Multiline Accuracy Support System

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USPS CERTIFIED

MULTILINE ACCURACY SUPPORT SYSTEM

UNITED STATES POSTAL SERVICE®

Technical Guide

1999-2000 cycle

Address Management
NATIONAL CUSTOMER SUPPORT CENTER

6060 Primacy Pkwy Ste 201
Memphis, TN 38188-0001

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Purpose

Coding Accuracy Support System (CASS) is a process designed in cooperation with the mailing industry to improve the accuracy of carrier route, 5-digit ZIP, and ZIP+4 codes as well as the delivery point barcodes that appear on mail.

CASS provides hardware and software manufacturers, service bureaus, and commercial mailers a means of testing and, upon achieving required accuracy scores, certifying the quality of their address-matching software. The United States Postal Service's National Customer Support Center (NCSC) evaluates and grades CASS tests and returns the results to the customer, providing useful diagnostics for correcting software deficiencies. However, CASS does not measure the accuracy of ZIP+4, delivery point, 5-digit, or carrier route codes in a mailer's address file.

Multiline Accuracy Support System (MASS) certification is a process similar to CASS but is designed for certification for multiline optical character readers (MLOCRs) and encoding stations.

Overview

MASS is an extension of CASS; however, the MASS certification cycle is designed to evaluate the ability of MLOCRs and encoding stations to process address information and apply an accurate delivery point barcode (DPBC) to a mailpiece. The MASS certification cycle is comprised of the following phases:

1. Software manufacturer certification

2. Hardware manufacturer certification

3. User certification

All MASS tests are similar to CASS Stage II tests in that the NCSC evaluates the performance of address-matching software and barcode application hardware after it has processed a test file. The NCSC then issues MASS certification if the required accuracy is achieved.

MASS certification is an annual requirement and remains valid from the certification date until the end of any current annual period, i.e., from August 1 of one year through July 31 of the next. Customers must reapply for certification and meet the accuracy requirements each year to remain certified and avoid interrupted service to their customers. MASS certification is mandatory for mailers using MLOCRs or encoding stations to print DPBCs on mailpieces submitted for mailing at discount automation rates (see *Domestic Mail Manual* (DMM), Module A, Section 950).

The MASS Process

Software Manufacturer Certification

CASS certification of the address-matching software is the first step in MASS certificaton.

1. Before a software manufacturer distributes new or revised address-matching software to customers, the manufacturer must process a CASS Stage II file.

2. The NCSC evaluates the Stage II file and returns the results to the software manufacturer. Once the software displays the required level of accuracy, the NCSC issues the software manufacturer a CASS certificate.

3. The software manufacturer may distribute software to MLOCR/encoding station manufacturers.

Hardware Manufacturer Certification

The second step in the MASS certification cycle is hardware manufacturer certification, which takes place after the manufacturer receives and installs CASS-certified address-matching software. During this phase, a manufacturer's hardware is tested to determine if it can 1) correctly read the address block on a test mailpiece, 2) process the address information through address-matching software, and 3) spray a machine-readable, accurate DPBC on the test mailpiece using software that has already been tested in a stand-alone environment.

1. The hardware manufacturer orders a MASS test deck from the NCSC using the *Multiline Accuracy Support System Order Form* (see page 13).

2. The manufacturer processes the test deck on a representative model of MLOCR or encoding station and returns it to the NCSC for evaluation.

3. If the manufacturer passes certification testing, the NCSC issues a MASS certificate and allows the manufacturer to distribute software to users.

User Certification

The final step in the MASS certification cycle is user certification.

1. Upon receipt of updated address-matching software, the user must order a separate test deck for each MLOCR or encoding station via the *Multiline Accuracy Support System Order Form*.

2. The user processes the test deck and returns it to the NCSC for evaluation.

3. If the user passes certification testing, the NCSC issues a MASS certificate. Upon receipt of the certificate, the user may begin processing mail with the new software to obtain automation discounts.

MASS Grading Changes

Grading for Standardization

For the 1999–2000 cycle, the CASS test that hardware manufacturers are required to complete grades address standardization to verify that software does not lose or modify critical address elements. This issue is especially critical in *FASTforward[SM]* equipped MLOCRs.

Developer CASS vs. MASS Answer Evaluation

MASS graders have detected differences between answers returned on the CASS portion of the MASS test and the same question asked via a MASS test mailpiece. Since the CASS question is not affected by optical character recognition issues, it produces correct postal code assignments. However, when the same question is presented on a mailpiece during MASS testing, a different answer can be generated due to optical character recognition issues. The differing answer may be a lower depth-of-code response or an answer for a different address.

For the 1999–2000 cycle, developer answers on MASS test mailpieces will be compared to the same questions asked in the CASS test. When the answer on the mailpiece differs from and is of lower quality than the CASS answer, two errors will be assessed. If the MASS answer is better than the CASS answer, no additional error will be assessed. Only answers on developers' CASS and MASS tests will be compared; however, answers from developers' MASS test will be compared to answers from the user tests described in the next section.

End User vs. Developer MASS Answer Evaluation

During the 1999–2000 cycle, the barcode answer returned by an end user on a MASS mailpiece will be compared to the same answer returned by the developer on a MASS mailpiece. Where the end user's answer differs from and is of lower quality than the same answer on the developer's MASS test, the end user's test will be assessed two errors. If the end user returns a better answer than the developer, additional errors will not be assessed.

Unreadable Barcode Allowance

An unreadable barcode is any barcode on a MASS mailpiece that can be detected by reader equipment but cannot be interpreted correctly. Unreadable barcodes were allowed during previous CASS cycles. If less than 5 percent of the total pieces returned fell into this category, the unreadable pieces were set aside and not included in the grading process.

