DICOM CONFORMANCE STATEMENT

FOR ZS3/ZS3 Exp/ZS3 Vet/ ZS3 Pro/z.one pro/z.one pro Vet/ZS2/ZS2 Exp/ZS2t/ViewMate DIAGNOSTIC ULTRASOUND PLATFORM

Version 2.0 2020-6-17

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1 Conformance Statement Overview

This document describes the conformance to the ACR-NEMA DICOM 3.0 Standard by the ultrasound system of ZS3/ZS3 Exp/ZS3 Vet/ ZS3 Pro/z.one pro/z.one pro Vet/ZS2/ZS2 Exp/ZS2t/ViewMate. We specify ultrasound system generally refer to the products above in this document. The ultrasound system implements the necessary DICOM services to download worklists from an information system, save acquired Ultrasound (US) images and associated Structured Reports to a network storage device and/or removable media, print to a networked hardcopy device, query and retrieve the US images from a networked storage system, and inform the information system about the work actually done. Table 1 provides an overview of the supported network services, Table 2 lists the supported Media Storage Application Profiles, and Table 3 lists the supported Structured Report Templates.

Table 1

NETWORK SERVICES

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer（Storage）		
Verification	Yes	Yes
Ultrasound Image Storage	Yes	Yes
Ultrasound Multi-frame Image Storage	Yes	Yes
Secondary Capture Image Storage	Yes	Yes
Encapsulated PDF Storage	Yes	Yes
Key Object Selection Document Storage	Yes	No
Query/Retrieve		
Study Root Query/Retrieve Information Model – FIND	Yes	No
Study Root Query/Retrieve Information Model – MOVE	Yes	No
Workflow Management		
Modality Worklist Information Model – Find	Yes	No
Modality Performed Procedure Step SOP Class	Yes	No
Storage Commitment Push Model	Yes	No
Print Management		

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Basic Color Print Management	Yes	No
Basic Grayscale Print Management	Yes	No
Notes, Reports, Measurements, Transfer		
Comprehensive SR Storage	Yes	Yes

Table 2
MEDIA SERVICES

Media Storage Application Profile	Write Files (FSC / FSU)	Read Files (FSR)
USB Devices		
STD-GEN-USB-JPEG for Ultrasound images, Structured Reports and Encapsulated PDF Storage	Yes / Yes[1]	Yes

Note:
1 Only acts as a FSU for media that may be written to multiple times.

Table 3
STRUCTURED REPORTS

Concept Name	Supported
OB-GYN Ultrasound Procedure Report	Yes
Echocardiography Procedure Report	Yes
Vascular Ultrasound Report	Yes

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3 Introduction

3.1 Review History

DOCUMENT VERSION	DATE OF ISSUE	DESCRIPTION
1.0	Mar. 15, 2020	Initial
2.0	Jun.17,2020	Verify tags about Manufacture

3.2 Audience

This document is intended for potential customers, system integrators of medical equipment, marketing staff interested in system functionality and software designers implementing DICOM interfaces. It is assumed that the readers of this document are familiar with the DICOM Standard and with the terminology and concept which are used in the Standard. If readers are unfamiliar with DICOM terminology they should read the DICOM Standard, prior to reading this DICOM Conformance Statement document.

3.3 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between Mindray Products and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard. DICOM by itself does not guarantee interoperability. The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.

This Conformance Statement is not supposed to replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, the user should be aware of the following important issues:

- The comparison of different Conformance Statements is the first step towards assessing interconnectivity and interoperability between Mindray medical equipment and other DICOM conformant equipments.
- Test procedures should be defined and executed to validate the required level of interoperability with specific compatible DICOM equipment, as established by the healthcare facility.
- The DICOM standard will evolve to meet the user's growing requirements. Mindray is actively involved in the development of the DICOM standard. Therefore, Mindray reserves the right to make changes to its products or to discontinue its delivery.
- The Ultrasound System follows the IHE SWF, PDI, and ED Profiles.

3.4 Terms and Definitions

- **Abstract Syntax** – the information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.
- **Application Context** – the specification of the type of communication used between *Application Entities*. Example: DICOM network protocol.
- **Application Entity (AE)** – an end point of a DICOM information exchange, including the DICOM network or media interface software; i.e., the software that sends or receives DICOM information objects or messages. A single device may have multiple Application Entities.
- **Application Entity Title** – the externally known name of an *Application Entity*, used to identify a DICOM application to other DICOM applications on the network. The Called AE Title defines the intended receiver of an Association. Nevertheless, the Calling AE Title defines the requestor of an Association.
- **Application Profile** - A Media Storage Application Profile defines a selection of choices at the various layers of the DICOM Media Storage Model which are applicable to a specific need or context in which the media interchange is intended to be performed.
- **Association** – a network communication channel set up between *Application Entities*.
- **Association Establishment** - an Association Establishment is the first phase of communication between two DICOM Application Entities. The AEs use the Association Establishment to negotiate how data will be encoded and the type of data to be exchanged.
- **Attribute** – a unit of information in an object definition; a data element identified by a *tag*. The information may be a complex data structure (Sequence), itself composed of lower level data elements. Examples: Patient ID (0010, 0020), Accession Number (0008, 0050), Photometric Interpretation (0028, 0004), Procedure Code Sequence (0008, 1032).
- **DICOM File Format** - the DICOM File Format provides a means to encapsulate in a File the Data Set representing a SOP Instance related to a DICOM Information Object.
- **DICOM Message Service Element (DIMSE)** – a DIMSE defines the services and protocols utilized by an Application Entity to exchange messages.
- **File** - a File is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte is at the end of the File. Files are identified by a unique File ID and may by written, read, or deleted.
- **File Meta Information** - the File Meta Information includes identifying information on the encapsulated Data Set. It is a mandatory header at the beginning of every DICOM

File.

