Attention:

This file is to be used to generate quality copies only. The pages that follow do not include all pages for the LIS manual. Additional pages are to be assembled (in DPC depot in New Jersey) with these pages to make the complete manual.

The following pages should never be sent to anyone as a complete manual.

Please print all pages **except this one,** three hole punch the pages and send them to DPC depot in New Jersey.

DPC INSTRUMENT SYSTEMS DIVISION

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IMMULITE®
LIS MANUAL

Table of Contents

DPC IMMULITE/LIS INTERFACE POLICY

DPC IMMULITE has been interfaced with many different LIS hardware and software configurations throughout the world. It has been our experience that the policy outlined below is the best way to ensure a smooth, successful interface with your LIS. It has also been our experience that every LIS interface is unique because individual laboratories have different needs, requirements, and hardware. Therefore, the LIS interface must be customized for each lab by the laboratory's software department or a software development vendor.

The process of establishing an interface begins with a DPC IMMULITE Technical Services Specialist being assigned to your account as an interfacing coordinator. The responsibilities of the coordinator are limited to scheduling and the distribution of required documentation. The coordinator contacts all concerned parties and designs a schedule for their responsibilities in the development of the interface. DPC is not responsible for the completion of any tasks other than those performed by DPC and their representatives. For example, if the MIS director is responsible for cabling and cabling is delayed, the problem must be resolved by the MIS director. The interfacing coordinator will inform all concerned parties of delays in the schedule and the reason for the delays.

DPC is responsible for providing LIS communication software on IMMULITE and IMMULITE 2000 that performs according to standards specified in ASTM E1394 and ASTM E1381, and according to the DPC LIS communications specifications. DPC also is responsible for proper hardware functionality (serial port functionality) of the PC supplied with IMMULITE systems. DPC will supply the LIS communications specifications to the MIS director and the LIS developer. DPC is not responsible for cabling errors, software or hardware errors on intermediary systems, or for software and hardware errors on the LIS.

A DPC Field Service Engineer can be present on the day the IMMULITE/LIS interface is launched, at no charge to the customer. On that day, the lab director, MIS director and IMMULITE system must be available to facilitate the process. *DPC recommends that a representative of the LIS developer be on-site the day the interface is launched.* The decision to have a representative present must be made by the laboratory and the LIS developer.

The DPC Field Service Engineer present will have the appropriate tools to identify most problems encountered with the interface. If a problem is encountered, the DPC Field Service Engineer will attempt to identify the cause and find a solution. Typically, when all parties are available when the interface is launched, problems are solved within a few minutes. If a problem is encountered that is not caused by DPC and requires several days to repair, the DPC service representative will depart only after demonstrating the proper operation of the IMMULITE portion of the LIS interface via diagnostic tools. If the problem is suspected to have been caused by the IMMULITE system at a later date, a DPC Field Service Engineer will be sent to further evaluate the problem. If the DPC Field Service Engineer determines that the cause of this subsequent visit is a defect in the DPC software or hardware, the problem will be corrected under the IMMULITE warranty or service contract as applicable. If the instrument is no longer under warranty and a service contract is not in effect, the visit will be billed at the prevailing rates. If the problem is not the result of DPC equipment or software, as in the case of cabling problems, the service call will be billed at prevailing rates regardless of IMMULITE warranty or service contract.

For the duration of the initial testing and validation process, the status of the IMMULITE system should be considered "under evaluation." The validation process is performed by the laboratory and the LIS developer and typically lasts one to two weeks. During the validation period, any problems can be identified and corrected. In extreme cases, it may be necessary to disable the LIS feature until a problem has been corrected.

During the validation period, it is the responsibility of the lab director to ensure that LIS communications are used on a daily basis (or whenever IMMULITE is used). All results sent to the LIS *must* be verified on the LIS by comparing results and patient information to the IMMULITE result printout. Any problems must be reported to DPC and all other affected parties. Upon successful completion of the validation process, the system is upgraded to "on-line" status. When the system is "on-line", the requirement to verify results on the LIS should conform with the operating procedures of the lab.

BASIC LIS RELATED TERMS

ENQ (Enquiry) (CHR$(5)) -	First character sent in a transaction, initiates communication session.
STX (Start of Text) (CHR$(2)) -	Indicates start of text for a specific message.
ETX (End of Text) (CHR$(3)) -	Indicates end of text for a specific message.
EOT (End Transmit) (CHR$(4)) -	Indicates the sender is done sending and is entering "idle" mode. Terminates a communication session.
ACK (Acknowledge) (CHR$(6)) -	Response to sender message was properly received.
NAK (Not Acknowledged) (CHR$(21))-	Response to sender message was NOT properly received.
Record -	Also know as a message, contains ALL information for a particular item E.G. all information in a patient message.
Field -	An item within a record E.G. Patient Name in a patient message is a field.
**Pipe Sign (	) -**	Separates fields within a record.
Frame Number -	The first character sent in a message. The value increments by one every message until number 7. It is then reset to number 0 (0-7). The header message (first message sent) always begins with number one.
Sequence Number-	Each message type has it's own sequence number. This number increments by one after each record is sent. A record sent of a higher hierarchy (see message hierarchy) resets this value to zero.
Checksum -	Calculation performed on each message to insure all characters are properly received.
Header Message ("H" message) -	First message sent in any transaction, contains system information such as sender ID, receiver ID, address, etc.

Patient Message ("P" message) - Contains patient information, patient ID, name.

Order Message ("O" message) - Defines which test, such as TSH or HCG, should be performed on the sample for a particular accession number.

Result Message ("R" message) - Contains test results and additional information, such as Test Code and the units in which the results are delivered. This message is sent to the LIS.

Query Message ("Q" message) - A request to the LIS for patient information and test orders. Contains the primary tube accession number.

Terminator Message ("L" mesg.) - Last message sent in a transaction, contains termination codes.

Sender ID- The identity of the system sending a message. For example, If IMMULITE is sending a message the sender ID may be "IMMULITE", if the LIS is sending a message the sender ID may be "LIS". The data in this field is defined by the LIS software company.

Receiver ID- The identity of the system receiving a message. For example, If IMMULITE is receiving a message the receiver ID may be "IMMULITE", if the LIS is receiving a message the receiver ID may be "LIS". The data in this field is defined by the LIS software company.

Password- A password defined by the LIS software company. This field may be left blank if desired.

MESSAGE HIERARCHY

Basic Message Hierarchy (Lower number has higher priority)

    (1) Header
           (2) Patient
                  (3) Order
                          (4) Result

Hierarchy Example of LIS to IMMULITE and IMMULITE 2000 Transfer

```
<ENQ>
Header
        Patient 1
                Order 1
        Patient 2
                Order 1
                Order 2
                Order 3
        Patient 3
                Order 1
Terminator
<EOT>
```

Hierarchy Example of IMMULITE to LIS Transfer

```
<ENQ>
Header
        Patient 1
                Order 1
                        Result 1
        Patient 2
                Order 1
                        Result 1
                Order 2
                        Result 1
                Order 3
                        Result 1
        Patient 3
                Order 1
                        Result 1
Terminator
<EOT>
```

Hierarchy Example of IMMULITE 2000 to LIS Transfer (Immunoassay)

```
<ENQ>
Header
        Patient 1
                Order 1
                        Result 1
        Patient 2
                Order 1
                        Result 1
        Patient 3
                Order 1
                        Result 1
        Patient 4
                Order 1
                        Result 1
        Patient 5
                Order 1
                        Result 1
Terminator
<EOT>
```

Hierarchy Example of IMMULITE 2000 to LIS Transfer (Allergy)
```
<ENQ>
Header
        Patient 1
                Order 1
                        Result 1
                        Result 2

        Patient 2
                Order 1
                        Result 1
                        Result 2

        Patient 3
                Order 1
                        Result 1
                        Result 2


Terminator
<EOT>
```

Hierarchy Example of Query to LIS

<ENQ>
Header
    Query
Terminator
<EOT>

Hierarchy Example of Response to Query

<ENQ>
Header
    Patient 1
        Order 1
        Order 2
        Order 3
Terminator
<EOT>

MESSAGE DEFINITIONS

BASIC FORMAT OF A MESSAGE:

[Start of Text <STX>][Frame Number][Message Type] [Message][Carriage Return <CR>][End of Text <ETX>][CHECKSUM] [Carriage Return <CR>][Line Feed <LF>]

HEADER MESSAGE:

[Record Type (H)] [Delimiter Def.] [Message Control ID] [Password] [Sending systems company name] [Sending Systems address] [Reserved] [Senders Phone#] [Communication parameters] [Receiver ID] [Comments/special instructions] [Processing ID] [Version#] [Message Date + Time]

1H|\^&||PASSWORD|DPC CIRRUS||Flanders^New^Jersey^07836||973-927-2828|N81|Your System||P|1|19940407120613<CR><ETX>[51 Checksum] <CR><LF>

PATIENT MESSAGE:

[Record Type (P)][Sequence #][Practice Assigned Patient ID][Laboratory Assigned Patient ID][Patient ID][Patient Name][Mother's Maiden Name][BirthDate][Patient Sex][Patient Race][Patient Address][Reserved][Patient Phone #][Attending Physician ID][Special Field 1][Special Field 2][Patient Height][Patient Weight][Patients Known or Suspected Diagnosis] [Patient active medications][Patients Diet][Practice Field #1][Practice Field #2][Admission and Discharge Dates][Admission Status][Location][Nature of Alternative Diagnostic Code and Classification][Alternative Diagnostic Code and Classification][Patient Religion][Marital Status][Isolation Status][Language][Hospital Service][Hospital Institution][Dosage Category]

2P|1|101|||Riker^Al||19611102|F|||||Bashere<CR><ETX>[2ACheckSum] <CR><LF>

ORDER MESSAGE:

[Record Type (O)][Sequence#][Specimen ID (Accession#)][Instrument Specimen ID][Universal Test ID][Priority][Order Date/Time][Collection Date/Time][Collection End Time][Collection Volume][Collector ID][Action Code][Danger Code][Relevant Clinical Info][Date/Time Specimen Received][Specimen Descriptor,Specimen Type,Specimen Source][Ordering Physician][Physician's Telephone Number][User Field No.1][User Field No.2][Lab Field No.1][Lab Field No.2][Date/Time results reported or last modified][Instrument Charge to Computer System][Instrument Section ID][Report Types][Reserved Field][Location or ward of Specimen Collection][Nosocomial Infection Flag][Specimen Service][Specimen Institution]

3O|1|1550623||^^^LH|R|19931011091233|19931011091233<CR><ETX>[6C Checksum] <CR><LF>

RESULT MESSAGE:

[Record Type (R)][Sequence #][Universal Test ID][Data (result)][Units][ReferenceRanges] [Result abnormal flags][Nature of Abnormality Testing][Result Status][Date of change in instruments normal values or units][Operator ID][Date\Time Test Started][Date\Time Test Completed][Instrument ID]

4R|1|^^^LH|8.2|mIU/mL|.7\.7^400\400|N|N|F||test|19931011091233|19931011091233|DP CCIRRUS<CR><ETX>[8FCheckSum] <CR><LF>

MESSAGE TERMINATOR:
[Record Type ID (L)][Sequence Number][Termination Code]

5L|1|N<CR><ETX>[CheckSum]<CR><LF>

REQUEST INFORMATION (QUERY) MESSAGE

[Record Type ID (Q)][Sequence #][Starting Range][Ending Range][Test ID][Request Time Limits][Beginning request results date and time][Ending request results date and time][Physician name][Physician Phone Number][User Field 1]User Field 2][Status Codes]

2Q|1|^1234ABC||ALL|||||||O<CR><ETX>[CheckSum]<CR><LF>

MAXIMUM VALUES FOR DATABASE FIELDS ACROSS INSTRUMENTS

Database Fields (as of 12/7/01)				
Record Type	**Field**	**IMMULITE One**	**IMMULITE 1000**	**IMMULITE 2000**
HEADER	LIS Password	15	15	10
	LIS Receiver ID	15	15	10
	LIS Sender ID	20	20	10
PATIENT	Patient Last Name	20	30 (Last & First)	30 (Last & First)
	Patient First Name	15		
	Patient Birth Date	8	8	8
	Patient Sex	1	1	1
	Physician Name	20	30	30
	Patient ID	15	20	20
ORDER	Specimen ID (ACCN#)	20	20	30
	Test Type	6	6	10
	Priority	1	1	1
	Order Date/Time	14	14	14
	Collection Date/Time	14	14	14

BI-DIRECTIONAL TRANSFER EXAMPLE, IMMULITE TO LIS

1H|\^&||PASSWORD|SenderID|Randolph^New^Jersey^07869||(201)927-2828|8N1|ReceiverID||P|1|19950522092817
6F

2P|1|119813;TGH|||Last 1^First 1|||F|||||
46

3O|1|130000445||^^^TT4|||19950118085700
B4

4R|1|^^^TT4|10.3|ug/dL|4.5\.4^12.5\24|N|N|F||test|19950119084508|19950119092826|SenderID
0B

5O|2|130000445||^^^TU|||19950118085700
84

6R|1|^^^TU|26.6|Percnt|23\10^35\70|N|N|F||test|19950119084508|19950119092756|SenderID
07

7P|2|325031;AH|||Last 2^First 2|||F|||||
EB

0O|1|130000617||^^^FER|||19950118103000
A3

1R|1|^^^FER|173.|ng/mL|.5\.5^1500\1500|N|N|F||test|19950119084641|19950119092858|SenderID
42

2P|3|326829;AH|||Last 3^First 3|||F|||||
F9

3O|1|130000722||^^^FER|||19950118102000
A2

4R|1|^^^FER|490.|ng/mL|.5\.5^1500\1500|N|N|F||test|19950119084741|19950119092928|SenderID
46

5P|4|124462;TGH|||Last 4^First 4|||F|||||
4E

6O|1|130000724||^^^E2|||19950118122000
43

7R|1|^^^E2|25.3|pg/mL|12\12^2000\2000|N|N|F||test|19950119084815|19950119100049|
SenderID
CC

0O|2|130000724||^^^FSH|||19950118122000
A8

1R|1|^^^FSH|60.6|mIU/mL|.1\.1^170\170|N|N|F||test|19950119084815|19950119093030|
SenderID
0B

2O|3|130000724||^^^LH|||19950118122000
5E

3R|1|^^^LH|24.4|mIU/mL|.7\.7^400\400|N|N|F||test|19950119084815|19950119093101|S
enderID
C1

4P|5|556395;AH|||Last 5^First 5|||M|||||
0B

5O|1|130000741||^^^FER|||19950118115500
AE

6R|1|^^^FER|238.|ng/mL|.5\.5^1500\1500|N|N|F||test|19950119084949|19950119093132|
SenderID
46

7P|6|556357;MB|||Last 6^First 6|||M|||||
15

0O|1|130000790||^^^IGE|||19950118120000
9C

1R|1|^^^IGE|517.|IU/mL|.01\.01^600\600|N|N|F||test|19950119085018|19950119093202|
SenderID
EC

2P|7|141053;TGH|||Last 7^First 7|||F|||||
4F

3O|1|130000805||^^^FER|||19950118120000
A4

4R|1|^^^FER|21.0|ng/mL|.5\.5^1500\1500|N|N|F||test|19950119085049|19950119093233|
SenderID
34

5P|8|320439;TGH|||Last 8^First 8|||F|||||
5C

6O|1|130000890||^^^FER|||19950118130000
AC

7R|1|^^^FER|12.9|ng/mL|.5\.5^1500\1500|N|N|F||test|19950119085254|19950119093609|
SenderID
45

0P|9||||Last 9^First 9||||||||
C1

1O|1|130000911||^^^E2
01

2R|1|^^^E2|71.3|pg/mL|12\12^2000\2000|N|N|F||test|19950119085423|19950119100800|
SenderID
BF

