NOT MEASUREMENT SENSITIVE

MIL-STD-130N
w/CHANGE 1
16 November 2012

SUPERSEDING
MIL-STD-130N
17 December 2007

DEPARTMENT OF DEFENSE STANDARD PRACTICE

IDENTIFICATION MARKING OF U.S. MILITARY PROPERTY

AMSC 9251 AREA SESS

DISTRIBUTION STATEMENT A. Approved for public release.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense (DoD).

2. This issue of MIL-STD-130 continues to provide evolving clarification, increased insight, guidance, and marking criteria regarding implementation of machine-readable information (MRI) for identification marking of U.S. military property and automatic data capture. MRI provides a valuable tool for life-cycle asset management from acquisition through manufacture to distribution and final disposition. However, the use of MRI may not be suitable or adequate for every identification marking need. The application of free text item identification marking in combination with or in lieu of MRI is still necessary for many end users of the identified item. Finding the most effective use of both marking protocols, either singly or in combination, is the prime responsibility of the acquiring activity.

3. This standard provides the criteria by which product designers develop specific identification marking requirements for items. Product designers must include in product definition data the specific requirements as to marking content, size, location, application processes, and any required marking materials that will be part of the deliverable item. Simply stating in the product definition data that the marking be in accordance with this standard is not sufficient for initial design, development and manufacture or subsequent production and procurement of replenishment spare items.

4. Acquiring activities must also properly apply this standard in their contractual instruments. As with product designers, simply stating that items produced under a contract shall be marked per MIL-STD-130 is not sufficient. They must clearly state what identification marking is required, to include the specific item unique identification (IUID) provisions as applicable, and that development of specific item marking requirements be based on the criteria provided in this standard.

5. The definitions and acronyms provided in Section 3 and used throughout this standard are oriented primarily towards the product designer's use of prevailing engineering documentation terminology. Some conflict with terminology applied throughout the automatic identification technology disciplines may occur. Every effort has been made to ascertain potential conflicts and provide clear definitions for application in this standard and to cite the published source of existing definitions used.

6. Comments, suggestions, or questions on this document should be addressed to AFLCMC/HIAM, 4170 Hebble Creek Rd., Bldg 280, Door 15, Wright-Patterson AFB, OH 45433-5653, or e-mail to AFCode16@wpafb.af.mil. Since contact information can change, verify contact information currency using the ASSIST Online "DoD Contacts" database at https://assist.dla.mil/.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

SUMMARY OF CHANGE 1 MODIFICATIONS

1. New business rules.

a. Added an optional requirement to mark IUID designated items with the HRI data area title "UID" to designate the Data Matrix symbol containing unique item identifier (UII) data set information. The UID title clearly differentiates IUID marks from item non-UID marks. Example figures were updated to include the "UID" HRI data area title.

b. Incorporated an IUID business rule that permits the use of a single data element in a UII data set to derive a UII that will always be interpreted as the UII regardless of any apparent ambiguity introduced by additional data elements in the symbol.

c. Added a business rule that precludes both a UII data set serial number and a serial number assigned for tracking under a UIT program or in support of DoD supply policy for serialized item management to be encoded in an item's machine-readable information (MRI).

d. Changed Appendix A to show how IUID data elements are linked together to derive a UII.

e. Added a business process and free text titles to identify items that are part of a "matched set".

f. Added a provision that labels may contain a free text warning such as "AUTHORIZED REMOVAL ONLY" or "DO NOT REMOVE" to preclude unintentional removal.

g. Added a business rule for marking "very small parts" using IUID procedures even when the marking cannot meet the minimum requirements of this standard.

2. Revised business rules.

a. Removed the requirement to encode applicable UII data set component elements when the enterprise encoded the UII data set as a single element – the modified requirement now states that the components only need to be encoded if so specified in the procurement contract or MRI protocol.

b. Clarified the concept that an "item mark" for identifying military property includes all of the machine-readable information (MRI) and human-readable information (HRI) available from all the applicable labels and direct marking on the item.

c. Clarified the font characters that are allowed for item unique identification (IUID) marking.

d. For unit, group, and set additional information marking, the requirement for an "acquisition instrument identification number" was footnoted with an asterisk to denote conditional information that shall be included when specifically cited in the contract or purchase order. Prior to this change, the acquisition instrument identification number was required on all unit, group, or set items along with the nomenclature.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

e. Deleted the term "concatenated UII" which is a redundant description of "UII". Used a single term "derived" to describe how specific data elements are linked together to construct a UII.

f. Removed the requirement that free text marking, in lieu of MRI, had to be specified in the contracts for new procurement. MRI marking is "preferred" for all item marking but is only mandatory for IUID designated items; thus, using free text to identify items not designated for IUID marking must be the standard alternative without having to be specified in the procurement contract.

g. Changed the requirement to identify the item's source (manufacturer or supplier) enterprise identifier (EID) and the part or identifying number (PIN) of the marked item from non-mandatory (should) to mandatory (shall) to align the marking criteria with the basic provision that identification information shall be contained in the applied mark, whether machine-readable or free text. Several of the approved marking protocols have no specified minimum information requirement.

h. Revised the use of the phrase "item identification" within the standard to only include instances where applications of the term match the definition (i.e.; the PIN or descriptive identifier for a specific item along with the enterprise identifier of the activity that assigned the PIN or descriptive identifier).

i. Added a requirement that the identification mark should include an EID for the item identification enterprise that assigned the PIN if the selected marking protocol does not provide for "item identification", as defined by this standard. Four marking protocols (AIAG, CEA, NASA, and MH10.8.7) of the seven approved marking protocols have no specific marking requirement that aligns with the "item identification" marking requirement (the A4A, GS1, and free text protocols provide item identification). The data qualifiers preferred by this standard for the item identification enterprise are shown in Table IX for each of the marking protocols.

j. Changed the encode of Data Matrix symbols for a GS1 marked item to require ISO/IEC 15434 syntax and GS1 AIs (see Table VII).

k. Added a footnote business rule for Application Identifier (AI) 240 that describes its use with AI 01 for a GS1 Global Trade Item Number (GTIN) in accordance with the GS1 General Specifications.

l. Added AIs 21 and 01 (GTIN) for use as MRI for other than UII data set elements.

m. Removed AI 95 from the tables and figures where it was used to identify the encoded source (manufacturer or supplier) GS1 Company Prefix information for item identification.

n. Added Text Element Identifier (TEI) FAB (fabricator) for use as MRI and HRI for other than UII data set elements.

o. Added a requirement to clarify that the Data Matrix symbol used for non-serialized item Airlines for America (A4A) protocol marks must also be ISO/IEC 15434 standard compliant when the mark is required by a contract provision. This is not a change from the current requirement that specifies ISO/IEC 15434 syntax for all MRI. However, this requirement is in opposition to the A4A SPEC2000 protocol for

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

non-serialized item marking, which specifically states that the ISO/IEC 15434 syntax will not be used for non-serialized item marking.

p. Added text to clarify that the requirement for part marking with free text information, which includes design activity information, is based on a condition that MRI marking is not on the item. Also changed applicable figures to identify the examples that are for a "part" and those that are for a "unit" – "unit" marks require additional free text information to include the nomenclature.

q. Changed the figures to update the encoded information and notes to match changed IUID business rules published in the DoD Guide to Uniquely Identifying Items.

r. Included the Mobile Equipment Identifier (MEID), the successor to the ESN, as a DoD recognized IUID equivalent.

s. Changed Table VI to add Data Identifier 49P and Text Element Identifier (TEI) ECI as an additional data element not used in the UII to designate that an item is subject to export control and/or restrictions as identified in the Wassenaar Arrangement.

t. Some of the figure examples were changed to indicate DoD's preference for the Data Matrix symbol in an MRI marking.

3. Administrative changes.

a. Corrected editorial errors and corrected MIL-STD-962 compliance style errors (not noted in the paragraph modifications list below), added new definition reference documents cited in revised or new procedural changes. Moved acronyms from Appendix A to a Section 3 alphabetized list. Changed the section 3 definitions from numbered paragraphs to an alphabetized list.

b. Changed all acronyms that were not proper nouns to lower case in accordance with (IAW) MIL-STD-962 style examples that follow the cited United States Government Printing Office (GPO) Style Manual. Retained as proper nouns the code and number entities defined, stored, and maintained by a single authoritative source.

c. Changed the figures to update the encoded information and notes to match changed IUID business rules published in the DoD Guide to Uniquely Identifying Items.

d. Added a Section 6 non-mandatory note that identifies MIL-STD-130 as the source document for two new Data Item Descriptions (DID) that must be listed on a Contract Data Requirements List (DD Form 1423) when the Department of Defense (DoD) requires plans, reports, drawings, or other data products to be generated. The DIDs are filed for reference in the DoD ASSIST database.

e. Added USTRANSCOM as a Review Activity.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

CONTENTS

PARAGRAPH **PAGE**

1. SCOPE ---------- 1
   1.1 Scope. ---------- 1
   1.2 Figures. ---------- 1
   1.3 Application exclusions. ---------- 1
   1.4 Application and tailoring. ---------- 2
2. APPLICABLE DOCUMENTS ---------- 2
   2.1 General. ---------- 2
   2.2 Government documents. ---------- 2
      2.2.1 Specifications, standards, and handbooks. ---------- 2
      2.2.2 Other Government documents, drawings, and publications. ---------- 3
   2.3 Non-Government publications. ---------- 4
   2.4 Order of precedence. ---------- 7
3. DEFINITIONS ---------- 7
   3.1 Acronyms used in this standard. ---------- 7
   3.2 Term Definitions. ---------- 11
4. GENERAL REQUIREMENTS ---------- 20
   4.1 Methods of applying. ---------- 20
   4.2 Location, size, and content. ---------- 20
   4.3 Permanency and legibility. ---------- 20
   4.4 Identification plates, identification tags, and identification bands. ---------- 21
   4.5 Deleterious effect. ---------- 21
   4.6 Abbreviated information. ---------- 21
   4.7 Type of lettering/characters. ---------- 21
   4.8 Variable marking information. ---------- 21
   4.9 U.S. marking to indicate Government ownership. ---------- 21
   4.10 Vendor item control items. ---------- 21
   4.11 IUID designated items. ---------- 21
   4.12 Associated Data Item Descriptions (DID). ---------- 21
5. DETAILED REQUIREMENTS ---------- 22
   5.1 General. ---------- 22
      5.1.1 Item (part, unit, group, set) mark information components. ---------- 22
         5.1.1.1 Identification marking. ---------- 22
         5.1.1.2 Item unique identification (IUID) information. ---------- 23
         5.1.1.3 Unit, group, and set additional information. ---------- 23
      5.1.2 Exceptions. ---------- 23
   5.2 MRI marking. ---------- 23
      5.2.1 Minimum information content. ---------- 24
         5.2.1.1 Applicable enterprise identifier (EID) ---------- 24
         5.2.1.2 Serial number (see 3.2). ---------- 25
         5.2.1.3 Part or identifying number (PIN – see 3.2) or unique lot / batch number. ---------- 25

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

CONTENTS

PARAGRAPH PAGE

5.2.1.4 DoD recognized IUID equivalent. ----26
5.2.1.5 Assignment of IUID to legacy items. ----26
5.2.2 Machine-readable information (MRI) marking protocols. ----26
5.2.2.1 Airlines for America (A4A). ----26
5.2.2.2 Automotive Industry Action Group (AIAG). ----26
5.2.2.3 Consumer Electronics Association (CEA). ----26
5.2.2.4 GS1 System. ----27
5.2.2.5 National Aeronautics and Space Administration (NASA). ----27
5.2.2.6 Other. ----27
5.2.3 Data carriers. ----27
5.2.3.1 Linear bar code symbol. ----27
5.2.3.2 Two-dimensional symbol. ----27
5.2.4 Data Matrix symbol syntax. ----27
5.2.5 Semantics. ----27
5.2.6 Data area titles. ----28
5.2.7 MRI marking quality. ----28
5.2.7.1 Linear bar code quality. ----28
5.2.7.2 Data Matrix symbol quality. ----28
5.2.7.2.1 Acceptance criteria. ----28
5.2.7.2.2 Calibration. ----29
5.2.7.2.3 Curved surfaces. ----29
5.2.7.2.4 Very small parts. ----29
5.2.7.2.5 Other quality methodologies. ----29
5.2.8 Obliteration of direct marked Data Matrix symbol. ----29
5.3 Free text marking protocol for item identification. ----29
5.3.1 Part mark when the source manufacturer is the design activity. ----29
5.3.2 Part mark for items sourced from manufacturers other than the design activity. 30
5.3.3 Part marking in licensee-licensor agreement. ----30
5.3.4 Marking items acquired from, but not manufactured by, the design activity. ----30
5.3.5 Subassemblies and assemblies that do not require identification plates. ----30
5.3.6 Source control items. ----31
5.3.7 Matched set items. ----31
5.4 Altered or selected items ----31
5.4.1 Item UID marks. ----31
5.4.2 Item non-UID marks. ----31
5.5 Maintenance actions. ----31
5.6 Items identified by military or industry association specifications and standards. ----32
5.7 Warranted items. ----32
5.8 Security classification. ----32
5.9 Electrostatic discharge (ESD) sensitive items. ----32

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

CONTENTS

PARAGRAPH **PAGE**

6. NOTES ----------32
6.1 Intended use. ----------32
6.2 Subject term (key word) listing. ----------32
6.3 Item unique identification (IUID). ----------33
6.4 Unique item identifier (UII) constructs. ----------33
6.5 Data qualifiers. ----------33
6.6 IUID consultation. ----------34
6.7 Data format indicator for TEIs. ----------34
6.8 Associated Data Item Descriptions (DID). ----------34
6.9 Changes from previous issue. ----------34

APPENDIX A ----------57

A.1 SCOPE ----------57
A.1.1 Scope. ----------57

A.2 UII DATA STRUCTURE ----------57
A.2.1 UII data set. ----------57
A.2.2 Semantics. ----------57
A.2.3 Business rules for deriving a UII. ----------57

TABLE **PAGE**

TABLE I. Recommended minimum character height. ----------21

TABLE II. Marking methods. ----------35

TABLE III. Consideration criteria in selection of marking methods. ----------37

TABLE IV. UII construct business rules and supplemental data. ----------38

TABLE V. Issuing agency codes for use in unique identification. ----------39

TABLE VI. Data qualifiers for MRI (UID and non-UID) usage. ----------40

TABLE VII. Data qualifiers and their usage for UII constructs/equivalents. ----------43

TABLE VIII. Preferred data area titles. ----------44

TABLE IX. Enterprise data for item identification. ----------45

TABLE A-I. Derive a UII from Application Identifier (AI) qualified data. ----------59

TABLE A-II. Derive a UII from Data Identifier (DI) qualified data. ----------60

TABLE A-III. Derive a UII from Text Element Identifier (TEI) qualified data. ----------61

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

CONTENTS

FIGURE **PAGE**

FIGURE 1. Example of a legacy identification plate for a unit item with IUID label added. ----46

FIGURE 2. Example CEA label for a part (UII Construct #1) with a Data Matrix symbol.-----47

FIGURE 3. Example CEA label for a part (UII Construct #1) with a Data Matrix symbol.-----47

FIGURE 4.A. Example CEA new item label for a part (UII Construct #2) with Code 128 and Data Matrix symbols. ----------48

FIGURE 4.B. Example CEA modified item labels for a part (UII Construct #2) with Code 128 and Data Matrix symbols.----------48

FIGURE 5. Example A4A labels for a part (UII Construct #1) with Data Matrix symbols. ----49

FIGURE 6. Example A4A labels for a part (UII Construct #2) with Data Matrix symbols. ----49

FIGURE 7. Identification of a part with a changed PIN sourced from other than the original enterprise. ----------50

FIGURE 8. Example GS1 System label for a part (equivalent UII serialized within the EID) with GS1-128 and Data Matrix symbols.----------51

FIGURE 9. Example GS1 System label for a part (equivalent UII (GIAI) constructed using a serialized GTIN) with GS1-128 and Data Matrix symbols. ----------52

FIGURE 10. Minimum MRI marking with HRI scenarios (see Note 1). ----------53

FIGURE 11. Example of free text label for a unit item. ----------54

FIGURE 12. Example AIAG B-4 label (non-UID) for a part.----------54

FIGURE 13. Example of GS1 System label (non-UID) for a part. ----------54

FIGURE 14. Example of GS1 System label. ----------54

FIGURE 15. Obliteration of a Data Matrix symbol. ----------55

FIGURE 16. Examples of warranty markings.----------55

FIGURE 17. Electrostatic discharge (ESD) sensitive identification. ----------56

FIGURE 18. Human-readable information examples. ----------56

CONCLUDING MATERIAL **PAGE**

Custodians----------62

Preparing Activity----------62

Review Activities----------62

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

1. SCOPE

1.1 Scope. This standard provides the item marking criteria for development of specific marking requirements and methods for identification of items of military property produced, stocked, stored, and issued by or for the Department of Defense (DoD). This standard addresses criteria and data content for both free text and machine-readable information (MRI) applications for identification marking of U.S. military property.

1.2 Figures. Unless stipulated otherwise in the referring text, the figures in this standard are intended only as illustrations to aid the user in understanding the practices described in the text. The figures should not be construed as requirements or as preferred practices. In some cases, figures show a level of detail as needed for emphasis; in other cases figures were deliberately left incomplete to illustrate only a concept or facet thereof. The presence or absence of figures has no bearing on the applicability of the stated requirement or practice.

