

Section 5.0: Data Carriers

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5.0.1 Introduction

A data carrier is a means of representing data in machine readable form. Data carriers that are endorsed by EAN International and the Uniform Code Council (UCC™) are described in Sections 5.1, 5.2, and 5.3, and bar code production and quality assessment are covered in Section 5.4.

The EAN.UCC System specifies the data carrier used to represent any given Element String. Section 2.0 covers rules indicating which data carrier should be used to represent which Element Strings in particular applications.

The EAN.UCC System uses the following data carriers:

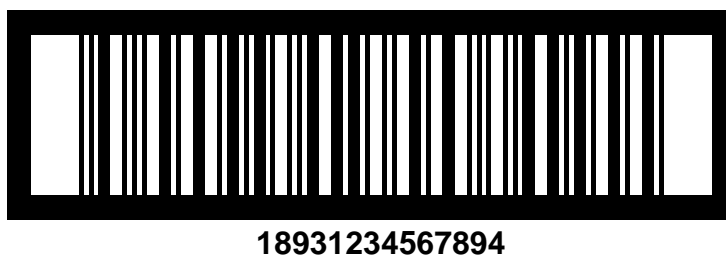
The EAN/UPC Symbology family of bar code symbols (UPC-A, UPC-E, EAN-13, and EAN-8 Bar Code Symbols and the two- and five-digit Add-On Symbols) can be read omnidirectionally. These symbols must be used for all items that are scanned at the Point-of-Sale and may be used on other trade items.

Figure 5.0.1 - 1



ITF-14 (Interleaved 2-of-5) Bar Code Symbols carry ID numbers only on trade items that are not expected to pass through the Point-of-Sale. ITF-14s are better suited for direct printing onto corrugated fibreboard.

Figure 5.0.1 – 2



The UCC/EAN-128 is a subset of the Code 128 Bar Code Symbology. Its use is exclusively licensed to EAN International and the UCC™. This extremely flexible symbology encodes Element Strings using Application Identifiers.

Figure 5.0.1 – 3



Reduced Space Symbology® (RSS) is a family of linear symbologies used within the EAN.UCC System. This family of linear symbologies in most cases implicitly encodes Application Identifier (01) and in the case of RSS Expanded explicitly encodes Element Strings using Application Identifiers.

Figure 5.0.1 – 4



Composite Component™ Symbols do not exist in isolation. The primary identification number is always encoded in the linear symbol and supplementary AI Element Strings may be encoded in the two-dimensional (2D) component where they take up less space.

Figure 5.0.1 – 5



5.0.2 International Standards

A number of national and regional standardisation bodies have developed bar code symbol technical standards. The International Standards Organisation (ISO) has published standard bar code symbology specifications via a subcommittee of ISO/IEC JTC1 (International Standards Organisation/International Electronics Committee Joint Technical Committee 1).

EAN International, the Uniform Code Council (UCC™), and the EAN Member Organisations are actively involved in developing these standards. The objective is that EAN.UCC System standards remain fully compatible with relevant published national, regional, and international symbology standards. The pertinent documents for Section 5 include:

Section 5.0: ISO/IEC 15424 information technology; automatic identification and data capture techniques; Data carrier/Symbology Identifiers

Section 5.1: ISO/IEC15420 information technology; automatic identification and data capture techniques; bar code symbology specifications; EAN/UPC

Section 5.2: ISO/IEC 16390 information technology; automatic identification and data capture techniques; bar code symbology specifications; ITF-14 (Interleaved 2-of-5)

Section 5.3: ISO/IEC 15417 information technology; automatic identification and data capture techniques; bar code symbology specifications; Code 128

Section 5.5: ISO/IEC 15438 – Automatic identification and data capture techniques - Symbology specification - PDF417.

5.0.3 Symbology Identifiers

The symbology identifier is not encoded in the bar code symbol, but is generated by the decoder after decoding and is transmitted as a preamble to the data message.

All scanning equipment has the ability to recognise the symbology that has been scanned. Some scanners have the optional feature of being able to transmit a symbology identifier. The symbology identifier is a three-character data string comprising a flag character, code character, and a modifier character.

] is the flag character (which has an ASCII value of 93). This denotes that the two characters following are symbol identifier characters.

c is the code character. This denotes the type of symbology.

m is the modifier character. This indicates the mode in which the symbology is used.

Note: If used, the symbology identifier is transmitted as a prefix to the data message.

The symbology identifiers used in the EAN.UCC System are as follows:

Figure 5.0.3 – 1

Symbology Identifier*	Symbology Format	Content
] E 0*	EAN-13, UPC-A, or UPC-E	13 digits
] E 1	Two-digit Add-On Symbol	2 digits
] E 2	Five-digit Add-On Symbol	5 digits
] E 3	EAN-13, UPC-A, or UPC-E with Add-On Symbol**	15 or 18 digits
] E 4	EAN-8	8 digits
] I 1	ITF-14	14 digits
] C 1	UCC/EAN-128	Standard AI Element Strings
] e 0	RSS***	Standard AI Element Strings
] d 2	Data Matrix	Standard AI Element Strings

Notes:

* Symbology identifiers are case sensitive.

**Bar code symbols with Add-On Symbols may be considered either as two separate symbols, each of which is transmitted separately with its own symbology identifier, or as a single data packet. The system designer shall select one of these methods, but the method using symbology identifier]E3 is preferable for data security.

*** The RSS symbology has several symbol types and the full list of modifier characters is found in Section 5.5.