

## APPENDIX K

### ACTIVE RADIO FREQUENCY IDENTIFICATION (RFID) IN-TRANSIT VISIBILITY (ITV) DATA REQUIREMENTS

#### A. GENERAL

1. This appendix provides a detailed description of the active RFID data. Active RFID tags are written as either a data-rich format (RFID shipment data is encoded on the tag and sent to the RF-ITV System server) or as a license plate format (RFID shipment data is not encoded on the tag but is sent to RF-ITV System server). The data descriptions in the following Paragraphs (Para) regarding active RFID are applicable to all Department of Defense (DOD) components. The active RFID system is intended to provide a standard means of acquiring, storing, accessing, and transferring information with RFID tags and RF-ITV System server transactions. This system supports asset visibility, ITV, and improved logistic business processes throughout the DOD logistics enterprise.
2. The DOD is currently transitioning to improved RFID tag and infrastructure technology. The new tag technology will alleviate tag numbering constraints, improve interoperability with coalition partners, and improve tag capabilities for sensor functions. During the transition, RFID tag file formats will transition from the legacy Joint Defense Total Asset Visibility (JDTAV) v2.0 (INCITS) format based on the ANSI/INCITS 256 standard, to the contemporary JDTAV v2.5 (ISO Tables) format based on the ISO/IEC 18000-7 standard. Tables K-1-K-5 in this appendix provide a consistent look at data requirements across both tag formats in addition to the related RF-ITV System server data requirements.
3. The active RFID data requirements at [Para B](#) have been specifically designed for active RFID tags in support of Sustainment and Unit Move scenarios.
  - a. For Sustainment activity, the RFID tag data format provides a method of storing Transportation Control and Movement Documentation (TCMD) transactions, manifests, and shipment content level detail in a data file that may be encoded in RFID tag memory and/or sent to the RF-ITV System server as a set of data interface transactions. Data written to the file supports both the shipper and the receiver. By providing local and immediate access to shipment unit and manifest data, the RFID tag and its associated data file allow the user to quickly and reliably identify and locate supplies and equipment. The Sustainment format also accommodates specific information requirements for ammunition/explosives and pre-positioned cargo shipments.
  - b. In support of Unit Move activity, the RFID tag data format provides for the storage of data identifying rolling stock and individual end items. This data supports the movement of these items between a garrison location and a tactical location through staging locations. The asset detail to be provided in the Unit Move RFID tag format for a unitized/consolidated shipment unit is more comprehensive than what is required in the Unit Move TCMD shipment unit transaction.
  - c. The active RFID data requirements in this appendix were derived from legacy and new format specifications that are used by the Army Program Executive Office Enterprise Information Systems Product Manager, Joint - Automatic Identification Technology (PM J-AIT) office to structure the data formats for the active RFID tag and for the RF-ITV System server interface transactions. The program managers/developers of automated information systems used to read, write, and interrogate active RFID tags must contact the PM J-AIT office to obtain the most current specifications prior to system development and configuration/maintenance actions. Points of contact for PM J-AIT are available on the PM

- J-AIT web site <http://www.ait.army.mil/>. Documentation pertaining to RFID operations is available on the RFID Server portal at <https://national.rfitv.army.mil>. After logging in, access the “RF-ITV Documentation” link at the bottom of the portal page.
- d. The provisions of this regulation are the directive authority for the functional data requirements in the active RFID JD TAV format specifications and the RFID-III ITV Server Interface Document. The RFTAV format referred to in this appendix is designated for future development.
4. The RFID device registration and naming convention described at [Para C](#) applies to all active RFID devices (e.g., RFID interrogators and tag docking stations) that report to any of the regional RF-ITV System servers. For the RFID infrastructure to provide ITV across the strategic and tactical spectrum of operations, the RFID devices must be properly and accurately named and registered using common naming conventions, addresses, and location coordinates prior to writing/reading RFID tags. The use of these common conventions assists to identify and locate active RFID tags throughout the DOD infrastructure and enables a broad spectrum of users to associate an RFID tag and its respective content level data to a specific, clearly identified location.

## **B. ACTIVE RFID TAG AND RF-ITV SYSTEM SERVER DATA**

1. [Data Overview.](#)
  - a. [Data Categories.](#) There are five categories of data that may be written to the RFID tag and/or sent to the RF-ITV System server, where the data can be accessed by users through the Internet. There are different brands and versions of active RFID tags available that provide a data capability to store limited amounts of the shipment’s information, whereas, the RF-ITV System server provides the capability to store and display all of the shipment’s information linked to a specific RFID tag. The data categories are:
    - (1) [Total Asset Visibility \(TAV\) Summary Data.](#)
      - (a) The TAV Summary data is generally that data written to the tag or sent to the RF-ITV System server that describes general shipment or handling characteristics for the respective shipment unit.
      - (b) The TAV Summary data is in one of two formats: the Sustainment format and the Unit Move format.
    - (2) [Commodity Item.](#)

Commodity Item data records describe the content characteristics of the packaged or unpackaged assets and commodity line items within the shipment.
    - (3) [User Defined Data.](#)

User Defined Data consists of a user defined title for the data element followed by the respective information for the data element. These elements are handled in different ways by the write applications based on the tag format being used.
    - (4) [TCMD](#) (based on Defense Logistics Standard Systems MILS 80-column record formats). The tag format cannot accept EDI or XML TCMD formats.
      - (a) T\_0/1/4 single shipment unit prime records.
      - (b) T\_2/3 consolidated shipment unit prime header records.
      - (c) T\_5, T\_6, T\_7, and T\_9 trailer records.
      - (d) Any DTR 4500.9-R manifest.

