

## CHAPTER 5

### CONCLUSION AND FUTURE WORK

#### 5.1 Conclusion

This thesis presents an implementation of a carrier-based PWM (CBPWM) technique for 3-phase 4-wire voltage source generator with microcontroller using for generate voltage sag signal. Recently, the implementation of the 3D SVPWM for three-phase four-leg voltage source it seems to be the easiest way to generated voltage sag and it might be a software and hardware burden even for recent digital signal processor (DSP) systems but needs quite a bit of digital logic and computational power. Therefore, this paper presents a simple sag algorithm add to CBPWM technique for control 3-phase 4-wire voltage sag inverter it's very simple design, low-cost and can be easily develop and hardware structure cheaper than other topology. The proposed technique can be implemented with dsPIC30F microcontroller and test algorithm compare with 3D SVPWM technique. The performance of proposed CBPWM strategy has been investigated and verified through simulations and experimental results for three-phase four-leg voltage source generator.

The voltage sags generator VSG it is suitable for most R&D and test labs to evaluate the performance of electrical equipment under 7 sags types conditions (equipment under test: EUT) or a sag-compensating power quality conditioner), and THD<sub>v</sub> 3.9% lower than power quality standard and can test electrical equipment with balanced/unbalanced voltage sags, and phase shift. The sag generator will be tested with resistive (Tungsten Lamp) and inductive load and test magnetic contactor with point on wave condition the proposed method provides an effective method for voltage sag generation for the purpose of sag-compensating equipment testing and all tested based on IEC61000-4-11 and SEMI F47

## 5.2 Future work

The voltage sag generator has built and all function can be used but more difficult to configuration. In the future configuration will configurator via SagWave program block diagram shown in Figure 5.1 and can preview voltage sag 7 types signal send command to start stop sag signal to voltage sag signal generator programed international standard SEMI F47 and IEC 61000-4-11 class 2 or 3 for testing electrical equipment.

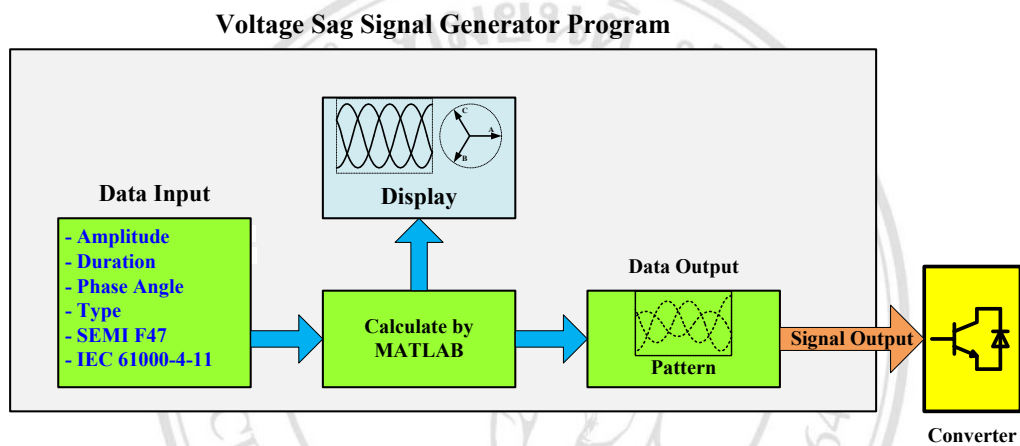


Figure 5.1 voltage sag signal generator with SagWave software sag signal configuration.