Lumify DICOM Conformance Statement

Lumify 1.2.x

<table>
<thead>
<tr>
<th>REVISION HISTORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>989605449840047 Rev B (Updated pagination)</td>
</tr>
<tr>
<td>989605449840047 Rev A (Initial Release)</td>
</tr>
</tbody>
</table>

2016-06-02

PHILIPS
Issued by:

Philips Healthcare

P.O. Box 10,000
5680 DA Best
The Netherlands

E-mail: dicom@philips.com
Internet: http://www.healthcare.philips.com/main/about/connectivity

Document Number: 989605449840047
Date: 06/02/16
1 CONFORMANCE STATEMENT OVERVIEW

The Philips Lumify 1.2.x Ultrasound systems implement the necessary DICOM® services to download worklists from an information system, save acquired US Images to a network storage device and inform the information system about the work actually done.

Table 1 provides an overview of the supported network services.

<table>
<thead>
<tr>
<th>Networking SOP Classes</th>
<th>User of Service (SCU)</th>
<th>Provider of Service (SCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transfer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultrasound Image Storage</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Ultrasound Multiframe Image Storage</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Workflow Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modality Worklist</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.
# 2 TABLE OF CONTENTS

- 1 CONFORMANCE STATEMENT OVERVIEW .................................................................................. 3
- 2 TABLE OF CONTENTS ............................................................................................................... 4
- 3 INTRODUCTION ...................................................................................................................... 6
  - 3.1 AUDIENCE .......................................................................................................................... 6
  - 3.2 REMARKS ........................................................................................................................... 6
  - 3.3 Important Note to the Reader ............................................................................................ 6
- 3.4 DEFINITIONS, TERMS AND ABBREVIATIONS ................................................................. 6
- 3.5 REFERENCES ....................................................................................................................... 7
- 4 NETWORKING ........................................................................................................................ 8
  - 4.1 IMPLEMENTATION MODEL ............................................................................................... 8
    - 4.1.1 Application Data Flow .................................................................................................... 8
    - 4.1.2 Functional Definition of AEs .......................................................................................... 8
    - 4.1.2.1 Functional Definition of Storage Application Entity .................................................. 8
    - 4.1.2.2 Functional Definition of Workflow Application Entity .............................................. 8
    - 4.1.3 Sequencing of Real-World Activities ............................................................................ 9
  - 4.2 AE SPECIFICATIONS ....................................................................................................... 10
    - 4.2.1 Storage Application Entity Specification .................................................................... 10
      - 4.2.1.1 SOP Classes .............................................................................................................. 10
      - 4.2.1.2 Association Establishment Policy ............................................................................ 10
      - 4.2.1.2.1 General .................................................................................................................. 10
      - 4.2.1.2.2 Number of Associations ..................................................................................... 10
      - 4.2.1.2.3 Asynchronous Nature .......................................................................................... 10
      - 4.2.1.2.4 Implementation Identifying Information ............................................................... 10
      - 4.2.1.3 Association Initiation Policy ..................................................................................... 11
      - 4.2.1.3.1 Activity – Store Images and Loops ....................................................................... 11
        - 4.2.1.3.1.1 Description and Sequencing of Activities ......................................................... 11
    - 4.2.1.3.2 Proposed Presentation Contexts ............................................................................ 12
      - 4.2.1.3.3 SOP Specific Conformance for Image SOP Classes ............................................... 12
    - 4.2.1.3.4 Proposed Presentation Contexts ............................................................................ 12
  - 4.2.2 Workflow Application Entity Specification ................................................................. 14
    - 4.2.2.1 SOP Classes .............................................................................................................. 14
    - 4.2.2.2 Association Establishment Policy ............................................................................. 14
    - 4.2.2.2.1 General .................................................................................................................. 14
    - 4.2.2.2.2 Number of Associations ..................................................................................... 14
    - 4.2.2.2.3 Asynchronous Nature .......................................................................................... 14
    - 4.2.2.2.4 Implementation Identifying Information ............................................................... 14
    - 4.2.2.3 Association Initiation Policy ..................................................................................... 14
      - 4.2.2.3.1 Activity – Worklist Update .................................................................................... 14
        - 4.2.2.3.1.1 Description and Sequencing of Activities ......................................................... 14
    - 4.2.2.3.2 Proposed Presentation Contexts ............................................................................ 15
      - 4.2.2.3.3 SOP Specific Conformance for Modality Worklist ............................................... 16
    - 4.2.2.3.4 Proposed Presentation Contexts ............................................................................ 16
  - 4.2.3 Verification Application Entity specification ............................................................... 19
    - 4.2.3.1 SOP Class .................................................................................................................. 19
    - 4.2.3.2 Association Establishment Policy ............................................................................. 19
    - 4.2.3.2.1 General .................................................................................................................. 19
    - 4.2.3.2.2 Number of Associations ..................................................................................... 19
    - 4.2.3.2.3 Asynchronous Nature .......................................................................................... 19
    - 4.2.3.2.4 Implementation Identifying Information ............................................................... 20
    - 4.2.3.3 Association Initiation Policy ..................................................................................... 20
      - 4.2.3.3.1 Activity – Verify as SCU ....................................................................................... 20
        - 4.2.3.3.1.1 Description and Sequencing of Activities ......................................................... 20
    - 4.2.3.3.2 Proposed Presentation Contexts ............................................................................ 20
      - 4.2.3.3.3 SOP Specific Conformance for Verification .......................................................... 21
    - 4.2.3.4 Association Acceptance Policy .................................................................................. 21
      - 4.2.3.4.1 Verification ............................................................................................................ 21
  - 4.3 PHYSICAL NETWORK INTERFACES ............................................................................. 22

 Lumify DICOM Conformance Statement

Document Number: 989605449840047 Rev B
3 INTRODUCTION

3.1 AUDIENCE
This document is intended for hospital staff, health care system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

3.2 REMARKS
DICOM, by itself, does not guarantee interoperability. However, the Conformance Statement facilitates a first-level validation for interoperability between different applications supporting the same DICOM functionality.

This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure proper exchange of information intended.

The scope of this Conformance Statement is to facilitate communication between the Philips Healthcare Lumify 1.2.x ultrasound systems and other vendors’ Medical equipment. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [DICOM]. However, by itself it is not guaranteed to ensure the desired interoperability and successful interconnectivity.

The user should be aware of the following important issues:

— The comparison of different conformance statements is the first step towards assessing interconnectivity between Philips Healthcare and non-Philips Healthcare equipment.
— Test procedures should be defined to validate the desired level of connectivity.
— The DICOM standard will evolve to meet the users’ future requirements. Philips Healthcare is actively involved in developing the standard further and therefore reserves the right to make changes to its products or to discontinue its delivery.

3.3 Important Note to the Reader

Interoperability

Interoperability refers to the ability of application functions, distributed over two or more systems, to work successfully together. The integration of medical devices into an IT environment may require application functions that are not specified within the scope of DICOM. Consequently, using only the information provided by this Conformance Statement does not guarantee interoperability of Philips equipment with non-Philips equipment. It is the user’s responsibility to analyze thoroughly the application requirements and to specify a solution that integrates Philips equipment with non-Philips equipment.

