# UPC Barcode Standards

Of the many varieties of barcodes, the UPC (Universal Product Number) is the most recognized. This UPC barcode represents the GTIN-12, which consists of 12 numbers that identify an individual product. The required size of a UPC is 1.469" wide by 1.02" tall. The UPC can be reduced by up to 80% and can be increased by up to 200%. The minimum clear area on the right and left sides of the barcode is 9 times the width of the narrowest bar or space in the barcode. It is suggested that there is a .25" clear area on the right and left side of the barcode to ensure scannability.
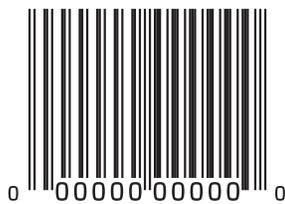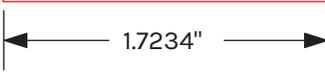
**Nominal Size
1.469" Wide
1.02" High**

**Minimum Size
80% reduction
of Nominal Size**

MINIMUM CLEAR AREA

100% UPC

Bounding box to show minimum clear area for 100% UPC. Minimum clear area is 9 times the width of the narrowest bar or space in the barcode.
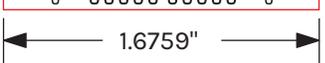
1.7234"

80% UPC

Bounding box to show minimum clear area for 80% UPC. Minimum clear area is 9 times the width of the narrowest bar or space in the barcode.

1.3407"

SUGGESTED CLEAR AREA

100% UPC

Bounding box to show suggested clear area for 100% UPC, which is .25".

1.967"

80% UPC

Bounding box to show suggested clear area for 80% UPC, which is .25".

1.6759"

UPC A Barcode Size Standards

Of the many varieties of barcodes, the UPC (Universal Product Code) is the most common.
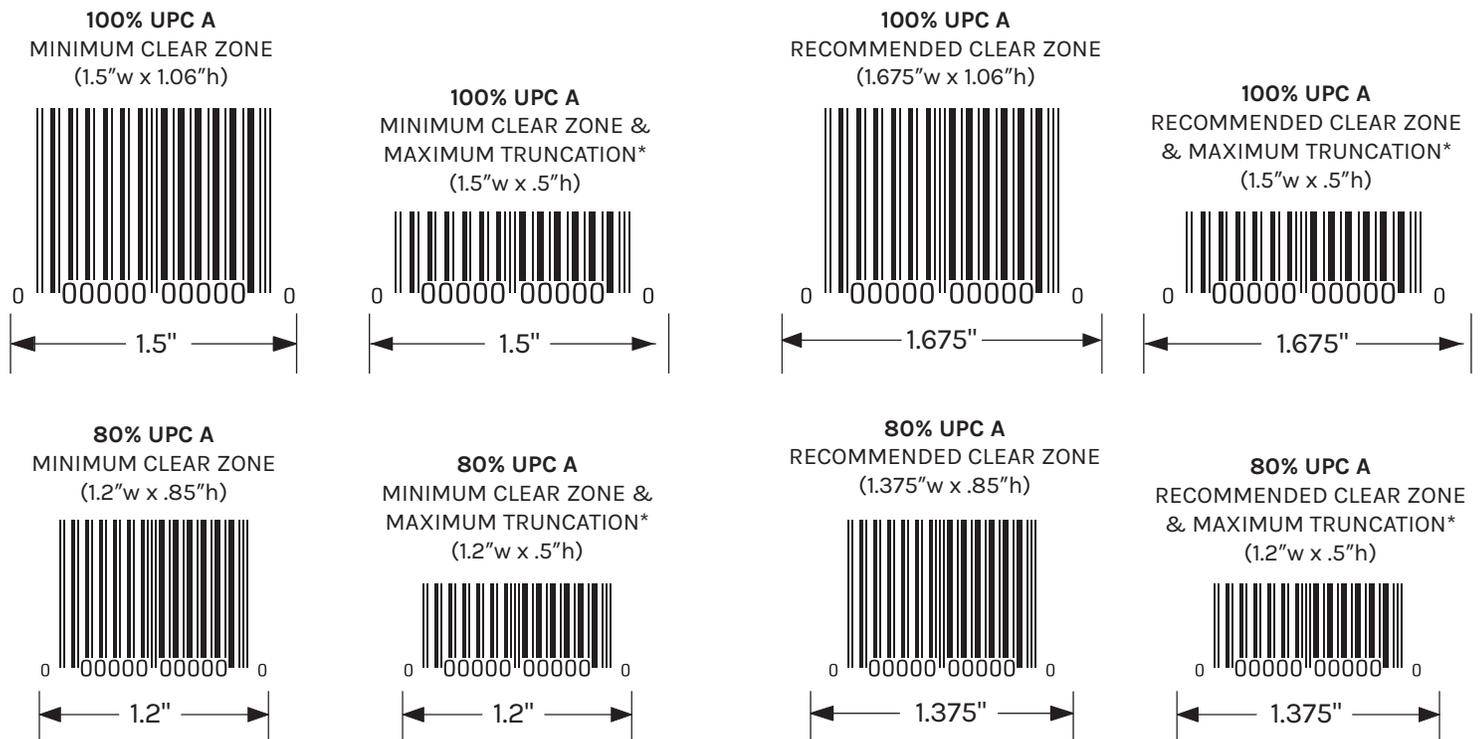
The UPC A barcode represents the GTIN-12, which consists of 12 numbers that identify an individual product. The UPC can be reduced to 80% and can be increased up to 200% without significantly jeopardizing reliable scanning. The "clear zone"or "clear area" to the left and right of the code is necessary to prevent scanners from erroneously picking up background artifacts that can cause scanning failures. It is always best to print barcodes as 100% black on a white field. Other color combinations can work but the precise color combination should be thoroughly tested in retail scanning environment before proceeding. If you are not sure of the precise scanning environment, stick with black on white.Never print a BARCODE in red, it will not be recognized by many types of scanners .

