SONIMAGE613 Ultrasound System

DICOM Conformance Statement

Revision 1.02

System Version 1.03

KONICA MINOLTA

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0 COVER PAGE

Company Name: KONICA MINOLTA, INC.

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1 CONFORMANCE STATEMENT OVERVIEW

SONIMAGE 613 implements the necessary DICOM services to download worklists from information systems, save acquired US images and Structured Reports to a network storage device, CD or DVD, print to a networked hardcopy device and inform the information system about the work actually done.

Table 1-1 provides an overview of the network services supported by SONIMAGE 613.

Table 1-1

NETWORK SERVICES

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer		
Ultrasound Image Storage	Yes	No
Ultrasound Multi-frame Image Storage	Yes	No
Comprehensive SR	Yes	No
Workflow Management		
Modality Worklist	Yes	No
Storage Commitment Push Model	Yes	No
Modality Performed Procedure Step	Yes	No
Print Management		
Basic Grayscale Print Management	Yes	No
Basic Color Print Management	Yes	No

Table 1-2 provides an overview of the Media Storage Application Profiles supported by SONIMAGE 613.

Table 1-2

MEDIA SERVICES

Media Storage Application Profile	Write Files (FSC or FSU)	Read Files (FSR)
Compact Disk - Recordable		
STD-US-SC-MF-CDR	Yes	No
DVD		
STD-US-SC-MF-DVD	Yes	No

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3 INTRODUCTION

3.1 REVISION HISTORY

Document Version	System Version	Date of Issue	Author	Description
1.0	1.01	May 17, 2011	KONICA MINOLTA, INC.	Final Text for System 1.0
1.01	1.03	Oct 2, 2015	KONICA MINOLTA, INC.	Changed the Company Name to "KONICA MINOLTA, INC."
1.02	1.03	Apr 1, 2016	KONICA MINOLTA, INC.	Deleted the Company Name.

3.2 AUDIENCE

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

3.3 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 with KONICA MINOLTA, INC. and other vendor's Medical equipment. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [DICOM]. However, it is not guaranteed to ensure by itself the desired interoperability and a 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 KONICA MINOLTA, INC and non – KONICA MINOLTA, INC equipment.

- Test procedures should be defined to validate the desired level of connectivity.

- The DICOM Standard will evolve to meet the users' future requirements. KONICA MINOLTA, INC is activity involved in developing the standard further and therefore reserves the right to make changes to its products or to discontinue their delivery.

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:

AE	DICOM Application Entity
AET	Application Entity Title
ASCE	Association Control Service Element
CD-R	Compact Disk Recordable
FSC	File-Set Creator
FSU	File-Set Updater
FSR	File-Set Reader
IOD	(DICOM) Information Object Definition
ISO	International Standard Organization
MPPS	Modality Performed Procedure Step
MSPS	Modality Scheduled Procedure Step
R	Required Key Attribute
O	Optional Key Attribute
PDU	DICOM Protocol Data Unit
SCU	DICOM Service Class User (DICOM client)
SCP	DICOM Service Class Provider (DICOM server)
SOP	DICOM Service-Object Pair
U	Unique Key Attribute

3.5 REFERENCES

[DICOM] Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1–3.18, 2009

4 NETWORKING

4.1 IMPLEMENTATION MODEL

4.1.1 Application Data Flow

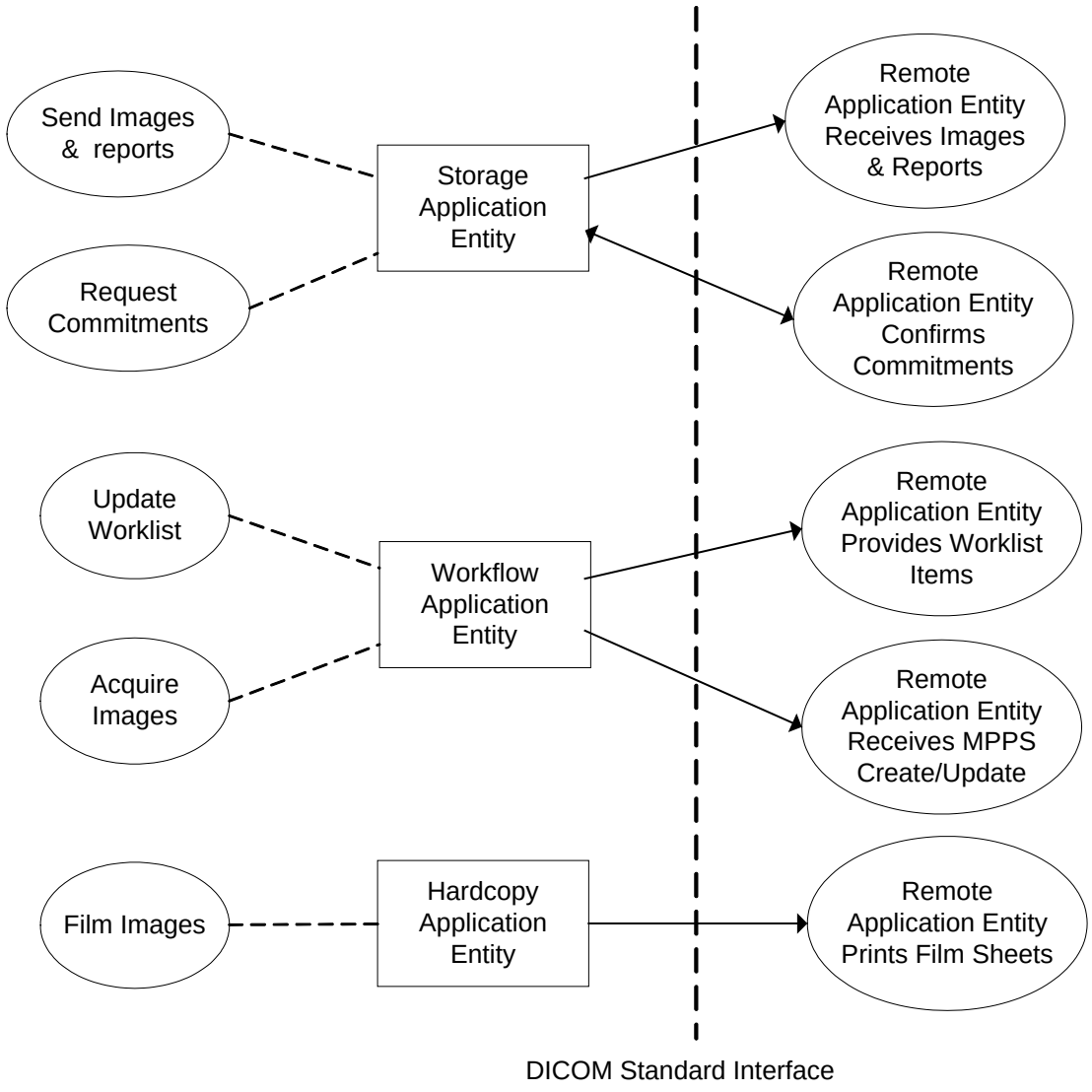

Figure 4.1-1
APPLICATION DATA FLOW DIAGRAM

- The Storage Application Entity sends images, Structured Reports and requests Storage Commitment to a remote AE. It is associated with the local real-world activities “Send Images & Reports” and “Request Commitments”. Methods to send images depend on user configuration, “Batch”, “Send As You Go” or

"Manual". "Manual" mode is performed upon user request for each study or for specific images selected. "Batch" mode starts to send images at End Exam for each study. "Send As You Go" mode starts when the first image is acquired for each study and images are transferred immediately after acquisition.

Structured Reports are only sent at End Exam for each study.

If the remote AE is configured as an archive device, the Storage AE will request Storage Commitment and if a commitment is successfully obtained, it will record this information in the local database and displayed it in the Exam List.

- The Workflow Application Entity receives Worklist information from and sends MPPS information to a remote AE. It is associated with the local real-world activities "Update Worklist" and "Acquire Images". When the "Update Worklist" local real-world activity is performed, the Workflow Application Entity queries a remote AE for worklist items and provides the set of worklist items matching the query request. "Update Worklist" is performed as a result of an operator request or can be performed automatically at specific time intervals. When the "Acquire Images" local real-world activity is performed, the Workflow Application Entity creates and updates Modality Performed Procedure Step instances managed by a remote AE. Acquisition of images will result in automated creation of an MPPS Instance. Completion of the MPPS is performed at End Exam for each study.

- The Hardcopy Application Entity prints images on a remote AE (Printer). It is associated with the local real-world activity "Film Images". Methods to film Images depend on user configuration and are equal to the Sending images' of the Storage Application Entity.

4.1.2 Functional Definition of AE's

4.1.2.1 Functional Definition of Storage Application Entity

The existence of a send-job with associated network destination will activate the Storage AE. An association request is sent to the destination AEs and upon successful negotiation of a Presentation Context, the image transfer is started. If the association cannot be opened, the related send-job is set to an error state and can be restarted by the user via DICOM manager interface or automatically. An automatic retry (retry interval, retry count) can be configured using the Setup/DICOM Menu.

4.1.2.2 Functional Definition of Workflow Application Entity

Worklist Update attempts to download a Worklist from a remote node. If the Workflow AE establishes an association to a remote AE, it will transfer all matching worklist items via the open Association. By default,

Worklist Update use “US” for Modality, current date for Scheduled Procedure Step Start Date and blank for Scheduled Station AE-Title as query parameters. The results will be displayed in a separate list, which will be cleared with the next Worklist Update.

The Workflow AE performs the creation of an MPPS Instance automatically whenever the first image is acquired for each study. The MPPS “Complete” states can only be set by “End Exam” for each study.

4.1.2.3 Functional Definition of Hardcopy Application Entity

The existence of a print-job will activate the Hardcopy AE. An association is established with the printers and the printer’s status determined. If the printer is operating normally, the film sheets described within the print-job will be printed. If the printer is not operating normally, the print-job will set to an error state and can be restarted by the user via DICOM manager interface or automatically. An automatic retry (retry interval, retry count) can be configured using the Setup/DICOM Menu.

4.1.3 Sequencing of Real-World Activities

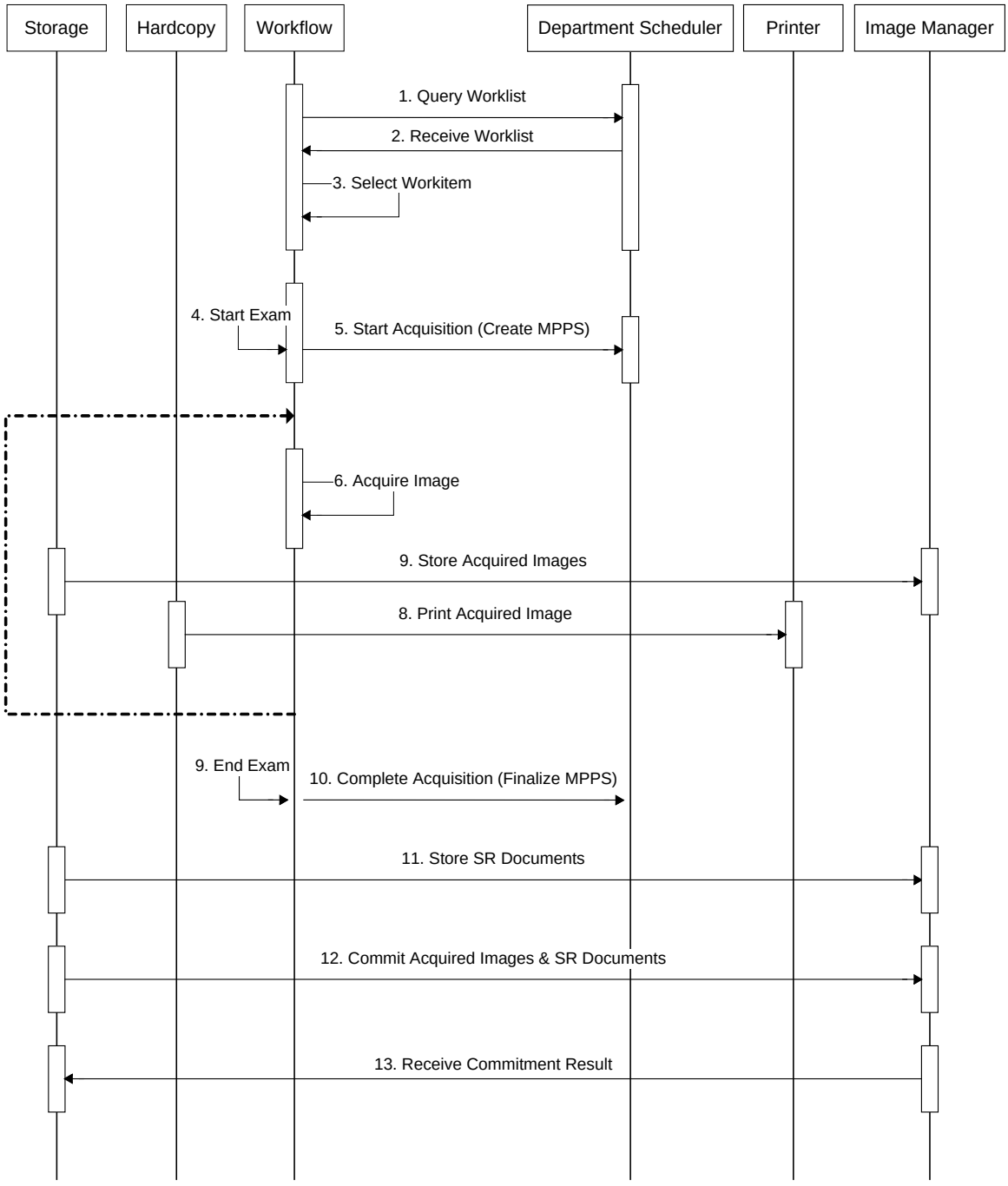

Figure 4.1-2
SEQUENCING CONTRAINTS – SEND AS YOU GO

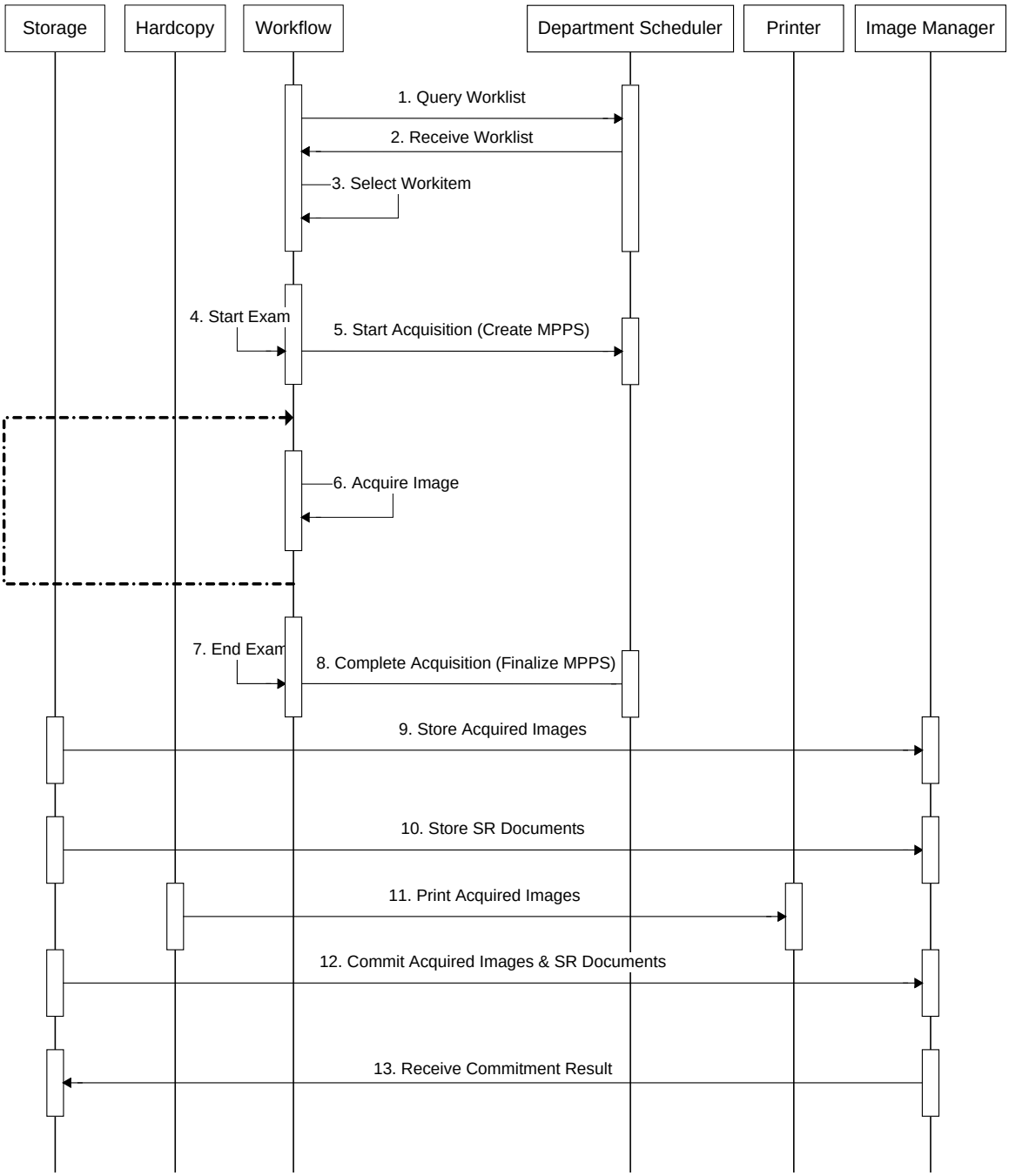

Figure 4.1-3
SEQUENCING CONSTRAINTS – BATCH MODE

Under normal scheduled workflow conditions, the sequencing constraints are illustrated in Figure 4.1-2 and Figure 4.1-3.

Other workflow situations (e.g. unscheduled procedure steps) will have other sequencing constraints. Printing could equally take place after the images acquired have been stored. Printing could be omitted completely if no printer is connected or hardcopies are not required.

4.2 AE SPECIFICATIONS

4.2.1 Storage Application Entity Specification

4.2.1.1 SOP Classes

SONIMAGE 613 provides Standard Conformance to the following SOP Classes:

Table 4.2-1

SOP CLASSES FOR AE STORAGE

SOP Classes	SOP Class UID	SCU	SCP
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
Comprehensive Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Storage Commitment Push Model	1.2.840.10008.1.20.1	Yes	No
Verification	1.2.840.10008.1.1	Yes	Yes

4.2.1.2 Association Policies

4.2.1.2.1 General

The DICOM Standard application context name for DICOM 3.0 is always proposed:

Table 4.2-2

DICOM APPLICATION CONTEXT FOR AE STORAGE

Application Context Name	1.2.840.10008.3.1.1.1

4.2.1.2.2 Number of Associations

SONIMAGE 613 can initiate one or more Associations at a time for each destination to which a transfer request is being processed in the active job queue list.

Table 4.2-3

NUMBER OF ASSOCIATIONS INITIATED FOR AE STORAGE

Maximum number of simultaneous Associations	Unlimited

SONIMAGE 613 accepts Associations to receive N-EVENT_REPORT notifications for the Storage Commitment Push Model SOP Class.

Table 4.2-4

NUMBER OF ASSOCIATIONS ACCEPTED FOR AE STORAGE

Maximum number of simultaneous Associations	Unlimited

4.2.1.2.3 Asynchronous Nature

SONIMAGE 613 does not support asynchronous communications (multiple outstanding transactions over a single Association).

Table 4.2-5

ASYNCHRONOUS NATURE AS A SCU FOR AE STORAGE

Maximum number of outstanding asynchronous transactions	1

4.2.1.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Table 4.2-6

DICOM IMPLEMENTATION CLASS AND VERSION FOR AE STORAGE

Implementation Class UID	1.2.392.200063.9107.802
Implementation Version Name	SONIMAGE1_01

4.2.1.3 Association Initiation Policy

4.2.1.3.1 Activity – Send Images and Structured Reports and Requests Commitment

4.2.1.3.1.1 Description and Sequencing of Activities

A user can select exams or images and request them to be sent to some destination. Each request is forwarded to the job queue and processed individually. When the “Batch” or “Send As You Go” option is active, Stored images and reports will be forwarded to the network job queue for a pre-configured auto-send target destination

automatically. For “Batch” and “Manual” configuration, the system opens an association, sends all images in the study, and closes the association. If “Send As You Go” is selected, the system handles the association with the Storage SCP Server using the following method.

a. Open an Association when the first image is acquired, and keep association open until the study is closed.

b. If an error occurs while sending an image to the server because there is no longer an open association (server timed-out), attempt to re-establish the association.

c. When the study is closed, close the open association after images remained in that study are sent.

Structured Reports are only sent over a separate association at End Exam For.

If the remote AE is configured as an archive device, the Storage AE will, after all images and reports have been sent, transmit Storage Commitment request (N-ACTION) over a separate Association. The Storage AE can only receive an N-EVENT-REPORT request in a subsequent association initiated by the SCP.

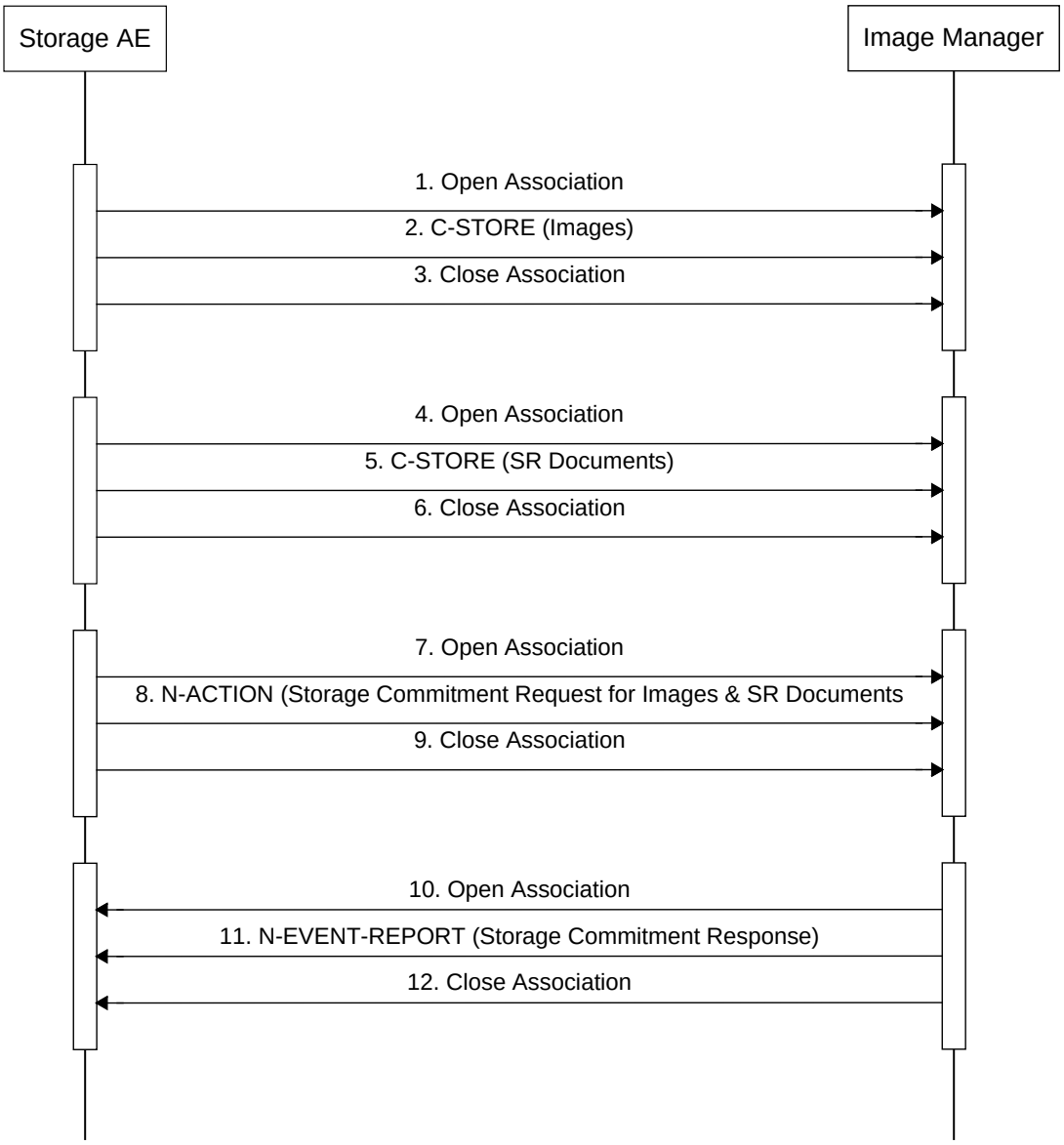

Figure 4.2-1
SEQUENCING OF ACTIVITY - SEND IMAGES

A possible sequence of interactions between the Storage AE and an Image Manager (e.g. a storage or archive device supporting the Storage and Storage Commitment SOP Classes as an SCP) is illustrated in the figure above.

