

**Automotive Warehouse
Distributors Association (AWDA)**

**Product Identification Bar Code Guideline
For The Automotive Aftermarket**

**Developed With
The Uniform Code Council, Inc.**

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In this publication the letters "U.P.C." are used solely as an abbreviation for the "Universal Product Code" which is a product identification system. They do not refer to the UPC, which is a federally registered certification mark of the International Association of Plumbing and Mechanical Officials (IAPMO) to certify compliance with a Uniform Plumbing Code as authorized by IAPMO.

Automotive Aftermarket Guideline		
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Table of Contents

1 Introduction..... 1

 1.1 Consensus..... 1

 1.2 Overview..... 1

 1.2.1 Automotive Aftermarket Requirement 1

 1.2.2 Implementation Team 1

 1.2.3 Benefits 1

 1.3 Who should use the Guideline 2

2 Scope 2

 2.1 Purpose 2

 2.2 Applicability..... 2

3 References 2

 3.1 Normative References 2

 3.2 Informative References 2

4 Terms and Definitions..... 2

5 Symbols and Abbreviated Terms 3

 5.1 Symbols..... 3

 5.2 Abbreviated Terms..... 3

6 Data Representation..... 3

 6.1 Syntax 3

 6.1.1 The data syntax for the mandatory GTIN is:..... 3

 6.1.1.1 The GTIN is structured as follows:..... 3

 6.1.2 The data syntax for the optional data is: 3

 6.1.2.1 Data syntax for the Serial Number component is n2 + an..20. 3

 6.2 Human Readable Interpretation Line 4

7 Marking Requirements..... 4

 7.1 Item 4

 7.1.1 Mandatory Data Elements 4

 7.1.2 Optional Data Elements 4

 7.1.3 Representation 4

 7.1.3.1 UPC-A (GTIN Only) 4

 7.1.3.2 UCC/EAN-128 (GTIN Plus Optional Data Elements) 5

 7.1.1.3 RSS and Composite Component (GTIN Plus Optional Data Elements)
(Future Consideration)..... 6

 7.2 Inner Pack..... 7

 7.2.1 UCC/EAN-128 (Mandatory Data Elements) (Recommended) 7

 7.2.2 UCC/EAN-128 (Optional Data Elements)..... 7

 7.2.3 ITF-14 (Mandatory Data Elements) (Alternative)..... 7

 7.2.4 ITF-14 (Optional Data Elements) 7

 7.2.5 Representation 7

 7.2.6 Direct Print Application ITF-14 7

 7.3 Case 8

 7.3.1 ITF-14 (Mandatory Data Elements)..... 8

 7.3.2 ITF-14 (Optional Data Elements) 8

 7.3.3 Representation 8

 7.3.3.1 Direct Print Application ITF-14 8

 7.3.3.2 Label Application UCC/EAN-128 10

7.3.3.3 Representation 10

7.4 Pallet..... 10

7.4.1 Mandatory Data Elements 10

7.4.2 Optional Data Elements 10

7.4.3 Representation 11

8 Print Quality 11

9 Label Size and Layout 11

10 Label Location 11

11 Appendix A: Private Brand Products..... 12

12 Appendix B: Frequently Asked Questions..... 13

13 Appendix C: Getting Started..... 14

14 Appendix D: Application Identifiers 20

15 Appendix E: Participants and Contributors To This Guideline..... 23

16 Appendix F: Indicator digit 24

17 Appendix G: Data Base Considerations 25

18 Appendix H: The EAN.UCC System 26

19 Appendix I: Glossary 27

1 Introduction

1.1 Consensus

The guideline represents the consensus of the AWDA (Automotive Warehouse Distributors Association) Logistics & Technology committee and the Uniform Code Council, Inc. They provide the most current method for use and application of bar code technology in the automotive parts distribution supply chain. The guideline was developed using information obtained from all segments of the industry that volunteered to participate in the information gathering process. Participants included manufacturers, distributors and technology companies as well as association representatives. Regular meetings of the Committee ensure that the Product Identification Guideline document is an evolving one and will be refreshed by the Committee as required.

1.2 Overview

1.2.1 Automotive Aftermarket Requirement

After a thorough review it is determined that all automotive parts can be identified using the EAN.UCC System. Existing EAN.UCC linear symbology data carriers, encoding the GTIN (Global Trade Item Number), meet the basic identification needs of the automotive parts manufacturers, distributors and service dealers. The use of bar coding, down to the trade item, reduces supply chain errors significantly and improves productivity.

1.2.2 Implementation Team

The UCC requested volunteers from every aspect of the automotive parts supply chain to participate in the business model process and as a result developed guidelines for identification of trade items. The group, whose attendees are listed in Appendix E, participated in this exercise and played a major role in assisting with the creation of this document. The implementation team, which shall consist of every element of the supply chain, will meet regularly to enhance and update the guideline.

1.2.3 Benefits

Use of the EAN.UCC System in the automotive parts supply chain offers opportunities for improved customer satisfaction, efficiency, accuracy and cost savings.

