



## **IMAGE® Immunochemistry Systems**

### **Host Interface Specifications**

**This manual is intended for use with  
IMAGE® Immunochemistry System  
IMAGE® 800 Immunochemistry System**

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# CHAPTER 1 Overview

## Introduction

### Description

These instructions provide the necessary information to interface the IMAGE Immunochemistry System or IMAGE 800 Immunochemistry System to a laboratory information system (LIS). These instructions are meant to be used in conjunction with the ASTM standard references. (Refer to Introduction, ASTM Standard)

#### NOTICE

From this point forward, the IMAGE Immunochemistry System and the IMAGE 800 Immunochemistry System are generically identified as "IMAGE."

### Definitions

E1381 - Specification for Low-Level Protocol to Transfer Messages Between Clinical Laboratory Instruments and Computer Systems, Specification E1381-91

E1394 - Standard Specification for Transferring Information Between Clinical Instruments and Computer Systems, Specification E1394-91

Frame - The basic unit of data transmission as defined in E1381

Host - The primary term describing the laboratory information system computer when connected to an IMAGE.

Instrument - The primary term describing the IMAGE when connected to a laboratory information system.

Message - A collection of related information, in the form of records, on a single patient sent at one time.

Null - A reference to a 'null field' shall mean no data in the field and is represented by two field delimiters with no character(s) in between - "||". A null component has the same meaning as a null field except the component delimiter is used - "^".

Text - The set of displayable characters, from ASCII characters decimal 32 to decimal 126.

## **ASTM Standard**

The IMAGE uses the American Society for Testing and Materials (ASTM) standard for communication between clinical laboratory instruments and computer systems. These documents are available from Beckman Instruments upon request.

Standard Specification for Transferring Information Between Clinical Instruments and Computer Systems, Specification E1394-91, *Annual Book of ASTM Standards*, Vol. 14.01, American Society for Testing and Materials.

Specification for Low-Level Protocol to Transfer Messages Between Clinical Laboratory Instruments and Computer Systems, Specification E1381-91, *Annual Book of ASTM Standards*, Vol. 14.01, American Society for Testing and Materials.

---

## Hardware Interface

### Cable

The IMAGE connects to the LIS via a standard RS-232-C 9 pin connector.

### Connector Pin Assignments

The IMAGE is configured as a Data Terminal Equipment (DTE). Connector pin assignments for the 25 pin cable can be found in ASTM E1381 Table 1.0. Connector pin assignments for the 9 pin cable are found in the table below.

Table 1.1 Pin Assignments

| Pin | Signal        | Direction |
|-----|---------------|-----------|
| 2   | Receive data  | In        |
| 3   | Transmit data | Out       |
| 5   | Signal ground |           |

### Signal Levels

Mark = Binary 1 = -15V to -5V

Space = Binary 0 = +5V to +15V

### Cable Length

The cable length when using the RS-232-C interface should not exceed 40 feet (12 m).

## Transmission Control

### How Accomplished

Link connection and release, delimiting and synchronism, sequential control, error detection, and error recovery are accomplished according to the standards described in E1381 section 6.

### Receiver Interrupt

Section 6.3.5 of E1381 describes methods for the receiver to request the sender to stop transmitting messages as soon as possible. The IMAGE honors receiver interrupts only in response to the instrument sending a Message Terminator Record. All others will be ignored. This allows the host to interrupt at the end of each complete patient message transmission.

### Frame Packing

The IMAGE does not support "frame packing" (including more than one record in a frame). A frame of data cannot contain more than one record.

### Frame Number

The user may choose either continuous or not continuous frame numbering from System Setup. When continuous is selected, frame numbering will be initialized to 1 at the Transfer Phase defined in E1381. When continuous is **not** selected, frame numbering will be initialized to 1 at each Message Header Record defined in E1394.

### Software Control

The flow of information from the IMAGE System can be controlled by the host through an X-ON, X-OFF protocol. The host transmits the character X-OFF (ASCII DL3, HEX 13) prior to its buffer overflowing. The IMAGE suspends transmission after a few characters. When the host's buffer is ready to accept information again, the character X-ON (ASCII DL1, HEX 11) is transmitted. The IMAGE resumes transmission. Also, the host should transmit the X-ON character after power up to indicate it is ready to receive data. This software control should be used only in unidirectional mode.

## CHAPTER 2 Options Set by IMAGE User

---

### Port Settings

#### Introduction

To configure the following port settings select **Setup** in the menu bar. Then select **10 <Host Communications Setup>**. For more information refer to CHAPTER 5, *System Setup*, Host Communications Setup in the IMAGE Immunochemistry System or IMAGE 800 Immunochemistry System *Operations Manual(s)*.

#### Baud Rate

Baud rate is defined by the IMAGE user to be one of the following: 2400, 4800, 9600, 19200. The default is 9600.

#### Data Bits

Data bits are defined by the IMAGE user to be either 7 or 8. The default is 8.

#### Parity

Parity is defined by the IMAGE user to be odd, even, or no parity. The default is no parity.

#### Stop Bits

Stop bits are defined by the IMAGE user to be either 1 or 2. The default is 1. Start bits are always 1.

#### Serial Port Initialization

The host communications serial port of the IMAGE is initialized with the baud rate, data bits, parity, and stop bit(s) at the following times:

- startup
- when the Host Communications Operational Mode is switched from off to any of the transmission modes
- when any of the host communications setup parameters have changed

---

## Transmission Mode

### Off

No communication between the instrument and the LIS. (Default)

### Unidirectional

The instrument sends ASTM data to the LIS. The LIS does not send data to the instrument. The instrument does not accept and will not expect ACK/NAKS for frames.

### Bidirectional

The instrument and LIS send ASTM data to each other. The LIS downloads programming information to the instrument. The instrument uploads results information to the LIS.

### Bidirectional with Host Query

The instrument and LIS send ASTM data to each other and the instrument queries the host. The instrument scans the bar codes to obtain the sample identification numbers, which are sent to the LIS. The LIS searches its database for the corresponding sample programs and downloads the sample programs to the instrument for analysis. The instrument sends the results information to the LIS.

The host query timeout is defined by the IMAGE user to be 1, 2, 4, 7, or 10 minutes. The default is 1 minute.

---

## Specific Message Type User Options

### Message Header Record Mode

The message header record mode is defined by the IMAGE user to be either 'full' or 'abbreviated'. The default is 'abbreviated'. (See description in Message Level Protocol section.)

### Request Information Message Mode

The request information message mode is defined by the IMAGE user to be either 'single' or 'multiple'. The default is 'single'.

single - Information will be requested by the instrument for one sample at a time. (This mode is recommended to increase speed of getting a sample program from the host if the LIS is programmed to process data in a batch.)

multiple - Information will be requested by the instrument for one or *more* samples at a time. (This mode is recommended to increase speed of getting a sample program from the host if the LIS is programmed to process data a single sample at a time.)

# Messages

---

## Introduction

### Description

The specific manner in which the IMAGE uses ASTM standard records is described in the following sections.

### How to Use This Section

Each type of record is described followed by a table of fields. Only those fields and components (COMP) used by the IMAGE are described. If a field or component is not described then it is not used by the IMAGE.

### Unused Fields or Components

If a field or component is unused by the IMAGE, that field or component is ignored. Refer to the examples for each record type. The IMAGE does not send trailing null fields and components.

### Use of Message Header/Terminator Records

Each logical set of records relating to a single patient, consisting of a Patient Information Record, Test Order Record, Result Record(s), and Comment Records if they exist are encapsulated with a Message Header Record and Message Terminator Record.

*Example:*

**<establish connection>**

Message Header Record

    Patient Information Record 1

        Test Order Record 1

            Result Record 1

            Result Record 2

Message Terminator Record

Message Header Record

    Patient Information Record 1

        Test Order Record 1

            Result Record 1

            Result Record 2

Message Terminator Record

**<terminate connection>**

## Delimiters

The IMAGE uses the following delimiters:

- ' ' - field delimiter
- '\ ' - repeat delimiter
- '^' - component delimiter
- '&' - escape delimiter (in header but not used)

### For Japanese Only

Shift JIS protocol is used, and the following should be used by both the IMAGE and the Host Computer:

- '<BEL>' - escape delimiter (07 hex)
- 'J' - escape code identification (ID)

*Examples (Shift JIS protocol):*

- <BEL>J Kanji Hiragana <BEL>
- <BEL>J Kanji ASCII Roman half-width Katakana <BEL>
- <BEL>J half-width Katakana Hiragana ASCII Roman <BEL>

---

## Message Header Record from Host

### Description

The Message Header Record from the host is used to obtain delimiters for parsing all records in the message.

### Example:

H | \ ^ & < CR >

Table 2.1      Message Header Record From Host

| Field # | E1394 Paragraph Number | Field Name           | Field Content         | Max Length |
|---------|------------------------|----------------------|-----------------------|------------|
| 1       | 7.1.1                  | Record Type ID       | 'H'                   | 1          |
| 2       | 7.1.2                  | Delimiter Definition | Implemented per E1394 | 4          |

## Message Header Record to Host

### Description

The Message Header Record to the host is the first record of each message. The Message Header Record to the host is either the "full" Message Header Record or the "abbreviated" message Header Record depending on the configuration in Host Setup (Refer to CHAPTER 5, *System Setup*, Host Communications Setup in the IMAGE Immunochemistry Systems *Operations Manual*).

### Example of "Full":

H|\^&|||sender id text|||||||1|19930630151206<CR>

### Example of "Abbreviated":

H|\^&<CR>

Table 2.2 Message Header Record To Host

| Field # | E1394 Paragraph Number | Field Name               | Field Content                                    | Max Length |
|---------|------------------------|--------------------------|--------------------------------------------------|------------|
| 1       | 7.1.1                  | Record Type ID           | 'H'                                              | 1          |
| 2       | 7.1.2                  | Delimiter Definition     | Implemented per E1394                            | 4          |
| 5       | 7.1.5                  | Sender Name or ID        | Sender Name or ID from Host Communications Setup | 80         |
| 13      | 7.1.13                 | Version No.              | '1'                                              | 1          |
| 14      | 7.1.14                 | Date and Time of Message | date and time the message was created            | 14         |

## Patient Information Record from Host

### Description

The Patient Information Record from the host contains patient demographic information.

### Example:

```
P|1||A43749||Smith^Tom^J||19950315^120^H|M|||||
Dr Randall|||||||Brea<CR>
```

Table 2.3 Patient Information Record From Host

| Field # | E1394 Paragraph Number | Field Name                     | Field Content                                          |                                                                                                                 |                 | Max Length |
|---------|------------------------|--------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|------------|
| 1       | 8.1.1                  | Record Type                    | 'P'                                                    |                                                                                                                 |                 | 1          |
| 2       | 8.1.2                  | Sequence Number                | Implemented per E1394                                  |                                                                                                                 |                 | 3          |
| 4       | 8.1.4                  | Laboratory Assigned Patient ID | patient ID                                             |                                                                                                                 |                 | 15         |
| 6       | 8.1.6                  | Patient Name                   | Comp                                                   | Content                                                                                                         | Max Length      |            |
|         |                        |                                | 1                                                      | last name                                                                                                       | 18 <sup>a</sup> |            |
|         |                        |                                | 2                                                      | first name                                                                                                      | 15 <sup>a</sup> |            |
|         |                        |                                | 3                                                      | middle initial                                                                                                  | 1               |            |
| 8       | 8.1.8                  | Birthdate                      | Comp                                                   | Content                                                                                                         | Max Length      |            |
|         |                        |                                | 1                                                      | birthdate                                                                                                       | 8               |            |
|         |                        |                                | 2                                                      | age                                                                                                             | 3               |            |
|         |                        |                                | 3                                                      | age unit<br>'Y' = years (assumed if none specified)<br>'M' = months<br>'W' = weeks<br>'D' = days<br>'H' = hours | 1               |            |
| 9       | 8.1.9                  | Patient Sex                    | 'M' = male<br>'F' = female<br>'U' = unspecified or M/F |                                                                                                                 |                 | 1          |
| 14      | 8.1.14                 | Attending Physician ID         | physician's name                                       |                                                                                                                 |                 | 18         |
| 26      | 8.1.26                 | Location                       | location                                               |                                                                                                                 |                 | 20         |

<sup>a</sup> Japanese Only: Escape code ID



## Test Order Record from Host

### Description

The Test Order Record from the host contains all specimen information, including test requests. Test requests can be made for individual tests.