For the 1999–2000 cycle, the 5 percent allowance has been reduced to 2.5 percent, i.e., if less than 2.5 percent of the barcodes are unreadable, they will be omitted from the grading process. If more than 2.5 percent are unreadable, all pieces containing unreadable barcodes will be checked on a production-worthy automated barcode evaluator (ABE) system. (See "Automated Barcode Evaluator (ABE) System" on page 5.)

Delivery Point Error Allowance

In past CASS cycles, MASS test mailpieces were allowed a delivery point error rate of 1 percent without penalty. A delivery point error was assessed only if the ZIP Code and add-on were correct but the delivery point values were incorrect.

In the 1999–2000 cycle, the delivery point error allowance has been reduced to 0.75 percent of the total number of mailpieces graded. When a developer is assessed a double error because of difference between their CASS and MASS answers, no additional error will be assessed for an incorrect delivery point. If an end user test is assessed a double error owing to a different answer between their MASS test and the developer's MASS test, no additional incorrect delivery point error will be assessed.

Automated Barcode Evaluator (ABE) System

The automated barcode evaluator (ABE) system is used to grade MASS test decks that exceed the 2.5 percent unreadable barcode allowance. When more than 2.5 percent of the returned test deck's mailpieces contain an unreadable barcode, all mailpieces with an unreadable barcode will be checked on the ABE system. If the system reports that a barcode is unreadable, the mailpiece will be graded as an automatic failure. If the system reports that the barcode is readable, the mailpiece will be manually graded and scored.

To assist MASS users in evaluating ABE performance, the CASS Department will offer a free, 100 piece test deck for system evaluation. The ABE test deck can be graded on a production-worthy ABE system by the CASS Department. The free ABE evaluation will not affect existing MASS certification status. To order this free test deck, check the appropriate box on the back of the *Multiline Accuracy Support System Order Form* (see page 13).

MASS Certification Processes

The NCSC sends a letter to all MASS customers announcing the beginning of the manufacturer and end user certification period. Certified letters are sent to customers who were MASS certified during the previous cycle, to each customer's postal account representative, and to all postal managers of customer service support at the area and district levels. Each customer is also sent a copy of this technical guide.

Software Vendor Certification

The software manufacturer certification process is documented in the *Coding Accuracy Support System Technical Guide*. When a new certification cycle begins, the NCSC offers a CASS Stage I test for self-evaluation and software development. Following software development, manufacturers can order a CASS Stage II file by completing the *Coding Accuracy Support System Order Form* in the CASS guide. The manufacturer processes the Stage II test file and returns it to the NCSC, where it is evaluated. Results are returned to the manufacturer. If the product meets current CASS requirements, the NCSC issues the manufacturer a CASS certificate. Upon receipt of the certificate, the manufacturer may begin distributing upgraded, certified software to customers.

Manufacturer Certification

MLOCR and encoding station manufacturers are first to receive updated software and must achieve MASS certification before distributing software to end users. Manufacturers must follow the user certification process below and the MASS test ordering steps (see page 11).

User Certification

Upon receipt of updated software, all encoding station and MLOCR users must submit a completed *Multiline Accuracy Support System Order Form* to the NCSC Certification Department (see page 13).

The Certification Department verifies the information on the order form, paying special attention to the software version, which must be the most current, CASS-certified version. Once the information is verified and entered into the NCSC customer master file, a test deck is printed. Each test deck is assigned a unique customer tracking number specific to the equipment serial number. (See "Test Deck Specifications" on page 6.) Production of a MASS test deck normally requires

three working days; however, during peak fulfillment periods, it may require as many as 10 working days. The NCSC recommends that customers order tests as soon as they receive updated software from their manufacturer. Orders are processed in the order in which they are received.

All test decks are trayed and placed in corrugated cardboard boxes. Each box is tagged with a bright red label that reads "TEST DECK—DO NOT OPEN." The customer tracking number is attached to a document on the top of each tray and printed on the Express Mail label on each box. Also included on at least one of the trays is a computer printout that identifies the company name, machine manufacturer, model number, and serial number. The customer should verify this information before running the test deck.

Note: Every test deck MUST be opened and processed in the presence of a postal representative: Do not open the boxes until the postal representative is present.

Upon receipt of the test deck, end users must notify their postal representative of their intention to attempt MASS certification and schedule a specific day and time with their postal representative to process the test. After processing, users must return test decks to the NCSC Certification Department — preferably by Express Mail — for evaluation; however, since the user is responsible for return shipping costs, Priority Mail is also acceptable. Test decks returned by other commercial carriers will be rejected.

The NCSC receives, evaluates, and grades processed test decks and usually makes results available to the customer within two working days; however, during peak periods, this process may require five working days.

Note: All tests are processed in the order in which they are received.

The NCSC sends a certificate to all users who meet current certification requirements and to their postal representative. Users who fail to certify receive a copy of their error report and a second test deck for any machine that failed the first certification attempt. Test decks for subsequent certification attempts (three attempts or more) must be reordered by the user at $300.00 each for MLOCR customers or $50.00 each for encoding station customers. This charge does not include the Express Mail shipping costs. Customers can order additional test decks by completing the order form and faxing it to the NCSC MASS Support Department at 901-681-4440. Visa or MasterCard is accepted, and all payments by company check or money order must be received by the NCSC before orders are shipped.

