Abbott

Alinity ci-series LIS Interface Manual (HL7)

80000455-104

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NOTES

Foreword

The Alinity ci-series LIS Interface Manual (HL7) is a messaging specification intended to specify the electronic communication between the Alinity ci-series (instrument) and a Laboratory Information System (LIS).

This manual assumes that the reader is familiar with the basics of the Health Level 7 (HL7) Messaging Standard Version 2.5.1.

The remainder of this manual specifies the dynamic and static aspects of the Alinity ci-series HL7 LIS interface in detail. The specification defines message profiles for relevant HL7 message types. A message profile is an unambiguous specification of an HL7 message type intended for a particular use case as defined in Section 2.12 of the HL7 v2.5.1 standard. A message profile defines both the *dynamic* aspects of information interchange (for example, the systems that participate in such interchanges and the real-world events that trigger messaging) as well as the *static* aspects of messaging (for example, the structure and the contents of the electronic messages that are exchanged).

Although this manual describes the elements of HL7 messages and messaging interactions as they relate to this specification, it does not constitute an introduction to the HL7 messaging standard.

Refer to the Alinity ci-series Operations Manual for information about communication setup and instrument communication troubleshooting.

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Customer service

For questions about the Alinity ci-series, contact the local representative or find country-specific contact information at corelaboratory.abbott.

Related information…

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The cuvette warranty is one year post-installation.

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Alinity ci-series agency approvals

The Alinity c processing module and the Alinity i processing module have been tested and found to comply with the following agency standards and European Union (EU) directives:

- UL 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- IEC/EN 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- CAN/CSA-C22.2 No. 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- IEC/EN 61010-2-101 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment
- IEC/EN 61010-2-081 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-081: Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes
- IEC/EN 61010-2-010 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-010: Particular requirements for laboratory equipment for the heating of materials
- Directive 2012/19/EU: Waste Electrical and Electronic Equipment (WEEE)
- Directive 2011/65/EU: Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS 2)
- Directive 98/79/EC: In Vitro Diagnostic (IVD) Medical Devices
- IEC/BS EN 61326-1 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
- IEC/BS EN 61326-2-6 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-6: Particular requirements - In vitro diagnostic (IVD) medical equipment

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Related information…

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Key to symbols

The following symbols are used on Alinity ci-series labels and labeling.

Harmonized symbols

Directive 2002/96/EC

Symbol	Description
	WEEE: Waste Electrical and Electronic Equipment **NOTE:** Indicates that the item needs to be disposed of in a separate waste collection for electrical and electronic equipment and must not be disposed of in the general waste or trash.

IEC 61010-1

Symbol	Description
	Caution: Consult accompanying documents
	Caution: Hot surface
	Caution: Possibility of electric shock
	Off
	On

IEC 61010-2-101

Symbol	Description
 	Caution: Biological RISKS

ISO 3287, ISO 3767-1, ISO 7296-1/Amd 1, ISO 11192

Symbol	Description
	Interior light

ISO 7010-W022

Symbol	Description
	Caution: Sharp element

ISO 15223-1

Symbol	Description
	Consult operating instructions
	Date of manufacture
	Manufacturer
	Temperature limitation
	Use by/Expiration date
EC REP	Authorized Representative in the European Community
LOT	Batch code/Lot number
REF	Catalog number/List number
IVD	*In Vitro* Diagnostic Medical Device
SN	Serial number

Nonharmonized symbols

Symbol	Description
	Caution: Probe stick hazard
	Disconnect Mains Plug

Symbol	Description
	Priority
	UL Recognized Component Mark
ACID WASH	Acid Wash
ALKALINE WASH	Alkaline Wash
CONCENTRATED WASH BUFFER	Concentrated Wash Buffer
DETERGENT A	Detergent A
DETERGENT B	Detergent B
DISTRIBUTED BY	Distributed by
DISTRIBUTED IN THE USA BY	Distributed in the USA by
FOR USE WITH	For use with
ICT REFERENCE SOLUTION	ICT Reference Solution
KIT	Kit
MANUFACTURED BY	Manufactured by
MANUFACTURED FOR	Manufactured for
PRE-TRIGGER SOLUTION	Pre-Trigger Solution
PRODUCED BY	Produced by
PRODUCED FOR ABBOTT BY	Produced for Abbott by
PRODUCT OF JAPAN	Product of Japan
PRODUCT OF SINGAPORE	Product of Singapore
PRODUCT OF USA	Product of USA
QTY	Quantity
REACTION VESSELS	Reaction vessels

Symbol	Description
REV	Revision
SAMPLE CUPS	Sample cups
SEQUENCE NUMBER	Sequence number
TRIGGER SOLUTION	Trigger Solution
UNIT	Unit
WASH BUFFER	Wash buffer
WATER BATH ADDITIVE	Water Bath Additive

Related information…

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Comparison between available LIS interfaces: CLSI (ASTM) vs. HL7

The Alinity ci-series supports two types of LIS interfaces: CLSI (ASTM) and Health Level 7 (HL7). The instrument can be configured to use one or the other. This section compares and contrasts the interfaces to provide information to help select which interface type to use.

The HL7 interface is the recommended interface based on additional messaging capabilities, more robust messaging, and conformance with the most current *In Vitro* Diagnostic (IVD) industry standards [developed in partnership with Integrating the Healthcare Enterprise (IHE) Laboratory]. The CLSI (ASTM) interface is provided for legacy reasons to support LIS or host systems that do not have support for HL7-based interfaces. (CLSI: Clinical and Laboratory Standards Institute) (ASTM: American Society for Testing and Materials)

Capability	**HL7**	**CLSI (ASTM)**	**Comment**
Connections			
TCP/IP	X	X	Both types support connections over TCP/IP only
Dual TCP/IP Connection	X		Separate TCP/IP connections: One for incoming messages and one for outgoing messages
Single TCP/IP Connection		X	Single TCP/IP connection used for both incoming and outgoing messages
Baseline Standards			
CLSI LIS01, LIS2		X	Communication based on CLSI standards
HL7 Messaging Standard Version 2.5.1, IHE LAW	X		Communication based on HL7 v2.5.1 and the IHE LAW messaging profiles
Supported Messages			
Order Download	X	X	
Order Query	X	X	
Results Upload	X	X	HL7 supports specimen, control, and calibrator results CLSI supports specimen and control results only
Test Status Update	X		Test status update message triggered upon: • Test started • Test exception • Test pending transmission until other tests for the sample are completed (Collation)
Sample Status Update	X		Sample status update message triggered upon: • Sample scan by instrument • Sample processing started • Sample processing completed • Sample removal from instrument

Capability	HL7	CLSI (ASTM)	Comment
Assay Availability	X		Assay availability message triggered upon time interval.
Command/Response	X		Command/Response message triggered from the host system in support of Disable/Enable patient sample processing for an assay on a processing module.
Messaging Layer			
Application Level Acknowledgment	X		HL7 requires application level acknowledgment of received messages (for example, the message is valid and has been accepted by the receiving application). CLSI supports only transmission level acknowledgment (for example, a message transmission was received). There is no acknowledgment that the message is valid or has been accepted by the received application.
Message ID	X		Unique message ID for each sent message and included in the message acknowledgment.
Application Layer			
Test Management by AWOS ID	X		All tests are referenced by AWOS ID. AWOS ID (generated by the LIS) uniquely identifies each test requested on a specific specimen. (AWOS = IHE LAW term: Analytical Work Order Step) For orders: Unambiguous support for order cancel, order add-ons, order replicates, and detection of duplicate orders. For results: Identification of results for specific orders, reruns, reflex tests, and unsolicited results.
Test Management by Specimen ID and Assay ID		X	All tests are referenced by Specimen ID and Assay ID only. For orders: Using order action code, can support order cancel, order add-ons, order replicates, and detection of duplicate orders. For results: No association of results to specific orders, no identification of reruns and reflex tests, cannot distinguish unsolicited results from results for requested orders.
Asynchronous Queries	X		In HL7 LAW, multiple queries can be sent by the instrument before the LIS sends the orders for the queries. In ASTM, the instrument must wait for the query response before sending the next query (only one query at a time can be in process).

Capability	HL7	CLSI (ASTM)	Comment
Order Acceptance	X		In HL7 LAW, each individual test order or test cancel is accepted or rejected by the instrument in an application acknowledgment message. Not supported by CLSI.
Order Status with Results	X		In HL7 LAW, when the instrument sends a test result, the message indicates if the instrument considers the order request as completed or if reruns are still pending. Not supported by CLSI.
Run Identification with Results	X		In HL7 LAW, test result messages indicate a unique run number to distinguish reruns from initial runs of a test order request. Not supported by CLSI.
Identification of Instrument-Initiated Reflex Tests	X		In HL7 LAW, test result messages identify if the result is from a reflex test initiated by the instrument and identify the test orders that caused the reflex test. Not supported by CLSI.

Related information...

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References

This manual is based on the following standards:

- HL7 version 2.5.1 Messaging Standard
- HL7 version 2.3.1 Implementation Support Guide, Appendix C
- IHE Laboratory Technical Framework, Laboratory Analytical Workflow (LAW) profile

Related information…

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Introduction

This section specifies implementation notes related to the HL7 interface supported by the instrument. These are primarily derived from recommendations included in the:

- IHE Laboratory Technical Framework, Laboratory Analytical Workflow (LAW) profile.
- HL7 v2.3.1 Implementation Support Guide, Appendix C.

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Low-level protocol, page 27

Acknowledgment mode, page 30

Communication channels and message transactions, page 31

Escape sequences, page 35

LAW profile transactions and options

The IHE Laboratory Analytical Workflow (LAW) profile transactions supported by the instrument include the following:

- LAB-27: Query for AWOS (HL7 QBPˆQ11/RSPˆK11)
- LAB-28: Analytical Work Order Step Broadcast (HL7 OMLˆO33/ORLˆO34)
- LAB-29: AWOS Status Change (HL7 OULˆR22/ACKˆR22)

For these LAW transactions, message elements not supported by this implementation, unless noted otherwise, are ignored by the instrument.

The LAW profile options supported by the instrument include the following:

- Bidirectional communications (LAW_BIDIR)
- Contributing substances (LAW_CONTRIB_SUB)
- Dilutions (LAW_DILUTIONS)
- Patient Demographics (LAW_PAT_DEM)

  NOTE: PID-10 is not supported.
- Reflex (LAW_REFLEX)
- Rerun (LAW_RERUN)
- AWOS Priority (LAW_AWOS_PRIORITY)
- Specimen Details (LAW_SPECIMEN)

  NOTE: Only SPM-17 is supported.
- Container Details (LAW_CONTAINER)

  NOTE: Only SAC-29 is supported.

Related information…

HL7 implementation notes, page 25

Low-level protocol

The instrument uses the Minimal Lower Layer Protocol (MLLP), as defined in Appendix C, section C.4, of the HL7 v2.3.1 Implementation Support Guide. The protocol assumes operation in a networked environment (such as TCP/IP) in which most details of error detection and correction are handled by the lower levels of the network protocol and do not require supplementation.

This manual does not fully specify the HL7 MLLP but provides only some important characteristics.

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Block format

The HL7 MLLP uses a single byte to signal the start of a message and two bytes to signal the end of a message. No other characters or lower-level header or trailer information are added to the HL7 message.

HL7 messages are enclosed by special characters to form a block.

There are no NAK blocks. Higher-level acknowledgment messages are used to signal transmission errors.

The block format is as follows:

<SB>dddd<EB><CR>

Where:

<**SB**>	Start Block character (1 byte) ASCII <VT>, for example, <0x0B>. This should not be confused with the ASCII characters SOH or STX.
dddd	Data (variable number of bytes). This is the HL7 data content of the block. The data can contain any single-byte values greater than 0x1F and the ASCII carriage return character, <CR>.
<**EB**>	End Block character (1 byte) ASCII <FS>, for example, <0x1C>.

	This should not be confused with the ASCII characters ETX or EOT.
<**CR**>	Carriage Return (1 byte) ASCII carriage return character, for example, <0x0D>.

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Low-level protocol, page 27

Network connections

When two entities communicate in a LAN environment, they must establish a virtual circuit, which is also referred to as a connection. The circuit (or connection) provides reliable, sequenced, error-free, full-duplex data transmission over the network. The connection is established by one of the entities performing a "call" operation to the other entity performing a "listen" operation. With TCP/IP, the two entities use the IP addresses and ports to identify each other. The call operation is often called an "active connection" while the listen operation is called a "passive connection". After the calling entity has connected to the listening entity, the two-way circuit (or connection) is established and the entities may exchange data.

When the data exchange is completed, either side may perform a disconnect operation to break the circuit, or the connection may remain open for future data exchange.

In general terms, the usual method of establishing a circuit (or connection) is for the system that wants to initiate the message exchange (for example, client or sender) to perform the call operation and for the responding system (for example, server or receiver) to perform the listen operation. However, due to network security restrictions of the deployed environment, it may be required that only certain systems are allowed to activate connections while other systems may only listen for (passive) connections.

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Active transient connections, page 29
Passive connections, page 29

Active persistent connections

The following steps are performed by the instrument for an active persistent network connection.

1. At startup, attempt to connect to the configured IP address and port of the listening or passive system.
2. If connection is unsuccessful, wait for a short time period and retry one or more times.
3. Keep the connection open at all times even if no more messages remain to be exchanged.
4. If a disconnection is detected outside a data exchange, retry the connection.

Related information...

Network connections, page 28

Active transient connections

The following steps are performed by the instrument for an active transient network connection.

1. Attempt to establish a connection only when a message is ready to be sent.
2. When a message is ready to be sent, attempt to connect to the configured IP address and port of the listening or passive system.
3. If connection is unsuccessful, wait a short time period and retry one or more times.
4. Keep the connection open only if more messages remain to be sent. Otherwise, close the connection.

Related information...

Network connections, page 28

Passive connections

The following steps are performed by the instrument for a passive network connection.

1. Open the configured port at startup and passively listen for a connection.
2. Wait for a call to open a port, and then leave the connection open at all times. Do not disconnect.
3. If a disconnection is detected, automatically reopen the port and listen for a new connection.

Related information...

Network connections, page 28

Acknowledgment mode

HL7 v2.5.1 specifies two major message acknowledgment modes, original and enhanced. As specified by the IHE Laboratory Technical Framework, the instrument interface supports the original acknowledgment mode.

Related information…

HL7 implementation notes, page 25

Communication channels and message transactions

An HL7 message transaction is initiated by an application in response to a trigger event. For example, a result produced and released on an instrument can trigger the initiation of a Results Upload message transaction (LAW transaction LAB-29). The initiating application (client) sends the message over a communication channel. The receiving application (server) replies on the same channel with an application-level acknowledgment message.

The instrument supports two separate network channels:

- Client channel (or Sender Channel): for application-level transactions that are initiated by the instrument.
- Server channel (or Receiver Channel): for application-level transactions that are responded to by the instrument.

Related information…

HL7 implementation notes, page 25

Channel use of network connections, page 31

Client channel transactions, page 32

Server channel transactions, page 33

Channel use of network connections

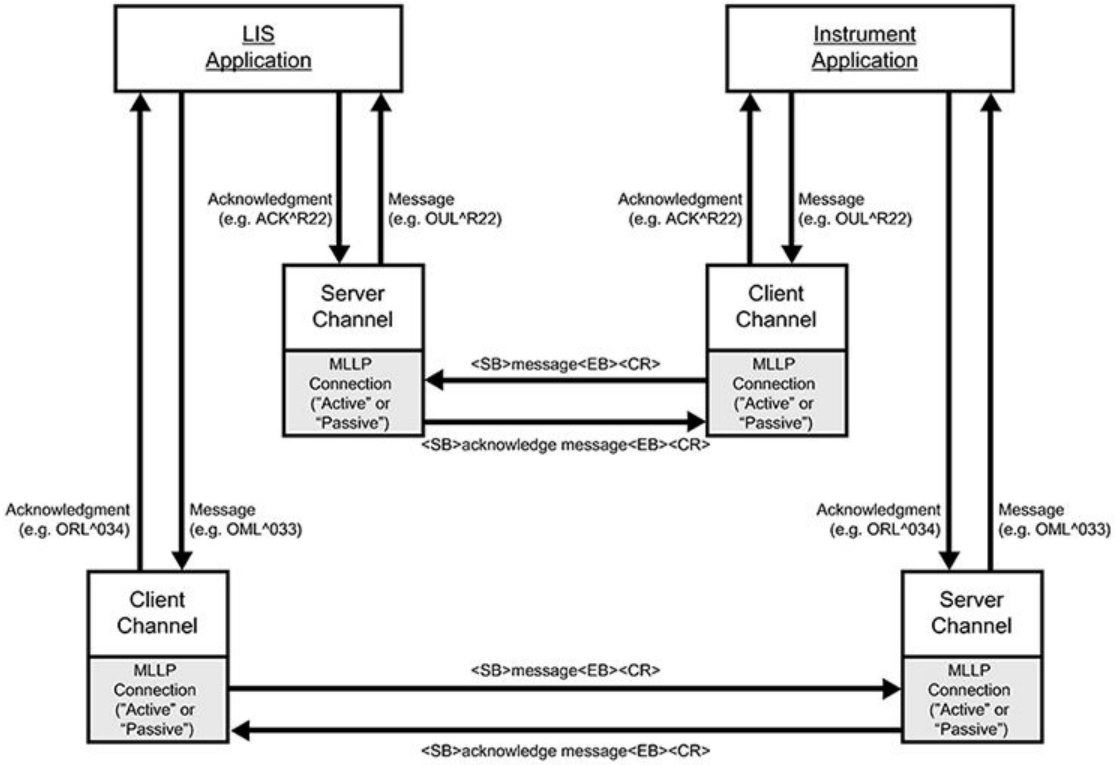
Each communication channel uses a Minimal Lower Layer Protocol (MLLP) low-level network connection to send and receive the messages.

From a transactional viewpoint, an MLLP network connection is unidirectional. Event-triggered messages flow in one direction. Acknowledgment messages related to those event-triggered messages flow in the other direction.

The acknowledgment message to an event-triggered message is sent immediately to the sender on the same MLLP connection that carried the event-triggered message. The receiver of an event-triggered message should assume that the sending application is blocking and send an application-level acknowledgment as soon as possible.

If the MLLP connection is broken while the sending application is waiting for an acknowledgment, the sending application initiates a new MLLP connection and resends the message, using the same message ID value in MSH-10 Message Control ID.

The following diagram shows the relationship between client/server channels, message transactions, and MLLP network connections.



Related information…

Communication channels and message transactions, page 31

Client channel transactions

The instrument acts as a client (sender) for the following message transactions:

- Order Query
- Results Upload
- Test Status Update
- Sample Status Update
- Connection Test
- Assay Availability

Related information…

Communication channels and message transactions, page 31

Message buffering: Client channel, page 33

Message time-out, page 33

Message buffering: Client channel

The client channel initiates transactions for the Order Query and other messages triggered by the instrument, such as Results. Message-buffering requirements are based on the application behavior associated with the various message transactions.

Based on sample-processing requirements, an Order Query message takes priority over any other pending client message transaction but will not interrupt a message transaction that is in progress (for example, waiting for an acknowledgment to a results upload message).

For other client message transactions, such as Result Upload, the instrument supports the queuing of multiple messages that can be processed in the background. For example, the operator can request that results for N samples be sent to the LIS. This will result in N result messages being queued for transmission. Message buffering is also used when a network connection to the LIS cannot be established. In this case, the message buffer operates as first-in-first-out queue that prioritizes new Order Query messages. If the queue reaches its maximum capacity, no more messages are queued for transmission. A buffer-full indication is generated, and the instrument disables the HL7 connection.

Related information...

Client channel transactions, page 32

Message time-out

When the instrument initiates a message transaction on the client channel, it waits for the response acknowledgment message. If the response is not received in a predetermined period of time, then a time-out occurs and the message is resent by the instrument. If the number of retries is reached without receiving an acknowledgment message, the message transaction is considered in error and the instrument disables the HL7 connection.

Related information...

Client channel transactions, page 32

Server channel transactions

The instrument acts as a server (or receiver) for the following message transactions:

- Order Download
- Connection Test

Related information...

Communication channels and message transactions, page 31

Message buffering: Server channel, page 33

Message buffering: Server channel

The server channel processes one message transaction at a time. When it receives a message, the server channel processes the message immediately and then builds and sends the

acknowledgment message. It then waits for the next incoming message transaction. Based on this behavior, no message buffering is required for the server channel.

Related information…

Server channel transactions, page 33

Escape sequences

HL7 v2.5.1 section 2.7 specifies escape sequences that are supported in fields ST, TX, and FT data types. The Alinity ci-series supports the following escape sequences for these data types:

\F\	Field separator
\S\	Component separator
\T\	Subcomponent separator
\R\	Repetition separator
\E\	Escape separator
\Xdddd...\	Hexadecimal data: consecutive pairs of hexadecimal digits representing 8-bit binary values. Used to encode text control code byte values less than 0x20 in UTF-8 (for example, \X09\ = TAB)
\.br\	Begin new output line. Sets the horizontal position to the current left margin and increments the vertical position by 1.

Related information...

HL7 implementation notes, page 25

NOTES

Introduction

The message profiles in this document are described using HL7 constrainable message profiles, HL7 v2.5.1 section 2.12.6. This Message Profile Specification model documents implementable versions of HL7 message profiles and supports conformance testing of the implementations.

Related information…

Notation for message structure, page 38

Notation for message segments, page 42

Notation for message elements, page 44

Notation for message structure

Message structure defines the sequence, nesting, and requirements for segments that may occur in a Message Profile. The following table provides an example of the initial segments of a message-structure specification, with each component described in topics that follow:

Example: Initial segments of a message structure

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	R	[1..1]
[	--- SPECIMEN CONTAINER begin	RE	[0..1]
SAC	Specimen container	R	[1..1]
]	--- SPECIMEN CONTAINER end	-	-
{	--- TEST ORDER begin	R	[1..*]
OBR	Observation Request	R	[1..1]
OBX	Observation related to OBR	C(R, X)	[0..*]
}	--- TEST ORDER end	-	-

Related information...

Notation for message profile specifications, page 37

Segments and segment groups, page 38

Segment sequence and nesting, page 39

Usage, page 39

Condition predicate, page 40

Cardinality, page 41

Segments and segment groups

A segment is a logical grouping of data elements. Segments of a message may be required or optional. They may occur only once in a message or they may repeat. The Segment ID identifies each HL7 segment that may appear in the message. The Segment IDs correspond to the IDs used in the standard HL7 documentation.

Two or more segments may be organized as a logical unit called a segment group. A segment group may be required or optional and may repeat. As of HL7 v2.5, the first segment in a newly defined segment group is required to ensure that unparsable messages are not inadvertently defined.

Related information...

Notation for message structure, page 38

Segment sequence and nesting

The message structure specification for a message type determines the allowed sequence of segments in a message instance. Braces, {...}, surrounding a group of segments indicate one or more repetitions of the enclosed group may occur. Brackets, [...], surrounding a group of segments indicates that the enclosed group is optional. If a group of segments is optional and may repeat, the group is enclosed in brackets and braces, [{...}].

Related information…

Notation for message structure, page 38

Usage

Usage refers to whether individual segments and groups of segments are required or optional. The following designations from HL7 v2.5.1, Section 2.12, are used in message structures.

Usage

Value	Description	Comment
R	Required	A conforming sending application populates all R elements with a nonempty value. A conforming receiving application processes the information conveyed by required elements (saves, prints, archives, or ignores). The conforming receiving application does not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element. Refer to detailed element descriptions to determine how the instrument, as a receiver, handles elements (processes them, ignores them, or raises an error if they are missing). Handling behavior may vary by element. Unless otherwise specified, the default behavior is to ignore the element.
M	Mandatory	This code identifies a mandatory segment or field that must be provided by the sender. The sender must be able to provide the segment or field. The receiver raises an error if the mandatory segment or field is absent. A value must always be provided for a mandatory field. A NULL value in a mandatory field can be sent to indicate that no value needs to be reported. The mandatory code is a more restrictive version of the R element. The receiver must raise an error if an M element is missing. The receiver may raise an error if an R element is missing.
RE	Required but may be empty	The element may be missing from the message but is sent by the sending application if there is relevant data to report. The conforming sending application can provide all RE elements. If the conforming sending application identifies the required values for the element, the application sends the element. If the conforming sending application does

Value	Description	Comment
		not identify the required values for the element, the application omits the element. The conforming receiving application processes (saves, prints, or archives) or ignores the data contained in the element, but successfully processes the message if the element is omitted. No error message is generated because the element is missing. Refer to detailed element descriptions to determine how the instrument, as a receiver, handles elements (processes or ignores them). Unless otherwise specified, the default behavior is to ignore the element.
C(a,b)	Conditional	This usage has an associated condition predicate. If the predicate is satisfied (true), a conformant application must follow the rules for "a," which is one of M, R, RE, or X. If the predicate is not satisfied (false), a conformant application must follow the rules for "b," which is one of M, R, RE, or X.
X	Not supported	For conforming sending applications, the element is not sent. Conforming receiving applications may ignore the element if it is sent or may raise an application error. Refer to detailed element descriptions to determine how the instrument, as a receiver, handles elements (processes them, ignores them, or raises an error if they are present). Unless otherwise specified, the default behavior is to ignore the element.

For message structure tables, the usage "X" is not shown at the message level. If a segment is "not supported" by a profile, it does not appear in the table representing the message structure. If an unsupported segment is encountered in a received message, it is ignored.

Related information…

Notation for message structure, page 38

Condition predicate

If the usage code of an element is C, a condition predicate is associated with this element to identify the conditions under which the element is required or allowed to be present. The predicate is testable and is based on other values within the message. The predicate may be expressed as a mathematical expression or in text and may use operators such as equivalence, logical AND, logical OR, and NOT. Both conforming sending and receiving applications evaluate the predicate. When the usage code is not C, the condition predicate is not valued.

Related information…

Notation for message structure, page 38

Cardinality

Cardinality defines the number of instances of an element in the message type. A range is provided, with the first value designating the minimum number and the second value designating the maximum number. A relationship exists between Usage and Cardinality values:

- Usage of R - minimum Cardinality of 1
- Usage of RE and C - minimum Cardinality of 0
- Usage of X - minimum and maximum Cardinality of 0

NOTE: The concept of a repeating element is expressed by a cardinality range with a second value that is greater than 1. For example, a cardinality range of [1..5] indicates that the element may repeat up to 4 times for a total of 5 instances. A cardinality range of [1..*] indicates that there is no limit to the number of repetitions of the element.

Related information…

Notation for message structure, page 38

Notation for message segments

For each segment that may appear in a message profile, a specification lists the allowed elements within that segment and the allowed values of those elements. The following table provides an example of a segment specification:

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	2	ST	R	[1..1]	R	[1..1]	Field separator
2	4	ST	R	[1..1]	R	[1..1]	Encoding characters
3	227	HD	R	[1..1]	R	[1..1]	Sending application
...	...	...	...	...	...	...	...

NOTE: Gray text indicates unused fields or message components.

SEQ The ordinal position (sequence) of the element in the segment.

LEN The maximum element length. For repeating elements, this field specifies the maximum length of each value, so an element with multiple repeating values may exceed the specified length. For each value, however, the maximum length is calculated to include the component and subcomponent separators.

NOTE: The HL7 standard allows conformance profiles to specify element lengths in excess of those indicated in the message standard. HL7 states that element length changes can be handled in a conformance profile without rendering the implementation nonconformant with HL7. For more information, see HL7 v2.5.1, section 2.5.3.2.

The "#" appended to the length indicates the value may be truncated if the received field is longer than the length specified. Otherwise, the absence of the "#" indicates the message is rejected if the specified field length is exceeded for received messages.

DT The HL7 data type used for the value of the element. Information about the data type is usually provided in the detailed description of each element. For more information, see HL7 v2.5.1, Chapter 2a.

Send usage Use of this field with the instrument as sender. It has the same coded values as in the message level described above.

Send card.	Minimum and maximum number of occurrences of the field in a segment with the instrument as sender. It has the same meaning as in the message level.
Rcv. usage	Use of this field with the instrument as receiver. It has the same coded values as in the message level described above.
Rcv. card.	Minimum and maximum number of occurrences of the field in a segment with the instrument as receiver. It has the same meaning as in the message level.
Element name	Name of the field. This is for reference purposes only and does not appear in the message data.

Related information...

Notation for message profile specifications, page 37

Notation for message elements

For each element that may be populated in a message, a narrative section further describes the element. These descriptions include the standard HL7 definition of the element as well as the specific rules for populating the element in conformance with this specification.

The descriptions may also include descriptions of unique rules related to the instrument as a sender or receiver of an element, as well as one or more sample values.

The following table shows an example of an HL7 component table for a message element. The values in the Usage column have the same meaning as defined for segment fields.

Example: HL7 component table

Component or subcomponent	Usage
Identifier (ST)	R
Text (ST)	RE
Name of coding system (IS)	RE
Alternate identifier (ST)	X
Alternate text (ST)	X
Name of alternate coding system (IS)	X

NOTE: Gray text indicates unused fields or message components.

NOTE: In many cases, the specification for an element is more constraining than the HL7 definition, to better support interoperability. For example, this specification may require that a certain coding system be used in an element or may prohibit certain subparts of an element from being populated, whereas the HL7 definition allows any coding system to be used or any subparts to be populated. When this specification and the HL7 definition differ, this specification takes precedence.

Related information…

Notation for message profile specifications, page 37

Introduction

Message profiles, as implemented by the instrument, are defined in this section.

