INTERNATIONAL STANDARD

ISO/IEC 15434

Fourth edition
2019-02

Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media

Technologies de l'information — Techniques automatiques d'identification et de capture des données — Syntaxe pour supports de CAD à haute capacité

Reference number
ISO/IEC 15434:2019(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www. iso. org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www. iso.org/patents) or the IEC list of patent declarations received (see http://patents.iec. ch).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www. iso .org/iso/foreword. html.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

This fourth edition cancels and replaces the third edition (ISO/IEC 15434:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

— "Document notation conventions" have been moved to a new Clause 4;

— "Human readable representation" has been inserted (Clause 6).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document defines the manner in which data is transferred to high-capacity automatic data capture (ADC) media from a supplier's information system and the manner in which data is transferred to the recipient's information system. It does not define the internal data storage format for specific high-capacity ADC media. This document does not specify the application of data structures provided by a specific data syntax format. The application of the data structure is specified by industry conventions.

Users of ADC technologies benefit by being able to receive data in a standard form and by being able to provide data in a standard form. Static ADC technologies such as bar code symbologies, magnetic stripe, optical character recognition, surface acoustical wave (SAW) and Weigand effect typically encode a single field of data. Most applications of these technologies involve the encoding of a single field of data by the supplier of the medium and the subsequent decoding of the data field by the recipient. Encoding single fields of data permits the supplier to perform the encodation from a single field within the supplier's information system. Decoding single fields of data permits the recipient to input this data into a single field in the recipient's information system, in lieu of key entry.

High-capacity ADC technologies, such as two-dimensional symbols, RFID transponders, contact memories and smart cards, encode multiple fields of data. These multiple fields are usually parsed by the recipient's information system and then mapped to specific fields of data in the recipient's information system. This document defines the syntax for high-capacity ADC media, so as to enable ADC users to utilize a single mapping utility, regardless of which high-capacity ADC medium is employed.

Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media

1 Scope

This document specifies a transfer structure, syntax, and coding of messages and data formats when using high-capacity ADC media between trading partners (specifically between suppliers and recipients) and, where applicable, in support of carrier applications, such as bills of lading, and carrier sortation and tracking.

The data encoded according to this document include:

— data which can be used in the shipping, receiving and inventory of transport units;

— data which can be contained within supporting documentation, in paper or electronic form, related to unit loads or transport packages;

— data which can be used in the sortation and tracking of transport units.

This document describes the ISO/IEC 646 characters used for automatic data capture; it is not the controlling specification for data structures (e.g. CII) referenced in this International Standard.

This document does not supersede or replace any applicable safety or other marking or labelling requirements. It is intended to be applied in addition to any other mandated labelling requirements.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 646, *Information technology — ISO 7-bit coded character set for information interchange*

ISO/IEC 19762, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary*

ANS MH10.8.2, *ASC MH 10 Data Identifiers and Application Identifiers*

ANS X12, *Electronic Data Interchange*

Syntax Rule CII (Vers 3.00), CII Syntax Rule Specifications (3.00) (Electronic Data Interchange — Japan)

GS1 General Specification. GS1

ATA Common Support Data Dictionary (CSDD), Air Transport Association

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19762 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Documentation notation conventions

This document uses the following typographical conventions in message examples.

a) **BOLD, ALL CAPITALS** — Text that shall be entered exactly as it appears. (In this document, $^{F}_{S}$, $^{G}_{S}$, $^{U}_{S}$, $^{R}_{S}$, $^{E}\sigma_{T}$ are used to represent non-printable special characters. The ISO/IEC 646 representation of special characters that shall be used and is used in this document can be found in Annex A.)

b) *italic, lower case* — Variable parameters. The user shall supply an appropriate value. In some cases, default values are recommended in this document.

5 Message format

5.1 General

This clause defines how data shall be transferred from a high capacity ADC media reading device to the user's application software.

To allow multiple data formats to be contained within a data stream, a two-level structure of enveloping is employed. The outermost layer of the message is a message envelope that defines the beginning and end of the message. Within the message envelope, there is one or more format envelopes that contain the data (see Figure 1). Multiple formats in a single message should only be employed with bilateral agreements of the trading partners.