### Example:

```
O|1|SID_00002^3^1^1||^I^G^N^2\^I^G^A|S||199
50316135300||N||S||1^1.00|||||O<CR>
```

Table 2.5 Test Order Record from Host

| Field # | E1394 Paragraph Number | Field Name      | Field Content         |                                                                                                             | Max Length |
|---------|------------------------|-----------------|-----------------------|-------------------------------------------------------------------------------------------------------------|------------|
| 1       | 9.4.1                  | Record Type ID  | 'O'                   |                                                                                                             | 1          |
| 2       | 9.4.2                  | Sequence Number | Implemented per E1394 |                                                                                                             | 3          |
| 3       | 9.4.3                  | Specimen ID     | Comp                  | Content                                                                                                     | Max Length |
|         |                        |                 | 1                     | sample ID                                                                                                   | 15         |
|         |                        |                 | 2                     | rack number 1-99                                                                                            | 2          |
|         |                        |                 | 3                     | position number 1-9                                                                                         | 1          |
|         |                        |                 | 4                     | control lot number                                                                                          | 12         |
|         |                        |                 | 5                     | number of sample replicates 1-9 (if null or an invalid number, the system sample replicate number is used.) | 1          |
|         |                        |                 | 6                     | control name                                                                                                | 20         |

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Table 2.5 Test Order Record from Host, continued

| Field # | E1394 Paragraph Number | Field Name                        | Field Content                                                                                                                                                              |                                                                                                                                                                                               | Max Length      |
|---------|------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 5       | 9.4.5                  | Universal Test ID                 | Comp                                                                                                                                                                       | Content                                                                                                                                                                                       | Max Length      |
|         |                        |                                   | 4                                                                                                                                                                          | Beckman chemistry ID (refer to Table 2.15)                                                                                                                                                    | 5               |
|         |                        |                                   | 6                                                                                                                                                                          | antigen excess<br>'Y' = enabled<br>'N' = not enabled<br>null = default from System Setup                                                                                                      | 1               |
|         |                        |                                   | 7                                                                                                                                                                          | number of test replicates 1-9 (Test replicates greater than one are allowed only if sample replicates is one. Number of test replicates is ignored if sample replicates is greater than one.) | 1               |
| 6       | 9.4.6                  | Priority                          | 'S' = priority sample<br>'R' = routine sample (default)                                                                                                                    |                                                                                                                                                                                               | 1               |
| 8       | 9.4.8                  | Specimen Collection Date and Time | sample collection date and time (required for a timed urine)                                                                                                               |                                                                                                                                                                                               | 14              |
| 9       | 9.4.9                  | Collection End Time               | collection end date and time (required for a timed urine). Used in conjunction with Specimen Collection Date and Time to determine the 'time' parameter for a timed urine. |                                                                                                                                                                                               | 14              |
| 10      | 9.4.10                 | Collection Volume                 | Comp                                                                                                                                                                       | Content                                                                                                                                                                                       | Max Length      |
|         |                        |                                   | 1                                                                                                                                                                          | collection volume (required for timed urine)                                                                                                                                                  | 7               |
|         |                        |                                   | 2                                                                                                                                                                          | units for collection volume (mL assumed if not specified). If the units are not milliliters, the Test Order record is discarded.                                                              | 2               |
| 11      | 9.4.11                 | Collector ID                      | "Collected By"                                                                                                                                                             |                                                                                                                                                                                               | 18 <sup>a</sup> |

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Table 2.5 Test Order Record from Host, continued

| Field # | E1394 Paragraph Number | Field Name                           | Field Content                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Max Length |
|---------|------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 12      | 9.4.12                 | Action Code                          | <p>'C' causes the sample program to be deleted.</p> <p>'A' causes the tests to be added to the existing sample program.(a new sample program is created if one does not currently exist).</p> <p>'N' causes an new sample program to be created. (The current sample program is deleted before the new sample program is created).</p> <p>'Q' causes the sample to be programmed as a control.</p> <p>All other codes cause the sample test order to be rejected.</p> | 1          |
| 16      | 9.4.16                 | Specimen Descriptor, Specimen Source | <p>'S' = serum</p> <p>'U' = random urine</p> <p>'F' = cerebral spinal fluid</p> <p>'P' = plasma</p> <p>'T' = timed urine</p> <p>Note: null = default Sample Type from System Setup</p>                                                                                                                                                                                                                                                                                | 1          |
| 19      | 9.4.19                 | User Field No. 1                     | <p>Off-line dilution ratio</p> <p>A dilution ratio of Y:X.X would be represented as components of the field in the format Y^X.X. Off-line dilution factors apply to all tests requested for a specimen.</p>                                                                                                                                                                                                                                                           | 1^7        |

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Table 2.5 Test Order Record from Host, continued

| Field # | E1394 Paragraph Number | Field Name   | Field Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Max Length |
|---------|------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 26      | 9.4.26                 | Report Types | 'O' = denotes a sample program from the host and is assumed if the field is null<br>'Z' = no information available for a sample in response to a query (same as 'Y')<br>'Q' = this order is in response to a query when sample program information is available<br><br>Note: Accounting of responses to outstanding queries is performed based on the sample ID of sample programs received from the host. Therefore, the use of this flag is not mandatory if the query is terminated using the proper termination code in the Message Terminator Record. | 1          |

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<sup>a</sup> Japanese Only: Escape code ID.

## Test Order Record to Host

### Description

The Test Order Record to the host contains specimen information common to all Results Records.

### Example:

```
O|1|I4321U^5^3^2||R|19950316135300|||||S||
|1^1.00<CR>
```

Table 2.6 Test Order Record To Host

| Field # | E1394 Paragraph Number | Field Name                        | Field Content                                                                                                                                 |      |                                              | Max Length |
|---------|------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------|------------|
| 1       | 9.4.1                  | Record Type ID                    | 'O'                                                                                                                                           |      |                                              | 1          |
| 2       | 9.4.2                  | Sequence Number                   | Implemented per E1394                                                                                                                         |      |                                              | 3          |
| 3       | 9.4.3                  | Specimen ID                       |                                                                                                                                               | Comp | Content                                      | Max Length |
|         |                        |                                   |                                                                                                                                               | 1    | sample ID                                    | 15         |
|         |                        |                                   |                                                                                                                                               | 2    | rack number 1-99                             | 2          |
|         |                        |                                   |                                                                                                                                               | 3    | position number 1-9                          | 1          |
|         |                        |                                   |                                                                                                                                               | 4    | control lot number                           | 12         |
|         |                        |                                   |                                                                                                                                               | 5    | sample replicate number 1-9                  | 1          |
|         |                        |                                   |                                                                                                                                               | 6    | control name                                 | 20         |
| 6       | 9.4.6                  | Priority                          | 'S' = priority sample<br>'R' = routine sample (default)                                                                                       |      |                                              | 1          |
| 8       | 9.4.8                  | Specimen Collection Date and Time | Sample collection date and time are required for all samples.<br>Default to current date and time if no collection date and time are entered. |      |                                              | 14         |
| 9       | 9.4.9                  | Collection End Time               | collection end date and time                                                                                                                  |      |                                              | 14         |
| 10      | 9.4.10                 | Collection Volume                 |                                                                                                                                               | Comp | Content                                      | Max Length |
|         |                        |                                   |                                                                                                                                               | 1    | collection volume (required for timed urine) | 7          |
|         |                        |                                   |                                                                                                                                               | 2    | units for collection volume (always mL)      | 2          |
| 11      | 9.4.11                 | Collector ID                      | 'collected by'                                                                                                                                |      |                                              | 18         |

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Table 2.6 Test Order Record To Host, continued

| Field # | E1394 Paragraph Number | Field Name                           | Field Content                                                                                                                                                                                    | Max Length |
|---------|------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 12      | 9.4.12                 | Action Code                          | 'Q' = sample programmed as a control                                                                                                                                                             | 1          |
| 16      | 9.4.16                 | Specimen Descriptor, Specimen Source | 'S' = serum<br>'U' = random urine<br>'F' = cerebral spinal fluid<br>'P' = plasma<br>'T' = timed urine                                                                                            | 1          |
| 19      | 9.4.19                 | User Field No. 1                     | Off-line dilution ratio<br>A dilution ratio of Y:X.X would be represented as components of the field in the format Y^X.X. Off-line dilution factors apply to all tests requested for a specimen. | 1^7        |
| 26      | 9.4.26                 | Report Types                         | 'X' = Sample order record was rejected                                                                                                                                                           | 1          |

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---

## Result Record From Host

The IMAGE does not use these records.

## Result Record to Host

### Description

The Result Record to the host contains the result of a single analytical determination.

### Example:

```
R|1|^^^IGG^^Y^1^^0|4.96|mg/dL|||R|||199608291 13113<CR>
```

Table 2.7 Result Record To Host

| Field # | E1394 Paragraph Number | Field Name        | Field Content         |                                                                                                                                                                                                                                                              | Max Length |
|---------|------------------------|-------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1       | 10.1.1                 | Record Type ID    | 'R'                   |                                                                                                                                                                                                                                                              | 1          |
| 2       | 10.1.2                 | Sequence Number   | Implemented per E1394 |                                                                                                                                                                                                                                                              | 3          |
| 3       | 10.1.3                 | Universal Test ID | Comp                  | Content                                                                                                                                                                                                                                                      | Max Length |
|         |                        |                   | 4                     | Beckman chemistry ID<br>(refer to Table 2.15 and Table 2.16)                                                                                                                                                                                                 | 15         |
|         |                        |                   | 6                     | antigen excess<br>'Y' = enabled<br>'N' = not enabled<br>if not specified 'N' is assumed                                                                                                                                                                      | 1          |
|         |                        |                   | 7                     | test replicate number 1-9                                                                                                                                                                                                                                    | 1          |
|         |                        |                   | 9                     | result type<br>'0' = regular<br>'1' = special calculation<br><br>Note: This message is sent<br>after the last result for a cup if<br>the special calculations mode<br>is enabled and if a calculation<br>was required for that cup.<br><br>'2' = timed urine | 1          |

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Table 2.7 Result Record To Host, continued

| Field # | E1394 Paragraph Number | Field Name                | Field Content                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Max Length        |  |
|---------|------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--|
| 4       | 10.1.4                 | Data or Measurement Value | test result ('*****' is used for values beyond the displayable range.)<br><br> <b>WARNING</b><br><b>AN 'S' IN THE RESULT COMMENT RECORD DESIGNATES A SIMULATED RESULT. THIS IS NOT A REPORTABLE ANSWER.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 13                |  |
| 5       | 10.1.5                 | Units                     | units                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7                 |  |
| 6       | 10.1.6                 | Reference Ranges          | first range = normal range<br>second range = critical range<br>separated by repeat delimiter ('\')                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30                |  |
| 7       | 10.1.7                 | Result Abnormal Flags     | <b>Comp</b>                                                                                                                                                                                                                                                                                  | <b>Content</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Max Length</b> |  |
|         |                        |                           | 1                                                                                                                                                                                                                                                                                            | 'L' = result below the low normal range<br>'H' = result above the high normal range<br>'LL' = result below the low critical range<br>'HH' = result above the high critical range<br>'<' = result below the instrument range<br>'>' = result above the instrument range<br><br>Note: The '<' or '>' indicate that the test result is actually <b>less than</b> or <b>greater than</b> the number in the Result Field. The result should be reported as "<XX.X" for the '<' flag and ">XX.X" for the '>' flag (where XX.X represents the number in the Result Field). | 3                 |  |

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Table 2.7 Result Record To Host, continued

| Field #      | E1394 Paragraph Number | Field Name               | Field Content                                               |                                                                                                                                                                                                                                                                                                                                                                             | Max Length |
|--------------|------------------------|--------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 7<br>(cont.) |                        |                          | Comp                                                        | Content                                                                                                                                                                                                                                                                                                                                                                     | Max Length |
|              |                        |                          |                                                             | 'N' = result within the normal range<br>'Sm' = simulate resultd<br><br> <b>WARNING</b><br><b>A SIMULATED RESULT IS NOT A REPORTABLE ANSWER.</b><br><br>(If QC sample <b>and</b> update Option is on)<br>'2SD' = greater than 2SD<br>'3SD' = greater than 3SD<br>'4SD' = greater than 4SD |            |
|              |                        |                          | 2                                                           | (If QC sample <b>and</b> update Option is on)<br>'A'= accuracy<br>'P'= precision                                                                                                                                                                                                                                                                                            | 1          |
| 9            | 10.1.9                 | Result Status            | 'T' = result is pending<br>'R' = request from result recall |                                                                                                                                                                                                                                                                                                                                                                             | 1          |
| 13           | 10.1.13                | Date/Time Test Completed | date and time the test was completed                        |                                                                                                                                                                                                                                                                                                                                                                             | 14         |

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---

## Request Information Record from Host

The IMAGE does not use these records.