- **Information Object Definition (IOD)** - the specified set of *Attributes* that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. The *Attributes* may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C). Examples: Print Job IOD.
- **Joint Photographic Experts Group (JPEG)** – a set of standardized image compression techniques, available for use by DICOM applications.
- **Module** – a set of *Attributes* within an *Information Object Definition* that are logically related to each other. Example: Patient Module includes Patient Name, Patient ID, Patient Birth Date, and Patient Sex.
- **Negotiation** – first phase of *Association* establishment that allows *Application Entities* to agree on the types of data to be exchanged and how that data will be encoded.
- **Physical Media** - a piece of material with recording capabilities for streams of bits. Characteristics of a Physical Media include form factor, mechanical characteristics, recording properties and rules for recording and organizing bit streams in accessible structures.
- **Presentation Context** – the set of DICOM network services used over an *Association*, as negotiated between *Application Entities*; includes *Abstract Syntaxes* and *Transfer Syntaxes*.
- **Protocol Data Unit (PDU)** – a packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.
- **Security Profile** – a set of mechanisms, such as encryption, user authentication, or digital signatures, used by an *Application Entity* to ensure confidentiality, integrity, and/or availability of exchanged DICOM data
- **Service Class Provider (SCP)** – role of an *Application Entity* that provides a DICOM network service; typically, a server that performs operations requested by another *Application Entity* (*Service Class User*). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).
- **Service Class User (SCU)** – role of an *Application Entity* that uses a DICOM network service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU)
- **Service/Object Pair (SOP) Class** – the specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.
- **Service/Object Pair (SOP) Instance** – an information object; a specific occurrence of information exchanged in a *SOP Class*. Examples: a specific x-ray image.

- **Tag** – a 32-bit identifier for a data element, represented as a pair of four digit hexadecimal numbers, the “group” and the “element”. If the “group” number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element]
- **Transfer Syntax** – the encoding used for exchange of DICOM information objects and messages. Examples: *JPEG* compressed (images), little endian explicit value representation.
- **Unique Identifier (UID)** – a globally unique “dotted decimal” string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.
- **Value Representation (VR)** – the format type of an individual DICOM data element, such as text, an integer, a person’s name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

3.5 Acronyms, Abbreviations, and Symbols

The following acronyms and abbreviations are used in this document.

ACR	American College of Radiology
AE	Application Entity
CDR	Compact Disk Recordable
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DICOM Message Service Element-Composite
FSC	File-Set Creator
FSR	File-Set Reader
FSU	File-Set Updater
HIS	Hospital Information System
IHE	Integrating the Healthcare Enterprise
IOD	Information Object Definition
ISO	International Standard Organization
JPEG	Joint Photographic Experts Group
MOD	Ultrasound System
MPPS	Modality Performed Procedure Step
MWL	Modality Worklist
NEMA	National Electrical Manufacturers Association
O	Optional (Key Attribute)

PACS	Picture Archiving and Communication System
PDU	Protocol Data Unit
R	Required (Key Attribute)
RIS	Radiology Information System
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
U	Unique (Key Attribute)
UL	Upper Layer
VR	Value Representation
US	Ultrasound
UID	Unique Identifier

3.6 References

Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3, available free at http://medical.nema.org/

IHE Technical Framework, available free at http://www.ihe.net/

4 Networking

4.1 Implementation Model

4.1.1 Application Data Flow

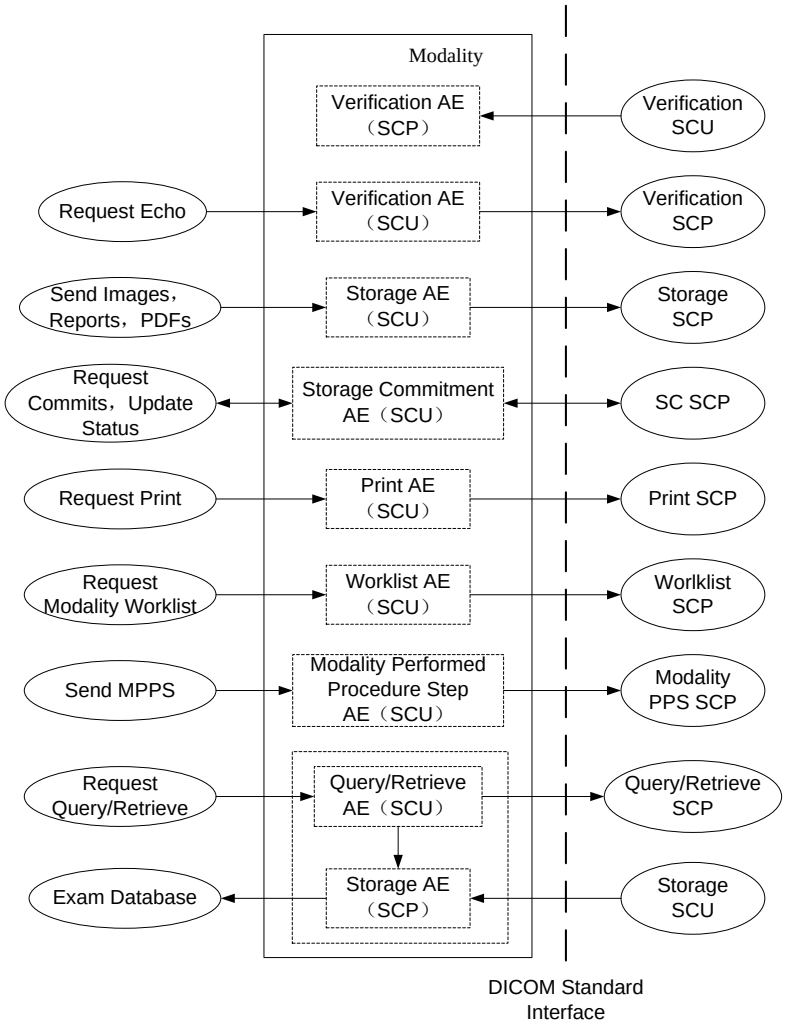

Figure 1

Implementation Model

Note：Storage AE（SCP）only be used in Query/Retrieve

This application entity provides a user interface, internal database and network listener that spawn additional threads as necessary to handle incoming connections.

Conceptually the network services may be modeled as the following AE's, however, in fact all the AE's share a single (configurable) AE Title:

- Verification AE (as SCU and SCP)

- Storage AE (as SCU and SCP)
- Storage Commitment AE（SCU）
- Print AE (as SCU)
- Worklist AE (as SCU)
- MPPS AE (as SCU)
- Query/Retrieve AE (as SCU)

4.1.2 Functional Definitions of AE’s

4.1.2.1 Verification AE

The ultrasound system supports the Verification service as a SCU and SCP.

As a SCU, verification is activated when the verify button is selected on the dicom service configuration page where the verification results will also be showed to the user.

As a SCP, verification AE waits in the background for connections, will accept associations with Presentation Contexts for SOP Class of the Verification Service Class, and will respond successfully to echo requests.