Test Deck Specifications

MASS test decks are designed to exercise MLOCR/encoding station address-matching software look-up capabilities emulating the CASS Stage files. The input addresses represent the same type and mix of questions in the CASS Stage files. Although the actual addresses on the test mailpiece may differ from one test deck to another, the type and number of records are similar.

All MLOCR test decks contain approximately 3,500 test mailpieces, while all encoding station tests contain approximately 350. The MLOCR test decks are

packaged in six mail trays and shipped with three trays in each box while the encoding station test deck is shipped in one box.

Each test mailpiece consists of one piece of $8\,^1/_2$ x 11 inch white, 20 pound paper folded and inserted into a 24-pound, white-wove, $5\,^3/_4$ x 9 inches window envelope. The envelope has two windows—one upper and one lower. The upper window measures $1\,^1/_4$ x 4 inches and is located $^3/_8$ inch from the left edge and $3\,^{11}/_{16}$ inches from the bottom edge. The bottom window measures $1\,^3/_8$ x $4\,^1/_2$ inches and is located $2\,^1/_{16}$ inches from the left edge and $^{11}/_{16}$ inch from the bottom edge. (See page 12 for a sample test mailpiece.)

Data elements internal to the Postal Service are printed on the insert and appear in upper window. These elements identify the specific deck to which any test mailpiece belongs, the customer tracking number, and the exact question key number appearing on that mailpiece. The test address appears in the lower window.

Test Deck Processing Procedures

All MASS certification tests must be conducted in a "normal operations" state, meaning that the system must be configured as it would be when it is used to produce mail for automation discounts.

For systems that are *FASTforward*^{SM} equipped, the *FASTforward* interface must be operational because the MASS test deck may include addresses that are forwardable. If processing does not forward any of the forwardable pieces, the graders will assume that the *FASTforward* system was not operational, and the test will be invalidated. If at least one forwardable mailpiece appears to have been produced by the *FASTforward* interface, the test deck will be considered valid and submitted for grading. MASS grading will not evaluate the accuracy of the *FASTforward* answers, only the fact that the interface was functioning. Any answer on forwardable mailpieces that are not assigned a new address will be graded based on the accuracy of the response to the input question.

Note: Where a MASS-certified system would normally spray a 5-digit ZIP Code on a production mailpiece, it must also spray a 5-digit ZIP Code on the MASS test mailpiece.

MLOCR Setup

The actual mail processing for a MASS test deck varies between manufacturers of MLOCR equipment and model types; therefore, these guidelines are general. To achieve optimum results from a MASS certification attempt, consult the equipment manufacturer regarding all processing-related issues.

First, clean the equipment according to the manufacturer's instructions. Pay particular attention to the optics, and run the manufacturer's diagnostic routine to optimize the character-recognition software. Next, run several pieces with the barcode turned off to verify the setup and ensure that the address block is reading properly.

Verify that the barcode is as clean as possible. The NCSC processes each test deck on a barcode reader, so the quality of the barcode returned on the test mailpieces is important. If more than 2.5 percent of the mailpieces generated contain unread-

able barcodes, these mailpieces will be rejected, which will decrease the chance of certification.

Make further machine preparations, such as sort schemes, pick-off settings, and vacuum system and belt speed adjustments in accordance with the manufacturer's instructions.

MLOCR Test Deck Processing

Verify that the test deck corresponds to the machine manufacturer's model and serial number. This information is listed in the computer-generated documents provided with the test deck.

Process each test deck in a manner that ensures every test mailpiece that should receive a DPBC is coded. Be aware that by design not all test mailpieces can be coded, and some input addresses should not be coded. After processing the entire deck once, all rejects may be reprocessed (when bad barcodes are sprayed, up to 100 pieces can be overlabeled). After completely processing the test deck, create a computer-generated facsimile of the Form 3553 and return it with the test deck to the NCSC for evaluation. All appropriate fields must be completed in PS Form 3553.

Note: The postal representative observing the test must sign and date the 3553 and attach one of the rejected test mailpieces to the form. The PS Form 3553 must comply with the requirements outlined in the most current United States Postal Service DMM and must represent the test deck processed.

Encoding Station Setup

The processing of mail or a MASS test deck varies between manufacturers of encoding station equipment and model types. To achieve optimum results, consult the equipment manufacturer regarding all processing-related issues.

Verify that the encoding station is in proper operating order before processing a MASS test. The barcode produced must be as clean as possible because the NCSC processes each test deck on a barcode reader—its quality is vital. If more than 2.5 percent of the mailpieces generate contain unreadable barcodes, all mailpieces with unreadable barcodes will be rejected, decreasing the possibility of certification.

Note: Encoding station certification must be attempted by the end user: no one besides the end users or his/her employee(s) may complete an encoding system test. If it is determined that unauthorized individuals completed the encoding system test, the test deck will be disqualified.

Encoding Station Test Deck Processing

Before beginning the MASS test, the encoding station operator should be properly instructed by the equipment manufacturer or the equipment owner. For any operational or processing issues, consult the equipment manufacturer.

Process each test deck in a manner that ensures every test mailpiece that should receive a DPBC is coded. Be aware that by design not all test mailpieces can be coded, and some input addresses should not be coded. After completely processing the test deck, create a computer-generated facsimile of the Form 3553 and return it along with the test deck to the NCSC for evaluation. **All appropriate fields must be completed in PS Form 3553.**

> *Note:* *The postal representative observing the test must sign and date the PS Form 3553 and attach one of the rejected test mailpieces to the form. The 3553 must comply with the requirements outlined in the most current United States Postal Service DMM and must represent the test deck processed.*

You must return the entire test deck, including all rejected, damaged, and non-coded mailpieces.