The message envelope shall consist of

— a message header,

— one or more format envelope(s), and

— a message trailer (when required).

Each format envelope within the message envelope shall consist of

— a format header,

— data, formatted according to the rules defined for that format, and

— a format trailer (when required).

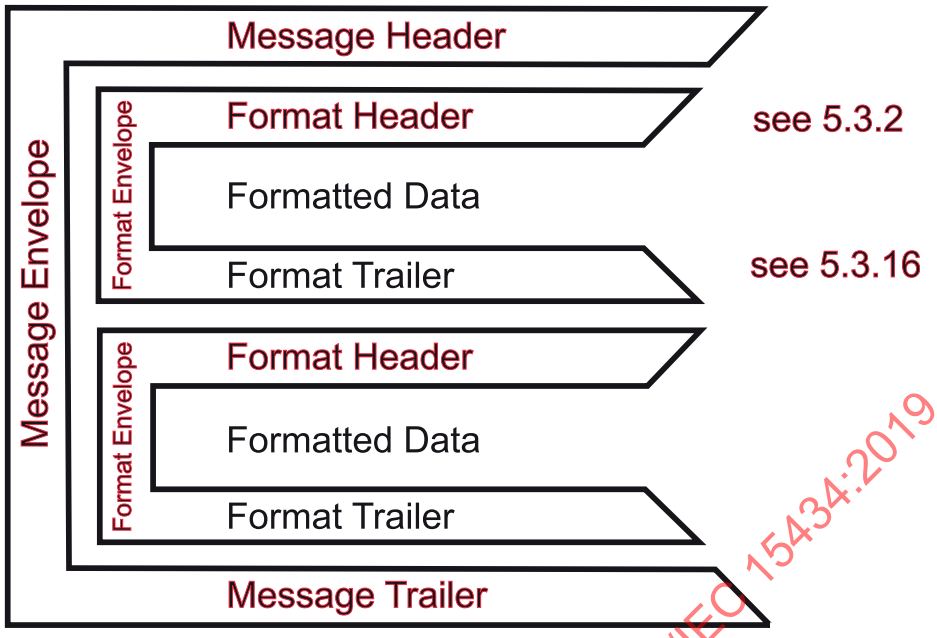

Figure 1 — Enveloping structure

NOTE Annex A shows the decimal and hexadecimal values of ASCII characters used in this document.

5.2 Message envelope

5.2.1 General

The message envelope defines the start and end of the data contained within the data stream and provides the following functions:

— indicates that the message contained within this media is formatted in conformance with the rules of this document;

— indicates the character which has been defined to separate formats within this message;

— provides a unique character to indicate the end of the message.

The structure within a data stream is as follows:

a Message, containing one or more formats;

a Format, containing one or more segments;

a Segment, containing one or more data elements;

a Data element (field), potentially containing one or more sub-elements (sub-fields).

5.2.2 Message header

5.2.2.1 General

The message header consists of two parts:

— the three-character conformance indicator, and

— the format trailer character.

The complete message header is: []>$^{R}_{S}$

5.2.2.2 Conformance indicator

The conformance indicator shall be the first three characters in the message header. It shall be []> (left bracket, right parenthesis and greater than). See Annex A for a table of ASCII decimal and hexadecimal values used in this document.

5.2.2.3 Format trailer character

The format trailer character shall be the fourth character in the message header. It shall be the non-printable ASCII character "$^{R}_{S}$" (see Annex A). The format trailer character is used throughout the message to indicate the end of a data format envelope (see 5.3.16).

5.2.3 Message trailer

The message trailer identifies the end of the message within the data stream. It shall be the end of transaction character, "$^{E}\sigma_{T}$" (see Annex A). The message trailer character shall not be used elsewhere in the message except in format "09" (binary data) where the "$^{E}\sigma_{T}$" character may appear.

The message trailer shall **not** be used with formats "02" (complete EDI message / transaction) and "08" (structured data using CII syntax rules).

