



The European B2B Forum for the Electronics Industry

EDIFICE Guideline

Product Package Label

Issue 3

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References	ANSI MH10.8.2	Data Application Identifier Standard
	EN 799	Bar Coding - Symbology Specification "Code 128"
	EN 800	Bar Coding - Symbology Specification "Code 39"
	ISO/IEC 15418	Information Technology - Automatic Identification and Data Capture Techniques - International Bar Code Symbology - Data Application Identifiers
	ISO/IEC 15434*	Information Technology - Automatic Identification and Data Capture Techniques - Transfer Data Syntax for High Capacity ADC Media
	ISO/IEC 15438*	Information Technology - Automatic Identification and Data Capture Techniques - Symbology Specification - PDF417
	ISO/IEC 16022*	Information Technology - Automatic Identification and Data Capture Techniques - Symbology Specification - DataMatrix
	ISO 3166	Country Codes
	UN/ECE	Recommendation No. 20

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Comparison to previous issue

The changes compared to Issue 2 endorsed on 17 March 1999 are:

- The term 'data field' was replaced by 'data element' throughout the document
- Update of the Date format type/length fields in the Data Element table, paragraph 4.4
- Addition of table Paragraph 5.6 Presentation of Data Elements
- Paragraph 6.1.1 "X" Dimension was corrected
- Paragraph 6.1.2 Print quality was corrected

Issue 2 was a complete review of the 'EDIFICE implementation of a Product Package Label Issue 1' endorsed by EDIFICE on 18 February 1992.

1 Purpose

The purpose of this guideline is to establish the machine readable (i.e. linear and two-dimensional symbols) and human readable content of labels applied to product packages for industrial and non-retail applications.

2 Scope

This clause defines minimum requirements for identifying product packages that are distributed internationally outside the originating location. These specifications provide maximum flexibility for size, location, and identification information.

This clause addresses the marking of product packaging, e.g. reels, tubes, and the packaging of one or more assemblies and finished products. Product package markings are intended to insure that products or parts can be identified once the items have been separated from their original shipping labels.

Intended applications include, but are not limited to, systems that automate the control of product packages during production, inventory, distribution and repair.

Label dimensions or marking areas, and the location of the information are not defined in this guideline. Before implementing this specification, suppliers and manufacturers should review and mutually agree on these details with their trading partners.

3 Data Format

3.1 Introduction

This label will accommodate both mandatory and optional data elements. The character count is exclusive of overhead characters such as start and stop characters, data identifiers and any other characters required by a standard symbology specification to properly encode data. It is important that the appropriate identifiers and start and stop characters are utilised in accordance with their associated industry and symbology standards.

Mandatory data elements should be machine readable. It is recommended that also optional data elements are encoded, if label space permits.

3.2 Data Identifiers

Data identifiers shall be used in accordance with ANSI MH10.8.2 (the former FACT data identifiers).

3.3 Data Syntax for 2-D Code

2-D coded information has to be in accordance with ISO/IEC 15434 (Data syntax).

The used format indicator should be '06' for data identifiers.

3.4 Data Elements

Following is the recommended list of data elements for the product package label. Blanks shall not be included in the coded data.

Mandatory data elements that can optionally be coded in linear or 2-D code, shall at least be printed in human readable format on the product package label.

Linear and/or 2-D coding depends on the availability of space on the label.

In the following table, the data elements ' maximum length is specified. EDIFICE recommends to keep these elements as short as possible. The number included in character count is exclusive of overhead characters such as start and stop characters, data identifiers and any other characters required by a standard symbology specification to properly encode data.

Table 1: Data Elements Specification

Data Element	Data Format Type/Length ¹⁾	Data Identifier	Data Status	Coding: Linear and/or 2-D	Description
Supplier part number	an..25	1P	M 2)	M	1P: Item identification Code assigned by Supplier
Customer part number		P			P: Item identification Code assigned by Customer
Quantity ³⁾	n..7 or an.. 10	Q or 7Q	M	M	Q: Quantity of pieces without units of measure 7Q: Quantity followed by three alpha-numeric characters representing the UN/ECE Recommendation No. 20 Units of Measure
Traceability number	an..25	1T	M 4)	M	1T: Traceability number assigned by the supplier to identify a unique group of entities (e.g. lot, batch number).
Serial number		S			S: Serial number assigned by the supplier to identify a unique item
Date	n6 or n8	11D or 16 D	O	O	Date code in the format : 11D: YYYYWW 16D: YYYYMMDD (Production date)
Supplier Identification	an..20	18V 5) or	O	O	18V: World-wide unique Supplier Identification code. Prefix assigned by an issuing agency.
		1V			1V: Supplier Identification

					Code assigned by supplier and used in mutual agreement between trading partners
Country of Origin	A2	4L	O 6)	O	The two-character country code as defined by ISO 3166.
Revision level	an..10	2P	O	O	Code assigned to specify the revision level for an item.

