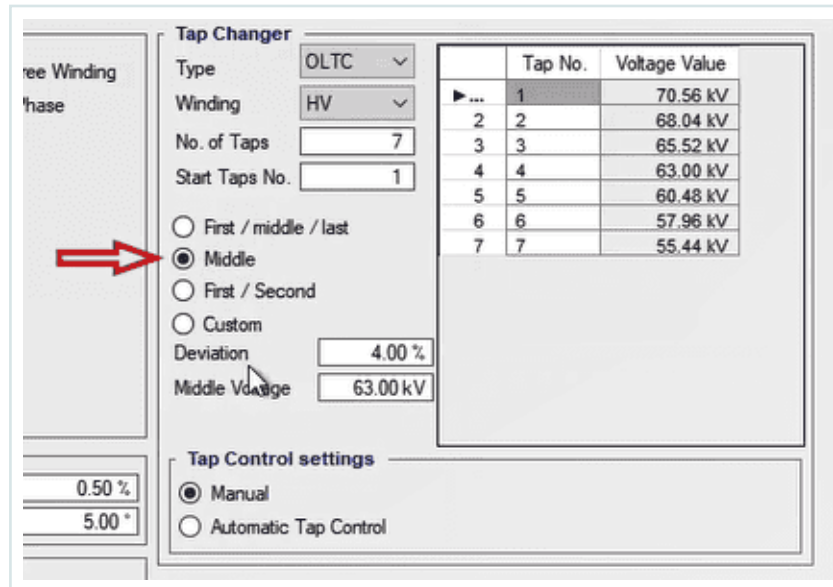
Figure 11

In the first method if the distance between the taps of the transformer is equal, the first, middle and last voltages are entered in "First Voltage", "Middle Voltage" and "Last Voltage" fields, respectively, so that the software can calculate the voltage in other taps. In some "Name Plates" of transformer, it may happen that only the middle tap voltage and the difference between the tap voltages are mentioned in percentage. In this case, the "Middle" option is selected and the middle tap deviation percentage as well as its voltage are entered in "Deviation" and "Middle Voltage" fields, respectively, and the software calculates the voltage of other taps automatically. If the difference between the taps is equal and voltages of the first and second taps are mentioned on the transformer plate, this option is selected and the voltage of "First Voltage" and "Second Voltage" fields are entered. In all of the mentioned cases the voltage of the taps are calculated and displayed in "Voltage Value" table. If the distance between the taps is not equal or the user wishes to enter the tap voltages manually, "Custom" option can be used. By selecting this option, "Voltage Value" table appears and you can manually enter the voltage for each tap.



| Tap No. | Voltage Value |
|---------|---------------|
| 1       | 72.45 kV      |
| 2       | 69.30 kV      |
| 3       | 66.15 kV      |
| 4       | 63.00 kV      |
| 5       | 59.85 kV      |
| 6       | 56.70 kV      |
| 7       | 53.55 kV      |

