Abstract

The objective of this study is to improve the quality of the flexible printed circuit process using six sigma solutions. The study will follow 5 approaches of six sigma technique. In the first step which is the define phrase, this work used a pareto chart for selecting the potential problem and found the major problem of circuit forming process is short defect. In the second step, a measure phase, the measuring equipments were tested for confirming their reliability and the causes of the selected problem from the define phase were determined. In the next step, an analyze phase, this work performed the factor screening using one-way ANOVA technique and found that there were 4 main factors potentially affecting the problem of interest. Therefore, the design of experiment techniques was applied in order to determine the most suitable condition of these four factors in the improve phase which is the fourth step. The final step is the control phase which sets the method and system for controlling the critical factor and process to prevent the reoccurrence of the solved problem.

The improvement following the six sigma solution of the case of interest was helps reduce the monthly defective rate from 4399 PPM to 353 PPM. This led to the cost reduction of poor quality from 53,567 to 4,298 baht per month. It was also found that the process capability is increased from 4.02σ to 4.89σ.