5.3 Format envelope

5.3.1 General

The format envelope defines the start and end of data in a given format and provides the following functions:

— identifies the data format used within the envelope;

— defines the character(s) used to separate the segments, data elements (fields) and sub-elements (sub-fields) within this data format;

— indicates any applicable date, release or control information.

5.3.2 Format header

5.3.2.1 General

A format header shall consist of two parts:

— a format indicator (a two-digit numeric identifier which identifies the rules governing the format);

— variable data (if any) which defines the separators used and version and release, date or control information of the applicable standards.

Table 1 lists the format indicators and variable data associated with the format header.

Table 1 — Format header table showing associated separators

Format indicator	Variable header data	Format trailer	Format description
00			Reserved for future use
01	$[G_S]vv$	$[R_S]$	Transportation
02			Complete EDI message / transaction
03	$vvvrrr\ [F_S][G_S][U_S]$	$[R_S]$	Structured data using ANSI ASC X12 segments
04	$vvvrrr\ [F_S][G_S][U_S]$	$[R_S]$	Structured data using UN/EDIFACT segments
05	$[G_S]$	$[R_S]$	Data using GS1 application identifiers
06	$[G_S]$	$[R_S]$	Data using ASC MH10 data identifiers[a]
07		$[R_S]$	Free form text
08	*vvvvrrnn*		Structured data using CII syntax rules
09	$[G_S]ttt...t[G_S]ccc...c[G_S]nnn...n[G_S]$	$[R_S]$	Binary data (file type) (compression technique) (number of bytes)
10-11			Reserved for future use
12	$[G_S]$	$[R_S]$	Structured data following text element identifier rules
13			Blocked for use to avoid conflict with ISO/IEC 15961-2
14-99			Reserved for future use

[a] Previously known as FACT data identifiers.

NOTE 1 *vv* represents the two-digit version of format "01" being used

NOTE 2 $[R_S]$ represents the format trailer character (see 5.3.16).

NOTE 3 $[F_S]$ represents the segment terminator (see 5.3.2.2.2).

NOTE 4 $[G_S]$ represents the data element separator (see 5.3.2.2.3).

NOTE 5 $[U_S]$ represents the sub-element separator (see 5.3.2.2.4).

NOTE 6 *vvvrrr* represents the three-digit version (*vvv*) followed by the three-digit release (*rrr*) (see 5.3.6).

NOTE 7 *vvvvrrnn* represents the four-digit version (*vvvv*) followed by the two-digit release (*rr*) followed by the two-digit edition indicator (*nn*) (see 5.3.11).

NOTE 8 *ttt...t* represents the file type name (see 5.3.12).

NOTE 9 *ccc...c* represents the compression technique name (see 5.3.12).

NOTE 10 *nnn...n* represents the number of bytes (see 5.3.12).

5.3.2.2 Separators and terminators

5.3.2.2.1 General

The separators and terminators are an integral part of the data stream. The separator and terminator characters shall not be used in non-binary data elsewhere in the message. For binary data strings (format "09"), special considerations apply (see 5.3.12).

5.3.2.2.2 Segment terminator

Each segment in format "03" shall be terminated by the segment terminator character, the non-printable character "$^{F}_{S}$" (see Annex A).

5.3.2.2.3 Data element separator

Data elements in formats "01," "03," "05," and "06" shall be separated by the data element separator, the non-printable character "$^{G}_{S}$" (see Annex A).

5.3.2.2.4 Sub-element separator

Sub-elements in format "03" shall be terminated by the sub-element separator character, the non-printable character "$^{U}_{S}$" (see Annex A).

5.3.3 Format header "00" - Reserved format

Format header "00" is reserved for future use.

5.3.4 Format Header "01" — Transportation

The format header shall be represented as

01$^{G}_{S}$*vv*

where

$^{G}_{S}$ is the data element separator to be used between data elements;

vv represents the two-digit version as given in 5.4.3.1.

5.3.5 Format Header "02" — Complete EDI message / transaction

The format header shall be represented as

02

There is no variable header data for this data format (see 5.4.4).