Validation

Philips equipment has been carefully tested to assure that the actual implementation of the DICOM interface corresponds with this Conformance Statement. Where Philips equipment is linked to non-Philips equipment, the first step is to compare the relevant Conformance Statements. If the Conformance Statements indicate that successful information exchange should be possible, additional validation tests will be necessary to ensure the functionality, performance, accuracy and stability of image and image related data. It is the responsibility of the user (or user’s agent) to specify the appropriate test suite and to carry out the additional validation tests.

New versions of the DICOM Standard

The DICOM Standard will evolve in future to meet the user’s growing requirements and to incorporate new features and technologies. Philips is actively involved in this evolution and plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, Philips reserves the right to make changes to its products or to discontinue its delivery. The user should ensure that any non-Philips provider linking to Philips equipment also adapts to future versions of the DICOM Standard. If not, the incorporation of DICOM enhancements into Philips equipment may lead to loss of connectivity (in case of networking) and incompatibility (in case of media).

3.4 DEFINITIONS, TERMS AND ABBREVIATIONS

Definitions, terms and abbreviations used in this document are defined within the different parts of the DICOM standard.
Abbreviations and terms are as follows:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE</td>
<td>DICOM Application Entity</td>
</tr>
<tr>
<td>AET</td>
<td>Application Entity Title</td>
</tr>
<tr>
<td>CD-R</td>
<td>Compact Disk Recordable</td>
</tr>
<tr>
<td>DICOM</td>
<td>Digital Imaging and Communications in Medicine</td>
</tr>
<tr>
<td>FSC</td>
<td>File-Set Creator</td>
</tr>
<tr>
<td>FSU</td>
<td>File-Set Updater</td>
</tr>
<tr>
<td>FSR</td>
<td>File-Set Reader</td>
</tr>
<tr>
<td>GSDF</td>
<td>Grayscale Standard Display Function</td>
</tr>
<tr>
<td>IOD</td>
<td>(DICOM) Information Object Definition</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standard Organization</td>
</tr>
<tr>
<td>MWL</td>
<td>Modality Worklist</td>
</tr>
<tr>
<td>R</td>
<td>Required Key Attribute for Modality Worklist Query Matching</td>
</tr>
<tr>
<td>O</td>
<td>Optional Key Attribute for Modality Worklist Query Matching</td>
</tr>
<tr>
<td>PDU</td>
<td>DICOM Protocol Data Unit</td>
</tr>
<tr>
<td>PDE</td>
<td>Patient Data Entry</td>
</tr>
<tr>
<td>SCP</td>
<td>DICOM Service Class Provider (DICOM server)</td>
</tr>
<tr>
<td>SCU</td>
<td>DICOM Service Class User (DICOM client)</td>
</tr>
<tr>
<td>SOP</td>
<td>DICOM Service-Object Pair</td>
</tr>
<tr>
<td>U</td>
<td>Unique Key Attribute for Modality Worklist Query Matching, or Optional Attribute</td>
</tr>
<tr>
<td>US</td>
<td>Ultrasound</td>
</tr>
</tbody>
</table>

3.5 REFERENCES

DICOM] Digital Imaging and Communications in Medicine, Parts 1-20 (NEMA PS 3.1-PS 3.20), National Electrical Manufacturers Association (NEMA) Publication Sales 1300 N. 17th Street, Suite 1752 Rosslyn, Virginia, 22209, United States of America Internet: http://medical.nema.org/

Note that at any point in time the official standard consists of the most recent yearly edition of the base standard (currently 2015) plus all the supplements and correction items that have been approved as Final Text.
4 NETWORKING

4.1 IMPLEMENTATION MODEL

4.1.1 Application Data Flow

---

The **Storage Application Entity** sends **Images** to a single remote AE. Acquisition of images is associated with the local real-world activity “Save Image” for single frame and “Save Loop” for loops or clips. Sending or exporting of images depends on user configuration, either “Batch” when End Exam is pressed, or Manual.

The **Workflow Application Entity** receives Worklist information from remote AEs. It is associated with the local real-world activities “Refresh.” When the “Refresh” is performed, the Workflow Application Entity queries a remote AE for worklist items that provides the set of worklist items matching the query request.

4.1.2 Functional Definition of AEs

4.1.2.1 Functional Definition of Storage Application Entity

A Network Store queue with associated network destination will activate the Storage AE. An association request is sent to the destination AE and upon successful negotiation of a Presentation Context the image transfer is started. If the association cannot be opened, the related queue’s Status is set to “Stopped” as displayed in the Job Manager (CNTL-J). The user may select “Retry Job” to attempt re-send. After the automatic retries have failed, the job is set to “Aborted.” The user may “Delete Job” and re-sends manually. Deleting a job does not remove the data, as it is still present on the system. Only the request to transfer the data is removed. Once any communication issues have been resolved, “Retry Job” may be selected or if the jobs were deleted, they may be queued again from the Review directory.

4.1.2.2 Functional Definition of Workflow Application Entity

“Refresh” attempts to download a Modality Worklist from a Modality Worklist server with studies matching the search criteria by sending a C-Find Request containing user-definable Query parameters. Query parameters are stored in the “Setup MWL Server” Dialog.

Settings that may be customized are:

- Start Date (All Dates, Today or Date Range)
- AE Title (This system, Any or Another specific)
- Modality (Ultrasound or All Modalities)
- Perform Patient Based Queries (Allows user to enter Patient Name, Patient ID, Accession Number and/or Requested Procedure ID to be queried.

When the Workflow AE establishes an association to a remote AE, a MWL C-Find-Rq message is sent to the MWL server. The server will transfer all matching worklist items via the open association. The results of a successful Worklist Update will overwrite the data in the Worklist display.

There is no queue management for Worklist.

4.1.3  Sequencing of Real-World Activities

![Figure 2: Sequencing Constraints](image)

Figure 2
Sequencing Constraints
4.2 AE SPECIFICATIONS

4.2.1 Storage Application Entity Specification

4.2.1.1 SOP Classes

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>SCU</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Image Storage</td>
<td>1.2.840.10008.5.1.4.1.1.6.1</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>US Multiframe Image Storage</td>
<td>1.2.840.10008.5.1.4.1.1.3.1</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

4.2.1.2 Association Establishment Policy

4.2.1.2.1 General
The DICOM standard application context name for DICOM 3.0 is always proposed:

| Application Context Name | 1.2.840.10008.3.1.1.1 |

The PDU size is configurable with a minimum size of 100 and a maximum size of 16,000. The default PDU size is 16,000.

4.2.1.2.2 Number of Associations
Lumify 1.2.x initiates one Association at a time for each destination to which a transfer request is being processed in the active job queue list.

| Maximum number of simultaneous Associations | 1 |

4.2.1.2.3 Asynchronous Nature
Lumify 1.2.x does not support asynchronous communication (multiple outstanding transactions over a single Association).

| Maximum number of outstanding asynchronous transactions | 1 |

4.2.1.2.4 Implementation Identifying Information
The implementation information for this Application Entity is:

<table>
<thead>
<tr>
<th>Implementation Class UID</th>
<th>1.3.46.670589.14.8100.100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Version Name</td>
<td>LUMIFY_1.2</td>
</tr>
</tbody>
</table>
4.2.1.3  Association Initiation Policy

4.2.1.3.1  Activity – Store Images and Loops

4.2.1.3.1.1  Description and Sequencing of Activities
Images may be sent from the selected studies from the Review directory. Each image is sent in its own association that is opened and closed. Additional images acquired during the exam will be sent using subsequent associations.