3P|10|358069;TGH|||Last 10^First 10|||F|||||
DF

4O|1|130000929||^^^FER|||19950118123000
AF

5R|1|^^^FER|219.|ng/mL|.5\.5^1500\1500|N|N|F||test|19950119085628|19950119093843|
SenderID
48

6L|1
3A

UNI-DIRECTIONAL TRANSFER EXAMPLE, IMMULITE TO LIS

1H|\^&||PASSWORD|DPC CIRRUS|Randolph^New^Jersey^07869||(201)927-2828|8N1|Your System||P|1|19940407085426
E1

2P|1||||Smith^||||||||
72

3O|1|123ABC||^^^TSH
18

4R|1|^^^TSH|2.09|uIU/mL|.4\.002^4\75|N|N|F||test|19940407084325|19940407084457|DPC CIRRUS
DF

5O|2|123ABC||^^^T4
B4

6R|1|^^^T4|3.7|ug/dL|4.5\.4^12.5\24|L|N|F||test|19940407084325|19940407084556|DPC CIRRUS
6A

7O|3|123ABC||^^^T3
B6

0R|1|^^^T3|35|ng/dL|82\35^179\600|<|N|F||test|19940407084325|19940407084630|DPC CIRRUS
F9

1O|4|123ABC||^^^TU
D3

2R|1|^^^TU|10|Percnt|23\10^35\70|<|N|F||test|19940407084325|19940407084645|DPC CIRRUS
60

3P|2||||^||||||||
6F

4O|1|789XYZ||^^^TSH
70

5R|1|^^^TSH|4.2|uIU/mL|.4\.002^4\75|H|N|F||test|19940407084907|19940407084923|DPC CIRRUS
A9

6P|3||||Jones^||||||||
72

7O|1|HIJ456||^^^TSH
3A

0R|1|^^^TSH|6.19|uIU/mL|.4\.002^4\75|H|N|F||test|19940407085044|19940407085148|D
PC CIRRUS
D7

1P|4||||Riker^William||19601111|M|||||Doctor
87

2O|1|LMN141||^^^TSH
38

3R|1|^^^TSH|5.5|uIU/mL|.4\.002^4\75|H|N|F||test|19940407085234|19940407085352|DP
C CIRRUS
A2

4L|1
3D

BI-DIRECTIONAL AND UNI-DIRECTIONAL TRANSFER EXAMPLES, IMMULITE 2000 TO LIS

Example 1

1H|\^&||DPC|IMMU01R|111 Canfield Road^Randolph^NJ^07869||(201)927-2828|N81|IMMU01S||P|1|20001108161627
E2

2P|1||||||||||||
0F

3O|1|00052111||^^^BMG|R|||||||||||||||||||E0872
45

4R|1|^^^BMG|>500|ng/mL|0.30\0.30^500\500|>|N|F|||20001102140412|20001102144054|E0872
A7

5P|2|66412558||||||||||||
B8

6O|1|66412558||^^^HCG|||200011081530||||||Normal||||||||||||E0872
CB

7R|1|^^^HCG|>5000|mIU/mL|1.00\1.00^5000\5000|>|N|F|||20001108153251|2000110816 0934|E0872
7E

0P|3||||||||||||
0F

1O|1|68031236||^^^TXQ|R||||||||||||||||||||E0872
7D

2R|1|^^^TXQ|<5.00|IU/mL|5.00\5.00^250\250|<|N|F|||20001108112235|20001108123235|E0872
D3

3L|1
3C

Example 2

1H|\^&||DPC|IMMU01R|111 Canfield Road^Randolph^NJ^07869||(201)927-2828|N81|IMMU01S||P|1|20001107160944
E2

2P|1|||||||||||
0F

3O|1|09861081||^^^fPS|R|||||||||||||||||||E0872
8F

4R|1|^^^fPS|0.26|ng/mL|0.05\0.05^25.0\25.0|N|N|F|||20001107051521|20001107062514|
E0872
4D

5P|2|||||||||||
13

6O|1|09861081||^^^PSA|R|||||||||||||||||||E0872
6D

7R|1|^^^PSA|0.28|ng/mL|0.04\0.04^150\150|N|N|F|||20001104035557|20001104043253|
E0872
D1

0P|3|||||||||||
0F

1O|1|09861081||^^^TSH|R|||||||||||||||||||E0872
73

2R|1|^^^TSH|0.602|uIU/mL|0.400\0.002^4.00\75.0|N|N|F|||20001103035444|2000110305
0438|E0872
FD

3L|1
3C

Example 3

1H|\^&||DPC|IMMU01R|111 Canfield Road^Randolph^NJ^07869||(201)927-2828|N81|IMMU01S||P|1|20001107162353
DE

2P|1|||||||||||||
0F

3O|1|68552470||^^^DHS|R|||||||||||||||||||||E0872
69

4R|1|^^^DHS|178|ug/dL|30.0\30.0^1000\1000|N|N|F|||20001107115846|20001107123532|E0872
F8

5L|1
3E

Example 4 (Allergy)

1H|\^&||DPC|IMMU01R|111 Canfield Road^Randolph^NJ^07869||(201)927-2828|N81|IMMU01S||P|1|20001107162353
A2

2P|1|||||||||||||
0F

3O|1|Z00058364||^^^SPE E1|R|||||||||||||||||||||F1420
4E

4R|1|^^^SPE E1|3.23|KU/L|0.0\0.10^0.0\100|H|N|F|||20010619084600|20010619095655|F1420
85

5R|2|^^^SPE E1|II|SCLASS||H|N|F|||20010619084600|20010619095655|F1420
F9

HOST QUERY EXAMPLE, QUERY TO LIS

1H|\^&||PASSWORD|DPC CIRRUS||Randolph^New^Jersey^07869||(201)927-
2828|N81|Your System||P|1|19940407120613
51

2Q|1|^123ABC||ALL||||||||O
76

3L|1
3C

IMMULITE BI-DIRECTIONAL LIS SPECIFICATION
ASTM E1394

HEADER RECORD DEFINITION (7.1 - 7.1.14)
[Record Type (H)] [Delimiter Def.] [Message Control ID] [Password] [Sending systems company name] [Sending Systems address] [Reserved] [Senders Phone#] [Communication parameters] [Receiver ID] [Comments/special instructions] [Processing ID] [Version#] [Message Date + Time]
Sample Header Message:

<STX>[FrameNumber]H|\^&||Password|DPCCIRRUS|Randolph^New^Jersey^07869||(201)927-
2828|8N1|YourSystem||P|1|19940323082858<CR><ETX>[CheckSum]<CR><LF>

(7.1.1) Record Types Definition-
    H = Header record   REQUIRED

(7.1.2) Delimiter Definition-
    ¦ = Field Delimiter   REQUIRED
    \ = Repeat Delimiter   REQUIRED
    ^ = Component Delimiter   REQUIRED
    & = Escape Delimiter   DEFINED, NOT SUPPORTED

(7.1.3) Message Control ID-   NOT SUPPORTED

(7.1.4) Access Password   REQUIRED
(Configurable in LIS Param screen;
Maximum of 15 characters)
(7.1.5) Sender Name or ID-   REQUIRED
(Configurable in LIS Param screen;
Maximum of 20 characters)
(7.1.6) Sender Street Address-   SUPPORTED

(7.1.7) Reserved Field-   NOT SUPPORTED

(7.1.8) Senders Telephone Number- SUPPORTED

(7.1.9) Characteristics of Sender-   SUPPORTED
(8 bits No Parity 1 Stop Bit)

(7.1.10) Receiver ID-   REQUIRED
(Configurable in LIS Param screen;
Maximum of 15 characters)
(7.1.11) Comments/Special Instructions- NOT SUPPORTED

(7.1.12) Processing ID Definition-
      P = "Normal" production/running message SUPPORTED
      T = Training message   NOT SUPPORTED
      D = Debugging, used to debug a program(s) NOT SUPPORTED
      Q = Message is for QC/regulatory purposes NOT SUPPORTED

(7.1.13) Version Number-   SUPPORTED
(Currently 1)

(7.1.14) Date + Time of Message   SUPPORTED
(YYYYMMDDHHMMSS)

PATIENT INFORMATION RECORD DEFINITION (8.1 - 8.1.35)
[Record Type (P)][Sequence #][Practice Assigned Patient ID][Laboratory Assigned Patient ID][Patient ID][Patient Name][Mother's Maiden Name][BirthDate][Patient Sex][Patient Race][Patient Address][Reserved][Patient Phone #][Attending Physician ID][Special Field 1][Special Field 2][Patient Height][Patient Weight][Patients Known or Suspected Diagnosis] [Patient active medications][Patients Diet][Practice Field #1][Practice Field #2][Admission and Discharge Dates][Admission Status][Location][Nature of Alternative Diagnostic Code and Classification][Alternative Diagnostic Code and Classification][Patient Religion][Marital Status][Isolation Status][Language][Hospital Service][Hospital Institution][Dosage Category]

Sample Patient Information Record:
<STX>[FrameNumber]P|1|101|||Riker^Al||19611102|F|||||Bashere<CR><ETX>[CheckSum]<CR><LF>

(8.1.1) Record Types Definition-
     P = Patient Identity Record   REQUIRED

(8.1.2) Sequence # Definition-   REQUIRED

(8.1.3) Practice Assigned Patient ID-   REQUIRED
(maximum of 15 characters)
(8.1.4) Laboratory Assigned Patient ID-   NOT SUPPORTED

(8.1.5) Patient ID-   NOT SUPPORTED

(8.1.6) Patient Name-   SUPPORTED
(Last^First^Initial; Maximum of 20 characters for Last Name;
Maximum of 15 characters for First Name)
(8.1.7) Mother's Maiden Name-   NOT SUPPORTED

(8.1.8) Birthdate-   SUPPORTED
(YYYYMMDD;
Maximum of 8 characters)
(8.1.9) Patient's Sex-   SUPPORTED
(M or F; maximum of 1 character)

(8.1.10)Patient Race-Ethnic Origin-   NOT SUPPORTED

(8.1.11)Patient's Address-   NOT SUPPORTED

(8.1.12)Reserved Field-   NOT SUPPORTED

(8.1.13)Patient's Phone#-   NOT SUPPORTED

(8.1.14)Attending Physician ID (Last Name Only)- SUPPORTED
(Maximum of 20 characters)

(8.1.15)Special Field 1-   NOT SUPPORTED

(8.1.16)Special Field 2-   NOT SUPPORTED

(8.1.17)Patient Height-   NOT SUPPORTED

(8.1.18)Patient Weight-   NOT SUPPORTED

(8.1.19)Known or Suspected Diagnosis-   NOT SUPPORTED

(8.1.20)Active Medications-   NOT SUPPORTED

(8.1.21)Patient's Diet-   NOT SUPPORTED

(8.1.22)Practice Field 1-   NOT SUPPORTED

(8.1.23)Practice Field 2-   NOT SUPPORTED

(8.1.24)Admission and Discharge Dates-   NOT SUPPORTED

(8.1.25)Admission Status-   NOT SUPPORTED

(8.1.26)Location-   NOT SUPPORTED

(8.1.27)Nature of Alt. Diag. Code.....-   NOT SUPPORTED

(8.1.28)Alt. Diag. Code and Classifications-   NOT SUPPORTED

(8.1.29)Patient Religion-   NOT SUPPORTED

(8.1.30)Marital Status-   NOT SUPPORTED

(8.1.31)Isolation Status-   NOT SUPPORTED

(8.1.32)Language-   NOT SUPPORTED

(8.1.33)Hospital Service-   NOT SUPPORTED

(8.1.34)Hospital Institution-   NOT SUPPORTED

(8.1.35)Dosage Category-   NOT SUPPORTED

ORDER RECORD DEFINITION (9.4.1-9.4.31)

[Record Type (O)][Sequence#][Specimen ID (Accession#)][Instrument Specimen ID][Universal Test ID][Priority][Order Date/Time][Collection Date/Time][Collection End Time][Collection Volume][Collector ID][Action Code][Danger Code][Relevant Clinical Info][Date/Time Specimen Received][Specimen Descriptor,Specimen Type,Specimen Source][Ordering Physician][Physician's Telephone Number][User Field No.1][User Field No.2][Lab Field No.1][Lab Field No.2][Date/Time results reported or last modified][Instrument Charge to Computer System][Instrument Section ID][Report Types][Reserved Field][Location or ward of Specimen Collection][Nosocomial Infection Flag][Specimen Service][Specimen Institution]

Sample Test Order Message:
<STX>[FrameNumber]O|1|1550623||^^^LH|R|19931011091233|19931011091233<CR>
<ETX>[CheckSum]<CR><LF>

(9.4.1) Record types Definition-
    O = Test Order Record   REQUIRED

(9.4.2)Sequence #-   REQUIRED

(9.4.3) Specimen ID-   REQUIRED
(ACCESSION # ON PRIMARY TUBE;
Maximum of 20 characters)
(9.4.4) Instrument Specimen ID-   NOT SUPPORTED

(9.4.5) Universal Test ID   REQUIRED
(^^^[Test Code])
Example Test Codes: TSH, LH, FSH, DIG, T4, hCG, T-U, RTH, TT3, FER, PSA, PAP
(Maximum of 6 characters)
(9.4.6) Priority-   SUPPORTED
    S-Stat
    A-As soon as possible
    R-Routine
    C-Callback
    P-Preoperative
(Maximum of 1 character)
(9.4.7) Requested/Ordered Date and Time- SUPPORTED
(YYYYMMDDHHMMSS;
Maximum of 14 characters)
(9.4.8) Specimen Collection Date and Time- SUPPORTED
(Maximum of 14 characters)
(9.4.9) Collection End Time-   NOT SUPPORTED

(9.4.10) Collection Volume-   NOT SUPPORTED

(9.4.11) Collector ID-   NOT SUPPORTED

(9.4.12) Action Code-   NOT SUPPORTED

(9.4.13) Danger Code-   NOT SUPPORTED

(9.4.14) Relevant Clinical Information-   NOT SUPPORTED

(9.4.15) Date/Time Specimen Received-   NOT SUPPORTED

(9.4.16) Specimen Descriptor-   NOT SUPPORTED

(9.4.16.1) Specimen Type-   NOT SUPPORTED

(9.4.17) Ordering Physician-   NOT SUPPORTED

(9.4.18) Physician's Telephone Number-   NOT SUPPORTED

(9.4.19) Users Field No. 1-   NOT SUPPORTED

(9.4.20) Users Field No. 2-   NOT SUPPORTED

(9.4.21) Lab Field No. 1-   NOT SUPPORTED

(9.4.22) Lab Field No. 2-   NOT SUPPORTED

(9.4.23) Date/Time Results Reported....-   NOT SUPPORTED

(9.4.24) Instrument Charge to Computer Sys.-   NOT SUPPORTED

(9.4.25) Instrument Section ID-   NOT SUPPORTED

(9.4.26) Report Types-   NOT SUPPORTED

(9.4.27) Reserved Field-   NOT SUPPORTED

(9.4.28) Location of Specimen Collection-   NOT SUPPORTED

(9.4.29) Nosocomial Infection Flag-   NOT SUPPORTED

(9.4.30) Specimen Service-   NOT SUPPORTED

(9.4.31) Specimen Institution-   NOT SUPPORTED

RESULT RECORD DEFINITION (10.1 - 10.1.14)
[Record Type (R)][Sequence #][Universal Test ID][Data (result)][Units][ReferenceRanges] [Result abnormal flags][Nature of Abnormality Testing][Result Status][Date of change in instruments normal values or units][Operator ID][Date\Time Test Started][Date\Time Test Completed][Instrument ID]

Sample Result Message:
<STX>[FrameNumber]R|1|^^^LH|8.2|mIU/mL|.7\.7^400\400|N|N|F||test|1993101109123 3|19931011091233|DPCCIRRUS<CR><ETX>[CheckSum]<CR><LF>

(10.1.1) Record Types Definition-
    R = Result Record   REQUIRED

(10.1.2)Sequence #-   REQUIRED

(10.1.3)Universal Test ID-   PARTIALLY SUPPORTED \
                                          REQUIRED

 (^^^[Test Code])
Example Test Codes: TSH, LH, FSH, DIG, T4, hCG, T-U, RTH, TT3, FER, PSA, PAP

(10.1.4)Data or Measurement Value (Result)-   REQUIRED

(10.1.5)Units-   REQUIRED
Current DPC Units of Measure: ng/mL, ng/dL, ug/dL, uIu/mL, mIU/mL, pg/mL, nmol/L, pmol/L, mIU/L, ug/L, IU/mL, IU/L,

(10.1.6)Reference Ranges-   SUPPORTED
([Low]\[Panic\Low]^[High]\[Panic High])

(10.1.7)Result Abnormal Flags-
(DPC may add in later revisions Instrument Failure Codes)

L	= Below Normal	SUPPORTED
H	= Above Normal	SUPPORTED
LL	= Below Panic	NOT SUPPORTED
HH	= Above Panic	NOT SUPPORTED
<	= Below readable limit	REQUIRED
>	= Above readable limit	REQUIRED
N	= Normal	SUPPORTED
A	= Abnormal	NOT SUPPORTED
U	= Significant change UP	NOT SUPPORTED
D	= Significant change DOWN	NOT SUPPORTED
B	= Better	NOT SUPPORTED
W	= Worse	NOT SUPPORTED

(10.1.8)Nature of Abnormality Testing-
    A = Age population tested   NOT SUPPORTED
    S = Sex based Population   NOT SUPPORTED
    R = Race based Population   NOT SUPPORTED
    N = Normal generic range   SUPPORTED

 (10.1.9)Results Status-
    C = Correction of previously sent results NOT SUPPORTED
    P = Preliminary Results   NOT SUPPORTED
    F = Final Results   SUPPORTED
    X = Results cannot be done.   NOT SUPPORTED
    (Eg. Calculation Error)
    I = In instrument, results pending   NOT SUPPORTED
    S = Partial Results   NOT SUPPORTED
    M = Result is a MIC level   NOT SUPPORTED
    R = This result was previously transmitted NOT SUPPORTED
    N = This result record contains necessary NOT SUPPORTED
        information to run a new order.

