ORTHO optix™ READER

ORTHO BioVue® Cassettes

Laboratory Information System (LIS) Guide

TRANSFUSION MEDICINE

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Ortho Clinical Diagnostics

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1 Introduction

Purpose

This Guide defines the communications interface between the ORTHO Optix™ Reader and a customer's Laboratory Information System (LIS). This Guide also explains the supporting requirements for the configuration of these interfaces.

Audience

This document serves as a reference for Information Technology personnel who are responsible for creating and maintaining the communication between the ORTHO Optix™ Reader and the Laboratory Information System (LIS).

Definitions

Application Data (AD)	Media that contains test or protocol rules that controls the ORTHO Optix™ Reader when tests are processed
Assay	Part of a test that uses one column of the cassette to analyze a sample
Cassette	Plastic container that contains six columns where reactions occur, cassette is the informal name for the ORTHO BioVue® System Cassette.
Column	One of 6 microtubes of a cassette where the reaction occurs
Download	Data transfer from the Laboratory Information System to the ORTHO Optix™ Reader
Error	1. A general type of error related to a handling strategy 2. A specific error event related to a handling history
Frame	The basic unit of communication at the data link layer for ASTM protocol
Laboratory Information System (LIS)	A computer system in the laboratory responsible for tracking sample orders and results.
Ortho	Ortho Clinical Diagnostics
Order	A request to perform a profile (group of tests) for samples of a single patient and multiple donors
ORTHO Optix™ Reader	An instrument designed to automate in vitro Immunohematology testing of human blood
Partial Results / Partial Profile Result	A Partial Result message is a message that does not contain all test results from a Profile defined with more than two tests. A partial result can be uploaded as soon as each test in a profile completes. And partial results always contain the accepted results from one or more orderable tests.
Profile	A Profile is a name defining a group of one or more tests. A Profile is the smallest orderable unit.
Sample	A tube of patient or donor blood
Test	The smallest reportable unit within a Profile. Tests are selected from the test menu.
Upload	Data transfer from the ORTHO Optix™ Reader to the laboratory information system
User	Operator of the ORTHO Optix™ Reader

References

ASTM E 1381-02	ASTM E 1381-02 – Standard Specification for Low Level Protocol to Transfer Messages Between Clinical Laboratory Instruments and Computer Systems
ASTM E 1394-97	ASTM E 1394-97 – Standard Specification for Transferring Information Between Clinical Laboratory Instruments and Computer Systems
LIS1-A	ANSI/CLSI LIS1-A – Standard Specification for Low Level Protocol to Transfer Messages Between Clinical Laboratory Instruments and Computer Systems
LIS2-A	ANSI/CLSI LIS2-A – Specification for Transferring Information Between Clinical Laboratory Instruments and Information Systems

2 External Interface Design

Overview

The laboratory information system (LIS) interface provides communication between the ORTHO Optix™ Reader and the LIS.

LIS Interface

The ORTHO Optix™ Reader implements an interface to a remote LIS connected through TCP/IP or shared folders. The LIS interface provides user with a simplified method of managing multiple Readers and provides users the ability to manage results in a central location.

The LIS interface supports four working modes: Upload, Download, Host Query, and Broadcast.

Upload Mode – Also called unidirectional mode. This mode allows users to order tests manually on the ORTHO Optix™ Reader, and then the ORTHO Optix™ Reader transfers the results to a connected LIS. The operator cannot release unaccepted results to the LIS, but once accepted, results can be manually resent to the LIS.

In all modes, the user can select one of the following LIS result transmission options by making selections on the Workflow settings screen.:

- Disabled – The result transmission is disabled
- Manual – When configured for manual acceptance and “Export by Profile”, the results of an order are transmitted when all tests of the Profile have been accepted.
- Manual Partial – When configured for manual acceptance and “Export by Test”, partial results of an order are transmitted when a test is accepted.
- Automatic – When configured for automatic acceptance and Export by Profile, the results of an order are transmitted when all the results of the Profile have been accepted. Manually accepted results are only transmitted when all tests of the Profile are accepted.
- Automatic Partial – When configured for automatic acceptance and Export by Test, partial results of an order are transmitted when a test is accepted. Manually accepted results are transmitted when they are accepted.

NOTE: Partial results are only uploaded for Profiles defined with more than one test. And partial results always contain the accepted results from one or more reportable tests.
NOTE: A result is only automatically accepted if all results of an order using the same test analysis are consistent, for example, are available.

Download Mode – Also called bidirectional mode. This mode functions the same as the upload mode, and in addition, the LIS transmits orders to the ORTHO Optix™ Reader.

Host Query Mode – This mode functions the same as the download mode, and in addition a user can scan a sample barcode and send a host query message to the LIS. The ORTHO Optix™ Reader does not wait for a response; it may continue to send host query messages and results to the LIS. The responses from the LIS are imported as normal orders or rejected if duplicate orders are found.

Broadcast Mode – This mode functions the same as the download mode, but the LIS sends orders to all instruments. Use this mode when a system includes multiple instruments. This mode allows a user to process a sample on one instrument, and then the instrument uploads the results to the LIS. When the LIS receives the results from one instrument, the LIS may cancel the duplicate orders on all other instruments. The ORTHO Optix™ Reader may be configured to automatically cancel orders that have not run within 3 to 14 days.

NOTE: The functionality of download (Bidirectional) mode supports all other modes. When the LIS interface is enabled, ORTHO Optix™ Reader is in download mode. Host queries can be sent manually in any mode. All other modes are based on how the LIS interacts with the ORTHO Optix™ Reader.

3 External Interface Communication Protocols

Overview

The ASTM layers involved in transferring data between the ORTHO Optix™ Reader and the LIS are divided into a physical layer and a datalink layer.

The physical layer is comprised of the actual hardware and software configuration used to communicate between the two systems.

- For Ethernet communications, this corresponds to Sections 7 and 8.2.1.1 in ASTM E 1381
- For file sharing, this corresponds to network file sharing protocols supported by the ORTHO Optix™ Reader

  NOTE: Refer to the appropriate interface (Ethernet or file sharing) for details.

The datalink layer is responsible for the logical data frames comprised of the raw data exchanged with the physical layer, and it ensures that packets are transferred accurately between the computers.

- For Ethernet communications, this corresponds to Section 8 in ASTM E 1381
- For file sharing, this corresponds to custom protocols implemented by the ORTHO Optix™ Reader

Physical Layer

The ORTHO Optix™ Reader can be configured to communicate with the LIS by either TCP/IP or a file sharing interface. RS232 is not supported by the ORTHO Optix™ Reader.

TCP/IP Interface

The ASTM protocol supports the use of TCP/IP communication for the physical transport layer. This interface is bidirectional. Under the client/server model, the LIS acts as the server and the ORTHO Optix™ Reader acts as the client (LIS1-A, section 8.2.1.1). The ORTHO Optix™ Reader will connect to the LIS when configured as the client (outbound connection). ORTHO Optix™ Reader can also be configured for an inbound connection in which the LIS will connect to the ORTHO Optix™ Reader.

File Sharing Interface

While the ASTM E 1381 and LIS1-A standards specifies the low-level serial and TCP/IP protocols for the exchange of ASTM messages, the ASTM E 1394 and LIS2-A standards applies only to the structure and content of ASTM messages and does not specify what communication protocols can be used. Systems are free to exchange ASTM messages using any defined communication protocol.

With the file sharing interface, ASTM messages are exchanged using message files and shared folders. An application sends an ASTM message by writing the message to a file in a shared folder. An application receives an ASTM message by first reading a file from a shared folder, and then deleting the file after it is read. File naming conventions and the use of separate upload and download folders are methods used to avoid conflicts when exchanging messages.

The ORTHO Optix™ Reader can be configured to use folders that are shared on the network for the exchange of messages and cassette images.

Users should not manually recreate a deleted LIS folder. The software automatically recreates the folder with the appropriate permissions. If a user manually creates the LIS folder, when the software attempts to send results to the LIS, a "Status 500: Internal Server Error" message may display on the screen.

The LIS sends an ASTM message to the ORTHO Optix™ Reader by writing the message to a file in the download folder. The ORTHO Optix™ Reader sends an ASTM message to the LIS by writing the message to a file in the upload folder.

The LIS can read cassette images associated with results from the shared image folder.

The upload and download folders can be combined into the same folder.

Errors can occur if one application is writing to a message file while another application tries to read it. To avoid such conflicts, the LIS and ORTHO Optix™ Reader use a 2-step process to write message files into the ORTHO Optix™ Reader shared folders. The sender first writes an ASTM message file to a temporary file in the designated shared folder. Once the complete ASTM message has been written to the file and the file has been closed, the temporary file is renamed to its final name matching what the receiver is looking for. It is now safe for the receiver to access the file.

NOTE: ORTHO Optix™ Reader looks for files that match the configured file extensions and ignores the base file name. Temporary LIS files should not use the same file extensions that ORTHO Optix™ Reader is configured for.

When ORTHO Optix™ Reader writes an upload message to the Reader's upload shared folder, it first creates and writes it to a temporary file in a separate folder on the same volume as the local network shared folder. After closing the file, the temporary message file is then renamed with the path to the local network shared upload folder. Renaming a file on the same volume with a different path updates directory information and does not cause the file to be copied. Updating directory information appears to be an atomic operation to the LIS and prevents the LIS from accessing the upload message file while it is being created and written to.

When ORTHO Optix™ Reader writes an upload message file to a remote upload shared folder, it creates the destination file with ShareMode None (locking the file). This is followed by writing the contents and then closing the file. This is not an atomic operation to the LIS and the LIS may detect and try to read the file before it is unlocked; generating a file access error.

NOTE: The LIS may get a file access error when reading upload message files written to a shared folder residing on the LIS.

NOTE: In the ORTHO Optix™ Reader computer OS, in the control panel, both 'Network and sharing center' and 'local group policy' must be configured to allow access to shared folders on the computer. The user (corresponding to the LIS) must be a member of the group in 'local group policy' allowed access to the computer.

Datalink Layer

The ORTHO Optix™ Reader supports the following communication protocols:

- LIS1-A/ASTM E 1381 over TCP/IP
- Network shared folders

The ASTM 1381 and LIS1-A standards define the low-level protocol used for TCP/IP data exchange between laboratory instruments and information systems. ORTHO Optix™ Reader does not support a serial interface.

Multiple messages per session – ORTHO Optix™ Reader can send one or more ASTM 1394 messages in one ASTM 1381 session.

The ASTM 1381 standard defines a message as one ASTM 1394 record, whereas the ASTM 1394 standard defines a message as one header (H) record through a message terminator (L) record.

The Message Terminator Record (L) is the last record in the message; “A header record may be transmitted after this record signifying the start of a second message” (ASTM 1394, section 13.1).

An ASTM 1381 session is a total unit of communication activity, used to indicate the events starting with the establishment phase (ENQ) and ending with the termination phase (EOT). The ASTM 1381 standard does not restrict sending only one ASTM 1394 message per ASTM 1381 session.

The ORTHO Optix™ Reader will send one message when it first becomes available. However, when the ORTHO Optix™ Reader has more than one message to send, the ORTHO Optix™ Reader will send multiple ASTM 1394 messages in one ASTM 1381 session.

NOTE: This means that a frame with a Header record may have a frame number other than 1. The first frame of a session starts with a frame number of 1.

Example showing multiple messages in one session:

Reader: <ENQ>
LIS : <ACK>
Reader: <STX>1H|\^&|||STRATEC^ORTHO OPTIX^... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>2P|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>3O|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>4R|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>5M|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>6L|1|N<CR><ETX>07<CR><LF>
LIS : <ACK>
Reader: <STX>7H|\^&|||STRATEC^ORTHO OPTIX^... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>0P|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>1O|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>2R|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>3M|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>4L|1|N<CR><ETX>07<CR><LF>
LIS : <ACK>
Reader: <EOT>

Contention - When both the LIS and ORTHO Optix™ Reader simultaneously send an <ENQ>, the data link is in contention (LIS1-A, sections 6.2.7.1). Contention is resolved as follows (LIS1-A, sections 6.2.7.1 and 8.2.7.1):

- The LIS stops trying to send and prepares to receive
- The LIS waits at least 20 seconds to allow the ORTHO Optix™ Reader to send an <ENQ>
- ORTHO Optix™ Reader waits 1 second before sending an <ENQ> to allow the LIS to prepare to receive
- After 1 second, ORTHO Optix™ Reader sends <ENQ>

Example of contention resolution:

Reader: <ENQ>
LIS : <ENQ>
Reader: <ENQ> - After 1 second delay
LIS : <ACK>
Reader: <STX>1H|\^&|||STRATEC^ORTHO OPTIX^... <CR><ETX>71<CR><LF>
LIS : <ACK>
Reader: <STX>2P|1| ... <CR><ETX>71<CR><LF>
LIS : <ACK>

Receiver Interrupts - The ORTHO Optix™ Reader may generate a receiver interrupt when the LIS is sending messages and the ORTHO Optix™ Reader has a message to send. After a frame is sent to the ORTHO Optix™ Reader, the ORTHO Optix™ Reader replies with an <EOT> in place of an <ACK>, signifying that the frame was received successfully and that ORTHO Optix™ Reader is ready to receive another frame. The LIS can either accept the interrupt or simply treat the <EOT> as an <ACK> to the frame and continue sending (LIS1-A, sections 6.3.5.2 and 8.3.5.2). The LIS has the option to reject the receiver interrupt and keep sending frames.

NOTE: For an LIS that does not currently support receiver interrupts, it is recommended that the LIS accept the <EOT> as an acknowledgement <ACK> and send the next frame.

ASTM Datalink Ethernet Communications

The ORTHO Optix™ Reader establishes a connection to the LIS at a configured IP address and port as specified in Section 8.2 of LIS1-A. This interface is bidirectional and is initiated by the ORTHO Optix™ Reader when configured for an outbound connection. When configured for an inbound connection, ORTHO Optix™ Reader will listen for the LIS to initiate the connection.

NOTE: ORTHO Optix™ Reader can be configured to act as a Client (outbound) or a Server (inbound).

The system supports:

- The establishment phase (link connection) specified in Section 6.2 of ASTM E 1381 including establishment and contention
- The following transfer phases specified in Section 6.3 of ASTM E 1381
    - Frame Format in Section 6.3.1 of ASTM E 1381
    - Frame Numbering in Section 6.3.2 of ASTM E 1381
    - Frame Checksums in Section 6.3.3 of ASTM E 1381
    - Frame Acknowledgements Section 6.3.4 of ASTM E 1381
    - Frame Receiver Interrupts in Section 6.3.5 of ASTM E 1381
- The termination phase (link release) specified in Section6.4 of ASTM E 1381
- The following error recoveries specified in Section 6.5 of ASTM E 1381
    - Detecting and handling defective frames in 6.5.1 of ASTM E 1381

- Timeouts in Section 6.5.2 of ASTM E 1381

The restricted message characters requirement specified in Section 6.6 of ASTM E 1381

ASTM Datalink Folder Communications

While the LIS1-A/ASTM E 1381 standard specifies the low-level serial and TCP/IP protocols for the exchange of ASTM messages, the LIS2-A/ASTM E 1394 standard applies only to the structure of ASTM messages and does not specify what communication protocols can be used. Systems are free to exchange ASTM messages using any defined communication protocol.

With the file sharing interface, ASTM messages are exchanged using message files and shared folders. An application sends an ASTM message by writing the message to a file in a shared folder. An application receives an ASTM message by first reading a file from a shared folder followed by deleting the file once it has been read. File naming conventions and the use of separate upload and download folders are methods used to avoid conflicts when exchanging messages.

The ORTHO Optix™ Reader allows configuring an export base name template for the generation of upload file base names. Upload file extensions are added to the base name when creating the upload message file.