The benefits of the EAN.UCC System to the industry include, but are not limited to:

- **Asset Management:** The ability to track, trace and recall products, if necessary, as well as the serviceability of serialized equipment throughout the global automotive parts supply chain.
- **Accuracy:** Shipments are handled more accurately; with loss and mis-shipment virtually eliminated in all parts of the automotive supply chain from the manufacturer to the end user. Accurate billing in the entire supply chain from the customer through the service dealer, distributor and ultimately the manufacturer is the result of the intelligent use of the EAN.UCC system. Across the board increases in efficiencies are realized through the elimination of handwritten documents and keystroke entries.

- **Collaborative planning:** The practice of sharing information between trading partners helps create efficiencies in product movement. This shared information on product movement and usage allows for timely staging along the supply chain from manufacturing to reordering.
- **Improved inventory management:** Product handling becomes more efficient, especially in the following areas: less-than-case quantities, bulk-order receiving and shipping, put-away reporting, replenishment, order checking, picking and sorting, shipment staging, inventory control, cycle counting, physical inventories, cross docking and returned goods handling. Disposal of dated material is reduced or eliminated.

1.3 Who should use the Guideline

The guideline is written for all parties within the automotive aftermarket supply chain from the manufacturer to the end user. The guideline provides, within the body of this document or by reference, sufficient information and technical detail to implement the use of the EAN.UCC System.

2 Scope

2.1 Purpose

This document provides a foundation for the implementation of product identification standards in the automotive aftermarket industry.

2.2 Applicability

The guideline applies to the appropriate use of the EAN.UCC System for the automotive aftermarket industry. For the purpose of this document trade items include, but are not limited to, transmissions, engines, spark plugs, batteries and associated automotive parts and equipment.

3 References

3.1 Normative References

The standards listed below are referenced in the guideline. The relevant provisions contained in the referenced specifications constitute provisions of the guideline.

- General EAN.UCC Specifications – Available through the UCC website, www.uc-council.org.
- Packaging – Terminology and Vocabulary (ISO/WD 21076). Any packaging terms should be referred to in this document. This document is available through the website, http://www.mhia.org/mh10/tc122wg5/Documents/wd_iso21076_dec00.pdf

3.2 Informative References

- Uniform Code Council, Inc. website: www.uc-council.org

4 Terms and Definitions

N.A.

5 Symbols and Abbreviated Terms

5.1 Symbols

N.A.

5.2 Abbreviated Terms

AI	Application Identifier
AAIA	Automotive Aftermarket Industry Association
ACEC	Aftermarket Council on Electronic Commerce
AWDA	Automotive Warehouse Distributors Association
EAN	EAN International jointly manages the EAN.UCC System with the UCC
GTIN	Global Trade Item Number
MEMA	Motor & Equipment Manufacturers Association
MISG	Management Information Systems Group
SSCC	Serial Shipping Container Code
UCC	Uniform Code Council, Inc.

6 Data Representation

Data shall be formatted in accordance with the General EAN.UCC Specifications.

6.1 Syntax

6.1.1 The data syntax for the mandatory GTIN is:

- A two digit Application Identifier (01) indicating a GTIN.
- A 14 digit GTIN.

6.1.1.1 The GTIN is structured as follows:

- A one-digit indicator (value from 0 to 9).
However, only 0 to 8 is applicable for this use as 9 is the variable measure indicator. Refer to the General EAN.UCC Specifications for more information concerning indicators.
- The UCC Company Prefix (Designated by the UCC).
- The Item Reference Number (Designated by the holder of the UCC Company Prefix).
- A modulo 10 check digit.

6.1.2 The data syntax for the optional data is:

- The leading data element is a two to four digit Application Identifier to indicate data type and field size.
- Data indicated by the Application Identifier. This may be a fixed or variable length field, depending upon the Application Identifier used.

6.1.2.1 Data syntax for the Serial Number component is n2 + an..20.

- A two digit Application Identifier (21) indicating Serial Number.

- A variable length field of up to thirty alphanumeric characters of Serial Number data following the Application Identifier.

6.2 Human Readable Interpretation Line

The style and location of the human readable interpretation line shall be in accordance with the General EAN.UCC Specifications for the defined symbology.

7 Marking Requirements

The guideline contains recommendations for the application compliant marking of items, cases and pallets of products distributed throughout the automotive aftermarket industry.

7.1 Item

7.1.1 Mandatory Data Elements

The Mandatory Data Element at the item level is GTIN.

7.1.2 Optional Data Elements

An item may also contain additional data elements. These data elements are represented with the EAN.UCC Application Identifiers related to the specific product (e.g., serial number (AI=21) and production date (AI=11). Refer to the General EAN.UCC Specifications for complete Application Identifier information.

7.1.3 Representation

If only GTIN information is required, the data shall be represented in the form of a UPC-A symbol. When optional data is required, the data shall be represented in the form of UCC/EAN-128 symbol.

7.1.3.1 UPC-A (GTIN Only)

- The smallest salable product unit of measure can vary with the many sectors of the supply chain.
- The Universal Product Code (U.P.C.), which encodes the UCC-12 data structure, **must** be used as the standard for item level marking.
- The minimum identification on a product for use in the automotive parts industry will be one of the following:

Application Identifier	Data Field	Symbol Characteristics Type/Length	Description
N.A.	GTIN	EAN/UPC n12	UPC Symbol <ul style="list-style-type: none"> • UCC Company Prefix • Item Reference • Check Digit

Table 1.



Figure 1.

