



VEBKO ONLINE HELP

“Excitation Test” Tab, Part 2

Category	tester
Section	Current Transformer Module
Language	English
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To perform this test, the first parameter to be entered is the "CT" secondary resistance. This resistance is used to estimate the knee point and is selected from "Max R_{CT} " field by default. But if the resistance test has already been done, this resistance is selected from "Rmeas". Note that, since some users skip the resistance test and try to directly perform this test, this field can be edited manually.

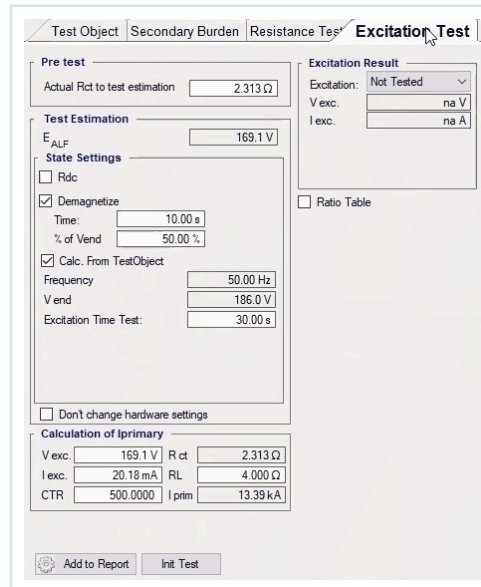


Figure 1

In the "Efs" field, the knee point is estimated using the formula. The importance of this number is in calculating "Vend" to determine the final voltage of test evaluation. The assessment of this test is based on the finding of the knee point, so that if the knee point is found, the test is "Passed" and otherwise "Failed". Once the resistance value has been specified, the test settings is entered in "State Setting". If "Demagnetize" option is ticked, before performing the test evaluation, the software once demagnetizes the "CT" with "AC" voltage and current. so that the residual flux caused by theresistance test is removed. In this section, you must enter the time "Demagnetize" and voltage in a percentage of "Vend".

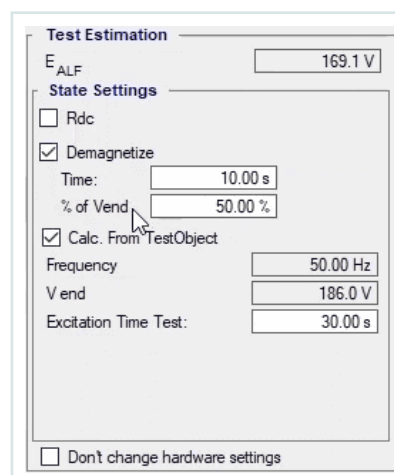


Figure 2

In the next step if "Calc. from Test Object" is checked, the software calculates the frequency and final voltage of the test by using the information entered in "Test Object". If you wish to enter this manually, you should uncheck this option. In "Excitation Time Test" field, the test time is entered. Note that, it is possible to show the saturation curve with less fluctuation by increasing the test time. In "Choose Current Measurement Mode" section, it is possible to specify the maximum current from among "Low Current" with maximum 500 milliamps and "High Current" with maximum 800milliamps. Note that by selecting any of these options, the wiring changes.