## Request Information Record to Host

### Description

The Request Information Record to the host is used to request sample program information from the host computer. A query is typically performed when a sample bar code has been read on the instrument and no sample program information is found locally. All queries are made by sample ID.

### Example:

```
Q|1|^SampleID1\^SampleID2\^SampleID3\^SampleID4|
| | | | | | | |O<CR>
```

Table 2.8 Request Information Record To Host

| Field # | E1394 Paragraph Number | Field Name                       | Field Content                                                                                                        |      |                                                                                                                                                                                                                                                                                                                                     | Max Length |
|---------|------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1       | 10.1.1                 | Record Type ID                   | 'Q'                                                                                                                  |      |                                                                                                                                                                                                                                                                                                                                     | 1          |
| 2       | 10.1.2                 | Sequence Number                  | Implemented per E1394                                                                                                |      |                                                                                                                                                                                                                                                                                                                                     | 3          |
| 3       | 10.1.3                 | Starting Range ID Number         |                                                                                                                      | Comp | Content                                                                                                                                                                                                                                                                                                                             | Max Length |
|         |                        |                                  |                                                                                                                      | 2    | Sample ID for which the sample program information is being requested<br><br>Note: When the request information mode is set to 'single' this field is limited to one sample ID. When the request information mode is set to 'multiple', a repeat delimiter is used to separate up to 9 sample IDs. The parameter 'ALL' is not used. | 18         |
| 13      | 10.1.13                | Request Information Status Codes | 'A' = cancellation of a previously transmitted query for any reason.<br>'O' = request sample programming information |      |                                                                                                                                                                                                                                                                                                                                     | 1          |

---

## Message Terminator Record from Host

### Description

The Message Terminator Record from the host is used with the Message Header Record to encapsulate a message containing information for one or more patients.

### Example:

L | 1 | N<CR>

Table 2.9 Message Terminator Record From Host

| Field # | E1394 Paragraph Number | Field Name       | Field Content                                                                                                                                                                                                                                                                                                                                                                                                                                             | Max Length |
|---------|------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1       | 13.1.1                 | Record Type ID   | 'L'                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1          |
| 2       | 13.1.2                 | Sequence Number  | Implemented per E1394                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3          |
| 3       | 13.1.3                 | Termination Code | 'N' = normal (default if null)<br>'Q' = terminate the outstanding query and treat as if no information exists for the query.<br>'T' = no information available from last query.<br>'F' = no more information exists for the query. Is accepted in lieu of 'T' when no information exists for a query.<br><br>Note: Termination Code 'T' or 'F' must be used to avoid waiting for the query timeout before the next query from the instrument can be sent. | 1          |

## Message Terminator Record to Host

### Description

The Message Terminator Record to the host is used with the Message Header Record to encapsulate related patient information.

### Example:

L | 1 | N<CR>

Table 2.10 Message Terminator Record To Host

| Field # | E1394 Paragraph Number | Field Name       | Field Content         | Max Length |
|---------|------------------------|------------------|-----------------------|------------|
| 1       | 13.1.1                 | Record Type ID   | 'L'                   | 1          |
| 2       | 13.1.2                 | Sequence Number  | Implemented per E1394 | 3          |
| 3       | 13.1.3                 | Termination Code | 'N' = normal          | 1          |

---

## Scientific Record from Host

The IMAGE does not use these records.

---

## Scientific Record to Host

The IMAGE does not use these records.

## Comment Record from Host

### Description

The Comment Record from the host contains a sample comment referring to the sample defined by the preceding Test Order record. The use of the Comment Record changes by what type of record it follows.

### Example:

C|1||Hemolyzed<CR>

Table 2.11 Comment Record From Host

| Field # | E1394 Paragraph Number | Field Name      | Field Content                                                                                                                                                                                          | Max Length                                                  |
|---------|------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 1       | 11.1.1                 | Record Type ID  | 'C'                                                                                                                                                                                                    | 1                                                           |
| 2       | 11.1.2                 | Sequence Number | Implemented per E1394                                                                                                                                                                                  | 3                                                           |
| 4       | 11.1.4                 | Comment Text    | If the comment record follows a Patient Information Record, this field contains the patient comment.<br><br>If the comment record follows a Test Order Record, this field contains the sample comment. | patient: 45 <sup>a</sup><br><br>test order: 25 <sup>a</sup> |

<sup>a</sup> Japanese Only: Escape code ID

## Comment Record to Host

### Description

The Comment Record to the host contains a sample comment referring to the sample defined by the preceding Test Order record. The use of the Comment Record changes by what type of record it follows.

### Example:

C | 1 | | Hemolyzed<CR>

If the Comment Record follows a Patient Information Record, the following describes the Comment Record:

Table 2.12 Comment Record To Host Following Patient Information Record

| Field # | E1394 Paragraph Number | Field Name      | Field Content                                                                                                                                      | Max Length      |
|---------|------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 1       | 11.1.1                 | Record Type ID  | 'C'                                                                                                                                                | 1               |
| 2       | 11.1.2                 | Sequence Number | Implemented per E1394                                                                                                                              | 3               |
| 4       | 11.1.4                 | Comment Text    | patient comment<br><br>Note: If the corresponding comment field on the IMAGE is not filled in, a Comment Record for that comment will not be sent. | 45 <sup>a</sup> |

<sup>a</sup> Japanese Only: Escape code ID

If the Comment Record follows a Test Order Record, the following describes the Comment Record:

Table 2.13 Comment Record Following Test Order Record

| Field # | E1394 Paragraph Number | Field Name      | Field Content                                                                                                                                     | Max Length      |
|---------|------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 1       | 11.1.1                 | Record Type ID  | 'C'                                                                                                                                               | 1               |
| 2       | 11.1.2                 | Sequence Number | Implemented per E1394                                                                                                                             | 3               |
| 4       | 11.1.4                 | Comment Text    | sample comment<br><br>Note: If the corresponding comment field on the IMAGE is not filled in, a Comment Record for that comment will not be sent. | 25 <sup>a</sup> |

<sup>a</sup> Japanese Only: Escape code ID

If the Comment Record follows a Result Record the following describes the Comment Record:

Table 2.14 Comment Record Following Result Record

| Field # | E1394 Paragraph Number | Field Name      | Field Content         | Max Length |
|---------|------------------------|-----------------|-----------------------|------------|
| 1       | 11.1.1                 | Record Type ID  | 'C'                   | 1          |
| 2       | 11.1.2                 | Sequence Number | Implemented per E1394 | 3          |

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Table 2.14 Comment Record Following Result Record, continued

| Field # | E1394 Paragraph Number | Field Name   | Field Content                                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |            | Max Length |
|---------|------------------------|--------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|
| 4       | 11.1.4                 | Comment Text | Comp                                                                                                              | Content                                                                                                                                                                                                                                                                                                                                                | Max Length |            |
|         |                        |              | 1                                                                                                                 | instrument codes<br>'J' = slope/offset adjustment<br>'C' = calibration re-enabled<br>'R' = reagent expired<br>'W' = dilution well reused<br>'S' = simulated results<br><br> <b>WARNING</b><br><br><b>A SIMULATED<br/>RESULT IS NOT A<br/>REPORTABLE<br/>RESULT.</b> | 1          |            |
|         |                        |              | 2                                                                                                                 | result error number                                                                                                                                                                                                                                                                                                                                    | 3          |            |
|         |                        |              | Note: If there are no errors and no instrument codes for the preceding result, a Comment Record will not be sent. |                                                                                                                                                                                                                                                                                                                                                        |            |            |

(2 of 2)

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## Manufacturer Information Record from Host

The IMAGE does not use these records.

---

## Manufacturer Information Record to Host

The IMAGE does not use these records.

Table 2.15 Beckman Coulter Chemistry IDs Used On the IMAGE  
Immunochemistry Systems

| Beckman<br>Chemistry ID | Chemistry Name                      | Sample Type |
|-------------------------|-------------------------------------|-------------|
| A1M                     | Alpha-1-Microglobulin               | Urine       |
| ALB                     | Albumin                             | Serum, CSF  |
| AAG                     | Alpha-1-Acid Glycoprotein           | Serum       |
| AAT                     | Alpha-1-Antitrypsin                 | Serum       |
| AMG                     | Alpha-2-Macroglobulin               | Serum       |
| APA                     | Apolipoprotein A1                   | Serum       |
| APB                     | Apolipoprotein B                    | Serum       |
| ASO                     | Anti-Streptolysin O                 | Serum       |
| AT3                     | Anti-Thrombin III                   | Plasma      |
| B2M                     | Beta-2-Microglobulin                | Serum       |
| B2MX                    | Beta-2-Microglobulin <sup>a</sup>   | Serum       |
| C3                      | Complement C3                       | Serum       |
| C4                      | Complement C4                       | Serum       |
| CRP                     | C Reactive Protein                  | Serum       |
| CRPH                    | High Sensitivity C-Reactive Protein | Serum       |
| CAR                     | Carbamazepine                       | Serum       |
| CER                     | Ceruloplasmin                       | Serum       |
| DIG                     | Digoxin                             | Serum       |
| DNB                     | DNAse B                             | Serum       |
| FER                     | Ferritin                            | Serum       |
| GEN                     | Gentamicin                          | Serum       |
| HPT                     | Haptoglobin                         | Serum       |
| IGA                     | Immunoglobulin A                    | Serum       |
| IGALC                   | Low Concentration Immunoglobulin A  | Serum, CSF  |
| IGE                     | Immunoglobulin E                    | Serum       |
| IGG                     | Immunoglobulin G                    | Serum, CSF  |
| IGM                     | Immunoglobulin M                    | Serum       |
| IGMLC                   | Low Concentration Immunoglobulin M  | Serum, CSF  |
| IGU                     | Immunoglobulin G Urine              | Urine       |

(1 of 2)

Table 2.15 Beckman Coulter Chemistry IDs Used On the IMAGE  
Immunochemistry Systems, continued

| Beckman<br>Chemistry ID | Chemistry Name              | Sample Type  |
|-------------------------|-----------------------------|--------------|
| KAP                     | Kappa                       | Serum, Urine |
| LAM                     | Lambda                      | Serum, Urine |
| LPAX                    | Lipoprotein(a) <sup>a</sup> | Serum        |
| MA                      | Microalbumin                | Urine        |
| PHE                     | Phenobarbital               | Serum        |
| PAB                     | Prealbumin                  | Serum        |
| PFB                     | Properdin Factor B          | Serum        |
| PHY                     | Phenytoin                   | Serum        |
| RF                      | Rheumatoid Factor           | Serum        |
| THE                     | Theophylline                | Serum        |
| TOB                     | Tobramycin                  | Serum        |
| TRF                     | Transferrin                 | Serum        |
| TRU                     | Transferrin Urine           | Urine        |
| VPA                     | Valproic Acid               | Serum        |

(2 of 2)

<sup>a</sup> No longer requires sample pretreatment.

