ANSI MH10.8.2-2021
A revision of ANSI MH10.8.2-2016

Normative reference:

ISO/IEC 15418
GS1 Application Identifiers and ***ASC MH 10 Data Identifiers*** *and maintenance*

Data Identifiers

Approved: February 11, 2021
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Note: The UPDATE will be available from the source: https://my.mhi.org/s/store#/store/browse/detail/a153h000005lJuRAAU

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American National Standard

Data Identifiers

MH10 Committee for Unit Loads and Transport Packages
A Committee of MHI

Approved February 11, 2021
American National Standards Institute, Inc.

FOREWORD. This standard was developed under the American National Standards Institute (ANSI) Committee method and approved by ANSI on February 11, 2021. It was developed with the sole intent of offering information to parties engaged in the manufacture, marketing, purchase, or use of automatic identification equipment, software, and services. It was developed by MHI, along with the MH10 Committee for Unit-Loads and Transport-Packages (MH10) and is intended to provide useful information and guidance for owners, users, designers, purchasers, or specifiers of material handling equipment or systems. It is advisory only and should only be regarded as a simple tool that its intended audience may or may not choose to follow, adopt, modify, or reject. A standard may be part of, but does not constitute a comprehensive safety program that cannot guard against pitfalls in operating, selecting, and purchasing such a system, and should not be relied upon as such. Such a program should be developed by a qualified professional.

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EXPRESSIONS OF PROVISIONS. This standard utilizes the expressions of provisions as defined in the International Organization for Standard/International Electrotechnical Committee (ISO/IEC) Directives, Part 2 – Principles and rules for the structure and drafting of ISO and IEC documents, clause 7. The word “shall” expresses a requirement, or a mandatory provision to comply with the standard. The word “should” expresses a recommendation or a good practice. The word “may” expresses permission or something that is allowable. The word “can” expresses a possibility or capability.

MH10 is the consensus body responsible for the approval of this standard. It is comprised of organizations whose mission is to facilitate freight movement within transportation and distribution systems by providing standards for transport packages, and unit loads, including their dimensions, definitions, terminology coding, labelling, and performance criteria. This standard is the result of MH10’s recognition of the need to standardize data identifiers (DIs) to facilitate automatic identification and data capture applications. **MH10 SUBCOMMITTEE 8,** Coding and Labelling of Unit Loads, is the drafting committee for this American National Standard.

CONTINUOUS MAINTENANCE. ANSI MH10.8.2 was first approved as an American National Standard in 1995, with substantive revisions approved in 2002, 2006, 2010, and 2016. This standard is intended to develop a comprehensive directory of DIs and to create a process for creating new DIs, as required. As with any American National Standard, as new requirements are identified, interested parties request the assignment of new DIs to meet the needs of a particular industry or activity. ANSI has designated this standard as being under "continuous maintenance." For this document, continuous maintenance requests can apply either to the creation of a new DI (Table 1) or a change to the text elsewhere in the document. New DI requests are processed as described in clause 6. Any other proposed revision to this standard will be considered by MH10 Subcommittee 8, with proposed changes being subject to approval of MH10, consistent with procedures outlined in *ANSI Essential Requirements*.

Each accepted revision since the last published version will be identified in a "Document Maintenance Summary" appearing immediately before the Table of Contents of the standard.

Questions or suggestions for improvement regarding this standard are welcome. Suggestions should be sent to: MH10 Committee, MHI, 8720 Red Oak Blvd., Suite 201, Charlotte, NC 28217; standards@mhi.org.

Those desiring the assignment of new DIs should submit their request to direquests@mhi.org. Refer to Annex C for the DI request application.

On the date of approval of this standard, MH10 Subcommittee 8 consisted of the following members:

- Automotive Industry Action Group
- ConsenSys Health
- CSA Group
- Digimarc
- Evanhoe & Associates
- Federal Express
- Fibre Box Association
- FlexCon
- GS1
- High Tech Aid
- iconnectiv
- Monode Marking Systems
- Packwise Consulting
- Product Identification & Processing Systems
- R. Fox Enterprises
- Reboulet & Associates
- Reverse Logistics Association
- U.S. Department of Defense
- U.S. Library of Congress
- UPS

On the date of approval of this standard, the MH10 Committee consisted of the following members:

- Automotive Industry Action Group
- AIM Global
- ConsenSys Health
- Fibre Box Association
- Flexible Intermediate Bulk Containers Association
- Glass Packaging Institute
- Honeywell
- International Association of Movers
- Integrated Business Communications Alliance
- International Safe Transit Association
- National Wooden Pallet & Container Association
- Packwise Consulting
- Packaging Machinery Manufacturers Institute
- Paper Shipping Sack Manufacturers' Association, Inc.
- Reusable Industrial Packaging Association
- U.S. Department of Agriculture
- U.S. Department of Defense
- UPS
- Virginia Tech University

Data Identifier Maintenance Committee

The Data Identifier Maintenance Committee (DIMC) is the committee responsible for processing new DI applications. ANSI MH10.8.2 is a reference standard to ISO/IEC 15418, *GS1 Application Identifiers and MH 10/SC 8 Data Identifiers*. The DIMC represents diverse interests from various countries. The DIMC membership roster consists of the following members:

Bill Hoffman, Automotive Industry Action Group (AIAG), Chair
Shi Yu, Beijing Normal University
Sten Lindgren, ODX Consulting AB
Erich Guenter, IBM (Germany) & EDIFICE
Martin Treder, FedEx Express International
Heinrich Oehlmann, Eurodata Council, DIN
Clive Hohberger, Consultant
Richard Fisher, DoD (retired)
Craig MacDougall, DoD

Document Maintenance Summary

New DIs or other editorial changes to this document from its date of approval are noted below. Language associated with new DIs are approved by the Data Identifier Maintenance Committee (DIMC) in accordance with the procedures outlined in this standard. Publication of new DIs do not meet ANSI's criteria for a "Substantive Change" to the document and as such have not undergone public comment and approval of the MH10 Committee, which is the consensus body who approves this standard.

Date	Action	Summary
2021-Feb-11	Added	15N – Representing Industrial Internet Identifier Codes controlled and maintained by CAICT, used in the Industrial Internet Identifier Resolution System of China and constructed as <DI><IAC><TTC><STC><CIN><SN>, in the form an3+a3+n3+n3+n8+an1…33, where an3 is the Data Identifier (DI), a3 is the Issuing Agency Code (IAC = "VAA"), n3 is the Top-Tier Code (TTC), n3 is the Secondary-Tier Code (STC), n8 is the Company Identification Number (CIN) controlled and assigned by the Secondary-Tier platform and an1…33 is the Serial Number (SN) that is controlled and assigned by the holder of the CIN, and is unique within that CIN holders' domain, using the characters 0 through 9, upper- and lower-case A through Z, * (asterisk), + (plus sign), - (dash), . (period or full stop), / (forward slash), ((left parenthesis),) (right parenthesis), ! (exclamation mark).
2021-Jun-18	Added	25V - Declaring that the NCAGE/CAGE code that follows DI 25V is the Manufacturer. Party to a transaction wherein the NATO Commercial And Government Entity (NCAGE) / Commercial And Government Entity (CAGE) code used behind DI 25V is declared to be the manufacturer of the item(s) involved in the transaction. Data following DI 25V will consist of five upper-case alphanumeric characters, excluding the letters "I" and "O".
2021-Oct-1	Added	32Q - Clinical term code as defined with the clinical nomenclature: "The international standard for identifying health measurements, observations, and documents – LOINC" (https://loinc.org), in the following sequence: <DI><LOINC Code><Plus Sign><Value>. The unit and format of the Value is defined by the LOINC Code. Example: 32Q28903-3+60 = LOINC Code 28903-3: Left contact lens Axis (degrees); with Value = 60.
2022-Jan-19	Revised	Editorial revisions

Data Identifiers

Contents

List of Figures

List of Tables

Data Identifiers

1 Scope

1.1 General

This document provides a comprehensive dictionary of data identifiers (DIs), and provides for the assignment of new DIs, when required.

A DI is a specified character or string of characters that defines the general category or intended use of the data that follows. DIs can be used in automatic identification and data capture (AIDC), Internet of Things (IoT), Blockchain, or other similar applications. DIs described in this document consist of a capital letter (A through Z), optionally preceded by one-, two-, or three digits (0 through 9). DIs are succeeded by a string of letters, numbers, and/or symbols of a length and composition that can vary from DI to DI, which encode specific information pertinent to the item being encoded.

This document does not supersede or replace any applicable safety or regulatory marking or labeling requirements. The standard is to be applied in addition to any other mandated labeling requirements.

This document is updated in accordance with the continuous maintenance of American National Standards provisions set forth by the American National Standards Institute (ANSI) (see www.ansi.org/essentialrequirements).

1.2 Revisions to the 2021 standard

This document is a revision of ANSI MH10.8.2-2016. It removes references to Application Identifiers maintained by GS1 (https://www.gs1.org/standards/barcodes/application-identifiers), contains a description of the process for creating new DIs, and includes other editorial corrections.

2 Normative references

The following referenced documents are indispensable for the application 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 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO 4217, *Codes for the representation of currency and funds*

ISO/IEC 15418, *Information technology – Automatic identification and data capture techniques – GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance*

ISO/IEC 15459-1, *Information technology — Automatic Identification and Data Capture Techniques — Unique identification — Part 1: Individual transport units*

ISO/IEC 15459-4, *Information technology — Automatic identification and data capture techniques — Unique identification — Part 4: Individual products and product packages*

ISO/IEC 15459-5, *Information technology — Automatic identification and data capture techniques — Unique identification — Part 5: Individual returnable transport items (RTIs)*

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

UPU Standard S25, *Data constructs for the communication of information on postal items, batches, and receptacles*

UPU Standard M82-3, *Universal Postal Union – Attribute Definitions*

ANSI X12.3, *Electronic Data Interchange Data Element Dictionary*

IEEE 802.11, *Wireless LANs*

GS1, *GS1 General Specifications*

3 Definitions

For the purposes of this document, the terms and definitions in ISO/IEC 19762, the ISO Online Browsing Platform (https://www.iso.org/obp), and the following apply:

3.1
allocated

set aside for a specific purpose, such as a set of DIs assigned to a specific Category

3.2
alphanumeric
an

a data set consisting of numbers (0-9) and alphabetic letters (A-Z)

NOTE – This designation is used to define the type of characters used in the datastream and in the metadata description.

3.3
assigned

designated for a specific purpose

EXAMPLE – "Advance Shipment Notification (ASN) Shipment ID (SID)" has been assigned the Data Identifier "**2S.**"

3.4
carrier

party that provides transportation services

3.5
category

class or division in a scheme of classification of DIs

EXAMPLE – The category for date formats is **Category 4: Date.**

3.6
data identifier
DI

a specified character or string of characters that defines the general category or intended use of the data that follows

3.7
fixed asset

durable or non-consumable item owned by a company or agency

3.8
system identifier

characters in a leading position of the data structure that denote a data structure maintained by the organization claiming the system identifier

NOTE – Previous editions of ANSI MH10.8.2 refer to this as a "flag character"

3.9
mutually defined

meaning that has been agreed upon by the appropriate parties to the transaction

3.10
package ID

code that provides the ability to differentiate one package from any other package (e.g., carton or label serial number)

NOTE – Also see “Serial Number” and “License Plate.”

3.11
PRO number (PRO #)

unique number assigned by a motor freight carrier and placed on a freight bill for internal billing purposes

NOTE – The PRO (PROgressive) number is usually the freight bill (invoice) number. It can also be affixed to a container (or containers) in a shipment for tracking purposes.

3.12
returnable (container, packaging item, pallet, etc.)

materials, for which ownership does not transfer, that are shipped with full expectation that such devices will be returned to the supplier (owner)

NOTE – See Annex E.

3.13
VMRS

Vehicle Maintenance Reporting Standard

4 Data identifier format

The format for DIs shall be a capital letter, preceded by one, two, or three digits. The allowable alphanumeric (an) character set shall be A-Z and 0-9.

5 Characters following the DI

The allowable alphanumeric (an) characters following the DI shall include all characters in UTF-8.

6 Process for assigning new DIs

6.1 General

Applications for new DIs are received from parties requesting new DIs. Applications are processed by the Data Identifier Maintenance Committee (DIMC). When the DIMC deems that a new DI should be issued, the new DI language will be published in a continuous maintenance version of this document as a new row in Table 1, with the new DI noted in the Document Maintenance Summary in the foreword of this document.

6.2 Data Identifier Maintenance Committee (DIMC)

The DIMC is the committee responsible for evaluating new DI applications and revising Table 1 of this document by processing DI applications as they are received.

6.3 Application

Applicants shall submit requests for new DIs on an application form (refer to Annex C. For the latest application form go to www.mhi.org/standards/di).

6.4 Review process

Applications are submitted to the DIMC Chair and distributed to committee members for deliberation and consideration. The DIMC Chair shall respond to the applicant when the application is approved, revised, rejected, or returned for additional information and a request for resubmission.

6.5 Approval

When the DIMC approves a new DI, the new DI is published in Table 1. The new entry shall be noted in the Document Maintenance Summary in the Foreword of this document, including the revision date, action, and description of the revision.

6.6 Limitations

The DIMC's charter is solely to review and process new DI applications. Changes to existing DI definitions may only be made to update URL references or to make editorial corrections, subject to approval by the DIMC. Such changes shall be added as an additional entry to the definition, immediately below the previous DI definition entry.

7 List of Data Identifiers

7.1 Defined categories

Table 1 lists DIs, which are summarized by Category (1 through 26), followed by metadata, the DI designation, and a description.

Notes –

1. The usage of the term "number" below is not intended to be restricted to numeric characters only, but generically refers to a code structure which may contain numeric and/or alphabetic data.
2. The following DIs are assigned to the usages described.
3. The usage of any alphabetic, numeric, or special character in a leading position (as a "Data Identifier") not defined herein is reserved for future assignment by the body controlling these guidelines.
4. Unless otherwise specified, leading zeroes (0's) are non-significant and not to be employed (e.g., 0A, 00A, 000A, 01A, 011A, etc.).
5. Unless otherwise specified, references to other standards are to the most current version of that standard. Dated references refer to that specific revision.
6. Where field lengths are provided, they are provided along with the length of the identifier, for example, the DI for Container serial number "**7B**" is shown to have a length of "11an" or eleven alphanumeric characters. When the DI is included, the combined fields are 13 alphanumeric characters in length (an2+an11).
7. The metadata details are interpreted as:
    a) an2+an1…25 = a two alphanumeric character DI followed by 1 to 25 alphanumeric characters.
    b) an4+n3+an…5 = a four alphanumeric character DI, followed by three numeric digits, followed by zero (no data) to five alphanumeric characters.
8. The URLs published in Table 1 were correct at the time the DI was issued. Updates to URLs are published in Table 1 when provided by the issuing agency or other verifiable source.

    NOTE – The publishers of the URLs referenced in this document can change the URL without notice.

Table 1 – List of DIs

Category 1: Reserved (A-999A)		
Metadata	**DI**	**Explanation**
	A - 999A	Reserved

Category 2: Container Information (B-999B)		
Metadata	**DI**	**Explanation**
	B	Container Type (internally assigned or mutually defined).
	1B	Returnable Container Identification Code assigned by the container owner or the appropriate regulatory agency (e.g., a metal tub, basket, reel, unit load device (ULD), trailer, tank, or intermodal container) (excludes gas cylinders. See DI **"2B"**).
	2B	Gas Cylinder Container Identification Code assigned by the manufacturer in conformance with U.S. Department of Transportation (D.O.T.) standards.
	3B	Motor Freight Transport Equipment Identification Code assigned by the manufacturer in conformance with International Organization for Standardization (ISO) standards.
	4B	Standard Carrier Alpha Code (SCAC) (4 alphanumeric characters) and an optional carrier assigned trailer number (one to ten alphanumeric characters). When used, the carrier assigned trailer number is separated from the SCAC by a dash "-".
an2+an1...35	**5B**	Receptacle Asset Number – Consisting of two joined parts: — Identification of an organization in accordance with ISO/IEC 15459 and a unique entity identification assigned in accordance with rules established by the issuing agency. — A unique serial number assigned by the entity, ending with a 3-character container type code taken from EDIFACT Code List 8053 or UPU standard M82-3. (If the container type code listed is less than three characters in length, the field will be dash "-" filled left to the length of three characters).
	6B	Reserved.
an2+an11	**7B**	Container Serial Number. According to ISO 6346. OC EI CSN CD, where the OC is the three letter owner code assigned in cooperation with BIC, the EI is the one letter equipment category identifier, the CSN is a 6-digit unique container identification assigned by the equipment owner, and CD is a modulus 11 check digit calculated in accordance with Annex A, ISO 6346.
an2+an3	**8B**	Identification of a Returnable Container owner assigned in cooperation with BIC.
an2+an4	**9B**	Container Size/Type Code. According to ISO 6346, §4.2.

Category 2: Container Information (B-999B)		
Metadata	**DI**	**Explanation**
an3+an4	**10B**	Container Ownership Code. Actual four-character abbreviation marked on the container by the owner. For DOD owned containers see Defense Transportation Regulation App EE-6. **2020 Update**: data source reference updated to the Defense Transportation Regulation, Part II, App TT located at: https://www.ustranscom.mil/dtr/dtrp2.cfm
	11B	Van Number (complete number minus check digit).
	12B	Check digit of Van Number identified in 11B.
	13B	Container Number Code (last 5 digits of number not counting check digit).
an3+a1	**14B**	Tag Status. Y=Authorized / N=Unauthorized
an3+an1...4	**15B**	Dangerous Cargo Class. IMDG Class in the format “n.na” where n = numeric, decimal point expressly encoded, and a = conditional alphabetic qualifier. http://docs.imo.org/
an3+an4	**16B**	UN Code for Dangerous Goods. For dangerous cargo provided by shipper in accordance with UN Code. www.unece.org/trans/danger/publi/unrec/English/part3.pdf **2020 Update:** URL changed to http://www.unece.org/trans/danger/danger.html
an3+an1...35	**17B**	Name of Transportation Subject. Vessel name or vehicle code/train trip number in English.
an3+a3+n7	**18B**	Vessel Registration Number. The three letters “IMO” followed by the seven-digit number assigned to all ships by IHS Fairplay when constructed. http://www.imonumbers.lrfairplay.com/
an3+an18	**19B**	Voyage number/Trip number. Letter and number.
an3+an2	**20B**	Vessel Country. ISO 3166-1 Alpha 2 Code.
an3+6	**21B**	Reserved for Electronic Seal Numbers. Comprised of the ISO 18185-1 seal tag ID - 32 bits and the ISO 14816 16-bit manufacturers ID (ISO/IEC 646).

Category 2: Container Information (B-999B)		
Metadata	**DI**	**Explanation**
an3+an11+n2	**22B**	Entry Number/Type. Comprised of the three-digit filer code, followed by the seven-digit entry number, and completed with the one-digit check digit. Entry Filer Code represents the three-character alphanumeric filer code assigned to the filer or importer by CBP. Entry Number represents the seven-digit number assigned by the filer. The number may be assigned in any manner convenient, provided that the same number is not assigned to more than one CBP Form 7501. Leading zeros must be shown. Check Digit is computed on the previous 10 characters. The formula for calculating the check digit can be found in Appendix 1, CBP 7501 Instructions. Entry type is a two-digit code compliant to Block 2, CBP 7501 Instructions.
an3+n3	**23B**	Surety Number. The three-digit numeric code that identifies the surety company on the Customs Bond. This code can be found in block 7 of the CBP Form 301 or is available through CBP's automated system to ABI filers, via the importer bond query transaction. For U.S. Government importations and entry types not requiring surety, code 999 should appear in this block. When cash or government securities are used in lieu of surety, use code 998.
an3+n5	**24B**	Foreign Port of Lading. "Schedule K" (Classification of Foreign Ports by Geographic Trade Area and Country) for the foreign port at which the merchandise was actually laden on the vessel that carried the merchandise to the U.S. http://www.navigationdatacenter.us/wcsc/scheduleK/schedulek.htm **2020 Update:** URL changed to: https://www.cbp.gov/sites/default/files/assets/documents/2017-Feb/appendix_f_0.pdf
an3+an1...35	**25B**	Identification of a Party to a Transaction as defined in ISO 17364, assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the RTI serial number that is unique within the CIN holder's domain.
	26B	Unique Returnable Transport Item Identifier comprised of a sequence of 5 data elements: "IAC", followed by "CIN", followed by "RTI Number" (RTIN), followed by the "+" character, followed by the supplier assigned (or managed) "RTI Serial Number" (RTISN) that is globally unique within the CIN holder's domain; in the format IAC CIN RTIN + RTISN (spaces added for visual clarity only; they are not part of the data).

Category 2: Container Information (B-999B)		
Metadata	**DI**	**Explanation**
an3+an20...50	**27B**	Globally Unique Asset Identifier of a Large Load Carrier (LLC) Returnable Transport Item (RTI) with a side base of ≥1,000 mm, as defined in ISO 17365:2013, tertiary packaging, layer 3 comprised of a sequence of 5 data elements: “IAC”, followed by “CIN”, followed by RTI Type Code “RTITC”, followed by the “+” character, followed by the owner assigned (or managed) RTI Serial Number “RTISN” that is globally unique within the CIN holder´s domain in the format IAC CIN RTITC + RTISN (spaces added for visual clarity only; they are not part of the data).
an3+an20...50	**28B**	Globally Unique Asset Identifier of a Small Load Carrier (SLC) Returnable Transport Item with a side base of <1,000 mm, as defined in ISO 17364:2013 (RTI), tertiary packaging, layer 2 comprised of a sequence of 5 data elements: “IAC”, followed by “CIN”, followed by RTI Type Code “RTITC”, followed by the “+” character, followed by the owner assigned (or managed) RTI Serial Number “RTISN” that is globally unique within the CIN holder´s domain in the format IAC CIN RTITC + RTISN (spaces added for visual clarity only; they are not part of the data).
an3+an1…50	**29B**	Globally Unique Returnable Packaging Item (RPI) identifier of the category packaging aid (lid, blister, inlay, …) comprised of a sequence of 5 data elements: “IAC”, followed by “CIN”, followed by “RPI Number” RPIN, followed by the “+” character, followed by the owner assigned (or managed) “RPI Serial Number” RPISN that is globally unique within the CIN holder´s domain in the format IAC CIN RPIN + RPISN (spaces added for visual clarity only; they are not part of the data).
an3+an2…35	**30B**	Packaging Item Number. Number to identify the type of packaging item (material) used when packing products and packages. The number will enable packaging item (material) be identified and separated from products, packages, Returnable Transport Items (RTIs) and Returnable Packaging Items (RPIs) during packing. The number is constructed as a sequence of minimum 1 data element: Packaging item (material) number that is unique within the holder's domain.

Category 2: Container Information (B-999B)		
Metadata	**DI**	**Explanation**
an3+an6…35	**31B**	Global Unique Packaging Number Global unique number to identify the type of packaging item (material) used when packing products and packages. The global unique number will enable packaging items (materials) be identified and separated from products, packages, Returnable Transport Items (RTIs), and Returnable Packaging Items (RPIs) during packing. The number is constructed as a sequence of 3 concatenated data elements: The IAC, followed by the CIN, followed by the Packaging item (material) number that is unique within the CIN holder's domain.
	32B – 54B	Reserved.
an3+an1...50	**55B**	Global Unique Returnable Packaging Item (RPI) as defined in ISO 17364, assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the RPI serial number that is unique within the CIN holder's domain.
	56B – 999B	Reserved for future assignment.

