



American National Standard for Financial Services

ANSI X9.100-110-2011

Formerly part of X9.7-1999 (R2007)

Document Imaging Compatibility



Developed by
Accredited Standards Committee X9, Incorporated
Financial Industry Standards

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American National Standards Institute

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This standard is a revision to X9.7-1999 (R2006). The standard contains changes to the signature and memo lines on business checks; and, to the 0.008 inch solid outline around the CAR for both business and personal checks. These changes are specified with a three-year phased implementation period after the date of approval of this standard by ANSI (approval date can be found on the cover of this standard). During this three-year phase-in period, the previous method and the current method defined in this standard can co-exist; however, at the end of the period, the method specified in X9.7-1999 (R2006) edition (previous edition) will no longer be valid. This phased approach provides vendors and financial institutions a reasonable timeframe to implement needed systems and operational changes.

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Introduction

This introduction is not part of American National Standard X9.100 - 110 MICR Document Imaging Compatibility, but is provided to note the working group history and other information.

It has been approximately twenty-five years since the first publication of this standard. When it was last published in 2006, it included minor enhancements to the previous publication. Before then, the inclusion of specifications and requirements to support image capture check processing platforms was so timely that financial institutions have been able to invoke this standard when requiring the printing of image compatible documents.

This standard provides the necessary specifications and requirements for designing and printing "image-friendly" checks and other MICR documents. In fact, extensive research and hands-on investigations by the Work Group X9AB2 have determined that the majority of faulty check images are not derived from checks compliant with this standard. The major challenge to populating the US Payments System with image compatible checks is two-fold: education of those responsible for designing and implementing checks (those not adhering to this standard) and those who choose to not follow the specifications and requirements of ANSI X9.100-110. The WG X9AB2 seeks to address additions and enhancements that will support the US Payments System electrification efforts moving forward.

The former X9.7 standard will be reorganized and published as two separate standards. One of these standards, ANSI X9.100-30 *Optical Specifications for MICR Documents*, will describe the kinds of measurements needed to support image compliance and will explain how these image-related measurements will be uniformly conducted. The other standard, ANSI X9.100-110 *Document Imaging Compatibility*, will designate the specification requirements applicable to a given data element.

Notice of Plan to Re-Open Standards Following Publication: Incorporating Dynamic PCS

The X9.100-110 and the X9.100-30 standards will be reopened shortly after this ballot establishes X9.100-30-2011 and X9.100-110-2011 as the replacement standards for the previous X9.7-1999 (R2007) standard so the X9AB Payments Subcommittee can review a proposal for an alternative PCS measurement process. PCS measurement is a fundamental imaging technique that will remain in use for determining the dropout level of the background on a document. However, traditional PCS testing methods are more manual and subjective than newer approaches.

Advancements in technology now allow image testing equipment to better approximate the resulting image of a background using a 'dynamic PCS' method of measurement. Dynamic PCS more closely estimates the dropout of the background similar to how it would appear when captured using sorter image capture equipment. Historically, the algorithms used in the sorter image capture equipment to determine which parts of the document background stays or drops out have given significantly different results as compared to images obtained from flatbed document scanners used for image quality assurance testing. With advancements in technology, the flatbed scanner image capture processes have become better able to approximate the dynamic contrast image (DC image) obtained from sorter image capture units by applying dynamic PCS programming. Because of the need to update a significant amount of normative information during the revision of the old X9.7-1999 (R2007) standard for placement in the new X9.100-30 and X9.100-110 standards, the X9AB Payments Subcommittee believes it is in the best interest of the industry to move the standards forward as they are today before examining the PCS issue. This will allow the industry to begin the implementation of the new updated standards as presented here. The X9AB Subcommittee will then reopen the X9.100-110 and the X9.100-30 standards for an early reevaluation of the need to include modernized PCS measurement processes, without delaying the industry from benefiting from the other useful specifications in the new 2011 versions of the standards.