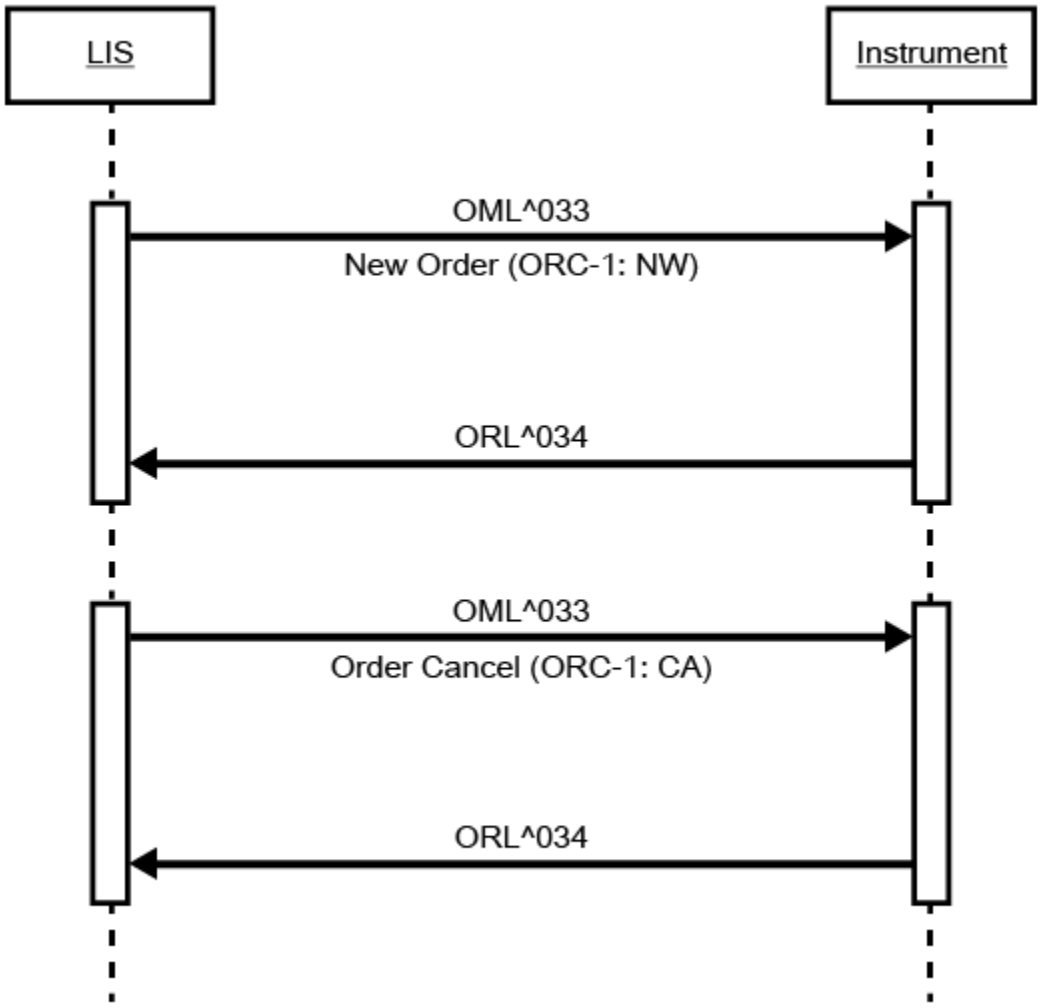
Related information…

Order Download Message Profile (LAW Transaction LAB-28), page 46
Order Query Message Profile (LAW Transaction LAB-27), page 51
Results Upload Message Profile (LAW Transaction LAB-29), page 54
Calibration Results Upload Message Profile, page 58
Test Status Update Message Profile, page 61
Sample Status Update Message Profile, page 64
Connection Test Message Profile, page 67
Assay Availability Message Profile, page 70
Command/Response Message Profile, page 73

Order Download Message Profile (LAW Transaction LAB-28)

This transaction is used between an LIS solution and an instrument that enables the LIS to issue a new order to the instrument or to cancel an existing order previously sent.

Figure 1: Interaction diagram



Interaction model

Trigger event	Any change to an order that the LIS has allocated or scheduled on the instrument. Changes include submission of new orders, cancellations, and updates where multiple orders are associated with a single sample. The LIS has selected one

	or more instruments capable of running the tests on the sample and must inform the instrument of these orders. This profile also covers the case where a previously downloaded order must be canceled or modified on the instrument. To effect an order modification, the combination of an order cancel and a new order must be used.
Direction	LIS to Instrument
Application roles	LIS (sender): Translates received orders into tests that the instrument must run on specimens; downloads new, modified, and canceled test orders to the appropriate instrument. Instrument (receiver): Performs tests (analysis) on specimens.
Receiver responsibilities	Acknowledges order messages and accepts or rejects orders.

Related information...

Message profiles, page 45
OML^O33 Message, page 47
ORL^O34 Message, page 49

OML^O33 Message

This message is for multiple orders related to one or more specimens. The following table details the structure of this message.

OML^O33 message structure

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
[	---PATIENT begin	RE	[0..1]
PID	Patient Identification	R	[1..1]
[PV1]	Patient Visit	RE	[0..1]
]	---PATIENT end		
{	--- SPECIMEN begin	M	[1..*]
SPM	Specimen	M	[1..1]
SAC	Specimen Container	M	[1..1]
{	---ORDER begin	M	[1..*]
ORC	Common Order (for one test/battery)	M	[1..1]
[TQ1]	Timing Quantity	RE	[0..1]
[	---OBSERVATION REQUEST begin	RE	[0..1]
OBR	Observation Request	M	[1..1]
[TCD]	Test Code Details	RE	[0..1]
[{NTE}]	Notes and comments (for test order)	RE	[0..*]

Segment ID	Meaning	Usage	Cardinality
]	---OBSERVATION REQUEST end		
}	---ORDER end		
}	---SPECIMEN end		

Notes on message structure

The following notes apply to OMLˆO33 message structure:

1. The ORDER segment group (ORC, [TQ1], OBR, [TCD], and [NTE]) represents an assay order (a test) against a specimen (a sample). In case of multiple tests ordered on the specimen, this group is repeated.
2. The OMLˆO33 message may also be used as a Negative Query Response indicating there is no work to perform for an order query (QBPˆQ11). Only the MSH, SPM, SAC, and ORC segments are sent in a Negative Query Response message, as described below.
    a. The SPM-4 Specimen Type is set to NULL ("").
    b. The SPM-11 Specimen Role is set to "U" (Unknown).
    c. The ORC-1 Order Control is set to "DC" (Discontinue Request).
    d. The ORC-9 Date/Time of Transaction is set to the current date/time.
    e. The OBSERVATION REQUEST segment group is not present.
    f. The SAC-3 Container Identifier is set to the QPD-3 value from the query.

Message granularity

Each unique OMLˆO33 message can contain:

- zero or one patient.
- one or more specimens.
- one or more test orders against each specimen.

Multiple ORC/OBR segments are supported in one message, but each ORC segment must have the same ORC-1 value (new or cancel). Mixed ORC-1 values (new and cancel) in the same message are not supported.

Order comments

The instrument supports the concept of a comment on each test order, which is limited to 50 characters. The comment text is placed in the comment field of the instrument test order in the following sequence:

1. Text from the NTE-3 Comment field in the OBSERVATION REQUEST segment group (if present).
2. If multiple NTE segments are received, only the first NTE segment is processed.

Order processing rules

If the OMLˆO33 message is successfully parsed as a valid order message, the instrument responds with an ORLˆO34 message with MSA-1 = AA, to indicate the order message was accepted by the application.

Following the acknowledgment of the message, each individual test ordered or canceled with an ORC/OBR pairing is further processed and validated as described below:

1. A test on the instrument is fully specified by "Assay Number" [OBR-4] and optional sample dilution.
2. A sample dilution can be specified by a dilution protocol name [TCD-11]. If a sample dilution is not specified in the message, it defaults to the default (dilution) protocol configured for the assay on the instrument.
3. If the test order request specifies an assay that is not defined or is not enabled on the instrument, the instrument rejects the test request.
4. If the test order request specifies a dilution protocol that is not defined for the specified assay (protocol names are case sensitive), or the protocol is a hidden calibration protocol, the instrument rejects the test request.
5. If the test order request specifies a sample dilution (dilution protocol name), and the message also specifies that an offline sample dilution has already been performed (SAC-29), the instrument rejects the test request unless the dilution protocol name is the one used with the offline sample dilution for the assay.
6. If the test order request indicates a new order (ORC-1 = NW) for an AWOS ID but that same AWOS ID [OBR-2] already exists, the instrument rejects the test order request.
7. If the test order request indicates a cancel order (ORC-1 = CA), the test order is canceled only if the specified AWOS ID and test is found with a Pending status for the sample ID. If no test is found or the test order is already in progress or is complete, the cancel request is rejected.

Related information…

Order Download Message Profile (LAW Transaction LAB-28), page 46

ORLˆO34 Message

This message is a laboratory order response message to an OMLˆO33 order message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..1]
[	---RESPONSE begin	C(X,RE)	[0..1]

Segment ID	Meaning	Usage	Cardinality
[	---PATIENT begin	RE	[0..1]
PID	Patient Identification	R	[1..1]
]	---PATIENT end		
{	---SPECIMEN begin	M	[1..*]
SPM	Specimen	M	[1..1]
SAC	Specimen Container	M	[1..1]
{	---ORDER begin	M	[1..*]
ORC	Common Order	M	[1..1]
}	---ORDER end		
}	---SPECIMEN end		
]	---RESPONSE end		

Notes on message structure

The following notes apply to ORLˆO34 message structure:

1. The ERR segment is conditional. It is present (and mandatory) only in case of a negative acknowledgment (when MSA-1 = AE or AR).
2. The RESPONSE segment group is conditional. It is not supported if the ERR segment is present. Otherwise, usage is required if available. It is present when the acknowledgment is for an AWOS request or an AWOS cancel. It is not present when the acknowledgment is a response to a Negative Query Response.
3. If the OMLˆO33 message was successfully processed by the instrument, the MSA-1 field contains AA. This indicates that the message was recognized as a valid OMLˆO33 message.
4. If a test order for the specimen is new (ORC-1 is NW in OMLˆO33) and it is accepted by the instrument, the ORC-1 field indicates this with an OK. Additionally, the ORC-5 Order Status has a value of SC.
5. If a test order for the specimen is new (ORC-1 is NW in OMLˆO33) and it is rejected by the instrument, the ORC-1 field indicates this with an UA. Additionally, the ORC-5 Order Status has a value of CA or IP.
6. If a test order for the specimen is cancel (ORC-1 is CA in OMLˆO33) and the cancel request is accepted by the instrument, the ORC-1 field indicates this with a CR. Additionally, the ORC-5 Order Status has a value of CA.
7. If a test order for the specimen is cancel (ORC-1 is CA in OMLˆO33) and the cancel request is rejected by the instrument, the ORC-1 field indicates this with an UC. Additionally, the ORC-5 Order Status has a value of IP.

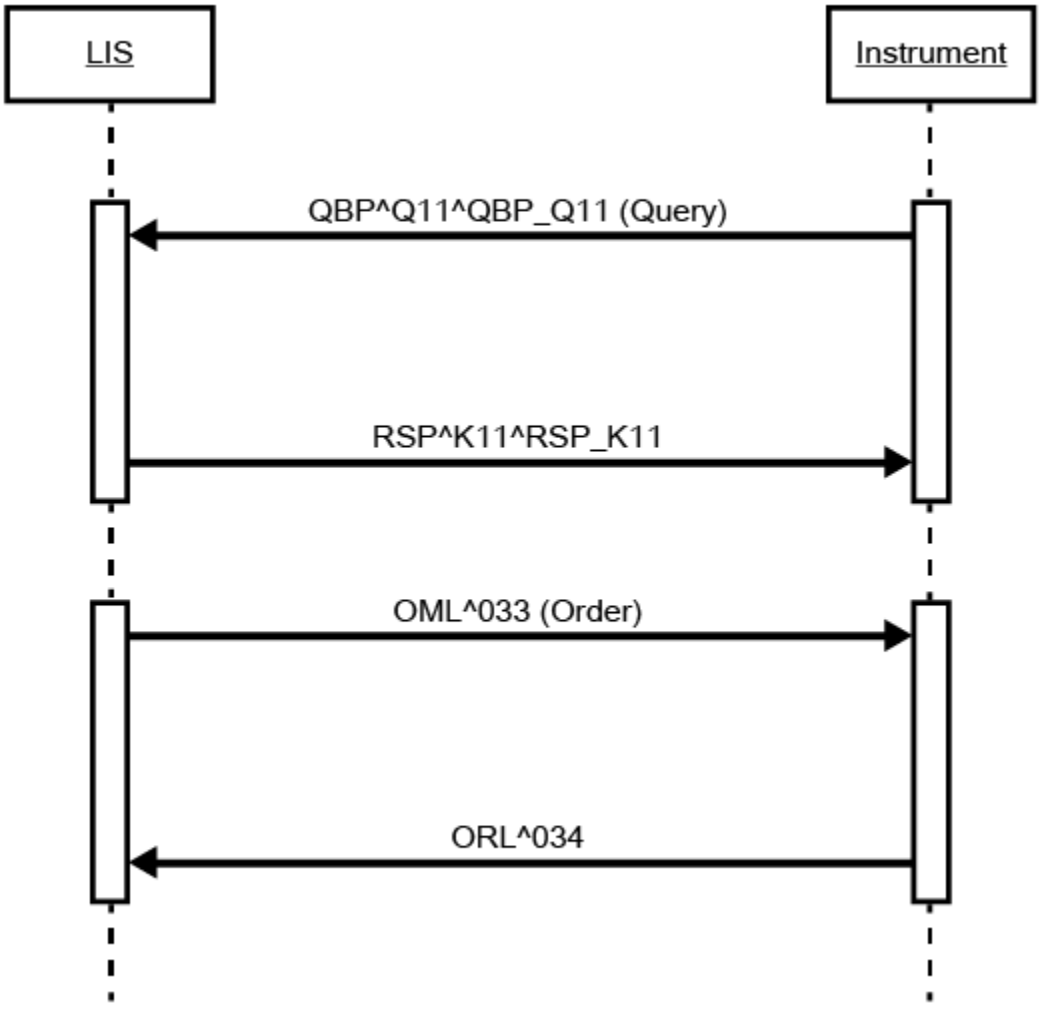
Related information…

Order Download Message Profile (LAW Transaction LAB-28), page 46

Order Query Message Profile (LAW Transaction LAB-27)

This transaction is used between an instrument and LIS working in query mode. When the instrument identifies a specimen (by reading a bar code) and finds no existing test orders for the specimen in its database, the instrument queries the LIS for orders against the specimen. The LIS sends any existing orders for the specimen to the instrument.

Figure 2: Interaction diagram



Interaction model

Trigger event	The instrument sends a query when the following conditions are met:

	• A specimen is recognized (by reading the bar code) as being introduced to the instrument (query is based on specimen ID, not the Sample location). • There are no existing test orders found in its database for that specimen. • The sample is not configured as a control or calibrator sample on the instrument. • A batch is not In Progress on the instrument. • Instrument query mode is enabled. The response RSP^K11^RSP_K11 is an acknowledgment of the reception of the query. It does not contain order information for the specimen. A separate order message (OML^O33) is sent to the instrument for each order query. The OML^O33 can contain either the order download or the negative query response indicating there are no orders to run. An instrument can send multiple queries prior to receiving an order download or a negative query response (OML^O33). A query response is considered complete under any of the following conditions: • receipt of a negative query response • receipt of a positive query response (orders for a specimen) • time out waiting for a response (and retry attempts exhausted) • error in transmission of query (and retry attempts exhausted)
Direction	Instrument to LIS
Application roles	Instrument (sender): identifies specimens and performs analytical testing on them to produce a result. LIS (receiver): manages the orders for specimens run on instruments.
Receiver responsibilities	Responds immediately to each order query acknowledging the reception of the query and subsequently sends the appropriate test orders for the identified specimen.

Related information...

Message profiles, page 45
QBP^Q11 Message, page 52
RSP^K11 Message, page 53

QBP^Q11 Message

This is a query by parameter message for orders for specimen QBP^Q11^QBP_Q11. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
QPD	Query Parameter Definition	M	[1..1]
RCP	Response Control Parameter	M	[1..1]

Notes on message structure

The following notes apply to QBP^Q11 message structure:

1. All segments are required and always provided.
2. The query parameter is the Container ID as identified on the specimen bar code.

Message granularity

Each unique QBP message contains one specimen.

Related information...

Order Query Message Profile (LAW Transaction LAB-27), page 51

RSP^K11 Message

This message is a response message for a Query (RSP^K11^RSP_K11) message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..*]
[	--RESPONSE begin	C(X,R)	[0..1]
QAK	Query Acknowledgment	M	[1..1]
QPD	Query Parameter Definition	M	[1..1]
]	--RESPONSE end		

This message is in response to a QBP^Q11 message and contains only the acknowledgment of the reception of the query. A separate order message (OML^O33) is sent to the instrument for each order query. The OML^O33 can contain either the order download or the negative query response indicating there are no orders to run.

Notes on message structure

1. The ERR segment is conditional. It is present (and mandatory) only in case of a negative acknowledgment (when MSA-1 = AE or AR). Only the first occurrence of the ERR segment is processed.
2. The RESPONSE segment group is conditional. It is not supported if the ERR segment is present. Otherwise, usage is required.

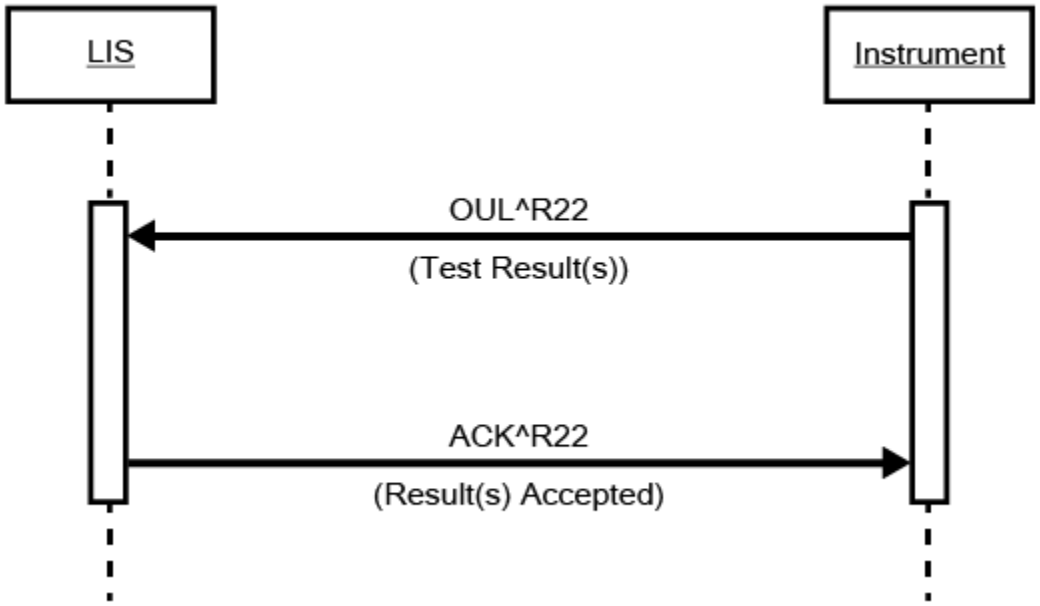
Related information...

Order Query Message Profile (LAW Transaction LAB-27), page 51

Results Upload Message Profile (LAW Transaction LAB-29)

This transaction is used by the instrument to send test results for specimens, controls, and calibrators.

Figure 3: Interaction diagram



Interaction model

Trigger event	The results are sent when the results are completed and released by the instrument. A completed result can either be a successfully completed test or a test that was initiated but did not produce a result due to some condition (test exception).
Direction	Instrument to LIS
Application roles	Instrument (sender): performs analytical testing on the sample and produces a result. LIS (receiver): stores the result of the analysis.
Receiver responsibilities	Accepts and registers the result information and responds to the instrument with the ACK message.

Related information...

Message profiles, page 45
OUL^R22 Message , page 55
ACK^R22 Message, page 56

OUL^R22 Message

This message is an Unsolicited Specimen Oriented Observation message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
[	---PATIENT begin	RE	[0..1]
PID	Patient Identification	R	[1..1]
]	---PATIENT end		
[	---VISIT begin	RE	[0..1]
[PV1]	Patient Visit	R	[1..1]
]	---VISIT end		
{	---SPECIMEN begin	M	[1..1]
SPM	Specimen	M	[1..1]
{	---CONTAINER begin	M	[1..1]
SAC	Container Information	M	[1..1]
[INV]	Detailed Substance information (ID, lot, and manufacturer of Control and Calibrator samples)	C(M,X)	[0..1]
}	---CONTAINER end		
{	---ORDER begin	M	[1..*]
OBR	Observation Request	M	[1..1]
ORC	Common Order	M	[1..1]
{	---TIMING QTY begin	R	[1..1]
TQ1	Timing Quantity	R	[1..1]
}	---TIMING QTY end		
{	---RESULT begin	M	[1..*]
OBX	Observation Result	M	[1..1]
[TCD]	Test Code Detail	RE	[0..1]
[{INV}]	Contributing Substance information (reagents used for testing, calibration used to produce a result)	RE	[0..*]
[NTE]	Notes and Comments (for the result)	RE	[0..*]
}	---RESULT end		
}	---ORDER end		
}	---SPECIMEN end		

Notes on message structure

The following notes apply to OULˆR22 message structure:

1. The INV segment within the SPECIMEN segment group is conditional. The segment is sent only when results are reported for a control or calibrator (SPM-11 = "Q" or "C").
2. The ORDER segment group is repeated for each test result reported in the message.
3. For the ORC segment, the ORC-1 field contains "SC" (Status Change) and the ORC-5 field contains "CM" (AWOS is completed) or "IP" (AWOS in process).
4. The RESULT segment group is repeated for each part of the result for a given test result reported.
5. The INV segment within the RESULT segment group is sent only when contributing substances were used to produce the result. Contributing substances can include assay-specific reagents, and assay calibration date/time. Calculated results and some test exception results are generated without using contributing substances.
6. The NTE segment is sent only when result comments are available for the test result.
7. If multiple RESULT segment groups are sent for a result (each for a different part of the result), the first RESULT segment group contains the primary Result (if available).
8. If multiple RESULT segment groups are sent for a result (each for a different part of the result), the TCD, INV, and NTE segments are included in one of the segment groups (sent within the first RESULT segment group).

Message granularity

Each unique OULˆR22 message can contain:

- one specimen.
- one or more results for the specimen.

Related information…

Results Upload Message Profile (LAW Transaction LAB-29), page 54

ACKˆR22 Message

This message is an acknowledgment of the OULˆR22 Unsolicited Specimen Oriented Observation message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..*]

Notes on message structure

The following notes apply to the ACKˆR22 message structure:

1. The ERR segment is conditional. It is present (and mandatory) only in the case of a negative acknowledgment (when MSA-1 = AE or AR). Only the first occurrence of the ERR segment is processed.
2. When MSA-1 = AA, all the results contained in the OULˆR22 message are accepted. The instrument marks the results as successfully transmitted to the LIS. Other values for MSA-1 (AE, AR) indicate nonacceptance of all results. No provision exists to selectively accept or reject individual results in the OULˆR22 message.

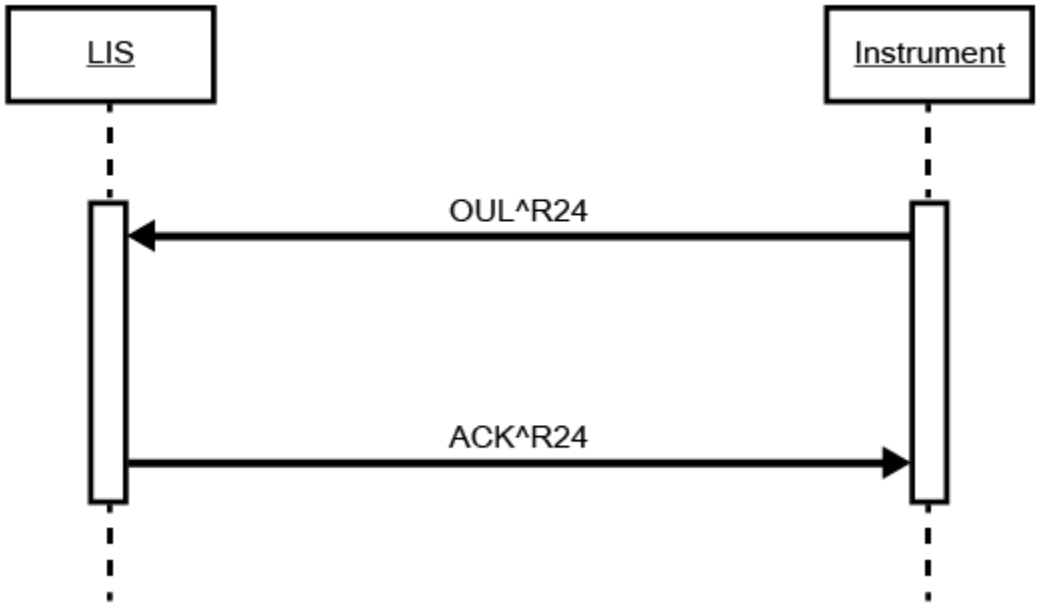
Related information...

Results Upload Message Profile (LAW Transaction LAB-29), page 54

Calibration Results Upload Message Profile

This transaction is used by the instrument to send assay calibration results.

Figure 4: Interaction diagram



Interaction model

Trigger event	If the message profile is enabled, a calibration result is transmitted by the instrument when the assay calibration is completed and is active for the first time. A calibration result can also be transmitted manually.
Direction	Instrument to LIS
Application roles	Instrument (sender): performs the calibration and produces the calibration result. LIS (receiver): stores the result of the calibration.
Receiver responsibilities	Acknowledge the message.

Related information...

Message profiles, page 45
OULˆR24 Message, page 59
ACKˆR24 Message, page 60

OULˆR24 Message

This message is an Unsolicited Order Oriented Observation Message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
{	--- ORDER begin	M	[1..1]
OBR	Observation Request	M	[1..1]
{	--- SPECIMEN begin	M	[1..*]
SPM	Specimen	M	[1..1]
{	--- CONTAINER begin	M	[1..1]
SAC	Container Information	M	[1..1]
INV	Detailed Substance information (for example, ID, lot, manufacturer of cal specimen)	M	[1..1]
}	--- CONTAINER end		
}	--- SPECIMEN end		
{	--- RESULT begin	M	[1..1]
OBX	Observation Result	M	[1..1]
{INV}	Contributing Substance information (reagents and bulk supplies used for testing)	M	[1..*]
[NTE]	Notes and Comments (for the result)	RE	[0..*]
}	--- RESULT end		
}	--- ORDER end		

Notes on message structure

The following notes apply to OULˆR24 message structure:

1. The ORDER segment group represents a single assay calibration.
2. The SPECIMEN segment group is repeated for each calibrator specimen used to produce the assay calibration.
3. The INV segment within the SPECIMEN segment group contains information about the calibrator specimens.
4. The RESULT segment group contains the actual assay calibration result.
5. The INV segment within the RESULT segment group identifies the reagent lot and pack calibrated, along with any bulk reagents used during the calibration.
6. The NTE segment is sent only when comments are available for the calibration.

Message granularity

Each unique OULˆR24 message can contain the calibration of one assay for one reagent lot.

Related information…

Calibration Results Upload Message Profile, page 58

ACKˆR24 Message

This message is an acknowledgment of the OULˆR24 Unsolicited Order Oriented Observation message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..*]

Notes on message structure

The following notes apply to the ACKˆR24 message structure:

1. The ERR segment is conditional. It is present (and mandatory) only in the case of a negative acknowledgment (when MSA-1 = AE or AR). Only the first occurrence of the ERR segment is processed.
2. When MSA-1 = AA, all the results contained in the OULˆR24 message are accepted. The instrument marks the results as successfully transmitted to the LIS. Other values for MSA-1 (AE, AR) indicate nonacceptance of all results.

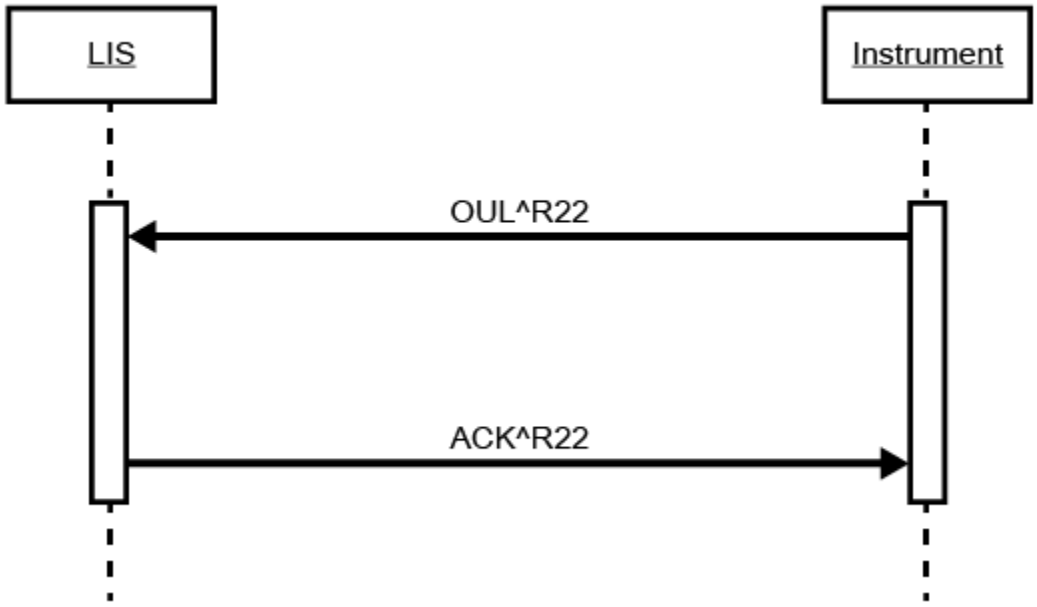
Related information…

Calibration Results Upload Message Profile, page 58

Test Status Update Message Profile

This transaction is used by the instrument to send test run status updates for specimens, controls, and calibrators.

Figure 5: Interaction diagram



Interaction model

Trigger event	When a test run status changes, the instrument sends a Test Status Update message, if the message profile is enabled. The status change events supported by the instrument include: • Test run initiated • Test run exception • Test run result transmission pending collation (waiting for all other results for the specimen to be completed)
Direction	Instrument to LIS
Application roles	Instrument (sender): monitors test status and sends status change events to the receiver. LIS (receiver): tracks status of test runs as reported by the instrument.
Receiver responsibilities	Acknowledge the message.

Related information...

Message profiles, page 45

OUL^R22 Message, page 62

ACKˆR22 Message, page 62

OULˆR22 Message

This message is an Unsolicited Specimen Oriented Observation message. For message structure details, see *OULˆR22 Message* , page 55.

Notes on message structure

The following notes apply to OULˆR22 message structure:

1. The INV segment within the CONTAINER segment group is conditional. The segment is sent only when reporting the test status for a control or calibrator (SPM-11 = "Q" or "C").
2. The ORDER segment group is repeated for each test status update instance reported in the message.
3. For the ORC segment, the ORC-1 field contains "SC" (Status Change) and the ORC-5 field contains "IP" (AWOS in process).
4. The INV segment within the RESULT segment group is not present for test status update messages.
5. The NTE segment is not present for test status updates.