- (5) System Generated Data.
    - (a) During the tag write process, the system will generate system data that may get encoded in tag memory and/or be sent to the RF-ITV System server. The data elements encoded and/or sent to the RF-ITV System server are specific to the tag format being used.
    - (b) The tag may also generate sensor information that is conveyed to the RF-ITV System server.
  - b. Data Entry Requirements. Any combination of TAV Summary data, Commodity Item data, User Defined Data, and TCMD records may be used. The data elements within these data categories are designated to be either mission essential, conditional, or optional. These designations are only in reference to the requirement to provide functional information; the designations do not relate to a requirement to enter digits, characters, spaces, or symbols at a specific database memory address (as is identified in the database or interface specification available from PM J-AIT). This appendix identifies elements within the data categories as:
    - (1) (M) Mission essential (some user supplied value must be entered, to include zero fill, “None”, “Unknown”, or “N/A”).
    - (2) (C) Conditional (must be supplied if supported by the business process; data requirement may not apply to all functional situations).
    - (3) (O) Optional (user determines applicability).
  - c. Data Field Descriptions. The functional data elements are also described, by format application, in terms of data character (‘a’ = alpha, ‘n’ = numeric, ‘an’ = alphanumeric) and the expected field length (‘X’ = data string length). Fixed lengths are described as ‘aX’, ‘nX’, or ‘anX’. Variable lengths are described as ‘n..X’ or ‘an..X’. These designations are also only in reference to the requirement to provide functional information. The designations do not indicate database architecture requirements (as identified in the database or interface specification).
2. TAV Summary. TAV Summary information types are defined as Sustainment and Unit Move. The two information types require the input of different data elements as described in the following sections. TAV Summary information can generally be displayed on a hand-held terminal by “reading” the information on a specific tag. Depending on the tag format data version, some or all of the TAV Summary data elements may be specifically searched for from multiple tags.
    - a. Sustainment TAV Summary. See Table K-1.
      - (1) The Sustainment data may be user input or generated by the user application from imported information. The table shows the Sustainment TAV Summary user input data, by format version that may be written to the tag and sent in a transaction message to the RF-ITV System server.
      - (2) The Functional Element Status column in the table indicates the necessity for user entry of mission essential data, conditional data, or optional data.
      - (3) Some of the Table K-1 data elements can be searched for and identified within a population of many tags. Each handheld scanner or interrogator has user manuals explaining how to perform this function. The searchable fields on a data-rich tag are shaded gray in the table.

**Table K-1. Sustainment TAV Summary Data**

Element Descriptor	Functional Element Status	Tag Format v2.0	Tag Format v2.5	Server Upload Format RFID III	Sample Data
Container Number Code	O	an..5	--	--	50054
Container Number	C	an..16	an..15	an..15	BHCU4750054
Container Type (Default = null)	O	--	an1	an1	
Lead Transportation Control Number (TCN)	M	an17	--	--	SW31244112V002MM2
Shipment ID Number	M	--	an..18	an..18	SW31244112V002MM2
Shipment ID Type (Value = T)	M	--	an1	a1	T
Port of Embarkation (POE)	C	an3	an3	an3	1G9
Port of Debarkation (POD)	C	an3	an3	an3	PL3
Consignee	C	an6	an6	an6	HK926A
Consignee Type (Value = D)	C	--	an1	a1	D
Transportation Priority	C	n1	n1	n1	3
Hazardous Material (HAZMAT)/ Cargo Type Code	M	an1	an1	an1	X
Consignor	C	an6	an6	an6	SW3124
Consignor Type (Value = D)	C	--	an1	a1	D
Carrier Code	O	an..4	an..4	an..4	SEAU
Ship Date (Julian)	C	n3	n3	n3	112
Shipment Piece Count	M	n..4	n..4	n..7	0001
Weight (Gross)	M	n..5	n..5	n..10	10100
Cube (Gross)	M	n..4	n..4	n..10	1360
Service	O	an..16	an..16	an..16	ARMY
Commodity Class	C	an..16	an..16	an..16	CLASS IX
Operation	C	an..16	an..16	an..16	OIF
ASCII Free Text	O	an..60	an..60	an..229	Free Text Comments

**NOTE 1:** Functional Element Status column identifies: M = mission essential; C = conditional data (must be provided if available); O = optional data.

**NOTE 2:** Gray cells indicate data that can be searched for from amongst a field of tags.

- (a) Container Number Code is an abbreviated number that is derived from the last five alphanumeric characters of the serial number or identification number marked on the container (disregard special symbols and dashes) or it is derived from the last five characters of the pallet Identification (ID) on a 463L System pallet placard. It is not sent to the server. The Container Number Code serves as an abbreviated cross-reference link to ensure the correct tag has been attached to the respective conveyance container. This abbreviated Container Number Code usually has no significance for ITV tracking and will only be observed in TAV Summary tag memory queries. Some applications automatically generate this Container Number Code from the complete container number entered by a user.

**NOTE:** The term “conveyance container” includes all shipping containers (e.g., vans, pallets, crates, boxes, cartons).

- 1 For commercial SEAVANs and DOD-owned container vans, the Container Number Code is derived from the last five (right-most) numbers of the International Standards Organization (ISO) 6346 defined container identification number marked on an ISO compliant container. It may include the Check Digit, which is the last number of the 11 character identification number marked on an ISO container. The check digit is usually set off from the preceding 6-digit Serial Number by a dash (-), space, slash (/), or other discriminating mark.
  - 2 The Container Number Code may be the same number encoded in a SEAVAN TCMD T\_2 record (rp 4-8) which is a constructed Container Number Code (same title, but may be a different value). The TCMD Container Number Code is a cross-reference data element used only for linking TCMD record sets together. The TCMD Container Number Code is described in this Regulation, Appendix QQ as the last five digits of the serial number permanently assigned to a SEAVAN. However, the TCMD Container Number Code is usually derived from the ISO number marked on the van, which is not a permanent mark (the ISO number is the owner's ID number and not the manufacturer's permanent serial number printed on the van's data plate).
- (b) Container Number identifies the serialized identification number of the conveyance container, which may be a 463L System pallet ID number.
- 1 For commercial SEAVANs, the owner marked container ID number (11 characters) is usually assigned in accordance with ISO 6346 and includes the Owner code and Equipment Category Identifier (4 characters), the Serial Number (6 digits), and the Check Digit (1 digit). Do not include the dash (-), space, slash (/), or other discriminating mark that sometimes sets off the Check Digit from the Serial Number.
  - 2 For ammo break-bulk shipments, the Container Number will be encoded with the truck/trailer/railcar number – do not upload this information to the RF-ITV System server.
- (c) Container Type identifies the type of container/conveyance marked with the Container Number. The “type” field is a place holder for RFTAV data. For JD TAV format applications, the default value is a “null” entry; or, one of the Container Type data elements may be optionally used when a Container Number is identified. The full code list includes the DTR Part II, Appendix L SEAVAN and Conveyance codes used for position 17 of a SEAVAN TCN. Examples of the most frequently used codes are:
- null = the default value for JD TAV applications.
  - 2 = Dry Cargo ISO Container.
  - 5 = Refrigerated ISO Container.
  - 7 = Insulated ISO Container.
  - 8 = Open Frame or Rack ISO Container.
  - 9 = Tank Type ISO Container.
  - D = Trailer/Truck.
  - P = 463L Air Pallet.

