

# Power Lab Motor Design and Experiment

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**PROJECT**





Team name

Team members

Pursuers

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# Goal

Create new lab experiments that help students in ECE 420 to get familiar with doubly fed induction machine.



# Why is DFIG important?

1) Wind turbines

2) Has a number of advantages over other types of generators

Maintained output voltages at a constant value

Ability to control the power factor

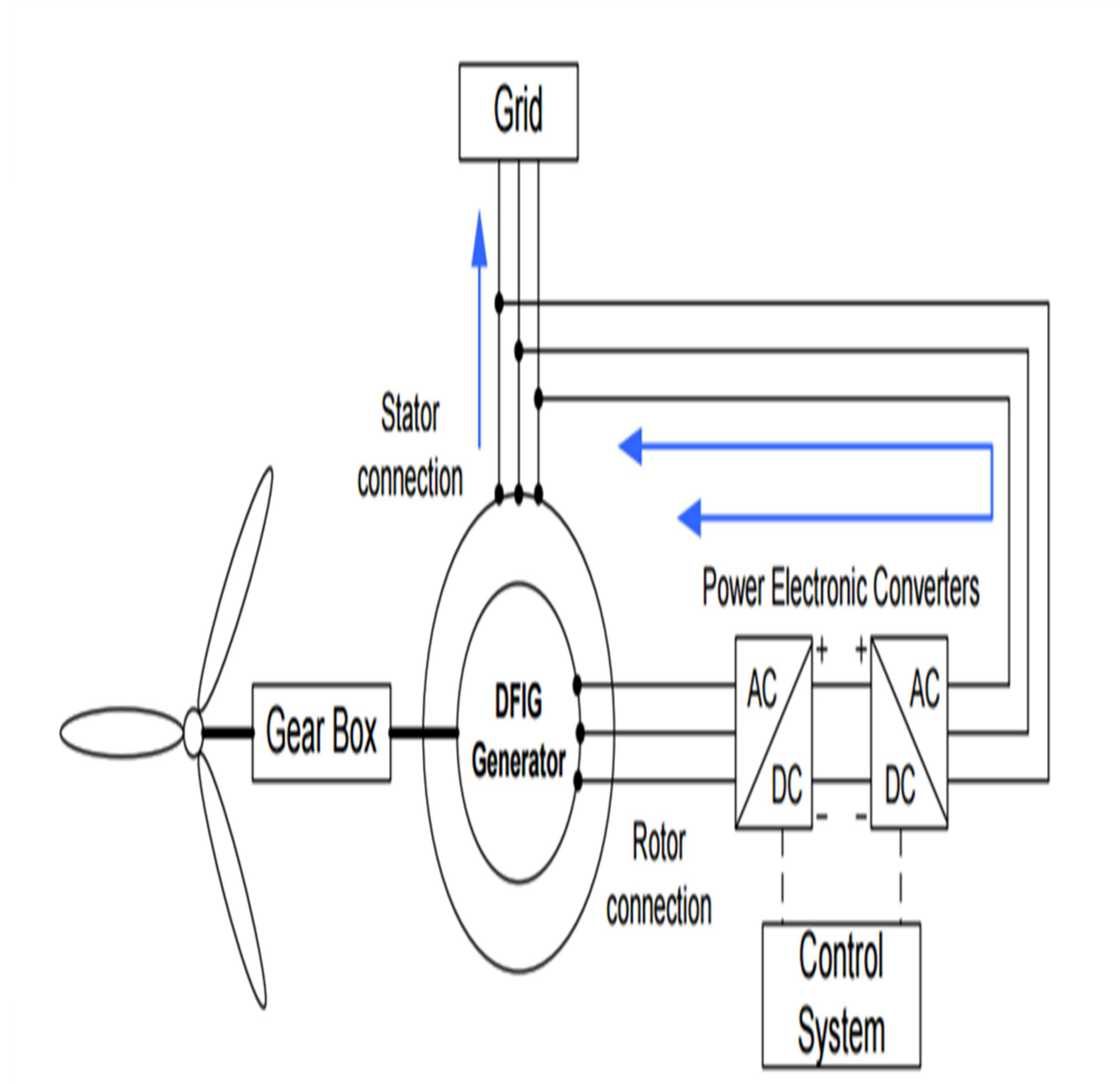
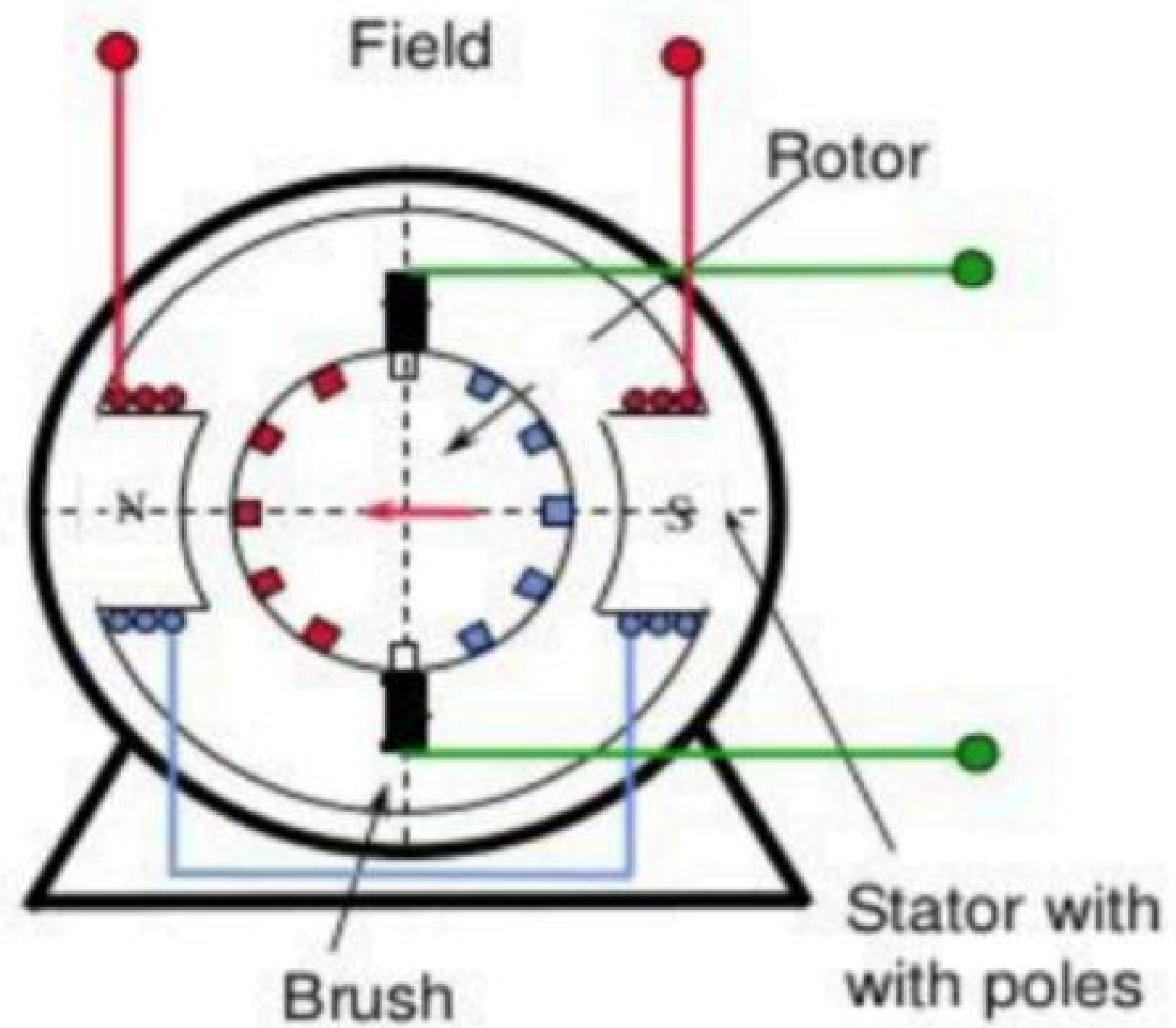
Generation of electrical power at lower speeds