4.1.2.2 Storage AE

As a SCU, the Storage AE originates associations for the transfer of DICOM Ultrasound single frame images, multi-frame images, secondary capture images, comprehensive structured reports ,key object selection documents and Encapsulated PDFs to remote AE (selected from a pre-configured list)..

The system supports automatic and manual storage.

The operations for automatic storage service are described below:

- Operation 1

Step 1: Open the Keys Setup dialog and switch to the "Image Store/Print Buttons" tab page. Set Image Transfer Mode “End exam”.

Step 2: Set the store key to associate with the Storage Services in DICOM storage service Setup dialog.

Step 3: End Exam, the ended exam (may include images, KOSs) would automatically be sent to the configured storage service SCPs.

- Operation 2

Step 1: Open the Keys Setup dialog and switch to the "Image Store/Print Buttons" tab page. Set Image Transfer Mode “Exam In Progress”.

Step 2: Set the store key to associate with the Storage Services in DICOM storage service Setup dialog.

Step 3: During the exam, the user can press the store key to send image to configured DICOM storage service SCPs.

The operations for manual storage service are described below:

- Operation 1

Step 1: Select the images from thumbnail menu in main UI.

Step 2: Press “Send to” button and select DICOM Storage service SCPs.

Step 3: Send the images to the DICOM Storage service SCPs.

- Operation 2

Step 1: Select exams in the Archive Dialog.

Step 2: Press “Send Exam” and select DICOM Storage service SCPs.

Step 3: Send the selected exams (may include images, SRs, PDFs) to the DICOM Storage service SCPs.

- Operation 3

Step 1: Select thumbnail in the Archive Dialog.

Step 2: Press “Send to” button and select DICOM Storage service SCPs.

Step 3: Send the image to the DICOM Storage service SCPs.

- Operation 4

Step 1: Open the review dialog and select the images.

Step 2: Press the “Send To” button to choose the storage SCPs.

Step 3: Send the images to the DICOM Storage service SCPs.

The SR only could be sent in the circumstance as below:

- The exam type is obstetrics, gynecology, cardiac, and vascular.
- Exam is the unit to send.
- The status of the exam is "End", "Paused" or "Cancelled". SR will not be sent when an active exam is selected.
- The DICOM storage service SCPs should be set as "Attach SR when Store Images" or "Only Store SR".

The Encapsulated PDF only could be sent in the circumstance as below:

- Exam is the unit to send.
- The status of the exam is "End", "Paused" or "Cancelled". Encapsulated PDF will not be sent when an active exam is selected.
- The "Encapsulated PDF" should be enabled in DICOM storage service setup.

IQ scan data images can be sent as pre-configuration form:

Table 4

IQ scan data Transfer Option

IQ scan data Option	SOP Class	SOP Class UID
IQ Scan	Raw Data Storage	1.2.840.10008.5.1.4.1.1.66

Transfer with Rawdata form is mainly used for ZS3/ZS3 Exp/ZS3 Vet/ ZS3 Pro/z.one pro/z.one pro Vet/ZS2/ZS2 Exp/ZS2t/ ViewMate to get the raw data of the image via Q/R and review it. OtherStorage SCP receiving the image cannot review it because the image information is coded in private form.

In the event that the ultrasound system is taken off the network as a portable system or when a network failure occurs during a background store, the Storage SCU maintains a queue of failed C-STORE requests. If pre-configured on Setup UI, the failed C-Store requests will be automatically retried specified times. If no pre-configuration, the user can also retry the failed requests manually.

As a SCP, the Storage AE can only be used in Query/Retrieve.

4.1.2.3 Storage Commitment AE

The Storage Commitment AE originates associations to ensure the reliable storage of DICOM composite information objects on remote DICOM device after sending DICOM Storage Service to the device.

The Storage Commitment service will be executed in the circumstance as below:

- The Storage Commitment Service is set to associate with the Storage Service in DICOM storage service Setup dialog and the associated Storage Service is executed.
- Exam is the unit to send.
- The status of the exam is "End". It will not be executed when an "Active", "Paused" or "Cancelled" exam is selected.

4.1.2.4 Print AE

As a SCU, the Print AE originates associations for the print of DICOM Ultrasound single frame images and secondary capture images to remote AE (selected from a pre-configured list).

The system is capable of grayscale (B/W) and color print supporting automatic and manual print functions.

The operations for automatic print service are described below:

- Operation 1

Step 1: Open the Keys Setup dialog and switch to the "Image Store/Print Buttons" tab page. Set Image Transfer Mode “End exam”.

Step 2: Set the store key to associate with the Print Services in DICOM print service Setup dialog.

Step 3: End Exam, the single frame images and secondary capture images of ended exam will automatically be sent to the configured print service SCPs.

- Operation 2

Step 1: Open the Keys Setup dialog and switch to the "Image Store/Print Buttons" tab page. Set Image Transfer Mode “Exam In Progress”.

Step 2: Set the store/print key to associate with the Print Services in DICOM print service Setup dialog.

Step 3: During the exam, the user can press the store/print key to send image to configured DICOM print service SCPs.

Notes: This operation associates with the “Display Format” of the DICOM print configuration, the DICOM print will be not active until one page is filled with the images or the exam end. For example, if the “Display Format” has been set to “STANDARD\2,3”, the DICOM print will not be active until the shortcut key has been pressed 6 times. However, when the exam ends, the DICOM print will be active even if one page is partially filled.

The operations for manual print service are described below:

- Operation 1

Step 1: Select the images from thumbnail menu in main UI.

Step 2: Press “Send to” button and select DICOM print service SCPs.

Step 3: Send the images to the DICOM print service SCPs.

- Operation 2

Step 1: Select exams in the Archive Dialog.

Step 2: Press “Send Exam” and select DICOM print service SCPs.

Step 3: Send the single frame images and secondary capture images of the selected exams to the DICOM print service SCPs.

- Operation 3

Step 1: Select thumbnail in the Archive Dialog.

Step 2: Press “Send to” button and select DICOM print service SCPs.

Step 3: Send the image to the DICOM print service SCPs.

- Operation 4

Step 1: Open the review dialog and select the images.

Step 2: Press the “Send To” button to choose the print SCPs.

Step 3: Send the images to the DICOM print service SCPs.

