

task_ezrkjzifcegttcpc_with_calculation

Student Group

First Name	Surname	Matrikel Nr.

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resonance, resonant circuit, RMS, exam ee2 SS2021

Exercise E1 Resonant Circuit (written test, approx. 4 % of a 120-minute written test, SS2021)

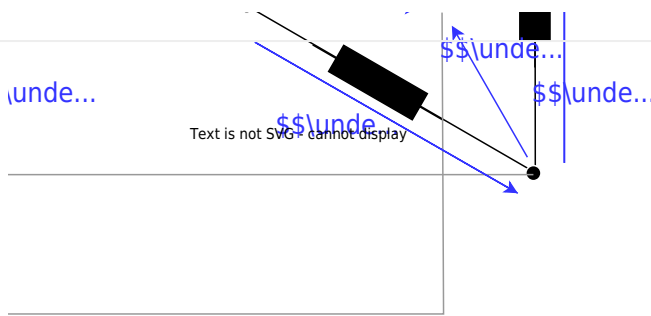
Specify the RMS value of the phase voltage U_{eff} based on the string voltage $U_{\text{eff}} = 110 \text{ V}$. Results be considered in the following.

A voltage with the RMS value $U_{\text{RMS}} = 110 \text{ V}$ is applied between the terminals of each winding.

Through each of the windings, there is a current with an RMS value $I_{\text{RMS}} = 5 \text{ A}$ and $\varphi = 205.5 \text{ Hz}$ compared to the voltage.

Draw the circuit diagram. In a star configuration, this is also the string voltage U_{eff} .

For delta configuration, the phase voltage U_{eff} is equal to the string voltage. With the values: $f_0 = \frac{1}{2\pi \sqrt{L \cdot C}} = 205.4681... \text{ Hz}$



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Last update: 2024/07/04 10:48

