



Automotive Industry Action Group

# CQI-8

## *Layered Process Audit Guideline*

# Layered Process Audits



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# Layered Process Audits

## FOREWORD

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Industry data show that most manufacturing quality issues are caused by poor process control or by a failure to follow the appropriate process instructions.

Effective management of process capability requires the identification of sources of both special and common cause variation. Once the sources are identified, corrective actions designed to address them must be effectively implemented and sustained.

Employees do not refer to instructions or procedures before every step of a process; they often complete the processes by memory, which comes from repeating and practicing each step many times over. Once necessary process changes are identified, employees must re-learn and adjust. However, it is very easy for employees to return to the old, familiar methods.

Before 2005, DaimlerChrysler and General Motors required different process review approaches, including different approaches for Layered Process Audits. It was recognized that the Layered Process Audit methodology was not unique to any particular company, hence, under the auspices of the AIAG, DaimlerChrysler and General Motors developed a common approach for Layered Process Audits.

One of the principal purposes of industry standard practices is to address commonly observed issues that are not isolated to any one company, commodity, or process within the industry. Validation of process improvements and corrective actions is one commonly observed industry issue that can be directly improved by the use of Layered Process Audits, which are designed for this specific purpose.

Layered Process Audits require that multiple operational levels within a manufacturing facility review the same key operational controls that ensure product quality. Controlling quality at multiple operational levels is a key strength of Layered Process Audits.

# Layered Process Audits



## ACKNOWLEDGEMENTS

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The following individuals were actively involved in the development of this Guideline.

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# Layered Process Audits

## INTRODUCTION

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### Background

Industry data show that most manufacturing quality issues are caused by poor process control--often a failure to reinforce manufacturing process corrective actions or a failure to follow the required process steps.

Effective management of process compliance requires the identification of sources of both special and common cause variation. Examples of special cause variation might include failure of one shift of personnel to follow the prescribed process. Examples of common cause variation might include an inadequate FMEA for the manufacturing process. Once the sources are identified, the corrective actions designed to address them must be effectively implemented and sustained.

Employees typically do not refer to instructions or procedures before every step of a process; they often complete the processes by memory, which comes from repeating and practicing each step many times over. Once necessary process changes are identified, employees must re-learn and adjust. It is very easy for them to return to the old, familiar methods. There might even be perceived incentives in place to follow the "tried and true" previous processes, even though studies have shown that the "tried and true" processes were not adequate to meet customer requirements.

### Purpose of This Guideline

Layered Process Audits reduce variation along the manufacturing line and up through the ranks of plant management. However, if each customer (OEM) developed its own Layered Process Audit method, the effectiveness overall would be reduced. The basic approach for the Audits is an established concept; therefore, there is no competitive advantage for any particular OEM to develop a custom approach. The competitive advantage, though, could lie in the chosen *application* of the common Audit approach.

The concepts behind Layered Process Audits are not new. They find their origin in the well-known Plan-Do-Check-Act continuous improvement cycle.

This Guideline is not designed to introduce any significant improvements in the technology or application methodology of Layered Process Audits. It is designed to provide a common framework of the definitions and standard approaches that can be adopted by any automotive OEM or supplier to an OEM (tier 1), at any depth in the supply chain (any tier).

Each organization may choose to develop specific requirements for Layered Process Audits, for example, the frequency of the audits or the minimum topics to be included in the question sets. Such specific requirements will augment the suggested framework defined by this Guideline.