4.1.2.5 Worklist AE

The Worklist AE is activated through the Worklist UI when the user selects a remote AE to query (from a pre-configured list).The system supports automatic and manual query. The system supports fuzzy query using “*”.

- Set one and only one remote AE as default. The system can initiate a query with default rules when show the Worklist UI. The Worklist Server is the default server.
- The user can specify query rules on Worklist UI such as Patient ID, Patient Name, Accession Number, Requested Procedure ID, Worklist Server, Exam Date and Patient Filter Query.

If more than one matching patients found, user can discover lists number on the UI. The user can also change query rules for another query, or for further filter in local database to locate the patients quickly. The lists can be sorted in ascending or descending order.

Each time the worklist automatic query is successfully performed, the results are cached by the local system. This enables a user to still locally query the cache to view a worklist when MINDRAY ZS3/ZS3 Exp/ZS3 Vet/ ZS3 Pro/z.one pro/z.one pro Vet/ZS2/ZS2 Exp/ZS2t/ ViewMate has been unplugged from the network while in portable mode.

4.1.2.6 MPPS AE

MPPS AE sends event transactions that facilitate the transfer of exam procedure status from the ultrasound system to the information system.

MPPS messages are sent from the system under the following circumstances:

- MPPS N-Create, Status = IN PROGRESS. Starting a new exam or reactivating an exam result in automated creation of an MPPS Instance managed by a remote AE.
- MPPS N-Set, Status = COMPLETE. Completion of the MPPS is performed as a result of an operator ending the exam.
- MPPS N-Set, Status = DISCONTINUED. “Cancel Exam” causes the “Discontinued” status to be sent. User can select various reasons from the “Reason of cancel Exam” UI when need to cancel an exam.

4.1.2.7 Query/Retrieve AE

The Query/Retrieve AE supports the Query/Retrieve services as an SCU.

As a Query SCU, the system initiates a C-Find request to the remote SCP if pre-configured on the Setup UI, and then query is invoked directly by the user. The system supports fuzzy query using “?” and “*”.

For remote AE, no matter what the default status is, the user can specify query rules on Query/Retrieve UI, such as Patient ID, Patient Name, Accession Number, and Exam Date

and select Search Key. If no matches are found, a dialogue will be presented to the user to indicate so. The user can also change query rules for another query, or for further filter in local database to locate the patients quickly.

As a Move SCU, the system supports the Study Root Query Model. The system can only retrieve ultrasound images or strutted reports, whose modality attributes are "US" or "SR", but will skip all other ones. Furthermore, the retrieval destination is only local host.

The system initiates a C-MOVE request to the remote Retrieve SCP when user selects items to retrieve. The remote Retrieve SCP in turn starts C-STORE sub operations to the ultrasound system.

User can discover lists number for queried items, as well as retrieval items. The lists can be sorted in ascending or descending order.

The system can retrieve the IQ scan data images that have been sent to PACS or other Storage SCP in rawdata form. After retrieving, the system can convert it to the identifiable format and review it.

4.1.3 Sequence of Real World Activities

All SCP activities are performed asynchronously in the background and not dependent on any sequencing.

All SCU activities are sequentially initiated in the user interface, and another activity may not be initiated until the prior activity has completed.

4.2 AE Specifications

4.2.1 Modality **AE**

4.2.1.1 SOP Classes

The ultrasound system provides Standard Conformance to the following SOP Class:

Table 5
SOP Class for Modality AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes[1]
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes[1]
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes[1]

Comprehensive Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes[1]
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes[1]
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Storage Commitment Push Model	1.2.840.10008.1.20.1	Yes	No
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Yes	No
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Yes	No
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No
Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No
Print Job SOP Class	1.2.840.10008.5.1.1.14	Yes	No
Modality Worklist Information Model – Find	1.2.840.10008.5.1.4.31	Yes	No
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Yes	No
Study Root Query/Retrieve Information Model - Find	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root Query/Retrieve Information Model - Move	1.2.840.10008.5.1.4.1.2.2.2	Yes	No

Note：1 Yes only used in Query/Retrieve, otherwise No.

4.2.1.2 Association Establishment Policies

4.2.1.2.1General

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

Table 6

DICOM Application Context for Modality AE

Application Context Name	1.2.840.10008.3.1.1.1

The PDU size is configurable with a minimum size of 16,384 and a maximum size of 65,536. The default PDU size is 32,768.

4.2.1.2.2Number of Associations

The system initiates one Association at a time for each destination to which a transfer request is being processed in the active job queue list. Since Storage and Print tasks are executed within a same thread, when they are selected simultaneously, only one job will be active at a time, the other(s) remain pending until the active job is successful or failed.

Table 7

Number of Associations as an Association Initiator

Maximum number of simultaneous associations	1

Table 8

Number of Associations as an Association Acceptor

Maximum number of simultaneous associations	1

4.2.1.2.3 Asynchronous Nature

The ultrasound system will only allow a single outstanding operation on an association.

4.2.1.2.4 Implementation Identifying Information

Table 9

DICOM Implementation Class and Version for Modality AE

Implementation Class UID	1.2.156.112536.1.2133.0.1.0.1
Implementation Version Name	ZONARE_V1.0

4.2.1.3 Association Initiation Policy

4.2.1.3.1 Activity – Request Echo

4.2.1.3.1.1 Description and Sequencing of Activities

The user can verify the existence of a DICOM server on the hospitals network, through a button in the 'DICOM Service' screen. When the user presses this button, the ultrasound system will initiate the association.

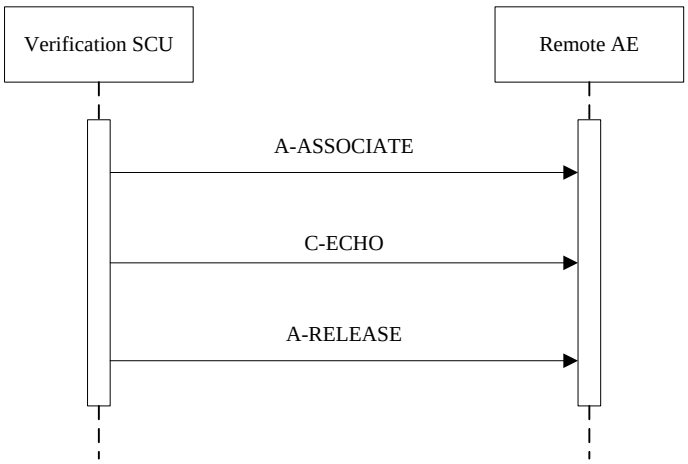

Figure 2

Sequencing of Activity – Send Echo Request

4.2.1.3.1.2 Proposed Presentation Contexts

The Verification AE (as SCU) supports the following Presentation Contexts for Verification.