# Machines

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# Machines





# Budget

Since all the required equipments were provided in the lab already. We only needed to pay for the poster which cost us \$91.16.

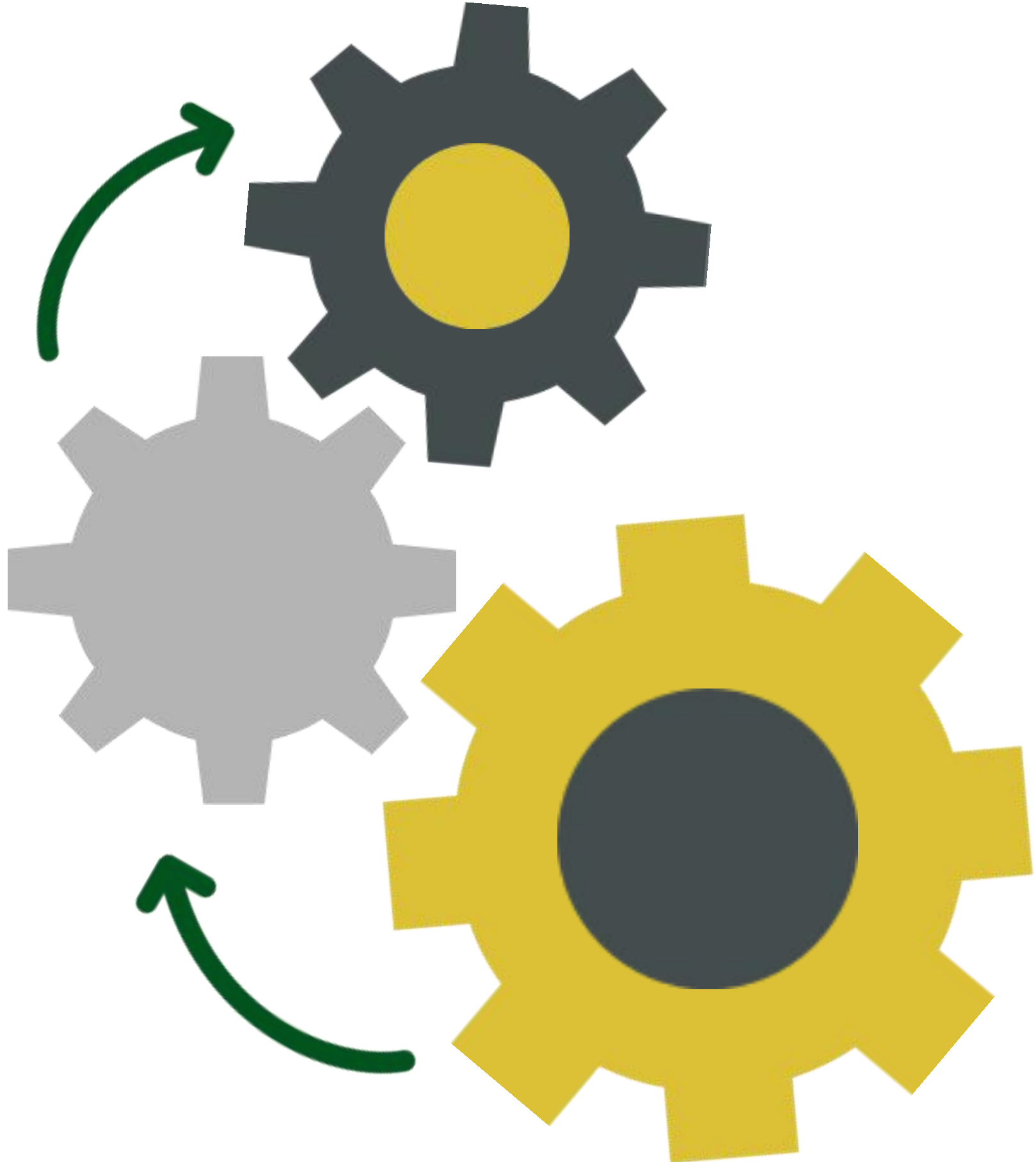


# Experiments

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# Measurement



Speed and Frequency

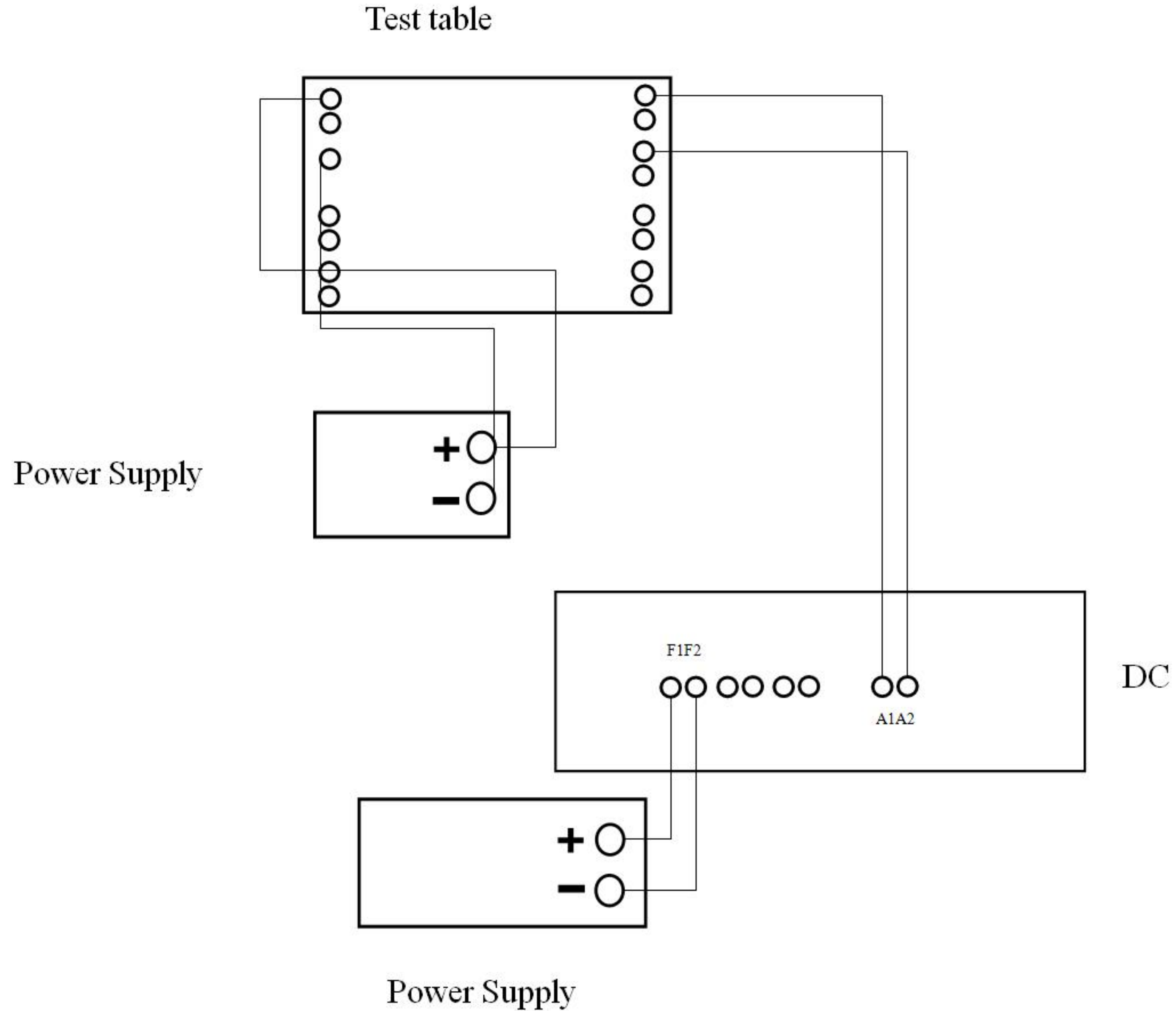