Figure 12



**Tap Changer**

Type: OLTC

Winding: HV

No. of Taps: 7

Start Taps No.: 1

☐ First / middle / last  
☒ Middle  
☐ First / Second  
☐ Custom

Deviation: 4.00 %

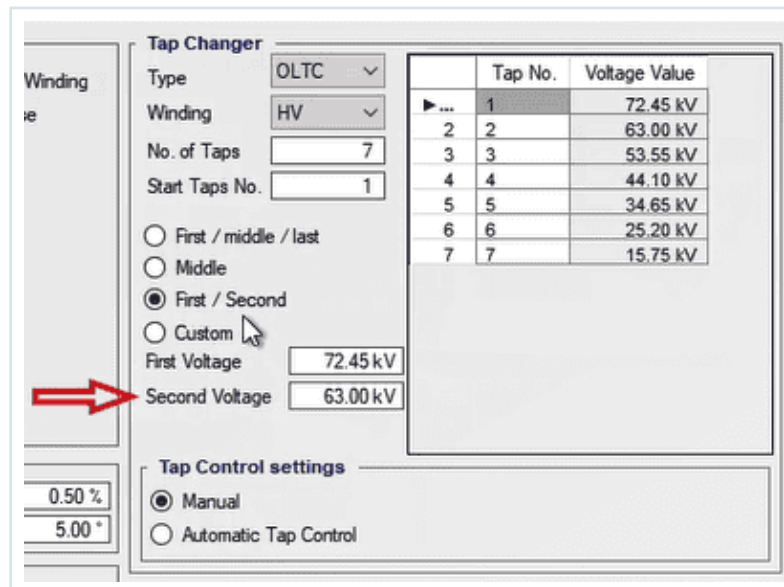
Middle Voltage: 63.00 kV

| Tap No. | Voltage Value |
|---------|---------------|
| 1       | 70.56 kV      |
| 2       | 68.04 kV      |
| 3       | 65.52 kV      |
| 4       | 63.00 kV      |
| 5       | 60.48 kV      |
| 6       | 57.96 kV      |
| 7       | 55.44 kV      |

**Tap Control settings**

☒ Manual  
☐ Automatic Tap Control

Figure 13



**Tap Changer**

Type: OLTC

Winding: HV

No. of Taps: 7

Start Taps No.: 1

☐ First / middle / last  
☐ Middle  
☒ First / Second  
☐ Custom

First Voltage: 72.45 kV

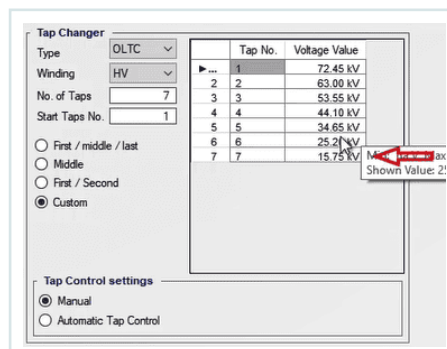
Second Voltage: 63.00 kV

| Tap No. | Voltage Value |
|---------|---------------|
| 1       | 72.45 kV      |
| 2       | 63.00 kV      |
| 3       | 53.55 kV      |
| 4       | 44.10 kV      |
| 5       | 34.65 kV      |
| 6       | 25.20 kV      |
| 7       | 15.75 kV      |

**Tap Control settings**

☒ Manual  
☐ Automatic Tap Control

Figure 14



**Tap Changer**

Type: OLTC

Winding: HV

No. of Taps: 7

Start Taps No.: 1

☐ First / middle / last  
☐ Middle  
☐ First / Second  
☒ Custom

| Tap No. | Voltage Value |
|---------|---------------|
| 1       | 72.45 kV      |
| 2       | 63.00 kV      |
| 3       | 53.55 kV      |
| 4       | 44.10 kV      |
| 5       | 34.65 kV      |
| 6       | 25.20 kV      |
| 7       | 15.75 kV      |

**Tap Control settings**

☒ Manual  
☐ Automatic Tap Control

Figure 15

The tap changer type is specified in "Tap Control Setting" section. If you wish to control the taps manually you should select "Manual" option; otherwise, select "Automatic Tap Control" so that the taps are controlled automatically. If "Automatic Tap Control" is selected, "Tap Changing Setting" and "State Termination" sections are displayed. In "Tap Changing Setting" section, the settings related to tap changing is specified. In "Impulse" field the time during which the pulse is sent by the device binary to change the tap is specified. In fact, "Raise" or "Low" command is issued by the device to change the tap for 1 second. In "Time" field the stop time for each tap is specified which is a 10-second delay after the tap change command is issued during which the tap changes. In "State Termination" section, the ending style of every state to inject the voltage to the next tap is specified. If "By Time" is selected, the voltage injected in every tap is specified in accordance with the time selected in "Tap Changing Setting" section and after the time is passed, a pulse is sent to change the tap. By selecting "By Inprogress Contact" and using a contact and connecting it to the binary inputs of the device, by changing the binary input mode, "AMT105" device recognizes the tap change and regardless of the time entered for tap change, a pulse is sent to change the tap. In "No. of Analog Input" field, number of the binary used to detect the tap change is specified while in "Reverse" field, the primary state of the binary input is specified. By selecting "Wet", inprogress contact is determined to be of the wet type and its voltage level is entered in front of it. By selecting "Dry" option, the contact is determined to be of the dry type.