NOTE: The N-EVENT-REPORT must be sent over a separate association initiated by the Image Manager. (See Section 4.2.1.4)

4.2.1.3.1.2 Proposed Presentation Contexts

SONIMAGE 613 is capable of proposing the Presentation Contexts shown in the following table.

Table 4.2-7
PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY SEND IMAGES

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian JPEG Lossy Baseline	1.2.840.10008.1.2 1.2.840.10008.1.2.4.50	SCU	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	JPEG Lossy Baseline	1.2.840.10008.1.2.4.50	SCU	None
Comprehensive Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.33	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
Verification	1.2.840.10008.1.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

Presentation Contexts for Ultrasound Image Storage and Ultrasound Multi-frame Image Storage will be proposed for the “Storage” device configured in Setup/DICOM.

A Presentation Context for Comprehensive Structured Report Storage will be proposed for the “Storage SR” device configured in Setup/DICOM.

A Presentation Context for Storage Commitment Push Model will be proposed for the “SC” device configured in Setup/DICOM.

A Presentation Context for Verification will be proposed when a user press the “Test” button for a configured device.

4.2.1.3.1.3 SOP Specific Conformance Image & Comprehensive Structured Report Storage SOP Classes

All Image & Structured Report Storage SOP Classes supported by the Storage AE exhibit the same behavior, except where stated, and are described together in this section.

Table 4.2-8

STORAGE C-STORE RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has successfully stored the SOP Instance. If all SOP Instances succeed, the job is marked as complete.
Refused	Out of Resources	A700-A7FF	The association is aborted using A-ABORT and the send job is marked as failed. The status is logged.
Error	Data Set does not match SOP Class	A900-A9FF	Same as "Refused" above.
Error	Cannot Understand	C000-CFFF	Same as "Refused" above.
Warning	Coercion of Data Elements	B000	Image transmission is considered successful.
Warning	Data Set does not match SOP Class	B007	Same as "Warning" above.
Warning	Elements Discards	B006	Same as "Warning" above.
*	*	Any other status code.	Same as "Refused" above.

The Behavior of Storage AE during communication failure is summarized in the Table below:

Table 4.2-9

STORAGE COMMUNICATION FAILURE BEHAVIOR

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the send job is marked as failed.
Association aborted by the SCP or network layers	The Send job is marked as failed.

A failed send job can be restarted by user interaction. The system can be configured to automatically resend failed

jobs if a transient status code is received. The delay between resending failed jobs and the number of retries is also configurable.

4.2.1.3.1.4 SOP Specific Conformance for Storage Commitment SOP Class

4.2.1.3.1.4.1 Storage Commitment Operations (N-ACTION)

The Storage AE will request storage commitment for the configured device for instances of the Ultrasound Image, Ultrasound Multi-frame Image and Structured Report Storage SOP Classes.

The Storage AE will consider Storage Commitment failed if no N-EVENT-REPORT is received for a Transaction UID within a configurable time period after receiving a successful N-ACTION response (duration of applicability for a Transaction UID).

The Storage AE does not send the optional Storage Media FileSet ID & UID Attributes or the Referenced Study Component Sequence Attribute in the N-ACTION

The Behavior of Storage AE when encountering status codes in an N-ACTION response is summarized in the Table below:

Table 4.2-10

STORAGE COMMITMENT N-ACTION RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The request for storage comment is considered successfully sent. The system waits for the association of the N-Event-Report.
*	*	Any other status code.	The Association is aborted using A-Abort and the request for storage comment is marked as failed

The behavior of Storage AE during communication failure is summarized in the Table below:

Table 4.2-11

STORAGE COMMITMENT COMMUNICATION FAILURE BEHAVIOR

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the storage commitment job is marked as failed.
Association aborted by the SCP or network layers	The storage commitment job is marked as failed.

4.2.1.3.1.4.2 Storage Commitment Notification (N-EVENT-REPORT)

The Storage AE is capable of receiving an N-EVENT-REPORT notification if it has successfully negotiated a Presentation Context for the Storage Commitment Push Model.

Upon receipt of an N-EVENT-REPORT the timer associated with the Transaction UID will be cancelled.

The behavior of Storage AE when receiving Event Types within the N-EVENT-REPORT is summarized in the Table below.

Table 4.2-12
STORAGE COMMITMENT N-EVENT-REPORT BEHAVIOR

Event Type Name	Event Type ID	Behavior
Storage Commitment Request Successful	1	The commit status is set to “Y” for each exam in the exam list. Auto deletion for committed exam is not supported.
Storage Commitment Request Complete – Failures Exists	2	The commit status is set to “N” for each exam in the exam list. The Referenced SOP Instances under Failed SOP Sequence (0008, 1198) are logged. A send job that failed storage commitment will not be automatically restarted but can be restarted by user interaction.

The reasons for returning specific status codes in an N-EVENT-REPORT response are summarized in the Table below.

Table 4.2-13
STORAGE COMMITMENT N-EVENT-REPORT RESPONSE STATUS REASONS

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The Storage commitment result has been successfully received.
Failure	Unrecognized Operation	0211H	The Transaction UID in the N_EVENT_REPORT request is not (was never issued within an N_ACTION request)
Failure	No Such Event Type	0113H	An invalid Event Type ID was supplied in the

			N_EVENT_REPORT request
Failure	Processing Failure	0110H	An internal error occurred during processing of the N_EVENT_REPORT

4.2.1.3.1.5 SOP Specific Conformance for Verification

The Behavior when encountering status codes in a C-ECHO response is summarized in the Table below:

Table 4.2-14

VERIFICATION C-ECHO RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	Verification Status is set to 'Normal'
*	*	Any other status code	Verification Status is set to 'Failed'

The Behavior of Storage AE during communication failure is summarized in the Table below:

Table 4.2-15

VERIFICATION COMMUNICATION FAILURE BEHAVIOR

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the verification job is marked as failed.
Association aborted by the SCP or network layers	The verification job is marked as failed.

4.2.1.4 Association Acceptance Policy

4.2.1.4.1 Activity – Receive Storage Commitment Response

4.2.1.4.1.1 Description and Sequence of Activities

The Storage AE will accept associations in order to receive responses to a Storage Commitment Request.

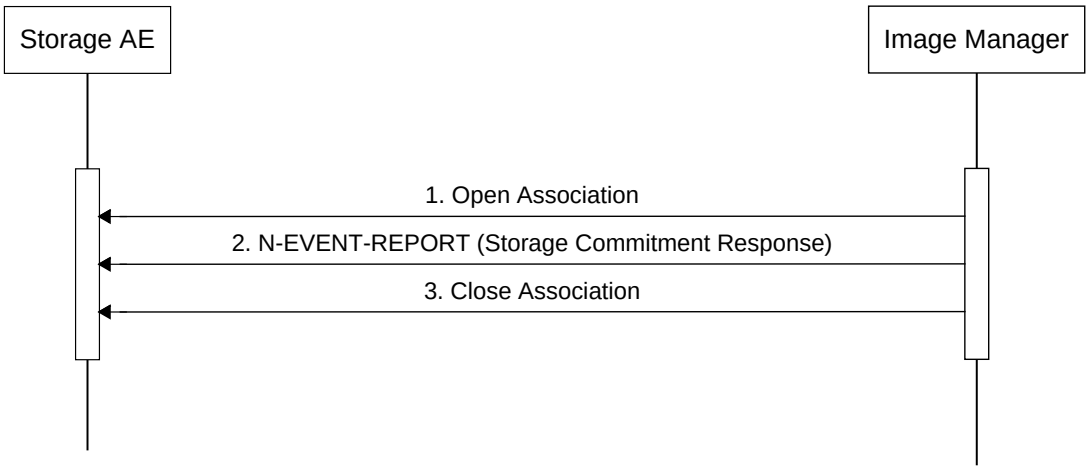

Figure 4.2-2
SEQUENCING OF ACTIVITY - RECEIVE STORAGE COMMITMENT RESPONSE

A possible sequence of interactions between the Storage AE and an Image Manager (e.g. a storage or archive device supporting Storage Commitment SOP Classes as an SCP) is illustrated in the Figure above:

1. The Image Manager opens a new association with the Storage AE.

2. The Image Manager sends an N-EVENT-REPORT request notifying the Storage AE of the status of a previous Storage Commitment Request. The Storage AE replies with an N-EVENT-REPORT response confirming receipt.

3. The Image Manager closes the association with the Storage AE.

4.2.1.4.1.2 Accepted Presentation Contexts

The Storage AE will accept Presentation Contexts as shown in the Table below.

Table 4.2-16
ACCEPTABLE PRESENTATION CONTEXTS FOR ACTIVITY
RECEIVE STORAGE COMMITMENT RESPONSE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**

Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
Verification	1.2.840.10008.1.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

4.2.1.4.1.3 SOP Specific Conformance for Storage Commitment SOP Class

4.2.1.4.1.3.1 Storage Commitment Notifications (N-EVENT-REPORT)

Upon receipt of an N-EVENT-REPORT the timer associated with the Transaction UID will be cancelled.

The behavior of Storage AE when receiving Event Types within the N-EVENT_REPORT is summarized in Table 4.2-12.

The reasons for returning specific status codes in an N-EVENT-REPORT response are summarized in Table 4.2-13.

4.2.1.4.1.4 SOP Specific Conformance for Verification SOP Class

The Storage AE provides standard conformance to the Verification SOP Class as an SCP. If the C-ECHO request was successfully received, a 0000 (Success) status code will be returned in the C-ECHO response.

4.2.2 Workflow Application Entity Specification

4.2.2.1 SOP Classes

SONIMAGE 613 provides Standard Conformance to the following SOP Classes:

Table 4.2-17

SOP CLASSES FOR AE WORKFLOW

SOP Classes	SOP Class UID	SCU	SCP
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Yes	No
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Yes	No

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.

Table 4.2-18

DICOM APPLICATION CONTEXT FOR AE WORKFLOW

Application Context Name	1.2.840.10008.3.1.1.1

4.2.2.2.2 Number of Associations

SONIMAGE 613 initiates one Association at a time for a Worklist request.

Table 4.2-19

NUMBER OF ASSOCIATIONS INITIATED FOR AE WORKFLOW

Maximum number of simultaneous Associations	1

4.2.2.2.3 Asynchronous Nature

SONIMAGE 613 does not support asynchronous communications (multiple outstanding transactions over a single Association)

Table 4.2-20

ASYNCHRONOUS NATURE AS A SCU FOR AE WORKFLOW

Maximum number of outstanding asynchronous transactions	1

4.2.2.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Table 4.2-21

DICOM IMPLEMENTATION CLASS AND VERSION FOR AE WORKFLOW

Implementation Class UID	1.2.392.200063.9107.802
Implementation Version Name	SONIMAGE1_01

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

The request for a Worklist Update is initiated by user interaction or automatically at specific time intervals, configurable by the user.

The interactive Worklist Query will display a dialog for entering data as search criteria. When the Query is started on your request, only the data from the dialog will be inserted as matching keys into the query.

With automated worklist queries the SONIMAGE 613 always requests all items for a Scheduled Procedure Step Start Date (actual date), Modality (US) and Scheduled Station AE Title.

Upon initiation of the request, the SONIMAGE 613 will build an Identifier for the C-FIND request, will initiate an Association to send the request and will wait for Worklist responses. After retrieval of all responses, SONIMAGE 613 will access the local database to add patient demographic data. The results will be displayed in a separate list, which will be cleared with the next worklist update.

SONIMAGE 613 will initiate an Association in order to issue a C-FIND request according to the Modality Worklist Information Model.

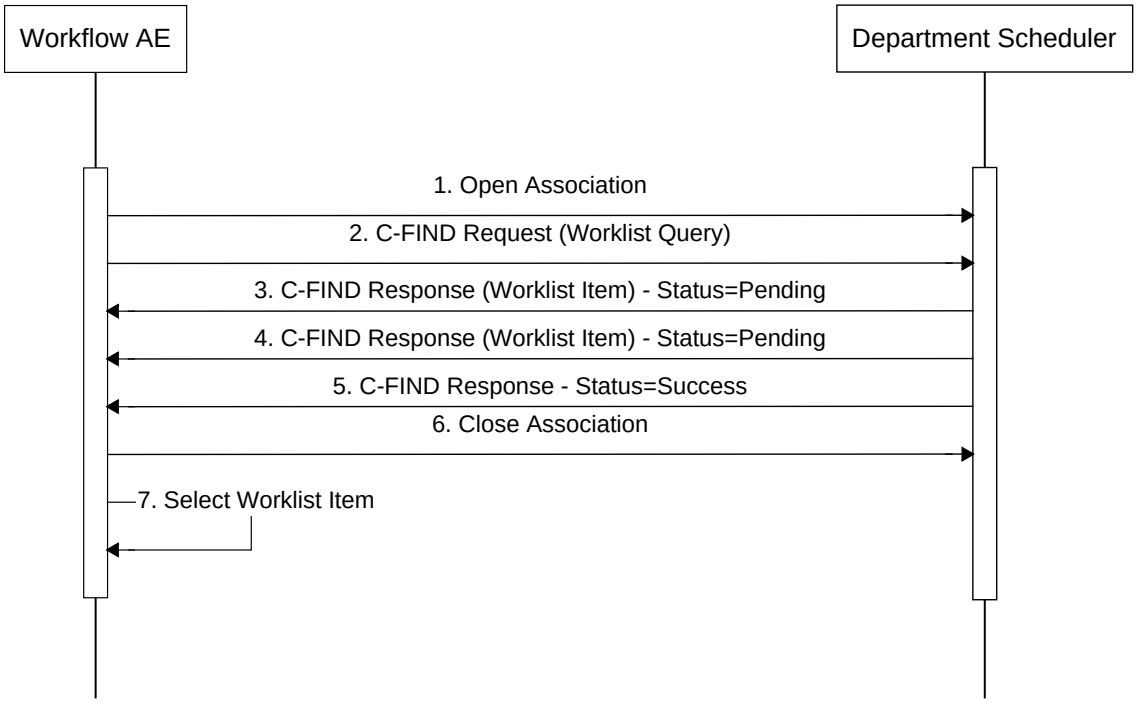

Figure 4.2-3
SEQUENCING OF ACTIVITY - WORKLIST UPDATE

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 Modality Worklist SOP Class as an SCP) is illustrated in the figure above:

4.2.2.3.1.2 Proposed Presentation Contexts

SONIMAGE 613 will propose Presentation Contexts as shown in the following table:

Table 4.2-22
PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY WORKLIST UPDATE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Modality Worklist Information Model - FIND	1.2.840.10008. 5.1.4.31	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008. 1.2.1	SCU	None

4.2.2.3.1.3 SOP Specific Conformance for Modality Worklist

The behavior of SONIMAGE 613 when encountering status codes in a Modality Worklist C-FIND response is summarized in the Table below. If any other SCP response status than “Success” or “Pending” is received by SONIMAGE 613, a message ”Query failed” will appear on the user interface.

Table 4.2-23

MODALITY WORKLIST C-FIND RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Matching is complete	0000	The SCP has Completed the operation successfully.
Pending	Matches are continuing	FF00	Continue.
Pending	Matches are continuing - Warning that one or more Optional Keys were not supported	FF01	Continue.
*	*	Any other status code.	The Association is aborted using A-Abort and the Worklist is marked as failed

The behavior of SONIMAGE 613 during communication failure is summarized in the Table below.

Table 4.2-24

MODALITY WORKLIST COMMUNICATION FAILURE BEHAVIOR

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the worklist query is marked as failed.
Association aborted by the SCP or network layers	The Worklist query is marked as failed.

Acquired images will always use the Study Instance UID specified for the Scheduled Procedure Step (if available). If an acquisition is unscheduled, a Study Instance UID will be generated locally.

The Table below provides a description of the SONIMAGE 613 Worklist Request Identifier and specifies the attributes that are copied into the images. Unexpected attributes returned in a C-FIND response are ignored.

Requested return attributes not supported by the SCP are set to have no value. Non-matching responses returned by the SCP due to unsupported optional matching keys are ignored. No attempt is made to filter out possible duplicate entries.

Table 4.2-25
WORKLIST REQUEST IDENTIFIER

Module Name Attribute Name	Tag	VR	M	R	Q	D	IOD
Scheduled Procedure Step							
Scheduled Procedure Step Sequence	0040,0100	SQ		x			
> Scheduled Station AET	0040,0001	AE	(S)	x	x		
> Scheduled Procedure Step Start Date	0040,0002	DA	S,R	x	x	x	
> Scheduled Procedure Step Start Time	0040,0003	TM		x		x	
> Modality	0008,0060	CS	S	x	x		
> Scheduled Performing Physician's Name	0040,0006	PN		x			
> Scheduled Procedure Step Description	0040,0007	LO		x		x	x
> Scheduled Station Name	0040,0010	SH		x			
> Scheduled Procedure Step Location	0040,0011	SH		x			
> Scheduled Protocol Code Sequence	0040,0008	SQ		x			x
> Scheduled Procedure Step ID	0040,0009	SH		x			x
Requested Procedure							
Requested Procedure ID	0040,1001	SH		x		x	x
Requested Procedure Description	0032,1060	LO		x			
Study Instance UID	0020,000D	UI		x			x
Referenced Study Sequence	0008,1110	SQ		x			x
Requested Procedure Code Sequence	0032,1064	SQ		x			x
Imaging Service Request							
Accession Number	0008,0050	SH		x		x	x
Requesting Physician	0032,1032	PN		x			
Referring Physician's Name	0008,0090	PN		x			x
Visit Status							
Current Patient Location	0038,0300	LO		x			
Patient Identification							
Patient’s Name	0010.0010	PN		x		x	x
Patient ID	0010,0020	LO		x		x	x
Patient Demographic							

Patient's Birth Date	0010,0030	DA		x		x	x
Patient's Sex	0010,0040	CS		x		x	x
Patient's Size	0010,1020	DS		x		x	x
Patient's Weight	0010,1030	DS		x		x	x

The above table should read as follows:

Module Name: The Name of the associated module for supported worklist attributes.

Attribute Name: Attributes supported to build an SONIMAGE 613 Worklist Request Identifier.

Tag: DICOM tag for this attribute.

VR: DICOM VR for this attribute.

M: Matching keys for (automatic) Worklist Update. An “S” indicates that SONIMAGE 613 supplies an attribute value for Single Value Matching or additional specific tags indicated by “(S)”; an “R” will indicate Range Matching.

R: Return keys. An ”X” will indicate that SONIMAGE 613 will supply this attribute as Return Key with zero length for Universal Matching.

Q: Interactive Query Key. An “X” will indicate that SONIMAGE 613 will supply this attribute as matching key, if entered in the Setup Dialog.

D: Displayed keys. An “X” indicates that this worklist attribute is displayed to the user during a patient registration dialog.

IOD: An “X” indicates that this Worklist attribute is included into all Object Instances created during performance of the related Procedure Step.

4.2.2.3.2 Activity – Acquire Images

4.2.2.3.2.1 Description and Sequencing of Activities

An Association to the configured MPPS SCP system is established immediately after the first image is acquired to send the MPPS N-Create message.

The “End Exam” button causes a “COMPLETED” message. An exam for which an MPPS instance is sent with a state of “COMPLETED” can no longer be updated.

The SONIMAGE 613 will support creation of “unscheduled cases” by allowing MPPS Instances to be communicated for locally registered Patients.

The SONIMAGE 613 only supports a 1-to-1 relationship between Scheduled and Performed Procedure Steps.

SONIMAGE 613 will initiate an Association to issue an:

- N-CREATE request according to the CREATE Modality Performed Procedure Step SOP Instance operation, or an:

- N-SET request to update the contents and state of the MPPS according to the SET Modality Performed Procedure Step Information operation.

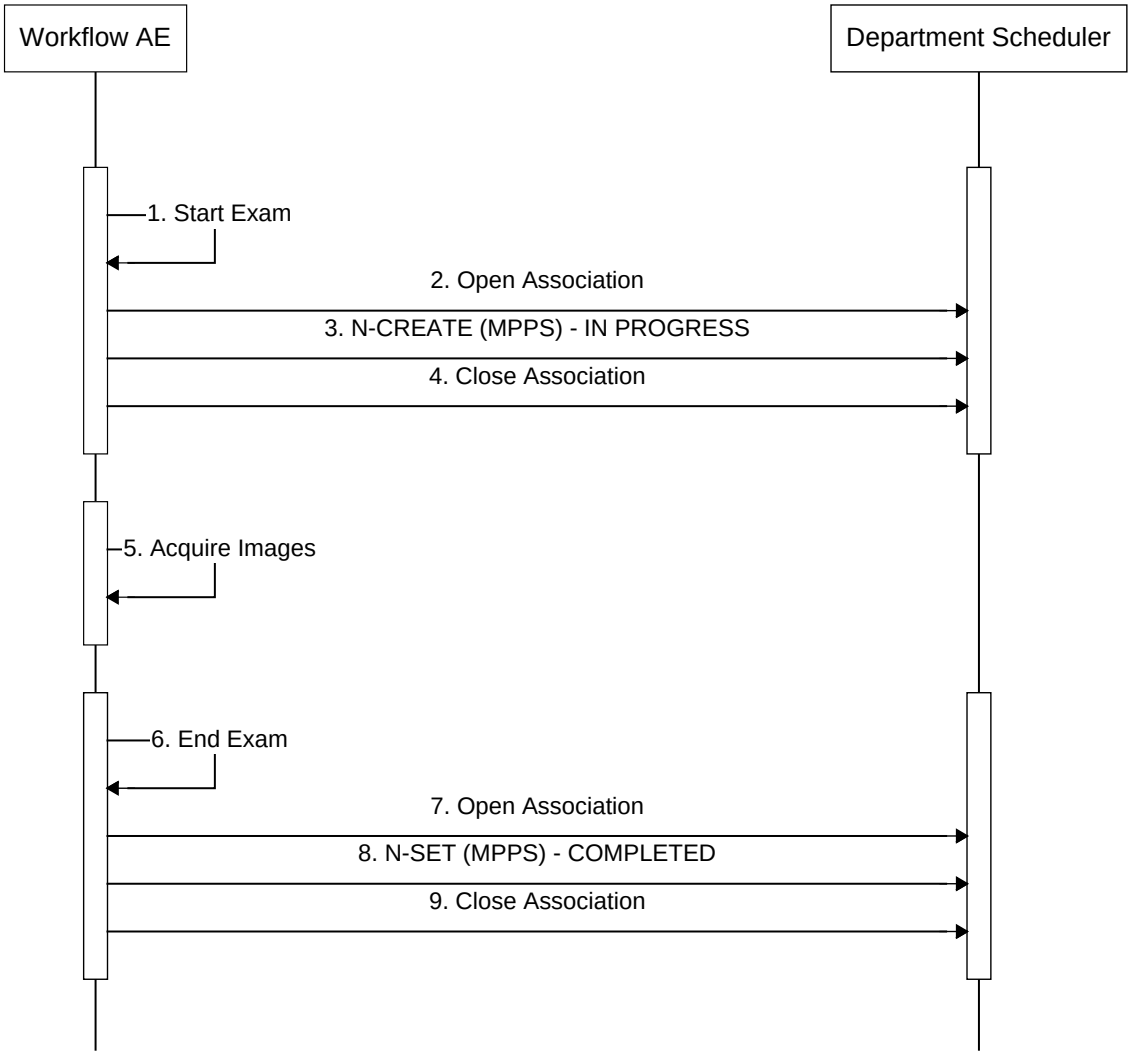

Figure 4.2-4
SEQUENCING OF ACTIVITY - ACQUIRE IMAGES

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 MPPS SOP Class as an SCP) is illustrated in the figure above:

4.2.2.3.2.2 Proposed Presentation Contexts

SONIMAGE 613 will propose Presentation Contexts as shown in the following table:

Table 4.2-26

PROPOSED PRESENTATION CONTEXTS FOR REAL-WORLD ACTIVITY ACQUIRE IMAGES

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Modality Performed Procedure Step	1.2.840.10008. 3.1.2.3.3	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008. 1.2.1	SCU	None

4.2.2.3.2.3 SOP Specific Conformance for MPPS

The behavior of SONIMAGE 613 when encountering status codes in an MPPS N-CREATE or N-SET response is summarized in the Table below. If any other SCP response status than “Success” or “Warning” is received by SONIMAGE 613, a message “MPPS failed” will appear on the user interface.