NOTE: Many companies are choosing to convert their domestic UPC A format to the International EAN13 standard. Please ask for Dion conversion documentation to determine if this is the right path for your company.

please go to: **http://www.gs1us.org/** or **http://www.barcodehq.com/upcnumber.html**

MINIMUM CLEAR AREA

100% UPC A
MINIMUM CLEAR ZONE
(1.5"w x 1.06"h)

|← 1.5" →|

100% UPC A
MINIMUM CLEAR ZONE &
MAXIMUM TRUNCATION*
(1.5"w x .5"h)

|← 1.5" →|

80% UPC A
MINIMUM CLEAR ZONE
(1.2"w x .85"h)

|← 1.2" →|

80% UPC A
MINIMUM CLEAR ZONE &
MAXIMUM TRUNCATION*
(1.2"w x .5"h)

|← 1.2" →|

RECOMMENDED CLEAR AREA

100% UPC A
RECOMMENDED CLEAR ZONE
(1.675"w x 1.06"h)

|← 1.675" →|

100% UPC A
RECOMMENDED CLEAR ZONE
& MAXIMUM TRUNCATION*
(1.5"w x .5"h)

|← 1.675" →|

80% UPC A
RECOMMENDED CLEAR ZONE
(1.375"w x .85"h)

|← 1.375" →|

80% UPC A
RECOMMENDED CLEAR ZONE
& MAXIMUM TRUNCATION*
(1.2"w x .5"h)

|← 1.375" →|

*Barcodes may be truncated to a reduced height. We do not recommend less than .5" high. The width should remain as shown above in "suggested clear zone" and never less than the "minimum clear zone" .

EAN13 Barcode Size Standards

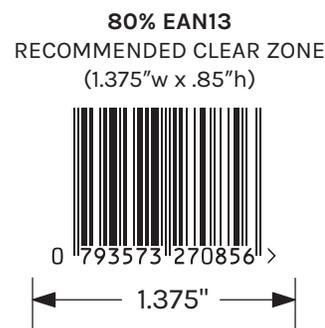**The EAN13 format is required for most international applications**

The EAN13 barcode represents the GTIN-13, which consists of 13 numbers that identify an individual product. The EAN13 can be reduced to 80% and can be increased up to 200% without significantly jeopardizing reliable scanning. The "clear zone"or "clear area" to the left and right of the code is necessary to prevent scanners from erroneously picking up background artifacts that can cause scanning failures. It is always best to print barcodes as 100% black on a white field. Other color combinations can work but the precise color combination should be thoroughly tested in retail scanning environment before proceeding. If you are not sure of the precise scanning environment, stick with black on white. Never print a BARCODE in red, it will not be recognized by many types of scanners.

NOTE: Many companies are choosing to convert their domestic UPC A format to the International EAN13 standard. Please ask for Dion conversion documentation to determine if this is the right path for your company.

