NOT MEASUREMENT SENSITIVE

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DEPARTMENT OF DEFENSE STANDARD PRACTICE

IDENTIFICATION MARKING OF U.S. MILITARY PROPERTY

AMSC N/A AREA SESS

DISTRIBUTION STATEMENT A. Approved for public release, distribution is unlimited.

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 and guidance regarding implementation of Machine-Readable Information (MRI) for item identification marking and automatic data capture. MRI provides a valuable tool for life-cycle asset management from acquisition through manufacture to logistics and final disposition. However, the use of MRI may not be suitable or adequate for every item identification need. The application of Human Readable Information (HRI) in combination with MRI and free text information item identification marking 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 item identification marking requirements. Product designers must include in product definition data the specific requirements as to marking content, size, location, application process, 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 that item identification marking is required and that development of specific item marking requirements be based on the criteria provided in this standard.

5. Definitions provided in Section 3 and abbreviations provided in Appendix A 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, questions on this document should be addressed to 754 ELSG/ILMT, 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, you may want to verify address information currency using the ASSIST Online database at http://assist.daps.dla.mil.

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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. This standard addresses criteria and data content for both free text and machine-readable information (MRI) applications of item identification marking.

1.2 Figures. The figures in this standard are intended only as illustrations to aid the user in understanding the practices described in the text. Unless stipulated otherwise in the referring text, figures shall 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 not subject to IUID item 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 Specifications 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	Hose, Standard, Marking, Aircraft
ASTM B666/B666M	Standard Practice for Identification Marking of Aluminum and Magnesium Products. (DoD adopted)

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)

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 http://assist.daps.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.

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)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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 INFORMATION SERVICE

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

(Copies of this document are available from the Defense 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

(Copies of this document 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.

AIR TRANSPORT ASSOCIATION OF AMERICA

ATA SPEC2000 Chapter 9 – Automated Identification and Data Capture

CSDD Common Support Data Dictionary

(Copies of these documents are available from Air Transport Association of America, Inc., Distribution Center, PO Box 511, Annapolis Junction, MD 20701, or http://www.airlines.org)

ALLIANCE FOR TELECOMMUNICATIONS INDUSTRY SOLUTIONS (ATIS)

ATIS-0322000 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 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 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 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 48033-7100, or http://www.aiag.org/.)

CONSUMER ELECTRONICS ASSOCIATION

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

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 Electrostatic Discharge Association, 7900 Turin Road, Bldg 3, Ste 2, Rome, NY 13440-2069, http://esda.org/standards.html)

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 (formerly the Uniform Code Council), 7887 Washington Village Dr., Dayton, OH 45459-8605, or http://www.gs1us.org/.)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION / INTERNATIONAL ELECTROTECHNICAL COMMISSION

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 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 -- Bar code symbology specification -- Code 128
ISO/IEC 15418	Information technology -- EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance
ISO/IEC 15420	Information technology -- Automatic identification and data capture techniques -- Bar code symbology specification -- EAN/UPC
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 for supply chain management
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 -- Bar code symbology specifications -- Code 39
ISO/IEC 19762-1	Information technology -- Automatic identification and data capture (AIDC) techniques – Harmonized vocabulary – Part 1: General terms relating to AIDC

(Copies of these documents are available from American National Standards Institute (ANSI), 25 West 43rd Street, 4th floor, New York, NY 10036, or http://webstore.ansi.org/ansidocstore/.)

MATERIAL HANDLING INDUSTRY OF AMERICA

ANSI MH10.8.2	Data Identifier and Application Identifier Standard
ANSI 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

ESN Assignment Guidelines and Procedures.

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

2.4 Order of precedence. 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. See Appendix A.

3.2 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.

3.3 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.

3.4 Altered, selected, source control, or vendor item controlled items. Items depicted on altered item, selected item, source control, or vendor item control drawings in accordance with the definitions and requirements contained in ASME Y14.24.

3.5 Application Identifier (AI). The field of two or more characters at the beginning of an Element String that uniquely defines its format and meaning. (see GS1 General Specification)

NOTE: For UII development, allowable AIs are listed in Table VI.

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

3.7 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.)

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. (see ASME Y14.100)

3.8 Commercial and government entity (CAGE) code. A five-position alphanumeric code with a numeric in the first and last positions (e.g., 27340, 2A345, 2AA45, or 2AAA5), excluding the letters I and O assigned to U. S. organizations which 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. (see DoD 4100.39-M Volume 7).

3.9 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.

3.10 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. (see ASME Y14.100)

3.11 Data area titles. Data areas comprised of information in machine-readable or human-readable form.

NOTE: Data areas are identified with the corresponding data area title in human-readable text that may be prefixed, if relevant, by the appropriate identifier. (see ISO/IEC 19762-1) (see Table VIII and Figure 18)

3.12 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 1D or 2D symbol.

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

NOTE: For UII development, allowable DIs are listed in Table VI.

3.14 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. (see DFARS 252.211-7003)

3.15 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.

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

3.17 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.

3.18 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. (see ASME Y14.100) These may be printed, imprinted, or electronic format.

3.19 DoD activity address code (DoDAAC). A distinct six-position alphanumeric code assigned to identify specific units, activities, or organizations. (see DoD 4000.25-6-M)

3.20 Electrostatic discharge sensitive (ESDS) 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.

3.21 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.

3.22 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 (see 3.8); Department of Defense Activity Address Code (DODAAC) (see 3.19); Dun & Bradstreet's Data Universal Numbering System (D-U-N-S) (see 3.15); North Atlantic Treaty Organization (NATO) CAGE (NCAGE) code (see 3.40); and GS1 Company Prefix (see 3.25). 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.

3.23 Free text. Human readable information other than what is encoded in, the machine-readable medium. (see 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)

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

3.25 GS1 Formerly known as EAN.UCC, the Uniform Code Council and EAN International have been restructured resulting in a name change to GS1 for the combined organization for the establishment of product coding standardization and issuance of unique company prefix codes.

3.26 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 two-dimensional (2D) symbol (see Figure 18) are identified as:

a. Human-readable interpretation. (see 3.27)

b. Human translation. (see 3.28)

c. Data area titles. (see 3.11)

d. Free Text. (see 3.23)

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

3.28 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. (see ISO/IEC 19762-1) (see Figure 18)

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

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

3.31 Item identification. The part number, identifying number, or descriptive identifier for a specific item along with the enterprise identifier of the activity that assigned the part number, identifying number, or descriptive identifier.

3.32 Item unique identification (IUID). A system of establishing unique item identifiers within the Department of Defense by assigning a machine-readable character string or number to a discrete item, which serves to distinguish it from other like and unlike items.

3.33 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), Global Returnable Asset Identifier (GRAI-when serialized), Vehicle Identification Number (VIN), and Electronic Serial Number (ESN – for cell phones only).

3.34 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.

3.35 Lot or batch 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** is a lot number that **is not** unique within the Enterprise Identifier but is unique within the Original Part Number TEI (PNO).

b. **TEI LTN** is a lot number that **is** unique within the Enterprise Identifier. Referred to as Enterprise Lot Number

3.36 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

3.37 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, with or without modification, into more complex items. MFR may be used in this document as an abbreviation of the term manufacturer (see 5.3.2 for usage information) or as a Text Element Identifier in accordance with ATA SPEC2000 and the ATA CSDD.

3.38 Manufacturer's identification. The actual manufacturer's name and enterprise identifier (see 3.22) that identifies the place of manufacture.

3.39 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.

3.40 NATO commercial and government entity (NCAGE) Code. A five position alphanumeric code requiring an alpha in either the first or last position (e.g., AA123, 3AAAA, AAAA3, K2345 or 2345K), assigned to organizations located in North Atlantic Treaty Organization (NATO) member nations (excluding U.S.) and other foreign countries which manufacture and/or control the design of items supplied to a Government Military Activity or Civil Agency. (see DoD 4100.39-M Volume 7)

3.41 Nomenclature. The combination of an item name and a type designator. (see MIL-STD-196) or as designated in the contract or contract documents.

3.42 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. (see ASME Y14.100)

3.43 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). (see ASME Y14.100)

3.44 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. (see ASME Y14.100).

3.45 Selected items. (see 3.45)

3.46 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 established standards.

3.47 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.)