1.3 Application exclusions. Military items covered by the following documents are excluded from the provisions of this standard for items that do not meet the item unique identification (IUID) marking criteria unless otherwise specified in detail specifications, standards, contracts, or purchase orders.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-1	Electron Tubes, General Specification for
MIL-B-18	Batteries, Non-Rechargeable, Dry (Inactive for new design)
MIL-PRF-19500	Semiconductor Devices, General Specification for
MIL-DTL-32075	Label: For Clothing, Equipage, and Tentage, (General Use)
MIL-PRF-38534	Hybrid Microcircuits, General Specification for
MIL-PRF-38535	Integrated Circuits (Microcircuits) Manufacturing, General Specification for
MIL-R-81128	Rocket Motors, Identification of Parts and Assemblies, Requirements for

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-290	Packaging and Marking of Petroleum and Related Products
MIL-STD-709	Ammunition Color Coding
MIL-STD-792	Identification Marking Requirements for Special Purpose Components
MIL-STD-1168	Ammunition Lot Numbering and Ammunition Data Card
MIL-STD-1285	Marking of Electrical and Electronic Parts
MIL-STD-13231	Marking of Electronic Items

NON-GOVERNMENT PUBLICATIONS

SAE-ARP6002	Marking; Standard Hose, Aircraft
ASTM B666/B666M	Standard Practice for Identification Marking of Aluminum and Magnesium Products. (DoD adopted)

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

1.4 Application and tailoring. Evaluation by the acquiring activity of the requirements (sections, paragraphs, or sentences) in this standard is essential to determine the extent to which each requirement can be tailored and placed on contract in order to impose only the minimum essential needs of the Government.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in Sections 3, 4, and 5 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements cited in Sections 3, 4, and 5 of this standard, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

FEDERAL SPECIFICATIONS

A-A-208	Ink, Marking, Stencil, Opaque (Porous and Nonporous Surfaces)
A-A-56032	Ink, Marking, Epoxy Base
GG-P-455	Plates and Foils, Photographic (Photosensitive Anodized Aluminum)

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-15024	Plates, Tags and Bands for Identification of Equipment, General Specification For
MIL-DTL-19834	Plates, Identification or Instruction, Metal Foil, Adhesive Backed, General Specification For

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-129	Military Marking For Shipment and Storage
MIL-STD-196	Joint Electronics Type Designation System
MIL-STD-1686	Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

DEPARTMENT OF DEFENSE HANDBOOKS

MIL-HDBK-263	Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices) (Metric)

(Copies of these documents are available online at https://assist.dla.mil/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE INSTRUCTION (DoDI)

DoDI 4151.19	Serialized Item Management (SIM) for Materiel Maintenance
DoDI 8320.04	Item Unique Identification (IUID) Standards for Tangible Personal Property

(Copies of these documents are available online at http://www.dtic.mil/whs/directives/ or from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402-0001.)

DEPARTMENT OF DEFENSE REGULATION

DoD 4140.1-R	DoD Supply Chain Materiel Management Regulation

(Copies of this document are available online at http://www.dtic.mil/whs/directives/ or from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402-0001.)

DEFENSE FEDERAL ACQUISITION REGULATION SUPPLEMENT

252.211-7003	Item Identification and Valuation

(Copies of this document are available on line at http://farsite.hill.af.mil/ or from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954.)

DEPARTMENT OF DEFENSE ACTIVITY ADDRESS DIRECTORY

DoD 4000.25-6-M	Department of Defense Activity Address Directory (DODAAD)

(Copies of this document are available from: ATTN: DASC-VC Pubs Suite 0119, DLA Administrative Support Center, 8725 John J. Kingman Road, Fort Belvoir, VA 22060-6220.)

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

DEPARTMENT OF DEFENSE DATA ITEM DESCRIPTIONS

DI-MGMT-81803	Item Unique Identification (IUID) Marking Plan
DI-MGMT-81804	Item Unique Identification (IUID) Marking Activity and Verification Report

(Copies of these documents are available online at https://assist.dla.mil/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NASA-STD-6002	Applying Data Matrix Identification Symbols on Aerospace Parts
NASA-HDBK-6003	Application of Data Matrix Identification Symbols to Aerospace Parts Using Direct Marking Methods/Techniques

(Copies of these documents are available on line at http://standards.nasa.gov or from USAInfo, 1092 Laskin Road, Virginia Beach, Virginia, 23451.)

DEFENSE LOGISTICS AGENCY (DLA) LOGISTICS INFORMATION SERVICE

DoD 4100.39-M	Federal Logistics Information System (FLIS) Procedures Manual

(Copies of this document are available from the DLA Logistics Information Service (DLIS), 74 Washington Ave. N, Ste 7, Battle Creek, MI 49017-3084, or www.dlis.dla.mil.)

NATIONAL INDUSTRIAL SECURITY PROGRAM

DoD 5220.22-M	National Industrial Security Program Operating Manual

(Copies of this document are available online at http://www.dtic.mil/whs/directives/ or from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402-0001.)

UNDER SECRETARY OF DEFENSE FOR ACQUISITION POLICY AND TECHNOLOGY

Department of Defense Guide to Uniquely Identifying Items

Department of Defense Guidelines for the Virtual Unique Item Identifier (UII)

Department of Defense Guide to Item Unique Identification Quality Assurance

(Copies of these documents are available on line at http://www.acq.osd.mil/dpap/pdi/uid/index.html or from Defense Procurement & Acquisition Policy, 3060 Defense Pentagon, Room 3E1044, Washington, DC 20301-3060.)

2.3 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of documents are those cited in the solicitation or contract.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

AIRLINES for AMERICA (A4A)

SPEC2000	Chapter 9 – Automated Identification and Data Capture
CSDD	Common Support Data Dictionary (CSDD)

(Copies of these documents are available from A4A Publications Department, 1301 Pennsylvania Ave., NW, Suite 1100, Washington DC 20004, or http://www.airlines.org.)

ALLIANCE FOR TELECOMMUNICATIONS INDUSTRY SOLUTIONS (ATIS)

ATIS-0300220	Representation of the Communications Industry Manufacturers, Suppliers, and Related Service Companies for Information Exchange

(Copies of this document are available from Alliance for Telecommunications Industry Solutions (ATIS) 1200 G Street, N.W., Suite 500, Washington, DC 20005, or http://www.atis.org/docstore/default.aspx.)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME Y14.24	Types and Applications of Engineering Drawings
ASME Y14.100	Engineering Drawing Practices

(Copies of these documents are available from ASME Information Central Orders/Inquiries, P.O. Box 2300, Fairfield, NJ 07007-2300 or www.asme.org.)

ASSOCIATION FOR AUTOMATIC IDENTIFICATION AND MOBILITY (AIM)

AIM DPM-1-2006	Direct Part Mark (DPM) Quality Guideline

(Copies of this document are available from Association for Automatic Identification and Mobility, 125 Warrendale-Bayne Road, Warrendale, PA 15096, or http://www.aimglobal.org.)

AUTOMOTIVE INDUSTRY ACTION GROUP (AIAG)

AIAG B-4	Parts Identification and Tracking Application Standard
AIAG B-17	2D Direct Parts Marking Guideline

(Copies of these documents are available from Automotive Industry Action Group, 26200 Lahser, Suite 200, Southfield, Michigan 48034-7100, or http://www.aiag.org/.)

CONSUMER ELECTRONICS ASSOCIATION (CEA)

CEA-706	Component Marking Standard

(Copies of this document are available from Consumer Electronics Association (CEA), 1919 S. Eads Street, Arlington, VA 22202, or http://www.ce.org/.)

ELECTROSTATIC DISCHARGE ASSOCIATION (ESD ASSOCIATION)

ANSI/ESD S20.20	Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)

(Copies of this document are available from ESD Association, 7900 Turin Road, Bldg 3, Ste 2, Rome, NY 13440-2069, http://esda.org/standards.html.)

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

GS1 SYSTEM

GS1 General Specifications

Guidelines for Department of Defense Unique Identification (UID) Marking Using the GS1 System

(Copies of these documents are available from GS1 US, 7887 Washington Village Dr., Dayton, OH 45459-8605, or http://www.gs1us.org/.)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)/ INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

ISO 2859-1	Sampling procedures for inspection by attributes – Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
ISO/IEC 15415	Information technology – Automatic identification and data capture techniques – Bar code symbol print quality test specification – Two-dimensional symbols
ISO/IEC 15416	Information technology – Automatic identification and data capture techniques – Bar code print quality test specification – Linear symbols
ISO/IEC 15417	Information technology – Automatic identification and data capture techniques – Code 128 bar code symbology specification
ISO/IEC 15418	Information technology – Automatic identification and data capture techniques – GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance
ISO/IEC 15420	Information technology – Automatic identification and data capture techniques – EAN/UPC bar code symbology specification
ISO/IEC 15434	Information technology – Automatic identification and data capture techniques – Syntax for high-capacity ADC media
ISO/IEC 15459-2	Information technology – Unique identifiers – Part 2: Registration procedures
ISO/IEC 15459-4	Information technology – Unique identifiers – Part 4: Individual items
ISO/IEC 16022	Information technology – Automatic identification and data capture techniques – Data Matrix bar code symbology specification
ISO/IEC 16388	Information technology – Automatic identification and data capture techniques – Code 39 bar code symbology specification
ISO/IEC 19762-1	Information technology – Automatic identification and data capture (AIDC) techniques – Harmonized vocabulary – Part 1: General terms relating to AIDC
ISO/IEC TR 29158	Information technology – Automatic identification and data capture techniques – Direct Part Mark (DPM) Quality Guideline

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

Copies of these documents are available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112-5776. Electronic copies are available through http://global.ihs.com.)

MATERIAL HANDLING INDUSTRY OF AMERICA (MHIA)

MHI MH10.8.2	Data Identifier and Application Identifier Standard
MHI MH10.8.7	Labeling and Direct Product Marking with Linear Bar Code and Two-Dimensional Symbols

(Copies of these documents are available from Material Handling Industry of America, 8720 Red Oak Blvd., Suite 201, Charlotte, NC 28217-3992 or http://www.mhia.org.)

SAE INTERNATIONAL

AS9132	Data Matrix Quality Requirements for Parts Marking

(Copies of this document are available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or http://www.sae.org/servlets/index.)

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)

ESN Assignment Guidelines and Procedures.

Mobile Equipment Identifier (MEID) GHA (Global Hexadecimal Administrator) Assignment Guidelines and Procedures

(Copies of these documents are available from Telecommunications Industry Association, 2500 Wilson Blvd., Suite 300, Arlington, VA 22201, http://www.tiaonline.org/standards/resources/esn/.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. DEFINITIONS

3.1 Acronyms used in this standard. The following acronyms are used in this standard. Bar code human-readable information (data titles, translation, and interpretation) will be in accordance with the marking protocols cited for use in this standard. The change list includes the A4A Common Support Data Dictionary (CSDD) Text Element Identifiers (TEI), which also serve as abbreviated pseudo data area titles.

1D	-	one-dimensional
2D	-	two-dimensional
ACTY	-	activity
ADP	-	automatic data processing
A4A	-	Airlines for America
AI	-	Application Identifier
AIAG	-	Automotive Industry Action Group

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

AIM	-	Association for Automatic Identification and Mobility
AIT	-	automatic identification technology
AMSC	-	Acquisition Management Systems Control
ANSI	-	American National Standards Institute
ASC	-	American Standards Committee
ASME	-	American Society of Mechanical Engineers
ASSIST	-	Acquisition Streamlining & Standardization Information System
ASSY	-	assembly
ASTM	-	American Society for Testing and Materials
ATIS	-	Alliance for Telecommunications Industry Solutions
AT&L	-	Acquisition, Technology and Logistics
BII	-	TEI for batch item identifier
CAG	-	TEI for CAGE/NCAGE
CAGE	-	Commercial and Government Entity
CDA	-	current design activity
CEA	-	Consumer Electronics Association
CMTI	-	Cellular Mobile Telephone Identifier
CNCT#	-	contract number
COTS	-	commercial off-the-shelf
CSDD	-	Common Support Data Dictionary
CUR	-	current
CURR	-	current
DAI	-	design activity identification
DES	-	design
DFARS	-	Defense Federal Acquisition Regulation Supplement
DI	-	Data Identifier
DID	-	Data Item Description
DLIS	-	DLA Logistics Information Service
DLA	-	Defense Logistics Agency
DoD	-	Department of Defense
DODAAC	-	Department of Defense Activity Address Code
DoDI	-	Department of Defense Instruction
DPM	-	direct part mark
DTL	-	detail
DUN	-	TEI for DUNS
DUNS	-	Data Universal Numbering System (Dun & Bradstreet) (alt. D-U-N-S®)
D-U-N-S®	-	Data Universal Numbering System (Dun & Bradstreet) (alt. DUNS)
DSN	-	design

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

EAN	-	European Article Number
ECC	-	error checking and corrections (for Data Matrix symbology)
EHIBCC	-	European Health Industry Business Communications Council
EID	-	enterprise identifier
ESD	-	electrostatic discharge
ESN	-	Electronic Serial Number
EUC	-	TEI for GS1 Company Prefix
FAB	-	TEI for fabricator
FNC1	-	Function Code 1
GIAI	-	Global Individual Asset Identifier
GRAI	-	Global Returnable Asset Identifier
GTIN	-	Global Trade Item Number
HDBK	-	handbook
HRC	-	Rockwell C Scale (metal hardness)
HRI	-	human-readable information
IAC	-	issuing agency code
IAW	-	in accordance with
ID	-	identification
IF	-	intermediate frequency
ISO/IEC	-	International Organization for Standardization / International Electrotechnical Commission
IUID	-	item unique identification
JMQWG	-	Joint Marking Qualification Working Group
LOT	-	lot number (TEI for lot number unique within the original part number)
LOTNO	-	lot number (alt.LOT #)
LTN	-	TEI for enterprise lot number unique within the marked enterprise
M	-	matched set identifier
MEID	-	Mobile Equipment Identifier
MANF	-	manufacturer
MIC	-	Manufacturer Identification Code
MIL	-	military
MRI	-	machine-readable information
MFR	-	manufacturer (TEI for manufacturer)MILSCAP-Military Standard Contract Administration Procedures
MOD	-	modulation
MSET	-	matched set identifier
MSD	-	matched set identifier
MS	-	matched set identifier
MS	-	military specification

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

MSID	-	matched set identifier
NAS	-	National Aerospace Standard
NASA	-	National Aeronautics and Space Administration
NATO	-	North Atlantic Treaty Organization
NCAGE	-	NATO Commercial and Government Entity
NO	-	number
NSN	-	National Stock Number or NATO Stock Number
ODA	-	original design activity
ORG	-	original
ORIG	-	original
OPN	-	original part number (alt. O/PN)
OUSD	-	Office of the Under Secretary of Defense
PIN	-	part or identifying number
PN	-	part number (alt. P/N)
PNO	-	TEI for original part number
PNR	-	TEI for current part number
PO	-	purchase order number
PO#	-	purchase order number
SAE	-	SAE International (SAE is not an acronym)
SC	-	symbol contrast
SER	-	serial number (TEI for serial number) SERNO-serial number
SEQ	-	TEI for sequential serial number (within part number)
SN	-	serial number (alt. S/N)
SOCN	-	source control notation
SPL	-	supplier (TEI for supplier)
SPLR	-	supplier
STD	-	standard
TEI	-	Text Element Identifier
TR	-	technical report
UCN	-	TEI for unique component ID number
UID	-	unique identification
UID		TEI for unique identifier
UII	-	unique item identifier
UIT	-	unique item tracking
UPC	-	Universal Product Code
USD	-	Under Secretary of Defense
U.S.	-	United States (alt. US)
USN	-	TEI for universal serial number

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

UST - TEI for universal serial tracking number

VIN - vehicle identification number

VICD - vendor item control drawing

3.2 Term Definitions.

Acquiring activity. The element of the agency/command that identifies and initiates a contract requirement or may have been tasked by another agency/command to be responsible for developing the contract requirement and monitoring the acquisitions. This can either be a Government or contractor flow-down to their suppliers.

Acquisition instrument identification number. The Government acquiring activity's contract or purchase order number. When an order shows both a contract number and a purchase order number, the number used is determined by the acquiring activity.

Acquisition Streamlining and Standardization Information System (ASSIST). The official database containing information about standardization documents used in the DoD. ASSIST also provides electronic access to government documents included in the database over the Internet. ASSIST can be accessed at https://assist.dla.mil.

Altered item. An item whose drawing delineates the physical alteration of the existing item under the control of another design activity or defined by a nationally recognized standard. The drawing type permits the required alteration to be performed by any competent manufacturer including the original manufacturer, the altering design activity, or a third party. It establishes a new item identification for the altered item. (In accordance with (IAW) ASME Y14.24)

Application Identifier (AI). The field of two or more characters at the beginning of an element string that uniquely defines its format and meaning. (IAW GS1 General Specifications)

NOTE: For IUID marking, allowable AIs are listed in Table VII and explained in Table VI notes.

Approved Item Name. The name which is selected (approved by the Directorate of Logistics Information Management, DLIS, as the official designation for an item of supply), and delimited where necessary, to establish a basic concept of the item of supply to which the item belongs and with which it should be compared. It may be a basic name, or a basic name followed by those modifiers necessary to differentiate between item concepts having the same basic name. Approved item names, basic names, and colloquial names are published in the Federal Item Name Directory for Supply Cataloging (Cataloging Handbook H6). (IAW DoD 4100.39-M).

Article. A nonspecific term used to denote any unit or product including materials, parts, assemblies, equipment, accessories, and computer software.

Assembly. A number of parts or subassemblies or any combination thereof joined together to perform a specific function and subject to disassembly without degradation of any of the parts (e.g., power shovel-front, fan assembly, audio-frequency amplifier).

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

NOTE: The distinction between an assembly and a subassembly is determined by individual application. An assembly in one instance may be a subassembly in another where it forms a portion of a higher assembly. (IAW ASME Y14.100)

Batch number. An identifying number assigned by the enterprise to a designated group of items referred to as a batch. A batch may be a division of a lot.

Commercial and Government Entity (CAGE) Code. CAGE Codes are used internationally where they are also known as NCAGE Codes. CAGE Codes issued to U.S. organizations are a five-position alphanumeric with a numeric in the first and last positions (e.g., 27340, 2A345, 2AA45, or 2AAA5), excluding the letters I and O. The codes are issued for organizations that manufacture and/or control the design of items supplied to a Government military or civil agency or assigned to U.S. organizations, primarily for identifying contractors in the mechanical interchange of data required by MILSCAP and the Service/Agency automatic data processing (ADP) systems. (IAW DoD 4100.39-M Volume 7)

Commercial off-the-shelf (COTS) item. A product, material, component, sub-system, or system sold or traded to the general public in the course of normal business operations at prices based on established catalog or market prices.

Current design activity (CDA). The design activity currently responsible for the design of an item. This may be the original design activity or a design activity to which the design responsibility has been transferred. (IAW ASME Y14.100)

Data area titles. Data area titles are text that identify data areas comprised of information in machine-readable or human-readable form (see Table VIII).