(10.1.10)Date systems values/units changed-   NOT SUPPORTED

(10.1.11)Operator Name/ID#-   SUPPORTED

(10.1.12)Date+Time Test Started   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.13)Date+Time Test Completed   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.14)Instrument ID-   SUPPORTED
(Configurable From DPC 'KIT' Program)

REQUEST INFORMATION RECORD DEFINITION (HOST QUERY) (12.1 - 12.1.13)
[Record Type ID (Q)][Sequence #][Starting Range][Ending Range][Test ID][Request Time Limits][Beginning request results date and time][Ending request results date and time][Physician name][Physician Phone Number][User Field 1]User Field 2][Status Codes]

Example Request Record:
<STX>[FrameNumber]Q|1|^1234ABC||ALL|||||||O<CR><ETX>[CheckSum]<CR><LF>

(12.1.1) Record Types Definition-

      Q = Request information Record   SUPPORTED (UPLOAD ONLY)

(12.1.2) Sequence Number   SUPPORTED

(12.1.3) Starting Range ID Number   REQUIRED

(12.1.4) Ending Range ID Number   NOT SUPPORTED

(12.1.5) Universal Test ID   REQUIRED

(12.1.6) Request Time Limits   NOT SUPPORTED

(12.1.7) Beginning Request Results ...   NOT SUPPORTED

(12.1.8) Ending Request Results ...   NOT SUPPORTED

(12.1.9) Physician Name   NOT SUPPORTED

(12.1.10) Physician Phone #   NOT SUPPORTED

(12.1.11) User field #1   NOT SUPPORTED

(12.1.12) User field #2   NOT SUPPORTED

12.1.13) Request information status codes
     C- Correction of previous results   NOT SUPPORTED
     P- Preliminary Results   NOT SUPPORTED
     F- Final Results   NOT SUPPORTED
     X- Results cannot be done, cancel   NOT SUPPORTED
     I- Request Results Pending   NOT SUPPORTED
     S- Request partial results   NOT SUPPORTED
     M-Result is a MIC level   NOT SUPPORTED
     R- Result previously transmitted   NOT SUPPORTED
     A- Abort/cancel last request   REQUIRED
     N- Requesting new results only   NOT SUPPORTED
     O- Requesting orders and demographics   REQUIRED
     D- Requesting demographics only   NOT SUPPORTED

MESSAGE TERMINATOR RECORD DEFINITION (13.1 - 13.1.3)
[Record Type ID (L)][Sequence Number][Temination Code]

Example Termination Record:
<STX>[FrameNumber]L|1|N<CR><ETX>[CheckSum]<CR><LF>

(13.1.1) Record Types Definition-

       L = Terminator record   SUPPORTED

(13.1.2)Sequence # -   REQUIRED

(13.1.3)Termination Code-
       N = Normal termination   SUPPORTED
       T = Sender Aborted   NOT SUPPORTED
       R = Receiver Abort   NOT SUPPORTED
       E = Unknown system error   NOT SUPPORTED
       Q = Error in last request for information   REQUIRED WITH QUERY
       I = No information available from last query REQUIRED WITH QUERY
       F = Last request for information Processed REQUIRED WITH QUERY

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HEADER RECORD DEFINITION (7.1 - 7.1.14)
[Record Type (H)] [Delimiter Def.] [Message Control ID] [Password] [Sending systems company name] [Sending Systems address] [Reserved] [Senders Phone#] [Communication parameters] [Receiver ID] [Comments/special instructions] [Processing ID] [Version#] [Message Date + Time]
Sample Header Message:

<STX>[FrameNumber]H|\^&||Password|DPCCIRRUS|Randolph^New^Jersey^07869||(2 01)927-2828|8N1|Receiver||P|1|19920521132100<CR><ETX>[CheckSum]<CR><LF>

(7.1.1) Record Types Definition- 　　H = Header record	REQUIRED
(7.1.2) Delimiter Definition- 　　¦ = Field Delimiter 　　\ = Repeat Delimiter 　　^ = Component Delimiter 　　& = Escape Delimiter	 REQUIRED REQUIRED REQUIRED DEFINED, NOT SUPPORTED
(7.1.3) Message Control ID-	NOT SUPPORTED
(7.1.4) Access Password (Configurable in LIS PARAMETERS window; Maximum of 15 characters)	REQUIRED
(7.1.5) Sender Name or ID- (Configurable in LIS PARAMETERS window; Maximum of 20 characters)	REQUIRED
(7.1.6) Sender Street Address-	SUPPORTED
(7.1.7) Reserved Field-	NOT SUPPORTED
(7.1.8) Senders Telephone Number-	SUPPORTED
(7.1.9) Characteristics of Sender- (8 bits No Parity 1 Stop Bit)	SUPPORTED
(7.1.10)Receiver ID- (Configurable in the LIS PARAMETERS window; Maximum of 15 characters)	REQUIRED
(7.1.11)Comments/Special Instructions-	NOT SUPPORTED
(7.1.12) Processing ID Definition- 　　P = "Normal" production/running message 　　T = Training message	 SUPPORTED NOT SUPPORTED

D = Debugging, used to debug a program(s) NOT SUPPORTED
    Q = Message is for QC/regulatory purposes NOT SUPPORTED

(7.1.13)Version Number-   SUPPORTED
(Currently 1)

(7.1.14)Date+Time of Message   SUPPORTED
(YYYYMMDDHHMMSS)

PATIENT INFORMATION RECORD DEFINITION (8.1 - 8.1.35)
[Record Type (P)][Sequence #][Practice Assigned Patient ID][Laboratory Assigned Patient ID][Patient ID][Patient Name][Mother's Maiden Name][BirthDate][Patient Sex][Patient Race][Patient Address][Reserved][Patient Phone #][Attending Physician ID][Special Field 1][Special Field 2][Patient Height][Patient Weight][Patients Known or Suspected Diagnosis] [Patient active medications][Patients Diet][Practice Field #1][Practice Field #2][Admission and Discharge Dates][Admission Status][Location][Nature of Alternative Diagnostic Code and Classification][Alternative Diagnostic Code and Classification][Patient Religion][Marital Status][Isolation Status][Language][Hospital Service][Hospital Institution][Dosage Category]

Sample Patient Information Record:
<STX>[FrameNumber]P|1||||Jones^Jane^L||19640804|F|||||Doctor<CR><ETX>[CheckSum]<CR><LF>

(8.1.1) Record Types Definition-
      P = Patient Identity Record   REQUIRED

(8.1.2) Sequence # Definition-   REQUIRED

(8.1.3) Practice Assigned Patient ID-   NOT SUPPORTED

(8.1.4) Laboratory Assigned Patient ID-   NOT SUPPORTED

(8.1.5) Patient ID-   NOT SUPPORTED

(8.1.6) Patient Name-   SUPPORTED
(Last^First^Initial; maximum of 20 characters for Last Name;
maximum of 15 characters for First Name)
(8.1.7) Mother's Maiden Name-   NOT SUPPORTED

(8.1.8) Birthdate-   SUPPORTED
(YYYYMMDD; maximum of 8 characters)

(8.1.9) Patient's Sex-   SUPPORTED
(M or F; maximum of 1 character)

(8.1.10)Patient Race-Ethnic Origin-   NOT SUPPORTED

(8.1.11)Patient's Address-   NOT SUPPORTED

(8.1.12)Reserved Field-   NOT SUPPORTED

(8.1.13)Patient's Phone#-   NOT SUPPORTED

(8.1.14)Attending Physician ID- (Last Name Only; maximum of 20 characters)	SUPPORTED
(8.1.15)Special Field 1-	NOT SUPPORTED
(8.1.16)Special Field 2-	NOT SUPPORTED
(8.1.17)Patient Height-	NOT SUPPORTED
(8.1.18)Patient Weight-	NOT SUPPORTED
(8.1.19)Known or Suspected Diagnosis-	NOT SUPPORTED
(8.1.20)Active Medications-	NOT SUPPORTED
(8.1.21)Patient's Diet-	NOT SUPPORTED
(8.1.22)Practice Field 1-	NOT SUPPORTED
(8.1.23)Practice Field 2-	NOT SUPPORTED
(8.1.24)Admission and Discharge Dates-	NOT SUPPORTED
(8.1.25)Admission Status-	NOT SUPPORTED
(8.1.26)Location-	NOT SUPPORTED
(8.1.27)Nature of Alt. Diag. Code.....-	NOT SUPPORTED
(8.1.28)Alt. Diag. Code and Classifications-	NOT SUPPORTED
(8.1.29)Patient Religion-	NOT SUPPORTED
(8.1.30)Marital Status-	NOT SUPPORTED
(8.1.31)Isolation Status-	NOT SUPPORTED
(8.1.32)Language-	NOT SUPPORTED
(8.1.33)Hospital Service-	NOT SUPPORTED
(8.1.34)Hospital Institution-	NOT SUPPORTED
(8.1.35)Dosage Category-	NOT SUPPORTED

ORDER RECORD DEFINITION (9.4.1-9.4.31)

[Record Type (O)][Sequence#][Specimen ID (Accession#)][Instrument Specimen ID][Universal Test ID][Priority][Order Date/Time][Collection Date/Time][Collection End Time][Collection Volume][Collector ID][Action Code][Danger Code][Relevant Clinical Info][Date/Time Specimen Received][Specimen Descriptor,Specimen Type,Specimen Source][Ordering Physician][Physician's Telephone Number][User Field No.1][User Field No.2][Lab Field No.1][Lab Field No.2][Date/Time results reported or last modified][Instrument Charge to Computer System][Instrument Section ID][Report Types][Reserved Field][Location or ward of Specimen Collection][Nosocomial Infection Flag][Specimen Service][Specimen Institution]

Sample Test Order Message:
<STX>[FrameNumber]O|1|123456||^^^TSH<CR><ETX>[CheckSum]<CR><LF>

(9.4.1) Record types Definition-
    O = Test Order Record   REQUIRED

(9.4.2)Sequence #-   REQUIRED

(9.4.3) Specimen ID-   REQUIRED
(ACCESSION # ON PRIMARY TUBE;
maximum of 20 characters)
(9.4.4) Instrument Specimen ID-   NOT SUPPORTED

(9.4.5) Universal Test ID   REQUIRED
(^^^[Test Code])
Example Test Codes: TSH, LH, FSH, DIG, TT4, hCG, T-U, RTH, TT3, FER, PSA, PAP
(maximum of 6 characters)
(9.4.6) Priority-   NOT SUPPORTED
(maximum of 1 character)
(9.4.7) Requested/Ordered Date and Time-   NOT SUPPORTED
(maximum of 14 characters)
(9.4.8) Specimen Collection Date and Time- NOT SUPPORTED
(maximum of 14 characters)
(9.4.9) Collection End Time-   NOT SUPPORTED

(9.4.10) Collection Volume-   NOT SUPPORTED

(9.4.11) Collector ID-   NOT SUPPORTED

(9.4.12) Action Code-   NOT SUPPORTED

(9.4.13) Danger Code-   NOT SUPPORTED

(9.4.14) Relevant Clinical Information-   NOT SUPPORTED

(9.4.15) Date/Time Specimen Received-   NOT SUPPORTED

(9.4.16) Specimen Descriptor-   NOT SUPPORTED

(9.4.16.1) Specimen Type-   NOT SUPPORTED

(9.4.17) Ordering Physician-   NOT SUPPORTED

(9.4.18) Physician's Telephone Number-   NOT SUPPORTED

(9.4.19) Users Field No. 1-   NOT SUPPORTED

(9.4.20) Users Field No. 2-   NOT SUPPORTED

(9.4.21) Lab Field No. 1-   NOT SUPPORTED

(9.4.22) Lab Field No. 2-   NOT SUPPORTED

(9.4.23) Date/Time Results Reported....-   NOT SUPPORTED

(9.4.24) Instrument Charge to Computer Sys.-   NOT SUPPORTED

(9.4.25) Instrument Section ID-   NOT SUPPORTED

(9.4.26) Report Types-   NOT SUPPORTED

(9.4.27) Reserved Field-   NOT SUPPORTED

(9.4.28) Location of Specimen Collection-   NOT SUPPORTED

(9.4.29) Nosococmial Infection Flag-   NOT SUPPORTED

(9.4.30) Specimen Service-   NOT SUPPORTED

(9.4.31) Specimen Institution-   NOT SUPPORTED

RESULT RECORD DEFINITION (10.1 - 10.1.14)
[Record Type (R)][Sequence #][Universal Test ID][Data
(result)][Units][ReferenceRanges] [Result abnormal flags][Nature of Abnormality
Testing][Result Status][Date of change in instruments normal values or units][Operator
ID][Date\Time Test Started][Date\Time Test Completed][Instrument ID]

Sample Result Message:
<STX>[FrameNumber]R|1|^^^TSH|8.19|uIU/mL|.4\.002^4\75|H|N|F||test|199403281083
4|19920526110500|DPCCIRRUS<CR><ETX>[CheckSum]<CR><LF>

(10.1.1) Record Types Definition-
      R = Result Record   REQUIRED

(10.1.2)Sequence #-   REQUIRED

(10.1.3)Universal Test ID-   PARTIALLY SUPPORTED \
                                          REQUIRED

(^^^[Test Code])
Example Test Codes: TSH, LH, FSH, DIG, TT4, hCG, T-U, RTH, TT3, FER, PSA, PAP

(10.1.4)Data or Measurement Value (Result)-   REQUIRED
Current

(10.1.5)Units-   REQUIRED
Current DPC Units of Measure: ng/mL, ng/dL, ug/dL, uIu/mL, mIU/mL, pg/mL, nmol/L,
pmol/L, mIU/L, ug/L, IU/mL, IU/L

(10.1.6)Reference Ranges-   SUPPORTED
([Low]\[Panic\Low]^[High]\[Panic High])

(10.1.7)Result Abnormal Flags-
(DPC may add in later revisions Instrument Failure Codes)
        L = Below Normal   SUPPORTED
        H = Above Normal   SUPPORTED
        LL = Below Panic   NOT SUPPORTED
        HH = Above Panic   NOT SUPPORTED
        < = Below readable limit   REQUIRED
         > = Above readable limit   REQUIRED
        N = Normal   SUPPORTED
        A = Abnormal   NOT SUPPORTED
        U = Significant change UP   NOT SUPPORTED
        D = Significant change DOWN   NOT SUPPORTED
        B = Better   NOT SUPPORTED
        W = Worse   NOT SUPPORTED

(10.1.8)Nature of Abnormality Testing-
    A = Age population tested   NOT SUPPORTED
    S = Sex based Population   NOT SUPPORTED
    R = Race based Population   NOT SUPPORTED
    N = Normal generic range   SUPPORTED

(10.1.9)Results Status-
    C = Correction of previously sent results NOT SUPPORTED
    P = Preliminary Results   NOT SUPPORTED
    F = Final Results   SUPPORTED
    X = Results cannot be done.   NOT SUPPORTED
    (Eg. Calculation Error)
    I = In instrument, results pending   NOT SUPPORTED
    S = Partial Results   NOT SUPPORTED
    M = Result is a MIC level   NOT SUPPORTED
    R = This result was previously transmitted NOT SUPPORTED
    N = This result record contains necessary NOT SUPPORTED
        information to run a new order.

