



Anatomy of a UPC

- Number System Character – The first number, larger in size, (40 above) of the UPC, assigned by the Uniform Code Council simply indicates the number system which is to follow.
- Manufacturing Identification Numbers – The next set of unique 5 digit numbers, (1 thru 5 above) assigned by the Uniform Code Council.
- Item Number – A 5 digit number (6 thru 0 above) assigned and controlled by the product's owner.
- Check Character – The last number of the UPC is used to verify the accuracy of the entire UPC.

Important UPC Characteristics

- Size – The nominal size is 1.469 inches wide x 1.02 inches high, including the number system and the check characters. The minimum recommended size, 80% of the nominal size, is 1.175 inches wide x .816 inches high. The maximum recommended size is 200% of the nominal size, 2.938 inches wide x 2.04 inches high. For a good general rule, larger UPCs scan better. Sizing may vary dependent upon graphic design, package limitations, and printing methods.
- Contrast – The level of contrast between bars and spaces helps to determine the readability of the bar code. Although many color combinations may be used, the most reliable is black bars with white spaces. If that combination is not feasible, an alternative combination of dark bars and light spaces is always recommended. Since the scanner uses infrared light to read the bar code, the color red cannot be scanned and should not be used on any part of the UPC.
- Quiet Zone - The area to the right and left of the bar code must be free of all printing. This area prepares the scanner for the bar code that is to follow. Since bar codes can be read from either direction, quiet zones are required on both sides.
- Bar/Space Pattern – Each number has a unique pattern of bars and spaces of varying widths. Accurate printing of the bars and their spaces is essential.

UPC Tips

- Location – The UPC should be located on the packaging's "natural" bottom. This is determined by considering the design of the container as well as the orientation of the package's graphics.
- Show Through – Show-through can occur with transparent or translucent packaging when the product is seen through the spaces of the bar code. This can cause a bar code to be unreadable. The show-through can be avoided by laying down a layer of opaque white under the bars.

- Truncation – This term means to reduce the height but not the width of a bar code. Although not recommended, truncation is sometimes necessary. Manufacturers should try to reduce the bar code within the established limits before cutting off the top of the bar code through truncation.
- Printing Methods – Different printing methods affect the image quality of the UPC in different ways. Therefore, steps must be taken to counteract any negative effects. For example, in silk screening, the occurrence of ink spread must be calculated and bar width reduction must be incorporated into the film master. Ink spread can also decrease the flexibility of size reduction of a bar code. If a bar code is reduced too much, an attempt to silk screen will blur the bars together. This is one of the reasons to keep the bar code size within the minimum of 80% of the nominal size. The printing methods also affect the position of the bar code. With any method which might involve ink spread, it is best to position the bar code on its side so the bars run in the same direction as the ink flows. This will help insure that any blurring will affect bar length, rather than width.