If the C-STORE response from the remote application contains a status other than Success or Warning, the association is retried until switched to a failed state.

Figure 3
SEQUENCING OF ACTIVITY – SEND IMAGES
4.2.1.3.1.2 Proposed Presentation Contexts
Lumify 1.2.x is capable of proposing the Presentation Contexts shown in the following table:

<table>
<thead>
<tr>
<th>Presentation Context Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abstract Syntax</strong></td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>US Image Storage</td>
</tr>
<tr>
<td>US Multiframe Image Storage</td>
</tr>
</tbody>
</table>

4.2.1.3.1.3 SOP Specific Conformance for Image SOP Classes
All SOP Classes supported by the Storage AE exhibit the same behavior, except where stated, and are described together in this section.

Table 10 describes C-Store response behavior.

The following Default Settings and Ranges may be used where applicable in Table 10:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect Timeout</td>
<td>30 sec</td>
</tr>
<tr>
<td>Read Timeout</td>
<td>300 sec</td>
</tr>
<tr>
<td>Retry Interval</td>
<td>300 sec</td>
</tr>
<tr>
<td>Maximum Retries</td>
<td>3</td>
</tr>
</tbody>
</table>

Establishing the Association with Default settings

Table 7

<table>
<thead>
<tr>
<th>Condition (After C-Store)</th>
<th>Status Codes (C-Store-RSP)</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could not establish the association within 30-second time window (Connect Timeout) due to NO RESPONSE from the Storage Server</td>
<td>Not Applicable</td>
<td>The association attempt is aborted, and after 5-minutes a new association is attempted. Lumify 1.2.x will make three attempts to open an association with the configured Storage SCP before aborting the storage request and placing the job in an error state. The user can then manually restart the job at some later date. The 5-minute timeout and the number of retries are configurable by the user from the DICOM Setup screens. The 5-minute timeout is mapped to the ‘Retry Interval’ input control on the DICOM Setup screen and the number of retries is mapped to ‘Maximum Retries’ on the DICOM Setup screen.</td>
</tr>
<tr>
<td>Refused</td>
<td>A7xx</td>
<td>If the Storage SCP server refuses the association, then the association attempt is aborted. Lumify 1.2.x will wait 5-minutes and then reattempt the association. Lumify 1.2.x will make three attempts to establish the association before aborting the storage request and placing the job in an error state. The user can then manually restart the job at some later date. The failure is logged to the DICOM log file as an error. As an example, the association would be refused if the storage server employs a high security mechanism whereby it only accepts association</td>
</tr>
</tbody>
</table>
requests from DICOM Servers that it knows about and the Lumify 1.2.x's AE Title was not in the PACS database. See the timeout and retry settings above.

During Image Transfer

Table 8

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>After association has been accepted, there is no response to a request within 5-minute time window (Read Timeout).</td>
<td>Not Applicable</td>
<td>If the association is lost during active image transfer to the Storage SCP server, Lumify 1.2.x will initiate a new association after 5 minutes, and attempt to store all the images. If during transfer, the association is again lost, Lumify 1.2.x will wait another 5 minutes and try again. Lumify 1.2.x will make three attempts to send all the images before aborting the storage request and placing the job in an error state. The user can then manually restart the job at some later date. See the timeout and retry settings above.</td>
</tr>
<tr>
<td>Error</td>
<td>A9xx, Cxxx, 0122, Other</td>
<td>Lumify 1.2.x will treat all errors as failure of Storage request (also called as Job). A failed job is automatically retried after 5 minutes. If the job fails even after three attempts, Lumify 1.2.x will abort this request and place the job in an Error state. The user can then manually restart the job at some later date.</td>
</tr>
<tr>
<td>Warning</td>
<td>D000, B000, B006, B007</td>
<td>If the Storage SCP issues a warning on a particular image (perhaps it had to use coercion), Lumify 1.2.x logs the warning to the DICOM log file as an informational event and continues on as if the image was successfully stored to the PACS (see row below).</td>
</tr>
<tr>
<td>Success</td>
<td>0000</td>
<td>When an image is successfully stored to the Storage SCP (PACS), Lumify 1.2.x will keep a record of the successful storage. If all the images in the job are successfully stored, Lumify 1.2.x will notify the user (through an icon on the list of studies), and the job will be removed from the job manager.</td>
</tr>
</tbody>
</table>

The behavior of Storage AE during communication failure is summarized in Table 8.

Table 9

<table>
<thead>
<tr>
<th>Exception</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeout</td>
<td>Same as Service Status timeouts in Table 8 above.</td>
</tr>
<tr>
<td>Association aborted by the SCP or network layers</td>
<td>Same as Service Status in Table 8 above.</td>
</tr>
</tbody>
</table>

The contents of US Image and US Multiframe Storage SOP Instances conform to the DICOM IOD definitions described in Section 8.1.
4.2.2 Workflow Application Entity Specification

4.2.2.1 SOP Classes
Lumify 1.2.x provides Standard Conformance to the following SOP Classes:

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>SCU</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWL Information Model – FIND</td>
<td>1.2.840.10008.5.1.4.31</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

4.2.2.2 Association Establishment Policy

4.2.2.2.1 General
The DICOM standard application context name for DICOM 3.0 is always proposed:

| Application Context Name | 1.2.840.10008.3.1.1        |

4.2.2.2.2 Number of Associations
Lumify 1.2.x initiates one Association at a time for a Worklist request.

| Maximum number of simultaneous Associations | 1                           |

4.2.2.2.3 Asynchronous Nature
Lumify 1.2.x does not support asynchronous communication.

| Maximum number of outstanding asynchronous transactions | 1                           |

4.2.2.4 Implementation Identifying Information
The implementation information for this Application Entity is:

<table>
<thead>
<tr>
<th>Implementation Class UID</th>
<th>1.3.46.670589.14.8100.100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Version Name</td>
<td>LUMIFY_1.2</td>
</tr>
</tbody>
</table>

4.2.2.3 Association Initiation Policy

4.2.2.3.1 Activity – Worklist Update

4.2.2.3.1.1 Description and Sequencing of Activities
Worklist queries for Modality (US) or All Modalities may be initiated by the user.
A possible sequence of interactions between the Workflow AE and a Departmental Scheduler (e.g. a device such as a RIS or HIS which supports the MWL SOP Class as an SCP) is illustrated in Figure 4:

**Figure 4**
SEQUENCING OF ACTIVITY – WORKLIST UPDATE

*Note: If the worklist server accepts Explicit VR Little Endian and Implicit VR Little Endian then Lumify 1.2.x will use Explicit VR Little Endian Transfer Syntax.*

### Table 15
PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY WORKLIST UPDATE

<table>
<thead>
<tr>
<th>Presentation Context Table</th>
<th>Abstract Syntax</th>
<th>Transfer Syntax</th>
<th>Role</th>
<th>Ext. Neg.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name</td>
<td>UID</td>
<td>Name</td>
<td>UID</td>
</tr>
<tr>
<td>Modality Worklist</td>
<td>1.2.840.10008.5.1 .4.31</td>
<td>Explicit VR Little Endian*</td>
<td>Implicit VR Little Endian</td>
<td>1.2.840.10008.1.2</td>
</tr>
</tbody>
</table>

*Note: If the worklist server accepts Explicit VR Little Endian and Implicit VR Little Endian then Lumify 1.2.x will use Explicit VR Little Endian Transfer Syntax.*
4.2.2.3.1.3 SOP Specific Conformance for Modality Worklist

Table 24 summarizes the behavior of Lumify 1.2.x when encountering status codes in a MWL C-FIND response.