(10.1.10)Date systems values/units changed-   NOT SUPPORTED

(10.1.11)Operator Name/ID#-   SUPPORTED

(10.1.12)Date+Time Test Started   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.13)Date+Time Test Completed   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.14)Instrument ID-   SUPPORTED
(Configurable From DPC 'KIT' Program)

REQUEST INFORMATION RECORD (12.1 - 12.1.13)
NOT SUPPORTED IN UNI DIRECTIONAL MODE

MESSAGE TERMINATOR RECORD DEFINITION (13.1 - 13.1.3)
[Record Type ID (L)][Sequence Number][Temination Code]

Example Termination Record:
<STX>[FrameNumber]L|1|N<CR><ETX>[CheckSum]<CR><LF>

(13.1.1) Record Types Definition-
      L = Terminator record   SUPPORTED

(13.1.2)Sequence # -   REQUIRED

(13.1.3)Termination Code-
      N = Normal termination   SUPPORTED
      T = Sender Aborted   NOT SUPPORTED
      R = Receiver Abort   NOT SUPPORTED
      E = Unknown system error   NOT SUPPORTED
      Q = Error in last request for information   NOT SUPPORTED
      I = No information available from last query NOT SUPPORTED
      F = Last request for information Processed NOT SUPPORTED

IMMULITE LIS ERROR MESSAGE DEFINITIONS

Invalid ID- This is the #1 question asked by LIS customers. The Sender ID and \ or Receiver ID is incorrect in the header message. These items need to be switched by the LIS when sending messages to IMMULITE.

Example:
 Sender ID is set to "DPC" Receiver ID is set to "HOSPITAL" on IMMULITE

IMMULITE Sending: Sender ID field = "DPC", Receiver ID Field = "HOSPITAL"
LIS Sending: Sender ID Field = "HOSPITAL", Receiver ID field = "DPC"

Invalid Password- The password is incorrect in the header message. Correct by entering the proper password in the LIS PARAMETER section from the START menu. DPC does not know this password, this is set by the software company. SUNQUEST does not use a password. This field should be left blank for SUNQUEST systems.

Bad or Missing Frame Number- The frame number in the message is not proper. Usually indicates a programming bug in the LIS software, but may be a bad message (E.G. line noise). See ASTM 1394 Logical layer section 6.3.2 for further detail

Invalid Sequence Number- The sequence number in the message is not proper. Usually indicates a programming bug in the LIS software, but may be a bad message (E.G. line noise). See ASTM 1394 section 6.6.7 for further detail

Message Too short- Data within the message was dropped or not sent. Usually indicates a programming bug in the LIS software, but may be a bad message (E.G. line noise).

LIS Timeout- The LIS is not responding to IMMULITE. Causes can be a cabling problem, communication problem (hardware related), or programming bug in the LIS software

<CR> or <LF> Missing in LIS Transmission- Usually indicates a programming bug in the LIS software, but may be a bad message (E.G. line noise).

Error in last request- This is a response FROM the LIS stating the LIS encountered an error to the IMMULITE's request for information.

No info on this #- A response from the LIS to a Query message. The LIS has no information for the sample (accession#).

IMMULITE 1000 BI-DIRECTIONAL LIS SPECIFICATION
ASTM E1394

HEADER RECORD DEFINITION (7.1 - 7.1.14)
[Record Type (H)] [Delimiter Def.] [Message Control ID] [Password] [Sending systems company name] [Sending Systems address] [Reserved] [Senders Phone#] [Communication parameters] [Receiver ID] [Comments/special instructions] [Processing ID] [Version#] [Message Date + Time]
Sample Header Message:

<STX>[FrameNumber]H\^&||Password|DPCCIRRUS|Flanders^New^Jersey^07836||973 -927-2828|N81|YourSystem||P|1|19940323082858<CR><ETX>[CheckSum]<CR><LF>

(7.1.1) Record Types Definition-
      H = Header record   REQUIRED

(7.1.2) Delimiter Definition-
      ¦ = Field Delimiter   REQUIRED
      \ = Repeat Delimiter   REQUIRED
      ^ = Component Delimiter   REQUIRED
      & = Escape Delimiter   DEFINED, NOT SUPPORTED

(7.1.3) Message Control ID-   NOT SUPPORTED

(7.1.4) Access Password   REQUIRED
(Configurable in LIS Parameters screen;
Maximum of 15 characters)
(7.1.5) Sender Name or ID-   REQUIRED
(Configurable in LIS Parameters screen;
Maximum of 20 characters)
(7.1.6) Sender Street Address-   SUPPORTED

(7.1.7) Reserved Field-   NOT SUPPORTED

(7.1.8) Senders Telephone Number-   SUPPORTED

(7.1.9) Characteristics of Sender-   SUPPORTED
(No Parity 8 bits 1 Stop Bit)

(7.1.10) Receiver ID-   REQUIRED
(Configurable in LIS Parameters screen;
Maximum of 15 characters)
(7.1.11) Comments/Special Instructions-   NOT SUPPORTED

(7.1.12) Processing ID Definition-

P = "Normal" production/running message   SUPPORTED
T = Training message   NOT SUPPORTED
D = Debugging, used to debug a program(s)   NOT SUPPORTED
Q = Message is for QC/regulatory purposes   NOT SUPPORTED

(7.1.13) Version Number-   SUPPORTED
(Currently 1)

(7.1.14) Date + Time of Message   SUPPORTED
(YYYYMMDDHHMMSS)

PATIENT INFORMATION RECORD DEFINITION (8.1 - 8.1.35)
[Record Type (P)][Sequence #][Practice Assigned Patient ID][Laboratory Assigned Patient ID][Patient ID][Patient Name][Mother's Maiden Name][BirthDate][Patient Sex][Patient Race][Patient Address][Reserved][Patient Phone #][Attending Physician ID][Special Field 1][Special Field 2][Patient Height][Patient Weight][Patients Known or Suspected Diagnosis] [Patient active medications][Patients Diet][Practice Field #1][Practice Field #2][Admission and Discharge Dates][Admission Status][Location][Nature of Alternative Diagnostic Code and Classification][Alternative Diagnostic Code and Classification][Patient Religion][Marital Status][Isolation Status][Language][Hospital Service][Hospital Institution][Dosage Category]

Sample Patient Information Record:
<STX>[FrameNumber]P|1|101|||Riker^Al||19611102|F|||||Bashere<CR><ETX>[CheckSum]<CR><LF>

(8.1.1) Record Types Definition-
      P = Patient Identity Record   REQUIRED

(8.1.2) Sequence # Definition-   REQUIRED

(8.1.3) Practice Assigned Patient ID-   REQUIRED
(maximum of 20 characters)
(8.1.4) Laboratory Assigned Patient ID-   NOT SUPPORTED

(8.1.5) Patient ID-   NOT SUPPORTED

(8.1.6) Patient Name-   SUPPORTED

        For patient sample
        (Last^First^Initial; Maximum of 30 characters for Last&First name)

        For control sample

First 2 characters:	~C (use uppercase letter)
Next 6 characters:	Control Name (if fewer than 6 characters, right-padded with spaces; should not be empty)
Next 3 characters:	Control Lot (use 3 numeric digits; should not be empty)
Next 6 characters:	Expiration Date (use YYYYMM format; should not be empty)
Last 1 character:	Control Level (should not be empty)

For adjustor sample (SUPPORTED INTERNAL TO DPC)
First 2 characters:	~A (use uppercase letter)
Next 6 characters:	Test Code (should not be empty)
Next 3 characters:	Kit Lot (use 3 numeric digits; should not be empty)
Next 3 characters:	Adjustor Lot (use 3 numeric digits; should not be empty)
Last 2 characters:	Level (use 2 numeric digits; should not be empty)

For verifier sample (SUPPORTED INTERNAL TO DPC)
First 2 characters:	~V (use uppercase letter)
Next 6 characters:	Test Code (should not be empty)
Next 3 characters:	Verifier Lot (should not be empty)
Next 1 character:	Level (numeric values should not be empty)
Next 4 characters:	Range low (numeric value; should not be empty)
Next 4 characters:	Range high (numeric value; should not be empty)

(8.1.7) Mother's Maiden Name-   NOT SUPPORTED

(8.1.8) Birthdate-   SUPPORTED
(YYYYMMDD;
Maximum of 8 characters)
(8.1.9) Patient's Sex-   SUPPORTED
(M or F; maximum of 1 character)

(8.1.10)Patient Race-Ethnic Origin-   NOT SUPPORTED

(8.1.11)Patient's Address-   NOT SUPPORTED

(8.1.12)Reserved Field-   NOT SUPPORTED

(8.1.13)Patient's Phone#-   NOT SUPPORTED

(8.1.14)Attending Physician ID (Last Name Only)- SUPPORTED
(Maximum of 20 characters)

(8.1.15)Special Field 1-   NOT SUPPORTED
(SUPPORTED INTERNAL TO DPC)
(DPC Field 1)
(8.1.16)Special Field 2-   NOT SUPPORTED

(8.1.17)Patient Height-   NOT SUPPORTED

(8.1.18)Patient Weight-   NOT SUPPORTED

(8.1.19)Known or Suspected Diagnosis-   NOT SUPPORTED

(8.1.20)Active Medications-   NOT SUPPORTED

(8.1.21)Patient's Diet-   NOT SUPPORTED

(8.1.22)Practice Field 1-   NOT SUPPORTED

(8.1.23)Practice Field 2-   NOT SUPPORTED

(8.1.24)Admission and Discharge Dates-   NOT SUPPORTED

(8.1.25)Admission Status-   NOT SUPPORTED

(8.1.26)Location-   NOT SUPPORTED

(8.1.27)Nature of Alt. Diag. Code.....-   NOT SUPPORTED

(8.1.28)Alt. Diag. Code and Classifications-   NOT SUPPORTED

(8.1.29)Patient Religion-   NOT SUPPORTED

(8.1.30)Marital Status-   NOT SUPPORTED

(8.1.31)Isolation Status-   NOT SUPPORTED

(8.1.32)Language-   NOT SUPPORTED

(8.1.33)Hospital Service-   NOT SUPPORTED

(8.1.34)Hospital Institution-   NOT SUPPORTED

(8.1.35)Dosage Category-   NOT SUPPORTED

ORDER RECORD DEFINITION (9.4.1-9.4.31)

[Record Type (O)][Sequence#][Specimen ID (Accession#)][Instrument Specimen ID][Universal Test ID][Priority][Order Date/Time][Collection Date/Time][Collection End Time][Collection Volume][Collector ID][Action Code][Danger Code][Relevant Clinical Info][Date/Time Specimen Received][Specimen Descriptor,Specimen Type,Specimen Source][Ordering Physician][Physician's Telephone Number][User Field No.1][User Field No.2][Lab Field No.1][Lab Field No.2][Date/Time results reported or last modified][Instrument Charge to Computer System][Instrument Section ID][Report Types][Reserved Field][Location or ward of Specimen Collection][Nosocomial Infection Flag][Specimen Service][Specimen Institution]

Sample Test Order Message:
<STX>[FrameNumber]O|1|1550623||^^^LH|R|19931011091233|19931011091233<CR>
<ETX>[CheckSum]<CR><LF>

(9.4.1) Record types Definition-
      O = Test Order Record   REQUIRED

(9.4.2)Sequence #-   REQUIRED

(9.4.3) Specimen ID-   REQUIRED
             (maximum of 30 characters)
             For patient sample
             Accession number on primary tube

             For control

First 2 characters:	~C (use uppercase letter)
Next 6 characters:	Control Name (if fewer than 6 characters, right-padded with spaces; should not be empty)
Next 3 characters:	Control Lot (use 3 numeric digits; should not be empty)
Next 6 characters:	Expiration Date (use YYYYMM format; should not be empty)
Last 1 character:	Control Level (should not be empty)

             For adjustor (SUPPORTED INTERNAL TO DPC)

First 2 characters:	~A (use uppercase letter)
Next 6 characters:	Test Code (should not be empty)
Next 3 characters:	Kit Lot (use 3 numeric digits; should not be empty)
Next 3 characters:	Adjustor Lot (use 3 numeric digits; should not be empty)
Last 2 characters:	Level (use 2 numeric digits; should not be empty)

For verifier (SUPPORTED INTERNAL TO DPC)

First 2 characters:	~V (use uppercase letter)
Next 6 characters:	Test Code (should not be empty)
Next 3 characters:	Verifier Lot (should not be empty)
Next 1 character:	Level (numeric values should not be empty)
Next 4 characters:	Range low (numeric value; should not be empty)
Next 4 characters:	Range high (numeric value; should not be empty)

(9.4.4) Instrument Specimen ID-   NOT SUPPORTED
SUPPORTED INTERNAL TO DPC
(Sample Cup #)

(9.4.5) Universal Test ID   REQUIRED
(^^^[Test Code])
Example Test Codes: TSH, LH, FSH, DIG, T4, hCG, T-U, RTH, TT3, FER, PSA, PAP
(Maximum of 6 characters)

(9.4.6) Priority-   SUPPORTED
     S-Stat
     A-As soon as possible
     R-Routine
     C-Callback
     P-Preoperative
(Maximum of 1 character)

(9.4.7) Requested/Ordered Date and Time-   SUPPORTED
(YYYYMMDDHHMMSS;
Maximum of 14 characters)

(9.4.8) Specimen Collection Date and Time-   SUPPORTED
(Maximum of 14 characters)

(9.4.9) Collection End Time-   NOT SUPPORTED

(9.4.10) Collection Volume-   NOT SUPPORTED

(9.4.11) Collector ID-   NOT SUPPORTED

(9.4.12) Action Code-   NOT SUPPORTED

(9.4.13) Danger Code-   NOT SUPPORTED

(9.4.14) Relevant Clinical Information-   NOT SUPPORTED

(9.4.15) Date/Time Specimen Received-   NOT SUPPORTED

(9.4.16) Specimen Descriptor-   NOT SUPPORTED

(9.4.16.1) Specimen Type-   NOT SUPPORTED
(9.4.17) Ordering Physician-   NOT SUPPORTED

(9.4.18) Physician's Telephone Number-   NOT SUPPORTED

(9.4.19) Users Field No. 1-   NOT SUPPORTED
SUPPORTED INTERNAL TO DPC
(DPC Field 2)