Message granularity

Each unique OULˆR22 message can contain:

1. one specimen.
2. one status update for a test.

Related information…

Test Status Update Message Profile, page 61

ACKˆR22 Message

This message is an acknowledgment of the OULˆR22 Unsolicited Specimen Oriented Observation message. For message structure details, see *ACKˆR22 Message*, page 56.

Notes on message structure

The following notes apply to the ACKˆR22 message structure:

1. The ERR segment is conditional. It is present (and mandatory) only in the case of a negative acknowledgment (when MSA-1 = AE or AR). Only the first occurrence of the ERR segment is processed.
2. When MSA-1 = AA, all test statuses contained in the OULˆR22 message are accepted. Other values for MSA-1 (AE, AR) indicate nonacceptance of all test statuses.

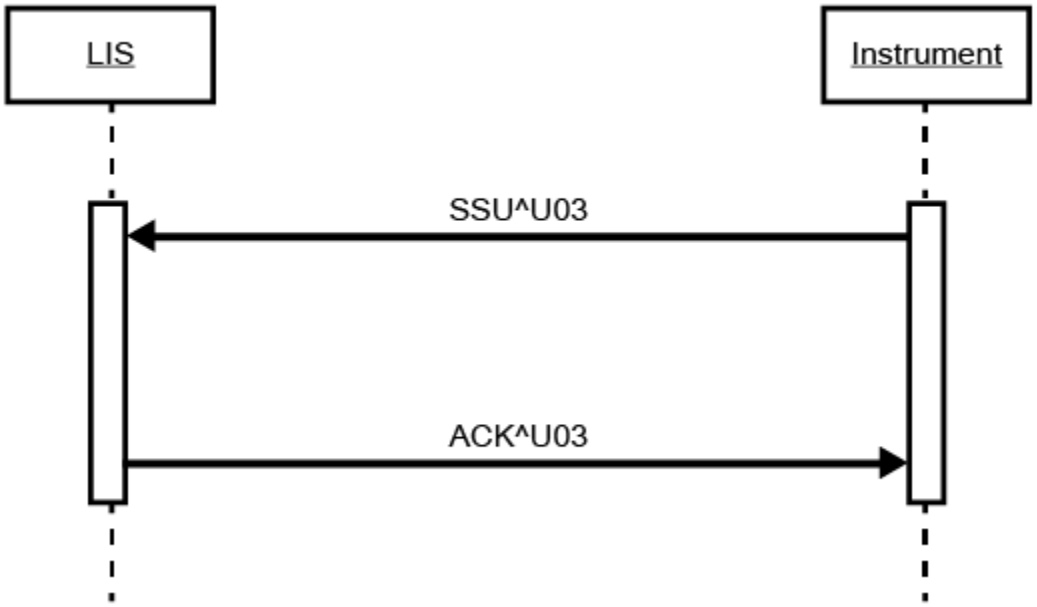
Related information…

Test Status Update Message Profile, page 61

Sample Status Update Message Profile

This transaction is used by the instrument to send information concerning the location and status of specimens to the LIS.

Figure 6: Interaction diagram



Interaction model

Trigger event	When a sample [specimen role only (SPM-11 = "P")] status changes, the instrument sends a Sample Status Update message, if the message profile is enabled. The status change events supported by the instrument include: • Sample identified • Sample in process • Sample processing completed • Sample unloaded
Direction	Instrument to LIS
Application roles	Instrument (sender): monitors the sample status and sends the status change events to the receiver. LIS (receiver): tracks the sample status as reported by the instrument.
Receiver responsibilities	Acknowledge the message.

Related information…

Message profiles, page 45

SSU^U03 Message, page 65

ACK^U03 Message, page 65

SSU^U03 Message

This message is a Specimen Status Update message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
EQU	Equipment Detail	M	[1..1]
{	---SPECIMEN_CONTAINER begin	M	[1..*]
SAC	Specimen Container Detail	M	[1..1]
SPM	Specimen	M	[1..1]
}	---SPECIMEN_CONTAINER end		

Notes on message structure

The following notes apply to the SSU^U03 message:

1. The EQU segment identifies the instrument.
2. The SPECIMEN_CONTAINER segment group is repeated for each sample container reported.

Message granularity

Each unique SSU^U03 message contains:

1. one instrument.
2. one or more samples.

Related information...

Sample Status Update Message Profile, page 64

ACK^U03 Message

This message is in response to a received SSU^U03 message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..*]

Notes on message structure

The following notes apply to the ACK^U03 message:

1. The ERR segment is conditional. It is present (and mandatory) only in the case of a negative acknowledgment (when MSA-1 = AE or AR). Only the first occurrence of the ERR segment is processed.
2. When MSA-1 = AA, all sample statuses contained in the SSU^U03 message are accepted. Other values for MSA-1 (AE, AR) indicate nonacceptance of all sample statuses.

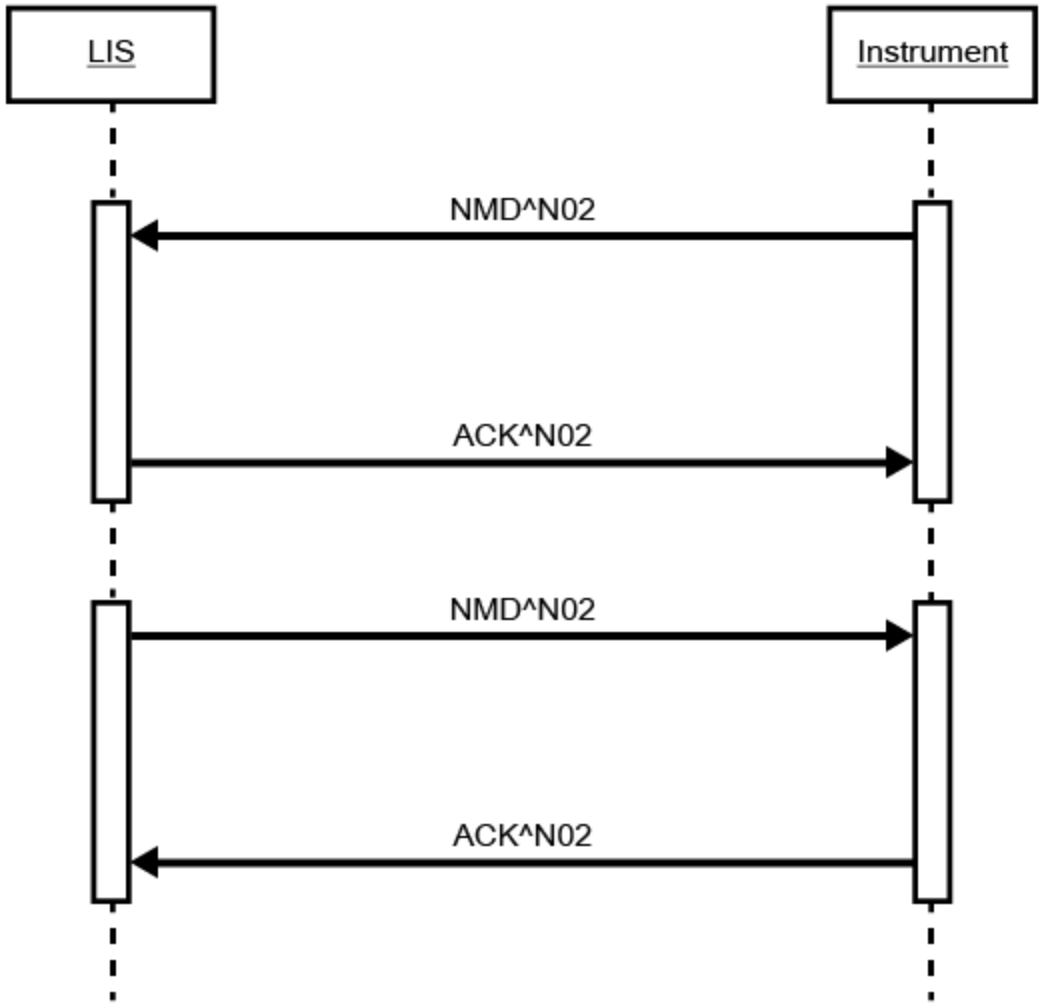
Related information…

Sample Status Update Message Profile, page 64

Connection Test Message Profile

This transaction is used to test the connection between two applications. The instrument can both initiate and respond to a connection test message.

Figure 7: Interaction diagram



Interaction model

Trigger event	An operator requests one application to send a test message to the other application.
Direction	Instrument to LIS LIS to Instrument
Application roles	Sender: Initiates test of the application connection.

	Receiver: Responds to the connection test message.
Receiver responsibilities	Acknowledges the message.

Related information...

Message profiles, page 45

NMD^N02 Message, page 68

ACK^N02 Message, page 68

NMD^N02 Message

This message is an Application Management Data message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
NST	Application control-level Statistics	M	[1..1]

Notes on message structure

This message contains no application level information. The intent is to provide a simple test message.

Related information...

Connection Test Message Profile, page 67

ACK^N02 Message

This message is in response to a received NMD^N02 message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..*]

Notes on message structure

The following notes apply to the ACK^N02 message:

1. The ERR segment is conditional. It is present (and mandatory) only in the case of a negative acknowledgment (when MSA-1 = AE or AR). Only the first occurrence of the ERR segment is processed.

2. When MSA-1 = AA, it indicates the acceptance of the connection test message. Other values for MSA-1 (AE, AR) indicate nonacceptance of the connection test.

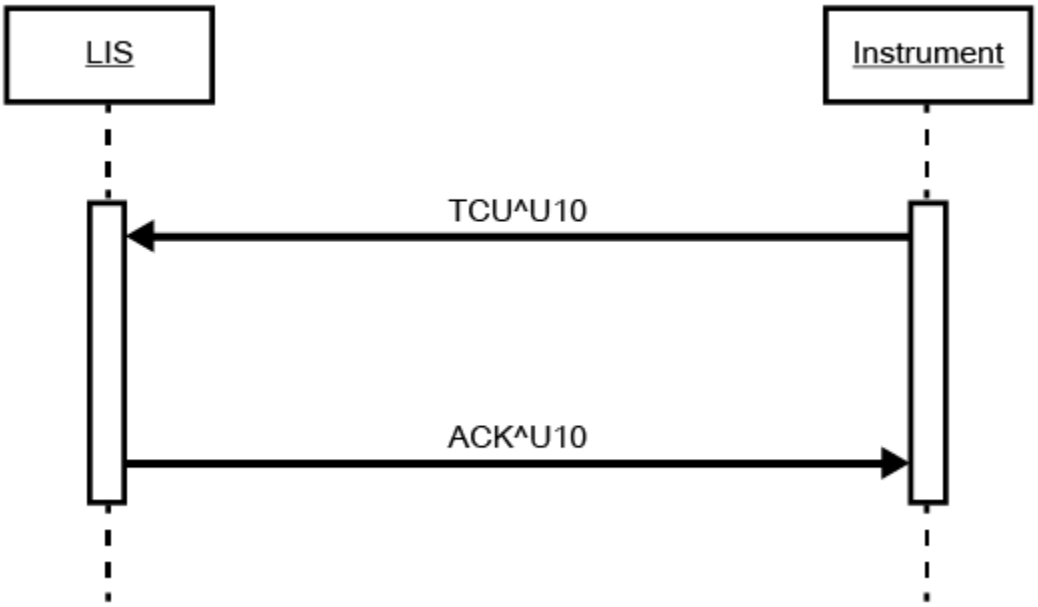
Related information…

Connection Test Message Profile, page 67

Assay Availability Message Profile

This transaction is used by the instrument to provide information regarding the availability of assays installed on the instrument.

Figure 8: Interaction diagram



Interaction model

Trigger event	If the instrument is configured to send Assay Availability messages, the instrument automatically sends the Assay Availability message on a regular time interval for installed and enabled assays only when the instrument is in a state that can run assays.
Direction	Instrument to LIS
Application roles	Sender: Determines and periodically sends the availability status of each assay. Receiver: Tracks the availability of each assay as reported by the instrument.
Receiver responsibilities	1. Acknowledge the message (ACKˆU10). 2. Use the reported availability status as a complete replacement of the tracked status.

Related information...

Message profiles, page 45
TCUˆU10 Message, page 71
ACKˆU10 Message, page 71

TCU^U10 Message

This message is used by the instrument to send the available/unavailable status of each installed and enabled assay on the instrument. The receiver of this message uses the information to replace the availability status of the assays for the instrument.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
EQU	Equipment Detail	M	[1..1]
{	---TEST_CONFIGURATION begin	RE	[0..*]
TCC	Test Code Configuration	M	[1..1]
}	---TEST_CONFIGURATION end		

Notes on message structure

The following notes apply to the TCU^U10 message:

1. The TEST_CONFIGURATION segment group repeats for each assay that is currently installed and enabled for use on the instrument. If no assays are installed, then zero occurrences of the segment group appear in the message.
2. The TCC segment provides the availability status of a single assay, which is specified in TCC-14.

Message granularity

1. Each unique TCU^U10 message contains the availability status of all currently installed and enabled assays on the instrument.
2. The absence of an assay in a new message, compared to its presence in the prior message, indicates the assay has been uninstalled from or disabled on the instrument.

Related information...

Assay Availability Message Profile, page 70

ACK^U10 Message

This message is in response to a received TCU^U10 message. The following table details the structure of this message.

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..*]

Notes on message structure

The following notes apply to the ACK^U10 message:

1. The ERR segment is conditional. It is present (and mandatory) only in the case of a negative acknowledgment (when MSA-1 = AE or AR).
2. When MSA-1 = AA, it indicates the acceptance of the message.

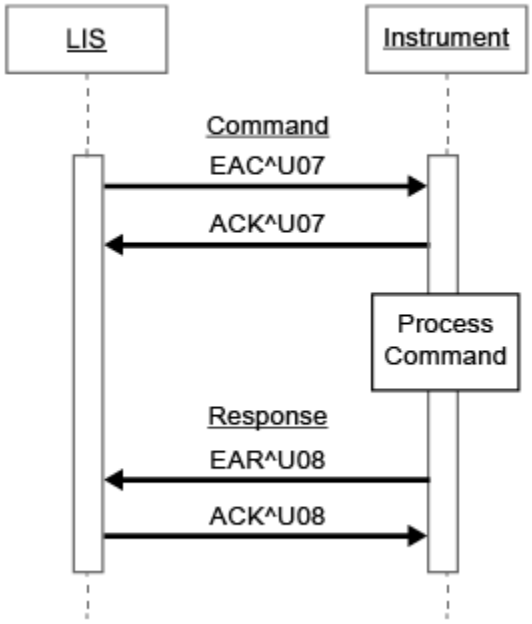
Related information…

Assay Availability Message Profile, page 70

Command/Response Message Profile

This transaction is used to send commands from the laboratory information system (LIS) to the instrument, and for the instrument to return a command response to the LIS. For the command set that is supported by the instrument, refer to the description of triggers in the following interaction model table.

Figure 9: Interaction diagram



Interaction model

Trigger	The LIS sends the following command to the instrument: • Disable or enable patient sample processing for an assay on an assay processing module: Triggered by the LIS when it needs to disable or enable processing patient samples for an assay on an instrument module (for example, disable if the LIS detects a Quality Control failure or enable when the Quality Control has passed).
Direction	LIS to instrument
Roles	• LIS (sender): Determines the need to disable a reagent for a given assay and processing module. • Instrument (receiver): Processes the command for the given assay and processing module.
Receiver responsibilities	• Acknowledges the receipt of the command (ACKˆU07). • Processes the requested command. • Sends the command response (EARˆU08).

Related information...

Message profiles, page 45
EAC^U07 message, page 74
ACK^U07 message, page 75
EAR^U08 message, page 75
ACK^U08 message, page 76

EAC^U07 message

This message is used to send a command to the instrument.

EAC^U07 message structure

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
EQU	Equipment Detail	M	[1..1]
{	–- COMMAND begin	M	[1..*]
ECD	Equipment Command Detail	M	[1..1]
}	–- COMMAND end		

Notes on message structure

1. The EQU segment describes the target device that receives and processes the command. The target device for the command must be a single assay processing module. The second repeat of EQU-1 must use the Assay Processing Module serial number and cannot use the System Control Module serial number.
2. The COMMAND segment group contains the command to perform and the assay identifier associated with the command:
   a. ECD-2 contains the command to perform.
   b. ECD-5 contains the parameters for the command.
3. If the COMMAND segment group is identical to the COMMAND segment group for a command that is already in process, but for which no response message has been sent, the message is rejected as a duplicate command:
   a. Only the duplicate (second) command message is rejected. The in-process command is unaffected.
   b. Non-COMMAND segment elements, such as the Message Control ID (MSH-10), are immaterial for the purposes of determining a duplicate command message.

Message granularity

Each unique EACˆU07 message may contain multiple command groups, with each command group containing only one command for the specified parameter.

Related information...

Command/Response Message Profile, page 73

ACKˆU07 message

This message is sent in response to a received EACˆU07 message.

ACKˆU07 message structure

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..*]

Notes on message structure

1. The ERR segment is conditional. It is present and mandatory only in the case of a negative acknowledgment (when MSA-1 = AE or AR).
2. When MSA-1 = AA, it indicates the acceptance of the message.

Note on message usage

While message senders must wait for an acknowledgment of one message before sending the next message, senders do not need to wait for a command response message before sending the next command message.

Related information...

Command/Response Message Profile, page 73

EARˆU08 message

This message is used to return a command response from the instrument to the laboratory information system.

EARˆU08 message structure

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]

Segment ID	Meaning	Usage	Cardinality
EQU	Equipment Detail	M	[1..1]
{	–- COMMAND_RESPONSE begin	M	[1..*]
ECD	Equipment Command Detail	M	[1..1]
ECR	Equipment Command Response	M	[1..1]
}	–- COMMAND_RESPONSE end		

Notes on message structure

1. The EQU segment describes the target device that processes the command. (The target device is specified by the module serial number in the second repeat of EQU-1.)
2. The COMMAND_RESPONSE segment group contains the command that was performed and the command response:
   - ECD-2 contains the command performed.
   - ECD-5 contains the parameters for the command.
   - ECR-1 contains the success or failure response code to the command.

Message granularity

Each unique EARˆU08 message may contain multiple command response groups, with each command response group containing only one command response for the specified parameter.

Related information…

Command/Response Message Profile, page 73

ACKˆU08 message

This message is sent in response to a received EARˆU08 message.

ACKˆU08 message structure

Segment ID	Meaning	Usage	Cardinality
MSH	Message Header	M	[1..1]
MSA	Message Acknowledgment	M	[1..1]
[{ERR}]	Error	C(M,X)	[0..*]

Notes on message structure

1. The ERR segment is conditional. It is present and mandatory only in the case of a negative acknowledgment (when MSA-1 = AE or AR). Only the first occurrence of the ERR segment is processed by the instrument.

2. MSA-1 = AA indicates message acceptance. Values other than MSA-1 = AA indicate message rejection. Only accepted messages are processed by the receiver.

Related information…

Command/Response Message Profile, page 73

NOTES

Introduction

The following topics define the segment structure as implemented for the Alinity ci-series.

Related information…

ECD Segment, page 80
ECR Segment, page 83
EQU Segment, page 85
ERR Segment, page 87
INV Segment, page 91
MSA Segment, page 98
MSH Segment, page 100
NST Segment, page 109
NTE Segment, page 111
OBR Segment, page 113
OBX Segment (OBX-29 = RSLT), page 118
OBX Segment (OBX-29 = RSLT, MSH-9 = OUL^R24), page 130
OBX Segment (OBX-29 = STS), page 137
ORC Segment, page 142
PID Segment, page 147
PV1 Segment, page 151
QAK Segment, page 153
QPD Segment, page 155
RCP Segment, page 157
SAC Segment, page 159
SPM Segment, page 166
TCC Segment, page 170
TCD Segment, page 173
TQ1 Segment, page 175

ECD Segment

The equipment command segment contains the command for the instrument to initiate.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	10	NM	M	[1..1]	M	[1..1]	Reference Command Number
2	250	CE	M	[1..1]	M	[1..1]	Remote Control Command
3	80	ID	M	[1..1]	M	[1..1]	Response Required
4	200	TQ	X	[0..0]	X	[0..0]	Requested Completion Time
5	65536	TX	M	[1..1]	M	[1..1]	Parameters

Related information...

Segment definitions, page 79
ECD-1 Reference Command Number (NM), page 80
ECD-2 Remote Control Command (CE), page 80
ECD-3 Response Required (ID), page 81
ECD-5 Parameters (TX), page 81

ECD-1 Reference Command Number (NM)

HL7 definition: This field contains the unique identifier for this particular command that should be used by the various components for future referral to this command. This field is similar to the concept of the MSH-10 message control ID at the equipment command or response level. This number is generated by the originator of this command.

This specification: The reference command number must be unique across all commands that are currently in process on the instrument. The command reference number must be from 1 through 10 digits and must be a positive integer value (from 1 through 9,999,999,999).

The only requirements for ECD-1 are that its value must be in the allowable range and must be unique across all commands that are currently in process on the instrument. An ECD-1 value is not required to start at 1, consecutive ECD-1 values are not required to be sequential, and ECD-1 values are not required to use the entire 10-digit dynamic range of the ECD-1 field.

Related information...

ECD Segment, page 80

ECD-2 Remote Control Command (CE)

HL7 definition: This field identifies the command that the component is to initiate.

This specification: This field contains the command that the instrument is to perform. The following tables list the valid codes.

Element: ECD-2 Remote Control Command

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	M	10	Taken from the Identifier column of the following HL7 Table 0368.
Text (ST)	RE	32	Taken from the Text column of the following HL7 Table 0368. This field is ignored if provided.
Name of Coding System (ID)	M	7	Taken from the Coding System column of the following HL7 Table 0368.
Alternate Identifier (ST)	X		
Alternate (ST)	X		
Name of Alternate Coding System (ID)	X		

Subset of Extensions to HL7 Table 0368: Remote control command

Identifier	Text	Coding system	Comment
DISABLE	Disable	99ABT	Disable patient sample processing for an assay on an assay processing module.
ENABLE	Enable	99ABT	Enable patient sample processing for an assay on an assay processing module.

Related information...

ECD Segment, page 80

ECD-3 Response Required (ID)

HL7 definition: This field identifies the mode of synchronization used in relation to the execution of the command. Y (Yes) means that the response is required immediately after execution. N (No) means that the response is not required.

This specification: This field is always Y. All commands require a response.

Related information...

ECD Segment, page 80

ECD-5 Parameters (TX)

HL7 definition: This field identifies the parameters of the command (if they are not included in one or more separate segments).

This specification: This field contains the associated assay number for the command.

Related information…

ECD Segment, page 80

ECR Segment

The equipment command response segment contains the response from the receiving component to the previously received command.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	250	CE	M	[1..1]	X	[0..0]	Command Response
2	26	TS	M	[1..1]	X	[0..0]	Date/Time Completed
3	65536	TX	X	[0..0]	X	[0..0]	Command Response Parameters

Related information...

Segment definitions, page 79
ECR-1 Command Response (CE), page 83
ECR-2 Date/Time Completed (TS), page 84

ECR-1 Command Response (CE)

HL7 definition: This field contains the response to the previously issued command.

This specification: The valid response codes for each command processed by the instrument are described in the following tables.

Element: ECR-1 Command Response

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	M	2	Taken from the Identifier column of the following HL7 Table 0387.
Text (ST)	RE	128	Taken from the Text column of the following HL7 Table 0387.
Name of Coding System (ID)	M	7	Taken from the Coding System column of the following HL7 Table 0387.
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Subset of /Extensions to HL7 Table 0387: Command response

Responses for Disable Reagent Command (ECD-2 = DISABLE or ENABLE)

Identifier	Text	Coding system	Comment
OK	Command completed successfully	HL70387	Disable or Enable patient sample processing request was completed with no errors.
ER	Command cannot be completed because of error condition	HL70387	Disable or Enable patient sample processing request could not be completed because of an error condition. Possible error conditions include: • Disable or Enable request: 1. Assay is not installed. 2. Reagent is unavailable. 3. Module serial number is not valid. • Enable request only: Patient sample processing was disabled locally at the system and not through the host. Patient sample processing can only be enabled locally.

Related information…

ECR Segment, page 83

ECR-2 Date/Time Completed (TS)

HL7 definition: This field contains the date and time that the receiving component completed the requested command.

This specification: This field represents the date and time when the event occurred (for example, a status change). Neither the time zone nor the degree of precision is sent. This field is reported to a precision of seconds.

Element: ECR-2 Date/Time Completed (Sent messages)

Component or subcomponent	Length	Usage
YYYYMMDDHHMMSS	14	R
Degree of precision		X

Related information…

ECR Segment, page 83

EQU Segment

The EQU segment identifies the equipment or instrument in an HL7 message.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	427	EI	R	[2..2]	R	[2..2]	Equipment Instance Identifier
2	26	TS	R	[1..1]	R	[1..1]	Event Date/Time
3	250	CE	X	[0..0]	X	[0..0]	Equipment State
4	250	CE	X	[0..0]	X	[0..0]	Local/Remote Control State
5	250	CE	X	[0..0]	X	[0..0]	Alert Level

Related information...

Segment definitions, page 79
EQU-1 Equipment Instance Identifier (EI), page 85
EQU-2 Event Date/Time (TS), page 86

EQU-1 Equipment Instance Identifier (EI)

HL7 definition: This field identifies the equipment.

This specification: The Alinity ci-series is an instrument consisting of one or more assay processing modules and a system control module (SCM). Each assay processing module and the SCM have a serial number.

First repeat

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	50	Instrument Model
Namespace ID (IS)	R	20	Manufacturer - Abbott
Universal ID (ST)	X		
Universal ID Type (ID)	X		

Second repeat

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	50	System Control Module serial number or Assay Processing Module serial number
Namespace ID (IS)	R	20	Manufacturer - Abbott
Universal ID (ST)	X		
Universal ID Type (ID)	X		

Related information...

EQU Segment, page 85

EQU-2 Event Date/Time (TS)

HL7 definition: This field is the date and time when the event (for example, state transition, issuing of command, finishing of command) occurred.

This specification: This element is reported to a precision of seconds. It represents the date and time that the event occurred (for example, status change) for sent messages or the date and time for the information request for received messages.

Element: EQU-2 Event Date/Time

Component or subcomponent	Usage
YYYYMMDDHHMMSS+/-ZZZZ	R
Degree of precision	X

Related information...

EQU Segment, page 85

ERR Segment

The ERR segment is used to add error information to acknowledgment messages. This segment is sent only when the accompanying MSA segment, MSA-1 acknowledgment code is "AR" or "AE".

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	493	ELD	X	[0..0]	X	[0..0]	Error Code and Location
2	18	ERL	RE	[0..*]	RE	[0..*]	Error Location
3	705	CWE	M	[1..1]	M	[1..1]	HL7 Error Code
4	2	ID	M	[1..1]	M	[1..1]	Severity
5	705	CWE	RE	[0..1]	X	[0..0]	Application Error Code
6	80	ST	X	[0..0]	X	[0..0]	Application Error Parameter
7	2048	TX	X	[0..0]	X	[0..0]	Diagnostic Information
8	250	TX	X	[0..0]	X	[0..0]	User Message
9	20	IS	X	[0..0]	X	[0..0]	Inform Person Indicator
10	705	CWE	X	[0..0]	X	[0..0]	Override Type
11	705	CWE	X	[0..0]	X	[0..0]	Override Reason Code
12	652	XTN	X	[0..0]	X	[0..0]	Help Desk Contact Point

Related information...

Segment definitions, page 79
ERR-2 Error Location (ERL), page 87
ERR-3 HL7 Error Code (CWE), page 88
ERR-4 Severity (ID), page 89
ERR-5 Application Error Code (CWE), page 89

ERR-2 Error Location (ERL)

HL7 definition: Identifies the location in a message related to the identified error, warning, or message. If multiple repetitions are present, the error results from the values in a combination of places.

This specification: This field should be provided when the error is directly related to a particular HL7 segment, field, component, or subcomponent. Examples include:

- A missing value.
- A wrong value.
- A value with wrong cardinality.
- A value which is not consistent with other message elements.

This field is not present if the error is an application level error.

Element: ERR-2 Error Location

Component or subcomponent	Usage	Length
Segment ID (ST)	R	3
Segment Sequence (NM)	R	2
Field Position (NM)	RE	2
Field Repetition (NM)	RE	2
Component Number (NM)	RE	2
Subcomponent Number (NM)	RE	2

Related information...

ERR Segment, page 87

ERR-3 HL7 Error Code (CWE)

HL7 definition: Identifies the HL7 (communications) error code.

This specification: This field is populated using codes from the following subset of codes in the HL7 Table 0357.

Subset of HL7 Table 0357: Message error condition codes

Value	Description	Comment
100	Segment sequence error	Error: The message segments were not in the proper order or required segments are missing.
101	Required field missing	Error: A required field is missing from a segment.
102	Data type error	Error:The field contained data of the wrong data type. For example, an NM field contained "FOO".
103	Table value not found	Error: A field of data type ID or IS was compared against the corresponding table, and no match was found.
200	Unsupported message type	Rejection: The Message Type is not supported.
201	Unsupported event code	Rejection: The Event Code is not supported.
202	Unsupported processing ID	Rejection: The Processing ID is not supported.
203	Unsupported version ID	Rejection: The Version ID is not supported.
207	Application internal error	Rejection: Includes internal errors not explicitly covered by other codes.

Element: ERR-3 HL7 Error Code

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Value from HL7 Table 0357
Text (ST)	RE	199#	Description of error code
Name of Coding System (ID)	R	7	Name of HL7 Coding System: "HL70357" (without quotation marks)
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System ID (ST)	X		
Coding System Version ID (ST)	X		
Alternate Coding System Version ID (ST)	X		
Original Text (ST)	X		

The ERR-3.2 HL7 Error Code Text is optional and is ignored on an incoming message. An error is not raised if the ERR-3.2 HL7 Error Code Text is not consistent with the ERR-3.1 HL7 Error Code Identifier.

Related information...

ERR Segment, page 87

ERR-4 Severity (ID)

HL7 definition: Identifies the severity of an application error. Knowing if something is Error, Warning, or Information is intrinsic to how an application handles the content.

This specification: This interface supports only the following subset of codes from the HL7 Table 0516.

Subset of HL7 Table 0516: Error severity

Value	Description	Comment
E	Error	Transaction was unsuccessful.

Related information...

ERR Segment, page 87

ERR-5 Application Error Code (CWE)

HL7 definition: Application-specific code identifying the specific error that occurred.