3.48 Source control items. (see 3.48)

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

3.50 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.) (see ASME Y14.100)

3.51 Supplier. The party that produces, provides, or furnishes an item and warrants item compliance with the part numbered design drawing specifications and warrants the uniqueness of the part number within the enterprise.

3.52 Text Element Identifier (TEI). A four character mnemonic symbol 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. (see ATA CSDD)

NOTE: For UII development, allowable TEIs are listed in Table VI of this document.

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

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

3.55 Unique Item Identifier (UII) Data Set. A set of one or more data elements marked on an item from which the concatenated UII can be derived. The UII types, limited to 50 characters, 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 which is unique within the enterprise.

c. IUID equivalent (see 3.33)

3.56 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.)

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. (see ASME Y14.100)

3.57 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. (see MIL-STD-129).

3.58 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.

3.59 U.S. military property. Government owned property within DOD jurisdiction**.**

3.60 Validation. Confirmation by examination and provisions of objective evidence that the particular requirements for a specific intended use have been fulfilled; that all requirements have been implemented correctly and completely and are traceable to system requirements

3.61 Vendor item controlled items. (see 3.61)

3.62 Verification. Confirmation by examination, and provisions of objective evidence, that the item identification marking requirements specified in this standard and the associated contract have been fulfilled.

3.63 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.

4. GENERAL REQUIREMENTS

4.1 Methods of applying. The required marking shall be applied to an identification plate (see Figure 1), identification band, identification tag, or identification label 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 of 4.2 in specifying the actual method(s) to be used in applying markings. Recommended marking methods are shown in Table II with recommended 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 detailed 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 shall be followed and the informational requirements of this standard shall be fulfilled.

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 item identification marking shall be specified directly or by reference on the document delineating the item to be marked.

4.3 Permanency and legibility. Direct identification 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 direct identification marking method should be selected to ensure the mark will withstand the specified rebuild processes. It is not intended that existing items be subjected to retest solely because of the addition of an MRI requirement except when required to insure 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. Direct identification marking methods shall account for final finished condition of the item including paints, coatings, and sealants to assure readability.

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 must then ensure that the UII is linked with the item until the part can be remarked with the original UII data prior to leaving the rebuild facility.

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	5.76 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 conditions of 4.1.b are not met), mark only the most essential information as shown in Figure 10.

4.7 Type of lettering. 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. 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 5.3.7.i).

4.10 Vendor item control items. Items depicted on Vendor Item Control Drawings (VICD) (see 3.61) shall be marked with the source's PIN preceded by the source's EID (see 3.22). 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 3.9), refer to 5.1.2.a.

4.11 IUID designated items. Items designated for application of IUID (see 3.32) shall be clearly identified via UII (see 3.54).

5. DETAILED REQUIREMENTS

5.1 General. MRI marking per 5.2 is preferred for all marked items. MRI marking per 5.2 shall be applied to all items subject to DFARS mandated IUID (see 3.32) criteria. Free text (see 3.23) information marking and labeling, when specified in the contract or order in lieu of MRI, shall be in accordance with 5.3.

5.1.1 Minimum information content. Identification of the item(s) marked shall be contained in the marking applied, whether machine-readable or free text. Information in the item mark should clearly identify the source (manufacturer or supplier) EID and PIN, lot or batch number of the marked item.

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

a. COTS (see 3.9) items marked with commercial identification (firm name, logo, trademark, part number, etc.), not subject to IUID marking criteria and which present no identification difficulty may be exempt from additional marking requirements at the discretion of the acquiring activity. 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.

5.2 Machine-readable information (MRI) marking. For DFARS mandated IUID marking, the minimum mark is a Data Matrix ECC 200 symbol using ISO/IEC 15434 syntax and the semantics of ISO/IEC 15418 or ATA CSDD and UII limitation of 50 characters in compliance with ISO/IEC 15459-4. For items not subject to DFARS mandated IUID marking, the Data Matrix ECC 200 symbol using ISO/IEC 15434 syntax and the semantics of ISO/IEC 15418 or

ATA CSDD is preferred. If a Data Matrix symbol is used, the linear symbols with human-readable information may be omitted unless specifically required by the contract or order. The Data Matrix ECC 200 symbol shall meet the requirements stated in 5.2.7.2. Items shall be individually marked as follows:

a. Preferred marking includes Data Matrix and linear symbols with human-readable information (interpretation or translation). When supplemental information is required by the acquiring activity, additional information may be included as free text (see 3.23) in accordance with 5.3.

b. Where space is limited, the linear symbol marking may be omitted and human-readable information abbreviated (see Figure 10).

c. To accommodate severe space limitations, human-readable information may be omitted from the item (see Figure 10) and applied to the packaging per paragraph 4.1.b.

5.2.1 Minimum information content. Content requirements not included in the MRI marking protocols of 5.2.2 shall be specified in the contract or order. The minimum MRI content requirement is conditional as follows:

5.2.1.1 Applicable enterprise identifier (EID) (see 3.22).

a. For non-IUID items, the enterprise identifier (see 3.22) of the manufacturer (see 3.37) or supplier (see 3.51) of the item shall be encoded using applicable MRI protocol data qualifiers, to include those listed in Table VI.

b. For IUID items, the EID for the activity assigning the serial number for UII Constructs #1 or #2 shall be encoded using the applicable MRI protocol data qualifiers in Table VI. The EID of the enterprise that assigned the serial number to the item is the only EID in the MRI symbol that can use a Table VI UII data qualifier for the EID.

5.2.1.2 Serial number (see 3.46)

a. For non-IUID items, the applicable serial number or traceability number shall be encoded in accordance with the applicable MRI protocol requirements using any of the applicable MRI protocol data qualifiers, to include those in Table VI.

b. For IUID items, the serial number for UII Constructs #1 or #2 shall be encoded using the applicable MRI protocol data qualifiers in Table VI.

5.2.1.3 PIN, lot or batch identifying number.

a. For a non-IUID item, the PIN shall be encoded using one of the applicable MRI protocol data qualifiers, to include those in Table VI.

b. For an IUID item serialized within the enterprise (UII Construct #1), the current PIN, lot or batch number, as applicable, shall be encoded in accordance with the applicable MRI protocol requirements (see 5.2.2) using one of the applicable MRI protocol data qualifiers in Table VI. The current PIN, lot or batch number shall be encoded as an additional data element in the same symbol with the UII or in a separate symbol.

Note: When using UII Construct #1, data qualifiers for Original Part Number in Table VI may be used if the current PIN is the same as the original PIN."

c. For an IUID item 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.

d. When the PIN, lot or batch number changes, the new current PIN, lot or batch number shall be included 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, lot or batch number may be encoded in a single Data Matrix symbol along with the UII data elements at the discretion of the MRI protocol used. For UII Construct #2 applications, the original PIN, original lot number, or original batch number must continue to be clearly identified and encoded in the MRI. When the PIN, lot or batch number is changed by an enterprise other than the source enterprise (manufacturer or supplier) identified in the original mark, the EID of the enterprise establishing the changed PIN shall be clearly identified on the changed item as MRI or HRI per 5.2.1.1 (see Figure 7).

NOTE: Where instances of duplicate part number assignments arise within the enterprise, enterprises may choose to utilize item identification (see 3.31) by prefixing the part number 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 3.33) 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: GS1 IUID equivalents may be encoded using Function Code 1 (FNC1) in lieu of the syntax of ISO/IEC 15434.

5.2.1.5 Assignment of IUID to legacy items. The IUID mark is supplemental to prior marks on the item and it only needs to replicate UII related information. When it is determined that a legacy item should be marked in accordance with the IUID marking requirements, the Enterprise Identifier (EID) of the organization ensuring the uniqueness must be the EID used to generate the UII versus any other EID represented in the prior marks. Although existing marks on an item may contain the necessary elements for a concatenated UII, they do not guarantee the resulting UII will be unique. Only the EID owner establishing 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 protocol. Unless manufacturers follow one of the established standards stated herein, items shall be marked in accordance with MH10.8.7. Labeling activities shall follow one of the established standards stated herein or as noted in 5.2.2.6

5.2.2.1 Air Transport Association (ATA). Manufacturers that implement ATA product marking standards shall mark items in accordance with:

a. For linear bar code symbols: SPEC2000.

b. For Data Matrix symbols: ATA CSDD using data qualifiers (TEIs) shown in Table VI and ISO/IEC 15434 syntax with format indicator “12”.

