

# Substitute Checks: Development of Processing & Quality Standards<sup>1</sup>

Prepared by ECCHO

Check 21 Act effective October 2004 establishes a new legal instrument, the substitute check, to facilitate check truncation. The substitute check is created for those banks and bank customers that need to have a paper document because they are unable or unwilling to process or accept electronic images of checks. The substitute check has been designed to be processed exactly as if it were the original check using current software, hardware and processing procedures. The substitute check is created from an image of the original paper check and includes images of the front and back of the original check. All of the current standards for paper checks such as paper weight, size, placement, MICR lines, etc. would continue to apply to substitute checks just as they apply to the original checks.

Some of the existing standards for paper checks and electronic images of checks that will continue to apply to substitute checks are:

- ANSI X9.7 Bank Check Background and Convenience Amount Field
- ANSI X9.100-10 Paper Specifications for MICR Documents
- ANSI X9.100-20 Print and Test Specifications for Magnetic Ink Printing
- ANSI X9.100-111 Specifications for Check Endorsements
- ANSI X9.100-160-1 Magnetic Ink Printing (MICR) Part 1 Placement and Location
- ANSI X9.100-160-2 Magnetic Ink Printing (MICR) Part 2 EPC Field Use
- ANSI X9.100-181 Specifications for TIFF Image Format for Image Exchange
- ANSI X9.100-187 Specifications for Electronic Exchange of Check and Image Data - Domestic
- DSTU X9.37 Electronic Exchange of Check and Image Data

Additionally, a new standard has been created specifically for substitute checks, ANSI X9.100-140. X9.100-140 has been designed to work in conjunction with the other standards listed above. The banking industry through the X9B Committee began work on the development of X9.90 (now X9.100-140) - Specifications for an Image Replacement Document – IRD in 2001. The X9B

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<sup>1</sup> This document provides a brief summary of certain elements of the ANSI standards relating to paper checks and to IRDs/substitute checks. All ANSI standards referenced in this document are copyrighted by Accredited Standards Committee X9, Inc. and may be obtained through Accredited Standards Committee X9, Inc. or American National Standards Institute (ANSI).

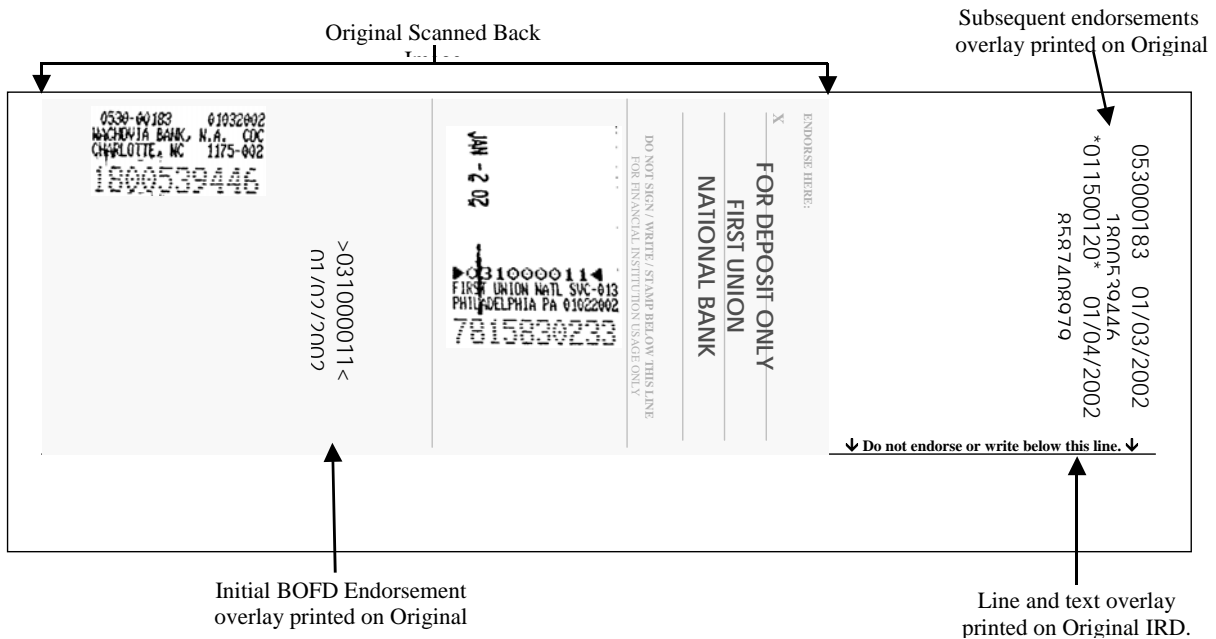
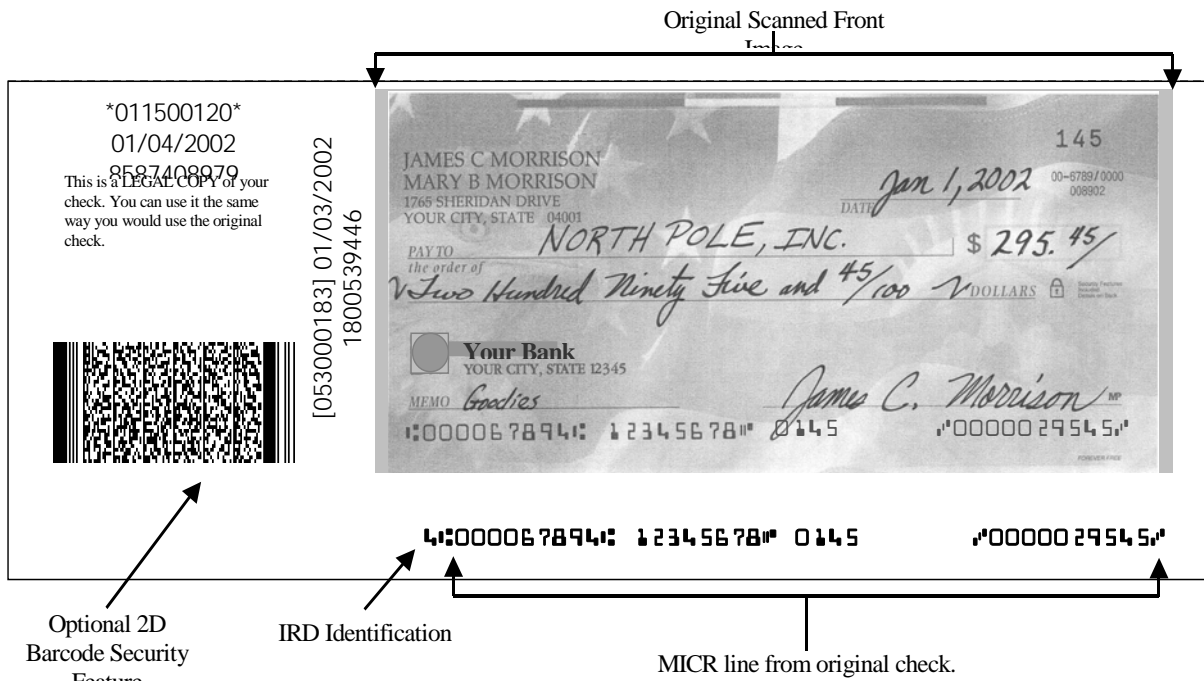
Committee choose to call the document an Image Replacement Document (IRD), which has the same characteristics and will conform in all aspects to a Substitute Check as defined in the Act. Throughout this write-up a Substitute Check will be called an IRD as it relates to the standard. The standard was developed with representation by banks, vendors, clearing houses and the Federal Reserve. Copies of the standard are available through the Accredited Standards Committee X9 or American National Standards Institute's (ANSI). Following are some of the key provisions in the standard. (Specific sections of the standard are referenced.)