A receiving application generates an error that reports an application error code and returns this information in its response.

This specification: This field is used to provide an instrument error code for instrument-detected error conditions.

ERR-5 Sender:

Element: ERR-5 Application Error Code

Component or subcomponent	Usage	Length	Comment
Identifier(ST)	R	20	Four-digit exception or error code and optional four-character subcode (for example, 9999-B123).
Text (ST)	R	255#	Text message, in the language currently configured on the instrument, associated with an error. The HL7 v2.5.1 specifies the text length as 199. A text message longer than 199 may be truncated by the receiver.
Name of Coding System (ID)	R	7	"99ABT" without quotation marks for sent messages. Ignored if received.
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System ID (ST)	X		
Coding System Version ID (ST)	X		
Alternate Coding System Version ID (ST)	X		
Original Text (ST)	X		

Related information...

ERR Segment, page 87

INV Segment

The INV segment contains the data necessary to track the inventory of substances on the instrument. The segment can be used as follows:

- Substance information for reagent material used for results sent in an OULˆR22 message.
- Substance information for control material used for control results sent in an OULˆR22 message.
- Substance information for calibrator material used for calibrator results sent in an OULˆR22 message.
- Substance information for calibrator material used for calibration results sent in an OULˆR24 message.
- Calibration information used to produce a result sent in an OULˆR22 message.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	250	CE	R	[1..1]	X	[0..0]	Substance Identifier
2	250	CE	R	[1..1]	X	[0..0]	Substance Status
3	250	CE	R	[1..1]	X	[0..0]	Substance Type
4	250	CE	C(R,X)	[0..1]	X	[0..0]	Inventory Container Identifier
5	250	CE	X	[0..0]	X	[0..0]	Container Carrier Identifier
6	250	CE	X	[0..0]	X	[0..0]	Position on Carrier
7	20	NM	X	[0..0]	X	[0..0]	Initial Quantity
8	20	NM	X	[0..0]	X	[0..0]	Current Quantity
9	20	NM	X	[0..0]	X	[0..0]	Available Quantity
10	20	NM	X	[0..0]	X	[0..0]	Consumption Quantity
11	250	CE	X	[0..0]	X	[0..0]	Quantity Units
12	26	TS	RE	[0..1]	X	[0..0]	Expiration Date/Time
13	26	TS	C(R,X)	[0..1]	X	[0..0]	First Used Date/Time
14	200	TQ	X	[0..0]	X	[0..0]	Onboard Stability Duration
15	250	CE	X	[0..0]	X	[0..0]	Test/Fluid Identifier(s)
16	50	ST	RE	[0..1]	X	[0..0]	Manufacturer Lot Number
17	250	CE	X	[0..0]	X	[0..0]	Manufacturer Identifier
18	250	CE	X	[0..0]	X	[0..0]	Supplier Identifier
19	20	CQ	X	[0..0]	X	[0..0]	Onboard Stability Time
20	20	CQ	X	[0..0]	X	[0..0]	Target Value

Related information…

Segment definitions, page 79
INV-1 Substance Identifier (CE), page 92
INV-2 Substance Status (CE), page 93
INV-3 Substance Type (CE), page 94
INV-4 Inventory Container Identifier (CE), page 95
INV-12 Expiration Date/Time (TS), page 95
INV-13 First Used Date/Time (TS), page 96
INV-16 Manufacturer Lot Number (ST), page 96

INV-1 Substance Identifier (CE)

HL7 definition: This field represents a unique, manufacturer-specific identifier for the substance that is in inventory.

This specification: The INV segment can be used to identify any of the following items in a result message:

- a reagent material (results upload message)
- a control material (control results upload message)
- a calibrator material (calibrator results upload message)
- a calibration (results upload message)

Element: INV-1 Substance Identifier

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Identifier of substance
Text (ST)	X		
Name of Coding System	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

INV-1 Sender (Reagent material sent with OULˆR22 results upload):

When the INV segment is used in the OULˆR22 specimen results message to send information about reagent material used:

Identifier: The Reagent Configuration ID and reagent version as defined on the instrument. The dash (-) is used to separate the reagent configuration ID and the version number.

Sample value:

```
102-2^^99ABT                    [Reagent ID 102, version 2]
```

INV-1 Sender (Control material sent with OULˆR22 results upload):

When the INV segment is used in the OULˆR22 specimen results message to send information about control material used:

Identifier: The name of the control as defined on the instrument. This is the concatenation of a Control Name and a Control Level.

(INV-3 Substance Type: CO)

Sample value:

```
Anti-HCV_Release1^^99ABT
```

INV-1 Sender (Calibrator material sent with OULˆR22 results upload):

When the INV segment is used in the OULˆR22 specimen results message to send information about calibrator material used:

Identifier: The name of the calibrator as defined on the instrument. This is also the calibrator material Container ID (specimen ID).

(INV-3 Substance Type: RC)

Sample value:

```
Anti-Hcv CAL 1^^99ABT           [ANTI-Hcv Calibrator 1 Material]
```

INV-1 Sender (Calibration sent with OULˆR22):

When the INV segment is used in the OULˆR22 specimen results message to send information about a calibration used to produce a result:

Identifier: the assay number for the test result

Related information...

INV Segment, page 91

INV-2 Substance Status (CE)

HL7 definition: The status of the inventoried item. The status indicates the current status of the substance.

This specification: Contains a subset of values taken from and added to HL7 Table 0383 as described below.

Element: INV-2 Substance Status

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Value from HL7 Table 0383 as shown in the following table
Text (ST)	RE	199	Description of Substance Status
Name of Coding System (ID)	R	7	"HL70383" (without quotation marks)
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Subset of HL7 Table 0383: Substance Status

Value	Description	Comment
NA	Not applicable	IHE LAW extension to HL7 Table 0383 **NOTE:** IHE LAW-defined extension

Related information...

INV Segment, page 91

INV-3 Substance Type (CE)

HL7 definition: The type of substance.

This specification: This field is used to specify the substance type (for example, control and reagent). It contains a subset of values taken from the HL7 Table 0384.

Element: INV-3 Substance Type

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Value from HL7 Table 0384 as shown in the following table
Text (ST)	RE	199	Description of Substance Type
Name of Coding System (ID)	R	7	"99ABT" (without quotation marks) for Abbott-defined substance type. "HL70384" (without quotation marks) for HL7-defined substance type.
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Subset HL7 Table 0384: Substance Type

Value	Description	Comment
SR	Single Test Reagent	Reagent material used to produce a result
CO	Assay Control	Assay Control Specimen
RC	Reagent Calibrator	Calibrator Specimen
CA	Calibration	Assay Calibration. This can be used only if the INV segment is part of a RESULT segment group. **NOTE:** Abbott-defined extension

Related information...

INV Segment, page 91

INV-4 Inventory Container Identifier (CE)

HL7 definition: Identifies the inventory container (for example, the unique identifier of a specific package instance of a specific substance). This is a manufacturer-specific identifier.

This specification: Specifies the serial number of the reagent container.

Predicate: This element is required if the INV-3 Substance Type is SR. Otherwise, usage is not supported.

Element: INV-4 Inventory Container Identifier

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Serial Number
Text (ST)	X		
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Related information...

INV Segment, page 91

INV-12 Expiration Date/Time (TS)

HL7 definition: This field is the expiration date/time of the substance.

This specification:

- If INV-3 Substance Type is CA (Calibration), the calibration expiration date and time (YYYYMMDDHHMMSS), if the calibration has an expiration date/time.
- For all Substance Types other than CA (Calibration), the lot expiration date of the material (YYYYMMDD), if the material has an expiration date.

Element: INV-12 Expiration Date/Time

Component or subcomponent	Usage
YYYYMMDD[HHMMSS]+/-ZZZZ	R
Degree of precision	X

Related information...

INV Segment, page 91

INV-13 First Used Date/Time (TS)

HL7 definition: This field is the time and date when the substance was first used. The date and time may be required to determine the stability of a substance. The definition "first used" depends on the substance. In certain cases, it indicates when the substance was prepared (mixed) or loaded on the system and has not been used for processing orders.

This specification: This field specifies the calibration date and time.

Predicate: This field is required when the INV-3 Substance Type is CA (Calibration) and the INV segment is part of the RESULT segment group in an OULˆR22 message. Otherwise, the field is not supported.

Element: INV-13 First Used Date/Time

Component or subcomponent	Usage
YYYYMMDDHHMMSS+/-ZZZZ	R
Degree of precision	X

Related information...

INV Segment, page 91

INV-16 Manufacturer Lot Number (ST)

HL7 definition: This field specifies the lot number assigned by the manufacturer during production of the substance.

This specification:

- The lot number for reagent, control, or calibrator material.
- The reagent lot number that has been calibrated.

Related information…

INV Segment, page 91

MSA Segment

The MSA segment contains information sent while acknowledging another message.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	2	ID	M	[1..1]	M	[1..1]	Acknowledgment Code
2	50	ST	M	[1..1]	M	[1..1]	Message Control ID
3	80	ST	X	[0..0]	X	[0..0]	Text Message
4	15	NM	X	[0..0]	X	[0..0]	Expected Sequence Number
5			X	[0..0]	X	[0..0]	Delayed Acknowledgment Type
6	250	CE	X	[0..0]	X	[0..0]	Error Condition

Related information...

Segment definitions, page 79

MSA-1 Acknowledgment Code (ID), page 98

MSA-2 Message Control ID (ST), page 99

MSA-1 Acknowledgment Code (ID)

HL7 definition: This element contains the acknowledgment code, based on HL7 message processing rules.

This specification: This interface supports only the following subset of codes from HL7 Table 0008.

Subset of HL7 Table 0008: Acknowledgment Code

Value	Description	Comment
AA	Original mode: Application Accept	Message processed and accepted.
AE	Original mode: Application Error	Message processed, but has format errors.
AR	Original mode: Application Reject	Message rejected due to an error in the message content.

MSA-1 Sender:

- AA indicates an accepted message.
- AE indicates a malformed message (for example, missing or out of order segments, incorrect data types, or unsupported table values).

  NOTE: The ERR segment that accompanies the MSA segment in the acknowledgment message indicates the location of the error.

- AR indicates an application-detected error which is typically related to errors in the message content (for example, unsupported message or inconsistent message content).

MSA-1 Receiver:

Supports the values described in the previous table.

- "AA" indicates an accepted message.
- All others are interpreted as a message failure.

Related information...

MSA Segment, page 98

MSA-2 Message Control ID (ST)

HL7 definition: This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended.

This specification: This field contains the value in MSH-10 Message Control ID of the message being acknowledged.

Related information...

MSA Segment, page 98

MSH Segment

The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	1	ST	M	[1..1]	M	[1..1]	Field Separator
2	4	ST	M	[1..1]	M	[1..1]	Encoding Characters
3	227	HD	RE	[0..1]	RE	[0..1]	Sending Application
4	227	HD	RE	[0..1]	RE	[0..1]	Sending Facility
5	227	HD	RE	[0..1]	RE	[0..1]	Receiving Application
6	227	HD	RE	[0..1]	RE	[0..1]	Receiving Facility
7	26	TS	M	[1..1]	M	[1..1]	Date/Time of Message
8	40	ST	X	[0..0]	X	[0..0]	Security
9	15	MSG	M	[1..1]	M	[1..1]	Message Type
10	50	ST	M	[1..1]	M	[1..1]	Message Control ID
11	3	PT	M	[1..1]	M	[1..1]	Processing ID
12	60	VID	M	[1..1]	M	[1..1]	Version ID
13	15	NM	X	[0..0]	X	[0..0]	Sequence Number
14	180	ST	X	[0..0]	X	[0..0]	Continuation Pointer
15	2	ID	C(M,X)	[0..1]	C(M,X)	[0..1]	Accept Acknowledgment Type
16	2	ID	C(M,X)	[0..1]	C(M,X)	[0..1]	Application Acknowledgment Type
17	3	ID	X	[0..0]	X	[0..0]	Country Code
18	16	ID	M	[1..1]	M	[1..1]	Character Set
19	250	CE	X	[0..0]	X	[0..0]	Principal Language of Message
20	20	ID	X	[0..0]	X	[0..0]	Alternate Character Set Handling Scheme
21	427	EI	C(M,X)	[0..1]	C(M,X)	[0..*]	Message Profile Identifier

Related information...

Segment definitions, page 79
MSH-1 Field Separator (SI), page 101
MSH-2 Encoding Characters (ST), page 101
MSH-3 Sending Application (HD), page 101
MSH-4 Sending Facility (HD), page 102
MSH-5 Receiving Application (HD), page 102
MSH-6 Receiving Facility (HD), page 103

MSH-7 Date/Time of Message (TS), page 103
MSH-9 Message Type (MSG), page 104
MSH-10 Message Control ID (ST), page 105
MSH-11 Processing ID (PT), page 105
MSH-12 Version ID (VID), page 106
MSH-15 Accept Acknowledgment Type (ID), page 106
MSH-16 Application Acknowledgment Type (ID), page 107
MSH-18 Character Set (ID), page 107
MSH-21 Message Profile Identifier (EI), page 108

MSH-1 Field Separator (SI)

This interface supports the HL7-recommended value, | (ASCII 124).

Related information...

MSH Segment, page 100

MSH-2 Encoding Characters (ST)

HL7 definition: This field contains the four characters in the following order:

1. Component separator
2. Repetition separator
3. Escape character
4. Subcomponent separator

This interface supports the HL7-recommended values ^~\& (ASCII 94, 126, 92, and 38, respectively).

NOTE: The field MSH-2 must match "^~\& " exactly.

Related information...

MSH Segment, page 100

MSH-3 Sending Application (HD)

HL7 definition: This field contains the laboratory-defined name of the sending application.

This specification:

MSH-3 Sender:

Only the first component of this element is populated. A configuration parameter allows the value of MSH-3 to be set for triggered messages. The instrument populates this element with the configuration parameter for the event-triggered messages. If the configuration parameter is

not defined, then the field is empty. For acknowledgment messages, the instrument echoes the MSH-5 value from the inbound message.

Element: MSH-3 Sending Application

Component or subcomponent	Usage	Length	Comment
Namespace ID (IS)	R	20	Configuration parameter
Universal ID (ST)	X		
Universal ID type (ID)	X		

Related information...

MSH Segment, page 100

MSH-4 Sending Facility (HD)

HL7 definition: This field contains the laboratory-defined name of the sending facility.

This specification:

MSH-4 Sender:

Only the first component of this element is populated. A configuration parameter allows the value of MSH-4 for triggered messages. The instrument populates this element with the configuration parameter for event-triggered messages. If the configuration parameter is not defined, then the field is empty. For acknowledgment messages, the instrument echoes the MSH-6 value from the inbound message.

Element: MSH-4 Sending Facility

Component or subcomponent	Usage	Length	Comment
namespace ID (IS)	R	20	Configuration parameter
universal ID (ST)	X		
universal ID type (ID)	X		

Related information...

MSH Segment, page 100

MSH-5 Receiving Application (HD)

HL7 definition: This field contains the laboratory-defined name of the receiving application.

This specification:

MSH-5 Sender:

Only the first component of this element is populated. A configuration parameter allows the value of MSH-5 to be set for triggered messages. The instrument populates this element with

the configuration parameter for event-triggered messages. If the configuration parameter is not defined, then the field is empty. For acknowledgment messages, the instrument echoes the MSH-3 value from the inbound message.

Element: MSH-5 Receiving Application

Component or subcomponent	Usage	Length	Comment
namespace ID (IS)	R	20	Configuration parameter
universal ID (ST)	X		
universal ID type (ID)	X		

Related information…

MSH Segment, page 100

MSH-6 Receiving Facility (HD)

HL7 definition: This field contains the laboratory-defined name of the receiving facility.

This specification:

MSH-6 Sender:

Only the first component of this element is populated. A configuration parameter allows the value of MSH-6 to be set for triggered messages. The instrument populates this element with the configuration parameter for event-triggered messages. If the configuration parameter is not defined, then the field is empty. For acknowledgment messages, the instrument echoes the MSH-4 value from the inbound message.

Element: MSH-6 Receiving Facility

Component or subcomponent	Usage	Length	Comment
namespace ID (IS)	R	20	Configuration parameter
universal ID (ST)	X		
universal ID type (ID)	X		

Related information…

MSH Segment, page 100

MSH-7 Date/Time of Message (TS)

HL7 definition: This field contains the date and time that the sending system created the message.

NOTE: This field is required as of HL7 version 2.4 Messaging Standard.

This specification: This element is reported to a precision of seconds.

MSH-7 Sender:

The Indication of time zone is provided and represents the configured time zone set in the instrument. All other time stamps in the message do not have the time zone specified and can be assumed to be in the same time zone indicated in this MSH-7 element.

Element: MSH-7 Date/Time of Message (Sent messages)

Component or subcomponent	Usage
YYYYMMDDHHMMSS+/-ZZZZ	R
Degree of precision	X

MSH-7 Receiver:

The Indication of time zone is not supported and is ignored if present. No time zone adjustments are made by the instrument software for time stamps in incoming messages.

Element: MSH-7 Date/Time of Message (Received messages)

Component or subcomponent	Usage
YYYYMMDDHHMMSS[+/-ZZZZ]	R
Degree of precision	X

Related information...

MSH Segment, page 100

MSH-9 Message Type (MSG)

HL7 definition: This field contains the message type, trigger event, and message structure ID.

This specification: All components are required.

Element: MSH-9 Message Type

Component or subcomponent	Usage
Message Code (ID)	R
Trigger Event (ID)	R
Message Structure (ID)	R

MSH-9 Sender:

All three components are populated (for example, ORL^O34^ORL_O42).

MSH-9 Receiver:

Message types not recognized in this specification cause message rejection.

Related information...

MSH Segment, page 100

MSH-10 Message Control ID (ST)

HL7 definition: This field contains a number or other identifier that uniquely identifies the message. Each message is given a unique identifier by the sending system. The receiving system echoes this ID to the sending system in the Message Acknowledgment (MSA) segment.

This specification: The maximum element length for MSH-10 is extended to 50 characters from the HL7-prescribed length of 20 characters. This extension allows sending systems to use globally unique identifiers, such as Globally Unique Identifiers (GUID), for Message IDs.

Related information...

MSH Segment, page 100

MSH-11 Processing ID (PT)

HL7 definition: This field indicates whether to process a message as defined in HL7 Application (level 7) Processing rules.

This specification: Only the first component is required and supports only a value of "P".

Element: MSH-11 Processing ID

Component or subcomponent	Usage
Processing ID (ID)	R
Processing mode (ID)	X

Subset of HL7 Table 0103: Processing ID

Value	Description	Comment
P	Production	Message processed.

MSH-11 Sender:

Value is always "P".

MSH-11 Receiver:

Values other than "P" cause message rejection.

Related information...

MSH Segment, page 100

MSH-12 Version ID (VID)

HL7 definition: This field identifies the version of HL7 supported. The receiving system compares the value in this field to its own version to ensure correct message interpretation.

This specification: Only the first component is supported.

Element: MSH-12 Version ID

Component or subcomponent	Usage
Version ID (ID)	R
Internationalisation Code (CE)	X
International Version ID (CE)	X

MSH-12 Sender:

Value is always "2.5.1".

MSH-12 Receiver:

Accepts values starting with the character string "2.5". Later minor releases such as "2.5.1" are also supported. All other values cause message rejection.

Related information...

MSH Segment, page 100

MSH-15 Accept Acknowledgment Type (ID)

HL7 definition: This field identifies the conditions under which the return of accept acknowledgments are required in response to this message.

This specification: Supports only the subset of values from the HL7 table 0155, as described below.

Subset of HL7 Table 0155: Accept acknowledgment conditions

Value	Description	Comment
NE	Never	

Predicate: This field is present and mandatory for event-triggered messages. Otherwise, usage is not supported for response messages.

Related information...

MSH Segment, page 100

MSH-16 Application Acknowledgment Type (ID)

HL7 definition: This field contains the required conditions for returning application acknowledgments in response to this message.

This specification: Supports only the subset of values from the HL7 table 0155, as described below.

Subset of HL7 Table 0155: Accept acknowledgment conditions

Value	Description	Comment
AL	Always	

Predicate: This field is present and mandatory for event-triggered messages. Otherwise, usage is not supported for response messages.

Related information...

MSH Segment, page 100

MSH-18 Character Set (ID)

HL7 definition: This field contains the character set for the entire message. Refer to the HL7 table 0211 - Alternate character sets for valid values.

This specification: Only the subset of values from HL7 Table 0211 are supported.

Subset of HL7 Table 0211: Alternate character sets

Value	Description	Comment
UNICODE UTF-8	UCS Transformation Format, 8-bit form	UTF-8 is a variable-length encoding. Each code value is represented by 1, 2, or 3 bytes, depending on the code value. Seven-bit (7-bit) ASCII is a proper subset of UTF-8. **NOTE:** The code contains a space before UTF but not before and after the hyphen.

Though the field is repeatable in HL7, only one occurrence (one character set) is supported by this interface specification. The character set specified in this field is used for encoding of all characters within the message.

MSH-18 Sender:

Only one character set encoding is supported, as specified in the table above.

MSH-18 Receiver:

Values other than those specified cause message rejection.

Related information...

MSH Segment, page 100

MSH-21 Message Profile Identifier (EI)

HL7 definition: This field is used to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or a set of messages.

This specification: Only the first repeat of this element is supported for both sent and received messages. Subsequent repeats in received messages are ignored.

Element: MSH-21 Message Profile Identifier

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	50	<domain>-<transaction>
Namespace ID (IS)	R	20	"IHE" (without quotation marks) for IHE-LAB LAW profiles
Universal ID (ST)	X		
Universal ID type (ID)	X		

MSH-21 Sender:

Predicate: This field is present and mandatory for the following message types (MSH-9). Otherwise, usage is not supported:

- Order Query (QBPˆQ11)
- Results Upload/Test Status Update (OULˆR22)
- Order Download Response (ORLˆO34)

MSH-21 Receiver:

Predicate: The first repeat of this field is mandatory for the following message types (MSH-9). Otherwise, usage is not supported:

- Order Download (OMLˆO33)
- Order Query Response (RSPˆK11)
- Results Upload/Test Status Update Response (ACKˆR22)

Sample value:

```
LAB-27^IHE
```

Related information...

MSH Segment, page 100

NST Segment

The NST segment allows application-level, control-level statistical information to be passed between applications.

NST segment structure

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	1	ID	R	[1..1]	R	[1..1]	Statistics Available
2	30	ST	X	[0..0]	X	[0..0]	Source Identifier
3	3	ID	X	[0..0]	X	[0..0]	Source Type
4	26	TS	X	[0..0]	X	[0..0]	Statistics Start
5	26	TS	X	[0..0]	X	[0..0]	Statistics End
6	10	NM	X	[0..0]	X	[0..0]	Receive Character Count
7	10	NM	X	[0..0]	X	[0..0]	Send Character Count
8	10	NM	X	[0..0]	X	[0..0]	Messages Received
9	10	NM	X	[0..0]	X	[0..0]	Messages Sent
10	10	NM	X	[0..0]	X	[0..0]	Checksum Errors Received
11	10	NM	X	[0..0]	X	[0..0]	Length Errors Received
12	10	NM	X	[0..0]	X	[0..0]	Other Errors Received
13	10	NM	X	[0..0]	X	[0..0]	Connect Time-outs
14	10	NM	X	[0..0]	X	[0..0]	Receive Time-outs
15	10	NM	X	[0..0]	X	[0..0]	Application control-level Errors

Related information...

Segment definitions, page 79
NST-1 Statistics Available (ID), page 109

NST-1 Statistics Available (ID)

HL7 definition: This field indicates the availability of statistics. Valid values are Y and N.

N: The responding application does not keep statistics. If the value N is specified, the response message is used to signify to the initiating application that the communication link between the initiating and responding applications is operational. Fields 2 through 15 are empty in the response message.

Y: The responding application keeps statistics. Fields 4 and 5 are required. The response message contains one or more nonnull fields in the ranges from 2 through 3 and from 6 through 15.

This specification: Only the N value is supported to indicate an operational application. This segment is present only in the NMDˆN02 message used to test the connection.

NST-1 Sender:

This field always has a value of N.

NST-1 Receiver:

The value of this field can be either Y or N. All other NST fields are ignored if present.

Related information…

NST Segment, page 109

NTE Segment

The NTE segment is used for sending notes and comments that accompany test order or result data. The placement of the NTE segment within a message's segment structure dictates the context of the comment (for example, order comment or result comment).

NTE segment structure

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	R	[1..1]	R	[1..1]	Set ID - NTE
2	8	ID	R	[1..1]	RE	[0..1]	Source of Comment
3	50#	FT	R	[1..1]	R	[1..1]	Comment
4	250	CE	X	[0..0]	X	[0..0]	Comment Type

Related information...

Segment definitions, page 79

NTE-1 Set ID (SI), page 111

NTE-2 Source of Comment (ID), page 111

NTE-3 Comment (FT), page 112

NTE-1 Set ID (SI)

HL7 definition: This field contains the sequence number and is used to identify segment instances in message structures (segment groups) where the segment repeats within that structure. The sequence number of the first occurrence of the segment is one, the sequence number of the second occurrence is two, and subsequent instances follow the same convention.

If the segment occurs only once within a message structure, its value is "1". If the message structure (segment group) repeats, the first occurrence of the segment in each segment group is "1".

Related information...

NTE Segment, page 111

NTE-2 Source of Comment (ID)

HL7 definition: This field is used when the source of a comment must be identified. This table may be extended locally during implementation.

This specification:

NTE-2 Sender:

This element is populated with the value from the table below.

Subset of HL7-Defined Table 0105: Source of Comment

Value	Description	Comment
Z	Instrument	

NTE-2 Receiver:

This field is ignored when received.

Related information…

NTE Segment, page 111

NTE-3 Comment (FT)

HL7 definition: The field contains the actual comment text.

This specification: The field contains text for order comments and result comments. The maximum length for a received order comment is 50 characters. Received comments longer than 50 characters are truncated. The truncation character "#" is used at the end of the value to indicate it was truncated.

Related information…

NTE Segment, page 111

OBR Segment

The Observation Request (OBR) segment is used to transmit information specific to an order for a diagnostic study or observation. The primary use of this segment is to identify the test/analysis to run on the specimen.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	X	[0..0]	X	[0..0]	Set ID - OBR
2	50	EI	M	[1..1]	M	[1..1]	Placer Order Number
3	50	EI	X	[0..0]	X	[0..0]	Filler Order Number
4	250	CE	M	[1..1]	M	[1..1]	Universal Service Identifier
5	2	ID	X	[0..0]	X	[0..0]	Priority - OBR
6	26	TS	X	[0..0]	X	[0..0]	Requested Date/Time
7	26	TS	X	[0..0]	X	[0..0]	Observation Date/Time
8	26	TS	X	[0..0]	X	[0..0]	Observation End Date/Time
9	20	CQ	X	[0..0]	X	[0..0]	Collection Volume
10	250	XCN	X	[0..0]	X	[0..0]	Collection Identifier
11	1	ID	RE	[0..1]	X	[0..0]	Specimen Action Code
12	51	CE	X	[0..0]	X	[0..0]	Danger Code
13	50	ST	X	[0..0]	X	[0..0]	Relevant Clinical Information
14	26	TS	X	[0..0]	X	[0..0]	Specimen Received Date/Time *
15	300	SPS	X	[0..0]	X	[0..0]	Specimen Source
16	250	XCN	RE	[0..1]	RE	[0..1]	Ordering Provider
17	250	XTN	X	[0..0]	X	[0..0]	Order Callback Phone Number
18	60	ST	X	[0..0]	X	[0..0]	Placer Field 1
19	60	ST	X	[0..0]	X	[0..0]	Placer Field 2
20	60	ST	X	[0..0]	X	[0..0]	Filler Field 1 +
21	60	ST	X	[0..0]	X	[0..0]	Filler Field 2 +
22	26	TS	X	[0..0]	X	[0..0]	Results Rpt/Status Chng - Date/Time +
23	40	MOC	X	[0..0]	X	[0..0]	Charge to Practice +
24	10	ID	X	[0..0]	X	[0..0]	Diagnostic Serv Sect ID
25	1	ID	X	[0..0]	X	[0..0]	Result Status +
26	400	PRL	X	[0..0]	X	[0..0]	Parent Result +
27	200	TQ	X	[0..0]	X	[0..0]	Quantity/Timing
28	200	XCN	X	[0..0]	X	[0..0]	Result Copies To
29	200	EIP	X	[0..0]	X	[0..0]	Parent

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
30	20	ID	X	[0..0]	X	[0..0]	Transportation Mode
31	250	CE	X	[0..0]	X	[0..0]	Reason for Study
32	200	NDL	X	[0..0]	X	[0..0]	Principal Result Interpreter
33	200	NDL	X	[0..0]	X	[0..0]	Assistant Result Interpreter
34	200	NDL	X	[0..0]	X	[0..0]	Technician
35	200	NDL	X	[0..0]	X	[0..0]	Transcriptionist
36	25	TS	X	[0..0]	X	[0..0]	Scheduled Date/Time
37	4	NM	X	[0..0]	X	[0..0]	Number of Sample Containers
38	250	CE	X	[0..0]	X	[0..0]	Transport Logistics of Collected Sample
39	250	CE	X	[0..0]	X	[0..0]	Collector's Comment
40	250	CE	X	[0..0]	X	[0..0]	Transport Arrangement Responsibility
41	30	ID	X	[0..0]	X	[0..0]	Transport Arranged
42	1	ID	X	[0..0]	X	[0..0]	Escort Required
43	250	CE	X	[0..0]	X	[0..0]	Planned Patient Transport Comment
44	250	CE	X	[0..0]	X	[0..0]	Procedure Code
45	250	CE	X	[0..0]	X	[0..0]	Procedure Code Modifier
46	250	CE	X	[0..0]	X	[0..0]	Placer Supplemental Service Information
47	250	CE	X	[0..0]	X	[0..0]	Filler Supplemental Service Information
48	250	CWE	X	[0..0]	X	[0..0]	Medically Necessary Duplicate Procedure Reason
49	2	IS	X	[0..0]	X	[0..0]	Result Handling
50	250	CWE	X	[0..0]	X	[0..0]	Parent Universal Service Identifier

Related information…

Segment definitions, page 79
OBR-2 Placer Order Number (EI), page 114
OBR-4 Universal Service Identifier (CE), page 115
OBR-11 Specimen Action Code (ID), page 116
OBR-16 Ordering Provider (XCN), page 116

OBR-2 Placer Order Number (EI)

HL7 definition: This field is the placer application's order number.