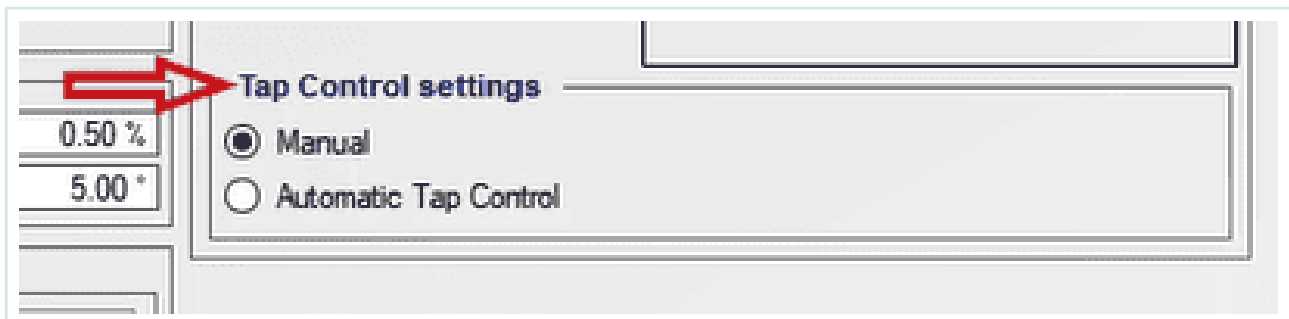


Figure 16

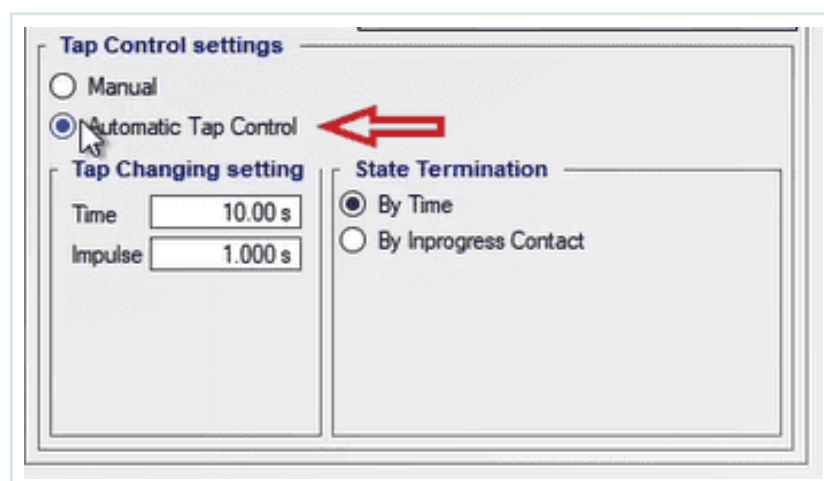


Figure 17

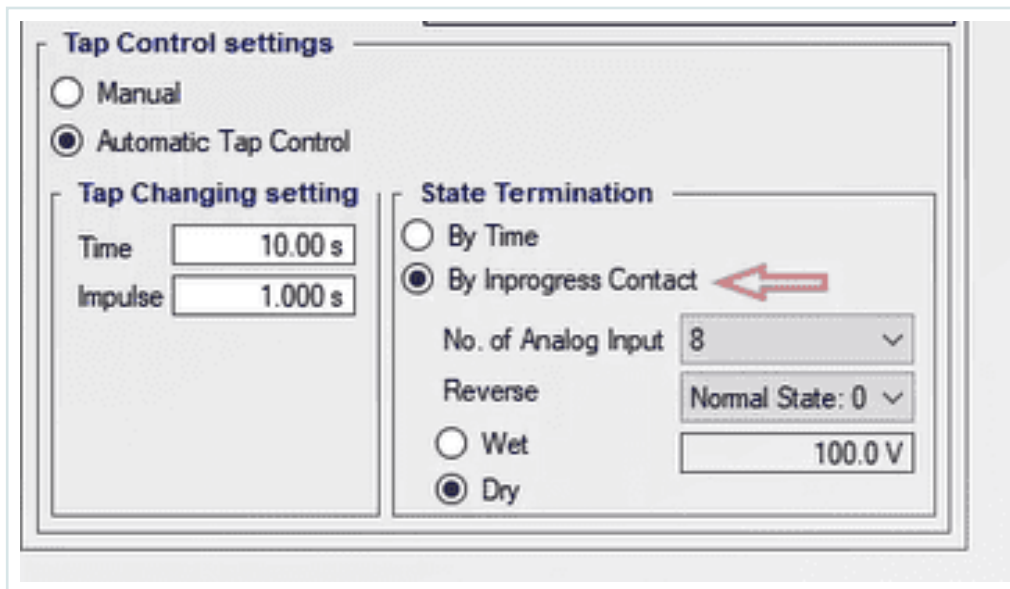


Figure 18

The amount of allowed measurement tolerance to detect "Pass" and "Fail" of the test is entered in "Tolerance" section. In "Ratio dev." Field, the allowed tolerance value for the measured phases is specified in terms of degree. In "Winding Material" field in "Temperature Correction" section, the material used in the windings is selected from among "Copper" and "Aluminum". The current temperature of the winding of the transformer and the reference temperature for measuring the winding resistance are entered in "Winding Temp", "Reference Temp." fields, respectively, so that the resistance values measured are corrected in different temperatures. "Correction Factor" field is related to transformer correction factor (K Factor) and by changing "Winding Material", "Winding Temp." and "Reference Temp." sections, this section changes automatically.



Figure 19

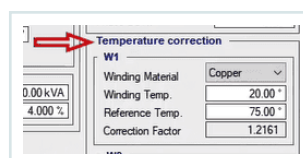


Figure 20

Also, by pressing "Add to Report" option in the box at the bottom of the screen, this information is added to the output report and a message stating "The Report was added to the list" is displayed. It is possible to view the output report by selecting "Report" window from the box at the right side. By clicking on "Delete Report" option in "Delete from Report" window, it is possible to delete the added report from the "Report" window. If "Set as default" option is selected, the entered values will be saved as default and every time, by opening the "Transformer " room this information is displayed.