7.1.3.2 UCC/EAN-128 (GTIN Plus Optional Data Elements)

- Products, which require additional information such as serial number, date of manufacturer, etc., must be represented with the UCC/EAN-128 symbol.

Application Identifier	Data Field	Symbol Characteristics Type/Length	Description
01	GTIN	UCC/EAN-128 n2+n14	UCC/EAN-128 Symbol <ul style="list-style-type: none"> • Indicator digit • EAN.UCC Company Prefix • Item Reference • Check Digit
11	Production Date	UCC/EAN-128 n2+6	UCC/EAN-128 Symbol <ul style="list-style-type: none"> • YYMMDD
21	Serial Number	UCC/EAN-128 n2+an..20	UCC/EAN-128 Symbol <ul style="list-style-type: none"> • Serial Number

Table 2.



Figure 2.

7.1.1.3 RSS and Composite Component (GTIN Plus Optional Data Elements) (Future Consideration)

Application Identifier	Data Field	Symbol Characteristics Type/Length	Description
01	GTIN	RSS-14 n2+n14	RSS-14 Symbol <ul style="list-style-type: none"> • Indicator digit • EAN.UCC Company Prefix • Item Reference • Check Digit
11	Production Date	CC-A n2+6	Composite Component Symbol <ul style="list-style-type: none"> • YYMMDD
21	Serial Number	CC-A n2+an..20	Composite Component Symbol <ul style="list-style-type: none"> • Serial Number

Table 3.



Figure 3.

7.2 Inner Pack

7.2.1 UCC/EAN-128 (Mandatory Data Elements) (Recommended)

The Mandatory Data Element for salable items within the EAN.UCC System is GTIN.

7.2.2 UCC/EAN-128 (Optional Data Elements)

N.A.

Application Identifier	Data Field	Symbol Characteristics Type/Length	Description
01	GTIN	UCC/EAN-128 n2+n14	UCC/EAN-128 Symbol <ul style="list-style-type: none">• Indicator digit• EAN.UCC Company Prefix• Item Reference• Check Digit

Table 4.



Figure 4.

7.2.3 ITF-14 (Mandatory Data Elements) (Alternative)

The Mandatory Data Element at the Inner Pack level is GTIN.

7.2.4 ITF-14 (Optional Data Elements)

N.A.

7.2.5 Representation

For any Inner Pack, which is direct printed, use the ITF-14 symbology.

7.2.6 Direct Print Application ITF-14

Application Identifier	Data Field	Symbol Characteristics Type/Length	Description
N/A	GTIN	ITF-14 n14	ITF-14 Symbol <ul style="list-style-type: none"> • Indicator digit • EAN.UCC Company Prefix • Item Reference • Check Digit

Table 5.

ITF-14 (Interleaved 2 of 5)



Figure 5.

7.3 Case

7.3.1 ITF-14 (Mandatory Data Elements)

The Mandatory Data Element at the Case level is GTIN.

7.3.2 ITF-14 (Optional Data Elements)

N.A.

7.3.3 Representation

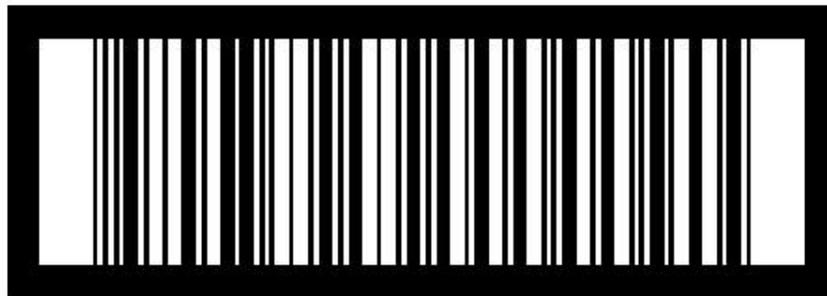
For any case, which is direct printed, use the ITF-14 symbology.

7.3.3.1 Direct Print Application ITF-14

Application Identifier	Data Field	Symbol Characteristics Type/Length	Description
N/A	GTIN	ITF-14 n14	ITF-14 Symbol <ul style="list-style-type: none"> • Indicator digit • EAN.UCC Company Prefix • Item Reference • Check Digit

Table 6.

ITF-14 (Interleaved 2 of 5)



2 0614141 99999 0

Figure 6.

7.3.3.2 Label Application UCC/EAN-128

Application Identifier	Data Field	Symbol Characteristics Type/Length	Description
01	GTIN	UCC/EAN-128 n2+n14	UCC/EAN-128 Symbol <ul style="list-style-type: none">• Indicator digit• EAN.UCC Company Prefix• Item Reference• Check Digit

Table 7.

7.3.3.3 Representation

For label applications use the UCC/EAN-128 Symbology.



Figure 7.

7.4 Pallet

7.4.1 Mandatory Data Elements

Pallet level shall contain the SSCC (Serial Shipping Container Code). The SSCC is an 18-digit number used to uniquely identify pallets. It is used in conjunction with the EDI Ship Notice Manifest (856). The SSCC can be used in a non-EDI environment as well. One application would be to have the SSCC that is affixed to the pallet act as a license plate to internally track inventory while the pallet is still in the warehouse.

7.4.2 Optional Data Elements

N.A.

7.4.3 Representation

The pallet shall be labeled with UCC/EAN-128 symbology.