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At the time this standard was approved, the ***X9AB2 - Design of Checks: Optical Background Measurement for MICR Documents*** working group had the following members

John FitzPatrick, X9AB2 Chairman
 John McCleary, Daniel Welch - Editors

| <i>Organization Represented</i> | <i>Representative</i> |
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| iStream Imaging/Bank of Kenney..... | Mike McGuire |
| J.P. Morgan Chase & Co..... | Jackie Pagan |
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| NCR Corporation..... | Rick Lugg |
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| Paychex Inc..... | Carl Tinch |
| Piracle..... | Lynn Shimada |
| RDM Corporation..... | Karin McNabb |
| Silver Bullet Technology, Inc..... | Bryan Clark |
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| Sterling National Bank..... | Eliot Robinson |
| SWIFT/Pan Americas..... | James Wills |
| Symcor Inc..... | Brian Salway |
| Troy Group, Inc..... | Michael Riley |
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| VerifyValid..... | John FitzPatrick |
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ANSI X9.100-110-2011

Special recognition is given to Mr. Brian Salway, Symcor, for editing/updating of the technical illustrations throughout this document.

This document cancels and replaces ANSI X9.7-1999 (R2007) in part. ANSI X9.100-110 covers specific check areas of interest important for compatibility in image processing systems. The optical specifications from X9.7 are being released as a new, distinct standard, ANSI X9.100-30, to allow for pairing of that material for applications other than checks.

This is a preview of "X9.100-110-2011". [Click here to purchase the full version from the ANSI store.](#)

ANSI X9.100-110-2011

Document Imaging Compatibility — Part I: Specifications

1 Scope, Purpose and Background

1.1 Scope

This standard specifies the location and background design of essential check data fields and is intended for all business size and personal size checks. Note that this standard equally applies to anything in between, in terms of document size, including all money orders, rebate checks, remotely created checks (commonly known as RCCs), WIC checks, etc. They may fall anywhere in between the referenced common sizes, but must also conform to the limitations of the MICR printing as specified in ANS X9.100-160-1, *Magnetic Ink Printing (MICR)*.

1.2 Purpose

The intent of this standard is to establish the specific location for the convenience amount (the value of the check expressed in numbers) and to standardize the background design for essential data fields (areas of interest), including the convenience amount rectangle and the MICR clear area.

This revised standard maintains the previous specifications for the design, location, reflectance and PCS of the elements within the convenience amount scan area. Adherence to this standard has become more important as more payments are automatically scanned and amount recognition is performed by machine. It is important that the design and location of the convenience amount rectangle be standardized to allow recognition algorithms to efficiently locate the amount and that the background of the area where convenience amount recognition is done should not contribute to any errors in the reading of the dollar amount.

New to this revision of the standard are interoperable image survivable security feature area of interest background requirements. The processes of electronic scanning and imaging of checks, as well as microfilming, necessitate the use of adequate information contrast with respect to the check background (Print Contrast Signal readings) to assure that data elements are legible and are not obscured by background clutter; that conversions from electronic grayscale to binary images are reliable; and, that the size of electronic image files are minimized.

This standard is intended to be compatible with existing check specifications and does not alter requirements for paper or MICR specifications. It is anticipated that all payment documents will adhere to applicable American National Standards as referenced in Clause 2.0 of this standard.

1.3 Background

Check imaging and microfilming eliminates color in the conversion of a paper document to a captured image. Accordingly, printing a check adds some unique requirements over and above those normally required for human viewing to preserve reliable recognition of data elements. Since color is lost, detection and recognition of information is highly dependent on the contrast between the written information and the printed background. In image processing a technology known as dynamic thresholding is often used to retain check data and discard background. This specification provides measurement methodologies to predict the outcome of this technology and assure legibility and efficient processing of the check image.

Successful imaging and recognition can be affected by many factors in the document design, including background color, screening, background pattern of the document, security patterns, and the ink used to print the data. The effect of all of these can be assessed by reflectance and contrast measurements.