Table 2.16 Beckman Coulter Defined Calculations

APA/APB, APB/APA, KAP/LAM, Excrete. Rate, CSF Index, IGG Syn Rate, ALB Index, IGG Index, IGA Index, IGM Index

## Examples

### Single Patient Samples vs Batch Sample Programming

#### Introduction

The host may send sample programs to the instrument one sample at a time or in a batch. The request information message mode should be set to reflect the manner in which the host will send sample programs. This section gives examples of both single patient sample and batch sample programming.

#### Single Patient Programs from Host

These are single patient sample programs from the host.

```
H\^&
P|1|PID101|Lastname^Firstname^A|19910101^4^Y|U|||DoctorsName|LocationName
O|1|smp101^1^1^1|^^C3^^N|S|19951211010101|||N|||S||1^1.00
O|2|smp102^1^2^2|^^IGA^^Y^1^^FER^^Y^1|S|19951211000000|||N|||S||1^1.00
O|3|smp103^1^3^3|^^IGG^^IGA^^Y^1^^IGM|R|19951211000000|||N|||S||1^1.00
L|1|N
H\^&
P|1|PID201|Lastname^Firstname^A|19910101^4^Y|U|||DoctorsName|LocationName
O|1|smp201^2^1^1|^^C3^^N|S|19951211010101|||N|||S||1^1.00
O|2|smp202^2^2^2|^^IGA^^Y^1^^FER^^Y^1|S|19951211000000|||N|||S||1^1.00
O|3|smp203^2^3^3|^^IGG^^IGA^^Y^1^^IGM|R|19951211000000|||N|||S||1^1.00
O|4|smp204^2^4^4|^^IGM^^Y^1^^C3^^N^^C4^^FER|S|19951211000000|||N|||S||1^1.00
L|1|N
H\^&
P|1|PID301|Lastname^Firstname^A|19910101^4^Y|U|||DoctorsName|LocationName
O|1|smp301^3^1^1|^^C3^^N|S|19951211010101|||N|||S||1^1.00
O|2|smp302^3^2^2|^^IGA^^Y^1^^FER^^Y^1|S|19951211000000|||N|||S||1^1.00
O|3|smp303^3^3^3|^^IGG^^IGA^^Y^1^^IGM|R|19951211000000|||N|||S||1^1.00
O|4|smp304^3^4^4|^^IGM^^Y^1^^C3^^N^^C4^^FER|S|19951211000000|||N|||S||1^1.00
O|5|smp305^3^5^1|^^C3^^N|S|19951211010101|||N|||S||1^1.00
L|1|N
H\^&
P|1|PID401|Lastname^Firstname^A|19910101^4^Y|U|||DoctorsName|LocationName
O|1|smp401^4^1^1|^^C3^^N|S|19951211010101|||N|||S||1^1.00
O|2|smp402^4^2^2|^^IGA^^Y^1^^FER^^Y^1|S|19951211000000|||N|||S||1^1.00
O|3|smp403^4^3^3|^^IGG^^IGA^^Y^1^^IGM|R|19951211000000|||N|||S||1^1.00
O|4|smp404^4^4^4|^^IGM^^Y^1^^C3^^N^^C4^^FER|S|19951211000000|||N|||S||1^1.00
O|5|smp405^4^5^1|^^C3^^N|S|19951211010101|||N|||S||1^1.00
O|6|smp406^4^6^2|^^IGA^^Y^1^^FER^^Y^1|S|19951211000000|||N|||S||1^1.00
L|1|N
H\^&
P|1|PID501|Lastname^Firstname^A|19910101^4^Y|U|||DoctorsName|LocationName
O|1|smp501^5^1^1|^^C3^^N|S|19951211010101|||N|||S||1^1.00
O|2|smp502^5^2^2|^^IGA^^Y^1^^FER^^Y^1|S|19951211000000|||N|||S||1^1.00
O|3|smp503^5^3^3|^^IGG^^IGA^^Y^1^^IGM|R|19951211000000|||N|||S||1^1.00
O|4|smp504^5^4^4|^^IGM^^Y^1^^C3^^N^^C4^^FER|S|19951211000000|||N|||S||1^1.00
O|5|smp505^5^5^1|^^C3^^N|S|19951211010101|||N|||S||1^1.00
O|6|smp506^5^6^2|^^IGA^^Y^1^^FER^^Y^1|S|19951211000000|||N|||S||1^1.00
O|7|smp507^5^7^3|^^IGG^^IGA^^Y^1^^IGM|R|19951211000000|||N|||S||1^1.00
L|1|N
```

E011376L.EPS

## Batch Sample Programming

This is an example of batch sample programming message from the host.

```
H|\^&
P|1|PID101|Lastname1^Firstname1^A||19910101^4^Y|U|||DoctorsName1|||LocationName1
O|1|smp101^1^1^1|^^^C3^N^1^36|S||19951211010101|||N|||S|||1^1.00
O|2|smp102^1^2^2|^^^IGA^Y^1^2216\^^^FER^Y^1^1^216|S||19951211000000|||N|||S|||1^1.00
O|3|smp103^1^3^3|^^^IGG\^^^IGA^Y^1^1^316\^^^IGM^Y^1^2^36|R||19951211000000|||N|||S|||1^1.00
P|2|PID201|Lastname2^Firstname2^A||19910101^4^Y|U|||DoctorsName2|||LocationName2
O|1|smp201^2^1^1|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|2|smp202^2^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|3|smp203^2^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
O|4|smp204^2^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000|||N|||S|||1^1.00
P|3|PID301|Lastname3^Firstname3^A||19910101^4^Y|U|||DoctorsName3|||LocationName3
O|1|smp301^3^1^1|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|2|smp302^3^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|3|smp303^3^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
O|4|smp304^3^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000|||N|||S|||1^1.00
O|5|smp305^3^5^5|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
P|4|PID401|Lastname4^Firstname4^A||19910101^4^Y|U|||DoctorsName4|||LocationName4
O|1|smp401^4^1^1|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|2|smp402^4^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|3|smp403^4^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
O|4|smp404^4^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000|||N|||S|||1^1.00
O|5|smp405^4^5^5|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|6|smp406^4^6^6|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
P|5|PID501|Lastname5^Firstname5^A||19910101^4^Y|U|||DoctorsName5|||LocationName5
O|1|smp501^5^1^1|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|2|smp502^5^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|3|smp503^5^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
O|4|smp504^5^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000|||N|||S|||1^1.00
O|5|smp505^5^5^5|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|6|smp506^5^6^6|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|7|smp507^5^7^7|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
P|6|PID601|Lastname6^Firstname6^A||19910101^4^Y|U|||DoctorsName6|||LocationName6
O|1|smp601^6^1^1|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|2|smp602^6^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|3|smp603^6^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
O|4|smp604^6^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000|||N|||S|||1^1.00
O|5|smp605^6^5^5|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|6|smp606^6^6^6|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|7|smp607^6^7^7|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
O|8|smp608^6^8^8|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000|||N|||S|||1^1.00
P|7|PID701|Lastname7^Firstname7^A||19910101^4^Y|U|||DoctorsName7|||LocationName7
O|1|smp701^7^1^1|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|2|smp702^7^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|3|smp703^7^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
O|4|smp704^7^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000|||N|||S|||1^1.00
O|5|smp705^7^5^5|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
O|6|smp706^7^6^6|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000|||N|||S|||1^1.00
O|7|smp707^7^7^7|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000|||N|||S|||1^1.00
O|8|smp708^7^8^8|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000|||N|||S|||1^1.00
O|9|smp709^7^9^9|^^^C3^N|S||19951211010101|||N|||S|||1^1.00
L|1|N
```

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## Continuous Numbering Mode vs Non-Continuous Numbering Mode

### Frame Number

The user may choose either continuous or non-continuous frame numbering from System Setup. When continuous is selected, frame numbering will be initialized to 1 at the Transfer Phase defined in E1381. When continuous is **not** selected, frame numbering will be initialized to 1 at each Message Header Record defined in E1394.

### Continuous

An example of Full Header and Continuous Numbering Mode.

```
hc send:<ENQ>
hc rcv:<ACK>
hc send:<STX>1H|\^&||Beckman IMAGE|||||1|19960830133749<CR><ETX>46<CR><LF>
hc rcv:<ACK>
hc send:<STX>2P|1|||||U<CR><ETX>F8<CR><LF>
hc rcv:<ACK>
hc send:<STX>3O|1|SMP2^0^0^1||R||19960829000000||0.00|||||S||1^1.00<CR><ETX>23<CR><LF>
hc rcv:<ACK>
hc send:<STX>4R|1|^^^IGM^^^1^0||mg/dL|||I<CR><ETX>D1<CR><LF>
hc rcv:<ACK>
hc send:<STX>5R|2|^^^C3^^^1^0||mg/dL|||I<CR><ETX>6C<CR><LF>
hc rcv:<ACK>
hc send:<STX>6L|1|N<CR><ETX>09<CR><LF>
hc rcv:<ACK>
hc send:<STX>7H|\^&||Beckman IMAGE|||||1|19960830133808<CR><ETX>48<CR><LF>
hc rcv:<ACK>
hc send:<STX>0P|1|P00004||LastP00004^FirstP00004^A||U<CR><ETX>5B<CR><LF>
hc rcv:<ACK>
hc send:<STX>1O|1|4^1^4^1||R||19960829113115||0.00|||||S||1^1.00<CR><ETX>44<CR><LF>
hc rcv:<ACK>
hc send:<STX>2R|1|^^^IGG^^Y^1^0|4.96|mg/dL|||R|||19960829113113<CR><ETX>C2<CR><LF>
hc rcv:<ACK>
hc send:<STX>3C|1|JCR<CR><ETX>0A<CR><LF>
hc rcv:<ACK>
hc send:<STX>4R|2|^^^IGA^^Y^1^0|4.19|mg/dL|||R|||19960829113114<CR><ETX>BB<CR><LF>
hc rcv:<ACK>
hc send:<STX>5C|1|W<CR><ETX>84<CR><LF>
hc rcv:<ACK>
hc send:<STX>6L|1|N<CR><ETX>09<CR><LF>
hc rcv:<ACK>
```

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## Non-Continuous

An example of Full Header and Non-Continuous Numbering Mode.

```
hc send:<ENQ>
hc rcv:<ACK>
hc send:<STX>1H|\^&||Beckman IMAGE|||||1|19960829114739<CR><ETX>4C<CR><LF>
hc rcv:<ACK>
hc send:<STX>2P|1|||||U<CR><ETX>F8<CR><LF>
hc rcv:<ACK>
hc send:<STX>3O|1|SMP2^0^0^1||R||19960829000000|0.00|||||S||1^1.00<CR><ETX>23<CR><LF>
hc rcv:<ACK>
hc send:<STX>4R|1|^^IGM^^1^0|mg/dL|||I<CR><ETX>D1<CR><LF>
hc rcv:<ACK>
hc send:<STX>5R|2|^^^C3^^1^0|mg/dL|||I<CR><ETX>6C<CR><LF>
hc rcv:<ACK>
hc send:<STX>6L|1|N<CR><ETX>09<CR><LF>
hc rcv:<ACK>
hc send:<STX>1H|\^&||Beckman IMAGE|||||1|19960829114813<CR><ETX>45<CR><LF>
hc rcv:<ACK>
hc send:<STX>2P|1||P00004||LastP00004^FirstP00004^A|||U<CR><ETX>5D<CR><LF>
hc rcv:<ACK>
hc send:<STX>3O|1|4^1^4^1||R||19960829113115|0.00|||||S||1^1.00<CR><ETX>46<CR><LF>
hc rcv:<ACK>
hc send:<STX>4R|1|^^IGG^^Y^1^0|4.96|mg/dL|||R|||19960829113113<CR><ETX>C4<CR><LF>
hc rcv:<ACK>
hc send:<STX>5C|1||JCR<CR><ETX>0C<CR><LF>
hc rcv:<ACK>
hc send:<STX>6R|2|^^^IGA^^Y^1^0|4.19|mg/dL|||R|||19960829113114<CR><ETX>BD<CR><LF>
hc rcv:<ACK>
hc send:<STX>7C|1||W<CR><ETX>86<CR><LF>
hc rcv:<ACK>
hc send:<STX>0L|1|N<CR><ETX>03<CR><LF>
hc rcv:<ACK>
```