ORTHO Optix™ Reader can be configured with an export file name format that will be applied to all export message files (results and host query). Format specifiers are available for date and time and are wrapped in brackets [ ]. Format specifiers are:

Year: [yyyy]
Month: [MM]
Day: [dd]
Hour: [HH]
Minute: [mm]
Second: [ss]

File name extensions can be configured for result, host query, and order messages.

A file name cannot contain any of the following characters:

\/:*?”<>|

Below is an example an export base name template, file extension, and generated file name:

Base Name Template:	Export-[yyyy][MM][dd]_[HH][mm][ss]
File Extension:	upl
Generate Upload File Name:	Export-20190619_074951.upl

NOTE: The year and day format specifiers are always required.

A download file extension is defined for the ORTHO Optix™ Reader during system configuration and is used to monitor the download folder for message files. Valid file extensions have to be valid for both the LIS and the ORTHO Optix™ Reader.

NOTE: The ORTHO Optix™ Reader download file extension is case sensitive; for example, a file extension of DNL will not match with a file extension of dnl.

LIS Messages

This section describes the structure and content of messages (orders, results, and queries) exchanged between an LIS and ORTHO Optix™ Reader. The ASTM E 1394-97 and LIS2-A standards describe the general message structure and content, whereas this guide describes the implementation of these standards by ORTHO Optix™ Reader.

The Vision ASTM format is the most recent ASTM version supported by Ortho Clinical Diagnostics (Ortho) instruments.

NOTE: Only Vision ASTM is supported. Vision ASTM is a super set of the ASTM and enhanced ASTM legacy message formats.

The Vision ASTM message format is specific to Ortho Clinical Diagnostics (Ortho) instruments and is based on the ASTM E 1394-97 and LIS2-A standards.

In the record fields, all values are text, and meet the ASTM common field type's specification Section 6.6 of ASTM E 1394. If a field value has multiple components, they are differentiated by the component delimiter ('^') character Section 6.4.5 of ASTM E 1394.

The ORTHO Optix™ Reader supports the hierarchical message structure as defined in Sections 5.1.8 through 5.1.11 of ASTM E 1394.

The ORTHO Optix™ Reader does not support the Logical Information Storage and Logical Transmission Error Recovery Requirements defined in Sections 5.2.1 and 5.2.2 of ASTM E 1394.

The ORTHO Optix™ Reader uses the following record specifications:

- For all records, fields not supported are ignored on a download
- The ORTHO Optix™ Reader uploads null values for any field listed as *not supported* for all records

The ORTHO Optix™ Reader can transmit and receive messages using:

- Unicode/UTF-8
- ISO8859/1 (ISO Latin-1)
- Windows-31J (Microsoft Shift-JIS CP932)
- Windows 1252 Code Page

The character encoding is configurable. Only one character encoding is supported at a given time.

A Profile is a name assigned to one or more tests. ORTHO Optix™ Reader does not enforce a standard set of profile names and does not have defined default profiles. Profiles are defined based on the unique requirements of each site; therefore, the name given to a profile can be instrument, site or LIS specific.

- A profile can only contain unique test names; one cannot put a test in a profile twice. A profile cannot be defined to run the "00: ABO(FWD)/Rh-00" test twice
- A profile named "Type & Screen" can be defined with one or more tests such as "00: ABO(FWD)/Rh-00" and "22: 08 AbScr Sel Poly"

The ORTHO Optix™ Reader is configurable to include or trim delimiters for all trailing null fields (see Section 6.4.8 of ASTM E 1394). Some LIS systems will reject upload messages if a specific number of "pipes" (field delimiters) is not contained in each record. However, the system is

capable to receive records where trailing null fields were omitted.

Unless trailing delimiters are trimmed, the ORTHO Optix™ Reader uploads records with the following number of delimiters.

NOTE: All field delimiters are the same as the number of fields specified in ASTM E 1394.

H records	13 field delimiters
P records	34 field delimiters
O records	30 field delimiters
R records	13 field delimiters
Q records	12 field delimiters
M record	5 field delimiters

Escape Sequences - Escape sequences are used to represent certain special characters within text fields of ASTM messages. Some characters are not allowed in ASTM text fields and escape sequences are used to convert them into a valid sequence of characters. The sender of an ASTM message converts restricted characters to an escape sequence and the receiver of the message converts escape sequences back to the original text.

If the ORTHO Optix™ Reader is configured for the ASTM escape sequences, then the ORTHO Optix™ Reader accepts and ignores the following escape sequences:

&H&	Start highlighting text
&N&	Normal text (end highlighting)
&Zcccc&	Local (manufacturer) defined escape sequence

If the ORTHO Optix™ Reader is configured for ASTM escape sequences, then the ORTHO Optix™ Reader accepts and supports the following escape sequences:

&F&	Embedded field delimiter character
&S&	Embedded component field delimiter character
&R&	Embedded repeat field delimiter character
&E&	Embedded escape delimiter character

When configured for ASTM escape sequences:

- ‘Type & Screen’ should be written to an ASTM message as ‘Type &E& Screen’
- ‘Type &E& Screen’ should be read from an ASTM message as ‘Type & Screen’

If the ORTHO Optix™ Reader is not configured for ASTM escape sequences, then the ORTHO Optix™ Reader accepts and supports the following escape sequences:

&|	Embedded field delimiter character
&^	Embedded component field delimiter character
&\	Embedded repeat field delimiter character
&&	Embedded escape delimiter character

When not configured for ASTM escape sequences:

- 'Type & Screen' should be written to an ASTM message as 'Type && Screen'
- 'Type && Screen' should be read from an ASTM message as 'Type & Screen'

Date fields - All date fields are formatted as specified by Dates and Times defined in Section 6.6.2 of ASTM E 1394. The ORTHO Optix™ Reader rejects date and time values downloaded with an appended time zone value as defined in Section 6.6.2.1 of ASTM E 1394.

NOTE: Valid dates range from 1/1/1753 and beyond.

Sequence of records in result messages - The sequence of records (O-R-M) in a result message is dependent on the definition of the profile. The sequence of records in a result message will always be the same for each result message for a profile. If the profile definition is changed, their order may also change.

Results with multiple reagents - Result messages include a list of reagents which include the name, lot, and expiration dates of the reagents used by an assay. LIS software should always use the name of the reagent when collecting lot and expiration information. Doing so will protect the LIS from any variations and from any future changes to ORTHO VISION® Analyzers software. ORTHO Optix™ Reader does not guarantee the list of reagents used by an assay will be reported in a specific sequence. The reagent name and not its position in the uploaded result message should always be used to access reagent lots and expiration dates.

Analysis interpretations- A Profile can be defined with more than one test, but analysis interpretations are performed on one test at a time and only with the wells from that test. An analysis interpretation may use one or more well results. All wells that are used in the interpretation of an analysis result are listed in M records following the analysis interpretation result (R) record. A single Ctrl well result may participate in more than one analysis interpretation and will be listed for each one. This means that the same Ctrl well may be listed more than once in a result message.

When the same Ctrl well is listed under more than one analysis result, the M-records will be identical with the possible exception of the M-record sequence number. The M-record sequence number is specific to its position under each R-record.

Well identification - The well number and cassette can be identified by the information in the M-record. The M-Record contains the cassette name, well number (1-6), cassette ID, cassette lot number, and the cassette expiration date. All of these components uniquely identify the cassette and well result. One can determine if two M-records describe the same well by comparing the cassette information and well numbers.

Multi-test Profiles - Profiles that are defined with more than one test may produce result messages with multiple, identically named analysis and well results. These analyses and well results will be specific to each test. For example, a profile defined with two tests, each with an ABO analysis and each ABO analysis result containing Anti-A and Anti-B unit results. This would produce a result message with two R-records, one for each ABO analysis. Each ABO R-record would be followed by two M-records; one for Anti-A and one for Anti-B. There is nothing in the R-record or the M-record that identifies the test that they are associated with. Tests names can be included in the result and manufacture records when “Upload test name” is enabled.

ISBT donor barcodes - When ORTHO Optix™ Reader scans an ISBT donor barcode, ORTHO Optix™ Reader stores the complete ISBT barcode, including the “=” sign and Flags.

When ORTHO Optix™ Reader compares an ISBT donor barcode to a donor ID from an order (manually entered or downloaded from an LIS), it compares it to the complete ISBT barcode (= W13131200096800).

An ISBT donor ID downloaded to ORTHO Optix™ Reader in an order from an LIS must also contain the complete ISBT barcode. If an operator has to manually enter a donor barcode and cannot use the handheld barcode scanner, then the operator will have to enter the complete ISBT sample barcode (=W13131200096800).

ORTHO Optix™ Reader includes the complete ISBT barcode in results uploaded to the LIS.

NOTE: ORTHO Optix™ Reader has a configuration options formatting ISBT barcodes for display and reports. These configuration settings do not affect the ISBT barcodes in LIS messages; LIS order and result messages must always contain the complete ISBT barcode.

Vision ASTM

ASTM records are the components that make up ASTM messages. In the tables that show the field sequences, shaded rows indicate fields that are not supported by the ORTHO Optix™ Reader. No data is sent in these field positions and they are marked *Unused*.

Yellow rows mean that there is a difference between Vision ASTM and Enhanced ASTM.

NOTE: Only Vision ASTM is supported. Vision ASTM is a super set of the ASTM and enhanced ASTM legacy message formats.

The column labeled "#" contains the field index within the record. An ASTM field can contain multiple ASTM components separated by the repeat delimiter. Components are indexed as X.Y, where X is the field index and Y is the index of the component within the field. "D" and "U" indicate if the fields/components are optional in the record when downloading to the ORTHO Optix™ Reader (D) and uploading to the LIS (U). "R" indicates the repeatability.

Table 1 can be used as a key for the values in the D, U, and R columns.

Table 1: Abbreviations used in record tables

D	U	R
R = Required field X = Required field for crossmatch test Q = Only applies to QC orders	A = Always sent X = Always sent for crossmatch test	Y = Field can repeat
O = Optional field	S = Sometimes sent P = When provided	N = Field does not repeat
N = Never used	N = Never sent	-
- NA = not applicable	- NA = not applicable	-

In the record tables, the values for D, U, and R are included in three horizontal rows below the column headings.

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				

The column "Field" contains the field name (*cf.* also [2]). The column "Notes" contains descriptions and restrictions for the field

The ORTHO Optix™ Reader ignores incoming Comment, Result, Request Information, Scientific, and Manufacturing information record types.

Delimiters are variable on download and defined in the message header (see Section 6.4 of ASTM E 1394). In the following, the ORTHO Optix™ Reader upload delimiters are used for the purpose of describing escape sequences.

Vision ASTM H Header Record

The ORTHO Optix™ Reader supports the following fields (not shaded) of the ASTM Header (H) Record.
Defined in Section 7.1 of ASTM E 1394.

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; x: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
1	R	A	N	Record Type ID	= "H" or "h"
2	R	A	N	Field Delimiters	= "|\^&", these are the Field, Repeat, Component and Escape Delimiters. All delimiters are fixed on upload. All delimiters can be variable on download.
3	N	N	N	Message Control ID	- *Unused*
4	N	N	N	Access Password	- *Unused*
5	O	A	N	Sender Name/ID	System Name field from system configuration
5.1	-	A	N	-	= "OCD", manufacturer name
5.2	-	A	N	-	= " Reader ", product name Verify
5.3	-	A	N		Software Version
5.4	-	A	N		Instrument ID
6	N	N	N	Sender Street Address	- *Unused*
7	N	N	N	Reserved Field	- *Unused*
8	N	N	N	Sender Telephone Number	- *Unused*
9	N	N	N	Characteristics of Sender	- *Unused*
10	N	N	N	Receiver ID	- *Unused*
11	N	N	N	Comment	- *Unused*
12	N	A	N	Processing ID	= "P" P-Production message
13	N	A	N	Version Number	ASTM protocol version “LIS2-A”
14	O	A	N	Date and Time of Message	Date and Time of transmission YYYYMMDDHHMMSS

Vision ASTM L Trailer Record

The ORTHO Optix™ Reader supports the following fields (not shaded) of the ASTM Trailer (T) Record. Defined in Section 13.1 of ASTM E 1394.

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; x: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
1	R	A	N	Record Type ID	= "L" or "l"
2	N	N	N	Sequence number	- *Unused*
3	N	N	N	Termination Code	- *Unused*

Vision ASTM P Patient Record

The ORTHO Optix™ Reader supports the following fields (not shaded) of the ASTM Patient (P) Record.
Defined in Section 8.1 of ASTM E 1394.

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
1	R	A	N	Record Type ID	= "P" or "p"
2	O	A	N	Sequence number	Patient sequence number. Set to 1 for the first patient record; 2 for the 2nd record; and so on.
3	O	P	N	Practice Assigned Patient ID	= Patient ID If present, the unique identifier for the patient. A Patient ID may contain one or more alphanumeric, symbols, and embedded blank characters up to a maximum length of 20 characters. Leading zeros in a Patient ID are retained and stored as part of the Patient ID. Patient IDs composed of only blank characters are treated as NULL. The System strips leading and trailing blanks. Embedded blanks are not removed and are considered as part of the Patient ID
4	N	N	N	Lab Assigned Patient ID	- *Unused*
5.1	O	S	N	Patient ID No. 3	= National ID
5.2	O	S	N	-	= Medical Record
5.3	O	S	N	-	= Other ID
6.1	O	S	N	Patient Name	= Last Name
6.2	O	S	N	-	= First Name
6.3	O	S	N	-	= Middle Initial

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
6.4	N	N	N	-	= Suffix
6.5	N	N	N	-	= Title
7	O	P	N	Mother's Maiden Name	= Mother's Maiden Surname. May be required to distinguish between patients with the same birth date and last name.
8	O	P	N	Birth date	= Actual birth date (YYYYMMDD, YYYYMMDDHHMM, or YYYYMMDDHHMMSS). The upload format is: YYYYMMDDHHMMSS.
9	O	S	N	Patient Sex	= NULL, M, F, or U NULL=U. If Null, uploads U.
10	N	N	N	Patient Race/Ethnic Origin	- *Unused*
11	N	N	N	Patient Address	- *Unused*
12	N	N	N	Reserved Field	- *Unused*
13	N	N	N	Patient Telephone Number	- *Unused*
14	O	P	N	Attending Physician	The System allows only one physician.
14.1	O	P	N	-	Physician ID
14.2	O	P	N	-	Last Name
14.3	O	P	N	-	First Name
14.4	O	P	N	-	Middle Initial
15	O	P	N	Patient’s Birth Name	= Patient’s Birth Surname. May be required to distinguish between patients with the same birth date and last name.
16	N	N	N	Special Field 2	- *Unused*
17	N	N	N	Patient Height	- *Unused*
18	N	N	N	Patient Weight	- *Unused*
19	N	N	N	Patient's Diagnosis	- *Unused*
20	N	N	N	Patient Active Medications	- *Unused*
21	N	N	N	Patient's Diet	- *Unused*
22	N	N	N	Practice Field 1	- *Unused*
23	N	N	N	Practice Field 2	- *Unused*
24	N	N	N	Admission and Discharge Dates	- *Unused*
25	N	N	N	Admission Status	- *Unused*
26	N	N	N	Location	- *Unused*
27	N	N	N	Nature of Alternative Diagnosis Code	- *Unused*
28	N	N	N	Alternative Diagnosis Code	- *Unused*

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
29	N	N	N	Patient Religion	*- Unused*
30	N	N	N	Marital Status	*- Unused*
31	N	N	N	Isolation Status	*- Unused*
32	N	N	N	Language	*- Unused*
33	N	N	N	Hospital Service	*- Unused*
34	N	N	N	Hospital Institution	*- Unused*
35	N	N	N	Dosage Category	*- Unused*

Vision ASTM O Order Record

The ORTHO Optix™ Reader supports the following fields (not shaded) of the ASTM Order (O) Record.
Defined in Section 9.4 of ASTM E 1394.