Field Voltage and Current

3 Power

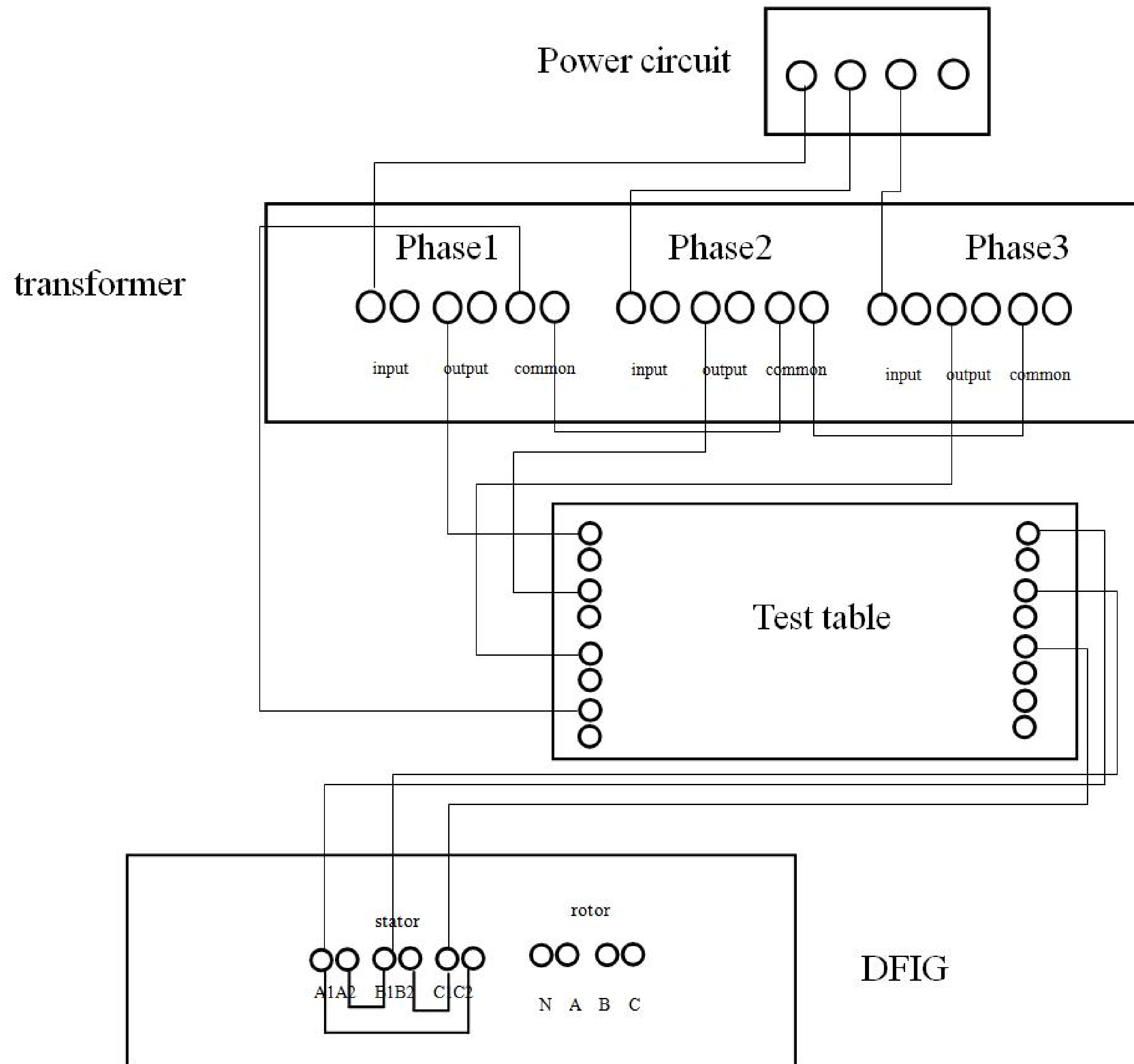
# Experiment I

## Motor side



# Experiments

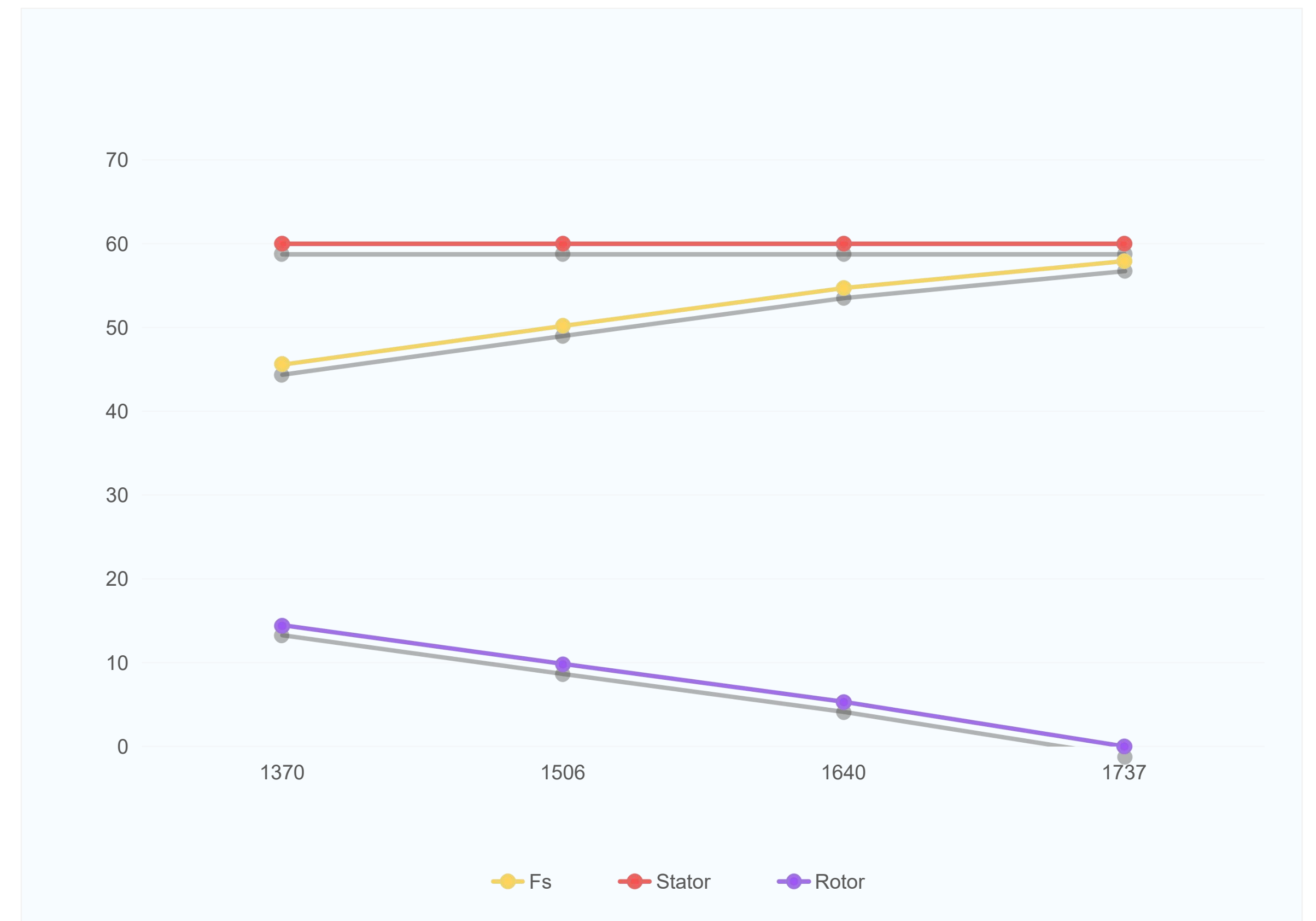
