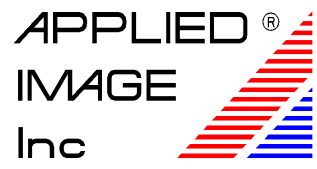


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imaging@appliedimage.com

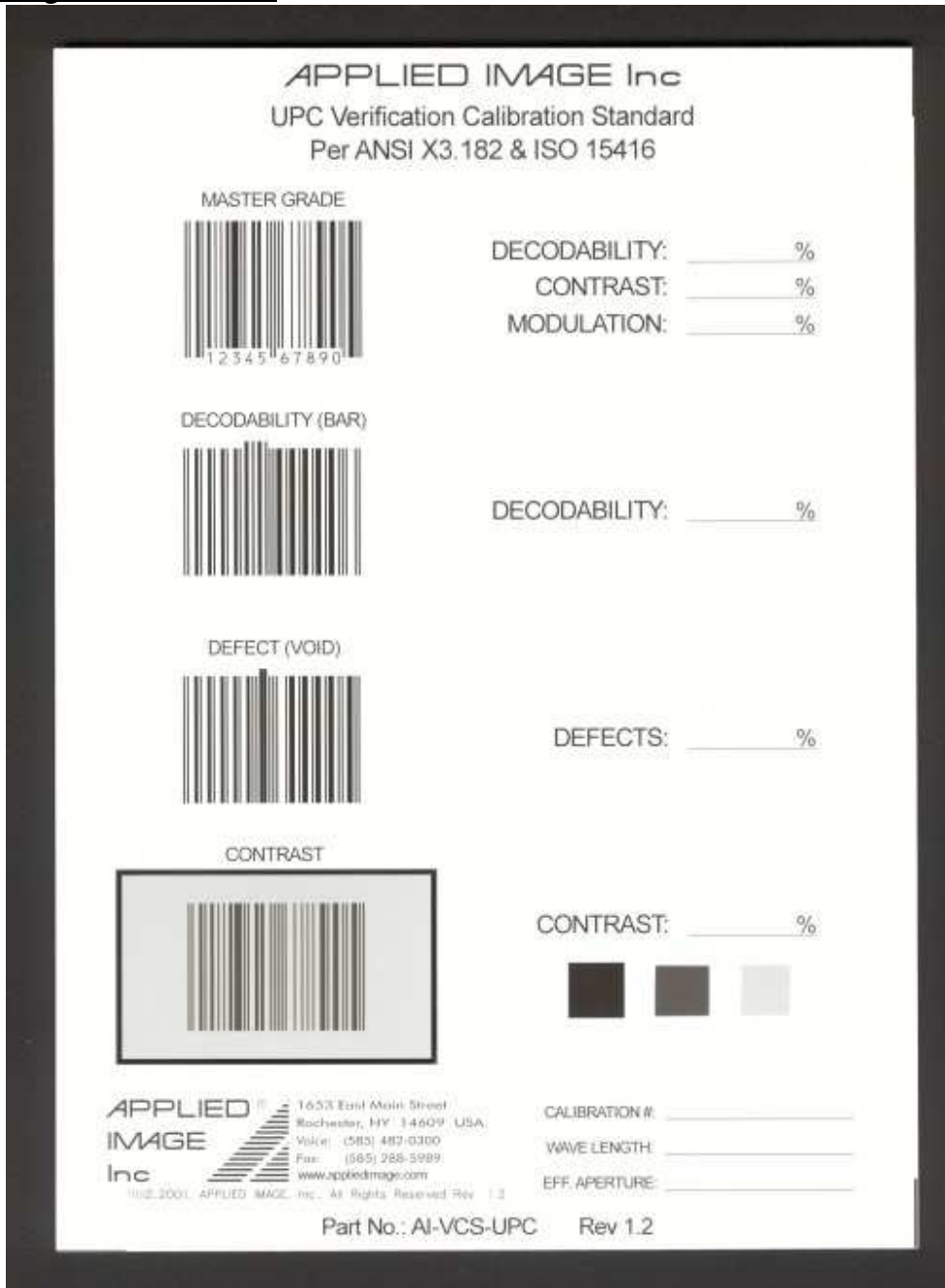
AI-VCS-UPC  
UPC Barcode  
Calibration Standard  
Product Specifications



Catalog Part No: **AI-VCS-UPC**


Product Name: **UPC Verification Calibration Standard**

Drawing / Photo of Part:



The above image is an approximate representation of the actual product.  
Specifications are subject to change without notice.