Category 3: Field Continuation (C-999C)		
Metadata	**DI**	**Explanation**
	C	Continuation of an Item Code (Category 16) assigned by Customer that is too long for a required field size.
	1C	Continuation of Traceability Code (Category 20) assigned by Supplier.
	2C	Continuation of Serial Number (Category 19) assigned by Supplier.
	3C	Continuation of Free Text (Category 26) mutually defined between Supplier/Carrier/Customer.
	4C	Continuation of Transaction Reference (Category 11) mutually defined between Supplier/Carrier/Customer.
	5C	Continuation of Item Code (Category 16) Assigned by Supplier.
	6C - 999C	Reserved for future assignment.

Category 4: Date (D-999D)		
Metadata	**DI**	**Explanation**
an2+n6	**D**	Format YYMMDD.
an2+n6	**1D**	Format DDMMYY.
an2+n6	**2D**	Format MMDDYY.
an2+n4	**3D**	Format YDDD (Julian).
an2+n5	**4D**	Format YYDDD (Julian).
an2+n6+an3	**5D**	ISO format YYMMDD, immediately followed by an ANSI X12.3 Data Element Number 374 Qualifier providing a code specifying type of date (e.g., ship date, manufacture date).
an2+n8+an3	**6D**	ISO format YYYYMMDD, immediately followed by an ANSI X12.3 Data Element Number 374 Qualifier providing a code specifying type of date (e.g., ship date, manufacture date).
an2+n4	**7D**	Format MMYY.

Category 4: Date (D-999D)		
Metadata	**DI**	**Explanation**
~~an2+n14...15~~ **2022 revision**[1]: an2+n12+an1…3	**8D**	Event, Date, and Time. ISO format YYYYMMDDHHMM (24-hour clock - UTC) immediately followed by a UN/EDIFACT Code Qualifier 2005 providing a code specifying type of date, e.g.: **11** [Date when goods are expected to be dispatched/shipped message is issued] **17** [Estimated delivery date/time when goods are expected to be delivered] **35** [Date on which goods are delivered to their destination] **118** [Booking Confirmed] **129** [Date when the vessel/merchandise departed the last foreign port in the exporting country] **132** [Date/time when the carrier estimates that a means of transport should arrive at the port of discharge or place of destination] **133** [Date/time when carrier estimates that a means of transport should depart at the place of departure] **137** [Date/time when the supplier ships parts based on the customer's request. (Date when DESADV message is issued. Recommendation is the DESADV is issued within 30 minutes of goods being picked up at Ship-From party] **146** [Estimated Entry date (Customs) date on which the official date of a Customs Entry is anticipated] **151** [Import Date (Arrived at port with intent to unlade] **186** Departs a Facility (“Gate-out”)] **204** [Date on which Customs releases merchandise to the carrier or importer] **252** [Arrives at a Port (“Vessel Arrival”)] **253** [Departs from a Port (“Vessel Departure”)] **283** [Arrives at a Facility (“Gate-in”)] **342** [Conveyance Loaded] **351** [Terminal Gate Inspection] **411** [Ordered Stuffed] **412** [Ordered Stripped] **420** [Conveyance unloaded] **534** [Repaired] **677** [Confirmed Stuffed] **678** [Confirmed Stripped] **696** [Filing Date]
	9D	Date (structure and significance mutually defined).

[1] The metadata change was necessary because UN/EDIFACT Code Qualifier 2005 lists single-digit qualifiers, and the previous metadata definition did not allow their use. The previous metadata construction was based on the examples provided by the applicant, and not the complete list available.

Category 4: Date (D-999D)		
Metadata	**DI**	**Explanation**
an3+n4	**10D**	Format YYWW.
an3+n6	**11D**	Format YYYYWW.
an3+n8	**12D**	Format YYYYMMDD.
an3+n8	**13D**	Oldest and Newest Manufacturing Date in the format YYWWYYWW.
an3+n8	**14D**	Expiration Date (YYYYMMDD).
an3+n8	**15D**	Expiration Date (DDMMYYYY).
an3+n8	**16D**	Production Date (YYYYMMDD) – Date of manufacture.
an3+n8	**17D**	Production Date (DDMMYYYY).
an3+n12	**18D**	Tag Activation Time. YYYYMMDDHHMM (24-hour clock - UTC).
an3+n12	**19D**	Tag Deactivation Time. YYYYMMDDHHMM (24-hour clock - UTC).
an3+n8	**20D**	Inspection Date (DDMMYYYY).
	21D	Required Delivery Date (DDD Julian) or DOD MILSTAMP Code.
an3+n12	**22D**	Record Time. YYYYMMDDHHMM (24-hour clock - UTC).
	23D	Date, represented in modified UTC compliant form: yyyy[mm[dd[hh[mm[ss[fff]]]]]][poooo] where square brackets indicate optionality and yyyy is the year, mmdd the month and day, hhmmss the time of day in hours minutes and seconds, fff the fractions of sections, and poooo is the offset from UTC expressed in hours and minutes, the offset being positive if p is a point (.), negative if p is a minus sign (-). EXAMPLE: 2005 (UTC) calendar year 2005 200505 (UTC) calendar month May 2005 20050518 (UTC) 18 May 2005 200505181247 12:47 UTC on 18 May 2005 200505181247.0100 12:47 local time, being 11:47 UTC, on 18 May 2005 20050518124723099 on 99 milliseconds after UTC 12:47:23 18 May 2005
	24D	Qualified Date, comprising the concatenation of: — an ISO/IEC 15459 issuing agency code; — a date qualifier conforming to the specifications of that issuing agency; — a date whose format and interpretation comply with the specifications of the issuing agency for that date qualifier.
an3+n8	**25D**	Best before date: (YYYYMMDD). Example: **25D**20170202 = February 2, 2017

Category 4: Date (D-999D)		
Metadata	**DI**	**Explanation**
an3+n8	**26D**	First freeze date (YYYYMMDD). The first freeze date is defined as the date on which products are frozen directly after slaughtering, harvesting, catching or after initial processing. Example: **26D**20170721 = July 21, 2017
an3+n8	**27D**	Harvest date (YYYYMMDD). The date when an animal was slaughtered or killed, a fish has been harvested, or a crop was harvested. Example: **27D**20170615 = June 15, 2017
an3+n16	**28D**	Harvest date range (YYYYMMDDYYYYMMDD). The start date and end date range over which harvesting occurred. For example; animals were slaughtered or killed, fish were harvested, or a crop was harvested. The data stream is defined as the first YYYYMMDD as the start date and the last YYYYMMDD as the end date. Example: **28D**2017012320170214 = Start; January 23, 2017. End; February 14, 2017
	29D– 999D	Reserved for future assignment.

Category 5: Environmental Factors (E-999E)		
Metadata	**DI**	**Explanation**
an1+a2	**E**	Restricted Substances Classification – "Environmental Classification Code" including Lead-Free (Pb-Free) finish categories defined in JESD97 (IPC JEDEC J-STD-609), and future industry or governmental agency assigned codes related to environmental regulatory compliance and hazardous material content.
	1E	Air Pressure – (altitude) expressed in Pascal's as the standard international measure.
an2+n1...4	**2E**	Maximum Allowed Temperature. Maximum permitted temperature; Degrees Celsius, "-" (minus) encoded, if required.
an2+n1...4	**3E**	Minimum Allowed Temperature. Minimum permitted temperature; Degrees Celsius, "-" (minus) encoded, if required.
an2+n1...2	**4E**	Maximum Allowed Relative Humidity. Maximum permitted relative humidity, implied as percent.
an2+n1...2	**5E**	Minimum Allowed Relative Humidity. Maximum permitted relative humidity, expressed as percent.
an2+n1...4	**6E**	Refrigerator Container Temperature. For temperature-controlled cargo, target specified by shipper, Degrees Celsius, "-" (minus) encoded, if required.
	7E – 9E	Reserved.
	10E	Cumulative Time Temperature Index – expressed as the number of measurements or counts.
	11E	Time Temperature Index – Next Higher Assembly – expressed as the number of measurements or counts.
an3+an9...15	**12E**	Declaration of Packaging Material Category*, Code* and Weight for a given packaging material used in a given packaging according to the EU packaging and packaging waste directive. (Material category and code defined in Annex F). 12ECCMMMMMMNNNNNUU where: - "12E" (an3) is the Data Identifier, - "CC" (n2) is the Material Category per Annex M, - "MMMMMM" (an1...6) is the Material Code per Annex M, - "NNNNN" (n5) Material Weight, including decimal point (e.g., 12.12), - "UU" (an2) is the Unit of measure for weight (e.g., KG, GR, LB or OZ per ANSI X12.3).
	13E	The data following DI **13E** will be one of the MSL indicators (1, 2, 2a, 3, 4, 5, 5a, 6) as shown in the LEVEL column in Table 5-1 of JEDEC standard IPC/JEDEC J-STD-020E. The currently released version of the referenced standard shall be used to obtain the correct MSL for the actual component. Example: **13E**2a

Category 5: Environmental Factors (E-999E)		
Metadata	**DI**	**Explanation**
Assigned:	**14E – 999E**	Reserved for future assignment.

Category 6: Looping (F-999F)		
Metadata	**DI**	**Explanation**
	F	Looping Header as defined as Section 9 of this document.
	1F	My parent is _____ . . . Unique identifier followed by a Data Identifier and associated data (for use with returnable packaging – See Annex F). This Data Identifier must immediately follow the field (constructed of a Data Identifier, data, and a group separator) with which it is associated.
	2F	Reserved (prior use).
	3F	I have _____ children . . . (for use with returnable packaging, e.g.; **3F**10, for ten children – See Annex F). This Data Identifier must immediately follow the field (constructed of a Data Identifier, data, and a group separator) with which it is associated.
	4F	Logical Assignment of a Page of Information within a group of pages that are spread across several data carriers, structured as a sequence of up to three (3) concatenated data elements, separated by a slash (/) : Page number (required), followed by page count (optional, required for the last page), followed by an alphanumeric group ID (optional; if used then required for all pages and structured in accordance with ISO/IEC 15459-3 as a sequence of 3 data elements: Issuing Agency Code, followed by the Company Identification Number, followed by an alphanumeric code unique within the issuer's domain). Trailing slashes are optional.
	5F	I have _____ children and they are . . . (for use with returnable packaging – See Annex F) This Data Identifier must immediately follow the field (constructed of a Data Identifier, data, and a group separator) with which it is associated.
	6F – 999F	Reserved for future assignment.

Category 7: Reserved (G-999G)		
Metadata	**DI**	**Explanation**
	G - 999G	Reserved.

Category 8: Human Resources (H-999H)		
Metadata	**DI**	**Explanation**
an1+an1...60	**H**	Name of Party. Name of a party followed by a plus (+) character followed by one or more code values from EDIFACT Code List 3035 "Party Qualifier," e.g.: **BY** [Buyer] **CF** [Container operator] **CN** [Consignee] **CS** [Consolidator] **DEI** [Vessel operator/captain of vessel] **FA** [Operational staff code] **IM** [Importer] **MF** [Manufacturer] **OS** [Shipper] **SE** [Seller] **ST** [Ship To] **UC** [Ultimate consignee]
	1H	Employee Identification Code assigned by employer.
an2+n9	**2H**	U.S. Social Security Number.
	3H	ID Number for Non-Employee (internally assigned or mutually defined) (e.g., contract workers, vendors, service, and delivery personnel).
	4H	National Social Security Number.
	5H	Last Name.
an2+an1...35	**6H**	Party Name (Line 2).
an2+n10…15	**7H**	Contact Phone. Country Code, Area Code, Exchange, number [XX YYY ZZZ ZZZZ].
an2+an3...35	**8H**	Contact Email.
an2+an10…12	**9H**	Consignee Number. The unique identifying number can be the IRS, EIN, SSN, or the CBP assigned number, as required on the Security Filing. Only the following formats shall be used: **IRS EIN:** NN-NNNNNNN **IRS EIN w/ suffix:** NN-NNNNNNNXX **SSN:** NNN-NN-NNNN **CBP assigned nbr:** YYDDPP-NNNNN
	10H	Personal Identification Code (first initial, Last initial, last four of SSN).
	11H	First Name and Middle Initial.

Category 8: Human Resources (H-999H)		
Metadata	**DI**	**Explanation**
an2+an2 **2020 Update:** an2+an3	**12H**	Military Grade (**E1**-**E9**, **W1**-**W5**, and **O1**-**O10**). **2020 Update:** Metadata format has been changed to agree with the actual officer grades in use by the military: “an2+an3”. The Explanation information has been changed to: “Military Grade (**E1**-**E9**, **W1**-**W5**, and **O1**-**O11**).
	13H – 14H	Reserved.
an3+an2+an1…an20	**15H**	A National Identification Number, National Identity Number, or National Insurance Number used as a means of identifying individuals within a country for the purposes of work, taxation, government benefits, health care, and other governmentally-related functions. This structure of the identifier is DI (**15H**) followed by the ISO 3166-1 Alpha2 Country Code followed by the predominant government assigned identification code for individuals.
	16H – 24H	Reserved.
	25H	Globally Unique Personal ID, assigned by a holder of a Company Identification Code (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as sequence of 3 concatenated data elements: IAC followed by CIN, followed by the ID unique within the holder's domain.
an3+an3…35+”+”+a1…3	**26H**	Globally Unique Personal ID, with a “Party Qualifier” code value from EDIFACT Code List 3035, assigned by a holder of a Company Identification Code (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 5 concatenated data elements: IAC followed by CIN, followed by an ID unique within the CIN holder's domain, followed by the Plus character (+) and a code value from EDIFACT Code List 3035 “Party Qualifier”, e.g.: BG Employer GP Packer LK Patient LL Patient companion LM Medical treatment executant MF Manufacturer of goods Example: **26H**LHHIBC987XY65+LK
	27H – 999H	Reserved for future assignment.

Category 9: Reserved (I-999I)		
Metadata	**DI**	**Explanation**
	I	Exclusive Assignment - Vehicle Identification Number (VIN) as defined in the U.S. under 49 CFR, §§ 565 and internationally by ISO 3779. (These are completely compatible data structures).
	1I	Reserved.
	2I	Abbreviated VIN Code.
	3I	Reserved – Prior assignment.
	4I	Globally unique transport vehicle identifier (e.g., Trucks) consisting of the Vehicle Identification Number (VIN) as defined in the U.S. under 49 CFR §§ 565, and internationally by ISO 3779, followed by the "+" character, then followed by the government-issued Vehicle Registration License Plate Number in the form of "**4I**" "VIN" "+" "government-issued Vehicle Registration License Plate Number" (quotes and spaces shown for clarity only; they are not part of the data).
	5I	Unique production vehicle identifier that will be used during the vehicle production processes, consisting of the Body Tag Number (BTN; or any other descriptor used to identify the raw car body, or stated another way, the assemblage of parts that are used to start the vehicle's production), followed by the "+" character, then followed by the Production Order Number (PON), followed by the "+" character, and then followed by the Manufacturer-assigned Serial Number (SN). NOTE – The SN component shall be replaced by the VIN as soon as the VIN is available in the assembly process. The construction will be as follows; "**5I**" "BTN" "+" "PON" "+" "SN" changing to (when VIN available) "**5I**" "BTN" "+" "PON" "+" "VIN" NOTE – Quotes and spaces are shown for clarity only; they are not part of the data. NOTE – This DI is never to be concatenated with other DIs in a linear symbol or other media where the concatenation character is a plus (+) character. Examples: SN version: **5I**ABCD1234+CO1234+W0L201600500001 VIN version: **5I**ABCD1234+CO1234+W0L0XAP68F4050901
	6I - 999I	Reserved - Not recommended for use due to similarity of "1" to "I".

Category 10: License Plate (J-999J)		
Metadata	**DI**	**Explanation**
an1+an1...35	**J**	Unique license plate number[2].
an2+an1...35	**1J**	Unique license plate number[2] assigned to a transport unit which is the lowest level of packaging, the unbreakable unit.
an2+an1...35	**2J**	Unique license plate number[2] assigned to a transport unit which contains multiple packages.
an2+an1...35	**3J**	Unique license plate number[2] assigned to a transport unit which is the lowest level of packaging, the unbreakable unit and which has EDI data associated with the unit.
an2+an1...35	**4J**	Unique license plate number[2] assigned to a transport unit which contains multiple packages, and which is associated with EDI data.
an2+an1...20	**5J**	Unique license plate number[2] assigned to a mixed transport unit containing unlike items on a single customer transaction and may or may not have associated EDI data.
an2+an1...20	**6J**	Unique license plate number[2] assigned to a master transport unit containing like items on a single customer transaction and may or may not have associated EDI data.
	7J	Vehicle Registration License Plate Number (not unique without identification of country and issuing governmental region/authority)[3].
an2+n9	**8J**	Maritime Mobile Service Identity (MMSI). A nine-digit number regulated by the International Telecommunications Union to uniquely identify a ship or a coast radio station. Example: **8J**211123456
	9J– 999J	Reserved for future assignment.

[2] For a license plate number to be unique world-wide requires: 1) A unique number assigned by the trading partner, 2) A unique code assigned to the trading partner by an organization, and 3) A unique code providing global identification of the assigning organization. ISO/IEC 15459-1 describes the format and usage of these DIs.

[3] The format of "**7J**" is such that while a Vehicle Registration License Plate Number may, in practice, be unique within a governmental subdivision, it may not be unique worldwide without having met the requirements of items 2 and 3 of footnote 1, above.

Category 11: Transaction Reference Used in Trading Relationships (K-999K)		
Metadata	**DI**	**Explanation**
	K	Order Number assigned by Customer to identify a Purchasing Transaction (e.g., purchase order number).
	1K	Order Number assigned by Supplier to identify a Purchasing Transaction.
	2K	Bill of Lading/Waybill/Shipment Identification Code assigned by Supplier/Shipper.
	3K	Bill of Lading/Waybill/Shipment Identification Code assigned by Carrier.
	4K	Line Number of the order assigned by Customer to identify a Purchasing Transaction. (See Section 8.11).
	5K	Reference Number assigned by the Customer to identify a Shipment Authorization (Release) against an established Purchase Order.
	6K	PRO# Assigned by Carrier.
	7K	Carrier Mode in Free Text format mutually defined between Customer and Supplier (e.g., Air, Truck, Boat, Rail).
	8K	Contract Number.
	9K	Generic Transaction Reference Code (internally assigned or mutually defined).
	10K	Invoice Number.
	11K	Packing List Number.
an3+an4+an1…25	**12K**	SCAC (Standard Carrier Alpha Code) (an4 - dash "-" filled left) and carrier assigned PROgressive number.
an3+an4+an1...12	**13K**	Bill of Lading Number /Transport Receipt Number SCAC + Container cargo's B/L number or waybill number.
	14K	Combined Order Number and Line Number in the format nn...nn+nn...n where a plus (+) symbol is used as a delimiter between the Order Number and Line Number.
	15K	KANBAN Number.
	16K	DELINS Number: code assigned to identify a document which contains delivery information.
	17K	Check Number.
	18K	Structured Reference. (See Clause 8.11).
	19K	Foreign Military Sales Case Number.

Category 11: Transaction Reference Used in Trading Relationships (K-999K)		
Metadata	**DI**	**Explanation**
	20K	License Identifier, being a globally unique identifier for a license or contract under which items are generated, submitted for processing, and/or paid for, that is constructed by concatenating: — an ISO/IEC 15459 issuing agency code; — a license or contract number which accords with specifications of the issuing agency concerned; and that: — comprises only upper case alphabetic and/or numeric characters; — is unique (that is, is distinct from any other ISO/IEC 15459 compliant identifier) within the domain of the issuing agency[2]; — cannot be derived from any other ISO/IEC 15459 compliant identifier, issued under the same issuing agency, by the simple addition of characters to, or their removal from, its end[4].
	21K	Customer Data, being data that: — from a customer perspective, is related to or associated with an item or transaction, or to a batch or related items or transactions, and — comprises up to 35 printable characters and/or spaces, other than plus (+), drawn from the character set defined in ISO/IEC 646.
	22K	"**22K**" Transaction Authentication Information, being a value, constructed by concatenating: — an ISO/IEC 15459 issuing agency code; — a value which accords with specifications of the issuing agency concerned, that allows verification of the transaction concerned and, in particular, that the transaction was initiated by the party, claimed within the transaction to have been its initiator, by: — the recipient of a transaction, and/or — one or more of the parties involved in its handling or processing, and/or — a trusted third party.
	23K – 24K	Reserved

[4] **"20K"** license identifiers, "**26S"** equipment identifiers and, subject to certain conditions, "**18V"** party identifiers can be used as the root component of "**26T"** batch identifiers and of ISO/IEC 15459 transport unit identifiers. To ensure uniqueness of the latter, it is essential that such identifiers differ not only from all other identifiers of the same class, but also from all other identifiers of other classes. That is, the specifications of the issuing agency concerned are required to ensure that a "**20K"** license identifier is distinct both from other "**20K"** license identifiers and from "**26S"** equipment identifiers, "**18V"** party identifiers, license plates, etc. Since component-based transport unit identifiers are constructed by simple concatenation, it is also required that one root component cannot be derived from another by adding characters to it.

Category 11: Transaction Reference Used in Trading Relationships (K-999K)		
Metadata	**DI**	**Explanation**
	25K	Global Unique Identification of Groupings of Transport Units Assigned by the Carrier, defined as: Identification of a Party to a Transaction as assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the Bill of Lading or Waybill or Shipment Identification Code that is unique within the CIN holder's domain.
	26K	Global Unique Identification of Groupings of Transport Units Assigned by the Shipper, defined as: Identification of a Party to a Transaction assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the Bill of Lading or Waybill or Shipment Identification Code that is unique within the CIN holder's domain.
an3+an1...35	**27K**	Supplier Assigned Quotation Number – Number assigned to a quotation by the supplier in response to a request for quote from the customer.
	28K – 999K	Reserved for future assignment.

Category 12: Location Reference (L-999L)		
Metadata	**DI**	**Explanation**
	L	Storage Location.
	1L	Location.
	2L	“Ship To:” Location Code defined by an industry standard or mutually defined.
	3L	“Ship From:” Location Code defined by an industry standard or mutually defined.
an2+a2	**4L**	Country of Origin, two-character ISO 3166 country code. *With agreement of trading partners and when the Country of Origin is mixed, Country Code “AA” shall be used.*
	5L	“Ship For:” Location Code defined by an industry standard or mutually defined.
	6L	Route Code assigned by the supplier to designate a specific transportation path.
an2+an6	**7L**	6-character Department of Defense Activity Address Code (DODAAC).
	8L	Port of Embarkation – Mutually Defined.
	9L	Port of Debarkation – Mutually Defined.
	10L	Reserved.
an3+n5…27	**11L**	Location (Latitude/Longitude/Altitude) encoded in the format xnn.nnnnn/xnnn.nnnnnn/xnnnn[5].
	12L	“Ship To:” Location (Latitude/Longitude/Altitude) encoded in the format xnn.nnnnn/xnnn.nnnnnn/xnnnn[5].
	13L	“Ship From:” Location (Latitude/Longitude/Altitude) encoded in the format xnn.nnnnn/xnnn.nnnnnn/xnnnn[5].
	14L	Reserved.
	15L	“Ship For:” Location (Latitude/Longitude/Altitude) encoded in the format xnn.nnnnn/xnnn.nnnnnn/xnnnn[5].

