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American National Standard for Telecommunications

Structure for Global Serialization of Information and Communications Technology (ICT) Network Infrastructure Equipment

Alliance for Telecommunications Industry Solutions

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American National Standards Institute, Inc.

Abstract

This standard provides a format and structure for assigning serial numbers to telecommunications infrastructure equipment.

Foreword

The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

This document is entitled *Structure for Global Serialization of Information and Communications Technology (ICT) Network Infrastructure Equipment*. This American National Standard provides a format and structure for assigning serial numbers to telecommunications infrastructure equipment. This standard contains sections that cover the purpose and scope of this information.

This standard specifies the serial number structure using a unique Issuing Agency Code per ISO/IEC 15459-2, a unique Manufacturer Identification Segment assigned by the Issuing Agency and a unique serial number, assigned by the company designated by the Manufacturer Identification Segment.

This standard does not replace the Electronic Serial Number (ESN) or the Mobile Equipment Identifier (MEID) which conform to the cellular radio telecommunications intersystem operations family of standards, TIA/EIA-41; advanced mobile phone service (AMPS), TIA/EIA-553 and subsequent revisions; narrowband analog mobile phone service (NAMPS), TIA/EIA-691 and subsequent revisions; code division multiple access (CDMA), TIA/EIA-95, TIA/EIA/IS-2000 and subsequent revisions; and time division multiple access (TDMA), TIA/EIA-136.

The Alliance for Telecommunication Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Telecom Management and Operations Committee (TMOC) – formerly T1M1 – develops operations, administration, maintenance and provisioning standards, and other documentation related to Operations Support System (OSS) and Network Element (NE) functions and interfaces for communications networks - with an emphasis on standards development related to U.S.A. communication networks in coordination with the development of international standards.

ANSI guidelines specify two categories of requirements: mandatory and recommendation. The mandatory requirements are designated by the word *shall* and recommendations by the word *should*. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, TMOC, 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time it approved this document, TMOC, which is responsible for the development of this Standard, had the following leadership:

P. Galarza, TMOC Chair (iconectiv)

The Telecom Management and Operations Committee (TMOC) was responsible for the development of this document.

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American National Standard for Telecommunications –

Structure for Global Serialization of Information and Communications Technology (ICT) Network Infrastructure Equipment

1 Scope, Purpose, & Application

1.1 Scope

This standard provides recommendations for globally unique serial identification for infrastructure equipment used in Information and Communications Technology (ICT) networks. It includes four options that can be used to ensure uniqueness in a serialization process within a company. Manufacturers, suppliers, and related services companies are responsible for ensuring that their process results in serial numbers that are unique.

Intended applications include – but are not limited to – support of systems that automate the control of products during the processes of production, inventory, distribution, field service, and repair.

This standard does not replace the Electronic Serial Number (ESN) or the Mobile Equipment Identifier (MEID) which conform to the cellular radio telecommunications intersystem operations family of standards, TIA/EIA-41; advanced mobile phone service (AMPS), TIA/EIA-553, and subsequent revisions; narrowband analog mobile phone service (NAMPS), TIA/EIA-691, and subsequent revisions; code division multiple access (CDMA), TIA/EIA-95, TIA/EIA/IS-2000, and subsequent revisions; and Time Division Multiple Access (TDMA), TIA/EIA-136.

1.2 Purpose

The purpose of this standard is to provide a uniform method of creating the globally unique serial identification for the telecommunications industry by recommending the code structure for the unique serial identification used by manufacturers, suppliers, and related services companies to uniquely serialize products bearing the same manufacturer identification within a company.

2 References

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

2.1 Normative References

ANS MH10.8.2, *Data Application Identifier Standard*.[1, 2]

ATIS-0300220, *Structure for the Representation of the Communications Industry Manufacturers, Suppliers, and Related Service Companies for Information Exchange*.[3]

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[1] This document is available from the American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036. Telephone: (212) 642-4900. Fax: (212) 398-0023. Web site: < http://webstore.ansi.org/default.aspx >.

[2] For current information or requests for new data identifiers, contact the Material Handling Institute (MHI) using the DI Request Form: < http://www.mhi.org/downloads/learning/standards/di-request.docx >.