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 MH10.8.7 and CEA-706 standards as applicable. (see Figure 13) Although other manufacturer codes are allowable under this

standard, a CAGE code identified with the appropriate Data Identifier is the recommended manufacturer ID.

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

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

b. For Data Matrix symbols, several references should be used. For non-IUID item marks, use the GS1 General Specifications. For IUID item marks use the GS1 General Specifications with the Data Matrix symbol syntax in accordance with ISO/IEC 15434.

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. MRI protocols other than those stated herein shall be approved by USTRANSCOM TCJ5/4-I Asset Visibility Division. 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 DOD Logistics AIT Office (TCJ5/4-I), Suite 100, 5971 Kingstowne Village Parkway, Alexandria, VA 22315

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 (formerly UCC/EAN-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 (0.26mm) 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 Syntax. The data elements shall be encoded in the Data Matrix symbol using the syntax of ISO/IEC 15434 with format indicator 05 for Application Identifiers (AI), format indicator 06 for Data Identifiers (DI), or format indicator 12 for Text Element Identifiers (TEI). The use of DIs is illustrated in Figures 2 - 4.b, 12, and 13. TEIs are illustrated in Figures 5 and 6. AIs are illustrated in Figures 8 and 9.

5.2.5 Semantics. The data elements shall be described by the semantics of ISO/IEC 15418 for AIs and DIs and the semantics of the Air Transport Association Common Support Data Dictionary (CSDD) for TEIs. The semantics for IUID are shown in Table VI.

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. The following provide acceptance criteria for all marking procedures that 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 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 are 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: The symbol shall have a minimum quality grade of DPM2.0/7.5-25/650/(45Q|30Q|90|30T|30S|D) where:

i. Minimum quality grade = 2.0

ii. X dimension range of the application = 7.5-25 mils

iii. Inspection wavelength = 650 nanometers ± 20 nanometers.

iv. 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 fulfill the visual inspection criteria of "Pass" as defined in AS9132.

d. Due to the absence of a nationally traceable standard to calibrate verification equipment, calibration processes and materials for reflectance criteria provided by the verifier manufacturer are acceptable.

e. For Data Matrix symbols applied to 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.

f. 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 information. When MRI marking is not required, or when human-readable information is required in addition to that provided along with the applicable MRI, items shall be individually marked with free text (see 3.23). Abbreviations are provided in Table VIII. Additional free text information may be included when specified by the acquiring activity.

a. Parts that are normally capable of independent operation in a variety of situations shall be marked as specified in 5.3.7

b. An item of military property consisting of one part, 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 (see 5.1.2.b for an exception).

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 shall then be applied to the packaging (see 4.1.b).

5.3.1 Part mark when the manufacturer is the design activity. When the manufacturer is also the design activity for the part, the marking shall be arranged as follows:

a. When the manufacturer is the original design activity.

69806 - 1234567-101 -- ODA (see 3.42) Item Identification (see 3.31)

|_____ ODA - CAGE or NCAGE (see 3.8 or 3.40)

b. When the manufacturer is the current design activity but is not the original design activity.

69806 - 1234567-101 -- ODA Item Identification

CDA - 07873 -- CDA (see 3.10) - CAGE or NCAGE

5.3.2 Part mark for items acquired from manufacturers other than the design activity. The notation (MFR), followed by the manufacturer's identification (see 3.38) shall be marked below the design activity's item identification (or near it if space does not permit). The markings shall be arranged as follows:

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

69806 - 1234567-101 -- ODA Item Identification

MFR - 20001 -- MFR (see 3.37) - CAGE or NCAGE

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

69806 - 1234567-101 -- ODA Item Identification

CDA - 07873 -- CDA - CAGE or NCAGE

MFR - 20001 -- MFR - CAGE or NCAGE

ALTERNATE METHOD

69806 - 1234567-101 -- ODA Item Identification

CDA - 07873 MFR - 20001 -- MFR - CAGE or NCAGE

|____CDA - 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 to the acquiring activity for the delivered product, 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 except that the notation "ASSY," shall be used in place of a dash (or slant) as follows.

69807ASSY7654321-101 -- DAI (CAGE or NCAGE), ASSY, and identifying PIN

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 except that the notation "SOCN," shall be used in place of a dash (or slant) as follows:

69807SOCN7654321-101 -- DAI (CAGE or NCAGE), SOCN, and identifying PIN

When specified by the acquiring activity, the item manufacturer shall be identified as described in 5.3.2. The vendor's identification and PIN need not be removed.

5.3.7 Marking requirements for units, groups, and sets. Units, groups, or sets shall be marked with the following free text marking.

a. Nomenclature (see 3.41)
b. Enterprise identifier (see 3.22) of the manufacturer (see 3.37) or supplier (see 3.51)
c. Enterprise identifier (see 3.22) for IUID, as applicable
d. Serial number (see 3.46) or other traceability number, when applicable
e. Current PIN (see 3.44)
f. Original PIN (see 3.44), LOT or batch number (see 3.35) for IUID, as applicable
g. Acquisition instrument identification number (see 3.3)
h. * LOT or batch number (see 3.35)
i. * U.S. (see 3.58 and 4.9)

j. * Special characteristics (see 3.49)

k. * NSN (see 3.39)

NOTE: Asterisk denotes optional information that may be included only when specifically cited in the contract or purchase order.

5.4 Altered, selected, or source controlled items (see 3.4). When an item is delineated on an altered, selected, or source controlled item drawing, the item identification (see 3.31) assigned by the design activity specifying the alteration or selection shall be used to identify the item.

5.4.1 IUID applicable items (see 6.3). Alteration, selection, or source control of IUID applicable items does not affect the original UII.

a. Construct #1 – The current item identification (if used) shall be removed or obliterated if this can be done without damage to the item. The altered, selected, or source controlled item identification assigned shall replace the current item identification. Figures 5 and 7 show examples of Construct #1 marks that can be altered by replacing the current item identification portion of the mark.

b. Construct #2 – The original item identification shall not be removed from the label or obliterated. The altered, selected, or source controlled item identification assigned shall be placed near the mark; or if the item bears a current item identification in addition to the original item identification as shown in Figures 4a and 6, the current item identification shall be replaced, as described in Figures 4.b and 7.

5.4.2 Non-IUID applicable items. The item identification shall be removed or obliterated, if this can be done without damage to the item, and replaced with the altered, selected, or source controlled 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 3.22) of the repair or overhaul facility.

b. Date of repair or overhaul action.

c. Applicable warranty (see 3.63) 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 identifying number (without the DAI), and the actual manufacturer's identification prefixed by "MFR" separate from the PIN (e.g., separate line). 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 Sensitive (ESDS) 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 ESDS (see 3.20) symbol (see Figure 17).

b. Assemblies containing ESDS parts shall be marked with the ESDS 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 ESDS symbol, the symbol shall be marked on an identification tag that shall be securely attached to the assembly. The ESDS unit packs (see 3.57), intermediate and exterior containers shall be marked with ESD attention labels as specified in MIL-STD-129.

c. Equipment enclosures containing ESDS parts or assemblies shall be marked with the ESDS symbol and an ESDS 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 ESDS 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 item 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
Control item
Data Matrix symbol
Design activity
Design activity identification (DAI)
D-U-N-S
Electrostatic Discharge Sensitive (ESDS)
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 program management and accountability purposes. The IUID policy, with associated guidance, 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 product identified (see Figures 4.a, 4.b, 6, 9, and 13)

NOTE: The enterprise that serializes the item shall normally assign the UII. Enterprises are responsible for assuring that their serialization protocols provide globally unique identifiers. When using Construct #2, enterprises must assure unique combinations of serial number with original part, lot, or batch number assignments.

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

6.6 IUID consultation. As noted at http://www.acq.osd.mil/dpap/pdi/uid/index.html, the OUSD (AT&L) website, aid regarding implementation of IUID is available through Help Desk support at (703) 848-7314 or by e-mail at info@uniqueid.org

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 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.