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## Valid Characters for Fields

### Patient ID, Sample ID

0 to 9  
A to Z (a to z always changed to upper case)  
! @ # % ( ) - \_ = + { } ' : . < > ` /

### First Name, Last Name

Any printable characters except delimiters (repeat, component, escape)

### Middle Initial

Any printable characters except delimiters (repeat, component, escape)

### Physician's Name, Location

Any printable characters except delimiters (repeat, component, escape)

### Control Lot Number

0 to 9  
A to Z (a to z always changed to upper case)

### Control Name

Any printable characters except delimiters (repeat, component, escape)

### Collection Volume Units

mL (only)

### Collector ID

Any printable characters except delimiters (repeat, component, escape)

### Patient Comment, Sample Comment

Any printable characters except delimiters (repeat, component, escape)

### Japanese Only

**Full-width** ASCII Roman, Katakana, Kanji, or Hirigana, first and second byte range:

- First byte: 129-159, 224-239
- Second byte: 64-126, 128-252

**Half-width** Katakana: 161-223

**Half-width** ASCII Roman: 33-126

## CHAPTER 3 Messages

---

### Introduction

#### Description

The specific manner in which the IMAGE uses ASTM standard records is described in the following sections.

#### How to Use This Section

Each type of record is described followed by a table of fields. Only those fields and components (COMP) used by the IMAGE are described. If a field or component is not described then it is not used by the IMAGE.

#### Unused Fields or Components

If a field or component is unused by the IMAGE, that field or component is ignored. Refer to the examples for each record type. The IMAGE does not send trailing null fields and components.

#### Use of Message Header/Terminator Records

Each logical set of records relating to a single patient, consisting of a Patient Information Record, Test Order Record, Result Record(s), and Comment Records if they exist are encapsulated with a Message Header Record and Message Terminator Record.

*Example:*

**<establish connection>**

Message Header Record

    Patient Information Record 1

        Test Order Record 1

            Result Record 1

            Result Record 2

Message Terminator Record

Message Header Record

    Patient Information Record 1

        Test Order Record 1

            Result Record 1

            Result Record 2

Message Terminator Record

**<terminate connection>**

## Delimiters

The IMAGE uses the following delimiters:

- ' ' - field delimiter
- '\ ' - repeat delimiter
- '^' - component delimiter
- '&' - escape delimiter (in header but not used)

### For Japanese Only

Shift JIS protocol is used, and the following should be used by both the IMAGE and the Host Computer:

- '<BEL>' - escape delimiter (07 hex)
- 'J' - escape code identification (ID)

*Examples (Shift JIS protocol):*

- <BEL>J Kanji Hiragana <BEL>
- <BEL>J Kanji ASCII Roman half-width Katakana <BEL>
- <BEL>J half-width Katakana Hiragana ASCII Roman <BEL>

## Message Header Record from Host

### Description

The Message Header Record from the host is used to obtain delimiters for parsing all records in the message.

### Example:

H | \ ^ & < CR >

Table 3.1 Message Header Record From Host

| Field # | E1394 Paragraph Number | Field Name           | Field Content         | Max Length |
|---------|------------------------|----------------------|-----------------------|------------|
| 1       | 7.1.1                  | Record Type ID       | 'H'                   | 1          |
| 2       | 7.1.2                  | Delimiter Definition | Implemented per E1394 | 4          |

---

## Message Header Record to Host

### Description

The Message Header Record to the host is the first record of each message. The Message Header Record to the host is either the "full" Message Header Record or the "abbreviated" message Header Record depending on the configuration in Host Setup (Refer to CHAPTER 5, *System Setup*, Host Communications Setup in the IMAGE Immunochemistry Systems *Operations Manual*).

### Example of "Full":

```
H|\^&|||sender id text|||||||1|19930630151206<CR>
```

### Example of "Abbreviated":

```
H|\^&<CR>
```

Table 3.2 Message Header Record To Host

| Field # | E1394 Paragraph Number | Field Name               | Field Content                                    | Max Length |
|---------|------------------------|--------------------------|--------------------------------------------------|------------|
| 1       | 7.1.1                  | Record Type ID           | 'H'                                              | 1          |
| 2       | 7.1.2                  | Delimiter Definition     | Implemented per E1394                            | 4          |
| 5       | 7.1.5                  | Sender Name or ID        | Sender Name or ID from Host Communications Setup | 80         |
| 13      | 7.1.13                 | Version No.              | '1'                                              | 1          |
| 14      | 7.1.14                 | Date and Time of Message | date and time the message was created            | 14         |

## Patient Information Record from Host

### Description

The Patient Information Record from the host contains patient demographic information.

### Example:

```
P|1||A43749||Smith^Tom^J||19950315^120^H|M|||||
Dr Randall|||||||Brea<CR>
```

Table 3.3 Patient Information Record From Host

| Field # | E1394 Paragraph Number | Field Name                     | Field Content                                          |                                                                                                                 |                 | Max Length |
|---------|------------------------|--------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|------------|
| 1       | 8.1.1                  | Record Type                    | 'P'                                                    |                                                                                                                 |                 | 1          |
| 2       | 8.1.2                  | Sequence Number                | Implemented per E1394                                  |                                                                                                                 |                 | 3          |
| 4       | 8.1.4                  | Laboratory Assigned Patient ID | patient ID                                             |                                                                                                                 |                 | 15         |
| 6       | 8.1.6                  | Patient Name                   | Comp                                                   | Content                                                                                                         | Max Length      |            |
|         |                        |                                | 1                                                      | last name                                                                                                       | 18 <sup>a</sup> |            |
|         |                        |                                | 2                                                      | first name                                                                                                      | 15 <sup>a</sup> |            |
|         |                        |                                | 3                                                      | middle initial                                                                                                  | 1               |            |
| 8       | 8.1.8                  | Birthdate                      | Comp                                                   | Content                                                                                                         | Max Length      |            |
|         |                        |                                | 1                                                      | birthdate                                                                                                       | 8               |            |
|         |                        |                                | 2                                                      | age                                                                                                             | 3               |            |
|         |                        |                                | 3                                                      | age unit<br>'Y' = years (assumed if none specified)<br>'M' = months<br>'W' = weeks<br>'D' = days<br>'H' = hours | 1               |            |
| 9       | 8.1.9                  | Patient Sex                    | 'M' = male<br>'F' = female<br>'U' = unspecified or M/F |                                                                                                                 |                 | 1          |
| 14      | 8.1.14                 | Attending Physician ID         | physician's name                                       |                                                                                                                 |                 | 18         |
| 26      | 8.1.26                 | Location                       | location                                               |                                                                                                                 |                 | 20         |

<sup>a</sup> Japanese Only: Escape code ID

## Patient Information Record to Host

### Description

The Patient Information Record to the host contains patient demographic information.

### Example:

```
P|1||A43749||Smith^Tom^J||19950315^120^H|M|||||
Dr Randall|||||||Brea<CR>
```

Table 3.4 Patient Information Record To Host

| Field # | E1394 Paragraph Number | Field Name                     | Field Content                                          |                                                                                                                 | Max Length      |
|---------|------------------------|--------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|
| 1       | 8.1.1                  | Record Type                    | 'P'                                                    |                                                                                                                 | 1               |
| 2       | 8.1.2                  | Sequence Number                | Implemented per E1394                                  |                                                                                                                 | 3               |
| 4       | 8.1.4                  | Laboratory Assigned Patient ID | patient ID                                             |                                                                                                                 | 15              |
| 6       | 8.1.6                  | Patient Name                   | Comp                                                   | Content                                                                                                         |                 |
|         |                        |                                | 1                                                      | last name                                                                                                       | 18 <sup>a</sup> |
|         |                        |                                | 2                                                      | first name                                                                                                      | 15 <sup>a</sup> |
|         |                        |                                | 3                                                      | middle initial                                                                                                  | 1               |
| 8       | 8.1.8                  | Birthdate                      | Comp                                                   | Content                                                                                                         |                 |
|         |                        |                                | 1                                                      | birthdate                                                                                                       | 8               |
|         |                        |                                | 2                                                      | age                                                                                                             | 3               |
|         |                        |                                | 3                                                      | age unit<br>'Y' = years (assumed if none specified)<br>'M' = months<br>'W' = weeks<br>'D' = days<br>'H' = hours | 1               |
| 9       | 8.1.9                  | Patient Sex                    | 'M' = male<br>'F' = female<br>'U' = unspecified or M/F |                                                                                                                 | 1               |
| 14      | 8.1.14                 | Attending Physician ID         | physician's name                                       |                                                                                                                 | 18 <sup>a</sup> |
| 26      | 8.1.26                 | Location                       | location                                               |                                                                                                                 | 20 <sup>a</sup> |

<sup>a</sup> Japanese Only: Escape code ID

## Test Order Record from Host

### Description

The Test Order Record from the host contains all specimen information, including test requests. Test requests can be made for individual tests.

### Example:

```
O|1|SID_00002^3^1^^1||^^IGG^^N^2\^^IGA|S|||199
50316135300|||N|||S|||1^1.00|||O<CR>
```

Table 3.5 Test Order Record from Host

| Field # | E1394 Paragraph Number | Field Name      | Field Content         |                                                                                                             | Max Length |
|---------|------------------------|-----------------|-----------------------|-------------------------------------------------------------------------------------------------------------|------------|
| 1       | 9.4.1                  | Record Type ID  | 'O'                   |                                                                                                             | 1          |
| 2       | 9.4.2                  | Sequence Number | Implemented per E1394 |                                                                                                             | 3          |
| 3       | 9.4.3                  | Specimen ID     | Comp                  | Content                                                                                                     | Max Length |
|         |                        |                 | 1                     | sample ID                                                                                                   | 15         |
|         |                        |                 | 2                     | rack number 1-99                                                                                            | 2          |
|         |                        |                 | 3                     | position number 1-9                                                                                         | 1          |
|         |                        |                 | 4                     | control lot number                                                                                          | 12         |
|         |                        |                 | 5                     | number of sample replicates 1-9 (if null or an invalid number, the system sample replicate number is used.) | 1          |
|         |                        |                 | 6                     | control name                                                                                                | 20         |