Table 4.2-27

MPPS N-CREATE / N-SET RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has Completed the operation successfully.
Warning	Attribute Value Out of Range	0116H	The MPPS Operation is considered successful.
*	*	Any other status code.	The Association is aborted using A-Abort and the MPPS is marked as failed

The behavior of SONIMAGE 613 during communication failure is summarized in the table below:

Table 4.2-28

MPPS COMMUNICATION FAILURE BEHAVIOR

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the MPPS job is marked as failed.
Association aborted by the SCP or network layers	The MPPS job is marked as failed.

Table 4.2-29 provides a description of the MPPS N-CREATE and N-SET request identifiers send by SONIMAGE 613. Empty cells in the N-CREATE and N-SET columns indicate that the attribute is not sent.

Table 4.2-29

MPPS N-CREATE / N-SET REQUEST IDENTIFIER

Attribute Name	Tag	VR	N-CREATE	N-SET
Specific Character Set	0008,0005	CS	Ref. Section 6 SUPPORT OF CHARACTER SETS	
Performed Procedure Step Relationship				
Scheduled Step Attribute Sequence	0040,0270	SQ		
> Study Instance UID	0020,000D	UI	From MWL or generated by device	
> Referenced Study Sequence	0008,1110	SQ	From MWL	
>> Referenced SOP Class UID	0008.1150	UI	From MWL	
>> Referenced SOP Instance UID	0008,1155	UI	From MWL	
> Accession Number	0008,0050	SH	From MWL or user input	
> Requested Procedure ID	0040,1001	SH	From MWL	
> Requested Procedure Description	0032,1060	LO	From MWL	
> Scheduled Procedure Step ID	0040,0009	SH	From MWL	
> Scheduled Procedure Step Description	0040,0007	LO	From MWL	
> Scheduled Protocol Code Sequence	0040,0008	SQ	From MWL	
>> Code Value	0008,0100	SH	From MWL	
>> Coding Scheme Designator	0008,0102	SH	From MWL	

>> Coding Scheme Version	0008,0103	SH	From MWL	
>> Code Meaning	0008,0104	LO	From MWL	
Patient's Name	0010,0010	PN	From MWL or user input	
Patient ID	0010,0020	LO	From MWL or user input	
Patient's Birth Date	0010,0030	DA	From MWL or user input	
Patient's Sex	0010,0040	CS	From MWL or user input	
Referenced Patient Sequence	0008,1120	SQ	Zero length	
> Referenced SOP Class UID	0008,1150	UI	Zero length	
> Referenced Instance UID	0008,1155	UI	Zero length	
Performed Procedure Step Information				
Performed Procedure Step ID	0040,0253	SH	Generated by device (Study Date + Study Time)	
Performed Station AE Title	0040,0241	AE	From Modality Setup	
Performed Station Name	0040,0242	SH	Zero length	
Performed Location	0040,0243	SH	Zero length	
Performed Procedure Step Start Date	0040,0244	DA	Actual Start Date	
Performed Procedure Step Start Time	0040,0245	TM	Actual Start Time	
Performed Procedure Step Status	0040,0252	CS	"IN PROGRESS"	"COMPLETED"
Performed Procedure Step Description	0040,0254	LO	From MWL or user input (Same as Study Description)	From MWL or user input (Same as Study Description)
Performed Procedure Type Description	0040,0255	LO	Zero length	Zero length
Procedure Code Sequence	0008,1032	SQ	From MWL	From MWL
> Code Value	0008,0100	SH	From MWL	From MWL
> Coding Scheme Designator	0008,0102	SH	From MWL	From MWL
> Coding Scheme Version	0008,0103	SH	From MWL	From MWL
> Code Meaning	0008,0104	LO	From MWL	From MWL
Performed Procedure Step End Date	0040,0250	DA	Zero length	Actual End Date

Performed Procedure Step End Time	0040,0251	TM	Zero length	Actual End Time
Image Acquisition Results				
Modality	0008,0060	CS	"US"	
Study ID	0020,0010	SH	generated by device (Study Date + Study Time)	
Performed Protocol Code Sequence	0040,0260	SQ	Zero length	
Performed Series Sequence	0040,0340	SQ	Zero length	One or more items
> Performed Physician's Name	0008,1050	PN		From MWL
> Protocol Name	0018,1030	LO		"FreeForm"
> Operator's Name	0008,1070	PN		From user input
> Series Instance UID	0020,000E	UI		generated by device
> Series Description	0008,103E	LO		Zero length
> Retrieve AE Title	0008,0054	AE		Zero length
> Referenced Image Sequence	0008,1140	SQ		From Modality
>> Referenced SOP Class UID	0008,1150	UI		From Modality
>> Referenced SOP Instance UID	0008,1155	UI		From Modality
> Referenced Non-Image Composite SOP Instance Sequence	0040,0220	SQ		From Modality
>> Referenced SOP Class UID	0008,1150	UI		From Modality
>> Referenced SOP Instance UID	0008,1155	UI		From Modality

4.2.2.4 Association Acceptance Policy

The Workflow Application Entity does not accept Associations.

4.2.3 Hardcopy Application Entity Specification

4.2.3.1 SOP Classes

SONIMAGE 613 provides Standard Conformance to the following SOP Classes:

Table 4.2-30

SOP CLASSES FOR AE HARDCOPY

SOP Classes	SOP Class UID	SCU	SCP
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Yes	No
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18	Yes	No

4.2.3.2 Association Policies

4.2.3.2.1 General

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

Table 4.2-31

DICOM APPLICATION CONTEXT FOR AE HARDCOPY

Application Context Name	1.2.840.10008.3.1.1.1

4.2.3.2.2 Number of Association

SONIMAGE 613 can initiate one or more Associations at a time for each destination to which a transfer request is being processed in the active job queue list.

Table 4.2-32

NUMBER OF ASSOCIATIONS INITIATED FOR AE HARDCOPY

Maximum number of simultaneous Associations	Unlimited (number of configured hardcopy devices)

4.2.3.2.3 Asynchronous Nature

SONIMAGE 613 does not support asynchronous communications (multiple outstanding transactions over a single Association)

Table 4.2-33

ASYNCHRONOUS NATURE AS A SCU FOR AE HARDCOPY

Maximum number of outstanding asynchronous transactions	1

4.2.3.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Table 4.2-34

DICOM IMPLEMENTATION CLASS AND VERSION FOR AE HARDCOPY

Implementation Class UID	1.2.392.200063.9107.802
Implementation Version Name	SONIMAGE1_01

4.2.3.3 Association Initiation Policy

4.2.3.3.1 Activity – Film Images

4.2.3.3.1.1 Description and Sequencing of Activities

A user composes images onto film sheets and requests them to be sent to a specific hardcopy device. The user can select the desired film format and number of copies. Each print-job is forwarded to the job queue and processed individually.

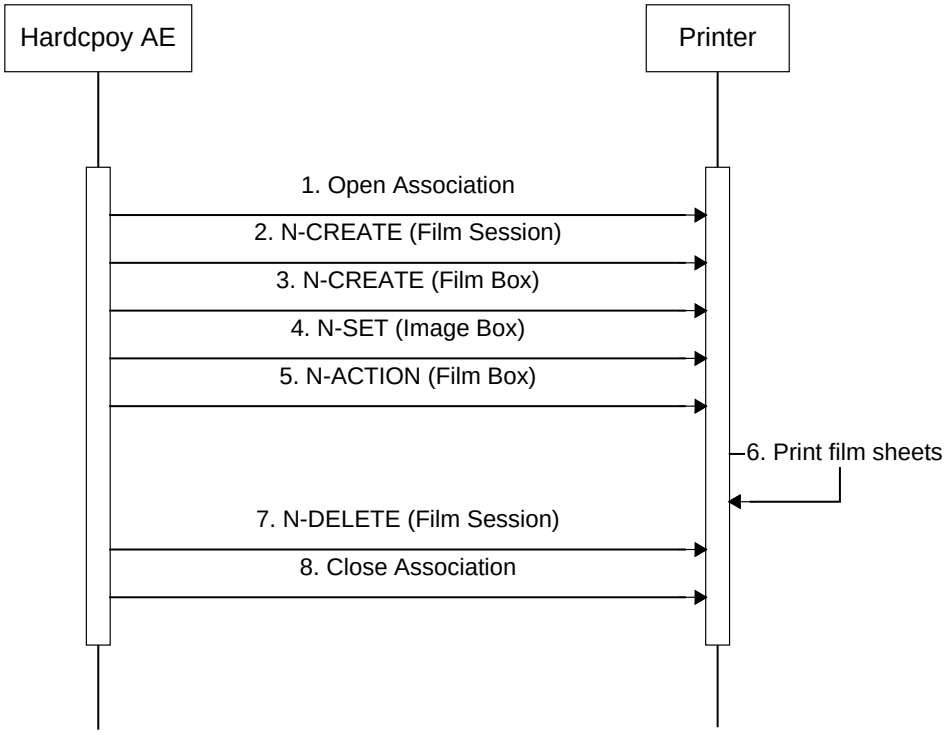

Figure 4.2-5

SEQUENCING OF ACTIVITY - FILM IMAGES

A typical sequence of DIMSE messages sent over an association between Hardcopy AE and a Printer is illustrated in the Figure above:

Association Initiation Policies for “Batch”, “Send As You Go” and “Manual” Mode are equal to the Sending images’ of the Storage Application Entity. (See 4.2.1.3.1.1)

Status of the print-job is reported through the job control interface. One or more job can be active at a time for each separate hardcopy device. If any response from the remote Application contains a status other than Success or Warning, the Association is aborted and the related job is switched to a failed state. It can be restarted any time by user interaction or, if configured, by automated retry.

4.2.3.3.1.2 Proposed Presentation Contexts

SONIMAGE 613 is capable of proposing the Presentation Contexts shown in the Table below:

Table 4.2-35
PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY FILM IMAGES

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

4.2.3.3.1.3 Common SOP Specific Conformance for all Print SOP Classes

The general behavior of Hardcopy AE during communication failure is summarized in the table below. This behavior is common for all SOP Classes supported by Hardcopy AE.

Table 4.2-36
HARDCOPY COMMUNICATION FAILURE BEHAVIOR

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the print job is marked as failed.

Association aborted by the SCP or network layers	The print job is marked as failed.

4.2.3.3.1.4 SOP Specific Conformance for the Film Session SOP Class

Hardcopy AE supports the following DIMSE operations for the Film Session SOP Class:

- N-CREATE
- N-DELETE

Details of the supported attributes and status handling behavior are described in the following subsections.

4.2.3.3.1.4.1 Film Session SOP Class Operations (N-CREATE)

The attributes supplied in an N-CREATE Request are listed in the Table below:

Table 4.2-37
FILM SESSION SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Number of Copies	2000,0010	IS	1..99	ALWAYS	USER
Print Priority	2000,0020	CS	HIGH, MED or LOW	ALWAYS	USER
Medium Type	2000,0030	CS	PAPER, CLEAR FILM, BLUE FILM, MAMMO CLEAR FILM or MAMMO BLUE FILM	ALWAYS	USER
Film Destination	2000,0040	CS	MAGAZINE or PROCESSOR	ALWAYS	USER

The Behavior of Hardcopy AE when encountering status codes in an N-CREATE response is summarized in the table below:

Table 4.2-38
FILM SESSION SOP CLASS N-CREATE RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has Completed the operation successfully.
Warning	Attribute Value Out	0116H	System continues operations.

	of Range		
Warning	Attribute List Error	0107H	Same as above
*	*	Any other status code.	The Association is aborted using A-Abort and the print-job is marked as failed

4.2.3.3.1.4.2 Film Session SOP Class Operations (N-DELETE)

The behavior of Hardcopy AE when encountering status codes in an N-DELETE response is summarized in the Table below:

Table 4.2-39
PRINTER SOP CLASS N-DELETE RESONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	
Success	Success	0000	The SCP has Completed the operation successfully.
*	*	Any other status code.	The Association is aborted using A-Abort and the print-job is marked as failed

4.2.3.3.1.5 SOP Specific Conformance for the Film Box SOP Class

Hardcopy AE supports the following DIMSE operations for the Film Box SOP Class:

- N-CREATE
- N-ACTION

Details of the supported attributes and status handling behavior are described in the following subsections.

4.2.3.3.1.5.1 Film Box SOP Class Operations (N-CREATE)

The attributes supplied in an N-CREATE Request are listed in the table below:

Table 4.2-40

FILM BOX SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Display Format	2010,0010	ST	"STANDARD\1, 1" , "STANDARD\1, 2" , "STANDARD\2, 2" , "STANDARD\2, 3" , "STANDARD\3, 3" , "STANDARD\3, 4" , "STANDARD\3, 5" , "STANDARD\4, 4" , "STANDARD\4, 5" or "STANDARD\4, 6"	ALWAYS	USER
Referenced Film Session Sequence	2010.0500	SQ		ALWAYS	AUTO
> Referenced SOP Class UID	0008,1150	UI	1.2.840.10008.5.1.1.1	ALWAYS	AUTO
> Referenced SOP Instance UID	0008,1155	UI	From created Film Session SOP Instance	ALWAYS	AUTO
Film Orientation	2010,0040	CS	PORTRAIT or LANDSCAPE	ALWAYS	USER
Film Size ID	2010,0050	CS	8INX10IN, 8_5INX11IN, 10INX12IN, 10INX14IN, 11INX14IN, 11INX17IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM, A4, A3	ALWAYS	USER
Magnification Type	2010,0060	CS	REPLICATE, BILINEAR, CUBIC, NONE	ALWAYS	USER
Max Density	2010,0130	US	0 ~	ANAP	USER
Configuration Information	2010,0150	ST	Values are defined in Print Conformance Statement	ANAP	USER
Smoothing Type	2010,0080	CS	Values are defined in Print Conformance Statement	ANAP	USER

Border Density	2010,0100	CS	BLACK or WHITE	ALWAYS	USER
Empty Image Density	2010,0110	CS	BLACK or WHITE	ALWAYS	USER
Min Density	2010,0120	US	0 ~	ANAP	USER

The behavior of Hardcopy AE when encountering status codes in an N-CREATE responses is summarized in the table below:

Table 4.2-41

FILM BOX SOP CLASS N-CREATE RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has Completed the operation successfully.
Warning	Attribute Value Out of Range	0116H	System continues operations.
Warning	Attribute List Error	0107H	Same as above
Warning	Requested Min Density or Max Density outside of printer's operating range	B605H	Same as above
*	*	Any other status code.	The Association is aborted using A-Abort and the print-job is marked as failed

4.2.3.3.1.5.2 Film Box SOP Class Operations (N-ACTION)

An N-ACTION Request is issued to instruct the Print SCP to print the contents of the Film Box.

The behavior of Hardcopy AE when encountering status codes in an N-ACTION responses is summarized in the table below:

Table 4.2-42

FILM BOX CLASS N-ACTION RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has Completed the operation successfully.
*	*	Any other status code.	The Association is aborted using A-Abort and the print-job is marked as failed

4.2.3.3.1.6 SOP Specific Conformance for the Film Box SOP Class

Hardcopy AE supports the following DIMSE operations for the Image Box SOP Class:

- N-SET

Details of the supported attributes and status handling behavior are described in the following subsections.

4.2.3.3.1.6.1 Image Box SOP Class Operations (N-SET)

The attributes supplied in an N-SET Request are listed in the Table below:

Table 4.2-43
BASIC GRAYSCALE IMAGE BOX SOP CLASS N-SET REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Position	2020,0010	US	1 .. N (N = Row * Column of Film Box)	ALWAYS	AUTO
Basic Grayscale Image Sequence	2020,0110	SQ		ALWAYS	AUTO
> Samples Per Pixel	0028,0002	US	1	ALWAYS	AUTO
> Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	AUTO
> Rows	0028,0010	US	Number of Row Pixels of Image	ALWAYS	AUTO
> Columns	0028,0011	US	Number of Column Pixels of Image	ALWAYS	AUTO
> Bits Allocated	0028,0100	US	8	ALWAYS	AUTO
> Bits Stored	0028,0101	US	8	ALWAYS	AUTO

> High Bit	0028,0102	US	7	ALWAYS	AUTO
> Pixel Representation	0028,0103	US	0	ALWAYS	AUTO
> Pixel Data	7FE0,0010	OB	Pixels of Image	ALWAYS	AUTO

Table 4.2-44

BASIC COLOR IMAGE BOX SOP CLASS N-SET REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Position	2020,0010	US	1 .. N (N = Row * Column of Film Box)	ALWAYS	AUTO
> Samples Per Pixel	0028,0002	US	3	ALWAYS	AUTO
> Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	AUTO
> Planar Configuration	0028,0006	US	1	ALWAYS	AUTO
> Rows	0028,0010	US	Number of Row Pixels of Image	ALWAYS	AUTO
> Columns	0028,0011	US	Number of Column Pixels of Image	ALWAYS	AUTO
> Bits Allocated	0028,0100	US	8	ALWAYS	AUTO
> Bits Stored	0028,0101	US	8	ALWAYS	AUTO
> High Bit	0028,0102	US	7	ALWAYS	AUTO
> Pixel Representation	0028,0103	US	0	ALWAYS	AUTO
> Pixel Data	7FE0,0010	OB	Pixels of Image	ALWAYS	AUTO

The behavior of Hardcopy AE when encountering status codes in an N-SET response is summarized in the table below:

Table 4.2-45

IMAGE BOX SOP CLASS N-SET RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior

Success	Success	0000	The SCP has Completed the operation successfully.
*	*	Any other status code.	The Association is aborted using A-Abort and the print-job is marked as failed

4.2.3.4 Association Acceptance Policy

The Hardcopy Application Entity does not accept Associations.

4.3 NETWORK INTERFACE

4.3.1 Physical Network Interface

SONIMAGE 613 supports a single network interface. One of the following physical network interfaces will be available depending on hardware options installed:

Table 4.3-1
SUPPORTED PHYSICAL NETWORK INTERFACES

Ethernet 100baseT
Ethernet 10baseT

4.4 CONFIGURATION

4.4.1 AE Title/Presentation Address Mapping

4.4.1.1 Local AE Titles

All local applications use the AE Titles and TCP/IP Ports configured via the Setup/DICOM Menu. All local DICOM services use the same AE Title. The system listens for Verification requests and Commitment reports on the configured Port.

4.4.1.2 Remote AE Title/Presentation Address Mapping

The AE Title, host names and port numbers of remote applications are configured using the SONIMAGE 613 Setup/DICOM Menu.

4.4.1.2.1 Storage

The Add button on the SONIMAGE 613 Setup/DICOM Menu must be used to set the AE Titles, port-numbers, IP addresses and capabilities for the remote Image Storage SCPs. Multiple remote Image Storage SCPs can be defined.

The Add button on the SONIMAGE 613 Setup/DICOM Menu must be used to set the AE Titles, port-numbers, IP addresses and capabilities for the remote Structured Report Storage SCP. Only a single remote Structured Report

Storage SCP can be defined.

The Add button on the SONIMAGE 613 Setup/DICOM Menu must be used to set the AE Titles, port-numbers, IP addresses and capabilities for the remote Storage Commitment SCP. Only a single remote Storage Commitment SCP can be defined and only one Image Storage SCP can be assigned for Storage Commitment.

4.4.1.2.2 Workflow

The Add button on the SONIMAGE 613 Setup/DICOM Menu must be used to set the AE Titles, port-numbers, IP addresses and capabilities for the remote Modality Worklist SCP. Only a single remote Modality Worklist SCP can be defined.

The Add button on the SONIMAGE 613 Setup/DICOM Menu must be used to set the AE Titles, port-numbers, IP addresses and capabilities for the remote MPPS SCP. Only a single remote MPPS SCP can be defined.

4.4.1.2.3 Hardcopy

The Add button on the SONIMAGE 613 Setup/DICOM Menu must be used to set the AE Titles, port-numbers, IP addresses and capabilities for the remote Print SCPs. Multiple remote Print SCPs can be defined.

4.4.2 Parameters

A number of parameters related to acquisition and general operation can be configured using the Setup/DICOM Menu. The Table below only shows those configuration parameters relevant to DICOM communications. See the SONIMAGE 613 Manual for details on general configuration capabilities.

Table 4.4-1

CONFIGURATION PARAMETERS TABLE

Parameter	Configurable (Yes/No)	Default Value
Local System Parameters		
AE Title (Local System AE Title)	Yes	“Set AE Title”
Station Name	Yes	“Set Station Name”
Port No. (Local Port Number)	Yes	104

Service Common Parameters		
Retry Interval	Yes	30 Sec.
Connect Timeout	Yes	15 Sec.
Maximum Retires	Yes	1
Storage Parameters		
Transfer Mode	Yes	“Batch”
Window Center (VOI LUT)	Yes	128
Window Width (VOI LUT)	Yes	256
Storage SR Parameter		
Transfer Mode	Yes	“Batch”
Storage Commitment Parameters		
Associated Storage Server	Yes	None
Worklist Modality Parameters		
Delay between automatic Worklist Updates	Yes	5 Min.
Query Worklist for specific Scheduled Station AE Title	Yes	Any (Blank Value)
Query Worklist for specific Scheduled Modality Value	No.	“US” fixed
Query Worklist for Specific Start Date	Yes	Today
Print Parameters		
Transfer Mode	Yes	“Batch”
Color	Yes	“Grayscale”
Medium Type	Yes	“PAPER”
Format	Yes	1x1
Film Size	Yes	8 IN X 10 IN
Orientation	Yes	“PORTRAIT”
Destination	Yes	“MAGAZINE”
Magnification	Yes	“REPLICATE”
Smoothing Type	Yes	Blank
Border Density	Yes	“BLACK”
Empty Density	Yes	“BLACK”
Priority	Yes	“HIGH”
Min Density	Yes	Blank
Max Density	Yes	Blank
Copies	Yes	1
Configuration Info	Yes	Blank

5 MEDIA INTERCHANGE

5.1 IMPLEMENTATION MODEL

5.1.1 Application Data Flow

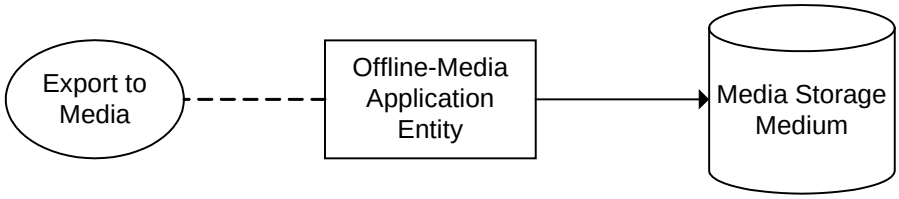

Figure 5.1-1
APPLICATION DATA FLOW DIAGRAM FOR MEDIA STORAGE

- The Offline-Media Application Entity exports images and Structured Report to a Media Storage medium. It is associated with the local real-world activity “Export to Media”, “Export to Media” is performed upon user request for selected studies.

5.1.2 Functional Definition of AEs

5.1.2.1 Functional Definition of Offline-Media Application Entity

Activation of the “Export to Media” menu entry will pass the currently selected studies to the Offline-Media Application Entity. The SOP Instances associated with the selection will be collected into one or more export jobs. The contents of each export job will be written to a single media.

5.1.3 Sequencing of Real-World Activities

At least one study must exist and be selected before the Offline-Media Application Entity can be invoked. The operator can insert a new media at any time before or after invocation of the Offline-Media Application Entity. If no media is available the export job can be cancelled immediately.

5.1.4 File Meta Information Options

The implementation written to the File Meta Header in each file is:

Table 5.1-1

DICOM IMPLEMENTATION CLASS AND VERSION FOR MEDIA STORAGE

Implementation Class UID	1.2.392.200063.9107.802
Implementation Version Name	SONIMAGE1_01

5.2 AE SPECIFICATIONS

5.2.1 Offline-Media Application Entity Specification

The Offline-Media Application Entity provides standard conformance to the Media Storage Service Class. The Application Profiles and roles are listed below:

Table 5.2-1

APPLICATION PROFILES, ACTIVITIES AND ROLES FOR OFFLINE-MEDIA

Application Profiles Supported	Real World Activity	Role
STD-US-SC-MF-CDR	Export To Media	FSC, FSU
STD-US-SC-MF-DVD	Export To Media	FSC, FSU

5.2.1.1 File Meta Information for the Application Entity

The File-Set Identifier included in the File Meta Header is “KONICA MINOLTA”.