A message "query failed" will appear on the user interface if Lumify 1.2.x receives any other SCP response status than "Success" or "Pending."

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Matching is complete</td>
<td>0000</td>
<td>The system replaced the worklist from the response.</td>
</tr>
<tr>
<td>Refused</td>
<td>Out of Resources</td>
<td>A700</td>
<td>The Association is aborted using A-ABORT. The worklist is not replaced.</td>
</tr>
<tr>
<td>Failed</td>
<td>Identifier does not match SOP Class</td>
<td>A900</td>
<td>Same as “Refused” above.</td>
</tr>
<tr>
<td>Failed</td>
<td>Unable to Process</td>
<td>C000 – CFFF</td>
<td>Same as “Refused” above.</td>
</tr>
<tr>
<td>Cancel</td>
<td>Matching terminated due to Cancel request</td>
<td>FE00</td>
<td>The user is notified that a partial list was retrieved. The retrieved items can be displayed by user request.</td>
</tr>
<tr>
<td>Pending</td>
<td>Matches are continuing</td>
<td>FF00</td>
<td>Continue.</td>
</tr>
<tr>
<td>Pending</td>
<td>Matches are continuing – Warning that one or more Optional Keys were not supported</td>
<td>FF01</td>
<td>Continue.</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
<td>Any other status code.</td>
<td>Same as “Refused” above.</td>
</tr>
</tbody>
</table>
Table 17 summarizes the behavior of Lumify 1.2.x during communication failure.

<table>
<thead>
<tr>
<th>Exception</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeout</td>
<td>Same as Service Status “Refused” in the table above.</td>
</tr>
<tr>
<td>Association aborted by the SCP or network layers</td>
<td>Same as Service Status “Refused” in the table above.</td>
</tr>
</tbody>
</table>

Table 18 describes the Lumify 1.2.x Worklist Matching Keys and requested attributes. Unexpected attributes returned in a C-FIND response are ignored.

Non-matching responses returned by the SCP due to unsupported optional matching keys are ignored.

Table 18  
WORKLIST MATCHING KEYS
<table>
<thead>
<tr>
<th>Module Name</th>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>M</th>
<th>R</th>
<th>D</th>
<th>IOD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scheduled Procedure Step</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scheduled Procedure Step Sequence</td>
<td>(0040,0100)</td>
<td>SQ</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; Scheduled Station AE Title</td>
<td>(0040,0001)</td>
<td>AE</td>
<td>S</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>&gt; Scheduled Procedure Step Start Date</td>
<td>(0040,0002)</td>
<td>DA</td>
<td>S, R</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>&gt; Scheduled Procedure Step Start Time</td>
<td>(0040,0003)</td>
<td>TM</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; Modality</td>
<td>(0008,0060)</td>
<td>CS</td>
<td>S</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; Scheduled Performing Physician's Name</td>
<td>(0040,0006)</td>
<td>PN</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; Scheduled Procedure Step Description</td>
<td>(0040,0007)</td>
<td>LO</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; Scheduled Protocol Code Sequence</td>
<td>(0040,0008)</td>
<td>SQ</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; Scheduled Procedure Step ID</td>
<td>(0040,0009)</td>
<td>SH</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Requested Procedure</strong></td>
<td>Requested Procedure ID</td>
<td>(0040,1001)</td>
<td>SH</td>
<td>S</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Reason for the Requested Procedure</td>
<td>(0040,1002)</td>
<td>LO</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Requested Procedure Description</td>
<td>(0032,1060)</td>
<td>LO</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study Instance UID</td>
<td>(0020,000D)</td>
<td>UI</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Referenced Study Sequence</td>
<td>(0008,1110)</td>
<td>SQ</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Requested Procedure Code Sequence</td>
<td>(0032,1064)</td>
<td>SQ</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Names of Intended Recipients of Results</td>
<td>(0040,1010)</td>
<td>PN</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Imaging Service Request</strong></td>
<td>Accession Number</td>
<td>(0008,0050)</td>
<td>SH</td>
<td>S</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Requesting Physician</td>
<td>(0032,1032)</td>
<td>PN</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Referring Physician's Name</td>
<td>(0008,0090)</td>
<td>PN</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reason for the Imaging Service Request</td>
<td>(0040,2001)</td>
<td>LO</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Patient Identification</strong></td>
<td>Patient’s Name</td>
<td>(0010,0010)</td>
<td>PN</td>
<td>S,*</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Patient ID</td>
<td>(0010,0020)</td>
<td>LO</td>
<td>S,*</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Other Patient IDs</td>
<td>(0010,1000)</td>
<td>LO</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Patient Demographic</strong></td>
<td>Patient’s Birth Date</td>
<td>(0010,0030)</td>
<td>DA</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient’s Sex</td>
<td>(0010,0040)</td>
<td>CS</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient Size</td>
<td>(0010,1020)</td>
<td>DS</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethnic Group</td>
<td>(0010,2160)</td>
<td>SH</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient’s Weight</td>
<td>(0010,1030)</td>
<td>DS</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient Comments</td>
<td>(0010,4000)</td>
<td>LT</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Referenced Patient Sequence</td>
<td>(0008,1120)</td>
<td>SQ</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patient Medical</strong></td>
<td>Medical Alerts</td>
<td>(0010,2000)</td>
<td>LO</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional Patient’s History</td>
<td>(0010,21B0)</td>
<td>LT</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pregnancy Status</td>
<td>(0010,21C0)</td>
<td>US</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = Wildcard matching

The above table should be read as follows:

Module Name: The name of the associated module for supported worklist attributes.
Attribute Name: Attributes supported to build a Lumify 1.2.x Worklist Request Identifier.
Tag: DICOM tag for this attribute.
VR: DICOM VR for this attribute.
M: Matching keys for Worklist Update. An "S" indicates that Lumify 1.2.x supplies an attribute value for Single Value Matching, "R" indicates a Range Value and "***" is for Wildcard matching. See section 4.2.2.3.1.2 for setup location.
R: Return keys. An "x" indicates that Lumify 1.2.x supplies this attribute as a Return Key with zero length for Universal Matching.
D: Displayed keys. An "x" indicates that this worklist attribute is displayed to the user in the Patient Data Entry screen or Worklist Directory.
IOD: An "x" indicates that this Worklist attribute’s data is included into applicable Image Object Instances created during performance of the related Procedure Step.

