PROPER CENTRE TAP RECTIFIER WITH RLC LOAD

PRESENTED BY -

Shubham faujdar

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PRESENTED TO -
Dr C.C. Reddy
Professor
Head of the department

DEPARTMENT OF ELECTRICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY ROPAR

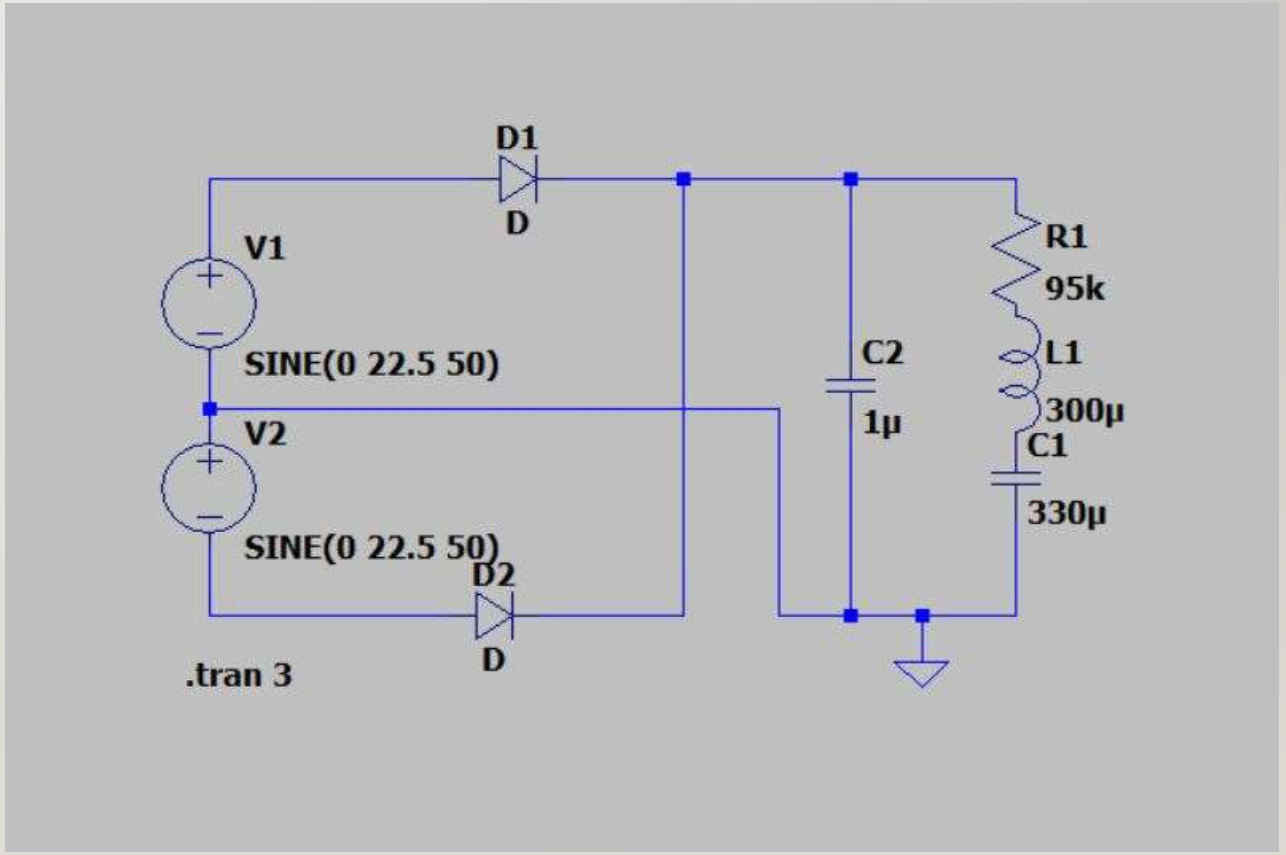
SIMULATION IN LTSPICE

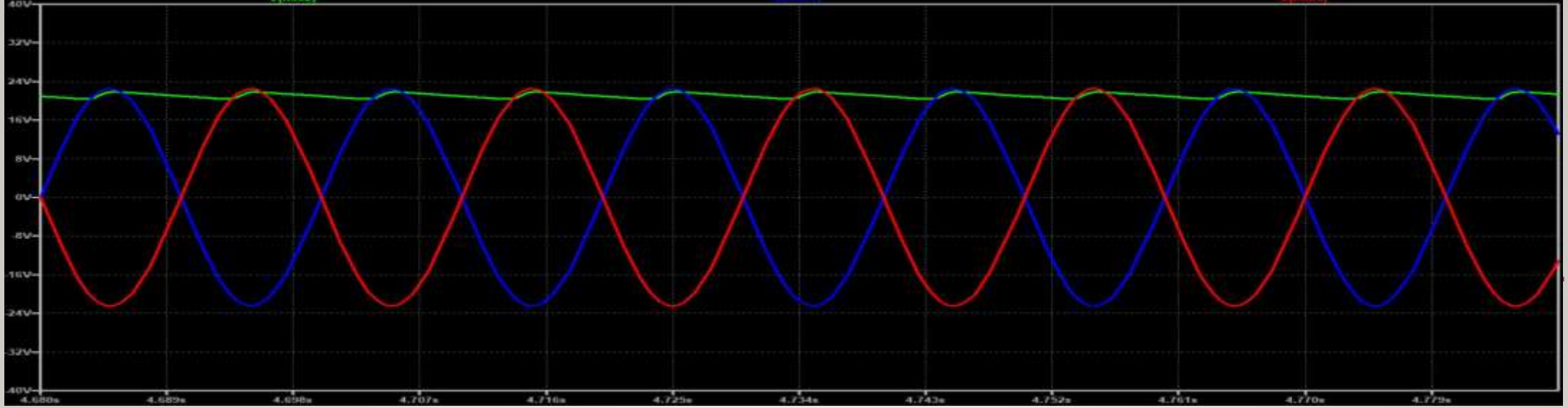
COMPONENTS FOR HARDWARE -

1) Diode = 1N4007

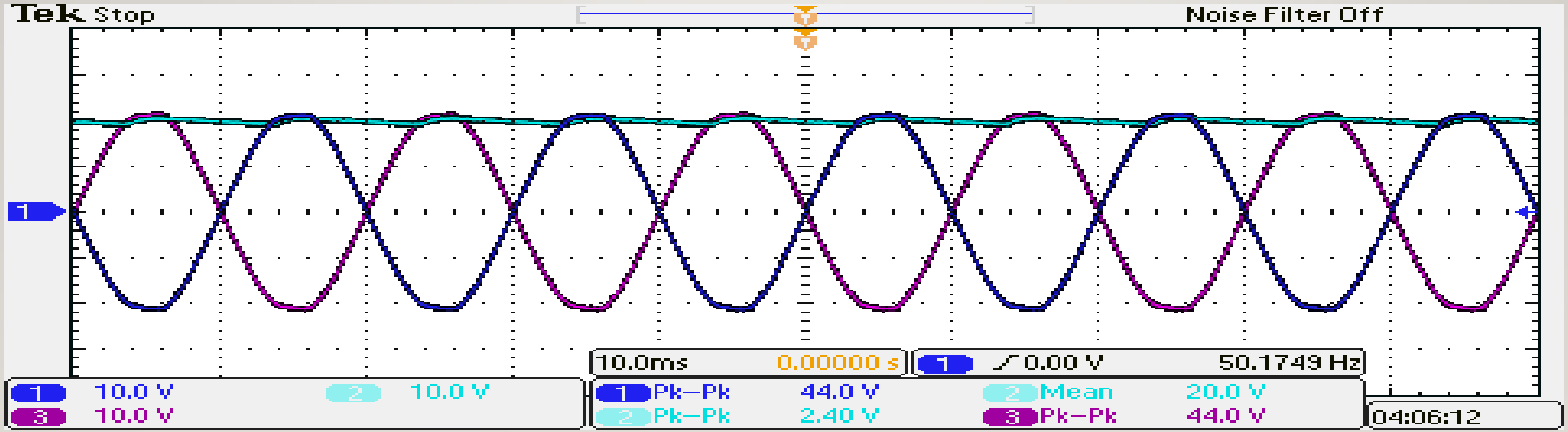
   max. forward voltage drop = 1.1V
   Max dc blocking voltage = 1000V
   Forward current = 1A