The Source Application Entity Title included in the File Meta Header is configurable using the Setup/DICOM Menu.

5.2.1.2 Real-World Activities

5.2.1.2.1 Activity – Export to Media

The Offline-Media Application Entity acts as an FSC and FSU when requested to export SOP Instances from the local database to a media.

If the contents of the current selection do not fit on a single media, a separation into multiple export jobs which can be adapted by the user will be suggested.

The user will be prompted to insert a media for each export job. The contents of the export job will be written together with a corresponding DICOMDIR to a media. Writing in multi-session mode is supported.

5.2.1.2.1.1 Media Storage Application Profiles

The Offline-Media Application Entity supports the STD-US-SC-MF-CDR and STD-US-SC-MF-DVD Application Profile.

5.2.1.2.1.1.1 Options

The Media Application Entity supports the SOP Classes and Transfer Syntaxes listed in the table below:

Table 5.2-2
IODS, SOP CLASSES AND TRANSFER SYNTAXES FOR OFFLINE MEDIA

Information Object Definition	SOP Class UID	Transfer Syntax	Transfer Syntax UID
Media Storage Directory Storage	1.2.840.10008.1.3.10	Explicit VR Little Endian	1.2.840.10008.1.2.1
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian JPEG Baseline Lossy Compression	1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	JPEG Baseline Lossy Compression	1.2.840.10008.1.2.4.50
Comprehensive Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.33	Explicit VR Little Endian	1.2.840.10008.1.2.1

6 SUPPORT OF CHARACTER SETS

All SONIMAGE 613 DICOM applications support the

ISO_IR 100 : Latin Alphabet No. 1
Supplementary set of ISO 8859
ISO 646

7 SECURITY

SONIMAGE 613 does not support any specific security measures.

It is assumed that SONIMAGE 613 is used within a secured environment. It is assumed that a secured environment includes as minimum:

a. Firewall or router protections to ensure that only approved external hosts have network access to SONIMAGE 613.

b. Firewall or router protections to ensure that SONIMAGE 613 has only network access to approved external hosts and services.

c. Any communication with external hosts and services outside the locally secured environment use appropriately secure network channels (e.g. such as a Virtual Private Network (VPN).

Other network security procedures such as automated intrusion detection may be appropriate in some environments. Additional security features may be established by the local security policy and are beyond the scope of this conformance statement.

8 ANNEXES

8.1 IOD CONTENTS

8.1.1 Created SOP Instances

Table 8.1-1 specifies the attributes of an Ultrasound Image transmitted by the SONIMAGE 613 storage applications.

Table 8.1-2 specifies the attributes of a Comprehensive Structured Reports transmitted by the SONIMAGE 613 storage applications.

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

VNAP	Value Not Always Present (attribute sends 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
USER	the attribute value source is from User input
AUTO	the attribute value is generated automatically
MPPS	the attribute value is the same as the Modality Performed Procedure Step service
CONFIG	the attribute value source is a configurable parameter

NOTE: All dates and times are encoded in the local configured calendar and time. Date, Time and Time zones are configured using the Setup Menu.

8.1.1.1 US or US Multiframe Image IOD

Table 8.1-1

IOD OF CREATED US OR US MULTIFRAME SOP INSTANCES

IE	Module	Reference	Presence of Module
Patient	Patient	Table 8.1-3	ALWAYS
Study	General Study	Table 8.1-4	ALWAYS

	Patient Study	Table 8.1-5	ALWAYS
Series	General Series	Table 8.1-6	ALWAYS
Equipment	General Equipment	Table 8.1-7	ALWAYS
Image	General Image	Table 8.1-8	ALWAYS
	Image Pixel	Table 8.1-9	ALWAYS
	Cine	Table 8.1-10	Only if US Multiframe
	Multi-Frame	Table 8.1-11	Only if US Multiframe
	US Region Calibration	Table 8.1-12	ANAP
	US Image	Table 8.1-13	ALWAYS
	VOI LUT	Table 8.1-14	ALWAYS
	SOP Common	Table 8.1-15	ALWAYS

8.1.1.2 Comprehensive Structured Report IOD

Table 8.1-2

IOD OF CREATED COMPREHENSIVE STRUCTURED REPORT SOP INSTANCES

IE	Module	Reference	Presence of Module
Patient	Patient	Table 8.1-3	ALWAYS
Study	General Study	Table 8.1-4	ALWAYS
	Patient Study	Table 8.1-5	ALWAYS
Series	SR Document Series	Table 8.1-16	ALWAYS
Equipment	General Equipment	Table 8.1-7	ALWAYS
Document	SR Document General	Table 8.1-17	ALWAYS
	SR Document Content	Table 8.1-18	ALWAYS
	SOP Common	Table 8.1-19	ALWAYS

8.1.1.3 Common Modules

Table 8.1-3

PATIENT MODULE OF CREATED SOP INSTANCES

Attribute	Tag	VR	Value	Presence	Source

Name				of Value	
Patient's Name	0010,0010	PN	From MWL or User Input. Values supplied via Modality Worklist will be entered as received. Values supplied via user input will contain first 3 components (Last^First^Middle). Maximum 64 characters.	VNAP	MWL/USER
Patient ID	0010,0020	LO	From MWL, user input or generated by device. Maximum 64 characters.	ALWAYS	MWL/USER/AUTO
Patient's Birth Date	0010,0030	DA	From MWL or user input	VNAP	MWL/USER
Patient's Sex	0010,0040	CS	From MWL or user input	VNAP	MWL/USER

Table 8.1-4

GENERAL STUDY MODULE OF CREATED SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Study Instance UID	0020,000D	UI	From MWL or generated by device	ALWAYS	MWL/AUTO
Study Date	0008,0020	DA	<yyyymmdd>	ALWAYS	AUTO
Study Time	0008,0030	TM	<hhmmss>	ALWAYS	AUTO
Referring Physician's Name	0008,0090	PN	From MWL or user input	VNAP	MWL/USER
Study ID	0020,0010	SH	system generate : Study Date + Study Time <yyyymmddhhmmss>	ALWAYS	AUTO
Accession Number	0008,0050	SH	From MWL or user input	VNAP	MWL/USER
Study Description	0008,1030	LO	From MWL (Scheduled procedure step description) or user input	ANAP	MWL/USER

Referenced Study Sequence	0008,1110	SQ	From MWL	ANAP	MWL
> Referenced SOP Class UID	0008,1150	UI	From MWL	ANAP	MWL
> Referenced SOP Instance UID	0008,1155	UI	From MWL	ANAP	MWL
Procedure Code Sequence	0008,1032	SQ	From MWL	ANAP	MWL

Table 8.1-5

PATIENT STUDY MODULE OF CREATED SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Patient's Size	0010,1020	DS	From MWL or user input	ANAP	MWL/USER
Patient's Weight	0010,1030	DS	From MWL or user input	ANAP	MWL/USER

Table 8.1-6

GENERAL SERIES MODULE OF CREATED SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	0008,0060	CS	US	ALWAYS	AUTO
Series Instance UID	0020,000E	UI	Generated by device	ALWAYS	AUTO
Series Number	0020,0011	IS	"1"	ALWAYS	AUTO
Series Date	0008,0021	DA	<yyyymmdd>	ALWAYS	AUTO
Series Time	0008,0031	TM	<hhmmss>	ALWAYS	AUTO
Operators' Name	0008,1070	PN	From user input	ANAP	USER

Referenced Performed Procedure Step Sequence	0008,1111	SQ	Identifies the MPPS SOP Instance to which this image is related	ALWAYS	MPPS
> Referenced SOP Class UID	0008,1150	UI	MPPS SOP Class UID "1.2.840.10008.3.1.2.3.3"	ALWAYS	MPPS
> Referenced SOP Instance UID	0008,1155	UI	MPPS SOP Instance UID	ALWAYS	MPPS
Request Attributes Sequence	0040,0275	SQ	Zero or 1 item will be present	ANAP	AUTO
> Requested Procedure ID	0040,1001	SH	From MWL	ANAP	MWL
> Scheduled Procedure Step ID	0040,0009	SH	From MWL	ANAP	MWL
> Scheduled Procedure Step Description	0040,0007	LO	From MWL	ANAP	MWL
> Scheduled Protocol Code Sequence	0040.0008	SQ	From MWL	ANAP	MWL
Performed Procedure Step ID	0040,0253	SH	Same as MPPS	ALWAYS	MPPS
Performed Procedure Step Start Date	0040,0244	DA	Same as Study Date	ALWAYS	AUTO
Performed Procedure Step Start Time	0040,0245	TM	Same as Study Time	ALWAYS	AUTO
Performed Procedure Step Description	0040,0254	LO	Same as Study Description	ANAP	MWL/USER

Table 8.1-7

GENERAL EQUIPMENT MODULE OF CREATED SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Manufacturer	0008,0070	LO	"KONICA MINOLTA, INC"	ALWAYS	AUTO
Institution Name	0008,0080	LO	From user input	ANAP	CONFIG
Station Name	0008,1010	SH	From user input	ANAP	CONFIG
Manufacturer's Model Name	0008,1090	LO	"SONIMAGE 613"	ALWAYS	AUTO
Device Serial Number	0018,1000	LO	Generated by device	ALWAYS	AUTO
Software Versions	0018,1020	LO	Generated by device	ALWAYS	AUTO

8.1.1.4 US or US Multiframe Image Module

Table 8.1-8

GENERAL IMAGE MODULE OF CREATED US OR US MULTIFRAME SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Instance Number	0020,0013	IS	Generated by device, increments from "1" in each series	ALWAYS	AUTO
Patient Orientation	0020,0020	CS	NULL		
Content Date	0008,0023	DA	<yyyymmdd>	ALWAYS	AUTO
Content Time	0008,0033	TM	<hhmmss>	ALWAYS	AUTO
Image Type	0008,0008	CS	"ORIGINAL" and "PRIMARY"	ALWAYS	AUTO
Acquisition Date	0008,0022	DA	<yyyymmdd>	ALWAYS	AUTO
Acquisition Time	0008,0032	TM	<hhmmss>	ALWAYS	AUTO
Acquisition DateTime	0008,002A	DT	<yyyymmddhhmmss>	ALWAYS	AUTO
Lossy Image Compression	0028,2110	CS	US = "00" (uncompressed) or "01" (lossy compressed) US-MF = "01" (lossy compressed)	ALWAYS	AUTO

Lossy Image Compression Ratio	0028,2112	DS	Used if (0028, 2110) = "01", Calculated by device	ANAP	AUTO
Lossy Image Compression Method	0028,2114	CS	"ISO_10918_1", used if (0028,2110) = "01"	ANAP	AUTO

Table 8.1-9

IMAGE PIXEL MODULE OF CREATED US OR US MULTIFRAME SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Samples per Pixel	0028,0002	US	"3" for RGB or YBR_FULL_422 “1” for MONOCHROME2	ALWAYS	AUTO
Photometric Interpretation	0028,0004	CS	Uncompressed = "RGB" or “MONOCHROME2” Compressed = “YBR_FULL_422”	ALWAYS	AUTO
Rows	0028,0010	US	US = "768", US-MF = "480"	ALWAYS	AUTO
Columns	0028,0011	US	US = "1024", US-MF = "640"	ALWAYS	AUTO
Bits Allocated	0028,0100	US	"8"	ALWAYS	AUTO
Bits Stored	0028,0101	US	"8"	ALWAYS	AUTO
High Bit	0028,0102	US	"7"	ALWAYS	AUTO
Pixel Representation	0028,0103	US	"0"	ALWAYS	AUTO
Pixel Data	7FE0,0010	OW or OB	Generated by device	ALWAYS	AUTO
Planar Configuration	0028,0006	US	"0"	ALWAYS	AUTO

Table 8.1-10

CINE MODULE OF CREATED US MULTIFRAME SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Frame Time	0018,1063	DS	Milliseconds	ANAP	AUTO

Cine Rate	0018,0040	IS	Frames per second	ANAP	AUTO

Table 8.1-11

MULTI-FRAME MODULE OF CREATED US MULTIFRAME SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Number of Frames	0028,0008	IS	Numbers of Frames	ANAP	AUTO
Frame Increment Pointer	0028,0009	AT	"1577059" : (0018, 1063)	ANAP	AUTO

Table 8.1-12

US REGION CALIBRATION MODULE OF CREATED US OR US MULTIFRAME SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Sequence of Ultrasound Regions	0018,6011	SQ	Generated by device. A sequence is present for each region in the system display.	ANAP	AUTO
> Region Location Min x0	0018,6018	UL	Left position of region	ALWAYS	AUTO
> Region Location Min y0	0018,601A	UL	Top position of region	ALWAYS	AUTO
> Region Location Max x1	0018,601C	UL	Right position of region	ALWAYS	AUTO
> Region Location Max y1	0018,601E	UL	Bottom position of region	ALWAYS	AUTO
> Physical Units X Direction	0018,6024	US	2D Image : 0003H = cm M-Mode : 0004H = seconds Doppler : 0004H = seconds	ALWAYS	AUTO
> Physical Units Y Direction	0018,6026	US	2D Image : 0003H = cm M-Mode : 0003H = cm Doppler : 0005H = hertz or 0007H = cm/sec	ALWAYS	AUTO

> Physical Delta X	0018,602C	FD	The physical value per pixel increment	ALWAYS	AUTO
> Physical Delta Y	0018,602E	FD	The physical value per pixel increment	ALWAYS	AUTO
> Region Spatial Format	0018,6012	US	2D Tissue : 0001H M-Mode Tissue or flow : 0002H Spectral (CW or PW Doppler) : 0003H	ALWAYS	AUTO
> Region Data Type	0018,6014	US	Tissue : 0001H Color Flow : 0002H PW Spectral Doppler : 0003H CW Spectral Doppler : 0004H	ALWAYS	AUTO
> Region Flags	0018,6016	UL	See DICOM PS 3.3 C.8.5.5.1.3	ALWAYS	AUTO

Table 8.1-13

US IMAGE MODULE OF CREATED US OR US MULTIFRAME SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Samples Per Pixel	0028,0002	US	"3" for RGB or YBR_FULL_422 “1” for MONOCHROME2	ALWAYS	AUTO
Photometric Interpretation	0028,0004	CS	Uncompressed = "RGB" or “MONOCHROME2” Compressed = “YBR_FULL_422”	ALWAYS	AUTO
Bits Allocated	0028,0100	US	"8"	ALWAYS	AUTO
Bits Stored	0028,0101	US	"8"	ALWAYS	AUTO
High Bit	0028,0102	US	"7"	ALWAYS	AUTO
Planar Configuration	0028,0006	US	"0"	ALWAYS	AUTO
Pixel Representation	0028,0103	US	"0"	ALWAYS	AUTO
Image Type	0008,0008	CS	"ORIGINAL" and "PRIMARY"	ALWAYS	AUTO

Lossy Image Compression	0028,2110	CS	US = "00" (uncompressed) or “01” (lossy compressed) US-MF = "01" (lossy compressed)	ALWAYS	AUTO

Table 8.1-14

VOI LUT MODULE OF CREATED US OR US MULTIFRAME SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Window Center	0028,1050	DS	default : "128"	ALWAYS	CONFIG
Window Width	0028,1051	DS	default : "256"	ALWAYS	CONFIG

Table 8.1-15

SOP COMMON MODULE OF CREATED US OR US MULTIFRAME SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
SOP Class UID	0008,0016	UI	US = "1.2.840.10008.5.1.4.1.1.6.1" US-MF = "1.2.840.10008.5.1.4.1.1.3.1"	ALWAYS	AUTO
SOP Instance UID	0008,0018	UI	Generated by device	ALWAYS	AUTO
Specific Character Set	0008,0005	CS	Ref. Section 6 SUPPORT OF CHARACTER SETS	ALWAYS	AUTO

8.1.1.5 Comprehensive Structured Report Modules

Table 8.1-16

SR DOCUMENT SERIES MODULE OF CREATED COMPREHENSIVE SR SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	0008,0060	CS	SR	ALWAYS	AUTO
Series Instance UID	0020,000E	UI	Generated by device	ALWAYS	AUTO
Series Number	0020,0011	IS	"2"	ALWAYS	AUTO

Referenced Performed Procedure Step Sequence	0008,1111	SQ	Identifies the MPPS SOP Instance to which this image is related	ALWAYS	MPPS
> Referenced SOP Class UID	0008,1150	UI	MPPS SOP Class UID "1.2.840.10008.3.1.2.3.3"	ALWAYS	MPPS
> Referenced SOP Instance UID	0008,1155	UI	MPPS SOP Instance UID	ALWAYS	MPPS

Table 8.1-17

SR DOCUMENT GENERAL MODULE OF CREATED COMPREHENSIVE SR SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Instance Number	0020,0013	IS	Generated by device, increments from "1" in each series	ALWAYS	AUTO
Completion Flag	0040,A491	CS	"PARTIAL"	ALWAYS	AUTO
Verification Flag	0040,A493	CS	"UNVERIFIED"	ALWAYS	AUTO
Content Date	0008,0023	DA	<yyyymmdd>	ALWAYS	AUTO
Content Time	0008,0033	TM	<hhmmss>	ALWAYS	AUTO
Referenced Request Sequence	0040,A370	SQ	1 item will be present	ALWAYS	AUTO
> Study Instance UID	0020,000D	UI	From MWL or generated by device	ALWAYS	MWL/AUTO
> Referenced Study Sequence	0008,1110	SQ	From MWL	ANAP	MWL
>> Referenced SOP Class UID	0008,1150	UI	From MWL	ANAP	MWL
>> Referenced SOP Instance UID	0008,1155	UI	From MWL	ANAP	MWL
> Accession Number	0008,0050	SH	From MWL or user input	VNAP	MWL/USER

> Placer Order Number/Imaging Service Request	0040,2016	LO	NULL	VNAP	AUTO
> Filler Order Number/Imaging Service Request	0040,2017	LO	NULL	VNAP	AUTO
> Requested Procedure ID	0040,1001	SH	From MWL	VNAP	MWL
> Requested Procedure Description	0032,1060	LO	From MWL	VNAP	MWL
> Requested Procedure Code Sequence	0032,1064	SQ	From MWL	VNAP	MWL
Performed Procedure Code Sequence	0040,A372	SQ	NULL	VNAP	AUTO

Table 8.1-18

SR DOCUMENT CONTENT MODULE OF CREATED COMPREHENSIVE SR SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Value Type	0040,A040	CS	"CONTAINER"	ALWAYS	AUTO
Concept Name Code Sequence	0040,A043	SQ	1 item will be present	ALWAYS	AUTO
> Include 'Code Sequence Macro'			"EV(125000, DCM, "OB-GYN Ultrasound Procedure Report") for OB-GYN “EV(125100, DCM, “Vascular Ultrasound Procedure Report”) for Vascular “EV(125200, DCM, “Adult Echocardiography Procedure Report”) for Adult	ALWAYS	AUTO

			Echocardiography		
Include 'Container Macro'				ALWAYS	AUTO
Content Sequence	0040,A730	SQ	One or more items may be included in this sequence	ALWAYS	AUTO
> Relationship Type	0040,A010	CS	Ref. Section 9.1 TEMPLATES used in SONIMAGE 613	ALWAYS	AUTO
> Include Document Relationship Macro			Ref. Section 9.1 TEMPLATES used in SONIMAGE 613	ALWAYS	AUTO
> Include Document Content Macro			Ref. Section 9.1 TEMPLATES used in SONIMAGE 613	ALWAYS	AUTO

Table 8.1-19
SOP COMMON MODULE OF CREATED COMPREHENSIVE SR SOP INSTANCES

Attribute Name	Tag	VR	Value	Presence of Value	Source
SOP Class UID	0008,0016	UI	"1.2.840.10008.5.1.4.1.1.88.33"	ALWAYS	AUTO
SOP Instance UID	0008,0018	UI	Generated by device	ALWAYS	AUTO
Specific Character Set	0008,0005	CS	Ref. Section 6 SUPPORT OF CHARACTER SETS	ALWAYS	AUTO

8.1.2 Used Fields in received IOD by application

The SONIMAGE 613 storage application does not receive SOP Instances. The usage of attributes received via Modality Worklist is described in section 4.2.2.3.1.3.

8.1.3 Attribute mapping

The relationships between attributes received via Modality Worklist, stored in acquired images and communicated via MPPS are summarized in the Table below. The format and conversions used in Table are the same as the

corresponding table in IHE Technical Framework, Rev. 7.0 May 15, 2006, vol. II, Appendix A.

Table 8.1-20

ATTRIBUTE MAPPING BETWEEN MODALITY WORKLIST, IMAGE AND MPPS

Modality Worklist	Image IOD	MPPS IOD
Patient's Name	Patient's Name	Patient's Name
Patient ID	Patient ID	Patient ID
Patient's Birth Date	Patient's Birth Date	Patient's Birth Date
Patient's Sex	Patient's Sex	Patient's Sex
Patient's Size	Patient's Size	____
Patient's Weight	Patient's Weight	____
Referring Physician's Name	Referring Physician's Name	____
	____	Scheduled Step Attributes Sequence
Study Instance UID	Study Instance UID	> Study Instance UID
Referenced Study Sequence	Referenced Study Sequence	> Referenced Study Sequence
Accession Number	Accession Number	> Accession Number
	Request Attributes Sequence	____
Requested Procedure ID	> Requested Procedure ID	> Requested Procedure ID
Requested Procedure Description	____	> Requested Procedure Description
Scheduled Procedure Step ID	> Scheduled Procedure Step ID	> Scheduled Procedure Step ID
Scheduled Procedure Step Description	> Scheduled Procedure Step Description	> Scheduled Procedure Step Description
Scheduled Protocol Code Sequence	> Scheduled Protocol Code Sequence	> Scheduled Protocol Code Sequence
____	Study ID	Study ID
____	Performed Procedure Step ID	Performed Procedure Step ID
____	Performed Procedure Step Start Date	Performed Procedure Step Start Date
____	Performed Procedure Step Start Time	Performed Procedure Step Start Time
____	Performed Procedure Step Description	Performed Procedure Step Description
____	____	Performed Series Sequence
Requested Procedure Code	Procedure Code Sequence	Procedure Code Sequence

Sequence		
____	Referenced Performed Procedure Step Sequence	____
____	> Referenced SOP Class UID	SOP Class UID
____	> Referenced SOP Instance UID	SOP Instance UID

8.1.4 Coerced/Modified Fields

The Modality Worklist AE will truncate attribute values received in the response to a Modality Worklist Query if the value length is longer than the maximum length permitted by the attribute's VR.

8.2 DATA DICTIONARY OF PRIVATE ATTRIBUTES

No Private Attributes are supported.

8.3 CODED TERMINOLOGY AND TEMPLATES

The Workflow AE is capable of supporting arbitrary coding schemes for Procedure and Protocol Codes. 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 and MPPS attributes as described in Section 8.1.3

8.4 STANDARD EXTENDED / SPECIALIZED / PRIVATE SOP CLASSES

No Specialized or Private SOP Classes are supported.

8.4.1 US OR US MULTIFRAME IMAGE STORAGE SOP CLASS

The US or US Multiframe Image Storage SOP Classes are extended to create a Standard Extended SOP Class by addition of standard and private attributes to the created SOP Instances as documented in section 8.1

8.5 PRIVATE TRANSFER SYNTAXES

No Private Transfer Syntaxes are supported.

9 STRUCTURED REPORT TEMPLATES

9.1 TEMPLATES used in SONIMAGE 613

This Section uses the following forms for describing Structured Report Templates used in SONIMAGE 613.