Application Identifier	Data Field	Symbol Characteristics Type/Length	Description
00	SSCC	UCC/EAN-128 n2+18	UCC/EAN-128 Symbol <ul style="list-style-type: none">• Extension digit• EAN.UCC Company Prefix• Serial Reference• Check Digit

Table 8.



Figure 8.

8 Print Quality

The print quality shall be in accordance with the General EAN.UCC Specifications.

9 Label Size and Layout

See the General EAN.UCC Specifications for more detailed information.

10 Label Location

See the General EAN.UCC Specifications for more detailed information.

11 Appendix A: Private Brand Products

For private brand products, the merchant company's GTIN will be forwarded to the manufacturer of the product so that it may be used in the bar code on the product. The manufacturer's GTIN cannot be used on the merchant company's private brand product.

12 Appendix B: Frequently Asked Questions

What is a GTIN?

The GTIN is the EAN.UCC System standard term for product and process identification. The GTIN is used for the unique identification of trade items worldwide. A trade item is any product or service upon which there is a need to retrieve predefined information and that may be priced or ordered or invoiced at any point in the supply chain.

What are Application Identifiers?

The EAN.UCC system uses a bar code that can carry special prefixes to identify and separate multiple identification (ID) numbers. These two-, three-, or four-digit numbers, called Application Identifiers (AI) can only be "carried" by UCC/EAN-128 symbols. When a scanner sees this special bar code, it automatically knows to look for AIs in order to separate and interpret ID numbers properly. The information that comes after the AIs can contain numeric (n) or alphanumeric (an) data characters.

Why use a bar code label?

As described above, the use of bar coding can reduce errors, speed check-in and cut costs. When the various levels of the industry agree on standard codes, then that code is printed on a label that is understood by all.

Which symbol should I use?

First you should determine the level of the item. That is, are you dealing with the lowest level or the each, or do you have a case quantity. That answer will direct you to the proper label format.

Where should I look for additional information?

Contact the UCC or any member of the Committee.

13 Appendix C: Getting Started

Hopefully, you now have a fairly good idea as to what numbering schemes are and how these numbers are encoded into bar codes. So what do you do now? Let's first start with assigning the number and then let's bar code the numbers.

We'll divide this section up from two perspectives: (1) from the manufacturer and (2) from the company scanning the bar codes. In both perspectives, we'll assume nothing has been done to identify your products nor having the ability to scan the bar coded products.

Next steps for the owner of the label

1. Get a UCC Company Prefix

If you are a manufacturer/supplier, or you are selling a private label product with your label affixed to the product, you will need to become a full member of the UCC by completing an application form and paying a one-time fee for membership. Membership fees depend on the sales volume and estimated trade item (products and services) numbering requirements at the time of application. You may obtain a full membership form by calling the UCC customer support center, or accessing the Membership Application Form from the UCC website. The UCC will assign your company a unique company prefix number. In order to do this, you need to contact the Uniform Code Council via phone, Internet or mail at:

Uniform Code Council, Inc.
7887 Washington Village Drive Suite 300
Dayton, OH 45459
Phone: (937) 435-3870
Fax: (937) 435-7317

To access the full membership application form, go to the UCC website at:

www.uc-council.org

(Note: companies based outside the USA should consult www.ean-int.org to determine the EAN•UCC numbering organization for their country.)

After the UCC receives your completed UCC Membership Application Form and membership fee, you will get your company's prefix number within 10-14 days.

2. Assign a UCC-12 number to the Item sold through retail

Once you have received your UCC assigned Company Prefix number, you need to assign a unique Item Reference number to each product sold through retail. The item number will be combined with your company prefix number and the ending check digit to form the 12-digit UCC-12 package number. Refer to previous sections for more detailed information. A few suggestions when assigning your numbers:

3. Do not build any logic into the item number.

1) Start with “1” and simply increment the number by one for the next product, or 2) assign the product group numbers randomly. Do not use a part of another number. Calculate the modulo, or 10 check digit as described in the General Specification. Allow for the possibility of acquiring other products from a merger/acquisition. Store the GTIN in your database as a 14-digit number (00 + the 12 digit GTIN). Refer to the product number, both internally and externally, as the full 14-digit number.

4. Assign an EAN/UCC-14 code to each package configuration

Once you have assigned an UCC-12 to the package, you should now assign the EAN/UCC-14 to the carton and intermediate pack; using the correct Indicator digit. If you have a carton that has 10 packages of item A and another carton that has 15 packages of the same item A, you should assign one EAN/UCC-14 for the 10-pack carton and a different EAN/UCC-14 for the 15-pack carton. Keep in mind that the EAN/UCC-14 number references the CARTON of product and the UCC-12 represents the items contained inside the carton. For this reason, the UCC-12 plus the two preceding zeroes cannot be the same number as the EAN/UCC-14 number. When the buyer wants to order the 10-pack of item A, it is ordered with the appropriate EAN/UCC-14 for that CARTON, if the 15-pack of item A is ordered, it is ordered with appropriate EAN/UCC-14 for that CARTON of item A. Refer to previous sections for more detailed information.

Communicate to your trading partners the GTIN for your products.