- 1) an2 The alpha-numeric element has a length of 2 characters (fixed length)
- an..2 The alpha-numeric element has a length of up to 2 characters (maximum length)
- 2) Either the customer or supplier item identification number is mandatory. Both may appear. The customer and supplier will mutually agree which identification to use. It is recommended to use the item identification of the supplier.
- 3) Leading zeroes shall not be printed
- 4) Either the traceability number or the serial number is mandatory, both may appear.
- 5) Data identifier '18V' has been requested at the ANSI MH10.8.2 committee. After endorsement it is strongly recommended to use this data identifier.
- 6) May be mandatory in some countries due to specific import/customs regulations

M = Mandatory O = Optional

4 General Layout and Location

4.1 Layout

Layout refers to the positioning of the data elements on the label. Ergonomic aspects should be considered when designing the layout. Placement of bar code or two-dimensional symbols will depend on the available space on the label, packaging techniques and other factors.

When multiple bar code symbols or two dimensional symbols are to be placed in line or in contiguous fields, care must be taken to avoid layouts that inhibit scanning the individual data elements . The layout of the label should be designed to accommodate the package size and should facilitate scanning.

4.2 Location

Location refers to the positioning of the label on the package. Each label should be located in a position which facilitates scanning.

Care must be taken to ensure that printed symbols can be used by all parties of the supply chain.

4.3 Label Dimensions

The size of the label should be appropriate to the packaging and may be dependent on the number of elements and characters.

4.4 Titles

Bar Coded Data Element Titles

Titles are mandatory for all bar coded data elements. The title shall be preceded by the appropriate data identifier enclosed in parenthesis e.g. (Q) QUANTITY. Titles should be in accordance with the short titles of the ANSI MH10.8.2 Data Identifiers.

Two-dimensional Coded Data Element Titles

Titles of 2-D coded data elements that are intended to be printed in human readable format shall follow the rules for bar code data element titles (see 5.4.1)

Two-dimensional Symbol Titles

When two-dimensional symbols are used, each symbol shall be identified by the following titles displayed above the 2-D symbol:

A 2-D symbol containing data meant for :

- the supplier only shall be identified by the title 'SPLR'.
- the customer only shall be identified with the title 'CUST'.
- both the supplier and the customer shall be identified with the title 'SPLR/CUST'.

4.5 Human Readable Interpretation

For bar coded data elements, the human readable interpretation shall include all the data within the code less the data identifier.

The data identifier is enclosed in parentheses and is put in front of the title (see 5.4.1) which is followed by the human readable interpretation.

This information is printed above the bar code.

For 2-D coded data elements, the human readable interpretation together with the titles may be printed in a different section of the label and arranged so that misunderstandings are avoided.

4.6 Presentation of Data Elements

The presentation of the different data elements on the label, i.e. the combination of one-dimensional and two-dimensional symbols and the appropriate way of displaying data as human readable information is shown in the following table.

Table 2: Data Elements Presentation

Data Element Status	Machine Readable Symbols on Label	Requirement for Encoding		Requirement for Human Readable Information
		Bar	2-D	
Mandatory	Bar	shall		shall
	Bar + 2-D	shall	shall	shall
	2-D		shall	shall
Optional Specified	Bar	should		shall if encoded
	Bar + 2-D	should	should	shall if encoded in Bar
	2-D		should	should
	No			may
Optional	Bar	may		shall if encoded

Not Specified	Bar + 2-D	may	may	shall if encoded in Bar
	2-D		may	should
	No			may

5 Symbology and Environmental Considerations

5.1 Linear Code Symbology

The linear code symbology shall be one of the following:

- 'Code 39' in accordance with EN 800
- 'Code 128' in accordance with EN 799

"X" Dimension and Ratio

The minimum narrow element dimension X should be 0,17 mm.

For 'Code 39' the ratio of wide to narrow elements should be in the range of 2:1 to 3:1

Print Quality

The minimum symbol grade shall be 1,5/05/660 where:

- minimum print quality grade at point of production = 1,5 (C);
- measurement aperture = 0,125 mm;
- inspection wavelength = 660 nanometers +/- 10 nanometers

5.2 Two-dimensional Symbology

A two-dimensional symbol is used as an alternative to the linear bar code symbol, when label space is not sufficient to carry the necessary data.

The 2-D symbology shall be one of the following:

- PDF417 in accordance with ISO/IEC DIS 15438
- DataMatrix in accordance with ISO/IEC DIS 16022

"X" Dimension

The narrow element dimension X should be 0,254 mm (cell size for DataMatrix / narrow element dimension for PDF417) as determined by the printing capability of the supplier/printer of the label.