- (d) Lead TCN is the conveyance container's shipment unit Transportation Control Number (TCN) or a manifest TCN for cargo loaded on carrier equipment. Only used for the JD TAV v2.0 (INCITS) format. See Shipment ID number.
- (e) Shipment ID Number is the conveyance container's shipment unit TCN or a manifest TCN for cargo loaded on carrier equipment – a TCN may be used either for shipment units or for manifests. If a manifest does not use a TCN constructed IAW DTR Part II, Appendix L, a unique TCN for the RFID tag Shipment ID field may be constructed in the following manner:
- 1 Enter the unique manifest control number for the shipment and right fill with 'X' characters as necessary to complete a fixed length TCN (an17).
  - 2 Enter the applicable 463L System pallet ID number (an6) followed by a Julian date (n4) or calendar date (an8) and right fill with 'X' characters as necessary to complete a fixed length TCN (an17).
- (f) Shipment ID Type identifies the type of code used for the Shipment ID. The "type" field is a place holder for RFTAV data and therefore will need to be filled with fixed data. This code is required if a Shipment ID is entered in the table.
- T = TCN.
- (g) POE is the Port / Point of Embarkation Code for the conveyance container. For aerial port values, use the DTR specified code tables at: <https://trdm.c2.amc.af.mil/trdm/index.jsp>, then click on DTR Data and Aerial Ports. Select Display Data from Action Legends box. They are accessible by all users, to include Department of Defense contractors and vendors through the Defense Transportation Electronic Business website at <http://www.transcom.mil/dteb/>, click on Reference Data. For water port codes, use the code tables at <https://trdm.c2.amc.af.mil/trdm/index.jsp>, then click on DTR Data and Water Port. Select Display Data from Action Legends box. They are accessible by all users, to include Department of Defense contractors and vendors through the Defense Transportation Electronic Business website at <http://www.transcom.mil/dteb/>, click on Reference Data. For the In-land (ground origin and destination) code values, use the code tables at <https://trdm.c2.amc.af.mil/trdm/index.jsp>, and then select DTR Data and Inland Ground Destination. Select Display Data from Action Legends box. In-land codes must not be used for shipments transiting air or seaports of embarkation. A shipment's Origin location (e.g., free-form text or a Geographical Location (GEOLOC) code can also be entered in the TAV Summary Free Text field or in a User Defined Data record.
- (h) POD is the Port /Point of Debarkation Code for the conveyance container. For aerial port values, use the DTR specified code tables at <https://trdm.c2.amc.af.mil/trdm/index.jsp>, then click on DTR Data and Aerial Ports. Select Display Data from Action Legends box. They are accessible by all users, to include Department of Defense contractors and vendors through the Defense Transportation Electronic Business website at <http://www.transcom.mil/dteb/>, click on Reference Data. For water port codes, use the code tables at <https://trdm.c2.amc.af.mil/trdm/index.jsp>, then click on DTR Data and Water Port. Select Display Data from Action Legends box. They are accessible by all users, to include Department of Defense contractors and vendors through the Defense Transportation Electronic Business website at <http://www.transcom.mil/dteb/>, click on Reference Data. For the In-land (ground origin and destination) code values,



use the code tables at <https://trdm.c2.amc.af.mil/trdm/index.jsp>, and then select DTR Data and Inland Ground Destination. Select Display Data from Action Legends box. In-land codes must not be used for shipments transiting air or sea ports of embarkation. A shipment's Origin location (e.g., free-form text or a GEOLOC code can also be entered in the TAV Summary Free Text field or in a Single Data Item record.

- (i) Consignee is the DOD Activity Address Code (DODAAC) for the conveyance container Consignee (the shipment's final receipt entity). Use the specified code at <https://www.transactionservices.dla.mil/DAASINQ/>.
- (j) Consignee Type identifies the type of code. The "type" field is a place holder for RFTAV data and therefore will need to be filled with fixed data. This code is required if a Consignee code is entered in the table.

D = DODAAC.

- (k) Transportation Priority is a priority code of 1, 2, 3, or 4 for the conveyance container as defined in the DTR.
- (l) HAZMAT/Cargo Type Code flags hazardous or non-hazardous conditions of the shipment. The code may be extracted from the second position of the TCMD document identifier code (see Appendix DD). Examples of the most used codes are:

E = ammunition/explosives.

J = hazardous materials (except ammunition/explosives and Other Regulated Material-Domestic (ORM-D) hazards.

V = Government vehicles, trailers, wheeled guns, and aircraft.

X = shipments (including those with ORM-D hazards) not covered above.

- (m) Consignor is the DODAAC for the shipper. Use the DTR specified code at <https://www.daas.dla.mil/daasing>. Do not use a Unit Identification Code (UIC) in this block; however, for Navy/Marines applications, the DODAAC may be identical to the UIC.
- (n) Consignor Type identifies the type of code. The "type" field is a place holder for RFTAV data and therefore will need to be filled with fixed data. This code is required if a Consignor code is entered in the table.

D = DODAAC.