- The standard (X9.100-140) requires maintaining the aspect ratio to the original check, when creating an IRD. Aspect ratio as defined in the standard in 4.2 is "The value obtained by dividing the horizontal pixel count by the vertical pixel count of an image. The intent is to hold this value constant when scaling (zooming) an image so that the new image will not be distorted relative to the original image."
- An image of the original check is placed on the IRD by scaling that original check to fit within the dimensions allowed for the IRD while at the same time maintaining the aspect ratio. This causes the image of the original check on the IRD to be reduced in size. This reduction is minor for consumer size checks at about 4% making the image on the IRD about 96% of the original check size. The size of corporate paper checks varies and therefore the reduction for corporate checks will range from as little as about 4% to as much as 33% for the largest corporate check size. The largest corporate check size would therefore be reduced no less than 67% of their original size. When an IRD is created, the size of the check image is fixed and will not be reduced further through subsequent IRD conversions and re-conversions. The standard is clear in its intent to maintain a high quality image. In 6.1.1 it states, "The printed image shall be representative of the original document (check or IRD) and shall accurately and legibly represent all of the information on the front of the original check or clipped area of an IRD." A different section (6.2.1) discusses the back of the document. Samples of IRDs showing the front of the document can be found in Annex E of X9.100-140, at the end of this document and at [http://www.eccho.org/check21\\_aids\\_standards.php](http://www.eccho.org/check21_aids_standards.php).
- With the use of electronics, important endorsement information can now be printed in specific areas of the IRD making the endorsement easier to read. Endorsements are extremely important in the return of unpaid checks and provide an audit trail for the check. Explanations of where to place the endorsements can be found in 6.2.1. Samples of IRDs showing these endorsement areas can be found in Annex E of X9.100-140 and at [http://www.eccho.org/check21\\_aids\\_standards.php](http://www.eccho.org/check21_aids_standards.php). X9.100-140 provides for endorsements on IRDs to include the printing of both physical and electronic endorsements.

- The standard requires the IRD MICR line to reflect all of the information encoded on the original check at the time the original check was issued as well as the amount (see 6.1.5.2). Additionally, X9.100-140 provides for an EPC character in position 44 of the MICR line to indicate the item is an IRD and that the original check image has been reduced once and should not be reduced again during any subsequent conversion and re-conversion processes. Without this EPC code the image of the check would continue to be reduced in size each time the IRD is converted and reconverted. An ever shrinking check image would eventually become illegible. By using the EPC code in the MICR line, the size of the image can be fixed and will remain the same size for all subsequent conversions and re-conversions.
- The X9.100-140 Work Group also investigated the use of security features for the IRD. An Optional Data Region described in 6.1.8 allows for the inclusion of security features. .

For additional information about standards for substitute checks, please contact Phyllis Meyerson at [pmeyerson@eccho.org](mailto:pmeyerson@eccho.org).

Following is an example of a consumer check on an IRD (substitute check):



Following is an example of a re-presented corporate check. It was collected as a paper check then converted to an IRD and returned unpaid to the depository bank and is re-presented as an IRD (substitute check):

