

CHAPTER 1

INTRODUCTION

1.1 RESEARCH BACKGROUND

Today manufacturing industries has very tight competition and struggle to meet the challenges to improve the productivity of the company. In this modern era, the customers generally demand very good quality of products with the reasonable price. Because of this current trend, many companies have taken Lean Production System (LPS) as a management tools to improve their quality and productivity of their products. LPS was originally established by the Toyota philosophy. Through the lean practice the companies make effort to reduce the waste that will affect the quality, cost, delivery of product, increase safety and morale.

As the market gets more competitive and the demand of a product increases, the question of production capacity will occur. This means that the quality aspect becomes more important in order to keep the market shares and produce as many error-free products as possible without having to invest in new and costly production equipments. According to Ishikawa (1985) this is the most important factor when it comes to gaining a high quality level by building quality into each design and process, which means that the quality control and must begin in the raw material processing and machining, as the raw material and the basic component is the fundamental part of the product.

As the demand of the product increases, the pressure of producing in a higher speed becomes a daily situation. The quality outcome of the process decreases,

especially in the manual working areas. Therefore it is important that the product has the right quality and dimensions according to a company's standards.

BI Technologies Corporation Sdn Bhd was established since 1976 and makes their operation at Jalan Tanjung Api, Kuantan, Pahang. BI Technologies is a division of TT electronics Plc, a public listed company listed in the London FT stock exchange. TT electronics global EMS operations are based in the UK, US, China and Malaysia. This company specializes in providing high quality manufacturing support for customers operating in the Industrial, Telecom, Defense and Aerospace sectors in premier markets throughout the world. The main activities of BI Technologies are producing electrical components like inductors, semiconductor products and connectors.

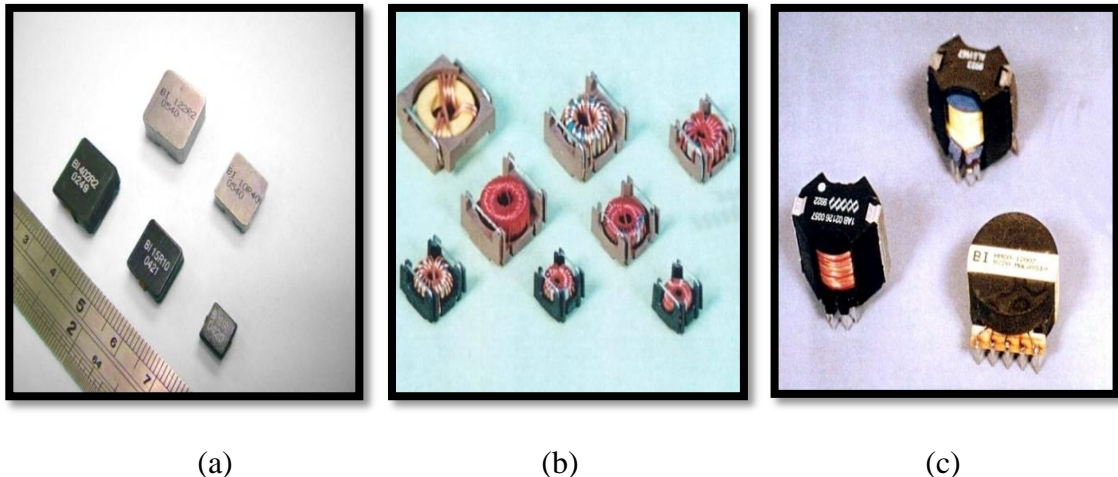


Figure 1.1: BI Technologies' product; (a) Low profile SMD inductor (b) Toroidal SMD inductor (c) Isolation transformer

In overall, the implementation of LPS at BI Technologies is going well, but unfortunately at moulded inductor section there is a problem that influenced BI Technologies quality level that need serious concern and improvement. This is because, at this section area, there is a problem that related with quality issue such as the high number of defects occurs for the moulded inductor part. Therefore, the number of customer complaint is also increase due to the defects.

1.2 PROBLEM STATEMENT

At moulded inductor section there is a problem that has been affecting the score for BI Technologies quality. The problem is there are a high number of defects for the product produced at this section. For this company, the target production yield per month is 95 %, but this section cannot achieve that target. The average yield that they can achieve until now is only 80 %. The critical defect that needs to be considered is cracked cores defect because it has the higher defect yield than the other. The defect yield of cracked core for November 2012 is 9.8 %. There are four models of inductors which are produced; HM72A – 6 series, HM72B – 6 series, HM72A – 10 series, and HM72B – 12 series. To go further for this research some of research question need to be taken with serious consideration. There are:

- i. What are the types of defect that happen on the molded inductor parts?
- ii. Which type of the defects is higher?
- iii. What is the root cause for that defect?
- iv. How to reduce the defect?
- v. Is the current procedure is the correct method to produce the molded inductor?
- vi. Is there any better method to produce moulded inductor with fewer defects?

1.3 RESEARCH OBJECTIVES

The purposes of the research are:

- i. To analyze the mechanical defects that occurs on the molded inductor parts.
- ii. To analyze the root cause for the cracked cores defect.
- iii. To understand the relationship between particle size of iron powder and the cracked core defect.