- (o) Carrier Code is the code assigned to identify the carrier of the conveyance container. The code may be a Standard Carrier Alpha Code (SCAC) or a free-form text abbreviation for the carrier type (e.g., ARMY, USAF, USMC, SHIP, TRK, TRLR, or HMVE).
- (p) Ship Date (Julian) is the Julian date the shipment unit departed the Consignor location or the date the manifested load departed an Origin location.
- (q) Shipment Piece Count is either the separate segments (pieces) of the shipment unit that have not been unitized (i.e., the packages have been marked "Piece n of X Pieces") or it is the total number of pieces listed on a load manifest or bill of lading. The DTR term "shipment unit" defines the configuration and handling characteristic elements of a shipment marked with a Military Shipping Label

(MSL). A “manifest” or a “bill of lading” is a document describing a load of shipment units.

- 1 For shipment units, the Shipment Piece Count is the number of separate segments (pieces) marked with MSLs for the same shipment. The Shipment Piece Count will be the number X in the MSL annotation for (Piece n of X Pieces).
  - a For shipment units documented with a TCMD, except for SEAVANs, the Shipment Piece Count may be derived from the TCMD T\_0/1/2/3 header record, rp 68-71. For shipment units, other than SEAVANs, this will be the separate segments (pieces) of the shipment unit that have not been unitized.
  - b For a SEAVAN shipment unit, the Shipment Piece Count will always be 0001. The piece count cannot be extracted from TCMD T\_2 record for a SEAVAN (Type Pack code in rp 28 = Z); the TCMD pieces value in rp 68-71 is a van contents piece count and not a shipment unit handling characteristic element.
  - c For a 463L System pallet shipment unit (the pallet load has an MSL and TCN – usually built by a Defense Logistics Agency Consolidation and Containerization Point), the Shipment Piece Count will always be 0001.
- 2 For a manifested load, such as a manifested load on a truck or on an aerial port built-up 463L System pallet (neither the truck load nor the pallet load are marked with an MSL), the Shipment Piece Count is the total number of pieces annotated on the manifest.
- (r) Weight (Gross) is the gross weight of the conveyance container shipment unit (includes contents) or the total weight of the manifested items. This value cannot be extracted from the TCMD T\_2 record for a SEAVAN (Type Pack code in rp 28 = Z), which only documents the weight of the SEAVAN’s contents; use the weight annotated on the MSL.
- (s) Cube (Gross) is the total exterior cube of the conveyance container shipment unit or the total cube of the manifested items. This value cannot be extracted from the TCMD T\_2 record for a SEAVAN (Type Pack code in rp 28 = Z), which only documents the cube of the SEAVAN’s contents; use the Cube annotated on the MSL.
- (t) Service identifies the DOD department or agency of the Consignee receiving the shipments packaged within a conveyance container.
- (u) Commodity Class identifies the commodity class of the cargo in terms as defined by DOD. There are ten categories into which supplies are grouped in order to facilitate supply management and planning.
  - 1 Class I: Rations and gratuitous issue of health, morale, and welfare items.
  - 2 Class II: Clothing, individual equipment, tentage, toolsets, and administrative and housekeeping supplies and equipment.
  - 3 Class III: Petroleum, oils, and lubricants.
  - 4 Class IV: Construction materiel.
  - 5 Class V: Ammunition/explosives.



- 6 Class VI: Personal demand items.
  - 7 Class VII: Major end items, including tanks, helicopters, and radios.
  - 8 Class VIII: Medical.
  - 9 Class IX: Repair parts and components for equipment maintenance.
  - 10 Class X: Nonstandard items to support nonmilitary programs such as agriculture and economic development.
- (v) Operation is a code name assigned by DOD or a user to identify the supported activity of the shipment. Depending on the application being used, the data may be entered as TAV Summary information or may be entered as User Defined Data (see [Para B.4](#)).
- (w) ASCII Free Text is up to 60 characters of free-form text. For manifested loads, the Free Text field will be used to identify the Origin and Destination (Dest) of manifested cargo (e.g., ORIGIN: XXXXXXXX, DEST: XXXXXXXX). The Origin and Destination may also be entered as User Defined Data (see [Para B.4](#)).
- b. Sustainment TAV Summary – Ammunition/explosives Information. See [Table K-1](#) and modify as follows:
- (1) Container Number: Populate break-bulk shipments with the truck/trailer/railcar number or 463L System pallet identification number as applicable.
  - (2) Carrier Code: The ocean carrier’s SCAC will be utilized for containerized shipments (see Appendix SS). The respective carrier’s SCAC will be used for break-bulk shipments.
- c. Sustainment TAV Summary – Prepositioned Equipment Information. See [Table K-1](#) and modify as follows:
- (1) Consignor DODAAC and Consignee DODAAC: Fill both fields with the Consignor DODAAC.
  - (2) POD: Enter ‘XXX’ in the field.
- d. Unit Move TAV Summary. See [Table K-2](#).
- (1) The Unit Move data may be user input or generated by the user application from imported information. The table shows the TAV Summary Unit Move data that may be written to the tag and sent in a transaction message to RF-ITV System server.
  - (2) The Functional Element Status column indicates the necessity for user entry of mission essential data, conditional data, or optional data.
  - (3) Some of the [Table K-2](#) data elements can be searched for and identified within a population of many tags. Each handheld scanner or interrogator has user manuals explaining how to perform this function. The searchable fields on a data-rich tag are shaded gray in the table.