See example below:

Example of EAN/UCC-14 Communication

Spark Plug Description	GTIN As EAN/UCC-14	Item Description	GTIN as UCC-12	# of pckgs
A Spark Plug	30712345112237	A Spark Plug	712345112235	1
B Spark Plug	30712345233562	B Spark Plug	712345233564	4
C Spark Plug	30712345112249	C Spark Plug	712345112248	8

5. Store the numbers in your database as 14-digit numbers.

Add two zeroes to the leftmost side of the GTIN number and it will fit nicely into the 14-digit field. If you have any EAN/UCC-13 numbers add a zero to the leftmost side of the

13-digit EAN number and it too will fit nicely into the 14-digit field. For the EAN/UCC-14, store it without change.

Now that you have the numbers assigned to your packages and cartons, you've communicated the codes to your trading partners, and you've ensured that all programs both pulling from and writing to your product databases include the correct number of digits, you are ready to begin bar coding these numbers on your packages, cartons and pallets. If a priority were given, the cartons should be bar coded first, the items second and the pallets third. The reason for this priority is that the "carton" of product is pretty much handled the same way throughout the industry. As the "carton" is handled through all distribution legs of the supply chain, each member would benefit greatly by scanning a bar code on the carton. As the items inside the carton do not always need to be scanned, especially once the operator opens the carton of product, the urgency isn't as great as it is with the actual "carton" of product (this scenario certainly is *not* true if the product is being sold at a retail store and thus requires a U.P.C. bar code on the package of the product).

**6. Determine where the bar code will reside on the package.
See the General EAN.UCC Specifications for more detailed information.**

7. Decide on one of the two following bar code "application methods":

Create the bar codes as part of the packaging material.
Create the bar codes on a label to be placed on a product.

The scanner operating environment, packaging, and the print process determine the size of the bar code.

The UCC has developed bar code size ranges for the following operating environments:

- retail only
- hand held
- conveyor scanning

The packaging and print process further define the size range.

Most EAN•UCC bar codes are printed by one of the following:

Printing companies that use:

- Traditional printing methods or
- Digital printing methods (e.g. bar code digital offset, in-line inkjet, or in-line ion deposition)
- Digital bar code printing equipment (e.g. direct thermal, thermal transfer, continuous feed laser, or industrial ink jet)
- General purpose printing devices (e.g. sheet fed laser, or ink jet)

EAN•UCC bar codes are usually printed directly on:

- Blank labels used for imprinting
- Labels with complex graphics
- Consumer packaging
- Standardized corrugated containers

8. Printing your own bar codes:

If you decide to print your own bar codes, you need a production plan (*UCC Guidelines for Supply Chain Identification*), a software package (Label software can create UCC-12 in UPC-A symbology and the EAN/UCC-14 in UCC/EAN-128 symbology.), a printer to print them on, and a verifier to check their printed quality. Many companies are available to help. For a list of companies, see the *UCC Equipment and Service Providers Directory* (www.uc-council.org).

If you decide to use a direct thermal or thermal transfer bar code printer, you should read *UCC Guidelines for Producing Quality Symbols*. The printers and their associated software are typically designed with EAN/UCC bar codes built right into the firmware and may jump-start your efforts.

You also may decide to use an office printer you should read *UCC Guidelines for Producing Quality Symbols* for advice on using a general-purpose printer.

9. If Someone Else Prints Your Bar Code, What Should You Provide?

If you decide to have a printing company print your bar codes, you should start by providing them with a bar code specification that answers the questions in the *UCC Guidelines for Supply Chain Identification*. The printing company may also want you to provide a bar code film master, digital bar code file, or FPO (for position only) symbol. A “film master” is a picture of the bar code that exists within a positive or negative film and conforms to strict tolerances. It is spliced into the package artwork. A digital bar code file is a bar code symbol that is designed and stored in a digitized format.

If a printing company does not ask you for a Film Master, that company is already working with a film master manufacturer that understands its special requirements. You can find a list of Film Master manufacturers in the *UCC Equipment & Service Providers Directory*. Beyond providing printing companies with Film Masters, the companies are traditionally an excellent source for advice on bar code production.

Printing companies that print bar codes in the pressroom (and prepare artwork electronically) may use digital bar code files. They may create the files themselves with bar code design software or rely on a Film Master manufacturer or customer to supply a digital bar code file.

The printing company also may ask you to provide artwork that includes an FPO symbol. If so, it will create the actual production ready symbol itself or have it created by a third party.

You should also ask the printing company about its specific requirements for printing bar codes, such as:

- What are the minimum size requirements for the bar code given the selected printing process?
- Should the bar code be oriented in a specific direction for the best quality results?

- Will an additional print station be required for the bar code?

10. It is essential that you verify that the bar code symbols meet scanning requirements.

Do an initial verification check of the bar code symbol in the final filled package. Conduct routine audits to ensure that the symbol is being printed clearly and consistently in order to be read. Symbol verification devices should be used for this purpose – not scanners. You must have an ANSI Grade C or better.

11. Next steps for companies scanning bar codes

Contact a vendor selling scanners.

If you are scanning at the warehouse level and will be scanning 'cartons' and pallets, be sure the scanner can read the Interleaved 2 of 5, UCC/EAN-128 bar code symbols as well as the EAN/UPC symbols.

If you are scanning when the product is received at the back door of a retail store be sure the scanner can read both the U.P.C. and EAN-13 bar code symbols as well as the UCC/EAN-128 or ITF-14 symbologies.