(9.4.20) Users Field No. 2-   NOT SUPPORTED

(9.4.21) Lab Field No. 1-   NOT SUPPORTED
SUPPORTED INTERNAL TO DPC
(CPS)

(9.4.22) Lab Field No. 2-   NOT SUPPORTED
SUPPORTED INTERNAL TO DPC
(Kit Lot)

(9.4.23) Date/Time Results Reported....-   NOT SUPPORTED

(9.4.24) Instrument Charge to Computer Sys.-   NOT SUPPORTED

(9.4.25) Instrument Section ID-   NOT SUPPORTED

(9.4.26) Report Types-   NOT SUPPORTED

(9.4.27) Reserved Field-   NOT SUPPORTED

(9.4.28) Location of Specimen Collection-   NOT SUPPORTED

(9.4.29) Nosocomial Infection Flag-   NOT SUPPORTED

(9.4.30) Specimen Service-   NOT SUPPORTED

(9.4.31) Specimen Institution-   NOT SUPPORTED

RESULT RECORD DEFINITION (10.1 - 10.1.14)
[Record Type (R)][Sequence #][Universal Test ID][Data
(result)][Units][ReferenceRanges] [Result abnormal flags][Nature of Abnormality
Testing][Result Status][Date of change in instruments normal values or units][Operator
ID][Date\Time Test Started][Date\Time Test Completed][Instrument ID]

Sample Result Message:
<STX>[FrameNumber]R|1|^^^LH|8.2|mIU/mL|.7\.7^400\400|N|N|F||test|1993101109123
3|19931011091233|DPCCIRRUS<CR><ETX>[CheckSum]<CR><LF>

(10.1.1) Record Types Definition-
      R = Result Record   REQUIRED

(10.1.2)Sequence #-   REQUIRED

(10.1.3)Universal Test ID-   PARTIALLY SUPPORTED \
                                                     REQUIRED

 (^^^[Test Code])
Example Test Codes: TSH, LH, FSH, DIG, T4, hCG, T-U, RTH, TT3, FER, PSA, PAP

(10.1.4)Data or Measurement Value (Result)-   REQUIRED

(10.1.5)Units-   REQUIRED
Current DPC Units of Measure: ng/mL, ng/dL, ug/dL, uIu/mL, mIU/mL, pg/mL, nmol/L,
pmol/L, mIU/L, ug/L, IU/mL, IU/L,

(10.1.6)Reference Ranges-   SUPPORTED
([Low]\[Panic\Low]^[High]\[Panic High])

(10.1.7)Result Abnormal Flags-
(DPC may add in later revisions Instrument Failure Codes)
        L = Below Normal   SUPPORTED
        H = Above Normal   SUPPORTED
        LL = Below Panic   NOT SUPPORTED
        HH = Above Panic   NOT SUPPORTED
        < = Below readable limit   REQUIRED
         > = Above readable limit   REQUIRED
        N = Normal   SUPPORTED
        A = Abnormal   NOT SUPPORTED
        U = Significant change UP   NOT SUPPORTED
        D = Significant change DOWN NOT SUPPORTED
        B = Better   NOT SUPPORTED
        W = Worse   NOT SUPPORTED

(10.1.8)Nature of Abnormality Testing-
    A = Age population tested   NOT SUPPORTED
    S = Sex based Population   NOT SUPPORTED
    R = Race based Population   NOT SUPPORTED
    N = Normal generic range   SUPPORTED

 (10.1.9)Results Status-
    C = Correction of previously sent results NOT SUPPORTED
    P = Preliminary Results   NOT SUPPORTED
    F = Final Results   SUPPORTED
    X = Results cannot be done.   NOT SUPPORTED
    (Eg. Calculation Error)
    I = In instrument, results pending   NOT SUPPORTED
    S = Partial Results   NOT SUPPORTED
    M = Result is a MIC level   NOT SUPPORTED
    R = This result was previously transmitted SUPPORTED
    N = This result record contains necessary NOT SUPPORTED
          information to run a new order.

(10.1.10)Date systems values/units changed-   NOT SUPPORTED

(10.1.11)Operator Name/ID#-   SUPPORTED

(10.1.12)Date+Time Test Started   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.13)Date+Time Test Completed   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.14)Instrument ID-   SUPPORTED
(Configurable From DPC 'KIT' Program)

REQUEST INFORMATION RECORD DEFINITION (HOST QUERY) (12.1 - 12.1.13)
[Record Type ID (Q)][Sequence #][Starting Range][Ending Range][Test ID][Request Time Limits][Beginning request results date and time][Ending request results date and time][Physician name][Physician Phone Number][User Field 1]User Field 2][Status Codes]

Example Request Record:
<STX>[FrameNumber]Q|1|^1234ABC||ALL|||||||O<CR><ETX>[CheckSum]<CR><LF>

(12.1.1) Record Types Definition-

      Q = Request information Record   SUPPORTED (UPLOAD ONLY)

(12.1.2) Sequence Number   SUPPORTED

(12.1.3) Starting Range ID Number   REQUIRED

(12.1.4) Ending Range ID Number   NOT SUPPORTED

(12.1.5) Universal Test ID   REQUIRED

(12.1.6) Request Time Limits   NOT SUPPORTED

(12.1.7) Beginning Request Results ...   NOT SUPPORTED

(12.1.8) Ending Request Results ...   NOT SUPPORTED

(12.1.9) Physician Name   NOT SUPPORTED

(12.1.10) Physician Phone #   NOT SUPPORTED

(12.1.11) User field #1   NOT SUPPORTED

(12.1.12) User field #2   NOT SUPPORTED

12.1.13) Request information status codes

C- Correction of previous results	NOT SUPPORTED
P- Preliminary Results	NOT SUPPORTED
F- Final Results	NOT SUPPORTED
X- Results cannot be done, cancel	NOT SUPPORTED
I- Request Results Pending	NOT SUPPORTED
S- Request partial results	NOT SUPPORTED
M-Result is a MIC level	NOT SUPPORTED
R- Result previously transmitted	NOT SUPPORTED
A- Abort/cancel last request	REQUIRED
N- Requesting new results only	NOT SUPPORTED
O- Requesting orders and demographics	REQUIRED
D- Requesting demographics only	NOT SUPPORTED

MESSAGE TERMINATOR RECORD DEFINITION (13.1 - 13.1.3)
[Record Type ID (L)][Sequence Number][Temination Code]

Example Termination Record:
<STX>[FrameNumber]L|1|N<CR><ETX>[CheckSum]<CR><LF>

(13.1.1) Record Types Definition-

       L = Terminator record   SUPPORTED

(13.1.2)Sequence # -   REQUIRED

(13.1.3)Termination Code-
       N = Normal termination   SUPPORTED
       T = Sender Aborted   NOT SUPPORTED
       R = Receiver Abort   NOT SUPPORTED
       E = Unknown system error   NOT SUPPORTED
       Q = Error in last request for information   REQUIRED WITH QUERY
       I = No information available from last query REQUIRED WITH QUERY
       F = Last request for information Processed REQUIRED WITH QUERY

IMMULITE 1000 UNI-DIRECTIONAL LIS SPECIFICATION ASTM E1394

HEADER RECORD DEFINITION (7.1 - 7.1.14)
[Record Type (H)] [Delimiter Def.] [Message Control ID] [Password] [Sending systems company name] [Sending Systems address] [Reserved] [Senders Phone#] [Communication parameters] [Receiver ID] [Comments/special instructions] [Processing ID] [Version#] [Message Date + Time]
Sample Header Message:

<STX>[FrameNumber]H\|\^&||Password|DPCCIRRUS|Flanders^New^Jersey^07836||
973-927-2828|N81|Receiver||P|1|19920521132100<CR><ETX>[CheckSum]<CR><LF>

(7.1.1) Record Types Definition-
      H = Header record   REQUIRED

(7.1.2) Delimiter Definition-
      ¦ = Field Delimiter   REQUIRED
      \ = Repeat Delimiter   REQUIRED
      ^ = Component Delimiter   REQUIRED
      & = Escape Delimiter   DEFINED, NOT SUPPORTED

(7.1.3) Message Control ID-   NOT SUPPORTED

(7.1.4) Access Password   REQUIRED
(Configurable in LIS Parameters window;
Maximum of 15 characters)
(7.1.5) Sender Name or ID-   REQUIRED
(Configurable in LIS Parameters window;
Maximum of 20 characters)
(7.1.6) Sender Street Address-   SUPPORTED

(7.1.7) Reserved Field-   NOT SUPPORTED

(7.1.8) Senders Telephone Number-   SUPPORTED

(7.1.9) Characteristics of Sender-   SUPPORTED
(8 bits No Parity 1 Stop Bit)

(7.1.10) Receiver ID-   REQUIRED
(Configurable in the LIS Parameters window;
Maximum of 15 characters)

(7.1.11) Comments/Special Instructions-   NOT SUPPORTED

(7.1.12) Processing ID Definition-
       P = "Normal" production/running message SUPPORTED
       T = Training message   NOT SUPPORTED
       D = Debugging, used to debug a program(s) NOT SUPPORTED
       Q = Message is for QC/regulatory purposes NOT SUPPORTED

(7.1.13)Version Number-   SUPPORTED
(Currently 1)

(7.1.14)Date+Time of Message   SUPPORTED
(YYYYMMDDHHMMSS)

PATIENT INFORMATION RECORD DEFINITION (8.1 - 8.1.35)
[Record Type (P)][Sequence #][Practice Assigned Patient ID][Laboratory Assigned Patient ID][Patient ID][Patient Name][Mother's Maiden Name][BirthDate][Patient Sex][Patient Race][Patient Address][Reserved][Patient Phone #][Attending Physician ID][Special Field 1][Special Field 2][Patient Height][Patient Weight][Patients Known or Suspected Diagnosis] [Patient active medications][Patients Diet][Practice Field #1][Practice Field #2][Admission and Discharge Dates][Admission Status][Location][Nature of Alternative Diagnostic Code and Classification][Alternative Diagnostic Code and Classification][Patient Religion][Marital Status][Isolation Status][Language][Hospital Service][Hospital Institution][Dosage Category]

Sample Patient Information Record:
<STX>[FrameNumber]P|1||||Jones^Jane^L||19640804|F|||||Doctor<CR><ETX>[CheckSum]<CR><LF>

(8.1.1) Record Types Definition-
      P = Patient Identity Record   REQUIRED

(8.1.2) Sequence # Definition-   REQUIRED

(8.1.3) Practice Assigned Patient ID-   NOT SUPPORTED

(8.1.4) Laboratory Assigned Patient ID-   NOT SUPPORTED

(8.1.5) Patient ID-   NOT SUPPORTED

(8.1.6) Patient Name-   SUPPORTED
(Last^First^Initial; maximum of 20 characters for Last Name;
maximum of 15 characters for First Name)
(8.1.7) Mother's Maiden Name-   NOT SUPPORTED

(8.1.8) Birthdate-   SUPPORTED
(YYYYMMDD; maximum of 8 characters)

(8.1.9) Patient's Sex-   SUPPORTED
(M or F; maximum of 1 character)

(8.1.10)Patient Race-Ethnic Origin-   NOT SUPPORTED

(8.1.11)Patient's Address-   NOT SUPPORTED

(8.1.12)Reserved Field-   NOT SUPPORTED

(8.1.13)Patient's Phone#-   NOT SUPPORTED

(8.1.14)Attending Physician ID-   SUPPORTED
(Last Name Only; maximum of 20 characters)

(8.1.15)Special Field 1-   NOT SUPPORTED

(8.1.16)Special Field 2-   NOT SUPPORTED

(8.1.17)Patient Height-   NOT SUPPORTED

(8.1.18)Patient Weight-   NOT SUPPORTED

(8.1.19)Known or Suspected Diagnosis-   NOT SUPPORTED

(8.1.20)Active Medications-   NOT SUPPORTED

(8.1.21)Patient's Diet-   NOT SUPPORTED

(8.1.22)Practice Field 1-   NOT SUPPORTED

(8.1.23)Practice Field 2-   NOT SUPPORTED

(8.1.24)Admission and Discharge Dates-   NOT SUPPORTED

(8.1.25)Admission Status-   NOT SUPPORTED

(8.1.26)Location-   NOT SUPPORTED

(8.1.27)Nature of Alt. Diag. Code.....-   NOT SUPPORTED

(8.1.28)Alt. Diag. Code and Classifications-   NOT SUPPORTED

(8.1.29)Patient Religion-   NOT SUPPORTED

(8.1.30)Marital Status-   NOT SUPPORTED

(8.1.31)Isolation Status-   NOT SUPPORTED

(8.1.32)Language-   NOT SUPPORTED

(8.1.33)Hospital Service-   NOT SUPPORTED

(8.1.34)Hospital Institution-   NOT SUPPORTED

(8.1.35)Dosage Category-   NOT SUPPORTED

ORDER RECORD DEFINITION (9.4.1-9.4.31)

[Record Type (O)][Sequence#][Specimen ID (Accession#)][Instrument Specimen ID][Universal Test ID][Priority][Order Date/Time][Collection Date/Time][Collection End Time][Collection Volume][Collector ID][Action Code][Danger Code][Relevant Clinical Info][Date/Time Specimen Received][Specimen Descriptor,Specimen Type,Specimen Source][Ordering Physician][Physician's Telephone Number][User Field No.1][User Field No.2][Lab Field No.1][Lab Field No.2][Date/Time results reported or last modified][Instrument Charge to Computer System][Instrument Section ID][Report Types][Reserved Field][Location or ward of Specimen Collection][Nosocomial Infection Flag][Specimen Service][Specimen Institution]

Sample Test Order Message:
<STX>[FrameNumber]O|1|123456||^^^TSH<CR><ETX>[CheckSum]<CR><LF>

(9.4.1) Record types Definition-
      O = Test Order Record   REQUIRED

(9.4.2)Sequence #-   REQUIRED

(9.4.3) Specimen ID-   REQUIRED
(ACCESSION # ON PRIMARY TUBE;
maximum of 20 characters)

(9.4.4) Instrument Specimen ID-   NOT SUPPORTED
SUPPORTED INTERNAL TO DPC
Sample Cup #

(9.4.5) Universal Test ID   REQUIRED
(^^^[Test Code])
Example Test Codes: TSH, LH, FSH, DIG, TT4, hCG, T-U, RTH, TT3, FER, PSA, PAP
(maximum of 6 characters)

(9.4.6) Priority-   NOT SUPPORTED
(maximum of 1 character)

(9.4.7) Requested/Ordered Date and Time-   NOT SUPPORTED
(maximum of 14 characters)

(9.4.8) Specimen Collection Date and Time- NOT SUPPORTED
(maximum of 14 characters)

(9.4.9) Collection End Time-   NOT SUPPORTED

(9.4.10) Collection Volume-   NOT SUPPORTED

(9.4.11) Collector ID-   NOT SUPPORTED

(9.4.12) Action Code-   NOT SUPPORTED

(9.4.13) Danger Code-   NOT SUPPORTED

(9.4.14) Relevant Clinical Information-   NOT SUPPORTED

(9.4.15) Date/Time Specimen Received-   NOT SUPPORTED

(9.4.16) Specimen Descriptor-   NOT SUPPORTED

(9.4.16.1) Specimen Type-   NOT SUPPORTED

(9.4.17) Ordering Physician-   NOT SUPPORTED

(9.4.18) Physician's Telephone Number-   NOT SUPPORTED

(9.4.19) Users Field No. 1-   NOT SUPPORTED

(9.4.20) Users Field No. 2-   NOT SUPPORTED

(9.4.21) Lab Field No. 1-   NOT SUPPORTED
SUPPORTED INTERNAL TO DPC
(CPS)

(9.4.22) Lab Field No. 2-   NOT SUPPORTED
SUPPORTED INTERNAL TO DPC
(Kit Lot)