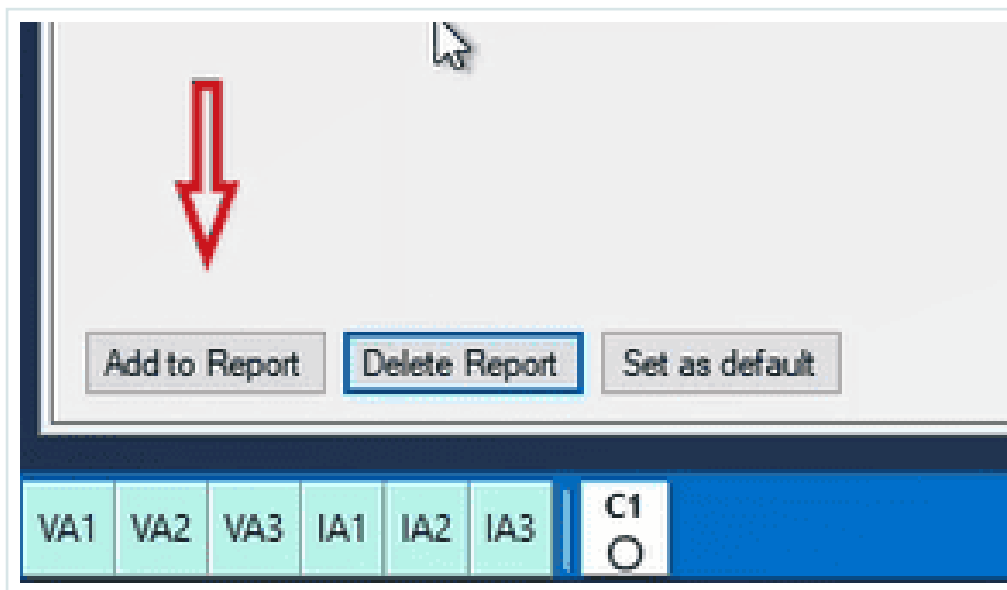


Figure 21

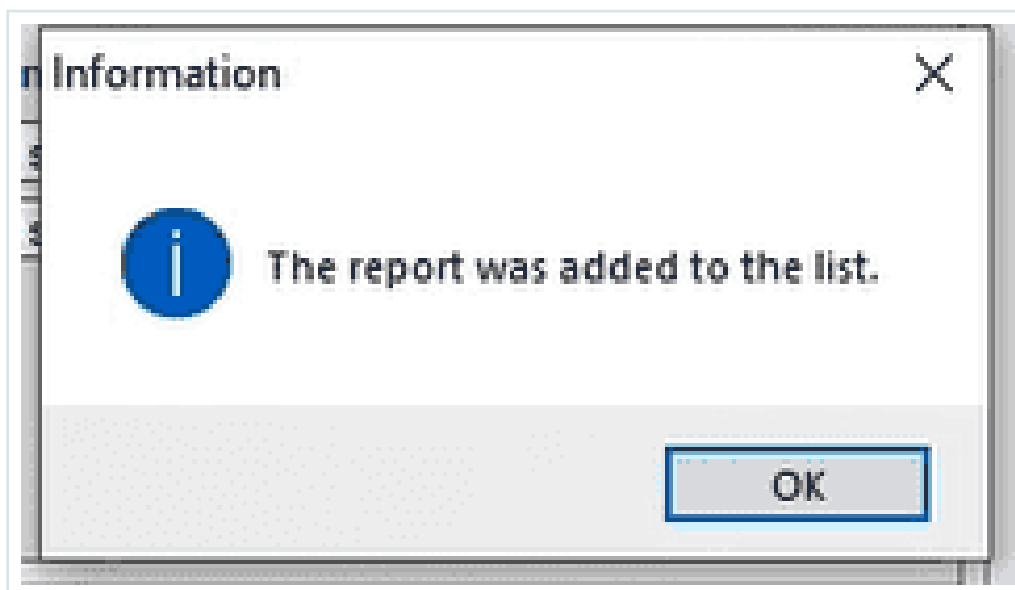


Figure 22