Contact your business and/or warehouse software system provider to determine their offerings for bar codes. You also can contact a vendor selling only bar code software; however, that software would not be connected with your business or warehouse system. In either case ensure that the software is compatible with the type of scanner selected.

See 17 Appendix G: Data Base Considerations.

14 Appendix D: Application Identifiers

AI	Content	Format
00	SSCC	n2+n18
01	GTIN	n2+n14
02	Item Number of Goods Contained Within Another Unit (Must Use with AI 37)	n14
10	Batch or Lot Number	n2+an..20
11 (*)	Production Date (YYMMDD)	n2+n6
13 (*)	Packaging Date (YYMMDD)	n2+n6
15 (*)	Sell By Date (Quality) (YYMMDD)	n2+n6
17 (*)	Expiration Date (Safety) (YYMMDD)	n2+n6
20	Product Variant	n2+n2
21	Serial Number	n2+an..20
22	Secondary Data for specific health industry products	n2+an..29
23 (**)	Lot Number (Transitional Use)	n3+n..19
240	Additional Product Identification assigned by the Manufacturer	n3+an..30
241	Customer Part Number	n3+an..30
250	Secondary Serial Number	n3+an..30
30	Quantity	n2+n..8
310 (***)	Net Weight, Kilograms	n4+n6
311 (***)	Length or 1 st Dimension, Meters	n4+n6
312 (***)	Width, Diameter or 2 nd Dimension, Meters	n4+n6
313 (***)	Depth, Thickness, Height or 3 rd Dimension, Meters	n4+n6
314 (***)	Area, Square Meters	n4+n6
315 (***)	Volume, Liters	n4+n6
316 (***)	Volume, Cubic Meters	n4+n6
320 (***)	Net Weight, Pounds	n4+n6
321 (***)	Length or 1 st Dimension, Inches	n4+n6
322 (***)	Length or 1 st Dimension, Feet	n4+n6
323 (***)	Length or 1 st Dimension, Yards	n4+n6
324 (***)	Width, Diameter, or 2 nd Dimension, Inches	n4+n6
325 (***)	Width, Diameter, or 2 nd Dimension, Feet	n4+n6
326 (***)	Width, Diameter, or 2 nd Dimension, Yards	n4+n6
327 (***)	Depth, Thickness, Height or 3 rd Dimension, Inches	n4+n6
328 (***)	Depth, Thickness, Height or 3 rd Dimension, Feet	n4+n6
329 (***)	Depth, Thickness, Height or 3 rd Dimension, Yards	n4+n6
330 (***)	Gross Weight, Kilograms	n4+n6
331 (***)	Length or 1 st Dimension, Meters, Logistics	n4+n6
332 (***)	Width, Diameter or 2 nd Dimension, Meters, Logistics	n4+n6
333 (***)	Depth, Thickness, Height or 3 rd Dimension, Meters, Logistics	n4+n6
334 (***)	Area, Square Meters, Logistics	n4+n6
335 (***)	Gross Volume, Liters	n4+n6
336 (***)	Gross Volume, Cubic Meters	n4+n6

340 (***)	Gross Weight, Pounds	n4+n6
341 (***)	Length or 1 st Dimension, Inches, Logistics	n4+n6
342 (***)	Length or 1 st Dimension, Feet, Logistics	n4+n6
343 (***)	Length or 1 st Dimension, Yards, Logistics	n4+n6
344 (***)	Width, Diameter or 2 nd Dimension, Inches, Logistics	n4+n6
345 (***)	Width, Diameter or 2 nd Dimension, Feet, Logistics	n4+n6
346 (***)	Width, Diameter or 2 nd Dimension, Yards, Logistics	n4+n6
347 (***)	Depth, Thickness, Height or 3 rd Dimension, Inches, Logistics	n4+n6
348 (***)	Depth, Thickness, Height or 3 rd Dimension, Feet, Logistics	n4+n6
349 (***)	Depth, Thickness, Height or 3 rd Dimension, Yards, Logistics	n4+n6
350 (***)	Area, Square Inches	n4+n6
351 (***)	Area, Square Feet	n4+n6
352 (***)	Area, Square Yards	n4+n6
353 (***)	Area, Square Inches, Logistics	n4+n6
354 (***)	Area, Square Feet, Logistics	n4+n6
355 (***)	Area, Square Yards, Logistics	n4+n6
356 (***)	Net Weight, Troy Ounce	n4+n6
360 (***)	Volume, Quarts	n4+n6
361 (***)	Volume, Gallons	n4+n6
362 (***)	Gross Volume, Quarts	n4+n6
363 (***)	Gross Volume, Gallons	n4+n6
364 (***)	Volume, Cubic Inches	n4+n6
365 (***)	Volume, Cubic Feet	n4+n6
366 (***)	Volume, Cubic Yards	n4+n6
367 (***)	Gross Volume, Cubic Inches	n4+n6
368 (***)	Gross Volume, Cubic Feet	n4+n6
369 (***)	Gross Volume, Cubic Yards	n4+n6
37	Quantity of Units Contained (For Use With AI 02 Only)	n2+n..8
400	Customer's Purchase Order Number	n3+an..30
401	Consignment Number	n3+an..30
402	Shipment Identification Number	n3+n17
403	Routing Code	n3+an..30
410	Ship To (Deliver To) Location Code Using EAN-13	n3+n13
411	Bill To (Invoice To) Location Code Using EAN-13	n3+n13
412	Purchase From (Location Code of Party from Whom Goods are Purchased)	n3+n13
413	"Ship For, Deliver For, Forward To" UCC/EAN International Location Number	n3+n13
414	EAN Location Code for Physical Identification	n3+n13
420	Ship To (Deliver To) Postal Code Within a Single Postal Authority	n3+an..9
421	Ship To (Deliver To) Postal Code With 3-Digit ISO Country Code Prefix	n3+n3+an.9
422	Country of origin of a trade item	n3+n3
8001	Roll products - Width, Length, Core Diameter, Direction and Splices	n4+n14