Notes:
1. Scheduled Performing Physician’s Name sets the “Performed by” field in Patient Data Entry Screen.
2. Scheduled Procedure Step Description may be used to set “Study Description” field in the Patient Selection screen and is mapped to “Study Description” in images. It is the 2nd option for “Study Description” in Patient Data Entry Screen and images.
3. Scheduled Protocol Code Sequence: Code Meaning may be used to set “Study Description” field in the Patient Selection screen and is mapped to “Study Description” in images. It is the 3rd option for “Study Description” in Patient Data Entry Screen and images.
4. Reason for the Requested Procedure may be used to set “Study Description” field in the Patient Selection screen and is mapped to “Study Description” in images. It is the 4th option for “Study Description” in Patient Data Entry Screen and images.
5. Requested Procedure Description may be used to set “Study Description” field in the Patient Selection screen and is mapped to “Study Description” in images. It is the 1st option for “Study Description” in Patient Data Entry Screen and images.
7. Reason for the Imaging Service Request may be used to set “Study Description” field in the Patient Selection screen and is mapped to “Study Description” in images. It is the 5th option for “Study Description” in Patient Data Entry Screen and images.

4.2.3 Verification Application Entity specification

4.2.3.1 SOP Class
Lumify 1.2.x provides Standard Conformance to the following SOP Class:

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>SCU</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verification</td>
<td>1.2.840.10008.1.1</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

4.2.3.2 Association Establishment Policy

4.2.3.2.1 General
The DICOM standard application context name for DICOM 3.0 is always proposed:

| Application Context Name | 1.2.840.10008.3.1.1.1 |

4.2.3.2.2 Number of Associations
Lumify 1.2.x initiates one Association at a time for a Verification request.

| Maximum number of simultaneous Associations | 1 |

4.2.3.3 Asynchronous Nature
Lumify 1.2.x does not support asynchronous communication (multiple outstanding transactions over a single Association).

| ASYNCHRONOUS NATURE AS A SCU FOR AE VERIFICATION |
Maximum number of outstanding asynchronous transactions | 1

4.2.3.2.4 Implementation Identifying Information
The implementation information for this Application Entity is:

<table>
<thead>
<tr>
<th>Table 23</th>
<th>DICOM IMPLEMENTATION CLASS AND VERSION FOR AE VERIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Class UID</td>
<td>1.3.46.670589.14.8100.100</td>
</tr>
<tr>
<td>Implementation Version Name</td>
<td>LUMIFY_1.2</td>
</tr>
</tbody>
</table>

4.2.3.3 Association Initiation Policy
4.2.3.3.1 Activity – Verify as SCU

4.2.3.3.1.1 Description and Sequencing of Activities

SCU: The user can verify the existence of a DICOM server on the hospitals network, through a “Test” button on the DICOM Node’s Setup Dialog. When the user presses this button, Lumify 1.2.x will initiate the association. Only one association is established for each verification attempt.

![Sequencing of Activity](https://via.placeholder.com/150)

**Figure 5**
SEQUENCING OF ACTIVITY – ISSUE VERIFY

4.2.3.3.1.2 Proposed Presentation Contexts

| Table 24 | Proposed Presentation Contexts for Activity Verify As Scu |
Presentation Context Table

<table>
<thead>
<tr>
<th>Abstract Syntax</th>
<th>Transfer Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>UID</td>
</tr>
<tr>
<td>Verification</td>
<td>1.2.840.10008.1.1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.2.3.3.1.3 SOP Specific Conformance for Verification
No SOP Specific behavior

4.2.3.4 Association Acceptance Policy

4.2.3.4.1 Verification
Table 51.8 summarizes the behavior of Lumify 1.2.x when receiving status codes in a C-ECHO response.

A message will appear on the user interface if Lumify 1.2.x receives any other SCP response status than "Success."

Table 25
VERIFICATION C-ECHO RESPONSE STATUS HANDLING BEHAVIOR

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td></td>
<td>0000</td>
<td>Device Status is set to: Verified</td>
</tr>
<tr>
<td>Refused</td>
<td>Out of Resources</td>
<td>A700</td>
<td>Device Status is set to: Not Verified</td>
</tr>
<tr>
<td>Failed</td>
<td>Unable to Process</td>
<td>C000 – CFFF</td>
<td>Same as &quot;Refused&quot; above.</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
<td>Any other status code.</td>
<td>Same as &quot;Refused&quot; above.</td>
</tr>
</tbody>
</table>
4.3 PHYSICAL NETWORK INTERFACES

4.3.1 Supported Communication Stacks

4.3.1.1 TCP/IP Stack
The System provides only DICOM V3.0 TCP/IP Network Communication Support as defined in PS 3.8 of the standard.

The TCP/IP Stack, as supported by the underlying Operating System, is the only protocol stack supported.

The system supports Wireless network interface that is available by the device. The system does not control or configure the network interfaces.

4.3.2 Physical Network Interface
The Lumify 1.2.x system supports one network interface at a time. The following physical network interfaces are available:

<table>
<thead>
<tr>
<th>Table 26</th>
<th>SUPPORTED PHYSICAL NETWORK INTERFACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>802.11 b/g Wireless</td>
</tr>
</tbody>
</table>

4.3.3 Additional Protocols
Not Applicable

4.3.4 IPv4 and IPv6 Support
Only IPv4 is supported.

4.4 CONFIGURATION
Any implementation's DICOM conformance may be dependent upon configuration, which takes place at the time of installation. Issues concerning configuration are addressed in this section.

4.4.1 AE Title/Presentation Address Mapping
An important installation issue is the translation from AE title to presentation address. How this is to be performed is described here.

4.4.1.1 Local AE Title

<table>
<thead>
<tr>
<th>Table 27</th>
<th>Device AE Title Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Entity</td>
<td>AE Title</td>
</tr>
<tr>
<td>Storage</td>
<td>&lt;User Specified&gt;</td>
</tr>
<tr>
<td>Worklist</td>
<td>&lt;User Specified&gt;</td>
</tr>
</tbody>
</table>

4.4.1.2 Remote AE Title/Presentation Address Mapping

<table>
<thead>
<tr>
<th>Table 28</th>
<th>Remote AE Title Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Entity</td>
<td>AE Title</td>
</tr>
<tr>
<td>Storage</td>
<td>&lt;User Specified&gt;</td>
</tr>
<tr>
<td>Worklist</td>
<td>&lt;User Specified&gt;</td>
</tr>
</tbody>
</table>
4.4.1.2.1 Workflow
Setup is used to set the AE Title, Port number and IP Address the remote MWL SCP. Multiple MWL SCPs may be defined, but only a single remote MWL SCP can be used at a time.

"AE Title" may be selected as the system's.

The Start Date defaults to "Today" but may be modified to be "All Dates", or a Date Range that may be 1, 7, or 30 days.
5  MEDIA STORAGE

Lumify 1.2.x does not support Media Storage
## SUPPORT OF CHARACTER SETS

<table>
<thead>
<tr>
<th>Character Set Description</th>
<th>Defined Term</th>
<th>ESC Sequence</th>
<th>ISO Registration Number</th>
<th>Code Element</th>
<th>Character Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unicode as UTF-8</td>
<td>ISO_IR 192</td>
<td>-</td>
<td>ISO-IR 192</td>
<td>N/A</td>
<td>ISO 10646-1, 10646-2, and their associated supplements and extensions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ISO-IR 6</td>
<td>G0</td>
<td>ISO 646</td>
</tr>
</tbody>
</table>
7 SECURITY

DICOM security is not implemented on Lumify 1.2.x at this time.
8 ANNEXES

8.1 CREATED IOD INSTANCES

Table 30 specifies the attributes of an Ultrasound Image transmitted by the Lumify 1.2.x storage application.

