

C800 Automation-Compatible Mail

## C850 Barcoding Standards for Parcels

**Summary** C850 describes the technical standards for all barcoded parcels. It defines parcel barcode characteristics, location, and content.

### 1.0 GENERAL

#### Basic Requirements and Elements

1.1

**[3-4-04]** The UCC/EAN Code 128 barcode is the only acceptable barcode symbology to encode the ZIP Code or ZIP+4 code information from delivery addresses on parcels to qualify for the barcode discount. To be eligible for the barcode discount each machinable parcel (see [C050](#)) must bear a properly prepared UCC/EAN Code 128 barcode that accurately represents the correct ZIP Code or ZIP+4 code of the delivery address preceded by the application identifier (AI) "420." The ZIP Code for the address on the mailpiece may be either the 5-digit ZIP Code or the ZIP +4 code.

#### Use With Delivery Confirmation or Signature Confirmation Service

1.2

**[3-4-04]** Parcels may qualify for the barcode discount and bear a Delivery Confirmation or Signature Confirmation barcode using one of the following options:

- a. Single Concatenated Barcode (preferred method). Mailers may place a single concatenated barcode that combines the postal routing information and Delivery Confirmation or Signature Confirmation information. Single concatenated barcodes must be prepared in accordance with the technical specifications and requirements in [S918](#) for Delivery Confirmation service, [S919](#) for Signature Confirmation service, and Publication 91. If a parcel bears a single concatenated barcode, then no other barcode that contains the postal routing code structure described may be affixed to the package.
- b. Separate Barcodes. Mailers may place both a postal routing code described in [1.1](#) and a Delivery Confirmation barcode described in [S918](#) or a Signature Confirmation barcode described in [S919](#) on the same parcel. A single concatenated barcode is the preferred method.

#### Single Integrated Barcode

1.3

**[3-4-04]** Parcels may bear a single integrated barcode that combines postal insurance (see [S913](#)) with Delivery Confirmation service or Signature Confirmation service electronic option. To qualify for the barcode discount, parcels also must bear a postal routing barcode in either format described in [1.2](#) (see Publication 91).

### 2.0 BARCODE CHARACTERISTICS

#### Dimensions

2.1

The preferred range of widths of narrow bars and spaces is 0.015 inch to 0.017 inch. The width of the narrow bars or spaces must be at least 0.013 inch but no more than 0.021 inch. All bars must be at least 0.75 inch high. The wide/narrow bar width ratio for Code I 2/5 and Code 39 must be at least 2.5 to 1.

#### Clear Zone

2.2

**[3-4-04]** The barcode must be located as specified in [3.0](#). No printing may appear in an area 1/8 inch above and below the barcode. A minimum clear (quiet) zone equal to 10 times the average measured narrow element (bars or space) width must be maintained to the left and right of the barcode.

**Reflectance**  
2.3 When measured in the red spectral range between 630 nanometers and 675 nanometers, the minimum white bar (space) reflectance (Rs) must be greater than 50%, and the maximum bar reflectance (Rb) must be less than 25%. The minimum print reflectance difference (Rs-Rb) is 40%. Reflectance must be measured with a USPS-specified reflectance meter or barcode verifier.

**Quality**  
2.4 **[3-4-04]** All barcodes in each mailing must measure American National Standards Institute (ANSI) grade C or above. ANSI grade barcodes D or F are unacceptable. It is strongly recommended that all printing processes be tested to ensure that they meet specification requirements. Information concerning ANSI guidelines X3.182-1990 may be obtained from the American National Standards Institute (see [G043](#)).

**Human-Readable Information**  
2.5 **[3-4-04]** The human-readable information on the barcode must conform to one of the following options:

- a. If the barcode is printed on the delivery address label and in close proximity to the address, the AI “420” and the human-readable equivalent of the ZIP Code or ZIP+4 code information may be omitted. This standard applies to barcodes printed under [1.1](#) or [1.2a](#) and [1.2b](#), and [1.3](#).
- b. For routing barcodes printed under [1.1](#), if the barcode is printed on a separate label, the human-readable equivalent of the ZIP Code or ZIP+4 code (omitting the AI “420”) encoded in the barcode preceded by the word “ZIP” must be printed between 1/8 inch and 1/2 inch below the barcode in 10 point or larger bold sans serif type. Alternatively, the word “ZIP” may be placed no less than 10 times the average narrow bar or space element width and no more than 1/2 inch to the left of the barcode, in 12 point or larger bold sans serif type.
- c. For barcodes printed under [1.2](#) or [1.3](#), the human-readable presentation of the concatenated barcode must include only the AI “91” and the full tracking identification number as text. The AI “420” and the ZIP Code information is optional. The text must not include ZIP+4 information. If the AI “420” and ZIP Code information are used, they must be parsed separately from the main body of the barcode text. The ZIP Code must be placed in parenthesis (e.g., 420 (99999) 9101 2345 6789 1234 5678).

**Technical Specifications**  
2.6 **[3-4-04]** Postal routing codes must meet the technical specifications in the UCC/EAN-128 Application Identifier Standard, which can be obtained from Uniform Code Council Inc. (see [G043](#)), and the barcode characteristics in [2.0](#).

**Substrate Material**  
2.7 **[3-4-04]** Barcodes must be printed on substrate material that preserves the optical specification as described in the AIM-USA Uniform Symbology Specification documents. Typically, white label stock commonly used for barcode generation is suitable, providing it is not glossy (causing mirror-like, specular reflection) or prone to smearing or smudging.

### 3.0 BARCODE LOCATION

[3-4-04] The address and barcode must be placed squarely onto the largest surface area of the parcel, except when its shape and contents requires specific orientation for stability during processing; then the address and barcode(s) must be placed on the top. The address and barcode label(s) must not overlap any side of the parcel or other label. The barcode should be placed immediately adjacent to the delivery address and at least 1 inch from the edge of the parcel. The delivery address and barcode may be printed on an attachment or enclosure in a window envelope affixed to the parcel, subject to the reflectance standards in 2.3. The barcode may be placed on a separate label or in an alternate location on the address label, subject to the clearance standards in 2.2. Barcodes that are not placed immediately adjacent to the delivery address must not encroach the return address, postage, applicable markings, endorsements, and special service labels.