8002	Electronic Serial Number for Cellular Mobile Telephones	n4+an..20
8003	UPC/EAN Number and Serial Number of Returnable Asset	n4+n14+an.16
8004	UCC/EAN Serial Identification	n4+an..30
8005	Identifies the Price Per Unit of Measure	n4+n6
8006	Identification of the components of a trade item	n4+n14+n2+n2
8018	Service relation number (SRN)	n4+n18
8100	Coupon Extended Code - Number System Character and Offer	n4+n1+n5
8101	Coupon Extended Code - Number System Character, Offer, and End of Offer	n4+n1+n5+n4
8102	Coupon Extended Code - Number System Character preceded by zero	n4+n1+n1
90	Information mutually agreed between trading partners (including FACT DIs)	n2+an..30
91	Intra-Company (Internal)	n2+an..30
92	Intra-Company (Internal)	n2+an..30
93	Intra-Company (Internal)	n2+an..30
94	Intra-Company (Internal)	n2+an..30
95	Internal-Carriers	n2+an..30
96	Internal-Carriers	n2+an..30
97	Intra-Company (Internal)	n2+an..30
98	Intra-Company (Internal)	n2+an..30
99	Internal	n2+an..30

- (*) : To indicate only year and month, DD must be filled with "00"
(**) : Plus one digit for length indication
(***) : Plus one digit for decimal point indication

15 Appendix E: Participants and Contributors To This Guideline

The Uniform Code Council, Inc. expresses its appreciation to the following companies for their participation in the business process model exercise. Without these companies providing the time and resources to obtain information during the interviewing process, this guideline wouldn't be possible.

16 Appendix F: Indicator digit

The “**Indicator Digit**” (formerly known as the Packaging Indicator) gives the manufacturer added flexibility in defining the level of packaging where:

- “0” the package code of the products contained inside the case have a different product number from the product number shown on the outside of the container or case.
- “1-8” the product number on the packages inside the case has the same product number that is shown on the outside of the case. The manufacturer uses numbers 1 through 8 to indicate different levels of packaging (e.g. case, carton, pallet, bale, etc.)
- “9” the contents of the unit can vary in weight or quantity from unit to unit. This number is used to identify random weight and requires the use of at least one Application Identifier (AI) to indicate the quantity or weight inside the unit.

17 Appendix G: Data Base Considerations

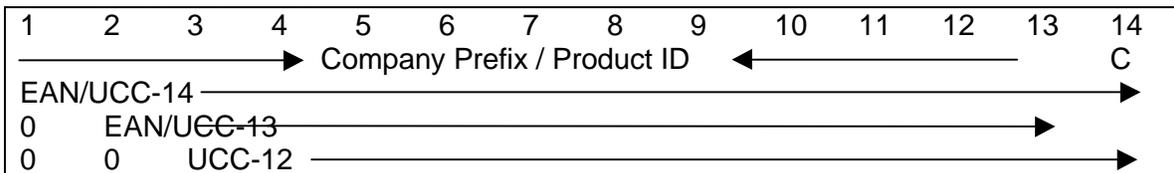
The supply chain has different ways of identifying a product: most suppliers use their own internal number, some use the customer's numbers, some use the distributor's number and still other use a Global Trade Item Number (GTIN) and some use all of these – all for the same product!

What is the Impact?

When establishing the system database, ensure that 14 digits are provided to accommodate all GTIN scenarios of product/service identification throughout the world. In the database you must right justify and zero fill any GTIN number that populate your database. A 14-digit database structure allows you to manage all possible scenarios encountered in North America and world wide.

It is important to understand that this does not mean that North American manufacturers/suppliers will begin replacing the UCC-12 (U.P.C.) GTIN with a 14 digit GTIN number structure. This means that you should be able to store any version of the GTIN (UCC-12, UCC/EAN-13 or UCC/EAN-14) in the same database field. In North America, the UCC-12 GTIN will continue to appear on the products the way they have always appeared.

Data Base Structure



Key Number Structures

Structure	14	13	12	11	10	9	8	7	6	5	4	3	2	1
UCC-12	0	0	CPI	C										
EAN/UCC-13	0	CPI	C											
EAN/UCC-14	PI	0	CPI	C										

CPI = Company Prefix and Item Reference

PI = Indicator digit

C = is the check digit

18 Appendix H: The EAN.UCC System

UCC

The Uniform Code Council (UCC) Inc. is a not-for-profit, voluntary standards organization. There are more than 200,000 member companies in North America.