If your company needs to obtain a certified manufacturing code or you seek additional information regarding the process, please go to: **http://www.gs1us.org/ or http://www.barcodehq.com/upcnumber.html**

MINIMUM CLEAR AREA	RECOMMENDED CLEAR AREA

100% EAN13
MINIMUM CLEAR ZONE
(1.5"w x 1.06"h)

0 793573 270856 >

|← 1.5" →|

100% EAN13
MINIMUM CLEAR ZONE
& MAXIMUM TRUNCATION*
(1.5"w x .5"h)

0 793573 270856 >

|← 1.5" →|

100% EAN13
RECOMMENDED CLEAR ZONE
(1.675"w x 1.06"h)

0 793573 270856 >

|← 1.675" →|

100% EAN13
RECOMMENDED CLEAR ZONE
& MAXIMUM TRUNCATION*
(1.5"w x .5"h)

0 793573 270856 >

|← 1.675" →|

80% EAN13
MINIMUM CLEAR ZONE
(1.2"w x .85"h)

0 793573 270856 >

|← 1.2" →|

80% EAN13
MINIMUM CLEAR ZONE
& MAXIMUM TRUNCATION*
(1.2"w x .5"h)

0 793573 270856 >

|← 1.2" →|

80% EAN13
RECOMMENDED CLEAR ZONE
(1.375"w x .85"h)

0 793573 270856 >

|← 1.375" →|

80% EAN13
RECOMMENDED CLEAR ZONE
& MAXIMUM TRUNCATION*
(1.2"w x .5"h)

0 793573 270856 >

|← 1.375" →|

*Barcodes may be truncated to a reduced height. We do not recommend less than .5" high. The width should remain as shown above in "suggested clear zone" and never less than the "minimum clear zone"
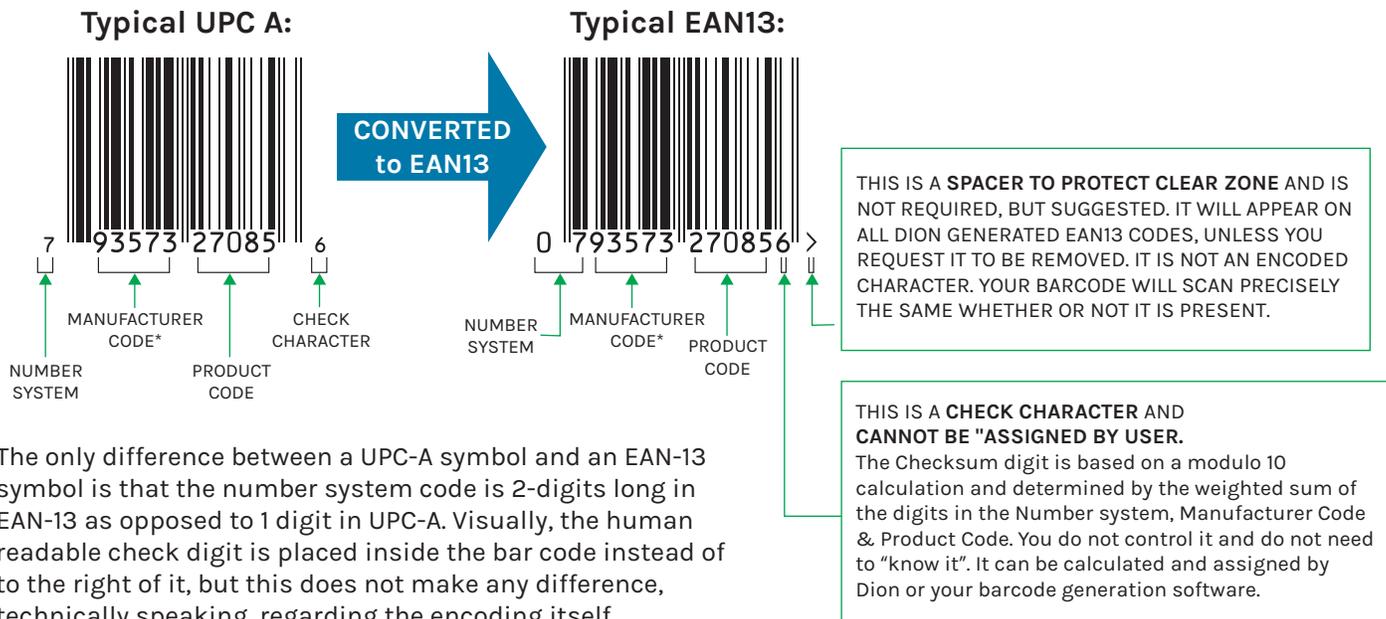
Converting UPC A to EAN13 International Standard

The EAN13 format is required for international applications

EAN-13, based upon the UPC-A standard, was implemented by the International Article Numbering Association (EAN) in Europe. This standard was implemented mostly because the UPC-A standard was not well designed for international use. EAN-13 is a superset of UPC-A. This means that any software or hardware capable of reading an EAN-13 symbol will automatically be able digit from 0 through 9 whereas an EAN-13 number system code consists of two digits ranging from 00 through 99, which is essentially a country code. Each country has a numbering authority which assigns manufacturer codes to companies within its jurisdiction. The manufacturer code is still five digits long, as is the product code, and the check digit is calculated in exactly the same way.