The following tables use a number of abbreviations. The abbreviations used in the “Presence of …” column are:

- **VNAP**: Value Not Always Present (attribute sent zero length if no value is present)
- **ANAP**: Attribute Not Always Present
- **ALWAYS**: Always Present
- **EMPTY**: Attribute is sent without a value

The abbreviations used in the “Source” column:

- **MWL**: the attribute value source Modality Worklist
  - Unless otherwise noted, values returned from worklist may be overridden by User input.
- **USER**: the attribute value source is from User input
- **AUTO**: the attribute value is generated automatically
- **CONFIG**: the attribute value source is a configurable parameter

8.1.1 US or US Multiframe Image IOD

<table>
<thead>
<tr>
<th>Table 30</th>
<th>IOD of created US or US Multiframe SOP Instances</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IE</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Patient</td>
<td>Patient</td>
</tr>
<tr>
<td>Study</td>
<td>General Study</td>
</tr>
<tr>
<td></td>
<td>Patient Study</td>
</tr>
<tr>
<td>Series</td>
<td>General Series</td>
</tr>
<tr>
<td>Equipment</td>
<td>General Equipment</td>
</tr>
<tr>
<td>Image</td>
<td>General Image</td>
</tr>
<tr>
<td></td>
<td>Image Pixel</td>
</tr>
<tr>
<td></td>
<td>Cine</td>
</tr>
<tr>
<td></td>
<td>Multi-frame</td>
</tr>
<tr>
<td></td>
<td>US Region Calibration</td>
</tr>
<tr>
<td></td>
<td>US Image</td>
</tr>
<tr>
<td></td>
<td>SOP Common</td>
</tr>
</tbody>
</table>

* the US Region Calibration module is not present in US Multiframe images where a calibration change occurs, i.e. the loop contained a depth or zoom change.

8.1.2 Common Modules

<table>
<thead>
<tr>
<th>Table 31</th>
<th>PATIENT MODULE OF CREATED SOP INSTANCES</th>
</tr>
</thead>
</table>

Lumify DICOM Conformance Statement
Document Number: 989605449840047 Rev B
### Attribute Name

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Name</td>
<td>(0010,0010)</td>
<td>PN</td>
<td>Same attribute of MWL or PDE input</td>
<td>ALWAYS</td>
<td>MWL/USER/AUTO</td>
</tr>
<tr>
<td>Patient ID</td>
<td>(0010,0020)</td>
<td>LO</td>
<td>From MWL, user input or system generated.</td>
<td>ALWAYS</td>
<td>MWL/USER/AUTO</td>
</tr>
<tr>
<td>Patient’s Birth Date</td>
<td>(0010,0030)</td>
<td>DA</td>
<td>Same attribute of MWL or PDE input</td>
<td>VNAP</td>
<td>MWL/USER/AUTO</td>
</tr>
<tr>
<td>Patient’s Sex</td>
<td>(0010,0040)</td>
<td>CS</td>
<td>Same attribute of MWL</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
<tr>
<td>Other Patient IDs</td>
<td>(0010,1000)</td>
<td>LO</td>
<td>Same attribute of MWL</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
</tbody>
</table>

### Table 32

#### GENERAL STUDY MODULE OF CREATED SOP INSTANCES

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Instance UID</td>
<td>(0020,0000D)</td>
<td>UI</td>
<td>Same value as in MWL or auto generated</td>
<td>ALWAYS</td>
<td>MWL/AUTO</td>
</tr>
<tr>
<td>Study Date</td>
<td>(0008,0020)</td>
<td>DA</td>
<td>Study’s Start Date (0040, 0244).</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Study Time</td>
<td>(0008,0030)</td>
<td>TM</td>
<td>Study’s Start Time (0040, 0245).</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Referring Physician’s Name</td>
<td>(0008,0090)</td>
<td>PN</td>
<td>User Input from Patient ID screen. From MWL, sent as “Last, Prefix First Middle Suffix” in the Last name field.</td>
<td>VNAP</td>
<td>MWL/USER</td>
</tr>
<tr>
<td>Study ID</td>
<td>(0020,0010)</td>
<td>SH</td>
<td>MWL Requested Procedure ID (0040,1000) or Auto-generated starting at 1</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Accession Number</td>
<td>(0008,0050)</td>
<td>SH</td>
<td>Same attribute of MWL or user PDE input.</td>
<td>VNAP</td>
<td>MWL/USER</td>
</tr>
<tr>
<td>Study Description</td>
<td>(0008,1030)</td>
<td>LO</td>
<td>‘Study Description’ in PDE or, can be obtained from the MWL Server.</td>
<td>ANAP</td>
<td>MWL/USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The string used will be the first non-empty string from the following list: Requested Procedure description tag (0032,1060), Scheduled Procedure Step description tag (0040,0007) Scheduled Procedure Step, “Code Meaning” tag (0008,0104) Reason for the requested procedure tag (0040,1002) Reason for imaging service request tag (0040,2001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician(s) of Record</td>
<td>(0008,1048)</td>
<td>PN</td>
<td>Mapped from Names of Intended Recipients of Results (0040,1010) from MWL or user PDE input.</td>
<td>VNAP</td>
<td>MWL/USER</td>
</tr>
<tr>
<td>Referenced Study Sequence</td>
<td>(0008,1110)</td>
<td>SQ</td>
<td>One item per item in the MWL Referenced Study Sequence.</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
</tbody>
</table>
### Table 33
**PATIENT STUDY MODULE OF CREATED SOP INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitting Diagnosis Description</td>
<td>(0008,1080)</td>
<td>LO</td>
<td>Same value as MWL attribute.</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
<tr>
<td>Patient Size</td>
<td>(0010,1020)</td>
<td>DS</td>
<td>Same value as MWL attribute.</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
<tr>
<td>Patient’s Weight</td>
<td>(0010,1030)</td>
<td>DS</td>
<td>Same value as MWL attribute.</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
<tr>
<td>Additional Patient’s History</td>
<td>(0010,21B0)</td>
<td>LT</td>
<td>Same value as MWL attribute.</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
</tbody>
</table>

### Table 34
**PATIENT MEDICAL MODULE OF CREATED SOP INSTANCES**

*Note: These attributes extend the standard US Image and US Multiframe Image IODs*

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Alerts</td>
<td>(0010,2000)</td>
<td>LO</td>
<td>Same value as MWL attribute.</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
<tr>
<td>Pregnancy Status</td>
<td>(0010,21C0)</td>
<td>US</td>
<td>Same value as MWL attribute.</td>
<td>ANAP</td>
<td>MWL</td>
</tr>
</tbody>
</table>