NOTE: Data area titles may be prefixed, if relevant, by the appropriate data qualifier/identifier (see Figure 2). (IAW ISO/IEC 19762-1)

Data carrier. A physical pattern or structure that contains encoded machine-readable characters. The carrier can be a structured pattern of markings, such as a one-dimensional (1D) or two-dimensional (2D) symbol.

Data Identifier (DI). A specified character (or string of characters) that defines the general category or intended use of the data that follows. ANSI MH10.8.2 Data Identifiers have a format of one alphabetic character alone, or one alphabetic character prefixed by one, two, or three numeric characters. (IAW ANSI MH10.8.2)

NOTE: For IUID marking, allowable DIs are listed in Table VII and explained in Table VI notes.

Data Item Description (DID). A standardization document that defines the data content, preparation instructions, format, and intended use of data required of a contractor. DIDs are prepared in accordance with MIL-STD-963.

Data qualifier. A specified character (or string of characters) that immediately precedes a data field that defines the general category or intended use of the data that follows. (IAW DFARS 252.211-7003)

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

Data Universal Numbering System (D-U-N-S). A nine-digit number, assigned by Dun & Bradstreet to each business location in their global database, widely used as a tool for identifying, organizing, and consolidating information about businesses.

Design activity. An organization that has, or has had, responsibility for the design of an item. (IAW ASME Y14.100)

Design activity identification (DAI). A unique identifier that distinguishes one design activity or organization from another design activity or organization. Examples of activity identification include activity name, activity name and address, or CAGE Code.

Direct part marking. Markings applied directly to an item's surface using intrusive or non-intrusive identification techniques.

Document. A term applicable to the specifications, drawings, lists, standards, pamphlets, reports, and printed, typewritten or other information, relating to the design, procurement, manufacture, testing, or acceptance inspection of items or services. (IAW ASME Y14.100) These may be printed, imprinted, or electronic format.

DoD Activity Address Code (DODAAC). A distinct six-position alphanumeric code assigned to identify specific units, activities, or organizations. (IAW DLM 4000.25, Vol 6)

Electronic Serial Number (ESN). The unique identification number embedded or inscribed on the microchip in a wireless phone by the manufacturer. The ESN is composed of two basic components, the manufacturer's code and the serial number, in accordance with TIA ESN Assignment Guidelines and Procedures.

Electrostatic discharge (ESD) sensitive items. Electronic parts having sensitive characteristics (e.g., thin-layered internal composition) and delicate, miniaturized construction that are susceptible to damage or degradation, in various degrees, from environmental field forces (electrostatic, electromagnetic, magnetic, or radioactive). This susceptibility also extends to the standard electronic modules, printed circuit boards, printed wiring boards, and circuit card assemblies containing one or more of these sensitive electronic parts.

Enterprise identifier (EID). A unique identifier used to distinguish one activity or organization from another activity or organization. Examples of enterprise identifiers are: Commercial and Government Entity (CAGE) Code; Department of Defense Activity Address Code (DODAAC); Dun & Bradstreet's Data Universal Numbering System (D-U-N-S); North Atlantic Treaty Organization (NATO) CAGE (NCAGE) Code; and GS1 Company Prefix. See 3.2 definitions of the EID activities. An enterprise identifier code is uniquely assigned to an activity by an issuing agency registered in accordance with procedures outlined in ISO/IEC 15459-2. An enterprise may be an entity such as a design activity, manufacturer, supplier, depot, program management office, or a third party.

Free text. Human-readable information other than what is encoded in a machine-readable medium. (IAW ISO/IEC 19762-1) For the purposes of this standard, free text includes applied data and information not associated with machine-readable information if present.

NOTE: This information may be needed by one or more users of the label. An example of free text is a product description. See Figure 18.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

Group. A collection of units, assemblies, or subassemblies that is a subdivision of a set that is not capable of performing a complete operational function. (Example: antenna group, indicator group)

GS1. GS1 is an international not-for-profit association comprised of member organizations, which administer the GS1 Company Prefixes and develop worldwide standards and solutions for identification numbers, data carriers, electronic commerce, and global data synchronization.

Human-readable information (HRI). Information intended to be conveyed to a person. HRI in lieu of machine-readable information is commonly referred to as text. HRI applications in association with a linear bar code or 2D symbol (see Figure 18) are identified as:

a. Human-readable interpretation (see 3.2 definition).

b. Human translation (see 3.2 definition).

c. Data area titles (see 3.2 definition).

d. Free text (see 3.2 definition).

Human-readable interpretation. Human-readable information provided adjacent to a machine-readable medium representing the encoded data within the medium. (IAW ISO/IEC 19762-1) See Figure 18.

Human translation. Human-readable information provided within proximity of the machine-readable medium, representing portions of the information encoded and data field descriptions not encoded in the symbols. (IAW ISO/IEC 19762-1) See Figure 18.

Issuing agency code (IAC). The IAC represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, GS1). (IAW ISO/IEC 15459-2)

Item. A single hardware article or a single unit formed by a grouping of subassemblies, components, or constituent parts. (IAW DFARS 252.211-7003)

Item identification. The PIN or descriptive identifier for a specific item along with the enterprise identifier of the activity that assigned the PIN or descriptive identifier.

Item mark. A single entity for identifying military property that provides at a minimum the identification and information elements required by this standard. The item mark includes all the applicable HRI and MRI applied directly on the item, on an attached label or a tag, and/or on the item's containment.

Item non-UID mark. An item mark (see 3.2 (Item identification)) that either contains insufficient data to derive a UII, or the marked data is not registered in the IUID Registry (see 3.2 (IUID)).

Item unique identification (IUID). A system of establishing unique item identifiers (UII) within the DoD by assigning a machine-readable character string or number to a discrete item, which serves to distinguish it from other like and unlike items. UIIs are stored in the IUID Registry, along with pedigree data associated with the item. The registry is maintained by the Defense Logistics Agency Logistics Information Service (DLIS) (see http://www.acq.osd.mil/dpap/pdi/uid/).

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

IUID equivalent. Unique identification methods in commercial use that have been recognized by DoD as IUID equivalents which are the Global Individual Asset Identifier (GIAI); the Global Returnable Asset Identifier (GRAI) when serialized; a vehicle identification number (VIN); and the Electronic Serial Number (ESN)/Mobile Equipment Identifier (MEID) for cell phones only.

Label. An item marked with the identification information of another item and affixed to that other item. A label may be of any similar or different material than that of the item to which it is affixed. A label may be made of a metallic or non-metallic material. Labels may be affixed to the identified item by any appropriate means. Labels are often referred to as plates (i.e. data plate, name plate, ID plate, etc.); however, label material and methods of marking and affixing have no bearing on this distinction.

Legacy item. DoD-owned items and end items that have already been produced and deployed for use, or that have been produced and placed in inventory or storage pending issue for use.

Lot number. An identifying number assigned by the enterprise to a designated group of items referred to as a lot. A lot may be further subdivided as batch.

a. **TEI LOT**. The TEI identifies a lot number that *is not* unique within the enterprise identifier but is unique within the original part number TEI (PNO).

b. **TEI LTN**. The TEI identifies a lot number that *is* unique within the enterprise identifier. Referred to as enterprise lot number.

Machine-readable information (MRI) marking. A pattern of bars, squares, dots, or other specific shapes containing information interpretable through the use of equipment specifically designed for that purpose. The patterns may be applied for interpretation by digital imaging, infrared, ultra-violet, or other interpretable reading capabilities.

Manufacturer (MFR). An individual, company, corporation, firm, or Government activity who controls the production of an item; or produces an item from crude or fabricated materials; or assembles materials or components or parts, with or without modification, into a more complex item. MFR may be used in this document as an abbreviation of the term manufacturer (see 5.3.2 for usage information). This is not to be confused with the four-character TEI “MFR ” (three characters followed by a space) defined for use in accordance with A4A SPEC2000 and the A4A CSDD.

Matched set. Those parts, such as special application parts, that are machine or electrically matched, or otherwise mated, and for which replacement as a set is essential.

Mobile Equipment Identifier (MEID). The ESN is being superseded by the Mobile Equipment Identifier (MEID). The MEID universe consists of approximately 16 million blocks of 16 million numbers, compared to the ESN universe of 256 blocks of 16 million numbers.

National/NATO Stock Number (NSN). A number assigned to each item of supply that is purchased, stocked, or distributed within the Federal Government or NATO.

NATO Commercial and Government Entity (NCAGE) Code. NCAGE Codes are used internationally and are sometimes called CAGE Codes. NCAGE Codes issued to organizations located in North Atlantic Treaty Organization (NATO) member nations

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

(excluding U.S.) and other foreign countries are a five position alphanumeric requiring an alpha in either the first or last position (e.g., AA123, 3AAAA, AAAA3, K2345 or 2345K). The codes are issued for organizations that manufacture and/or control the design of items supplied to a government military activity or civil agency. (IAW DoD 4100.39-M Volume 7)

Nomenclature. The approved item name (see 3.2 definition) or the name as designated in the contract documents.

Original design activity (ODA). The design activity originally responsible for the design and identification of an item whose drawing number and activity identification is shown in the title block of the drawings and associated documents. (IAW ASME Y14.100)

Part. One item, or two or more items joined together, that is not normally subject to disassembly without destruction or impairment of designed use (e.g., transistor, composition resistor, screw, transformer, and gear). (IAW ASME Y14.100)

Part or identifying number (PIN). The identifier assigned by the original design activity, or by the controlling nationally recognized standard, that uniquely identifies (relative to that design activity) a specific item. (IAW ASME Y14.100) For ordnance items, the PIN may be the item's NSN for some applications. The PIN is not a serial number or UII.

Selected item. An item whose drawing defines refined acceptance criteria for an existing item under the control of another design activity or defined by a nationally recognized standard which requires further selection, restriction, or testing for such characteristics as fit, tolerance, material (in cases where alternate materials are used in the existing item), performance, reliability, etc. This drawing type generally permits selection to be performed by any competent inspection or test facility including those of the original manufacturer, the selecting design activity, or a third party. (IAW ASME Y14.24)

Serial number. An assigned designation that provides a means of identifying a specific individual item.

NOTE: Characters are normally numeric or alphanumeric, with special characters as allowed by applicable marking protocol standards (see 3.2 (UII data set) and 5.2.2).

Set. A unit or units and necessary assemblies, subassemblies and parts connected together or used in association to perform an operational function (e.g., radio receiving set; sound measuring set, which include parts, assemblies and units such as cables, microphone and measuring instruments, radar homing set). "Set" is also used to denote a collection of like parts such as a tool set, or a set of tires.

Source (manufacturer or supplier). The providing enterprise of an item as identified by the marked PIN.

Source control item. An item whose source control drawing provides an engineering description, qualification requirements, and acceptance criteria for commercial items or vendor-developed items procurable from a specialized segment of industry, that provide the performance, installation, interchangeability, or other characteristics required for critical applications. The drawing provides a list of approved sources of supply and the vendor's item identification for the item(s) that have been qualified and approved for use in the critical

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

application(s). The source control drawing establishes the source control item identification. (IAW ASME Y14.24)

Special characteristics. The pertinent rating, operating characteristics, and other information necessary for identification of the item.

Subassembly. Two or more parts that form a portion of an assembly or a unit replaceable as a whole but having a part or parts that are individually replaceable (e.g., gun mount stand, window sash, recoil mechanism, floating piston, telephone dial, intermediate frequency (IF) strip, terminal board with mounted parts). (IAW ASME Y14.100)

Supplier. The party that provides or furnishes an item.

Text Element Identifier (TEI). A four-character mnemonic identifying a data element. The TEI consists of three alphabetical characters followed by a space. Following the TEI will be the relevant data in the assigned data field. (IAW A4A CSDD)

NOTE: For UII data set marking, allowable TEIs are listed in Table VII and explained in Table VI notes.

Trigger event. A designated event when marking will occur.

Unique identification (UID). A system of establishing globally unique and unambiguous identifiers within the Department of Defense, which serve to distinguish a discrete entity or relationship from other like and unlike entities or relationships (see 3.2 (IUID)).

Unique item identifier (UII). A globally unique and unambiguous identifier that distinguishes an item from all other like and unlike items. The UII is derived from a UII data set of one or more data elements. See Appendix A.

Unique item identifier (UII) data set. A set of one or more data elements marked on an item from which the UII is known or derived. The UII types, limited to 50 characters (A to Z, 0 to 9, hyphen "-", and forward slash "/"), are as follows:

a. For Construct #1: UII type where the serial number is unique within the enterprise. Unique identifier data elements are linked together in order of the issuing agency code, enterprise identifier, and unique serial number within the enterprise identifier.

b. For Construct #2: UII type where serial number is unique within the original PIN, lot or batch number that is unique within the enterprise. Unique identifier data elements are linked together in order of the issuing agency code; enterprise identifier; original PIN, lot, or batch number; and serial number within the original PIN, lot, or batch number.

c. UID equivalent (see 3.2 definition).

Unique item tracking (UIT). A program within DoD for tracking selected items to maintain visibility of each uniquely identified asset for the primary purpose of inventory control and/or engineering analysis. (DLM 4000.25-1)

Unit. An assembly or any combination of parts, subassemblies, and assemblies mounted together normally capable of independent operation in a variety of situations (e.g., hydraulic jack, electric motor, electronic power supply, internal combustion engine, electric generator, radio receiver).

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

NOTE: The size of an item is a consideration in some cases. An electric motor for a clock may be considered a part because it is not normally subject to disassembly. (IAW ASME Y14.100)

Unit pack. The first tie, wrap, or container applied to a single item, or a quantity thereof, or to a group of items of a single stock number, preserved or unpreserved, which constitutes a complete or identifiable package. (IAW MIL-STD-129)

U.S. The abbreviation used on items (e.g., vehicles and industrial production equipment) to denote Government ownership and to comply with public law or other Government regulations. Alternate version is US without periods.

U.S. military property. Government owned property within DoD jurisdiction.

Validation. The process for determining that the machine-readable symbol contains the required information and has been encoded correctly with the proper semantics and syntax. Validation is performed using an electronic/optical imaging device capable of reading the MRI. (IAW Department of Defense Guide to Item Unique Identification Quality Assurance)

Vendor item control items. A vendor item whose control drawing provides an engineering description and acceptance criteria for commercial items or vendor-developed items that are procurable from a specialized segment of industry. The vendor's PIN, along with the vendor's design activity identification (DAI) is the item identification. It provides a list of suggested source(s) of supply, the vendor's item identification, and sufficient engineering definition for acceptance of interchangeable items within specified limits. The vendor item control drawing number with suffixed identifier, if applicable, establishes the administrative control number(s) for identifying the item(s) on engineering documentation. (IAW ASME Y14.24)

Verification. The process for assessing the quality of a machine-readable symbol and assigning a grade to the results or otherwise indicating acceptance in accordance with the applicable specification or MRI protocol quality control document. Verification is performed using an electronic/optical verification device. (IAW Department of Defense Guide to Item Unique Identification Quality Assurance)

Virtual UII. A UII assigned and registered to an item without being physically marked on the item. Virtual UIIs are only used for DoD-owned legacy personal property items that are: 1) items and embedded items that have already been produced and deployed for use, or placed into inventory or storage pending issue for use, and 2) property in the possession of contractors. (IAW Department of Defense Guidelines for the Virtual Unique Item Identifier (UII)

NOTE: Virtual UIIs are used for those DoD-owned personal property items that can be accurately and uniquely identified without additional marking until a trigger event for physical marking occurs. The legacy item must have innate serialized identity data marked on it that is sufficiently unique to associate the individual item with its virtual UII (i.e., no existing redundant serialization). Innate serialization data may include serial numbers, property control numbers, vehicle registration numbers, aircraft tail numbers, and ship hull numbers. This data may be permanently marked on items by data plates, bar code labels, etchings, or stencils.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

Warranty. The contractual agreement between the Government and the contractor relative to the nature, usefulness, or condition of the item(s) furnished under the contract. Warranty duration is expressed in terms of hours, days, months, number of operations, etc. Warranty markings give notice to a user whether the item(s) is subject to the warrant provisions.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

4. GENERAL REQUIREMENTS

4.1 Methods of applying. The required marking shall be applied to an identification plate(s) (see Figure 1), identification band(s), identification tag(s), or identification label(s) securely fastened to the item, or shall be applied directly to the surface of the item and be compliant with 4.2, 4.3, 4.5, and 4.7. The design activity shall implement the guidance and compliance criteria of 4.2 in specifying the actual method(s) to be used in applying markings. Suggested marking methods are shown in Table II with suggested selection criteria shown in Table III.

a. Marking materials creating hazardous conditions shall not be used.

b. When items cannot be physically marked or tagged due to a lack of marking space or because marking or tagging would have a deleterious effect, the marking requirements specified in Section 5 shall be:

(1) Applied to a supplemental container that may or may not provide item protection, becomes a part of the individual item, and is provisioned and managed as a component of that item, or

(2) Applied to the unit pack in addition to, or in combination with, the identification marking information specified in MIL-STD-129. When combining marking requirements with MIL-STD-129, the manner, method, form, and format of MIL-STD-129 MRI and HRI requirements shall be followed and the informational requirements of this standard shall be fulfilled.

c. The delineating document may include a marking provision for “Method Optional” subject to the item marking provisions of this standard.

4.2 Location, size, and content. Whenever practicable, the location of the marking on the item shall ensure its readability during normal operational use. Marking size shall satisfy the legibility requirements of 4.3. All aspects of identification marking shall be specified directly or by reference on the document delineating the item to be marked.

4.3 Permanency and legibility. Direct part marking and identification plates, identification bands, identification tags, or identification labels used shall be as permanent as the normal life expectancy of the item and be capable of withstanding the environmental tests and cleaning procedures specified for the item to which it is affixed. The appropriate marking method shall be selected to ensure the mark will withstand the specified rebuild processes (see 4.3.a for exception). It is not intended that existing items be subjected to retest solely because of the addition of an MRI requirement except when required to ensure compliance with 4.5. When IUID is required for new items that are being tested, the marking on the part shall be subjected to the same test conditions. Marking methods shall account for final finished condition of the item including paints, coatings, and sealants to assure readability. Labels may contain a free text warning such as “AUTHORIZED REMOVAL ONLY” or “DO NOT REMOVE” to preclude unintentional removal.

a. If it is not feasible to mark an item with MRI that will survive its intended life cycle, including the rebuild process when applicable, the item shall be marked in a way that will survive its anticipated life cycle up to the point of rebuild. The rebuild process shall ensure that the UII is linked with the item until the part can be re-marked with the original UII data set prior to leaving the rebuild facility.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

b. Legibility shall be as required for human readability. For human-readable information, which is not prescribed by one of the applicable MRI protocols in 5.2.2, the recommended minimum character height for human-readable text is shown in Table I.