[3] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005. < https://www.atis.org/docstore/default.aspx >

ATIS-0300078, *Structure for Serialization of Communications Network Infrastructure Equipment.*[3]

EDIFICE Guideline – Global Unique Identification scheme, (GUIx) – Version 3.0.[4]

GS1 General Specifications.[5]

ISO/IEC 15459-2, *Information technology - Unique identification – Part 2: Registration Procedures*.[6]

ISO/IEC 15459-4, *Information technology - Unique identifiers – Part 4: Individual items.*[6]

ISO/IEC 28219, *Packaging - Labelling and direct product marking with linear bar code and two-dimensional symbols.*[6]

2.2 Informative References

ATIS-0300038, *Product Marking Implementation Guide*.[3]

ATIS-0300005, *Product Identification Coding Schemes*.[3]

ATIS-0300096, *RFID Guideline for Product, Product Package and Transport Unit Tagging.*[3]

3 Definitions, Acronyms, & Abbreviations

3.1 Definitions

3.1.1 Alpha – A character set that contains only letters -- i.e., A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, and Z.

3.1.2 Alphanumeric - A character set that contains letters and numbers.

3.1.3 Character - A letter, digit, or other special form that is used as part of the organization, control, or representation of data. A character is often in the form of a spatial arrangement of adjacent or connected strokes.

3.1.4 Company Identification Number (CIN) – A number assigned by the Issuing Agency per ISO/IEC 15459-2.

3.1.5 Company Prefix - A globally unique number assigned to companies by GS1 Member Organizations to create the company identification numbers of the GS1 System.

3.1.6 D-U-N-S® – The Dun & Bradstreet Data Universal Number System (D-U-N-S®) Number is a unique nine-digit identifier for businesses.

3.1.6 Element - A fundamental, essential, or irreducible constituent of a composite entity.

3.1.7 Issuing Agency – The company authorized by the Registration Authority per ISO/IEC 15459-2.

3.1.8 Numeric - Denoting a character set that includes only numbers.

4 Unique Serial Identification Definition

The unique serial identification, as defined by this document, consists of two segments: 1) the *Manufacturer Identification Segment*; and 2) the *Serial Number Segment*. The combination of these two segments ensures uniqueness within a company. The maximum length of the unique serialization identification shall be 25 data characters (ANSI MH10.8.2. does not specify a length for unique serial identification for the Data Identifier specified in this document).

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[4] This document available from EDIFICE, rue du Rhone 100, Case postal 3762, 1211 Geneva 3, Switzerland. < https://wp1.edifice.org >.

[5] Available from Blue Tower, Avenue Louise, 326 BE 1050 Brussels, Belgium; Phone: +32 2.788.7800 Fax: +32 2.788.7899, E-mail: < info@gs1.org >, Web Site: < http://www.gs1.org/barcodes-epcrfid-id-keys/gs1-general-specifications >.

[6] This document is available from the International Organization for Standardization. < https://www.iso.org/store.html >

To make the unique serial identification globally unique, the Manufacturer Identification Segment includes an *Issuing Agency Code* (per ISO/IEC 15459-2) and the Issuing Agency-assigned code for the manufacturer/supplier/company. This is the standard approach as specified in ISO/IEC 15459-4 and ISO/IEC 28219. ISO/IEC 15459 refers to the unique serial identification for an item as the *Unique Item Identifier (UII)*.

5 Unique Serial Identification Length

The maximum length of the unique serialization identification shall be 25 data characters.

6 Unique Serial Identification Data Composites

This standard allows for the use of four options for representing unique serial identification:

1. The ATIS-0300220 Company Identifier;
2. The GS1 Company Prefix;
3. The Dun & Bradstreet (D&B) D-U-N-S® Number; or
4. The EDIFICE Company Identification Number.

Independent of the format used, all segments are required to ensure Globally Unique Serial Identification.

6.1 ATIS-0300220 Company Identifier

6.1.1 Code Structure

The ATIS-0300220 Company Identifier consists of a Manufacturer Identification Segment comprised of the ISO/IEC 15459-2 Issuing Agency Code, “LB” assigned to iconectiv, and a four (4) alphabetic character manufacturer code assigned by iconectiv (as defined in ATIS-0300220), followed by a one (1) to sixteen (16) alphanumeric character Serial Number Segment, represented in the following format:

SEGMENT (POSITIONS)	1 2	3 4 5 6	7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Issuing Agency Code	L B		
Company Identification No.		Alphabetic	
Serial Number Segment			Alpha-numeric

6.1.2 Assignment

The code is assigned by the Maintenance Agent (iconectiv).