## Generator side



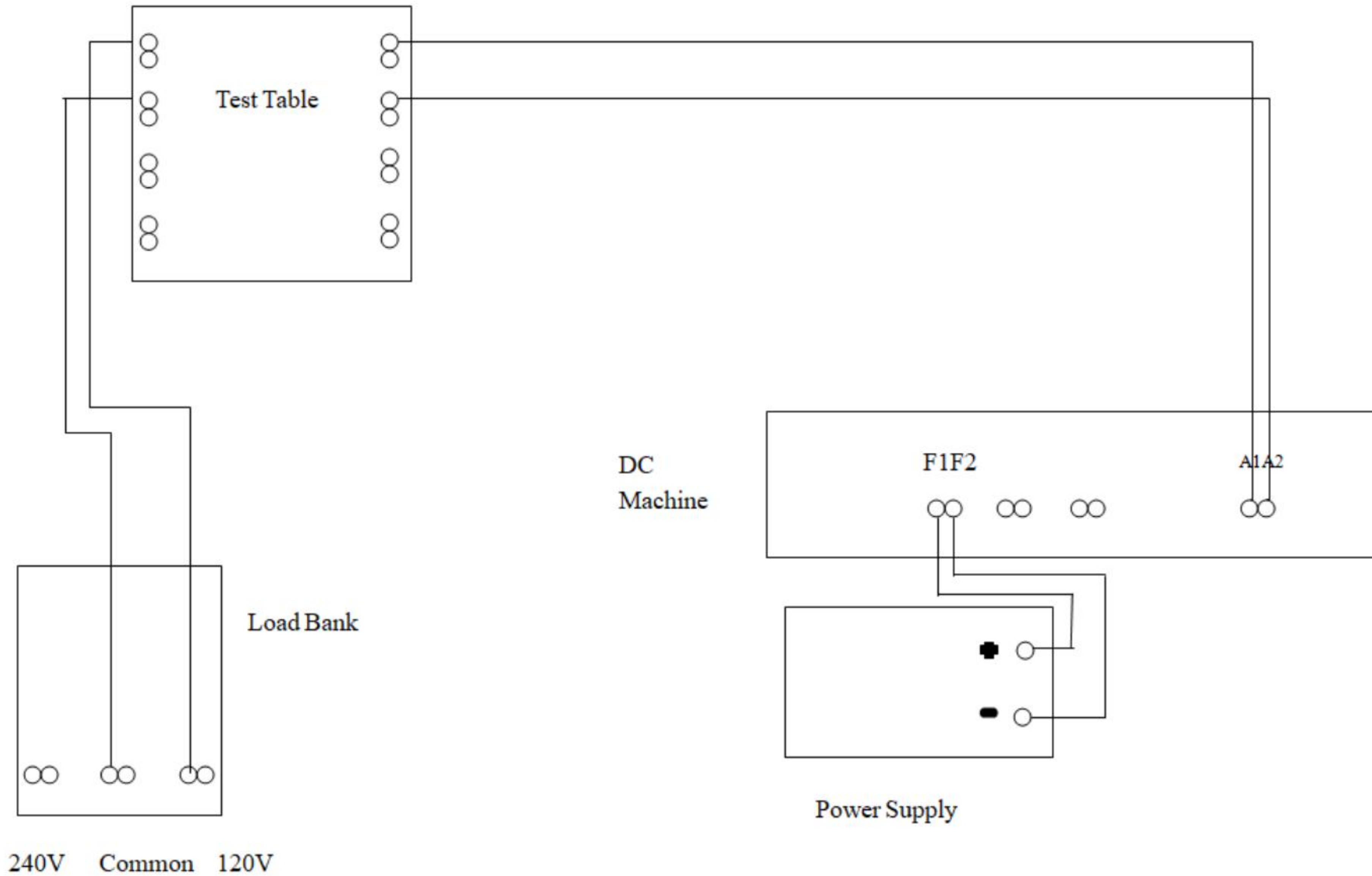
# Data

# Diagram

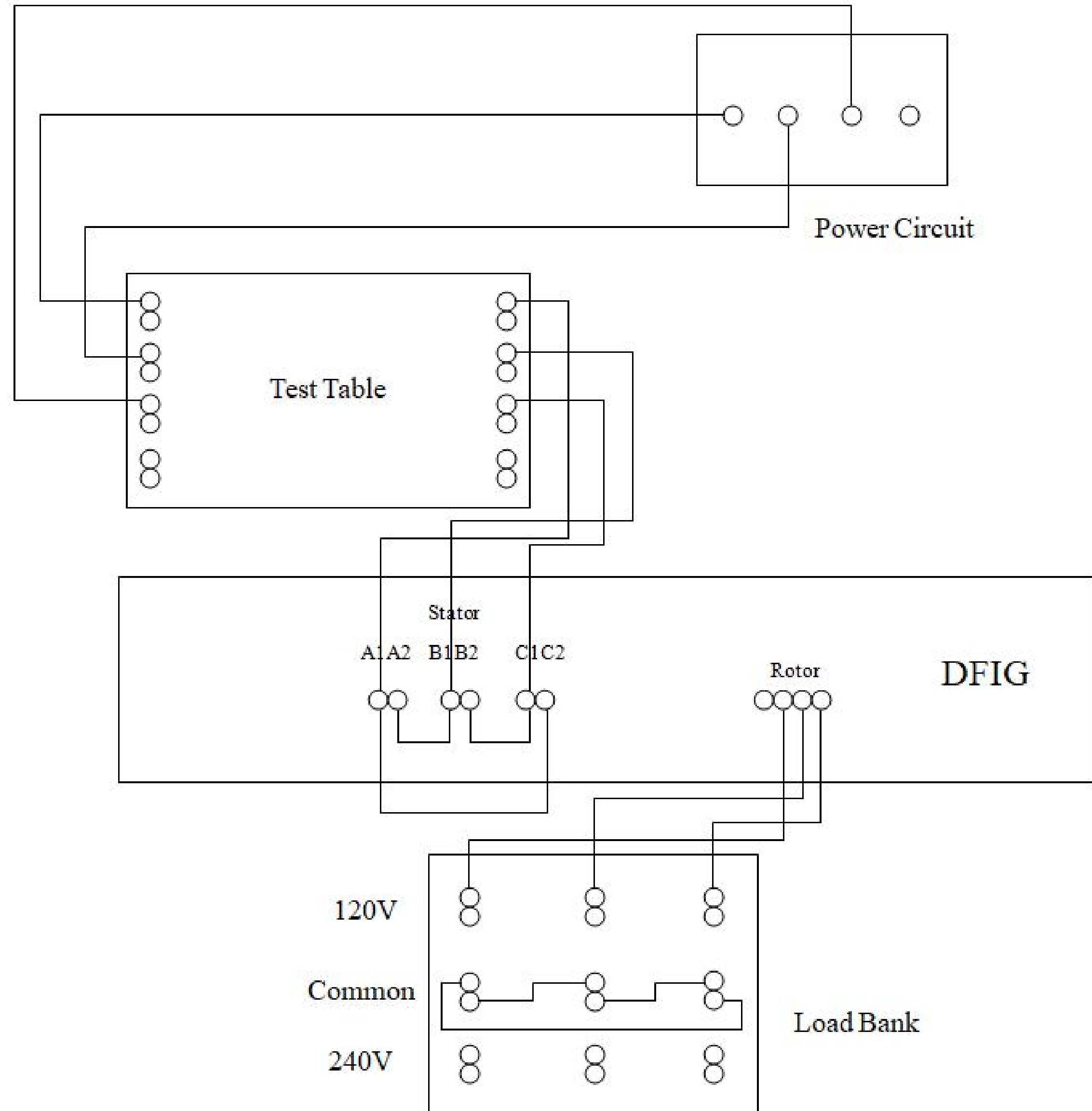
Fs	RPM	Stator(60Hz)	Rotor(Hz)
45.6	1370	60	14.4
50.2	1506	60	9.8
54.7	1640	60	5.3
57.9	1737	60	2.1