TABLE I. Recommended minimum character height.

Character Height (Centimeters)	Character Height (Inches)	Character Height (Points)
0.2 cm	0.08 in	6 pts

4.4 Identification plates, identification tags, and identification bands. Metal and stiff plastic identification plates, tags and bands, along with their attaching provisions, shall conform with the requirements of MIL-DTL-15024, MIL-DTL-19834, or GG-P-455 as applicable, to the extent specified in the contract or order.

4.5 Deleterious effect. Marking of items shall be accomplished in a manner that will not adversely affect the item's ability to meet its required performance.

4.6 Abbreviated information. When size limitations, adverse impacts, or other considerations preclude marking all applicable information on an item (i.e., some marking space does exist and the requirements of 4.1.b are met), mark only the most essential information as shown in Figure 10.

4.7 Type of lettering/characters. Letters shall be capitals without serifs (sans serif), such as ARIAL, FUTURA, GOTHIC, TREBUCHET MS, or other sans-serif font. Numerals shall be Arabic except when Roman numerals are used for type designation per applicable Government or industry specifications and standards. The "hyphen (-)" and "forward slash (/)" symbols are allowed. Generating characters by automated processes (e.g., dot peen, laser, interactive graphics systems, or stencils) shall be the preferred method.

4.8 Variable marking information. When applicable (i.e., required by detail specification or in the acquisition document), supplementary information shall be marked on the item in addition to the detail requirements in Section 5.

4.9 U.S. marking to indicate Government ownership. The designation "U.S." or "US" shall be marked only when specified in the detail (commodity) specification, or in the acquisition document (see 5.1.1.3).

4.10 Vendor item control items. Items depicted on vendor item control drawings (VICD) (see 3.2) shall be marked with the source's PIN preceded by the source's EID (see 3.2). The VICD number shall not be used to physically re-identify the item from the source's identification. In the event that a VICD item is a commercial off-the-shelf (COTS) item (see 3.2), refer to 5.1.2.a.

4.11 IUID designated items. Moved to 5.1.1.2.

4.12 Associated Data Item Descriptions (DID). When it is necessary to contractually create the data for IUID marking and registration, the applicable DIDs shall be listed on the Contract Data Requirements List (DD Form 1423) (see 6.8).

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

DID Number	DID Title
DI-MGMT-81803	Item Unique Identification (IUID) Marking Plan
DI-MGMT-81804	Item Unique Identification (IUID) Marking Activity and Verification Report

5. DETAILED REQUIREMENTS

5.1 General. All requirements in Section 5 apply to the "item mark" as a single entity, which includes all data, HRI, and MRI related to a single PIN identity and configuration. An item may be a part, unit, group, or set (see 3.2 definitions). Planning for item marking should consider the following requirements (see DID DI-MGMT-81804 for additional information).

a. Determine the applicable marking information requirements from the listed components in 5.1.1.

b. If MRI is used, determine the MRI and accompanying HRI (translation, interpretation, or free text) requirements as identified in 5.2 and select a marking protocol for use (see 5.2.2).

c. If MRI is not used, determine the free text requirements for item identification as shown in 5.3.

d. If the item is a unit, group, or set, determine which additional elements are required to be marked (see 5.1.1.3).

e. Determine additional marking requirements as noted in 5.4 through 5.9.

f. Consider the Section 4 general requirements when selecting the marking method.

g. If MRI is used, plan to validate and verify the mark (see 5.2.7).

5.1.1 Item (part, unit, group, set) mark information components. An item mark may consist of three information components (see 5.1.1.1, 5.1.1.2, and 5.1.1.3) marked as machine-readable information (MRI) and/or human-readable information (HRI). The information component requirements are mandatory or conditional as identified in the following paragraphs. Identical information component data may be marked as a single entry on an item (e.g., if the enterprise identifier (EID) for the manufacturer is identical to the EID for the entity that assigned a unique item identifier (UII), the EID is only marked one time).

a. An item of military property consisting of one part (see 3.2), or two or more parts joined together, which is not normally capable of independent operation in a variety of situations and which is not normally subject to disassembly without destruction of the designed use or which is not normally disassembled (e.g., electric clock motor), shall be marked as a part and does not require additional marking as a unit (see 3.2 and 5.1.1.3).

b. Parts that are normally capable of independent operation in a variety of situations shall be marked as a unit.

5.1.1.1 Identification marking. The identification marking shall be HRI (with noted exceptions) and should also be marked with MRI. The identification information in the item mark shall clearly identify the item's source (manufacturer or supplier) EID and PIN. See 5.2.2 for MRI with HRI (translation or interpretation) marks. See 5.3 for free text marks. The marking protocol selected for use (5.2.2 or 5.3) determines the data definition relationship between the marked source (manufacturer or supplier) and PIN. The item identification EID

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

may be marked separate from the PIN or it may be combined with the PIN, as determined by the activity responsible for the PIN. See Table IX for data qualifiers preferred for use by this standard and the marking protocols for item identification.

5.1.1.2 Item unique identification (IUID) information. Items designated for application of IUID (see 3.2) shall be marked with MRI that contains the unique item identifier (UII) data set (see 3.2). To assist users in identifying IUID designated and registered items, the mark should include a data area title entry of "UID" in close proximity to the Data Matrix symbol containing the UII data set.

5.1.1.3 Unit, group, and set additional information. Units, groups, or sets shall be marked with the following additional information as HRI, unless denoted with an asterisk below as a conditional requirement. The additional information shall be marked as free text if not marked as HRI (translation or interpretation). See Figure 1 and 3.2 definitions for the following:

a. Nomenclature.

b. * Acquisition instrument identification number.

c. * Lot or batch number.

d. * U.S. (see 4.9).

e. * Special characteristics.

f. * NSN.

NOTE: Asterisk denotes conditional information that shall be included when specifically cited in the contract or purchase order.

5.1.2 Exceptions. Unless otherwise specified by contract or order, the following exceptions apply:

a. COTS (see 3.2) items not subject to IUID marking criteria and which are marked with commercial identification (firm name, logo, trademark, PIN, etc.) that presents no identification difficulty are exempt from additional marking requirements. This conditional exemption extends to COTS items identified on a VICD.

b. Parts within an assembly or a subassembly not normally subject to removal, replacement, or repair, need not be marked unless identified for IUID by contract or order.

c. See 5.2.1.5 for the provisions applicable to marking legacy items with IUID.

d. If a legacy item qualifies to be identified with a virtual UII (see 3.2 (Virtual UII)), mark it in accordance with this standard at the next trigger event (see 3.2).

e. For severe space limitations (see Figure 10), the minimum IUID mark on the item is a Data Matrix ECC 200 symbol. Required HRI may be omitted from the item mark and applied to the packaging as part of the MIL-STD-129 markings per paragraph 4.1.b.

f. For DPM applications, where PIN roll is likely, the current PIN may be marked as HRI only.

5.2 MRI marking. MRI (Data Matrix symbol) with HRI (translation or interpretation) shall be applied to items specifically designated for IUID by program managers or acquisition activities (see DoDI 8320.04 and DFARS 252.211-70023 for IUID designation criteria). For items not

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

subject to IUID marking, the preferred MRI is a Data Matrix symbol with HRI (translation or interpretation). When a Data Matrix symbol is used, linear symbols may be omitted unless specifically required by the marking protocol, contract, or order. The Data Matrix symbol shall meet the requirements stated in 5.2.3.2 and 5.2.7.2. Items shall be individually marked as follows:

a. MRI with HRI (translation or interpretation) may be used in lieu of the item identification free text (see 5.3).

b. Deleted.

c. Deleted.

d. Where space is limited, the module size of the data matrix can be reduced to 0.001 inch (0.025 mm) allowing marking of small items such as electronic components.

5.2.1 Minimum information content. MRI content requirements not included in the MRI marking protocols of 5.2.2 shall be specified in the contract or order. For the following sub-paragraphs, if the enterprise chooses to encode the UII data set as a single element (see Table VI), marking of UII component data set elements (e.g. EID that assigned the serial number, serial number, original PIN, lot, or batch) is optional unless marking of the component elements is specified by the marking protocol or contract. The optional marking provision for UII component data set elements does not affect the marking requirement for the source (manufacturer or supplier) and PIN. The minimum MRI content requirements are conditional as follows:

5.2.1.1 Applicable enterprise identifier (EID) (see 3.2).

a. Each item's MRI marking shall include the EID of the item's source (manufacturer or supplier) (see 3.2 (Source)) encoded using Table VI data qualifiers in accordance with an MRI marking protocol (see 5.2.2), if encoding the source EID does not cause UII ambiguity issues (also see 5.2.1.5 for legacy item exception). When the item's source (manufacturer or supplier) EID is not marked as MRI with accompanying HRI (translation or interpretation), the source EID shall be marked as free text using Table VIII titles (see Figure 7, Construct #2).

b. For IUID marks, the EID for the activity assigning the serial number for UII Constructs #1 or #2 shall be encoded using MRI protocol data qualifiers in Table VI, except that if a UII data set is encoded as a single element on the item, the EID of the activity assigning the serial number need only be encoded as a discrete element if specified by the marking protocol or contract. The EID of the activity assigning the serial number may be the same as or in addition to the EID of the item's source (manufacturer or supplier); if the same, only one EID entry is required. If multiple EID data qualifiers are used in the same symbol to encode the data elements, the UII data set shall be encoded with a single element data qualifier (i.e. 18S, 25S, UID, UST, USN, or DoD-recognized IUID equivalent) so the UII may be derived regardless of any apparent ambiguity introduced by multiple EID data elements in the symbol. See Appendix A for the applicable business rules to determine if ambiguity exists when deriving a UII from a UII data set.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

5.2.1.2 Serial number (see 3.2).

a. For item non-UID MRI marks, the applicable serial number shall be encoded in accordance with the applicable MRI protocol requirements using any of the applicable MRI protocol data qualifiers for that protocol, to include those specified for use in Table VI.

b. For IUID marks, if the serial number used to derive the UII is other than any serial number marked on the item (see 3.31.1 item mark definition), encode the UII data set as a single element and do not mark the serial number used to derive the UII as a discrete element in HRI or MRI on the item. See Table VI for UII data set (single element) data qualifiers and Figure 2 example.

(1) The UII data set serial number element for UII Constructs #1 or #2 shall be encoded using the applicable MRI protocol data qualifiers in Table VI, except if the UII data set is encoded as a single element on the item. In which case, the UII data set serial number element need only be encoded as a discrete element if specified by the contract (subject to the restriction in 5.2.1.2.b.).

(2) If an item has a serial number assigned for tracking under a UIT program or in support of DoD supply policy for serialized item management in addition to a UII, the serial number should be encoded as MRI. If the serial number is not encoded as MRI, it shall be marked as HRI.

5.2.1.3 Part or identifying number (PIN – see 3.2) or unique lot / batch number.

a. Each item's MRI marking shall include the PIN encoded in accordance with the applicable MRI protocol requirements (see 5.2.2) using one of the applicable MRI protocol data qualifiers, to include those in Table VI (see 5.2.1.3.b for DPM exception and 5.2.1.5 for legacy item exception).

NOTE: For item non-UID marks, UII Construct #1 marked items, or DoD recognized IUID equivalent marked items, the data qualifiers for either "original" or "current" data elements in Table VI may be used according to the applicable MRI protocol business rules.

NOTE: For ordnance items, the PIN may be the item's NSN for some applications.

b. For DPM applications, where PIN roll is likely, the PIN may be marked as HRI only.

NOTE: Deleted.

c. For IUID marks serialized within the PIN, lot or batch number (UII Construct #2), the original PIN, lot or batch number, as applicable, shall be encoded in accordance with the applicable MRI protocol requirements (see 5.2.2) using the applicable MRI protocol data qualifiers in Table VI.

NOTE: To avoid ambiguity in a UII Construct #2 mark with a mix of original PIN, lot, or batch data qualifiers, encode the UII data set as a single element (see Table VI).

d. When the PIN rolls/changes, the new current PIN should be marked on the item in accordance with the applicable MRI protocol requirements (see 5.2.2) using the applicable MRI protocol data qualifiers in Table VI. The new current PIN may be encoded in a single Data Matrix symbol along with the UII data set elements at the discretion of the MRI protocol used. For UII Construct #2 applications, the original PIN, original lot number, or original batch number shall continue to be clearly identified and encoded in the MRI. When the PIN is changed, the source enterprise (manufacturer or supplier) EID that assigned the PIN should also

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

be clearly identified on the item if different from the source (manufacturer or supplier) EID in the existing mark (see Figure 7).

NOTE: Where instances of duplicate PIN assignments arise within the enterprise, enterprises may choose to utilize item identification (see 3.2) by prefixing the PIN with the original design activity identification, such that each part is distinctly identified within the enterprise.

5.2.1.4 DoD recognized IUID equivalent. Applicable DoD recognized IUID equivalents (see 3.2) shall be constructed in accordance with the specifications governing that equivalent. The IUID equivalent shall be encoded using the syntax of ISO/IEC 15434 and the applicable data qualifiers for the DoD recognized item IUID equivalent in Table VI.

NOTE: Deleted.

5.2.1.5 Assignment of IUID to legacy items. The IUID MRI mark is supplemental to prior marks on the item and the IUID mark only needs to replicate and/or assign UII data set related information; for example, the item source (supplier or manufacturer) and PIN are not required to be encoded in the MRI unless they are also part of the UII data set. When it is determined that a legacy item requires IUID marking, the EID of the organization ensuring the uniqueness shall be the EID used to derive the UII versus any other EID represented in the prior marks. Although existing marks on an item may contain the necessary data set elements for deriving a UII, they do not guarantee the resulting UII will be unique. Only the EID owner assigning the UII can provide such guarantee. Legacy marking guidance is provided in the DoD Guide to Uniquely Identifying Items.

5.2.2 Machine-readable information (MRI) marking protocols. Unless manufacturers follow one of the established protocol standards stated herein, or as approved by USTRANSCOM (see 5.2.2.6), items shall be marked in accordance with ANSI MH10.8.7. The additional information requirements identified in 5.1.1.3 may be marked as MRI and HRI (translation or interpretation) in accordance with the syntax and semantic requirements of the following marking protocols.

5.2.2.1 Airlines for America (A4A). Manufacturers that implement A4A product marking standards shall mark items in accordance with:

a. For linear bar codes: SPEC2000.

b. For Data Matrix symbols: SPEC2000 and A4A CSDD using data qualifiers (i.e. TEIs) shown in Table VI except that ISO/IEC 15434 syntax with format indicator “12” is required.

5.2.2.2 Automotive Industry Action Group (AIAG). Manufacturers that implement the AIAG standards shall mark items in accordance with the AIAG B-4 and AIAG B-17 standards as applicable (see Figure 12).

5.2.2.3 Consumer Electronics Association (CEA). Manufacturers that implement the CEA standards shall mark items in accordance with the ANSI MH10.8.7 and CEA-706 standards as applicable. Although other manufacturer codes are allowable under this standard, a CAGE code identified with the appropriate Data Identifier is the recommended manufacturer ID.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

5.2.2.4 GS1 System. Manufacturers that implement the GS1 System standards shall mark items in accordance with the following, as applicable (see Figures 8, 9, 13, and 14).

a. For linear bar codes, use the GS1 General Specifications.

b. For Data Matrix symbols, use the MHI MH10.8.7 protocol for a Data Matrix symbol (encoded using ISO/IEC 15434 syntax) and GS1 AIs (see Table VII).

NOTE: A GS1 System mark with a GS1 Data Matrix symbol (FNC1 syntax) may qualify for use subject to the provisions of COTS item marking (see 5.1.2.a.) or virtual UII procedures (see 3.2 (Virtual UII)).

5.2.2.5 National Aeronautics and Space Administration (NASA). NASA aerospace marking standards shall be implemented only for those DoD actions directly supporting NASA programs. When specified in the contract or order, manufacturers that implement the NASA aerospace marking standards shall mark items in accordance with NASA-STD-6002 as applicable. However, syntax and semantics for the Data Matrix symbols shall comply with 5.2.4 and 5.2.5. Detailed how-to guidance for implementing NASA-STD-6002 requirements is provided in NASA-HDBK-6003.

5.2.2.6 Other. The use of MRI protocols other than those stated herein shall be approved by USTRANSCOM TCJ5/4-T. The acquiring activity shall ensure that the MRI protocol submitted is compatible with established DoD MRI system(s) identified for materiel management.

NOTE: Submit requests for MRI protocol inclusion to USTRANSCOM TCJ5/4-T, 508 Scott Drive, Scott AFB, IL 62225.

5.2.3 Data carriers.

5.2.3.1 Linear bar code symbol. Linear bar code symbols shall be Code 39 symbols in accordance with ISO/IEC 16388, Code 128 symbols or GS1-128 symbols in accordance with ISO/IEC 15417, or EAN/UPC symbols in accordance with ISO/IEC 15420. The ratio of the wide element to the narrow element shall be within the range of 2.1:1 to 3.1:1 for Code 39 symbols. The narrow element dimension (X dimension) range should be from 0.0075 inch (0.19 mm) to 0.015 inch (0.38 mm) for Code 39, Code 128, and GS1-128. The narrow element dimension for EAN/UPC symbols should range from .0104 inch (0.26 mm) to 0.026 inch (0.66 mm).

5.2.3.2 Two-dimensional symbol. The two-dimensional symbol shall be the Data Matrix ECC 200 in accordance with ISO/IEC 16022. Unless otherwise specified, the module size shall be no smaller than 0.0075 inch (0.19 mm) and no larger than 0.025 inch (0.635 mm). Square symbol sizes shall not exceed one inch (25.4 mm). The larger dimension of rectangular Data Matrix symbols, as permitted by ISO/IEC 16022, shall not exceed one inch. Deviations to the stated module sizes and maximum overall symbol size shall be specified by contract if required.

5.2.4 Data Matrix symbol syntax. The MRI data elements shall be encoded using ISO/IEC 15434 syntax. See 5.2.2 for the specific marking protocols that shall be used.