(9.4.23) Date/Time Results Reported....-   NOT SUPPORTED

(9.4.24) Instrument Charge to Computer Sys.-   NOT SUPPORTED

(9.4.25) Instrument Section ID-   NOT SUPPORTED

(9.4.26) Report Types-   NOT SUPPORTED

(9.4.27) Reserved Field-   NOT SUPPORTED

(9.4.28) Location of Specimen Collection-   NOT SUPPORTED

(9.4.29) Nosococmial Infection Flag-   NOT SUPPORTED

(9.4.30) Specimen Service-   NOT SUPPORTED

(9.4.31) Specimen Institution-   NOT SUPPORTED

RESULT RECORD DEFINITION (10.1 - 10.1.14)
[Record Type (R)][Sequence #][Universal Test ID][Data
(result)][Units][ReferenceRanges] [Result abnormal flags][Nature of Abnormality
Testing][Result Status][Date of change in instruments normal values or units][Operator
ID][Date\Time Test Started][Date\Time Test Completed][Instrument ID]

Sample Result Message:
<STX>[FrameNumber]R|1|^^^TSH|8.19|uIU/mL|.4\.002^4\75|H|N|F||test|199403281083
4|19920526110500|DPCCIRRUS<CR><ETX>[CheckSum]<CR><LF>

(10.1.1) Record Types Definition-
      R = Result Record   REQUIRED

(10.1.2)Sequence #-   REQUIRED

(10.1.3)Universal Test ID-   PARTIALLY SUPPORTED \
                                              REQUIRED
(^^^[Test Code])
Example Test Codes: TSH, LH, FSH, DIG, TT4, hCG, T-U, RTH, TT3, FER, PSA, PAP

(10.1.4)Data or Measurement Value (Result)-   REQUIRED
Current

(10.1.5)Units-   REQUIRED
Current DPC Units of Measure: ng/mL, ng/dL, ug/dL, uIu/mL, mIU/mL, pg/mL, nmol/L,
pmol/L, mIU/L, ug/L, IU/mL, IU/L

(10.1.6)Reference Ranges-   SUPPORTED
([Low]\[Panic\Low]^[High]\[Panic High])

(10.1.7)Result Abnormal Flags-
(DPC may add in later revisions Instrument Failure Codes)

L = Below Normal	SUPPORTED
H = Above Normal	SUPPORTED
LL = Below Panic	NOT SUPPORTED
HH = Above Panic	NOT SUPPORTED
< = Below readable limit	REQUIRED
> = Above readable limit	REQUIRED
N = Normal	SUPPORTED
A = Abnormal	NOT SUPPORTED
U = Significant change UP	NOT SUPPORTED
D = Significant change DOWN	NOT SUPPORTED
B = Better	NOT SUPPORTED
W = Worse	NOT SUPPORTED

(10.1.8)Nature of Abnormality Testing-
    A = Age population tested   NOT SUPPORTED
    S = Sex based Population   NOT SUPPORTED
    R = Race based Population   NOT SUPPORTED
    N = Normal generic range   SUPPORTED

(10.1.9)Results Status-
    C = Correction of previously sent results NOT SUPPORTED
    P = Preliminary Results   NOT SUPPORTED
    F = Final Results   SUPPORTED
    X = Results cannot be done.   NOT SUPPORTED
    (Eg. Calculation Error)
    I = In instrument, results pending   NOT SUPPORTED
    S = Partial Results   NOT SUPPORTED
    M = Result is a MIC level   NOT SUPPORTED
    R = This result was previously transmitted SUPPORTED
    N = This result record contains necessary NOT SUPPORTED
         information to run a new order.

(10.1.10)Date systems values/units changed-   NOT SUPPORTED

(10.1.11)Operator Name/ID#-   SUPPORTED

(10.1.12)Date+Time Test Started   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.13)Date+Time Test Completed   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.14)Instrument ID-   SUPPORTED
(Configurable From DPC 'KIT' Program)

REQUEST INFORMATION RECORD (12.1 - 12.1.13)
NOT SUPPORTED IN UNI DIRECTIONAL MODE

MESSAGE TERMINATOR RECORD DEFINITION (13.1 - 13.1.3)
[Record Type ID (L)][Sequence Number][Temination Code]

Example Termination Record:
<STX>[FrameNumber]L|1|N<CR><ETX>[CheckSum]<CR><LF>

(13.1.2) Record Types Definition-
      L = Terminator record   SUPPORTED

(13.1.2)Sequence # -   REQUIRED

(13.1.3)Termination Code-
      N = Normal termination   SUPPORTED
      T = Sender Aborted   NOT SUPPORTED
      R = Receiver Abort   NOT SUPPORTED
      E = Unknown system error   NOT SUPPORTED
      Q = Error in last request for information   NOT SUPPORTED
      I = No information available from last query NOT SUPPORTED
      F = Last request for information Processed NOT SUPPORTED

IMMULITE 1000 LIS ERROR MESSAGE DEFINITIONS

Error # 300 LIS Error: Timeout During Receive – The LIS is not responding to the IMMULITE 1000. Causes can be a cabling problem, hardware communication problem or a programming bug in the LIS software.

Error # 301 LIS Error: Invalid Frame Number- The frame number in the message is not proper. Usually indicates a programming bug in the LIS software, but may be a bad message (e.g. line noise). See ASTM 1381 Logical layer section 6.3.2.1 for further detail.

Error # 302 LIS Error: Invalid Checksum – Checksum did not match due to a transmission error.

Error # 303 LIS Error: Missing Control Character - Usually indicates a programming bug in the LIS software, but may be a bad message (e.g. line noise).

Error # 304 LIS Error: Invalid Message Length - Data within the message was dropped or not sent. Usually indicates a programming bug in the LIS software, but may be a bad message (e.g. line noise).

Error # 305 LIS Error: Invalid Frame Sequence - The sequence number in the message is not proper. Usually indicates a programming bug in the LIS software, but may be a bad message (E.G. line noise). See ASTM 1381 section 6.3.2.1 for further detail.

Error # 306 LIS Error: No Acknowledgement from LIS – There is no communication between the IMMULITE 1000 and the LIS.

Error # 307 LIS Error: Timeout During Send - The LIS is not responding to IMMULITE 1000. Causes can be a cabling problem, communication problem (hardware related), or programming bug in the LIS software

Error # 308 LIS Error: Excessive LIS errors are occurring – There are numerous LIS errors during a session.

Error # 309 LIS Error: Log File Error – There was an error while writing to the Log File.

Error # 314 LIS Error: Header Message Not Received - The Header Password is incorrect or there is no header message.

Error # 315 LIS Error: Patient Message Not Received – A record required for LIS communications is not found.

Error # 316 LIS Error: EOT received prior to ENQ – An LIS message was received out of sequence.

Error # 317 LIS Error: Invalid LIS Message – An invalid message type code was transmitted.

Error # 318 LIS Error: Unexpected Communication from LIS - Communication Error.

Error # 319 LIS Error: Cannot Open Communication Port - The serial port is not configured properly or is not configured at all.

Error # 31421 LIS Error: No Results Selected - Tagged records are not found in the database.

Error # 31422 LIS Error: LIS Unavailable – The LIS is not responding to the IMMULITE 1000. The causes can be a cabling problem, a hardware communication problem or a bug in the LIS software.

Error # 31423 LIS Error: Terminator Code Error - There is a terminator code error.

Error # 31424 LIS Error: LIS Terminator Code Invalid - The terminator code is invalid.

Error # 31425 LIS Error: Password Error - The password is incorrect in the header message. Correct by entering the proper password in the LIS PARAMETER section from the START menu. DPC does not know this password, this is set by the software company. SUNQUEST does not use a password. This field should be left blank for SUNQUEST systems.

Error # 31427 LIS Error: Receiver ID Error - This is the #1 question asked by LIS customers. The Receiver ID is incorrect in the header message. These items need to be switched by the LIS when sending messages to IMMULITE 1000.
Example:
 Receiver ID is set to "HOSPITAL" on IMMULITE 1000
IMMULITE Sending: Sender ID field = "DPC", Receiver ID Field = "HOSPITAL"
LIS Sending: Sender ID Field = "HOSPITAL", Receiver ID field = "DPC."

Error # 31428 LIS Error: Patient ID Missing - The LIS is missing a patient ID.

Error # 31429 LIS Error: Patient ID exceeded 20 characters - The Patient ID has exceeded the allowable number of characters.

Error # 31430 LIS Error: Accession Number Missing - The accession number is missing.

Error # 31431 LIS Error: Accession Number Exceeded 20 Characters - The accession number has exceeded the allowable number of characters.

Error # 31433 LIS Error: No Control Record Found - Control information is not in the database.

Error # 31435 LIS Error: Invalid Control Data - Control data is in an invalid format.

Error # 31437 LIS Error: LIS Unavailable in Test Mode - Occurs when an underlying hardware or configuration error causes a software communication error.

Error # 31439 LIS Error 31439: Call Technical Services – Occurs when an underlying hardware or configuration error causes a software communication issue.

Error # 31440 LIS Error: Query Failure - The LIS encountered an error when processing the IMMULITE 1000's request for information.

Error # 31520 LIS Error: Query Communication Error – The IMMULITE 1000 LIS software is not responding. The LIS configuration parameters may have changed.

IMMULITE 2000 BI-DIRECTIONAL LIS SPECIFICATION
ASTM E1394

HEADER RECORD DEFINITION (7.1 - 7.1.14)
[Record Type (H)] [Delimiter Def.] [Message Control ID] [Password] [Sending systems company name] [Sending Systems address] [Reserved] [Senders Phone#] [Communication parameters] [Receiver ID] [Comments/special instructions] [Processing ID] [Version#] [Message Date + Time]
Sample Header Message:

<STX>[FrameNumber]H|\^&||Password|DPCCIRRUS|Randolph^New^Jersey^07869||(201)927-
2828|8N1|YourSystem||P|1|19940323082858<CR><ETX>[CheckSum]<CR><LF>

(7.1.1) Record Types Definition- H = Header record	REQUIRED
(7.1.2) Delimiter Definition-	REQUIRED
¦ = Field Delimiter	REQUIRED
\ = Repeat Delimiter	REQUIRED
^ = Component Delimiter	REQUIRED
DEFINED, NOT SUPPORTED	
(7.1.3) Message Control ID-	NOT SUPPORTED
(7.1.4) Access Password	REQUIRED
(Configurable by DPC Instrument Systems Division Software; Maximum of 10 characters)	
(7.1.5) Sender Name or ID-	REQUIRED
(Configurable by DPC Instrument Systems Division Software; maximum of 10 characters)	
(7.1.6) Sender Street Address-	SUPPORTED
(7.1.7) Reserved Field-	NOT SUPPORTED
(7.1.8) Senders Telephone Number-	SUPPORTED
(7.1.9) Characteristics of Sender- (8 bits No Parity 1 Stop Bit)	SUPPORTED

(7.1.10)Receiver ID-   REQUIRED
(Configurable by DPC Instrument Systems Division Software;
maximum of 10 characters)
(7.1.11)Comments/Special Instructions-   NOT SUPPORTED

       (7.1.12) Processing ID Definition-
P = "Normal" production/running message   SUPPORTED
T = Training message   NOT SUPPORTED
D = Debugging, used to debug a program(s)   NOT SUPPORTED
Q = Message is for QC/regulatory purposes   NOT SUPPORTED

(7.1.13)Version Number-   SUPPORTED
(Currently 1)

(7.1.14)Date+Time of Message   SUPPORTED
(YYYYMMDDHHMMSS)

PATIENT INFORMATION RECORD DEFINITION (8.1 - 8.1.35)
[Record Type (P)][Sequence #][Practice Assigned Patient ID][Laboratory Assigned Patient ID][Patient ID][Patient Name][Mother's Maiden Name][BirthDate][Patient Sex][Patient Race][Patient Address][Reserved][Patient Phone #][Attending Physician ID][Special Field 1][Special Field 2][Patient Height][Patient Weight][Patients Known or Suspected Diagnosis] [Patient active medications][Patients Diet][Practice Field #1][Practice Field #2][Admission and Discharge Dates][Admission Status][Location][Nature of Alternative Diagnostic Code and Classification][Alternative Diagnostic Code and Classification][Patient Religion][Marital Status][Isolation Status][Language][Hospital Service][Hospital Institution][Dosage Category]

Sample Patient Information Record:
<STX>[FrameNumber]P|1|101|||Riker^Al||19611102|F|||||Bashere<CR><ETX>[CheckSum]<CR><LF>

(8.1.1) Record Types Definition-
      P = Patient Identity Record   REQUIRED

(8.1.2) Sequence # Definition-   REQUIRED

(8.1.3) Practice Assigned Patient ID-   REQUIRED
(maximum of 20 characters)
(8.1.4) Laboratory Assigned Patient ID-   NOT SUPPORTED

(8.1.5) Patient ID-   NOT SUPPORTED

(8.1.6) Patient Name-   SUPPORTED

For patient sample
(Last^First^Initial; maximum of 30 characters for both Last&First name)

For control
First 2 characters: ~C (use uppercase letter)
Next 6 characters: Control Name (if fewer than 6 characters, right-padded with spaces; should not be empty)
Next 3 characters: Control Lot (use 3 numeric digits; should not be empty)
Next 6 characters: Expiration Date (use YYYYMM format; should not be empty)
Last 1 character: Control Level (should not be empty)

For adjustor

First 2 characters:	~A (use uppercase letter)
Next 6 characters:	Test Code (should not be empty)
Next 3 characters:	Kit Lot (use 3 numeric digits; should not be empty)
Next 3 characters:	Adjustor Lot (use 3 numeric digits; should not be empty)
Last 2 characters:	Level (use 2 numeric digits; should not be empty)

For verifier

First 2 characters:	~V (use uppercase letter)
Next 6 characters:	Test Code (should not be empty)
Next 3 characters:	Verifier Lot (should not be empty)
Next 1 character:	Level (should not be empty)
Next 4 characters:	Range low (numeric value; should not be empty)
Next 4 characters:	Range high (numeric value; should not be empty)

(8.1.7) Mother's Maiden Name-	NOT SUPPORTED
(8.1.8) Birthdate- (YYYYMMDD; maximum of 8 characters)	SUPPORTED
(8.1.9) Patient's Sex- (M or F; maximum of 1 character)	SUPPORTED
(8.1.10)Patient Race-Ethnic Origin-	NOT SUPPORTED
(8.1.11)Patient's Address-	NOT SUPPORTED
(8.1.12)Reserved Field-	NOT SUPPORTED
(8.1.13)Patient's Phone#-	NOT SUPPORTED
(8.1.14)Attending Physician ID (Name; maximum of 30 characters)	NOT SUPPORTED
(8.1.15)Special Field 1-	NOT SUPPORTED
(8.1.16)Special Field 2-	NOT SUPPORTED
(8.1.17)Patient Height-	NOT SUPPORTED
(8.1.18)Patient Weight-	NOT SUPPORTED
(8.1.19)Known or Suspected Diagnosis-	NOT SUPPORTED
(8.1.20)Active Medications-	NOT SUPPORTED
(8.1.21)Patient's Diet-	NOT SUPPORTED

(8.1.22)Practice Field 1-   NOT SUPPORTED

(8.1.23)Practice Field 2-   NOT SUPPORTED

(8.1.24)Admission and Discharge Dates- NOT SUPPORTED

(8.1.25)Admission Status-   NOT SUPPORTED

(8.1.26)Location-   NOT SUPPORTED

(8.1.27)Nature of Alt. Diag. Code.....- NOT SUPPORTED

(8.1.28)Alt. Diag. Code and Classifications- NOT SUPPORTED

(8.1.29)Patient Religion-   NOT SUPPORTED

(8.1.30)Marital Status-   NOT SUPPORTED

(8.1.31)Isolation Status-   NOT SUPPORTED

(8.1.32)Language-   NOT SUPPORTED

(8.1.33)Hospital Service-   NOT SUPPORTED

(8.1.34)Hospital Institution-   NOT SUPPORTED

(8.1.35)Dosage Category-   NOT SUPPORTED

ORDER RECORD DEFINITION (9.4.1-9.4.31)
[Record Type (O)][Sequence#][Specimen ID (Accession#)][Instrument Specimen ID][Universal Test ID][Priority][Order Date/Time][Collection Date/Time][Collection End Time][Collection Volume][Collector ID][Action Code][Danger Code][Relevant Clinical Info][Date/Time Specimen Received][Specimen Descriptor,Specimen Type,Specimen Source][Ordering Physician][Physician's Telephone Number][User Field No.1][User Field No.2][Lab Field No.1][Lab Field No.2][Date/Time results reported or last modified][Instrument Charge to Computer System][Instrument Section ID][Report Types][Reserved Field][Location or ward of Specimen Collection][Nosocomial Infection Flag][Specimen Service][Specimen Institution]