NOTE: The information with asterisks (*) in the D column are explained in the Notes column in the same row.

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
1	R	A	N	Record Type ID	= "O" or "o"
2	R	A	N	Sequence number	Starts at 1. Sequence number increases by one for each result within an order. Reset with each new patient record.
3	R	A	Y	Specimen ID	= Sample ID. A maximum of two Sample IDs can be identified. A unique BRC Sample ID is generated by the ORTHO Optix™ Reader for each execution of a BRC profile. The generated BRC Sample ID always starts with “BRC” and contains a locale based date/timestamp and a sequence number. For example: BRC_19/03/20140809_01
4	N	N	N	Instrument Specimen ID	*- Unused*
5	R	A	N	Universal Test ID	-
5.1	R	A	Y	Profile Name	= Profile name Profiles are configured on the ORTHO Optix™ Reader and there is no standardization. Profiles must be known by the System and profile names are case sensitive (ABO and abo are considered different profile names).

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
					On upload: Only one profile per Order record. **On download:** Only one donor list per order record. **Cross match:** On download, if the profile contains a cross match test then the following components are required: Number of donor samples One or more pairs containing the donor Sample ID and Sample type.
5.2	X	S	N	Number (N) of Donor Samples	= number of donor samples or NULL Component required for profiles containing cross match test. The value is optional (can be NULL). The component is required for cross match tests. The System does not use this value (compatibility with legacy systems).
5.a	X *	P	N	n^{th} Donor Specimen ID	= Sample ID of n^{th} donor a=2*n+1, where 1<n≤N is the n^{th} donor ID *Required for each additional donor (see 5.1, cross match)
5.b	X *	P	N	Sample type of n^{th} Donor ID	= Sample type of n^{th} donor b=2*n+2, where 1<n≤N is the n^{th} donor ID *Required for each additional donor (see 5.1, cross match)
5.c	Q	N	N	Number (M) of Cassette Lots to use	= number of subsequent Cassette ID/lots. c=2*n+3, where 1<n≤N is the nth donor ID. If 0 or NULL, the system automatically[1] determines which lot(s) to use. Cassette Lot information is ignored for non QC Orders (Action Code is not = Q)
5.d	Q *	N	N	m^{th} Cassette ID	= Cassette ID d=2*n+2*m+2, where 1≤m≤M is the m^{th} Cassette Lot to specify, n is the n^{th} donor ID * Required for each Cassette.
5.e	Q *	N	N	m^{th} Cassette Lot ID	= Cassette Lot number e=2*n+2*m+3, where 1≤m≤M is the m^{th} Cassette Lot to specify, n is the n^{th} donor ID * Required for each Cassette.
5.f	Q	N	N	Number (P) of Reagent Lots to	= number of subsequent reagent

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
				use	ID/lots. f=2*n+2*m+4, where m is the mth Cassette Lot to specify, n is the nth donor ID. If 0 or NULL, the System determines automatically[1] which lot(s) to use. Reagent Lot information is ignored for non QC Orders (Action Code is not = Q)
5.g	Q *	N	N	pth Reagent ID	= Reagent ID g=2*N+2*M+2*p+3, where 1≤p≤P is the pth Reagent Lot ID to specify, N is the total number of donor samples, and M is the total number of Cassette IDs/Lots. * Required for each reagent.
5.h	Q *	N	N	pth Reagent Lot ID	= Reagent Lot number h=2*N+2*M+2*p+4, where 1≤p≤P is the pth Reagent Lot ID to specify, N is the total number of donor samples, and M is the total number of Cassette IDs/Lots. *Required for each reagent.
6	O	A	N	Priority	= NULL, S, A, R, C, P, or N. N is the same as R in LIS2-A, 9.4.6. NULL = R = N = C = P = routine priority. S = A = STAT priority.
7	O	A	N	Requested/Order Date and Time	= date and time of Request/Order YYYYMMDDHHMMSS
8	O	N	Y	Specimen Collection Date and Time	= date and time specimen was collected (YYYYMMDDHHMMSS) **On Upload**: NULL
9	N	N	N	Collection End Time	- *Unused*
10	N	N	N	Collection Volume	- *Unused*
11	N	N	N	Collector ID	- *Unused*
12	R	N	N	Action Code	= C, N, A, Q N = A C: cancel the described order, N|A: Add profiles on a known sample, new profiles on an unknown sample. Q: treat specimen as Q/C test specimen NULL on Result Upload
13	N	N	N	Danger Code	- *Unused*

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
14	O	S	Y	Relevant Clinical Info –	Expected Test Results Ignored for non QC Orders (Action Code is not = Q) Test names are case sensitive and must be known by the system. This information overwrites predefined expected test results. Must be set for each performed test of Non-Ortho QC Profile. An expected result has to be provided for each test executed by this order.
14.1	O	S	N	Test-Name	= Name of an Analysis type
14.2	O	S	N	Expected Result	= Expected Result
15	N	N	N	Date/Time Specimen Received	- *Unused*
16	R	A	Y	Specimen Descriptor	= Sample type Exactly one Specimen Descriptor required for each Specimen ID (see 3)
17	N	N	N	Ordering Physician	- *Unused*
18	N	N	N	Physician's Phone Number	- *Unused*
19	O	N	N	User Field 1	= NULL or S If S: save all the Cassettes for all the profiles for manual review.
20	N	S	N	User Field 2	= comment Error message if this order could not be processed by the ORTHO Optix™ Reader.
21	N	N	N	Laboratory Field 1	- *Unused*
22	N	N	N	Laboratory Field 2	- *Unused*
23	N	A	N	Date/Time Results Reported or Last Modified	= YYYYMMDDHHMMSS
24	N	N	N	Instrument Charge	- *Unused*
25	N	N	N	Instrument Section ID	- *Unused*
26	N	A	N	Report Types	= P, F, R, or X. P: partial results F: final results R: repeat results X: order cancelled on the instrument
27	N	N	N	Reserved Field	- *Unused*
28	O	S	N	Location or Ward of Specimen	=Collection Location

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
				Collection	Identifies the location the specimen was collected.
29	N	N	N	Nosocomial Infection Flag	- *Unused*
30	N	N	N	Specimen Service	- *Unused*
31	N	N	N	Specimen Institution	- *Unused*

Vision ASTM R Result Record

See Vision ASTM R Result Record - Historic Result for supported and required fields for transmitting Historic Results.

A result record is transmitted to the LIS for each executed test.
The ORTHO Optix™ Reader supports the following fields (not shaded) of the ASTM Result (R) Record.
Defined in Section 10.1 of ASTM E 1394.

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
1	-	A	N	Record Type ID	= "R" or "r"
2	-	A	N	Sequence number	Initial value is 1, reset for each new order; maximum length is unlimited.
3	-	A	N	Test ID	-
3.1	-	A	N	Analysis	= Analysis type
3.2	-	S	N	Donor Specimen ID	Included only if cross match test. = Sample ID of donor The System writes one R record per reaction. Analysis results returned by the ORTHO Optix™ Reader are configurable and may change.
4	-	A	N	Data or Measurement Value	= Analysis Result
5	-	N	N	Units of Measurement Value	- *Unused*
6	-	N	N	Reference Ranges	- *Unused*
7	-	S	Y	Result Abnormal Flags	= NULL, M, Q, S, T, X, E, I, F, C, P, NA, R **M:** The result has been entered manually or one of the well results has been modified manually. **Q:** Out of QC. The test included at least one reagent or Cassette whose periodic QC test is overdue. **S:** Out of maintenance service. There is an overdue maintenance task. **T:** Test mode. This result was simulated by the instrument. **X:** Errors from the imaging system **E:** Temperature/Humidity sensor reading out of the notification range **I:** Indeterminate results (no match from the AD) **F:** User defined protocol **C:** Discrepant result **P:** Above/below positive reaction threshold **NA:** Result expired **R:** Result expired for a result that has

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
					been entered manually
8	-	N	N	Nature of Abnormality Testing	- *Unused*
9	-	A	N	Result Status	= F, R, X F: final result R: repeat result X: result rejected or cancelled
10	-	N	N	Date of Change in Instrument Normative Values or Units	- *Unused*
11	-	S	N	Operator Identification	= Operator ID, Operator who accepts the test, or the operator who was logged in if the test was automatically accepted.
12	-	N	N	Date/Time Test Started	- *Unused*
13	-	A	N	Date/Time Test Completed	= Date/Time of result YYYYMMDDHHMMSS
14	-	A	N	Instrument Identification	= Number
15	-	S	N	Test Name	When enabled, this will contain the name of the test that the result record is associated with (see section 4.1).

The status cancelled is returned in any of the following cases:

- The corresponding test was cancelled by a LIS order cancel message (Action code = C)
- The corresponding test was cancelled by the user
- The corresponding test was cancelled due to an unexpected, non-recoverable error (e.g., analytic or redundant analytic validation failed)
- The result was rejected by the user

NOTE: In case of test restart (due to recovery) or unexpected errors, the ORTHO Optix™ Reader does not send cancel messages to the LIS.

Vision ASTM R Result Record - Historic Result

An Historic result record is transmitted to the ORTHO Optix™ Reader for each historic result. The ORTHO Optix™ Reader supports the following fields (not shaded) of the ASTM Result (R) Record.
Defined in Section 10.1 of ASTM E 1394.

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
1	A	-	N	Record Type ID	= "R" or "r"
2	A	-	N	Sequence number	Initial value is 1, reset for each new order; maximum length is unlimited.
3	A	-	N	Test ID	-
3.1	A	-	N	Analysis	= Analysis type
4	A	-	N	Data or Measurement Value	= Analysis Result
5	-	-	N	Units of Measurement Value	- *Unused*
6	-	-	N	Reference Ranges	- *Unused*
7	-	-	N	Result Abnormal Flags	- *Unused*
8	-	-	N	Nature of Abnormality Testing	- *Unused*
9	-	-	N	Result Status	- *Unused*
10	-	-	N	Date of Change in Instrument Normative Values or Units	- *Unused*
11	-	-	N	Operator Identification	- *Unused*
12	-	-	N	Date/Time Test Started	- *Unused*
13	-	-	N	Date/Time Test Completed	- *Unused*
14	-	-	N	Instrument Identification	- *Unused*
15	-	-	N	Test Name	- *Unused*

Vision ASTM Q Request Record

The ORTHO Optix™ Reader supports the following fields (not shaded) of the ASTM Request (Q) Record.

Defined in Section 12.1 of ASTM E 1394.

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
1	-	A	N	Record Type ID	= "Q" or "q"
2	-	A	N	Sequence number	Initial value is 1, reset for each new message
3	-	-	N	Starting Range ID Number	-
3.1	-	N	N	Computer system patient ID	- *Unused*
3.2	-	A	N	Computer system specimen ID	= Computer System Sample ID. The Sample ID of interest, only one allowed per record.
4	-	N	N	Ending Range ID Number	- *Unused*
5	-	N	N	Universal Test ID	- *Unused*
6	-	N	N	Nature of Request Time Limits	- *Unused*
7	-	N	N	Beginning Request Results Date and Time	- *Unused*
8	-	N	N	Ending Request Results Date and Time	- *Unused*
9	-	N	N	Requesting Physician Name	- *Unused*
10	-	N	N	Requesting Physician Phone Number	- *Unused*
11	-	N	N	User Field 1	- *Unused*
12	-	N	N	User Field 2	- *Unused*
13	-	A	N	Request Information Status Codes	= O O: Requesting test orders and demographics only

Vision ASTM M Result Record

The ORTHO Optix™ Reader supports the following fields (not shaded) of the ASTM Result (M) Record.

Defined in Section 15.1 of ASTM E 1394.

Table 2: Results or Error

Grade	Meaning
0	“0” reaction
5	“(+)” reaction
10	“1+” reaction
20	“2+” reaction
30	“3+” reaction
40	“4+” reaction
-90	Well Not Found
-95	Wrong liquid level
-100	Light too low
-101	Light too high
-110	Contrast interference
-111	Empty column
-112	Too few cells
-113	Too many cells
-115	Mixed field
-116	Indeterminate
-117	Fibrin
-118	Bubble
-119	Cells detected
-201	Focus error
-203	Splash
-206	Tilt error
-207	Rotation error
-208	Skew error
-209	Well fluid error
-256	Cassette not detected
-260	Wrong position
-999	Not applicable

#	D	U	R	Field	Notes
D	R: Required; X: Required for Xmatch; O: Optional; N: Never used; - NA				
U	A: Always sent; X: Always sent for Xmatch; S: Sometimes sent; N: Never sent; -NA				
R	Y: Field can repeat; N: Field does not repeat				
1	-	A	N	Record Type ID	= "M" or "m"
2	-	A	N	Sequence number	=1 for initial order, then reset for each new order; maximum length is unlimited
3	-	A	N	Result Well Name	= Name of the test well For cross match: Donor Sample ID
4.1	-	A	N	Type of Cassette	= Type of Cassette
4.2	-	A	N	Number of the well	= 1..6
4.3	-	A	N	Cassette ID Number	= serial # as given in the barcode.
4.4	-	A	N	Cassette Lot Number	-
4.5	-	A	N	Cassette Expiration Date	= YYYYMMDDHHMMSS
4.6	-	S	N	Mono Image File Name	= The file name of the Cassette image used in determining this result. The actual image data is stored in the Shared Images Folder even when this message not transferred through the shared folder interface.
4.7	-	S	N	Color Image File Name	= The file name of the Cassette image used in determining this result. The actual image data is stored in the Shared Images Folder even when this message not transferred through the shared folder interface.
5	-	A	Y	Reagent Information	-
5.1	-	A	N	Reagent Name	= Reagent Name
5.2	-	A	N	Reagent Lot Number	-
5.3	-	A	N	Reagent Expiration Date	=YYYYMMDDHHMMSS
6.1	-	A	N	Final Result or Error	= from Table 2 Results or Error
6.2	-	A	N	Manual Correction Flag	=M or A M: Manual correction A: Automatic correction
6.3	-	S	N	Read Result or Error	= from Table 2 Results or Error
6.4	-	S	N	Operator ID	= The Operator ID of the operator that made the correction.
7	-	S	N	Test Name	When enabled, this will contain the name of the test that the result record is associated with (see section 4.1).

Sample Vision ASTM Messages

NOTE: All results are simulated.

Host Query

ORTHO Optix™ Reader sends one query message when an operator manually requests a query for a single scanned barcode. The message contains only one Sample ID. Upon receipt of the query message the LIS sends any orders associated with the sample.

```
H|\^&||| OCD^ORTHO OPTIX^1.0.0.923^|||||||P|LIS2-A|20200117153635
Q|1| SID107||||||||||O
L||
```

When ORTHO Optix™ Reader scans an ISBT sample barcode, ORTHO Optix™ Reader stores the complete ISBT 128 barcode, including the leading “=” sign, the Donor Identification Number (DIN), and Flag characters (=W13131200096700). The complete ISBT 128 barcode is required to be uploaded in the Host Query message.

```
H|\^&||| OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200118112909
Q|1|^|^= W00000004914700||||||||||O
L||
```

Minimal Order

ORTHO Optix™ Reader order requires a minimum of a Sample ID, sample type, and a profile. The minimal order message that ORTHO Optix™ Reader will accept is as follows:

```
H|\^&
P|1
O|1|SID101||ABO-D||||||||||CENTBLOOD
L
```

Example Order

```
H|\^&|||Mini LIS|||||||LIS2-A|20200205140222
P|1|PID02051520||NID02051520^MID02051520^OID02051520|Brown^Bobby^B|White|17530101030400|U|||||PHY1234^Kildare^James^P|Blaine
O|1|SID02051520||ABO|N|20200205140222|||||A||||CENTBLOOD
L||
```

Example Result

Result with "Trailing Delimiters" enabled:

The Order record report type (O.26) is set to 'F' for final results and the Result record Result Status field (R.6) is set to 'F' for final result.