5.2.5 Semantics. The data elements shall be described by the semantics of ANSI MH10.8.2 for AIs and DIs and the semantics of the A4A CSDD for TEIs. The semantics for IUID are shown in Table VI. The use of DIs is illustrated in Figures 2 to 4.b, 7, and 12. TEIs are illustrated in Figures 5 and 6. AIs are illustrated in Figures 8, 9, and 13.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

5.2.6 Data area titles. The preferred human-readable form for data area titles, with alternative language, is shown in Table VIII.

5.2.7 MRI marking quality. The following describes MRI marking quality criteria for both linear bar codes and Data Matrix symbols. Any deviations from these criteria require acquiring activity approval. Marking quality conformance may be based on a sampling plan (e.g. ISO/IEC 2859-1). Marking quality conformance shall include validation and verification of mark content and quality.

5.2.7.1 Linear bar code quality. For acceptance, the symbol shall have a minimum print quality of 3.0/05/660, where the minimum grade is 3.0, measured with an aperture size of 0.005 inch (0.127 mm) (for EAN/UPC symbol the aperture size used is 0.006 inch (0.152 mm) (3.0/06/660)) with a light source wavelength of 660 nm in accordance with ISO/IEC 15416. For imager based verifier devices, synthetic aperture shall be used. The methodology for measuring the print quality shall be as specified in ISO/IEC 15416. If the print quality measuring methodology as specified in ISO/IEC 15416 is non-responsive for other marking methods, quality acceptance levels shall be identified within the individual contract or order.

5.2.7.2 Data Matrix symbol quality.

5.2.7.2.1 Acceptance criteria. The following acceptance criteria for all marking procedures can be used at the supplier's choice:

a. ISO/IEC 15415: The symbol shall have a minimum quality grade of 3.0/05/650 measured with an aperture size of 0.005 inch (0.127 mm) with a light source wavelength of 650 nm ± 20 nm. As an exception, the ISO/IEC 15415 parameters for modulation (MOD), symbol contrast (SC), or both, may measure as low as 2.0, providing the overall ISO/IEC 15415 grade would be 3.0 if the MOD and SC grades were 3.0 or higher. This allows for lower contrast substrates, high density images, printing, over-laminates, and other such limiting factors to the parameters MOD, SC, or both on otherwise well produced images. Quality (symbol validation and verification) reports shall clearly show that the MOD, SC, or both, are the only parameters measured as low as 2.0, and clearly show that the overall grade would be at least 3.0 if MOD and SC were at least 3.0. Quality reports shall also document the synthetic aperture size used. The methodology for measuring the print quality shall be as specified in ISO/IEC 15415, where the overall grade is based on a single scan (not five scans).

b. AIM DPM-1-2006 or ISO/IEC TR 29158: The symbol shall have a minimum quality grade of DPM 2.0/7.5-25/650/(45Q|30Q|90|30T|30S|D) where:

(1) Minimum quality grade = 2.0

(2) X dimension range of the application = 7.5-25 mils

(3) Inspection wavelength = 650 nanometers ± 20 nanometers.

(4) Lighting conditions = medium angle four direction (45Q) or low angle four direction (30Q) or diffuse perpendicular (90) or low angle two direction (30T) or low angle one direction (30S) or diffuse off-axis (D).

c. SAE AS9132: The symbol shall be verified to be acceptable if it meets the quality requirement specifications in AS9132 and the item engineering design specifications called out for use by AS9132 as quality requirements.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

5.2.7.2.2 Calibration. Calibration processes and materials for reflectance criteria provided by the verifier manufacturer are acceptable for printed labels when referenced to the nationally traceable standard (GS1 US Calibrated Conformance Standard Test Cards).

5.2.7.2.3 Curved surfaces. For Data Matrix symbols on a curved surface, the overall symbol size shall not exceed more than 32% of the radius (16% of the diameter or 5% of the circumference) associated with the curvature of the surface.

5.2.7.2.4 Very small parts. For very small parts in addition to applying a "bag and tag" approach to marking, strong consideration should be given to physically marking these parts using the IUID approach even when the marking cannot meet the minimum physical requirements specified in para 5.2.3.2. Permission to deviate would be allowed when contract requirements dictate a need for traceability of critical application items (e.g. electronic components, critical safety items) for the purposes of anti-counterfeiting.

5.2.7.2.5 Other quality methodologies. If the preceding quality measuring methodologies specified are non-responsive, quality acceptance levels shall be identified within the individual contract or order.

5.2.8 Obliteration of direct marked Data Matrix symbol. When a Data Matrix symbol mark is unacceptable (unreadable, in error, etc.) and cannot be removed or otherwise repaired, replaced or re-worked without deleterious effect to the marked item, it shall be crossed out as shown in Figure 15 using two diagonal lines crossing each other through the center of the Data Matrix symbol and two other lines (one vertical the other horizontal) through the two interrupted frame lines (finder pattern) of the Data Matrix symbol. The marking method used shall be determined by the current design authority.

5.3 Free text marking protocol for item identification. The free text marking protocol shall be used when MRI is not used. The following numbered subparagraphs describe the free text marking protocols for use when both the PIN and the item's source (manufacturer or supplier) EID are marked as free text (see Figure 11). Free text abbreviations are provided in Table VIII. The free text marking protocols include design activity information requirements that are not included in the MRI protocols. Additional free text information may be included when specified by the acquiring activity or when deemed essential by the design activity.

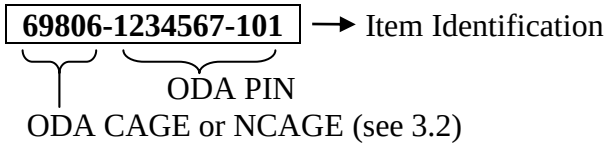
a. Deleted.

b. Deleted.

c. When parts are deemed too small for application of complete marking, a logo or other abbreviated marking shall be substituted for the design activity identifier. A complete item mark as part of the MIL-STD-129 markings shall then be applied to the packaging (see 4.1.b).

5.3.1 Part mark when the source manufacturer is the design activity. The identification marking shall be arranged as shown inside the bordered examples that follow:

a. When the manufacturer is the original design activity (ODA).



Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

b. When the source manufacturer is the current design activity (CDA) but is not the original design activity.

69806-1234567-101	→ ODA and PIN
CDA-07873	→ CDA (see 3.2) CAGE or NCAGE

5.3.2 Part mark for items sourced from manufacturers other than the design activity. The notation (MFR) followed by the manufacturer's CAGE or NCAGE shall be marked below the design activity's item identification (or near it if space does not permit). The marking shall be arranged as shown inside the bordered examples that follow:

a. When the design activity is the original design activity.

69806-1234567-101	→ ODA and PIN
MFR-20001	→ MFR (see 3.2) CAGE or NCAGE

b. When the design activity is not the original design activity.

69806-1234567-101	→ ODA and PIN
CDA-07873	→ CDA CAGE or NCAGE
MFR-20001	→ MFR CAGE or NCAGE

ALTERNATE METHOD

69806-1234567-101	→ ODA and PIN
CDA-07873 MFR-20001	→ CDA and MFR (see 3.2) CAGE or NCAGE

5.3.3 Part marking in licensee-licensor agreement. In licensee-licensor agreement, the requirements of 5.3.2 shall apply to the licensee when manufacturing parts in accordance with the licensor's design.

5.3.4 Marking items acquired from, but not manufactured by, the design activity. When the design activity uses subcontractors for the manufacture of an item, but retains full design control, quality assurance control, and full responsibility for the delivered product to the acquiring activity, the requirements of 5.3.1 apply. When any portion of design control, quality control, or delivered product warranty responsibility is delegated to such subcontractor, the requirements of 5.3.2 apply.

5.3.5 Subassemblies and assemblies that do not require identification plates. Subassemblies and assemblies shall be individually marked with the information specified in 5.3.1 or 5.3.2, as applicable, except that the notation "ASSY" shall be used in place of the dash (or slant) as shown inside the bordered example:

69807ASSY7654321-101	→ ODA and PIN

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

5.3.6 Source control items. Source control items shall be individually marked with the information specified in 5.3.1 or 5.3.2, as applicable, except that the notation "SOCN" shall be used in place of the dash (or slant) as shown inside the bordered example:

69807SOCN7654321-101 → ODA, SOCN, and PIN

a. When specified by the acquiring activity, the item manufacturer shall be identified as described in 5.3.2.

b. The vendor's identification and PIN need not be removed.

5.3.7 Matched set items. At least one piece of a matched set shall be individually marked with the information specified in 5.3.1 or 5.3.2, as applicable, except that the notation "MSET" (without prefix or suffix spaces) shall be used in place of the dash (or slant) as shown inside the bordered example. Additionally, where marking is feasible, all pieces of the set shall be marked with a common matched set identifier to facilitate tracking and re-assembly (see Table VIII).

69807MSET7654321-101 → DAI, MSET, and PIN

5.4 Altered or selected items (see 3.2). When an item is delineated on an altered or selected item drawing, the item identification (see 3.2) assigned by the design activity specifying the alteration or selection shall be used to identify the item.

5.4.1 Item UID marks. Alteration or selection of IUID applicable items does not affect the original UII; i.e. any data element used to derive the UII shall be maintained on the item. Any non-UII data elements of the original item identification shall be removed or obliterated if this can be done without damage to the item.

a. Construct #1 – The altered or selected item identification assigned shall replace the original item identification. Figures 5 and 7 show examples of Construct #1 marks that can be altered by replacing the non-UII data elements of the original item identification portion of the mark.

b. Construct #2 – The altered or selected item identification assigned shall be placed near the mark as described in Figure 7. If the item bears a current item identification in addition to the original item identification as shown in Figure~~s~~ 4b and 6, the current item identification shall be replaced.

5.4.2 Item non-UID marks. The item identification shall be removed or obliterated, if this can be done without damage to the item, and replaced with the altered or selected item identification.

5.5 Maintenance actions. When specified in the contract, purchase, or repair order, original identification marking shall be supplemented with information identifying repair or overhaul actions. This information shall be applied in close proximity to and readable in the same manner as the original identification marking. Method of marking shall provide permanency and legibility (see 4.3) required of original identification marking. Supplemental information to be applied shall include as a minimum:

a. Enterprise identifier (see 3.2) of the repair or overhaul facility.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

b. Date of repair or overhaul action.

c. Applicable warranty (see 3.2) extensions

d. Contract, purchase, or repair order number as specified by the issuing activity.

5.6 Items identified by military or industry association specifications and standards. Items identified by numbers derived from military specifications, military standards, or industry association standards (e.g., MS, NAS) shall be marked with the military or industry association PIN and identification of the manufacturer IAW the controlling specification or standard. Otherwise, these items shall be marked as specified in 5.2 or 5.3.

5.7 Warranted items. When specifically required by a contract statement of work or other contract clause, warranted items shall be marked in a conspicuous location to give notice that the item(s) are subject to warranty. The marking shall contain, as a minimum, the statement "WARRANTED ITEM" and the period or conditions of warranty (i.e., hours of operation, cycles of operation, time since manufactured, etc.). See Figure 16.

5.8 Security classification. When required by acquisition document, classified items shall be marked in a conspicuous manner to provide notice that the item(s) are subject to security restrictions. Classified marking shall be in accordance with DoD 5220.22-M.

5.9 Electrostatic discharge (ESD) sensitive items.

a. Electrical and electronic parts classified as sensitive to damage from electrostatic discharge in accordance with MIL-STD-1686 and MIL-HDBK-263, or ANSI/ESD S20.20, shall be marked with the ESD sensitive (see 3.2) symbol (see Figure 17).

b. Assemblies containing ESD sensitive parts shall be marked with the ESD sensitive symbol (see Figure 17). This symbol shall be so located as to be readily visible when the assembly is installed in its next higher assembly, if applicable. When the physical size of the assembly precludes direct marking of the ESD sensitive symbol, the symbol shall be marked on an identification tag that shall be securely attached to the assembly.

c. Equipment enclosures containing ESD sensitive parts or assemblies shall be marked with the ESD sensitive symbol and an ESD sensitive label (see Figure 17). The symbol and caution note shall be located in such a position as to be readily visible to personnel prior to gaining access to the ESD sensitive parts or assemblies. Where space permits, these markings shall be on the access door or cover of the equipment enclosure.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. This standard provides the criteria for development of identification marking requirements and methods for identification of items of military property produced, stocked, stored, and issued by or for the Department of Defense. This document is to be tailored by the acquiring activity.

6.2 Subject term (key word) listing.

Bar code
CAGE Code

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

Control item
Data Matrix symbol
Design activity
Design activity identification (DAI)
D-U-N-S
Electrostatic discharge (ESD) sensitive
Enterprise identifier
Human-readable information
Human translation
Identification plate
Item unique identification (IUID)
Legibility
Machine-readable information
National Stock Number (NSN)
NCAGE Code
Part or identifying number (PIN)
Permanency
Security
Serial number
Unique item identifier (UII)
Warranted item

6.3 Item unique identification (IUID). The policy for unique identification of items implements a Department of Defense initiative on improving asset management through uniquely identifying tangible items. The UII enables traceability of the item throughout its life within the DoD inventory system and facilitates item tracking in DoD business systems to provide reliable and accurate data for a variety of purposes that include but are not limited to: program management, property accountability, anti-counterfeiting, reliability analysis, lifecycle management, and serialized item management. The IUID policy, with associated guidance and criteria, is available at http://www.acq.osd.mil/dpap/pdi/uid/index.html.

6.4 Unique item identifier (UII) constructs. The methods of UII construction are determined by the enterprise's serialization protocol (see Table IV).

a. Construct #1 – enterprise identifier and a serial number unique within the assigning activity (see Figures 2, 3, and 5), or

b. Construct #2 – enterprise identifier; original PIN, lot or batch number; and a serial number unique within the original PIN, lot, or batch number assignments (see Figures 4.a, 4.b, 6, and 9).

NOTE: The enterprise that serializes the item will normally assign the UII. Enterprises are responsible for ensuring that their serialization protocols provide globally unique identifiers.

6.5 Data qualifiers. Table VII illustrates the data qualifiers used by UII Construct #1, Construct #2, and by DoD recognized IUID equivalents.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

6.6 IUID consultation. As noted at http://www.uniqueid.org, the OUSD (AT&L) website, aid regarding implementation of IUID is available through Help Desk support at (269) 961-4745 or by e-mail at iuid.helpdesk@dla.mil.

6.7 Data format indicator for TEIs. The Department of Defense (DoD) established the collaborative solution format indicator "DD" to enable the use of Text Element Identifiers using the syntax of ISO/IEC 15434 until the time a new format indicator was incorporated as approved syntax in ISO/IEC 15434 to support Text Element Identifiers. The publication of ISO/IEC 15434 dated October 2006 established "12" as the approved format indicator for Text Element Identifiers. Organizations that have been using format indicator "DD" are to transition to the use of format indicator "12" and cease using format indicator "DD" for any newly marked parts. There is no direction to re-mark any items that have used the "DD" format indicator.

6.8 Associated Data Item Descriptions (DID). This standard has been assigned an Acquisition Management Systems Control (AMSC) number authorizing it as the source document for the following DIDs.

DID Number	DID Title
DI-MGMT-81803	Item Unique Identification (IUID) Marking Plan
DI-MGMT-81804	Item Unique Identification (IUID) Marking Activity and Verification Report

The above DIDs were current as of the date of this standard. The ASSIST database should be researched at https://assist.dla.mil/ (Quick Search menu) to ensure that only current and approved DIDs are cited on the DD Form 1423.

6.9 Changes from previous issue. The margins of this standard are marked with vertical lines to indicate where content changes from the previous issue were made. Changes in paragraph numbering are not marked. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE II. Marking methods.

(This table is a guide. These suggested methods may not meet the needs of your application.)

Marking Methods	Mark Characteristic	HRI	1D	2D	Recommended Use
Blast (grit) (with pre-encoded stencils)	Variable depth or height	Y	N	N	Abrasive method which can be used on most surfaces.
Acid etch (with pre-encoded stencils)		Y	N	Y	Characters produced by use of acid. Use on metal and glass.
Vibro peen		Y	N	N	Metal or nonmetallic parts that may deform if metal stamped. Hand held operation.
Metal stamp		Y	N	N	Metal or nonmetal parts that will not deform under the stamping pressure required. Also, the alteration of the surface roughness finish will not be detrimental to proper functioning.
Dot peening		Y	N	Y	Metal or nonmetal parts that may deform if metal stamped.
Engraving		Y	N	N	Sheet metal fabrication that will deform if metal stamped. Functional marking with color filler.
Embossing		Y	N	N	Thin sheet metal, plastics on nonfunctional surfaces.
Cast or forged (with pre-encoded stencils)		Y	N	Y	Castings or forgings – characters raised or depressed depending on method of manufacture, unless otherwise specified on the drawing. Marking should be used on non-machined surfaces only.
Molded (with pre-encoded stencils)		Y	N	Y	Usually plastic or rubber parts may be either raised or depressed, unless otherwise specified.
Electro-chemical etch (electrolytic process)		Y	Y	Y	Characters normally depressed, but may be raised. Used on fine surface finishes without protective coating, also high hardness parts (HRC 50 or higher).
Laser discoloration	Surface mark	Y	Y	Y	Heat from the laser discolors the material surface without associated metal removal.
Laser (paint pigmentation)		Y	Y	Y	Chemicals added to some plastics that will react by changing color when contacted with a laser.
Laser (bonding)	Raised mark	Y	Y	Y	Mark produces by bonding a medium to the surface of an item, marking with a laser and producing a raised mark.
Laser (engraving)	Variable depth	Y	Y	Y	Very good resolution of alphanumeric and machine-readable marking symbology. Character height and width range from .007 to 4.0 inches.
Laser (etching)					Generally limited to 0.001 inch maximum depth; done at lower power settings.
Laser markable inks/paints	Surface mark	Y	Y	Y	Inks and paints containing pigments that discolor when struck with a laser beam.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE II. Marking methods - Continued.

(This table is a guide. These suggested methods may not meet the needs of your application.)