[5] One degree is equivalent to approximately 110,000 meters, depending upon one’s location on the earth where, because of its spheroid shape, a degree is of greater distance at the equator than at the poles. Degrees can be reduced to minutes (1/60th of a degree) and then seconds (1/60th of a minute) to where a second of latitude or longitude is approximately 30.56 meters. Likewise, we can decimally represent a portion of a meter where to six significant digits one can get to a resolution of 0.11 meters. Secondly, many representations of latitude and longitude include either a North / South designation for latitude, and an East / West designation for longitude. Alternately, some designations of South latitude and West longitude are differentiated from their North and East counterparts by a “-” (minus) prefix. Further, there are 360 degrees of longitude from 180° E to 180° W (alternately 180° to -180°) and 180 degrees of latitude from 90° N to 90° S (alternately, 90° to -90°). Also, the tallest building in 2020 is 828 meters, though plans do exist for structures greater than 1 000 meters in height. Finally, there are locations that exist below sea level, so a minus (-) is additionally required for altitude.

Consequently, the format recommended by this standard for Latitude / Longitude / Altitude is xnn.nnnnn/xnnn.nnnnnn/xnnnn is in a range of 5 (intersection of the Prime Meridian with the Equator - n/n/n) to 27 characters (xnn.nnnnn/xnnn.nnnnnn/xnnnn). The “x” value is to permit the inclusion of a “-” (minus) prefix for South latitudes and West longitudes. The “-” (minus) prefix, “.” (decimal point), and “/” solidus are explicitly encoded.

Category 12: Location Reference (L-999L)		
Metadata	**DI**	**Explanation**
an3+an1...60	**16L**	Tag Activation Location. English location name (character set: 0-9, A-Z <Space>).
an3+an1...60	**17L**	Tag Deactivation Location. English location name (character set: 0-9, A-Z <Space>).
an3+an2...12	**18L**	FAO fishing area code as defined by the Fisheries and Aquaculture Department of the FAO (http://www.fao.org. Search for Fishing Area Code sub-site). All characters of the GS1 General Specification-defined sub-set of ISO/IEC 646 are allowed. Examples: **18L**37.1.3 Western Mediterranean Sea, Sardinia **18L**47.B.1 Atlantic, Southeast, SEAFO Division, Namibia EEZ **18L**67 Pacific, Northeast
	19L– 19L	Reserved.
The following DIs can be used to provide for Location identification, which is different than or in addition to Location Reference provided by "L".		
	20L	First Level (internally assigned).
	21L	Second Level (internally assigned).
	22L	Third Level (internally assigned.
	23L	Fourth Level (internally assigned).
	24L	Fifth Level (internally assigned).
an3+an1...35	**25L**	Identification of a Party to a Transaction, e.g., **25L** IAC CIN LOC assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the physical internal location (LOC) that is unique within the CIN holder's domain.

Category 12: Location Reference (L-999L)		
Metadata	**DI**	**Explanation**
	26L	"**26L**" Location Code, being a code identifying a location or geographic area, or an associated group of such locations or areas, that has relevance to a related transaction and that complies with **one** of the structures defined in (a) to (f) below: a) two upper case alphabetic characters corresponding to the ISO 3166-1 two alpha country code of the country in which, or consisting of which, the location(s) or area(s) are situated; b) three upper case alphabetic characters corresponding to the IATA code of the airport or city in, close to, or consisting of which the location(s) or area(s) are situated; c) four or more characters of which the first three correspond to an ISO 3166-1 country code followed by a dash (-), with the balance being a postcode in the country concerned; d) four or more characters of which the first three correspond to an ISO 3166-1 country code followed by a dot (.), with the balance being an ISO 3166-2 country subdivision code in the country concerned; e) five upper case alphabetic characters corresponding to the UN/LOCODE of the area in, close to, or consisting of which, the location(s) or area(s) are situated; f) the concatenation, being not less than seven or more than 35 characters in length, of: — an ISO/IEC 15459 issuing agency code; — a location code, consisting of characters drawn from the set {A-Z; 0-9} which accords with specifications of the issuing agency concerned.
an3+an5+n1...3	**27L**	Event Location UN/LOCODE. UN/LOCODE followed by a plus (+) character followed by one or more code values from EDIFACT Code List 3227 "Location function code qualifier", e.g., **7** Place of Final Delivery **5** Port of Departure **9** Port of Lading **11** Port of Unlading **13** Place of transshipment **24** Port of Entry **35** Exportation country **88** Place of Carrier Receipt **125** Foreign Port prior to Depart to U.S **147** Stowage cell/position **159** Place of delivery (to consignee) **248** Loading Location http://www.unece.org/cefact/locode/
an3+an1...35	**28L**	Number and Street Address. Used in conjunction with **H**, **6H**, **29L**, **30L**, **31L**, **32L**.

Category 12: Location Reference (L-999L)		
Metadata	**DI**	**Explanation**
an3+an1...35	**29L**	City Name. Used in conjunction with **H**, **6H**, **28L**, **30L**, **31L**, **32L**.
an3+an1...9	**30L**	Country Sub-entity Details. Used in conjunction with **H**, **6H**, **28L**, **29L**, **31L**, **32L**.
an3+an4...11	**31L**	Postal Code. Used in conjunction with **H**, **6H**, **28L**, **29L**, **30L**, **32L** (If a "-" dash is used, it shall be expressly encoded).
an3+a2	**32L**	Country Code. ISO 3166-1 Alpha 2 Code Used in conjunction with **H**, **6H**, **28L**, **29L**, **30L**, **31L**.
	33L	Uniform Resource Locator (URL). Includes all characters that form a URL, including header data such as e.g., http://. Character set as listed in RFC 1738.
	34L	Pointer to Process URL (P2P URL) for initiating a URL to carry all other data elements encoded in an AIDC media according to the following rule: Scan the code and initiate the URL starting with the P2P URL string, omitting DI **34L** and ISO/IEC 15434 envelope syntax (prefix and postfix) and append all other data elements that have been scanned in same sequence as encoded in the media, including DIs and data element separators. Convert special characters in the appended data into RFC 1738 format (e.g., Group Separator "$^{G}_{S}$" translated into RFC 1738 sequence %1D). Note that this does not apply to the P2P URL itself. Example: Encoded data string (using ISO/IEC 15434) [)>$^{R}_{S}$06$^{G}_{S}$**25S**UN123456789PA12345$^{G}_{S}$**4L**US$^{G}_{S}$**16D**20131108 $^{G}_{S}$**34L**HTTP://WWW.SECUREUID.COM/ITEMDATA/?SCAN= $^{R}_{S}$05 $^{G}_{S}$13131108$^{R}_{S}$$^{E}_{OT}$ results in the following URL with the transmitted data: HTTP://WWW.SECUREUID.COM/ITEMDATA/?SCAN=25SUN123456789PA12345%1D4LUS%1D16D20131108 *NOTE – data from the "05" format envelope was not incorporated in the URL since the **34L** was encoded in the "06" format envelope*
an3+a2+an3...27	**35L**	A government-assigned approval number of vessel / aquaculture site / farm / processor, starting with an ISO 3166-1 alpha-2 country code, followed by the approval number. All characters of the GS1 General Specification-defined sub-set of ISO/IEC 646 are allowed. Example: **35L**IECK0107EC = Country; Ireland. Vessel Name; FV Endurance DA31.

Category 12: Location Reference (L-999L)		
Metadata	**DI**	**Explanation**
an3+a2+an3...27	**36L**	A government-assigned approval number of producer or farm or first deboning / cutting hall, starting with an ISO 3166-1 alpha-2 country code, followed by the approval number. All characters of the GS1 General Specification-defined sub-set of ISO/IEC 646 are allowed. Example: **36L**IECK0107EC = Country; Ireland. Vessel Name; FV Endurance DA31.
	37L– 50L	Reserved.
The following two Data Identifiers are to be used for shipments within the jurisdiction of a single postal authority.		
an3+an1...9	**51L**	“Ship From:” - Location code defined by a postal authority (e.g., 5-digit and 9-digit ZIP codes identifying U.S. locations or 6-character postal codes identifying Canadian locations).
an3+an1...9	**52L**	“Ship To:” - Location code defined by a postal authority (e.g., 5-digit and 9-digit ZIP codes identifying U.S. locations or 6-character postal codes identifying Canadian locations).
	53L	Reserved.
The following two Data Identifiers are to be used for shipments between locations governed by different postal authorities		
an3+an1...9	**54L**	“Ship From:” - Location code defined by a postal authority in the format: postal codes (e.g., 5-digit ZIP codes identifying U.S. locations or 6- or 7-character postal codes identifying United Kingdom locations) followed by two-character ISO 3166 country code (e.g., US or GB).
an3+an1...9	**55L**	“Ship To:” - Location code defined by a postal authority in the format: postal codes (e.g., 5-digit ZIP codes identifying U.S. locations or 6- or 7-character postal codes identifying United Kingdom locations) followed by two-character ISO 3166 country code (e.g., US or GB).
	56L - 999L	Reserved for future assignment.

Category 13: Reserved (M-999M)		
Metadata	**DI**	**Explanation**
	M	Reserved.
	1M – 9M	Reserved.
	10M	Army Form 2410 data. Format is data value preceded by the block number of the form 2410. Field lengths and acceptable characters can be found at: http://www.apd.army.mil/pdffiles/p738_751.pdf. **2020 Update:** The URL has been modified to: https://armypubs.army.mil/ProductMaps/PubForm/Details.aspx?PUB_ID=1408
	11M	Army Form 2408 data. Format is data value preceded by the block number of the form 2408. Field lengths and acceptable characters can be found at: http://www.apd.army.mil/pdffiles/p738_751.pdf. **2020 Update:** The URL has been modified to: https://armypubs.army.mil/ProductMaps/PubForm/Details.aspx?PUB_ID=1400
	12M	Army Form 2407 data. Format is data value preceded by the block number of the form 2407. Field lengths and acceptable characters can be found at: http://www.apd.army.mil/pdffiles/p738_751.pdf. **2020 Update:** The URL has been modified to: https://armypubs.army.mil/ProductMaps/PubForm/Details.aspx?PUB_ID=1391
	13M	Air Force Form 95 data. Format is data value preceded by the block number of the form 95. Field lengths and acceptable characters can be found at: http://www.gsa.gov/portal/forms/download/116418. **2020 Update:** The Name of the Form is "Air Force Technical Order Form 95 (AFTO Form 95)." Details about the Form are sourced in Air Force Technical Order (TO) 00-20-1. The URL for this TO has been modified to: https://www.tinker.af.mil/Portals/106/Documents/Technical%20Orders/AFD-180615-00-20-1.pdf
	14M	Navy Form 4790 data. Format is data value preceded by the block number of the form 2410. Field lengths and acceptable characters can be found at: http://www.navair.navy.mil/logistics/4790/library/Chapter%2015.pdf. **2020 Update:** The URL is no longer valid.
	15M – 999M	Reserved for future assignment.

Category 14: Industry-Assigned Codes (N-999N)		
Metadata	**DI**	**Explanation**
an1+an13...15	**N**	National/NATO Stock Number (NSN).
	1N	Product Characteristic Data defined by the Chemical Industry Data Exchange (CIDX).
	2N	Reserved.
	3N	Coding Structure in Accordance with Format Defined by Electronic Industries Association Japan (EIAJ).
	4N	Coding Structure and Formats in Accordance with GS1 Application Identifiers (AI plus data) (GS1).
	5N	Coding Structure and Formats in Accordance with AIAG Recommendations. The full Data Identifier is in the form 5Nxx where the "xx" is found in the full code list that can be found at https://www.aiag.org/.
	6N	U.S. DOD Requisition and Issue Procedure Codes. The format is the appropriate MILSTRIP code followed by the data value associated with that code. The full list of codes is available at: http://www2.dla.mil/j-6/dlmso/elibrary/Manuals/DLM/MILSTRIP/MILSTRIP.pdf. **2020 Update:** The URL has been modified to: https://www.dla.mil/HQ/InformationOperations/DLMS/elibrary/manuals/MILSTRIP/
	7N	U.S. Defense Transportation Regulation Codes. The format is the DTR code followed by the appropriate data value associated with that code. The full list of codes is available at: http://www.transcom.mil/dtr/part-ii/dtr_part_ii_toc.pdf. **2020 Update:** The URL has been modified to: https://www.ustranscom.mil/dtr/part-ii/dtr_part_ii_toc.pdf
	8N	Production Animal Identification Codes. The format is the production animal code followed by the appropriate data value associated with that code. The Technical Report and the full list of Extended Data Elements (codes) is maintained at: http://www.aimglobal.org/store/view_product.asp?id=4926441 Extended Data Elements (Codes). http://www.aimglobal.org/store/view_product.asp?id=4926483 Technical Report. **2020 Update:** The URLs have been modified to: https://web.aimglobal.org/external/wcpages/wcecommerce/ecomlistpage.aspx?Keyword=animal

Category 14: Industry-Assigned Codes (N-999N)		
Metadata	**DI**	**Explanation**
an2+an5…22	**9N**	Pharmacy Product Number maintained by IFA (www.ifaffm.de) and structured as follows: Two-digit product registration agency code followed by the registered product number (assigned by product registration agencies) and two PPN check digits.
	10N	Data in the format and using semantics defined by the holder of a Company Identification Number (CIN) that has been issued by an Issuing Agency Code (IAC) in accordance with ISO/IEC 15459, defined as a sequence of concatenated data elements: IAC, followed by CIN, followed by the separator character ":" (colon) followed by the data in the format and using semantics as defined by the CIN holder. NOTE – Only the data syntax rules (if any) as provided by the declared IAC+CIN within each DI "10N" data stream shall be applied to the data following DI 10N+IAC+CIN.
		NOTE – Due to an error in the assignment of DI "10N" (there is no central authority for data-definition nor maintenance), no new uses of DI "10N" should be implemented. **The function of DI "10N" is established in Category 18, MISCELLANEOUS with DI "5R". It is strongly recommended that existing applications that use DI "10N" migrate to DI 5R."**
	11N	The Data construct is defined and controlled by the RLA and is comprised of 2 segments: the field identifier code, immediately followed by the data as defined for that element according to the data dictionary of the RLA. It is essentially a catalog of fields with standardized content. The Field Identifiers are posted at http://rla.org/11ncodes. The use and structure of these codes are defined at: http://rla.org/11nformat. Additional examples can be found at that site as well. DI "11N" shall never be encoded in a 2D or RFID tag together with any other DI elements.
		NOTE – Due to an error in the assignment of DI "11N" (the language which states: 'DI "11N" shall never be encoded in a 2D or RFID tag together with any other DI elements' is not a valid statement), no new uses of DI "11N" should be implemented. The function of DI "11N" is established in DI "12N". It is strongly recommended that existing applications that use DI "11N" migrate to DI "12N".
	12N	The Data construct is defined and controlled by the RLA, comprised of 2 segments: the field identifier (FI) code, immediately followed by the data as defined for that element according to the data dictionary of the RLA. It is essentially a catalog of fields with standardized content. The Field Identifiers are posted at http://rla.org/12ncodes. The use and structure of these codes are defined at: http://rla.org/12nformat. Examples can be found at that site. **2020 Update:** The URL has changed to: https://rla.org/page/sqrl-code-listing

Category 14: Industry-Assigned Codes (N-999N)		
Metadata	**DI**	**Explanation**
	13N – 14N	Reserved for future assignment.
an3+a3+n3+n3+n8+an1…33	**15N**	Representing Industrial Internet Identifier Codes controlled and maintained by CAICT, used in the Industrial Internet Identifier Resolution System of China and constructed as <DI><IAC><TTC><STC><CIN><SN>, in the form an3+a3+n3+n3+n8+an1…33, where an3 is the Data Identifier (DI), a3 is the Issuing Agency Code (IAC = "VAA"), n3 is the Top-Tier Code (TTC), n3 is the Secondary-Tier Code (STC), n8 is the Company Identification Number (CIN) controlled and assigned by the Secondary-Tier platform and an1…33 is the Serial Number (SN) that is controlled and assigned by the holder of the CIN, and is unique within that CIN holders' domain, using the characters 0 through 9, upper- and lower-case A through Z, * (asterisk), + (plus sign), - (dash), . (period or full stop), / (forward slash), ((left parenthesis),) (right parenthesis), ! (exclamation mark). Examples: 15NVAA08810000000001123Ab.098 15NVAA088100000000000112334Diat*C-DE!(8765)jiuY/L23+a!h
	163N – 999N	Reserved for future assignment.

Category 15: Reserved (O-999O)		
Metadata	**DI**	**Explanation**
	O - 999O	Not recommended for use due to similarity of “0” (zero) to “O” (letter).

Category 16: Item Information (P-999P)		
Metadata	**DI**	**Explanation**
	P	Item Identification Code assigned by Customer.
	1P	Item Identification Code assigned by Supplier.
	2P	Code Assigned to Specify the Revision Level for an Item (e.g., engineering change level, edition, or revision).
an2+n13…14	**3P**	Combined Manufacturer Identification Code/Item Code Under the 12/13-digit GS1 Formats, plus supplemental codes, if any.
	4P	Item Code Portion of GS1 Formats.
	5P	Freight Classification Item Number Assigned by Carrier for Purposes of Rating Hazardous Materials (e.g., Motor Freight, Air, Boat, Rail Classification).
	6P	Combined Supplier Identification and Item Code (internally assigned or mutually defined).
	7P	Common Language Equipment Identification (CLEI) assigned by the manufacturer to some telecommunications equipment.
an2+n14	**8P**	14-digit GS1 format for GTIN-14 code structure.
	9P	Combined Manufacturer Identification Code (9-digit DUNS number assigned by Dun & Bradstreet) and the Item Code/Part Number (assigned by the manufacturer).
	10P	Hazardous Material Code as defined by ANSI X12.3 in the format Data Element 208 (1-character code qualifier) followed by Data Element 209 (Hazardous Material Code)
an3+an10	**11P**	10-character CLEI Code for telecommunications equipment.
	12P	Document Type (e.g., Pick List, Design Drawing, etc.) (internally assigned or mutually defined).
	13P	VMRS System Code.
	14P	VMRS System and Assembly Code.
	15P	VMRS System, Assembly, & Part Code.
	16P	VMRS System, Assembly, or Part Code. (User Modified).
	17P	Combined GS1 Supplier Identification and Item Code Assigned by the Supplier.
	18P	Combined VMRS supplier ID and Supplier Assigned Part Number.
	19P	Component of an Item. (One product contained in multiple packages).
The following five DIs can be used to provide for Item identification (Item ID), which is different than or in addition to Item ID provided by "P".		
	20P	First Level (Customer Assigned).
	21P	Second Level (Customer Assigned).
	22P	Third Level (Customer Assigned).

Category 16: Item Information (P-999P)		
Metadata	**DI**	**Explanation**
	23P	Fourth Level (Customer Assigned).
	24P	Fifth Level (Customer Assigned).
	25P	Identification of a Party to a Transaction Assigned by a Holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the supplier assigned part number that is unique within the CIN holder's domain.
	26P	Part Number of Next Higher Assembly.
an3+n7...12	**27P**	Commodity HTS-6 Code; Using the format: 4012.11 or 4012.11.4000 (Decimal point is expressly encoded). The Harmonized System (HS) Classification is a 6-digit standardized numerical method of classifying traded products. HS numbers are used by customs authorities around the world to identify products for the application of duties and taxes. Additional digits are added to the HS number by some governments to further distinguish products in certain categories. In the United States, numbers used to classify exported products are called “Schedule B” numbers. The U.S. Census Bureau administers the Schedule B system. Schedule B numbers, not HS numbers, must be provided on the Shippers’ Export Declaration (SED). http://www.niccomp.com/rohs/files/NIC_HTS1006.pdf Import codes are administered by the U.S. International Trade Commission (USITC). http://hts.usitc.gov/ **2020 Update:** the http://www.niccomp.com/rohs/files/NIC_HTS1006.pdf link is no longer active. Consult the shipper for an SED form.
an3+an1...100	**28P**	Cargo Name. Plain language description (English).
an3+n5	**29P**	Product Classification Code as defined with the GMDN (Global Medical Device Nomenclature - http://www.gmdnagency.org).
The following five DIs can be used to provide for Item identification (Item ID), which is different than or in addition to Item ID provided by “1P”.		
	30P	First Level (Supplier Assigned).
	31P	Second Level (Supplier Assigned).
	32P	Third Level (Supplier Assigned).
	33P	Fourth Level (Supplier Assigned).
	34P	Fifth Level (Supplier Assigned).
	35P – 39P	Reserved.

Category 16: Item Information (P-999P)		
Metadata	**DI**	**Explanation**
	40P	A Code Assigned BY A Customer TO THE Identification Number OF THE Manufacturer's Material Safety Data Sheet (MSDS) document that describes the uses, hazards, and chemical composition of a hazardous material.
	41P – 48P	Reserved
an3+an3...9	**49P**	Export Controlled Item. Subject to export control and or restrictions as identified in the Wassenaar Arrangement. DI followed by the Alpha-2 ISO 3166 Country Code of the country that imposed the restriction followed by Wassenaar Code (http://www.wassenaar.org/controllists/index.html). **2020 update:** The URL has changed to https://www.wassenaar.org/control-lists/
an3+an3…35	**50P**	Manufacturer-Assigned Item Identifier - comprising an item number assigned by the item manufacturer, followed by a plus (+) sign, followed - if required to uniquely identify the item within the manufacturer's product range - by a manufacturer-assigned item version. Example **50P**ABC+6 would represent item number ABC, item version 6 *NOTE – The item number shall always be followed by a plus sign, even if no item version is present. This is required to permit the unambiguous concatenation of manufacturer-assigned item identifier with another data construct using the concatenation character plus (+). For example, the combination of a **50P** manufacturer-assigned item identifier with no item version and a serial number (Data identifier **S**) on an entity might be encoded as **50P**DEF++S1234.*
	51P	Globally Unique Item Identifier comprising the Identification of a party to a transaction assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, followed by a plus (+) sign, followed by the Manufacturer-assigned item identifier as defined with **50P**. Example: **51P**J4LBE0431863103+ABC+ would represent the item with item number ABC and no version number manufactured by the company with Belgian VAT number 0431863103.
an3+an1...50	**52P**	Color Code. Color of an item/object identified by a code or term mutually agreed upon between trading partners.