This specification: This field specifies the Analytical Work Order Step ID (AWOS ID) as generated by the placer (LIS). If a test order is created by the instrument, this field will be present but empty, that is null ("").

Element: OBR-2 Placer Order Number

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	50	AWOS ID
Namespace ID (IS)	X		
Universal ID (ST)	X		
Universal ID Type (ID)	X		

Related information...

OBR Segment, page 113

OBR-4 Universal Service Identifier (CE)

HL7 definition: This element contains the identifier code for the requested observation, test, or battery. This can be based on local or "universal" codes.

This specification: For the instrument, only individual tests can be ordered. Identification of batteries (Panels) through this interface is not supported.

An assay is identified by an assay number as defined by the instrument.

Element: OBR-4 Universal Service Identifier

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	4	Assay number for the test
Text (ST)	R	199	Assay name for the test
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

OBR-4 Sender:

Text is populated with value defined by the instrument.

OBR-4 Receiver:

The Identifier will be used to determine which test to perform. The Text component is ignored for received messages.

Sample value:

```
0241^ANTI-Hcv^99ABT
```

Related information...

OBR Segment, page 113

OBR-11 Specimen Action Code (ID)

HL7 definition: This field is the action to be taken with respect to the specimens that accompany or precede this order. The purpose of this field is to further qualify (when appropriate) the general action indicated by the order control code contained in the accompanying ORC segment.

This specification: This field is used to identify reflex orders generated at the instrument when reporting results for those orders. If the instrument-generated order is a reflex, then OBR-11 is set to "G", meaning "Generated order, reflex order". Otherwise, OBR-11 will not be populated.

Related information...

OBR Segment, page 113

OBR-16 Ordering Provider (XCN)

HL7 definition: This field identifies the provider (ordering physician) that ordered the test/battery on the sample.

This specification: For the instrument, this element contains the doctor's name field on the instrument (if available). The instrument supports a single 20 character field that contains a doctor identifier.

Element: OBR-16 Ordering Provider (XCN)

Component or subcomponent	Usage	Length	Comment
ID number (ST)	R	20	Doctor
Family name (FN)	X		
Family name (ST)	X		
Own family name prefix (ST)	X		
Own family name (ST)	X		
Family name prefix from partner/spouse (ST)	X		
Family name from partner/spouse (ST)	X		
Given name (ST)	X		
Second and further given name or initials thereof (ST)	X		
Suffix (for example, JR or III) (ST)	X		
Prefix (for example, DR) (ST)	X		
Degree (for example, MD) (IS)	X		

Component or subcomponent	Usage	Length	Comment
Source table (IS)	X		
Assigning authority (HD)	X		
Name type code (ID)	X		
Identifier check digit (ST)	X		
Code identifying the check digit scheme employed (ID)	X		
Identifier type code (IS)	X		
Assigning facility (HD)	X		
Name representation code (ID)	X		
Name context (CE)	X		
Name validity range (DR)	X		
Name assembly order (ID)	X		
Effective date (TS)	X		
Expiration date (TS)	X		
Professional suffix (for example, MD) (ST)	X		
Assigning jurisdiction (CWE)	X		
Assigning agency or department (CWE)	X		

Related information...

OBR Segment, page 113

OBX Segment (OBX-29 = RSLT)

The OBX segment is used to transmit a result observation for a test as part of the OULˆR22 message (LAW Transaction LAB-29).

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	M	[1..1]	X	[0..0]	Set ID - OBX
2	2	ID	M	[1..1]	X	[0..0]	Value Type
3	500	CE	M	[1..1]	X	[0..0]	Observation Identifier
4	20	ST	M	[1..1]	X	[0..0]	Observation Sub-ID
5	99999	varies	M	[1..*]	X	[0..0]	Observation Value
6	250	CE	RE	[0..1]	X	[0..0]	Units
7	60	ST	RE	[0..1]	X	[0..0]	Reference Range
8	705	CWE	M	[1..*]	X	[0..0]	Interpretation Codes
9	5	NM	X	[0..0]	X	[0..0]	Probability
10	2	ID	X	[0..0]	X	[0..0]	Nature of Abnormal Test
11	1	ID	M	[1..1]	X	[0..0]	Observation Result Status
12	26	TS	X	[0..0]	X	[0..0]	Effective Date of Reference Range Values
13	20	ST	X	[0..0]	X	[0..0]	User Defined Access Checks
14	26	TS	X	[0..0]	X	[0..0]	Date/Time of the Observation
15	250	CE	X	[0..0]	X	[0..0]	Producer's Reference
16	250	XCN	M	[2..2]	X	[0..0]	Responsible Observer
17	250	CE	X	[0..0]	X	[0..0]	Observation Method
18	427	EI	M	[2..2]	X	[0..0]	Equipment Instance Identifier
19	26	TS	M	[1..1]	X	[0..0]	Date/Time of the Analysis
20	705	CWE	X	[0..0]	X	[0..0]	Observation Site
21	427	EI	X	[0..0]	X	[0..0]	Observation Instance Identifier
22	705	CNE	X	[0..0]	X	[0..0]	Mode Code
23	567	XON	X	[0..0]	X	[0..0]	Performing Organization Name
24	631	XAD	X	[0..0]	X	[0..0]	Performing Organization Address
25	3002	XCN	X	[0..0]	X	[0..0]	Performing Organization Medical Director
26	10	ID	X	[0..0]	X	[0..0]	Patient Results Release Category
27		CWE	X	[0..0]	X	[0..0]	Root Cause
28		CWE	X	[0..0]	X	[0..0]	Local Process Control
29	4	ID	M	[1..1]	X	[0..0]	Observation Type

Related information...

Segment definitions, page 79
OBX-1 Set ID (SI), page 119
OBX-2 Value Type (ID), page 119
OBX-3 Observation Identifier (CE), page 120
OBX-4 Observation Sub-ID (ST), page 121
OBX-5 Observation Value (varies), page 122
OBX-6 Units (CE), page 123
OBX-7 Reference Range (ST), page 123
OBX-8 Interpretation Codes (CWE), page 124
OBX-11 Observation Result Status (ID), page 125
OBX-16 Responsible Observer (XCN), page 126
OBX-18 Equipment Instance Identifier (EI), page 127
OBX-19 Date/Time of the Analysis (TS), page 128
OBX-29 Observation Type (ID), page 128

OBX-1 Set ID (SI)

HL7 definition: This field contains the sequence number. This field is used to identify segment instances in message structures (for example, segment group) where the segment repeats within that structure. For the first occurrence of the segment, the sequence number is one; for the second occurrence, the sequence number is two; and so on.

Within the LAW profile, the sequence number is set to "1" for the first occurrence of the OBX segment in a segment group representing an AWOS. For example, the field is set to one in the first occurrence of the OBX segment in an instance of the RESULT segment group of the OULˆR22 message. Subsequent occurrences of the segment within that RESULT segment group are sequentially numbered.

Related information...

OBX Segment (OBX-29 = RSLT), page 118

OBX-2 Value Type (ID)

HL7 definition: This field contains the format of the observation value in OBX.

This specification: Allows only the following subset of values from HL7 Table 0125.

Subset of HL7 Table 0125: Value Type

Value	Description	Comment
CE	Coded Entry	Used to report exception code (reason test failed to produce a final result yet).

Value	Description	Comment
ST	String	Used for Numeric and Interpretation results.
EI	Entity Identifier	Used for Globally Unique Identifier (GUID) for a result.

Related information…

OBX Segment (OBX-29 = RSLT), page 118

OBX-3 Observation Identifier (CE)

HL7 definition: This field contains a unique identifier for the observation.

This specification: This element is used to identify the test performed on the specimen.

For the instrument, an OBX segment can be used to report the following types of results:

- Exception Result
- Numerical Result
- Interpretation Result
- Raw Supplemental Result
- Result GUID Supplemental Result (unique identifier for each result)

Element: OBX-3 Observation Identifier

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	6	Assay number for the test, along with optional separator and result type code suffix (see OBX-3.1 element table below)
Text (ST)	R	199	Assay name for the test
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	RE	8	Value from IHE defined Table: Supplemental Observation ID
Alternate Text (ST)	C(R,X)	199	Text from IHE defined Table: Supplemental Observation ID
Name of Alternate Coding System (ID)	C(R,X)	6	IHELAW

Alternate components OBX-3-4 to OBX-3-6 are used only when the given OBX segment carries supplemental result information. OBX-3-4 “Alternate Identifier” is populated with a supplemental result identifier associated with the identifier provided in OBX-3-1 to OBX-3-3. The condition for both OBX-3-5 “Alternate Text” and OBX-3-6 “Name of Alternate Coding System” is that OBX-3-4 “Alternate Identifier” is populated.

Element: OBX-3.1 Observation Identifier (ST)

Component or subcomponent	Usage	Length	Comment
Assay Number (NM)	R	4	Assay number for the test as an integer
Separator (ST)	RE	1	. (dot) as a separator character
Result Type Code (ID)	RE	1	Type of result. Value from Vendor Table: Result Type Codes (see below)

Separator and Result Type Code elements are used only when the given OBX segment carries and interpretation result or a raw result.

Vendor Table: Result Type Codes

Value	Description
I	Interpretation Result
R	Raw Result
G	Result GUID

IHE Table: Supplemental Observation ID

Value	Description	Comment
S_RAW	Raw Supplemental	Raw relative light unit (RLU) value associated with the result.
S_OTHER	Other Supplemental	Used for Result GUID.

Sample values:

```
OBX|1|NM|0241^ANTI-Hcv^99ABT|…    [numeric result]
OBX|2|ST|0241.I^ANTI-Hcv^99ABT|…    [interpretation result]
OBX|3|NM|0241.R^ANTI-Hcv^99ABT^S_RAW^Raw Supplemental^IHELAW|…    [raw
result]
OBX|4|EI|0241.G^ANTI-Hcv^99ABT^S_OTHER^Other Supplemental^IHELAW|…
[result GUID]
```

Related information…

OBX Segment (OBX-29 = RSLT), page 118

OBX-4 Observation Sub-ID (ST)

HL7 definition: This field is used to distinguish between multiple OBX segments with the same observation ID organized under one OBR.

This specification: This element contains the run number. Each run of an AWOS will have a unique numerical identification. This applies for runs reported in the same message or across messages. The first run will be “1”, the second run will be “2”, and so on. A run is an instance of the same test performed multiple times due to instrument reruns.

Related information…

OBX Segment (OBX-29 = RSLT), page 118

OBX-5 Observation Value (varies)

HL7 definition: This field contains the value observed by the observation producer. OBX-2 Value Type contains the data type for this field according to which observation value is formatted.

This specification: The observation value will be reported using one of the allowed value types as specified in OBX-2. Contains the result value for the test result part identified in OBX-3 Observation Identifier.

If the result type is for an exception result, then the CE data type is used to report the exception code as the reason the test failed to run. Components are used as follows to report the exception.

Element: OBX-5 Observation Value (when CE data type)

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Four-digit exception or error code and optional four-character subcode (for example, 9999-B123).
Text (ST)	R	250#	Text message associated with exception in the language currently configured on instrument. HL7 v2.51 specifies the text length as 199. Text message longer than 199 may be truncated by the receiver.
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

If the result type is not an exception result, the observation value can be either a Primary Result or a Supplemental Result. Numerical results are formatted by using the instrument configurable settings for number format (thousand and decimal separators).

A Primary Result consists of a numerical result (OBX-2 = ST) and an interpretation result (OBX-2 = ST).

A Supplemental Result is an instrument raw response value (OBX-2 = ST) or a result GUID (OBX-2 = EI).

Element: OBX-5 Observation Value (when EI data type)

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	50	Result GUID

Component or subcomponent	Usage	Length	Comment
Namespace ID (IS)	X		
Universal ID (ST)	X		
Universal ID Type (ID)	X		

Related information...

OBX Segment (OBX-29 = RSLT), page 118

OBX-6 Units (CE)

HL7 definition: When an observation's value is measured on a continuous scale, one must report the measurement units within the units field of the OBX segment. Since HL7 Version 2.2 of the specification, all fields that contain units are of data type CE.

The units of measure available for each assay are defined in the assay definition and can be selected by the instrument operator. When a unit is provided, the unit as displayed on the instrument user interface is in OBX-6.2, and if the UCUM code is available, it will be provided in OBX-6.1.

NOTE: Raw supplemental result units are RLU, Abs, or mV in OBX-6.2.

Element: OBX-6 Units

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	RE	20	UCUM code for Unit of measure (if available).
Text (ST)	R	10	Name of unit of measure (the unit of measure displayed on the instrument user interface).
Name of Coding System (ID)	C (R, X)	7	Field contains "UCUM" (without quotation marks) if OBX-6.1 is populated. Otherwise, it is not supported.
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Related information...

OBX Segment (OBX-29 = RSLT), page 118

OBX-7 Reference Range (ST)

HL7 definition: For numeric values, the suggested format of reference ranges is lower limit-upper limit [when both lower and upper limits are defined (for example, 3.5 - 4.5)].

This specification:

- For specimen results, populated with normal minimum-maximum range if configured on the instrument
- For control results, populated with control minimum-maximum range as configured on the instrument

If populated, will conform to HL7 suggested format as described above.

Related information…

OBX Segment (OBX-29 = RSLT), page 118

OBX-8 Interpretation Codes (CWE)

HL7 definition: This field contains instrument codes (if any) assigned to the result.

This specification: Contains instrument-defined result flags (if any) assigned to the result. The field is set to NULL ("") if no flags apply.

Multiple flags can be assigned to a result, thus this field can repeat. Multiple flags will be separated by the repeat delimiter.

The set of possible flags for the instrument are defined in the following table:

NOTE: Abbott-defined extensions are marked with an asterisk (*).

Subset of HL7 Table 0078 - Interpretation Codes

Value	Description	Comment
IUO	*Investigational Use Only	Assay released for investigational use only
RUO	*Research Use Only	Assay released for research use only
EDIT	*Edited result	Result has been edited or recalculated
EXP	*Expired Material	The result was produced using expired reagent
EXPC	*Expired Calibration	The result was produced using expired calibration or calibration was generated using expired calibrator material
A#1	*Absorbance limit 1	Only 1 read within the Absorbance limit
A#2	*Absorbance limit 2	Only 2 reads within the Absorbance limit
CNTL	*Control failure	Applied to specimen result when control Westgard failure detected by instrument
<	Off scale low	Below assay dynamic range
>	Off scale high	Above assay dynamic range
INDX	*Interfering substances	Interfering substances
FLEX	*Flexible read data used	Flexible read data used
LL	*Extreme low	Below assay extreme range

Value	Description	Comment
HH	*Extreme high	Above assay extreme range
PSHH	*Previous sample extreme high	Previous sample extreme high
LOW	*Low	Below assay normal range
HIGH	*High	Above assay normal range
CORR	*Correlation assay	The result was produced using an assay installed as a correlation assay
1-2s	*Westgard rule failure	Westgard rule failure
1-3s	*Westgard rule failure	Westgard rule failure
2-2s1R1M	*Westgard rule failure	Westgard rule failure
2-2s1RxM	*Westgard rule failure	Westgard rule failure
2-2sxR1M	*Westgard rule failure	Westgard rule failure
R-4s	*Westgard rule failure	Westgard rule failure
4-1s1M	*Westgard rule failure	Westgard rule failure
4-1sxM	*Westgard rule failure	Westgard rule failure
10-x1M	*Westgard rule failure	Westgard rule failure
10-xxM	*Westgard rule failure	Westgard rule failure

The components of this field should be populated according to the following table.

Element: OBX-8 Interpretation Codes (CWE)

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Value from HL7 Table 0078 above
Text (ST)	RE	199	Description of code
Name of Coding System (ID)	C (R, X)	7	"99ABT" (without quotation marks) for Abbott-defined code. "HL70078" (without quotation marks) for HL7-defined code. **Predicate:** This component is required if OBX-8.1 is not NULL. Otherwise, it is not supported.

Related information…

OBX Segment (OBX-29 = RSLT), page 118

OBX-11 Observation Result Status (ID)

HL7 definition: This field contains the observation result status. This field reflects the current completion status of the results for one Observation Identifier.

This specification: Can contain a subset of values taken from HL7 User-Defined Table 0085 as described below.

Subset of HL7 User-Defined Table 0085: Observation Result Status

Value	Description	Comment
F	Final results	Primary result value for the test run
X	Results cannot be obtained	Test exception on instrument

Related information…

OBX Segment (OBX-29 = RSLT), page 118

OBX-16 Responsible Observer (XCN)

HL7 definition: When required, this field contains the identifier of the individual directly responsible for the observation (such as the person who either performed or verified it). In a nursing service, the observer is usually the professional who performed the observation (for example, took the blood pressure). In a laboratory, the observer is the technician who performed or verified the analysis.

This specification: For the instrument, this element will repeat two times. The first repeat will be used for the User ID logged into the system at time the result was produced and the second repeat will be the User ID logged into the system at the time the result was released. Only the first component of each repeating element will be populated.

Element: OBX-16 Responsible Observer

Component or subcomponent	Usage	Length
ID number (ST)	R	20
Family name (FN)	X	
Family name (ST)	X	
Own family name prefix (ST)	X	
Own family name (ST)	X	
Family name prefix from partner/spouse (ST)	X	
Family name from partner/spouse (ST)	X	
Given name (ST)	X	
Second and further given name or initials thereof (ST)	X	
Suffix (for example, JR or III) (ST)	X	
Prefix (for example, DR) (ST)	X	
Degree (for example, MD) (IS)	X	
Source table (IS)	X	
Assigning authority (HD)	X	
Name type code (ID)	X	
Identifier check digit (ST)	X	
Code identifying the check digit scheme employed (ID)	X	

Component or subcomponent	Usage	Length
Identifier type code (IS)	X	
Assigning facility (HD)	X	
Name representation code (ID)	X	
Name context (CE)	X	
Name validity range (DR)	X	
Name assembly order (ID)	X	
Effective date (TS)	X	
Expiration date (TS)	X	
Professional suffix (for example, MD) (ST)	X	
Assigning jurisdiction (CWE)	X	
Assigning agency or department (CWE)	X	

Sample value:

```
OPER1~OPER2     [OPER1 at time of result, OPER2 at time of release]
```

Related information…

OBX Segment (OBX-29 = RSLT), page 118

OBX-18 Equipment Instance Identifier (EI)

HL7 definition: This field identifies the Equipment Instance (for example, instrument, instrument module, group of instruments) responsible for the production of the observation. This is the identifier from an institution's master list of equipment, where the institution is specified by the namespace ID or if it is blank, then by the "Producer's ID" (OBX-15). It should be possible to retrieve from this master list the equipment type, serial number, and other equipment information. However, it is not planned to transfer this information with every OBX. The repeating of this field allows for the hierarchical representation of the equipment (lowest level first) (for example, module of an instrument, instrument consisting of modules, and a cluster of multiple instruments).

This specification: This field specifies the manufacturer, model, and module serial number of the instrument module that performed the test. For calculated test results (and some test exceptions), this field specifies the System Control Module serial number.

First repeat

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	50	Instrument Model
Namespace ID (IS)	R	20	Abbott
Universal ID (ST)	X		

Component or subcomponent	Usage	Length	Comment
Universal ID Type (ID)	X		

Second repeat

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	50	Instrument module serial number or System Control Module serial number
Namespace ID (IS)	R	20	Abbott
Universal ID (ST)	X		
Universal ID Type (ID)	X		

Related information...

OBX Segment (OBX-29 = RSLT), page 118

OBX-19 Date/Time of the Analysis (TS)

HL7 definition: This field is used to transfer the time stamp associated with generation of the analytical result by the instrument specified in OBX-18 Equipment Instance Identifier.

This specification: Contains the date and time the test processing completed. Time zone indicator not supported. Degree of precision component is not supported.

Element: OBX-19 Date/Time of Analysis

Component or subcomponent	Usage
YYYYMMDDHHMMSS[+/-ZZZZ]	R
Degree of precision	X

Related information...

OBX Segment (OBX-29 = RSLT), page 118

OBX-29 Observation Type (ID)

HL7 definition: Pre-adopted from HL7 v2.8.1. Indicates the type of observation to enable systems to distinguish between observations sent along with an order versus observations sent as the result to an order.

This specification: Can contain a subset of values taken from HL7-Defined Table 0936 as described below.

Subset of HL7-Defined Table 0936: Observation Type

Value	Description	Comment
RSLT	Result	Result values associated with an observation run.

Related information…

OBX Segment (OBX-29 = RSLT), page 118

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24)

The OBX segment is used to transmit a result observation for a test as part of the OULˆR24 message.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	M	[1..1]	X	[0..0]	Set ID - OBX
2	2	ID	M	[1..1]	X	[0..0]	Value Type
3	500	CE	M	[1..1]	X	[0..0]	Observation Identifier
4	2	ST	M	[1..1]	X	[0..0]	Observation Sub-ID
5	99999	varies	M	[1..1]	X	[0..0]	Observation Value
6	250	CE	X	[0..0]	X	[0..0]	Units
7	60	ST	X	[0..0]	X	[0..0]	Reference Range
8	705	CWE	X	[0..0]	X	[0..0]	Interpretation Codes
9	5	NM	X	[0..0]	X	[0..0]	Probability
10	2	ID	X	[0..0]	X	[0..0]	Nature of Abnormal Test
11	1	ID	M	[1..1]	X	[0..0]	Observation Result Status
12	26	TS	X	[0..0]	X	[0..0]	Effective Date of Reference Range Values
13	20	ST	X	[0..0]	X	[0..0]	User Defined Access Checks
14	26	TS	X	[0..0]	X	[0..0]	Date/Time of the Observation
15	250	CE	X	[0..0]	X	[0..0]	Producer's Reference
16	250	XCN	M	[1..1]	X	[0..0]	Responsible Observer
17	250	CE	X	[0..0]	X	[0..0]	Observation Method
18	427	EI	M	[2..2]	X	[0..0]	Equipment Instance Identifier
19	26	TS	M	[1..1]	X	[0..0]	Date/Time of the Analysis
20	705	CWE	X	[0..0]	X	[0..0]	Observation Site
21	427	EI	X	[0..0]	X	[0..0]	Observation Instance Identifier
22	705	CNE	X	[0..0]	X	[0..0]	Mode Code
23	567	XON	X	[0..0]	X	[0..0]	Performing Organization Name
24	631	XAD	X	[0..0]	X	[0..0]	Performing Organization Address
25	3002	XCN	X	[0..0]	X	[0..0]	Performing Organization Medical Director
26	10	ID	X	[0..0]	X	[0..0]	Patient Results Release Category
27		CWE	X	[0..0]	X	[0..0]	Root Cause

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
28		CWE	X	[0..0]	X	[0..0]	Local Process Control
29	4	ID	M	[1..1]	X	[0..0]	Observation Type

Related information...

Segment definitions, page 79
OBX-1 Set ID (SI), page 131
OBX-2 Value Type (ID), page 131
OBX-3 Observation Identifier (CE), page 132
OBX-4 Observation Sub-ID (ST), page 132
OBX-5 Observation Value (ED), page 132
OBX-11 Observation Result Status (ID), page 133
OBX-16 Responsible Observer (XCN), page 134
OBX-18 Equipment Instance Identifier (EI), page 135
OBX-19 Date/Time of the Analysis (TS), page 135
OBX-29 Observation Type (ID), page 135

OBX-1 Set ID (SI)

HL7 definition: This field contains the sequence number. This field is used to identify segment instances in message structures (for example, segment group) where the segment repeats within that structure. For the first occurrence of the segment, the sequence number is one; for the second occurrence, the sequence number is two; and so on.

If the segment occurs only one time within a message structure, then its value will be "1". If the message structure (for example, segment group) repeats, then the first occurrence of the segment in each segment group will be "1".

Related information...

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-2 Value Type (ID)

HL7 definition: This field contains the format of the observation value in OBX.

Assay calibration result data and statistics from the instrument are sent as a text blob using the HL7 ED (Encapsulated Data) type. See description of OBX-5 Observation Value for more details.

Subset of HL7 Table 0125: Value Type

Value	Description	Comment
ED	Encapsulated Data	Used to report calibration result as a text blob.

Related information…

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-3 Observation Identifier (CE)

HL7 definition: This field contains a unique identifier for the observation.

This specification: This element is used to identify the assay calibration results for the specified assay.

Element: OBX-3 Observation Identifier

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	6	Assay number for the test
Text (ST)	R	199	Assay name for the test
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Sample value:

```
OBX|1|ED|0241^ANTI-Hcv^99ABT|…    [calibration result]
```

Related information…

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-4 Observation Sub-ID (ST)

HL7 definition: This field is used to distinguish between multiple OBX segments with the same observation ID organized under one OBR.

This specification: This element contains the run number. For the OULˆR24 message, it is always “1”.

Related information…

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-5 Observation Value (ED)

HL7 definition: This field contains the value observed by the observation producer. OBX-2 Value Type contains the data type for this field according to which observation value is formatted.

This specification: Assay calibration result data and statistics from the instrument contain multiple data values and can vary by assay. Given the complexity of rendering this result data as discrete elements in HL7 OBX segments, the OBX segment for a calibration result contains a structured text format (JSON) that can be parsed to extract specific data elements. See Appendix B for examples.

NOTE: Per HL7, values for “Type of Data” and “Data subtype” elements contain the values of MIME media types and MIME media subtypes established in accordance with RFC 2046. The encoding used will be Base64 in accordance with MIME standard RFC 1521.

Element: OBX-5 Observation Value (ED) - Calibration Results

Component or subcomponent	Usage	Length	Comment
Source Application (HD)	X		
Type of Data (ID)	R	R	text
Data subtype (ID)	R	5	json
Encoding (ID)	R	6	Base64 (taken from HL7 Table 0299)
Data (TX)	R	65536	Calibration result in Base64 encoding

Sample value:

```
^text^plain^Base64^JVBERi0xLjMKJeTjz9IKNSAwI…(more bytes)
```

Related information…

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-11 Observation Result Status (ID)

HL7 definition: This field contains the observation result status. This field reflects the current completion status of the results for one Observation Identifier.

This specification: Can contain a subset of values taken from HL7 User-Defined Table 0085 as described below.

Subset of HL7 User-Defined Table 0085: Observation Result Status

Value	Description	Comment
F	Final results	Successful calibration

Related information…

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-16 Responsible Observer (XCN)

HL7 definition: When required, this field contains the identifier of the individual directly responsible for the observation (such as the person who either performed or verified it). In a nursing service, the observer is usually the professional who performed the observation (for example, took the blood pressure). In a laboratory, the observer is the technician who performed or verified the analysis.

This specification: This element specifies the User ID logged into the system at time the calibration result is generated.

Element: OBX-16 Responsible Observer

Component or subcomponent	Usage	Length
ID number (ST)	R	20
Family name (FN)	X	
Family name (ST)	X	
Own family name prefix (ST)	X	
Own family name (ST)	X	
Family name prefix from partner/spouse (ST)	X	
Family name from partner/spouse (ST)	X	
Given name (ST)	X	
Second and further given name or initials thereof (ST)	X	
Suffix (for example, JR or III) (ST)	X	
Prefix (for example, DR) (ST)	X	
Degree (for example, MD) (IS)	X	
Source table (IS)	X	
Assigning authority (HD)	X	
Name type code (ID)	X	
Identifier check digit (ST)	X	
Code identifying the check digit scheme employed (ID)	X	
Identifier type code (IS)	X	
Assigning facility (HD)	X	
Name representation code (ID)	X	
Name context (CE)	X	
Name validity range (DR)	X	
Name assembly order (ID)	X	
Effective date (TS)	X	
Expiration date (TS)	X	

Component or subcomponent	Usage	Length
Professional suffix (for example, MD) (ST)	X	
Assigning jurisdiction (CWE)	X	
Assigning agency or department (CWE)	X	

Related information...

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-18 Equipment Instance Identifier (EI)

For OBX-18 details, see *OBX-18 Equipment Instance Identifier (EI)*, page 127.

Related information...

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-19 Date/Time of the Analysis (TS)

HL7 definition: This field is used to transfer the time stamp associated with generation of the analytical result by the instrument specified in OBX-18 Equipment Instance Identifier.

This specification: Contains the date and time of the calibration. Time zone indicator not supported. Degree of precision component is not supported.

Element: OBX-19 Date/Time of Analysis

Component or subcomponent	Usage
YYYYMMDDHHMMSS[+/-ZZZZ]	R
Degree of precision	X

Related information...

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX-29 Observation Type (ID)

HL7 definition: Pre-adopted from HL7 v2.8.1. Indicates the type of observation to enable systems to distinguish between observations sent along with an order versus observations sent as the result to an order.

This specification: Can contain a subset of values taken from HL7-Defined Table 0936 as described below.

Subset of HL7-Defined Table 0936: Observation Type

Value	Description	Comment
RSLT	Result	Result values associated with an observation run.

Related information…

OBX Segment (OBX-29 = RSLT, MSH-9 = OULˆR24), page 130

OBX Segment (OBX-29 = STS)

The OBX segment is used to transmit the test run status as part of the OULˆR22 test status update message.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	M	[1..1]	X	[0..0]	Set ID - OBX
2	2	ID	M	[1..1]	X	[0..0]	Value Type
3	500	CE	M	[1..1]	X	[0..0]	Observation Identifier
4	20	ST	M	[1..1]	X	[0..0]	Observation Sub-ID
5	99999	varies	M	[1..*]	X	[0..0]	Observation Value
6	250	CE	X	[0..0]	X	[0..0]	Units
7	60	ST	X	[0..0]	X	[0..0]	References Range
8	705	CWE	X	[0..0]	X	[0..0]	Interpretation Codes
9	5	NM	X	[0..0]	X	[0..0]	Probability
10	2	ID	X	[0..0]	X	[0..0]	Nature of Abnormal Test
11	1	ID	M	[1..1]	X	[0..0]	Observation Result Status
12	26	TS	X	[0..0]	X	[0..0]	Effective Date of Reference Range Values
13	20	ST	X	[0..0]	X	[0..0]	User Defined Access Checks
14	26	TS	X	[0..0]	X	[0..0]	Date/Time of the Observation
15	250	CE	X	[0..0]	X	[0..0]	Producer's Reference
16	250	XCN	X	[0..0]	X	[0..0]	Responsible Observer
17	250	CE	X	[0..0]	X	[0..0]	Observation Method
18	427	EI	M	[2..2]	X	[0..0]	Equipment Instance Identifier
19	26	TS	C(M,X)	[0..1]	X	[0..0]	Date/Time of the Analysis
20	705	CWE	X	[0..0]	X	[0..0]	Observation Site
21	427	EI	X	[0..0]	X	[0..0]	Observation Instance Identifier
22	705	CNE	X	[0..0]	X	[0..0]	Mode Code
23	567	XON	X	[0..0]	X	[0..0]	Performing Organization Name
24	631	XAD	X	[0..0]	X	[0..0]	Performing Organization Address
25	3002	XCN	X	[0..0]	X	[0..0]	Performing Organization Medical Director
26	10	ID	X	[0..0]	X	[0..0]	Patient Results Release Category
27		CWE	X	[0..0]	X	[0..0]	Root Cause
28		CWE	X	[0..0]	X	[0..0]	Local Process Control
29	4	ID	M	[1..1]	X	[0..0]	Observation Type

Related information...