Marking Methods	Mark Characteristic	HRI	1D	2D	Recommended Use
Rubber stamp, ink jet (with pre-encoded stencils)	Surface mark	Y	Y	Y	Non-metallic labels, fabrics, wood, plastics. On metal parts with protective finish (i.e., phosphate) cover with clear lacquer. Apply before oiling. Also temporary marking; work in progress.
Decalcomania		Y	Y	Y	Instructional plates, part identification, when other methods are not available, temporary marking, protect with clear lacquer. Apply before oiling.
Metal or plastic tags		Y	Y	Y	When other methods are not available.
Photo anodizing		Y	Y	Y	Name plates, foil plates, placards, etc. ref. GG-P-455 for severe applications.
Thermal spray (combustion, electric arc, HVOF, plasma)		Y	Y	Y	All metals and composites. Raised cells. All surface finishes. Requires abrasive blast. Can tailor the applied materials. Works well when painted over.
Metal paste through a pre-encoded stencil		Y	Y	Y	Apply specified metal paste through pre-encoded stencils. The stencil is removed and the metal paste is fused to the substrate via heat treat cycle, induction, laser, or torch. Pre-blast required.
Epoxy applied through a pre-encoded stencil		Y	N	N	Epoxy is applied through a stencil and the stencil may or may not be removed for contrast. Requires a pre-blast. Good for all materials. Performs well under paint if the stencil is removed.
Pre-encoded inserts (materials are in contrast to the part)		Y	Y	Y	Composites new build or retrofit. For new build, the pre encoded inserts are placed tool or bag side preferably under fiberglass and cured in. Use epoxy and vacuum bag for retrofit.
Digitally printed	Subsurface mark	Y	Y	Y	Labels, tags & plates.

NOTES:

1. Potential effects on the item to be marked should be weighed in selecting the marking method.
2. The Joint Marking Qualification Working Group (JMQWG), under the sponsorship of the Government Electronics and Information Association, provides a common set of IUID 2D Data Matrix symbol mark qualification test and report data available for unrestricted use at https://acc.dau.mil/CommunityBrowser.aspx?id=30743. Refer to (http://rsesc.uah.edu/DPM) for JMQWG Matrix details. The goal of this venture is to coordinate a consortium approach towards performing, publishing, and sharing non-proprietary information for the following areas:
   a. IUID marking methods (dot peen, laser/chemical etch, direct ink, label, etc.).
   b. Material types and finishes (80% common to most of Industry).
   c. Environmental criteria (80% common to most of Industry or use worst case).
3. NASA-STD-6002 also provides an overview of DPM methods and practices.
4. For HRI, 1D, and 2D, **Y** (recommended) and **N** (not recommended) denotes protocol implementation consideration.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE III. Consideration criteria in selection of marking methods.
(This table is a guide. These suggested methods may not meet the needs of your application.)

Protective finish	Surface roughness in inches (metric)	Marking method	Remarks
No protective finish or a coating of light oil applied after marking.	125 microinches (3.2 microns) or coarser	Cast, forged, molded, thermal spray, metal fusion, epoxy	Specify "raised" or "depressed" only when necessary; used on non-machined surfaces.
		Metal stamp	On machined surfaces.
	125 to 63 microinches (3.2 to 1.6 microns)	Molded, engraved metal stamp, dot peen, vibro peen	Specify "depressed", when marking a functional surface.
	All surfaces	Laser markable inks or paints and epoxies, thermal spray, metal fusion photo anodizing	Additive marking. Cover with matte finish clear coat for additional protection.
		Electro-chemical etch (electrolytic process)	Specify depth of depression or, if raised, the amount of build-up.
Phosphate, dry film, anodize, or plating	125 microinches (3.2 microns) or coarser	Cast, forged, molded, metal stamped, thermal spray, metal fusion, epoxy	Specify "depressed" when marking a functional surface, plus mark prior to application of finish.
		Laser engraved	As above, may be marked after anodizing or plating.
	125 to 63 microinches (3.2 to 1.6 microns)	Molded, engraved metal, stamp, dot peen, vibro peen, acid etch, blast (grit), thermal spray, metal fusion, epoxy	As above, plus mark prior to application of finish.
		Laser engrave	On ground or sanded surfaces after anodize or plating.
	63 microinches (1.6 microns) or finer	Decalcomania, laser discoloration, laser (paint pigmentation), laser (bonding), epoxy, thermal spray, metal fusion, photo anodizing	Apply over protective coating before oiling, cover with clear lacquer or equivalent.
		Laser engrave	Specify depth of penetration, especially on plated surfaces.
	All surfaces	Rubber stamp, pre-encoded stencil, ink jet	Apply over protective finish before oiling. Use ink in accordance with A-A-208, type I, or an equivalent type, cover with clear lacquer on nonporous surfaces.
		Laser markable inks or paints and epoxies, thermal spray, metal fusion	Additive marking. Cover with matte finish clear coat for additional protection.
Paint	All surfaces	Rubber stamp, epoxy & pre-encoded stencil, decalcomania, ink jet, thermal spray, pre-encoded inserts, metal fusion, photo anodizing	As above.
	125 microinches (3.2 microns) or coarser		Painted, machined surfaces.
	125 to 63 microinches (3.2 to 1.6 microns)		Painted, ground, or sanded surfaces.
	63 microinches (1.6 microns) or finer		Do not penetrate dry film thickness.
Epoxy or urethane coating	All surfaces	Rubber stamp, pre-encoded stencil, ink jet, decalcomania, hand brush or laser markable inks or paints & epoxies with clear coat, thermal spray, metal fusion, photo anodizing	For marking of printed wiring boards and assemblies, epoxy base fungus resistant, non-conducting ink in accordance with A-56032 may be used.
Polycarbonate/ polyester with hardcoating	Matte texture / velvet matte	Digitally printed subsurface	

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE IV. UII construct business rules and supplemental data.

<table>
<tr><th></th><th>UII Construct #1
If items are serialized within the enterprise</th><th colspan="2">UII Construct #2
If items are serialized within PIN, Lot or Batch Number</th></tr>
<tr><td rowspan="3">UII is derived by linking together data elements in order (top to bottom) for Constructs #1 and #2</td><td rowspan="3">Issuing Agency Code[1]
Enterprise ID
Serial Number</td><td colspan="2">Issuing Agency Code[1]
Enterprise ID</td></tr>
<tr><td>Original PIN
Serial Number</td><td>Lot or Batch #
Serial Number</td></tr>
<tr><td></td><td></td></tr>
<tr><td rowspan="2">Data identified on assets not part of the UII (separate identifier)</td><td>Current PIN[2]</td><td colspan="2">Current PIN[2]</td></tr>
<tr><td>Other Traceability Number[3]</td><td colspan="2">Other Traceability Number[3]</td></tr>
</table>

NOTES:

1. The issuing agency code (IAC) represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, GS1). The IAC can be derived from the data qualifier for the enterprise identifier and is not separately marked on the item. The IAC for the GS1 Company Prefix need not be derived because it is contained in each GS1 Company Prefix and should not be repeated when linking together the UII data set elements (see Appendix A).

2. In instances where the PIN changes with new configurations (also known as part number roll), the current PIN shall be included on the item for traceability purposes and should be encoded as a separate data element in the MRI.

3. The Data Identifier 30T has been designated for use as a traceability number that is not part of the UII data set. For example, applications may specify 30T for encoding a lot or batch number when the lot or batch number is not required or desired in the UII data set.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE V. Issuing agency codes for use in unique identification.

Issuing Agency Code	Issuing Agency	Type of Enterprise Identifier
0 – 9	GS1	GS1 Company Prefix
LB	Telcordia Technologies, Inc	ATIS-0300220 MIC
UN	Dun and Bradstreet	DUNS
D	Allied Committee 135	NCAGE/CAGE
RH	Health Industry Business Communications Council	LIC and HIN
LH	European Health Industry Business Communications Council	LIC
LD	Department of Defense	DODAAC

NOTE: The IAC represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, GS1). The IAC can be derived from the data qualifier for the enterprise identifier and does not need to be marked on the item.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE VI. Data qualifiers for MRI (UID and non-UID) usage.

(Additional data qualifiers may be encoded in MRI according to the protocol chosen.)

Data Element	DI ISO/IEC 15418 (see 3.2 (DI))	AI GS1 General Specifications (see 3.2 (AI))	TEI A4A CSDD (see 3.2 (TEI))
Enterprise Identifier • **CAGE/NCAGE** • **D-U-N-S** • **GS1 Company Prefix** • **DODAAC** • **Other Agencies**	 17V 12V 3V 7L 18V[1]	 - - - - -	 MFR [2], SPL [3] or CAG , DUN EUC
Serial Number	S (not in a UII data set)		
Serial Number within Enterprise Identifier	-	-	SER [4] or UCN [5]
Serial Number within Original PIN or within Lot/Batch Number	S (in a UII data set)	-	SEQ
Original PIN	1P	-	PNO
Lot/Batch Number	1T	-	LOT , LTN , or BII [6]
UII Data Set (Single Element) **Complete UII** **UII not including the IAC (CAGE + Serial Number within CAGE)** **IUID Equivalents** **VIN** **ESN/MEID/CMTI** **GRAI** **GIAI**	 25S[7] 18S[8] I[9] 22S[10] - -	 - - - 8002[11] 8003[12] 8004[13]	 UID USN or UST
The following DIs, AIs, and TEIs are not used in a UII data set			
Current PIN	30P[14]	01[16] 240[17]	PNR [14]
Lot/Batch Number	30T[15]	10[18]	-
Serial Number	-	21[19]	-
Enterprise ID	-		FAB [20]
Export Controlled Item	49P[21]	-	ECI [21.]

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

NOTES (Table VI):

1. **18V** – the DI identifies a data format that links together the issuing agency code (IAC) + enterprise identifier (EID). This DI should be used for all other EIDs, which were assigned by an issuing agency that has an assigned IAC but does not have their own specific EID data identifier.

2. **MFR – Manufacturer CAGE Code** – the TEI identifies the manufacturer, government agency or other organization controlling the design, production, and the PIN assignment of the subject part.

3. **SPL – Supplier CAGE Code** – the TEI identifies the organization assigning the UII, where the organization is not the manufacturer, government agency, or other organization controlling the design of the serialized component. For marking in-service parts only.

4. **SER – Part Serial Number (Serial Number within Enterprise)** – the TEI identifies the manufacturer's serialized identity for an individual part, component or component end item.

5. **UCN – Unique Component Identification Number** – the TEI identifies the permanent tracking identity assigned to an in-service part by an organization other than the manufacturer, government agency or other organization controlling the design of the subject part and used in lieu of the manufacturer's serial number.

6. **LOT** – **Lot Number** – the TEI identifies a lot number that *is not* unique within the EID but is unique within the original part number (PNO).

   LTN – **Enterprise Lot Number** – the TEI identifies the lot number that *is* unique within the EID. Referred to as enterprise lot number.

   BII – **Batch Item Identifier** – the TEI identifies a batch item identifier that is a subdivision of an LTN.

7. **25S** – the DI identifies the party to a transaction (as identified by data identifier 18V), followed by a supplier assigned serial number (for UII purposes, this has to be unique serialization within the EID that assigns the UII data elements). Thus, for UII purposes, 25S identifies a data format that links together the IAC + EID + a unique serial number segment within the EID, which directly corresponds to a UII using serialization within the enterprise. For companies that serialize within a PIN, lot, or batch number, the serial number segment may be: 1) PIN + serial number, or 2) lot or batch + serial number.

8. **18S** – the DI identifies a data format that links together the CAGE Code (EID) + a unique serial number within the CAGE Code. This data element does not contain the IAC, which is added to derive a UII using serialization within the enterprise.

9. **I** – the DI identifies a U. S. vehicle identification number – VIN.

10. **22S** – the DI identifies a unique individual identity for cellular mobile telephones – previously designated as an Electronic Serial Number (ESN) and changing to the Mobile Equipment Identifier (MEID).

11. **8002** – the AI identifies a GS1 Cellular Mobile Telephone Identifier (CMTI). The CMTI is up to 20 characters and is an electronic serial identifier of a cellular mobile telephone.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

NOTES (Table VI continued)

12. **8003** – the AI identifies a GS1 Global Returnable Asset Identifier (GRAI). The GRAI is 14 numeric digits, including the GS1 Company Prefix and an asset type, which is assigned by the holder of the GS1 Company Prefix. For IUID, a serial number is encoded up to 16 characters.

13. **8004** – the AI identifies a GS1 Global Individual Asset Identifier (GIAI). The GIAI is up to 30 characters and is a combination of the GS1 Company Prefix and an individual asset reference, which is assigned by the holder of the GS1 Company Prefix. A serialized Global Trade Item Number (GTIN™) may also be converted to a GIAI using GS1 System procedures.

14. **30P** or **PNR** – **Current PIN** – the DI or TEI, respectively, identifies a current PIN that *is not* part of the UII data set. The data element may be encoded in the ISO/IEC 15434 syntax and placed on the item in a separate Data Matrix symbol, or, it may be encoded in the same Data Matrix along with the UII data set elements. The marking protocol determines the application business rule (see 5.2.2). Use 1P or PNO, respectively, when original PIN *is* part of the UII data set.

15. **30T** – the DI identifies the lot/batch number that *is not* part of the UII data set. The data element is encoded in the ISO/IEC 15434 syntax and placed on the item in a separate Data Matrix symbol, or, it may be encoded in the same Data Matrix symbol along with the UII data set elements. The marking protocol determines the application business rule (see 5.2.2). Use 1T when lot/batch number *is* part of the UII data set.

16. **01** – the AI identifies a GS1 Global Trade Item Number (GTIN) that *is not* a UII data set element. During initial planning for the IUID effort in DoD, the AI was originally reserved as a UII data set element for Construct #2; however, it was never registered for use and the Construct #2 GS1 UII is no longer supported by DoD. GS1 recommends use of a GIAI (AI 8004) to mark the UII as a DoD recognized IUID equivalent constructed in accordance with the Guidelines for Department of Defense Unique Identification (UID) Markings Using the GS1 System.

17. **240** – the AI identifies additional product information that *is not* part of the UII data set. The GS1 General Specifications marking protocol specifies that the additional product information is a cross-reference to previously used catalogue numbers; therefore, AI 240 should only be used when additional PIN information is required to be identified in an item mark. The GS1 System marking protocol requires AI 240 information to be associated with the GTIN (AI 01) in the mark; i.e. AI 01 and AI 240 data shall be processed together.

18. **10** – the AI identifies a lot or batch number that *is not* a UII data set element.

19. **21** – the AI identifies a serial number that *is not* a UII data set element. During initial planning for the IUID effort in DoD, the AI was originally reserved as a UII data set element for Construct #2; however, it was never registered for use and the Construct #2 GS1 UII is no longer supported by DoD. GS1 recommends use of a GIAI (AI 8004) to mark the UII as a DoD recognized IUID equivalent constructed in accordance with the Guidelines for Department of Defense Unique Identification (UID) Markings Using the GS1 System.

20. **FAB – Fabricator** – the TEI identifies the CAGE or NCAGE of the production organization responsible for the manufacture of the part, but does not hold the design authority responsible for the PIN (IAW A4A CSDD).

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

NOTES (Table VI continued)

21. **49P** or **ECI – Export Controlled Item** – the DI or TEI, respectively, designates that an item is subject to export control and or restrictions as identified in the Wassenaar Arrangement, see http://www.wassenaar.org/controllists/index.html. The data element is formed by the two-character alpha Country code from ISO 3166-1 which has imposed the export control or restriction, where the Wassenaar code is either the single numeric (1 to 9) category code or the Military List code (an 'ML' followed by a numeric 1 to 22) that identifies the particular nature of the material that is controlled or restricted. When applicable, the code can be suffixed by either an 'SL' or a 'VSL' to indicate that the item is also on the list of sensitive or very sensitive items. This information will only be marked when specified on the document delineating the item to be marked (see 4.2).

TABLE VII. Data qualifiers and their usage for UII constructs/equivalents.

Data Qualifiers (see Note)	**Construct #1**	**Construct #2**	**DoD Recognized IUID Equivalents**
Data Identifiers (ANSI MH 10.8.2)	18S 25S	17V, 12V, 3V, 7L, 18V 1P or 1T S 25S	I 22S
Application Identifiers (GS1)			8002 8003 8004
Text Element Identifiers (A4A)	MFR , SPL , CAG , DUN , EUC SER or UCN UID , USN , or UST	MFR , SPL , CAG , DUN , EUC SEQ PNO , LOT , LTN , or BII UID	

NOTE: See Table VI for notes applicable to the respective data qualifiers.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE VIII. Preferred data area titles.

Data Element	Preferred Language
HRI Translation and Free Text (For Marking IAW 5.2 and 5.6)	
NOTE: The preferred data area titles included in this part of the table do not replace data area titles specified for use by the MRI protocols identified in 5.2.2. The titles are examples of information to be conveyed; the list is not intended to be all-inclusive. TEI data qualifiers are not listed but they do serve as pseudo data area titles.	
Enterprise Identifiers NOTE: Enterprise identifier titles shall identify the context of use (e.g. MFR ID) with the enterprise identifier (e.g. MFR ID CAGE). For MRI, the data qualifiers from Table VI may also be used to self-define the context of use (e.g. (18S) EID CAGE+S/N) for a UII data set encoded as a single element.	MFR ID CAGE, MFR ID DUNS, MFR ID GS1 SPLR ID CAGE, SPLR ID DUNS, SPLR ID GS1 EID CAGE, EID DUNS NOTE: See Figures 2 and 3 for title use examples. EID can be used to clarify a UII enterprise identifier if multiple enterprise identifiers are in a mark (e.g., use EID CAGE, or EID DUNS, etc.). Titles only clarify use; they cannot prevent ambiguous derivation of a UII.
Unique Item Identifier **Unique Item Identifier Data Set**	UII (may only be used for a complete UII) UID (used for a UII or one or more data set elements)
Issuing Agency Code	IAC
Original PIN	ORIGINAL PART NO, ORIG PART NO, ORIG P/N, ORIG PIN, O/PN, SPLR PART
Serial Number	SERIAL NO, SERIAL, SER NO S/N, SN, SERNO, SER
Current PIN	CURRENT PART NO, CURR PART CURR PART NO, CURR P/N, CURR PN, CURR PIN PART NO, P/N, PN, PIN
Lot Number	LOT #, LOT, LOTNO
Free Text (For Marking IAW 5.1.1.1, 5.1.1.3, and 5.3)	
Nomenclature	No title – self evident
Contract or Acquisition Document	CONTRACT NO, PO NO, CNCT#, PO#, or no title
Manufacturer Name (no codes)	MANUFACTURER, MFR ID, MANF
Supplier Name (no codes)	SUPPLIER, SPL ID
Design Activity (use CAGE Code)	DESIGN ACTIVITY, DSN ACTY, DES ACT, DAI
Original Design Activity (use CAGE Code)	ORG DSN ACTY, ODA
Current Design Activity (use CAGE Code)	CUR DSN ACTY, CDA
Manufacturer (use CAGE Code)	MFR
Assembly	ASSEMBLY, ASSY
National Stock Number	NSN
Military Specification	MIL-SPEC, MS, or no title
Source Control Notation	SOCN
Matched Set Identifier	MS, MSD, MSID, M, SET

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE IX. Enterprise data for item identification.