Category 16: Item Information (P-999P)		
Metadata	**DI**	**Explanation**
an3+a1+n4+an5…20	**53P**	Identifier for Specific Marine Equipment approved under the European Union Directive on Marine Equipment (2014/90/EU) and Implementing Regulation (EU) 2018/608 Format: - DI (an3); - Type of conformity assessment (CA) module(s) set out in Annex II to Directive 2014/90/EU used for the conformity assessment (a1); - Notified body (NB) identification number assigned by the Commission in accordance with point 3.1 of Annex IV to Directive 2014/90/EU (n4); - Certificate (an5…20)
an3+an1…35	**54P**	UDI-DI (Unique Device Identification - Device Identifier) for Medical Devices (MD) and In-vitro-Diagnostics (IvD) as the unique key to public UDI data bases (GUDID, EUDAMED, etc.), according to national regulatory requirements, as outlined by the International Medical Device Regulators Forum (IMDRF). All printable characters of the UTF-8 character set are allowed.
	554P - 999P	Reserved for future assignment.

Category 17: Measurement (Q-999Q) ***NOTE – If decimal points are to be used, they should be included within the data.***		
Metadata	**DI**	**Explanation**
	Q	Quantity, Number of Pieces, or Amount (numeric only) (unit of measure and significance mutually defined.
	1Q	Theoretical Length/Weight (numeric only).
	2Q	Actual Weight (numeric only).
an2+an2	**3Q**	Unit of Measure, as defined by the two-character ANSI X12.3 Data Element Number 355 Unit of Measurement Code.
	4Q	Gross Amount.
	5Q	Net Amount.
	6Q	Where Multiple Containers Comprise a Single Product (the contents of each container must be combined with the content of the other containers to constitute a single product) the Data Identifier "**6Q**" shall be used to link the various containers. The format # of # ("this is the nth piece of x pieces to define the product") Presented in the format "n/x", where the "/" (slash) is used as a delimiter between two values.
an2+n1…8+an2	**7Q**	Quantity, Amount, or Number of Pieces in the format: Quantity followed by the two-character ANSI X12.3 Data Element Number 355 Unit of Measurement Code.
an2+n4...6	**8Q**	Container Rated Weight. Manufacturer-assigned weight carrying capability of the container. Assigned at time of manufacture. Unit of measure is kg.
	9Q	Piece Weight: weight of a single item.
	10Q	Reserved.
an3+n4...6	**11Q**	Tare Weight: weight of an empty container. Container body weight. Manufacturer-assigned weight of the empty container. Assigned at time of manufacture. Unit of measure is kg (Tare weight).
an3+n1…10+an3	**12Q**	Monetary Value established by the Supplier in the format of: the value followed by an ISO 4217 data element code for representing unit of value of currencies and funds (e.g., **12Q**2.50USD) (2.50 Monetary Value in USA Dollars) significance mutually defined. Entry Value; Value followed by an ISO 4217 data element code for representing unit of value of currencies and funds (e.g., **12Q**2.50USD) (2.50 Monetary Value in USA Dollars)
	13Q	# of # ("this is the *nth* piece of *x* pieces in this shipment") Presented in the format "*n/x*", where the "/" (slash) is used as a delimiter between two values. See Clause 8.7.4 for further information.
	14Q	Beginning Secondary Quantity.

Category 17: Measurement (Q-999Q) ***NOTE – If decimal points are to be used, they should be included within the data.***		
Metadata	**DI**	**Explanation**
	15Q	Ending Secondary Quantity.
	16Q	Number Of Pieces in Van.
	17Q	Number Of Shipments in Van.
	18Q	Cube expressed in cubic meters or cubic feet followed by the ANSI X12.3 data element number 355 unit of measure code (CR of CF). No implied decimal point.
	19Q	Width expressed in linear meters or linear feet followed by the ANSI X12.3 data element number 355 unit of measure code (LC or LF). No implied decimal point.
	20Q	Height expressed in linear meters or linear feet followed by the ANSI X12.3 data element number 355 unit of measure code (LC or LF). No implied decimal point.
	21Q	Length expressed in linear meters or linear feet followed by the ANSI X12.3 data element number 355 unit of measure code (LC or LF). No implied decimal point.
	22Q	Net Weight Of Shipment expressed in pounds or kilograms (kilos) followed by the ANSI X12.3 data element number 355 unit of measure (LB or KG). No implied decimal point.
	23Q	Van Length expressed in linear meters or linear feet followed by the ANSI X12.3 data element number 355 unit of measure (LC or LF). No implied decimal point.
	24Q	Inside Cube of a Van expressed in cubic meters or cubic feet followed by the ANSI X12.3 data element number 355 of unit measure code (CR or CF). No implied decimal point.
	25Q	Net Explosive Weight (a computed value of explosive equivalent expressed in pound of TNT). The measure of NEW is used internationally for explosive safety quantity distance arc computations. No implied decimal point.
	26Q	Packaging Level, specifying the hierarchical level of packaging in accordance with HIBC (Health Industry Bar Code) specifications.
an3+an1…20	**27Q**	Single Product Price Value, Net, "." (dot) used as decimal point (e.g., **27Q**1000.5 for the price value of 1000.50) Structure: an3+an1…20 <DI><price value> Character set: 0 to 9, dot (ISO/IEC 646 ASCII value decimal 46, hexadecimal 2E). Example of encoding using a net price value of 1000: **27Q**1000 Example of encoding using a net price value of 1000.50: **27Q**1000.5 *NOTE – If currency is required it can be taken from another data element used in same code, e.g., **12Q**.*

Category 17: Measurement (Q-999Q) ***NOTE – If decimal points are to be used, they should be included within the data.***		
Metadata	**DI**	**Explanation**
an3+an1…10	**28Q**	Single Price Charge Value for Postage and Packaging, "." (dot) represents the position of a comma (e.g., **28Q**100.50 for the value of 100,50) Structure: an3+an1…10 <DI><price value> Character set: 0 to 9, dot Example of encoding using postage & packing value of 100: **28Q**100 Example of encoding using postage & packing value of 100,50: **28Q**100.50 *NOTE – If currency is required it can be taken from another data element used in same code, e.g., **12Q**.*
an3+n1…6	**29Q**	Discount Percentage, "." (dot) represents the position of a comma (e.g., **29Q**8.5 for a discount value of 8,5%) Structure: an3+n1…6 (12.456) <DI><discount percentage (%)> Character set: 0 to 9, dot Example of encoding using discount percentage of 10%: **29Q**10 Example of encoding using discount percentage of 8,5%: **29Q**8.5
an3+an1…5	**30Q**	VAT Percentage, "." (dot) represents the position of a comma (e.g., **30Q**8.5 for the VAT value of 8,5%) Structure: an3+an1…5 (12.45) <DI><VAT percentage (%)> Character set: 0 to 9, dot Example of encoding using VAT percentage of 19%: **30Q**19 Example of encoding using VAT percentage of 8,5%: **30Q**8.5
an3+an3	**31Q**	Currency, ISO 4217 currency code. Structure: an3+an3 <DI><Currency, e.g., EUR> Character set: A-Z, 0 to 9 Example of encoding using ISO alphabetic code of US Dollar: **31Q**USD Example of encoding using ISO alphabetic code of EURO: **31Q**EUR Example of encoding using ISO numeric code of EURO: **31Q**978

Category 17: Measurement (Q-999Q) ***NOTE – If decimal points are to be used, they should be included within the data.***		
Metadata	**DI**	**Explanation**
an3 + an3…35	**32Q**	Clinical term code as defined with the clinical nomenclature: "The international standard for identifying health measurements, observations, and documents – LOINC" (https://loinc.org), in the following sequence: <DI><LOINC Code><Plus Sign><Value>. The unit and format of the Value is defined by the LOINC Code. Example: 32Q28903-3+60 = LOINC Code 28903-3: Left contact lens Axis (degrees); with Value = 60.
	332Q – 999Q	Reserved for future assignment.

Category 18: Miscellaneous (R-999R)		
Metadata	**DI**	**Explanation**
	R	Reserved.
	1R	Return Authorization Code (RMA) assigned by the Supplier.
	2R	Return Code Assigned by the Customer.
	3R	Reserved.
an4	**4R**	U.S. Department of Defense Identification Code (DoDIC).
	5R	Data in the format and using semantics defined by the holder of a Company Identification Number (CIN) that has been issued by an Issuing Agency Code (IAC) in accordance with ISO/IEC 15459, defined as a sequence of concatenated data elements: IAC, followed by CIN, followed by the separator character ":" (colon) followed by the data in the format and using semantics as defined by the CIN holder. NOTE – Only the data syntax rules (if any), as provided by the declared IAC+CIN within each DI "**5R**" data stream, shall be applied to the data following DI **5R**+IAC+CIN:
	6R	ISO/IEC 20248 digital signature data construct. If the underlying data carrier encoding is 7 bits, then only the ISO/IEC 20248 raw format may be used. Example with an URL format: <**6R**><https://20248.sigvr.it/?Oo586eJAMEYCIQCf31EqIJMLGclBpHLlRgBdO> Example with a raw format: <**6R**><Oo586eJAMEYCIQCf31EqIJMLGclBpHLlRgBdO> An ISO/IEC 20248 data structure contains a digital signature which is used to verify the specified data elements of the message of data elements. The value of **6R**, as the first parameter, and the data elements to be verified (stripped from all non-printable characters), as the second parameter, is passed to the ISO/IEC 20248 DecoderVerifier - which will return the verification result: ACCEPT, REJECT or ERROR(error code), and the JSON object of decoded ISO/IEC 20248 additional fields. The ISO/IEC 20248 data structure may contain additional fields and instructions to decode and verify one or more messages of data elements. These instructions will be processed by the ISO/IEC 20248 DecoderVerifier.
an3+an1…3	**7R**	Aquatic Sciences and Fisheries Information System (ASFIS) 'Inter-agency 3-alpha species code', maintained by the Food and Agriculture Organization of the United Nations (www.fao.org, then search for "ASFIS"). Examples; **7R**MUC = Mud carp **7R**PCD = Australian freshwater herring **7R**WSH = Great white shark

Category 18: Miscellaneous (R-999R)		
Metadata	**DI**	**Explanation**
an3+an1...10	**8R**	Food and Agricultural Organization (FAO) International Standard Classification of Fishing Gears (ISSCFG) code. (https://www.fao.org) All characters of the GS1 General Specification-defined sub-set of ISO/IEC 646 are allowed. Examples: **8R**02.1.0 = Beach seines **8R**03.1.5 = Shrimp trawls **8R**05.1.0 = Portable lift net
an3+an2	**9R**	Production method for fish and seafood as specified by the Fisheries and Aquaculture Department of the Food and Agricultural Organization (FAO) of the United Nations, according to EU Regulation 1379/2013. (https://www.fao.org). All characters of the GS1 General Specification-defined sub-set of ISO/IEC 646 are allowed. Examples; **9R**01 = Caught at sea **9R**02 = Caught in fresh water **9R**03 = Farmed
	10R- 999R	Reserved for future assignment.

Category 19: Traceability Number for an Entity (S-999S)		
Metadata	**DI**	**Explanation**
	S	Serial Number or Code Assigned by the Supplier to an Entity for its Lifetime, (e.g., computer serial number, traceability number, contract tool identification).
	1S	Additional Code Assigned by the Supplier to an Entity for its Lifetime (e.g., traceability number, computer serial number).
an2+an2...30	**2S**	Advance Shipment Notification (ASN) Shipment ID (SID) corresponds to ANSI ASC X12 Data Element 396.
	3S	Unique Package Identification Assigned by Supplier (lowest level of packaging which has a package ID code; shall contain like items).
	4S	Package Identification Assigned by Supplier to master packaging containing like items on a single customer order. (See Clause 8.8.2).
	5S	Package Identification Assigned by Supplier to master packaging containing unlike items on a single customer order. (See Clause 8.8.2).
	6S	Package Identification Assigned by Supplier to master packaging containing like items over multiple customer orders. (See Clause 8.8.2).
	7S	Package Identification Assigned by Supplier to master packaging containing unlike items over multiple customer orders. (See Clause 8.8.2).
an2+n18	**8S**	Supplier ID/Unique Container ID presented in the data format specified by the GS1 SSCC-18. **2020 Update:** Refer to the GS1 General Specifications pertaining to the most recent version of SSCC.
	9S	Package Identification, Generic (mutually defined).
	10S	Machine, Cell, or Tool ID Code.
	11S	Fixed Asset ID Code.
	12S	Document Number (internally assigned or mutually defined).
	13S	Container Security Seal[6].
	14S	4th Class Non-identical parcel post manifesting.
	15S	Serial Number Assigned by the Vendor Entity, that can only be used in conjunction with "**13V**".
	16S	Version Number, e.g., Software Version.
	17S	Combined 6-digit GS1 Supplier Identification and Unique Package Identification Assigned by the Supplier.

[6] For Freight Containers, this refers to a mechanical seal. See ISO 17712.

Category 19: Traceability Number for an Entity (S-999S)		
Metadata	**DI**	**Explanation**
an3+an5 + an1...20[7]	**18S**	CAGE Code & Serial Number Unique Within CAGE.
	19S	Combined Dun & Bradstreet company identification of the supplier followed by a unique package identification assigned by the supplier, in the format nn...nn+nn...n where a plus symbol (+) is used as a delimiter between the DUNS Number and unique package identification.
	20S	Traceability Code for an Entity Assigned by the Customer.
	21S	Tire Identification Number as defined by the U.S. Department of Transportation (DOT) under U.S. Code 49 CFR 574.5.
	22S	Unique Individual Identity for Cellular Mobile Telephones.
an3+an12	**23S**	Media Access Control (MAC) Address conforming with IEEE 802.11.
an3+n6...26	**24S**	According to ISO/IEC 15963 (value is a conversion of its bit value to 8-bit ASCII values). This Data Identifier could possibly assume any ASCII-256 value. For freight container tags the Registration Authority (RA) for manufacturers is the RA for ISO 14816. (ISO/IEC 646).
	25S	Identification of a party to a transaction assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the supplier assign serial number that is unique within the CIN holder's domain. (See Clause 8.12).

[7] For the purposes of DI 18S, the characters dash “-” and slash “/” are part of the allowable character set.

Category 19: Traceability Number for an Entity (S-999S)		
Metadata	**DI**	**Explanation**
an3+an1...35	**26S**	Equipment Identifier, being a globally unique identifier for a device, an item of equipment or instance of a computer application used in the production, transport, processing, or other handling of items, that is constructed by concatenating: — an ISO/IEC 15459 issuing agency code; — an equipment number which accords with specifications of the issuing agency concerned; and that: — comprises only upper case alphabetic and/or numeric characters; — is unique (that is, is distinct from any other ISO/IEC 15459 compliant identifier) within the domain of the issuing agency[2]; — cannot be from any other ISO/IEC 15459 compliant identifier, issued under the same issuing agency, by the simple addition of characters to, or their removal from, its end[2]. Reader ID. Equipment identifier, being a globally unique identifier for a device, an item of equipment or instance of a computer application used in the production, transport, processing, or other handling of items.
	27S	Item Number Within Batch, being a string of numeric digits: — that uniquely distinguishes an item, within an identifiable batch of related items, from all other items in the same batch; — whose length is the same for all items within the batch concerned.
	28S	Batch-and-Item Number, being the concatenation of a data identifier **27T** batch number and the data identifier **27S** item number of an item belonging to the batch concerned.
	29S	Reserved.
	30S	Additional Traceability Code for an Entity Assigned by the Supplier in addition to or different from the traceability code(s) provided by "**S**" or "**1S**".
	31S	Beginning Serial Number for serial numbers in sequence.
	32S	Ending Serial Number for serial numbers in sequence.
	33S	Serial Number of Next Higher Assembly.
	34S	Serial Number or Part Number of End Item.
	35S	Bumper Number. (Used in Unit DOD Move).
	36S	Pallet Identifier. (Used for loaded 463L air pallets).

Category 19: Traceability Number for an Entity (S-999S)		
Metadata	**DI**	**Explanation**
	37S	Unique Item Identifier comprised of a sequence of 5 data elements: “IAC”, followed by “CIN”, followed by “Part Number (PN)”, followed by the “+” character, followed by the supplier assigned (or managed) “Part Serial Number (PSN)” that is globally unique within the CIN holder’s domain; in the format IAC CIN PN + PSN (spaces provided for visual clarity only; they are not part of the data). See Clause 8.12.
	38S - 41S	Reserved.
an3+n2+an1…3+an1...9+an1...30	**42S**	Unique Item Identifier (UII) in **25S** format preceded by numeric value indicating serial number element length for use by systems that require the “serial number” component of a concatenated Serial Number element (IAC+CIN+SN). Format: DI+LI+IAC+CIN+SN (LI=length of SN).
an3+n1...7+n12…18+n1	**43S**	Integrated Circuit Card Identifier (ICCID) in accordance with ITU-T Recommendation E.118 and ETSI Recommendation GSM 11.11; a maximum of 20 digits consisting of Issuer identification number (IIN; maximum of 7 digits), Individual account identification (variable; length determined by IIN, but the same length within individual IINs), Check digit (single digit calculated using Luhn algorithm. http://en.wikipedia.org/wiki/Luhn_algorithm). **43S**iiiiiiinnnnnnnnnnnnc (i = IIN, n = account identification, c = check digit)
	44S - 49S	Reserved
The following five DIs can be used to provide for identification of entities within a single unit that is different than or in addition to identification provided by “S”.		
an3+an1...20	**50S**	First Level (Supplier Assigned).
an3+an1...20	**51S**	Second Level (Supplier Assigned).
an3+an1...20	**52S**	Third Level (Supplier Assigned).
an3+an1...20	**53S**	Fourth Level (Supplier Assigned).
an3+an1...20	**54S**	Fifth Level (Supplier Assigned).
	55S - 95S	Reserved.
an3+16...26	**96S**	EPC number (Typically Serialized Global Trade Identification Number - SGTIN). **2020 Update:** The term **“**EPC number” is no longer used by GS1. Refer to GS1 General Specifications and the Tag Data Standard for current terminology
an3+an4...25	**97S**	Encrypted serial number assigned by the Supplier to an entity, which can be authenticated by an independent trusted third party. The encrypted serial number does not describe any parameters of the entity without decryption by an independent third party.
	98S – 999S	Reserved for future assignment.

Category 20: Traceability Number for Groups of Entities (T-999T)		
Metadata	**DI**	**Explanation**
	T	Traceability Number assigned by the Customer to identify/trace a unique group of entities (e.g., lot, batch, heat).
	1T	Traceability Number assigned by the Supplier to identify/trace a unique group of entities (e.g., lot, batch, heat).
	2T	Reserved.
	3T	Exclusive Assignment. (U.S. EPA vehicle identification for emissions testing).
	4T - 19T	Reserved.
The following five DIs can be used to provide for identification of a group of entities, which is different than or in addition to identification provided by "T".		
	20T	First Level (Customer Assigned).
	21T	Second Level (Customer Assigned).
	22T	Third Level (Customer Assigned).
	23T	Fourth Level (Customer Assigned).
	24T	Fifth Level (Customer Assigned).
	25T	Identification of a party to a transaction assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the supplier assigned traceability number that is unique within the CIN holder's domain.
	26T	Batch Identifier comprising the concatenation of either: — a data identifier **26S** mail processing equipment identifier, or — a data identifier **20K** license identifier, or — a data identifier **18V** party identifier that: — is distinct from any other ISO/IEC 15459 compliant identifier within the domain of the issuing agency concerned[2]; — cannot be derived from another party identifier or any other ISO/IEC 15459 compliant identifier, issued under the same issuing agency, by the simple addition of characters to, or their removal from, its end[2]; with a data identifier **27T** batch number, the two being separated by a dash (-) character[8].

[8] Note that the dash character cannot occur in either of the two components and can thus be used to support decomposition of the batch identifier into these components. A transport unit identifier constructed from the same two components and a "**27S**" item number contains no such separator and cannot be decomposed.

Category 20: Traceability Number for Groups of Entities (T-999T)		
Metadata	**DI**	**Explanation**
	27T	Batch Number, issued under the control of an identified party or unit of processing equipment, or under the provisions of an identified license, that: — uniquely distinguishes one batch of related items from all other batches to which a batch number is assigned by the party or equipment, or under the license, concerned; — comprises a string of maximum length 10 characters, of which the first (numeric) character indicates the number of following characters, each of which is taken from the set {0-9; A-Z}.
	28T – 29T	Reserved.
The following five DIs can be used to provide for identification of a group of entities, which is different than or in addition to identification provided by "1T".		
	30T	First Level (Supplier Assigned).
	31T	Second Level (Supplier Assigned).
	32T	Third Level (Supplier Assigned).
	33T	Fourth Level (Supplier Assigned).
	34T	Fifth Level (Supplier Assigned).
	35T - 999T	Reserved for future assignment.

Category 21: UPU/MH10/SC8 Agreed-Upon Codes (U-999U)		
Metadata	**DI**	**Explanation**
	U-4U	Reserved.
	5U	Specification of a postal service and associated process data in accordance with UPU Standard S25 data construct “Service Data”.
	6U	Licensing Post Data, in accordance with the specification in UPU Standard S25.
	7U – 14U	Reserved for Assignment for UPU needs in collaboration with MH10/SC8.
	15U	Specification of supplementary postal service and associated process data in accordance with UPU Standard S25 data construct “Supplementary Service Data”.
	16U	Postal Administration Identifications, being the identification, expressed in accordance with the specification in UPU Standard S25, of one or more postal administrations involved in the processing of a mail item or batch.
	17U	UPU Location Code, being a code identifying a location or geographic area, or an associated group of such locations or areas, that has relevance to a related transaction and that complies with one of the structures defined in a) to g) below: a) two upper case alphabetic characters corresponding to the ISO 3166-1 two alpha country code of the country in which, or consisting of which, the location(s) or area(s) are situated; b) three upper case alphabetic characters corresponding to the IATA code of the airport or city in, close to, or consisting of which the location(s) or area(s) are situated; c) four or more characters of which the first three correspond to an ISO 3166-1 country code followed by a dash (-), with the balance being a postcode in the country concerned; d) four or more characters of which the first three correspond to an ISO 3166-1 country code followed by a dot (.), with the balance being an ISO 3166-2 country subdivision code in the country concerned; e) five upper case alphabetic characters corresponding to the UN/LOCODE of the area in, close to, or consisting of which, the location(s) or area(s) are situated; f) six upper case alphanumeric characters corresponding to a UPU IMPC code allocated in accordance with UPU Standard S34; g) the concatenation, being not less than seven nor more than 25 characters in length, of: — an issuer code allocated in accordance with UPU Standard S31; — a location code, consisting of characters drawn from the set {A-Z; 0-9} which accords with specifications of the issuer concerned.

Category 21: UPU/MH10/SC8 Agreed-Upon Codes (U-999U)		
Metadata	**DI**	**Explanation**
	18U	Qualified UPU Location Code, concatenation of: — a location category drawn from UPU code list 139; — a data identifier **17U** UPU location code.
	19U	License Plate with Service Data and Location Code is a compound data construct, compliant with the specification in UPU Standard S25, which includes specification of: — an ISO/IEC 15459-compliant item identifier; — a data identifier **5U** compliant specification of the service to be provided in respect of the item; — a data identifier **17U** compliant UPU location code or a data identifier **18U** compliant qualified UPU location code. *NOTE – For further details, please refer to UPU Standard S25. The distinction between a simple UPU location code (DI **17U**) and a qualified UPU location code (DI **18U**) can be determined from the first character. If this is numeric, **18U** applies; if it is alphabetic, **17U** applies.*
	20U – 54U	Reserved for Assignment for UPU needs in collaboration with MH 10/SC 8.
	55U	OCR Data Locator.
	56U – 999U	Reserved for future assignment.