5.3.6 Format header "03" — Structured data using ASC X12 segments

The format header shall be represented as

03*vvvrrr* $^{F}_{S}$$^{G}_{S}$$^{U}_{S}$

where

vvvrrr represents the three-digit version *(vvv)* and three-digit release *(rrr)* indicator for the drafts of ASC X12 used;

$^{F}_{S}$ is the segment terminator to be used to indicate the end of an EDI segment;

$^{G}_{S}$ is the data element separator to be used between EDI data elements;

$^{U}_{S}$ is the sub-element separator to be used between EDI sub-elements in a composite data element.

Format header "03" shall employ ANSI ASC X12 segments, as specified in ANS X12, used in North America. For international trade, format header "04" should be used. Format "03" is intended for use within North America only.

5.3.7 Format header "04" — Structured data using UN/EDIFACT segments

The format header shall be represented as

04*vvvrrr* $^{F}_{S}{}^{G}_{S}{}^{U}_{S}$

where

vvvrrr represents the three-digit version *(vvv)* and three-digit release *(rrr)* indicator for the UN/EDIFACT level used;

$^{F}_{S}$ is the segment terminator to be used to indicate the end of an EDI segment;

$^{G}_{S}$ is the data element separator to be used between EDI data elements;

$^{U}_{S}$ is the sub-element separator to be used between EDI sub-elements in a composite data element.

5.3.8 Format header "05" — Data using GS1 application identifiers

The format header shall be represented as

05$^{G}_{S}$

where $^{G}_{S}$ is the data element separator to be used between data fields.

5.3.9 Format header "06" — Data using ASC MH 10 data identifiers

The format header shall be represented as

06$^{G}_{S}$

where $^{G}_{S}$ is the data element separator to be used between data fields.

5.3.10 Format header "07" — Free form text data

The format header shall be represented as

07

There is no variable header data for this data format (see 5.4.7).

5.3.11 Format header "08" — Structured data using CII syntax rules

The format header shall be represented as

08*vvvvrrnn*

where *vvvvrrnn* represents the four-digit version *(vvvv)*, two-digit release *(rr)* and two-digit edition *(nn)* indicator for the CII level used. This equates to the BPID in CII syntax rules (see 5.4.10).

Format header "08" shall employ CII syntax rules, as specified in CII Syntax Rule Specifications, used in Japan. For international trade, format header "04" should be used. Format "08" is intended for use within Japan only.

5.3.12 Format Header "09" — Binary data

The format header shall be represented as

09$^{G}_{S}$*ttt…t*$^{G}_{S}$*ccc…c*$^{G}_{S}$*nnn…n*$^{G}_{S}$

where

^{G}S is the data element separator to be used between fields in this header and at the end of the last data field.

ttt...t represents the identification of the binary file type, e.g., JPEG, TIFF, PCX, BMP, CSV, CGM, GIF. This field is a variable length of 1-30 characters (including version if applicable). This field shall be terminated by the "^{G}S" character. The binary file type and the means by which to represent the binary file type should be mutually agreed upon between the trading partners.

ccc...c represents the compression technique employed. This field is a variable length of 0-30 characters. If no compression is used, this field shall be left blank. In any case, this field shall be terminated by the "^{G}S" character. The compression technique and the means by which to represent the compression technique should be mutually agreed upon between the trading partners.

nnn...n represents the number of bytes in the binary message. This field is a variable length field of 1-15 digits. The count does not include the length of the data format header or the data format trailer. This field shall be terminated by the "^{G}S" character, which is not part of the byte count.

5.3.13 Format header ("10"- "11") — Reserved formats

Format headers "10" - "11" are reserved for future use.

5.3.14 Format header "12" — Data using text element identifiers

The format header shall be represented as

12^{G}S

where ^{G}S is the data element separator to be used between data fields.

5.3.15 Format header ("13"-"99") — Reserved formats

Format headers "13" - "99" are reserved for future use.