**Table K-2. Unit Move TAV Summary Data**

Element Descriptor	Functional Element Status	Tag Format v2.0	Tag Format v2.5	Server Upload Format RFID III	Sample Data
Unit Line Number (ULN)	M	an..7	an..7	an..7	A234567
Unit ID Code (UIC)	M	an6	an6	an6	B23456

Element Descriptor	Functional Element Status	Tag Format v2.0	Tag Format v2.5	Server Upload Format RFID III	Sample Data
Bumper Number	C	an..6	an..6	an..6	C23456
Shipment Unit Number (SUN - Army only)	C	an6	an6	an6	D23456
Transportation Control Number (TCN)	M	an17	--	--	AB23456\$00A0010XX
Shipment ID Number	M	--	an..18	an..18	AB23456\$00A0010XX
Shipment ID Type (Value = T)	M	--	an1	a1	T
Unit Name (Co, Bn, Bde, Sq)	O	an..20	an..20	an..20	HHC, 1ST SIGNAL BN
Equipment Description	M	an..20	an..20	an..20	HELICPR CARGO MH-60K
Model Number	C	an..10	an..10	an..10	34-KKZXXXX
Serial Number/ Package ID	C	an..10	an..10	an..10	BELL0394-0
Line Item Number	C	an..6	an..6	an..6	H30766
POE	C	an3	an3	an3	1P2
POD	C	an3	an3	an3	JF1
Home Station	O	an..15	an..15	an..15	W23QLL
Commodity & Special Handling (S/H) Codes	C	an..5	an..5	an..5	9001Z
HAZMAT/Cargo Type Code	M	an1	an1	an1	J
Service	O	an..16	an..16	an..16	ARMY
Container Number	C	an..16	an..15	an..15	BHCU4750054
Container Type (Default = null)	O	--	an1	an1	
Commodity Class	C	an..16	an..16	an..16	CLASS IX
Operation	C	an..16	an..16	an..16	OIF
Consignee	O	an6	an6	an6	HK926A
Consignee Type (Value = D)	C	--	an1	an1	D
ASCII Free Text	O	an..33	an..60	an..229	Free Text Comment

**NOTE 1:** Functional Element Status column identifies: M = mission essential; C = conditional data (must be provided if available); O = optional data.

**NOTE 2:** Gray cells indicate data that can be searched for from amongst a field of tags.

- (a) Unit Line Number (ULN) is a Joint Operation and Planning Execution System (JOPES) two to seven-character alphanumeric code that describes a unique increment of a unit deployment in an operations plan.
- (b) Unit Identification code (UIC) is a JOPES six-character alphanumeric code that uniquely identifies each active, Reserve, or National Guard unit of the Armed Forces.

- (c) Bumper Number is the Bumper / Vehicle Number marked on a specific piece of equipment.
- (d) Shipment Unit Number is Army unique and is often referred to as the “SUN” number. The SUN usually identifies a specific piece of equipment in a deployment list, may indicate a parent to child relationship, and is also used as part of the TCN.
- (e) Transportation Control Number (TCN) is the shipment TCN for the conveyance container or for the equipment marked with an MSL. Only used for the *JDTAV v2.0 (INCITS)* format – see Shipment ID number.
- (f) Shipment ID Number is the conveyance container’s shipment unit Transportation Control Number (TCN) or a manifest TCN for cargo loaded on carrier equipment – a TCN may be used either for shipment units or for manifests. If a manifest does not use a TCN constructed IAW DTR Part II, Appendix L, a unique TCN for the RFID tag Shipment ID field may be constructed in the following manner:
  - 1 Enter the unique manifest control number for the shipment and right fill with ‘X’ characters as necessary to complete a fixed length TCN (an17).
  - 2 Enter the applicable 463L System pallet ID number (an6) followed by a Julian date (n4) or calendar date (an8) and right fill with ‘X’ characters as necessary to complete a fixed length TCN (an17).
- (g) Shipment ID Type identifies the type of code used for the Shipment ID. The “type” field is a place holder for RFTAV data and therefore will need to be filled with fixed data. This code is required if a Shipment ID is entered in the table.

T = TCN

- (h) Unit Name is the name of the unit shipping the equipment.
- (i) Equipment Description is a free text description of the equipment.
- (j) Model Number is the equipment Model Number.
- (k) Serial Number/Package ID is the equipment Serial Number or assigned permanent ID number.
- (l) Line Item Number is the Line Item Number (LIN) of the equipment; usually a number used to authorize and account for assigned property.
- (m) POE and POD (may be shown as XXX-XXX) are the POE and POD codes respectively. For aerial port values, use the DTR specified code tables at <https://trdm.c2.amc.af.mil/trdm/index.jsp>, then click on DTR Data and Aerial Ports. Select Display Data from Action Legends box. They are accessible by all users, to include Department of Defense contractors and vendors through the Defense Transportation Electronic Business website at <http://www.transcom.mil/dteb/>, click on Reference Data. For water port codes, use the code tables at <https://trdm.c2.amc.af.mil/trdm/index.jsp>, then click on DTR Data and Water Port. Select Display Data from Action Legends box. They are accessible by all users, to include Department of Defense contractors and vendors through the Defense Transportation Electronic Business website at <http://www.transcom.mil/dteb/>, click on Reference Data. For the In-land (ground origin and destination) code values, use the code tables at <https://trdm.c2.amc.af.mil/trdm/index.jsp>, and then select DTR Data and Inland Ground Destination. Select Display Data from Action Legends box. In-land codes must not be used for shipments transiting air or sea ports of debarkation. A shipment’s Destination location (e.g., free-form text or a

GEOLOC code) can be entered in the TAV Summary Free Text field or in a User Defined Data record.