Note: Since EAN-13 is a superset of UPC-A and requires very little additional effort to handle than a UPC-A code, it is recommended that all new designs implement EAN-13 rather than UPC-A. As already mentioned, this guarantees compatibility with UPC-A but also will make your software/hardware appealing to the international community. Otherwise your design will be restricted to the U.S. and Canada. Additionally, the UCC Council has announced that as of January1, 2005, all bar code systems in the U.S. and Canada must be able to handle EAN-13 bar codes so that international manufacturers do not have to worry about printing a different bar code for their products destined for North

Typical UPC A:

7 93573 27085 6

NUMBER SYSTEM
MANUFACTURER CODE*
PRODUCT CODE
CHECK CHARACTER

CONVERTED to EAN13

Typical EAN13:

0 793573 270856 >

NUMBER SYSTEM
MANUFACTURER CODE*
PRODUCT CODE

THIS IS A **SPACER TO PROTECT CLEAR ZONE** AND IS NOT REQUIRED, BUT SUGGESTED. IT WILL APPEAR ON ALL DION GENERATED EAN13 CODES, UNLESS YOU REQUEST IT TO BE REMOVED. IT IS NOT AN ENCODED CHARACTER. YOUR BARCODE WILL SCAN PRECISELY THE SAME WHETHER OR NOT IT IS PRESENT.

THIS IS A **CHECK CHARACTER** AND **CANNOT BE "ASSIGNED BY USER.** The Checksum digit is based on a modulo 10 calculation and determined by the weighted sum of the digits in the Number system, Manufacturer Code & Product Code. You do not control it and do not need to "know it". It can be calculated and assigned by Dion or your barcode generation software.

The only difference between a UPC-A symbol and an EAN-13 symbol is that the number system code is 2-digits long in EAN-13 as opposed to 1 digit in UPC-A. Visually, the human readable check digit is placed inside the bar code instead of to the right of it, but this does not make any difference, technically speaking, regarding the encoding itself.

*The Manufacturer Code is a unique code assigned to each manufacturer by the numbering authority. It is not uncommon to receive a "variable-length manufacturer code" if the numbering authority determines that you do not have many products. In short, your manufacturer code may extend into the first few characters of the "product code". Since the Manufacturer Code is static, you may have fewer than five characters for individual product numbers. Always verify your complete manufacturer code and number system before beginning individual product assignment.

If your company needs to obtain a certified manufacturing code or you seek additional information regarding the process, please do to:
http://www.gs1us.org/ or http://www.barcodehq.com/upcnumber.html

EAN13 International Country Codes (Number System)

Number System: The number system consists of two digits (sometimes three digits) which identify the country (or economic region) numbering authority which assigned the manufacturer code. Any number system which starts with the digit 0 is a UPC-A bar code. The valid number system codes are presented inthe following table:

If your company needs to obtain a certified manufacturing code or you seek additional information regarding the process, please go to: http://www.gs1us.org/ or http://www.barcodehq.com/upcnumber.htm

00-13: USA & Canada	20-29: In-Store Functions	30-37: France
40-44: German	45: Japan (also 49)	46: Russian Federation
471: Taiwan	474: Estonia	475: Latvia
477: Lithuania	479: Sri Lanka	480: Philippines
482: Ukraine	484: Moldova	485: Armenia
486: Georgia	487: Kazakhsta	489: Hong Kong
49: Japan (JAN-13)	50: United Kingdom	520: Greece
528: Lebanon	529: Cyprus	531: Macedonia
535: Malta	539: Ireland	54: Belgium & Luxembourg
560: Portugal	569: Iceland	57: Denmark
590: Poland	594: Romania	599: Hungary
600 & 601: South Afric	609: Mauritius	611: Morocco
613: Algeria	619: Tunisia	622: Egypt
625: Jordan	626: Iran	64: Finland
690-692: China	70: Norway	729: Israel
73: Sweden	740: Guatemal	741: El Salvador
742: Honduras	743: Nicaragu	744: Costa Rica
746: Dominican Republi	750: Mexico	759: Venezuela
76: Switzerland	770: Colombia	773: Uruguay
775: Peru	777: Bolivia	779: Argentina
780: Chile	784: Paraguay	785: Peru
786: Ecuador	789: Brazil	80 - 83: Italy
84: Spain	850: Cuba	858: Slovakia
859: Czech Republi	860: Yugloslavi	869: Turkey
87: Netherlands	880: South Kore	885: Thailand
888: Singapore	890: India	893: Vietnam
899: Indonesia	90 & 91: Austria	93: Australia
94: New Zealan	955: Malaysia	977: International Standard Serial Number for Periodicals (ISSN)
978: International Standard Book Numbering (ISBN)	979: International Standard Music Number (ISMN)	980: Refund receipts
981 & 982: Common Currency Coupons	99: Coupons	