Shipping Instructions

The National Customer Support Center (NCSC) in Memphis, Tennessee, sends all test decks to customer sites by Express Mail. Return shipment of a completed test deck is the customer's responsibility. The NCSC prefers shipment via Express Mail due to its timeliness and traceability; however, since return shipment is the responsibility of the customer, Priority Mail is acceptable.

Please return completed test decks to the following address:

> MULTILINE ACCURACY SUPPORT SYSTEM
> NATIONAL CUSTOMER SUPPORT CENTER
> UNITED STATES POSTAL SERVICE
> 6060 PRIMACY PKWY STE 101
> MEMPHIS TN 38188-0001

Note: Test decks returned by other commercial carriers will be rejected.

Evaluation and Grading

Each test deck received at the NCSC is scanned by a barcode reader. A customer grading file is created and uploaded to the mainframe, where it is processed against the current MASS grading scheme outlined later in this section. (See "Translation of Error Codes and Special Flags" on page 15.). Then, the NCSC grades the test, generates a grading report, and mails a copy of the report to the customer along with a certificate if the customer achieves certification. (See "Appendix 3: Sample MASS Certificate" on page 23.)

Grading is based on the barcode sprayed by the MLOCR onto the test mailpiece and is deemed either correct or incorrect. If no answer is the correct answer, then the correct answer is blank (or spaces). In situations where the input causes a multiple-response condition and all candidate records share the same 5-digit ZIP Code, the vendor may elect to apply a 5-digit barcode or leave spaces on the test piece.

There are three types of records to consider when grading: must answer, must not answer, and answer is optional:

1. Must answer (i.e., special flag A5). These records must be barcoded correctly. If the record is barcoded incorrectly or left blank, it is counted towards the total number of incorrectly barcoded records.

1. Optional answer (i.e., special flag AD, where no answer is bypassed). It is not mandatory to code these records. If the records are barcoded correctly, they are counted towards the total number of correctly barcoded records. If they

are not barcoded correctly (left blank), they are not counted towards the total number of correctly or incorrectly barcoded records.

1. Must not answer (i.e., special flag KO, where no answer is the only correct answer). If these records are barcoded (not left blank), they are counted toward the number of incorrectly barcoded records.

	Answer = NCSC Answer	Answer = Other Answer
Must Answer	Add 1 to correct count	Add 1 to incorrect count
Optional Answer	Add 1 to correct count	Add 1 to incorrect count
Must Not Answer	Add 1 to correct count	Add 1 to incorrect count

$$\frac{\text{Correct}}{\text{Correct} + \text{Incorrect}} = \%$$

Note: The score required to achieve certification for MLOCRs and encoding stations is 96 percent or higher.

Recertification Requirements

Recertification is required if changes are made to the following:

- The address-matching software utilized by the MLOCR.
- The operating system (e.g., migrating from DOS to Windows NT)
- The camera configuration (e.g., from Habitech to ATR/Habitech), including switching from a single to a dual camera configuration.

Recertification outside the normal annual testing periods may also be required under the following conditions:

Machine Relocation

Customers must notify the CASS Department whenever a MASS-certified system is moved or upgraded. The CASS Department understands that customers who purchase a new system often have legitimate reasons for wanting to operate it immediately: waiting for MASS certification is often impractical and costly. To address this issue, CASS provides a 45-day courtesy certification window for newly installed, relocated, or upgraded systems. During this 45-day window, the customer can use the system to produce and submit mail and qualify for automation rates after receiving clearance from the CASS Department. The customer must receive MASS certification during this 45-day period; if the customer fails to MASS certify within 45 of the date of system implementation, the system becomes ineligible to submit mail at automation rates after the 45th day.

The 45-day courtesy certification extends to relocated or upgraded systems. Relocation is defined as any movement of the system that requires disassembly and reassembly. Relocation can involve movement from one building to another or movement within a building. Recertification is required if the machine has been disassembled and reassembled. An upgrade is considered to be any change in the

host computer's operating system, cameras, or any software used to operate the system, unless a waiver has been granted at the manufacturer lever.

Change of Ownership

If an MLOCR or an encoding station is sold or ownership is transferred, the new owner must notify the CASS Department in writing so that the customer master files can be maintained. The notification must include the following:

- Equipment model number and serial number

- Previous owner's name and address

- New owner's name, address, phone number, and FAX number

If the machine is not physically relocated, a new MASS certificate may be issued; if the machine is physically relocated, the customer must follow the machine relocation guidelines above.

Cycle Changeover Policy

New MASS requirements are introduced each year, and the changeover from one cycle to the next typically occurs on April 15. After the changeover, the MASS Department cannot test customer compliance with the previous cycle, which creates difficulties for customers completing MASS testing under the previous cycle's requirements after April 15. In this case, a courtesy MASS certification is granted to help these customers maintain normal operations between April 15 and the time at which they can comply with the new cycle requiremnets. However, these customers must be recertified by July 31 to continue receiving automation discounts.

Software Revisions, Upgrades, and Patches

If an MLOCR or encoding station software manufacturer issues a revision, upgrade, or patch to existing address-matching software, the manufacturer must submit written notification to the CASS Department before distributing the software. The written notification must include a brief description of the changes being made and the expected results of those changes. The NCSC will evaluate the documentation and determine an appropriate course of action, which may include recertification of all users, a sample of the user base, hardware manufacturers only, or software manufacturers only. It is possible that no action will be taken following notification.

Ordering a MASS Test Deck

To order a MASS certification test deck, complete the *Multiline Accuracy Support System Order Form* on page 13.

