

# EE-510 HIGH VOLTAGE

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# IMPROPER CENTRE-TAP RECTIFIER WITH RESISTIVE AND INDUCTIVE LOAD:

## Component used:

1-phase transformer 230v | | 15-0-15v.....(2)

Diode(1N4007).....(2)

Resistance 3.3Kilo ohm .....(1)

Inductance 330 micro Henry ..... (1)

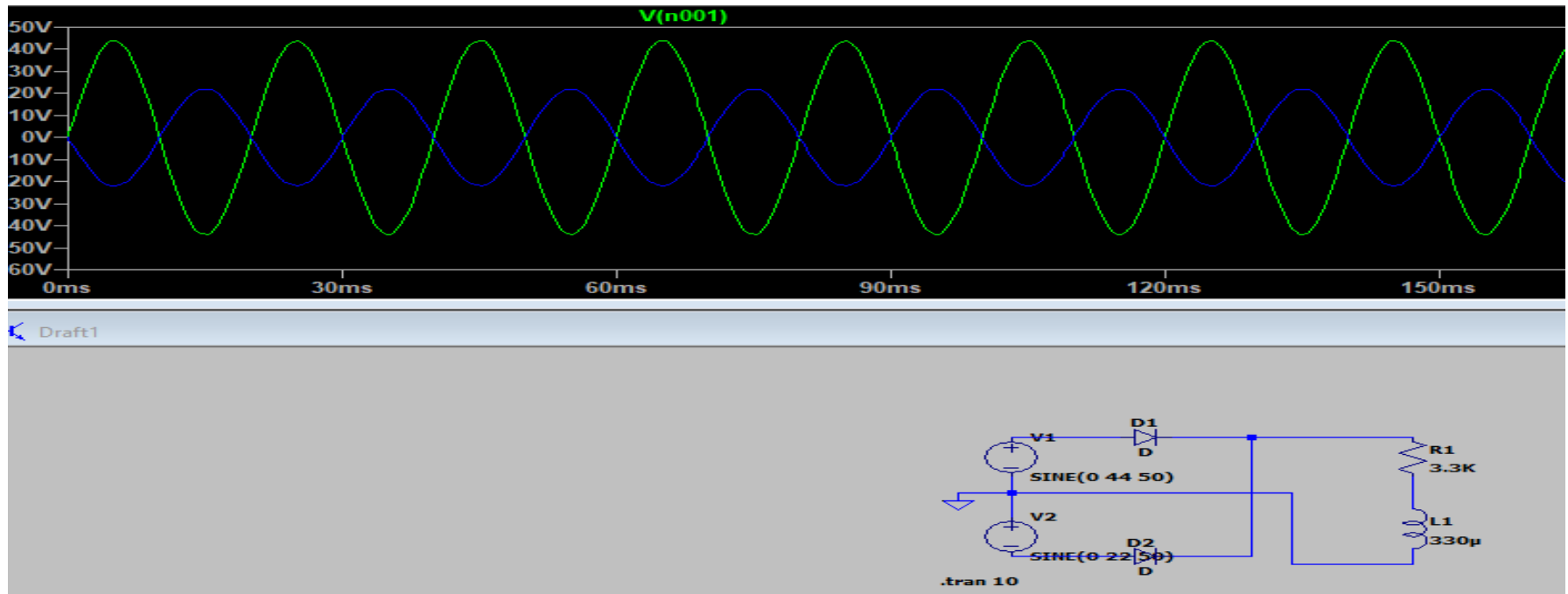
Filter capacitance 22 micro farad(100v)....(1)