	Rel with Parent	VT	Concept Name	Presence of Value	Comments
1					
2					

	NL	REL	VT	Concept Name	Unit / CODE Value	Ref TID	Ref CID	Comments or Label
A-1								
A-2								

Rel with Parent	Relationship
VT	Value Type
Concept Name	Any constraints on Concept Name are specified in this filed as defined or enumerated coded entries, or as baseline or defined context groups.
Presence of Value	Ref. Section 8.1.1
Comments	Description about Reference section or used values.
Label	Name which is indicated in the system
NL	The nesting level of Content Items is denoted by “>” symbols
REL	Relationship
Unit/Code, Value	Applied unit, enumerated coded entries, or the reference of Context Group.
Ref TID	Referenced Template ID Number
Ref CID	Referenced Context ID Number. The left side of “/” shows a CID value applied in “Concept Name” column and the right side shows a CID value applied in “Unit/Code, Value” column. (e.g. 228/12012)

9.1.1 OB-GYN STRUCTURED REPORT TEMPLATE

9.1.1.1 OB-GYN Ultrasound Report Templates(TID 5000)

9.1.1.1.1 OB-GYN PDE (TID 1204, TID 1001, TID 5001)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
		CONTAINER	DCM\125000\OB-GYN Ultrasound Procedure Report			
1	HAS OBS CONTEXT	CODE	DCM\121005\Observer Type	1	DCM\121006\Person	
2	HAS OBS CONTEXT	PNAME	DCM\121008\Person Observer Name	1		Ref. Physician
3	HAS OBS CONTEXT	CODE	DCM\121024\Subject Class	1	DCM\121025\Patient	
4	HAS OBS CONTEXT	PNAME	DCM\121029\Subject Name	1		Last Name,First Name
5	HAS OBS CONTEXT	DATE	DCM\121031\Subject Birth Date	1		
6	HAS OBS CONTEXT	CODE	DCM\121032\Subject Sex	1	DCM\M\Male DCM\F\Female DCM\U\Unknown sex	
7	CONTAINS	CONTAINTER	DCM\121118\Patient Characteristics	1		
7-1	CONTAINS	TEXT	DCM\121106\Comment	1		Description
7-2	CONTAINS	NUM	LN\8302-2\Patient Height	1	UCUM\cm\centimeter UCUM\mm\millimeter	Height
7-3	CONTAINS	NUM	LN\29463-7\Patient Weight	1	UCUM\kg\kilograms	Weight
7-4	CONTAINS	NUM	LN\11996-6\Gravida	1	UCUM\1\no units	Gravida
7-5	CONTAINS	NUM	LN\11977-6\Para	1	UCUM\1\no units	Para

7-6	CONTAINS	NUM	LN\11612-9\Aborta	1	UCUM\1\no units	Aborta
7-7	CONTAINS	NUM	LN\33065-4\Ectopic Pregnancies	1	UCUM\1\no units	Ectopic

9.1.1.1.2 OB-GYN Summary Section (TID 5002)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
8	CONTAINS	CONTAINER	DCM\121111\Summary	1		
8-1	CONTAINS	DATE	LN\11778-8\EDD	1		Estab.DueDate
8-2			LN\11779-6\EDD from LMP	1		EDD(LMP)
8-3			LN\11781-2\EDD from average ultrasound age	1		EDD(Average US GA)
8-4			LN\11955-2\LMP	1		LMP
8-5			LN\11976-8\Ovulation date	1		Exp.Ovul.
8-6	CONTAINS	NUM	LN\11878-6\Number of Fetuses	1		
8-7	CONTAINS	TEXT	DCM\12186\Comment	1		Comment
8-8-1	CONTAINS	CONTAINER	DCM\125008\Fetus Summary	1-n		
8-8-2	HAS OBS CONTEXT	TEXT	LN\11951-1\Fetus ID	1		Will be present if more than one fetus.
8-8-3	CONTAINS	NUM	LN\11878-6\Number of Fetuses	1		Gestations
8-8-4	CONTAINS	NUM	LN\18185-9\Gestational Age	1		Average US GA
8-8-5	CONTAINS	NUM	LN\11885-1\Gestational Age by LMP	1		GA(LMP)
8-8-6	CONTAINS	NUM	LN\11727-5\Estimated Weight	1	UCUM\kg\kg	EFW
8-8-6-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values	1	(CID12014)OB Fetal Body Weight Equations and Tables	

8-8-7	CONTAINS	NUM	LN\11767-1\EFW percentile rank	1	UCUM\percentile \percentile	Percentile(EFW)
8-8-7-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values	1	(CID12016)Estimated Fetal Weight Percentile Equations and Tables	
8-8-8	CONTAINS	NUM	LN\11948-7\Fetal Heart Rate	1	UCUM\bpm\bpm	FHR

9.1.1.1.3 OB-GYN Fetal Biometry Ratio Section (TID 5004)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
9	CONTAINS	CONTAINER	DCM\125001\Fetal Biometry Ratios	1-n		
9-1	HAS OBS CONTEXT	TEXT	LN\11951-1\Fetus ID	1		Will be present if more than one fetus.
9-2	CONTAINS	NUM	CID 12004 Fetal Biometry Ratios	1	UCUM\1\no units	

9.1.1.1.4 OB-GYN Fetal Biometry Section (TID 5005)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
10	CONTAINS	CONTAINER	DCM\125002\Fetal Biometry	1-n		
10-1	HAS OBS CONTEXT	TEXT	LN\11951-1\Fetus ID	1		Will be present if more than one fetus.
10-2	CONTAINS	CONTAINER	DCM\125005\Biometry Group	1-n		
10-2-1	CONTAINS	NUM	CID 12005	1	UCUM\cm\centimeter UCUM\cm2\Square centimeter	
10-2-1-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	Common CID-Derivation	
10-2-2	CONTAINS	NUM	LN\18185-9\Gestational Age	1	UCUM\d\days	

10-2-2-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values	1	(CID12013)Gestational Age Equations and Tables	
10-2-3	CONTAINS	NUM	DCM\125012\Growth Percentile Rank DCM\125013\Growth Z-score		UCUM\percentile\percentile	
10-2-3-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values		Ref. OB Table List TAB (CID 12015)Fetal Growth Equations and Tables	

9.1.1.1.5 OB-GYN Fetal Long Bones Section (TID 5006)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
11	CONTAINS	CONTAINER	DCM\125003\Fetal Long Bones	1-n		
11-1	HAS OBS CONTEXT	TEXT	LN\11951-1\Fetus ID	1		Will be present if more than one fetus.
11-2	CONTAINS	CONTAINER	DCM\125005\ Biometry Group	1-n		
11-2-1	CONTAINS	NUM	CID 12006	1	UCUM\cm\centimeter	
11-2-1-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	Common CID-Derivation	
11-2-2	CONTAINS	NUM	LN\18185-9\Gestational Age	1	UCUM\d\day	
11-2-2-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values	1	(CID12013)Gestational Age Equations and Tables	
11-2-3	CONTAINS	NUM	DCM\125012\Growth Percentile Rank		UCUM\percentile\percentile	
11-2-3-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values		(CID 12015)Fetal Growth Equations and Tables	

9.1.1.1.6 OB-GYN Fetal Cranium Section (TID 5007)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
12	CONTAINS	CONTAINER	DCM\125004\Fetal Cranium	1-n		
12-1	HAS OBS CONTEXT	TEXT	LN\11951-1\Fetus ID	1		Will be present if more than one fetus.
12-2	CONTAINS	CONTAINER	DCM\125005\Biometry Group	1-n		
12-2-1	CONTAINS	NUM	CID 12007	1	UCUM\cm\centimeter UCUM\cm2\Square centimeter	
12-2-1-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	Common CID-Derivation	
12-2-2	CONTAINS	NUM	LN\18185-9\Gestational Age	1	UCUM\d\day	
12-2-2-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values	1	(CID12013)Gestational Age Equations and Tables	
12-2-3	CONTAINS	NUM	DCM\125012\Growth Percentile Rank DCM\125013\Growth Z-score		UCUM\percentile\percentile	
12-2-3-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values		(CID 12015)Fetal Growth Equations and Tables	

9.1.1.1.7 OB-GYN Early Gestation Section (TID 5011)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
13	CONTAINS	CONTAINER	DCM\125009\Early Gestation	1-n		
13-1	HAS OBS	TEXT	LN\11951-1\Fetus ID	1		Will be present if

	CONTEXT					more than one fetus.
13-2	CONTAINS	CONTAINER	DCM\125005\Biometry Group	1-n		
13-2-1	CONTAINS	NUM	CID 12009	1	UCUM\cm\centimeter UCUM\cm2\Square centimeter	
13-2-1-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	Common CID-Derivation	
13-2-2	CONTAINS	NUM	LN\18185-9\Gestational Age	1	UCUM\d\day	
13-2-2-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values	1	(CID12013)Gestational Age Equations and Tables	
13-2-3	CONTAINS	NUM	DCM\125012\Growth Percentile Rank DCM\125013\Growth Z-score		UCUM\percentile\percentile	
13-2-3-1	INFERRED FROM	CODE	DCM\121420\Equation DCM\121424\Table of Values		(CID 12015)Fetal Growth Equations and Tables	

9.1.1.1.8 OB-GYN Fetal Biophysical Profile Section (TID 5009)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
14	CONTAINS	CONTAINER	DCM\125006\Biophysical Profile	1-n		
14-1	HAS OBS CONTEXT	TEXT	LN\11951-1\Fetus ID	1		Will be present if more than one fetus.
14-2	CONTAINS	NUM	LN\11631-9\Gross Body Movement	1	UCUM {0:2} ”range 0:2”	Fetal Movements
			LN\11632-7\Fetal Breathing			Fetal Breathing Movements

			LN\11635-0\Fetal Tone			Fetal Tone
			LN\11635-5\Fetal Heart Reactivity			Nonstress Test
			LN\11630-1\Amniotic Fluid Volume			Amniotic Fluid Volume
			LN\11634-3\Biophysical Profile Sum Score		UCUM\1\no units	Total

9.1.1.1.9 OB-GYN Amniotic Sac Section (TID 5010)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
15	CONTAINS	CONTAINER	DCM\121070\Findings	1		AFI
15-1	HAS CONCEPT MOD	CODE	SRT\G-C0E3\Finding Site	1	SRT\T-F1300\Amniotic Sac	
15-2	CONTAINS	NUM	LN\11627-7\Amniotic Fluid Index	1	UCUM\cm\centimeter	AFI
			CID 12008	1		
			Maximum Vertical Pocket	1		MVP

9.1.1.1.10 OB-GYN Pelvis and Uterus Section (TID 5015)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
16	CONTAINS	CONTAINER	DCM\125011\Pelvis and Uterus	1		Uterus / Cervix
16-1	CONTAINS	CONTAINER	SRT\T-83000\Uterus	1		Uterus
16-1-1	CONTAINS	NUM	LN\11865-3\Uterus Width	1	UCUM\cm\centimeter	Width
			LN\11842-2\Uterus Length			Length
			LN\11859-6\Uterus Height			Height

16-1-1-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	SRT\R-002E1\Best value SRT\R-00317\Mean	
16-1-2	CONTAINS	NUM	LN\33192-6\Uterus Volume	1	UCUM\cm3\Cubic centimeter	Vol.
16-2	CONTAINS	NUM	CID 12011	1	UCUM\cm\centimeter	Cervix Length
16-2-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation		Common CID-Derivation	
	CONTAINS	NUM	Cervix Volume		UCUM\cm3\Cubic centimeter	Cervix Vol.

9.1.1.1.11 OB-GYN Ovaries Section (TID 5012)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
17	CONTAINS	CONTAINER	DCM\121070\Findings	1		Ovary
17-1	HAS CONCEPT MOD	CODE	SRT\G-C0E3\Finding Site	1	SRT\T-87000\Ovary	
17-2	CONTAINS	CONTAINER	SRT\T-87000\Ovary	1		Left Ovary
17-2-1	CONTAINS	NUM	LN\11829-9\Left Ovary Width	1	UCUM\cm\centimeter	Width
			LN\11840-6\Left Ovary Length	1		Length
			LN\11857-0\Left Ovary Height	1		Height
17-2-1-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	Common CID-Derivation	
17-2-2	CONTAINS	NUM	LN\12164-0\Left Ovary Volume	1	UCUM\cm3\Cubic centimeter	Vol.
17-3	CONTAINS	CONTAINER	SRT\T-87000\Ovary	1		Right Ovary
17-3-1	CONTAINS		LN\11830-7\Right Ovary Width	1	UCUM\cm\centimeter	Width
			LN\11841-4\Right Ovary Length	1		Length

		NUM	LN\11858-8\Right Ovary Height	1		Height
17-3-1-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	SRT\R-002E1\Best value SRT\R-00317\Mean	
17-3-2	CONTAINS	NUM	LN\12165-7\Right Ovary Volume	1	UCUM\cm3\Cubic centimeter	Vol.

9.1.1.1.12 OB-GYN Follicles Section (TID 5013)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
18	CONTAINS	CONTAINER	DCM\121070\Findings	1		Left Follicles
18-1	HAS CONCEPT MOD	CODE	SRT\G-C0E3\Finding Site	1	SRT\T-87600\Ovarian Follicle	
18-2	HAS CONCEPT MOD	CODE	SRT\G-C171\Laterality	1	SRT\G-A101\Left	
18-3	CONTAINS	NUM	LN\11879-4\Number of follicles in left ovary	1	UCUM\1\no units	
18-4	CONTAINS	CONTAINER	DCM\125007\Measurement Group	1-n		
18-4-1	HAS OBS CONTEXT	TEXT	DCM\12510\Identifier	1		"1", "2" …
18-4-2	CONTAINS	NUM	SRT\GD705\Volume	1	UCUM\cm3\Cubic centimeter	Vol.
18-4-3	CONTAINS	NUM	LN\11793-7\Follicle Diameter	1	UCUM\cm\centimeter	[1],[2],[3],...
18-4-3-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	SRT\R-002E1\Best value SRT\R-00317\Mean	
18	CONTAINS	CONTAINER	DCM\121070\Findings	1		Right Follicles
18-1	HAS CONCEPT MOD	CODE	SRT\G-C0E3\Finding Site	1	SRT\T-87600\Ovarian Follicle	
18-2	HAS	CODE	SRT\G-C171\Laterality	1	SRT\G-A100\Right	

	CONCEPT MOD					
18-3	CONTAINS	NUM	LN\11880-2\Number of follicles in right ovary	1	UCUM\1\no units	
18-4	CONTAINS	CONTAINER	DCM\125007\Measurement Group	1-n		
18-4-1	HAS OBS CONTEXT	TEXT	DCM\12510\Identifier	1		"1", "2" …
18-4-2	CONTAINS	NUM	SRT\G-D705\Volume	1	UCUM\cm3\Cubic centimeter	Vol.
18-4-3	CONTAINS	NUM	LN\11793-7\Follicle Diameter	1	UCUM\cm\centimeter	[1],[2],[3],...
18-4-3-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	Common CID-Derivation	

9.1.1.1.13 OB-GYN Fetal Vascular Measurement Group (TID 5025)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
19	CONTAINS	CONTAINER	DCM\121070\Findings	1		
19-1	HAS CONCEPT MOD	CODE	SRT\G-C0E3\Finding Site	1	SRT\T-F6800\Embryonic Vascular Structure	
19-2	CONTAINS	CONTAINER	CID 12141	1-n		
19-2-1	HAS OBS CONTEXT	TEXT	LN\11951-1\Fetus ID	1		Will be present if more than one fetus.
19-2-2	HAS CONCEPT MOD	CODE	SRT\G-C171\Laterality	1	SRT\G-A103\Unilateral	
19-2-3	CONTAINS	NUM	CID 12119	1	—	
19-2-3-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	Common CID-Derivation	

9.1.1.1.14 OB-GYN Pelvic Vascular Measurement Group (TID 5026)

	REL	VT	Concept Name	VM	Unit / CODE Value	Label
20	CONTAINS	CONTAINER	DCM\121070\Findings			
20-1	HAS CONCEPT MOD	CODE	SRT\G-C0E3\Finding Site	1	SRT\T-D6007\Pelvic Vascular Structure	
20-2	CONTAINS	CONTAINER	CID 12140	1-n		
20-2-2	HAS CONCEPT MOD	CODE	SRT\G-C171\Laterality	1	SRT\G-A100\Right SRT\G-A101\Left SRT\G-A102\Unilateral	
20-2-3	HAS CONCEPT MOD	TEXT	DCM\112050\Anatomic Identifier	1		
20-2-3	CONTAINS	NUM	CID 12119	1	—	
20-2-3-1	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	Common CID-Derivation	

9.1.1.2 OB-GYN Measurement and Calculation used in OB-GYN SR

Label – Label of measurement or calculation used in Cardiac Calc. package for the Ultrasound System

CSD – Code Scheme Designator

CV – Code Value

CM – Code Measning

Label	CSD	CV	CM
OB			
Patient Info.	**CSD**	**CV**	**CM**
Name	DCM	121029	Subject Name
Birthday	DCM	121031	Subject Birth Date
Gender	DCM	121032	Subject Sex
Height	LN	8302-2	Patient Height
Weight	LN	29463-7	Patient Weight

Description	DCM	121106	Comment
OB Header			
LMP	LN	11955-2	LMP
Estab. Due Date	LN	11778-8	EDD
GA(LMP)	LN	11885-1	Gestational Age by LMP
Avg. US GA	LN	11888-5	Composite Ultrasound Age
EDD(LMP)	LN	11779-6	EDD from LMP
EDD(Avg. US GA)	LN	11781-2	EDD from average ultrasound age
EFW	LN	11727-5	Estimated Weight
EFW Author	Ref. OB Table List		
Pctl.(EFW)	LN	11767-1	EFW percentile rank
Gravida	LN	11996-6	Gravida
Para	LN	11977-6	Para
Aborta	LN	11612-9	Aborta
Ectopic	LN	33065-4	Ectopic Pregnancies
Fetal Biometry			
GS	LN	11850-5	Gestational Sac Diameter
CRL	LN	11957-8	Crown Rump Length
YS	LN	11816-6	Yolk Sac length
BPD	LN	11820-8	Biparietal Diameter
OFD	LN	11851-3	Occipital-Frontal Diameter
HC	LN	11984-2	Head Circumference
APD	LN	11818-2	Anterior-Posterior Abdominal Diameter
TAD	LN	11862-0	Tranverse Abdominal Diameter
MAD	MDSN	99001-01	Middle Abdominal Diameter
AC	LN	11979-2	Abdominal Circumference
FTA	MDSN	99001-02	Fetal Trunk Area
FL	LN	11963-6	Femur Length
SL	LN	33071-2	Spine Length
APTD	LN	11819-0	Anterior-Posterior Trunk Diameter
TTD	LN	11864-6	Transverse Thoracic Diameter
APTDxTTD	MDSN	99001-03	APTDxTTD
ThC	LN	11988-3	Thoracic Circumference
Fetal Long Bones			

HUM	LN	11966-9	Humerus length
ULNA	LN	11969-3	Ulna length
TIB	LN	11968-5	Tibia length
RAD	LN	11967-7	Radius length
FIB	LN	11964-4	Fibula length
CLAV	LN	11962-8	Clavicle length
Vertebral	MDSN	99002-01	Vertebral
Fetal Cranium			
CEREB	LN	11863-8	Trans Cerebellar Diameter
CM	LN	11860-4	Cisterna Magna length
NF	LN	12146-7	Nuchal Fold thickness
NT	LN	33069-6	Nuchal Translucency
OOD	LN	11629-3	Outer Orbital Diameter
IOD	LN	33070-4	Inner Orbital Diameter
NB	MDSN	99003-01	Nasal Bone
Lateral Ventricle	LN	12171-5	Lateral Ventrical width
Hemispheric Width	LN	12170-7	Width of Hemisphere
Fetal Others			
Foot	LN	11965-1	Foot length
Ear	MDSN	99001-04	Ear Length
MP	MDSN	99001-05	Middle Phalanx
Lt. Renal L	LN	11834-9	Left Kidney length
Lt. Renal AP	LN	11825-7	Left Kidney width
Rt. Renal L	LN	11836-4	Right Kidney length
Rt. Renal AP	LN	11827-3	Right Kidney width
Pelvis	MDSN	99005-01	Pelvis
AFI	LN	11627-7	Amniotic Fluid Index
Q1	LN	11624-4	First Quadrant Diameter
Q2	LN	11626-9	Second Quadrant Diameter
Q3	LN	11625-1	Third Quadrant Diameter
Q4	LN	11623-6	Fourth Quadrant Diameter
AFI	LN	11630-1	Amniotic Fluid Volume
Max Vertical Pocket	MDSN	99004-01	MVP
Ratio			
FL/AC	LN	11871-1	FL/AC

FL/BPD	LN	11872-9	FL/BPD
FL/HC	LN	11873-7	FL/HC
FL/FOOT	MDSN	99000-01	FL/FOOT
CI(BPD/OFD)	LN	11823-2	Cephalic Index
HC/AC	LN	11947-9	HC/AC
ThC/AC	MDSN	99000-02	ThC/AC
LV/HW	MDSN	99000-03	LV/HW
CTAR			
ThD ap	MDSN	99001-06	Thoracic Anteriorposterior Diameter
ThD trans	MDSN	99001-07	Thoracic Transverse Diameter
HrtD ap	MDSN	99001-08	Heart Anteriorposterior Diameter
HrtD trans	MDSN	99001-09	Heart Transverse Diameter
CTAR(D)	MDSN	99001-11	Cardio-Thoracic Area Ratio by Distance
ThA	LN	33068-8	Thoracic Area
HrtA	MDSN	99001-12	Heart Area
CTAR(A)	MDSN	99001-13	Cardio-Thoracic Area Ratio by Area
Umbilical Artery	SRT	T-F1810	Umbilical Artery
PSV	LN	11726-7	Peak Systolic Velocity
EDV	LN	11653-3	End Diastolic Velocity
S/D	LN	12144-2	Systolic to Diastolic Velocity Ratio
RI	LN	12023-8	Resistivity Index
PI	LN	12008-9	Pulsatility Index
TAMV	LN	11692-1	Time averaged peak velocity
TAPV	LN	20352-1	Time averaged mean velocity
PGmean	LN	20256-4	Mean Gradient
PG max	LN	20247-3	Peak Gradient
%St Outer Area	SRT	G-0366	Vessel lumen cross-sectional area
%St Inner Area	SRT	R-1025D	Vessel Intimal Cross-Sectional Area
%StA	SRT	R-101BA	Lumen Area Stenosis
%St Outer Dist.	SRT	G-0364	Vessel lumen diameter
%St Inner Dist.	SRT	R-1025C	Vessel Intimal Diameter
%StD	SRT	R-101BB	Lumen Diameter Stenosis
Volume Flow(A)	LN	33878-0	Volume flow
Vesl. Dist	SRT	G-0365	Vessel outside diameter

Mid Cereb Artery	SRT	T-45600	Middle Cerebral Artery
Same as Umbilical Artery			
Lt. Fetal Carotid	MDSN	99008-01	Fetal Carotid
Same as Umbilical Artery			
Rt. Fetal Carotid	MDSN	99008-01	Fetal Carotid
Same as Umbilical Artery			
Fetal Aorta	SRT	T-42000	Aorta
Same as Umbilical Artery			
Dutus Venosus	MDSN	99008-02	Ductus Venosus
Same as Umbilical Artery			
Renal Artery	MDSN	99008-03	Renal Artery
PSV	LN	11726-7	Peak Systolic Velocity
EDV	LN	11653-3	End Diastolic Velocity
S/D	LN	12144-2	Systolic to Diastolic Velocity Ratio
RI	LN	12023-8	Resistivity Index
PI	LN	12008-9	Pulsatility Index
TAPV	LN	11692-1	Time averaged peak velocity
PGmean	LN	20256-4	Mean Gradient
Pgmax	LN	20247-3	Peak Gradient
TAMV	LN	20352-1	Time averaged mean velocity
Vesl. Dist	SRT	G-0365	Vessel outside diameter
Volume Flow(A)	LN	33878-0	Volume flow
Biophyscial Profile	DCM	125006	Biophysical Profile
Nonstress Test	LN	11635-5	Fetal Heart Reactivity
Fetal Movements	LN	11631-9	Gross Body Movement
Fetal Breathing Movements	LN	11632-7	Fetal Breathing
Fetal Tone	LN	11635-0	Fetal Tone
Amniotic Fluid Volume	LN	11630-1	Amniotic Fluid Volume
Total	LN	11634-3	Biophysical Profile Sum Score
Cervix			
Cervix Length	LN	11961-0	Cervix Length
Lt. Uterine Artery	SRT	T-46820	Uterine Artery
Same as Umbilical Artery			
Rt. Uterine Artery	SRT	T-46820	Uterine Artery
Same as Umbilical Artery			

Placenta Artery	SRT	T-F1412	Vitelline Artery of Placenta
Same as Umbilical Artery			
Comment			
	DCM	121106	Comment
Gynecology			
Uterus	SRT	T-83000	Uterus
Length	LN	11842-2	Uterus Width
Height	LN	11859-6	Uterus Length
Width	LN	11865-3	Uterus Height
Vol.	LN	33192-6	Uterus Volume
Endo. Thickness	LN	12145-9	Endometrium Thickness
Cervix Length	LN	11961-0	Cervix Length
Cervix Height	MDSN	99005-02	Cervix Height
Cervix Width	MDSN	99005-03	Cervix Width
Cervix Vol.	MDSN	99005-04	Cervix Volume
Rt. Cyst			
Length	MDSN	99005-05	Right Cyst Length
Height	MDSN	99005-06	Right Cyst Height
Width	MDSN	99005-07	Right Cyst Width
Vol.	MDSN	99005-08	Right Cyst Volume
Lt. Cyst			
Length	MDSN	99005-09	Left Cyst Length
Height	MDSN	99005-10	Left Cyst Height
Width	MDSN	99005-11	Left Cyst Width
Vol.	MDSN	99005-12	Left Cyst Volume
Rt. Ovary			
Length	LN	11841-4	Right Ovary Length
Height	LN	11858-8	Right Ovary Height
Width	LN	11830-7	Right Ovary Width
Vol.	LN	12165-7	Right Ovary Volume
Lt. Ovary	SRT	T-87000	Ovary
Length	LN	11840-6	Left Ovary Length
Height	LN	11857-0	Left Ovary Height
Width	LN	11829-9	Left Ovary Width
Vol.	LN	12164-0	Left Ovary Volume