Table 10

Presentation Contexts for Verification

PROPOSED PRESENTATION CONTEXTS					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

4.2.1.3.1.3 SOP Specific Conformance

It summarizes the behavior of Ultrasound System when receiving status codes in a C-ECHO response.

Table 11
Verification C-Echo Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior (as SCU)
Success	Success	0000	Device Status is set to: Verify Successful
Refused	Out of Resources	A7XX	Device Status is set to: Verify Failed
Failed	Unable to process	CXXX	Device Status is set to: Verify Failed
*	*	Any other status code	Device Status is set to: Verify Failed

4.2.1.3.2 Activity – Store images, SRs, PDFs, KOSs, IQ Scan Data images

4.2.1.3.2.1 Description and Sequencing of Activities

For each exam, image selected from the user interface to be transferred, an attempt will be made to transfer it to the selected remote AE. When the storage fails, not only the failed task will automatically retry specific times if configured on Setup UI, but also user can restart the failed task by pressing “Retry” Button on the ultrasound task management dialog. Besides that, in the event that the ultrasound system is taken off the network or when a network failure occurs during a background store, the Storage SCU maintains a queue of failed C-STORE requests. Once the network is restored, the system will retry automatically.

Structured Reports will contain a part of common used measurements and calculations created by ultrasound system.

- The OB and GYN exam types create OB-GYN Ultrasound Procedure Reports.
- The Adult Card exam type creates Adult Echocardiography Reports.
- The ABD, Uro and Vas exam types create Vascular Reports

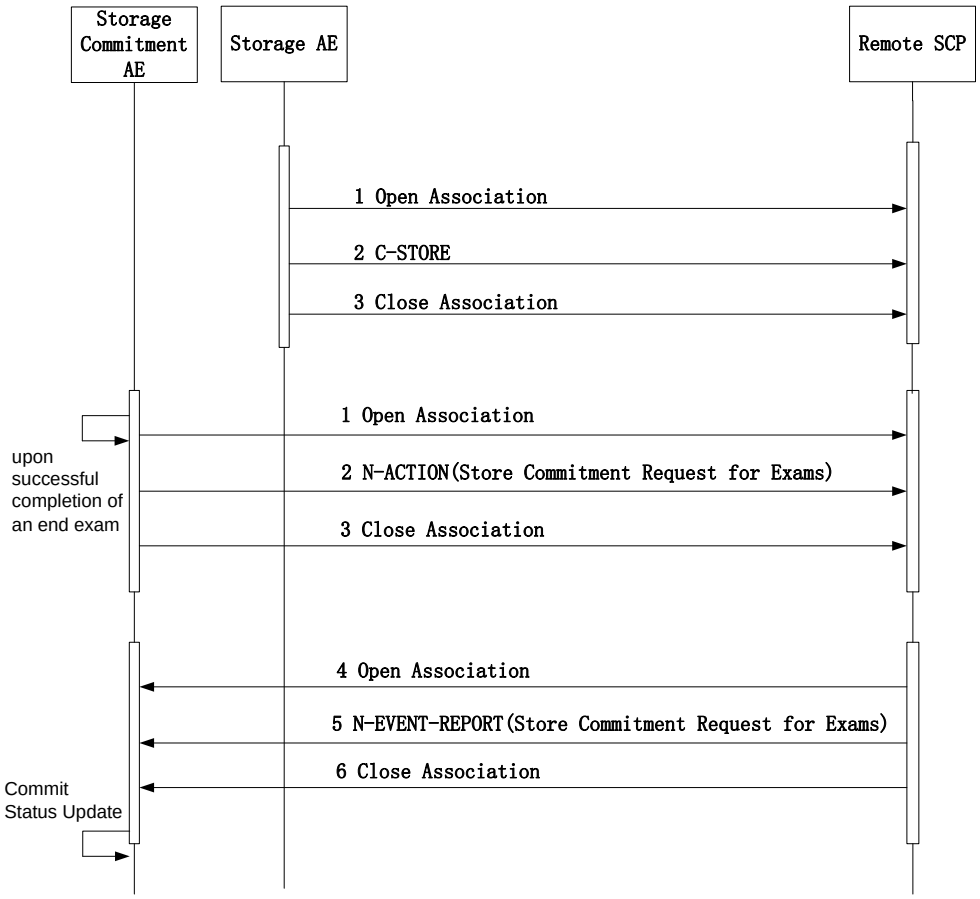

Figure 3

Sequencing of Activity – Send Storage Request

4.2.1.3.2.2 Proposed Presentation Contexts

If Storage AE is offered a choice of Transfer Syntaxes in the accepted Presentation Contexts, it will apply the first encountered to use for the C-STORE operation. As to Compress Transfer Syntaxes, it will apply the user configured one.

Table 12

Proposed Presentation Contexts for Storage

PROPOSED PRESENTATION CONTEXTS					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name**	**UID**		
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	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
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Lossless, Non-Hierarchical,	1.2.840.10008.1.2.4.70	SCU	None

		First-Order Prediction (Process 14 [Selection Value 1])			
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None

4.2.1.3.2.3 SOP Specific Conformance

Storage AE provides Standard Conformance to the Storage Service Class.

Storage AE will behave as described in the Table below in response to the status returned in the C-STORE response command message.

Table 13
Storage C-STORE Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	Image transmission is successful, The status code is logged and the task success is reported to the user via task management.
Refused	Out of Resources	A7xx	The association is aborted using A-ABORT and the send task is marked as failed. The reason is logged and, If user selects the failed task, the reasons for this failure will be showed via task management.
Error	Data Set does not match SOP Class	A9xx	The association is aborted using A-ABORT and the send task is marked as failed. The reason is logged and, If user selects the failed task, the reasons for this failure will be showed via task management.
Error	Cannot Understand	Cxxx	The association is aborted using A-ABORT and the send job is marked as failed. The reason is logged and, If user selects the failed task, the reasons for this failure will be showed via task management.
Failure	Any other failure	xxxx	The association is aborted using A-ABORT and the send job is marked as failed. The reason is logged and, If user selects the failed task, the reasons for this failure will be showed via task management.
Warning	Coercion of Data Elements	B000	Image transmission is considered successful but the status meaning is logged.
	Data Set does not match SOP Class	B007	Image transmission is considered successful but the status meaning is logged.
	Elements Discarded	B006	Image transmission is considered successful but the status meaning is logged.