## Simulation done in LT-Spice

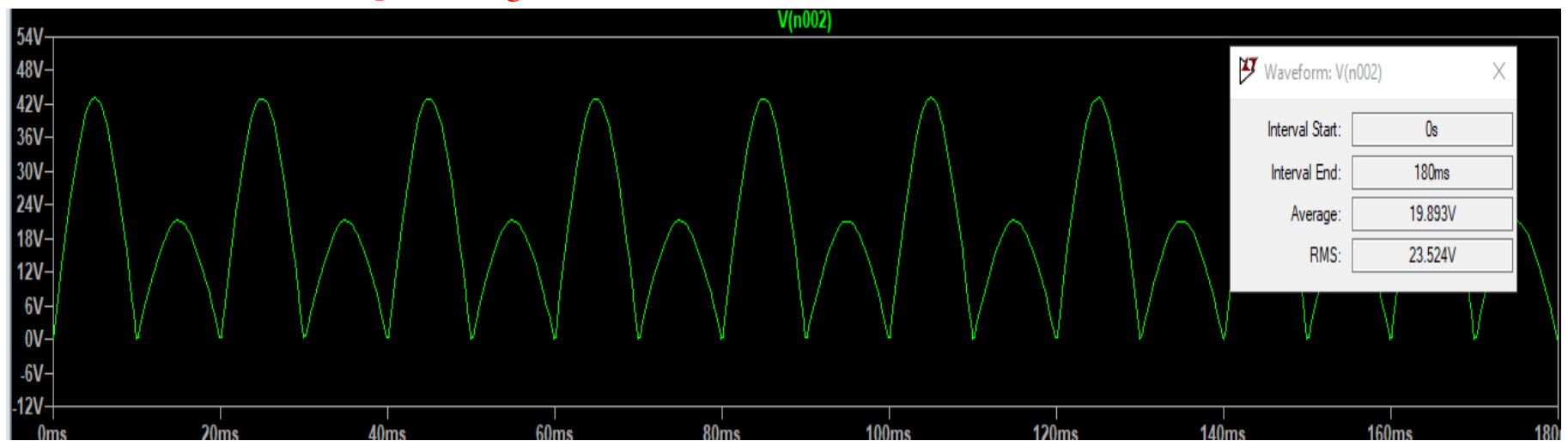
Two cases : 1. without using Filter capacitance

2.with Filter capacitance

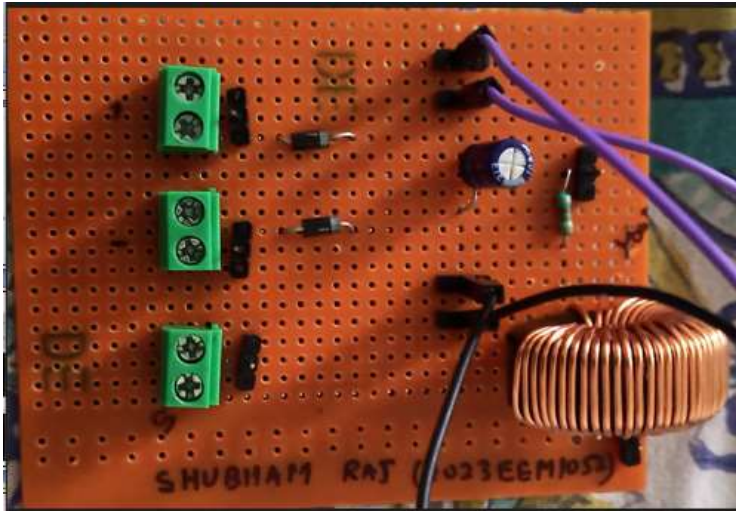
## Case 1-Simulation Without Filter Capacitance