# Experiment II :Add load



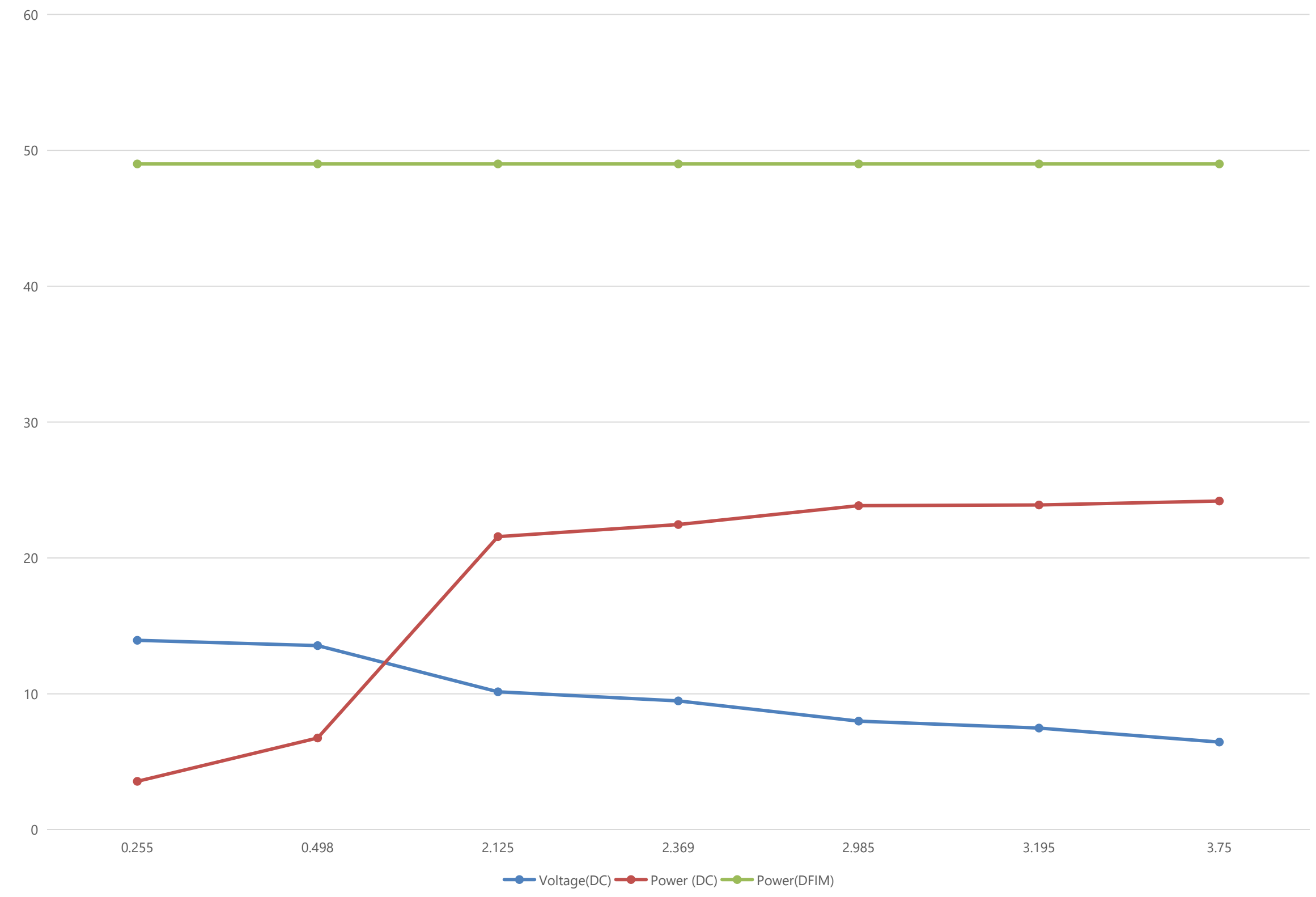
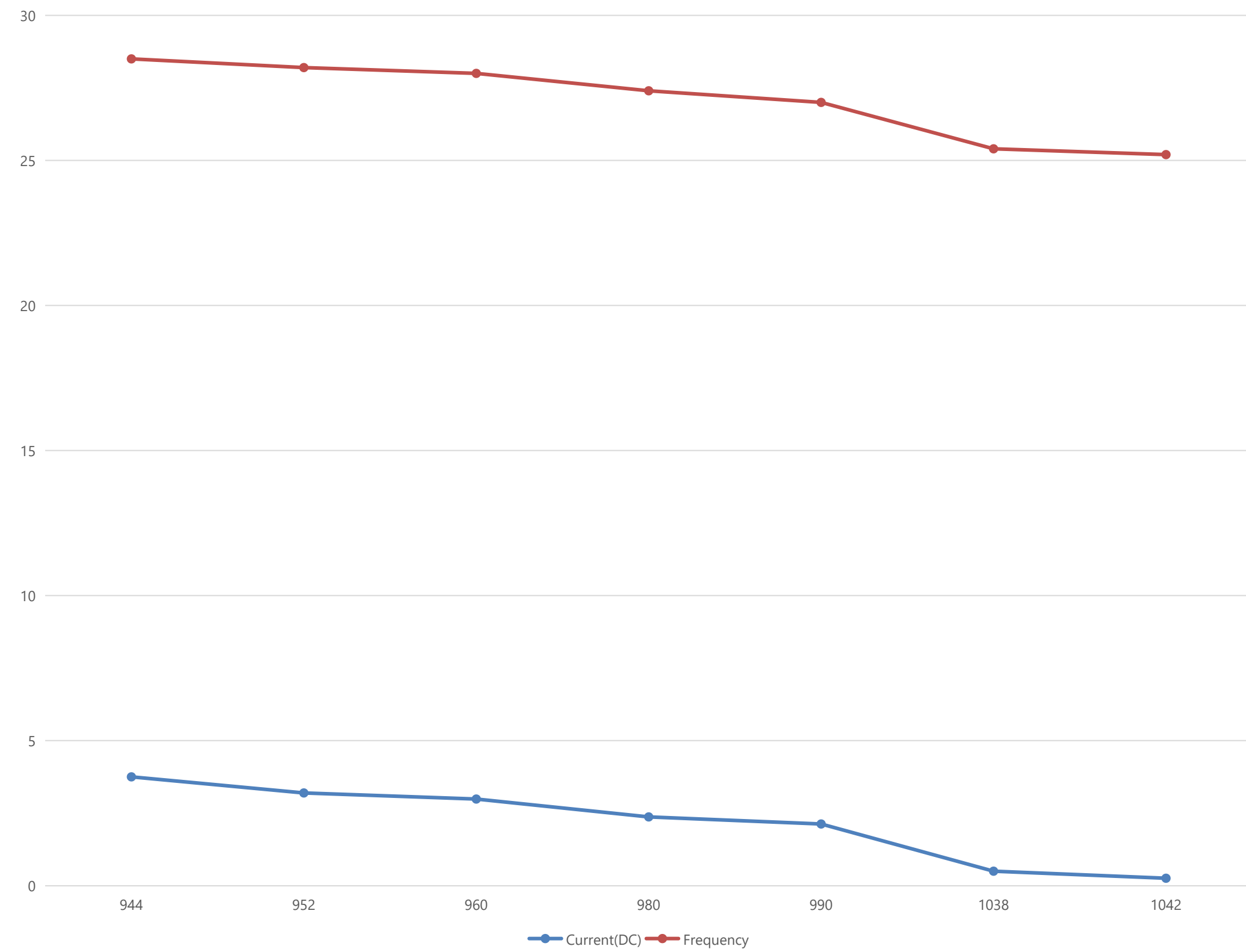
# Experiments