Sample Test Order Message:
<STX>[FrameNumber]O|1|1550623||^^^LH|R|19931011091233|19931011091233||||||Post Menopausal<CR><ETX>[CheckSum]<CR><LF>

(9.4.1) Record types Definition-
       O = Test Order Record   REQUIRED

(9.4.2) Sequence #-   REQUIRED

(9.4.3) Specimen ID-   REQUIRED
(maximum of 30 characters)
For patient sample
Accession number on primary tube
For control
First 2 characters: ~C (use uppercase letter)
Next 6 characters: Control Name (if fewer than 6 characters, right-padded with spaces; should not be empty)
Next 3 characters: Control Lot (use 3 numeric digits; should not be empty)
Next 6 characters: Expiration Date (use YYYYMM format; should not be empty)
Last 1 character: Control Level (should not be empty)

For adjustor
First 2 characters: ~A (use uppercase letter)
Next 6 characters: Test Code (should not be empty)
Next 3 characters: Kit Lot (use 3 numeric digits; should not be empty)
Next 3 characters: Adjustor Lot (use 3 numeric digits; should not be empty)
Last 2 characters: Level (use 2 numeric digits; should not be empty)

For verifier

First 2 characters:	~V (use uppercase letter)
Next 6 characters:	Test Code (should not be empty)
Next 3 characters:	Verifier Lot (should not be empty)
Next 1 character:	Level (should not be empty)
Next 4 characters:	Range low (numeric value; should not be empty)
Next 4 characters:	Range high (numeric value; should not be empty)

(9.4.4) Instrument Specimen ID-   NOT SUPPORTED

(9.4.5) Universal Test ID   REQUIRED
(^^^[Test Code]) Test Code can be up to 10 characters
Examples:

Order for TSH
^^^TSH

Order for multiple TSH tests
^^^TSH\^^^TSH

Order for TSH with ten-fold dilution
^^^TSH^10

Order for multiple TSH tests with dilutions
^^^TSH^10\^^^TSH^40

Order for a panel of tests called PANEL1
^^^PANEL1

Order for allergy
^^^ SPE D120
A maximum of 3 characters for the Universal Reagent (SPE), a space, and a maximum of
6 characters for the Allergen Code (D120).

(9.4.6) Priority-   SUPPORTED
          S-Stat
          A-As soon as possible
          R-Routine
          C-Callback
          P-Preoperative
          (All maximum of 1 character)
(9.4.7) Requested/Ordered Date and Time-   SUPPORTED
(YYYYMMDDHHMMSS; maximum of 14 characters)

(9.4.8) Specimen Collection Date and Time-   SUPPORTED
(maximum of 14 characters)
(9.4.9) Collection End Time-   NOT SUPPORTED

(9.4.10) Collection Volume-	NOT SUPPORTED
(9.4.11) Collector ID-	NOT SUPPORTED
(9.4.12) Action Code-	NOT SUPPORTED
(9.4.13) Danger Code-	NOT SUPPORTED
(9.4.14) Relevant Clinical Information-	SUPPORTED
(9.4.15) Date/Time Specimen Received-	NOT SUPPORTED
(9.4.16) Specimen Descriptor-	NOT SUPPORTED
(9.4.17) Ordering Physician- Smith^Joseph (maximum of 30 characters)	SUPPORTED
(9.4.18) Physician's Telephone Number-	NOT SUPPORTED
(9.4.19) Users Field No. 1-	NOT SUPPORTED
(9.4.20) Users Field No. 2-	NOT SUPPORTED
(9.4.21) Lab Field No. 1-	NOT SUPPORTED
(9.4.22) Lab Field No. 2-	NOT SUPPORTED
(9.4.23) Date/Time Results Reported....-	NOT SUPPORTED
(9.4.24) Instrument Charge to Computer Sys.-	NOT SUPPORTED
(9.4.25) Instrument Section ID-	SUPPORTED
(9.4.26) Report Types-	NOT SUPPORTED
(9.4.27) Reserved Field-	NOT SUPPORTED
(9.4.28) Location of Specimen Collection-	NOT SUPPORTED
(9.4.29) Nosococmial Infection Flag-	NOT SUPPORTED
(9.4.30) Specimen Service-	NOT SUPPORTED
(9.4.31) Specimen Institution-	NOT SUPPORTED

RESULT RECORD DEFINITION (10.1 - 10.1.14)
[Record Type (R)][Sequence #][Universal Test ID][Data
(result)][Units][ReferenceRanges] [Result abnormal flags][Nature of Abnormality
Testing][Result Status][Date of change in instruments normal values or units][Operator
ID][Date\Time Test Started][Date\Time Test Completed][Instrument ID]

Sample Result Message:
<STX>[FrameNumber]R|1|^^^LH|8.2|mIU/mL|.7\.7^400\400|N|N|F||test|1993101109123
3|19931011091233|DPCCIRRUS<CR><ETX>[CheckSum]<CR><LF>

(10.1.1) Record Types Definition-
     R = Result Record   REQUIRED

(10.1.2)Sequence #-   REQUIRED

(10.1.3)Universal Test ID   REQUIRED
(^^^[Test Code])
     Example Test Codes: TSH, LH, FSH, DIG, T4, hCG, RTH, SPE D120

(10.1.4)Data or Measurement Value (Result)   REQUIRED

(10.1.5)Units-   REQUIRED
     Current DPC Units of Measure: ng/mL, ng/dL, ug/dL, uIu/mL, mIU/mL, pg/mL,
     nmol/L, pmol/L, mIU/L, ug/L, IU/mL, IU/L, KU/L, SClass

(10.1.6)Reference Ranges-   SUPPORTED
     ([Low]\[Panic\Low]^[High]\[Panic High])

(10.1.7)Result Abnormal Flags-
     L = Below Normal   SUPPORTED
     H = Above Normal   SUPPORTED
     LL = Below Panic   NOT SUPPORTED
     HH = Above Panic   NOT SUPPORTED
     < = Below readable limit   REQUIRED
      > = Above readable limit   REQUIRED
     N = Normal   SUPPORTED
     A = Abnormal   NOT SUPPORTED
     U = Significant change UP   NOT SUPPORTED
     D = Significant change DOWN   NOT SUPPORTED
     B = Better   NOT SUPPORTED
     W = Worse   NOT SUPPORTED

(10.1.8)Nature of Abnormality Testing-
    A = Age population tested   NOT SUPPORTED
    S = Sex based Population   NOT SUPPORTED
    R = Race based Population   NOT SUPPORTED
    N = Normal generic range   SUPPORTED

(10.1.9)Results Status-
    C = Correction of previously sent results NOT SUPPORTED
    P = Preliminary Results   NOT SUPPORTED
    F = Final Results   SUPPORTED
    X = Results cannot be done.   NOT SUPPORTED
    (Eg. Calculation Error)
    I = In instrument, results pending   NOT SUPPORTED
    S = Partial Results   NOT SUPPORTED
    M = Result is a MIC level   NOT SUPPORTED
    R = This result was previously transmitted SUPPORTED
    N = This result record contains necessary NOT SUPPORTED
           information to run a new order.

(10.1.10)Date systems values/units changed-   NOT SUPPORTED

(10.1.11)Operator Name/ID#-   SUPPORTED

(10.1.12)Date+Time Test Started   SUPPORTED
    (YYYYMMDDHHMMSS)

(10.1.13)Date+Time Test Completed   SUPPORTED
    (YYYYMMDDHHMMSS)

(10.1.14)Instrument ID-   SUPPORTED
    (Configurable From DPC Instrument Systems Division software)

REQUEST INFORMATION RECORD DEFINITION (HOST QUERY) (12.1 - 12.1.13)

[Record Type ID (Q)][Sequence #][Starting Range][Ending Range][Test ID][Request Time Limits][Beginning request results date and time][Ending request results date and time][Physician name][Physician Phone Number][User Field 1]User Field 2][Status Codes]

Example Request Record:
<STX>[FrameNumber]Q|1|^1234ABC||ALL|||||||O<CR><ETX>[CheckSum]<CR><LF>

(12.1.1) Record Types Definition-
       Q = Request information Record   SUPPORTED (UPLOAD ONLY)

(12.1.2) Sequence Number   SUPPORTED

(12.1.3) Starting Range ID Number   REQUIRED

(12.1.4) Ending Range ID Number   NOT SUPPORTED

(12.1.5) Universal Test ID   REQUIRED

(12.1.6) Request Time Limits   NOT SUPPORTED

(12.1.7) Beginning Request Results ...   NOT SUPPORTED

(12.1.8) Ending Request Results ...   NOT SUPPORTED

(12.1.9) Physician Name   NOT SUPPORTED

(12.1.10) Physician Phone #   NOT SUPPORTED

(12.1.11) User field #1   NOT SUPPORTED

(12.1.12) User field #2   NOT SUPPORTED

(12.1.13) Request information status codes

C- Correction of previous results	NOT SUPPORTED
P- Preliminary Results	NOT SUPPORTED
F- Final Results	NOT SUPPORTED
X- Results cannot be done, cancel	NOT SUPPORTED
I- Request Results Pending	NOT SUPPORTED
S- Request partial results	NOT SUPPORTED
M-Result is a MIC level	NOT SUPPORTED
R- Result previously transmitted	NOT SUPPORTED
A- Abort/cancel last request	REQUIRED
N- Requesting new results only	NOT SUPPORTED
O- Requesting orders and demographics	REQUIRED
D- Requesting demographics only	NOT SUPPORTED

MESSAGE TERMINATOR RECORD DEFINITION (13.1 - 13.1.3)
[Record Type ID (L)][Sequence Number][Temination Code]

Example Termination Record:
<STX>[FrameNumber]L|1|N<CR><ETX>[CheckSum]<CR><LF>

(13.1.1) Record Types Definition-
      L = Terminator record   SUPPORTED

(13.1.2)Sequence # -   REQUIRED

(13.1.3)Termination Code-
      N = Normal termination   SUPPORTED
      T = Sender Aborted   NOT SUPPORTED
      R = Receiver Abort   NOT SUPPORTED
      E = Unknown system error   NOT SUPPORTED
      Q = Error in last request for information   REQUIRED WITH QUERY
      I = No information available from last query   REQUIRED WITH QUERY

      F = Last request for information Processed   REQUIRED WITH QUERY

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HEADER RECORD DEFINITION (7.1 - 7.1.14)
[Record Type (H)] [Delimiter Def.] [Message Control ID] [Password] [Sending systems company name] [Sending Systems address] [Reserved] [Senders Phone#] [Communication parameters] [Receiver ID] [Comments/special instructions] [Processing ID] [Version#] [Message Date + Time]

> Sample Header Message:
>
> <STX>[FrameNumber]H|\^&||Password|DPCCIRRUS|Randolph^New^Jersey^07869||(201)927-2828|8N1|Receiver||P|1|19920521132100<CR><ETX>[CheckSum]<CR><LF>

(7.1.1) Record Types Definition-
        H = Header record   REQUIRED

(7.1.2) Delimiter Definition-
        ¦ = Field Delimiter   REQUIRED
        \ = Repeat Delimiter   REQUIRED
        ^ = Component Delimiter   REQUIRED
        & = Escape Delimiter   DEFINED, NOT SUPPORTED

(7.1.3) Message Control ID-   NOT SUPPORTED

(7.1.4) Access Password   REQUIRED
      (Configurable by DPC Instrument Systems Division Program;
      Maximum of 10 characters)
(7.1.5) Sender Name or ID-   REQUIRED
      (Configurable by DPC Instrument Systems Division Program;
      maximum of 10 characters)
(7.1.6) Sender Street Address-   SUPPORTED

(7.1.7) Reserved Field-   NOT SUPPORTED

(7.1.8) Senders Telephone Number-   SUPPORTED

(7.1.9) Characteristics of Sender-   SUPPORTED
      (8 bits No Parity 1 Stop Bit)

(7.1.10)Receiver ID-   REQUIRED
     (Configurable by DPC Instrument Systems Division Program;
     maximum of 10 characters)
(7.1.11)Comments/Special Instructions-   NOT SUPPORTED

(7.1.12) Processing ID Definition-
          P = "Normal" production/running message   SUPPORTED
          T = Training message   NOT SUPPORTED
          D = Debugging, used to debug a program(s) NOT SUPPORTED
          Q = Message is for QC/regulatory purposes NOT SUPPORTED

(7.1.13)Version Number-   SUPPORTED
     (Currently 1)

(7.1.14)Date+Time of Message   SUPPORTED
     (YYYYMMDDHHMMSS)

PATIENT INFORMATION RECORD DEFINITION (8.1 - 8.1.35)
[Record Type (P)][Sequence #][Practice Assigned Patient ID][Laboratory Assigned Patient ID][Patient ID][Patient Name][Mother's Maiden Name][BirthDate][Patient Sex][Patient Race][Patient Address][Reserved][Patient Phone #][Attending Physician ID][Special Field 1][Special Field 2][Patient Height][Patient Weight][Patients Known or Suspected Diagnosis] [Patient active medications][Patients Diet][Practice Field #1][Practice Field #2][Admission and Discharge Dates][Admission Status][Location][Nature of Alternative Diagnostic Code and Classification][Alternative Diagnostic Code and Classification][Patient Religion][Marital Status][Isolation Status][Language][Hospital Service][Hospital Institution][Dosage Category]

Sample Patient Information Record:
      <STX>[FrameNumber]P|1||||Jones^Jane^L||19640804|F|||||Doctor<CR><ETX>[CheckSum]<CR><LF>

(8.1.1) Record Types Definition-
        P = Patient Identity Record   REQUIRED

(8.1.2) Sequence # Definition-   REQUIRED

(8.1.3) Practice Assigned Patient ID-   NOT SUPPORTED

(8.1.4) Laboratory Assigned Patient ID-   NOT SUPPORTED

(8.1.5) Patient ID-   NOT SUPPORTED
      (maximum of 20 characters)
(8.1.6) Patient Name-   SUPPORTED
      (Last^First^Initial; maximum of 30 characters both First&Last name)

(8.1.7) Mother's Maiden Name-   NOT SUPPORTED

(8.1.8) Birthdate-   SUPPORTED
      (YYYYMMDD; maximum of 8 characters)

(8.1.9) Patient's Sex-   SUPPORTED
      (M or F; maximum of 1 character)