Rt. Follicles	SRT	T-87600	Ovarian Follicle
1	DCM	125010	Identifier
2	LN	11793-7	Follicle Diameter
3	SRT	G-D705	Volume
4			
5			
6			
7			
8			
9			
10			
11			
12			
Lt. Follicles	SRT	T-87600	Ovarian Follicle
Same as Rt. Follicles			
Rt. Ovarian A	SRT	T-46980	Ovarian Artery
PSV	LN	11726-7	Peak Systolic Velocity
EDV	LN	11653-3	End Diastolic Velocity
TAPV	LN	11692-1	Time averaged peak velocity
PG mean	LN	20256-4	Mean Gradient
PG max	LN	20247-3	Peak Gradient
S/D	LN	12144-2	Systolic to Diastolic Velocity Ratio
RI	LN	12023-8	Resistivity Index
PI	LN	12008-9	Pulsatility Index
Lt. Ovarian A	SRT	T-46980	Ovarian Artery
Same as Rt. Ovarian A			
Rt. Uterine A	SRT	T-46820	Uterine Artery
PSV	LN	11726-7	Peak Systolic Velocity
EDV	LN	11653-3	End Diastolic Velocity
TAPV	LN	11692-1	Time averaged peak velocity
TAMV	LN	20352-1	Time averaged mean velocity
PG mean	LN	20256-4	Mean Gradient
PG max	LN	20247-3	Peak Gradient
S/D	LN	12144-2	Systolic to Diastolic Velocity Ratio
RI	LN	12023-8	Resistivity Index

PI	LN	12008-9	Pulsatility Index
Lt. Uterine A	SRT	T-46820	Uterine Artery
Same as Rt. Uterine A			
Pericystic Flow	MDSN	99007-01	Perisystic Flow
Same as Rt. Ovarian A			
Endometrial Flow	MDSN	99007-02	Endometrial Flow
Same as Pericystic Flow			
Comment			
Comment	DCM	121106	Comment
Fetal Echo			
Descending Aorta	SRT	T-D0765	Descending Aorta
PSV			
EDV			
S/D			
RI			
PI			
Main Pulmonary Artery	SRT	T-44000	Pulmonary Artery
Same as Descending Aorta			

9.1.1.3 OB References used in OB-GYN DICOM SR

9.1.1.3.1 Gestational Age Equations and Tables (Context Group 12013)

Table 9.1-1

GESTATIONAL AGE EQUATIONS AND TABLES

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	11889-3	AC, Campbell 1975
LN	11892-7	AC, Hadlock 1984
LN	33076-1	AC, Shinozuka 1996
LN	11902-4	BPD, Hadlock 1984
LN	33538-0	BPD, Hansmann 1986
LN	11905-7	BPD, Jeanty 1984

LN	11906-5	BPD, Kurtz 1980
LN	33082-9	BPD, Osaka 1989
LN	11907-3	BPD, Sabbagha 1978
LN	33084-5	BPD, Shinozuka 1996
LN	33086-0	BPD-oi, Chitty 1997
LN	33087-8	BPD-oo, Chitty 1997
LN	33088-6	Clavical length,Yarkoni 1985
LN	11910-7	CRL, Hadlock 1992
LN	33540-6	CRL, Hansmann 1986
LN	11913-1	CRL, Nelson 1981
LN	33093-6	CRL, Osaka 1989
LN	33094-4	CRL, Rempen 1991
LN	11914-9	CRL, Robinson 1975
LN	33095-1	CRL, Shinozuka 1996
LN	33098-5	FL, Chitty 1997
LN	11920-6	FL, Hadlock 1984
LN	33541-4	FL, Hansmann 1986
LN	11922-2	FL, Hohler 1982
LN	11923-0	FL, Jeanty 1984
LN	33101-7	FL, Osaka 1989
LN	33102-5	FL, Shinozuka 1996
LN	11928-9	GS, Hellman 1969
LN	33107-4	GS, Nyberg 1992
LN	33108-2	GS, Tokyo 1986
LN	33110-8	HC measured, Chitty 1997
LN	33111-6	HC derived, Chitty 1997
LN	11932-1	HC, Hadlock 1984
LN	33543-0	HC, Hansmann 1986
LN	11936-2	Humerus, Jeanty 1984
LN	33117-3	Humerus Length, Osaka 1989
LN	33120-7	OFD, Hansmann 1986
LN	11941-2	Tibia, Jeanty 1984
LN	11944-6	Ulna, Jeanty 1984
LN	11929-7	GS, Rempen 1991
LN	33083-7	BPD, Rempen 1991

9.1.1.3.2 OB Fetal Body Weight Equations and Tables (Context ID 12014)

Table 9.1-2
OB FETAL BODY WEIGHT EQUATIONS AND TABLES

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	11756-4	EFW by AC, Campbell 1975
LN	11738-2	EFW by AC, BPD, Hadlock 1984
LN	11735-8	EFW by AC, BPD, FL, Hadlock 1985
LN	11732-5	EFW by AC, BPD, FL, HC, Hadlock 1985
LN	11751-5	EFW by AC, FL, Hadlock 1985
LN	11746-5	EFW by AC, FL, HC, Hadlock 1985
LN	33139-7	EFW by BPD, TTD, Hansmann 1986
LN	11739-0	EFW by AC and BPD, Shepard 1982
LN	33140-5	EFW by BPD, FTA, FL, Osaka 1990

9.1.1.3.3 Fetal Growth Equations and Tables (Context ID 12015)

Table 9.1-3
FETAL GROWTH EQUATIONS AND TABLES

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	33145-4	AC by GA, ASUM 2000
LN	33146-2	AC by GA, Hadlock 1984
LN	33147-0	AC (measured) by GA, Chitty 1994
LN	33546-3	AC (derived) by GA, Chitty 1994
LN	33149-6	AC by GA, Shinozuka 1996
LN	33151-2	BPD by GA, ASUM 2000
LN	33198-3	BPD by GA, Hadlock 1984
LN	33556-2	BPD outer-inner by GA, Chitty 1994

LN	33152-0	BPD outer-outer by GA, Chitty 1994
LN	33156-1	BPD by GA, Shinozuka 1996
LN	33161-1	CRL by GA, Shinozuka 1996
LN	33164-5	Fibula by GA, Jeanty 1983
LN	33165-2	FL by GA, ASUM 2000
LN	33166-0	FL by GA, Hadlock 1984
LN	33167-8	FL by GA, Chitty 1994
LN	33170-2	FL by GA, Shinozuka 1996
LN	33172-8	HC by GA, ASUM 2000
LN	33173-6	HC by GA, Hadlock 1984
LN	33174-4	HC derived by GA, Chitty 1994
LN	33177-7	Humerus Length by GA, ASUM 2000
LN	33178-5	OFD by GA, ASUM 2000
LN	33180-1	Radius by GA, Jeanty 1983
LN	33181-9	TCD by GA Goldstein 1987
LN	33155-3	BPD by GA, Rempen 1991
LN	33171-0	GS by GA, Rempen 1991

9.1.1.3.4 Estimated Fetal Weight Percentile Equations and Tables (Context ID 12016)

Table 9.1-4

ESTIMATED FETAL WEIGHT PERCENTILE EQUATIONS AND TABLES

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	33183-5	FWP by GA, Hadlock 1991
LN	33184-3	FWP by GA, Williams, 1982
LN	33189-2	FWP by GA, Brenner 1976

9.1.2 ADULT ECHOCARDIOGRAPHY STRUCTURED REPORT TEMPLATE

9.1.2.1 Adult Echocardiography Ultrasound Report Templates(TID 5200)

9.1.2.1.1 Adult Echo PDE/Study Info

	REL	VT	Concept	VM	Unit / CODE Value
		CONTAINER	DCM\125200\Adult Echocardiography Procedure Report	1	
	HAS OBS CONTEXT	INCLUDE	DTID (1001) Observation Context	1	
1	HAS OBS CONTEXT	CODE	DCM\121005\Observer Type	1	DCM\121006\Person
2	HAS OBS CONTEXT	PNAME	DCM\121008\Person Observer Name	1	
3	HAS OBS CONTEXT	CODE	DCM\121024\Subject Class	1	DCM\121025\Patient
4	HAS OBS CONTEXT	PNAME	DCM\121029\Subject Name	1	
5	HAS OBS CONTEXT	DATE	DCM\121031\Subject Birth Date	1	DCID (7456) Units of Measure for Age
6	HAS OBS CONTEXT	CODE	DCM\121032\Subject Sex	1	DCID (7455) Sex
7	HAS OBS CONTEXT	NUM	DCM\121033\Subject Age	1	UCUM\mo\month
	CONTAINS	INCLUDE	DTID (5201) Echocardiography Patient Characteristics	1	
8		CONTAINER	DCM\121118\Patient Characteristics	1	
8-1	CONTAINS	NUM	DCM\121033\Subject Age	1	DCID (7456) Units of Measure for Age
8-2	CONTAINS	CODE	DCM\121032\Subject Sex	1	DCID (7455) Sex
8-3	CONTAINS	NUM	LN\8867-4\Heart Rate	1	
8-4	CONTAINS	NUM	SRT\F-008EC\Systolic Blood Pressure	1	
8-5	CONTAINS	NUM	SRT\F-008ED\Diastolic Blood Pressure	1	

8-6	CONTAINS	NUM	LN\8277-6\Body Surface Area	1	
8-6-1	INFERRED FROM	CODE	LN\8278-4\Body Surface Area Formula	1	BCID (3663) Body Surface Area Equations : DCM\122241\BSA = 0.007184*WT^0.425*HT^0.725

9.1.2.1.2 Echo Section Template (TID 5202) (Example: Left Ventricle)

	REL	VT	Concept	VM	Unit / CODE Value
	CONTAINS	INCLUDE	DTID (5202) Echo Section	1	
9	CONTAINER		DCM\121070\Findings	1	
9-1	HAS CONCEPT MOD	CODE	SRT\G-C0E3\Finding Site	1	SRT\T-32600\Left Ventricle
9-2	CONTAINS	CONTAINER	DCM\125007\Measurement Group	1-n	
9-2-1	HAS CONCEPT MOD	CODE	SRT\G-0373\Image Mode	1	BCID (12224) Ultrasound Image Modes
9-2-2	HAS CONCEPT MOD	CODE	DCM\125203\Acquisition Protocol	1	
9-2-3	CONTAINS	INCLUDE	DTID (5203) Echo Measurement	1-n	
		INCLUDE	TID (300) Measurement	1	$Measurement= DCID (12200)Echocardiography Left Ventricle $Method=CID (12227) Echocardiography Measurement Method $TargetSite = BCID(12236) Echo Anatomic Sites $TargetSiteMod =BCID (12237)Echocardiography Anatomic Site Modifiers
9-2-3-1	CONTAINS	NUM	DCID (12200)Echocardiography Left Ventricle	1	Units = $Units
9-2-3-1-1	HAS CONCEPT MOD	CODE	$ModType	1-n	$ModValue
9-2-3-1-2	HAS CONCEPT MOD	CODE	SRT\G-C036\Measurement Method	1	CID (12227) Echocardiography Measurement Method
9-2-3-1-3	HAS CONCEPT MOD	CODE	DCM\121401\Derivation	1	$Derivation

9-2-3-1-4	HAS CONCEPT MOD	CODE	SRT\G-C0E3\Finding Site	1	BCID(12236) Echo Anatomic Sites
9-2-3-1-4-1	HAS CONCEPT MOD	CODE	SRT\G-C171\Laterality	1	DCID (244) Laterality
9-2-3-1-4-2	HAS CONCEPT MOD	CODE	SRT\G-A1F8\Topographical modifier	1	BCID (12237)Echocardiography Anatomic Site Modifiers
9-2-3-2	HAS CONCEPT MOD	CODE	SRT\G-C048\Flow Direction	1	BCID (12221) Flow Direction
9-2-3-3	HAS CONCEPT MOD	CODE	SRT\R-40899\Respiratory Cycle Point	1	DCID (12234) Respiration State
9-2-3-4	HAS CONCEPT MOD	CODE	SRT\R-4089A\Cardiac Cycle Point	1	DCID (12233) Cardiac Phase
9-2-3-5	HAS ACQ CONTEXT	CODE	SRT\G-0373\Image Mode	1	DCID (12224) Ultrasound Image Modes
9-2-3-6	HAS ACQ CONTEXT	CODE	DCM\111031\Image View	1	BCID (12226) Echocardiography Image View

9.1.2.1.3 Adult Echo Measurement and Calculation used in Adult Echocardiography SR

Label – Label of measurement or calculation used in Cardiac Calc. package for the Ultrasound System

FSite – Finding Site

Concept – (CV, CSD, “Concept Name”)

Modifier – Additional codes and Modifiers used

Label	FSite	Concept	Modifiers
LVIDd	Left Ventricle	(29436-3, LN, “Left Ventricle Internal End Diastolic Dimension”)	Image Mode = 2D mode
LVIDs	Left Ventricle	(29438-9, LN, “Left Ventricle Internal Systolic Dimension”)	
Frac Short	Left Ventricle	(18051-3, LN, “Left Ventricular Fractional Shortening”)	
IVSd	Left Ventricle	(18154-5, LN, “Interventricular Septum Diastolic Thickness”)	
IVSs	Left Ventricle	(18158-6, LN, “Interventricular Septum	

		Systolic Thickness”)	
IVS% Thickening	Left Ventricle	(18054-7, LN, “Interventricular Septum % Thickening”)	
LVPWd	Left Ventricle	(18152-9, LN, “Left Ventricle Posterior Wall Diastolic Thickness”)	
LVPWs	Left Ventricle	(18156-0, LN, “Left Ventricle Posterior Wall Systolic Thickness”)	
LVPW% Thickening	Left Ventricle	(18053-9, LN, “Left Ventricle Posterior Wall % Thickening”)	
IVSd/LVPWd	Left Ventricle	(18155-2, LN, “Interventricular Septum to Posterior Wall Thickness Ratio”)	Image Mode = 2D mode Cardiac Cycle Point = Diastole
IVSs/LVPWs	Left Ventricle	(18155-2, LN, “Interventricular Septum to Posterior Wall Thickness Ratio”)	Image Mode = 2D mode Cardiac Cycle Point = Systole
Vol.d(Teichholz)	Left Ventricle	(18026-5, LN, “Left Ventricular End Diastolic Volume”)	Image Mode = 2D mode Measurement Method = Teichholz
Vol.d(Cubed)	Left Ventricle	(18026-5, LN, “Left Ventricular End Diastolic Volume”)	Image Mode = 2D mode Measurement Method = Cube Method
Vol.s(Teichholz)	Left Ventricle	(18148-7, LN, “Left Ventricular End Systolic Volume”)	Image Mode = 2D mode Measurement Method = Teichholz
Vol.s(Cubed)	Left Ventricle	(18148-7, LN, “Left Ventricular End Systolic Volume”)	Image Mode = 2D mode Measurement Method = Cube Method
EF	Left Ventricle	(18043-0, LN, “Left Ventricular Ejection Fraction”)	Image Mode = 2D mode
SV	Left Ventricle	(F-32120, SRT, “Stroke Volume”)	Image Mode = 2D mode
SI	Left Ventricle	(F-00078, SRT, "Stroke Index")	Image Mode = 2D mode"
CO	Left Ventricle	(F-32100, SRT, “Cardiac Output”)	Image Mode = 2D mode
CI	Left Ventricle	(F-32110, SRT, “Cardiac Index”)	Image Mode = 2D mode
Mass	Left Ventricle	(18087-7, LN, “Left Ventricle Mass”)	Image Mode = 2D mode
RVIDd	Left Ventricle	(20304-2, LN, “Right Ventricular Internal Diastolic Dimension”)	Image Mode = 2D mode
RVIDs	Left Ventricle	(20305-9, LN, "Right Ventricular Internal Systolic Dimension")	Image Mode = 2D mode
RVAWd	Left Ventricle	(18153-7, LN, “Right Ventricle Anterior Wall Diastolic Thickness”)	Image Mode = 2D mode
RVAWs	Left Ventricle	(18157-8, LN, “Right Ventricular Anterior Wall	Image Mode = 2D mode

		Systolic Thickness”)	
LVIDd	Left Ventricle	(29436-3, LN, “Left Ventricle Internal End Diastolic Dimension”)	Image Mode = M mode
LVIDs	Left Ventricle	(29438-9, LN, “Left Ventricle Internal Systolic Dimension”)	Image Mode = M mode
Frac Short	Left Ventricle	(18051-3, LN, “Left Ventricular Fractional Shortening”)	Image Mode = M mode
IVSd	Left Ventricle	(18154-5, LN, “Interventricular Septum Diastolic Thickness”)	Image Mode = M mode
IVSs	Left Ventricle	(18158-6, LN, “Interventricular Septum Systolic Thickness”)	Image Mode = M mode
IVS% Thickening	Left Ventricle	(18054-7, LN, “Interventricular Septum % Thickening”)	Image Mode = M mode
LVPWd	Left Ventricle	(18152-9, LN, “Left Ventricle Posterior Wall Diastolic Thickness”)	Image Mode = M mode
LVPWs	Left Ventricle	(18156-0, LN, “Left Ventricle Posterior Wall Systolic Thickness”)	Image Mode = M mode
LVPW% Thickening	Left Ventricle	(18053-9, LN, “Left Ventricle Posterior Wall % Thickening”)	Image Mode = M mode
IVSd/LVPWd IVSs/LVPWs	Left Ventricle	(18155-2, LN, “Interventricular Septum to Posterior Wall Thickness Ratio”)	Image Mode = M mode
Vol.d(Teichholz)	Left Ventricle	(18026-5, LN, “Left Ventricular End Diastolic Volume”)	Image Mode = M mode Measurement Method = Teichholz
Vol.d(Cubed)	Left Ventricle	(18026-5, LN, “Left Ventricular End Diastolic Volume”)	Image Mode = M mode Measurement Method = Teichholz
Vol.s(Teichholz)	Left Ventricle	(18148-7, LN, “Left Ventricular End Systolic Volume”)	Image Mode = M mode
Vol.s(Cubed)	Left Ventricle	(18148-7, LN, “Left Ventricular End Systolic Volume”)	Image Mode = M mode
EF	Left Ventricle	(18043-0, LN, “Left Ventricular Ejection Fraction”)	Image Mode = M mode
SV	Left Ventricle	(F-32120, SRT, “Stroke Volume”)	Image Mode = M mode
SI	Left Ventricle	(F-00078, SRT, "Stroke Index")	Image Mode = M mode
CO	Left Ventricle	(F-32100, SRT, “Cardiac Output”)	Image Mode = M mode
CI	Left Ventricle	(F-32110, SRT, “Cardiac Index”)	Image Mode = M mode

Mass	Left Ventricle	(18087-7, LN, “Left Ventricle Mass”)	Image Mode = M mode
RVIDd	Left Ventricle	(20304-2, LN, “Right Ventricular Internal Diastolic Dimension”)	Image Mode = M mode
RVIDs	Left Ventricle	(20305-9, LN, "Right Ventricular Internal Systolic Dimension")	Image Mode = M mode
RVAWd	Left Ventricle	(18153-7, LN, “Right Ventricle Anterior Wall Diastolic Thickness”)	Image Mode = M mode
RVAWs	Left Ventricle	(18157-8, LN, “Right Ventricular Anterior Wall Systolic Thickness”)	Image Mode = M mode
A4C d Length	Left Ventricle	(29436-3, LN, “Left Ventricle Internal End Diastolic Dimension”)	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C d Length	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method of Disks, Single Plane
A4C s Length	Left Ventricle	(29438-9, LN, “Left Ventricle Internal Systolic Dimension”)	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C s Length	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method of Disks, Single Plane
A4C d Area	Left Ventricle	(G-0375, SRT, "Left Ventricular Diastolic Area")	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C d Area	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method of Disks, Single Plane
A4C s Area	Left Ventricle	(G-0374, SRT, "Left Ventricular Systolic Area")	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of

			Disks, Single Plane
A2C s Area	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method of Disks, Single Plane
A4C Vol.d	Left Ventricle	(18026-5, LN, “Left Ventricular End Diastolic Volume”)	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C Vol.d	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method of Disks, Single Plane
BP Vol.d	Left Ventricle		Image Mode = 2D mode Measurement Method = Method of Disks, Biplane
A4C Vol.s	Left Ventricle	(18148-7, LN, “Left Ventricular End Systolic Volume”)	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C Vol.s	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method of Disks, Single Plane
BP Vol.s	Left Ventricle		Image Mode = 2D mode Measurement Method = Method of Disks, Biplane
A4C EF	Left Ventricle	(18043-0, LN, “Left Ventricular Ejection Fraction”)	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C EF	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method of Disks, Single Plane

BP EF	Left Ventricle		Image Mode = 2D mode Measurement Method = Method of Disks, Biplane
A4C SV	Left Ventricle	(F-32120, SRT, “Stroke Volume”)	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C SV	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method Of Disks, Single Plane
BP SV	Left Ventricle		Image Mode = 2D mode Measurement Method = Method of Disks, Biplane
A4C SI	Left Ventricle	(F-00078, SRT, "Stroke Index")	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C SI	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method Of Disks, Single Plane
BP SI	Left Ventricle		Image Mode = 2D mode Measurement Method = Method of Disks, Biplane
A4C CO	Left Ventricle	(F-32100, SRT, “Cardiac Output”)	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C CO	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method Of Disks, Single Plane
BP CO	Left Ventricle		Image Mode = 2D mode Measurement Method = Method of Disks, Biplane

A4C CI	Left Ventricle	(F-32110, SRT, “Cardiac Index”)	Image Mode = 2D mode Image View = Apical Four Chamber Measurement Method = Method Of Disks, Single Plane
A2C CI	Left Ventricle		Image Mode = 2D mode Image View = Apical Two Chamber Measurement Method = Method Of Disks, Single Plane
BP CI	Left Ventricle		Image Mode = 2D mode Measurement Method = Method of Disks, Biplane
Vol.d	Left Ventricle	(18026-5, LN, “Left Ventricular End Diastolic Volume”)	Image Mode = 2D mode Measurement Method = Area-Length Single Plane
Vol.s	Left Ventricle	(18148-7, LN, “Left Ventricular End Systolic Volume”)	Image Mode = 2D mode Measurement Method = Area-Length Single Plane
EF	Left Ventricle	(18043-0, LN, “Left Ventricular Ejection Fraction”)	Image Mode = 2D mode Measurement Method = Area-Length Single Plane
SV	Left Ventricle	(F-32120, SRT, “Stroke Volume”)	Image Mode = 2D mode Measurement Method = Area-Length Single Plane Image Mode = 2D mode
SI	Left Ventricle	(F-00078, SRT, "Stroke Index")	Measurement Method = Area-Length Single Plane
CO	Left Ventricle	(F-32100, SRT, “Cardiac Output”)	Image Mode = 2D mode Measurement Method = Area-Length Single Plane Image Mode = 2D mode
CI	Left Ventricle	(F-32110, SRT, “Cardiac Index”)	Measurement Method = Area-Length Single Plane
LVAd sax	Left Ventricle	(G-0375, SRT, "Left Ventricular Diastolic Area")	Image Mode = 2D mode Image View = Parasternal short axis
LVAs sax	Left Ventricle	(G-0374, SRT, "Left Ventricular Systolic Area")	Image Mode = 2D mode Image View = Parasternal short axis