# Data

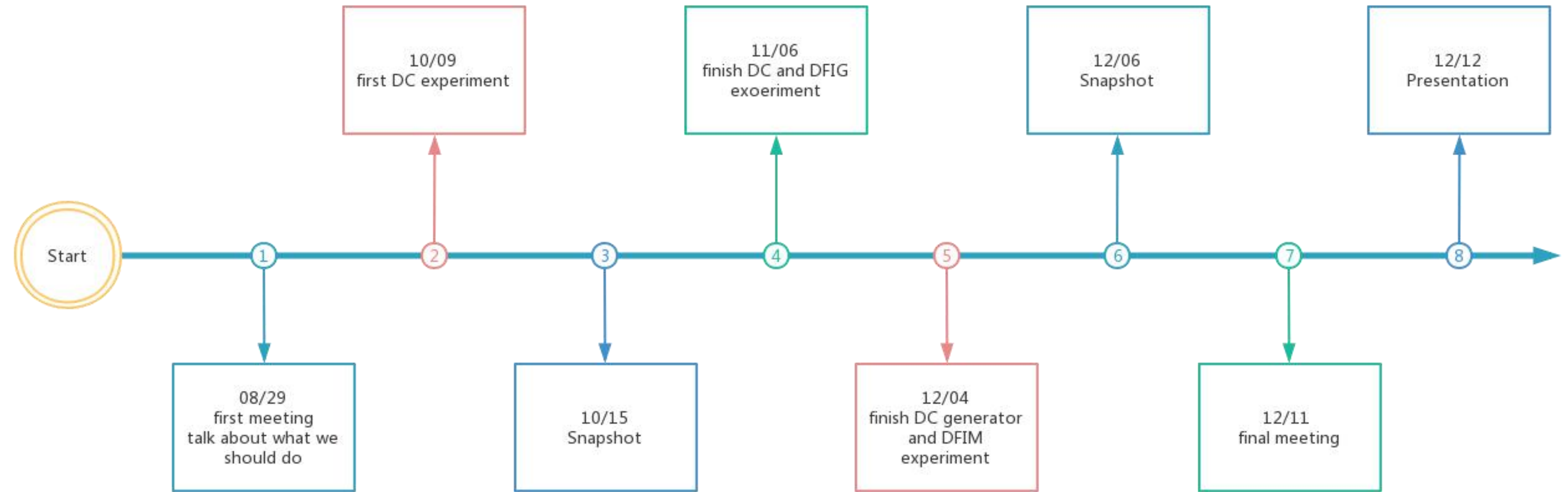
Current(DC)	Voltage(DC)	Frequency(rotor)	Speed	Power(DC)	Power(DFIM)
0.255	13.94	25.2	1042	3.56	49
0.498	13.55	25.4	1038	6.75	49
2.125	10.15	27	990	21.57	49
2.369	9.48	27.4	980	22.46	49
2.985	7.99	28	960	23.85	49
3.195	7.48	28.2	952	23.9	49
3.750	6.45	28.5	944	24.19	49

# Diagram





# Timeline





Thank you for watching!

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