Category 22: Party to the Transaction (V-999V)		
Metadata	**DI**	**Explanation**
	V	Supplier Code Assigned by Customer.
	1V	Supplier Code Assigned by Supplier.
	2V	U.P.C. Company Prefix, according to the latest version of the GS1 General Specification.
	3V	GS1 Company Prefix, according to the latest version of the GS1 General Specification.
	4V	Carrier Identification Code assigned by an industry standard mutually defined by the Supplier, Carrier, and Customer.
	5V	Financial Institution Identification Code (mutually defined).
	6V	Manufacturer's Identification Code (mutually defined).
	7V	Code assigned to a party which has financial liability for an entity or group of entities (e.g., owner of inventory) (mutually defined).
	8V	Customer Code Assigned by the Customer.
	9V	Customer Code Assigned by the Supplier.
an3+an10...15	**10V**	Manufacturer ID. *NOTE – See Appendix 2, CBP 7501 Instructions.*
	11V	Organization with budget responsibility for an entity, process, or procedure (e.g., shop, division, department) (internally assigned).
an3+n9...13	**12V**	DUNS Number Identifying Manufacturer.
an3+n9...13	**13V**	DUNS Number Identifying Supplier.
an3+n9...13	**14V**	DUNS Number Identifying Customer.
	15V	Carrier-Assigned Shipper Number.
	16V	VMRS Supplier ID.
an3+an5	**17V**	U.S. DoD CAGE Code.
	18V	Identification of a party to a transaction in which the data format consists of two concatenated segments. The first segment is the Issuing Agency Code (IAC) in accordance with ISO/IEC 15459, the second segment is a unique entity identification Company Identification Number (CIN) assigned in accordance with rules established by the issuing agency (see http://www.aimglobal.org/?page=Reg_Authority15459&hhSearchTerms=%22IAC%22).
	19V	Specification of a party's role(s), in a transaction, consisting of one or more code values from EDIFACT Code List 3035 "Party Qualifier", separated by plus (+) characters (Never to be concatenated with other DIs in a linear symbol or other media where the concatenation character is a plus (+) character).

Category 22: Party to the Transaction (V-999V)		
Metadata	**DI**	**Explanation**
	20V	Identification of a party to a transaction assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by a plus (+) character followed by one or more code values from EDIFACT Code List 3035 “Party Qualifier”, separated by plus (+) characters (Never to be concatenated with other DIs in a linear symbol or other media where the concatenation character is a plus (+) character).
an3+an1...35	**21V**	Identification of a party to a transaction, e.g., 21V IAC CIN OSU, assigned by a holder of a Company Identification Number (CIN) and including the related Issuing Agency Code (IAC) in accordance with ISO/IEC 15459 and its registry, structured as a sequence of 3 concatenated data elements: IAC, followed by CIN, followed by the organizational sub-unit identification assigned by the CIN that is unique within the CIN holder's domain.
an3+an4	**22V**	Carrier SCAC. Standard Carrier Alpha Code - The National Motor Freight Traffic Association, Inc., (NMFTA) assigns SCACs for all companies except those codes used for identification of freight containers not operating exclusively in North America, intermodal chassis and trailers, non-railroad owned rail cars, and railroads. http://www.nmfta.org/Pages/welcome.aspx Companies seeking identification codes for freight containers not operating in North America should contact the Bureau International des Containers, 38, rue des Blancs Manteaux, F-75004 Paris, France, email: bic@bic-code.org, web www.bic-code.org. Railroads and owners of intermodal chassis, trailers and non-railroad owned rail cars should contact Railinc Customer Service, Attn: Private Marks, 7001 Weston Parkway, Suite 200, Cary, NC 27513, (800) 544-7245, email: private.marks@railinc.com.
an3+a2+an3...18	**23V**	Government-assigned Value Added Tax identification number identifying supplier, starting with an ISO 3166-1 alpha-2 country code (except for Greece, which uses the ISO 639-1 language code EL), followed by the government-assigned VAT number. Example: **23V**IE6388047V assigned to Google Ireland
an3+a2+an3...18	**24V**	Government-assigned Value Added Tax identification number identifying customer, starting with an ISO 3166-1 alpha-2 country code (except for Greece, which uses the ISO 639-1 language code EL), followed by the government-assigned VAT number. Example: **24V**IE6388047V assigned to Google Ireland

Category 22: Party to the Transaction (V-999V)		
Metadata	**DI**	**Explanation**
an3+an5	**25V**	Declaring that the NCAGE/CAGE code that follows DI 25V is the Manufacturer. Party to a transaction wherein the NATO Commercial And Government Entity (NCAGE) / Commercial And Government Entity (CAGE) code used behind DI 25V is declared to be the manufacturer of the item(s) involved in the transaction. Data following DI 25V will consist of five upper-case alphanumeric characters, excluding the letters “I” and “O”.
	26V– 999V	Reserved for future assignment.

Category 23: Activity Reference (W-999W)		
Metadata	**DI**	**Explanation**
	W	Work Order Number (e.g., “Production Paper”) (internally assigned).
	1W	Operation Sequence Number. A number that defines the order of a particular operation in a series of operations, generally in a manufacturing or assembly process.
	2W	Operation Code/Work Code - the type of work to be performed (internally assigned or mutually defined).
	3W	Combined Work Order Number and Operation Sequence Number in the format nn...n+nn...n where a plus symbol (+) is used as a delimiter between the Work Order Number and the Operation Sequence Number.
	4W	Status Code (internally assigned or mutually defined).
	5W	Work Unit Code – identifies system, subsystem, assembly, component etc. on which maintenance is performed.
	6W	Nomenclature – (internally assigned or mutually defined).
	7W – 9W	Reserved.
	10W	Form Control Number – Preprinted control number on forms.
	11W	Quality Assurance Inspector – Last Name.
	12W	Telephone Number of the Person/Activity Completing the Form – expressed in the format (country code) city or area code plus local number i.e. (1) 319 555 1212.
	13W – 999W	Reserved for future assignment.

Category 24: Reserved (X-999X)		
Metadata	**DI**	**Explanation**
	X - 999X	Reserved.
Category 25: Container Information (Y-999Y)		
Metadata	**DI**	**Explanation**
	Y - 999Y	Never to appear on item/document which leaves a closed system environment.
Category 26: Mutually Defined (Z-999Z)		
Metadata	**DI**	**Explanation**
	Z	Mutually Defined Between Customer and Supplier.
	1Z	Mutually Defined Between Carrier and Supplier.
	2Z	Mutually Defined Between Customer and Carrier.
	3Z	Free Text.
	4Z	Mutually Defined Between Carrier and Trading Partner.
	5Z - 9Z	Reserved.
	10Z	Structured Free Text (Header Data).
	11Z - 99Z	Structured Free Text (Line 1-89 Data).
	100Z - 999Z	Reserved for future assignment.

7.2 Category 0 – System Identifiers not assigned or controlled by this standard

The usage of any alphabetic, numeric, or special character in a leading position not defined in this document is reserved for future assignment. Refer to Annex D (informative) for a list of system identifiers not assigned or controlled by this standard. The use and control of the system identifiers in Annex D are maintained by this list and is provided for information purposes only.

NOTE – Previous versions of ANSI MH10.8.2 referred to “system identifiers” as “flag characters.”

7.3 DI short titles

This section provides recommended short titles for some of the most commonly-used data identifiers. While the list of titles (Table 2) is not comprehensive, and use of the titles is not mandatory, they may be useful in such activities as developing other standards or identifying the purpose of human readable interpretation (HRI) data. When used on bar-coded labels, these short titles help maximize the space available for printing a bar code and associated HRI data. Several examples of such use are shown in Figure 1.

Figure 1 – Examples of recommended formats for printing short titles

Table 2 – List of DI short titles

(The following list is not a complete list of all data identifiers)

DI	SHORT TITLE	Description
B	CONT TYPE	Container type
1B	CONT ID	Returnable container identification code
C	PART # Cont.	Continuation of an Item Code
D	DATE	Date
14D	EXP DATE	Expiration Date (YYYYMMDD)
16D	PROD DATE	Production Date (YYYYMMDD)
25D	BEST BEFORE DATE	Best before date (YYYMMDD)
26D	FIRST FREEZE DATE	First freeze date (YYYYMMDD)
27D	HARVEST DATE	Harvest date (YYYYMMDD)
J	LIC PLATE	Unique license plate number
1J	LIC PLATE-UNIT	Unique license plate assigned to a transport unit which is the lowest level of packaging, the unbreakable unit.
2J	LIC PLATE-MULTI	Unique license plate assigned to a transport unit which contains multiple packages
8J	MMSI	Maritime Mobile Service Identity
K	CUST PO #	Order number assigned by Customer
1K	SPLR ORDER #	Order number assigned by Supplier
2K	SPLR SHIP ID	Shipment Identification Code assigned by Supplier/Shipper
3K	BOL/WB	Bill of Landing/Waybill Code assigned by Carrier
4K	CUST LINE	Line number of the order assigned by Customer
5K	CUST REL	Reference number assigned by the Customer to identify a Shipment Authorization (Release) against an established Purchase Order
6K	CARRIER PRO	PRO # Assigned by Carrier
14K	PO + LINE	Combined Order Number and Line Number in the format nn…nn=nn…n where a plus symbol (+) is used as a delimiter between the Order Number and Line Number
15K	PULL SIG	Pull signal (e.g., KANBAN) Number
16K	DELINS	DELINS Number. Code assigned to identify a document containing delivery information.
1L	LOC	Location
4L	ORIGIN or COO	Country of Origin, two-character ISO 3166 country code
18L	CATCH AREA	FAO fishing area code as defined by the Fisheries and Aquaculture Department of the FAO (http://www.fao.org. Search for Fishing Area Code sub-site)
35L	VESSEL ID / FARM ID	A government-assigned approval number of vessel / aquaculture site / farm / processor, starting with an ISO 3166-1 alpha-2 country code, followed by the approval number

DI	SHORT TITLE	Description
36L	PRODUCER ID / FARM ID	A government-assigned approval number of producer or farm or first deboning / cutting hall, starting with an ISO 3166-1 alpha-2 country code, followed by the approval number
51L	FROM POST CODE	"Ship From;" – Location code defined by a postal authority (e.g., 5-digit and 9-digit ZIP codes identifying U.S. locations or 6-character postal codes identifying Canadian locations
52L	TO POST CODE	"Ship To;" – Location code defined by a postal authority (e.g., 5-digit and 9 digit ZIP codes identifying U.S. locations or 6-character postal codes identifying Canadian locations
54L	FROM POST CODE + CTRY	"Ship To;" – Location code defined by a postal authority (e.g., 5-digit and 9 digit ZIP codes identifying U.S. locations or 6-character postal codes identifying United Kingdom locations) followed by two character ISO 3166 country code (e.g., US or GB)
55L	TO POST CODE+CTRY	"Ship From;" – Location code defined by a postal authority (e.g., 5-digit and 9 digit ZIP codes identifying U.S. locations or 6-character postal codes identifying United Kingdom locations) followed by two character ISO 3166 country code (e.g., US or GB)
P	CUST PART or CUST ITEM	Item Identification Code assigned by Customer
1P	SPLR PART or SPLR ITEM	Item Identification Code assigned by Supplier
2P	EC #	Code assigned to specify the revision level for an Item (e.g., engineering change)
10P	HAZMAT CODE	Hazardous Material Code as defined by ANSI X12.3 (Version 003000) in the format Data Element 208 (1-character code qualifier) followed by Data Element 209 (Hazardous Material Code)
11P	CLEI	10-character CLEI Code for telecommunications equipment
Q	QTY	Quantity, Number of Pieces or Amount (numeric only) (unit of measure and significance mutually defined)
1Q	THEO LGTH or THEO WT	Theoretical Length/Weight (numeric only)
2Q	ACT WT	Actual Weight (numeric only)
3Q	U/M	Unit of Measure, as defined by the two-character ANSI X12.3 (Version 003000) Data Element Number 355 Unit of Measurement Code
7Q	QTY + U/M	Quantity, Amount, or Number of Pieces in the format: Quantity followed by the two character ANSI X12.3 (Version 003000) Data Element Number 355 Unit of Measurement Code
13Q	N OF X	# of # ("this is the nth piece of x pieces in this shipment"). Presented in the format "n/x", where the "/" (slash) is used as a delimiter between two values. See 8.7.4 for further information
7R	AQUATIC SPECIES	Aquatic Sciences and Fisheries Information System (ASFIS) 'Inter-agency 3-alpha species code', maintained by the Food and Agriculture Organization of the United Nations (www.fao.org, then search for "ASFIS")

DI	SHORT TITLE	Description
8R	FISHING GEAR TYPE	Food and Agricultural Organization (FAO) International Standard Classification of Fishing Gears (ISSCFG) code. (www.fao.org)
9R	PRODUCTION METHOD	Production method for fish and seafood as specified by the Fisheries and Aquaculture Department of the Food and Agricultural Organization (FAO) of the United Nations, according to EU Regulation 1379/2013. (www.fao.org)
S	SERIAL	Serial number or code assigned by the Supplier to an entity for its lifetime, (e.g.,) computer serial number, tractability number, contract tool identification)
2S	ASN ID	Advance Shipment Notification (ASN) Shipment ID (SOID) corresponds to ANSI ASC X12 Data Element 396
3S	PKG ID	Unique Package Identification assigned by Supplier (lowest level of packaging which has a package ID code shall contain like items)
4S	PKG ID-MASTER-LIKE	Package Identification assigned by Supplier to master packaging containing like items on a single customer order
5S	PKG ID-MASTER MIXED	Package Identification assigned by Supplier to master packaging contain unlike items on a single customer order
6S	PKG ID-MASTER-LIKE MULTI	Package Identification assigned by Supplier to master packaging containing like items on over multiple customer orders
7S	PKG ID-MASTER MIXED MULTI	Package Identification assigned by supplier to master packaging containing unlike items on over multiple customer orders
T	CUST LOT or CUST BATCH or CUST HEAT	Tractability Number assigned by the Customer to identity/trace a unique group of entities (e.g., lot, batch, heat)
1T	SPLR LOT or SPLR BATCH or SPLR HEAT	Traceability Number assigned by the Supplier to identify/trace a unique group of entities (e.g., lot, batch, heat)
V	CUST ASG SPLR ID	Supplier Code assigned by Customer
1V	SPLR ASG SPLR ID	Supplier Code assigned by Supplier
12V	DUNS MFR ID	DUNS number identifying manufacturer
13V	DUNS SPLR ID	DUNS number identifying supplier
14V	DUNS CUST ID	DUNS number identifying customer
15V	SHIPPER	Carrier assigned shipper number
23V	SPLR VAT NO	Government-assigned Value Added Tax identification number identifying supplier, starting with an ISO 3166-1 alpha-2 country code (except for Greece, which uses the ISO 639-1 language code EL), followed by the government-assigned VAT number

DI	SHORT TITLE	Description
24V	CUST VAT NO	Government-assigned Value Added Tax identification number identifying customer, starting with an ISO 3166-1 alpha-2 country code (except for Greece, which uses the ISO 639-1 language code EL), followed by the government-assigned VAT number

8 DI application information

8.1 General

This document addresses general requirements for DIs. Industry- or company-wide application standards will further define and regulate the use of any or all DIs in this document.

The basic structure of a DI is an alphabetic character preceded by 1, 2, 3 or no numeric digits. To decode a DI, software parses the data up to the first alphabetic character and evaluates that alphabetic character and the preceding numeric characters, if any.

However, it is recognized that some organizations will face implementation problems that cannot be fully covered in the general guidelines or that additional information on the intended use of certain of the DIs assigned in this document will be needed. The following application notes may be of some assistance.

8.2 The use of GS1 numbers

There are DIs that refer to GS1 data strings (e.g., "**8S**"). To find more information on GS1 data, refer to https://www.gs1.org/.

8.3 The use of ANSI X12 and ISO Data Element identifiers

For some DI assignments, qualifiers (suffixes) are used to provide additional significance to the data in the message. These qualifiers are drawn from ANSI and ISO Electronic Data Interchange (EDI) standards.

In some instances, ANSI X12.3 Data Element Qualifiers are used. In other instances, ISO codes are used. Internationally accepted (e.g., ISO) codes should be used when such codes exist.

EDIFACT, the United Nations EDI Standard, provides codes for applications for which ANSI standards are referenced. However, EDIFACT does not yet have a practical coordination and review body that could assign additional codes as needed.

This is a dynamic document evolving new assignments to meet the automatic identification user needs around the world. An organization with a professional staff to respond to requests is essential for the industry. For this reason, ANSI standards have been used where necessary.

8.4 Date significance

Provisions are made for various data encodings in Category 4. Most DIs pertain to a specific date structure (e.g., DDMMYY) but do not specify the significance of the date.

In many applications, the structure of the date is mandated but the significance of the date is mutually agreed between trading partners and assignments (e.g., "**D**" through "**5D**") may be used in these cases.

Further, when both the structure and significance of the date is mutually defined, the assignment "**9D**" may be used.

However, when the significance of the date must be included, the assignments "**6D**" and "**7D**" use an ANSI X12 Qualifier following the date to indicate its significance. The following examples show how this might be applied.

EXAMPLE: **DI**/Data/**ANSI X12 Qualifier**

Date of Manufacture (2-digit year, month, day)	**6D**890420**049**
Expiration Date (4-digit year, month, day)	**7D**20051231**036**

8.5 Location coding

The following topics are covered in this note. Location coding is covered in Category 12.

- “Ship From”, “Ship To”, “Ship For” location codes
- Multiple levels of location, marking.

8.5.1 Ship From, Ship To, Ship For

8.5.1.1 General

To facilitate automated sortation and routing of shipments, location codes for shipping locations have been provided. The assignments provide for three possible locations:

- Ship From
- Ship To
- Ship For (mutually defined)

There are two different sets of assignments for “Ship From” and “Ship To” location:

- Mutually defined or industry standard (“**3L**”: “Ship From” and “**2L**”: “Ship To”)
- Postal code location (“**51L**” and “**52L**”: “Ship From” [with different requirements] and “**54L**” and “**55L**”: “Ship To” [with different requirements])

The use of mutually defined or industry standards will not be discussed here other than to note that the “Ship For” destination code (“**5L**”) will generally be printed by the supplier at the customer's request and used by the customer to facilitate automated internal routing of shipments. The “Ship For” code will, therefore, have significance only to the customer.

The use of postal authority codes (postal codes) does, however, merit some discussion. In this section, only the open system DIs will be discussed.

8.5.1.2 General considerations

When postal codes are used which fall within the jurisdiction of a single postal authority (generally, the same country), there is no ambiguity of the location referred to. These are assignments “**51L**” (“Ship From”) and “**52L**” (“Ship To”).

However, postal coding systems around the world may present ambiguities to computer systems. For example, many European postal codes, as well as others around the world, are 4-digit numeric codes. Thus, the postal code “6300” could exist in more than one country. Without a means for identifying the country that administers that particular postal code, the data is meaningless.

Europe utilizes a postal convention that allows the inclusion of a country code preceding the numeric code. Following this convention, “CH-6300” refers to a Swiss (Confederation Helvetia) postal code.

Most postal authorities do not have such conventions, however, so another means of identifying the postal authority is needed - one that does not conflict with the European convention.

This standard uses 2-character ISO 3166-1 country codes following the postal code for this purpose.

The following protocol is used in this standard.

8.5.1.3 “Domestic” postal codes

If the shipment is within a single country or postal authority, use of the appropriate “domestic” DI (“**51L**” or “**52L**”) preceding the postal code is all that is required. For the European postal convention countries, the “domestic” postal code DIs may be used with the proper country prefix included in the data portion of the labeling device (e.g., bar code label, RFID tag).

8.5.1.4 "International" postal codes

If the shipment is to move between countries or postal authorities, the appropriate "international" DI ("**54L**" or "**55L**") preceding the postal code will indicate that an ISO country code follows the postal code.

EXAMPLE 1: "Domestic" shipments (within the same postal authority).

Location	City, Country	**DI**/Postal Code
"Ship From"	Zug, Switzerland	**51L**6300
"Ship To"	Geneva, Switzerland	**52L**1216

EXAMPLE 2: "Domestic" shipments (within the European postal convention)

Location	City, Country	**DI**/*Country*/Postal Code
"Ship From"	Zug, Switzerland	**51L***CH*6300
"Ship To"	Brussels, Belgium	**52L***B*1150

EXAMPLE 3: Shipment between postal authorities

Location	City, Country	**DI**/Postal Code/**ISO Qualifier**
"Ship From"	Zug, Switzerland	**54L**6300**CH**
"Ship To"	Morley, Western Australia	**55L**6062**AU**

NOTE – Italics and bold are used for emphasis and are not used in actual coding.

It should also be noted that the longest possible bar code (excluding start, stop and symbology check characters) will be 14 characters (3-character DI, 9-digit U.S.A. Zip Code, 2-character ISO country code).

8.5.2 Multiple levels of location marking

Provision is made in this document for multiple levels of location marking (e.g., "**1L**" and "**20L**" through "**24L**"). These are for internal or mutually defined use.

The "Location" assignment is "generic" and is kept to two characters to reduce symbol length.

For applications that require further differentiation or a hierarchical method of indicating location *and require that information in the DI,* the "First Level" through "Fifth Level" assignments is provided. An example of their use is indicated below.

EXAMPLE 1: Hierarchical location

Location Description	DI
Building Number	**1L**
File Storage Room Number	**20L**
File Cabinet Row Number	**21L**
File Cabinet Number	**22L**
File Cabinet Drawer Number	**23L**
File Number	**24L**

EXAMPLE 2: Location differentiation

Location Description	DI
Building Number	**1L**
Machine Tool Location Number	**20L**
Physical Plant Equipment Location Number	**21L**
Routing Location Number	**22L**
Asset Control Room/Location Number	**23L**
Mail Stop	**24L**

8.6 Item identification

Product identification DIs are assigned in Category 16, “Item Information.” Multiple levels of identification are provided for both supplier (“**1P**” and “**30P**” through “**34P**”) and customer (“**P**” and “**20P**” through “**24P**”).

The “**1P**” and “**P**” assignments are intended to be the most used DIs. However, many business entities have additional requirements that suggest the use of additional DIs for product identification. The following examples show how they might be used.

EXAMPLE 1: Multiple Product Characteristics (as assigned by supplier)

Description	DI
Shoe Style Number	**1P**
Length	**30P**
Width	**31P**
Color	**32P**
Material	**33P**
Trim	**34P**

EXAMPLE 2: Multiple Product Identifications (as assigned by customer)

Description	DI
Part Number	**P**
Old Catalog Number	**20P**
New Catalog Number	**21P**
Additional information	**22P**
Additional information	**23P**
Additional information	**24P**

8.7 Quantity

8.7.1 General

Quantity, number of pieces, or “amount” DIs are assigned in Category 17, “Measurement.” The following topics are covered in this section.

- Quantity followed by a unit of measure
- Monetary value followed by a unit of measure
- Number of cartons within a shipment

8.7.2 Quantity followed by unit of measure

For applications in which the quantity that will be referred to is unambiguous and clearly understood between trading partners, the assignment “**Q**” should be used. Assignments exist for other defined measures.