### Table 35
**GENERAL SERIES MODULE OF CREATED IMAGE SOP INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality</td>
<td>(0008,0060)</td>
<td>CS</td>
<td>“US”</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Instance UID</td>
<td>(0020,000E)</td>
<td>UI</td>
<td>Auto generated.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Number</td>
<td>(0020,0011)</td>
<td>IS</td>
<td>A number unique within the Study</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Date</td>
<td>(0008,0021)</td>
<td>DA</td>
<td>Date of first image in series.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Attribute Name</td>
<td>Tag</td>
<td>VR</td>
<td>Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-----</td>
<td>----</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing Physician’s Name</td>
<td>(0008,1050)</td>
<td>PN</td>
<td>MWL Scheduled Performing Physician’s Name (0040,0006) or PDE input, ‘Performed by’.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Series Description</td>
<td>(0008,103E)</td>
<td>LO</td>
<td>User entry in the ‘Study Description’ field of the Patient ID screen. If the user does not enter a value, this tag is not sent.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator’s Name</td>
<td>(0008,1070)</td>
<td>PN</td>
<td>MWL Scheduled Performing Physician’s Name (0040,0006) or PDE input, ‘Performed by’.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Request Attributes Sequence</td>
<td>(0040,0275)</td>
<td>SQ</td>
<td>This sequence will be present only for scheduled study. In case of unscheduled study, this sequence will not be present.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;Requested Procedure ID</td>
<td>(0040,1001)</td>
<td>SH</td>
<td>Value from MWL.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;Requested Procedure Description</td>
<td>0032,1060</td>
<td>LO</td>
<td>Value from MWL.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step ID</td>
<td>(0040,0009)</td>
<td>SH</td>
<td>Auto-generated=Study ID or value from MWL. One item.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step Description</td>
<td>(0040,0007)</td>
<td>LO</td>
<td>Same value as MWL attribute.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;Scheduled Protocol Code Sequence</td>
<td>(0040,0008)</td>
<td>SQ</td>
<td>Same value as MWL attribute.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performed Procedure Step ID</td>
<td>(0040,0253)</td>
<td>SH</td>
<td>Set as current date and time in the format yyyymmd.dhhmss.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performed Procedure Step Start Date</td>
<td>(0040,0244)</td>
<td>DA</td>
<td>Date on which the Performed Procedure Step started on close of Patient Data Entry Screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performed Procedure Step Start Time</td>
<td>(0040,0245)</td>
<td>TM</td>
<td>Time on which the Performed Procedure Step started on close of Patient Data Entry Screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performed Procedure Step Description</td>
<td>(0040,0264)</td>
<td>LO</td>
<td>Set with the value entered or selected in ‘Study Description’ field of Patient ID screen.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performed Protocol Code Sequence</td>
<td>(0040,0260)</td>
<td>SQ</td>
<td>Zero length, or mapped from MWL Scheduled Protocol Code Sq (0040,0008)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>(0008,0070)</td>
<td>LO</td>
<td>Philips Medical Systems</td>
</tr>
</tbody>
</table>

**Table 36**

GENERAL EQUIPMENT MODULE OF CREATED SOP INSTANCES

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>(0008,0070)</td>
<td>LO</td>
<td>Philips Medical Systems</td>
</tr>
</tbody>
</table>

**Source**

- ANAP: Always
- MWL/USER: User-defined
- AUTO: Auto-generated
- USER: User-defined
<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Name</td>
<td>(0008,1010)</td>
<td>SH</td>
<td>The AE Title of Lumify system on which the image is acquired. The user can configure the AE Title of the system through ‘Setup’.</td>
<td>VNAP</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Software Version(s)</td>
<td>(0018,1020)</td>
<td>LO</td>
<td>This is a multi-valued tag which contains the following components: SW Part number, Version number, and SW build date</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Manufacturer’s Model Name</td>
<td>(0008,1090)</td>
<td>LO</td>
<td>Lumify</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
### 8.1.3 US or Multiframe Image Modules

#### Table 37
**GENERAL IMAGE MODULE OF CREATED US SOP INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instance Number</td>
<td>(0020,0013)</td>
<td>IS</td>
<td>Generated by device, increments from “1” in each series. Gaps in values may exist if images are deleted on the system prior to export.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Patient Orientation</td>
<td>(0020,0020)</td>
<td>CS</td>
<td>The system sends the tag empty</td>
<td>VNAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>Content Date</td>
<td>(0008,0023)</td>
<td>DA</td>
<td>&lt;yyyyymmdd&gt;</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Content Time</td>
<td>(0008,0033)</td>
<td>TM</td>
<td>&lt;hhmmss.ffffff&gt;</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Image Type</td>
<td>(0008,0008)</td>
<td>CS</td>
<td>Value is DERIVED|PRIMARY for lossy, and ORIGINAL|PRIMARY for lossless</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Acquisition Date</td>
<td>(0008,0022)</td>
<td>DT</td>
<td>The system uses the same value as the Content Date, tag 0008,0023.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Acquisition Time</td>
<td>(0008,0032)</td>
<td>TM</td>
<td>The system uses the same value as the Content time, tag 0008,0033.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Acquisition Datetime</td>
<td>(0008,002A)</td>
<td>DT</td>
<td>The system generates this as a combination of Acquisition Date and Acquisition Time. The format is yyyymmddhhmmss.ffffff</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Lossy Image Compression</td>
<td>(0028,2110)</td>
<td>CS</td>
<td>“01” if image is lossy compressed, &quot;00&quot; if not.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

#### Table 38
**IMAGE PIXEL MODULE OF CREATED US OR US MULTIFRAME SOP INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samples per Pixel</td>
<td>(0028,0002)</td>
<td>US</td>
<td>3 for RGB 3 for YBR_FULL_422</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Photometric Interpretation</td>
<td>(0028,0004)</td>
<td>CS</td>
<td>RGB YBR_FULL_422</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Rows</td>
<td>(0028,0010)</td>
<td>US</td>
<td>768</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Columns</td>
<td>(0028,0011)</td>
<td>US</td>
<td>1024</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Bits Allocated</td>
<td>(0028,0100)</td>
<td>US</td>
<td>RGB Mode: 8 bits 2D B&amp;W: 8 bits 2D Color: 8 bits YBR_FULL_422 Mode: 8 bits 2D B&amp;W: 8 bits 2D Color: 8 bits</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Bits Stored</td>
<td>(0028,0101)</td>
<td>US</td>
<td>Always the same numbers as Bits Allocated.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>High Bit</td>
<td>(0028,0102)</td>
<td>US</td>
<td>The High Bit is always (Bits Allocated -1).</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Pixel Representation</td>
<td>(0028,0103)</td>
<td>US</td>
<td>“0” pixels are Unsigned integers</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Pixel Data</td>
<td>(7FE0,0010)</td>
<td>OW / OB</td>
<td>Always the same numbers as Bits Allocated.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
### Table 39
CINE MODULE OF CREATED US MULTIFRAME SOP