EAN

UCC partner EAN has more than 94 member organizations in 142 countries with 800,000 plus members. The EAN.UCC System is a universally accepted identification and communication system that facilitates efficient global commerce and business communication. This global language of business comprises a standard numbering system and identification carriers to provide global users with the means to uniquely identify items, documents, assets, processes and physical locations for automatic data capture and processing in electronic data processing applications. Most importantly the system includes a series of standard data structures (Application Identifiers - AIs) that allow companies to encode secondary information about a product. In healthcare, AIs are employed for one of the most important logistics tasks - the tracking and tracing of medical products. The EAN.UCC System utilizes a wide variety of integrated data carrier technologies to provide seamless communication throughout the supply chain.

The EAN.UCC System is recognized by businesses worldwide as one of the most important breakthrough technologies in the history of global commerce. Collectively, EAN International and the Uniform Code Council have more than 1,000,000 members in 142 countries worldwide. This global membership spans twenty-four major industry sectors. EAN and UCC members rely on the integrity of the System to ensure that each item marked with the system identification is globally unique. The EAN.UCC System enables companies to drive out significant costs from the supply chain.

19 Appendix I: Glossary

Term	UCC Glossary Definition
AI	Abbreviation for Application Identifier.
Application Identifier (AI)	A two-, three-, or four-digit prefix used within EAN.UCC system to define the meaning of information that follows.
Bar code	A precise arrangement of parallel lines (bars) and spaces that vary in width to represent data.
Bar gain/loss	The increase/decrease in bar width due to effects of the reproduction and printing processes.
Check Digit	A digit calculated from the other digits of an Element String, used to check that the data has been correctly composed. [delete or include the definition]
Company Number	A number allocated by the UCC or an EAN Member Organization that follows the EAN.UCC Prefix within the EAN.UCC Company Prefix. When combined with the EAN.UCC Prefix, the Company Number uniquely identifies a company.
Data carrier	A means to represent data in a machine-readable form used to enable automatic reading of the Element Strings.
Data structure	The UCC and EAN numbering structures defined in the various lengths required for the different identification purposes which all share a hierarchical composition. Their composition blends the needs of international control with the needs of the users.
EAN	See EAN International.
EAN International	EAN International, based in Brussels, Belgium, is an organization of EAN Member Organizations that jointly manages the EAN.UCC System with the UCC.
EAN Member Organization	A member of EAN International that is responsible for administering the EAN.UCC System in its country (or assigned area) and for managing the correct use of the EAN.UCC System by its member companies.
EAN.UCC Company Prefix	Part of the international EAN.UCC Data Structures consisting of an EAN.UCC Prefix and a Company Number, both of which are allocated by either the UCC or an EAN International Member Organization.
EAN.UCC Prefix	An index number with two or more digits, co-administered by the UCC and EAN International, denoting the format and meaning of a particular Element String.
EAN.UCC System	The specifications, standards, and guidelines co-administered by the UCC and EAN International.
GTIN	Shorthand term for the EAN.UCC Global Trade Item Number. A GTIN may use the EAN/UCC-8, UCC-12, EAN/UCC-13, or EAN/UCC-14 Data Structure.

GTIN Format	The format in which GTINs must be represented in a 14-digit reference field (key) in computer files to ensure uniqueness of the identification numbers.
Manufacturer's Number	See EAN.UCC Company Prefix.
Manufacturer's ID	See EAN.UCC Company Prefix.
Point-of-Sale	The point where a customer purchases a product(s) within retail store. This purchase is typically facilitated by a "check-out" lane or counter where bar code scanning equipment is located.
RSS Composite Symbology™ Family	A family of symbols comprised of the RSS-14™ Composite Symbology™, RSS-14™ Stacked Composite Symbology™, RSS Limited Composite Symbology™, and RSS Expanded Composite Symbology™.
Reduced Space Symbology® (RSS)	A family of bar code symbols, including RSS-14®, RSS Limited®, RSS Expanded®, and RSS Stacked. Any member of the RSS family can be printed as a stand-alone linear symbol or as a composite symbol with an accompanying 2D Composite Component™ printed directly above the RSS linear component.
Symbol	The combination of symbol characters and features required by a particular symbology, including Quiet Zone, Start and Stop Characters, data characters, and other auxiliary patterns, which together form a complete scannable entity; an instance of a symbology and a data structure.
Symbol character	A group of bars and spaces in a symbol that is decoded as a single unit. It may represent an individual digit, letter, punctuation mark, control indicator, or even multiple data characters.
UCC Company Prefix	Part of the UCC-12 Data Structure consisting of a UCC Prefix and a Company Number allocated by the UCC.
UCC/EAN-128 Bar Code Symbol	A subset of the Code 128 Bar Code Symbol that is utilized exclusively for UCC.EAN defined data structures. UCC/EAN-128 Symbols can be printed as stand-alone linear symbols or as a composite symbol with an accompanying 2D Composite Component™ printed directly above the UCC/EAN-128 linear component.
Uniform Code Council, Inc. (UCC)	The Uniform Code Council, based in the United States, is a membership organization that jointly manages the EAN.UCC System with EAN International. The UCC also administers the EAN.UCC System in the United States and Canada.
Universal Product Code (U.P.C.)	See UCC-12 Identification Number.
U.P.C. Symbol	A bar code symbol that encodes the twelve-digit UCC-12 (U.P.C.)