Segment definitions, page 79
OBX-1 Set ID (SI), page 138
OBX-2 Value Type (ID), page 138
OBX-3 Observation Identifier (CE), page 138
OBX-4 Observation Sub-ID (ST), page 139
OBX-5 Observation Value (ED), page 139
OBX-11 Observation Result Status (ID), page 140
OBX-18 Equipment Instance Identifier (EI), page 140
OBX-19 Date/Time of the Analysis (TS), page 140
OBX-29 Observation Type (ID), page 141

OBX-1 Set ID (SI)

For OBX-1 details, see *OBX-1 Set ID (SI)*, page 119.

Related information...

OBX Segment (OBX-29 = STS), page 137

OBX-2 Value Type (ID)

HL7 definition: This field contains the format of the observation value in OBX.

This specification: Allows only the following subset of values from HL7 Table 0125.

Subset of HL7 Table 0125: Value Type

Value	Description	Comment
CE	Coded Entry	Used for a test run status of an observation.

Related information...

OBX Segment (OBX-29 = STS), page 137

OBX-3 Observation Identifier (CE)

HL7 definition: This field contains a unique identifier for the observation.

This specification: This element is used to identify the test performed on the specimen.

For the instrument, an OBX segment can be used to report run status of a test.

Element: OBX-3 Observation Identifier

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	6	Assay number for the test
Text (ST)	R	199	Assay name for the test
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	X	8	
Alternate Text (ST)	X	199	
Name of Alternate Coding System (ID)	X	6	

Related information...

OBX Segment (OBX-29 = STS), page 137

OBX-4 Observation Sub-ID (ST)

For OBX-4 details, see *OBX-4 Observation Sub-ID (ST)*, page 121.

Related information...

OBX Segment (OBX-29 = STS), page 137

OBX-5 Observation Value (ED)

HL7 definition: This field contains the value observed by the observation producer. OBX-2 Value Type contains the data type for this field according to which observation value is formatted.

This specification: The observation value contains the status value for the test run for the test identified in OBX-3 Observation Identifier.

The CE data type is used to report the test run status code as described below.

Element: OBX-5 Observation Value (CE data type)

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	A test run status code from the Test Run Status table below.
Text (ST)	R	250	Name of test run status.
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks).
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Test Run Status Codes used OBX-5

Value	Description	Comment
INITIATED	Initiated	Test run has initiated on instrument
EXCEPTION	Exception	Test run has an exception
COLLATION	Pending Collation	The test run has completed but is being held for transmission until all other results for this same sample are available for transmission.

Related information...

OBX Segment (OBX-29 = STS), page 137

OBX-11 Observation Result Status (ID)

HL7 definition: This field contains the observation result status. This field reflects the current completion status of the results for one Observation Identifier.

This specification: Can contain a subset of values taken from HL7 User-Defined Table 0085 as described below.

Subset of HL7 User-Defined Table 0085: Observation Result Status

Value	Description	Comment
I	Results pending	Observation results are pending.

Related information...

OBX Segment (OBX-29 = STS), page 137

OBX-18 Equipment Instance Identifier (EI)

For OBX-18 details, see *OBX-18 Equipment Instance Identifier (EI)*, page 127.

Related information...

OBX Segment (OBX-29 = STS), page 137

OBX-19 Date/Time of the Analysis (TS)

HL7 definition: This field is used to transfer the time stamp associated with generation of the analytical result by the instrument specified in OBX-18 Equipment Instance Identifier.

This specification: For test status updates for initiated tests, contains the date and time the test processing is estimated to complete. Time zone indicator not supported. Degree of precision component is not supported.

Predicate: This field is mandatory if OBX-5.1 is INITIATED. Otherwise, usage is not supported.

Element: OBX-19 Date/Time of Analysis

Component or subcomponent	Usage
YYYYMMDDHHMMSS+/-ZZZZ	R
Degree of precision	X

Related information...

OBX Segment (OBX-29 = STS), page 137

OBX-29 Observation Type (ID)

HL7 definition: Pre-adopted from HL7 v2.8.1. Indicates the type of observation to enable systems to distinguish between observations sent along with an order versus observations sent as the result to an order.

This specification: Value taken from an extension to HL7-Defined Table 0936 as described below.

Extension of HL7-Defined Table 0936: Observation Type

Value	Description	Comment
STS	Test Run Status	Test run status

Related information...

OBX Segment (OBX-29 = STS), page 137

ORC Segment

The Common Order (ORC) segment is used to transmit elements that are common to all of the tests ordered.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	2	ID	M	[1..1]	M	[1..1]	Order Control
2	50	EI	C(M,X)	[0..1]	X	[0..0]	Placer Order Number
3	50	EI	X	[0..0]	X	[0..0]	Filler Order Number
4	22	EIP	X	[0..0]	X	[0..0]	Placer Group Number
5	2	ID	M	[1..1]	X	[0..0]	Order Status
6	1	ID	X	[0..0]	X	[0..0]	Response Flag
7	200	TQ	X	[0..0]	X	[0..0]	Quantity/Timing
8	200	EIP	RE	[0..*]	X	[0..0]	Parent
9	26	TS	X	[0..0]	M	[1..1]	Date/Time of Transaction
10	250	XCN	X	[0..0]	X	[0..0]	Entered By
11	250	XCN	X	[0..0]	X	[0..0]	Verified By
12	250	XCN	X	[0..0]	X	[0..0]	Ordering Provider
13	80	PL	X	[0..0]	X	[0..0]	Enterer's Location
14	250	XTN	X	[0..0]	X	[0..0]	Call Back Phone Number
15	26	TS	X	[0..0]	X	[0..0]	Order Effective Date/Time
16	250	CE	X	[0..0]	X	[0..0]	Order Control Code Reason
17	250	CE	X	[0..0]	X	[0..0]	Entering Organization
18	250	CE	X	[0..0]	X	[0..0]	Entering Device
19	250	XCN	X	[0..0]	X	[0..0]	Action By
20	250	CE	X	[0..0]	X	[0..0]	Advanced Beneficiary Notice Code
21	250	XON	X	[0..0]	X	[0..0]	Ordering Facility Name
22	250	XAD	X	[0..0]	X	[0..0]	Ordering Facility Address
23	250	XTN	X	[0..0]	X	[0..0]	Ordering Facility Telephone Number
24	250	XAD	X	[0..0]	X	[0..0]	Ordering Provider Address
25	250	CWE	X	[0..0]	X	[0..0]	Order Status Modifier
26	60	CWE	X	[0..0]	X	[0..0]	Advanced Beneficiary Notice Override Reason
27	26	TS	X	[0..0]	X	[0..0]	Filler's Expected Availability Date/Time
28	250	CWE	X	[0..0]	X	[0..0]	Confidentiality Code
29	250	CWE	X	[0..0]	X	[0..0]	Order Type

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
30	250	CNE	X	[0..0]	X	[0..0]	Enterer Authorization Mode
31	250	CWE	X	[0..0]	X	[0..0]	Parent Universal Service Identifier

Related information...

Segment definitions, page 79
ORC-1 Order Control (ID), page 143
ORC-2 Placer Order Number (EI), page 144
ORC-5 Order Status (ID), page 144
ORC-8 Parent (EIP), page 145
ORC-9 Date/Time of Transaction (TS), page 145

ORC-1 Order Control (ID)

HL7 definition: This field may be considered the "trigger event" identifier for orders and it determines the function of the order segment. Many order control codes are defined in the HL7 Table 0119 - Order Control Codes.

This specification:

ORC-1 Sender:

For order download response (ORL) or upload of results (OUL), this specification supports only the following subset of order control codes.

Subset of HL7 Table 0119: Order Control Codes (Sender)

Value	Description
OK	ORL: "Order/service accepted & OK." This indicates that the new order request has been accepted.
UA	ORL: "Unable to accept order/service." This indicates that the instrument has rejected the new order.
CR	ORL: "Cancel as requested." This indicates that a cancel order request has been accepted and processed.
UC	ORL: "Unable to cancel." This indicates that a cancel order request is rejected.
SC	OUL: "Status change." Sent by instrument in OULˆR22 message.

ORC-1 Receiver:

For order downloads, this specification supports only the following subset of order control codes:

Subset of HL7 Table 0119: Order Control Codes (Receiver)

Value	Description
NW	"New Order." This is a new order request to the instrument.
CA	"Cancel order/service request." This is a request to cancel a previously sent order.
DC	"Discontinue order/service request." This is used to indicate a negative query response.

NOTE: The value DC is used in an order download (OMLˆO33) as a negative query response to a previous order query (QBPˆQ11).

Related information...

ORC Segment, page 142

ORC-2 Placer Order Number (EI)

HL7 definition: This field is the placer application's order number.

This specification: This field is used to uniquely identify an order (AWOS ID) when used as part of an ORLˆO34 response to the order download message (OMLˆO33).

Element: ORC-2 Placer Order Number

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	50	AWOS ID
Namespace ID (IS)	X		
Universal ID (ST)	X		
Universal ID Type (ID)	X		

ORC-2 Sender:

This field is populated with the Placer Order Number (AWOS ID) (OBR-2) that is in the order download message (OMLˆO33).

Predicate: Usage is required if MSH-9.1 (Message Code) is ORL and MSH-9.2 (Trigger Event) is O34. Otherwise, usage is not supported because the placer order number is only carried by field OBR-2 Placer Order Number.

Related information...

ORC Segment, page 142

ORC-5 Order Status (ID)

HL7 definition: This field specifies the status of an order. Refer to HL7 Table 0038 - Order Status for valid entries. The purpose of this field is to report the status of an order either upon request (solicited), or when the status changes (unsolicited). It does not initiate action. It is

assumed that the order status always reflects the status as it is known to the sending application at the time that the message is sent. Only the filler can originate the value of this field.

This specification: This element contains the Order Status as specified in table below.

Subset of HL7 Table 0038 - Order Status

Value	Description	Comment
CM	Order is completed	Used in OULˆR22, ORLˆO34
IP	In process	Used in OULˆR22, ORLˆO34
CA	Order was canceled	Used in ORLˆO34
SC	Scheduled	Used in ORLˆO34

Related information...

ORC Segment, page 142

ORC-8 Parent (EIP)

HL7 definition: This field relates a child to its parent when a parent-child relationship exists.

This specification: This element is used by the instrument to associate a reflex AWOS generated at the instrument to its parent AWOSs in OULˆR22 messages. Each instance of this repeatable field will carry in its first component (Placer Assigned Identifier) the AWOS ID of a parent AWOS.

Element: ORC-8 Parent

Component or subcomponent	Usage	Length	Comment
Placer Assigned Identifier (EI)	R		
Entity Identifier (ST)	R	50	AWOS ID

Related information...

ORC Segment, page 142

ORC-9 Date/Time of Transaction (TS)

HL7 definition: This field contains the date and time of the event that initiated the current transaction as reflected in ORC-1 Order Control Code.

This specification: This element will be reported to a precision of seconds. Indication of the time zone is not supported. The degree of precision component is not supported.

Element: ORC-9 Date/Time of Transaction

Component or subcomponent	Usage
YYYYMMDDHHMMSS[+/-ZZZZ]	R

Component or subcomponent	Usage
Degree or precision	X

Related information…

ORC Segment, page 142

PID Segment

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	X	[0..0]	X	[0..0]	Set ID - PID
2	20	CX	X	[0..0]	X	[0..0]	Patient ID
3	250	CX	RE	[0..1]	RE	[0..1]	Patient Identifier List
4	20	CX	X	[0..0]	X	[0..0]	Alternate Patient ID - PID
5	250	XPN	RE	[0..1]	RE	[0..1]	Patient Name
6	250	XPN	X	[0..0]	X	[0..0]	Mother's Maiden Name
7	26	TS	RE	[0..1]	RE	[0..1]	Date/Time of Birth
8	1	IS	RE	[0..1]	RE	[0..1]	Administrative Sex

Related information...

Segment definitions, page 79
PID-3 Patient Identifier List (CX), page 147
PID-5 Patient Name (XPN), page 148
PID-7 Date/Time of Birth (TS), page 149
PID-8 Administrative Sex (IS), page 149

PID-3 Patient Identifier List (CX)

HL7 definition: This element supports the list of identifiers (one or more) used by the health care facility to uniquely identify a patient (for example, medical record number, billing number, birth registry, and national unique individual identifier).

This specification: This field is constrained to just one identifier. Only the first component of the first repetition in the list of potentially repeating elements is supported. The maximum length of the patient identifier is 20 characters. This element is not required for patient test orders.

Element: PID-3 Patient Identifier List

Component or subcomponent	Usage	Length	Comment
ID Number (ST)	RE	20	Patient ID
Check Digit (ST)	X		
Check Digit Scheme (ID)	X		
Assigning Authority (HD)	X		

Component or subcomponent	Usage	Length	Comment
Identifier Type Code (ID)	X		
Assigning Facility (HD)	X		
Effective Date (DT)	X		
Expiration Date (DT)	X		
Assigning Jurisdiction (CWE)	X		
Assigning Agency or Department (CWE)	X		

Related information…

PID Segment, page 147

PID-5 Patient Name (XPN)

HL7 definition: This field contains the name of the patient. The primary or legal name of the patient is reported first.

This specification: The instrument supports a last name, first name, and middle name. Received values longer than supported lengths are truncated. The truncation character "#" is used at the end of a truncated value to indicate it was truncated. This element is not required for patient test orders. However, if this element is populated, the IHE LAW profile requires that XPN.7 (name type code) be populated with a value. Therefore, the name type code in this field should be "L" for "Legal".

Element: PID-5 Patient Name

Component or subcomponent	Usage	Length	Comment
Family name (FN)	RE		
Surname (ST)	RE	20#	Last name
Own Surname Prefix (ST)	X		
Own Family Name (ST)	X		
Family Name Prefix From Partner/Spouse (ST)	X		
Surname From Partner/Spouse (ST)	X		
Given Name (ST)	RE	20#	First name
Second and Further Given Names or Initials Thereof (ST)	RE	12#	Middle name
Suffix (for example, JR or III) (ST)	X		
Prefix (for example, DR) (ST)	X		
Degree (for example, MD) (IS)	X		
Name Type Code (ID)	R	1	Always "L" (from HL7 Table 0200 - Name type, which is the code for "Legal").

Component or subcomponent	Usage	Length	Comment
Name Representative Code (ID)	X		
Name Context (CE)	X		
Name Validity Range (DR)	X		
Name Assembly Order (ID)	X		
Effective Date (TS)	X		
Expiration Date (TS)	X		
Professional Suffix (ST)	X		

Sample value:

```
Doe^John^Quincy^^^^L
```

Related information...

PID Segment, page 147

PID-7 Date/Time of Birth (TS)

HL7 definition: This field contains the patient's date and time of birth.

This specification: Only the birth date is supported. Time of birth, time zone indicator, and Degree of precision are not supported. This element is not required for patient test orders.

Element: PID-7 Date/Time of Birth

Component or subcomponent	Usage
YYYYMMDDHHMMSS+/-ZZZZ	R
Degree of precision	X

Sample value:

```
19710813
```

Related information...

PID Segment, page 147

PID-8 Administrative Sex (IS)

HL7 definition: This element contains the patient's gender.

This specification: This field contains the patient's gender. It can be blank or contain a value taken from HL7 User-Defined Table 0001.

Subset of HL7 User-Defined Table 0001: Administrative Sex

Value	Description	Comment
F	Female	
M	Male	
U	Unknown	

Related information…

PID Segment, page 147

PV1 Segment

The PV1 segment is used to communicate information that is specific to a patient visit.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	X	[0..0]	X	[0..0]	Set ID - PV1
2	1	IS	R	[1..1]	R	[1..1]	Patient Class
3	80	PL	RE	[0..1]	RE	[0..1]	Assigned Patient Location

Related information...

Segment definitions, page 79
PV1-2 Patient Class (IS), page 151
PV1-3 Assigned Patient Location (PL), page 151

PV1-2 Patient Class (IS)

HL7 definition: This field is used by systems to categorize patients by site. This is a required element.

This specification: Patient class information is not maintained by the instrument. This field can be empty or contain values taken from the HL7 User-Defined Table 0004: Patient Class.

Subset of HL7 User-Defined Table 0004: Patient Class

Value	Description	Comment
N	Not Applicable	Per IHE LAW, value to use when the information is not maintained by the instrument

Related information...

PV1 Segment, page 151

PV1-3 Assigned Patient Location (PL)

HL7 definition: This field contains the patient's initial assigned location or the location to which the patient is being moved.

This specification: Only a single patient location element is supported by the instrument. Therefore, only a single component is supported for patient test orders. This element is not required for patient test orders. Received values longer than the supported length are truncated. The truncation character "#" is used at the end of a truncated value to indicate it was truncated.

Element: PV1-3 Assigned Patient Location

Component or subcomponent	Usage	Length	Comment
Point of Care (IS)	X		
Room (IS)	RE	20#	Patient location
Bed (IS)	X		
Facility (HD)	X		
Location Status (IS)	X		
Person Location Type (IS)	X		
Building (IS)	X		
Floor (IS)	X		
Location Description (ST)	X		
Comprehensive Location Identifier (EI)	X		
Assigning Authority for Location (HD)	X		

Related information…

PV1 Segment, page 151

QAK Segment

The QAK segment contains information sent with responses to a query.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	32	ST	X	[0..0]	M	[1..1]	Query Tag
2	2	ID	X	[0..0]	M	[1..1]	Query Response Status
3	60	CE	X	[0..0]	M	[1..1]	Message Query Name
4	10	NM	X	[0..0]	X	[0..0]	Hit Count
5	10	NM	X	[0..0]	X	[0..0]	This payload
6	10	NM	X	[0..0]	X	[0..0]	Hits remaining

Related information...

Segment definitions, page 79
QAK-1 Query Tag (ST), page 153
QAK-2 Query Response Status (ID), page 153
QAK-3 Message Query Name (CE), page 154

QAK-1 Query Tag (ST)

HL7 definition: This field may be valued by the initiating system to identify the query, and may be used to match response messages to the originating query. If it is valued, the responding system is required to echo it back as the first field in the query acknowledgment segment (QAK).

This specification: In the query response message, this field echoes QPD-2 in the query message.

QAK-1 Receiver (RSP^K11)

In the query response message, QAK-1 must echo QPD-2 from the query message.

Related information...

QAK Segment, page 153

QAK-2 Query Response Status (ID)

HL7 definition: This field allows the responding system to return a precise response status. It is especially useful in the case where no data is found that matches the query parameters, but where there is also no error.

This specification: This interface allows the following codes from the HL7 Table 0208.

Subset of HL7 Table 0208: Query Response Status

Value	Description	Comment
OK	Query Accepted	The query has been accepted for processing.
AE	Application Error	An application error occurred when processing the query request.
AR	Application Reject	The application has rejected the query request.

Related information...

QAK Segment, page 153

QAK-3 Message Query Name (CE)

HL7 definition: This field contains the name of the query.

This specification: This field contains “QPD-1 Message Query Name” from the query message, as described below.

QAK-3 Receiver (RSP^K11)

LIS echoes the Message Query Name in response to the Specimen Order query.

Element: QAK-3 Message Query Name

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	3	Value from HL7 Table 0471 below
Text (ST)	R	15	Description from HL7 Table 0471 below
Name of Coding System (ID)	R	6	Will be "IHELAW" (without quotation marks)
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

HL7 User-Defined Table 0471: Message Query Name

Value	Description	Comment
WOS	Work Order Step	Use to query for a single specimen

Sample value:

```
WOS^Work Order Step^IHELAW
```

Related information...

QAK Segment, page 153

QPD Segment

The QPD segment defines the parameters of the query message as used by the instrument to query LIS for specimen orders. In the query response message (RSP), it echoes the QPD segment that was in the original query message (QBP).

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	60	CE	M	[1..1]	M	[1..1]	Message Query Name
2	32	ST	M	[1..1]	M	[1..1]	Query Tag
3	80	EI	M	[1..1]	M	[1..1]	Container Identifier

Related information...

Segment definitions, page 79
QPD-1 Message Query Name (CE), page 155
QPD-2 Query Tag (ST), page 156
QPD-3 Container Identifier (EI), page 156

QPD-1 Message Query Name (CE)

HL7 definition: This field contains the name of the query.

This specification: The value of each component is specified below.

Element: QPD-1 Message Query Name

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	3	Value from HL7 Table 0471 below
Text (ST)	R	15	Description from HL7 Table 0471 below
Name of Coding System (ID)	R	6	Will be "IHELAW" (without quotation marks)
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

HL7 User-Defined Table 0471: Message Query Name

Value	Description	Comment
WOS	Work Order Step	Use to query for a single specimen

Sample value:

```
WOS^Work Order Step^IHELAW
```

Related information...

QPD Segment, page 155

QPD-2 Query Tag (ST)

HL7 definition: This field may be valued by the initiating system to identify the query, and may be used to match response messages to the originating query. If this field is valued, the responding system is required to echo it back as the first field in the query acknowledgment segment (QAK).

This specification: For each query sent, the instrument will generate a unique identifier for the query tag.

Related information...

QPD Segment, page 155

QPD-3 Container Identifier (EI)

HL7 definition: This is the first field for user parameters.

This specification: Per the IHE Laboratory Technical Framework, the first parameter will be the Container ID (or the Sample or Specimen ID), as carried in SAC-3 in other messages. The instrument can only query based on the Specimen ID, so none of the other conditional parameters defined by IHE to be carried in QPD-3 and following are supported.

The supported components within this field are shown in the following table.

Element: QPD-3 Container ID

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	20	SAC-3: Container or Specimen ID
Namespace ID (IS)	X		
Universal ID (ST)	X		
Universal ID Type (ID)	X		

Related information...

QPD Segment, page 155

RCP Segment

The RCP segment is used to restrict the amount of data that should be returned in response to query. This segment is sent as part of the query message.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	1	ID	M	[1..1]	M	[1..1]	Query Priority
2	10	CQ	X	[0..0]	X	[0..0]	Quantity Limited Request
3	60	CE	M	[1..1]	M	[1..1]	Response Modality
4	26	TS	X	[0..0]	X	[0..0]	Execution and Delivery Time
5	1	ID	X	[0..0]	X	[0..0]	Modify Indicator
6	512	SRT	X	[0..0]	X	[0..0]	Sort-by Field
7	256	ID	X	[0..0]	X	[0..0]	Segment group inclusion

Related information...

Segment definitions, page 79
RCP-1 Query Priority (ID), page 157
RCP-3 Response Modality (CE), page 157

RCP-1 Query Priority (ID)

HL7 definition: This field contains the time frame in which the response is expected.

This specification: As immediate responses to queries are expected, this element is fixed to support only the value as taken from HL7 Table 0091.

Subset of HL7 Table 0091: Query Priority

Value	Description	Comment
I	Immediate	

Related information...

RCP Segment, page 157

RCP-3 Response Modality (CE)

HL7 definition: This field specifies the timing and grouping of the response messages.

This specification: As immediate and real-time responses to queries are expected, this field contains a subset of values taken from HL7 Table 0394 as described below.

Subset of HL7 Table 0394: Response Modality

Value	Description	Comment
R	Real Time	

Element: RCP-3 Response Modality

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	1	Value from HL7 Table 0394 above
Text (ST)	RE	199	Description from HL7 Table 0394 above
Name of Coding System (ID)	R	7	"HL70394" (without quotation marks)
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Related information...

RCP Segment, page 157

SAC Segment

The SAC segment is used to describe the specimen container.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	80	EI	X	[0..0]	X	[0..0]	External Accession Identifier
2	80	EI	X	[0..0]	X	[0..0]	Accession Identifier
3	80	EI	M	[1..1]	M	[1..1]	Container Identifier
4	80	EI	X	[0..0]	X	[0..0]	Primary (parent) Container Identifier
5	80	EI	X	[0..0]	X	[0..0]	Equipment Container Identifier
6	300	SPS	X	[0..0]	X	[0..0]	Specimen Source
7	26	TS	X	[0..0]	X	[0..0]	Registration Date/Time
8	250	CE	C(M, X)	[0..1]	X	[0..0]	Container Status
9	250	CE	X	[0..0]	X	[0..0]	Carrier Type
10	80	EI	RE	[0..1]	X	[0..0]	Carrier Identifier
11	80	NA	RE	[0..1]	X	[0..0]	Position in Carrier
12	250	CE	X	[0..0]	X	[0..0]	Tray Type - SAC
13	80	EI	X	[0..0]	X	[0..0]	Tray Identifier
14	80	NA	X	[0..0]	X	[0..0]	Position in Tray
15	250	CE	RE	[0..2]	X	[0..0]	Location
16	20	NM	X	[0..0]	X	[0..0]	Container Height
17	20	NM	X	[0..0]	X	[0..0]	Container Diameter
18	20	NM	X	[0..0]	X	[0..0]	Barrier Delta
19	20	NM	X	[0..0]	X	[0..0]	Bottom Delta
20	250	CE	X	[0..0]	X	[0..0]	Container Height/Diameter/Delta Units
21	20	NM	X	[0..0]	X	[0..1]	Container Volume
22	20	NM	X	[0..0]	X	[0..1]	Available Specimen Volume
23	20	NM	X	[0..0]	X	[0..0]	Initial Specimen Volume
24	250	CE	X	[0..0]	X	[0..1]	Volume Units
25	250	CE	X	[0..0]	X	[0..0]	Separator Type
26	250	CE	X	[0..0]	X	[0..0]	Cap Type
27	250	CWE	X	[0..0]	X	[0..0]	Additive
28	250	CE	X	[0..0]	X	[0..0]	Specimen Component
29	20	SN	RE	[0..1]	RE	[0..1]	Dilution Factor
30	250	CE	X	[0..0]	X	[0..0]	Treatment
31	20	SN	X	[0..0]	X	[0..0]	Temperature

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
32	20	NM	X	[0..0]	X	[0..0]	Hemolysis Index
33	250	CE	X	[0..0]	X	[0..0]	Hemolysis Index Units
34	20	NM	X	[0..0]	X	[0..0]	Lipemia Index
35	250	CE	X	[0..0]	X	[0..0]	Lipemia Index Units
36	20	NM	X	[0..0]	X	[0..0]	Icterus Index
37	250	CE	X	[0..0]	X	[0..0]	Icterus Index Units
38	20	NM	X	[0..0]	X	[0..0]	Fibrin Index
39	250	CE	X	[0..0]	X	[0..0]	Fibrin Index Units
40	250	CE	X	[0..0]	X	[0..0]	System Induced Contaminants
41	250	CE	X	[0..0]	X	[0..0]	Drug Interference
42	250	CE	X	[0..0]	X	[0..0]	Artificial Blood
43	250	CWE	X	[0..0]	X	[0..0]	Special Handling Code
44	250	CE	X	[0..0]	X	[0..0]	Other Environmental Factors

Related information...

Segment definitions, page 79
SAC-3 Container Identifier (EI), page 160
SAC-8 Container Status (CE), page 161
SAC-10 Carrier Identifier (EI), page 162
SAC-11 Position in Carrier (NA), page 163
SAC-15 Location (CE), page 163
SAC-29 Dilution Factor (SN), page 164

SAC-3 Container Identifier (EI)

HL7 definition: This field identifies the container. This field is the container's unique identifier assigned by the corresponding equipment. A container may contain the primary (original) specimen or an aliquot (secondary sample) of that specimen. For primary sample, this field contains Primary Container ID; for bar-coded aliquot samples, this field contains Aliquot Container ID; for non-bar-coded aliquot samples (for example, microtiter plate), this field is empty.

This specification: This field specifies the identifier of the specimen container. It is used by an instrument as a Specimen ID to uniquely identify a specimen sample. It is recommended that the Specimen ID field does not contain any trailing or leading white space characters, as they are not easily discernible as part of the Specimen ID when displayed on the instrument user interface.

Element: SAC-3 Container Identifier

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	20	Container or Specimen ID
Namespace ID (IS)	X		
Universal ID (ST)	X		
Universal ID Type (ID)	X		

SAC-3 Receiver:

The Container Identifier (SAC-3) must be populated for all order download messages (OMLˆO33).

Related information...

SAC Segment, page 159

SAC-8 Container Status (CE)

HL7 definition: This field identifies the status of the unique container in which the specimen resides at the time that the transaction was initiated.

This specification:

SAC-8 Sender:

This element specifies sample status on the instrument when SAC is contained within SSUˆU03. This element contains a subset of values taken from HL7 Table 0370 as described below.

Predicate: Usage is Mandatory if MSH-9.1 Message Type is populated with "SSU", MSH-9.2 Event Type is populated with "U03". Otherwise, usage is not supported.

Subset of HL7 Table 0370: Container status

Value	Description	Comment
I	Identified	Sample bar code successfully scanned.
O	In Process	All tests on sample have been scheduled for processing.
R	Process Completed	All processing complete on sample and it can be unloaded from instrument.
L	Left Equipment	Sample has been unloaded from instrument.

Element: SAC-8 Container Status

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	1	Value from HL7 Table 0370 above
Text (ST)	RE	199	Description from HL7 Table 0370 above
Name of Coding System (ID)	R	7	"HL70370" (without quotation marks)

Component or subcomponent	Usage	Length	Comment
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

SAC-8 Receiver:

This element is not supported for received messages.

Related information...

SAC Segment, page 159

SAC-10 Carrier Identifier (EI)

HL7 definition: This field identifies the carrier. It is the ID (for example, number or bar code) of the carrier where the container (for example, tube) is located.

This specification:

Element: SAC-10 Carrier Identifier

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	R	5	Sample Rack Bar Code ID for samples loaded on a sample rack. "LAS" (without quotation marks) for samples introduced from a laboratory automation track. LAS: Laboratory Automation System
Namespace ID (IS)	X		
Universal ID (ST)	X		
Universal ID Type (ID)	X		

SAC-10 Sender:

This element specifies the rack identifier for samples loaded on a sample rack, or "LAS" for samples introduced from a laboratory automation track.