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Table 3.5 Test Order Record from Host, continued

| Field # | E1394 Paragraph Number | Field Name                        | Field Content                                                                                                                                                              |                                                                                                                                                                                               | Max Length      |
|---------|------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 5       | 9.4.5                  | Universal Test ID                 | Comp                                                                                                                                                                       | Content                                                                                                                                                                                       | Max Length      |
|         |                        |                                   | 4                                                                                                                                                                          | Beckman chemistry ID (refer to Table 3.15)                                                                                                                                                    | 5               |
|         |                        |                                   | 6                                                                                                                                                                          | antigen excess<br>'Y' = enabled<br>'N' = not enabled<br>null = default from System Setup                                                                                                      | 1               |
|         |                        |                                   | 7                                                                                                                                                                          | number of test replicates 1-9 (Test replicates greater than one are allowed only if sample replicates is one. Number of test replicates is ignored if sample replicates is greater than one.) | 1               |
| 6       | 9.4.6                  | Priority                          | 'S' = priority sample<br>'R' = routine sample (default)                                                                                                                    |                                                                                                                                                                                               | 1               |
| 8       | 9.4.8                  | Specimen Collection Date and Time | sample collection date and time (required for a timed urine)                                                                                                               |                                                                                                                                                                                               | 14              |
| 9       | 9.4.9                  | Collection End Time               | collection end date and time (required for a timed urine). Used in conjunction with Specimen Collection Date and Time to determine the 'time' parameter for a timed urine. |                                                                                                                                                                                               | 14              |
| 10      | 9.4.10                 | Collection Volume                 | Comp                                                                                                                                                                       | Content                                                                                                                                                                                       | Max Length      |
|         |                        |                                   | 1                                                                                                                                                                          | collection volume (required for timed urine)                                                                                                                                                  | 7               |
|         |                        |                                   | 2                                                                                                                                                                          | units for collection volume (mL assumed if not specified). If the units are not milliliters, the Test Order record is discarded.                                                              | 2               |
| 11      | 9.4.11                 | Collector ID                      | "Collected By"                                                                                                                                                             |                                                                                                                                                                                               | 18 <sup>a</sup> |

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Table 3.5 Test Order Record from Host, continued

| Field # | E1394 Paragraph Number | Field Name                           | Field Content                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Max Length |
|---------|------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 12      | 9.4.12                 | Action Code                          | <p>'C' causes the sample program to be deleted.</p> <p>'A' causes the tests to be added to the existing sample program.(a new sample program is created if one does not currently exist).</p> <p>'N' causes an new sample program to be created. (The current sample program is deleted before the new sample program is created).</p> <p>'Q' causes the sample to be programmed as a control.</p> <p>All other codes cause the sample test order to be rejected.</p> | 1          |
| 16      | 9.4.16                 | Specimen Descriptor, Specimen Source | <p>'S' = serum</p> <p>'U' = random urine</p> <p>'F' = cerebral spinal fluid</p> <p>'P' = plasma</p> <p>'T' = timed urine</p> <p>Note: null = default Sample Type from System Setup</p>                                                                                                                                                                                                                                                                                | 1          |
| 19      | 9.4.19                 | User Field No. 1                     | <p>Off-line dilution ratio</p> <p>A dilution ratio of Y:X.X would be represented as components of the field in the format Y^X.X. Off-line dilution factors apply to all tests requested for a specimen.</p>                                                                                                                                                                                                                                                           | 1^7        |

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Table 3.5 Test Order Record from Host, continued

| Field # | E1394 Paragraph Number | Field Name   | Field Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Max Length |
|---------|------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 26      | 9.4.26                 | Report Types | <p>'O' = denotes a sample program from the host and is assumed if the field is null</p> <p>'Z' = no information available for a sample in response to a query (same as 'Y')</p> <p>'Q' = this order is in response to a query when sample program information is available</p> <p>Note: Accounting of responses to outstanding queries is performed based on the sample ID of sample programs received from the host. Therefore, the use of this flag is not mandatory if the query is terminated using the proper termination code in the Message Terminator Record.</p> | 1          |

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<sup>a</sup> Japanese Only: Escape code ID.

## Test Order Record to Host

### Description

The Test Order Record to the host contains specimen information common to all Results Records.

### Example:

```
O|1|I4321U^5^3^2||R||19950316135300|||||S||
|1^1.00<CR>
```

Table 3.6 Test Order Record To Host

| Field # | E1394 Paragraph Number | Field Name                        | Field Content                                                                                                                                 |                                                 | Max Length |
|---------|------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------|
| 1       | 9.4.1                  | Record Type ID                    | 'O'                                                                                                                                           |                                                 | 1          |
| 2       | 9.4.2                  | Sequence Number                   | Implemented per E1394                                                                                                                         |                                                 | 3          |
| 3       | 9.4.3                  | Specimen ID                       | Comp                                                                                                                                          | Content                                         | Max Length |
|         |                        |                                   | 1                                                                                                                                             | sample ID                                       | 15         |
|         |                        |                                   | 2                                                                                                                                             | rack number 1-99                                | 2          |
|         |                        |                                   | 3                                                                                                                                             | position number 1-9                             | 1          |
|         |                        |                                   | 4                                                                                                                                             | control lot number                              | 12         |
|         |                        |                                   | 5                                                                                                                                             | sample replicate number 1-9                     | 1          |
|         |                        |                                   | 6                                                                                                                                             | control name                                    | 20         |
| 6       | 9.4.6                  | Priority                          | 'S' = priority sample<br>'R' = routine sample (default)                                                                                       |                                                 | 1          |
| 8       | 9.4.8                  | Specimen Collection Date and Time | Sample collection date and time are required for all samples.<br>Default to current date and time if no collection date and time are entered. |                                                 | 14         |
| 9       | 9.4.9                  | Collection End Time               | collection end date and time                                                                                                                  |                                                 | 14         |
| 10      | 9.4.10                 | Collection Volume                 | Comp                                                                                                                                          | Content                                         | Max Length |
|         |                        |                                   | 1                                                                                                                                             | collection volume<br>(required for timed urine) | 7          |
|         |                        |                                   | 2                                                                                                                                             | units for collection volume<br>(always mL)      | 2          |
| 11      | 9.4.11                 | Collector ID                      | 'collected by'                                                                                                                                |                                                 | 18         |

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Table 3.6 Test Order Record To Host, continued

| Field # | E1394 Paragraph Number | Field Name                              | Field Content                                                                                                                                                                                    | Max Length |
|---------|------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 12      | 9.4.12                 | Action Code                             | 'Q' = sample programmed as a control                                                                                                                                                             | 1          |
| 16      | 9.4.16                 | Specimen Descriptor,<br>Specimen Source | 'S' = serum<br>'U' = random urine<br>'F' = cerebral spinal fluid<br>'P' = plasma<br>'T' = timed urine                                                                                            | 1          |
| 19      | 9.4.19                 | User Field No. 1                        | Off-line dilution ratio<br>A dilution ratio of Y:X.X would be represented as components of the field in the format Y^X.X. Off-line dilution factors apply to all tests requested for a specimen. | 1^7        |
| 26      | 9.4.26                 | Report Types                            | 'X' = Sample order record was rejected                                                                                                                                                           | 1          |

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---

## Result Record From Host

The IMAGE does not use these records.

## Result Record to Host

### Description

The Result Record to the host contains the result of a single analytical determination.

### Example:

R|1|^^^IGG^^Y^1^^0|4.96|mg/dL|||R|||199608291 13113<CR>

Table 3.7 Result Record To Host

| Field # | E1394 Paragraph Number | Field Name        | Field Content         |                                                                                                                                                                                                                                                              | Max Length |
|---------|------------------------|-------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1       | 10.1.1                 | Record Type ID    | 'R'                   |                                                                                                                                                                                                                                                              | 1          |
| 2       | 10.1.2                 | Sequence Number   | Implemented per E1394 |                                                                                                                                                                                                                                                              | 3          |
| 3       | 10.1.3                 | Universal Test ID | Comp                  | Content                                                                                                                                                                                                                                                      | Max Length |
|         |                        |                   | 4                     | Beckman chemistry ID<br>(refer to Table 3.15 and Table 3.16)                                                                                                                                                                                                 | 15         |
|         |                        |                   | 6                     | antigen excess<br>'Y' = enabled<br>'N' = not enabled<br>if not specified 'N' is assumed                                                                                                                                                                      | 1          |
|         |                        |                   | 7                     | test replicate number 1-9                                                                                                                                                                                                                                    | 1          |
|         |                        |                   | 9                     | result type<br>'0' = regular<br>'1' = special calculation<br><br>Note: This message is sent<br>after the last result for a cup if<br>the special calculations mode<br>is enabled and if a calculation<br>was required for that cup.<br><br>'2' = timed urine | 1          |

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Table 3.7 Result Record To Host, continued

| Field # | E1394 Paragraph Number | Field Name                | Field Content                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Max Length        |  |
|---------|------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--|
| 4       | 10.1.4                 | Data or Measurement Value | test result ('*****' is used for values beyond the displayable range.)                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 13                |  |
|         |                        |                           |  <b>WARNING</b><br><b>AN 'S' IN THE RESULT COMMENT RECORD DESIGNATES A SIMULATED RESULT. THIS IS NOT A REPORTABLE ANSWER.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |  |
| 5       | 10.1.5                 | Units                     | units                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7                 |  |
| 6       | 10.1.6                 | Reference Ranges          | first range = normal range<br>second range = critical range<br>separated by repeat delimiter ('\')                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30                |  |
| 7       | 10.1.7                 | Result Abnormal Flags     | <b>Comp</b>                                                                                                                                                                                                     | <b>Content</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Max Length</b> |  |
|         |                        |                           | 1                                                                                                                                                                                                               | 'L' = result below the low normal range<br>'H' = result above the high normal range<br>'LL' = result below the low critical range<br>'HH' = result above the high critical range<br>'<' = result below the instrument range<br>'>' = result above the instrument range<br><br>Note: The '<' or '>' indicate that the test result is actually <b>less than</b> or <b>greater than</b> the number in the Result Field. The result should be reported as "<XX.X" for the '<' flag and ">XX.X" for the '>' flag (where XX.X represents the number in the Result Field). | 3                 |  |

(2 of 3)

Table 3.7 Result Record To Host, continued

| Field #      | E1394 Paragraph Number | Field Name               | Field Content                                               |                                                                                                                                                                                                                                                                                                                                                                               | Max Length |
|--------------|------------------------|--------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 7<br>(cont.) |                        |                          | Comp                                                        | Content                                                                                                                                                                                                                                                                                                                                                                       | Max Length |
|              |                        |                          |                                                             | 'N' = result within the normal range<br>'Sm' = simulate resultd<br><br> <b>WARNING</b><br><br><b>A SIMULATED RESULT IS NOT A REPORTABLE ANSWER.</b><br><br>(If QC sample <b>and</b> update Option is on)<br>'2SD' = greater than 2SD<br>'3SD' = greater than 3SD<br>'4SD' = greater than 4SD |            |
|              |                        |                          | 2                                                           | (If QC sample <b>and</b> update Option is on)<br>'A'= accuracy<br>'P'= precision                                                                                                                                                                                                                                                                                              | 1          |
| 9            | 10.1.9                 | Result Status            | 'T' = result is pending<br>'R' = request from result recall |                                                                                                                                                                                                                                                                                                                                                                               | 1          |
| 13           | 10.1.13                | Date/Time Test Completed | date and time the test was completed                        |                                                                                                                                                                                                                                                                                                                                                                               | 14         |

(3 of 3)

---

## Request Information Record from Host

The IMAGE does not use these records.

## Request Information Record to Host

### Description

The Request Information Record to the host is used to request sample program information from the host computer. A query is typically performed when a sample bar code has been read on the instrument and no sample program information is found locally. All queries are made by sample ID.

### Example:

```
Q|1|^SampleID1\^SampleID2\^SampleID3\^SampleID4|
| | | | | | | |O<CR>
```

Table 3.8 Request Information Record To Host

| Field # | E1394 Paragraph Number | Field Name                       | Field Content                                                                                                        |      |                                                                                                                                                                                                                                                                                                                                     | Max Length |
|---------|------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1       | 10.1.1                 | Record Type ID                   | 'Q'                                                                                                                  |      |                                                                                                                                                                                                                                                                                                                                     | 1          |
| 2       | 10.1.2                 | Sequence Number                  | Implemented per E1394                                                                                                |      |                                                                                                                                                                                                                                                                                                                                     | 3          |
| 3       | 10.1.3                 | Starting Range ID Number         |                                                                                                                      | Comp | Content                                                                                                                                                                                                                                                                                                                             | Max Length |
|         |                        |                                  |                                                                                                                      | 2    | Sample ID for which the sample program information is being requested<br><br>Note: When the request information mode is set to 'single' this field is limited to one sample ID. When the request information mode is set to 'multiple', a repeat delimiter is used to separate up to 9 sample IDs. The parameter 'ALL' is not used. | 18         |
| 13      | 10.1.13                | Request Information Status Codes | 'A' = cancellation of a previously transmitted query for any reason.<br>'O' = request sample programming information |      |                                                                                                                                                                                                                                                                                                                                     | 1          |

## Message Terminator Record from Host

### Description

The Message Terminator Record from the host is used with the Message Header Record to encapsulate a message containing information for one or more patients.