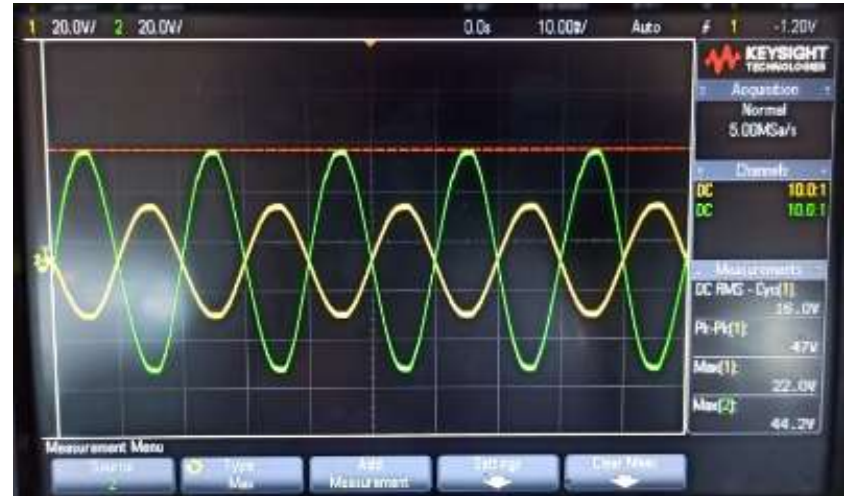
## Result : Output voltage waveform



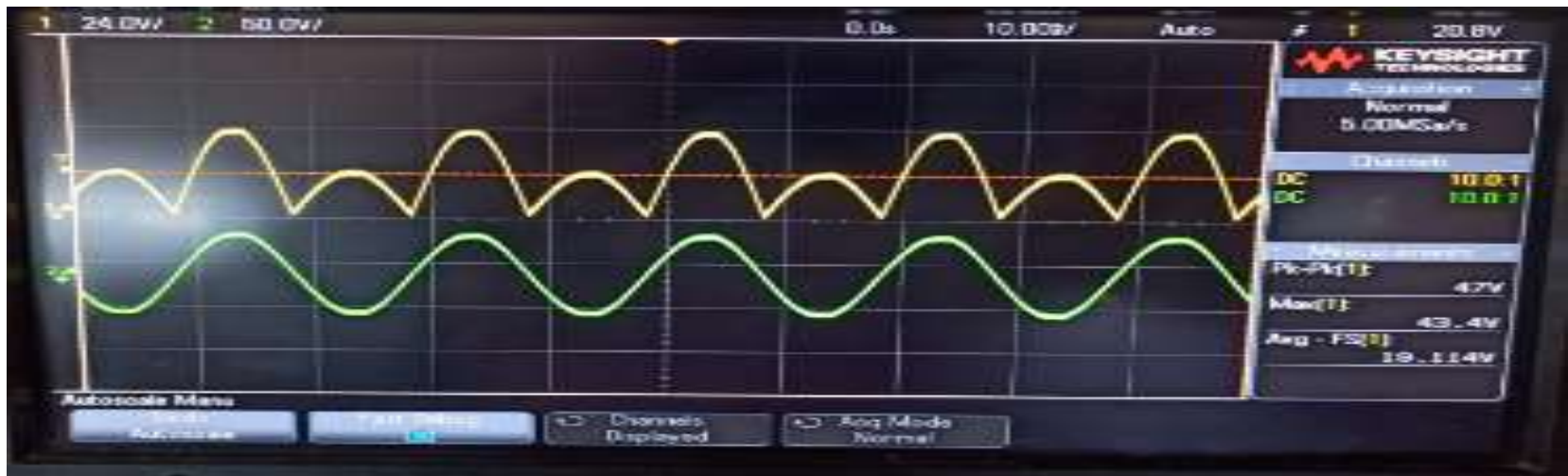
## Hardware Implimentation:



## Impropertaping supply:



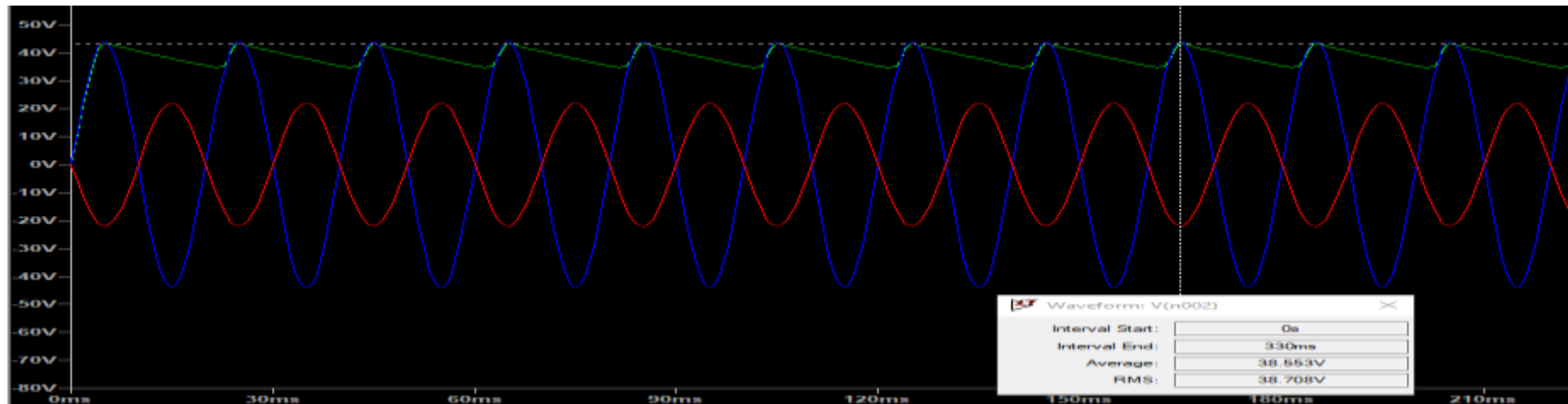
## Result: Output voltage waveform in Dso



