

Where C0-C14 is constant comparable pulses and S1-Sb1 is main switches.

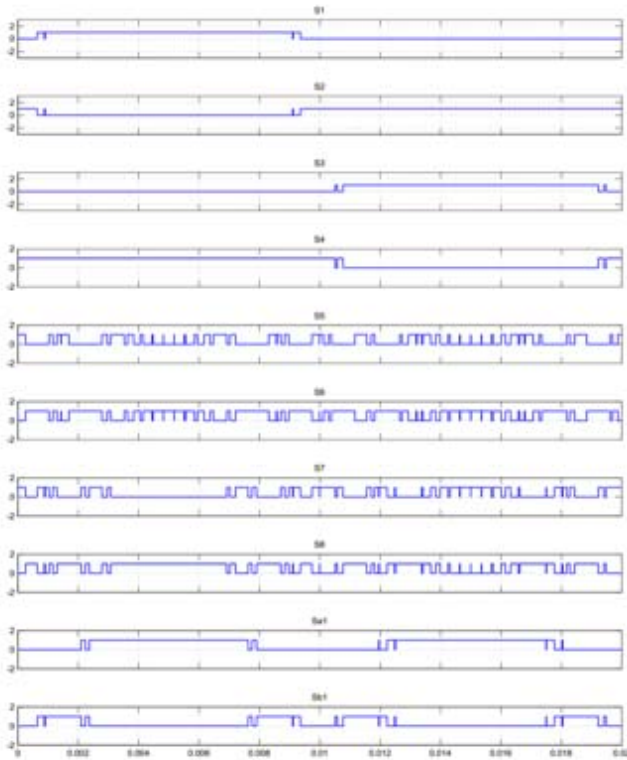


Figure 6: Firing pulses for switches

5. Simulation Result

Under this subpart, simulation result of the 11& 15 level modified MLI is synthesized using MATLAB 2013a. Load parameters taken $R=3\text{ ohm}$ & $L=6\text{ mh}$.