- (n) Home Station is the free text name or DODAAC for the unit's home station.
- (o) Commodity and S/H Codes are the Commodity code and Special Handling codes assigned to the conveyance container or equipment. For surface movements, the five-digit code is the Water Commodity Code at:  
<https://trdm.c2.amc.af.mil/trdm/index.jsp>, then click on DTR Data and Water Commodity. Select Display Data from Action Legends box + the Water Type Cargo Code <https://trdm.c2.amc.af.mil/trdm/index.jsp>, then select DTR Data and Water Type Cargo. Select Display Data from Action Legends box + the Water Special Handling Code <https://trdm.c2.amc.af.mil/trdm/index.jsp>, then select DTR Data and Water Special Handling. Select Display Data from Action Legends box. For air movements, the two-digit code is the Air Commodity Code <https://trdm.c2.amc.af.mil/trdm/index.jsp>, and then select DTR Data and Air Commodity. Select Display Data from Action Legends box + Air Special Handling Code <https://trdm.c2.amc.af.mil/trdm/index.jsp>, and then select DTR Data and Air Special Handling. Select Display Data from Action Legends box.
- (p) HAZMAT/Cargo Type Code flags hazardous or non-hazardous conditions of the shipment. The code may be extracted from the second position of the TCMD document identifier code (see Appendix DD). Examples of the most used codes are:
  - E = ammunition/explosives.
  - J = hazardous materials (except ammunition/explosives and ORM-D hazards).
  - V = Government vehicles, trailers, wheeled guns, and aircraft.
  - X = shipments (including those with ORM-D hazards) not covered above.
- (q) Service identifies the DOD department or agency of the Consignee receiving the shipments packaged within a conveyance container.
- (r) Container Number identifies the serialized identification number of the conveyance container, which may be a 463L System pallet ID number. For commercial SEAVANs, the owner marked container ID number (11 characters) is usually assigned IAW ISO 6346 and includes the Owner code and Equipment Category Identifier (4 characters), the Serial Number (6 digits), and the Check Digit (1 digit). Do not include the dash (-), space, slash (/), or other discriminating mark that sometimes sets off the Check Digit from the Serial Number.
- (s) Container Type identifies the type of container/conveyance marked with the Container Number. The "type" field is a place holder for RFTAV data. For JD TAV applications, the default value is a "null" entry; or, one of the Container Type data elements may be optionally used when a Container Number is identified. The full code list includes the DTR Part II, Appendix L SEAVAN, and Conveyance codes used for position 17 of the TCN. Examples of the most frequently used codes are:
  - null = the default value for JD TAV applications.
  - 2 = Dry Cargo ISO Container.
  - 5 = Refrigerated ISO Container.
  - 7 = Insulated ISO Container.

8 = Open Frame or Rack ISO Container.

9 = Tank Type ISO Container.

D = Trailer/Truck.

P = 463L Air Pallet.

- (t) Commodity Class identifies the commodity class of the cargo in terms as defined by DOD. There are ten categories into which supplies are grouped in order to facilitate supply management and planning.
- 1 Class I: Rations and gratuitous issue of health, morale, and welfare items.
  - 2 Class II: Clothing, individual equipment, tentage, toolsets, and administrative and housekeeping supplies and equipment.
  - 3 Class III: Petroleum, oils, and lubricants.
  - 4 Class IV: Construction materiel.
  - 5 Class V: Ammunition/explosives.
  - 6 Class VI: Personal demand items.
  - 7 Class VII: Major end items, including tanks, helicopters, and radios.
  - 8 Class VIII: Medical.
  - 9 Class IX: Repair parts and components for equipment maintenance.
  - 10 Class X: Nonstandard items to support nonmilitary programs such as agriculture and economic development.
- (u) Operation is a code name assigned by DOD or a user to identify the supported activity of the shipment. Depending on the application being used, the data may be entered as TAV Summary information or may be entered as User Defined Data (see [Para B.4](#)).
- (v) Consignee is the DOD Activity Address code for the unit that will receive the conveyance container for receipt processing (the final destination for the conveyance container).
- (w) Consignee Type identifies the type of code. The “type” field is a place holder for RFTAV data and therefore will need to be filled with fixed data. This code is required if a Consignee code is entered in the table.
- D = DODAAC.
- (x) ASCII Free Text is 31 characters of free-form text. For manifested loads, the Free Text field should be used to identify the Origin and Destination (Dest) of manifested cargo (e.g., ORIGIN: XXXXXXXX, DEST: XXXXXXXX).

3. Commodity Records. See [Table K-3](#).

- a. Commodity Line Item. The Commodity Item records contain the descriptive data for each commodity line item being shipped within a shipment unit.
- (1) For the legacy JDTAV v2.0 (INCITS) format, the Commodity Item records are encoded into the tag’s commodity database. The commodity database is also used to store user defined records that are described in a following paragraph. In any particular tag’s commodity database, any combination of these two records may be present. The combined total of the two record types in the commodity database may not exceed 1150

records within a tag’s memory. The impact of this tag characteristic is that a tag’s memory may not contain all of the Commodity Item records related to a shipment. However, the tag transaction sent to the RF-ITV System server will contain all records entered into the application software. Each type of record and its format is described below.

- (2) For the JD TAV v2.5 (ISO Tables) format, the number of records is determined by the memory capacity of the tag. The Commodity Item records have a higher priority for encode than the TCMD records, which will be truncated before the Commodity Item records. If some of the Commodity Item records are truncated in tag memory, that will be noted when the tag is read. However, the tag transaction sent to the RF-ITV System server will contain all records entered into the application software.
- (3) The [Table K-3](#) data elements can be searched for and identified within a population of many tags. Each handheld scanner or interrogator has user manuals explaining how to perform this function. The searchable fields on a data-rich tag are shaded gray in the table.

**Table K-3. Commodity Line Item Data**

Element Descriptor	Sustainment Element Status (not ammo)	Sustainment Ammo Element Status	Unit Move Element Status	Tag Format v2.0	Tag Format v2.5	Server Upload Format RFID III	Sample Data
Nomenclature	M	M	M	an..10	an..30	an..30	DOOR, PANE
Document Number	C	C	O	an..15	an..15	an..15	HK926A4099A002
Line Item Number	C	--	C	an..6	an..6	an..6	
National Stock Number	M	M	M	n..15	n..15	n..15	2540012699123
Routing Identifier Code	C	C	O	an3	an3	an3	S9I
Unit of Issue	C	M	M	an2	an2	an2	EA
Quantity Shipped	C	M	M	n5	n..7	n..7	00001
Condition Code	C	M	C	an1	an1	an1	A
Shipment TCN	M	M	M	an17	an17	an17	HK926A4099A002XXX
User Remarks a.k.a. MISC1 or Remark1	C	C	O	an..14 for MISC1	an..20 for Remark1	an..20	BOOT SIZE or DOOR, PANEL,
User Remarks a.k.a. MISC2 or Remark2	C	C	O	an..16 for MISC2	an..20 for Remark2	an..20	12 WWW or RIGHT REAR

**NOTE 1:** The Nomenclature field in the RFID tag memory is 10 characters – the field length for the RF-ITV System server transaction is 30 characters. A search of the tag memory must use only the first 10 characters of the data entry.

