



## **INTERNATIONAL BAR CODE STANDARDS**

***This document describes the International Standards Organization (ISO) standards for both linear and 2-Dimensional bar codes, and how they relate to each other.***

Label Vision Systems, Inc.  
101 Auburn Court  
Peachtree City, GA 30269  
770-487-0860 (fax)  
[info@lvs-inc.com](mailto:info@lvs-inc.com)

## **Introduction:**

There are 4 types of standards or specifications used to regulate the verification of bar code print quality:

### Verification Methodology Verifier Conformance Specifications Application Standards Symbology Specification Standards.

Each of these areas are designed to interact with each other. In other words, the Verifier Conformance Standards will use the rules stated for the Verification Methodology. The individual Symbology Specification Standards define the rules for printing the symbology and are all designed to be tested with the Verifier Conformance Specifications. The Application Standards will apply the rules for bar code quality as determined by those Verifier Conformance Specifications.

## **Verification Methodology:**

Verification methodology is defined as a method of measurement used to determine the quality of a bar code image in relation to its intended use. Basically, this means that measurements of quality have to be made as if the bar code was being read by a hand held wand, a laser reader, or a CCD device.

In past years, the European verification standard was called EN 1635 and the American equivalent standard was called ANSI X3.182-1990. There were some differences between these two standards, but very little.

Today, Europe and America have combined their methodology standards for barcodes to one international standard called ISO/IEC 15416:2000(E).

To complicate matters, the world of bar coding is now divided into two sections: Linear symbols and 2-D symbols. The ISO/IEC 15416:2000(E) is for Linear symbols. For Two-dimensional symbols (PDF, Data-matrix, Maxi-code, etc.), a new set of international standards has now been established called ISO/IEC FDIS 15415:2003 (E).

## **Verifier Conformance Specifications:**

This group of specification standards is defined as the test methods and minimum accuracy requirements for verifiers using the ISO/IEC 15416:2000(E) methodology. It also specifies reference calibration standards against which these should be tested.

For linear barcodes, the International Standard number is ISO/IEC 15426-1:2000(E). For Two-dimensional barcode symbols the International Standard is titled ISO/IEC 15426-2:2000(E).

Basically, these standards list and define various measurements of barcode reflectance values to determine the quality of a label. All certified verifiers must conform to these standards.

### **Application Standards**

Application Standards are defined as a set of recommendations governing the size, shape, positioning, and formatting of a barcode image used within a specific job function. These different job functions are called “Applications”. Applications can be very different: Military, medical, trucking, retail, etc. The most common of these are:

EAN/UCC General Specifications = GenSpecs  
Pharmaceutical Industry = CFR21  
Military Standards = MIL-STD-130L  
UID Guidelines = Part of Mil-Spec-130L  
Air Transport Association = ATA SPEC 2000  
EAN/UPC National Drug Code = NDC 2001  
Packaging Industry = ISO 15394:2000(E)

### **Symbology Specification Standards:**

Every linear and 2-D code has a specific set of rules on how it is to be encoded. The many Symbology Specifications allow the end user to know what these rules are. These specifications will also indicate the size and placement of the human readable characters, the max and min bar code width, and the max and min bar height. The following is a list of the more popular Symbology Specification Standards.

ISO/IEC 16022:2000(E) = Data Matrix  
ISO/IEC 15438:2001(E) = PDF417  
ISO/IEC 16388:1999(E) = Code 39  
ISO/IEC 16390:1999 = I 2 of 5  
ISO/IEC 15417 = Code 128  
EN 797 = European EAN/UPC  
EN 798 = European CODABAR  
EN 799 = European CODE 128  
EN 800 = European Code 39

END