$V_o$  avg in simulation=19.9V

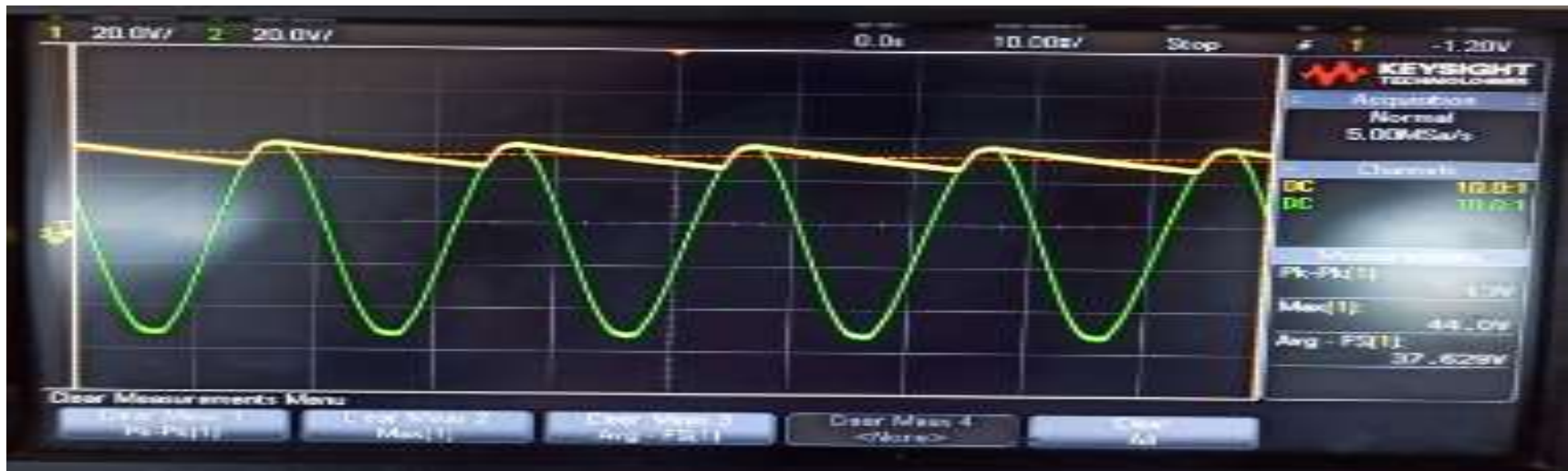
$V_o$  avg in DSO=19.114V

## Case2-Simulation With Filter capacitance



$$V_o \text{ avg} = 38.5V$$

Result: Output voltage waveform in DSO



$$V_o \text{ avg} = 37.62v$$

# COMPARISON:

Without Filter Capacitance	SIMULATION	THEORITICAL	DSO
Vo avg	19.9V	20V	19.114V
With Filter Capacitance	SIMULATION	THEORITICAL	DSO
Vo avg	37.6V	37.6V	37.62V
Ripple= $2\delta$	11V	11V	13V
Efficiency in output voltage	87.2%	87.2%	87.2%

THANK YOU