LVLd apical	Left Ventricle	(18077-8, LN, "Left Ventricle diastolic major axis")	Image Mode = 2D mode
LVLs apical	Left Ventricle	(18076-0, LN, "Left Ventricle systolic major axis")	Image Mode = 2D mode
Vol.d	Left Ventricle	(18026-5, LN, “Left Ventricular End Diastolic Volume”)	Image Mode = 2D mode
Vol.s	Left Ventricle	(18148-7, LN, “Left Ventricular End Systolic Volume”)	Image Mode = 2D mode
EF	Left Ventricle	(18043-0, LN, “Left Ventricular Ejection Fraction”)	Image Mode = 2D mode
SV	Left Ventricle	(F-32120, SRT, “Stroke Volume”)	Image Mode = 2D mode
SI	Left Ventricle	(F-00078, SRT, "Stroke Index")	Image Mode = 2D mode
CO	Left Ventricle	(F-32100, SRT, “Cardiac Output”)	Image Mode = 2D mode
CI	Left Ventricle	(F-32110, SRT, “Cardiac Index”)	Image Mode = 2D mode
Frac. Short	Left Ventricle	18051-3, LN, Left Ventricular Fractional Shortening	Image Mode = 2D mode
Frac. Area Change	Left Ventricle	G-0376,SRT,Left Ventricular Fractional Area Change	Image Mode = 2D mode
LVAd sax epi	Left Ventricle	G-0379,SRT,Left Ventricle Epicardial Diastolic Area, psax pap view	Image Mode = 2D mode
LVLd apical	Left Ventricle	(18077-8, LN, "Left Ventricle diastolic major axis")	Image Mode = 2D mode
LV Mass	Left Ventricle	18087-7, LN, Left Ventricle Mass	Image Mode = 2D mode
RVIDd	Right Ventricle	(20304-2, LN, “Right Ventricular Internal Diastolic Dimension”)	Image Mode = 2D mode
RVIDs	Right Ventricle	(20305-9, LN, "Right Ventricular Internal Systolic Dimension")	Image Mode = 2D mode
RVAWd	Right Ventricle	(18153-7, LN, “Right Ventricle Anterior Wall Diastolic Thickness”)	Image Mode = 2D mode
RVAWs	Right Ventricle	(18157-8, LN, “Right Ventricular Anterior Wall Systolic Thickness”)	Image Mode = 2D mode
MPA Diam	Right Ventricle	(18020-8, LN, “Main Pulmonary Artery Diameter”)	
RPA Diam	Right Ventricle	(18021-6, LN, “Right Pulmonary Artery Diameter”)	

LPA Diam	Right Ventricle	(18019-0, LN, “Left Pulmonary Artery Diameter”)	
RVIDd	Right Ventricle	(20304-2, LN, “Right Ventricular Internal Diastolic Dimension”)	Image Mode = M mode
RVIDs	Right Ventricle	(20305-9, LN, "Right Ventricular Internal Systolic Dimension")	Image Mode = M mode
RVAWd	Right Ventricle	(18153-7, LN, “Right Ventricle Anterior Wall Diastolic Thickness”)	Image Mode = M mode
RVAWs	Right Ventricle	(18157-8, LN, “Right Ventricular Anterior Wall Systolic Thickness”)	Image Mode = M mode
LA Diam	Left Atrium	(29469-4, LN, “Left Atrium Antero-posterior Systolic Dimension”)	Image Mode = 2D mode
LA Area	Left Atrium	(17977-0, LN, “Left Atrium Systolic Area”)	Image Mode = 2D mode
LA Vol.	Left Atrium	(G-0383, SRT, “Left Atrium Systolic Volume”)	Image Mode = 2D mode
Ao Root	Aorta	(18015-8, LN, Aortic Root Diameter)	Image Mode = 2D mode
LA Diam.	Left Atrium	(29469-4, LN, “Left Atrium Antero-posterior Systolic Dimension”)	Image Mode = 2D mode
LA/Ao	Left Atrium	(17985-3, LN, “Left Atrium to Aortic Root Ratio”)	Image Mode = 2D mode
LVOT Diam	Left Ventricular Outflow Tract	(G-038F, SRT, “Cardiovascular Orifice Diameter”)	
Asc Ao	Aorta	18012-5, LN, Ascending Aortic Diameter	
Desc Ao	Aorta	18013-3, LN, Descending Aortic Diameter	
Ao Arch	Aorta	18011-7, LN, Aortic Arch Diameter	
Ao Isth Diam	Aorta	18014-1, LN, Aortic Isthmus Diameter	
Ao Root	Aorta	(18015-8, LN, Aortic Root Diameter)	Image Mode = M mode
AV Cusp Sep	AV	17996-0, LN, Aortic Valve Cusp Separation	Image Mode = M mode
LA Diam.	Left Atrium	(29469-4, LN, “Left Atrium Antero-posterior Systolic Dimension”)	Image Mode = M mode
LA/Ao	Left Atrium	(17985-3, LN, “Left Atrium to Aortic Root Ratio”)	Image Mode = M mode
RAP	Right Atrium	G-0380, SRT, “Right Ventricular Peak Systolic Pressure”	
RAAs	Right Atrium	(17988-7, LN, “Right Atrium Systolic Area”)	
IVC Diam Ins.	Right Atrium	(18006-7, LN, “Inferior Vena Cava Diameter”)	Respiratory Cycle Point = During

			Inspiration
IVC Diam Exp.	Right Atrium	(18006-7, LN, “Inferior Vena Cava Diameter”)	Respiratory Cycle Point = During Expiration
IVC % Change	Right Atrium	(18050-5, LN, “Inferior Vena Cava % Collapse”)	
LVOT Diam	Left Ventricular Outflow Tract	(G-038F, SRT, “Cardiovascular Orifice Diameter”)	Image Mode = 2D mode
LVOT Area	Left Ventricular Outflow Tract	(G-038E, SRT, “Cardiovascular Orifice Area”)	Image Mode = 2D mode
Vmax	Left Ventricular Outflow Tract	(11726-7, LN, “Peak Velocity”)	
Pgmax	Left Ventricular Outflow Tract	(20247-3, LN, “Peak Gradient”)	
Vmean	Left Ventricular Outflow Tract	(20352-1, LN, “Mean Velocity”)	
Pgmean	Left Ventricular Outflow Tract	(20256-4, LN, “Mean Gradient”)	
VTI	Left Ventricular Outflow Tract	(20354-7, LN, “Velocity Time Integral”)	
AccT	Left Ventricular Outflow Tract	(20168-1, LN, “Acceleration Time”)	
SV	Left Ventricular Outflow Tract	(F-32120, SRT, “Stroke Volume”)	
CO	Left Ventricular Outflow Tract	(F-32100, SRT, “Cardiac Output”)	
RVOT Diam	Right Ventricular Outflow Tract	(G-038F, SRT, "Cardiovascular Orifice Diameter")	
RVOT Area	Right Ventricular Outflow Tract	(G-038E, SRT, “Cardiovascular Orifice Area”)	
PVA(Vmax)	Right Ventricular Outflow Tract	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Continuity Equation by Peak Velocity
TVA(Vmax)	Right Ventricular	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Continuity Equation by Peak Velocity

	Outflow Tract		
Vmax	Right Ventricular Outflow Tract	(11726-7, LN, “Peak Velocity”)	
Vmean	Right Ventricular Outflow Tract	(20352-1, LN, “Mean Velocity“)	
Pgmax	Right Ventricular Outflow Tract	(20247-3, LN, “Peak Gradient”)	
Pgmean	Right Ventricular Outflow Tract	(20256-4, LN, “Mean Gradient”)	
VTI	Right Ventricular Outflow Tract	(20354-7, LN, “Velocity Time Integral”)	
SV	Right Ventricular Outflow Tract	(F-32120, SRT, “Stroke Volume”)	
CO	Right Ventricular Outflow Tract	(F-32100, SRT, “Cardiac Output”)	
AV Cusp	Aortic Valve	(17996-0, LN, "Aortic Valve Cusp Separation")	Image Mode = 2D mode
AV Diam	Aortic Valve	(G-038F, SRT, "Cardiovascular Orifice Diameter”)	Image Mode = 2D mode
AVA Planimetry	Aortic Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Image Mode = 2D mode Measurement Method = Planimetry
AVA(Vmax)	Aortic Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Continuity Equation by Peak Velocity
AVA(VTI)	Aortic Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Continuity Equation by Velocity Time Integral
AV Vmax	Aortic Valve	(11726-7, LN, “Peak Velocity”)	
AV Vmean	Aortic Valve	(20352-1, LN, “Mean Velocity“)	
AV PGmax	Aortic Valve	(20247-3, LN, “Peak Gradient”)	
AV PGmean	Aortic Valve	(20256-4, LN, “Mean Gradient”)	

AV PHT	Aortic Valve	(20280-4, LN, “Pressure Half-Time”)	
AV VTI	Aortic Valve	(20354-7, LN, “Velocity Time Integral”)	
AV AccT	Aortic Valve	(20168-1, LN, “Acceleration Time”)	
AV DecT	Aortic Valve	(20217-6, LN, "Deceleration Time")	
AV Dec	Aortic Valve	(20216-8, LN, "Deceleration Slope"	
AV EjectT	Aortic Valve	(18041-4, LN, Aortic Valve Ejection Time)	
AV AccT/ET	Aortic Valve	(G-0382, SRT, Ratio of Aortic Valve Acceleration Time to Ejection Time)	
AR VC Diam	Aortic Valve	(G-038F, SRT, Cardiovascular Orifice Diameter”)	Image Mode = 2D mode Flow Direction = Regurgitant Flow
AR Vmax	Aortic Valve	(11726-7, LN, “Peak Velocity”)	
AR Vmean	Aortic Valve	(20352-1, LN, “Mean Velocity“)	
AR PGmax	Aortic Valve	(20247-3, LN, “Peak Gradient”)	
AR PGmean	Aortic Valve	(20256-4, LN, “Mean Gradient”)	
AR PHT	Aortic Valve	(20280-4, LN, “Pressure Half-Time”)	
AR VTI	Aortic Valve	(20354-7, LN, “Velocity Time Integral”)	
AR AccT	Aortic Valve	(20168-1, LN, “Acceleration Time”)	
AR DecT	Aortic Valve	(20217-6, LN, "Deceleration Time")	
AR Dec	Aortic Valve	(20216-8, LN, "Deceleration Slope"	
AR PISA Rad.	Aortic Valve	(G-038F, SRT, "Cardiovascular Orifice Diameter”)	Image Mode = 2D mode Measurement Method = Proximal Isovelocity Surface Area
AR Flow Rate	Aortic Valve	(34141-2, LN, "Peak Instantaneous Flow Rate")	
AR ERO	Aortic Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Proximal Isovelocity Surface Area
AR Volume	Aortic Valve	(33878-0, LN, “Volume Flow”)	Measurement Method = Proximal Isovelocity Surface Area
AR Fraction	Aortic Valve	(G-0390-4, SRT, “Regurgitant Fraction”)	
AV IVRT	Aortic Valve	(18071-1, LN, “Left Ventricular Isovolumic Relaxation Time”)	
AV IVCT	Aortic Valve	(G-037E, SRT, “Left Ventricular Isovolumic Contraction Time”)	
Tei Index	Aortic Valve	G-037F, SRT, Left Ventricular Index of Myocardial Performance	

E-F Slope	Mitral Valve	(18040-6, LN, “Mitral Valve E-F Slope by M-Mode”)	
EPSS	Mitral Valve	18036-4, LN, Mitral Valve EPSS, E wave	
MV Ann Diam	Mitral Valve	(G-038F, SRT, “Cardiovascular Orifice Diameter”)	Image Mode = 2D mode Finding Site = Mitral Annulus Flow Direction = Antegrade Flow
Diam1	Mitral Valve	(G-038F, SRT, Cardiovascular Orifice Diameter”)	Image Mode = 2D mode
Diam2	Mitral Valve	(G-038F, SRT, Cardiovascular Orifice Diameter”)	Image Mode = 2D mode
MVA Planimetry	Mitral Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Planimetry
MVArea	Mitral Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Image Mode = 2D mode
MVA(Vmax)	Mitral Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Continuity Equation by Peak Velocity
MVA(PHT)	Mitral Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Flow Direction = Antegrade Flow Measurement Method = Area by PHT
MVA(VTI)	Mitral Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Continuity Equation by Velocity Time Integral
MV Peak A	Mitral Valve	(17978-8, LN, “Mitral Valve A-Wave Peak Velocity”)	
MV Peak E	Mitral Valve	(18037-2, LN, “Mitral Valve E-Wave Peak Velocity”)	
MV E/A	Mitral Valve	(18038-0, LN, “Mitral Valve E to A Ratio”)	
MV Vmax	Mitral Valve	(11726-7, LN, “Peak Velocity”)	Flow Direction = Antegrade Flow
MV Vmean	Mitral Valve	(20352-1, LN, “Mean Velocity”)	Flow Direction = Antegrade Flow
MV PGmax	Mitral Valve	18057-0, LN, Mitral Valve Diastolic Peak Instantaneous Gradient	Flow Direction = Antegrade Flow
MV PGmean	Mitral Valve	(20256-4, LN, “Mean Gradient”)	Flow Direction = Antegrade Flow
MV PHT	Mitral Valve	(20280-4, LN, “Pressure Half-Time”)	Flow Direction = Antegrade Flow
MV VTI	Mitral Valve	(20354-7, LN, “Velocity Time Integral”)	Flow Direction = Antegrade Flow
MV AccT	Mitral Valve	(20168-1, LN, “Acceleration Time”)	Flow Direction = Antegrade Flow
MV DecT	Mitral Valve	(20217-6, LN, "Deceleration Time")	Flow Direction = Antegrade Flow
MV Dec	Mitral Valve	(20216-8, LN, "Deceleration Slope"	Flow Direction = Antegrade Flow
MV AccT/DecT	Mitral Valve	(G-0386, SRT, Mitral Valve AT/DT Ratio)	
MV A Dur	Mitral Valve	(G-0385, SRT, "Mitral Valve A-Wave	

		Duration")	
SV	Mitral Valve	(F-32120, SRT, "Stroke Volume")	
CO	Mitral Valve	(F-32100, SRT, "Cardiac Output")	
MV IVRT	Mitral Valve	(18071-1, LN, "Left Ventricular Isovolumic Relaxation Time")	
MV IVCT	Mitral Valve	(G-037E, SRT, "Left Ventricular Isovolumic Contraction Time")	
Tei Index	Mitral Valve	(G-037F, SRT, "Left Ventricular Index of Myocardial Performance ")	
MR Vmax	Mitral Valve	(11726-7, LN, "Peak Velocity")	Flow Direction = Regurgitant Flow
MR Vmean	Mitral Valve	(20352-1, LN, "Mean Velocity")	Flow Direction = Regurgitant Flow
MR PGmax	Mitral Valve	(20247-3, LN, "Peak Gradient")	Flow Direction = Regurgitant Flow
MR PGmean	Mitral Valve	(20256-4, LN, Mean Gradient")	Flow Direction = Regurgitant Flow
MR VTI	Mitral Valve	(20354-7, LN, "Velocity Time Integral")	Flow Direction = Regurgitant Flow
MR dp/dt	Mitral Valve	(18035-6, LN, "Mitral Regurgitation dP/dt derived from Mitral Regurgitation velocity")	
MR PISA Rad.	Mitral Valve	(G-038F, SRT, "Cardiovascular Orifice Diameter")	Image Mode = 2D mode Measurement Method = Proximal Isovelocity Surface Area
MR Flow Rate	Mitral Valve	(34141-2, LN, "Peak Instantaneous Flow Rate")	
MR ERO	Mitral Valve	(G-038E, SRT, "Cardiovascular Orifice Area")	Measurement Method = Proximal Isovelocity Surface Area
MR Volume	Mitral Valve	(33878-0, LN, "Volume Flow")	Measurement Method = Proximal Isovelocity Surface Area
MR Fraction	Mitral Valve	(G-0390, SRT, "Regurgitant Fraction")	
TV Ann Diam	Tricuspid Valve	(G-038F, SRT, Cardiovascular Orifice Diameter")	Image Mode = 2D mode
TV Diam1	Tricuspid Valve	(G-038F, SRT, Cardiovascular Orifice Diameter")	Image Mode = 2D mode
TV Diam2	Tricuspid Valve	(G-038F, SRT, Cardiovascular Orifice Diameter")	Image Mode = 2D mode
TVA Planimetry	Tricuspid Valve	(G-038E, SRT, "Cardiovascular Orifice Area")	Image Mode = 2D mode Measurement Method = Planimetry

TV Area	Tricuspid Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Image Mode = 2D mode
TVA(VTI)	Tricuspid Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Continuity Equation by Velocity Time Integral
TV Vmax	Tricuspid Valve	(11726-7, LN, “Peak Velocity”)	Flow Direction = Antegrade Flow
TV Peak E	Tricuspid Valve	(18031-5, LN, “Tricuspid Valve E Wave Peak Velocity”)	Flow Direction = Antegrade Flow
TV Peak A	Tricuspid Valve	(18030-7, LN, “Tricuspid Valve A Wave Peak Velocity”)	Flow Direction = Antegrade Flow
TV E/A	Tricuspid Valve	18039-8, LN, Tricuspid Valve E to A Ratio	Flow Direction = Antegrade Flow
TV Vmean	Tricuspid Valve	(20352-1, LN, “Mean Velocity”)	Flow Direction = Antegrade Flow
TV PGmax	Tricuspid Valve	(20247-3, LN, Peak Gradient”)	Flow Direction = Antegrade Flow
TV PGmean	Tricuspid Valve	(20256-4, LN, Mean Gradient”)	Flow Direction = Antegrade Flow
TV PHT	Tricuspid Valve	(20280-4, LN, “Pressure Half-Time”)	Flow Direction = Antegrade Flow
TV VTI	Tricuspid Valve	(20354-7, LN, “Velocity Time Integral”)	Flow Direction = Antegrade Flow
TV AccT	Tricuspid Valve	(20168-1, LN, “Acceleration Time”)	Flow Direction = Antegrade Flow
TV DecT	Tricuspid Valve	(20217-6, LN, "Deceleration Time")	Flow Direction = Antegrade Flow
TV Dec	Tricuspid Valve	(20216-8, LN, "Deceleration Slope"	Flow Direction = Antegrade Flow
TV SV	Tricuspid Valve	(F-32120, SRT, “Stroke Volume”)	
TV CO	Tricuspid Valve	(F-32100, SRT, “Cardiac Output”)	
Q to TV Open	Tricuspid Valve	(20296-0, LN, Time from Q wave to Tricuspid Valve Opens)	
TR Vmax	Tricuspid Valve	(11726-7, LN, “Peak Velocity”)	Flow Direction = Regurgitant Flow
TR PGmax	Tricuspid Valve	(20247-3, LN, “Peak Gradient”)	Flow Direction = Regurgitant Flow
TR Vmean	Tricuspid Valve	(20352-1, LN, “Mean Velocity”)	Flow Direction = Regurgitant Flow
TR PGmean	Tricuspid Valve	(20256-4, LN, Mean Gradient”)	Flow Direction = Regurgitant Flow
TR VTI	Tricuspid Valve	(20354-7, LN, “Velocity Time Integral”)	Flow Direction = Regurgitant Flow
RV Systolic Pressure	Tricuspid Valve	(G-0380, SRT, "Right Ventricular Peak Systolic Pressure")	
TR dp/dt	Tricuspid Valve	(18034-9, LN, "Tricuspid Regurgitation dP/dt")	
TR PISA Rad.	Tricuspid Valve	(G-038F, SRT, "Cardiovascular Orifice Diameter”)	Image Mode = 2D mode Measurement Method = Proximal Isovelocity Surface Area
TR Flow Rate	Tricuspid Valve	(34141-2, LN, "Peak Instantaneous Flow Rate")	

TR ERO	Tricuspid Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Proximal Isovelocity Surface Area
TR Volume	Tricuspid Valve	(33878-0, LN, “Volume Flow”)	Measurement Method = Proximal Isovelocity Surface Area
TR Fraction	Tricuspid Valve	(G-0390, SRT, “Regurgitant Fraction”)	
PV Ann Diam	Pulmonic Valve	(G-038F, SRT, Cardiovascular Orifice Diameter”)	
PV Area	Pulmonic Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	
PVA Planimetry	Pulmonic Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Planimetry
PV Vmax	Pulmonic Valve	(11726-7, LN, “Peak Velocity”)	Flow Direction = Antegrade Flow
PV Vmean	Pulmonic Valve	(20352-1, LN, "Mean Velocity")	Flow Direction = Antegrade Flow
PV Pgmax	Pulmonic Valve	(20247-3, LN, “Peak Gradient”)	Flow Direction = Antegrade Flow
PV Pgmean	Pulmonic Valve	(20256-4, LN, “Mean Gradient”)	Flow Direction = Antegrade Flow
PV PHT	Pulmonic Valve	(20280-4, LN, "Pressure Half-Time")	Flow Direction = Antegrade Flow
PV VTI	Pulmonic Valve	(20354-7, LN, “Velocity Time Integral”)	Flow Direction = Antegrade Flow
PVA(VTI)	Pulmonic Valve	(G-038E, SRT, “Cardiovascular Orifice Area”)	Measurement Method = Continuity Equation by Velocity Time Integral
PV AccT	Pulmonic Valve	(20168-1, LN, “Acceleration Time”)	Flow Direction = Antegrade Flow
PV DecT	Pulmonic Valve	(20217-6, LN, "Deceleration Time")	Flow Direction = Antegrade Flow
PV Dec	Pulmonic Valve	(20216-8, LN, "Deceleration Slope"	Flow Direction = Antegrade Flow
PV ET	Pulmonic Valve	(18042-2, LN, "Pulmonic Valve Ejection Time")	
PV AccT/ET	Pulmonic Valve	(G-0388, SRT, "Ratio of Pulmonic Valve Acceleration Time to Ejection Time")	
Q to PV Close	Pulmonic Valve	(20295-2, LN, "Time from Q wave to Pulmonic Valve Closes")	
PR VC Diam	Pulmonic Valve		Image Mode = 2D mode Flow Direction = Regurgitant Flow
PR Vmax	Pulmonic Valve	(11726-7, LN, “Peak Velocity”)	Flow Direction = Regurgitant Flow
MPA Vmax	Pulmonic Valve	(G-038A, SRT, “Main Pulmonary Artery Velocity”)	
PR Vmean	Pulmonic Valve	(20352-1, LN, "Mean Velocity")	Flow Direction = Regurgitant Flow
PR Pgmax	Pulmonic Valve	(20247-3, LN, “Peak Gradient”)	Flow Direction = Regurgitant Flow
PR Pgmean	Pulmonic Valve	(20256-4, LN, “Mean Gradient”)	Flow Direction = Regurgitant Flow
PV PHT	Pulmonic Valve	(20280-4, LN, "Pressure Half-Time")	Flow Direction = Regurgitant Flow

PR AccT	Pulmonic Valve	(20168-1, LN, “Acceleration Time”)	Flow Direction = Regurgitant Flow
PR DecT	Pulmonic Valve	(20217-6, LN, "Deceleration Time")	Flow Direction = Regurgitant Flow
PR Dec	Pulmonic Valve	(20216-8, LN, "Deceleration Slope"	Flow Direction = Regurgitant Flow
Tei Index	Left Ventricle	G-037F, SRT, Left Ventricular Index of Myocardial Performance	
MV IVRT	Left Ventricle	18071-1, LN, Left Ventricular Isovolumic Relaxation Time	
MV IVCT	Left Ventricle	G-037E, SRT, Left Ventricular Isovolumic Contraction Time	
Sys Vel.	Pulmonary Venous Structure	(29450-4, LN, “Pulmonary Vein Systolic Peak Velocity”)	
Dias Vel.	Pulmonary Venous Structure	(29451-2, LN, “Pulmonary Vein Diastolic Peak Velocity”)	
Sys/Dias	Pulmonary Venous Structure	(29452-0, LN, “Pulmonary Vein Systolic to Diastolic Ratio”)	
A. Rev Vel.	Pulmonary Venous Structure	(29453-8, LN, “Pulmonary Vein Atrial Contraction Reversal Peak Velocity”)	
A. Rev Dur.	Pulmonary Venous Structure	G-038B, SRT, Pulmonary Vein A-Wave Duration	
Sys Vel.	Hepatic Vein	(29471-0, LN, “Hepatic Vein Systolic Peak Velocity”)	
Dias Vel.	Hepatic Vein	(29472-8, LN, “Hepatic Vein Diastolic Peak Velocity”)	
Sys/Dias	Hepatic Vein	(29473-6, LN, “Hepatic Vein Systolic to Diastolic Ratio”)	
A. Rev Vel.	Hepatic Vein	(29474-4, LN, “Hepatic Vein Atrial Contraction Reversal Peak Velocity”)	
Peak E'	Left Ventricle	(G-037A, SRT, “Left Ventricular Peak Early Diastolic Tissue Velocity”)	
MV E/E'	Left Ventricle	(G-037B, SRT, “Ratio of MV Peak Velocity to LV Peak Tissue Velocity E-Wave”)	