### Example:

L | 1 | N<CR>

Table 3.9 Message Terminator Record From Host

| Field # | E1394 Paragraph Number | Field Name       | Field Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Max Length |
|---------|------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1       | 13.1.1                 | Record Type ID   | 'L'                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1          |
| 2       | 13.1.2                 | Sequence Number  | Implemented per E1394                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3          |
| 3       | 13.1.3                 | Termination Code | <p>'N' = normal (default if null)</p> <p>'Q' = terminate the outstanding query and treat as if no information exists for the query.</p> <p>'T' = no information available from last query.</p> <p>'F' = no more information exists for the query. Is accepted in lieu of 'T' when no information exists for a query.</p> <p>Note: Termination Code 'T' or 'F' must be used to avoid waiting for the query timeout before the next query from the instrument can be sent.</p> | 1          |

---

## Message Terminator Record to Host

### Description

The Message Terminator Record to the host is used with the Message Header Record to encapsulate related patient information.

### Example:

L | 1 | N<CR>

Table 3.10 Message Terminator Record To Host

| Field # | E1394 Paragraph Number | Field Name       | Field Content         | Max Length |
|---------|------------------------|------------------|-----------------------|------------|
| 1       | 13.1.1                 | Record Type ID   | 'L'                   | 1          |
| 2       | 13.1.2                 | Sequence Number  | Implemented per E1394 | 3          |
| 3       | 13.1.3                 | Termination Code | 'N' = normal          | 1          |

---

## Scientific Record from Host

The IMAGE does not use these records.

---

## Scientific Record to Host

The IMAGE does not use these records.

## Comment Record from Host

### Description

The Comment Record from the host contains a sample comment referring to the sample defined by the preceding Test Order record. The use of the Comment Record changes by what type of record it follows.

### Example:

C | 1 | | Hemolyzed<CR>

Table 3.11 Comment Record From Host

| Field # | E1394 Paragraph Number | Field Name      | Field Content                                                                                                                                                                                                 | Max Length                                                       |
|---------|------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 1       | 11.1.1                 | Record Type ID  | 'C'                                                                                                                                                                                                           | 1                                                                |
| 2       | 11.1.2                 | Sequence Number | Implemented per E1394                                                                                                                                                                                         | 3                                                                |
| 4       | 11.1.4                 | Comment Text    | <p>If the comment record follows a Patient Information Record, this field contains the patient comment.</p> <p>If the comment record follows a Test Order Record, this field contains the sample comment.</p> | <p>patient: 45<sup>a</sup></p> <p>test order: 25<sup>a</sup></p> |

<sup>a</sup> Japanese Only: Escape code ID

---

## Comment Record to Host

### Description

The Comment Record to the host contains a sample comment referring to the sample defined by the preceding Test Order record. The use of the Comment Record changes by what type of record it follows.

### Example:

C | 1 | | Hemolyzed<CR>

If the Comment Record follows a Patient Information Record, the following describes the Comment Record:

Table 3.12 Comment Record To Host Following Patient Information Record

| Field # | E1394 Paragraph Number | Field Name      | Field Content                                                                                                                                      | Max Length      |
|---------|------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 1       | 11.1.1                 | Record Type ID  | 'C'                                                                                                                                                | 1               |
| 2       | 11.1.2                 | Sequence Number | Implemented per E1394                                                                                                                              | 3               |
| 4       | 11.1.4                 | Comment Text    | patient comment<br><br>Note: If the corresponding comment field on the IMAGE is not filled in, a Comment Record for that comment will not be sent. | 45 <sup>a</sup> |

<sup>a</sup> Japanese Only: Escape code ID

If the Comment Record follows a Test Order Record, the following describes the Comment Record:

Table 3.13 Comment Record Following Test Order Record

| Field # | E1394 Paragraph Number | Field Name      | Field Content                                                                                                                                     | Max Length      |
|---------|------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 1       | 11.1.1                 | Record Type ID  | 'C'                                                                                                                                               | 1               |
| 2       | 11.1.2                 | Sequence Number | Implemented per E1394                                                                                                                             | 3               |
| 4       | 11.1.4                 | Comment Text    | sample comment<br><br>Note: If the corresponding comment field on the IMAGE is not filled in, a Comment Record for that comment will not be sent. | 25 <sup>a</sup> |

<sup>a</sup> Japanese Only: Escape code ID

If the Comment Record follows a Result Record the following describes the Comment Record:

Table 3.14 Comment Record Following Result Record

| Field # | E1394 Paragraph Number | Field Name      | Field Content         | Max Length |
|---------|------------------------|-----------------|-----------------------|------------|
| 1       | 11.1.1                 | Record Type ID  | 'C'                   | 1          |
| 2       | 11.1.2                 | Sequence Number | Implemented per E1394 | 3          |

(1 of 2)

Table 3.14 Comment Record Following Result Record, continued

| Field # | E1394 Paragraph Number | Field Name   | Field Content                                                                                                     |                                                                                                                                                                                                                                                                                                                                                      |                   | Max Length |
|---------|------------------------|--------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------|
| 4       | 11.1.4                 | Comment Text | <b>Comp</b>                                                                                                       | <b>Content</b>                                                                                                                                                                                                                                                                                                                                       | <b>Max Length</b> |            |
|         |                        |              | 1                                                                                                                 | instrument codes<br>'J' = slope/offset adjustment<br>'C' = calibration re-enabled<br>'R' = reagent expired<br>'W' = dilution well reused<br>'S' = simulated results<br><br> <b>WARNING</b><br><br><b>A SIMULATED<br/>RESULT IS NOT A<br/>REPORTABLE<br/>RESULT.</b> | 1                 |            |
|         |                        |              | 2                                                                                                                 | result error number                                                                                                                                                                                                                                                                                                                                  | 3                 |            |
|         |                        |              | Note: If there are no errors and no instrument codes for the preceding result, a Comment Record will not be sent. |                                                                                                                                                                                                                                                                                                                                                      |                   |            |

(2 of 2)

---

## Manufacturer Information Record from Host

The IMAGE does not use these records.

---

## Manufacturer Information Record to Host

The IMAGE does not use these records.

Table 3.15 Beckman Coulter Chemistry IDs Used On the IMAGE  
Immunochemistry Systems

| Beckman<br>Chemistry ID | Chemistry Name                      | Sample Type  |
|-------------------------|-------------------------------------|--------------|
| A1M                     | Alpha-1-Microglobulin               | Urine        |
| ALB                     | Albumin                             | Serum, CSF   |
| AAG                     | Alpha-1-Acid Glycoprotein           | Serum        |
| AAT                     | Alpha-1-Antitrypsin                 | Serum        |
| AMG                     | Alpha-2-Macroglobulin               | Serum        |
| APA                     | Apolipoprotein A1                   | Serum        |
| APB                     | Apolipoprotein B                    | Serum        |
| ASO                     | Anti-Streptolysin O                 | Serum        |
| AT3                     | Anti-Thrombin III                   | Plasma       |
| C3                      | Complement C3                       | Serum        |
| C4                      | Complement C4                       | Serum        |
| CRP                     | C Reactive Protein                  | Serum        |
| CRPH                    | High Sensitivity C-Reactive Protein | Serum        |
| CAR                     | Carbamazepine                       | Serum        |
| CER                     | Ceruloplasmin                       | Serum        |
| DIG                     | Digoxin                             | Serum        |
| DNB                     | DNase B                             | Serum        |
| FER                     | Ferritin                            | Serum        |
| GEN                     | Gentamicin                          | Serum        |
| HPT                     | Haptoglobin                         | Serum        |
| IGA                     | Immunoglobulin A                    | Serum        |
| IGALC                   | Low Concentration Immunoglobulin A  | Serum, CSF   |
| IGE                     | Immunoglobulin E                    | Serum        |
| IGG                     | Immunoglobulin G                    | Serum, CSF   |
| IGM                     | Immunoglobulin M                    | Serum        |
| IGMLC                   | Low Concentration Immunoglobulin M  | Serum, CSF   |
| IGU                     | Immunoglobulin G Urine              | Urine        |
| KAP                     | Kappa                               | Serum, Urine |
| LAM                     | Lambda                              | Serum, Urine |

(1 of 2)

Table 3.15 Beckman Coulter Chemistry IDs Used On the IMAGE  
Immunochemistry Systems, continued

| Beckman<br>Chemistry ID | Chemistry Name              | Sample Type |
|-------------------------|-----------------------------|-------------|
| LPAX                    | Lipoprotein(a) <sup>a</sup> | Serum       |
| MA                      | Microalbumin                | Urine       |
| PHE                     | Phenobarbital               | Serum       |
| PAB                     | Prealbumin                  | Serum       |
| PFB                     | Properdin Factor B          | Serum       |
| PHY                     | Phenytoin                   | Serum       |
| RF                      | Rheumatoid Factor           | Serum       |
| THE                     | Theophylline                | Serum       |
| TOB                     | Tobramycin                  | Serum       |
| TRF                     | Transferrin                 | Serum       |
| TRU                     | Transferrin Urine           | Urine       |
| VPA                     | Valproic Acid               | Serum       |

(2 of 2)

Table 3.16 Beckman Coulter Defined Calculations

|                                                                                                               |
|---------------------------------------------------------------------------------------------------------------|
| APA/APB, APB/APA, KAP/LAM, Excrete. Rate, CSF Index, IGG Syn Rate, ALB Index, IGG Index, IGA Index, IGM Index |
|---------------------------------------------------------------------------------------------------------------|

## CHAPTER 4 Examples

### Single Patient Samples vs Batch Sample Programming

#### Introduction

The host may send sample programs to the instrument one sample at a time or in a batch. The request information message mode should be set to reflect the manner in which the host will send sample programs. This section gives examples of both single patient sample and batch sample programming.