*Please contact Applied Image customer service at the address noted above, for custom images, shapes and materials.*

1653 East Main Street Rochester, NY 14609 USA Voice: 585.482.0300 FAX: 585.288.5989 imaging@appliedimage.com	AI-VCS-UPC UPC Barcode Calibration Standard Product Specifications	<b>APPLIED</b> ® <b>IMAGE</b> <b>Inc</b> 
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Description: This card contains four precision UPC symbols which have been calibrated using an extremely high resolution reflection microdensitometer.

Complete calibration results of each symbol are reported in the supplied Calibration Report and a summary of the main parameter is written on the card near each symbol. Traceability to NIST and a statement of estimated uncertainty is documented on the supplied Calibration Certificate.

Unless otherwise specified, this card is calibrated with a 150 $\mu$  (0.006") aperture.

Substrate Size/Overall size: 216mm x 152mm (8.5 x 6 inches)

Substrate Type: White photo paper bonded to a rigid, flat black plastic board. Typical thickness is 2.5mm (0.1").

Image Forming Material: Photo-Emulsion

Image Description: All four symbols are 100% size UPC with a nominal small bar size of 33 $\mu$  (0.013").

The first (topmost) symbols has all parameters made to Grade 4(A).

The second symbol has a decodability defect built in to reduce decodability to Grade 2(C) .


The third symbol tests the Defect parameter by incorporating a precise void in one of the large bars and reducing the ISO/ANSI Defect grade to 2(C).

The fourth (bottom) symbol tests symbol contrast by placing dark gray bars on a gray background and reducing the contrast to Grade 2(C).

Polarity: Positive

Reading Direction: Right Read Emulsion Up (RREU)

Image Contrast / Density: The first 3 symbols are high contrast (Grade 4(A) or near Grade 4(A) contrast, depending on scanning aperture size). The fourth symbol is a dark gray on gray test of Grade 2(C) contrast.

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History / Typical Use: To check that a bar code verifier is measuring properly. These symbols are scanned with the verifier, then the verifier results are compared to the calibrated values to determine if the verifier is measuring properly.

The following items are included in the Calibration Data:

**# elem**    Number of elements - Total number of bars and spaces.

**SC**    Symbol Contrast- Equal to the highest reflectance in the entire profile minus the lowest, (Rmax - Rmin).

**MEC**    Minimum Edge Contrast - The smallest difference in reflectance between adjacent elements. The basis of the Modulation calculation.

**ERNS**    Element Reflectance Non-Uniformity of Spaces - The largest of reflectance variations within each space compared to all the spaces and the quiet zones. The basis of the Defects calculation.

**ERNB**    Element Reflectance Non-Uniformity of Bars- The largest of reflectance variations within each bar compared to all the bars and the quiet zones. The basis of the Defects calculation.

**ERNQZ**    Element Reflectance Non-Uniformity of the Quiet Zones- If this reflectance value is responsible for the worst defect in the profile, a tick mark will appear, <.


**LEADQZ**    Leading Quiet Zone - A "1" indicates the quiet zone on the left of the profile is greater than ten times Z. A "0<" indicates otherwise. Note, symbol may have been scanned back to front.

**TRLQZ**    Trailing Quiet Zone A "1" indicates the quiet zone on the right of the profile is greater than ten times Z. A "0<" indicates otherwise. Note, symbol may have been scanned back to front.

**Format**    Format of the Data - The numeral is the number of thousands of points in the profile. The alpha is either "A" or "B" for ANSI format and HP Binary format respectively.

**Rmin**    Minimum Reflectance - The lowest reflectance value in the entire profile. The basis of the Symbol Contrast calculation.

**Rmax**    Maximum Reflectance- The highest reflectance value in the entire

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profile. The basis of the Symbol Contrast calculation.

**AvBar%** Average Bar Width (deviation from ideal)

**Decod%** Decodability Percentage

**Corr** Correlation Factor of Edge Finding Linear Regression - The number parts per thousand in variation off the line used to calculate the edge. Values greater than 5 indicate sub-laboratory grade element width repeatability. A "-" next to the number indicates fewer than three points on an edge were encountered in the profile.

**MOD%** Modulation

**DEF%** Defects Note: Some symbols do not have % Defect reported because the value is too low and is non-repeatable due to surface reflection noise.

**EleOut** Number of Elements Out of Printing Tolerance - Uses traditional printing tolerance.

**Decode** Character Decode Validity Check - Every character passed is "1" and "0" is otherwise.

**Element Widths** (as seen by scanning aperture, these dimensions will vary with different apertures)  
Widths are shown in mils (ie: 15.18 = 0.01518")