TABLE II. Marking methods

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

Marking Methods	Mark Characteristics	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 alpha numeric and machine-readable marking symbology. Character height and width range from .007 to 4.0 inches.
Laser (Etching)					Generally limited to 0.001 inch max. 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

TABLE II. Marking methods - Continued

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

Marking Methods	Mark Characteristics	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 req.
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 fiber glass 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 mark qualification test and report data available for unrestricted use at https://acc.dau.mil/CommunityBrowser.aspx?id=30743. 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/chem etch, direct ink, label, etc)
   b. Material Types & Finishes (80% common to most of Industry)
   c. Environmental Criteria (80% common to most of Industry or use worst case)

* **Y** (recommended) and **N** (not recommended) denotes protocol implementation consideration.

** Refer to (http://rsesc.uah.edu/DPM) for JMQWG Matrix details.

TABLE III. Consideration criteria in selection of marking methods

(This table is given only as 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, marking machine, 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-A-56032 may be used
Polycarbonate /Polyester with hardcoating	Matte texture / Velvet matte	Digitally printed subsurface	

TABLE IV. UII construct business rules and supplemental data.

<table>
<tr><th></th><th>UII Construct #1</th><th colspan="2">UII Construct #2</th></tr>
<tr><td>Based on current enterprise configurations</td><td>If items are serialized within the Enterprise</td><td colspan="2">If items are serialized within Part, Lot or Batch Number</td></tr>
<tr><td rowspan="2">UII is derived by concatenating the data elements IN ORDER:</td><td rowspan="2">Issuing Agency Code*
Enterprise ID
Serial Number</td><td colspan="2">Issuing Agency Code*
Enterprise ID</td></tr>
<tr><td>Original Part#
Serial Number</td><td>Lot or Batch #
Serial Number</td></tr>
<tr><td rowspan="2">Data Identified on Assets Not Part of the UII (Separate Identifier)</td><td>Current Part Number**</td><td colspan="2">Current Part Number**</td></tr>
<tr><td>Other Traceability Number***</td><td colspan="2">Other Traceability Number***</td></tr>
<tr><td colspan="4">* 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 forming the concatenated UII.
** In instances where the part number changes with new configurations (also known as part number roll), the current part number shall be included on the item for traceability purposes and may be included as a separate data element. The original part number is never changed.
*** The data identifier 30T has been designated for use as a traceability number that is not part of the UII. For example, applications may specify 30T for encoding lot or batch number when the lot or batch number is not required or desired in the UII.</td></tr>
</table>

TABLE V. Issuing Agency Codes for use in unique identification concatenation

Issuing Agency Code	Issuing Agency	Enterprise Identifier
0 – 9	GS1 Global Office	GS1 Company Prefix
LB	Telcordia Technologies, Inc	ATIS-0322000
UN	Dun and Bradstreet	DUNS
D	Allied Committee 135	NCAGE/CAGE
LH	European Health Industry Business Communications Council	EHIBCC
LD	Department of Defense	DoDAAC

Note: 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 does not need to be marked on the item.

TABLE VI. Data qualifiers for IUID usage

Data Element	DI (ISO/IEC 15418) Format Indicator 06	AI (ISO/IEC 15418) Format Indicator 05	TEI (ATA CSDD) Format Indicator 12
Enterprise Identifier			
• CAGE/NCAGE	17V	-	MFR[2], SPL[3] or CAG,
• D-U-N-S	12V	-	DUN
• GS1 Company Prefix	3V	-	EUC
• DODAAC	7L	-	-
• Other Agencies	18V[1]	-	-
Serial Number within Enterprise Identifier	-	-	SER[4] or UCN[5]
Serial Number within Original PIN (or Serial Number within Lot/Batch Number)	S	-	SEQ
Original Part Number	1P	-	PNO
Lot/Batch Number	1T	-	LOT, LTN, or BII[6]
Single Element UIIs			
Complete UII	25S[7]	-	UID
UII not including the IAC (CAGE + Serial Number within CAGE)	18S[8]	-	USN or UST
IUID Equivalents			
VIN	I[9]	-	-
ESN	22S[10]	8002[11]	-
GRAI		8003[12]	-
GIAI		8004[13]	-
Current Part Number (additional data element-not used in UII)[14]	30P	240	PNR
Lot/Batch Number (additional data element-not used in UII)[15]	30T	-	-

NOTES

1. **Data identifier 18V** – the concatenation of the Issuing Agency Code (IAC) + Enterprise Identifier (EID). This data identifier would 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**. Identifies the manufacturer, government agency or other organization controlling the design and the part number assignment of the subject part.
3. **SPL – Supplier CAGE Code**. Identifies the organization creating the UII, where the organization is not the manufacturer, government agency, or other organization controlling the design of the serialized component.
4. **SER – Part Serial Number (Serial Number within Enterprise)**. The SER is the manufacturer's serialized identity for an individual part, component or component end item.
5. **UCN – Unique Component Identification Number**. The UCN is 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.

TABLE VI. Data qualifiers for IUID Usage (cont'd)

NOTES (cont'd)

6. **LOT** Lot number that **is not** unique within the Enterprise Identifier but is unique within the Original Part Number (PNO).

   LTN Lot number that **is** unique within the Enterprise Identifier. Referred to as Enterprise Lot Number

   BII Batch Item Identifier is a subdivision of an LTN.

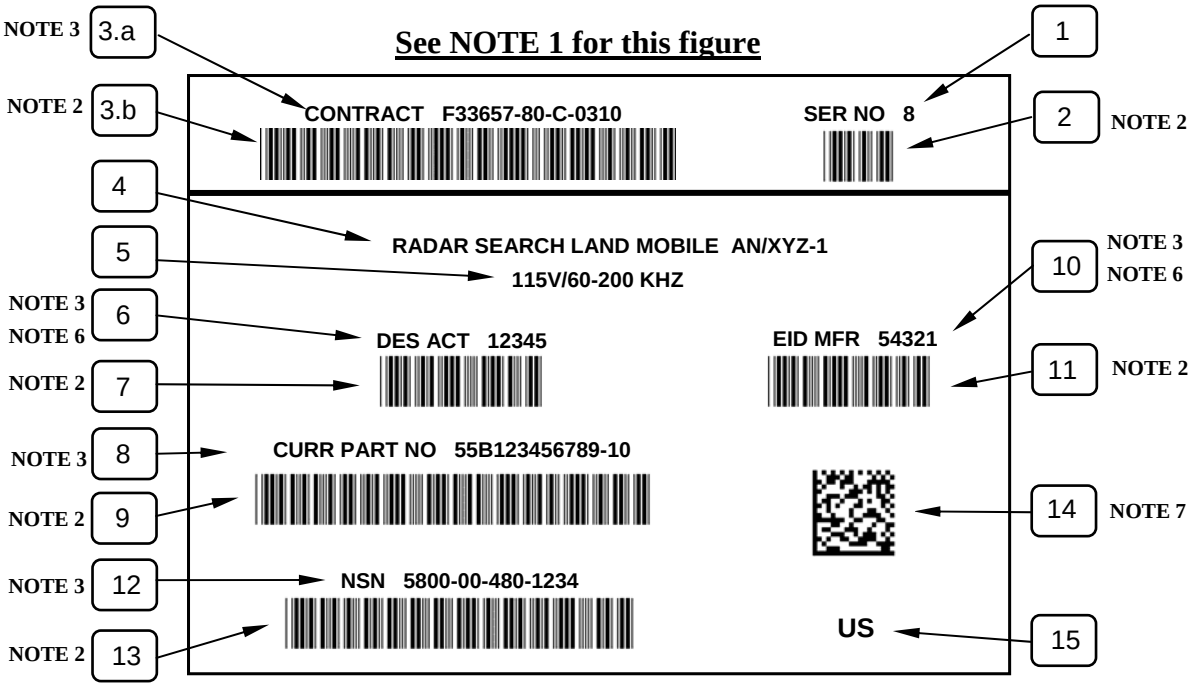
7. **25S** is a data identifier defined as the identification of a party to a transaction (as identified by data identifier 18V), followed by a supplier assigned serial number (For UII purposes, this has to be unique serialization within the EID that assigns the UII data elements). Thus, for UII purposes, 25S must represent the following string of concatenated elements – IAC + EID + Unique serial number within the EID, which directly corresponds to a concatenated UII using serialization within the enterprise.
8. **18S**. In the case where the EID is the CAGE Code, data identifier 18S may be used. 18S is defined as the concatenation of the CAGE Code (EID) + Unique serial number within the CAGE Code. This data element does not contain the IAC, which must be added in decoding to form a concatenated UII using serialization within the enterprise.
9. **DI I** identifies a U. S. Vehicle Identification Number – VIN.
10. **DI 22S** identifies a cellular mobile telephone Electronic Serial Number (ESN).
11. **AI 8002** identifies a cellular mobile telephone Electronic Serial Number (ESN).
12. **AI 8003** identifies a Global Returnable Asset Identifier (GRAI).
13. **AI 8004** is the application identifier for the 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 Identification Number (GTIN™) may also be converted to a GIAI using GS1 procedures.
14. **DI 30P** current part number *is not* part of the UII. It is an additional data element that may be encoded in the ISO 15434 syntax and placed on the item in a separate data matrix symbol, or, in the case of severe space limitations, it may be encoded in the same data matrix along with the UII data elements. Use 1P when original part number *is* part of the UII.
15. **DI 30T** lot/batch number *is not* part of the UII. It is an additional data element that may be encoded in the ISO 15434 syntax and placed on the item in a separate data matrix symbol, or, in the case of severe space limitations, it may be encoded in the same data matrix along with the UII data elements. Use 1T when lot/batch number *is* part of the UII.