Customers are responsible for ordering test decks. One test deck is required for each machine to be certified. The NCSC automatically sends a second test deck free-of-charge for any machine that fails to certify on the first attempt. If the machine fails on the second attempt, the user is charged a nominal fee for each successive attempt and must submit a completed order form for each test deck. (See "User Certification" on page 5.)

Multiline Accuracy Support System Order Form

Customer Information (Required)

Attention: _____

Company Name: _____

Address: _____

City: _____ State: _____ ZIP+4: _____

Phone: (_____) _____ FAX: (____) _____

Salesperson: _____ Phone: _____

USPS Account Representative Information

Attention: _____

Company Name: _____

Address: _____

City: _____ State: _____ ZIP+4: _____

Phone: (____) _____ FAX: (____) _____

I request that my certification be maintained in Postal Service documents and records as:

❑ Service Bureau ❑ Mailer ❑ Manufacturer ❑ I do not wish to be listed in postal pubs.

❑ Check here if machine is *FASTforward*^{SM} capable.

I hereby certify that all information on this application is accurate and correct. I also certify that the responses provided on the MASS certification test deck will be obtained using the same configuration as used in the processing of customer/client address files and that any modification to the product used to process this test will require retesting and recertification prior to use or release. The MASS test deck will be processed in-house with company-owned or leased software/hardware. I further certify this address-matching product contains technology that disables access to outdated USPS data as stated in the DMM A950, section 3.0.

Company Official's Signature (required)

_____
Name (please print)

_____
Signature (required)   *Date*

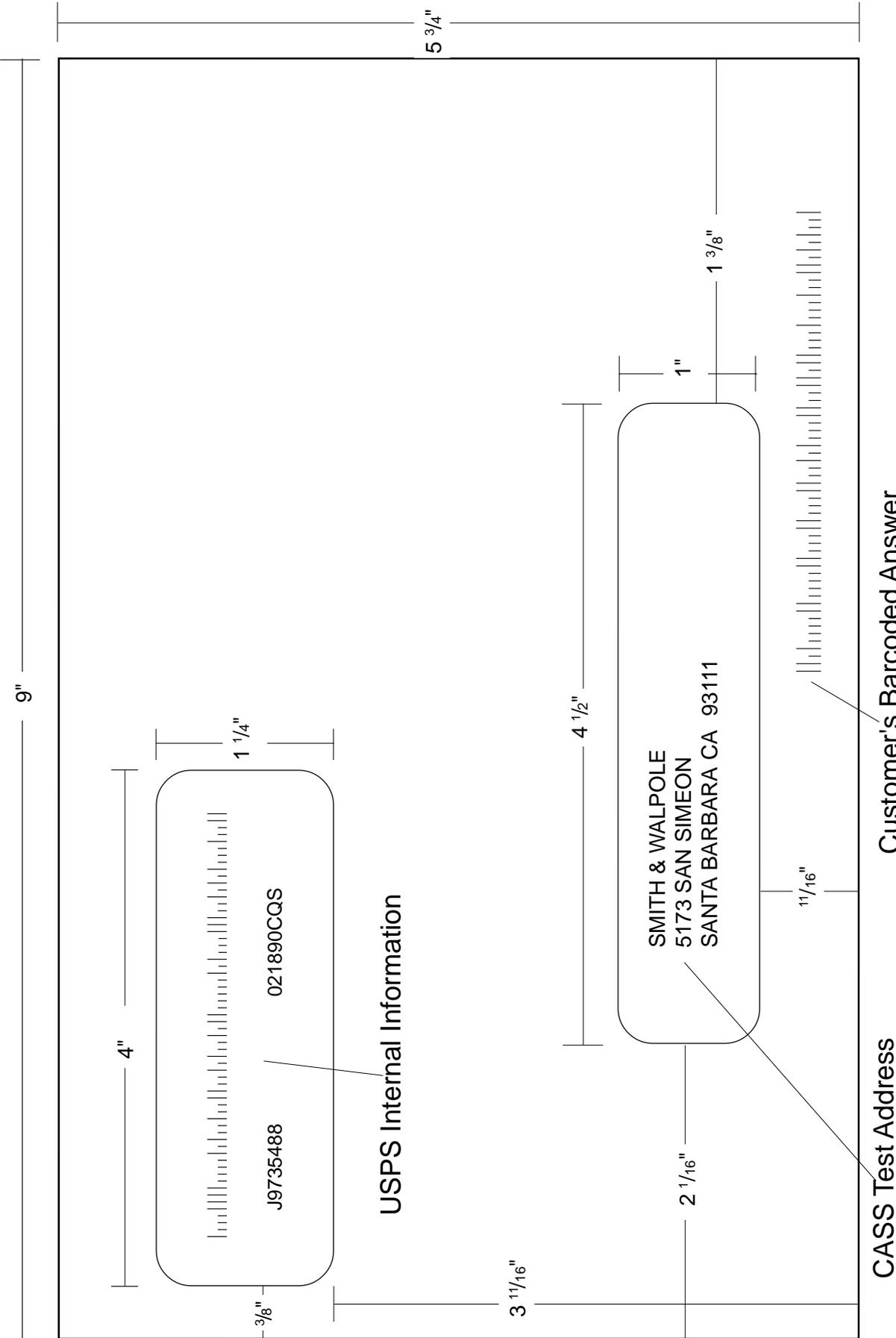| Return Form and Payment To	NCSC Use Only
MULTILINE ACCURACY SUPPORT SYSTEM NATIONAL CUSTOMER SUPPORT CENTER UNITED STATES POSTAL SERVICE 6060 PRIMACY PKWY STE 101 MEMPHIS TN 38188-0001 FAX (901) 681-4440	Customer #: _____ Date: _____ Prdt Code: _____

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Product Information (Required)

If the matching software/hardware has optional parameters, you must return a list of the parameters that will be used to process the MASS test with this form. A computer-generated form (PS Form 3553) must be returned with each test deck. Additional test decks (more than two) **must be reordered by the user** at a price of $300 each for MLOCR customers and $50 dollars each for encoding station customers.