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended Display Frame Rate</td>
<td>(0008,2144)</td>
<td>IS</td>
<td>Used for Multiframe</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Cine Rate</td>
<td>(0018,0040)</td>
<td>IS</td>
<td>Used for Multiframe</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Effective Series Duration</td>
<td>(0018,0072)</td>
<td>DS</td>
<td>Used for Multiframe</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Frame Time Vector</td>
<td>(0018,1065)</td>
<td>DS</td>
<td>An array that contains the real time increments (in msec) between frames for a Multi-frame image. Present if Frame Increment Pointer (0028,0009) points to Frame Time Vector.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 40
MULTI-FRAME MODULE OF CREATED US MULTIFRAME SOP INSTANCES

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Frames</td>
<td>(0028,0008)</td>
<td>IS</td>
<td># of frames in object</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Frame Increment Pointer</td>
<td>(0028,0009)</td>
<td>AT</td>
<td>0018,1065 (Frame Time Vector).</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 41
US Region Calibration Module of created US IMAGE or US Multiframe IMAGE SOP Instances

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequence of Ultrasound Regions</td>
<td>(0018,6011)</td>
<td>SQ</td>
<td>A sequence is present for each region on the system display</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Region Location Min (x_0)</td>
<td>(0018,6018)</td>
<td>UL</td>
<td>Top Left position of region.</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Region Location Min (y_0)</td>
<td>(0018,601A)</td>
<td>UL</td>
<td>Top Left position of region.</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Region Location Max (x_1)</td>
<td>(0018,601C)</td>
<td>UL</td>
<td>Bottom Right position of region</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Region Location Max (y_1)</td>
<td>(0018,601E)</td>
<td>UL</td>
<td>Bottom Right position of region</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Physical Units X Direction</td>
<td>(0018,6024)</td>
<td>US</td>
<td>Enumerated Value. 2D Image = 0003H = CM MMode / Doppler = 0004H = SEC</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
### Table 42
**US IMAGE MODULE OF CREATED US IMAGE OR US MULTIFRAME IMAGE SOP INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samples Per Pixel</td>
<td>(0028,0002)</td>
<td>US</td>
<td>See 'Image Pixel Module'</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Photometric Interpretation</td>
<td>(0028,0004)</td>
<td>CS</td>
<td>See 'Image Pixel Module'</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Bits Allocated</td>
<td>(0028,0100)</td>
<td>US</td>
<td>See 'Image Pixel Module'</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Bits Stored</td>
<td>(0028,0101)</td>
<td>US</td>
<td>See 'Image Pixel Module'</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>High Bit</td>
<td>(0028,0102)</td>
<td>US</td>
<td>See 'Image Pixel Module'</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Planar Configuration</td>
<td>(0028,0006)</td>
<td>US</td>
<td>See 'Image Pixel Module'</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>Pixel Representation</td>
<td>(0028,0103)</td>
<td>US</td>
<td>&quot;0&quot; Pixels are Unsigned integers</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Frame Increment Pointer</td>
<td>(0028,0009)</td>
<td>AT</td>
<td>0018,1065 (Frame Time Vector)</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Attribute Name</td>
<td>Tag</td>
<td>VR</td>
<td>Value</td>
<td>Presence of Value</td>
<td>Source</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------</td>
<td>----</td>
<td>---------------------------------------------------------</td>
<td>-------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Image Type</td>
<td>(0008,0008)</td>
<td>CS</td>
<td>See ‘General Image Module’</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Lossy Image Compression</td>
<td>(0028,2110)</td>
<td>CS</td>
<td>“01” if image is lossy compressed, “00” if not.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Ultrasound Color Data Present</td>
<td>(0028,0014)</td>
<td>US</td>
<td>0 or 1</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Acquisition Datetime</td>
<td>(0008,002A)</td>
<td>DT</td>
<td>The date and time that the acquisition of data that resulted in this image started.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Transducer Data</td>
<td>(0018,5010)</td>
<td>LO</td>
<td>Transducer name. VM = 3, the last two fields are written as “UNUSED”.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Transducer Type</td>
<td>(0018,6031)</td>
<td>LO</td>
<td>SECTOR_PHASED, LINEAR, CURVED LINEAR</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Only used for 2D images; not used for Doppler-only images (i.e. pencil probes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing Function</td>
<td>(0018,5020)</td>
<td>LO</td>
<td>The factory-defined exam/preset that was active when the image was acquired even if a user-defined preset.</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

**Table 43**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>VR</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP Class UID</td>
<td>(0008,0016)</td>
<td>UI</td>
<td>1.2.840.10008.5.1.4.1.1.6.1 for US Image</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.2.840.10008.5.1.4.1.1.3.1 for US Multiframe Image</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOP Instance UID</td>
<td>(0008,0018)</td>
<td>UI</td>
<td>Auto Generated</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Specific Character Set</td>
<td>(0008,0005)</td>
<td>CS</td>
<td>ISO_IR 192</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
8.2 USED FIELDS IN RECEIVED IOD BY APPLICATION
Not Applicable

8.3 ATTRIBUTE MAPPING
Table 44 summarizes the relationships between attributes received via MWL, stored in acquired images and communicated via MPPS. The format and conventions used in Table 92 are the same as the corresponding table in DICOM Part 4, Annex M.6
### Table 44
ATTRIBUTE MAPPING BETWEEN MODALITY WORKLIST, IMAGE AND MPPS

<table>
<thead>
<tr>
<th>Modality Worklist</th>
<th>Image IOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient's Name</td>
<td>Patient's Name</td>
</tr>
<tr>
<td>Patient ID</td>
<td>Patient ID</td>
</tr>
<tr>
<td>Patient's Birth Date</td>
<td>Patient's Birth Date</td>
</tr>
<tr>
<td>Patient's Sex</td>
<td>Patient's Sex</td>
</tr>
<tr>
<td>Patient's Weight</td>
<td>Patient's Weight</td>
</tr>
<tr>
<td>Referring Physician's Name</td>
<td>Referring Physician's Name</td>
</tr>
<tr>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Study Instance UID</td>
<td>Study Instance UID</td>
</tr>
<tr>
<td>Referenced Study Sequence</td>
<td>Referenced Study Sequence</td>
</tr>
<tr>
<td>Accession Number</td>
<td>Accession Number</td>
</tr>
<tr>
<td>----</td>
<td>Request Attributes Sequence</td>
</tr>
<tr>
<td>Requested Procedure ID</td>
<td>&gt;Requested Procedure ID</td>
</tr>
<tr>
<td>Requested Procedure Description</td>
<td>&gt;Requested Procedure Description</td>
</tr>
<tr>
<td>Scheduled Procedure Step ID</td>
<td>&gt;Scheduled Procedure Step ID</td>
</tr>
<tr>
<td>Scheduled Procedure Step Description</td>
<td>&gt;Scheduled Procedure Step Description</td>
</tr>
<tr>
<td>Scheduled Protocol Code Sequence</td>
<td>&gt;Scheduled Protocol Code Sequence</td>
</tr>
<tr>
<td>Requested Procedure Code Sequence</td>
<td>Procedure Code Sequence</td>
</tr>
</tbody>
</table>

### 8.4 CONTROLLED TERMINOLOGY
The contents of Requested Procedure Code Sequence (0032,1064) and Scheduled Protocol Code Sequence (0040,0008) supplied in Worklist Items will be mapped to Image IOD attributes as described in Table 44.

### 8.5 EXTENSIONS / SPECIALIZATIONS / PRIVATIZATIONS
Not applicable.