H|\^&|||OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200205152810
P|1|PID02051520||NID02051520^MID02051520^OID02051520|Brown^Bobby^B|White|17530101000000|U|||||PHY1234^Kildare^James^P|Blaine||||||||||||||||||||
O|1|SID02051520||ABO|N|20200205140222|||||||||CENTBLOOD|||||||20200205152807|||F|||||
R|1|ABO^|A|||||F||admin123||20200205152621|123456789
M|1|Anti-A|ABD Confirmation^1^500002^00131^20200729235959^2_image_baw.jpg^2_image_color.jpg||40^A^40
M|2|Anti-B|ABD Confirmation^2^500002^00131^20200729235959^2_image_baw.jpg^2_image_color.jpg||0^A^0
R|2|Rh^|POS|||||F||admin123||20200205152621|123456789
M|1|Anti-D|ABD Confirmation^3^500002^00131^20200729235959^2 image_baw.jpg^2_image_color.jpg||40^A^40
L||

Result with "Trailing Delimiters" disabled:

Notice the lack of trailing delimiters in the P, O, and L records.
This message was resent by the operator. The Order record report type (O.26) is set to 'R' and the Result record Result Status field (R.6) is also set to 'R" for repeat results.

H|\^&|||OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200205153031
P|1|PID02051520||NID02051520^MID02051520^OID02051520|Brown^Bobby^B|White|17530101000000|U|||||PHY1234^Kildare^James^P|Blaine
O|1|SID02051520||ABO|N|20200205140222|||||||||CENTBLOOD|||||||20200205152807|||R R|1|ABO^|A|||||R||admin123||20200205152621|123456789
M|1|Anti-A|ABD Confirmation^1^500002^00131^20200729235959^2_image_baw.jpg^2_image_color.jpg||40^A^40 M|2|Anti-B|ABD
Confirmation^2^500002^00131^20200729235959^2_image_baw.jpg^2_image_color.jpg||0^A^0 R|2|Rh^|POS|||||R||admin123||20200205152621|123456789
M|1|Anti-D|ABD Confirmation^3^500002^00131^20200729235959^2_image_baw.jpg^2_image_color.jpg||40^A^40
L

Order containing Historic Results:

ORTHO Optix™ Reader accepts orders with historical results. ORTHO Optix™ Reader compares the historical results to the new test results in the order. ORTHO Optix™ Reader can automatically accept results when the historical results match the new test results. If they don't match, ORTHO Optix™ Reader holds the discrepant results for review.

```
H|\^&|||MiniLIS|||||||LIS2-A|20180816151806
P|1|PID01301551
O|1|01301551||ABO|N|20200118150321|||||N||||CENTBLOOD
R|1|ABO|B
R|2|Rh|POS
L||
```

Pheno Results:

```
H|\^&|||OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200127134252
P|1|PID012709201||NID012709201^MID012709201^OID012709201|Brown^Bobby^B|White|19650102000000|M|||||^^^|||||||||||||||||||||
O|1|012709202||Pheno|N|20200118150321|||||||||CENTBLOOD|||||||20200127134240|||F|||||
R|1|Pheno^|Ccee|||M||F||admin123||20200127111041|123456789
M|1|Anti-C|Rh/K^1^100114^00125^20200723235959^2_image_baw.jpg^2_image_color.jpg||40^A^40
M|2|Anti-E|Rh/K^2^100114^00125^20200723235959^2_image_baw.jpg^2_image_color.jpg||0^A^0
M|3|Anti-c|Rh/K^3^100114^00125^20200723235959^2_image_baw.jpg^2_image_color.jpg||40^A^40
M|4|Anti-e|Rh/K^4^100114^00125^20200723235959^2_image_baw.jpg^2_image_color.jpg||30^M^0^admin123
M|5|Ctrl|Rh/K^6^100114^00125^20200723235959^2_image_baw.jpg^2_image_color.jpg||0^A^0
R|2|Kell^|POS|||||F||admin123||20200127111042|123456789
M|1|Anti-K|Rh/K^5^100114^00125^20200723235959^2_image_baw.jpg^2_image_color.jpg||40^A^40
M|2|Ctrl|Rh/K^6^100114^00125^20200723235959^2_image_baw.jpg^2_image_color.jpg||0^A^0
L||
```

Profile with Multiple Tests:

The Profile "Type & Screen" below is defined with the test 10001 "ABO(FWD)/Rh-00" and 10066 "08 AbScr Sel Poly". Each test has its own set of R-records and each R-record has its own set of M-records.

The same Ctrl result (well 4 in M.4.2) for test "ABO(FWD)/Rh-00" is listed under both the ABO and Rh interpreted Result record. When the same Ctrl well is listed under more than one analysis result, the M-records will be identical with the possible exception of the M-record sequence number. The M-record sequence number is specific to its position under each R-record.

```
H|\^&|||OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200118150321
P|1|PID123456||NID123456^MID123456^OID123456|Brown^Bobby^B|White|19650102000000|U|||||PHY1234^Kildare^James^P|Blaine|||||||||||||||||||
O|1|SID403||Type && Screen|N|20180816151806|||||||||PACKEDCELLS|||||||20200118150317|||F|||||
R|1|ABO^|A|||||F||admin123||20200118145921|123456789
M|1|Anti-A|ABO-Rh/Reverse^1^000011^77777^20200711235959^2_image_baw.jpg^2_image_color.jpg||40^A^40
```

M|2|Anti-B|ABO-Rh/Reverse^2^000011^77777^20200711235959^2_image_baw.jpg^2_image_color.jpg||0^A^0
M|3|Ctrl|ABO-Rh/Reverse^4^000011^77777^20200711235959^2_image_baw.jpg^2_image_color.jpg||0^A^0
R|2|Rh^|NEG|||||F||admin123||20200118145922|123456789
M|1|Anti-D|ABO-Rh/Reverse^3^000011^77777^20200711235959^2_image_baw.jpg^2_image_color.jpg||0^A^0
M|2|Ctrl|ABO-Rh/Reverse^4^000011^77777^20200711235959^2_image_baw.jpg^2_image_color.jpg||0^A^0 R|3|ABScr^|POS|||||F||admin123||20200118150134|123456789
M|1|0.8-Sel I|AHG Polyspecific^1^000038^77777^20200711235959^2_image_baw.jpg^2_image_color.jpg|0.8% Sel I^1234^20200711235959|40^A^40
M|2|0.8-Sel II|AHG Polyspecific^2^000038^77777^20200711235959^2_image_baw.jpg^2_image_color.jpg|0.8% Sel II^1234^20200711235959|0^A^0
L||

Crossmatch Order

ORTHO Optix™ Reader requires crossmatch orders to always have at least one donor sample. On ORTHO VISION® Analyzers, crossmatch orders without donor samples are held until an operator manually adds the donor samples to the order.

H|\^&|||Mini LIS|||||||LIS2-A|20200130132402
P|1|PID01301319||NID01301319^MID01301319^OID01301319|Brown^Bobby^B|White|196501020304|U|||||PHY1234^Kildare^James^P|Blaine||||||||||||||||||||
O|1|01301319||XM^2^=W13131200097000^PACKEDCELLS^=W13131200096900^PACKEDCELLS|N||||||N||||PLASMA|||||||||||||
L||

Crossmatch Result

H|\^&|||OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200130133147
P|1|PID01301319||NID01301319^MID01301319^OID01301319|Brown^Bobby^B|White|19650102000000|U|||||PHY1234^Kildare^James^P|Blaine||||||||||||||||||||
O|1|01301319||XM^2^=W13131200097000^PACKEDCELLS^=W13131200096900^PACKEDCELLS|N|20200130132020|||||||||PLASMA|||||||20200130133136|||F|||||
R|1|XM^=W13131200097000|CMP|||||F||admin123||20200130133136|123456789
M|1|=W13131200097000|AHG Polyspecific^2^400038^00130^20200728235959^2_image_baw.jpg^2_image_color.jpg|BLISS^0130^20200728235959|0^A^0
R|2|XM^=W13131200096900|INCMP|||||F||admin123||20200130133136|123456789
M|1|=W13131200096900|AHG Polyspecific^3^400038^00130^20200728235959^2_image_baw.jpg^2_image_color.jpg|BLISS^0130^20200728235959|40^A^40
L||

Results with multiple reagents

ORTHO Optix™ Reader does not guarantee that the list of reagents in an M-record will be reported in the same sequence every time. The reagent name and not its position in the uploaded result message should always be used to access reagent lots and expiration dates. Below, BLISS is listed last in the first two M-records but first in the third M-record.

H|\^&|||OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200206141352
P|1|PID02061401||^^|^^|||U|||||^^^|||||||||||||||||||||
O|1|02061401||ABScr-2|N|20200206140529|||||||||CENTBLOOD|||||||20200206141331|||F|||||
R|1|ABScr^|POS|||||F||admin123||20200206141331|123456789
M|1|Fic-Unt 1|AHG anti-IgG^1^700020^00206^20200804235959^2_image_baw.jpg^2_image_color.jpg|Fic Unt
1^0206^20200804235959\BLISS^0206^20200804235959|40^A^40
M|2|Fic-Unt 2|AHG anti-IgG^2^700020^00206^20200804235959^2_image_baw.jpg^2_image_color.jpg|Fic Unt

2^0206^20200804235959\BLISS^0206^20200804235959|0^A^0
M|3|Fic-Unt 3|AHG anti-IgG^3^700020^00206^20200804235959^2_image_baw.jpg^2_image_color.jpg|BLISS^0206^20200804235959\Fic Unt 3^0206^20200804235959|40^A^40
L||

Canceled Orders:

Orders can be cancelled by the LIS or by ORTHO Optix™ Reader. When the order is cancelled, the ORTHO Optix™ Reader sends a cancelation message to the LIS.

Original Order:

H|\^&|||Mini LIS|||||||LIS2-A|20200210110913
P|1|PID02101110||NID02101110^MID02101110^OID02101110|Brown^Bobby^B|White|196501020304|U|||||PHY1234^Kildare^James^P|Blaine
O|1|02101110||ABO|N|20200210110913|||||N||||CENTBLOOD
L||

LIS Order Cancelation Request:

The cancelation request should be identical to the original order but with the Order action code (O.12) set to Cancel (C).

H|\^&|||Mini LIS|||||||LIS2-A|20200210110913
P|1|PID02101110||NID02101110^MID02101110^OID02101110|Brown^Bobby^B|White|196501020304|U|||||PHY1234^Kildare^James^P|Blaine
O|1|02101110||ABO|N|20200210110913|||||C||||CENTBLOOD
L||

Response sent to the LIS when LIS cancels an order:

H|\^&|||OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200210111119
P|1|PID02101110||NID02101110^MID02101110^OID02101110|Brown^Bobby^B|White|19650102000000|U|||||PHY1234^Kildare^James^P|Blaine|||||||||||||||||||
O|1|02101110||ABO|N|20200210110913|||||||||CENTBLOOD|||||||20200210111119|||F|||||
R|1|ABO||||||X||System||20200210111119|123456789
R|2|Rh||||||X||System||20200210111119|123456789
L||

Response sent to the LIS when the ORTHO Optix™ Reader cancels an order:

H|\^&|||OCD^ORTHO OPTIX^1.0.0.923^123456789|||||||P|LIS2-A|20200210111407
P|1|PID02101110||NID02101110^MID02101110^OID02101110|Brown^Bobby^B|White|19650102000000|U|||||PHY1234^Kildare^James^P|Blaine|||||||||||||||||||
O|1|02101110||ABO|N|20200210110913|||||||||CENTBLOOD|||||||20200210111337|||X|||||
L||

Order with Multiple Profiles:

The LIS can send orders containing one or more profiles in the same message and in the same order record. The ORTHO Optix™ Reader treats each profile as separate orders containing identical demographics and responds with individual result messages for each profile. ORTHO Optix™ Reader will create six orders from the message above; one for each profile.

```
H|\^&|||Mini LIS|||||||LIS2-A|20200127094637
P|1|PID012709201||NID012709201^MID012709201^OID012709201|Brown^Bobby^B|White|196501020304|M
O|1|012709201||ABO\ABScr|N|20200127094637|||||N||||CENTBLOOD
O|2|012709202||Pheno|N|20200127094637|||||N||||CENTBLOOD
P|2|PID012709203||NID012709203^MID012709203^OID012709203|Forbin^Charles|Fisher|19410403|M
O|1|012709203||ABO\ABScr|N|20200127094637|||||N||||CENTBLOOD
O|2|012709204||Pheno|N|20200127094637|||||N||||CENTBLOOD
L||
```

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4 Compatibility with ORTHO VISION® Analyzers

The ORTHO Optix™ Reader Laboratory Information System (LIS) interface was designed to be compatible with Laboratory Information Systems that currently support the ORTHO VISION® Analyzers. ORTHO Optix™ Reader is a new instrument; it is not a new version of ORTHO VISION® Analyzers. ORTHO Optix™ Reader was designed to be compatible with existing drivers. Compatible so that it would be relatively easy to interface with an LIS that has an existing Vision driver. There are some differences, but an LIS that already has a working Vision driver may work without modification with the ORTHO Optix™ Reader.

This section provides a quick reference to some of the known differences between the LIS interface for the ORTHO Optix™ Reader and the LIS interface for the ORTHO VISION® Analyzers.

NOTE: ORTHO Optix™ Reader only supports the VISION ASTM message format. It does not support Enhanced ASTM or ASTM message formats.

Column Grade Results:

ORTHO Optix™ Reader always transmits Column Grade Results (M-records). Whereas ORTHO VISION® Analyzers can be configured not to transmit Column Grade Results (M-records).

Diluents are not reported in result messages:

By design, ORTHO Optix™ Reader does not track diluents. When Reagent Lot Tracking is enabled, ORTHO Optix™ Reader does not allow entry of diluents, and therefore does not report diluents lot information in the LIS result message. Vision does report diluents lots in result messages.

Host Query:

ORTHO Optix™ Reader sends one query message when an operator manually requests a query for a single scanned barcode. Whereas, ORTHO VISION® Analyzers automatically scans sample barcodes on racks and sends 2-11 query messages for every loaded sample without an order.

Operator ID:

ORTHO Optix™ Reader does not set the operator ID (R.11) to Automatic. ORTHO Optix™ Reader always sets the Operator ID (R.11) to the logged in operator even when the result is automatically accepted.

Vision: R|1|ABO|A|||T||F||Automatic||20200118111644|JNumber
Reader: R|1|ABO^|B|||T||F||admin123||20200118111854|123456789

Birthdate:

Order contains a birthday set to 1965/01/02 03:04. ORTHO Optix™ Reader result contains 1965/01/02 00:00, whereas ORTHO VISION® Analyzers result contains 1965/01/02 03:04.

Order: P|1|PID01291118|||Brown^Bobby^B|White|19650102030433|M
Reader Result: P|1|PID01291118|||Brown^Bobby^B|White|19650102000000|M
Vision Result: P|1|PID01291118|||Brown^Bobby^B|White|19650102030433|M

Crossmatch orders:

NOTE: In the current version of software, ORTHO Optix™ Reader only accepts a crossmatch order containing exactly one donor sample and ORTHO Optix™ Reader will only allow one crossmatch order in the worklist per patient sample. In order to run crossmatch tests on two or more donors for the same patient sample, the LIS must send a crossmatch order for the first donor and wait for the result before sending an order for the next donor.