	Any other status code.	xxxx	The Association is aborted using A-ABORT and the send job is marked as failed. The status code is logged and the job failure is reported to the user via task management.

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

Table 14

Storage Communication Failure Behavior

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the send job is marked as failed. The reason is logged and the job failure is reported to the user via task management.
Association aborted by the SCP or network layers	The send job is marked as failed. The reason is logged and the job failure is reported to the user via task management.

The following tables provide the list of attributes requested in the Storage.

Table 15

US Image IOD

IE	Module
Patient	Patient
Study	General Study
	Patient Study
Series	General Series
Equipment	General Equipment
Image	General Image
	Image Pixel
	US Region Calibration
	US Image
	VOI LUT
	SOP Common

Table 16

US Multi-Frame Image IOD

IE	Module
Patient	Patient
Study	General Study
	Patient Study
Series	General Series
Equipment	General Equipment
Image	General Image

	Image Pixel
	Cine
	Multi-frame
	US Region Calibration
	US Image
	VOI LUT
	SOP Common

Table 17

SC Image IOD

IE	**Module**
Patient	Patient
Study	General Study
	Patient Study
Series	General Series
Equipment	General Equipment
	SC Equipment
Image	General Image
	Image Pixel
	SC Image
	VOI LUT
	SOP Common

Table 18

Encapsulated PDF IOD

IE	**Module**
Patient	Patient
Study	General Study
	Patient Study
Series	Encapsulated Document
Equipment	General Equipment
	SC Equipment
Encapsulated Document	Encapsulated Document
	SOP Common

Table 19

Raw Data IOD

IE	Module
Patient	Patient
Study	General Study
	Patient Study
Series	General Series
Equipment	General Equipment
Raw Data	Acquisition Context
	Raw Data
	SOP Common

Table 20

Key Object Selection Document IOD

IE	Module
Patient	Patient
Study	General Study
	Patient Study
Series	Key Object Document Series
Equipment	General Equipment
Document	Key Object Document
	SR Document Content
	SOP Common

Table 21

Patient Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0010,0010)	PN	2	Patient's Name	MWL/USER
(0010,0020)	LO	2	Patient ID	MWL/USER
(0010,0030)	DA	2	Patient's Birth Date	MWL/USER, default is set to zero length
(0010,0032)	TM	2	Patient's Birth Time	MWL, default is set to zero length
(0010,0040)	CS	2	Patient's Sex	MWL/USER, default is set to zero length
(0010,1000)	LO	3	Other Patient IDs	MWL/USER
(0010,2160)	SH	3	Ethnic Group	MWL
(0010,4000)	LT	3	Patient Comments	MWL/USER
(0008,1120)	SQ	3	Referenced Patient	MWL

			Sequence	

Table 22

General Study Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,0020)	DA	2	Study Date	AUTO
(0008,0030)	TM	2	Study Time	AUTO
(0008,0050)	SH	2	Accession Number	MWL/USER, default is set to zero length
(0008,0090)	PN	2	Referring Physician's Name	MWL/USER, default is set to zero length
(0008,1030)	LO	3	Study Description	MWL/USER, default is set to zero length
(0008,1032)	SQ	3	Procedure Code Sequence	MWL
(0020,000D)	UI	1	Study Instance UID	MWL/AUTO
(0020,0010)	SH	2	Study ID	AUTO
(0008,1110)	SQ	3	Referenced Study Sequence	MWL
(0008,1032)	SQ	3	Procedure Code Sequence	MWL

Table 23

Patient Study Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,1080)	LO	3	Admitting Diagnoses Description	MWL
(0010,1010)	AS	3	Patient's Age	MWL/USER, default is set to zero length If the user set Patient Birth Date, it will be calculated automatically.
(0010,1020)	DS	3	Patient's Size	MWL/USER, default is set to zero length
(0010,1030)	DS	3	Patient's Weight	MWL/USER, default is set to zero length
(0010,21B0)	LT	3	Additional Patient History	MWL

Table 24

General Series Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,0021)	DA	3	Series Date	AUTO
(0008,0031)	TM	3	Series Time	AUTO
(0008,0060)	CS	1	Modality	CONFIG/MWL, default is “US”
(0008,103E)	LO	3	Series Description	MWL/USER
(0008,1050)	PN	3	Performing Physician's Name	MWL/USER, default is set to zero length
(0008,1070)	PN	3	Operators' Name	MWL/USER, default is set to zero length
(0018,1030)	LO	3	Protocol Name	AUTO – set to ExamType
(0018,5100)	CS	2C	Patient Position	Set to zero length
(0020,000E)	UI	1	Series Instance UID	AUTO
(0020,0011)	IS	2	Series Number	AUTO
(0020,0060)	CS	2C	Laterality	Set to zero length
(0040,0244)	DA	3	Performed Procedure Step Start Date	AUTO
(0040,0245)	TM	3	Performed Procedure Step Start Time	AUTO
(0040,0253)	SH	3	Performed Procedure Step ID	MPPS
(0040,0254)	LO	3	Performed Procedure Step Description	MWL
(0040,0260)	SQ	3	Performed Protocol Code Sequence	MWL
(0040,0275)	SQ	3	Request Attributes Sequence	MWL
(0040,1001)	SH	1C	> Requested Procedure ID	MWL
(0040,0009)	SH	1C	> Scheduled Procedure Step ID	MWL
(0040,0007)	LO	3	> Scheduled Procedure	MWL

			Step Description	
(0040,0008)	SQ	3	> Scheduled Protocol Code Sequence	MWL
(0008,1111)	SQ	3	Referenced Performed Procedure Step Sequence	MPPS

Table 25

Encapsulated Document Series Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,0060)	CS	1	Modality	US
(0020,000E)	UI	1	Series Instance UID	AUTO
(0020,0011)	IS	1	Series Number	AUTO
(0008,103E)	LO	3	Series Description	MWL/USER
(0040,0275)	SQ	3	Request Attributes Sequence	MWL
(0040,1001)	SH	1C	>Requested Procedure ID	MWL
(0040,0009)	SH	1C	>Scheduled Procedure Step ID	MWL
(0040,0007)	LO	3	>Scheduled Procedure Step MWL Description	MWL
(0040,0008)	SQ	3	>Scheduled Protocol Code Sequence	MWL
(0008,0100)	SH	1C	>>Code Value	MWL
(0008,0102)	SH	1C	>>Coding Scheme designator	MWL
(0008,0103)	SH	1C	>>Coding Scheme	MWL