TABLE VII. Data qualifiers and their usage by constructs/equivalents

Data Qualifiers	Construct #1	Construct #2	DoD Recognized IUID Equivalents	Current Part Number
Data Identifiers (ANSI MH 10.8.2)	18S 25S	17V, 12V, 3V, 18V, 7L 1P or 1T S	I 22S	30P
Application Identifiers (GS1)			8002 8003 8004	240
Text Element Identifiers (ATA)	CAG, MFR, SPL, DUN, EUC SER or UCN UID, USN, or UST	CAG, MFR, or SPL DUN, EUC PNO, LOT, LTN, or BII SEQ UID		PNR

TABLE VIII. Preferred data area titles

Data Element	Preferred Language
MRI and Free Text NOTE: The preferred data area titles included in this section of the table do not override or replace the titles specified by the MRI protocols identified for use in 5.2.2. The titles listed here may be used when an MRI protocol does not specify a title as related to a specific data qualifier.	
Enterprise Identifiers NOTE: Enterprise identifiers must either identify the context of use (i.e., CAGE, DUNS, GS1, etc) or be used in conjunction with one of the MRI data qualifiers shown in Table VI.	**EID[see NOTE], MFR, SPL** **MFR ID CAGE/NCAGE** **SPLR ID CAGE/NCAGE** **CAGE/NCAGE, CAG** **MFR ID DUNS, SPLR ID DUNS, DUNS, DUN** **MFR ID GS1, SPLR ID GS1, GS1, EAN, EUC**
	NOTE: 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 D-U-N-S, etc. – see Figures 2 and 3).
Unique Item Identifier	**UII, UID, USN, UST**
Original Part Number	**ORIGINAL PART NO, ORIG PART NO, ORIG P/N** **ORIG PN, ORIG PIN, PNO, O/PN, SPLR PART**
Serial Number	**SERIAL NO, SERIAL, SER NO** **S/N, SN, SERNO, SER, UCN, SEQ**
Current Part Number	**CURRENT PART NO, CURR PART** **CURR PART NO, CURR P/N, CURR PN, CURR PIN** **PART NO, P/N, PN, PIN, PNR**
Lot Number	**LOT #, LOT, LOTNO, LTN**
Free Text Only	
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**

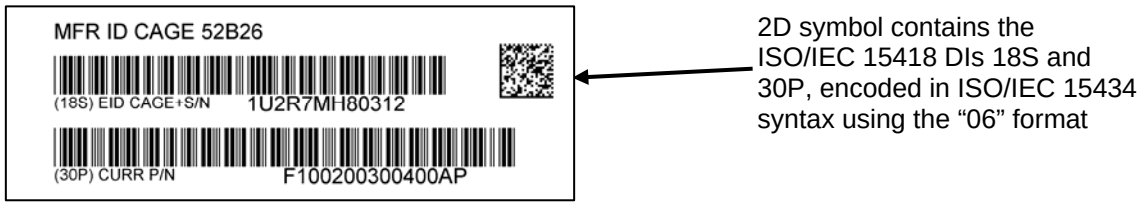


1 Serial Number
2 Bar coded serial number
3.a Acquisition Instrument identification (AII) no.
3.b Bar Coded AII
4 Nomenclature (item name and type designation)
5 Special characteristics
6 Design activity identification (DAI)
7 Bar Coded DAI
8 Part or Identifying Number (PIN)
9 Bar coded PIN, must be shown when NSN not available
10 Manufacturer Enterprise identifier
11 Bar coded manufacturer activity identifier
12 NSN
13 Bar coded NSN
14 Data Matrix symbol compilation of identification data (UII when applicable)
15 Government ownership designation

NOTES:

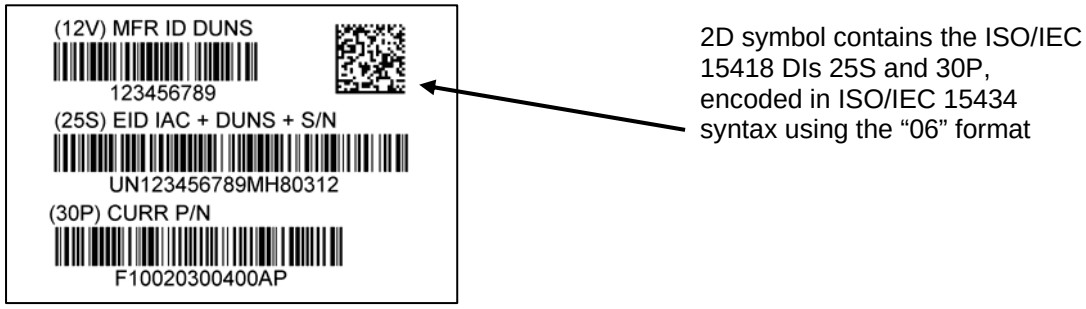
1. This example is given only as a guide and should not be considered a mandatory format. For this example, both the linear and Data Matrix bar code symbols are used as the machine-readable information (MRI) marking. To satisfy legacy requirements to mark multiple enterprise identifiers with MRI and for the linear bar codes to be generated without data identifiers, the certified MRI protocols identified in paragraph 5.2.2 have not been used – all such non-standard marks must be specified in the contract or order as to type and content.
2. See paragraph 5.2 for bar code generation and quality requirements.
3. Items 1, 3, 6, 8, 10, and 12 are used for human-readable information (HRI) purposes for the associated bar code or MRI marking.
4. Additional information as applicable may be integrated into the identification plate or may be applied.
5. Permanent information including bar coding or other MRI marking may be included on a plate separate from the variable information plate.
6. Enterprise identifier and design activity identification (DAI) examples are CAGE code (CAGE has a unique number of characters). Other identifier information such as D-U-N-S, GS1, DODAAC, etc., will require a longer number and must be titled as to the source.
7. This Data Matrix symbol contains the encoded UII information (EID and Serial Number).

FIGURE 1. Example of identification plate.



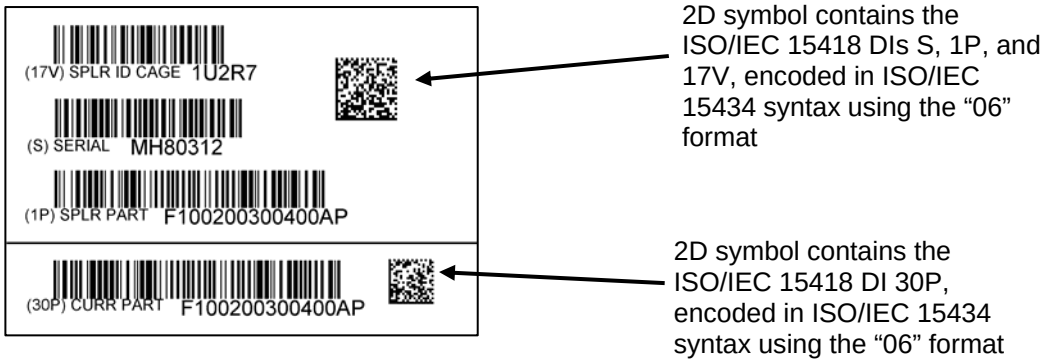
NOTE: CEA protocol (per MH10.8.7) and UII Construct #1 using Data Identifiers (DI) encoded in Code 39 and Data Matrix ECC 200 symbols. The UII was established by an activity, other than the manufacturer, with a serial number unique to that entity. Note that the manufacturer enterprise identifier (52B26) is different from the EID (1U2R7). DI 18S can be used to encode a CAGE code and serial number concatenation for the UII element.