(8.1.10)Patient Race-Ethnic Origin-   NOT SUPPORTED

(8.1.11)Patient's Address-   NOT SUPPORTED

(8.1.12)Reserved Field-   NOT SUPPORTED

(8.1.13)Patient's Phone#-   NOT SUPPORTED

(8.1.14)Attending Physician ID-   NOT SUPPORTED

(8.1.15)Special Field 1-   NOT SUPPORTED

(8.1.16)Special Field 2-   NOT SUPPORTED

(8.1.17)Patient Height-   NOT SUPPORTED

(8.1.18)Patient Weight-   NOT SUPPORTED

(8.1.19)Known or Suspected Diagnosis-   NOT SUPPORTED

(8.1.20)Active Medications-   NOT SUPPORTED

(8.1.21)Patient's Diet-   NOT SUPPORTED

(8.1.22)Practice Field 1-   NOT SUPPORTED

(8.1.23)Practice Field 2-   NOT SUPPORTED

(8.1.24)Admission and Discharge Dates-   NOT SUPPORTED

(8.1.25)Admission Status-   NOT SUPPORTED

(8.1.26)Location-   NOT SUPPORTED

(8.1.27)Nature of Alt. Diag. Code.....-   NOT SUPPORTED

(8.1.28)Alt. Diag. Code and Classifications-   NOT SUPPORTED

(8.1.29)Patient Religion-   NOT SUPPORTED

(8.1.30)Marital Status-   NOT SUPPORTED

(8.1.31)Isolation Status-   NOT SUPPORTED

(8.1.32)Language-   NOT SUPPORTED

(8.1.33)Hospital Service-   NOT SUPPORTED

(8.1.34)Hospital Institution-   NOT SUPPORTED

(8.1.35)Dosage Category-   NOT SUPPORTED

ORDER RECORD DEFINITION (9.4.1-9.4.31)
[Record Type (O)][Sequence#][Specimen ID (Accession#)][Instrument Specimen ID][Universal Test ID][Priority][Order Date/Time][Collection Date/Time][Collection End Time][Collection Volume][Collector ID][Action Code][Danger Code][Relevant Clinical Info][Date/Time Specimen Received][Specimen Descriptor,Specimen Type,Specimen Source][Ordering Physician][Physician's Telephone Number][User Field No.1][User Field No.2][Lab Field No.1][Lab Field No.2][Date/Time results reported or last modified][Instrument Charge to Computer System][Instrument Section ID][Report Types][Reserved Field][Location or ward of Specimen Collection][Nosocomial Infection Flag][Specimen Service][Specimen Institution]

        Sample Test Order Message:
        <STX>[FrameNumber]O|1|123456||^^^TSH<CR><ETX>[CheckSum]<CR>
        <LF>

(9.4.1) Record types Definition-
        O = Test Order Record   REQUIRED

(9.4.2)Sequence #-   REQUIRED

(9.4.3) Specimen ID-   REQUIRED
        (ACCESSION # ON PRIMARY TUBE;
        maximum of 30 characters)
(9.4.4) Instrument Specimen ID-   NOT SUPPORTED

(9.4.5) Universal Test ID   REQUIRED
        (^^^[Test Code]; maximum of 10 characters)
        Example Test Codes: TSH, LH, FSH, DIG, T4, hCG, RTH, SPE D120

(9.4.6) Priority-   SUPPORTED
                S-Stat
                A-As soon as possible
                R-Routine
                C-Callback
                P-Preoperative
                (All maximum of 1 character)
(9.4.7) Requested/Ordered Date and Time-   NOT SUPPORTED
        (maximum of 14 characters)
(9.4.8) Specimen Collection Date and Time-   NOT SUPPORTED

(9.4.9) Collection End Time-   NOT SUPPORTED

(9.4.10) Collection Volume-   NOT SUPPORTED

(9.4.11) Collector ID-   NOT SUPPORTED

(9.4.12) Action Code-	NOT SUPPORTED
(9.4.13) Danger Code-	NOT SUPPORTED
(9.4.14) Relevant Clinical Information-	SUPPORTED
(9.4.15) Date/Time Specimen Received-	NOT SUPPORTED
(9.4.16) Specimen Descriptor-	NOT SUPPORTED
(9.4.16.1) Specimen Type-	NOT SUPPORTED
(9.4.17) Ordering Physician- 　　Smith^Joseph; maximum of 30 characters	SUPPORTED
(9.4.18) Physician's Telephone Number-	NOT SUPPORTED
(9.4.19) Users Field No. 1-	NOT SUPPORTED
(9.4.20) Users Field No. 2-	NOT SUPPORTED
(9.4.21) Lab Field No. 1- SUPPORTED Internal to DPC (CPS of result)	NOT SUPPORTED
(9.4.22) Lab Field No. 2- SUPPORTED Internal to DPC (Kit lot to run, or was run on test)	NOT SUPPORTED
(9.4.23) Date/Time Results Reported....-	NOT SUPPORTED
(9.4.24) Instrument Charge to Computer Sys.-	NOT SUPPORTED
(9.4.25) Instrument Section ID-	SUPPORTED
(9.4.26) Report Types-	NOT SUPPORTED
(9.4.27) Reserved Field-	NOT SUPPORTED
(9.4.28) Location of Specimen Collection-	NOT SUPPORTED
(9.4.29) Nosococmial Infection Flag-	NOT SUPPORTED
(9.4.30) Specimen Service-	NOT SUPPORTED
(9.4.31) Specimen Institution-	NOT SUPPORTED

RESULT RECORD DEFINITION (10.1 - 10.1.14)
[Record Type (R)][Sequence #][Universal Test ID][Data (result)][Units][ReferenceRanges] [Result abnormal flags][Nature of Abnormality Testing][Result Status][Date of change in instruments normal values or units][Operator ID][Date\Time Test Started][Date\Time Test Completed][Instrument ID]

Sample Result Message:
<STX>[FrameNumber]R|1|^^^TSH|8.19|uIU/mL|.4\.002^4\75|H|N|F||test|1994032810834|19920526110500|DPCCIRRUS<CR><ETX>[CheckSum]<CR><LF>

(10.1.1) Record Types Definition-
        R = Result Record   REQUIRED

(10.1.2) Sequence #-   REQUIRED

(10.1.3) Universal Test ID-   REQUIRED
(^^^[Test Code])
        Example Test Codes: TSH, LH, FSH, DIG, TT4, hCG, T-U, RTH, SPE D120

(10.1.4) Data or Measurement Value (Result)-   REQUIRED

(10.1.5) Units-   REQUIRED
        Current DPC Units of Measure: ng/mL, ng/dL, ug/dL, uIu/mL, mIU/mL, pg/mL, nmol/L, pmol/L, mIU/L, ug/L, IU/mL, IU/L, KU/L, SClass

(10.1.6) Reference Ranges-   SUPPORTED
        ([Low]\[Panic\Low]^[High]\[Panic High])

(10.1.7) Result Abnormal Flags-
L = Below Normal	SUPPORTED
H = Above Normal	SUPPORTED
LL = Below Panic	NOT SUPPORTED
HH = Above Panic	NOT SUPPORTED
< = Below readable limit	REQUIRED
> = Above readable limit	REQUIRED
N = Normal	SUPPORTED
A = Abnormal	NOT SUPPORTED
U = Significant change UP	NOT SUPPORTED
D = Significant change DOWN	NOT SUPPORTED
B = Better	NOT SUPPORTED
W = Worse	NOT SUPPORTED

(10.1.8) Nature of Abnormality Testing-
    A = Age population tested   NOT SUPPORTED
    S = Sex based Population   NOT SUPPORTED
    R = Race based Population   NOT SUPPORTED
    N = Normal generic range   SUPPORTED

(10.1.9) Results Status-
    C = Correction of previously sent results REQUIRED
    P = Preliminary Results   NOT SUPPORTED
    F = Final Results   SUPPORTED
    X = Results cannot be done.   NOT SUPPORTED
     (Eg. Calculation Error)
    I = In instrument, results pending   NOT SUPPORTED
    S = Partial Results   NOT SUPPORTED
    M = Result is a MIC level   NOT SUPPORTED
    R = This result was previously transmitted REQUIRED
    N = This result record contains necessary NOT SUPPORTED
    information to run a new order.

(10.1.10) Date systems values/units changed-   NOT SUPPORTED

(10.1.11) Operator Name/ID#-   SUPPORTED

(10.1.12) Date+Time Test Started   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.13) Date+Time Test Completed   SUPPORTED
(YYYYMMDDHHMMSS)

(10.1.14) Instrument ID-   SUPPORTED
(Configurable by DPC SOFTWARE)

REQUEST INFORMATION RECORD (12.1 - 12.1.13)
NOT SUPPORTED IN UNI DIRECTIONAL MODE

MESSAGE TERMINATOR RECORD DEFINITION (13.1 - 13.1.3)
[Record Type ID (L)][Sequence Number][Temination Code]

Example Termination Record:
<STX>[FrameNumber]L|1|N<CR><ETX>[CheckSum]<CR><LF>

(13.1.1) Record Types Definition-
(13.1.2) L = Terminator record   SUPPORTED

(13.1.2)Sequence # -   REQUIRED

(13.1.3)Termination Code-
     N = Normal termination   SUPPORTED
     T = Sender Aborted   NOT SUPPORTED
     R = Receiver Abort   NOT SUPPORTED
     E = Unknown system error   NOT SUPPORTED
     Q = Error in last request for information   NOT SUPPORTED
     I = No information avail. from last query   NOT SUPPORTED
     in uni-directional mode
     F = Last request for information Processed   NOT SUPPORTED
     in uni-directional mode

IMMULITE 2000 LIS ERROR MESSAGE DEFINITIONS

Error # 12300 LIS - Carriage return or Line Feed missing from message. The message is missing a required Carriage return, line feed or both. Violates ASTM E1381 Section 6.3.1.2.

Error # 12301 LIS - Incorrect or Missing Frame Number. The frame number for a message is an incorrect value or is not present. Violates ASTM E1381 Section 6.3.2.1.

Error # 12302 LIS - Incorrect Checksum. The checksum, a scheme to indicate whether a message was received properly is incorrect. Violates ASTM E1381 Section 6.3.3.1.

Error # 12304 LIS - Invalid Password in Header Message. The Password received does not match the password entered in the LIS configuration on IMMULITE 2000. The LIS vendor needs to be contacted to determine the proper password. The LIS vendor may change the password parameter on the LIS *OR* request the password on IMMULITE is modified to the value they the LIS vendor indicates. Violates ASTM E1394 Section 7.1.4.

Error # 12305 LIS - Invalid Sender ID in Header Message. The Sender ID received does not match the Sender ID entered in the LIS configuration on IMMULITE 2000. The LIS vendor needs to be contacted to determine the proper Sender ID. If the Sender ID is incorrect in the IMMULITE 2000 software, the LIS vendor may change the Sender ID parameter on the LIS *OR* request the Sender ID on IMMULITE 2000 is modified to the value they the LIS vendor indicates. If the Sender ID is correct on IMMULITE 2000, the LIS vendor most likely has an error in their code. When sending FROM the LIS to IMMULITE 2000 the LIS vendor needs to place their ID (Designated on IMMULITE 2000 as receiver ID) in the Sender ID field of the header message. Violates ASTM E1394 Section 7.1.5.

Error # 12306 LIS - Invalid Receiver ID in Header Message. The Receiver ID received does not match the Receiver ID entered in the LIS configuration on IMMULITE 2000. The LIS vendor needs to be contacted to determine the proper Receiver ID. If the Receiver ID is incorrect in the IMMULITE 2000 software, the LIS vendor may change the Receiver ID parameter on the LIS *OR* request the Receiver ID on IMMULITE 2000 is modified to the value they the LIS vendor indicates. If the Receiver ID is correct on IMMULITE 2000, the LIS vendor most likely has an error in their code. When sending FROM the LIS to IMMULITE 2000 the LIS vendor needs to place the Instrument ID (Designated on IMMULITE 2000 as sender ID) in the Receiver ID field of the header message. Violates ASTM E1394 Section 7.1.10.

Error # 12307 LIS - No Header message received. Records are being received from the LIS without sending an initial header message. Violates ASTM E1394 Section 5.2.

Error # 12309 LIS - Null or Missing Patient ID in Patient Record. The Patient ID field in the Patient message is not present. This is a required field for IMMULITE 2000.

Error # 12310 LIS - Invalid Test Code or Format in Order record. The test code received in an order message does not match a test code on IMMULITE 2000. The test code may be incorrect or an initial kit for the test code may not have been entered on IMMULITE 2000. The format for
separating multiple test orders in one order record may have been violated. Violates ASTM Section 9.4.5, and 6.6.1.

Error # 12311 LIS - LIS cannot accept message after sending message 7 times. A message was sent to the LIS seven times and was not accepted. The current communication session is aborted. Violates ASTM E1381 Section 6.5.1.2.

Error # 12312 LIS - Time out, 30 seconds expired and no data was received from LIS. Information was received from the LIS and a response to the message was returned to the LIS. No additional data was received from the LIS in 30 seconds. The current communication session is aborted. Violates ASTM E1381 Section 6.5.2.4.

Error # 12315 LIS -Time out, No response from LIS after waiting 15 seconds. Information was sent to the LIS and there was no response after a 15 second time period. The current communication session is aborted. Violates ASTM E1381 Section 6.5.2.3.

Error # 12316 LIS - <ENQ> Contention. The LIS was attempting to initiate a communication session at the same moment the IMMULITE 2000was performing the same. This error is handled as described in ASTM E1381 Section 6.2.7.1.

Error # 12317 LIS - No accession number in order record. No accession number was received in an order record. This is a required field for IMMULITE.

Error # 12318 LIS - The LIS encountered an error for a query. The LIS informed IMMULITE 2000 the *LIS* encountered an error in a request for a patient record from a query message as defined in ASTM E1394 13.1.3.

Error # 12308 LIS - Several LIS errors have occurred the past hour. There may be a communication Problem. More than 20 communication errors have occurred within a one hour time frame. This is an IMMULITE 2000 message only and is not part of the ASTM specification.

Error # 12319 LIS - The LIS has no information for query. The LIS did not have information on a requested sample (accession number) as defined in ASTM E1394 Section 13.1.3.

Error # 12320 LIS - An invalid terminator code was received from the LIS. An invalid or unsupported terminator code was received from the LIS. Violates ASTM E1394 Section 13.1.3.

Error # 12321 LIS - Unique ID does not match retrieved file. Please call Technical Services. All records are stored on the IMMULITE 2000 with a unique number. A retrieved file was expected to have a particular number and was incorrect. This error should not be encountered and if so indicates a programming logic error.

Error # 12322 LIS - Record could not be marked sent, record not found. A sent record could not be found in the database to be sent to the LIS. This error should not be encountered and indicates a programming logic error.

Error # 12323 LIS - Record could not be sent to LIS, record not found. A tagged record could not be found in the database to be sent to the LIS. This error *may* indicate a programming logic error.

Error # 12324 LIS - There are no "TAGGED" records to sent to the LIS. The operator pressed the Send or RE-Send buttons on the LIS screen and no records are tagged.

Error # 12325 LIS - You can only display 10,000 records at one time. The LIS Screen has a limit of displaying 10,000 records at one time. The first 10,000 records meeting the sorting criteria are used. To view remaining records the operator is required to refine the date and time sorting criteria.

IMMULITE to LIS CABLE WIRING ASTM E1381 (5.2.4.2)

The following definition is the wiring "pin out" for the cable connecting IMMULITE to the LIS. The column labeled "Contact Number" is for the ***IMMULITE side of the cable only!***. The connector "pin out" for the LIS side of the cable must be supplied by your MIS department or LIS software company.

There are two possible connector types for the LIS - IMMULITE serial communication cable for IMMULITE. The computer will be configured with a 25-position connector, or a 9-position connector. The cable is connected to COM2 of the PC used by IMMULITE. The connector on the back of the PC should be examined to determine the proper connector type. Pin connections for a 25-position or a 9-position connector are defined below. DPC INSTRUMENT SYSTEMS DIVISION suggests the use of shielded cable.

DB25 CONNECTOR:

Contact Number	EIA Circuit	Description	IMMULITE	COMPUTER (LIS)
1	...	Shield	...	No Connection
2	BA	Transmitted Data	Output	Input
3	BB	Received Data	Input	Output
7	AB	Signal Ground	...	...

DB9 CONNECTOR:

Contact Number	EIA Circuit	Description	IMMULITE	COMPUTER (LIS)
2	BB	Received Data	Input	Output
3	BA	Transmitted Data	Output	Input
5	AB	Signal Ground	...	...

APPENDIX