ORTHO Optix™ Reader creates only one order for one donor of two donors when a XM order message contains 2 donors in separate order records. Whereas ORTHO VISION® Analyzers will return one result for each donor sample. ORTHO Optix™ Reader will return only one donor result for the order below:

H|\^&|||Mini LIS|||||||LIS2-A|20200130141923
P|1|PID01301416||NID01301416^MID01301416^OID01301416|Brown^Bobby^B|White|196501020304|U|||||PHY1234^Kildare^James^P|Blaine||||||||||||||||||
O|1|01301416||XM^1^=W00000004914600^PACKEDCELLS|N||||||N||||PLASMA||||||||||||||
O|2|01301416||XM^1^=W00000004914700^PACKEDCELLS|N||||||N||||PLASMA||||||||||||||
L||

ORTHO Optix™ Reader requires crossmatch orders to always have at least one donor sample. On ORTHO VISION® Analyzers, crossmatch orders without donor samples are held until an operator manually adds the donor samples to the order.

Two Patient Samples:

When two patient samples are sent to ORTHO Optix™ Reader, it adds two orders to the worklist; one for each sample. ORTHO Optix™ Reader may leave one order on the worklist that can not be deleted or imaged.

- Only one order can be imaged and the 2nd one cannot be deleted or imaged.
- If you want to delete both orders, you must delete both orders together or else one order will remain on the worklist and cannot be deleted.

```
H|\^&|||Mini LIS|||||||LIS2-A|20180816151806
P|1|PID01291206||NID01291206^MID01291206^OID01291206|LN01291206^FN01291206^B|White|19650102030433|M
O|1|01291206\01291207||Type && Screen|N|20180816151806||||N|||PLASMA\PACKEDCELLS
L||
```

Discrepant Historical Results:

Both ORTHO VISION® Analyzers and ORTHO Optix™ Reader accept orders with historical results. However, ORTHO VISION® Analyzers ignores historical results in the order and will simply process the tests. ORTHO Optix™ Reader will compare the historical results to the new test results in the order.

ORTHO Optix™ Reader can automatically accept results when the historical results match the new test results.

ORTHO Optix™ Reader will hold for review discrepant historical results and will display both the current results and the historical results.

Analysis	Current Result	Original Result	Historic Result
ABO	A	A	B
Rh	POS	POS	POS

However, ORTHO Optix™ Reader does not flag as discrepant the discrepant results in the result message sent to the LIS (R.7, C: Discrepant result flag).

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5 Test Specific Content

The following sections contain test specific names included in all LIS Result messages.

BioVue® Tests

The following are the BioVue tests, organized in small tables by Unit Results.

Test names are prefixed with their Cassette IDs. For example, in the test name “00: ABO(FWD)/Rh-00” below, the “00:” prefix is the BioVue Cassette ID for the “ABO-Rh/Reverse” Cassette. See section 5.2 for a list of Cassettes.

NOTE: Tests are not available in all regions.

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10001	00: ABO(FWD)/Rh-00	ABO Rh	Anti-A Anti-B Ctrl			Anti-D Ctrl
10002	48: ABO(FWD)-ABODD-48	ABO Rh	Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10003	40: ABO(FWD)-ADDK-40	ABO Rh Kell	Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10004	44: ABO(FWD)-D/CDE-44	ABO Rh	Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl
10005	00: ABO(FWD)-00	ABO	Anti-A Anti-B Ctrl			

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10006	44: ABO(FWD)-44	ABO	Anti-A Anti-B Anti-A+B Ctrl			
10007	10: ABD Conf-10	ABO Rh	Anti-A Anti-B			Anti-D
10008	10: ABD Conf New Susp-10	ABO Rh	Anti-A Anti-B			Anti-D
10013	66: 4 ABO(RVS)-A1,A2,B	ABO	A1-Cells A2-Cells B-Cells			
10014	66: 4 ABO(RVS)-A1,A2,B,O	ABO	A1-Cells A2-Cells B-Cells O-Cells			
10015	66: 4 ABO(RVS)-A1,B	ABO	A1-Cells B-Cells			
10016	66: 4 ABO(RVS)-A1,B,O	ABO	A1-Cells B-Cells O-Cells			
10017	66: 08 ABO(RVS)-A1,A2,B	ABO	A1-Cells A2-Cells B-Cells			
10018	66: 08 ABO(RVS)-A1,A2,B,O	ABO	A1-Cells A2-Cells B-Cells O-Cells			
10019	66: 08 ABO(RVS)-A1,B	ABO	A1-Cells B-Cells			

			Unit Results			
Test ID	Test Name	Analyses	ABO	IgG	Kell	Rh
10020	66: 08 ABO(RVS)-A1,B,O	ABO	A1-Cells B-Cells O-Cells			
10021	00: 4 ABO(FWD/RVS)/Rh-00	ABO Rh	Anti-A Anti-B Ctrl A1-Cells B-Cells			Anti-D Ctrl
10022	00: 08 ABO(FWD/RVS)/Rh-00	ABO Rh	Anti-A Anti-B Ctrl A1-Cells B-Cells			Anti-D Ctrl
10023	44,66: 4 ABO(FWD)-44 + (RVS)-A1,A2,B	ABO Rh	A1-Cells A2-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Ctrl
10024	44,66: 4 ABO(FWD)-D/CDE-44 + (RVS)-A1,A2,B	ABO Rh	A1-Cells A2-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10025	48,66: 4 ABO(FWD)-ABODD-48 + (RVS)-A1,A2,B	ABO Rh	A1-Cells A2-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10026	40,66: 4 ABO(FWD)-ADDK-40 + (RVS)-A1,A2,B	ABO Rh Kell	A1-Cells A2-Cells B-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10027	44,66: 4 ABO(FWD)-44 + (RVS)-A1,A2,B,O	ABO	A1-Cells A2-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			
10028	44,66: 4 ABO(FWD)-D/CDE-44 + (RVS)-A1,A2,B,O	ABO Rh	A1-Cells A2-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10029	48,66: 4 ABO(FWD)-ABODD-48 + (RVS)-A1,A2,B,O	ABO Rh	A1-Cells A2-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10030	40,66: 4 ABO(FWD)-ADDK-40 + (RVS)-A1,A2,B,O	ABO Rh Kell	A1-Cells A2-Cells B-Cells O-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10031	44,66: 4 ABO(FWD)-44 + (RVS)-A1,B	ABO	A1-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			
10032	44,66: 4 ABO(FWD)-D/CDE-44 + (RVS)-A1,B	ABO Rh	A1-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10033	48,66: 4 ABO(FWD)-ABODD-48 + (RVS)-A1,B	ABO Rh	A1-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10034	40,66: 4 ABO(FWD)-ADDK-40 + (RVS)-A1,B	ABO Rh Kell	A1-Cells B-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10035	44,66: 4 ABO(FWD)-44 + (RVS)-A1,B,O	ABO	A1-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			
10036	44,66: 4 ABO(FWD)-D/CDE-44 + (RVS)-A1,B,O	ABO Rh	A1-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10037	48,66: 4 ABO(FWD)-ABODD-48 + (RVS)-A1,B,O	ABO Rh	A1-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10038	40,66: 4 ABO(FWD)-ADDK-40 + (RVS)-A1,B,O	ABO Rh Kell	A1-Cells B-Cells O-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10039	44,66: 08 ABO(FWD)-44 + (RVS)-A1,A2,B	ABO	A1-Cells A2-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			
10040	44,66: 08 ABO(FWD)-D/CDE-44 + (RVS)-A1,A2,B	ABO Rh	A1-Cells A2-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10041	48,66: 08 ABO(FWD)-ABODD-48 + (RVS)-A1,A2,B	ABO Rh	A1-Cells A2-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10042	40,66: 08 ABO(FWD)-ADDK-40 + (RVS)-A1,A2,B	ABO Rh Kell	A1-Cells A2-Cells B-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10043	44,66: 08 ABO(FWD)-44 + (RVS)-A1,A2,B,O	ABO	A1-Cells A2-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			
10044	44,66: 08 ABO(FWD)-D/CDE-44 + (RVS)-A1,A2,B,O	ABO Rh	A1-Cells A2-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	Test Name	Analyses	ABO	IgG	Kell	Rh
10045	48,66: 08 ABO(FWD)-ABODD-48 + (RVS)-A1,A2,B,O	ABO Rh	A1-Cells A2-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10046	40,66: 08 ABO(FWD)-ADDK-40 + (RVS)-A1,A2,B,O	ABO Rh Kell	A1-Cells A2-Cells B-Cells O-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10047	44,66: 08 ABO(FWD)-44 + (RVS)-A1,B	ABO	A1-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			
10048	44,66: 08 ABO(FWD)-D/CDE-44 + (RVS)-A1,B	ABO Rh	A1-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10049	48,66: 08 ABO(FWD)-ABODD-48 + (RVS)-A1,B	ABO Rh	A1-Cells B-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10050	40,66: 08 ABO(FWD)-ADDK-40 + (RVS)-A1,B	ABO Rh Kell	A1-Cells B-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10051	44,66: 08 ABO(FWD)-44 + (RVS)-A1,B,O	ABO	A1-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			
10052	44,66: 08 ABO(FWD)-D/CDE-44 + (RVS)-A1,B,O	ABO Rh	A1-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10053	48,66: 08 ABO(FWD)-ABODD-48 + (RVS)-A1,B,O	ABO Rh	A1-Cells B-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
10054	40,66: 08 ABO(FWD)-ADDK-40 + (RVS)-A1,B,O	ABO Rh Kell	A1-Cells B-Cells O-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10055	66: 4 ABO(RVS)-6 cell	ABO	A1-Cells A2-Cells B-Cells O-Cells O-Cells O-Cells			
10056	66: 08 ABO(RVS)-6 cell	ABO	A1-Cells A2-Cells B-Cells O-Cells O-Cells O-Cells			

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10057	44,66: 4 ABO(FWD)-44 + (RVS)-6 cell	ABO	A1-Cells A2-Cells B-Cells O-Cells O-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			
10058	44,66: 4 ABO(FWD)-D/CDE-44 + (RVS)-6 cell	ABO Rh	A1-Cells A2-Cells B-Cells O-Cells O-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl
10059	48,66: 4 ABO(FWD)-ABODD-48 + (RVS)-6 cell	ABO Rh	A1-Cells A2-Cells B-Cells O-Cells O-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
10060	40,66: 4 ABO(FWD)-ADDK-40 + (RVS)-6 cell	ABO Rh Kell	A1-Cells A2-Cells B-Cells O-Cells O-Cells O-Cells Anti-A Anti-B Ctrl		Anti-K Ctrl	Anti-D Anti-D Ctrl
10061	44,66: 08 ABO(FWD)-44 + (RVS)-6 cell	ABO	A1-Cells A2-Cells B-Cells O-Cells O-Cells O-Cells Anti-A Anti-B Anti-A+B Ctrl			
10064	33: DAT IgG	IgG		IgG		
10065	20: Newborn	ABO Rh IgG	Anti-A Anti-B Anti-A+B Ctrl	Ctrl IgG		Anti-D Ctrl
30017	66: UPR ABO-Sim 2 (3)	ABO	Hem-A1 Hem-A2 Hem-B			
30018	66: UPR ABO-Sim 3 (4)	ABO	Hem-A1 Hem-A2 Hem-B Hem-O			

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
30019	66: UPR ABO-Sim 4 (2)	ABO	Hem-A1 Hem-B			
30020	66: UPR ABO-Sim 5 (3-O)	ABO	Hem-A1 Hem-B Hem-O			
30044	44,66: UPR ABO/D-44 + Sim 4	ABO Rh	Hem-A1 Hem-A2 Hem-B Hem-O Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl
30045	48,66: UPR ABO/DD-48 + Sim 4	ABO Rh	Hem-A1 Hem-A2 Hem-B Hem-O Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
30048	44,66: UPR ABO/D-44 + Sim 2	ABO Rh	Hem-A1 Hem-B Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**IgG**	**Kell**	**Rh**
30049	48,66: UPR ABO/DD-48 + Sim 2	ABO Rh	Hem-A1 Hem-B Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl
30052	44,66: UPR ABO/D-44 + Sim 3-O	ABO Rh	Hem-A1 Hem-B Hem-O Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-CDE Ctrl
30053	48,66: UPR ABO/DD-48 + Sim 3-O	ABO Rh	Hem-A1 Hem-B Hem-O Anti-A Anti-B Anti-A+B Ctrl			Anti-D Anti-D Ctrl

			Unit Results				
Test ID	**Test Name**	**Analyses**	**ABScr**	**Auto**	**Kell**	**Pheno**	**Rh**
10009	11: Rh-hr-11	Rh Pheno				Anti-C Anti-E Anti-c Anti-e Ctrl	Anti-D Ctrl
10010	77: Rh/K-77	Pheno Kell			Anti-K Ctrl	Anti-C Anti-E Anti-c Anti-e Ctrl	
10066	22: 08 AbScr Sel Poly	ABScr	0.8-Sel I 0.8-Sel II				
10067	33: 08 AbScr Sel IgG	ABScr	0.8-Sel I 0.8-Sel II				
10068	22: 08 AbScr Surg Poly	ABScr	0.8-Surg1 0.8-Surg2 0.8-Surg3				
10069	33: 08 AbScr Surg IgG	ABScr	0.8-Surg1 0.8-Surg2 0.8-Surg3				
10070	22: 08 AbScr BVSF Unt Poly	ABScr	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3				
10071	33: 08 AbScr BVSF Unt IgG	ABScr	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3				
10072	22: 08 ABSCR4 Poly	ABScr	0.8-ABSCR4 Cell 1 0.8-ABSCR4 Cell 2 0.8-ABSCR4 Cell 3 0.8-ABSCR4 Cell 4				

			Unit Results				
Test ID	Test Name	Analyses	ABScr	Auto	Kell	Pheno	Rh
10073	33: 08 ABSCR4 IgG	ABScr	0.8-ABSCR4 Cell 1 0.8-ABSCR4 Cell 2 0.8-ABSCR4 Cell 3 0.8-ABSCR4 Cell 4				
10074	22: 08 AbScr Sel+Auto Poly	ABScr Auto	0.8-Sel I 0.8-Sel II	Auto			
10075	33: 08 AbScr Sel+Auto IgG	ABScr Auto	0.8-Sel I 0.8-Sel II	Auto			
10076	22: 08 AbScr Surg+Auto Poly	ABScr Auto	0.8-Surg 1 0.8-Surg 2 0.8-Surg 3	Auto			
10077	33: 08 AbScr Surg+Auto IgG	ABScr Auto	0.8-Surg 1 0.8-Surg 2 0.8-Surg 3	Auto			
10078	22: 08 AbScr BVSF Unt+Auto Poly	ABScr Auto	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3	Auto			
10079	33: 08 AbScr BVSF Unt+Auto IgG	ABScr Auto	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3	Auto			
10080	22: 4 AbScr Sel Poly	ABScr	Sel I Sel II				
10081	22: 4 AbScr Surg Poly	ABScr	Surg 1 Surg 2 Surg 3				
10082	33: 4 AbScr Sel IgG	ABScr	Sel I Sel II				
10083	33: 4 AbScr Surg IgG	ABScr	Surg 1 Surg 2 Surg 3				

