The Current Status and Future Development of DC Circuit Breakers

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About Me

My name is Khidr Abdun-Nur. A 19 year old college student going into his junior year, majoring in Electrical Engineering. I Chose EE to be my major because technology is always advancing and I want to build/make something that could help change the world in a positive way.

Project Introduction

HVDC (High Voltage Direct Current Breakers) is what I'm researching with my mentor. Designing a new three-level three phase inverter has been the goal. One of the advantages to having these kinds of inverters is that the peak value of the phase output voltage is twice as high as that of the normal converter. It is able to handle the low current as well as high current voltage.

State of Knowledge

As you may know there is a difference between AC and DC currents. People may ask why do we need HVDC when there is already HVAC? The main issue with the HVAC breaker is that transmission distance beyond a certain value. HVDC helps to solve this problem.

Relation Sustainable Mg.

Multi-level converters have been used widely in many aspects, especially in sustainability. This is because of the associations in higher power, medium switch power and has low HD (Harmonic Distortions)

Acknowledgements

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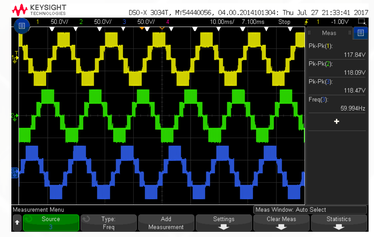
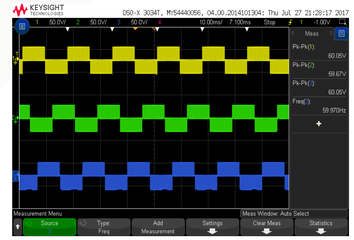
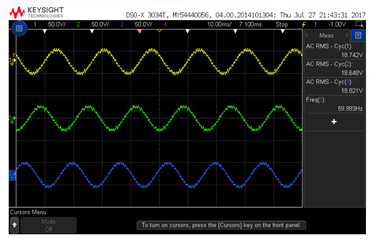
Results



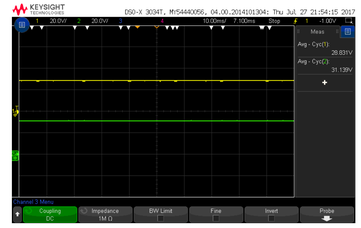
Phase to phase voltages



Phase voltages at output terminal



Phase voltage at load terminal



DC link voltages

Conclusions

Our test proved successful, with only levels ranging from 30-60 Hz our inverter was able to work. Unfortunately we were unable to use more electricity for our experiment.

References

1. Nonlinear control for grid connected wind energy system with multilevel inverter
2017, ARPN Journal of Engineering and Applied Sciences
2.Dr. Chen
3.Dr. Wang

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