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American National Standard for Financial Services

ANS X9.100-20–2006

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Print and Test Specifications for Magnetic Ink Printing (MICR)

Part 1: Print Specifications

Part 2: Conformance Testing

Part 3: Secondary Reference Documents

Accredited Standards Committee X9, Incorporated
Financial Industry Standards

Date Approved: July 13, 2006

American National Standards Institute

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Introduction

Suggestions for the improvement or revision of this Standard are welcome. They should be sent to the X9 Committee Secretariat, Accredited Standards Committee X9, Inc., Financial Industry Standards, 1212 West Street, Suite 200, Annapolis, MD 21401 USA.

This Standard was processed and approved for submittal to ANSI by the Accredited Standards Committee on Financial Services, X9. Committee approval of the Standard does not necessarily imply that all the committee members voted for its approval.

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This document cancels and replaces ... ANS X9.27-2000 in whole.

This standard presents the character set "E-13B" which can be read by certain magnetic ink character recognition (MICR) and optical character recognition (OCR) systems. The character set includes numerals 0 through 9 and

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four special symbols. The standard also specifies the shape, dimensions, and tolerances for printed MICR "E-13B" characters and specifications regarding print quality.

This standard is a refinement of, and supersedes, American National Standard Print Specifications for Magnetic Ink Character Recognition, ANS X9.27-2000. Changes made in the previous revision included updating references and removal of references and figures relating to punched card checks.

ANS X9.100-20 is presented in three parts for ease of use. Part 1 is the MICR Print Specifications itself while Part 2 includes informative compliance testing to guide the practitioner in a uniform way how to determine actual conformance with these specifications. Part 3 contains the specification for secondary reference documents and Signal Level testing equipment for maintaining the signal level accuracy and reproducibility of secondary reference documents.

The "E-13B" Magnetic Ink Character Recognition font was developed as the result of a lengthy and concentrated effort by an American Bankers Association (ABA) technical committee. The font received unanimous approval of the ABA in 1958. In April 1959 the American Bankers Association issued publication 147, "The Common Machine Language for Mechanized Check Handling." This document was subsequently revised in 1962, 1963, and 1967. The document is no longer in print because the Association refers the industry to this and other MICR standards.

The Accredited Standards Committee on Information Processing Systems, X3, formed X3A7 (formerly X3-7), as the Subcommittee on Magnetic Ink Character Recognition. This sub-committee developed the American National Standard Print Specifications for Magnetic Ink Character Recognition (ANSI X3.2-1963). Much of the information presented in this standard was taken from the original ABA publications. ANSI X3.2-1963 was revised and published as ANSI X3.2-1970. ANSI X3.2-1970 was reaffirmed in 1976.

In 1982, X3 assigned responsibility for the maintenance of X3.2-1970 to its Sub-Committee X3A1 CHARACTER RECOGNITION. In 1983, Sub-Committee X3A1 enlisted the assistance of American National Standards Committee, Financial Services-X9, and its Sub-Committee X9B-Checks, in order that a detailed review of X3.2-1970 could be accomplished with input from all interested groups. In 1987 X3 approved transfer of this publication to X9 and that resulting revision became X9.27-1988.

The revision of 1988 was a major revision because significant changes occurred in the MICR printing industry which had been addressed by the ASC X9B Ad Hoc Print Quality Group regarding permanence and other print quality issues associated with non-impact technologies thus requiring clarifications and additions which reflect the uniqueness of those technologies. In addition, significant effort was spent on re-establishing the requirements for an instrument used to measure and calibrate signal level of secondary reference documents in order to provide uniformity and transportability of signal level with repeatability for multiple MICR print technologies.

With this revision in 2006, this Standard has been updated to incorporate the new numbering system and the informative Annex B has been added that provides detailed information regarding the generation of reference waveforms and their use. See ASC X9/TG-6-2000 (X9 TR 6-200x), Quality Control of MICR Documents as a companion to this standard for tips on improving quality control and measurements of MICR documents.

It should be noted that the application of this standard is not limited to the financial industry. The "E-13B" MICR concept is employed in other applications such as sales promotion coupons, credit cards, airline passenger tickets, insurance premium receipts, billings, and so forth.

A note on reading and interpretation of standards: In standards, the use of the word "shall" in a specification requires conformance to that specification in order to be in conformance with the standard. When the word "should" or "recommended" is used conformance testing is not required.

While the techniques specified in this Standard are designed to provide for automated processing of financial documents, the Standard does not guarantee that a particular implementation (meets the requirement of the standard and prudent practices). It is the responsibility of the financial institution to put an overall process in place

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with the necessary controls to ensure that the process is securely implemented. Furthermore, the controls should include the application of appropriate audit tests in order to verify compliance with this Standard.

This Standard is used and referenced in many X9.100 paper based standards for financial documents besides forming the basis for several international standards involving the E-13B MICR character set.

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American National Standard for Financial Services - Print and Test Specifications for Magnetic Ink Printing (MICR)

Part 1: Print Specifications

1. Scope

Part 1 of this standard specifies the shape, dimensions, magnetic signal level, and tolerances for the E-13B characters which include ten numerals and four special symbols printed in magnetic ink and used for the purpose of character recognition. It describes the various known types of printing defects and other printing considerations, together with the tolerances permitted.

Part 2 provides informative conformance testing requirements for the Part 1 specifications.

Part 3 specifies the requirements for secondary reference documents and the test equipment for calibrating and maintaining their signal level.

2. Purpose

The characters specified in this standard were developed initially for use in banks to permit automatic document handling for financial institution data processing, but they have application to other automatic handling systems as well.

3. References

ANS X9.7-1999 (X9.100-110), *Bank Check Background and Convenience Amount Field Specification*

ANS X9.100-10-2005 (X9.18), *Paper Specifications for MICR Documents*

ANS X9.100-160-1-2004 (X9.13), *Part 1: Placement and Location of Magnetic Ink Printing (MICR)*

ANS X9.100-160-2-2004 (X9.13), *Part 2: EPC Field Use*

ASC X9/TG-6-2000 (X9 TR 6), *Quality Control of MICR Documents*

ASC X9 TR 100-2005, *Organization of Standards for Paper-based and Image-based Payments*

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