FIGURE 2. Example CEA label (UII Construct #1 in Code 39 and Data Matrix).



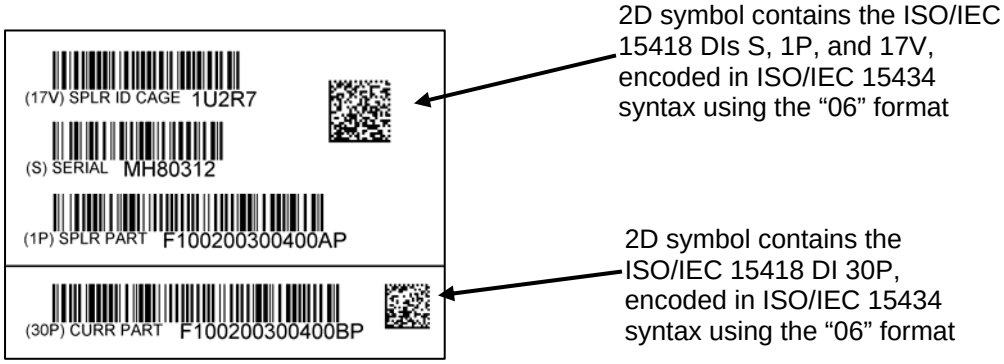
NOTE: CEA protocol (per MH10.8.7) and UII Construct #1 using Data Identifiers encoded in Code 128 and Data Matrix ECC 200 symbols. The D-U-N-S number and the serial number are encoded with DI 25S, which requires the encoding of the issuing agency code (IAC) in order to differentiate between enterprise identifiers (see Table VI).

FIGURE 3. Example CEA label (UII Construct #1 in Code 128 and Data Matrix).



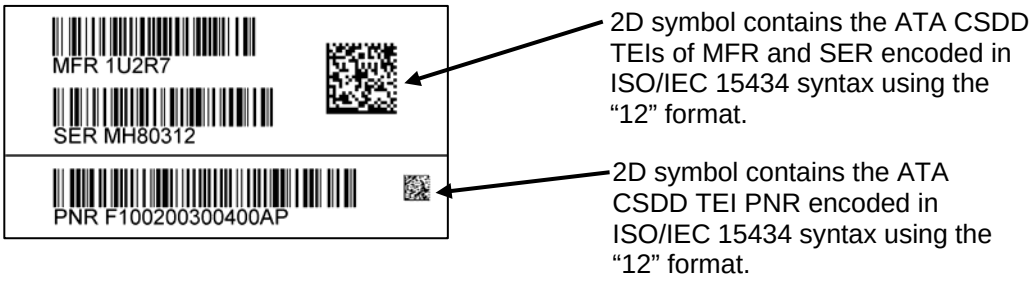
NOTE: CEA protocol (per MH10.8.7) and UII Construct #2 using Data Identifiers encoded in Code 128 and Data Matrix ECC 200 symbols. The UII is established by the enterprise’s identification, original part number, and a serial number unique within that original part number, and all are included on the upper label. The added bottom label (optional on new item label) includes the current part number, which is the same as the original part number for a new item and is replaced when modification of the item establishes a new current part number (see Figure 4.b for the modified label, also 5.2.1.3.d and Figure 7).

FIGURE 4.a. Example CEA new item label (UII Construct #2 in Code 128 and Data Matrix).



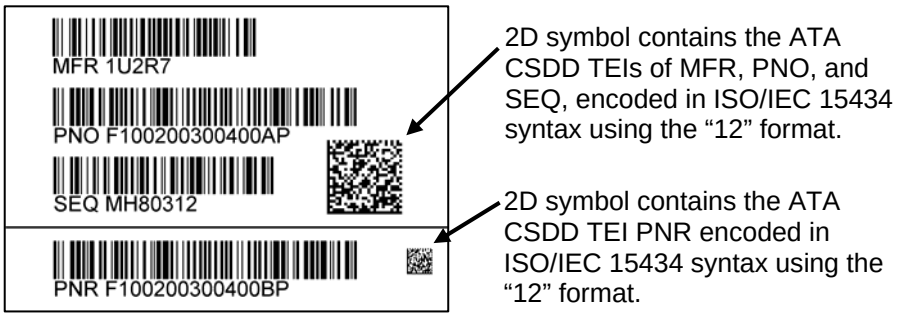
NOTE: CEA protocol (per MH10.8.7) and UII Construct #2 using Data Identifiers encoded in Code 128 and Data Matrix ECC 200 symbols. It is an example of how the mark may be changed after the item is altered. The current PIN, with the EID of the enterprise altering the item if different than the serializing EID, could be added to the mark or replace the current PIN if it was part of the original mark (compare Figure 4.a with 4.b, also 5.2.1.3.d and Figure 7). The original PIN is retained and the current PIN is added or changed as shown in the bottom section of the label.

FIGURE 4.b. Example CEA modified item label (UII Construct #2 in Code 128 and Data Matrix)



NOTE: SPEC2000 protocol and UII Construct #1 using Text Element Identifiers (TEI) encoded in Code 128 and Data Matrix ECC 200 symbols. The available TEIs listed in ATA SPEC2000 CSDD permit the use of UII Construct #1 for an IUID. The UII is established by the enterprise's identification and a serial number unique within that enterprise identifier. The current part number is shown on an optional separate label as per the ATA protocol and will be updated when item alteration requires new identification (see 5.2.1.3.d and Figure 7).

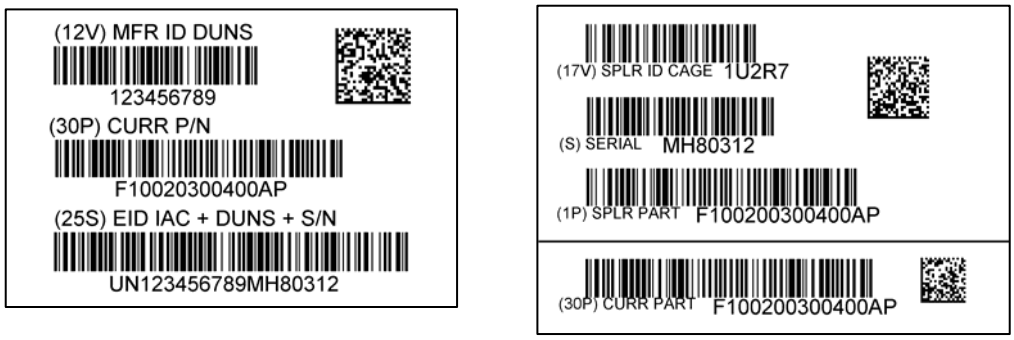
FIGURE 5. Example ATA label (UII Construct #1 in Code 128 and Data Matrix before part number change).



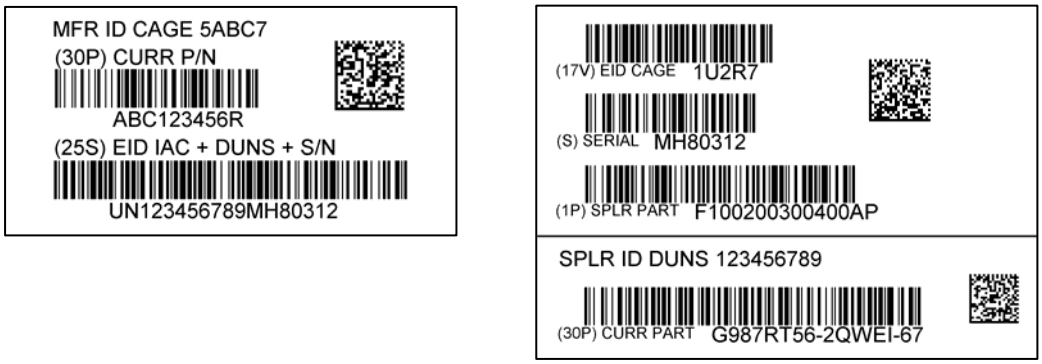
NOTE: ATA SPEC2000 protocol and UII Construct #2 using Text Element Identifiers (TEI) encoded in Code 128 and Data Matrix ECC 200 symbols. The available alternate TEIs approved for use in ATA SPEC2000 CSDD permit the use of UII Construct #2 for IUID. The UII is established by the enterprise's identification, an original part number, and a serial number unique within the original part number. The current part number and EID of the enterprise altering the item, if different from the serializing EID, is shown on a separate label as per the ATA protocol (see 5.2.1.3.d and Figure 7). In this instance, TEI MFR is used because the manufacturer and the enterprise that assigned the UII serial number are the same.