**NOTE 2:** Element Status identifies: M = mission essential data; C = conditional data (must be provided if available); O = optional data element.



**NOTE 3:** Some applications refer to the MISC1 and MISC2 fields or the Remark1 and Remark2 fields as a conjoined User Remarks entry (i.e. an..30 or an..40 respectively).

**NOTE 4:** Gray cells indicate data that can be searched for from amongst a field of tags.

- (a) Nomenclature is an abbreviated text identification of the item. A DD Form 1348-1A, Issue Release/Receipt Document, (See Figure 202-5) truncated Nomenclature or the TCMD T\_6 Nomenclature is often used for this entry. Do not leave this filed blank.
  - 1 “UNKNOWN” will be encoded if the Nomenclature cannot be determined.
  - 2 For JDTAV v2.0 (INCITS) format ammunition records, this field may have an asterisk ( \* ) in the first position to indicate that it is a trailer record with Lot or Serial Number information – see Para [B.3.a.\(1\)](#).
- (b) Document Number may be sourced from the DD Form 1348-1A or other requisition/release documents that pertain to the commodity line item.
- (c) Line Item Number is a number used to identify property or materiel. It may be a number used to authorize and account for assigned property/equipment.
- (d) National Stock Number (NSN) may be sourced from the DD Form 1348-1A or a TCMD T\_6 record. The 15 alphanumeric characters include the 13-character NSN and two Material Management Codes. Do not leave this field blank.
  - 1 Contractor and Government Entity (CAGE) code + Part Number may be used if the NSN does not exist.
  - 2 “NNSN” (no NSN) may be encoded if the NSN is unknown; as encoded in a TCMD.
- (e) Routing Identification code (RIC) may be sourced from the DD Form 1348-1A. It will be the “shipper/from” RIC (rp 4-6).
- (f) Unit of Issue (UI) may be sourced from the DD Form 1348-1A.
  - 1 The UI information is not available from a TCMD and therefore must be extracted from user or system files.
  - 2 The DOD UI codes may be viewed in DOD 4100.39-M, Federal Logistics Information System Procedures Manual, Vol 10, Table 53. Codes commonly used are: EA = each; IN = inch; FT = foot, YD = yard, AY = assembly, BD = bundle, BE = bale, BX = box, BG = bag, GL = gallon, BL = barrel, CN = can, CY = cylinder, DR = drum, RO = roll.
- (g) Quantity Shipped is determined by the shipper. Information is not available from a TCMD and therefore must be extracted from user or system files. For ammo record header records, this is the total quantity of items shipped for the documented NSN.
- (h) Condition code may be sourced from the DD Form 1348-1A. The codes may be viewed in DOD 4000.25-2-M, Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP). Codes commonly used are: A = serviceable; C = serviceable priority issue; F = unserviceable repairable.
- (i) Shipment TCN is the first TCN marked on the packaging (the single shipment unit) for the documented item(s). The Shipment TCN could also be encoded in the

RFID tag TAV Summary as the Lead TCN if the Shipment TCN has not been consolidated with other TCNs in the shipment.

- (j) User Remarks (MISC1/2) or Remark1/2 are user defined data fields.
- 1 For Commodity Item (not ammo) records, these two fields are usually blank, but may be used to encode remarks as either separate or conjoined fields (see example in Table K-3).
  - 2 Different applications present different input screens to the user (some labeled as Remarks, or MISC1/MISC2, or User Remark1/2). Possible uses are to document a data title associated with a data value, the full nomenclature of an item, or to identify a Mark For address/person. For example, MISC1 could be encoded with “DOOR PANEL,” and MISC2 could be encoded with “RIGHT REAR” – the query report from the RF-ITV System server would then appear as “DOOR PANEL, RIGHT REAR”.
  - 3 For dual-mode applications capable of writing both tag formats (JDTAV v2.0 or JDTAV v2.5), the input file lengths are different and thus data written in these fields may be truncated when written to legacy JDTAV v2.0 tag formats. To support the legacy tag format, RF-ITV server reports will concatenate the Remark1 and Remark2 fields for user review. For Sustainment ammunition/explosives records, the fields are used to encode Lot/Serial Number information as noted below.

b. Ammo Detail Records. See Table K-4.

- (1) Ammo shipments should be documented with information that describes the generic characteristics of the shipment followed by information that describes ammo specific characteristics. Ammo detail data should be encoded in the Sustainment tag format – the legacy JDTAV v2.0 (INCITS) tag format designates “borrowed” commodity line item fields to encode some ammo information.
- (2) The Table K-4 data elements can be searched for and identified within a population of many tags. Each handheld scanner or interrogator has user manuals explaining how to perform this function. The searchable fields on a data-rich tag are shaded gray in the table.

**Table K-4. Ammo Detail Data**

Element Descriptor	Unit Move Element Status	Sustainment Element Status	Tag Format v2.0	Tag Format v2.5	Server Upload Format RFID III	Sample Data
DODIC (ammo)	O	C	an..6	an4	an..4	H583
Lot Number (ammo)	O	C	an..16	an..17	an..17	H151A21
Lot Quantity (ammo)	O	C	n5	n..7	n..10	7
Serial Number (ammo)	O	C	an..14	an..15	a..30	ABC0057
Serial Quantity (ammo)	O	C	n5	n..7	n..10	1

Element Descriptor	Unit Move Element Status	Sustainment Element Status	Tag Format v2.0	Tag Format v2.5	Server Upload Format RFID III	Sample Data
Hazard Class or Division	O	C	an..16	an..4	an..4	1.1E
NEW	O	C	an..16	n..8	n..10	230

**NOTE 1:** Element Status identifies: M = mission essential data; C = conditional data (must be provided if available); O = optional data element.