Figure 23

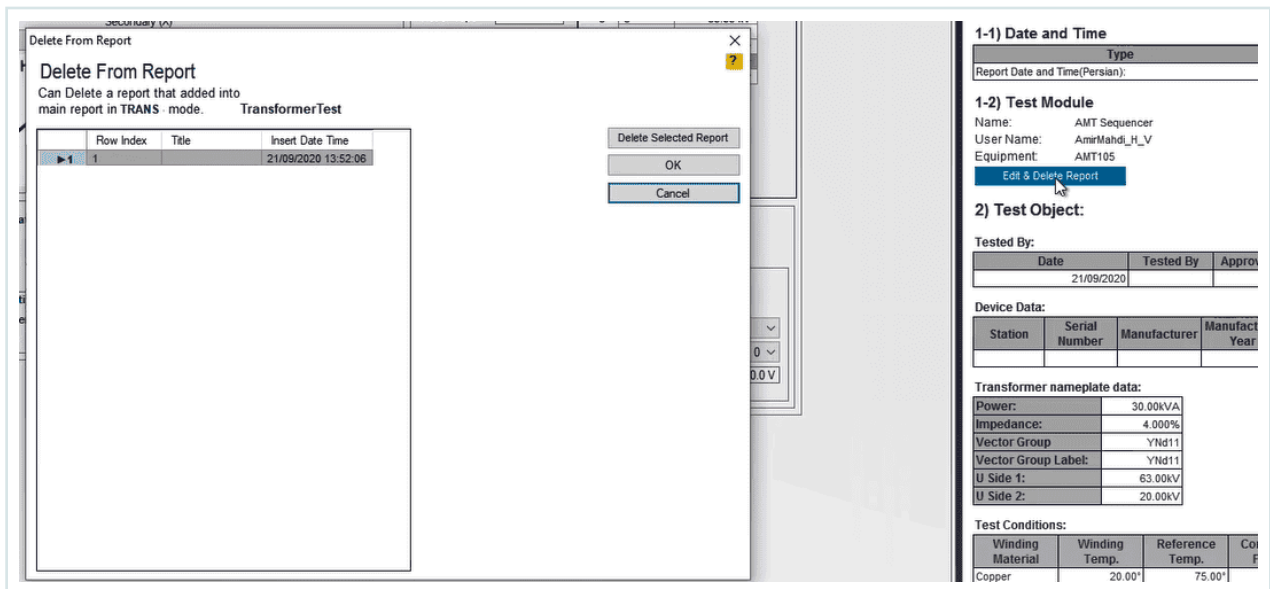


Figure 24

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