#### Single Patient Programs from Host

These are single patient sample programs from the host.

```
H|\^&
P|1||PID101||Lastname^Firstname^A||19910101^4^Y|U|||DoctorsName1|||LocationName1
O|1|smp101^1^1^1||^C3^N|S||19951211010101|||N|||S||1^1.00
O|2|smp102^1^2^2||^IGA^Y^1|^FER^Y^1|S||19951211000000|||N|||S||1^1.00
O|3|smp103^1^3^3||^IGG|^IGA^Y^1|^IGM|R||19951211000000|||N|||S||1^1.00
L|1|N
H|\^&
P|1||PID201||Lastname^Firstname^A||19910101^4^Y|U|||DoctorsName1|||LocationName1
O|1|smp201^2^1^1||^C3^N|S||19951211010101|||N|||S||1^1.00
O|2|smp202^2^2^2||^IGA^Y^1|^FER^Y^1|S||19951211000000|||N|||S||1^1.00
O|3|smp203^2^3^3||^IGG|^IGA^Y^1|^IGM|R||19951211000000|||N|||S||1^1.00
O|4|smp204^2^4^4||^IGM^Y^1|^C3^N|^C4|^FER|S||19951211000000|||N|||S||1^1.00
L|1|N
H|\^&
P|1||PID301||Lastname^Firstname^A||19910101^4^Y|U|||DoctorsName1|||LocationName1
O|1|smp301^3^1^1||^C3^N|S||19951211010101|||N|||S||1^1.00
O|2|smp302^3^2^2||^IGA^Y^1|^FER^Y^1|S||19951211000000|||N|||S||1^1.00
O|3|smp303^3^3^3||^IGG|^IGA^Y^1|^IGM|R||19951211000000|||N|||S||1^1.00
O|4|smp304^3^4^4||^IGM^Y^1|^C3^N|^C4|^FER|S||19951211000000|||N|||S||1^1.00
O|5|smp305^3^5^5||^C3^N|S||19951211010101|||N|||S||1^1.00
L|1|N
H|\^&
P|1||PID401||Lastname^Firstname^A||19910101^4^Y|U|||DoctorsName1|||LocationName1
O|1|smp401^4^1^1||^C3^N|S||19951211010101|||N|||S||1^1.00
O|2|smp402^4^2^2||^IGA^Y^1|^FER^Y^1|S||19951211000000|||N|||S||1^1.00
O|3|smp403^4^3^3||^IGG|^IGA^Y^1|^IGM|R||19951211000000|||N|||S||1^1.00
O|4|smp404^4^4^4||^IGM^Y^1|^C3^N|^C4|^FER|S||19951211000000|||N|||S||1^1.00
O|5|smp405^4^5^5||^C3^N|S||19951211010101|||N|||S||1^1.00
O|6|smp406^4^6^6||^IGA^Y^1|^FER^Y^1|S||19951211000000|||N|||S||1^1.00
L|1|N
H|\^&
P|1||PID501||Lastname^Firstname^A||19910101^4^Y|U|||DoctorsName1|||LocationName1
O|1|smp501^5^1^1||^C3^N|S||19951211010101|||N|||S||1^1.00
O|2|smp502^5^2^2||^IGA^Y^1|^FER^Y^1|S||19951211000000|||N|||S||1^1.00
O|3|smp503^5^3^3||^IGG|^IGA^Y^1|^IGM|R||19951211000000|||N|||S||1^1.00
O|4|smp504^5^4^4||^IGM^Y^1|^C3^N|^C4|^FER|S||19951211000000|||N|||S||1^1.00
O|5|smp505^5^5^5||^C3^N|S||19951211010101|||N|||S||1^1.00
O|6|smp506^5^6^6||^IGA^Y^1|^FER^Y^1|S||19951211000000|||N|||S||1^1.00
O|7|smp507^5^7^7||^IGG|^IGA^Y^1|^IGM|R||19951211000000|||N|||S||1^1.00
L|1|N
```

E011376L.EPS

## Batch Sample Programming

This is an example of batch sample programming message from the host.

```
H|\&
P|1|PID101|Lastname1^Firstname1^A|19910101^4^Y|U|||DoctorsName1|LocationName1
O|1|smp101^1^1^1|^^^C3^N^1^36|S||19951211010101||N||S||1^1.00
O|2|smp102^1^2^2|^^^IGA^Y^1^2216\^^^FER^Y^1^1^216|S||19951211000000||N||S||1^1.00
O|3|smp103^1^3^3|^^^IGG\^^^IGA^Y^1^1^316\^^^IGM^2^36|R||19951211000000||N||S||1^1.00
P|2|PID201|Lastname2^Firstname2^A|19910101^4^Y|U|||DoctorsName2|LocationName2
O|1|smp201^2^1^1|^^^C3^N|S||19951211010101||N||S||1^1.00
O|2|smp202^2^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|3|smp203^2^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
O|4|smp204^2^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000||N||S||1^1.00
P|3|PID301|Lastname3^Firstname3^A|19910101^4^Y|U|||DoctorsName3|LocationName3
O|1|smp301^3^1^1|^^^C3^N|S||19951211010101||N||S||1^1.00
O|2|smp302^3^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|3|smp303^3^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
O|4|smp304^3^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000||N||S||1^1.00
O|5|smp305^3^5^5|^^^C3^N|S||19951211010101||N||S||1^1.00
P|4|PID401|Lastname4^Firstname4^A|19910101^4^Y|U|||DoctorsName4|LocationName4
O|1|smp401^4^1^1|^^^C3^N|S||19951211010101||N||S||1^1.00
O|2|smp402^4^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|3|smp403^4^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
O|4|smp404^4^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000||N||S||1^1.00
O|5|smp405^4^5^5|^^^C3^N|S||19951211010101||N||S||1^1.00
O|6|smp406^4^6^6|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
P|5|PID501|Lastname5^Firstname5^A|19910101^4^Y|U|||DoctorsName5|LocationName5
O|1|smp501^5^1^1|^^^C3^N|S||19951211010101||N||S||1^1.00
O|2|smp502^5^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|3|smp503^5^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
O|4|smp504^5^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000||N||S||1^1.00
O|5|smp505^5^5^5|^^^C3^N|S||19951211010101||N||S||1^1.00
O|6|smp506^5^6^6|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|7|smp507^5^7^7|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
P|6|PID601|Lastname6^Firstname6^A|19910101^4^Y|U|||DoctorsName6|LocationName6
O|1|smp601^6^1^1|^^^C3^N|S||19951211010101||N||S||1^1.00
O|2|smp602^6^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|3|smp603^6^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
O|4|smp604^6^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000||N||S||1^1.00
O|5|smp605^6^5^5|^^^C3^N|S||19951211010101||N||S||1^1.00
O|6|smp606^6^6^6|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|7|smp607^6^7^7|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
O|8|smp608^6^8^8|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000||N||S||1^1.00
P|7|PID701|Lastname7^Firstname7^A|19910101^4^Y|U|||DoctorsName7|LocationName7
O|1|smp701^7^1^1|^^^C3^N|S||19951211010101||N||S||1^1.00
O|2|smp702^7^2^2|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|3|smp703^7^3^3|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
O|4|smp704^7^4^4|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000||N||S||1^1.00
O|5|smp705^7^5^5|^^^C3^N|S||19951211010101||N||S||1^1.00
O|6|smp706^7^6^6|^^^IGA^Y^1\^^^FER^Y^1|S||19951211000000||N||S||1^1.00
O|7|smp707^7^7^7|^^^IGG\^^^IGA^Y^1\^^^IGM|R||19951211000000||N||S||1^1.00
O|8|smp708^7^8^8|^^^IGM^Y^1\^^^C3^N\^^^C4\^^^FER|S||19951211000000||N||S||1^1.00
O|9|smp709^7^9^9|^^^C3^N|S||19951211010101||N||S||1^1.00
L|1|N
```

E011377LEPS

## Continuous Numbering Mode vs Non-Continuous Numbering Mode

### Frame Number

The user may choose either continuous or non-continuous frame numbering from System Setup. When continuous is selected, frame numbering will be initialized to 1 at the Transfer Phase defined in E1381. When continuous is **not** selected, frame numbering will be initialized to 1 at each Message Header Record defined in E1394.

### Continuous

An example of Full Header and Continuous Numbering Mode.

```
hc send:<ENQ>
hc rcv:<ACK>
hc send:<STX>1H|\^&||Beckman IMAGE|||||1|19960830133749<CR><ETX>46<CR><LF>
hc rcv:<ACK>
hc send:<STX>2P|1|||||U<CR><ETX>F8<CR><LF>
hc rcv:<ACK>
hc send:<STX>3O|1|SMP2^0^0^1||R||19960829000000||0.00|||||S||1^1.00<CR><ETX>23<CR><LF>
hc rcv:<ACK>
hc send:<STX>4R|1|^^^IGM^^^1^0||mg/dL|||I<CR><ETX>D1<CR><LF>
hc rcv:<ACK>
hc send:<STX>5R|2|^^^C3^^^1^0||mg/dL|||I<CR><ETX>6C<CR><LF>
hc rcv:<ACK>
hc send:<STX>6L|1|N<CR><ETX>09<CR><LF>
hc rcv:<ACK>
hc send:<STX>7H|\^&||Beckman IMAGE|||||1|19960830133808<CR><ETX>48<CR><LF>
hc rcv:<ACK>
hc send:<STX>0P|1|P00004||LastP00004^FirstP00004^A|||U<CR><ETX>5B<CR><LF>
hc rcv:<ACK>
hc send:<STX>1O|1|4^1^4^1||R||19960829113115||0.00|||||S||1^1.00<CR><ETX>44<CR><LF>
hc rcv:<ACK>
hc send:<STX>2R|1|^^^IGG^^Y^1^0|4.96|mg/dL|||R|||19960829113113<CR><ETX>C2<CR><LF>
hc rcv:<ACK>
hc send:<STX>3C|1|JCR<CR><ETX>0A<CR><LF>
hc rcv:<ACK>
hc send:<STX>4R|2|^^^IGA^^Y^1^0|4.19|mg/dL|||R|||19960829113114<CR><ETX>BB<CR><LF>
hc rcv:<ACK>
hc send:<STX>5C|1|W<CR><ETX>84<CR><LF>
hc rcv:<ACK>
hc send:<STX>6L|1|N<CR><ETX>09<CR><LF>
hc rcv:<ACK>
```

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## Non-Continuous

An example of Full Header and Non-Continuous Numbering Mode.

```
hc send:<ENQ>
hc rcv:<ACK>
hc send:<STX>1H|\^&||Beckman IMAGE|||||1|19960829114739<CR><ETX>4C<CR><LF>
hc rcv:<ACK>
hc send:<STX>2P|1|||||U<CR><ETX>F8<CR><LF>
hc rcv:<ACK>
hc send:<STX>3O|1|SMP2^0^0^1||R||19960829000000|0.00|||||S||1^1.00<CR><ETX>23<CR><LF>
hc rcv:<ACK>
hc send:<STX>4R|1|^IGM^^1^0|mg/dL|||I<CR><ETX>D1<CR><LF>
hc rcv:<ACK>
hc send:<STX>5R|2|^C3^^1^0|mg/dL|||I<CR><ETX>6C<CR><LF>
hc rcv:<ACK>
hc send:<STX>6L|1|N<CR><ETX>09<CR><LF>
hc rcv:<ACK>
hc send:<STX>1H|\^&||Beckman IMAGE|||||1|19960829114813<CR><ETX>45<CR><LF>
hc rcv:<ACK>
hc send:<STX>2P|1||P00004||LastP00004^FirstP00004^A|||U<CR><ETX>5D<CR><LF>
hc rcv:<ACK>
hc send:<STX>3O|1|4^1^4^1||R||19960829113115|0.00|||||S||1^1.00<CR><ETX>46<CR><LF>
hc rcv:<ACK>
hc send:<STX>4R|1|^IGG^^Y^1^0|4.96|mg/dL|||R|||19960829113113<CR><ETX>C4<CR><LF>
hc rcv:<ACK>
hc send:<STX>5C|1||JCR<CR><ETX>0C<CR><LF>
hc rcv:<ACK>
hc send:<STX>6R|2|^IGA^^Y^1^0|4.19|mg/dL|||R|||19960829113114<CR><ETX>BD<CR><LF>
hc rcv:<ACK>
hc send:<STX>7C|1||W<CR><ETX>86<CR><LF>
hc rcv:<ACK>
hc send:<STX>0L|1|N<CR><ETX>03<CR><LF>
hc rcv:<ACK>
```

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---

## Valid Characters for Fields

### Patient ID, Sample ID

0 to 9  
A to Z (a to z always changed to upper case)  
! @ # % ( ) - \_ = + { } ' : . < > ` /

### First Name, Last Name

Any printable characters except delimiters (repeat, component, escape)

### Middle Initial

Any printable characters except delimiters (repeat, component, escape)

### Physician's Name, Location

Any printable characters except delimiters (repeat, component, escape)

### Control Lot Number

0 to 9  
A to Z (a to z always changed to upper case)

### Control Name

Any printable characters except delimiters (repeat, component, escape)

### Collection Volume Units

mL (only)

### Collector ID

Any printable characters except delimiters (repeat, component, escape)

### Patient Comment, Sample Comment

Any printable characters except delimiters (repeat, component, escape)

### Japanese Only

**Full-width** ASCII Roman, Katakana, Kanji, or Hirigana, first and second byte range:

- First byte: 129-159, 224-239
- Second byte: 64-126, 128-252

**Half-width** Katakana: 161-223

**Half-width** ASCII Roman: 33-126