FIGURE 6. Example ATA label (UII Construct #2 in Code 128 and Data Matrix).

Construct #1 (CEA (per MH10.8.7) protocol) **Construct #2 (CEA (per MH10.8.7) protocol)**



Original label shown above – as changed shown below



NOTE: The source (manufacturer or supplier) EID of the enterprise establishing the PIN, Lot, or Batch Number change is required for full disclosure of the new source identification (see 5.1.1) if it is not the same enterprise that established the serial number used in the UII. For Construct #1 or Construct #2, the content requirement to identify a changed PIN is the same. An item mark may consist of one or more labels (see Construct #1 and Construct #2 examples). The business rules of this standard apply to the item mark and thus to all of the item mark labels as if they were a single label. The CEA protocol (per MH10.8.7) does not require the current part number to be labeled separately; thus, it is an optional choice for the acquiring activity or the marking activity. For an IUID item, the EID for the activity assigning the serial number is the only EID that can be encoded in the mark's MRI using the Table VI data qualifiers for EID (see 5.2.1.1.b). The CEA protocol (per MH10.8.7) requires the use of the ANS MH10.8.2 (see ISO/IEC 15418) for data area titles when applicable; however, the data area titles for some data qualifiers (25S, 30P, 17V) are not identified in MH10.8.2. For the Construct #1 mark, the data area title for data qualifier 12V could not be changed; therefore the entire label had to be updated to ensure clarity of the source identification. For the Construct #2 mark, note that the data area title for data qualifier (17V) changed from SPLR ID CAGE to EID CAGE (see Table VIII) to preclude identification of more than one source in the mark (i.e., EID CAGE identifies the serializing enterprise whereas SPLR ID DUNS identifies the source of the item. Also for the Construct #2 mark, the data area title for data qualifier (1P) must remain as SPLR PART.

FIGURE 7. Identification of Changed PIN, Lot, or Batch Number established by other than original source enterprise.



2D symbol contains the ISO/IEC 15418 AIs 8004, 95, 240, and 21 encoded in ISO/IEC 15434 syntax using the “05” format.

NOTE: GS1 protocol and DOD recognized IUID equivalent UII using Application Identifiers (AI) encoded in GS1-128 and Data Matrix ECC 200 symbols. The UII is established by the enterprise identification and a serial number unique for that enterprise manufacturer. The UII (AI 8004) is the single element used for the UII within the mark. This label follows the GS1 General Specifications and ISO/IEC 15434/15418. AI 8004 is the Global Individual Asset Identifier (GIAI) with the embedded GS1 Company Prefix (0614141). The Company Prefix is a variable length field and cannot be parsed from the GIAI bar code; thus, a separate linear bar code must be used for the enterprise identifier (see 3.22)

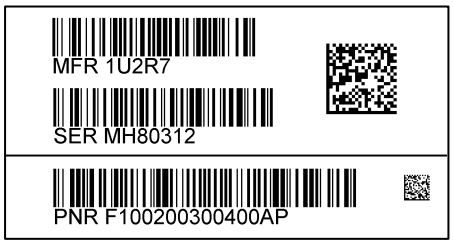
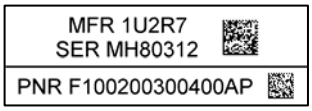
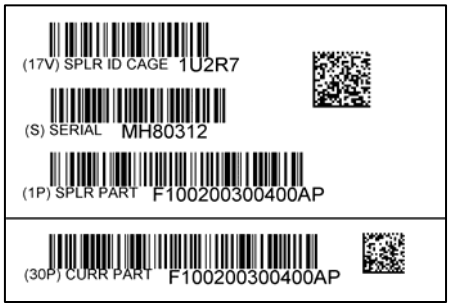
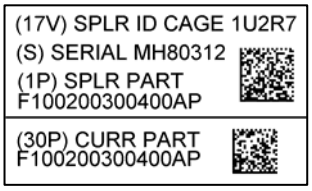
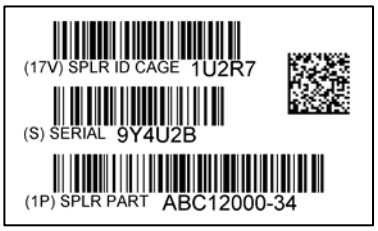
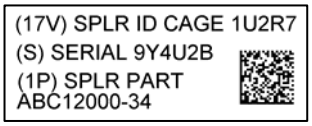
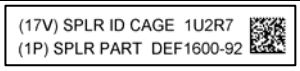
FIGURE 8. Example GS1 label (equivalent UII in serialized within the EID) in GS1-128 and Data Matrix.



2D symbol contains the ISO/IEC 15418 AIs 8004, 95, 240, and 21 encoded in ISO/IEC 15434 syntax using the “05” format.

NOTE: A GS1 protocol method using a DOD recognized IUID equivalent UII (GIAI -- AI 8004) is also available to encode a UII when the serial number is unique within the product identifier (similar to Construct #2 except the UII cannot be parsed). The UII Data Matrix symbol and a corresponding, optional linear bar code are marked 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) (see Guidelines for Application of GS1 IUID Markings to Items in the Supply Chain). Additional free text with optional linear bar codes must also be marked to show the minimum requirements of 5.1.1. The Data Matrix symbol must be ISO/IEC 15418 and 15434 compliant.

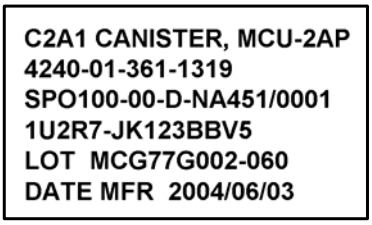
FIGURE 9. Example GS1 label (equivalent UII serialized within a unique part number within the EID) in GS1-128 and Data Matrix)

	Preferred Layout Data Matrix, linear bar codes, and human readable	**Alternate Layout** (Limited space) Data Matrix and human readable	**Alternate Layout** (Severely limited space)
Construct # 1 (Note 2)			
Construct # 2 (Note 2)			
Non-UID	Serialized Non-IUID 		
	Non-serialized Non-IUID with Data Matrix 	 **OR:** Linear bar code with abbreviated human-readable interpretation/translation	 **OR:** Linear bar code only
	Non-serialized Non-IUID w/o Data Matrix 	Linear bar code with abbreviated human-readable interpretation/translation	Linear bar code only

NOTES:

1. The examples shown are illustrative only. The different layouts show the context of the data marked and do not indicate a preferred protocol for use. Machine readable symbols are produced with appropriate syntax and semantics requirements. Human readable examples shown may contain additional information when specified by acquiring activity. For some MRI protocols, machine readable symbol associated human readable information is limited to human readable interpretation.
2. Split mark/label examples UII Construct #1 and #2 are exceptions to most MRI protocols. ATA protocol recommends the current part number as a separate bar code. Construct #1 and #2 current PIN examples shown are separate mark/labels to facilitate replacement of current PIN with the new altered item PIN. This marking exception may be used for all marks. In cases of space limitation, split mark/labels may be reduced to one symbol.

FIGURE 10 Minimum MRI marking symbology with human-readable information scenarios (see Note 1).



NOTE: Free text protocol. This label shows a format based on 5.3 and the data area title notations from Table VIII.

FIGURE 11. Example of free text label.

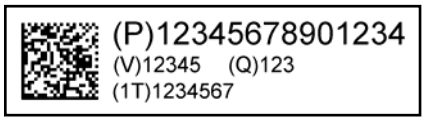


FIGURE 12. Example of AIAG B-4 label (non-IUID item).