MLOCR

Software: _____
              Product   Version #   Configuration   Serial #

Equipment: _____
          Manufacturer   Model #   Serial #

Encoding Stations

Software: _____
              Product   Version #   Configuration   Serial #

Equipment: _____
          Manufacturer   Model #   *Serial #

* List all serial numbers for networked systems.

❑   Check here to request a one-time, courtesy test deck.

Complete the information below only if this is your third or subsequent attempt to certify a machine during any test period. Test decks for the first two certification attempts during a normal annual period are free.

Product	
❑ MLOCR	$ 300.00
❑ Encoding Station	$ 50.00

Payment Method
Make check or money order payable to US Postal Service

❑ Check ❑ Money Order ❑ Visa ❑ MasterCard
            ❑ Discover ❑ American Express

❑ Tax ID# _____   Credit Card# _____

Expiration Date: _____ / _____

_____
Authorized Personnel (please print)

_____
Signature

The person whose signature appears above accepts total responsibility governing the use of this card and agrees to comply with the terms of the issuer.

For USPS Use Only

Control Number:

Check Number:

Credit Card Billing Address (if different than customer address)

_____
Attention Name

_____
Firm/Company Name

_____
Complete Street Address (include apt/suite#, PO box, or rural route and box#)

_____
City or Post Office   State   ZIP+4 Code

Appendix 1:

Test Mailpiece Example

Test Mailpiece Example

9"

5 3/4"

4"

1 1/4"

J9735488

021890CQS

USPS Internal Information

3/8"

3 11/16"

4 1/2"

1"

1 3/8"

SMITH & WALPOLE
5173 SAN SIMEON
SANTA BARBARA CA 93111

11/16"

2 1/16"

Customer's Barcoded Answer

CASS Test Address

Appendix 2:

Translation of Error Codes and Special Flags

US Postal Service's National Customer Support Center
Coding Accuracy Support System
Customer No Match Record Translation of Error Codes & Special Flags

All categories except L, N, and O are required. Address-matching software must obtain a minimum accuracy rate of 96% in each required category to obtain CASS Certification.

Error Codes

01 5-digit ZIP not match
02 ZIP+4 not match
03 Carrier ID not match
04 City name not match
05 State abbreviation not match
06 Out of range
07 Address is non-deliverable
08 Unique ZIP Code not finest level of code
09 LACS indicator
11 General standardization error
12 LOT sequence
13 LOT A/D code
20 Incorrect delivery point barcode

Record Type

S Street
P PO Box
R Rural Route
H Highrise
F Firm
G General Delivery

Standard Address with Elements
(Spelled out or Abbreviated)

AA Firm Name - Abbreviation
AB Firm Name - Noise words
AC Firm Name - Address similar to firm name
* AD Firm Name - Swap firm name and Address field
* AE Normalized street name
AF Street Name - Spelling variation
A0 5-digit
A1 Dropped 5-digit
A4 5-digit with non-mailing name
A5 Dropped 5-digit with non-mailing name
A8 5-digit misspelled city
* A9 Dropped 5-digit with misspelled city

Standard Address
(Includes Reversed Alphanumeric Primary/Secondary Numbers, Reversed Pre/Post Directionals, and Secondary Number Combined with Primary Number)

B0 5-digit
B1 Dropped 5-digit
* B2 5-digit with misspelled street
* B3 Dropped 5-digit with misspelled street
B4 5-digit with non-mailing name
B5 Dropped 5-digit with non-mailing name
* B6 5-digit with misspelled street and non-mailing name
* B7 Dropped 5-digit with misspelled street and non-mailing name
B8 5-digit with misspelled city
* B9 Dropped 5-digit with misspelled city
BE Normalized street names

Standard Address with Post-Directional Dropped or Incorrect

C0 5-digit
C1 Dropped 5-digit
* C2 5-digit with misspelled street
C3 Dropped 5-digit with misspelled street
C4 5-digit with non-mailing name
C5 Dropped 5-digit with non-mailing name
C6 5-digit with misspelled street and non-mailing name
C7 Dropped 5-digit with misspelled street and non-mailing name
C8 5-digit with misspelled city
* C9 Dropped 5-digit with misspelled city

Standard Address with Pre-Directional Dropped or Incorrect

D0 5-digit
D1 Dropped 5-digit
* D2 5-digit with misspelled street
* D3 Dropped 5-digit with misspelled street
D4 5-digit with non-mailing name
D5 Dropped 5-digit with non-mailing name
* D6 5-digit with misspelled street and non-mailing name
* D7 Dropped 5-digit with misspelled street and non-mailing name
D8 5-digit with misspelled city
* D9 Dropped 5-digit with misspelled city

Standard Address with Suffix Dropped

E0 5-digit
E1 Dropped 5-digit
* E2 5-digit with misspelled street
* E3 Dropped 5-digit with misspelled street
E4 5-digit with non-mailing name
E5 Dropped 5-digit with non-mailing name
* E6 5-digit with misspelled street and non-mailing name
* E7 Dropped 5-digit with misspelled street and non-mailing name
E8 5-digit with misspelled city
* E9 Dropped 5-digit with misspelled city