Print Quality

To check the print quality of the 2-D codes, appropriate equipment is required. This equipment is currently not available. There currently is still a general lack of sufficient knowledge and experiences in this area.

For DataMatrix, the overall symbol grade 2,0 is recommended by ISO/IEC 16022.

Error Correction Level

The PDF417 symbol error correction level depends on the number of data code words (see recommendation in ISO/IEC 15438)

The DataMatrix ECC 200 uses the automatic error correction as specified in ISO/IEC 16022.

Appendix 1: Abbreviations/Glossary

2-D CODE	Machine readable code which must be examined both vertically and horizontally to read the entire message. Two dimensional symbols may be one of two types of machine readable symbols: matrix symbols and multi-row symbols. 2-D symbols have error detection and may include error correction.
ANSI	American National Standards Institute (ANSI) is a group of technical individuals from various companies that develop standards that are recognised throughout North America. There are several committees and subcommittees which focus on unique items of concern, EDI is one of them. COMpANY is a member of this group and has adopted the ASC X12 format for all EDI business transactions that are used between trading partners within the US.
ADC	Automatic Data Capture
BAR CODE	Linear code
CEN	Comité Européen de Normalisation, the European Committee for Standardisation.
CODE 39	The '3 of 9' code is a variable length, discrete, self-checking, bi-directional, alphanumeric bar code.
CODE 128	This is a variable length, bi-directional, continuous, self-checking, alphanumeric bar code.
DATA IDENTIFIER	A specified character string which defines the specific intended use of the data that immediately follows. They are standardised in ANSI MH10.8.2 and were formerly also called FACT data identifier.
DATAMATRIX	A matrix 2-D symbol, error correcting, capable of encoding all ISO 646 (ASCII) characters. DataMatrix is designed using vision based scanning equipment.
EIA	Electronic Industry Association, a council of the US electronics industry.
EN	European Norm
IEC	International Electrotechnical Commission
ISO	International Standardisation Organisation.
LINEAR CODE	The predetermined pattern of bars and spaces which represents numeric or alphanumeric information in machine readable form.
NNI	Nederlands Normalisatie Instituut - Dutch National Standards Institute



OPTIONAL

Indicates that the entity is optional and may be used if previously agreed between the trading partners.

PDF417

Error correcting, 2-D, multi-row symbol.
PDF417 symbols are constructed from 4 bars and 4 spaces over 17 modules.

SUPPLIER IDENTIFICATION

The supplier identification shall uniquely describe the supplier location to which the product is traceable. The supplier identification may be assigned by the supplier or the customer.

It is recommended that the supplier identification shown on the label is the supplier identification assigned by the supplier.

If endorsed, the supplier identification shall use the following structure:








Issuing Agency Code as assigned by NNI, followed by the Company Identification Number (CIN), which is assigned by the issuing agency, followed by an internally assigned location or entity identification (see example below)

18V	LE	XYZ
12345678901		
Data Identifier	Issuing Agency Code	Company
Identification	Internal Identification	


It is further recommended that all existing supplier identifications migrate to that format.


Appendix 2 Product Package Label examples


Example 1 : Product Package Label with Linear Coded Data

<p>(1P) Supplier Part No.: 123456789 </p> <p>(18V) Supplier Id.: LEFCL001 </p> <p>(1T) Lot No.: 2B990214 </p> <p>(4L) C.o.O.: FR </p> <p>(2P) EC Level: C5K </p>	<p>(P) Cust.Part No.: AB45CJK1 </p> <p>(Q) Quantity: 250 </p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Fixed Metal Glaze Chip Resistor</p> </div> <p style="text-align: center;"> Fine Computers Ltd. - Division PGV - Made in France Date: 1999-02-15 </p>
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Example 2: Minimum Set of Linear Coded Data

(P) Cust. Part No.: AB45CJK1


(Q) Quantity: 250


(1T) Lot No.: 2B990214


Example 3: Product Package Label with 2-D Coded Data

<p>(P) Cust.Part No. : AB45CJK1 (1P) Supplier Part No. : 123456789 (18V) Supplier Id. : LEFCL001 (Q) Quantity : 250 (2P) EC Level : C5K (1T) Lot No. : 2B990214 (4L) C.o.O. : FR</p>	<p>Fine Computers Ltd. - Division PGV -</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Fixed Metal Glaze Chip Resistor</p> </div> <p style="font-size: small; margin-top: 10px;">SPLR / CUST</p> <div style="display: flex; justify-content: space-between; align-items: center;">  <p>Made in France Date: 1999-02-15</p> </div>
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Example 4: Minimum Set of 2-D Coded Data

(P) Cust. Part No.: **AB45CJK1**
 (Q) Quantity : **250**
 (1T) Lot No. : **2B990214**

SPLR / CUST