**NOTE 2:** Gray cells indicated data that can be searched for from amongst a field of tags.

- (a) DOD Identification code (DODIC) used to identify ammunition stocks.
- (b) Lot Number (ammo) is an identifying number assigned by the enterprise to a designated group of items, usually referred to as either a lot or batch, all of which were manufactured under identical conditions.
- (c) Lot Quantity (ammo) shows the quantity shipped for the lot number for ammo detail records.
- (d) Serial Number (ammo) is an identifying number that uniquely identifies an end item.
- (e) Serial Quantity (ammo) shows the quantity shipped for the serial number (value will be 1) for ammo detail records.
- (f) Hazard Class or Division is the United Nations Class or Division Number for ammunition cargo; may include the compatibility code as listed in 49 CFR 172.101. The decimal and Compatibility code (see CFR 49) are included in the field length.
- (g) Net Explosive Weight (NEW) is the total net explosive weight of the cargo loaded in/on the conveyance container.

4. User Defined Data. See [Table K-5](#).

- a. Provides a database capability for encoding user defined data, which can be viewed via RF-ITV System server queries or via tag database searches using a fixed/mobile interrogator or hand held interrogator (HHI). The user defined data information adds flexibility to the tag data specification and allows users to add data elements to the RFID tag's data structure.
  - (1) The User Defined Data is encoded as a paired set that requires the user to provide a data title/header (e.g., PROJECT) and to provide a data value (e.g., 1AD) related to the title/header. The data set can then be sent to the RF-ITV server for query/report functions. All entered text should be upper case to preclude complex search errors.
  - (2) The [Table K-5](#) data elements can be searched for and identified within a population of many tags. Each handheld scanner or interrogator has user manuals explaining how to perform this function. The searchable fields on the tag are shaded gray in the table.

**Table K-5. User Defined Data**

Element Descriptor	Tag Format v2.0	Tag Format v2.5	Server Upload Format RFID III	Sample Data
Data Header a.k.a MISC1 or User Defined Title	an..14 for MISC1	an..20 for User Defined Title	an..20	PROJECT
User Data a.k.a. MISC2 or User Defined Value	an..16 for MISC2	an..20 for User Defined Value	an..20	1AD

- (a) Data Header. The MISC1 element or the User Defined Title element is the user assigned data header or title that a user wants added to the tag format.
- (b) User Data. The MISC2 element or the User Defined Value element is the user assigned data or a data value that is related to a data header or title.
- (3) [Table K-6](#) provides examples and descriptions of User Defined Data.

**Table K-6. User Defined Data Examples  
(Data examples are not interrelated)**

Title / Header	Element Status	Data / Value
ORIGIN GEOLOC	O	HGQH (FORT LEE)
DESTINATN GEO	O	BAAS (BALAD IZ)
MANIFEST NUM	O	PL360390014
PROJECT	O	1AD
SHIP TO RIC	O	WP6

**NOTE:** Element Status identifies: C = conditional data (must be provided if available); O = optional data element.

- (a) Origin GEOLOC is the geolocation code of the shipment origin.
  - (b) Destination GEOLOC is the geolocation code of the shipment destination.
  - (c) Manifest Number is the conveyance manifest number for the unitized load.
  - (d) Project number assigned by the Joint Staff to the cargo.
  - (e) Ship to RIC is the MILSTRIP Routing Code for the receiving location.
5. TCMD. See [Table K-7](#).
- a. TCMD data records are conditional (must be provided if the MILS records are available) for the RFID tag. If a TCMD record is provided, the data element entries are conditional.
  - b. The RFID tag memory will only store a limited number of the TCMD records. The JDTAV v2.0 (INCITS) format will store up to 79 records and the JDTAV v2.5 (ISO Tables) format will compute the value based on tag memory. Most of the RFID tag write applications will send all of the TCMD records to the RF-ITV System server and will truncate the records written to tag memory IAW the RFID tag format specification. The impact of this tag

memory feature is that the tag data and the server data may not agree. Also, the tag memory data cannot be reliably used for transaction of record processes. TCMD trailer records (high numbered series first) are truncated before the prime/header records.

- c. Record format is the standard 80-character format IAW Appendix M. See the filled database example in [Table K-7](#) for more information.

**Table K-7. TCMD Example**

TCMD Record Position	
123456789112345678921234567893123456789412345678951234567896	
	7 8
TX275005BHCU207009Z 1G9PL3VZCSW31244112V002KT2HK926A3140S991 22J10650021052601000	
TX975005X629607009Z 1G9PL3V20SW31244112V002KT2HK926A3VN00475 005-400003456SEAU 1	
TX475005SW31237009Z 1G9PL3VBXHK926A4099A002XXXHK926A3142 1 054A1230001000530008	
TX675005 7009Z 1G9PL3VBXHK926A4099A002XXXHK926A31254001 269123DOOR, PANEL, R	
TX475005SW31237009Z 1G9PL3VBXHK926A40950004XXXHK926A3142 1 054A1230020052070992	
TX675005 7009Z 1G9PL3VBXHK926A40950004XXXHK926A37240013 375268CAN, GASOLINE	

- 6. [System Generated Data](#). The system generated data is not input by the user. It is generated by the write application during the data file build process. Some of the system generated data is only encoded in tag memory (as applicable) and some is sent in the write transaction to the RF-ITV System server. For system generated data formats and values, refer to the JD TAV v2.0 (INCITS) and JD TAV v2.5 (ISO Tables) formats available from the Army PM J-AIT Office.
- 7. [Erasing and Formatting an RFID Tag](#).

Each time a tag is erased or formatted and the transaction is sent to the RF-ITV System server, the information related to the prior tag write is archived in the RF-ITV System server database.

**C. ACTIVE RF DEVICE (READ/WRITE) REGISTRATION AND NAMING CONVENTION**

Each active RF read/write device must be registered for use on the PM J-AIT National RF-ITV System server using the application software that is connected to the read/write device. The PM J-AIT RF Device Registration and Naming Convention that describes the registration data requirements may be accessed under the “Documentation” menu at the bottom of the RF-ITV Tracking Portal home page – see <https://national.rfitv.army.mil/login/>. A Common Access Card (CAC) is required to log in.

**THIS PAGE INTENTIONALLY LEFT BLANK**