Dual Address

F0 Street address
F1 Box record
F4 Street address with non-mailing name
F8 Street address with misspelled city
F9 Box record with misspelled city

Aliases

G0 5-digit - Base
G1 5-digit - Alias
G2 Dropped 5-digit - Base
G3 Dropped 5-digit - Alias
** G4 5-digit - Out of range

Alias/Mult Response

** H0 5-digit - Base
** H1 5-digit - Alias

Small Town Default

I0 Exist in ZIP+4
I1 No match in ZIP+4 P&G records exist
** I2 General Delivery match in ZIP+4/ G rec only
** I3 No match in ZIP+4/City State

Last Line

J0 5-digit
J1 Dropped 5-digit
* J2 5-digit with misspelled street
* J3 Dropped 5-digit with misspelled street
J4 5-digit with dropped component
J5 Dropped 5-digit and component
* J6 5-digit with dropped component and misspelled street
* J7 Dropped 5-digit and component with misspelled street
J8 5-digit with misspelled city
* J9 Dropped 5-digit with misspelled city

Multiple Response[+]

** K0 5-digit
** K1 Dropped 5-digit
** K2 5-digit with misspelled street
** K3 Dropped 5-digit with misspelled street
** K4 5-digit with dropped or incorrect component
** K5 Dropped 5-digit and/or incorrect component
** K6 5-digit with dropped/incorrect component & misspelled street
** K7 Dropped 5-digit and/or incorrect component with misspelled street
** K8 5-digit with misspelled city
** K9 Dropped 5-digit with misspelled city

Inexact/Questionable Matching Logic

* L0 5-digit
* L1 Dropped 5-digit

* No answer will be bypassed
** Return input record
*** No grading for standardization
**** Normalization required
+ Double penalty

Customer No Match Record Translation of Error Codes & Special Flags (cont.)

All categories except L, N, and O are required. Address-matching software must obtain a minimum accuracy rate of 96% in each required category to obtain CASS Certification.

Key Elements Also Known As

**** MA Out of range – no match
   M0 With 5-digit
   M1 Dropped 5-digit
   M8 5-digit with misspelled city
* M9 Dropped 5-digit with misspelled city

*** NDF Position Error

* N0 5-digit
* N1 Dropped 5-digit

Extra Information

* O0 5-digit
* O1 Dropped 5-digit

Seattle Syndrome

   P0 5-digit
   P1 Dropped 5-digit

*** Salt Lake Syndrome

* Q0 5-digit
* Q1 Dropped 5-digit

ZIP Correction

   R0 Incorrect 5-digit within finance no.
   R1 Invalid 5-digit
   R2 Incorrect 5-digit within finance no. and incorrect +4
   R4 Incorrect 5-digit within finance no. and blank city/state
   R5 Incorrect 5-digit not within finance no.

Highrise Default or Delivery Point Alternate

   S0 With 5-digit
   S4 With 5-digit highrise
** S6 With 5-digit highrise multiple

Hyphenated Ranges

   T1 Numeric alpha no match to numeric/numeric alpha exists
   T2 Alphanumeric/numeric alpha-transpose to make match
   T3 Delete hyphen
   T4 Add hyphen
   T5 Secy alphanumeric insert hyphen and transpose – default
   T6 Add alpha to match to numeric range only
** T7 Add double alphas and validate no match to numeric
** T8 Transpose alpha to beginning/no match to numeric range

APO / FPO

   UA Bad org info in address line without ZIP Code
   UB Out of range records for PSC box numbers
   U0 Clean military addresses with 5-digit
   U1 Reversed box/PSC number with ZIP Code

   U2 Reversed box/PSC number without ZIP Code
   U3 Good address/ZIP Code with invalid city name
** U4 PSC box turned into PO Box with ZIP Code
** U5 Missing PSC, CMR, unit number with good box number
   U6 Good military address with invalid ZIP Code
   U7 Bad org info in Firm Name field with good ZIP Code
   U8 Bad org info in Firm Name field without ZIP Code
   U9 Bad org info in address line with ZIP Code

Delivery Address Line

** V0 Contains firm name
** V1 Contains highrise name

Multiple Finance Number Matching

** W0 Multiple response within finance no. - dropped 5-digit
   W1 Single response within finance no.- dropped 5-digit
   W2 Altered street name
* W3 No correlation between city and ZIP Code - match in
      ZIP Code
** W4 City and ZIP Code from different finance numbers
** W5 State does not agree with ZIP Code

Highrise

   X0 With a firm suite number
* X2 With misspelled street
   X8 With a firm suite number and misspelled city

Split/Combined Elements

   Y0 Combine pre-directional with street name
   Y1 Split pre-directional words off street name
   Y2 Split suffix words off street name
   Y3 Drop suffix words off multi-word street names
   Y4 Combine suffix with street name
   Y5 Shift street name to pre-directional suffix to street name

Out of Range/Overlapping

** 10 Bad PO Box for finance no./ZIP
   11 Overlapping PO Box ranges/return lowest ZIP+4
** 15 Bad rural route for finance no./ZIP
** 20 Invalid primary number
   21 Invalid secondary number

Unique ZIP Codes

   4A Valid city and ZIP Code
   4B Valid city and ZIP Code with valid add-on (match)
   4C Valid city and ZIP Code - default match
   4D Valid city and ZIP code with add-on (retain ZIP+4)
   4E No correlation between city and ZIP Code - match to city
** 4F No correlation between city and ZIP Code (no match;
      delete ZIP Code)