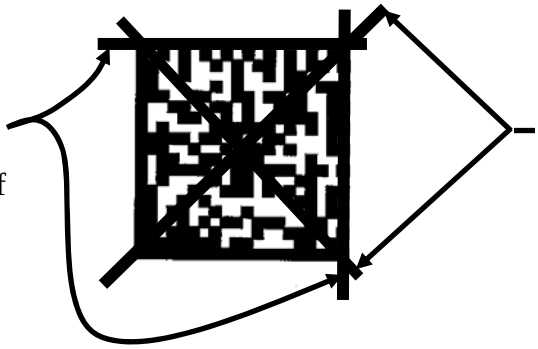
FIGURE 13. Example of CEA label using Construct #2.



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 label.

Vertical and horizontal lines through the interrupted frame lines of the matrix finder pattern.



Diagonal lines crossing each other through the center of the matrix.

FIGURE 15. Obliteration of a Data Matrix symbol.

WARRANTED ITEM

THIS ITEM IS UNDER WARRANTY

UNTIL *(NOTE 1)*

NOTE 3

WARRANTED ITEM

THIS ITEM IS UNDER WARRANTY

UNTIL *(NOTE 2)*

HAS BEEN COMPLETED

NOTE 3

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.

(Symbol)



(LABEL)

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

FIGURE 17. Electrostatic discharge (ESD) sensitive identification.

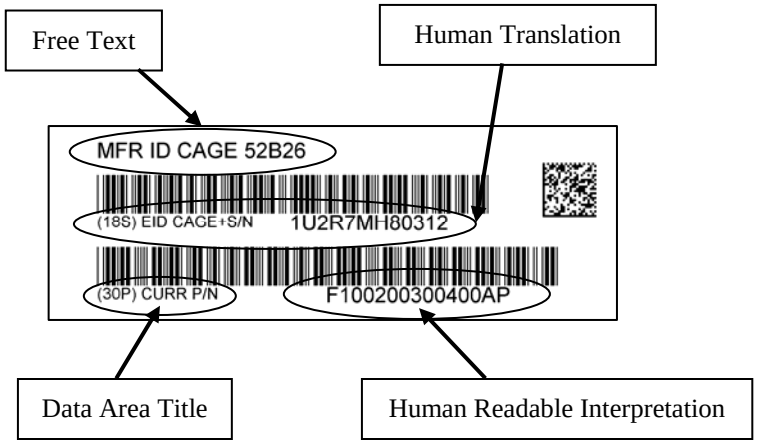


Figure 18. Human Readable Information Examples

APPENDIX A

ACRONYMS

A10. GENERAL

A10.1 Scope. This Appendix is intended to provide a listing of acronyms used in this standard. This Appendix is a mandatory part of this standard.

A20 APPLICABLE DOCUMENTS. This section is not applicable to this Appendix.

A30 DEFINITIONS.

A30.1 Acronyms used in this standard.

a.	1D	-	One-dimensional
b.	2D	-	Two-dimensional
c.	AI	-	Application Identifier
d.	AIAG	-	Automotive Industry Action Group
e.	AIM	-	Association for Automatic Identification and Mobility
f.	AIT	-	Automatic Identification Technology
g.	ANSI	-	American National Standards Institute
h.	ASME	-	American Society of Mechanical Engineers
i.	ASSIST	-	Acquisition Streamlining & Standardization Information System
j.	ASSY	-	Assembly
k.	ASTM	-	American Society for Testing and Materials
l.	ATA	-	Air Transport Association
m.	ATIS	-	Alliance for Telecommunications Industry Solutions
n.	BII	-	Batch Item Identifier
o.	CAG	-	See CAGE/NCAGE
p.	CAGE	-	Commercial and Government Entity
q.	CDA	-	Current Design Activity
r.	CEA	-	Consumer Electronics Association
s.	CLEI™		COMMON LANGUAGE® Equipment Identifier
t.	CMTI	-	Cellular Mobile Telephone Identifier
u.	CNCT#	-	Contract Number
v.	COTS	-	Commercial Off-The-Shelf
w.	CSDD	-	Common Support Data Dictionary
x.	CUR	-	Current (alt. CURR)
y.	DAI	-	Design Activity Identification
z.	DES	-	Design (alt. DSN)
aa.	DFARS	-	Defense Federal Acquisition Regulation Supplement
bb.	DI	-	Data Identifier
cc.	DLA	-	Defense Logistics Agency

dd.	DOD	-	Department of Defense
ee.	DoDAAC	-	Department of Defense Activity Address Code
ff.	DoDCP	-	Department of Defense Control Point
gg.	DPM	-	Direct Part Mark
hh.	DTL	-	Detail
ii.	D-U-N-S	-	Data Universal Numbering System (Dun & Bradstreet) (alt. D-U-N-S)
jj.	EAN	-	European Article Number
kk.	ECC	-	Error Checking and Corrections (for Data Matrix Symbology)
ll.	EHIBCC	-	European Health Industry Business Communications Council
mm.	EID	-	Enterprise Identifier
nn.	ESD	-	Electrostatic Discharge
oo.	ESDS	-	Electrostatic Discharge Sensitive
pp.	ESN	-	Electronic Serial Number
qq.	EUC	-	EAN.UCC Company Identifier
rr.	FNC1	-	Function Code 1
ss.	GIAI	-	Global Individual Asset Identifier
tt.	GRAI	-	Global Returnable Asset Identifier
uu.	GS1	-	GS1 US (formerly EAN.UCC)
vv.	GTN	-	Global Trade Item Number
ww.	HDBK	-	Handbook
xx.	HRC	-	Rockwell C Scale (metal hardness)
yy.	HRI	-	Human-readable information
zz.	IAC	-	Issuing Agency Code
aaa.	ID	-	Identification
bbb.	IF	-	Intermediate Frequency
ccc.	ISO/IEC	-	International Organization for Standardization / International Electrotechnical Commission
ddd.	IUID	-	Item Unique Identification
eee.	JMQWG	-	Joint Marking Qualification Working Group
fff.	LOT	-	Lot Number (alt. LOTNO, LOT #, LTN)
ggg.	MIL	-	Military
hhh.	MRI	-	Machine-Readable Information
iii.	MFR	-	Manufacturer (alt. MANF)
jjj.	MILSCAP	-	Military Standard Contract Administration Procedures
kkk.	MOD	-	Modulation
lll.	MS	-	Military Standard
mmm.	NAS	-	National Aerospace Standard
nnn.	NASA	-	National Aeronautics and Space Administration

ooo.	NATO	-	North Atlantic Treaty Organization
ppp.	NCAGE	-	NATO Commercial and Government Entity
qqq.	NO	-	Number
rrr.	NSN	-	National Stock Number
sss.	ODA	-	Original Design Activity
ttt.	ORG	-	Original
uuu.	O/PN	-	Original Part Number (alt. OPN)
vvv.	OUSD	-	Office of the Under Secretary of Defense
www.	PIN	-	Part or Identifying Number (alt. PNO, PNR, PN, P/N)
xxx.	PO#	-	Purchase Order Number (alt. PO, PO NO)
yyy.	SAE	-	Society of Automotive Engineers
zzz.	SC	-	Symbol Contrast
aaaa.	SER	-	Serial Number (alt. SN, S/N, SERNO, SER)
bbbb.	SEQ	-	Sequential Serial Number (within Part Number)
cccc.	SOCN	-	Source Control Notation
dddd.	SPL	-	Supplier (alt. SPLR)
eeee.	STD	-	Standard
ffff.	TEI	-	Text Element Identifier
gggg.	UCC	-	Uniform Code Council
hhhh.	UID	-	Unique Identification
iiii.	UII	-	Unique Item Identifier
jjjj.	UPC	-	Universal Product Code
kkkk.	U.S.	-	United States (alt. US)
llll.	USN	-	Universal Serial Number
mmmm.	UST	-	Universal Serial Tracking Number
nnnn.	VIN	-	Vehicle Identification Number
oooo.	VICD	-	Vendor Item Control Drawing

CONCLUDING MATERIAL

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

Preparing Activity:
Air Force - 16
(Project SESS-2007-003)

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

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 http://assist.daps.dla.mil.