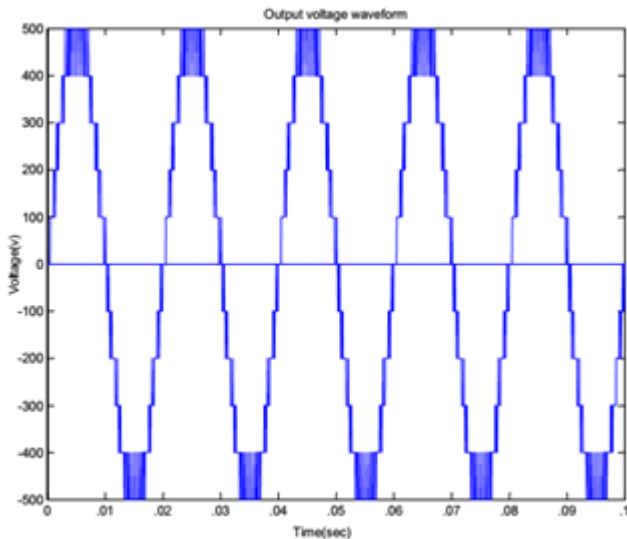


Figure 7: simulated output voltage for 11 level modified MLI

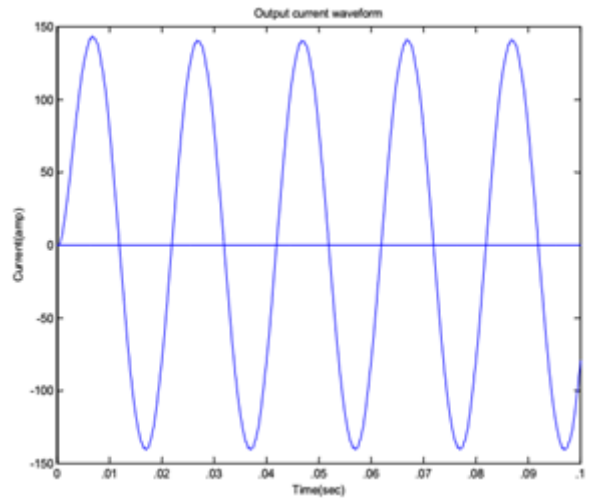


Figure 8: simulated output current for 11 level modified MLI

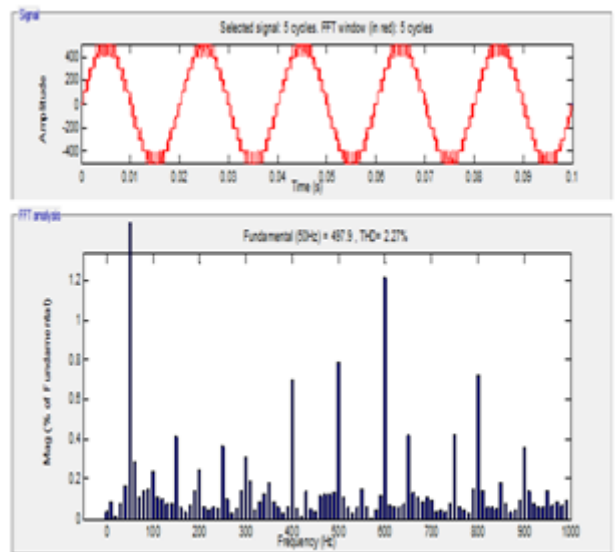


Figure 9: FFT window for 11 level o/p voltage

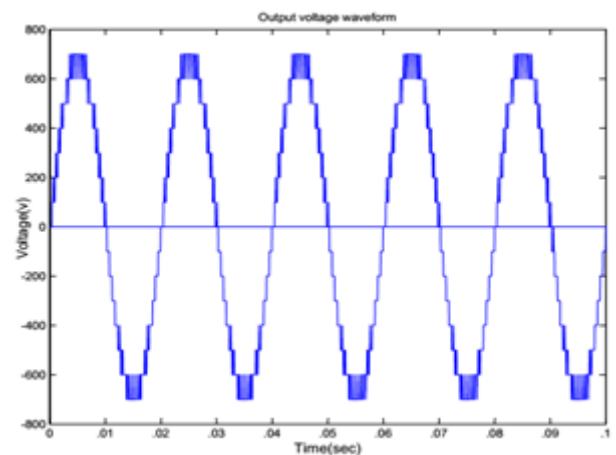


Figure 10: simulated output voltage for 15 level modified MLI.

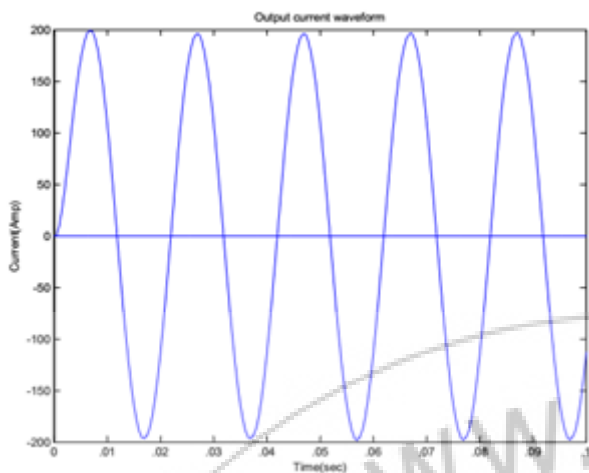


Figure 11: simulated output current for 15 level modified MLI

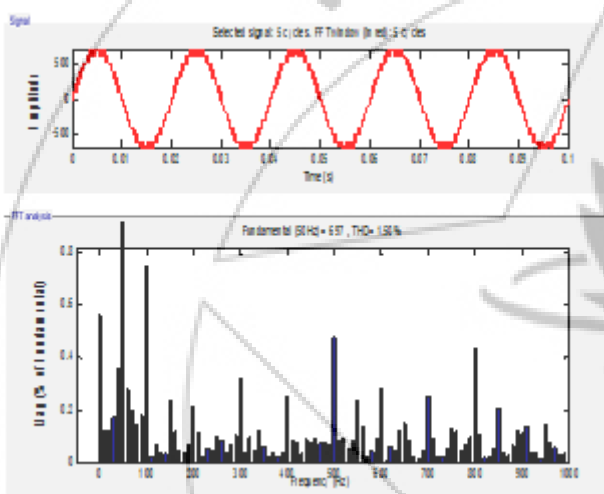


Figure 12: FFT window for 15 level o/p voltage

6. Conclusion

The modified multilevel inverter has obtained low harmonics content, low switching losses, high power and high output voltage level. It has used less number of switches as compare to conventional inverter. In this circuit we used IGBT switch only at place of MOSFET to reducing switching loss. Modified inverter has simulated at various modulation index. In this paper we have comparative study on 11 level & 15 level at different modulation index. This topology obtained 1.50% THD at modulation index 1 at fundamental max frequency. So this topology has low power consumption and having less size.

Table 5: Comparison of THD between 11 & 15 level at different modulation index

Modulation index	THD(11 level) %	THD(15 level) %
1	2.27	1.50
0.97	2.10	1.58
0.95	2.04	1.75
0.90	2.45	1.79

7. Future Improvement

There are many future scope improvements in this study like reducing THD using various PWM techniques. For taking low ON time period to generating multilevel outputs. Uses a LC type filter to obtaining smooth voltage & Current waveforms.

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