

B-8

Quality Assurance Guideline for Shipping Labels & Other Bar Code Applications (Linear & 2D)

3rd Edition

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FOREWORD

The original Guide for Quality Assurance for Shipping Labels was published in February of 1988 and updated in April of 1999, the culmination of years of effort by the Applications Work Group of the Automatic Identification Project Team.

At the beginning of 2004 Marsha Harmon (QED Systems) and Bill Hoffman (at the time with Intermec Technologies) developed Revision 03 to the B-8. Unfortunately, for reasons unknown, that revision was never published.

This 2010 update (Revision 03) includes the work done in 2004; the addition of QR Code and Code 128.

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INTRODUCTION

Purpose

The purpose of this document is to provide a practical guide to trading partner label quality assurance by providing guidelines for the creation and evaluation of printed labels to satisfy customer requirements. Evaluation parameters are geared toward printing two-dimensional (2D) and linear symbols on labels as defined in Automotive Industry Action Group (AIAG) specifications and guidelines.

Scope

The scope of this document includes initial and ongoing evaluation of the following issues:

- Overall label format
- Human-readable text and graphics
- 2D and linear symbol print quality
- Selection of hardware, software, and supplies

The following issues are specifically excluded from this document:

- The process of applying labels (physical application, equipment)
- Matching labels with material (adhesive, location)
- Human resources to establish and maintain the labeling program
- Direct marking of 2D symbols on products

NOTE: For information on direct part marking, please refer to the AIAG B-17 – <i>2D Direct Parts Marking Guideline</i>

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Automotive Industry Action Group



1 THE BASICS

1.1 Defining the Requirements and Understanding the Process

The following list highlights the questions you should ask when your company begins the process of defining a trading partner labeling program. This is by no means a comprehensive list, but it points to issues that affect the design specification of the labeling system. Industry system integrators are available to help you further understand the requirements, the process, and the required equipment.

1.1.1 Logistics

- Where will the labeling system be physically located relative to where the labels are applied?
- Will you need to run power and a communication cable to the printer?
- If you are using a wireless communication system (WiFi, 802.11, etc), does the physical position of the labeling system impact communications?
- Are there any response time problems that could impact the ability to print?
- Who will actually print the labels?

1.1.2 Hardware/Software

- Where should the label generation software reside?
- Who will have design access to label formats?
- What is the source of label information?
- Who will maintain the format library?
- What type of print technology will you use?
- What type of scanning technology do you need to accommodate?

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2 ORGANIZING FOR SUCCESS

Proper organization is critical to the success of any compliance labeling system. In this section we will discuss evaluating, acquiring, and installing equipment, software, and supplies.

2.1 Equipment, Software, and Supplies Procurement

Before you purchase a printer, software, or even change your supplies, you should request a sample from your vendor that meets your customer's specification. This pre-purchase verification ensures compliance.

2.1.1 Printers

Not all printers are created equal. Some of the common types of printers available today for bar code printing include thermal transfer, direct thermal, laser, and dot matrix. Other types of printers exist but may not be easily adapted to print symbols that meet current industry standards. Some printers do not have the graphics capability to produce acceptable symbol print quality.

Important questions to consider as you go through the process of selecting a printer include:

- Can the printer produce the type of symbol(s) your customer requires?
- Can the printer handle all the types of label media your customer requires?
- Are you using consumables recommended by the printer manufacturer?
- Does the printer you want to use meet the customer's quality specifications?
- Does your customer require that the labels be scannable by an infrared device?
- How many labels will you need to produce per hour? Per shift? Per day?
- Is the printer capable of meeting your peak production requirements?
- Are local service and support available for the printer?
- Is a backup printer available?
- Can the printer produce graphics if they are required?
- Can the printer handle the overall size of the label required for the application?
- Are the printer and the bar code printing software compatible?
- Does the printer have the connectivity your system requires?
- Do the printer and the media match your production environment?

Additional points to consider:

- The symbols that are produced must meet industry standards.
- Thermal direct printers provide quality symbols, but most thermal label stocks cannot be read with infrared light. Thermal direct material may also degrade with exposure to excessive heat and bright light.

NOTE: The large majority of scanners sold today use visible light and these scanners can read symbols printed on all types of labeling media. On the other hand, scanners using infrared light may not be able to read symbols printed with dye-based inks. Printers that use dye-based inks include thermal, dot matrix and ink jet printers.

- When using a thermal printer, be sure that the correct temperature setting is used to avoid bar codes that have bars or spaces that are either too narrow or too wide, or have rough instead of sharp edges.
- Dot matrix print quality is highly dependent on the quality of the ribbon and substrate used.
- Be cautious of ink spread with an inkjet printer.
- Do not use water-soluble inks.

2.1.2 Scanners

Your customer may require you to scan labels as part of the process of generating shipping paperwork and for EDI transactions. And even though you might be required to print labels only for your customer, you may also want to scan these labels at your facility. In addition, you might find that using bar codes and/or 2D symbols in your production processes makes it easier and less expensive to comply with your customer's labeling requirements. At the very least, you need to understand the environment and equipment your customer will be using to scan the labels you make.

Some things to consider when selecting a scanner:

- What is the distance between the scanner and the label?
- Is your scanner compatible with the X-Dimension of your symbols? See Section 3.3.4.1, "Linear X-Dimension" for X-Dimension definition.
- Does your scanner have autodiscrimination capability? If yes, it is recommended to turn off unused symbologies (for faster scanning).
- Does the scanner interface match that of your host system?
- Do the specifications and characteristics of the scanner meet your production environment?
- Does the scanner fit a fixed-position application or a hand-held application?
- Do you need to send and/or receive data in real time?

A specific point to remember for 2D:

- 2D symbols have specific requirements that are different from linear bar codes; be sure your scanner is capable of reading your symbology.

2.1.2.1 Scanner Selection

You can choose from the following types of scanners based on the needs of your application:

- Wands
- CCD scanners
- Laser scanners