			Unit Results				
Test ID	Test Name	Analyses	ABScr	Auto	Kell	Pheno	Rh
10084	22: 4 AbScr Surg+Dia Poly	ABScr	Surg 1 Surg 2 Surg 3 Diego				
10085	33: 4 AbScr Surg+Dia IgG	ABScr	Surg 1 Surg 2 Surg 3 Diego				
10086	22: 4 AbScr Sel+Dia Poly	ABScr	Sel I Sel II Diego				
10087	33: 4 AbScr Sel+Dia IgG	ABScr	Sel I Sel II Diego				
10088	22: 4 AbScr Dia Poly	ABScr	Diego				
10089	33: 4 AbScr Dia IgG	ABScr	Diego				
10090	22: 4 AbScr BVSF Unt Poly	ABScr	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3				
10091	33: 4 AbScr BVSF Unt IgG	ABScr	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3				
10092	22: 4 AbScr BVSF Unt+Dia Poly	ABScr	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3 Diego				
10093	33: 4 AbScr BVSF Unt+Dia IgG	ABScr	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3 Diego				

			Unit Results				
Test ID	**Test Name**	**Analyses**	**ABScr**	**Auto**	**Kell**	**Pheno**	**Rh**
10094	22: 4 ABSCR4 Poly	ABScr	ABSCR4 Cell 1 ABSCR4 Cell 2 ABSCR4 Cell 3 ABSCR4 Cell 4				
10095	33: 4 ABSCR4 IgG	ABScr	ABSCR4 Cell 1 ABSCR4 Cell 2 ABSCR4 Cell 3 ABSCR4 Cell 4				
10096	22: 4 AbScr Sel+Auto Poly	ABScr Auto	Sel I Sel II	Auto			
10097	22: 4 AbScr Surg+Auto Poly	ABScr Auto	Surg 1 Surg 2 Surg 3	Auto			
10098	33: 4 AbScr Sel+Auto IgG	ABScr Auto	Sel I Sel II	Auto			
10099	33: 4 AbScr Surg+Auto IgG	ABScr Auto	Surg 1 Surg 2 Surg 3	Auto			
10100	22: 4 AbScr Surg+Dia+Auto Poly	ABScr Auto	Surg 1 Surg 2 Surg 3 Diego	Auto			
10101	33: 4 AbScr Surg+Dia+Auto IgG	ABScr Auto	Surg 1 Surg 2 Surg 3 Diego	Auto			
10102	22: 4 AbScr Sel+Dia+Auto Poly	ABScr Auto	Sel I Sel II Diego	Auto			
10103	33: 4 AbScr Sel+Dia+Auto IgG	ABScr Auto	Sel I Sel II Diego	Auto			

			Unit Results				
Test ID	Test Name	Analyses	ABScr	Auto	Kell	Pheno	Rh
10104	22: 4 AbScr Dia+Auto Poly	ABScr Auto	Diego	Auto			
10105	33: 4 AbScr Dia+Auto IgG	ABScr Auto	Diego	Auto			
10106	22: 4 AbScr BVSF Unt+Dia+Auto Poly	ABScr Auto	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3 Diego	Auto			
10107	33: 4 AbScr BVSF Unt+Dia+Auto IgG	ABScr Auto	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3 Diego	Auto			
10108	22: 4 AbScr BVSF Unt+Auto Poly	ABScr Auto	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3	Auto			
10109	33: 4 AbScr BVSF Unt+Auto IgG	ABScr Auto	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3	Auto			
10110	88: 4 BVSF Trt Neut	ABScr	Fic-Trt 1 Fic-Trt 2 Fic-Trt 3				
10111	88: 08 BVSF Trt Neut	ABScr	Fic-Trt 1 Fic-Trt 2 Fic-Trt 3				
10112	55: 08 BVSF Poly/Neut	ABScr	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3 Fic-Trt 1 Fic-Trt 2 Fic-Trt 3				

			Unit Results				
Test ID	Test Name	Analyses	ABScr	Auto	Kell	Pheno	Rh
10113	55: 4 BVSF Poly/Neut	ABScr	Fic-Unt 1 Fic-Unt 2 Fic-Unt 3 Fic-Trt 1 Fic-Trt 2 Fic-Trt 3				
10114	88: Bro 2ｾﾙｽｸﾘｰﾝ	ABScr	Br-Sel I Br-Sel II				
10115	88: Bro 3ｾﾙｽｸﾘｰﾝ	ABScr	Br-Surg 1 Br-Surg 2 Br-Surg 3				
10116	88: Bro Dia Neut	ABScr	Br-Diego				
10117	88: Bro 2ｾﾙｽｸﾘｰﾝ+Dia	ABScr	Br-Sel I Br-Sel II Br-Diego				
10118	88: Bro 3ｾﾙｽｸﾘｰﾝ+Dia	ABScr	Br-Surg 1 Br-Surg 2 Br-Surg 3 Br-Diego				
10119	55: Bro 2ｾﾙｽｸﾘｰﾝ PLN	ABScr	Sel I Sel II Br-Sel I Br-Sel II				
10120	55: Bro 3ｾﾙｽｸﾘｰﾝ PLN	ABScr	Surg 1 Surg 2 Surg 3 Br-Surg 1 Br-Surg 2 Br-Surg 3				

			Unit Results				
Test ID	Test Name	Analyses	ABScr	Auto	Kell	Pheno	Rh
10121	55: Bro 2ｾﾙ+Dia PLN	ABScr	Sel I Sel II Diego Br-Sel I Br-Sel II Br-Diego				
10122	55: Bro 2ｾﾙ+自己 PLN	ABScr Auto	Sel I Sel II Br-Sel I Br-Sel II	Auto Auto			
10123	88: Bro Dia+自己	ABScr Auto	Br-Diego	Auto			
10124	88: Bro 2ｾﾙｽｸﾘｰﾝ+自己	ABScr Auto	Br-Sel I Br-Sel II	Auto			
10125	88: Bro 3ｾﾙｽｸﾘｰﾝ+自己	ABScr Auto	Br-Surg 1 Br-Surg 2 Br-Surg 3	Auto			
10126	88: Bro 2ｾﾙ+Dia+自己	ABScr Auto	Br-Sel I Br-Sel II Br-Diego	Auto			
10127	88: Bro 3ｾﾙ+Dia+自己	ABScr Auto	Br-Surg 1 Br-Surg 2 Br-Surg 3 Br-Diego	Auto			
30068	22: UPR 8 DEP_Nat 3 Poly	ABScr	DE_Nat-1 DE_Nat-2 DE_Nat-3				
30076	22: UPR 8 DEP_Nat 3 + Auto Poly	ABScr Auto	DE_Nat-1 DE_Nat-2 DE_Nat-3	08_Auto			

			Unit Results				
Test ID	**Test Name**	**Analyses**	**ABScr**	**Auto**	**Kell**	**Pheno**	**Rh**
30112	55: UPR 8 DEP_Mixte	ABScr	DE_Nat-1 DE_Nat-2 DE_Nat-3 DE_Enz-1 DE_Enz-2 DE_Enz-3				
31001	66: 4 RAS Rh/Kell Rvs	Pheno Kell			Anti-K 3rd Rh Ctrl	Anti-C 2nd Anti-E 2nd Anti-c 2nd Anti-e 2nd Rh Ctrl	

			Unit Results			
Test ID	**Test Name**	**Analyses**	**Auto**	**BRC**	**DilSeries**	**Ident**
10128	22: 08 Panel A Poly	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10129	33: 08 Panel A IgG	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10130	22: 08 Panel B Poly	Ident				Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10131	33: 08 Panel B IgG	Ident				Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10132	22: 08 Panel C Unt Poly	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	**Test Name**	**Analyses**	**Auto**	**BRC**	**DilSeries**	**Ident**
10133	33: 08 Panel C Unt IgG	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10134	22: 08 Panel A+Auto Poly	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10135	33: 08 Panel A+Auto IgG	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	**Test Name**	**Analyses**	**Auto**	**BRC**	**DilSeries**	**Ident**
10136	22: 08 Panel B+Auto Poly	Ident Auto	Auto			Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10137	33: 08 Panel B+Auto IgG	Ident Auto	Auto			Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10138	22: 08 Panel C Unt+Auto Poly	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10139	33: 08 Panel C Unt+Auto IgG	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10140	22: 4 Panel A Poly	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10141	33: 4 Panel A IgG	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10142	22: 4 Panel B Poly	Ident				Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10143	33: 4 Panel B IgG	Ident				Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10144	22: 4 Panel C Unt Poly	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10145	33: 4 Panel C Unt IgG	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10146	22: 4 Panel A+Auto Poly	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10147	33: 4 Panel A+Auto IgG	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	**Test Name**	**Analyses**	**Auto**	**BRC**	**DilSeries**	**Ident**
10148	22: 4 Panel B+Auto Poly	Ident Auto	Auto			Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10149	33: 4 Panel B+Auto IgG	Ident Auto	Auto			Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10150	22: 4 Panel C Unt+Auto Poly	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	**Test Name**	**Analyses**	**Auto**	**BRC**	**DilSeries**	**Ident**
10151	33: 4 Panel C Unt+Auto IgG	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10152	88: 4 Panel C Trt Neut	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10153	88: 08 Panel C Trt Neut	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10154	88: 08 Panel A IS Neut	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10155	88: 08 Panel B IS Neut	Ident				Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10156	88: 08 Panel C Unt IS Neut	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10157	88: 08 Panel A+Auto IS Neut	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10158	88: 08 Panel B+Auto IS Neut	Ident Auto	Auto			Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10159	88: 08 Panel C Unt+Auto IS Neut	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10160	88: 4 Panel A IS Neut	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10161	88: 4 Panel B IS Neut	Ident				Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10162	88: 4 Panel C Unt IS Neut	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10163	88: 4 Panel A+Auto IS Neut	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10164	88: 4 Panel B+Auto IS Neut	Ident Auto	Auto			Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10165	88: 4 Panel C Unt+Auto IS Neut	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10166	88: 4 Panel A+Brom Neut	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10167	88: 4 Panel B+Brom Neut	Ident				Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10168	88: 4 Panel C Unt+Brom Neut	Ident				Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10169	88: 4 Panel A+Brom+Auto Neut	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11
10170	88: 4 Panel B+Brom+Auto Neut	Ident Auto	Auto			Cell-12 Cell-13 Cell-14 Cell-15 Cell-16 Cell-17 Cell-18 Cell-19 Cell-20 Cell-21 Cell-22
10171	88: 4 Panel C Unt+Brom+Auto Neut	Ident Auto	Auto			Cell-1 Cell-2 Cell-3 Cell-4 Cell-5 Cell-6 Cell-7 Cell-8 Cell-9 Cell-10 Cell-11

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
10172	22: 08 Auto Poly	Auto	Auto			
10173	33: 08 Auto IgG	Auto	Auto			
10174	22: 4 Auto Poly	Auto	Auto			
10175	33: 4 Auto IgG	Auto	Auto			
10176	30: 4 Auto IgG, C3b,C3d	Auto	IgG C3b,C3d Ctrl			
10177	88: Bro 自己対照	Auto	Auto			
20001	10: BRC ABD Surg	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC+		
20002	20: BRC Newborn Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20003	10: BRC ABD Sel	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC+		
20004	20: BRC Newborn Surg	BRC		BRC+ BRC+ BRC+ BRC+ BRC- BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20005	00: BRC 00 Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20006	20: BRC Newborn Sel	BRC		BRC+ BRC+ BRC+ BRC+ BRC- BRC-		
20007	00: BRC 00 Surg Pos	BRC		BRC+ BRC+ BRC+ BRC- BRC+ BRC+		
20008	10: BRC ABD Fic	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC+		
20009	00: BRC 00 Sel Pos	BRC		BRC+ BRC+ BRC+ BRC- BRC+ BRC+		
20010	10: BRC 10 WkD	BRC		BRC+		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20011	20: BRC Newborn Fic	BRC		BRC+ BRC+ BRC+ BRC+ BRC- BRC-		
20012	20: BRC 20 WkD	BRC		BRC+ BRC-		
20013	40: BRC ADK Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20014	44: BRC ABO-Rh Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20015	00: BRC 00 Fic Pos	BRC		BRC+ BRC+ BRC+ BRC- BRC+ BRC+		
20016	20: BRC 20 B of A+B	BRC		BRC+ BRC-		
20017	40: BRC ADK Surg	BRC		BRC+ BRC+ BRC+ BRC+ BRC+ BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20018	44: BRC ABO-Rh Surg	BRC		BRC+ BRC+ BRC+ BRC+ BRC-		
20019	00: BRC 00 WkD	BRC		BRC+ BRC-		
20020	40: BRC ADK Sel	BRC		BRC+ BRC+ BRC+ BRC+ BRC+ BRC-		
20021	44: BRC ABO-Rh Sel	BRC		BRC+ BRC+ BRC+ BRC+ BRC-		
20022	66: BRC Rvs 2 cell	BRC		BRC- BRC- BRC+ BRC+		
20023	40: BRC ADK Fic	BRC		BRC+ BRC+ BRC+ BRC+ BRC+ BRC-		
20024	44: BRC ABO-Rh Fic	BRC		BRC+ BRC+ BRC+ BRC+ BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20025	66: BRC Rvs 3 cell	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC+		
20026	44: BRC ABO-Rh E	BRC		BRC+ BRC+ BRC-		
20027	66: BRC Rvs 4 Neg	BRC		BRC- BRC- BRC- BRC-		
20028	44: BRC ABO-Rh C	BRC		BRC+ BRC+ BRC-		
20029	66: BRC Rvs 4 Pos	BRC		BRC+ BRC+ BRC+ BRC-		
20030	40: BRC 40 WkD	BRC		BRC+ BRC+ BRC-		
20031	44: BRC 44 WkD	BRC		BRC+ BRC-		
20032	66: BRC Rvs 6 Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20033	66: BRC Rvs 6 Pos	BRC		BRC+ BRC+ BRC+ BRC- BRC+ BRC+		
20034	66: BRC Rvs A1,B,O	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		
20035	22: BRC C3d Poly	BRC		BRC+		
20036	30: BRC C3d DAT	BRC		BRC- BRC+ BRC-		
20037	55: BRC C3d Poly/Neut	BRC		BRC+ BRC-		
20038	11: BRC Rh-hr Surg Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20039	77: BRC Rh/K Pos	BRC		BRC+ BRC+ BRC+ BRC+ BRC+ BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20040	11: BRC Rh-hr Surg Pos	BRC		BRC+ BRC+ BRC+ BRC+ BRC+ BRC-		
20041	77: BRC Rh/K Surg Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20042	11: BRC Rh-hr Sel Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20043	77: BRC Rh/K Sel Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20044	11: BRC Rh-hr Sel Pos	BRC		BRC+ BRC+ BRC+ BRC+ BRC+ BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20045	77: BRC Rh/K Fic Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20046	11: BRC Rh-hr Fic Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20047	11: BRC Rh-hr Fic Pos	BRC		BRC+ BRC+ BRC+ BRC+ BRC+ BRC-		
20048	11: BRC 11 WkD	BRC		BRC+ BRC-		
20049	30: BRC IAT Surg	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		
20050	30: BRC IAT Sel	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20051	22: BRC 3 Poly Ltd	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		
20052	30: BRC IAT Fic	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		
20053	22: BRC 2 Poly	BRC		BRC- BRC- BRC+ BRC+		
20054	33: BRC 3 IgG Ltd	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		
20055	88: BRC 88 Fic	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		
20056	22: BRC BVSF Poly Ltd	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20057	33: BRC 2 IgG	BRC		BRC- BRC- BRC+ BRC+		
20058	33: BRC BVSF IgG Ltd	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		
20059	55: BRC 55 Fic Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
20060	55: BRC 55 Fic Pos	BRC		BRC+ BRC+ BRC- BRC+ BRC+ BRC-		
20061	22: BRC 0.8% 3 Poly Ltd	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20062	33: BRC 0.8% 3 IgG Ltd	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		
20063	22: BRC 0.8% 2 Poly	BRC		BRC- BRC- BRC+ BRC+		
20064	33: BRC 0.8% 2 IgG	BRC		BRC- BRC- BRC+ BRC+		
20065	55: BRC 55 Bro 2cell Pos	BRC		BRC+ BRC+ BRC+ BRC+		
20066	88: BRC 88 Bro 2 cell	BRC		BRC- BRC- BRC+ BRC+		
20067	55: BRC 55 Bro 2cell Neg	BRC		BRC- BRC- BRC- BRC-		
20068	88: BRC 88 Bro 3 cell	BRC		BRC- BRC- BRC- BRC+ BRC+ BRC-		