However, where there is more than one quantity or where the unit of measure needs to be specified, the assignment “**7Q**” allows for qualification of the value using a 2-digit ANSI X12.3 data element unit of measure code.

The unit of measure code immediately follows the data. Because of the ability to qualify the amount, more than one “**7Q**” message may be found on a single labeling device.

The following examples show how this could be applied.

EXAMPLE: Quantity, Measure

Measure	**DI**/Data/**ANSI X12.3 Qualifier**
Number of pieces in box (mutually defined)	**Q**144 (no qualifier)
Weight of each piece (in kilograms)	**7Q**21.25**KG**
Rated capacity (in kilowatt hours)	**7Q**l2**KH**
Overall length (in inches, decimal, nominal)	**7Q**35.6**ED**

8.7.3 Value

Provision is made for the definition of unit of value ("**12Q**") by using an ISO 4217 country/currency code following the data. The use of this DI must be mutually defined between trading partners. The following examples show how this could be applied.

EXAMPLE: Value of item

Description	**DI**/Data/**ISO 4217 Qualifier**
Value of each piece in U.S. Dollars ($12.75)	**12Q**12.75**USD**
or	
Value of shipment in U.S. Dollars ($14,500)	**12Q**14500**USD**

8.7.4 Number of cartons within shipment

A DI has been assigned to allow information concerning the number of a carton within a shipment ("**13Q**"). The structure of the data follows the format:

n/x

where:

n is the number of the carton within the shipment

/ is the separator between numeric fields (must be encoded)

x is the total number of cartons in the shipment.

EXAMPLE:

Description	**DI**/Data
5th carton in shipment of 6 cartons	**13Q**5/6
127th carton in shipment of 127 cartons	**13Q**l27/127

8.8 Packaging identification

8.8.1 General

Package identification DIs are assigned in Category 19, "Traceability Number for an Entity." These identifiers are used on labeling devices (e.g., trading partner bar code transaction labels) attached to packaging.

The following topics are discussed in this section.

- Master packaging identification - customer order reference
- Identification of lowest level of packaging

Packaging identification generally is a unique number that identifies that package from all other packages. This number is usually used in conjunction with a supplier identification to provide a completely unique number.

Master packs (sometimes referred to as "unit loads") are transport units either made up of a number of filled transport packages or items held together by pallet, slip sheet, strapping, etc. or comprised of a single large container expressly designed to make items suitable for transportation, stacking, and storage as a unit.

Many industry standards require lower levels of packaging identification (using a lower-level DI) within Master Packs to complete a transaction process. Trading partners are encouraged to utilize the lowest level DI and configure shipments accordingly.

8.8.2 Master pack identification

8.8.2.1 General

Provision is made for identification of the following information on the master packaging label ("**4S**" through "**7S**"):

- whether items within the package are the same or different; or
- whether items within the package are covered by one customer order or more than one customer order.

8.8.2.2 Assignments "4S" and "5S"

Assignments "**4S**" and "**5S**" are used when the items in the shipment are covered under the same customer order. The "**4S**" DI is used when the items are the same. The "**5S**" DI is used when the items are not the same.

If there is no interest in identifying whether single or multiple customer orders are contained within the packaging *and there is a strong argument against using all four DIs* ("**4S**", "**5S**", "**6S**", and "**7S**"), then all shipments should be identified as being "on the same customer order" (i.e., not referenced) and "**4S**" and "**5S**" can be used.

8.8.2.3 Assignments "6S" and "7S"

The "**6S**" and "**7S**" DIs are used to indicate that the items in the package are covered by multiple customer orders. "**6S**" is used when the items are the same, "**7S**" when the items are not the same.

Implicit in the use of "**6S**" and "**7S**" is the assumption that "**4S**" and "**5S**" DIs will also be encountered by the reading system.

See the next section for information about labels at lower levels within master packaging.

8.8.3 Lowest level of packaging

In some instances, packaging identification labels (other than part number) will be affixed to packaging within a master pack. A DI is provided to indicate that no further levels of packaging identification will be found within the package ("**3S**").

It is assumed that "**3S**" will be within a bar code on the label affixed to a package which contains like items and that no further scanning will be required for package tracking purposes.

DI "**3S**" is to be used on packaging intended for transport or storage, and the package will contain subpacks on which only item identification is found. Bar codes or bar-coded labels with DI "**3S**" will generally be found in intermediate packaging occurring between the Product Identification and Master Package packages. DI "**3S**" is further assumed to be found in bar codes or on labels affixed to packages within a master pack which contains a DI from the range of "**4S**" through "**7S**".

8.9 Lot/batch identification

Lot and batch identification DIs are assigned in Category 20, "Traceability Number for Groups of Entities." Multiple levels of identification are provided for both supplier ("**T**" and "**30T**" through "**34T**") and customer ("**1T**" and "**20T**" through "**24T**").

The "**T**" and "**1T**" assignments are intended to be the most used DIs. However, many business entities have additional requirements that suggest the use of additional DIs for product identification. The following examples show how they might be used.

EXAMPLE: Multiple Lot/Batch Information (as assigned by supplier)

Description	DI
Lot Number	**1T**
Production Batch Number	**30T**
Testing Batch Number	**31T**
Shipment Lot Number	**32T**
Additional information	**33T**
Additional information	**34T**

8.10 Assignment "4K"

"Line number of the order assigned by the Customer to identify a Purchasing Transaction." This DI refers to the physical line number of an order on which several items are requested. In some trading relationships, master orders are issued which cover a specified period and products are released against the order over time. The process simplifies paperwork for routinely ordered items that are not to be shipped in a single lot.

In such an instance, a simple reference to an order number (e.g., Purchase Order, Work Order, etc.) is not sufficient. For these instances, the "**4K**" data refers to the specific line of the order in which the product or service is referenced.

The line number and order may refer to electronic or paper transactions.

8.11 Assignment "18K" structured reference

Many DI allocations correspond to identifiers, (e.g., bar code) representations that are intended to be engraved or printed on, or affixed to, the physical objects they identify. Container identifiers (category "**B**"), License Plates (category "**J**"), Item Identifiers (category "**P**"), and Traceability Numbers (category "**S**") fall into this category.

These identifiers are also commonly used in communications about the objects they identify. Where such communications are purely electronic, it is self-evident that what is communicated is a reference to the object identified. However, particularly in the postal world and in logistics applications, there are situations in which it is desirable to communicate such reference information in the form of a bar code (or 2D symbol or RF tag) that is printed on or attached to a physical object other than the object which is identified.

In such cases, the DI corresponding to the type of identifier cannot be used to identify the data, since otherwise, an automated system would be unable to distinguish between the physical object identified and the object carrying a reference to it.

For example, in the domain of license plates, a number of items carrying, say, license plates JJ1, JJ5, JJ7 and JJ10 might be grouped, for transport purposes, into an aggregate carrying license plate 2JJ4 (or put into a container with Container Identifier **5B**JJ7). Bar codes (or 2D symbols) on the aggregate (or container) may need to list the content of the aggregate. They cannot use the license plate DI for this since, otherwise, an automated system might read one of the reference barcodes, interpret it as the license plate attached to the referenced object, and process the aggregate as if it were the particular individual item concerned. A similar scenario may occur in postal processing, where batch cards (which may be physically indistinguishable from postal items) are used to list the identifiers of the items that comprise the batch.

The solution to this situation requires that there be a clear distinction between an identifier that is part of, or attached to, the object identified and an identifier reference. This can only be achieved by use of a different DI. For this, three possibilities have been identified:

1. Create a separate DI, in the category concerned, for each case.
2. Create a separate "**K**" DI in Category 11 (transaction reference), for each case.
3. Allocate a single category "**K**" DI, embedding both the referenced identifier and its original DI value into the data.

Of the three possibilities listed above, the first two require the allocation of several DIs and create the potential for confusion, since it would be difficult to maintain correspondence consistency between the numeric prefixes used for references and the prefixes for the original objects. Approach 3 is regarded as being both simple and elegant.

Structure: identification code, license plate or traceability number for an object or entity, prefixed by the DI used for encoding that identification code on the object itself.

EXAMPLE:

Suppose that a parcel has license plate data, issued under the UPU Issuing Agency Code, JGBA123456789.

This will be encoded on the parcel, using DI "**J**". The parcel label will thus carry a bar code, including the DI, specifically: **J**JGBA123456789.

The corresponding Structured Reference is thus **J**JGBA123456789. When encoded in a bar code or other media, it will be prefixed by the DI for a Structured Reference, i.e., as **18KJ**JGBA123456789.

Similarly, a bar code reference to an aggregate transport unit (DI "**2J**") with license plate JGBA456789123 would be encoded as **18K2J**JGBA456789123.

8.12 Unique identification of items

The intended use of DI "**25S**" is to indicate that the data following the DI represents a concatenated data string that uniquely identifies an item.

The "**25S**" data string is formed from three segments, "IAC" (Issuing Agency Code) followed by "CIN" (Company Identification Number) followed by "SN" (Serial Number) (defined in bullets below). The data string making up DI "**25S**" shall be globally unique.

There are four methods for creating unique serialization:

- serial Number (unique SN within CIN's domain);
- part number + serial number (unique for that part number for the CIN);
- lot/batch number + serial number (unique within the lot/batch for the CIN); and
- part number + lot/batch number + serial number (unique within the part number and its lot/batch for the CIN).

Data strings following "**25S**" should be used to uniquely identify the item to which it is attached, and not to be parsed to obtain the component data elements.

9 Hierarchical levels – Data Identifier "F"

9.1 General

When the DI "**F**" is used in DI looping structures the format shall follow the format defined in this section. See Annex E for usage rules of DI "**1F**", "**3F**", and "**5F**" for Returnable Packaging Items.

As the application of automatic data capture (ADC) storage media became more sophisticated, it became possible to store more item data about more items in a single medium. Data capacities increased from the single data element linear bar code to concatenated symbols to two-dimensional symbols to high-capacity RF tags to contact memory buttons to optical memory cards and micro compact disks. It became possible to store information about multiple orders on a shipment, multiple containers or pallets per order, multiple part numbers per order, multiple containers per part number, and multiple serial numbers per part number.

As this sophistication increased, the need to provide a structure for such data in order to ensure that there was an unambiguous relationship of a serial number (or lot number and expiration date) all of the way up to the order and shipment level also increased. It would have been possible to create a unique structure for ADC media. However, the world of electronic data interchange (EDI) has faced this issue for many years. After careful analysis, the drafting committee responsible for this document agreed to follow the lessons learned from the EDI community, namely the creation of a structured looping of data.

The ANSI X12 EDI Ship Notice/Manifest (Transaction 856) is a hierarchical electronic transaction which can:

- Represent one or several shipments in a single ship notice/manifest;
- Consist of one or several orders in a single shipment;
- Consist of one or several pallets (tares) in a single order;

- Consist of one or several cartons (packs) in a single pallet;
- Consist of one or several inner packs (subpacks) in a single carton;
- Can consist of one or several items in a single subpack; and
- Consist of one or several components in a single item.

Data should be encoded at the hierarchical level to which it logically applies. For example, shipment data at the shipment level, order information at the order level, tare (pallet) information at the tare level, carton information at the carton level, etc. To avoid data redundancy, it may be preferable to encode data at a higher level. For example, if a shipment involves only one order, order information could be transmitted at the shipment level. Also, if the only package information needed is the label serial number (license plate) and there is one per item then the package data can be specified at the item level. Data can be specified at a higher level if it does not create confusion with similar data at the same level. Weights, dimensions, quantities, and license plates are examples of data which are used in multiple levels and could create confusion if levels are combined.

The following example depicts the detail area of the Ship Notice/Manifest transaction in the traditional manner as shown in Figure 2.

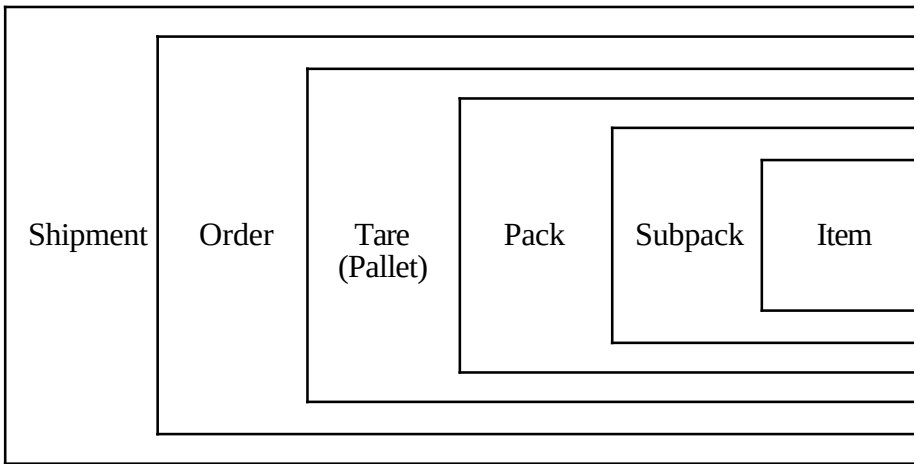

Figure 2 – Typical ANSI X12 EDI 856 nested packaging levels

Structure Looping facilitates the identification of dependencies in related groups of data segments. Several methods existed; however, this document recommends the use of hierarchical structures similar to the ANSI X12 EDI 856 Ship Notice/Manifest transaction.

Within the ANSI X12 856 transaction set the “HL segment” is comprised of four data elements (DE). These are outlined in Table 3.

Table 3 – ANSI X12 EDI 856 "HL Segment"

DE Reference	DE Identifier	DE Name	DE Requirement	DE Type	DE Length (Min/Max)
HL01	628	Hierarchical ID Number	M	AN[1]	1/12
HL02	734	Hierarchical Parent ID Number	O	AN	1/12
HL03	735	Hierarchical Level Code	M	ID[2]	1/2
HL04	736	Hierarchical Child Code	O	ID	1/1

NOTE 1 – A string data element is a sequence of any characters from the character set and contains at least one non-space character. The significant characters shall be left justified. Leading spaces, when they occur, are presumed to be significant characters. In the actual data stream, trailing spaces should be suppressed. The representation for this data element is AN.

NOTE 2 – An identifier data element always contains a unique value from a single, predefined list of values that is maintained in ANSI X12, or some other body recognized by ANSI X12, and identified by a reference in Appendix A of ANSI X12.3 Data Element Dictionary. Trailing spaces should be suppressed. The representation for this data element type is ID.

The ANSI X12 EDI 856 HL segment is used to identify levels of detail information using a hierarchical structure, such as relating line-item data to shipment data and packaging data to line-item data. The 856 HL segment defines a top-down/left-right ordered structure.

HL01 shall contain a unique alphanumeric number for each occurrence of the HL segment in the transaction set. For example, HL01 could be used to indicate the number of occurrences of the HL segment in which case the value of HL01 would be "1" for the initial HL segment and would be incremented by one in each subsequent HL segment within the transaction.

HL02 identifies the hierarchical ID number of the HL segment to which the current HL segment is subordinate.

HL03 indicates the context of the series of segments following the current HL segment up to the next occurrence of an HL segment in the transaction. For example, HL03 is used to indicate that subsequent segments in the HL loop form a logical grouping of data referring to shipment, order, or item-level information.

HL04 indicates whether or not there are subordinate (or child) segments related to the current HL segment. ("0" indicates that there are no subordinate segments; "1" indicates that there are subordinate segments).

It is possible to encode an entire EDI transaction into a machine-readable medium, however there is substantial overhead within EDI to facilitate message routing.

EXAMPLE – In the machine-readable media case, the medium accompanies the routed item; therefore, overhead is unnecessary information.

Machine-readable media data carrying capacity has increased substantially over time; however, reducing the encoded character numbers is good design and improves readability.

The guidance in this document includes two modifications to the basic Hierarchical Level (HL) structure. Both modifications involve the variable length nature of the EDI HL with each data element separated by a data element separator versus a machine-readable media requirement for defined lengths and short fields. Fixed length data elements are used in place of separator characters to minimize the length of the field. Further, the Hierarchical ID Number length was fixed at 2. With the character set of 0-9 and A-Z, a length of 2 characters yields 1,296 permutations. Ninety-nine (two numerical characters 00-99) or thirty-six (one alpha character A-Z plus numerical character 0-9) permutations were considered ample in most cases. However, several real-life examples of different parts with associated serial numbers demonstrated the need to include a second character position. The Hierarchical Child Code identifier and the Hierarchical Level Code identifier are swapped positionally since the Hierarchical Level Code is variable length. Placing the variable length field at the end of the composite field provides unambiguous meaning to each sub-field.

This yielded the format for the Hierarchical Level DI "**F**". The purpose of DI "**F**" is to identify dependencies among the content of hierarchically related groups of data segments. Table 4 shows the structure of DI "**F**" with all required parts.

Table 4 – DI "F" structure

Part	String (AN) or Identifier (ID)	Length
Hierarchical ID Number	AN	2[1]
Hierarchical Parent ID Number	AN	2[1]
Hierarchical Child Code	ID	1
Hierarchical Level Code	ID	1/2

NOTE 1 – With the character set of 0-9 and A-Z, a length of 2 characters yields 1,296 permutations.

While the complete set of Hierarchical Level Code identifiers can be found in ANSI X12 Data Element 735, Table 5 represents commonly used identifiers and Figure 3 represents typical nested packaging levels.

Table 5 – Commonly used hierarchical level codes

Level	Identifier	Description
Shipment	S	Data that applies to the whole shipment, such as bill of lading number, lading quantity, supplier code, etc.
Order	O	Data related to the sender's order and the associated receiver's original purchase order.
Tare	T	The tare level is used to identify pallets. If there are no identifiable pallets, this level may be omitted.
Pack	P	The pack level is used to identify the cartons within which the item is shipped, e.g., label serial numbers. In most cases there will be some sort of packs.
Sub-pack	Q	Data related to a grouping of identifiable packages within the pack level. Note that this level is only used when the inner pack has identifiable numbers for each inner pack.
Item	I	Stock keeping unit (SKU) identification data.
Component	F	Data related to the manufacturer's component
Serial #	X	Data related to the manufacturer's serial number

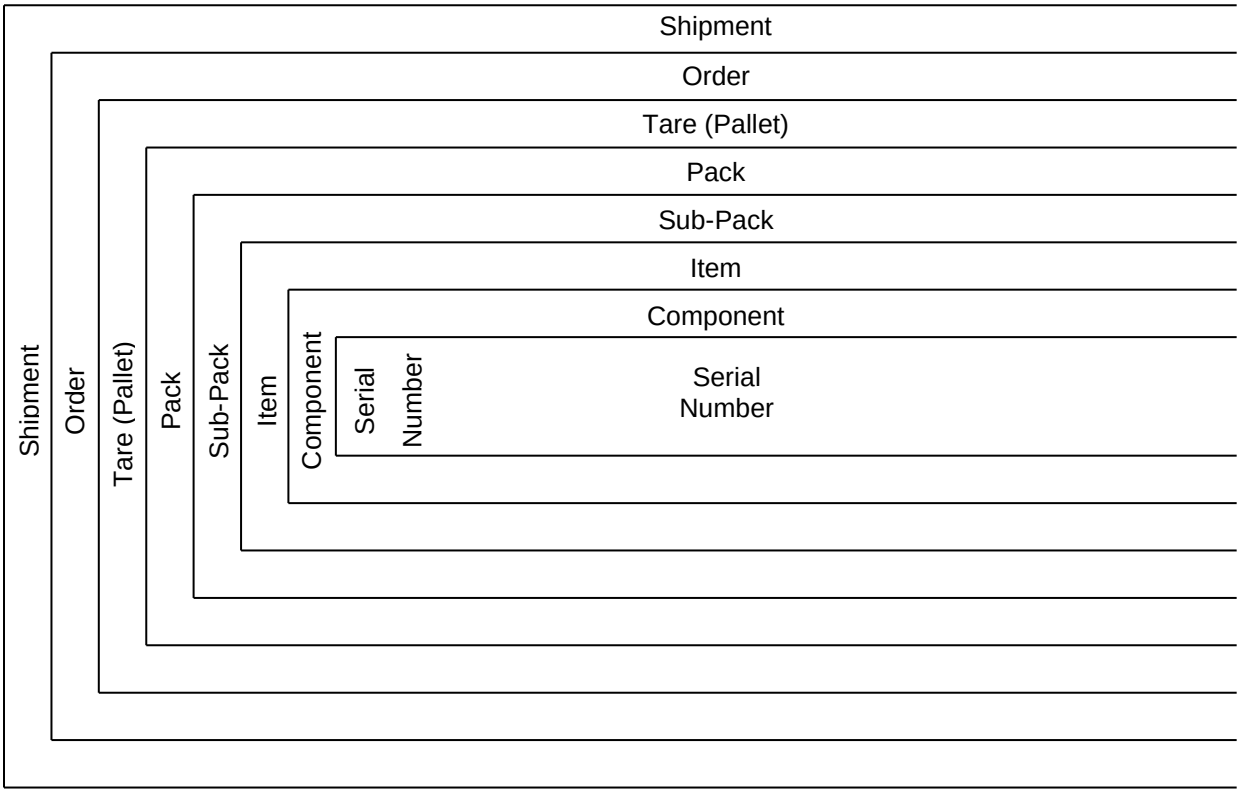

Figure 3 – Typical nested packaging levels

Consequently, for machine-readable media the structure "**F**08041P" would mean:

F	Data Identifier
08	Level of this hierarchy, e.g., a case on a pallet
04	Level of the parent hierarchy, e.g., the pallet
1	Yes, there are children to the case
P	Pack

Consider the structure shown in Figure 4:

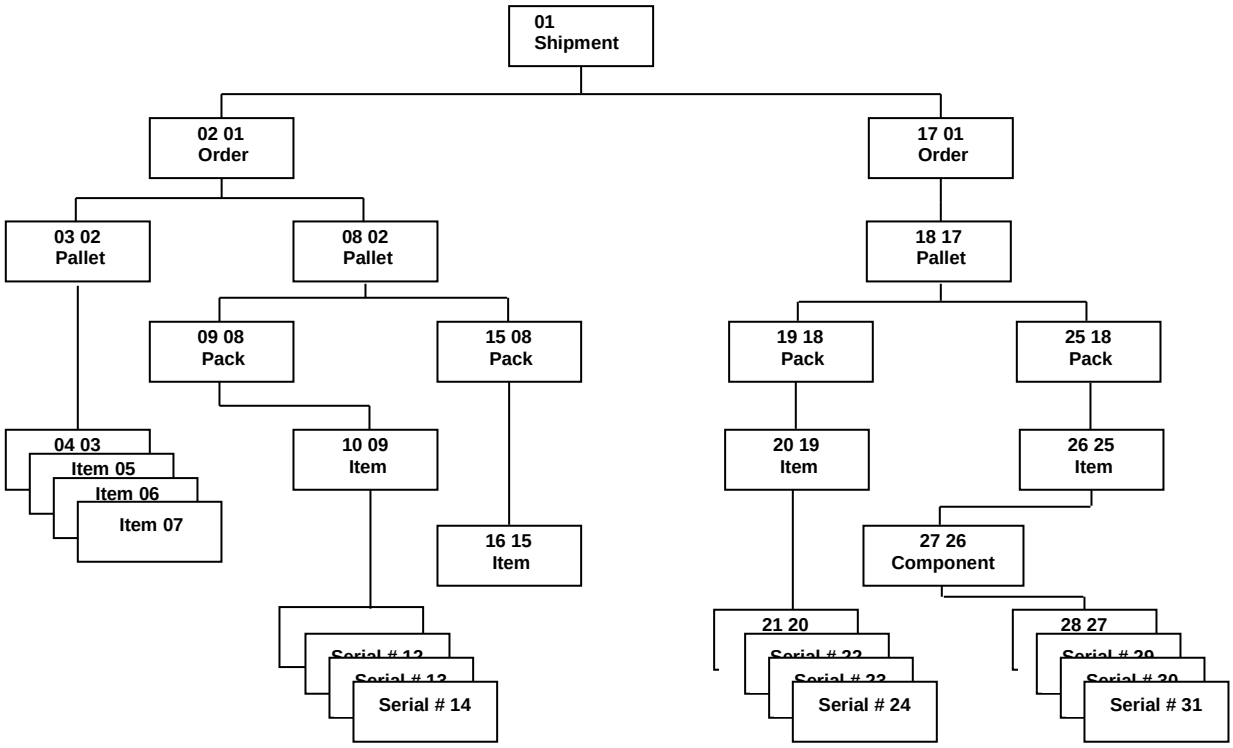

Figure 4 – Hierarchical levels

Using DI "**F**" the data would be as shown in Table 6, below:

NOTE - Table 6 has been oriented in a "visual" mode, not a data-transmission-form; the data order is upper left to lower right, left column first. The data transmission form of one contiguous data stream follows the table (Figure 5).