5.3.16 Format trailer

The format trailer identifies the end of a format envelope. The format trailer shall consist of the format trailer character, the non-printable ASCII character "^{R}S" (see Annex A). The format trailer character shall not be used in non-binary data elsewhere in the message.

The format trailer shall **not** be used with formats "02" (Complete EDI message / transaction) and "08" (CII - complete message).

5.4 Data format

5.4.1 General

Within a given format envelope, the data shall be formatted using one and only one of the following methods.

— transportation;

— complete EDI message / transaction (ASC X12, UN/EDIFACT or CII standard);

— structured text (ASC X12 or UN/EDIFACT subset);

— data structured using the rules of GS1 application identifiers;

— data structured using the rules of ASC MH 10 data identifiers;

— free form text;

— CII message record without message-group header and trailer;

— binary data;

— data structured using the rules of text element identifiers.

If more than one format is included in a message, Format "01", if used, shall be the first format in the message.

5.4.2 Format "00" (Reserved)

This format type is reserved for future use.

5.4.3 Format "01" carrier sortation and tracking (transportation)

5.4.3.1 General

Format "01" consists of two areas: the first is mandatory data which is common to all carrier sortation and tracking applications, the second area is optional data which can be useful to specific applications between trading partners.

The organization controlling the data structure within this format is identified through the version indicator in the format header. At the time of publication of this document, the following versions have been identified.

— Version "02" - Formatted according to the rules of ASC MH10/SC 8 (using measurement qualifiers of pounds ["LB"] and kilograms ["KG"]).

— Version "06" - Formatted according to the rules of the International Air Transport Association (IATA).

— Version "56" - Formatted according to the rules of International Federation of Freight Forwarders Associations (FIATA).

— Version "96" - Formatted according to the rules of ASC MH10/SC 8 (using measurement qualifier of pounds only).

5.4.3.2 Format "01" version "02"

5.4.3.2.1 Mandatory data

This data is required within version "02" of the "01" format. The following data elements shall be ordered as listed below, immediately following the format header. Each data element is defined as either fixed or variable length. Where fields are variable in length, the minimum field length and the maximum field length (min...max) are shown below. All fields are separated by the data element separator character ("$^{G}_{S}$") (see Annex A) defined in the format header.

Ship to postal code	(an 00...11)
Ship to country code (ISO 3166-1)	(n 03)
Class of service (assigned by carrier)	(an 01...03)

Tracking number (controlled by carrier)	(an 01...20)
Origin carrier SCAC (Standard carrier alpha code (SCAC) of the carrier intended to transport the package)	(an 02...04)

The recommended class of service is 3 digits of numeric data.

5.4.3.2.2 Optional data

There are nine optional data elements. Optional data elements, if used, shall immediately follow mandatory data, in the order specified below. Each data element is defined as either fixed or variable length. Where fields are variable in length, the minimum field length and the maximum field length (min...max) are shown below. All optional fields, including blank ones, shall be separated by the data element separator character ("$^{G}_{S}$") (see Annex A). Trailing data element separators shall be suppressed.

It is possible that data that has been identified as optional data is not needed in all applications. The optional data fields and associated lengths are shown below.

Carrier assigned shipper ID (pick-up location)	(an 01...10)
Julian day of pickup	(n 03)
Shipment ID number	(an 01 ... 30)
n/x (container n of x total containers)	(n 01...04 / n 01...04)
Weight ("LB" or "KG") (decimal is a character if used)	(r 01...08, a02)[a]
Cross match (value is **Y** or **N**)	(a 01)
Ship to street address	(an 01...35)
Ship to city	(an 01...35)
Ship to state/province	(an 02)
Ship to name	(an 01...35)

[a] The weight qualifier is appended directly to the value without an intervening space and is in upper-case letters. An example of this format would be if shipment weight is 117,6 kg, this data stream would appear as 117.6KG. For historic reasons, the encoded decimal mark is ASCII value "$2E_{HEX}$" as defined in ISO/IEC 646.