SAC-10 Receiver:

The instrument does not support test ordering by sample location. This field is ignored for incoming messages.

Related information...

SAC Segment, page 159

SAC-11 Position in Carrier (NA)

HL7 definition: This field identifies the position of the container in the carrier (for example, 1… 3…). The subcomponents allow, if necessary, to transfer multiple axis information [for example, two-dimensional carrier (X^Y)].

This specification:

Element: SAC-11 Position in Carrier

Component or subcomponent	Usage	Length	Comment
Value1 (NM)	R	3	Position in sample rack for sample loaded on sample rack. LAS sampling position for samples introduced from a laboratory automation track.
Value2 (NM)	X		
Value3 (NM)	X		
...	X		

SAC-11 Sender:

This element specifies the position within a rack or sampling position for samples introduced from a laboratory automation track.

SAC-11 Receiver:

The instrument does not support test ordering by sample location. This field is ignored for incoming messages.

Related information…

SAC Segment, page 159

SAC-15 Location (CE)

HL7 definition: This field is the physical location that the specimen was at the time that the transaction was initiated. The location description can vary with the LAS. For example, it can be an X,Y, Z coordinate in a storage system; a refrigerator number and drawer number where the container-carrier-tray is located; or the name of the institution and the laboratory that currently owns the container. The repeating of this field allows for hierarchical representation of location (lowest level first) (shelf number, refrigerator storage ID, lab name, institution name, or other location).

This specification: If available, the location of the sample rack (specified in SAC-10) in the instrument's sample rack load and unload area [Reagent and Sample Manager (RSM)].

SAC-15 Sender:

This element, if present, repeats to represent the position number and module number.

First repeat

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	2	Position number within module
Text (ST)	R	8	"Position" (without quotation marks)
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Second repeat

Component or subcomponent	Usage	Length	Comment
Identifier	R	2	Module number within RSM
Text (ST)	R	3	"Module" (without quotation marks)
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate Identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

SAC-15 Receiver:

This field is ignored for incoming messages.

Related information…

SAC Segment, page 159

SAC-29 Dilution Factor (SN)

HL7 definition: This field identifies the factor of dilution already performed on the specimen.

This specification: If a manual/offline dilution was performed on the specimen prior to presenting it to the instrument, then this value is populated with the dilution factor. As part of the result message, the result value reported in OBX-5 for the test result is scaled by this dilution factor. The field is blank if no manual dilution factor was provided.

Element: SAC-29 Dilution Factor

Component or subcomponent	Usage	Length	Comment
Comparator (ST)	X		
Num1 (NM)	R	1	Always 1

Component or subcomponent	Usage	Length	Comment
Separator/Suffix (ST)	R	1	Always:
Num2 (NM)	R	6	Value in range of 1.1 to 9999.9. Can be integer value (without decimal point and decimal digit) or a decimal value (with one digit to right of decimal point).

Related information...

SAC Segment, page 159

SPM Segment

The SPM segment is used to describe the characteristics of a single specimen. The SPM segment relays information about the type of specimen and the date and time that the specimen was received. It differs from the intent of the OBR segment in that the OBR addresses order-specific information. It differs from the SAC segment in that the SAC addresses specimen container attributes.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	M	[1..1]	M	[1..1]	Set ID - SPM
2	80	EIP	X	[0..0]	X	[0..0]	Specimen ID
3	80	EIP	X	[0..0]	X	[0..0]	Specimen Parent IDs
4	250	CWE	M	[1..1]	M	[1..1]	Specimen Type
5	250	CWE	X	[0..0]	X	[0..0]	Specimen Type Modifier
6	250	CWE	X	[0..0]	X	[0..0]	Specimen Additives
7	250	CWE	X	[0..0]	X	[0..0]	Specimen Collection Method
8	250	CWE	X	[0..0]	X	[0..0]	Specimen Source Site
9	250	CWE	X	[0..0]	X	[0..0]	Specimen Source Site Modifier
10	250	CWE	X	[0..0]	X	[0..0]	Specimen Collection Site
11	250	CWE	M	[1..1]	M	[1..1]	Specimen Role
12	20	CQ	X	[0..0]	X	[0..0]	Specimen Collection Amount
13	6	NM	X	[0..0]	X	[0..0]	Grouped Specimen Count
14	250	ST	X	[0..0]	X	[0..0]	Specimen Description
15	250	CWE	X	[0..0]	X	[0..0]	Specimen Handling Code
16	250	CWE	X	[0..0]	X	[0..0]	Specimen Risk Code
17	26	DR	C(RE,X)	[0..1]	C(RE,X)	[0..1]	Specimen Collection Date/Time
18	26	TS	X	[0..0]	X	[0..0]	Specimen Received Date/Time
19	26	TS	X	[0..0]	X	[0..0]	Specimen Expiration Date/Time
20	1	ID	X	[0..0]	X	[0..0]	Specimen Availability
21	250	CWE	X	[0..0]	X	[0..0]	Specimen Reject Reason
22	250	CWE	X	[0..0]	X	[0..0]	Specimen Quality
23	250	CWE	X	[0..0]	X	[0..0]	Specimen Appropriateness
24	250	CWE	X	[0..0]	X	[0..0]	Specimen Condition
25	20	CQ	X	[0..0]	X	[0..0]	Specimen Current Quantity
26	4	NM	X	[0..0]	X	[0..0]	Number of Specimen Containers
27	250	CWE	X	[0..0]	X	[0..0]	Container Type
28	250	CWE	X	[0..0]	X	[0..0]	Container Condition

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
29	250	CWE	X	[0..0]	X	[0..0]	Specimen Child Role

Related information...

Segment definitions, page 79
SPM-1 Set ID (SI), page 167
SPM-4 Specimen Type (CWE), page 167
SPM-11 Specimen Role (CWE), page 168
SPM-17 Specimen Collection Date/Time (DR), page 169

SPM-1 Set ID (SI)

HL7 definition: This field contains the sequence number. This field is used to identify segment instances in message structures (such as segment group) where the segment repeats within that structure. For the first occurrence of the segment, the sequence number is one; for the second occurrence, the sequence number is two; and so on.

This specification: All occurrences of the SPM segment are sequentially numbered within a message.

SPM-1 Receiver:

This field is ignored when received.

Related information...

SPM Segment, page 166

SPM-4 Specimen Type (CWE)

HL7 definition: This field describes the precise nature of the entity that will be the source material for the observation.

This specification: This field is not used by the instrument, but is mandatory per the IHE-LAB LAW profile.

SPM-4 Sender:

The Specimen Type is NULL ("").

SPM-4 Receiver:

This field must be NULL or any other value, but is ignored when received.

Related information...

SPM Segment, page 166

SPM-11 Specimen Role (CWE)

HL7 definition: This field indicates the role of the sample.

This specification: Identifies the role of the specimen to be a Calibrator, Patient, or QC specimen. Only the first component (for example, Identifier) is supported, which can contain only values taken from HL7 User-Defined Table 0369 (see below).

Element: SPM-11 Specimen Role

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Value from HL7 Table 0369 below
Text (ST)	RE	199	Description of specimen role
Name of Coding System (ID)	R	7	"HL70369" (without quotation marks) for HL7-defined specimen role. "IHELAW" (without quotation marks) for IHE LAW-defined extensions.
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		
Coding System Version ID (ST)	X		
Alternate Coding System Version ID (ST)	X		
Original Text (ST)	X		

SPM-11 Sender: Subset of HL7 User-Defined Table 0369 - Specimen Role

Value	Description	Comment
C	Calibrator	
P	Patient	
Q	Control specimen	

SPM-11 Receiver: Subset of HL7 User-Defined Table 0369 - Specimen Role

Value	Description	Comment
P	Patient	
U	Unknown	Unknown specimen role; used for negative query response to order query (QBP^Q11). **NOTE:** IHE LAW extension to HL7 User-Defined Table 0369.

The Specimen Role “U” can only be used if the Order Control code (ORC-1) is "DC" and vice versa.

The Specimen Role Text is optional and will be ignored when received. An error will not be raised if the Specimen Role Text or Name of Coding System is not consistent with the Specimen Role Identifier.

Related information…

SPM Segment, page 166

SPM-17 Specimen Collection Date/Time (DR)

HL7 definition: The date and time when the specimen was acquired from the source.

This specification: Specimen collection date and time. Only the first component (range start date/time) is supported. This element is reported to a precision of seconds. Neither time zone indicator and degree of precision are supported.

Predicate: Usage is required if available when SPM-11 is "P". Otherwise, usage is not supported.

Element: SPM-17 Specimen Collection Start Date/Time

Component or subcomponent	Usage
Range Start Date/Time	R
YYYYMMDDHHMMSS+/-ZZZZ	R
Degree of precision	X
Range End Date/Time	X
YYYYMMDDHHMMSS+/-ZZZZ	X
Degree of precision	X

Related information…

SPM Segment, page 166

TCC Segment

The test (for example, analyte) code configuration (TCC) segment contains the data necessary to maintain and transmit information concerning the test entity codes that are used throughout the automated system.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	250	CE	M	[1..1]	X	[0..0]	Universal Service Identifier
2	80	EI	M	[1..1]	X	[0..0]	Test Application Identifier
3	300	SPS	X	[0..0]	X	[0..0]	Specimen Source
4	20	SN	X	[0..0]	X	[0..0]	Auto-Dilution Factor Default
5	20	SN	X	[0..0]	X	[0..0]	Rerun Dilution Factor Default
6	20	SN	X	[0..0]	X	[0..0]	Pre-Dilution Factor Default
7	20	SN	X	[0..0]	X	[0..0]	Endogenous Contents of Pre-Dilution Diluent
8	10	NM	X	[0..0]	X	[0..0]	Inventory Limits Warning Level
9	1	ID	X	[0..0]	X	[0..0]	Automatic Rerun Allowed
10	1	ID	X	[0..0]	X	[0..0]	Automatic Repeat Allowed
11	1	ID	X	[0..0]	X	[0..0]	Automatic Reflex Allowed
12	20	SN	X	[0..0]	X	[0..0]	Equipment Dynamic Range
13	250	CE	X	[0..0]	X	[0..0]	Units
14	250	CE	M	[1..1]	X	[0..0]	Processing Type

Related information…

Segment definitions, page 79
TCC-1 Universal Service Identifier (CE), page 170
TCC-2 Application Identifier (EI), page 171
TCC-14 Processing Type (CE), page 171

TCC-1 Universal Service Identifier (CE)

HL7 definition: This field identifies the test code for transmitted information.

This specification: An assay is identified by an assay number as defined by the instrument.

Element TCC-1 Universal Service Identifier (CE)

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	4	Assay number for the test
Text (ST)	R	199	Assay name for the test

Component or subcomponent	Usage	Length	Comment
Name of Coding System (ID)	R	7	Name of Abbott Coding System: "99ABT" (without quotation marks)
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Related information…

TCC Segment, page 170

TCC-2 Application Identifier (EI)

HL7 definition: This field identifies the test application code assigned by the manufacturer of the equipment or reagents and associated with performing the particular test specified by the Universal Test Identifier.

This specification: An assay is identified by an assay number as defined by the instrument.

Element TCC-2 Application Identifier (EI)

Component or subcomponent	Usage	Length	Comment
Entity Identifier (ST)	M	4	Assay number for the test
Namespace ID (IS)	X		
Universal ID (ST)	X		
Universal ID Type (ID)	X		

Related information…

TCC Segment, page 170

TCC-14 Processing Type (CE)

HL7 definition: This field identifies the processing type that applies to this test code.

This specification: This field contains the assay availability status. Many factors go into determining the availability of an assay to run tests, including reagent inventory, bulk supply inventory, and assay calibration. This element contains a subset of values from HL7 Table 0388 and Abbott defined values.

Element TCC-14 Processing Type (CE)

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	M	2	Taken from the Value column in the table below.

Component or subcomponent	Usage	Length	Comment
Text (ST)	M	32	Taken from the Description column in the table below.
Name of Coding System (ID)	M	7	Taken from the Coding System column in the table below.
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		

Assay Availability codes used in TCC-14

Value	Description	Coding system	Comment
A	Available	99ABT	Assay is available for specimen test processing.
U	Unavailable	99ABT	Assay is unavailable for specimen test processing.

Related information...

TCC Segment, page 170

TCD Segment

The test code detail (TCD) segment contains the data necessary to perform operations or calculations, or to execute decisions by the Laboratory Automation System, and which are not supported by the original HL7 segments related to orders (ORC, OBR).

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	250	CE	R	[1..1]	R	[1..1]	Universal Service Identifier
2	20	SN	X	[0..0]	X	[0..0]	Auto-Dilution Factor
3	20	SN	X	[0..0]	X	[0..0]	Rerun Dilution Factor
4	20	SN	X	[0..0]	X	[0..0]	Pre-Dilution Factor
5	20	SN	X	[0..0]	X	[0..0]	Endogenous Contents of Pre-Dilution Diluent
6	1	ID	X	[0..0]	X	[0..0]	Automatic Repeat Allowed
7	1	ID	X	[0..0]	X	[0..0]	Reflex Allowed
8	250	CE	X	[0..0]	X	[0..0]	Analyte Repeat Status
9	242	CQ	X	[0..0]	X	[0..0]	Specimen Consumption Quantity
10	16	NM	X	[0..0]	X	[0..0]	Pool size
11	250	CWE	R	[1..1]	RE	[0..1]	Auto-Dilution Type

Related information...

Segment definitions, page 79
TCD-1 Universal Service Identifier (CE), page 173
TCD-11 Auto-Dilution Type (CWE), page 173

TCD-1 Universal Service Identifier (CE)

HL7 definition: This field identifies the test code about which the information is being transmitted.

This specification: This field contains the same value as OBR-4 Universal Service Identifier when used by the Instrument Manager in LAW Transaction LAB-28. This field contains the same value as OBX-3 Observation Identifier when used by the instrument in LAW Transaction LAB-29.

Related information...

TCD Segment, page 173

TCD-11 Auto-Dilution Type (CWE)

HL7 definition: This field contains a code of the auto-dilution factor or the auto-dilution method preconfigured on the instrument.

This specification: This field is used to specify the name of an assay dilution protocol.

TCD-11 Sender:

The instrument will populate this field with the name of the assay dilution protocol used to produce the result.

TCD-11 Receiver:

The sender can use this field to specify the name of the sample dilution protocol for an assay when ordering a test. If a sample dilution is not specified, the instrument will use the default (dilution) protocol configured for the assay.

Element TCD-11 Auto-Dilution Type (CWE)

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Sample dilution protocol name
Text (ST)	X	199	Not used
Name of Coding System (ID)	R	5	Name of Abbott Coding System: "99ABT" (without quotation marks)

Related information...

TCD Segment, page 173

TQ1 Segment

In HL7 messaging, the Timing/Quantity (TQ1) segment is used generally to specify the complex timing of events and actions, such as those that occur in order management and scheduling systems. This segment determines the quantity, frequency, priority, and timing of a service. For the purposes of the instrument, the TQ1 segment is used to communicate the priority at which the order is *intended* to be performed. If this segment is not present, the default priority is Routine.

SEQ	LEN	DT	Send usage	Send card.	Rcv. usage	Rcv. card.	Element name
1	4	SI	X	[0..0]	X	[0..0]	Set ID - TQ1
2	20	CQ	X	[0..0]	X	[0..0]	Quantity
3	540	RPT	X	[0..0]	X	[0..0]	Repeat Pattern
4	20	TM	X	[0..0]	X	[0..0]	Explicit Time
5	20	CQ	X	[0..0]	X	[0..0]	Relative Time and Units
6	20	CQ	X	[0..0]	X	[0..0]	Service Duration
7	26	TS	X	[0..0]	X	[0..0]	Start date/time
8	26	TS	X	[0..0]	X	[0..0]	End date/time
9	250	CWE	R	[1..1]	R	[1..1]	Priority
10	250	TX	X	[0..0]	X	[0..0]	Condition text
11	250	TX	X	[0..0]	X	[0..0]	Text construction
12	10	ID	X	[0..0]	X	[0..0]	Conjunction
13	20	CQ	X	[0..0]	X	[0..0]	Occurrence duration
14	10	NM	X	[0..0]	X	[0..0]	Total occurrences

Related information...

Segment definitions, page 79

TQ1-9 Priority (CWE), page 175

TQ1-9 Priority (CWE)

HL7 definition: This field describes the urgency of the request.

This specification: Identifies the priority of the order. Only the first component (that is, Identifier) is supported and it can contain only values taken from HL7 User-Defined Table 0485 (see below).

Subset of HL7 User-Defined Table 0485: Priority

Value	Description	Comment
R	Routine	
S	STAT	

Element: TQ1-9 Priority

Component or subcomponent	Usage	Length	Comment
Identifier (ST)	R	20	Value from HL7 Table 0485 above
Text (ST)	RE	199	Description of priority
Name of Coding System (ID)	R	7	Name of HL7 Coding System: "HL70485" (without quotation marks)
Alternate identifier (ST)	X		
Alternate Text (ST)	X		
Name of Alternate Coding System (ID)	X		
Coding System Version ID (ST)	X		
Alternate Coding System Version ID (ST)	X		
Original Text (ST)	X		

TQ1-9 Receiver:

The TQ1-9.2 Priority Text is ignored when received. An error is not raised if the TQ1-9.2 Priority Text is not consistent with the TQ1-9.1 Priority Identifier.

Related information...

TQ1 Segment, page 175

Introduction

This appendix contains example messages for each of the supported message profiles.

Related information…

Order Download Message Profile (LAW Transaction LAB-28), page 178
Order Query Message Profile (LAW Transaction LAB-27), page 181
Results Upload Message Profile (LAW Transaction LAB-29), page 182
Calibration Results Upload Message Profile, page 185
Test Status Update Message Profile, page 187
Sample Status Update Message Profile, page 188
Connection Test Message Profile, page 189
Assay Availability Message Profile, page 190
Command/Response Message Profile, page 191

Order Download Message Profile (LAW Transaction LAB-28)

Example messages are provided for this message profile.

Related information...

Example messages, page 177
Order download for single specimen, order accepted, page 178
Order download for single specimen, order rejected, page 179
Negative query acknowledgment, page 179

Order download for single specimen, order accepted

OML^033 Order Request

```
MSH|^~\&|LISApp|MainFacility|AlinityApp|LabFacility|20160801103758||OML^O33^OML_O33|7e68205e-
a431-464c-afd7-0115b5baf653|P|2.5.1|||NE|AL||UNICODE UTF-8|||LAB-28^IHE
PID|||100||Doe^John^Lee^^^^L||19500214|M
PV1||N|^ER 2
SPM|1|||""|||||||P^Patient^HL70369
SAC|||S000501
ORC|NW|||||||20160801103758
TQ1|1|||||||S^Stat^HL70485
OBR||ORDER#1005||249^TSH^99ABT|||||||A
NTE|0||Order comment
```

ORL^034 Order Response

```
MSH|^~\&|AlinityApp|LabFacility|LISApp|MainFacility|20160801103758||ORL^O34^ORL_O42|
f6ddc156-9751-43e6-bf74-093777b14ddc|P|2.5.1||||||UNICODE UTF-8|||LAB-28^IHE
MSA|AA|7e68205e-a431-464c-afd7-0115b5baf653
SPM|1|||""|||||||P^Patient^HL70369
SAC|||S000501
ORC|OK|ORDER#1005|||SC
```

Related information...

Order Download Message Profile (LAW Transaction LAB-28), page 178

Order download for single specimen, order rejected

OML^033 Order Request

```
MSH|^~\&|LISApp|MainFacility|AlinityApp|LabFacility|20160801103902||OML^O33^OML_O33|b13bff13-
ba63-4a50-9cb5-28d3d4df7c97|P|2.5.1|||NE|AL||UNICODE UTF-8|||LAB-28^IHE
PID|||100||Doe^John^Lee^^^^L||19500214|M
PV1||N|^ER 2
SPM|1|||""|||||||P^Patient^HL70369
SAC|||S000501
ORC|NW|||||||20160801103902
TQ1|1|||||||S^Stat^HL70485
OBR||ORDER#1005||249^TSH^99ABT|||||||A
NTE|0||Order comment
```

ORL^034 Order Response

```
MSH|^~\&|AlinityApp|LabFacility|LISApp|MainFacility|20160801103902||ORL^O34^ORL_O42|
7bd282c5-37ef-4f18-9ffc-c4a1e5c5fe98|P|2.5.1||||||UNICODE UTF-8|||LAB-28^IHE
MSA|AA|b13bff13-ba63-4a50-9cb5-28d3d4df7c97
SPM|1|||""|||||||P^Patient^HL70369
SAC|||S000501
ORC|UA|ORDER#1005|||CA
```

Related information...

Order Download Message Profile (LAW Transaction LAB-28), page 178

Negative query acknowledgment

OML^033 Order Request

```
MSH|^~\&|SendApp1|SendFac1|ReceiveApp1|ReceiveFac1|20160725022110||OML^O33^OML_O33|
d31fa4fa-4c96-409b-a018-d43b78f818cc|P|2.5.1|||NE|AL||UNICODE UTF-8|||LAB-28^IHE
SPM|1|||""|||||||U^Unknown^HL70369
SAC|||02231522041700
ORC|DC|||||||20160725022110
```

ORL^034 Order Response

```
MSH|^~\&|AlinityApp|LabFacility|LISApp|MainFacility|20160725022110||ORL^O34^ORL_O42|38154c85-
c587-4c72-8145-8017988a8645|P|2.5.1||||||UNICODE UTF-8|||LAB-28^IHE
MSA|AA|d31fa4fa-4c96-409b-a018-d43b78f818cc
```

Related information…

Order Download Message Profile (LAW Transaction LAB-28), page 178

Order Query Message Profile (LAW Transaction LAB-27)

Example messages are provided for this message profile.

Related information...

Example messages, page 177
Order query for specimen orders, page 181

Order query for specimen orders

QBP^Q11 Query

```
MSH|^~\&|||||20160801135944||QBP^Q11^QBP_Q11|1b0f9f1d-03ce-4dcb-8af0-a68c5a873a34|P|2.5.1|||NE|AL||
UNICODE UTF-8|||LAB-27^IHE
QPD|WOS^Work Order Step^IHELAW|87|S000507
RCP|I||R^Real Time^HL70394
```

RSP^K11 Query Response

```
MSH|^~\&|||||20160801015944||RSP^K11^RSP_K11|e2703c29-8392-48f5-b085-9664475fcfba|P|2.5.1|||NE|AL||
UNICODE UTF-8|||LAB-27^IHE
MSA|AA|1b0f9f1d-03ce-4dcb-8af0-a68c5a873a34
QAK|87|OK|WOS^Work Order Step^IHELAW
QPD|WOS^Work Order Step^IHELAW|87|S000507
```

Related information...

Order Query Message Profile (LAW Transaction LAB-27), page 181

Results Upload Message Profile (LAW Transaction LAB-29)

Example messages are provided for this message profile.

Related information...

Example messages, page 177
Specimen result, page 182
Specimen exception, page 183
Control result, page 183

Specimen result

OUL^R22 Result

```
MSH|^~\&|Alinity ci|Lab2|LIS|MainLab|20160729110006||OUL^R22^OUL_R22|0a3288dc-9274-424e-
a5f4-24dfdaf3c883|P|2.5.1|||NE|AL||UNICODE UTF-8|||LAB-29^IHE
SPM|1|||""|||||||P^Patient^HL70369
SAC|||S000501|||||||S5501|1||||1^Position^99ABT~1^Module^99ABT
OBR||ORDER#1||29^B-hCG^99ABT
ORC|SC||||CM
TQ1|||||||||R^Routine^HL70485
OBX|1|ST|29^B-hCG^99ABT|1|343.26|^mIU/mL||""|||F|||||Admin~Admin||Alinity ci-
series^Abbott~i00002^Abbott|20160728171023||||||||||RSLT
TCD|29^B-hCG^99ABT|||||||||||UNDILUTED^^99ABT
INV|29^^99ABT|NA^Not applicable^HL70383|CA^Calibration^99ABT||||||||||20160728170808|||65105BG51
INV|29-1^^99ABT|NA^Not applicable^HL70383|SR^Single Test Reagent^HL70384|88105^^99ABT||||||||||||
65105BG51
NTE|1|Z|Example comment
OBX|2|ST|29.R^B-hCG^99ABT^S_RAW^Raw Supplemental^IHELAW|1|95007|^RLU||""|||F|||||Admin~Admin||
Alinity ci-series^Abbott~i00002^Abbott|20160728171023||||||||||RSLT
OBX|3|EI|29.G^B-hCG^99ABT^S_OTHER^Other Supplemental^IHELAW|1|a42bab85-ee0d-4bf4-
bf4a-f820fdda2332|||""|||F|||||Admin~Admin||Alinity ci-series^Abbott~i00002^Abbott|
20160728171023||||||||||RSLT
```

ACK^R22 Acknowledgment

```
MSH|^~\&|LIS|MainLab|Alinity ci|Lab2|20160729110007||ACK^R22^ACK|a0e07adb-e5e9-4c45-822f-
dba8884031c3|P|2.5.1||||||UNICODE UTF-8|||LAB-29^IHE
MSA|AA|0a3288dc-9274-424e-a5f4-24dfdaf3c883
```

Related information...

Results Upload Message Profile (LAW Transaction LAB-29), page 182

Specimen exception

OUL^R22 Result

```
MSH|^~\&|Alinity ci|Lab2|LIS|MainLab|20160801140959||OUL^R22^OUL_R22|
9f8d1b37-2c8c-4f7a-9540-009b46abb67a|P|2.5.1|||NE|AL||UNICODE UTF-8|||LAB-29^IHE
PID|||15||Smith^Jane^M^^^^L||19990214|F
PV1||N|^ER 2
SPM|1|||""|||||||P^Patient^HL70369
SAC|||SID004|||||||P1000|4||||2^Position^99ABT~1^Module^99ABT
OBR||ABCD15||1218^Chol^99ABT|||||||||||DoctorQ
ORC|SC||||CM
TQ1|||||||||R^Routine^HL70485
OBX|1|CE|1218^Chol^99ABT|1|0000^Unable to process test; no processing module available.^99ABT|||""|||
X|||||Admin~Admin||Alinity ci-series^Abbott~11222^Abbott|20160801140914|||||||||RSLT
TCD|1218^Chol^99ABT|||||||||STANDARD^^99ABT
OBX|2|EI|1218.G^Chol^99ABT^S_OTHER^Other Supplemental^IHELAW|1|6f0cebb2-8997-42a3-
b65f-04284e83c35a|||""|||X|||||Admin~Admin||Alinity ci-series^Abbott~11222^Abbott|
20160801140914|||||||||RSLT
```

ACK^R22 Acknowledgment

```
MSH|^~\&|LIS|MainLab|Alinity ci|Lab2|20160801020959||ACK^R22^ACK|
0fbe43ae-3411-4850-908c-0b94d731cf24|P|2.5.1||||||UNICODE UTF-8|||LAB-29^IHE
MSA|AA|9f8d1b37-2c8c-4f7a-9540-009b46abb67a
```

Related information...

Results Upload Message Profile (LAW Transaction LAB-29), page 182

Control result

OUL^R22 Result

```
MSH|^~\&|Alinity ci|Lab2|LIS|MainLab|20160801141327||OUL^R22^OUL_R22|
5828c7c3-69d1-437b-92e7-8ed6865e1d61|P|2.5.1|||NE|AL||UNICODE UTF-8|||LAB-29^IHE
SPM|1|||""|||||||Q^Control specimen^HL70369
SAC|||123BHCG1|||||||T1040|1||||4^Position^99ABT~1^Module^99ABT
INV|123BHCG1^^99ABT|NA^Not applicable^HL70383|CO^Assay Control^HL70384|32123^^99ABT|||||||
20201122||||45333DD11
OBR||""||29^B-hCG^99ABT
ORC|SC||||CM
TQ1|||||||||R^Routine^HL70485
OBX|1|ST|29^B-hCG^99ABT|1|310.26|^mIU/mL|300 - 400|RUO^^99ABT|||F|||||Admin~Admin||Alinity ci-
series^Abbott~i00002|20160801141345|||||||||RSLT
TCD|29^B-hCG^99ABT|||||||||UNDILUTED^^99ABT
INV|29^^99ABT|NA^Not applicable^HL70383|CA^Calibration^99ABT|||||||||20160728170808|||65105BG51
INV|29-1^^99ABT|NA^Not applicable^HL70383|SR^Single Test Reagent^HL70384|88105^^99ABT|||||||||||
65105BG51
OBX|2|ST|29.R^B-hCG^99ABT^S_RAW^Raw Supplemental^IHELAW|1|90012|^RLU||""|||F|||||Admin~Admin||
```

```
Alinity ci-series^Abbott~i00002^Abbott|20160801141345|||||||||RSLT
OBX|3|EI|29.G^B-hCG^99ABT^S_OTHER^Other Supplemental^IHELAW|1|
b8ce18eb-2f74-46ff-87c7-1b1bd3f52812|||""|||F|||||Admin~Admin||Alinity ci-
series^Abbott~i00002^Abbott|20160801141345|||||||||RSLT
```

ACK^R22 Acknowledgment

```
MSH|^~\&|LIS|MainLab|Alinity ci|Lab2|20160801141327||ACK^R22^ACK|f7e8c6a0-379d-4ac0-82ad-
c8a4eb4dbd7a|P|2.5.1||||||UNICODE UTF-8|||LAB-29^IHE
MSA|AA|5828c7c3-69d1-437b-92e7-8ed6865e1d61
```

Related information...

Results Upload Message Profile (LAW Transaction LAB-29), page 182

Calibration Results Upload Message Profile

Example messages are provided for this message profile.