2) Capacitor =330µf, 63V
3) Inductor =300µf
4) Resistance =95k
5) Filter capacitor =1µf, 63V



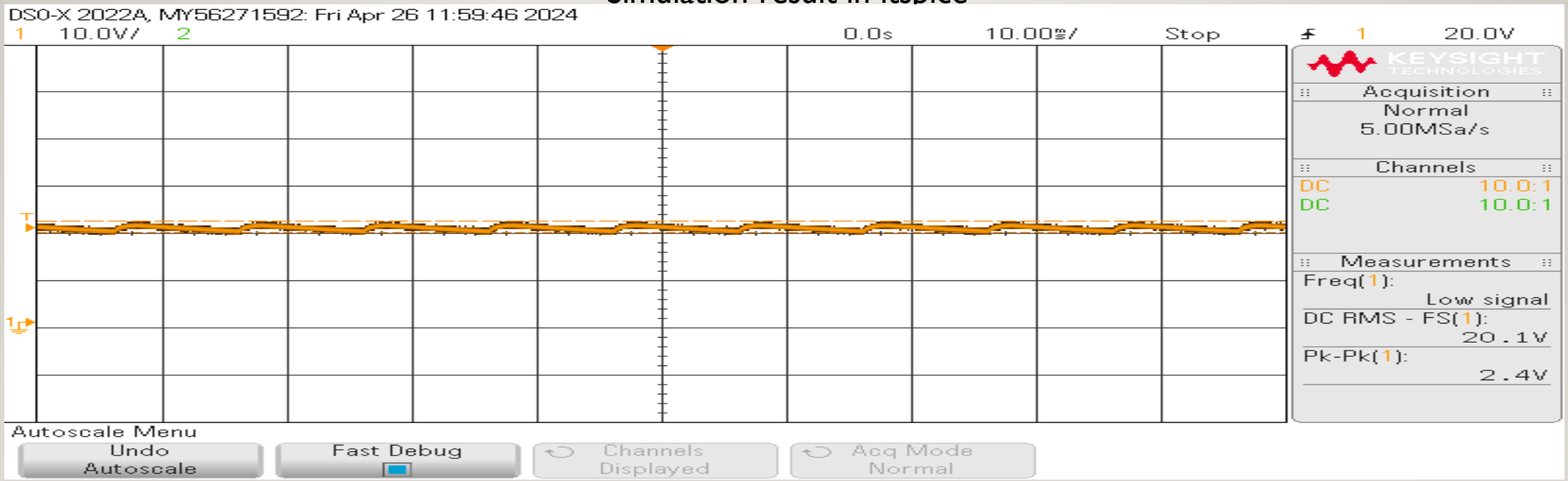


Simulation result in ltspice



DSO result

Simulation result in ltspice



DSO result

CALCULATION

SIMULATION -

Ripple (2δV) = $\frac{I}{2fc} = \frac{214\ \mu}{2X50X1\mu} = 2.14\ volt$

Vdc = 21.089 volts

Efficiency = 93.7%

DSO reading –

Ripple (2δV) = 2.4 volt

Vdc = 20 volt

Efficiency = 88.8%

Rectification efficiency = $\frac{\text{Vdc}}{\text{Vs,peak}}$

THANK YOU