			Version	
(0008,0104)	LO	1C	>>Code Meaning	MWL

Table 26

Key Object Document Series Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,0060)	CS	1	Modality	KO
(0020,000E)	UI	1	Series Instance UID	AUTO
(0020,0011)	IS	1	Series Number	AUTO
(0008,103E)	LO	3	Series Description	MWL/USER
(0008,0021)	DA	3	Series Date	AUTO
(0008,0031)	TM	3	Series Time	AUTO
(0008,1111)	SQ	1C	Referenced Performed Procedure Step Sequence	MPPS

Table 27

General Equipment Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,0070)	LO	2	Manufacturer	“Zonare”
(0008,0080)	LO	3	Institution Name	CONFIG
(0008,1010)	SH	1	Station Name	CONFIG
(0008,1040)	LO	3	Institutional Department Name	CONFIG
(0008,1090)	LO	3	Manufacturer's Model Name	“ViewMate”
(0018,1000)	LO	3	Device Serial Number	The Ethernet card Mac Address
(0018,1020)	LO	3	Software Version(s)	AUTO
(0008,0081)	ST	3	Institution Address	CONFIG

Table 28

SC Equipment Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,0060)	CS	3	Modality	CONFIG/MWL, default is “US”
(0008,0064)	CS	1	Conversion Type	“WSD”
(0018,1010)	LO	3	Secondary Capture Device ID	“ViewMate”
(0018,1016)	LO	3	Secondary Capture Device Manufacturer	“Zonare”
(0018,1018)	LO	3	Secondary Capture Device Manufacturer's Model Name	“ViewMate”
(0018,1019)	LO	3	Secondary Capture Device Software Version(s)	AUTO

Table 27

General Image Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0020,0013)	IS	2	Instance Number	AUTO
(0008,0008)	CS	2	Image Type	ORIGINAL\PRIMARY
(0008,0022)	DA	3	Acquisition Date	AUTO
(0008,0023)	DA	2C	Content Date	AUTO
(0008,0032)	TM	3	Acquisition Time	AUTO
(0008,0033)	TM	2C	Content Time	AUTO
(0008,002A)	DT	2C	Acquisition DateTime	AUTO
(0008,2111)	ST	3	Derivation Description	CONFIG
(0020,0012)	IS	3	Acquisition Number	AUTO
(0020,0013)	IS	2	Instance Number	AUTO
(0020,0020)	CS	2C	Patient Orientation	Set to zero length

(0020,4000)	LT	3	Image Comments	Name of the exam imaging preset based on user input. May be a user-defined value or one of the following factory-defined values
(0028,0301)	CS	3	Burned In Annotation	YES or NO based on type of image. If image depicts an ultrasound image (single-frame or multiframe), then the attribute is always present and its value depends upon the presence of the Pt. bar and whether or not patient information is hidden within the Pt. bar. If image depicts a non-ultrasound image, that is a secondary capture (i.e. screen dump), then the presence of the attribute and its value depends upon the particular screen. If image depicts the patient information screen, then the attribute is always present with a value of YES. If image depicts a secondary capture of a worksheet or report, then the attribute is always present and its value depends upon the presence of the Pt. bar and whether or not patient
(0028,2110)	CS	3	Lossy Image Compression	Not used if image is uncompressed or sent using JPEG Lossless, RLE Lossless Set it to “01” when the image is sent using JPEGLossy
(0028,2112)	DS	3	Lossy Image Compression Ratio	CONFIG
(0028,2114)	CS	3	Lossy Image Compression Method	ISO_10918_1 = JPEG Lossy Compression ISO_14495_1 = JPEG-LS Near-lossless Compression

Table 28

US Image Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0018,5010)	LO	3	Transducer Data	AUTO
(0018,5020)	LO	3	Processing Function	AUTO
(0018,1088)	IS	3	Heart Rate	From patient info, for CARD exam
(0018,5000)	SH	3	Output Power	AUTO
(0018,5022)	DS	3	Mechanical Index	Set to value computed as per AIUM standards
(0018,5024)	DS	3	Bone Thermal Index	Value set only if system display mode is set to display Bone Thermal Index
(0018,5026)	DS	3	Cranial Thermal Index	Value set only if system display mode is set to display Cranial Thermal Index
(0018,5027)	DS	3	Soft Tissue Thermal Index	Value set only if system display mode is set to display Soft Tissue Thermal Index. The value corresponds to the either the Focus Thermal Index or the Surface Thermal Index, whichever value is greater.
(0018,5028)	DS	3	Soft Tissue-Focus Thermal Index	Value set only if system display mode is set to display Soft Tissue Thermal Index and the Focus Thermal Index is greater than the Surface Thermal Index
(0018,5029)	DS	3	Soft Tissue-Surface Thermal Index	Value set only if system display mode is set to display Soft Tissue Thermal Index and the Surface Thermal Index is greater than the Focus Thermal Index
(0018,5050)	IS	3	Depth of Scan Field	AUTO
(0028,0002)	US	1	Samples per Pixel	1 or 3
(0028,0004)	CS	1	Photometric Interpretation	“RGB”, for color images; “MONOCHROME2”, if the image is grayscale; “YBR_FULL_422”, if the image is sent

				using JPEG Lossy “RGB”, if the image is sent using JPEG Lossless. “YBR_FULL”, if the image is sent using RLE Lossless.
(0028,0006)	US	1C	Planar Configuration	1, if the image is sent using RLE Lossless 0，otherwise.
(0028,0009)	AT	1C	Frame Increment Pointer	(0018,1063)
(0028,0014)	US	3	Ultrasound Color Data Present	0 or 1
(0028,0100)	US	1	Bits Allocated	0x0008
(0028,0101)	US	1	Bits Stored	0x0008
(0028,0102)	US	1	High Bit	0x0007
(0028,0103)	US	1	Pixel Representation	0x0000
(0028,2110)	CS	1C	Lossy Image Compression	Not used if image is uncompressed or sent using JPEG Lossless, RLE Lossless, JPEG 2000 Image Compression (Lossless Only) Set it to “01” when the image is sent using JPEGLossy