Related information…

Example messages, page 177
Calibration result, page 185

Calibration result

OULˆR24 Calibration Result

```
MSH|^~\&|Alinity ci|Lab2|LIS|MainLab|20160801141038||OUL^R24^OUL_R24|6240dc76-4499-4d07-8e81-
bfaf5d5914d6|P|2.5.1|||NE|AL||UNICODE UTF-8
OBR||""||29^B-hCG^99ABT
SPM|1|||""|||||||C^Calibrator^HL70369
SAC|||1234561|||||||C2040|1|||||1^Position^99ABT~1^Module^99ABT
INV|1234561^^99ABT|NA^Not applicable^HL70383|RC^Reagent Calibrator^HL70384|||||||||20160806||||123456
SPM|2|||""|||||||C^Calibrator^HL70369
SAC|||1234562|||||||C2040|2|||||1^Position^99ABT~1^Module^99ABT
INV|1234562^^99ABT|NA^Not applicable^HL70383|RC^Reagent Calibrator^HL70384|||||||||20160806||||123456
SPM|3|||""|||||||C^Calibrator^HL70369
SAC|||1234563|||||||C2040|3|||||1^Position^99ABT~1^Module^99ABT
INV|1234563^^99ABT|NA^Not applicable^HL70383|RC^Reagent Calibrator^HL70384|||||||||20160806||||123456
SPM|4|||""|||||||C^Calibrator^HL70369
SAC|||1234564|||||||C2040|4|||||1^Position^99ABT~1^Module^99ABT
INV|1234564^^99ABT|NA^Not applicable^HL70383|RC^Reagent Calibrator^HL70384|||||||||20160806||||123456
SPM|5|||""|||||||C^Calibrator^HL70369
SAC|||1234565|||||||C2040|5|||||1^Position^99ABT~1^Module^99ABT
INV|1234565^^99ABT|NA^Not applicable^HL70383|RC^Reagent Calibrator^HL70384|||||||||20160806||||123456
SPM|6|||""|||||||C^Calibrator^HL70369
SAC|||1234566|||||||C2040|6|||||1^Position^99ABT~1^Module^99ABT
INV|1234566^^99ABT|NA^Not applicable^HL70383|RC^Reagent Calibrator^HL70384|||||||||20160806||||123456
OBX|1|ED|29^B-hCG^99ABT|1|
^text^json^Base64^eyJNb2R1bGUiOiJNb2R1bGUyIiwiTW9kdWxlU2VyaWFsTnVtYmVyIjoiSUEwMDAwMiIsIkFzc2F5SWQiOjE
sIkFzc2F5TmFtZSI6IkItaENHIiwiQXNzYXlOdW1iZXIiOjI5LCJBc3NheVZlcnNpb24iOjI2LCJPcGVyYXRvcklkIjoiQWRtaW4i
LCJBc3NheVN0YXR1cyI6IlJlbGVhc2VkIiwiUmVhZ2VudE1hc3RlckxvdCI6IjY1MTA1Qkc1MSIsIlJlYWdlbnRMb3RFeHBEYXRlI
joiMTEuMTIuMjAyMCIsIlJlYWdlbnRTZXJpYWxOdW1iZXIiOiI4ODEwNSIsIkNhbENvbXBsZXRpb25EYXRlIjoiMDcuMjkuMjAxNi
IsIkNhbENvbXBsZXRpb25UaW1lIjoiMTQ6NDgiLCJDYWxFeHBpcmF0aW9uRGF0ZSI6bnVsbCwiQ2FsRXhwaXJhdGlvblRpbWUiOm5
1bGwsIkNhbE1ldGhvZCI6IlBsYzRZIiwiQ2FsVHlwZSI6IkZ1bGwiLCJDYWxNYXRlcmlhbExvdCI6IjEyMzQ1NiIsIkNhbE1hdGVy
aWFsTG90RXhwRGF0ZSI6IjA4LjA2LjIwMTYiLCJDYWxNYXRlcmlhbFNlcmlhbE51bWJlciI6IiIsIlJlZmVyZW5jZUFzc2F5Ijpud
WxsLCJDdXJ2ZUV4Y2VwdGlvblN0cmluZyI6IiIsIkN1cnZlVHlwZSI6IkFjdGl2ZSIsIkFyY2hpdmVTdGF0dXMiOiIiLCJBcmNoaX
ZlRGF0ZSI6bnVsbCwiQXJjaGl2ZVRpbWUiOm51bGwsIkNhbGicmF0b3JEYXRhIjpbeyJDYWxpYnJhdGlvbkxldmVsSWQiOiJDYWx
BIiwiQ2FsU2FtcGxlSWQiOiIxMjM0NTYxIiwiVGVzdElkIjozMywiSW5zdFJlc3BvbnNlIjo2NDguMCwiQWJzb3JiYW5jZVZvbHRh
Z2UiOm51bGx9LHsiQ2FsaWJyYXRpb25MZXZlbElkIjoiQ2FsQSIsIkNhbFNhbXBsZUlkIjoiMTIzNDU2MSIsIlRlc3RJZCI6MzQsI
kluc3RSZXNwb25zZSI6NjQ4LjAsIkFic29yYmFuY2VWb2x0YWdlIjpudWxsfSx7IkNhbGicmF0aW9uTGV2ZWxJZCI6IkNhbEIiLC
JDYWxTYW1wbGVJZCI6IjEyMzQ1NjIiLCJUZXN0SWQiOjM1LCJJbnN0UmVzcG9uc2UiOjMxNTUuMCwiQWJzb3JiYW5jZVZvbHRhZ2U
iOm51bGx9LHsiQ2FsaWJyYXRpb25MZXZlbElkIjoiQ2FsQiIsIkNhbFNhbXBsZUlkIjoiMTIzNDU2MiIsIlRlc3RJZCI6MzYsIklu
c3RSZXNwb25zZSI6MzE1NS4wLCJBYnNvcmJhbmNlVm9sdGFnZSI6bnVsbH0seyJDYWxpYnJhdGlvbkxldmVsSWQiOiJDYWxDIiwiQ
2FsU2FtcGxlSWQiOiIxMjM0NTYzIiwiVGVzdElkIjozNywiSW5zdFJlc3BvbnNlIjo2OTk0OC4wLCJBYnNvcmJhbmNlVm9sdGFnZS
I6bnVsbH0seyJDYWxpYnJhdGlvbkxldmVsSWQiOiJDYWxDIiwiQ2FsU2FtcGxlSWQiOiIxMjM0NTYzIiwiVGVzdElkIjozOCwiSW5
zdFJlc3BvbnNlIjo2OTk0OC4wLCJBYnNvcmJhbmNlVm9sdGFnZSI6bnVsbH0seyJDYWxpYnJhdGlvbkxldmVsSWQiOiJDYWxEIiwi
Q2FsU2FtcGxlSWQiOiIxMjM0NTY0IiwiVGVzdElkIjozOSwiSW5zdFJlc3BvbnNlIjoyNjk5NTcuMCwiQWJzb3JiYW5jZVZvbHRhZ
2UiOm51bGx9LHsiQ2FsaWJyYXRpb25MZXZlbElkIjoiQ2FsRCIsIkNhbFNhbXBsZUlkIjoiMTIzNDU2NCIsIlRlc3RJZCI6NDAsIk
luc3RSZXNwb25zZSI6MjY5OTU3LjAsIkFic29yYmFuY2VWb2x0YWdlIjpudWxsfSx7IkNhbGicmF0aW9uTGV2ZWxJZCI6IkNhbEU
iLCJDYWxTYW1wbGVJZCI6IjEyMzQ1NjUiLCJUZXN0SWQiOjQxLCJJbnN0UmVzcG9uc2UiOjE2MTkwNzcuMCwiQWJzb3JiYW5jZVZv
bHRhZ2UiOm51bGx9LHsiQ2FsaWJyYXRpb25MZXZlbElkIjoiQ2FsRSIsIkNhbFNhbXBsZUlkIjoiMTIzNDU2NSIsIlRlc3RJZCI6N
```

DIsIkluc3RSZXNwb25zZSI6MTYxOTA3Ny4wLCJBYnNvcmJhbmNlVm9sdGFnZSI6bnVsbH0seyJDYWxpYnJhdGlvbkxldmVsSWQiOi
JDYWxGIiwiQ2FsU2FtcGxlSWQiOiIxMjM0NTY2IiwiVGVzdElkIjo0MywiSW5zdFJlc3BvbnNlIjoyNDA3Njk4LjAsIkFic29yYmF
uY2VWb2x0YWdlIjpudWxsfSx7IkNhbGlicmF0aW9uTGV2ZWxJZCI6IkNhbEYiLCJDYWxTYW1wbGVJZCI6IjEyMzQ1NjYiLCJUZXN0
SWQiOjQ0LCJJbnN0UmVzcG9uc2UiOjI0MDc2OTguMCwiQWJzb3JiYW5jZVZvbHRhZ2UiOm51bGx9XSwiQ2FsTGV2ZWxEYXRhIjpbe
yJDYWxpYnJhdGlvbkxldmVsSWQiOiJDYWxBIiwiRml0UmVzcG9uc2UiOjY2MS40MjEzMTQyNjc0NDE2MywiQXZlcmFnZVJlc3Bvbn
NlIjo2NDguMCwiRml0Q29uY2VudHJhdGlvbiI6LTAuMDgyNzQ2MjE2NzM2ODIxNzgyLCJOb21Db25jZW50cmF0aW9uIjowLjAsIk1
heFJlc3BvbnNlIjowLjAsIk1pblJlc3BvbnNlIjowLjAsIlN0ZERldmlhdGlvbiI6MC4wLCJBZGp1c3RlckxldmVsIjpudWxsLCJN
YXN0ZXJDdXJ2ZVJMVSI6bnVsbCwiQXZnQWJzVm9sdGFnZSI6bnVsbCwiQ2FsRmFjdG9yIjpudWxsLCJQZXJjZW50Q1lYiOjAuMCwiT
WVhblJMVSI6NjQ4LjAsIlJlcDFSTFUiOjY0OCwiUmVwMlJMVSI6NjQ4LCJSZXAzUkxVIjpudWxsfSx7IkNhbGlicmF0aW9uTGV2ZW
xJZCI6IkNhbEIiLCJGaXRSZXNwb25zZSI6MzExOC4xMTA5OTQ1MTEyODM5LCJBdmVyYWdlUmVzcG9uc2UiOjMxNTUuMCwiRml0Q29
uY2VudHJhdGlvbiI6MTAuMTQ0ODEzNTIzNDMzMjgzLCJOb21Db25jZW50cmF0aW9uIjoxMC4wLCJNYXhSZXNwb25zZSI6MTAuMCwi
TWluUmVzcG9uc2UiOjEwLjAsIlN0ZERldmlhdGlvbiI6MC4wLCJBZGp1c3RlckxldmVsIjpudWxsLCJNYXN0ZXJDdXJ2ZVJMVSI6b
nVsbCwiQXZnQWJzVm9sdGFnZSI6bnVsbCwiQ2FsRmFjdG9yIjpudWxsLCJQZXJjZW50Q1YiOjAuMCwiTWVhblJMVSI6MzE1NS4wLC
JSZXAxUkxVIjozMTU1LCJSZXAyUkxVIjozMTU1LCJSZXAzUkxVIjpudWxsfSx7IkNhbGlicmF0aW9uTGV2ZWxJZCI6IkNhbEMiLCJ
GaXRSZXNwb25zZSI6Njg5NDEuODA0NDQwMTQwNzI0LCJBdmVyYWdlUmVzcG9uc2UiOjY5OTQ4LjAsIkZpdENvbmNlbnRyYXRpb24i
OjI1My42MDI1OTU2MTAwNzYwNCwiTm9tQ29uY2VudHJhdGlvbiI6MjUwLjAsIk1heFJlc3BvbnNlIjoyNTMuMCwiTWluUmVzcG9uc
2UiOjI1My4wLCJTdGREZXZpYXRpb24iOjAuMCwiQWRqdXN0ZXJMZXZlbCI6bnVsbCwiTWFzdGVyQ3VydmVSTFUiOm51bGwsIkF2Z0
Fic1ZvbHRhZ2UiOm51bGwsIkNhbEZhY3RvciI6bnVsbCwiUGVyY2VudENWIjowLjAsIk1lYW5STFUiOjY5OTQ4LjAsIlJlcDFSTFU
iOjY5OTQ4LCJSZXAyUkxVIjo2OTk0OCwiUmVwM1JMVSI6bnVsbH0seyJDYWxpYnJhdGlvbkxldmVsSWQiOiJDYWxEIiwiRml0UmVz
cG9uc2UiOjI3NTc4MC45MTQ1MjAwNTMxOSwiQXZlcmFnZVJlc3BvbnNlIjoyNjk5NTcuMCwiRml0Q29uY2VudHJhdGlvbiI6Otc4L
jM4MDk5OTY1NjA1NCwiTm9tQ29uY2VudHJhdGlvbiI6MTAwMC4wLCJNYXhSZXNwb25zZSI6OTc4LjAsIk1pblJlc3BvbnNlIjo5Nz
guMCwiU3RkRGV2aWF0aW9uIjowLjAsIkFkanVzdGVyTGV2ZWwiOm51bGwsIk1hc3RlckN1cnZlUkxVIjpudWxsLCJBdmdBYnNWb2x
0YWdlIjpudWxsLCJDYWxGYWN0b3IiOm51bGwsIlBlcmNlbnRDViI6MC4wLCJNZWFuUkxVIjoyNjk5NTcuMCwiUmVwMVJMVSI6MjY5
OTU3LCJSZXAyUkxVIjoyNjk5NTcsIlJlcDNSTFUiOm51bGx9LHsiQ2FsaWJyYXRpb25MZXZlbElkIjoiQ2FsRSIsIkZpdFJlc3Bvb
nNlIjoxNTg3MDQxLjA3NDI4NzY5NjcsIkF2ZXJhZ2VSZXNwb25zZSI6MTYxOTA3Ny4wLCJGaXRDb25jZW50cmF0aW9uIjo3NzE5Lj
A1NDIyNjkzMTIzMTgsIk5vbUNvbmNlbnRyYXRpb24iOjc1MDAuMCwiTWF4UmVzcG9uc2UiOjc3MTkuMCwiTWluUmVzcG9uc2UiOjc
3MTkuMCwiU3RkRGV2aWF0aW9uIjowLjAsIkFkanVzdGVyTGV2ZWwiOm51bGwsIk1hc3RlckN1cnZlUkxVIjpudWxsLCJBdmdBYnNW
b2x0YWdlIjpudWxsLCJDYWxGYWN0b3IiOm51bGwsIlBlcmNlbnRDViI6MC4wLCJNZWFuUkxVIjoxNjE5MDc5LjAsIlJlcDFSTFUiO
jE2MTkwNzcsIlJlcDJSTFUiOjE2MTkwNzcsIlJlcDNSTFUiOm51bGx9LHsiQ2FsaWJyYXRpb25MZXZlbElkIjoiQ2FsRiIsIkZpdF
Jlc3BvbnNlIjoyNDIyNjIwLjEzMzgzMjcwMTUsIkF2ZXJhZ2VSZXNwb25zZSI6MjQwNzY5OC4wLCJGaXRDb25jZW50cmF0aW9uIjo
xNDgyMy4wNDgyNjgwMzY5OSwiTm9tQ29uY2VudHJhdGlvbiI6MTUwMDAuMCwiTWF4UmVzcG9uc2UiOjE0ODIzLjAsIk1pblJlc3Bv
bnNlIjoxNDgyMy4wLCJTdGREZXZpYXRpb24iOjAuMCwiQWRqdXN0ZXJMZXZlbCI6bnVsbCwiTWFzdGVyQ3VydmVSTFUiOm51bGwsI
kF2Z0Fic1ZvbHRhZ2UiOm51bGwsIkNhbEZhY3RvciI6bnVsbCwiUGVyY2VudENWIjowLjAsIk1lYW5STFUiOjI0MDc2OTguMCwiUm
VwMVJMVSI6MjQwNzY5OCwiUmVwMlJMVSI6MjQwNzY5OCwiUmVwM1JMVSI6bnVsbH1dLCJDdXJ2ZVBhcmFtZXRlcnMiOiI0ODUwMzk
zLjY1NjI5NVx0LTEwNDIzNzExNTQwMC44MzhcdDIxNDkzLjM3NTM3Nlx0MS4wMzcxNTdcdDAiLCJSTVNFIjoiMTQ2MjguMTgzNzg1
IiwiQWRqdXN0ZXJSYXRpb3MiOiJOQVx0TkEiLCJMaW5lYXJYZnJtU2xvcGUiOiJOQSIsIkxpbmVhcnhmcm1JbnRlcmNlcHQiOiJOQ
SIsIkN1dE9mZiI6IiJ9||||||F|||||Admin||Alinity ci-series^Abbott~i00002^Abbott|20160729144852||||||||||
RSLT
INV|29-1^^99ABT|NA^Not applicable^HL70383|SR^Single Test Reagent^HL70384|88105^^99ABT||||||||
20201112||||65105BG51

ACK^R24 Acknowledgment

MSH|^~\&|LIS|MainLab|Alinity ci|Lab2|20160801021038||ACK^R24^ACK|9c9407f8-1005-49e0-933c-
decca4a24010|P|2.5.1||||||UNICODE UTF-8
MSA|AA|6240dc76-4499-4d07-8e81-bfaf5d5914d6

Related information...

Calibration Results Upload Message Profile, page 185

Test Status Update Message Profile

Example messages are provided for this message profile.

Related information...

Example messages, page 177
Specimen test initiated, page 187

Specimen test initiated

OULˆR22 Status Update

```
MSH|^~\&|Alinity ci|Lab2|LIS|MainLab|20160729151640||OUL^R22^OUL_R22|8066bc65-b5f3-4e30-8d46-
ed3bfc7e1469|P|2.5.1|||NE|AL||UNICODE UTF-8|||LAB-29^IHE
SPM|1|||""|||||||P^Patient^HL70369
SAC|||S000501|||||||S5501|1||||21^Position^99ABT~1^Module^99ABT
OBR||ORDER#1005||29^B-hCG^99ABT
ORC|SC||||IP
TQ1|||||||||S^Stat^HL70485
OBX|1|CE|29^B-hCG^99ABT|1|INITIATED^Initiated^99ABT||||||I|||||||Alinity ci-
series^Abbott~i00002^Abbott|20160729154722||||||||||STS
TCD|29^B-hCG^99ABT|||||||||||1:15^^99ABT
```

ACKˆR22 Acknowledgment

```
MSH|^~\&|LIS|MainLab|Alinity ci|Lab2|20160729031640||ACK^R22^ACK|2e6d691c-913d-40e3-99ad-
b3866def947a|P|2.5.1||||||UNICODE UTF-8|||LAB-29^IHE
MSA|AA|8066bc65-b5f3-4e30-8d46-ed3bfc7e1469
```

Related information...

Test Status Update Message Profile, page 187

Sample Status Update Message Profile

Example messages are provided for this message profile.

Related information...

Example messages, page 177
Sample in process, page 188

Sample in process

SSU^U03

```
MSH|^~\&|||||20160920105212||SSU^U03^SSU_U03|2f05d3b1-fa00-41eb-a071-b87e50ef796a|P|2.5.1|||NE|AL||
UNICODE UTF-8
EQU|Alinity ci-series^Abbott~SCC11222^Abbott|20160920105212
SAC|||SID003|||||O^In Process^HL70370||P1000|3||||1^Position^99ABT~1^Module^99ABT
SPM|1|||""|||||||P^Patient^HL70369
```

ACK^U03

```
MSH|^~\&|||||20160920104335||ACK^U03^ACK|64f7b927268cc4a5f57a814da8cc3e0e|P|2.5.1||||||UNICODE UTF-8
MSA|AA|2f05d3b1-fa00-41eb-a071-b87e50ef796a
```

Related information...

Sample Status Update Message Profile, page 188

Connection Test Message Profile

Example messages are provided for this message profile.

Related information...

Example messages, page 177

Connection test, page 189

Connection test

NMD^N02

```
MSH|^~\&|Alinity ci|Lab2|LIS|MainLab|20160801141528||NMD^N02^NMD_N02|52518704-8956-468a-84d5-
ea45827ecc7b|P|2.5.1|||NE|AL||UNICODE UTF-8
NST|N
```

ACK^N02

```
MSH|^~\&|LIS|MainLab|Alinity ci|Lab2|20160801021528||ACK^N02^ACK|45bd3540-39d1-4500-b3d5-
bd668f752dd3|P|2.5.1|||||UNICODE UTF-8
MSA|AA|52518704-8956-468a-84d5-ea45827ecc7b
```

Related information...

Connection Test Message Profile, page 189

Assay Availability Message Profile

Example messages are provided for this message profile.

Related information...

Example messages, page 177
Assay availability, page 190

Assay availability

TCU^U10

```
MSH|^~\&|||||20170313101034-0500||TCU^U10^TCU_U10|1d675aca-c827-4ce7-b843-
a52de7b995dc|P|2.5.1|||NE|AL||UNICODE UTF-8
EQU|Alinity ci-series^Abbott~SCM00181^Abbott|20170313101034
TCC|658^B-hCG^99ABT|658||||||||||||A^Available^99ABT
TCC|488^Estradiol^99ABT|488||||||||||||U^Unavailable^99ABT
TCC|500^Toxo IgM^99ABT|500||||||||||||U^Unavailable^99ABT
TCC|248^TSH^99ABT|248||||||||||||A^Available^99ABT
TCC|66^Folate^99ABT|66||||||||||||A^Available^99ABT
TCC|199^Progest^99ABT|199||||||||||||A^Available^99ABT
```

ACK^U10

```
MSH|^~\&|||||20170313095920-0500||ACK^U10^ACK|
fbefb77705b6667c13f7cf9e2b8c7cf3|P|2.5.1||||||UNICODE UTF-8
MSA|AA|1d675aca-c827-4ce7-b843-a52de7b995dc
```

Related information...

Assay Availability Message Profile, page 190

Command/Response Message Profile

Example messages are provided for this message profile.

Related information...

Example messages, page 177
Command/Response, page 191

Command/Response

EAC^U07

```
MSH|^~\&|||||20170515102020||EAC^U07^EAC_U07|d2fb25a7-66df-4d09-
a8fcf57c086372d1|P|2.5.1|||NE|AL||UNICODE UTF-8
EQU|Alinity ci-series^Abbott~i00002^Abbott|20190515102020
ECD|22748832|DISABLE^^99ABT|Y||199
ECD|22748832|DISABLE^^99ABT|Y||658
```

ACK^U07

```
MSH|^~\&|||||20190515102021||ACK^U07^ACK|52a14e29-2c0d-4c7a-
b382-8720c05c2a42|P|2.5.1||||||UNICODE UTF-8
MSA|AA|d2fb25a7-66df-4d09-a8fc-f57c086372d1
```

EAR^U08

```
MSH|^~\&|||||20190515102022||EAR^U08^EAR_U08|727f93e4-b7d5-4b31-bb37-
b328b65e8bda|P|2.5.1|||NE|AL||UNICODE UTF-8
EQU|Alinity ci-series^Abbott~ i00002^Abbott|20190515102022
ECD|22748832|DISABLE^^99ABT|Y||199
ECR|OK^^HL70387|20190515102022
ECD|22748832|DISABLE^^99ABT|Y||658
ECR|OK^^HL70387|20190515102022
```

ACK^U08

```
MSH|^~\&|||||20190515102023||ACK^U08^ACK|58810ea9-b43c-4bee-9c52-
a07dd631894d|P|2.5.1||||||UNICODE UTF-8
MSA|AA|727f93e4-b7d5-4b31-bb37-b328b65e8bda
```

Related information...

Command/Response Message Profile, page 191

NOTES

Introduction

This appendix contains example JSON assay calibration result data. This is the JSON that is Base64 encoded in OBX-5 for an OULˆR24 Calibration Results message.

Related information…

Full calibration: Linear, page 194

Full calibration: Linear


```
{
  "AdjCalExpirationDate": null,
  "AdjCalExpirationTime": null,
  "AdjusterRatios": null,
  "ArchiveDate": null,
  "ArchiveStatus": "NotArchived",
  "ArchiveTime": null,
  "AssayId": 1,
  "AssayName": "AlbG_VR",
  "AssayNumber": 1215,
  "AssayStatus": "Released",
  "AssayVersion": 3,
  "CalCompletionDate": "2016.11.16",
  "CalCompletionTime": "12:52:51",
  "CalExpirationDate": "2016.12.27",
  "CalExpirationTime": "12:52:51",
  "CalibratorData": [
    {
      "Absorbance": "0.0205",
      "CalibrationLevelId": "Blank",
      "CalSampleId": "WATER",
      "InstResponse": null,
      "TestId": 545
    },
    {
      "Absorbance": "0.0201",
      "CalibrationLevelId": "Blank",
      "CalSampleId": "WATER",
      "InstResponse": null,
      "TestId": 546
    },
    {
      "Absorbance": "0.0197",
      "CalibrationLevelId": "Blank",
      "CalSampleId": "WATER",
      "InstResponse": null,
      "TestId": 547
    },
    {
      "Absorbance": "0.0974",
      "CalibrationLevelId": "Level1",
      "CalSampleId": "13045CL002",
      "InstResponse": null,
      "TestId": 503
    },
    {
      "Absorbance": "0.0954",
      "CalibrationLevelId": "Level1",
      "CalSampleId": "13045CL002",
      "InstResponse": null,
      "TestId": 504
    },
    {
      "Absorbance": "0.0936",
      "CalibrationLevelId": "Level1",
      "CalSampleId": "13045CL002",
      "InstResponse": null,
      "TestId": 505
    },
    {
      "Absorbance": "0.1035",
```

```
      "CalibrationLevelId": "Level2",
      "CalSampleId": "13045CL002",
      "InstResponse": null,
      "TestId": 506
    },
    {
      "Absorbance": "0.1014",
      "CalibrationLevelId": "Level2",
      "CalSampleId": "13045CL002",
      "InstResponse": null,
      "TestId": 507
    },
    {
      "Absorbance": "0.0985",
      "CalibrationLevelId": "Level2",
      "CalSampleId": "13045CL002",
      "InstResponse": null,
      "TestId": 508
    }
  ],
  "CalLevelData": [
    {
      "Absorbance": "0.0201",
      "AdjusterLevel": null,
      "CalFactor": null,
      "CalibrationLevelId": "Blank",
      "Concentration": "0",
      "FitConcentration": null,
      "FitRLU": null,
      "MasterCurveRLU": null,
      "MaxResponse": null,
      "MeanRLU": null,
      "MinResponse": null,
      "PercentCV": null,
      "Rep1RLU": null,
      "Rep2RLU": null,
      "Rep3RLU": null,
      "StdDeviation": null
    },
    {
      "Absorbance": "0.0753",
      "AdjusterLevel": null,
      "CalFactor": "25.0996",
      "CalibrationLevelId": "Level1",
      "Concentration": "1.89",
      "FitConcentration": null,
      "FitRLU": null,
      "MasterCurveRLU": null,
      "MaxResponse": null,
      "MeanRLU": null,
      "MinResponse": null,
      "PercentCV": null,
      "Rep1RLU": null,
      "Rep2RLU": null,
      "Rep3RLU": null,
      "StdDeviation": null
    },
    {
      "Absorbance": "0.0813",
      "AdjusterLevel": null,
      "CalFactor": "585.0000",
      "CalibrationLevelId": "Level2",
      "Concentration": "5.4",
      "FitConcentration": null,
      "FitRLU": null,
      "MasterCurveRLU": null,
      "MaxResponse": null,
      "MeanRLU": null,
```

```
      "MinResponse": null,
      "PercentCV": null,
      "Rep1RLU": null,
      "Rep2RLU": null,
      "Rep3RLU": null,
      "StdDeviation": null
    }
  ],
  "CalMaterialLot": "13045CL00",
  "CalMaterialLotExpDate": "2025.12.31",
  "CalMaterialSerialNumber": "2",
  "CalMethod": "Linear",
  "CalType": "Full",
  "CurveExceptionString": "",
  "CurveParameters": null,
  "CurveType": "Active",
  "CutOff": "",
  "FullCalExpirationDate": "2016.12.27",
  "FullCalExpirationTime": "12:52:51",
  "LinearxfrmIntercept": null,
  "LinearXfrmSlope": null,
  "Module": "Module1",
  "ModuleSerialNumber": "CC00001",
  "OperatorId": "Admin",
  "ReagentLotExpDate": "2020.12.31",
  "ReagentMasterLot": "12345AL01",
  "ReagentSerialNumber": "10001",
  "ReferenceAssay": null,
  "ResultUnit": "g/dL",
  "RMSE": null
}
```


Related information…

JSON assay calibration result examples, page 193

Revision history

Document control numbers	Revision date	Content revised
80000455-101	2016-12-12	Original release
80000455-102	2017-08-24	• Read me first: Updated the table in Comparison between available LIS interfaces: CLSI (ASTM) vs. HL7. • Read me first: Updated the table in Safety icons. • Section 1, HL7 implementation notes: Updated the topic for Client channel transactions. • Section 3, Message profiles: Added new content for Assay Availability Message Profile. • Section 4, Segment definitions: Updated the table in OBR Segment and the content in OBR-11 Specimen Action Code (ID). • Section 4, Segment definitions: Updated the table in ORC Segment and the content in ORC-8 Parent (EIP). • Section 4, Segment definitions: Added new content for TCC Segment. • Appendix A, Example messages: Added new content for Assay Availability Message Profile.
80000455-103	2018-05-21	• Read me first: Updated the copyright information for Proprietary statement. • Read me first: Updated the date of manufacture graphic, manufacturer graphic, and WEEE description for Key to symbols. • Read me first: Updated the Sample Status Update row for Comparison between available LIS interfaces: CLSI (ASTM) vs. HL7. • Section 2, Notation for message profile specifications: Updated the content style for Usage. • Section 3, Message profiles: Updated item 5 in Order processing rules for OMLˆO33 Message.
80000455-104	2020-06-24	• Read me first: Revised the uniform resource locator for Customer service. • Read me first: Revised the copyright information and content for Proprietary statement. • Read me first: Revised the content for Disclaimers. • Read me first: Added an importer row and revised the content for Alinity ci-series agency approvals. • Read me first: Added symbols and revised the layout for Key to symbols. • Read me first: Added Command/Response row to Comparison between available LIS interfaces: CLSI (ASTM) vs. HL7. • Section 1, HL7 implementation notes: Revised the content for Acknowledgment mode. • Section 2, Notation for message profile specifications: Revised the content for Condition predicate.

Document control numbers	Revision date	Content revised
		• Section 3, Message profiles: Revised the content for Order Download Message Profile (LAW Transaction LAB-28) and Connection Test Message Profile. • Section 3, Message profiles: Added new topics for Command/Response Message Profile. • Section 4, Segment definitions: Added new topics for ECD Segment and ECR Segment. • Section 4, Segment definitions: Revised the content for EQU Segment and EQU-1 Equipment Instance Identifier (EI). • Section 4, Segment definitions: Revised the style for EQU-2 Event Date/Time (TS) and MSA-1 Acknowledgment Code (ID). • Section 4, Segment definitions: Revised the format for MSH-12 Version ID (VID). • Section 4, Segment definitions: Revised the style for OBX-16 Responsible Observer (XCN), ORC-1 Order Control (ID), ORC-8 Parent (EIP), PV1-3 Assigned Patient Location (PL), and SPM Segment. • Appendix A, Example messages: Added new topics for Command/Response Message Profile.

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