5.4.3.3 Format "01" version "96"

5.4.3.3.1 Mandatory data

This data is required within version "96" of the "01" format. The following data elements shall be ordered as listed below, immediately following the format header. Each data element is defined as either fixed or variable length. Where fields are variable in length, the minimum field length and the maximum field length (min...max) are shown below. All fields are separated by the data element separator character ("$^{G}_{S}$") (see Annex A) defined in the format header.

Ship to postal code	(an 03...11)
Ship to country code (ISO 3166-1)	(n 03)
Class of service (assigned by carrier)	(an 01...03)
Tracking number (controlled by carrier)	(an 01...20)
Origin carrier SCAC	(an 02...04)

(Standard carrier alpha code (SCAC) of the carrier intended to transport the package)

The recommended class of service is 3 digits of numeric data.

5.4.3.3.2 Optional data

There are nine optional data elements. Optional data elements, if used, shall immediately follow mandatory data, in the order specified below. Each data element is defined as either fixed or variable length. Where fields are variable in length, the minimum field length and the maximum field length (min...max) are shown below. All optional fields, including blank ones, shall be separated by the data element separator character ("$^{G}_{S}$") (see Annex A). Trailing data element separators shall be suppressed.

It is possible that data that has been identified as optional data is not needed in all applications. The optional data fields and associated lengths are shown below.

Carrier assigned shipper ID (pick-up location)	(an 01...10)
Julian day of pickup	(n 03)
Shipment ID number	(an 01 ... 30)
n/x (container n of x total containers)	(n 01...04 / n 01...04)
Weight (lb) (decimal is a character if used)	(r 01...10)
Cross match (value is **Y** or **N**)	(a 01)
Ship to street address	(an 01...35)
Ship to city	(an 01...35)
Ship to state/province	(an 02)

5.4.4 Format "02" (Complete EDI message / transaction)

This format is used to encode an entire EDI transaction / message with the intent of passing it directly to an EDI translator. The format shall be either ASC X12, UN/EDIFACT or CII-standard. Enveloping structures as defined by the applicable standard shall be included, e.g., ISA, GS, ST, SE, GE, and IEA segments (for ASC X12) or UNA, UNB, UNH, UNT, and UNZ segments (for UN/EDIFACT), or message-group-header, message and message-group-trailer record (for CII standard).

The message trailer character "$^{E}_{OT}$" and the format trailer character "$^{R}_{S}$" shall **not** be used with format "02".

There shall be no more than one "02" format in a message envelope. Format "02" shall **not** be combined with any other data format within a message envelope.

5.4.5 Format "03" (Structured data using ASC X12 segments)

This format is used to represent data, such as ship to and ship from, etc., structured according to ASC X12 rules. This format allows the encodation of data represented by either individual ASC X12 segments without enveloping, i.e., ISA/IEA, GS/GE, and ST/SE; or a single ASC X12 transaction set with enveloping, i.e., ST/SE. This data is not intended to be passed directly to an EDI translator.

For format "03," the version of ASC X12 format is contained in the format header. The character "$^{F}_{S}$" shall be used as the ASC X12 segment terminator. The character "$^{G}_{S}$" shall be used as the ASC X12 data element separator. The character "$^{U}_{S}$" shall be used as the ASC X12 sub-element separator. (See Annex A for hexadecimal and decimal values of terminators and separators.)

EDI segments such as BIN that encode binary data shall not be used in format "03." Binary data should be encoded only in format "09" (see 5.3.10).

Format header "03" employs ANSI ASC X12 segments, used in North America. For international trade, format header "04" should be used. Format "03" is intended for use within North America only.

5.4.6 Format "04" (Structured data using UN/EDIFACT segments)

This format is used to represent data, such as ship to and ship from, etc., structured according to UN/EDIFACT rules.

This format allows the encodation of data represented by either individual UN/EDIFACT segments without enveloping, i.e., UNB/UNA/UNZ and UNH/UNT; or a single UN/EDIFACT message with enveloping, i.e., UNH/UNT. This data is not intended to be passed directly to an EDI translator.