(The following table provides enterprise data qualifiers that may be used to separately designate the item identification EID that assigned the item PIN (see Note 1). The table also provides PIN data qualifiers that may be used to designate the item identification data using current PIN constructs that include EID information. The lists are not all inclusive.

Marking Protocol	Enterprise Data Qualifiers (see Note 2)	PIN Data Qualifiers for Item ID (see Note 3)
Airlines for America (A4A) SPEC2000 and CSDD	TEI MFR	--
Automotive Industry Action Group (AIAG) AIAG B-4	DIs 17V, 12V, 3V, 7L, 18V	--
Consumer Electronics Association (CEA) ANSI MH10.8.7	DIs 17V, 12V, 3V, 7L, 18V	DIs 3P, 8P, 9P, 17P, 25P AI 01
Consumer Electronics Association (CEA) CEA-706	DIs 17V, 12V, 3V, 7L, 18V	DIs 3P, 8P, 9P, 17P, 25P
GS1 System GS1 General Specifications		AI 01
National Aeronautics and Space Administration (NASA) NASA-STD-6002	DIs 17V, 12V, 3V, 7L, 18V TEI MFR	DIs 3P, 8P, 9P, 17P, 25P AI 01
ANSI MH10.8.7	DIs 17V, 12V, 3V, 7L, 18V	DIs 3P, 8P, 9P, 17P, 25P AI 01
Free text protocol MIL-STD-130 (see 5.3)	CDA	ODA and PIN data string (see Note 4)

NOTES:

1. If a data qualifier encoded for item identification in the item mark Data Matrix symbol(s) causes IUID ambiguity, the UII data set shall be encoded as a single element (see Table VI).

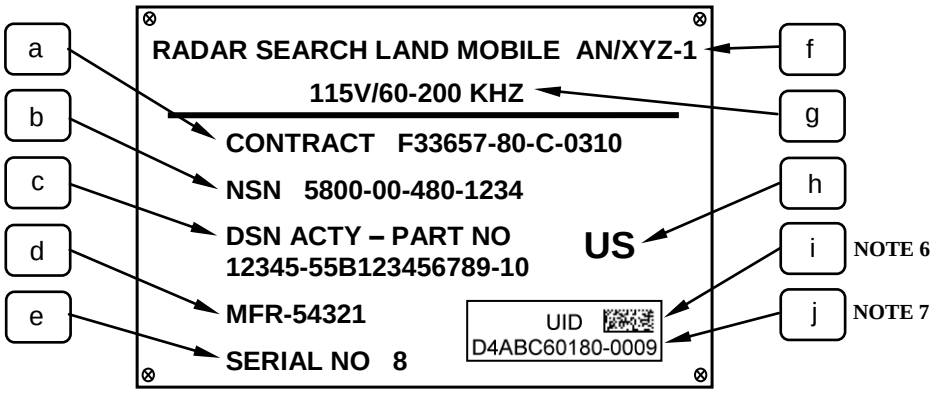
2. For HRI data area titles, use protocol designated titles or see Table VIII.

3. The PIN data construct includes EID data; thus, the data string meets the item ID mark requirements.

4. The free text data string for the combined ODA and PIN does not require a data area title.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

See NOTE 1 for this figure



a	Acquisition instrument identification (AII) number	f	Nomenclature (item name and type)
b	NSN	g	Special characteristics
c	ODA CAGE and PIN	h	Government ownership designation
d	Manufacturer enterprise identifier	i	Data Matrix symbol for the IUID label
e	Serial Number	j	Human translation for UII

NOTES:

1. This example is given only as a guide and should not be considered a mandatory format. It demonstrates how a compliant Data Matrix symbol label may be added to a legacy item data plate to complete the IUID process.

2. Free text marking methods (see 5.3) were used for the original data plate.

3. The HRI incorporates the additional information requirements of 5.1.1.3 for a marked item unit.

4. The added MRI label for the UII data set incorporates the legacy marking provisions of 5.2.1.5.

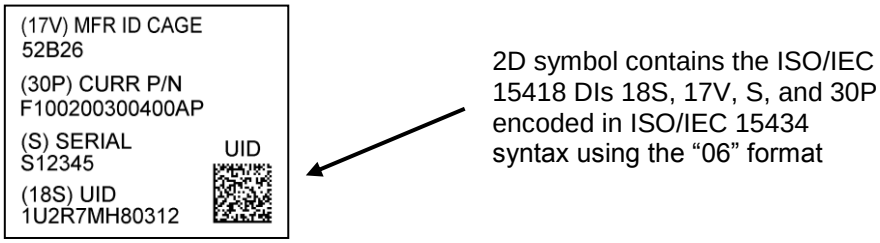
5. For this example, the legacy item was assigned a UII by a third party.

6. This Data Matrix symbol contains the encoded UII data set information, i.e., the manufacturer CAGE and serial number using DI (18S) and the Data Matrix symbol 06 Macro. However, the symbol could also have been encoded with all of the information on the data plate using the other data identifiers from Table VI and ANSI MH10.8.2.

7. The IUID label optionally includes HRI for the UII.

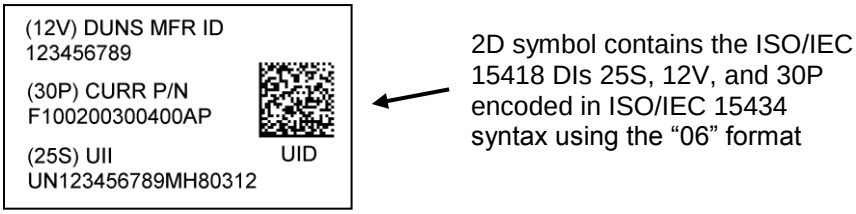
FIGURE 1. Example of a legacy identification plate for a unit item with IUID label added.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.



NOTE: CEA label (per ANSI MH10.8.7 protocol) and UII Construct #1 using DIs encoded in a Data Matrix ECC 200 symbol. The UII was assigned by an activity other than the manufacturer with a serial number unique to that entity. Note that the manufacturer enterprise identifier (52B26) is different from the UII EID (1U2R7). DI 18S can be used to encode the UII data set as a single element for the CAGE code and serial number used to derive the UII.

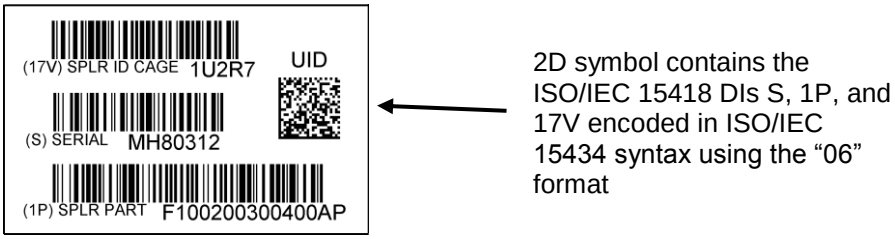
FIGURE 2. Example CEA label for a part (UII Construct #1) with a Data Matrix symbol.



NOTE: CEA label (per ANSI MH10.8.7 protocol) and UII Construct #1 using DIs encoded in a Data Matrix ECC 200 symbol. The DUNS number and the serial number are encoded with DI 25S, which requires the encoding of the issuing agency code (IAC) in order to differentiate between enterprise identifiers (see Table VI). The CEA label (per ANSI MH10.8.7 protocol) requires the use of ISO/IEC 15418 (i.e. ANSI MH10.8.2) for data area titles when applicable. The data area title for DI 12V is IAW ANSI MH10.8.2.

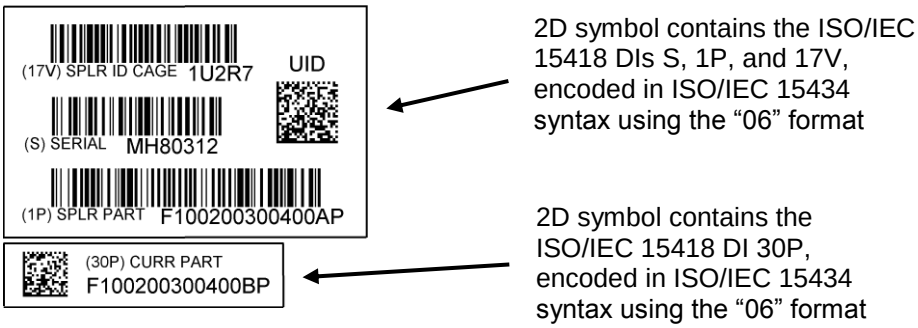
FIGURE 3. Example CEA label for a part (UII Construct #1) with a Data Matrix symbol.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.



NOTE: CEA label (per ANSI MH10.8.7 protocol) using DIs to encode basic label information in Code 128 bar codes and a Data Matrix ECC 200 symbol, which also includes a UII Construct #2 data set. The UII data set is encoded as the enterprise identifier, original PIN, and a serial number unique within that original PIN, and all are included on the label. See Figure 4.B for the modified mark after the PIN is modified.

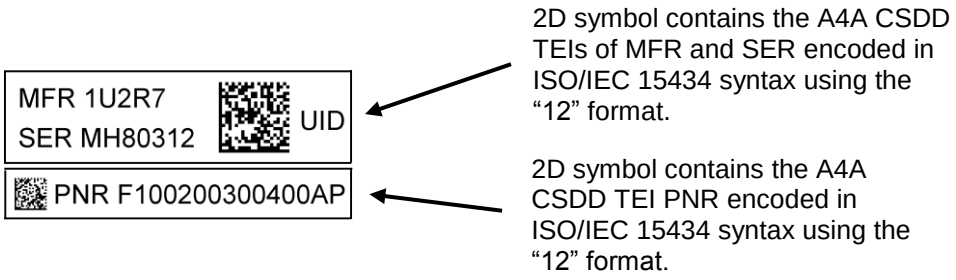
FIGURE 4.A. Example CEA new item label for a part (UII Construct #2) with Code 128 and Data Matrix symbols.



NOTE: CEA labels (per ANSI MH10.8.7 protocol) using DIs to encode basic label information in Code 128 bar codes and Data Matrix ECC 200 symbols. A UII Construct #2 data set is encoded in the original label with a Data Matrix symbol and the rolled PIN is encoded in the added label. It is an example of how the mark may be changed after the item is altered (compare Figure 4.A with 4.B). Also see 5.2.1.3.d and Figure 7.

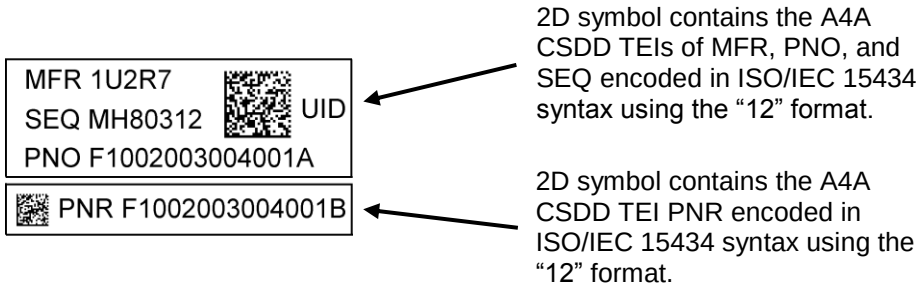
FIGURE 4.B. Example CEA modified item labels for a part (UII Construct #2) with Code 128 and Data Matrix symbols.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.



NOTE: A4A SPEC2000 protocol with ISO/IEC 15434 syntax (for 2D symbol) and UII Construct #1 using TEIs encoded in Data Matrix ECC 200 symbols. The available TEIs are listed in the A4A CSDD. The UII data set is encoded as an enterprise identifier and a serial number unique within that enterprise identifier. The current PIN was assigned by the same enterprise and is shown on an optional separate label as per the A4A protocol and will be updated when item alteration requires new identification (see 5.2.1.3.d and Figure 7).

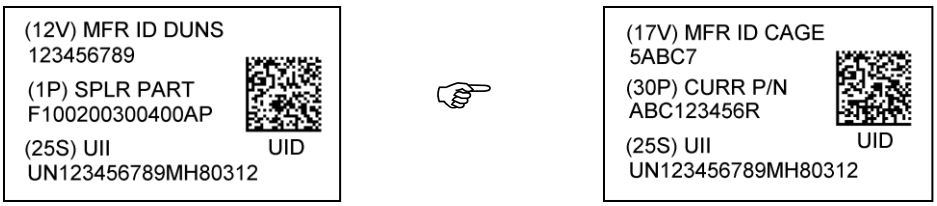
FIGURE 5. Example A4A labels for a part (UII Construct #1) with Data Matrix symbols.



NOTE: A4A SPEC2000 protocol with ISO/IEC 15434 syntax (for 2D symbol) and UII Construct #2 data set using TEIs encoded in Data Matrix ECC 200 symbols. The available TEIs are listed in the A4A CSDD. The UII data set is encoded as an enterprise identifier, an original PIN, and a serial number unique within the original PIN. The current PIN is shown on a separate label as per the A4A protocol (see 5.2.1.3.d and Figure 7). In this instance, TEI MFR is used because the manufacturer assigned the UII serial number and the part numbers.

FIGURE 6. Example A4A labels for a part (UII Construct #2) with Data Matrix symbols.

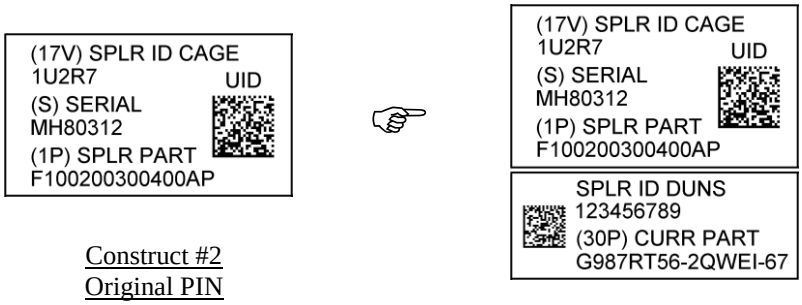
Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.



Construct #1
Original PIN

Construct #1
New Source and PIN

NOTE: For the UII Construct #1 mark, the PIN and manufacturer's EID changed; thus, both are changed in the new label. DI (17V) can be used to identify the manufacturer's CAGE Code because DI 25S identifies the UII without causing ambiguity when the UII is derived (see Appendix A). The data area titles for data qualifiers 25S, 30P, and 17V are not listed in ANSI MH10.8.2; therefore, the Table VIII titles were used for the mark.



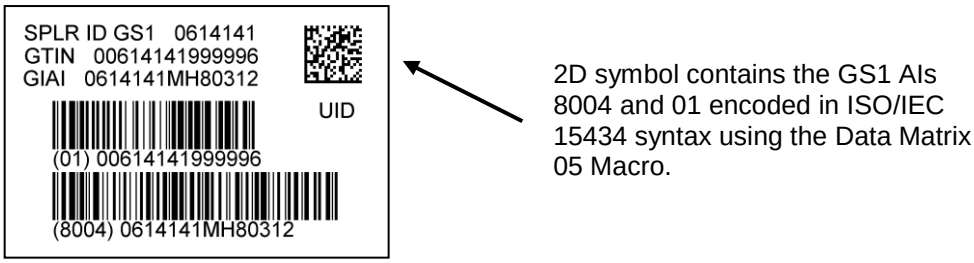
Construct #2
Original PIN

Construct #2
New Source and PIN

NOTE: For the UII Construct #2 mark, the PIN and supplier EID changed, thus both are changed in the added label. The new supplier EID cannot be encoded as MRI because it would introduce ambiguity when the UII is derived – even though two labels are used, they are considered to be part of the same mark.

FIGURE 7. Identification of a part with a changed PIN sourced from other than the original enterprise.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.



NOTES:

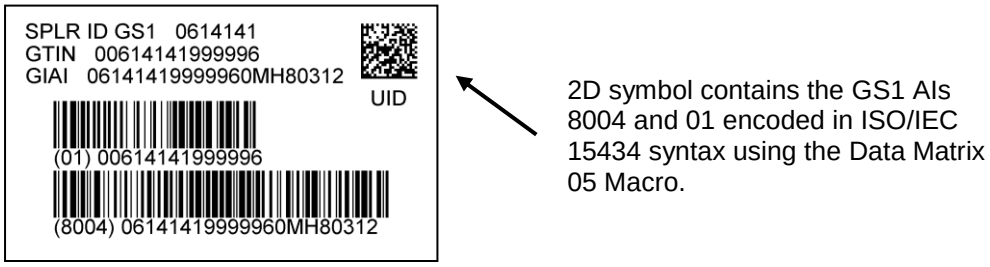
1. ANSI MH10.8.7 protocol and DoD recognized IUID equivalent UII (GIAI – AI 8004) using GS1 AIs encoded in GS1-128 and Data Matrix ECC 200 symbols. Most GS1 System users require linear bar codes in the item mark. The UII identifies a unique serial number assigned by an enterprise supplier.

2. The UII (AI 8004) is the single element used for the UII within the mark. This label follows the GS1 General Specifications for the linear bar codes and ANSI MH10.8.7 for the Data Matrix symbol.

3. The Company Prefix (0614141) is a variable length field and cannot be parsed from the encoded GIAI; thus, additional HRI for the supplier EID and the PIN (GTIN – AI 01) is marked to show the minimum requirements of 5.1.1.1.

FIGURE 8. Example GS1 System label for a part (equivalent UII serialized within the EID) with GS1-128 and Data Matrix symbols.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.



NOTES:

1. ANSI MH10.8.7 protocol and DoD recognized IUID equivalent UII (GIAI – AI 8004) using GS1 AIs encoded in GS1-128 and Data Matrix ECC 200 symbols. Most GS1 System users require linear bar codes in the item mark.