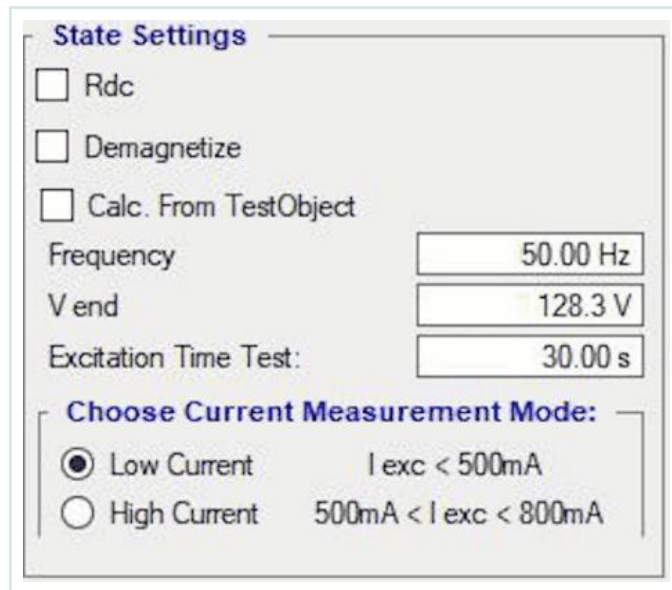


Figure 3

1 Performing the Test and Analyzing the Results

In this test, the test information is entered is this page in accordance with the information entered in "Test Object" and the performed resistance test. Also, the wiring is done according to the CT specifications which are different for different models of "CTs". Note that in this wiring, output voltages is connected to the capacitor positive output and it is necessary that the two negative polarities of the capacitors are connected to each other. Then the positive polarity of the second capacitor is attached to the "S1" "CT" and the "S2" is connected to the device. It should also be noted that series capacitors are used to filter the "DC" voltage of the device.

By pressing "Init Test", the needed "States" are created in "Table View" and the necessary changes are automatically applied in "Signal View". Note that the voltage is displayed in "Signal View" in form of "RMS" and it is possible to change the view to sine by selecting "Instantaneous" option. After performing the test, in "Signal View" you can see that first the "CT" is demagnetized and then the

excitation test begins. In "Lissajous" tab, the saturation curve can be viewed in terms of voltage and current. In this curve the linear area between the two plus signs is depicted in pink. After finishing the test, the knee point and the saturation point are depicted with green and the results and the evaluation are recorded in "Excitation Result" section. Since in performing this test the saturation curve points are of significance too, by selecting "Add to Report" option, the points used for the test are added to the report.

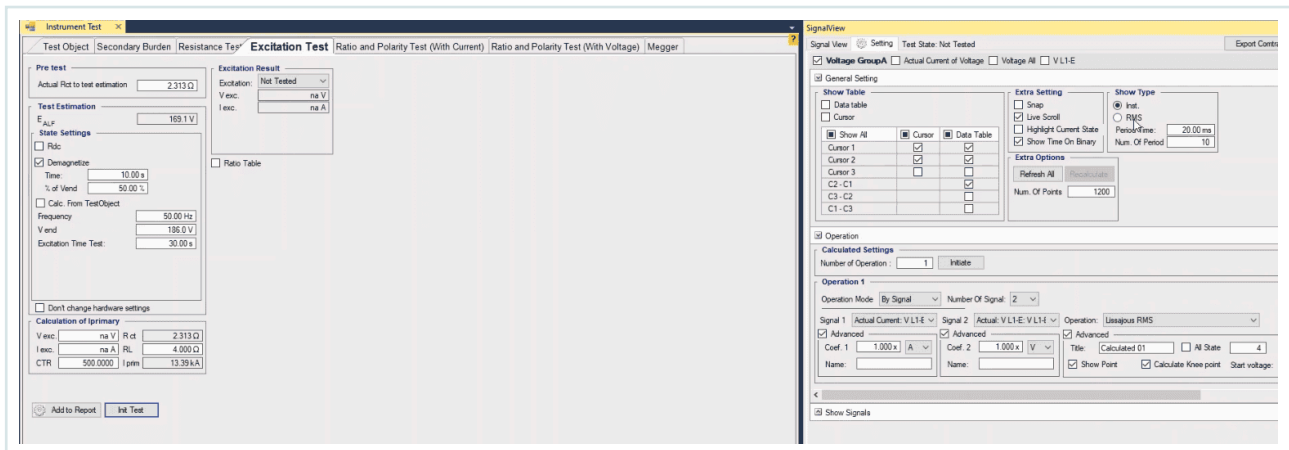


Figure 4

Another important point in an excitation test is the current which passes the primary of "CT" and causes the saturation. Since this current is related to the CT connected resistance, in "Calculation of I_{primary}" section, the connected resistance should be entered in "R_L" field and then view the current that causes the CT saturation in "I_{prim}" field. Here you can see the formula used to calculate this current.