Puerto Rico

** 5A Missing noise URB - end address/multiple with valid or
      invalid URB
   5B Drop or abbreviate leading suffix
   5C Alpha or numeric - end address
   5D Numeric house number - end address preceded by "#,"
      "No.," or "Num"
   5E Alphanumeric house number - end address preceded
      by "Blq"
* 5F Alphanumeric house number - begin/end address
      space alphanumeric
   5G Alphanumeric house number - begin/end address
      hyphen alphanumeric
   5H Hyphen house number/"Blq" and "Casa," "Blq" and "#"
** 5J Address contains standalone word "Buzon" (no
      normalization)
* 5K No URB input - Match to address with blank URB
   51 No URB input - single response
** 52 No URB input - multiple response
   53 Valid URB on input - single response with valid/invalid URB
** 54 Valid URB on input - multiple response with valid/invalid URB
** 55 Missing noise URB - single response with valid/invalid URB
** 56 Missing noise URB - multiple response with valid/
      invalid URB
   57 Valid URB end address - single response with valid or
      invalid URB
** 58 Valid URB end address - multiple response with valid
      or invalid URB
* 59 Missing URB noise end address - single valid/invalid URB

Magnet Streets With Multiple Parse Variations

** 6E Parsed street name or ZIP+4 street name contains
      directional or suffix
   6F Variation in directional or suffix presentation
   6G Suffix or directional dropped
   6H Street name incorrectly split into multiple words
   6K Trailing numeric/alpha value following a valid suffix

Multiple Address Lines

* 7A Address line split between two lines

Appendix 3:

Sample MASS Certificate

Coding Accuracy Support System
Quality Certification
for
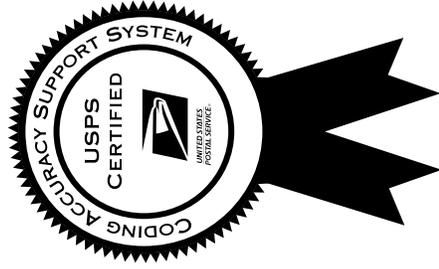## Multiline Optical Character Reader
ZIP+4 and Delivery Point Code Matching

BRUCE'S POSTAL SHOP
ES (3.0)
MAILCODE (ES - 3)

UNITED STATES POSTAL SERVICE®

USPS CERTIFIED

CODING ACCURACY SUPPORT SYSTEM

Serial Number   0000

Manager
National Customer Support Center

Date

*This certificate is valid **01/97** thru **07/14/97***

Appendix 4:

Sample CASS

Customer No Match Record

US POSTAL SERVICE - CODING ACCURACY SUPPORT SYSTEM
NATIONAL CUSTOMER SUPPORT CENTER
CUSTOMER NO MATCH RECORD
ADDRESSES WHICH ARE GRADED AND SCORED

Customer Name: **A B C Company**

Customer ID: **00000OAA1**

CASS Record Given	CASS Standardization Answer	Customer Record Returned
HIRES ABSHIRE 190 E BEECH ST SULPHUR LA 70663	HIRES ABSHIRE 190 E BEECH ST SULPHUR LA 70663-5504	ZIP+4 Answer Returned 70663-5504
	DPBC 90	DPBC Answer Returned
CASS Key H9808173	ZIP+4 Update Key Number V207899309	Special Flag 90	Record Type S	ZIP+4 Odd/Even E	60*

CIRUIT CT CLERK 1539 STATE RD 39 LA PORTE IN	CIRCUIT CT CLERK 1539 S STATE ROAD 39 LA PORTE IN 46350-6301	ZIP+4 Answer Returned 46350-3115
	DPBC 39	DPBC Answer Returned
CASS Key H9807292	ZIP+4 Update Key Number X106329258	Special Flag 39	Record Type D1	ZIP+4 Odd/Even O	39

MIKES MISSIONS INC HAMPTON UNIVERSITY HAMPTON VA 23668	MIKES MISSIONS INC	ZIP+4 Answer Returned 23668-0100
	DPBC 158 6002	DPBC Answer Returned
CASS Key H9803354	ZIP+4 Update Key Number X206541108	Special Flag V0	Record Type S	ZIP+4 Odd/Even O	99

STAHL AND NEAL 9161 NORTHCREEK LN DAYTON OH 45458	STAHL AND NEAL 9161 NORTHCREEK LN DAYTON OH 45458-9325	ZIP+4 Answer Returned 45458-3627
	DPBC 6018	DPBC Answer Returned
CASS Key H9803984	ZIP+4 Update Key Number X206541108	Special Flag Y0	Record Type S	ZIP+4 Odd/Even 0	61

GAILS GALLEY PO BOX 22152 FIRESTONE PARK CA 90001	GAILS GALLEY	ZIP+4 Answer Returned 90022-0152
	DPBC 52	DPBC Answer Returned
CASS Key H9806810	ZIP+4 Update Key Number	Special Flag 10	Record Type P	ZIP+4 Odd/Even	52

**** REFER TO LAST PAGE OF ERROR REPORT FOR TRANSLATION OF ERROR CODES ****

Appendix 5:

CASS Customer Statistics

USPS 47-2467	U.S. Postal Service - Coding Accuracy Support System	Date: 01/14/97
	National Customer Support Center	Time: 23:18:10
REPORT CII030PI	Customer Statistics	Page: 1

CUSTOMER NAME	BRUCE'S POSTAL SHOP	CUSTOMER ID:	00000OAA1

GRADING STATISTICS	COUNT	PERCENT
INITIAL TOTAL CASS RECORDS	350	100.00
TOTAL RECORDS AVAILABLE FOR GRADING	289	98.24
INCORRECTLY CODED RECORDS	5	1.75
INCORRECTLY CODED DPBC	1	