Table 6 – Reducing Figure 4 to a data stream using DI "F"

[)>$^{R}_{S}$06$^{G}_{S}$	**F**11100X$^{G}_{S}$	**25S**UN043325711Serial21$^{G}_{S}$
F01001S$^{G}_{S}$	**25S**UN043325711Serial11$^{G}_{S}$	**25S**UN043325711Serial12$^{G}_{S}$
2QShipment01$^{G}_{S}$	**25S**UN043325711Serial12$^{G}_{S}$	**25S**UN043325711Serial23$^{G}_{S}$
F02011O$^{G}_{S}$	**25S**UN043325711Serial13$^{G}_{S}$	**25S**UN043325711Serial44$^{G}_{S}$
KOrder02$^{G}_{S}$	**25S**UN043325711Serial14$^{G}_{S}$	**F**25181P$^{G}_{S}$
F03021T$^{G}_{S}$	**F**15081P$^{G}_{S}$	**J**UN043325711Pack25$^{G}_{S}$
JUN043325711Pallet03$^{G}_{S}$	**J**UN043325711Pack15$^{G}_{S}$	**F**26251I$^{G}_{S}$
F04030I$^{G}_{S}$	**F**16150I$^{G}_{S}$	**25P**UN043325711Item26$^{G}_{S}$
25PUN043325711Item04$^{G}_{S}$	**25P**UN043325711Item16$^{G}_{S}$	**F**27261F$^{G}_{S}$
25PUN043325711Item05$^{G}_{S}$	**F**17011O$^{G}_{S}$	**25P**UN043325711Comp27$^{G}_{S}$
25PUN043325711Item06$^{G}_{S}$	**K**Order17$^{G}_{S}$	**F**28270X$^{G}_{S}$
25PUN043325711Item07$^{G}_{S}$	**F**18171T$^{G}_{S}$	**25S**UN043325711Serial28$^{G}_{S}$
F08021T$^{G}_{S}$	**J**UN043325711Pallet17$^{G}_{S}$	**25S**UN043325711Serial29$^{G}_{S}$
JUN043325711Pallet08$^{G}_{S}$	**F**19181P$^{G}_{S}$	**25S**UN043325711Serial30$^{G}_{S}$
F09081P$^{G}_{S}$	**J**UN043325711Pack19$^{G}_{S}$	**25S**UN043325711Serial31$^{R}_{S}$$^{E}_{OT}$
JUN043325711Pack09$^{G}_{S}$	**F**20191I$^{G}_{S}$	
F10091I$^{G}_{S}$	**25P**UN043325711Item20$^{G}_{S}$	
25PUN043325711Item10$^{G}_{S}$	**F**21200X$^{G}_{S}$	

The example in Figure 5 shows how the data from Table 6 would be encoded as one continuous data stream:

[)>$^{R}_{S}$06$^{G}_{S}$**F**01001S$^{G}_{S}$**2Q**Shipment01$^{G}_{S}$**F**02011O$^{G}_{S}$**K**Order02$^{G}_{S}$**F**03021T$^{G}_{S}$**J**UN043325711Pallet03$^{G}_{S}$**F**04030I$^{G}_{S}$**25P**UN043325711Item04$^{G}_{S}$**25P**UN043325711Item05$^{G}_{S}$**25P**UN043325711Item06$^{G}_{S}$2**5P**UN043325711Item07$^{G}_{S}$**F**08021T$^{G}_{S}$**J**UN043325711Pallet08$^{G}_{S}$**F**09081P$^{G}_{S}$**J**UN043325711Pack09$^{G}_{S}$**F**10091I$^{G}_{S}$**25P**UN043325711Item10$^{G}_{S}$**F**11100X$^{G}_{S}$**25S**UN043325711Serial11$^{G}_{S}$**25S**UN043325711Serial12$^{G}_{S}$**25S**UN043325711Serial13$^{G}_{S}$**25S**UN043325711Serial14$^{G}_{S}$**F**15081P$^{G}_{S}$**J**UN043325711Pack15$^{G}_{S}$**F**16150I$^{G}_{S}$**25P**UN043325711Item16$^{G}_{S}$**F**17011O$^{G}_{S}$**K**Order17$^{G}_{S}$**F**18171T$^{G}_{S}$**J**UN043325711Pallet17$^{G}_{S}$**F**19181P$^{G}_{S}$**J**UN043325711Pack19$^{G}_{S}$**F**20191I$^{G}_{S}$**25P**UN043325711Item20$^{G}_{S}$**F**21200X$^{G}_{S}$**25S**UN043325711Serial21$^{G}_{S}$**25S**UN043325711Serial12$^{G}_{S}$**25S**UN043325711Serial23$^{G}_{S}$**25S**UN043325711Serial44$^{G}_{S}$**F**25181P$^{G}_{S}$**J**UN043325711Pack25$^{G}_{S}$**F**26251I$^{G}_{S}$**25P**UN043325711Item26$^{G}_{S}$**F**27261F$^{G}_{S}$**25P**UN043325711Comp27$^{G}_{S}$**F**28270X$^{G}_{S}$**25S**UN043325711Serial28$^{G}_{S}$**25S**UN043325711Serial29$^{G}_{S}$**25S**UN043325711Serial30$^{G}_{S}$**25S**UN043325711Serial31$^{R}_{S}$$^{E}_{OT}$

Figure 5 – Encodable data

The following is another example from the telecommunication industry.

Presume the EDI data shown in Figure 6.

EDI DATA	EXPLANATION
ST~856~000000001|	ASN Transaction Set - Transaction Set Control #000000001
BSN~00~000002~20010207~1001|	Original Ship Notice #000002Created 02/07/01 at 10:01 am
DTM~011~20010207|	Shipped on 2/07/01
HL~001~~S|	Hierarchical Segment #1 - Shipment Level
TD5~~2~HMES	Shipped via USF Holland
REF~BM~104462	Bill of Lading = 104462
REF~CN~6783222	Carrier Pro # = 6783222
NI~ST~SBC|	Ship to Name
N3~1700 HAZEL DELL RD|	Ship to Address
N4~SPRINGFIELD~IL~627035258|	Ship to City, State, Zip Code (9 digits)
HL~002~001~O|	Hierarchical Segment #2- Order Level Subordinate to HL001
PRF~AB~347554	P.O. Number = AB347554
REF~VN~V11234345	Supplier's Order No. = V11234345
REF~IV,A00001|	Invoice No. A00001
REF~PK~B12456|	Packing List No. B12456
HL~003~002~I|	Hierarchical Segment #3, Item Level Subordinate to HL002
LIN~0001~IN~102421930|	SBC's Product Identifier = 102421930
SN1~001~600~FT|	Total qty. shipped = 600 ft
PRF~AB347554~~~~0001|	P.O. Number = AB34755 - Item = 0001
CLD~02~600|	Number of reels = 2 Number of units shipped on reels = 600 (feet as in SN103),
REF~LS~ABCD+40000|	3S Bar Code Label = ABCD+40000,
REF~SE~AS23D145|	Cable Reel Serial # = AS23D145,
REF~MR~EEE|	Cable Reel Type = EEE,
REF~LS~ABCD+40001|	3S Bar Code Label = ABCD+40001,
REF~SE~AS23D146|	Cable Reel Serial # = AS23D146,
REF~MR~EEE|	Cable Reel Type = EEE,
HL~004~002~I|	Hierarchical Segment #4 - Item Level Subordinate to HL002,
LIN~0002~VN~TLT395|	Vendor Part #TLT395,
SN1~002~2~EA|	Total qty. shipped = 2EA,
PRF~AB347554~~~~0003|	P.O. Number = AB34755, Item = 0003,
CLD~02~2|	Number of containers = 2 Number of units shipped in containers = 2,
REF~LS~ABCD+40002|	3S Bar Code Label = ABCD+40002,
REF~LS~ABCD+40003|	3S Bar Code Label = ABCD+40003,
CTT~4~602|	HL Segments = 4 Total Shipped Quantities = 602,
SE~35~000000001|	Segments = 35 Transaction Set Control # = 000000001

Figure 6 – EDI message

Table 7, below, uses the data from Figure 6 and shows DI equivalence.

Table 7 – Associating DI data with ANSI X12 EDI data

ANSI X12 856 EDI DATA	EXPLANATION	DATA IDENTIFIER DATA
DTM~011~20010207|	Shipped on 2/07/01	**5D**010207011
HL~001~~S|	Hierarchical Segment #1-Shipment Level	**F**01001S
TD5~~2~HMES|	Shipped via USF Holland	(See Pro #)
REF~BM~104462|	Bill of Lading = 104462	**3K**104462
REF~CN~6783222|	Carrier Pro # = 6783222	**12K**HMES6783222
NI~ST~SBC|	Ship to Name	**N**I~ST~SBC
N3~1700 HAZEL DELL RD|	Ship to Address	**N**3~1700 HAZEL DELL RD
N4~SPRINGFIELD~IL~ 627035258|	Ship to City, State, Zip Code (9 digits)	**N4**~SPRINGFIELD~IL~ 627035258
HL~002~001~O|	Hierarchical Segment #2- Order Level Subordinate to HL001	**F**02011O
PRF~AB~347554|	P.O. Number = AB347554	**K**AB347554
REF~VN~V11234345|	Supplier's Order No. = V11234345	**1K**V11234345
REF~IV~A00001|	Invoice No. A00001	**10K**A00001
REF~PK~B12456|	Packing List No. B12456	**11K**B12456
HL~003~002~I|	Hierarchical Segment #3 - Item Level Subordinate to HL002	**F**03020I
LIN~0001~IN~102421930|	SBC's Product Identifier = 102421930	**P**102421930
SN1~001~600~FT|	Total qty. shipped = 600 ft	**7Q**600FT
PRF~AB347554~~~~0001|	P.O. Number = AB347554Item = 0001	**14K**AB347554+0001
CLD~02~600|	Number of reels = 2 - Number of units shipped on reels = 600 (feet as in SN103)	**7Q**2RE **7Q**600FT
REF~LS~ABCD+40000|	3S Bar Code Label = ABCD+40000	**3S**ABCD+40000
REF~SE~AS23D145|	Cable Reel Serial # = AS23D145	**S**AS23D145
REF~MR~EEE|	Cable Reel Type = EEE	**B**EEE
REF~LS~ABCD+40001|	3S Bar Code Label = ABCD+40001	**3S**ABCD+40001
REF~SE~AS23D146|	Cable Reel Serial # = AS23D146	**S**AS23D146
REF~MR~EEE|	Cable Reel Type = EEE	**B**EEE
HL~004~002~I|	Hierarchical Segment #4 - Item Level Subordinate to HL002	**F**04020I
LIN~0002~VN~TLT395|	Vendor Part #TLT395	**1P**TLT395
SN1~002~2~EA|	Total qty. shipped = 2EA	**Q**2
PRF~AB347554~~~~0003|	P.O. Number = AB347554 - Item = 0003	**14K**AB347554+0003
CLD~02~2|	Number of containers = 2\ - Number of units shipped in containers = 2	**7Q**2CH
REF~LS~ABCD+40002|	3S Bar Code Label = ABCD+40002	**3S**ABCD+40002
REF~LS~ABCD+40003|	3S Bar Code Label = ABCD+40003	**3S**ABCD+40003
484 characters (not including address information [N1, N3, N4])		285 characters (not including address information [N1, N3, N4])

The telecommunication industry concluded that they do not require the Ship To information encoded in the machine-readable media accompanying a shipment. If the complete EDI transaction were encoded, including the 71 characters associated with the ST, BSN, CTT, and SE segments and the 161 characters associated with the ISA, GS, GE, and IEA segments the complete EDI message would have been 716 (484+71+161) characters in length as opposed to the 285 when encoded with DIs.

Encoding this data using the Hierarchical Looping DI "**F**", it would appear as shown in Table 8.

NOTE – The example below shows the data stream in a "visual" mode – this is NOT how it will appear when encoded.

Table 8 – EDI data using DI "F" – showing data in "visual" mode

[)>$^{R}_{S}$06$^{G}_{S}$ **F**01001S$^{G}_{S}$ **5D**010207011$^{G}_{S}$ **3K**104462$^{G}_{S}$ **12K**HMES6783222$^{G}_{S}$ **F**02011O$^{G}_{S}$ **K**AB347554$^{G}_{S}$ **1K**V11234345$^{G}_{S}$ **10K**A00001$^{G}_{S}$ **11K**B12456$^{G}_{S}$	**F**03020I$^{G}_{S}$ **P**102421930$^{G}_{S}$ **7Q**600FT$^{G}_{S}$ **14K**AB347554+0001$^{G}_{S}$ **7Q**2RE$^{G}_{S}$ **7Q**600FT$^{G}_{S}$ **3S**ABCD+40000$^{G}_{S}$ **S**AS23D145$^{G}_{S}$ **B**EEE$^{G}_{S}$ **3S**ABCD+40001$^{G}_{S}$	**S**AS23D146$^{G}_{S}$ **B**EEE$^{G}_{S}$ **F**04020I$^{G}_{S}$ **1P**TLT395$^{G}_{S}$ **Q**2$^{G}_{S}$ **14K**AB347554+0003$^{G}_{S}$ **7Q**2CH$^{G}_{S}$ **3S**ABCD+40002$^{G}_{S}$ **3S**ABCD+40003$^{R}_{S}$$^{E}_{OT}$

Figure 7 shows how the data in Table 8 would be encoded as one continuous data stream.

[)>$^{R}_{S}$06$^{G}_{S}$**F**01001S$^{G}_{S}$**5D**010207011$^{G}_{S}$**3K**104462$^{G}_{S}$**12K**HMES6783222$^{G}_{S}$**F**02011O$^{G}_{S}$**K**AB347554$^{G}_{S}$**1K**V11234345$^{G}_{S}$**10K**A00001$^{G}_{S}$**11K**B12456$^{G}_{S}$**F**03020I$^{G}_{S}$**P**102421930$^{G}_{S}$**7Q**600FT$^{G}_{S}$**14K**AB347554+0001$^{G}_{S}$**7Q**2RE$^{G}_{S}$**7Q**600FT$^{G}_{S}$**3S**ABCD+40000$^{G}_{S}$**S**AS23D145$^{G}_{S}$**B**EEE$^{G}_{S}$**3S**ABCD+40001$^{G}_{S}$**S**AS23D146$^{G}_{S}$**B**EEE$^{G}_{S}$F04020I$^{G}_{S}$**1P**TLT395$^{G}_{S}$Q2$^{G}_{S}$**14K**AB347554+0003$^{G}_{S}$**7Q**2CH$^{G}_{S}$**3S**ABCD+40002$^{G}_{S}$**3S**ABCD+40003$^{R}_{S}$$^{E}_{OT}$

Figure 7 – EDI message in encodable form

Annex A (informative) – DI category reference

Numerical Listing of Defined Categories

CATEGORY 1	Reserved
CATEGORY 2	Container Information
CATEGORY 3	Field Continuation
CATEGORY 4	Date
CATEGORY 5	Environmental Factors
CATEGORY 6	Looping
CATEGORY 7	Reserved
CATEGORY 8	Human Resources
CATEGORY 9	Reserved
CATEGORY 10	License Plate
CATEGORY 11	Transaction Reference
CATEGORY 12	Location Reference
CATEGORY 13	Maintenance Codes
CATEGORY 14	Industry Assigned Codes
CATEGORY 15	Reserved
CATEGORY 16	Item Information
CATEGORY 17	Measurement
CATEGORY 18	Miscellaneous
CATEGORY 19	Traceability Number for an Entity
CATEGORY 20	Traceability Number for Groups of Entities
CATEGORY 21	UPU / MH 10/SC8/WG2 Agreed Upon Codes
CATEGORY 22	Party to the Transaction
CATEGORY 23	Activity Reference
CATEGORY 24	Reserved
CATEGORY 25	Internal Applications
CATEGORY 26	Mutually Defined

Alphabetical Listing of Assigned DI Categories

Annex B (informative) – Annotated alphabetical listing of assigned DI categories

ACTIVITY REFERENCE **CATEGORY 23**

This category relates to work activities, such as Work Order, Operation and Sequence numbers. It should not be confused with Category 11 (Transaction Reference), which relates to purchasing transactions.

CONTAINER INFORMATION **CATEGORY 2**

This category relates to identification of returnable containers such as compressed gas cylinders, wire reels, transportation equipment and other returnable-type containers. While many of these numbers are serial numbers, this category exists to provide an easy distinction between container serial number and product or label serial number referenced in Category 19 (Traceability Number for an Entity).

DATE **CATEGORY 4**

This category relates to a variety of date structures, as well as to the significance of the date (e.g., Date of Manufacture or Expiration Date).

ENVIRONMENTAL FACTORS **CATEGORY 5**

This category relates to identification of environmental issues such as temperature, air pressure, wind speed, and similar measurements. Where Category 5 defines environmental measurements, Category 17 defines physical measurements.

FIELD CONTINUATION **CATEGORY 3**

This category relates to the continuation of data from a defined field which must be broken into two symbols because of space or other constraints. Only some of the assigned DI fields have valid continuation assignments.

HUMAN RESOURCES **CATEGORY 8**

This category relates to personnel identification.

INDUSTRY ASSIGNED CODES **CATEGORY 14**

This category relates to code or numbering systems that are controlled by and specific to a specific industry or governmental agency (e.g., NATO Stock Number). This allows for unambiguous identification of those code systems within the DI framework without necessitating the assignment of unique DIs for those items that have little or no relevance to those outside that industry or governmental agency.

INTERNAL APPLICATIONS **CATEGORY 25**

This category relates to the use of DIs for purposes that will remain within a closed system and for which a valid DI cannot provide unambiguous reference. For use within a single manufacturing facility, for example, the use of the Internal Applications DI "**Y**" could precede any other DI which could be defined, in that instance, for a purpose which is not in conformance with this document.

ITEM INFORMATION **CATEGORY 16**

This category relates to the identification or characteristics of an item (see definitions), such as its Part Number, Manufacturing Revision Level, or its Classification as a Hazardous Material. An item is something that is not identified as a unique entity but rather as representative of all other like items (see Definitions for further information). Additional DIs ("**20P**" through "**24P**", and "**30P"** through "**34P**") are set aside for descriptive information not otherwise provided for and which is defined between trading partners or intended

for internal use (but with messages that will leave the system, precluding the use of a Category 25 DI). This category should not be confused with Category 19, Traceability Number for an Entity, nor Category 20, Traceability Number for a Group of Entities, both of which provide for identification of unique entities (see definitions).

LICENSE PLATE **CATEGORY 10**

This category relates to a worldwide unique identification of a transport unit or a unitized load (e.g., shipping container or pallet). Each DI is comprised of a unique Issuing Agency Code (IAC) assigned pursuant to ISO/IEC 15459, a world-wide unique organizational/entity/company identification number assigned by the IAC, and a unique transport unit/unitized load number assigned by the organization, entity, or company[9].

LOCATION **CATEGORY 12**

This category relates to either a physical location that is used as a reference point (such as a Shelf Location) or to a physical location that is used as a destination reference (such as a Ship To address). Of particular note are the assignments "**51L**" through "**52L**" and "**54L**" through "**55L**" that relate to postal codes used as shipping addresses. These two sets of DIs provide for both domestic and international use (with an ISO country code suffix).

LOOPING **CATEGORY 6**

This category relates to the parent/child relationship between various fields of data, using pre-existing techniques from electronic data interchange. An example is where a shipment contains multiple orders over multiple pallets, multiple packages, multiple items, with multiple serial numbers. Using techniques described within Annex E of this document, it is possible to relate a given serial number with a specific order.

MAINTENANCE CODES **CATEGORY 13**

This category identifies specific codes used in maintenance functions, including those functions expressed over time such as machine-on time, mean-time-between-failure, and the like.

MEASUREMENT **CATEGORY 17**

This category relates to physical dimensions, measures, quantity or monetary value of an item or group of items (may refer to entities as well). Of particular note is the assignment "**7Q**" that is quantity followed by an ANSI X12 Data Element 355 description of unit of measure. To indicate that there are n cartons in the shipment with x items per carton, either two "**7Q**" fields can appear in the same message with appropriate ANSI X12 Data Element 355 modifiers or a "**7Q**" can be used with a "**Q**" (generic quantity) with the significance mutually defined.

MISCELLANEOUS **CATEGORY 18**

This category relates to DIs that cannot otherwise be categorized (currently contains Return Authorization Codes).

MUTUALLY DEFINED **CATEGORY 26**

This category relates to data or information which has not been assigned a DI within this document and which trading partners need to include in their automatic identification application. The structure and significance of this information is to be agreed upon by the appropriate parties to the transaction.

[9] An exception within the License Plate category is the inclusion of "**7J**" Vehicle Registration License Plate Number (not unique without identification of country and issuing governmental region/authority)

PARTY TO THE TRANSACTION **CATEGORY 22**

This category relates to codes that identify all business entities that may be a party to a transaction (e.g., Vendor Number, Customer Number or Carrier Number).

TRACEABILITY NUMBER FOR AN ENTITY **CATEGORY 19**

This category relates to the identification of a specific item (entity) in a unique manner for purposes of tracing that entity. Codes with this category DIs may identify a finished product or they may identify packaging that contains multiple entities if the packaging is what is being tracked. If a DI from this category is used, an identical message on another entity should never be found within the originating system. For example, a television's serial number is a traceability number for an entity, as is a unique number assigned to a carton to identify it in conjunction with an EDI transaction. This category should not be confused with Category 16 (Item Identification), which provides for identification of all like items (where an identical message would certainly the found within the same system), or with Category 20, which provides unique identification for groups of entities (see below).