2. AI 8004 can be used to encode a UII when the serial number is unique within the product identifier (GTIN – AI 01). The UII Data Matrix symbol and corresponding linear bar codes are encoded to show the Global Individual Asset Identifier (GIAI) in a construct of: AI 8004 + Company Prefix + GTIN Part Reference Number + GTIN Modulo 10 Check Digit + GTIN Indicator Digit + serial number (i.e., 8004061414199999960MH80312) – IAW Guidelines for Application of GS1 IUID Markings to Items in the Supply Chain.

3. The UII is a DoD recognized IUID equivalent and the component elements are not required to be encoded for the data set unless specified in the acquisition contract. However, additional HRI for the supplier EID and the PIN (GTIN AI 01) is marked to show the minimum requirements of 5.1.1.1.

4. If the PIN changes, the label can be re-marked to show a new GTIN (AI 01); however, the GIAI (AI 8004) will not change. The Data Matrix symbol is ISO/IEC 15418 and 15434 compliant.

FIGURE 9. Example GS1 System label for a part (equivalent UII (GIAI) constructed using a serialized GTIN) with GS1-128 and Data Matrix symbols.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

	Preferred Layout Data Matrix and human readable	**Optional Layout** Data Matrix, linear bar codes, and human-readable	**Alternate Layout** (Severely limited space)
UII Construct # 1 (Note 2)	MFR 1U2R7 SER MH80312 UID PNR F100200300400AP	MFR 1U2R7 SER MH80312 UID PNR F100200300400AP	See Note 2
UII Construct # 2 (Note 2)	(17V) SPLR ID CAGE 1U2R7 (S) SERIAL MH80312 UID (1P) SPLR PART F100200300400AP (30P) CURR PART F100200300400BP	(17V) SPLR ID CAGE 1U2R7 UID (S) SERIAL MH80312 (1P) SPLR PART F100200300400AP (30P) CURR PART F100200300400BP	See Note 2
Non-UID	Serialized item (17V) SPLR ID CAGE 1U2R7 (S) SERIAL 9Y4U2B (1P) SPLR PART ABC12000-34	(17V) SPLR ID CAGE 1U2R7 (S) SERIAL 9Y4U2B (1P) SPLR PART ABC12000-34	
	Non-serialized item (17V) SPLR ID CAGE 1U2R7 (1P) SPLR PART DEF1600-92	(17V) SPLR ID CAGE 1U2R7 (1P) SPLR PART DEF1600-92	Or: Linear bar codes only
	Non-serialized item (Note 3)	SPLR ID GS1 0614141 GTIN 00614141999996 (01) 00614141999996	

NOTES:

1. The examples shown are illustrative only. The different layouts do not indicate a preferred protocol for use.
2. The A4A SPEC2000 protocol recommends marking the current PIN as a separate bar code label to facilitate replacement when a new altered item PIN is assigned. This marking procedure may be used for all marks. For UII Construct #2 marks, the current PIN information may be added as a second label when item alteration requires new current PIN identification. In cases of space limitation, split labels/symbols may be reduced to one label/symbol. If the mark is reduced to a single Data Matrix symbol, it should include the item's source (manufacturer or supplier) and current PIN.
3. Most GS1 System users require linear bar codes in the item mark.

FIGURE 10. Minimum MRI marking with HRI scenarios (see Note 1).

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

C2A1 CANISTER, MCU-2AP
4240-01-361-1319
SPO100-00-D-NA451/0001
1U2R7-JK123BBV5
LOT MCG77G002-060
DATE MFR 2004/06/03

NOTE: Free text protocol (see 5.3).

FIGURE 11. Example of free text label for a unit item.

(P)12345678901234
(V)12345 (Q)123
(1T)1234567

FIGURE 12. Example AIAG B-4 label (non-UID) for a part.

SPLR ID GS1 0614141
GTIN 00614141999996
(01) 00614141999996

FIGURE 13. Example of GS1 System label (non-UID) for a part.

6 14141 01554 2

U.P.C. Version

NOTE: The U.P.C. mark does not require human-readable information if it meets the COTS exemption criteria of 5.1.2.a.

FIGURE 14. Example of GS1 System label.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

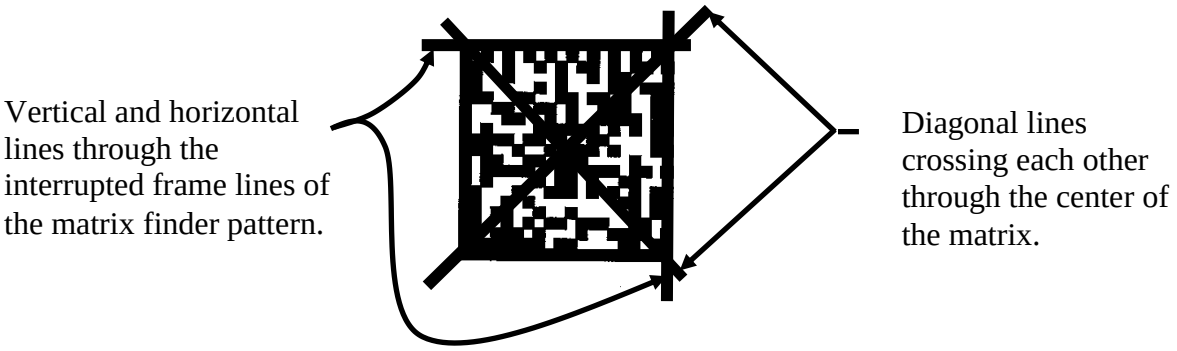


FIGURE 15. Obliteration of a Data Matrix symbol.

WARRANTED ITEM

THIS ITEM IS UNDER WARRANTY

UNTIL (NOTE 1)

WARRANTED ITEM

THIS ITEM IS UNDER WARRANTY

UNTIL (NOTE 2)

HAS BEEN COMPLETED

NOTES:

1. Indicate expiration date or other expiration criteria.
2. Indicate condition of use (i.e., hours of operation, time since manufacture).
3. These examples are provided as a guide only and should not be considered mandatory.

FIGURE 16. Examples of warranty markings.

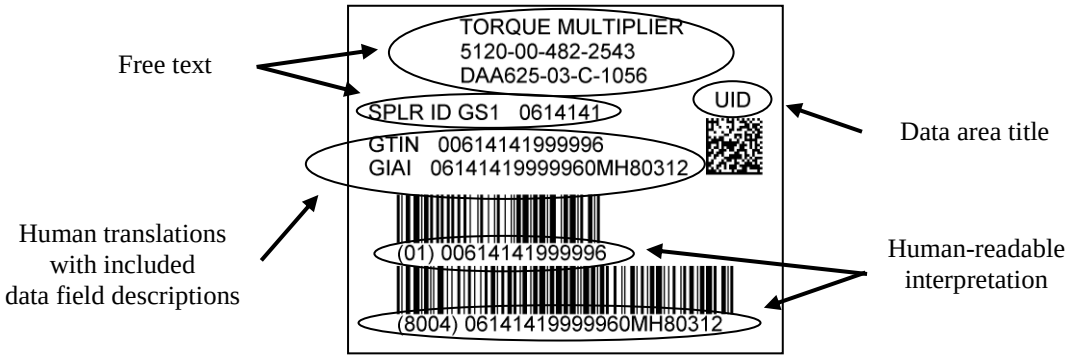
Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

(Symbol)

(LABEL)

CAUTION
CONTAINS PARTS AND ASSEMBLIES
SUSCEPTIBLE TO DAMAGE BY
ELECTROSTATIC DISCHARGE (ESD)

FIGURE 17. Electrostatic discharge (ESD) sensitive identification.



NOTES:

1. Free text: Human-readable information other than what is encoded in the machine-readable medium (also see Figure 11).

2. Data area title: Data area titles identify data areas comprised of information in machine-readable or human-readable form. Data area titles are human-readable text that may be prefixed, if relevant, by the data qualifier/identifier (see Figure 2).

3. Human translation: Human-readable information provided within proximity of the machine-readable medium, representing portions of the information encoded and data field descriptions not encoded in the symbols.

4. Human-readable interpretation: Human-readable information provided adjacent to a machine-readable medium representing the encoded data within the medium.

FIGURE 18. Human-readable information examples.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

APPENDIX A

STRUCTURING DATA ELEMENTS FOR ITEM UNIQUE IDENTIFICATION (IUID)

A.1 SCOPE

A.1.1 Scope. This appendix explains how data elements are linked together using marking protocol semantics to derive a unique item identifier (UII). The purpose is to provide sufficient Data Matrix symbol machine-readable information in an item mark, which includes information from all labels, tags, etc. associated with the item, to derive one and only one UII that is unique and unambiguous for the life of the item. This appendix is not a mandatory part of the standard. The information contained herein is intended for guidance only.

A.2 UII DATA STRUCTURE

A.2.1 UII data set. A UII is derived from specific elements in an item mark's Data Matrix symbol(s) data set that may include not only the applicable UII information but also item source, PIN, and additional information as required by this standard and contract specifications. When selecting an item marking protocol for use, the marking activity is responsible to ensure all of the data elements in the mark are considered when determining the data elements and data qualifiers (i.e., the semantics) for use to ensure the UII is unique for the item. If the mark's Data Matrix symbol(s) MRI data elements could potentially be used to construct different UIIs for the same item, the marking activity is responsible to mitigate the ambiguity by changing either the Data Matrix symbol(s) MRI data set in the mark or the data qualifiers used to identify the UII data set, within the parameters of the protocol selected for the mark. The UII types, limited to 50 characters (A to Z, 0 to 9, hyphen "-", and forward slash "/"), are as follows:

a. Construct #1: UII type where serial number is unique within the enterprise.

b. Construct #2: UII type where serial number is unique within the original part, lot or batch number that is unique within the enterprise.

c. IUID equivalent (see 3.2).

A.2.2 Semantics. For the UII data set elements to be "machine readable" by an AIT device, they are identified by some means such that the AIT device can recognize, through its resident software and the message syntax of the bar code symbol, what data element it is reading. This is accomplished by employing the concept of "semantics", which is literally "the meaning of language". For the purposes of constructing machine-readable data elements, semantics take the form of data qualifiers. These data qualifiers have to define each data element placed on the item. Table VI shows the different data qualifiers for each of the data elements that are used for determining uniqueness of the UII. The data qualifiers indicate to the AIT device or the automated information system whether to derive the UII by using Construct #1 rules, Construct #2 rules, single data element rules, or a DoD recognized IUID equivalent. Tables A-I, A-II, and A-III respectively show how UIIs are derived from an ordered set of elements identified by Application Identifiers (AI - see 3.2), Data Identifiers (DI - see 3.2), and Text Element Identifiers (TEI - see 3.2).

A.2.3 Business rules for deriving a UII. The following is a subset of the IUID business rules extracted from the Department of Defense Guide to Uniquely Identifying Items for consideration when determining the uniqueness of a UII.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

a. The enterprise identifier used in the UII data set identifies the enterprise that assigned the UII to the item. The UII data set machine-readable code does not contain more than one enterprise identifier if ambiguity in constructing the UII would result.

b. The IAC is derived from the data qualifier for the enterprise identifier if it is not contained within an encoded data element. See Table V for a list of issuing agency codes for the six most commonly used enterprise identifiers.

c. Data elements not required to derive a UII remain discrete but may be contained within the same MRI mark or media as the UII data set required elements, provided that (1) all data elements contained in the MRI mark or media are properly identified with a data qualifier, (2) the added data elements do not introduce ambiguity when the UII is derived, and (3) the added data elements do not violate other business rules stated in the Department of Defense Guide to Uniquely Identifying Items.

d. The UII is derived from its discrete, component data set element(s) or the UII data set encoded as a single data element.

e. UII data sets encoded as single data elements that are sufficient to derive UIIs (that is, 18S, 25S, UID, UST, USN, and DoD recognized IUID equivalents) are always interpreted as the UII regardless of any apparent ambiguity introduced by additional data elements in the symbol.

f. The UII is unique worldwide (non-repeatable).

g. The UII is a non-parsable field, not to exceed 50 characters in length (excludes overhead characters). Overhead characters in the encoded data string, such as syntax and data qualifiers, are not part of the UII data set and are eliminated when the UII is derived. The source protocols for specific data qualifiers may be more restrictive than the allowable field lengths of these rules. For specific limitations on field lengths and usage, refer to ANSI MH10.8.2 for DIs, ANSI MH10.8.7 and GS1 General Specifications for AIs, and A4A CSDD for TEIs. The maximum field lengths for each of the UII data set elements are as follows:

(1) The IAC string of characters does not exceed three characters.

(2) The enterprise identifier string of characters does not exceed 13 characters, excluding the data qualifier.

(3) The original PIN or lot or batch number string of characters (including special characters) does not exceed 32 characters, excluding the data qualifier.

(4) The serial number string of characters (including special characters) does not exceed 30 characters, excluding the data qualifier.

NOTE: The sum total of the maximum number of characters for each of the possible UII data set elements shown above exceeds 50 characters. However, in order to meet the overall length limitation of 50 characters for the UII, it may be necessary to use field lengths for the original PINs, lot or batch numbers and serial numbers that are shorter than the maximum allowable field lengths for the individual data elements.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

APPENDIX A

TABLE A-I. Derive a UII from Application Identifier (AI) qualified data.

	Required AIs	Derive the UII[1]
Construct #1—Serialization within the enterprise		
None available *Consider use of the GIAI if appropriate (see Figure 8)*		
Construct #2—Serialization within the original PIN or lot or batch number		
None available[2] *Consider use of the GIAI if appropriate (see Figure 9)*		
IUID Equivalents		
CMTI GRAI GIAI	8002 8003 8004	<8002> <8003> <8004>

NOTES:

1. The enclosure of the AI in angle brackets, for example <8002>, is the notation used to indicate the value (character string) associated with the data qualifier.

2. UIIs (Construct #2) derived from an AI 01 and AI 21 data set were never entered into the IUID Registry and the format has been withdrawn from use by DoD. The UII Construct #2 format was initially identified for use by DoD in documents other than this standard.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

TABLE A-II. Derive a UII from Data Identifier (DI) qualified data.

	Required DIs	Derive the UII[Note]
Construct #1—Serialization within the enterprise		
CAGE + serial number within CAGE (does not contain the IAC) (see Figure 2)	18S	D + <18S>
Complete UII (see Figure 3)	25S	<25S>
Construct #2—Serialization within the original PIN or lot or batch number		
Serialization within the original PIN (see Figure 4.A.)	17V, 1P & S 12V, 1P & S 3V, 1P & S 7L, 1P & S 18V, 1P & S	D + <17V> + <1P> + <S> UN + <12V> + <1P> + <S> <3V> + <1P> + <S> LD + <7L> + <1P> + <S> <18V> + <1P> + <S>
Serialization within the lot or batch number	17V, 1T & S 12V, 1T & S 3V, 1T & S 7L, 1T & S 18V, 1T & S	D + <17V> + <1T> + <S> UN + <12V> + <1T> + <S> <3V> + <1T> + <S> LD + <7L> + <1T> + <S> <18V> + <1T> + <S>
Complete UII	25S	<25S>
IUID Equivalent		
VIN ESN/MEID	I 22S	<I> <22S>

NOTE: The enclosure of the DI in angle brackets, for example <25S>, is the notation used to indicate the value (character string) associated with the data qualifier.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

APPENDIX A

TABLE A-III. Derive a UII from Text Element Identifier (TEI) qualified data.

	Required TEIs[1]	Derive the UII[2]
Construct #1—Serialization within the enterprise		
Serialization within the enterprise (component data elements) (see Figure 5)	MFR & SER SPL & UCN CAG & SER CAG & UCN DUN & SER DUN & UCN EUC & SER EUC & UCN	D + <MFR > + <SER > D + <SPL > + <UCN > D + <CAG > + <SER > D + <CAG > + <UCN > UN + <DUN > + <SER > UN + <DUN > + <UCN > <EUC > + <SER > <EUC > + <UCN >
Complete UII	UID	<UID >
CAGE + serial number within CAGE	USN UST	D + <USN > D + <UST >
Construct #2—Serialization within the original PIN or lot or batch number		
Serialization within the original PIN (see Figure 6)	MFR , PNO & SEQ SPL , PNO & SEQ CAG , PNO & SEQ DUN , PNO & SEQ EUC , PNO & SEQ	D + <MFR > + <PNO > + <SEQ > D + <SPL > + <PNO > + <SEQ > D + <CAG > + <PNO > + <SEQ > UN + <DUN > + <PNO > + <SEQ > <EUC > + <PNO > + <SEQ >
Serialization within the lot[3] or batch number.	MFR , PNO , LOT & SEQ SPL , PNO , LOT & SEQ CAG , PNO , LOT & SEQ DUN , PNO , LOT & SEQ EUC , PNO , LOT & SEQ MFR , LTN & SEQ SPL , LTN & SEQ CAG , LTN & SEQ DUN , LTN & SEQ EUC , LTN & SEQ	D + <MFR > + <PNO > + <LOT > + <SEQ > D + <SPL > + <PNO > + <LOT > + <SEQ > D + <CAG > + <PNO > + <LOT > + <SEQ > UN + <DUN> + <PNO > + <LOT > + <SEQ > <EUC > + <PNO > + <LOT > + <SEQ > D + <MFR > + <LTN > + <SEQ > D + <SPL > + <LTN > + <SEQ > D + <CAG > + <LTN > + <SEQ > UN + <DUN > + <LTN > + <SEQ > <EUC > + <LTN > + <SEQ >
Complete UII	UID	<UID >
IUID Equivalent		
None available		

NOTES:

1. The TEI consists of three alpha characters followed by a space.

2. The enclosure of the TEI in angle brackets, for example <MFR >, is the notation used to indicate the value (character string) associated with the data qualifier.

3. If lot (TEI LTN) is sub-divided into smaller units (batches), insert BII after LTN, as appropriate.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.

CONCLUDING MATERIAL

Custodians:
Army - AR
Navy - AS
Air Force - 16
DLA - DH

Preparing Activity:
Air Force - 16
(Project SESS-2012-010)

Review Activities:
Army - AT, AV, CR, CR4, EA, MI, SM
Navy - MC, OS, SA, SH, YD
Air Force - 11, 13, 19, 70, 71, 84, 99
DLA - CC, DP, GS, IS
USTRANSCOM - USTC

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil/.

Source: https://assist.dla.mil -- Downloaded: 2016-12-23T02:25Z
Check the source to verify that this is the current version before use.