For format type "04," the version of UN/EDIFACT format is contained in the format header. The character "$^{F}_{S}$" shall be used as the UN/EDIFACT segment terminator. The character "$^{G}_{S}$" shall be used as the UN/EDIFACT data element separator. The character "$^{U}_{S}$" shall be used as the UN/EDIFACT sub-element separator. (See Annex A for hexadecimal and decimal values of terminators and separators.)

5.4.7 Format "05" (Using GS1 application identifiers)

Each data element in this format shall be preceded by the appropriate GS1 application identifier (AI) code, as specified by GS1 General specification, and followed by the data element separator character "$^{G}_{S}$" unless the data element is the last field in the data format, i.e., the last format "05" data element is followed by the format trailer character "$^{R}_{S}$". (See Annex A for hexadecimal and decimal values of terminators and separators.)

5.4.8 Format "06" (Using ASC MH 10 data identifiers)

Each data element in this format shall be preceded by the appropriate ASC MH10 data identifier (DI) code, as specified by ANS MH10.8.2, and followed by the data element separator character "$^{G}_{S}$" unless the data element is the last field in the data format, i.e., the last format "06" data element is followed by the format trailer character "$^{R}_{S}$". (See Annex A for hexadecimal and decimal values of terminators and separators.)

5.4.9 Format "07" (Free form text format)

This format permits free-form text information. There is no variable header data for this data format. Complete sentences are followed by a period and, if the sentence is not the last sentence in a paragraph, two spaces. Two-line feeds are used between paragraphs.

5.4.10 Format "08" (Structured data using CII syntax rules)

This format is structured data according to CII standards, as defined by the Center for Informatization of Industry - Japan. Format "08" contains only one CII-message-record. Format-end and message-end in format "08" shall be indicated by the CII-message-trailer.

The message trailer character "$^{E}O_{T}$" and the format trailer character "^{R}S" shall **not** be used with format "08".

Format "08" shall **not** be combined with any other data format within a message envelope.

Format header "08" employs CII syntax rules, used in Japan. For international trade, format header "04" should be used. Format "08" is intended for use within Japan only.

5.4.11 Format "09" (Binary data)

This format is for binary data in any format. The length and format of the data shall be identified in the format header. Binary files shall be defined as to the type, compression technique and number of bytes used in the data stream.

Binary data strings, such as those that represent digital image data, may be included in messages exchanged by and agreed upon between trading partners. CAD/CAM drawings, picture files, various raster and vector graphic images, as well as 2D and 3D images are examples of the kinds of data that can be compressed and encoded for exchange. Typically, such binary data files are encoded and formatted according to an image file representation standard such as JPEG, TIFF, PCX, BMP, CSV, CGM, GIF, and CCITT Group 4, that include header data followed by image data. The contents of the binary file data groupings, in order to be intelligible, need to be encapsulated within an identifying envelope that separates the binary image data from the other types of message information normally represented as ASCII characters.

By definition, binary data may include any eight-bit character, even those that have a special meaning as indicated elsewhere in this document. Care should be taken not to misinterpret binary values as characters having a special meaning as indicated elsewhere in this document.

The data element separator character ("^{G}S") **shall** be used in the header of format "09" to separate **both** data elements **and** to terminate the header because all fields in the header are variable length. Though the number of bytes is given in the header, the format trailer character shall follow the binary data to complete the format envelope.

5.4.12 Format "10"-"11" (Reserved)

These format types are reserved for future use.

5.4.13 Format "12" (Using text element identifiers)

Each data element in this format shall be preceded by the appropriate text element identifier (TEI) as specified in the Air Transport Association (ATA) Common Support Data Dictionary (CSDD) and followed by the data element separator character "^{G}S", unless the data element is the last field in the data format, i.e., the last format "12" data element is followed by the format trailer character "^{R}S". (See Annex A for hexadecimal and decimal values of terminators and separators.) Format "12" should be used with the agreement between trading partners.

5.4.14 Format "13" (Blocked)

This format is blocked for use to avoid conflict with ISO/IEC 15961-2 format 13.

5.4.15 Format "14"-"99" (Reserved)

These format types are reserved for future use.