Testing wind turbine power electronics

Aiming to test how the power electronic circuit for the wind turbine behaves physically and compare that to the Simulink model.

Circuit

Graphical user interface, application, Teams

Description automatically generated

To 9V

Simulink

Graphical user interface, application, Word

Description automatically generated

Simulated Parameters:

|  |  |
| --- | --- |
| Frequency | 1 Hz |
| Filter capacitor | 2000 |
| Dump resistor | 5 |
| Battery internal resistance | 1 |
| Battery source voltage | 23V |
|  |  |

Load resistor path open

|  |  |  |
| --- | --- | --- |
| Phase to phase voltage (Vrms) | Simulated charging current (A) | Actual charging current  (A) |
| 10 | 0 |  |
| 15 | 0 |  |
| 20 | 0.5 |  |
| 25 | 2.7 |  |
| 30 | 5.5 |  |

Chart, line chart

Description automatically generated

Load resistor path closed

|  |  |  |
| --- | --- | --- |
| Phase to phase voltage (Vrms) | Simulated charging current (A) | Actual charging current  (A) |
| 10 | 0 |  |
| 15 | 0 |  |
| 20 | 0 |  |
| 25 | 0.25 |  |
| 30 | 1.5 |  |

Chart, line chart

Description automatically generated