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
20069	55: BRC 55 Bro 3cell Pos	BRC		BRC+ BRC+ BRC- BRC+ BRC+ BRC-		
20070	55: BRC 55 Bro 3cell Neg	BRC		BRC- BRC- BRC- BRC- BRC- BRC-		
30132	22: UPR 8 ID_Nat 11 Poly	Ident				ID_NT-1 ID_NT-2 ID_NT-3 ID_NT-4 ID_NT-5 ID_NT-6 ID_NT-7 ID_NT-8 ID_NT-9 ID_NT-10 ID_NT-11

			Unit Results			
Test ID	**Test Name**	**Analyses**	**Auto**	**BRC**	**DilSeries**	**Ident**
30138	22: UPR 8 ID_Nat 11 + Auto Poly	Ident Auto	08_Auto			ID_NT-1 ID_NT-2 ID_NT-3 ID_NT-4 ID_NT-5 ID_NT-6 ID_NT-7 ID_NT-8 ID_NT-9 ID_NT-10 ID_NT-11
30153	88: UPR 8 ID_Enz 11 Neut	Ident				ID_TR-1 ID_TR-2 ID_TR-3 ID_TR-4 ID_TR-5 ID_TR-6 ID_TR-7 ID_TR-8 ID_TR-9 ID_TR-10 ID_TR-11
80001	66: DS BV Rvs 08 RT RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
80003	66: DS BV Rvs 4 RT RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	
80005	33: DS BV IAT IgG 08 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	

			Unit Results			
Test ID	**Test Name**	**Analyses**	**Auto**	**BRC**	**DilSeries**	**Ident**
80007	33: DS BV IAT IgG 4 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	
80009	22: DS BV IAT Poly 08 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
80011	22: DS BV IAT Poly 4 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	
80021	88: DS BV Neut 08 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
80022	88: DS BV Neut 4 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	
80101	66: DS BV EFS Rvs 08 RT RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
80105	33: DS BV EFS IAT IgG 08 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	
80109	22: DS BV EFS IAT Poly 08 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	

			Unit Results			
Test ID	Test Name	Analyses	Auto	BRC	DilSeries	Ident
80121	88: DS BV EFS Neut 08 37 RRBC	DilSeries			DS-Neat DS-2 DS-4 DS-8 DS-16 DS-32 DS-64 DS-128 DS-256 DS-512 DS-1024 DS-Ctrl	

			Unit Results						
Test ID	**Test Name**	**Analyses**	**DVI**	**K 2nd**	**Kell**	**M**	**MNS3**	**MNS4**	**P1**
10011	90: Kell-90	Kell			Anti-K				
10012	95: Kell+Control-95	Kell			Ctrl Anti-K				
10193	33: 08 RAS MNS3 IgG	MNS3					Anti-MNS3		
10194	33: 08 RAS MNS4 IgG	MNS4						Anti-MNS4	
10195	66: 08 RAS K 2nd Rvs	K 2nd		Anti-K 2nd					
10197	88: 08 RAS M Neut	M				Anti-M			
10201	66: 08 RAS P1 Rvs	P1							Anti-P1
10207	33: 4 RAS MNS3 IgG	MNS3					Anti-MNS3		
10208	33: 4 RAS MNS4 IgG	MNS4						Anti-MNS4	
10209	66: 4 RAS K 2nd Rvs	K 2nd		Anti-K 2nd					
10211	88: 4 RAS M Neut	M				Anti-M			
10215	66: 4 RAS P1 Rvs	P1							Anti-P1
10221	33: 08 RAS MNS3 IgG + Control	MNS3					Anti-MNS3 Ctrl		
10222	33: 08 RAS MNS4 IgG + Control	MNS4						Anti-MNS4 Ctrl	

			Unit Results						
Test ID	**Test Name**	**Analyses**	**DVI**	**K 2nd**	**Kell**	**M**	**MNS3**	**MNS4**	**P1**
10223	66: 08 RAS K 2nd Rvs + Control	K 2nd		Anti-K 2nd Ctrl					
10225	88: 08 RAS M Neut + Control	M				Anti-M Ctrl			
10228	66: 08 RAS P1 Rvs + Control	P1							Anti-P1 Ctrl
10229	66: 08 RAS DVI Rvs + Control	DVI	Anti-DVI Ctrl						
10234	33: 4 RAS MNS3 IgG + Control	MNS3					Anti-MNS3 Ctrl		
10235	33: 4 RAS MNS4 IgG + Control	MNS4						Anti-MNS4 Ctrl	
10236	66: 4 RAS K 2nd Rvs + Control	K 2nd		Anti-K 2nd Ctrl					
10238	88: 4 RAS M Neut + Control	M				Anti-M Ctrl			
10241	66: 4 RAS P1 Rvs + Control	P1							Anti-P1 Ctrl
10242	66: 4 RAS DVI Rvs + Control	DVI	Anti-DVI Ctrl						

			Unit Results						
Test ID	**Test Name**	**Analyses**	**DVI**	**K 2nd**	**Kell**	**M**	**MNS3**	**MNS4**	**P1**
10245	33: 08 RAS MNS3/MNS4 IgG + Control	MNS3 MNS4					Anti-MNS3 Ctrl	Anti-MNS4 Ctrl	
10247	66: 08 RAS K 2nd/DVI Rvs + Control	K 2nd DVI	Anti-DVI Ctrl	Anti-K 2nd Ctrl					
10250	33: 4 RAS MNS3/MNS4 IgG + Control	MNS3 MNS4					Anti-MNS3 Ctrl	Anti-MNS4 Ctrl	
10251	66: 4 RAS K 2nd/DVI Rvs + Control	K 2nd DVI	Anti-DVI Ctrl	Anti-K 2nd Ctrl					

			Unit Results						
Test ID	Test Name	Analyses	Anti-k (cellano)	C3	DVI	IgG	Poly	Weak D	XM
10062	22: DAT Poly	Poly					Poly		
10063	30: DAT IgG, C3b,C3d	IgG C3		C3b,C3d Ctrl		IgG Ctrl			
10178	22: 4 Min XM Poly	XM							Pat-Cells
10179	33: 4 Min XM IgG	XM							Pat-Cells
10180	22: 4 Maj XM Poly	XM							Dnr-Cells
10181	33: 4 Maj XM IgG	XM							Dnr-Cells
10182	88: Bro ｸﾛｽ(主)	XM							Dnr-Cells
10183	22: 08 Maj XM Poly	XM							Dnr-Cells
10184	33: 08 Maj XM IgG	XM							Dnr-Cells
10185	22: 08 Min XM Poly	XM							Pat-Cells
10186	33: 08 Min XM IgG	XM							Pat-Cells
10187	66: 4 IS XM Rvs	XM							Dnr-Cells
10188	66: 08 IS XM Rvs	XM							Dnr-Cells
10196	33: 08 RAS Weak D IgG	Weak D						Anti-Dwk	
10202	66: 08 RAS DVI Rvs	DVI			Anti-DVI				
10210	33: 4 RAS Weak D IgG	Weak D						Anti-Dwk	
10216	66: 4 RAS DVI Rvs	DVI			Anti-DVI				
10224	33: 08 RAS Weak D IgG + Control	Weak D						Anti-Dwk Ctrl	
10237	33: 4 RAS Weak D IgG + Control	Weak D						Anti-Dwk Ctrl	
10253	88: 08 RAS Anti-k (cellano) Neut	Anti-k (cellano)	Anti-k (cellano)						
10254	88: 4 RAS Anti-k (cellano) Neut	Anti-k (cellano)	Anti-k (cellano)						

			Unit Results						
Test ID	Test Name	Analyses	ABO	Kell		Pheno		Rh
10255	14: Rh/K II-14	Pheno Kell		Anti-K Rh Ctrl	3rd	Anti-C Anti-E Anti-c Anti-e Rh Ctrl	2nd 2nd 2nd 2nd	
10256	00,66: 4 ABO(FWD/RVS)/Rh-00 + (RVS)-O	ABO Rh	Anti-A Anti-B Ctrl A1-Cells B-Cells O-Cells					Anti-D Ctrl
10257	00,66: 08 ABO(FWD/RVS)/Rh-00 + (RVS)-O	ABO Rh	Anti-A Anti-B Ctrl A1-Cells B-Cells O-Cells					Anti-D Ctrl

			Unit Results			
Test ID	**Test Name**	**Analyses**	**ABO**	**Kell**	**Pheno**	**Rh**
10258	46,77: ABD/Rev-46 + Rh/K-77	ABO Rh Pheno Kell	Anti-A Anti-B Anti- A+B A1-Cells B-Cells Ctrl	Anti-K Ctrl	Anti-C Anti-E Anti-c Anti-e Ctrl	Anti-D Ctrl

Cassettes

The following is a list of available Cassettes. Cassette names appear in the manufacturer record in field 4.1.

ID	Name	Short Name
00	ABO-Rh/Reverse	ABO-Rh/Rev
10	ABD Confirmation	ABD
11	Rh-hr	Rh-hr
14	Rh/K II	Rh/K II
20	ABO-Rh/DAT newborn	Newborn
22	AHG Polyspecific	Poly
30	DAT	DAT/IAT
33	AHG anti-IgG	IgG
40	ADK	ADDK
44	ABO-Rh	ABOD/CDE
46	ABD/Reverse Cassette	ABF
48	ABODD	ABO-DD
55	AHG Polyspecific/Neutral	Poly/Neut
66	Reverse diluent	Reverse
77	Rh/K	Rh/K
88	Neutral	Neutral
90	Kell	Kell
95	Kell/Control	Kell/Ctrl

Reagents

The following is a list of available reagents. The reagent name appears in the manufacturing record in field 5.1.

Liquid Name	Reagent ID	Liquid Family
0.8 RCD	00	0.8% Red Cell Diluent
Panel A Cell 1	01	4% Resolve Panel A
Panel A Cell 2	02	4% Resolve Panel A
Panel A Cell 3	03	4% Resolve Panel A
Panel A Cell 4	04	4% Resolve Panel A
Panel A Cell 5	05	4% Resolve Panel A
Panel A Cell 6	06	4% Resolve Panel A
Panel A Cell 7	07	4% Resolve Panel A
Panel A Cell 8	08	4% Resolve Panel A
Panel A Cell 9	09	4% Resolve Panel A
Panel A Cell 10	10	4% Resolve Panel A
Panel A Cell 11	11	4% Resolve Panel A
A1 Cells	12	4% Affirmagen
A2 Cells	13	4% Affirmagen
B Cells	14	4% Affirmagen
O Cells	15	4% Affirmagen
Fic Unt 1	16	4% BioVue Screen
Fic Unt 2	17	4% BioVue Screen
Fic Unt 3	18	4% BioVue Screen
Fic Trt 1	19	4% BioVue Screen
Fic Trt 2	20	4% BioVue Screen
Fic Trt 3	21	4% BioVue Screen
Sel I	23	4% Selectogen
Sel II	24	4% Selectogen
BLISS	28	BLISS

Liquid Name	Reagent ID	Liquid Family
0.8% Sel I	29	0.8% Selectogen
0.8% Sel II	30	0.8% Selectogen
0.8% Surg1	31	0.8% Surgiscreen
0.8% Surg2	32	0.8% Surgiscreen
0.8% Surg3	33	0.8% Surgiscreen
Surg 1	34	4% Surgiscreen
Surg 2	35	4% Surgiscreen
Surg 3	36	4% Surgiscreen
Panel B Cell 12	40	4% Resolve Panel B
Panel B Cell 13	41	4% Resolve Panel B
Panel B Cell 14	42	4% Resolve Panel B
Panel B Cell 15	43	4% Resolve Panel B
Panel B Cell 16	44	4% Resolve Panel B
Panel B Cell 17	45	4% Resolve Panel B
Panel B Cell 18	46	4% Resolve Panel B
Panel B Cell 19	47	4% Resolve Panel B
Panel B Cell 20	48	4% Resolve Panel B
Panel B Cell 21	49	4% Resolve Panel B
Panel B Cell 22	50	4% Resolve Panel B
0.8% Panel A Cell 1	51	0.8% Resolve Panel A
0.8% Panel A Cell 2	52	0.8% Resolve Panel A
0.8% Panel A Cell 3	53	0.8% Resolve Panel A
0.8% Panel A Cell 4	54	0.8% Resolve Panel A
0.8% Panel A Cell 5	55	0.8% Resolve Panel A
0.8% Panel A Cell 6	56	0.8% Resolve Panel A
0.8% Panel A Cell 7	57	0.8% Resolve Panel A
0.8% Panel A Cell 8	58	0.8% Resolve Panel A
0.8% Panel A Cell 9	59	0.8% Resolve Panel A

Liquid Name	Reagent ID	Liquid Family
0.8% Panel A Cell 10	60	0.8% Resolve Panel A
0.8% Panel A Cell 11	61	0.8% Resolve Panel A
0.8% Panel B Cell 12	62	0.8% Resolve Panel B
0.8% Panel B Cell 13	63	0.8% Resolve Panel B
0.8% Panel B Cell 14	64	0.8% Resolve Panel B
0.8% Panel B Cell 15	65	0.8% Resolve Panel B
0.8% Panel B Cell 16	66	0.8% Resolve Panel B
0.8% Panel B Cell 17	67	0.8% Resolve Panel B
0.8% Panel B Cell 18	68	0.8% Resolve Panel B
0.8% Panel B Cell 19	69	0.8% Resolve Panel B
0.8% Panel B Cell 20	70	0.8% Resolve Panel B
0.8% Panel B Cell 21	71	0.8% Resolve Panel B
0.8% Panel B Cell 22	72	0.8% Resolve Panel B
Diego	73	4% Diego
Bromelin	76	Bromelin
BRC-S1	77	BRC - Control Serum
BRC-S2	78	BRC - Control Serum
BRC-S3	79	BRC - Control Serum
BRC-E1	81	BRC - Control Red Blood Cells
BRC-E2	82	BRC - Control Red Blood Cells
BRC-E3	83	BRC - Control Red Blood Cells
BRC-E4 and/or Du Cells	84	BRC - Control Red Blood Cells
BRC-E5	85	BRC - Control Red Blood Cells
0.8 Fic Unt 1	87	0.8% BioVue Screen
0.8 Fic Unt 2	88	0.8% BioVue Screen
0.8 Fic Unt 3	89	0.8% BioVue Screen
IgG BRC-S3	90	Dilute BRC-S3
Poly BRC-S3	91	Dilute BRC-S3