6.1.3 Use

The code identifies the manufacturer, supplier, or related service company providing unique identity within the serialization process.

6.2 GS1 (formerly EAN.UCC) Company Prefix

6.2.1 Code Structure

The GS1 Company Prefix code consists of a seven (7) to eleven (11) numeric Manufacturer Identification Segment followed by a Serial Number Segment consisting of one (1) to eighteen (18) alphanumeric character. Due to the variable length of the Manufacturer Identification Segment, the maximum length of the Serial Number Segment is of variable length as well; however, the total of both segments shall not exceed 25 characters. Consult GS1 or the GS1 General Specifications for additional information (see clause 2, Normative References).

Option	SEGMENT (POSITIONS)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
1	Manufacturer Identification Number (7 characters)	Numeric
	Serial Number Segment	Alpha-numeric
2	Manufacturer Identification Number (8 characters)	Numeric
	Serial Number Segment	Alpha-numeric
3	Manufacturer Identification Number (9 characters)	Numeric
	Serial Number Segment	Alpha-numeric
4	Manufacturer Identification Number (10 characters)	Numeric
	Serial Number Segment	Alpha-numeric
5	Manufacturer Identification Number (11 characters)	Numeric
	Serial Number Segment	Alpha-numeric

6.2.2 Assignment

The number is assigned by a GS1 International Numbering Organization.

6.2.3 Use

The GS1 Company Prefix is worldwide identification of a company, as defined by the GS1 General Specifications. A company may have multiple companies' GS1 numbers that are unique worldwide.

6.3 D-U-N-S® Number

6.3.1 Code Structure

The Dun & Bradstreet (D&B) D-U-N-S® Number consists of a Manufacturer Identification Segment comprised of the ISO/IEC 15459-2 Issuing Agency Code, "UN" for Dun & Bradstreet, and a nine (9) non-indicative numeric D&B D-U-N-S® Number, followed by a one to fourteen (14) alphanumeric character Serial Number Segment, represented in the following format:

SEGMENT (POSITIONS)	1 2	3 4 5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20 21 22 23 24 25
Issuing Agency Code	U N		
Company Identification No.		Numeric	
Serial Number Segment			Alpha-numeric

6.3.2 Assignment

The D-U-N-S® Number is assigned by the ISO/IEC 15459-2 Issuing Agency, Dun & Bradstreet. D&B will assign a D&B D-U-N-S® Number to any business location with unique, separate, and distinct operations. However, generic departments at the same location or un-staffed operations points (e.g., automated teller machines, vending machines, etc.) will not be assigned a D&B D-U-N-S® Number. See clause 2, References.

6.3.3 Use

The code identifies the manufacturer, supplier, or related service company providing unique identity within the serialization process. The code identifies unique business entities.

6.4 EDIFICE Company Identification Number (CIN)

6.4.1 Code Structure

The EDIFICE Company Identification Number consists of a Manufacturer Identification Segment comprised of the ISO/IEC 15459-2 Issuing Agency Code, “LE” for EDIFICE, followed by a three (3) alphanumeric character Company Identification Number, ending with Serial Number Segment consisting of one (1) to twenty (20) alphanumeric characters. The following table provides an example:

ELEMENTS/POSITIONS	1 2	3 4 5	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Issuing Agency Code	L E		
Company Identification No.		Alpha-numeric	
Serial Number Segment			Alpha-numeric

6.4.2 Assignment

The code is assigned by the Maintenance Agent (EDIFICE).

6.4.3 Use

The code identifies the manufacturer, supplier, or related service company providing unique identity within the serialization process. The code identifies unique business entities.

7 Serial Number Segment

7.1 Code Structure

The code structure of the Serial Number Segment is of variable length. The maximum length of the Serial Number Segment is dependent on the length of the Manufacturer Identification Segment, where the combined segments shall not exceed a total of twenty-five (25) characters. The characters for the serial number segment shall consist only of combinations of letters, digits, slashes, and/or dashes.

7.2 Assignment

The Serial Number Segment shall be assigned by the manufacturer, supplier, or related services company. Each Serial Number Segment must be a unique number within the Manufacturer Identification Segment.

7.3 Use

The Serial Number Segment provides unique identification of each item from all other like or unlike items provided by a manufacturer, supplier, or related service company for the life of the item. Use of the Serial Number Segment as a stand-alone element is not sufficient for a user to uniquely identify an item.

The Serial Number Segment is assigned for the life of an item.