Peak A'	Left Ventricle	(G-037C, SRT, “LV Peak Diastolic Tissue Velocity During Atrial Systole”)	
Peak S	Left Ventricle	(G-037D, SRT, “Left Ventricular Peak Systolic Tissue Velocity”)	
LVOT Diam(S)	Left Ventricular Outflow Tract	(G-038F, SRT, “Cardiovascular Orifice Diameter”)	Image Mode = 2D mode
RVOT Diam(P)	Left Ventricular Outflow Tract	(G-038F, SRT, "Cardiovascular Orifice Diameter")	Image Mode = 2D mode
Sys. VTI(S)	Left Ventricular Outflow Tract	(20354-7, LN, “Velocity Time Integral”)	
Pulm. VTI(P)	Left Ventricular Outflow Tract	(20354-7, LN, “Velocity Time Integral”)	
Sys. SV(S)	Left Ventricular Outflow Tract	(F-32120, SRT, “Stroke Volume”)	
Sys. SI(S)	Left Ventricular Outflow Tract	(F-00078, SRT, "Stroke Index")	
Sys. CO(S)	Left Ventricular Outflow Tract	(F-32100, SRT, “Cardiac Output”)	
Pulm. SV(P)	Left Ventricular Outflow Tract	(F-32120, SRT, “Stroke Volume”)	
Pulm. SI(P)	Left Ventricular Outflow Tract	(F-00078, SRT, "Stroke Index")	
Pulm. CO(P)	Left Ventricular Outflow Tract	(F-32100, SRT, “Cardiac Output”)	

9.1.3 VASCULAR STRUCTURED REPORT TEMPLATE

9.1.3.1 Vascular Ultrasound Report Templates(TID 5100)

9.1.3.1.1 Adult Echo PDE/Study Info

	REL	VT	Concept	VM	Unit / CODE Value	Label
		CONTAINER	DCM\125100\Vascular Ultrasound Procedure Report	1		
	HAS OBS CONTEXT	INCLUDE	DTID (1001) Observation Context	1		
1	HAS OBS CONTEXT	CODE	DCM\121005\Observer Type	1	DCM\121006\Person	
2	HAS OBS CONTEXT	PNAME	DCM\121008\Person Observer Name	1		Ref. Physician
3	HAS OBS CONTEXT	CODE	DCM\121024\Subject Class	1	DCM\121025\Patient	
4	HAS OBS CONTEXT	PNAME	DCM\121029\Subject Name	1		Last Name,First Name
5	HAS OBS CONTEXT	DATE	DCM\121031\Subject Birth Date	1	DCID (7456) Units of Measure for Age	
6	HAS OBS CONTEXT	CODE	DCM\121032\Subject Sex	1	DCID (7455) Sex	
7	HAS OBS CONTEXT	NUM	DCM\121033\Subject Age	1	UCUM\mo\month	
	CONTAINS	INCLUDE	DTID (5101) Vascular Patient Characteristics	1		
8	CONTAINS	CONTAINER	EV (121118, DCM, “Patient Characteristics”)	1		
8-1	CONTAINS	NUM	EV (121033, DCM, "Subject Age”)	1	Units = DCID (7456) Units of Measure for Age	
8-2	CONTAINS	CODE	EV (121032, DCM, "Subject Sex”)	1	DCID (7455) Sex	

8-3	CONTAINS	NUM	EV (8867-4, LN, “Heart Rate”)	1		
8-4	CONTAINS	NUM	EV (F-008EC, SRT, “Systolic Blood Pressure”)	1		
8-5	CONTAINS	NUM	EV (F-008ED, SRT, "Diastolic Blood Pressure")	1		

9.1.3.1.2 Vascular Summary Section (TID 5102)

	REL	VT	Concept	VM	Unit / CODE Value	Label
	CONTAINS	INCLUDE	DTID (5102) Vascular Procedure Summary Section	1		
9	CONTAINS	CONTAINER	DT (121111, DCM, “Summary”)	1		
9-1	CONTAINS	TEXT	DCID (12101) Vascular Summary	1-n		

9.1.3.1.3 Vascular Ultrasound Section (TID 5103)

	REL	VT	Concept	VM	Unit / CODE Value	Label
	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-45005, SRT, ”Artery of neck”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12104) Extracranial Arteries $AnatomyRatio = DCID (12123) Carotid Ratios	Lt. Carotid
10		CONTAINER	DT (121070, DCM, “Findings”)	1		
10-1	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	1	$SectionScope	

10-2	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, “Laterality”)	1	$SectionLaterality	
	CONTAINS	INCLUDE	DTID (5104) Vascular Measurement Group	1-n	$AnatomyGroup = $Anatomy	
10-3	CONTAINS	CONTAINER	$AnatomyGroup	1		
10-3-1	HAS CONCEPT MOD	CODE	EV (G-A1F8, SRT, “Topographical Modifier”)	1	DCID (12116) Vessel Segment Modifiers	
	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	$Measurement = DCID (12119) Vascular Ultrasound Property $Derivation = DCID (3627) Measurement Type	
10-3-2		NUM	$Measurement	1	Units = $Units	
10-3-2-1	HAS CONCEPT MOD	CODE	EV (121401, DCM, “Derivation”)	1	$Derivation	
	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	$Measurement = $AnatomyRatio	
10-4		NUM	$Measurement	1	Units = $Units	
11	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-45005, SRT, ”Artery of neck”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12104) Extracranial Arteries $AnatomyRatio = DCID (12123) Carotid Ratios	Rt. Carotid
12	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-47040, SRT, ”Artery of Lower Extremity”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12109) Lower Extremity Arteries	Lt. LE Artery

13	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-47040, SRT, ”Artery of Lower Extremity”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12109) Lower Extremity Arteries	Rt. LE Artery
14	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-49403, SRT, ”Vein of Lower Extremity”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12110) Lower Extremity Veins	Lt. LE Vein
15	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-49403, SRT, ”Vein of Lower Extremity”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12110) Lower Extremity Veins	Rt. LE Vein
16	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-47020, SRT, ”Artery Of Upper Extremity”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12107) Upper Extremity Arteries	Lt. UE Artery
17	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-47020, SRT, ”Artery Of Upper Extremity”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12107) Upper Extremity Arteries	Rt. UE Artery
18	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-49103, SRT, ”Vein Of Upper Extremity”)	Lt. UE Vein

					$SectionLaterality = EV (G-A101, SRT, ”Left”)	
					$Anatomy = DCID (12108) Upper Extremity Veins	
19	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-49103, SRT, ”Vein Of Upper Extremity”)	Rt. UE Vein
					$SectionLaterality = EV (G-A100, SRT, ”Right”)	
					$Anatomy = DCID (12108) Upper Extremity Veins	
20	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-71019, SRT, ”Vascular Structure Of Kidney”)	Lt. Renal
					$SectionLaterality = EV (G-A101, SRT, ”Left”)	
					$Anatomy = DCID (12115) Renal Vessels	
					$AnatomyRatio = DCID (12124) Renal Ratios	
21	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-71019, SRT, ”Vascular Structure Of Kidney”)	Rt. Renal
					$SectionLaterality = EV (G-A100, SRT, ”Right”)	
					$Anatomy = DCID (12115) Renal Vessels	
					$AnatomyRatio = DCID (12124) Renal Ratios	
22	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	$SectionScope = DT (T-46002, SRT, ”Artery of Abdomen”)	Unilateral Abdominal Artery
					$SectionLaterality = EV (G-A103, SRT, ”Unilateral”)	
					$Anatomy = DCID (12112) Abdominal Arteries (unilateral)	

9.1.3.2 Vascular Measurement and Calculation used in Vascular SR

Label	Concept	Laterality	Topographical Modifier
Carotid			
Rt. Subclavian A	SRT\T-46100\Subclavian Artery	SRT\G-A100\Right	
PSV	LN\11726-7\Peak Systolic Velocity		
EDV	LN\11653-3\End Diastolic Velocity		
TAPV	LN\11692-1\Time averaged peak velocity		
TAMV	LN\20352-1\Time averaged mean velocity		
PGmax	LN\20247-3\Peak Gradient		
PGmean	LN\20256-4\Mean Gradient		
S/D	LN\12144-2\Systolic to Diastolic Velocity Ratio		
D/S			
RI	LN\12023-8\Resistivity Index		
PI	LN\12008-9\Pulsatility Index		
%StA	SRT\R-101BA\Lumen Area Stenosis		
%StA Outer Area	SRT\G-0366\Vessel lumen cross-sectional area		
%StA Inner Area	SRT\R-1025D\Vessel Intimal Cross-Sectional Area		
%StD	SRT\R-101BB\Lumen Diameter Stenosis		
%StD Outer Dist.	SRT\G-0364\Vessel lumen diameter		
%StD Inner Dist.	SRT\R-1025C\Vessel Intimal Diameter		
Vesl. Area			
Vol. Flow(A)	LN\33878-0\Volume flow		
Vesl. Dist	SRT\G-0365\Vessel outside diameter		
Vol. Flow(D)	LN\33878-0\Volume flow		
Lt. Subclavian A	SRT\T-46100\Subclavian Artery	SRT\G-A101\Left	
Rt. Prox CCA	SRT\T-45100\Common Carotid Artery	SRT\G-A100\Right	SRT\G-A118\Proximal
same items with Rt. Subclavian A			
IMT			

Lt. Prox CCA	SRT\T-45100\Common Carotid Artery	SRT\G-A101\Left	SRT\G-A118\Proximal
same items with Rt. Prox CCA			
Rt. Mid CCA	SRT\T-45100\Common Carotid Artery	SRT\G-A100\Right	SRT\G-A188\Mid-longitudinal
same items with Rt. Prox CCA			
Lt. Mid CCA	SRT\T-45100\Common Carotid Artery	SRT\G-A101\Left	SRT\G-A188\Mid-longitudinal
same items with Rt. Prox CCA			
Rt. Distal CCA	SRT\T-45100\Common Carotid Artery	SRT\G-A100\Right	SRT\G-A119\Distal
same items with Rt. Prox CCA			
Lt. Distal CCA	SRT\T-45100\Common Carotid Artery	SRT\G-A101\Left	SRT\G-A119\Distal
same items with Rt. Prox CCA			
Rt. Bulb	SRT\T-45170\Carotid Bulb	SRT\G-A100\Right	
same items with Rt. Prox CCA			
Lt. Bulb	SRT\T-45170\Carotid Bulb	SRT\G-A101\Left	
same items with Rt. Prox CCA			
Rt. Prox ICA	SRT\T-45300\Internal Carotid Artery	SRT\G-A100\Right	SRT\G-A118\Proximal
same items with Rt. Prox CCA			
Lt. Prox ICA	SRT\T-45300\Internal Carotid Artery	SRT\G-A101\Left	SRT\G-A118\Proximal
same items with Rt. Prox CCA			
Rt. Mid ICA	SRT\T-45300\Internal Carotid Artery	SRT\G-A100\Right	SRT\G-A188\Mid-longitudinal
same items with Rt. Prox CCA			
Lt. Mid ICA	SRT\T-45300\Internal Carotid Artery	SRT\G-A101\Left	SRT\G-A188\Mid-longitudinal
same items with Rt. Prox CCA			
Rt. Distal ICA	SRT\T-45300\Internal Carotid Artery	SRT\G-A100\Right	SRT\G-A119\Distal

same items with Rt. Prox CCA			
Lt. Distal ICA	SRT\T-45300\Internal Carotid Artery	SRT\G-A101\Left	SRT\G-A119\Distal
same items with Rt. Prox CCA			
Rt. ECA	SRT\T-45200\External Carotid Artery	SRT\G-A100\Right	
same items with Rt. Prox CCA			
Lt. ECA	SRT\T-45200\External Carotid Artery	SRT\G-A101\Left	
same items with Rt. Prox CCA			
Rt. Vertebral A	SRT\T-45700\Vertebral Artery	SRT\G-A100\Right	
same items with Rt. Subclavian A			
Lt. Vertebral A	SRT\T-45700\Vertebral Artery	SRT\G-A101\Left	
same items with Rt. Subclavian A			
General			
same items with Rt. Prox CCA			
Volume Flow			
Vesl. Dist	SRT\G-0365\Vessel outside diameter		
Ves. Area			
TAMV	LN\20352-1\Time averaged mean velocity		
Vol. Flow(D)	LN\33878-0\Volume flow		
Vol. Flow(A)	LN\33878-0\Volume flow		
Vertebral A			
Left			
Right			
ICA/CCA			
Rt. ICA			
Lt. ICA			
Rt. CCA			
Lt. CCA			
Rt. ICA/CCA	LN\33868-1\ICA/CCA velocity ratio		
Lt. ICA/CCA	LN\33868-1\ICA/CCA velocity ratio		
A/B			

Rt. A			
Rt. B			
Rt. A/B	LN\33867-3\Velocity ratio		
Lt. A			
Lt. B			
Lt. A/B	LN\33867-3\Velocity ratio		
HR			

LE Artery			
Rt. CIA(Right Common Iliac Artery)	SRT\T-46710\Common Iliac Artery	SRT\G-A100\Right	
same items with Rt. Subclavian A			
Lt. CIA(Left Common Iliac Artery)	SRT\T-46710\Common Iliac Artery	SRT\G-A101\Left	
Rt. IIA(Right Internal Iliac Artery)	SRT\T-46740\Internal Iliac Artery	SRT\G-A100\Right	
Lt. IIA(Left Internal Iliac Artery)	SRT\T-46740\Internal Iliac Artery	SRT\G-A101\Left	
Rt. EIA(Right External Iliac Artery)	SRT\T-46910\External Iliac Artery	SRT\G-A100\Right	
Lt. EIA(Left External Iliac Artery)	SRT\T-46910\External Iliac Artery	SRT\G-A101\Left	
Rt. CFA(Right Common Femoral Artery)	SRT\T-47400\Common Femoral Artery	SRT\G-A100\Right	
Lt. CFA(Left Common Femoral Artery)	SRT\T-47400\Common Femoral Artery	SRT\G-A101\Left	
Rt. SFA(Right Superficial Femoral Artery)	SRT\T-47403\Superficial Femoral Artery	SRT\G-A100\Right	
Lt. SFA(Left Superficial Femoral Artery)	SRT\T-47403\Superficial Femoral Artery	SRT\G-A101\Left	
Rt. DFA(Right Deep Femoral Artery)	SRT\T-47440\Profunda Femoris Artery	SRT\G-A100\Right	
Lt. DFA(Left Deep Femoral Artery)	SRT\T-47440\Profunda Femoris Artery	SRT\G-A101\Left	
Rt. POPA(Right Popliteal	SRT\T-47500\Popliteal Artery	SRT\G-A100\Right	

Artery)			
Lt. POPA(Left Popliteal Artery)	SRT\T-47500\Popliteal Artery	SRT\G-A101\Left	
Rt. ATA(Right Anterior Tibial Artery)	SRT\T-47700\Anterior Tibial Artery	SRT\G-A100\Right	
Lt. ATA(Left Anterior Tibial Artery)	SRT\T-47700\Anterior Tibial Artery	SRT\G-A101\Left	
Rt. PTA(Right Posterior Tibial Artery)	SRT\T-47600\Posterior Tibial Artery	SRT\G-A100\Right	
Lt. PTA(Left Posterior Tibial Artery)	SRT\T-47600\Posterior Tibial Artery	SRT\G-A101\Left	
Rt. Peroneal A(Right Peroneal Artery)	SRT\T-47630\Peroneal Artery	SRT\G-A100\Right	
Lt. Peroneal A(Left Peroneal Artery)	SRT\T-47630\Peroneal Artery	SRT\G-A101\Left	
Rt. DPA(Right Dorsalis Pedis Artery)	SRT\T-47741\Dorsalis Pedis Artery	SRT\G-A100\Right	
Lt. DPA(Left Dorsalis Pedis Artery)	SRT\T-47741\Dorsalis Pedis Artery	SRT\G-A101\Left	
Rt. MPA (Right Medial Plantar Artery)			
Lt. MPA (Left Medial Plantar Artery)			
Rt. LPA (Right Lateral Plantar Artery)			
Lt. LPA (Left Lateral Plantar Artery)			
Rt. Metatarsal A (Right Metatarsal Artery)			
Lt. Metatarsal A (Left Metatarsal Artery)			
Rt. Digital A (Right Digital Artery)			
Lt. Digital A (Left Digital Artery)			

General			
Volume Flow			
HR			

LE Vein			
Rt. FV (Right Femoral Vein)	SRT\G-035B\Common Femoral Vein	SRT\G-A100\Right	
Vmax			
Duration Time			
Vesl. Dist.	SRT\G-0365\Vessel outside diameter		
Lt. FV (Left Femoral Vein)	SRT\G-035B\Common Femoral Vein	SRT\G-A101\Left	
Rt. GSV (Right Great Saphenous Vein)	SRT\T-49530\Great Saphenous Vein	SRT\G-A100\Right	
Lt. GSV (Left Great Saphenous Vein)	SRT\T-49530\Great Saphenous Vein	SRT\G-A101\Left	
Rt. POP V (Right Popliteal Vein)	SRT\T-49640\Popliteal Vein	SRT\G-A100\Right	
Lt. POP V (Left Popliteal Vein)	SRT\T-49640\Popliteal Vein	SRT\G-A101\Left	
Rt. SSV (Right Small Saphenous Vein)	SRT\T-49550\Lesser Saphenous Vein	SRT\G-A100\Right	
Lt. SSV (Left Small Saphenous Vein)	SRT\T-49550\Lesser Saphenous Vein	SRT\G-A101\Left	
Rt. MPV (Right Medial Plantar Vein)			
Lt. MPV (Left Medial Plantar Vein)			
Rt. LPV (Right Lateral Plantar Vein)			
Lt. LPV (Left Lateral Plantar Vein)			
Rt. Metatarsal V (Right Metatarsal Vein)			
Lt. Metatarsal V (Left Metatarsal Vein)			
Rt. Digital V (Right Digital			

Vein)			
Lt. Digital V (Left Digital Vein)			
General			

UE Artery			
Rt. Subclavian A(Right Subclavian Artery)	SRT\T-46100\Subclavian Artery	SRT\G-A100\Right	
same items with Rt. Subclavian A			
Lt. Subclavian A (Left Subclavian Artery)	SRT\T-46100\Subclavian Artery	SRT\G-A101\Left	
Rt. Axillary A(Right Axillary Artery)	SRT\T-47100\Axillary Artery	SRT\G-A100\Right	
Lt. Axillary A(Left Axillary Artery)	SRT\T-47100\Axillary Artery	SRT\G-A101\Left	
Rt. Brachial A(Right Brachial Artery)	SRT\T-47160\Brachial Artery	SRT\G-A100\Right	
Lt. Brachial A(Left Brachial Artery)	SRT\T-47160\Brachial Artery	SRT\G-A101\Left	
Rt. Radial A(Right Radial Artery)	SRT\T-47300\Radial Artery	SRT\G-A100\Right	
Lt. Radial A(Left Radial Artery)	SRT\T-47300\Radial Artery	SRT\G-A101\Left	
Rt. Ulnar A(Right Ulnar Artery)	SRT\T-47200\Ulnar Artery	SRT\G-A100\Right	
Lt. Ulnar A(Left Ulnar Artery)	SRT\T-47200\Ulnar Artery	SRT\G-A101\Left	
Rt. SPA(Right Superficial Palmar Arches)	SRT\T-47240\Superficial Palmar Arch	SRT\G-A100\Right	
Lt. SPA(Left Superficial Palmar Arches)	SRT\T-47240\Superficial Palmar Arch	SRT\G-A101\Left	
General			
Volume Flow			
HR			

UE Vein

Rt. Internal Jugular	SRT\T-48170\Internal Jugular vein	SRT\G-A100\Right	
same items with Rt. Subclavian A			
Lt. Internal Jugular	SRT\T-48170\Internal Jugular vein	SRT\G-A101\Left	
Rt. Innominate	SRT\T-48620\Innominate vein	SRT\G-A100\Right	
Lt. Innominate	SRT\T-48620\Innominate vein	SRT\G-A101\Left	
Rt. Subclavian	SRT\T-48330\Subclavian vein	SRT\G-A100\Right	
Lt. Subclavian	SRT\T-48330\Subclavian vein	SRT\G-A101\Left	
Rt. Axillary	SRT\T-49110\Axillary vein	SRT\G-A100\Right	
Lt. Axillary	SRT\T-49110\Axillary vein	SRT\G-A101\Left	
Rt. Brachial	SRT\T-49350\Brachial vein	SRT\G-A100\Right	
Lt. Brachial	SRT\T-49350\Brachial vein	SRT\G-A101\Left	
Rt. Cephalic	SRT\T-49240\Cephalic vein	SRT\G-A100\Right	
Lt. Cephalic	SRT\T-49240\Cephalic vein	SRT\G-A101\Left	
Rt. Basilic	SRT\T-48052\Basilic vein	SRT\G-A100\Right	
Lt. Basilic	SRT\T-48052\Basilic vein	SRT\G-A101\Left	
Rt. Radial	SRT\T-49340\Radial vein	SRT\G-A100\Right	
Lt. Radial	SRT\T-49340\Radial vein	SRT\G-A101\Left	
Rt. Ulnar	SRT\T-49330\Ulnar vein	SRT\G-A100\Right	
Lt. Ulnar	SRT\T-49330\Ulnar vein	SRT\G-A101\Left	
General			

TCD			
Rt. ACA (Anterior Cerebral Artery)	SRT\T-45540\Anterior Cerebral Artery	SRT\G-A100\Right	
same items with Rt. Subclavian A			
Lt. ACA (Anterior Cerebral Artery)	SRT\T-45540\Anterior Cerebral Artery	SRT\G-A101\Left	
Rt. MCA (Mid Cerebral Artery)	SRT\T-45600\Middle Cerebral Artery	SRT\G-A100\Right	
Lt. MCA	SRT\T-45600\Middle Cerebral Artery	SRT\G-A101\Left	
Rt. PCA1 (Posterior Cerebral Artery 1)	SRT\R-10253\Posterior Cerebral Artery P1 Segment	SRT\G-A100\Right	
Lt. PCA1	SRT\R-10253\Posterior Cerebral Artery P1 Segment	SRT\G-A101\Left	
Rt. PCA2 (Posterior Cerebral	SRT\R-10255\Posterior Cerebral Artery	SRT\G-A100\Right	

Artery 2)	P2 Segment		
Lt. PCA2	SRT\R-10255\Posterior Cerebral Artery P2 Segment	SRT\G-A101\Left	
Rt. DBA (Distal Basilar Artery)	SRT\T-45800\Basilar Artery	SRT\G-A100\Right	SRT\G-A119\Distal
Lt. DBA	SRT\T-45800\Basilar Artery	SRT\G-A101\Left	SRT\G-A119\Distal
Rt. MBA (Mid Basilar Artery)	SRT\T-45800\Basilar Artery	SRT\G-A100\Right	SRT\G-A188\Mid-longitudinal
Lt. MBA	SRT\T-45800\Basilar Artery	SRT\G-A101\Left	SRT\G-A188\Mid-longitudinal
Rt. PBA (Proximal Basilar Artery)	SRT\T-45800\Basilar Artery	SRT\G-A100\Right	SRT\G-A118\Proximal
Lt. PBA	SRT\T-45800\Basilar Artery	SRT\G-A101\Left	SRT\G-A118\Proximal
General Artery			
Volume Flow			
Comments			

Radiology			
Aorta	SRT\T-42000\Aorta		
same items with Rt. Subclavian A			
Celiac A(Celiac Artery)			
Splenic A(Splenic Artery)	SRT\T-46460\Splenic Artery		
Splenic Vol.(Splecnic Volume)			
Hepatic A(Hepatic Artery)	SRT\T-46421\Common Hepatic Artery		
SMA (Superior Mesenteric Artery)	SRT\T-46510\Superior Mesenteric Artery		
IMA (Inferior Mesenteric Artery)	SRT\T-46520\Inferior Mesenteric Artery		
IVC (Inferior Mesenteric Artery)			
Rt. Renal Vol. (Left Renal Volume)			
Rt. Renal A (Right Renal	SRT\T-46600\Renal Artery	SRT\G-A100\Right	

Artery)			
Rt. Arcuate (Right Arcuate Artery)	SRT\T-4668A\Arcuate Artery of the Kidney	SRT\G-A100\Right	
Lt. Renal Vol. (Right Renal Volume)			
Lt. Renal A(Left Renal Artery)	SRT\T-46600\Renal Artery	SRT\G-A101\Left	
Lt. Arcuate A(Left Arcuate Artery)	SRT\T-4668A\Arcuate Artery of the Kidney	SRT\G-A101\Left	
General (Generic Purpose for Artery)			
Heart Rate(HR)			
Comments			

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