Liquid Name	Reagent ID	Liquid Family
0.8% A1 Cells	92	0.8% Affirmagen
0.8% A2 Cells	93	0.8% Affirmagen
0.8% B Cells	94	0.8% Affirmagen
0.8% O Cells	95	0.8% Affirmagen
0.8 Fic Trt 1	96	0.8% BioVue Screen
0.8 Fic Trt 2	97	0.8% BioVue Screen
0.8 Fic Trt 3	98	0.8% BioVue Screen
0.8% Panel C Cell 1	121	0.8% Resolve Panel C
0.8% Panel C Cell 2	122	0.8% Resolve Panel C
0.8% Panel C Cell 3	123	0.8% Resolve Panel C
0.8% Panel C Cell 4	124	0.8% Resolve Panel C
0.8% Panel C Cell 5	125	0.8% Resolve Panel C
0.8% Panel C Cell 6	126	0.8% Resolve Panel C
0.8% Panel C Cell 7	127	0.8% Resolve Panel C
0.8% Panel C Cell 8	128	0.8% Resolve Panel C
0.8% Panel C Cell 9	129	0.8% Resolve Panel C
0.8% Panel C Cell 10	130	0.8% Resolve Panel C
0.8% Panel C Cell 11	131	0.8% Resolve Panel C
0.8% Panel C Enz Cell 1	132	0.8% Resolve Panel C
0.8% Panel C Enz Cell 2	133	0.8% Resolve Panel C
0.8% Panel C Enz Cell 3	134	0.8% Resolve Panel C
0.8% Panel C Enz Cell 4	135	0.8% Resolve Panel C
0.8% Panel C Enz Cell 5	136	0.8% Resolve Panel C
0.8% Panel C Enz Cell 6	137	0.8% Resolve Panel C
0.8% Panel C Enz Cell 7	138	0.8% Resolve Panel C
0.8% Panel C Enz Cell 8	139	0.8% Resolve Panel C
0.8% Panel C Enz Cell 9	140	0.8% Resolve Panel C
0.8% Panel C Enz Cell 10	141	0.8% Resolve Panel C

Liquid Name	Reagent ID	Liquid Family
0.8% Panel C Enz Cell 11	142	0.8% Resolve Panel C
0.8% ABSCR4 Cell 1	143	0.8% ABSCR4
0.8% ABSCR4 Cell 2	144	0.8% ABSCR4
0.8% ABSCR4 Cell 3	145	0.8% ABSCR4
0.8% ABSCR4 Cell 4	146	0.8% ABSCR4
Anti-Fya	147	Fya
Anti-Fyb	148	Fyb
Anti-Jka	149	Jka
Anti-Jkb	150	Jkb
Anti-MNS3	151	MNS3
Anti-MNS4	152	MNS4
Anti-M	153	M
Anti-Lea	155	Lea
Anti-Leb	156	Leb
Anti-Dwk	157	Weak D
Anti-K 2nd	158	K 2nd
Anti-P1	159	P1
Anti-DVI	160	DVI
Anti-k (cellano)	162	Anti-k (cellano)
Anti-C 2nd	165	Anti-C 2nd
Anti-E 2nd	166	Anti-E 2nd
Anti-c 2nd	167	Anti-c 2nd
Anti-e 2nd	168	Anti-e 2nd
Anti-Kell 3rd	169	Anti-Kell 3rd
Rh Control	170	Rh Control
Panel C Cell 1	171	4% Resolve Panel C
Panel C Cell 2	172	4% Resolve Panel C
Panel C Cell 3	173	4% Resolve Panel C

Liquid Name	Reagent ID	Liquid Family
Panel C Cell 4	174	4% Resolve Panel C
Panel C Cell 5	175	4% Resolve Panel C
Panel C Cell 6	176	4% Resolve Panel C
Panel C Cell 7	177	4% Resolve Panel C
Panel C Cell 8	178	4% Resolve Panel C
Panel C Cell 9	179	4% Resolve Panel C
Panel C Cell 10	180	4% Resolve Panel C
Panel C Cell 11	181	4% Resolve Panel C
Panel C Enz Cell 1	182	4% Resolve Panel C
Panel C Enz Cell 2	183	4% Resolve Panel C
Panel C Enz Cell 3	184	4% Resolve Panel C
Panel C Enz Cell 4	185	4% Resolve Panel C
Panel C Enz Cell 5	186	4% Resolve Panel C
Panel C Enz Cell 6	187	4% Resolve Panel C
Panel C Enz Cell 7	188	4% Resolve Panel C
Panel C Enz Cell 8	189	4% Resolve Panel C
Panel C Enz Cell 9	190	4% Resolve Panel C
Panel C Enz Cell 10	191	4% Resolve Panel C
Panel C Enz Cell 11	192	4% Resolve Panel C
ABSCR4 Cell 1	193	4% ABSCR4
ABSCR4 Cell 2	194	4% ABSCR4
ABSCR4 Cell 3	195	4% ABSCR4
ABSCR4 Cell 4	196	4% ABSCR4
Ortho Sera Reagent Control	199	Ortho Sera Reagent Control
UPR ABO_Sim A1	0601	0.8% UPR ABO Simonin
UPR ABO_Sim A2	0602	0.8% UPR ABO Simonin
UPR ABO_Sim B	0603	0.8% UPR ABO Simonin
UPR ABO_Sim O	0604	0.8% UPR ABO Simonin

Liquid Name	Reagent ID	Liquid Family
UPR 0.8% DEP_Nat 1	3031	UPR 0.8% DEP
UPR 0.8% DEP_Nat 2	3032	UPR 0.8% DEP
UPR 0.8% DEP_Nat 3	3033	UPR 0.8% DEP
UPR 0.8% ID_Nat 1	3131	UPR 0.8% ID
UPR 0.8% ID_Nat 2	3132	UPR 0.8% ID
UPR 0.8% ID_Nat 3	3133	UPR 0.8% ID
UPR 0.8% ID_Nat 4	3134	UPR 0.8% ID
UPR 0.8% ID_Nat 5	3135	UPR 0.8% ID
UPR 0.8% ID_Nat 6	3136	UPR 0.8% ID
UPR 0.8% ID_Nat 7	3137	UPR 0.8% ID
UPR 0.8% ID_Nat 8	3138	UPR 0.8% ID
UPR 0.8% ID_Nat 9	3139	UPR 0.8% ID
UPR 0.8% ID_Nat 10	3140	UPR 0.8% ID
UPR 0.8% ID_Nat 11	3141	UPR 0.8% ID
UPR 0.8% DEP_Enz 1	4051	UPR 0.8% DEP
UPR 0.8% DEP_Enz 2	4052	UPR 0.8% DEP
UPR 0.8% DEP_Enz 3	4053	UPR 0.8% DEP
UPR 0.8% ID_Enz 1	4151	UPR 0.8% ID
UPR 0.8% ID_Enz 2	4152	UPR 0.8% ID
UPR 0.8% ID_Enz 3	4153	UPR 0.8% ID
UPR 0.8% ID_Enz 4	4154	UPR 0.8% ID
UPR 0.8% ID_Enz 5	4155	UPR 0.8% ID
UPR 0.8% ID_Enz 6	4156	UPR 0.8% ID
UPR 0.8% ID_Enz 7	4157	UPR 0.8% ID
UPR 0.8% ID_Enz 8	4158	UPR 0.8% ID
UPR 0.8% ID_Enz 9	4159	UPR 0.8% ID
UPR 0.8% ID_Enz 10	4160	UPR 0.8% ID
UPR 0.8% ID_Enz 11	4161	UPR 0.8% ID

Unit Result Names

The following is a list of unit result names. Unit result names appear in the manufacturer record in field 3.

Unit Results
Anti-A
Anti-B
Anti-D
Ctrl
Anti-A+B
Anti-K
Anti-CDE
Anti-C
Anti-E
Anti-c
Anti-e
A1-Cells
A2-Cells
B-Cells
O-Cells
Hem-A1
Hem-A2
Hem-B
Hem-O
Poly
IgG
C3b,C3d
0.8-Sel I
0.8-Sel II

Unit Results
0.8-Surg1
0.8-Surg2
0.8-Surg3
DE_Nat-1
DE_Nat-2
DE_Nat-3
Fic-Unt 1
Fic-Unt 2
Fic-Unt 3
0.8-ABSCR4 Cell 1
0.8-ABSCR4 Cell 2
0.8-ABSCR4 Cell 3
0.8-ABSCR4 Cell 4
Auto
08_Auto
Sel I
Sel II
Surg 1
Surg 2
Surg 3
Diego
ABSCR4 Cell 1
ABSCR4 Cell 2
ABSCR4 Cell 3
ABSCR4 Cell 4
Fic-Trt 1
Fic-Trt 2
Fic-Trt 3

Unit Results
DE_Enz-1
DE_Enz-2
DE_Enz-3
Br-Sel I
Br-Sel II
Br-Surg 1
Br-Surg 2
Br-Surg 3
Br-Diego
Cell-1
Cell-2
Cell-3
Cell-4
Cell-5
Cell-6
Cell-7
Cell-8
Cell-9
Cell-10
Cell-11
Cell-12
Cell-13
Cell-14
Cell-15
Cell-16
Cell-17
Cell-18
Cell-19

Unit Results
Cell-20
Cell-21
Cell-22
ID_NT-1
ID_NT-2
ID_NT-3
ID_NT-4
ID_NT-5
ID_NT-6
ID_NT-7
ID_NT-8
ID_NT-9
ID_NT-10
ID_NT-11
ID_TR-1
ID_TR-2
ID_TR-3
ID_TR-4
ID_TR-5
ID_TR-6
ID_TR-7
ID_TR-8
ID_TR-9
ID_TR-10
ID_TR-11
Pat-Cells
Dnr-Cells
Anti-Fya

Unit Results
Anti-Fyb
Anti-Jka
Anti-Jkb
Anti-MNS3
Anti-MNS4
Anti-K 2nd
Anti-Dwk
Anti-M
Anti-Lea
Anti-Leb
Anti-P1
Anti-DVI
Anti-k (cellano)
Anti-C 2nd
Anti-E 2nd
Anti-c 2nd
Anti-e 2nd
Anti-K 3rd
Rh Ctrl
BRC-
BRC+
DS-Neat
DS-2
DS-4
DS-8
DS-16
DS-32
DS-64

Unit Results
DS-128
DS-256
DS-512
DS-1024
DS-Ctrl

Sample Types

The following is a list of sample types. The sample type appears in the order record in field 16. Additionally, the sample type also appears in field 5 for each donor sample.

Sample Type	Description
AlbaQ-Chek J	QCFluid
EFS/UPR CQI	QCFluid
ORTHO CONFIDENCE WB	QCFluid
0.8CELLS	Sample
3CELLS	Sample
CENTBLOOD	Sample
PACKEDCELLS	Sample
PLASMA	Sample

Analyses

The following is a list of analysis names and their values. The analysis name and their value appear in the ASTM Result record fields 3 and 4.

Note: A value of '?' indicates that the result could not be interpreted. This can be caused by errors or an invalid combination of unit result values.

Analysis	Values
ABO	AB, A, B, O
Rh	POS, NEG
Kell	POS, NEG
Pheno	CCEE, CCEe, CCee, CcEE, CcEe, Ccee, ccEE, ccEe, ccee
Poly	POS, NEG
IgG	POS, NEG
C3	POS, NEG
ABScr	NEG, POS
Auto	POS, NEG
Ident	Done
XM	CMP, INCMP
Fya	POS, NEG
Fyb	POS, NEG
Jka	POS, NEG
Jkb	POS, NEG
MNS3	POS, NEG
MNS4	POS, NEG
K 2nd	POS, NEG
Weak D	POS, NEG
M	POS, NEG
Lea	POS, NEG
Leb	POS, NEG

Analysis	Values
P1	POS, NEG
DVI	POS, NEG
Anti-k (cellano)	POS, NEG
BRC	Pass
DilSeries	Done

Alternate Names for Analysis Values

The system can be configured to use the following alternate analysis values.

Result	Alternates
POS	+
NEG	-

Result	Set 1	Set 2	Set 3
CcEe	C+c+E+e+	C+E+c+e+	2,3,4,5
CCEE	C+c-E+e-	C+E+c-e-	2,3,-4,-5
CCEe	C+c-E+e+	C+E+c-e+	2,3,-4,5
CCee	C+c-E-e+	C+E-c-e+	2,-3,-4,5
CcEE	C+c+E+e-	C+E+c+e-	2,3,4,-5
Ccee	C+c+E-e+	C+E-c+e+	2,-3,4,5
ccEE	C-c+E+e-	C-E+c+e-	-2,3,4,-5
ccEe	C-c+E+e+	C-E+c+e+	-2,3,4,5
ccee	C-c+E-e+	C-E-c+e+	-2,-3,4,5

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6 Revision History

Software Version	Lot Date	Section	Description
1.1.0	2022-01-01	1 Introduction	In the Definitions section: • Updated Definitions section by adding Partial Results / Partial Profile Result • Updated Profile definition from 'A name assigned to one or more tests' to 'A Profile is a name defining a group of one or more tests. A Profile is the smallest orderable unit.' • Updated Test definition from 'A determination of a single analyte or a combination of values from other determinations of observations which constitute a measure of a single system attribute' to 'The smallest reportable unit within a Profile. Tests are selected from the test menu.'
		2 External Interface Design	In the LIS Interface section: • Updated 4th paragraph from 'In all modes, the user can select one of the following LIS result transmission options:' to 'In all modes, the user can select one of the following LIS result transmission options by making selections on the Workflow settings screen.:' and options, and NOTE from 'Partial results are only returned for Profiles defined with more than one test. And partial results always contain the accepted results from one or more orderable tests.' to 'Partial results are only uploaded for Profiles defined with more than one test. And partial results always contain the accepted results from one or more reportable tests.'
		3 External Interface Communication Protocols	In the Physical Layer section: • Added 'Users should not manually recreate a deleted LIS folder. The software automatically recreates the folder with the appropriate permissions. If a user manually creates the LIS folder, when the software attempts to send results to the LIS, a "Status 500: Internal Server Error" message may display on the screen.'

Software Version	Lot Date	Section	Description
			• Added 'NOTE: In the ORTHO Optix™ Reader computer OS, in the control panel, both 'Network and sharing center' and 'local group policy' must be configured to allow access to shared folders on the computer. The user (corresponding to the LIS) must be a member of the group in 'local group policy' allowed access to the computer.' • In LIS Messages section, updated 2nd paragraph from 'The Vision ASTM format is the most recent ASTM version supported by Ortho Clinical Diagnostics (Ortho) instruments. Vision ASTM is a super set of the ASTM and enhanced ASTM legacy message formats.' to 'The Vision ASTM format is the most recent ASTM version supported by Ortho Clinical Diagnostics (Ortho) instruments.' and added NOTE: Only Vision ASTM is supported. Vision ASTM is a super set of the ASTM and enhanced ASTM legacy message formats. • In Vision ASTM section, added NOTE: Only Vision ASTM is supported. Vision ASTM is a super set of the ASTM and enhanced ASTM legacy message formats after 2nd paragraph.
		4 Compatibility with ORTHO VISION® Analyzers	In the Compatibility with ORTHO VISION® Analyzers chapter: • Added NOTE: ORTHO Optix™ Reader only supports the VISION ASTM message format. It does not support Enhanced ASTM or ASTM message formats. • Added Column Grade Results and Diluents are not reported in result messages sections • Removed Trailing Component Delimiters and Original Read Result sections. • Added NOTE: In the current version of software, ORTHO Optix™ Reader only accepts a crossmatch order containing exactly one donor sample and ORTHO Optix™ Reader will only allow one crossmatch order in the worklist per patient sample. In order to run crossmatch tests on two or more donors for the same patient sample, the LIS must send a crossmatch order for the first donor and wait for the result before sending an order for the next donor to the Crossmatch

Software Version	Lot Date	Section	Description
		5 Test Specific Content	orders section. • Removed Column Grade Result section. In the BioVue® Tests section, • Updated the 2nd para from 'Test names are prefixed with their Cassette IDs. For example, in the test name "00: ABO(FWD)/Rh-00" below, the "00:" prefix is the BioVue Cassette ID for the "ABO-Rh/Reverse" Cassette. See section 4.2 for a list of Cassettes.' to 'Test names are prefixed with their Cassette IDs. For example, in the test name "00: ABO(FWD)/Rh-00" below, the "00:" prefix is the BioVue Cassette ID for the "ABO-Rh/Reverse" Cassette. See section 5.2 for a list of Cassettes.'
1.0.0	2021-02-01		Initial release

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