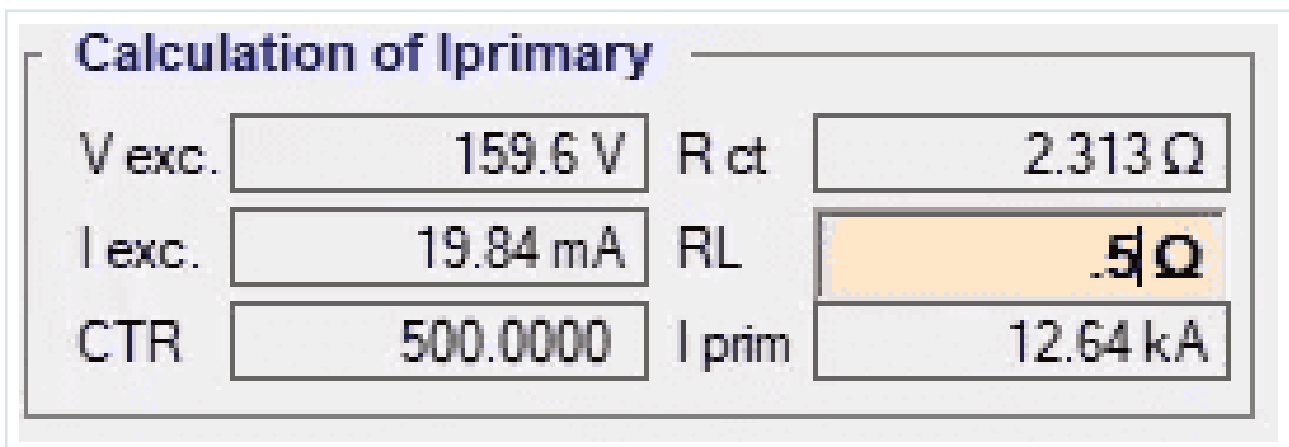
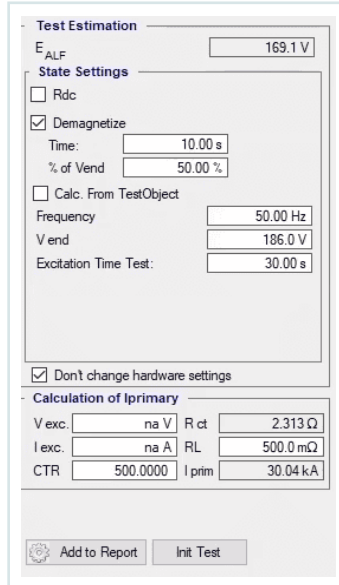


Figure 5

If you wish to set the wiring in a way other than the suggested way, after clicking on "Init Test", check "Don't Change Hardware Setting", then make your desired changes and initiate the test. Note that if before finding the saturation and knee points, an "Overcurrent" error is displayed, the wiring needs to be changed from "Low Current" to "High Current" and then initiate the test after pressing "Init Test". If

again before finding the knee point the device is displaying an overcurrent error, this means that the knee point current is higher than the Range of the device and it is not possible to find the knee point using this device.



The screenshot shows a software window titled "Excitation Test" with several sections:

- Test Estimation:** A text box for E_{ALF} containing the value "169.1 V".
- State Settings:**
 - ☐ Rdc
 - ☒ Demagnetize
 - Time: 10.00 s
 - % of Vend: 50.00 %
 - ☐ Calc. From TestObject
 - Frequency: 50.00 Hz
 - Vend: 186.0 V
 - Excitation Time Test: 30.00 s
- ☒ Don't change hardware settings
- Calculation of Iprimary:**
 - V exc.: na V R ct: 2.313 Ω
 - I exc.: na A RL: 500.0 m Ω
 - CTR: 500.0000 I prim: 30.04 kA

At the bottom, there are two buttons: "Add to Report" and "Init Test".

Figure 6

[jg1]Excitation_Test_Tab_Part2