TRACEABILITY NUMBER FOR GROUPS OF ENTITIES **CATEGORY 20**

This category relates to the identification of a lot, batch, or other grouping of entities for purposes of tracing that group. Additional DIs ("**20T**" through "**24T**", and "**30T**" through "**34T**") have been set aside for additional information which is not otherwise provided for, and which is mutually defined between trading partners or intended for internal use (but with messages which will leave the system, precluding the use of a Category 25 DI). This should not be confused with Category 19 (Traceability Number for an Entity) or Category 16 (Item Identification).

TRANSACTION REFERENCE **CATEGORY 11**

This category relates to the identification of agreements or correspondence that is involved in the sale, purchase or transportation of goods or services. This category is distinct from Category 23 (Activity Reference) that relates to the production of such goods and/or services.

UPU / MH 10/SC8 AGREED UPON CODES **CATEGORY 21**

This category relates to a set of identifiers ("**5U**" to "**55U**") that may be unique to the nature of the business of the United Postal Union (UPU) postal authorities that might not otherwise be used within the supply chain.

Annex C (normative) – Data Identifier request form

The following is a request form for new DI. Where the end user finds that the identifiers described in this document are insufficient, this request form should be used as appropriate.

Reference: _____

Date: _____

Data Identifier Request Form

Complete all parts. Submit to:

EMAIL: DIRequests@MHI.org

MAIL: DIMC
c/o MHI
8720 Red Oak Blvd – Suite #201
Charlotte, NC 28007-3992
USA

PHONE: +1 704.676.1190
Ask for Data Identifier Request Desk

Incomplete forms or those with inadequate support for the change requested will be returned to the submitter. The DI Maintenance Committee will notify submitters of the status of the work request following their review.

The current version of ANSI MH10.8.2 is available at: http://www.mhi.org/standards/di

---

REQUEST FOR: ___ New Data Identifier
___ Data Identifier Interpretation

ORGANIZATION: _____

CONTACT PERSON: _____

ADDRESS: _____

_____

TELEPHONE: _____

EMAIL ADDRESS: _____

1. PROPOSED DATA IDENTIFIER

Provide a short description (20 words or less) which would be included as a description for the proposed data identifier (DI). For an interpretation, provide a comprehensive description of the aspect of the identifier that needs interpretation.

PAGE 2 (DATA IDENTIFIER REQUEST)

2. BUSINESS CASE

Explain why you need the proposed assignment. Provide a complete scenario that tells what the business function, operation, or problem is that will be satisfied by a new DI assignment. If the proposed DI is already in use by your organization, please identify how long this identifier has been in use and other organizations you are aware of who employ the same identifier. The DI Maintenance Committee requires enough information to be able to propose an alternate solution if necessary. Be specific because this will also appear in the voting package and will be the only information that voters have on which to base their vote.

PAGE 3 (DATA IDENTIFIER REQUEST)

3. DEFINITIONS

Definitions for new assignments and for industry-specific terms must be complete. For new DIs, provide a proposed assignment and a DI definition. RULES: (1) Acronyms/abbreviations cannot be added to the standards - they must be spelled out. (2) Provide an expanded assignment definition for each DI which is not completely self-explanatory, that is, terms that are not in general business use or that are industry specific. (3) Provide code source references for all externally published (non-ANSI MH10.8.2) code lists cited (use the Form for New or Revised Code Source Reference). If one exists, provide a precise description of the structure of the data as foreseen by your organization for this application. Indicate data elements involved and their format (numeric, alphanumeric, fixed, or variable length, number of decimals). Indicate the business function of each data element in the application.

NOTE – The characters that follow the DI will be determined by the DIMC during the development of the DI in conjunction with the requester.

PAGE 4 (DATA IDENTIFIER REQUEST)

4. MEDIA AND APPLICATION USE

• With what media (e.g., bar code, 2D symbol, RF tag, etc.) do you intend to use the proposed DI?

• At what stage will the DI and data be created and applied?

• On to what and when will the media be applied (package, label, tag, document, . . .)?

• Why does the information need to be machine-readable?

• When and where is the media read?

• Describe the use of the DI by other users than the originator:

• What is the number of potential users?

5. Justification

Describe the benefits (hard and soft savings) expected from the application.

6. Additional Information

Feel free to attach any addition information related to your organization and the application.

Date: _____ Signature: _____

PAGE 5 (DATA IDENTIFIER REQUEST)

Data Identifier Data Dictionary Record

NOTE – When multiple options follow a heading, choose one and remove the others.

Example:

As currently listed: **Class:** Numeric / Alpha / Alphanumeric / Binary

After selection: **Class:** Alpha

DATA DICTIONARY DETAILED ENTRY		
Name:		
		DI: *[not to be filled out by the applicant]*
Definition:		
Class: Numeric / Alpha / Alphanumeric / Binary **Remarks:** **Decimals:** Yes **/** No **Data Min_Length:** **Data Max_Length:** **Case Sensitive:** Yes / No **Characters other than upper-case alpha and 0-9 numbers needed:** Yes / No If Yes – list the characters required.		
Related or applicable standards or regulations:		

Annex D (informative) – System identifiers not controlled by this document

D.1 General

Table 9 lists system identifiers not assigned or control by this standard. These characters, in a leading position of the data structure, denote a data structure maintained by the organization claiming the system identifier.

Table 9 – System Identifiers not controlled by this document

System Identifiers (See Notes)	Data Structure Usage
+	Plus sign. Health Industry Business Communications Council (HIBCC)
&	Ampersand. ICCBBA
=	Equal sign. ICCBBA
FNC1	Function 1. The presence of this character in the first position following the symbology start character of a Code 128 or Data Matrix signifies a GS1 symbol with GS1 formatted data. A Dot Code with digits in the first two positions and no FNC1 signals GS1 formatted data. A QR Code with a mode indicator of 0101 indicates GS1 formatted data.
[)>$^{R}_{S}$	Left square bracket, right parenthesis, greater than sign, record separator character. Data structure compliant to ISO/IEC 15434, *Information technology — Automatic Identification and Data Capture Techniques — Syntax for High Capacity ADC Media*
-	Hyphen – Minus. Pharmaceutical Central Number (PZN), controlled by IFA-ABDATA, Germany (Registration of this system identifier expired on 2016-07-01). Replaced by “9N”.
!	Exclamation mark. Eurocode-IBLS

NOTES –

Previous versions of ANSI MH10.8.2 referred to “system identifiers” as “flag characters.”

Certain characters, e.g., FNC1, have no ISO/IEC 646 (ASCII) equivalent and require special processing for human-readable and universal AIDC media encoding.

Certain characters, e.g., the $^{R}_{S}$ in [)>$^{R}_{S}$, are difficult to represent in human-readable and may require mutually agreed upon dingbats for the representation in human-readable text.

Certain characters, e.g., the exclamation mark, are not universally encodable in the basic character set of all symbologies, e.g., Code 39.

D.2 Controlling authority

None of these character uses are covered or controlled by this standard, nor does this standard recommend the use of these system identifiers.

D.3 Minimum requirements for inclusion within this annex

A system identifier listed in this annex requires two basic principles:

a) The system identifier is integral in a document approved by the governing body of which the system identifier refers.

b) The governing body maintains a URL permitting open ordering of the document. Ideally, the document is available at no charge.

D.4 Availability

Documents for the system identifier contained within this annex can be accessed at the following URLs shown in Table 10.

Table 10 – URLs for additional information on system identifiers

System Identifier	Controlling Document	URL
+	*ANSI HIBC 2.4 Supplier Labeling Standard*	http://www.hibcc.org
&	*ISBT 128 Standard Technical Specification*	http://www.iccbba.org
=	*ISBT 128 Standard Technical Specification*	http://www.iccbba.org
FNC1	*GS 1 General Specifications*	http://www.gs1.org/barcodes-epcrfid-id-keys/gs1-general-specifications
[)>$^{R}_{S}$	ISO/IEC 15434, *Information technology — Automatic Identification and Data Capture Techniques — Syntax for High Capacity ADC Media*	http://www.iso.org
- (Minus sign)	*Pharmaceutical Central Number (PZN)*	Organization: http://www.ifaffm.de Document: http://www.ifaffm.de/en/ifa-codingsystem.html **(Registration of this system identifier expired on 2016-07-01). Replaced by DI "9N".**
! (Exclamation mark)	*Eurocode-IBLS*	Organization: http://www.eurocode.org Document: http://www.eurocode.org/guides/index.html

Annex E (informative) – Data Identifiers for returnable packaging items

E.1 General

The terms “returnable,” “reusable,” and “recyclable” are frequently used interchangeably, although conceptually they are different. A key underlying difference is ownership. Returnable items maintain the original ownership, while the reusable and recyclable items’ ownership is transferred between parties. Figure 8 shows a consumer lifecycle explaining the differences.

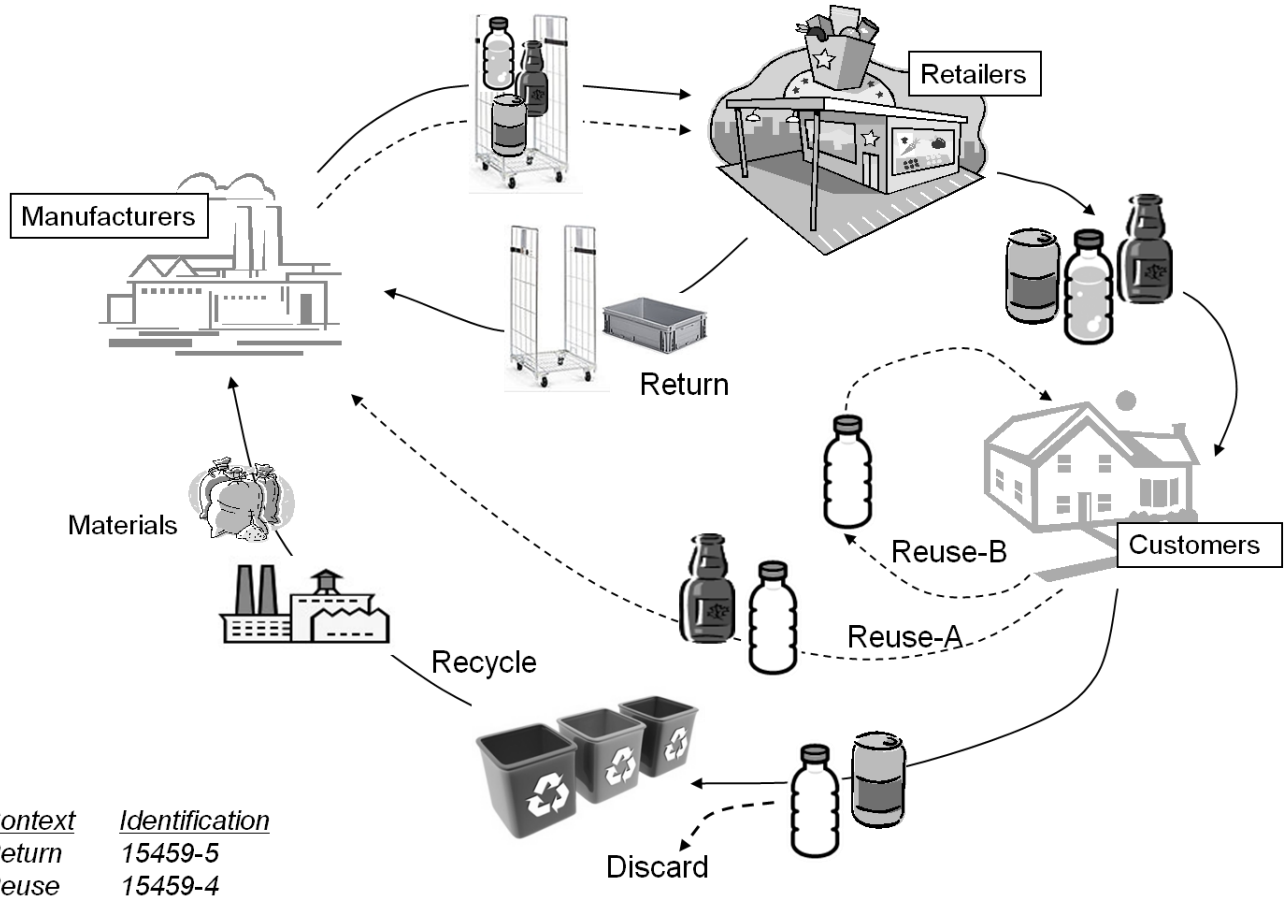

Figure 8 – Returnable, reusable, and recyclable lifecycle

E.1.1 Recyclable item

With a recyclable item, the item ownership is transferred when sold. A typical use recyclable item is a battery, which can be disposed at a recycling station and parts of the content can be recycled and used for manufacturing new batteries.

ISO/IEC 15459-4 addresses unique identification for individual recyclable items (products).

E.1.2 Reusable item

With a reusable item, the ownership is transferred when sold. In some jurisdictions, a deposit serves as an incentive to return the reusable packaging is provided at the time of purchase. The deposit is refunded when the item is returned to the location from which the item was purchased.

A typical use recyclable item is a hard plastic bottle, which can either be reused by the user (i.e., filling the bottle with new content after cleaning it) or disposed at a recycling station and depending on whether its constituent parts can be reused (i.e., cleaned and refilled) or recycled and used for “manufacturing” of new bottles.

ISO/IEC 15459-4 addresses unique identification for individual reusable items (products).

E.1.3 Returnable items

With a returnable item, the item’s ownership remains with the supplier providing the item, even though the item is sent to a customer. The supplier anticipates that the customer will return the asset once it has served its intended purpose.

A typical use of a returnable item is for transportation of goods where the item can be reused in terms of that the content and carrier can change but the owner is still the same.

ISO/IEC 15459-5 addresses unique identification for returnable items.

E.2 Returnable transport items and returnable packaging items

E.2.1 Overview

Some pallets and returnable boxes are equipped with shock absorbing material to protect them from potential damage occurring during in the transportation and handling process. An effective solution is the use of partitions or sorting boards for separating the contents into appropriate groups, making it possible to place many items on a single pallet or returnable box. This kind of accessory for a pallet or returnable box is defined as a “partition”. The typical example of this is a post-type of partition used with the post pallet. Also included in this group is packing material used to place or arrange the contents between the posts, or a packaging material for dividing the inside of the returnable box into several smaller sections.

E.2.2 Partitions

Some pallets and returnable boxes are equipped with shock absorbing material to protect them from potential damage occurring during in the transportation and handling process. An effective solution is the use of partitions or sorting boards for separating the contents into appropriate groups, making it possible to place many items on a single pallet or returnable box. This kind of accessory for a pallet or returnable box is defined as a “partition”. The typical example of this is a post-type of partition used with the post pallet. Also included in this group is packing material used to place or arrange the contents between the posts, or a packaging material for dividing the inside of the returnable box into several smaller sections.

E.2.3 Posts

Figure 9 shows a post that is normally used to secure packing materials or returnable boxes on the pallet. Most posts are made of highly durable substances such as plastic or metal.

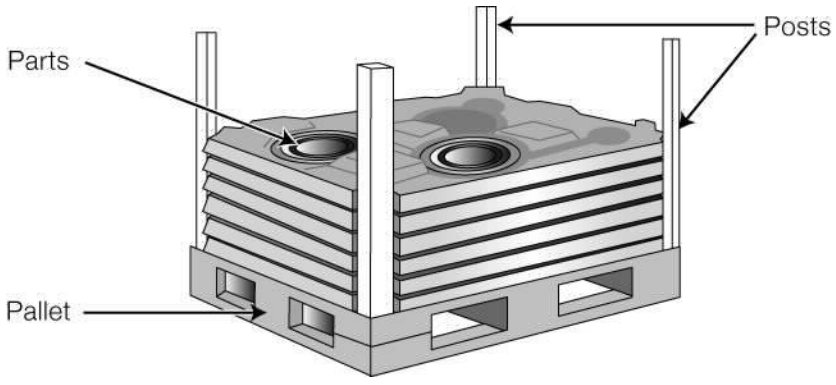

Figure 9 – Post

E.2.4 Packing materials

Some packing materials should be provided to protect the items from shock and vibration that may be encountered during transportation. The packing materials may also protect the item(s) from contact or strikes from other items during shipping. Packing materials are often made from highly resilient flexible substances such as plastic, urethane, and polystyrene foam. Some items may only need corrugated, paperboard, paper, other packing materials for shipment. This guideline is applicable to these packing materials (see Figure 10 and Figure 11).

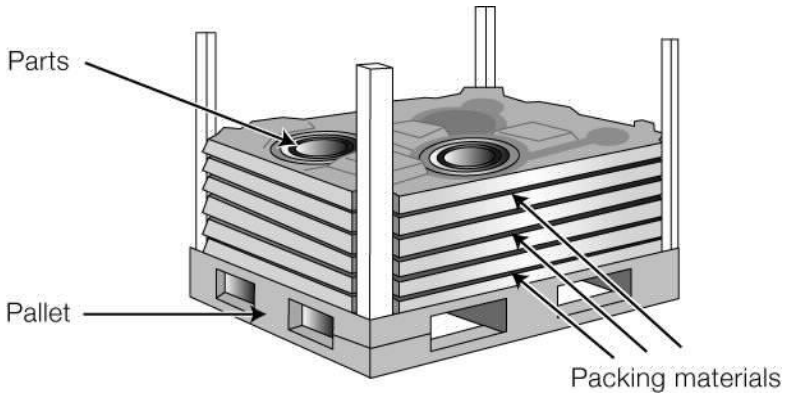

Figure 10 – Packing material

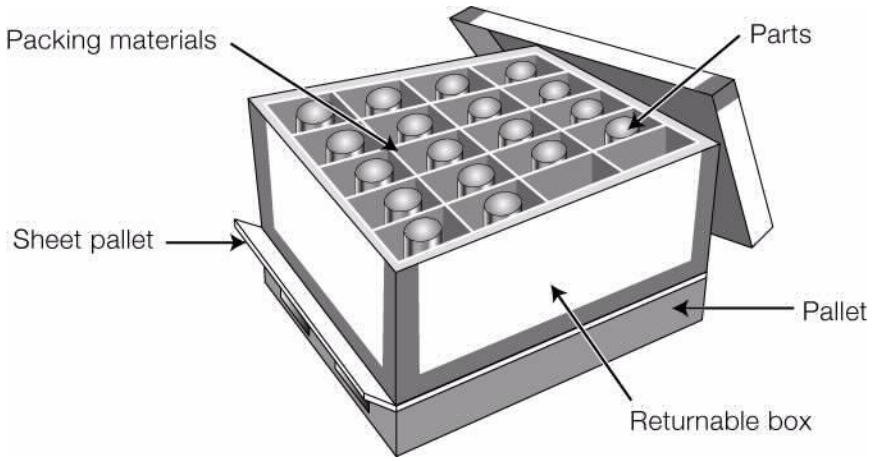

Figure 11 – Packing material

E.3 Identification

E3.1 General

In Figure 10, the base pallet is the actual RTI and the molded plastic layers and posts are the RPIs. If each is serialized, it may be important to associate the RPIs with the parent RTI. In this example, the RTI may have a unique identity of **25B**UN0433257110000001". The four posts might have a unique identity of:

55BUN043325711P000001

55BUN043325711P000002

55BUN043325711P000003

55BUN043325711P000004

…and the six plastic layers might have a unique identity of:

55BUN043325711L000001

55BUN043325711L000002

55BUN043325711L000003

55BUN043325711L000004

55BUN043325711L000005

55BUN043325711L000006

E.3.2 My parent is…

One possibility to associate the RPIs with the parent RTI is with the use of the DI "**1F**" which declares, "My parent is…" Using this example, the third plastic layer would be encoded **55B**UN043325711L000003$^{G}_{S}$**1F**25BUN0433257110000001.

The other layers and posts would be similarly encoded.

E.3.3 I have _____ children.

Yet another possibility is to simply identify the number of RPIs associated with the parent RTI using the DI "**3F**" which declares, "I have ____ children." Using the same example, the base pallet would be encoded as:

25BUN0433257110000001$^{G}_{S}$**3F**10

E.3.4 I have __children and they are…

Yet another possibility is to simply identify the number of RPIs associated with the parent RTI using the DI "**5F**" which declares, "I have ____ children and they are…" Using the same example, the base pallet would be encoded as:

25BUN0433257110000001$^{G}_{S}$**5F**10$^{G}_{S}$55BUN043325711L000001$^{G}_{S}$**55B**UN043325711L000002$^{G}_{S}$**55B**UN043325711L000003$^{G}_{S}$**55B**UN043325711L000004$^{G}_{S}$**55B**UN043325711L000005$^{G}_{S}$**55B**UN043325711L000006$^{G}_{S}$**55B**UN043325711P000001$^{G}_{S}$**55B**UN043325711P000002$^{G}_{S}$**55B**UN043325711P000003$^{G}_{S}$**55B**UN043325711P000004

Annex F (normative) – Material categories and material codes

Material categories and material codes are used to identify the material from which an item is made to facilitate recycling or other reprocessing. Such symbols have been defined for batteries, biomaterial/organic material, glass, metals, paper, and plastics.

The material category codes shown in Table 11 shall be used in relation to the product identification of the actual product, when categorization of material is to be declared.

Table 11 – Material categories

Code	Description
10	Plastic
20	Paper, paperboard, and corrugated
40	Metal
50	Wood
60	Textile
70	Glass
80	Composite packaging materials
00	Other

The codes shown in Table 12 should be placed below the recycling symbol for a recyclable material, i.e., where it is most suitable, as shown in Figure 12.

NOTE – Some recycling codes are shown in http://en.wikipedia.org/wiki/Recycling_codes. Recyclers in the United States have expressed concern with the use of the “chasing arrows” icons shown in the Wikipedia sources because they contribute to consumer confusion and are considered “green-washing” materials. The icon symbols are intended to aide in sortation for *potential* recycling. Icons used for plastic recycling in the United States are provided in ASTM D7611.

Table 12 – Recycling codes

Code	Description	Examples
Plastics (10)		
PET	Polyethylene terephthalate	Polyester fibers, soft drink bottles
HD-PE	High-density polyethylene	Plastic bottles, plastic bags, trash HDPE cans, imitation wood
LD-PE	Low-density polyethylene	Plastic bags, buckets, soap dispenser bottles, plastic tubes
Paper (20)		
CPAP	Corrugated	Transport packaging, moving boxes
PAP	Paper	Mixed paper magazines, mail, newspapers
PBD	Paperboard	Greeting cards, food boxes, shoe boxes
Metals (40)		
FE	Steel	- - -
ALU	Aluminum	- - -
Wood (50)		
FOR	Wood	- - -
NTR	Impregnated Wood	- - -
Textile (60)		
TEX	Textile	- - -
Glass (70)		
GL1	Clear Sort Glass	- - -
GL2	Dark Sort Glass	- - -
Composite (80)		
PAPALU	Corrugated + Aluminum	Liquid storage containers, juice boxes, cardboard cans, Cigarette pack liners, gum wrappers, cartage shells for blanks, fireworks coloring material.
PAPPET	Corrugated + Plastic	Consumer packaging, pet food bags, cold store grocery bags, ice cream containers, cardboard cans, disposable plates

Figure 12 – Examples of encoding recyclable materials