Table 29

US Image Module for Stree Echo Images Only

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,2120)	SH	3	Stage Name	AUTO
(0008,2122)	IS	3	Stage Number	AUTO
(0008,2124)	IS	2C	Number of Stages	AUTO
(0008,2127)	SH	3	View Name	AUTO
(0008,2128)	IS	3	View Number	AUTO
(0008,212A)	IS	2C	Number of Views in Stage	AUTO

Table 30

SC Image Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0018,1012)	DA	3	Date of Secondary Capture	AUTO
(0018,1014)	TM	3	Time of Secondary Capture	AUTO

Table 31

Image Pixel Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0028,0010)	US	1	Rows	720
(0028,0011)	US	1	Columns	960
(0028,0034)	IS	1c	Pixel Aspect Ratio	/
(7FE0,0010)	OW	1	Pixel Data	

Table 32

VOI LUT Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0028,1050)	DS	1C	Window Center	128
(0028,1051)	DS	1C	Window Width	256

Table 33

SOP Common Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,0005)	CS	1C	Specific Character Set	AUTO
(0008,0012)	DA	3	Instance Creation Date	AUTO
(0008,0013)	TM	3	Instance Creation Time	AUTO
(0008,0016)	UI	1C	SOP Class UID	AUTO

(0008,0018)	UI	1C	SOP Instance UID	AUTO
(0008,0014)	UI	3	Instance Creator UID	1.2.156.112536

Table 34

US Region Calibration Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0018,6011)	SQ	1	Sequence of Ultrasound Regions	
>(0018,6012)	US	1	Region Spatial Format	Set by the system
>(0018,6014)	US	1	Region Data Type	Set by the system
>(0018,6016)	UL	1	Region Flags	Set by the system
>(0018,6018)	UL	1	Region Location Min X0	Set by the system
>(0018,6020)	UL	1	Reference Pixel x0	Set by the system
>(0018,6022)	UL	1	Reference Pixel y0	Set by the system
>(0018,6028)	UL	1	Ref. Pixel Physical Value X	Set by the system
>(0018,602A)	UL	1	Ref. Pixel Physical Value Y	Set by the system
>(0018,601A)	UL	1	Region Location Min Y0	Set by the system
>(0018,601C)	UL	1	Region Location Max X1	Set by the system
>(0018,601E)	UL	1	Region Location Max Y1	Set by the system
>(0018,6024)	US	1	Physical Units X Direction	Set by the system
>(0018,6026)	US	1	Physical Units Y Direction	Set by the system
>(0018,602C)	FD	1	Physical Delta X	Set by the system
>(0018,602E)	FD	1	Physical Delta Y	Set by the system

Table 35

Cine Module Used for US Multi-Frame Images Only

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0008,2142)	IS	3	Start Trim	Set by the system
(0008,2143)	IS	3	Stop Trim	Set by the system
(0008,2144)	IS	3	Recommended Display Frame Rate	Set by the system
(0018,0040)	IS	3	Cine Rate	Set by the system
(0018,0072)	DS	3	Effective Duration	Set by the system
(0018,1063)	DS	1C	Frame Time	Set by the system
(0018,1065)	DS	1C	Frame Time Vector	Set by the system
(0018,1066)	DS	3	Frame Delay	Set by the system
(0018,1242)	IS	3	Actual Frame Duration	Set by the system
(0018,1244)	US	3	Preferred Playback Sequencing	Set by the system

Table 36

Multi-Frame Module Used for US Multi-Frame Images Only

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0028,0008)	IS	1	Number of Frames	AUTO
(0028,0009)	AT	1	Frame Increment Pointer	0018 1063 = Frame Time
(0028,6010)	US	3	Representative Frame Number	1

Table 37

Encapsulated Document Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0020,0013)	IS	1	Instance Number	AUTO
(0008,0023)	DA	2	Content Date	AUTO
(0008,0033)	TM	2	Content Time	AUTO
(0008,002A)	DT	2	Acquisition	AUTO

			DateTime	
(0028,0301)	CS	1	Burned In Annotation	“YES”
(0042,0010)	ST	2	Document Title	The Title of the Document
(0040,A043)	SQ	2	Concept Name Code Sequence	Set to zero length
(0040,A493)	CS	3	Verification Flag	AUTO. “UNVERIFIED” = Not attested by a legally accountable person. “VERIFIED” = Attested to (signed) by a Verifying Observer or Legal Authenticator named in the document, who is accountable for its content.
(0042,0012)	LO	1	MIME Type of Encapsulated Document	“application/pdf”
(0042,0011)	OB	1	Encapsulated Document	The PDF Document

Table 38

Acquisition Context Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0040,0555)	SQ	2	Acquisition Context Sequence	Set to zero length

Table 39

Raw Data Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0020,0013)	SQ	2	Instance Number	Set to zero length
(0008,0023)	DA	1	Content Date	AUTO
(0008,0033)	TM	1	Content Time	AUTO
(0008,9123)	UI	1	Creator-Version UID	AUTO

(5001,0010)			: private mapped to (5001,00FF)	“ZonareRawData”
(5001,1011)			: private mapped to (5001,FF11)	
(5001,1013)			: private mapped to (5001,FF13)	

Table 40

Key Object Document Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0020,0013)	IS	1	Instance Number	AUTO
(0008,0023)	DA	1	Content Date	AUTO
(0008,0033)	TM	1	Content Time	AUTO
(0040,A370)	SQ	1C	Referenced Request Sequence	MWL
(0020,000D)	UI	1	>Study Instance UID	MWL
(0008,1110)	SQ	2	>Referenced Study Sequence	MWL
(0008,0050)	SH	2	>Accession Number	MWL
(0040,2016)	LO	2	>Placer Order Number/Imaging Service Request	MWL
(0040,2017)	LO	2	>Filler Order Number/Imaging Service Request	MWL
(0040,1001)	SH	2	>Requested Procedure ID	MWL
(0032,1060)	LO	2	>Requested Procedure Description	MWL
(0032,1064)	SQ	2	>Requested Procedure Code Sequence	MWL
(0040,A375)	SQ	1	Current Requested	AUTO

			Procedure Evidence Sequence	
(0008,1115)	SQ	1	> Referenced Series Sequence	AUTO
(0008,1199)	SQ	1	>> Referenced SOP Sequence	AUTO
(0008,1150)	UI	1	>>> Referenced SOP Class UID	AUTO
(0008,1155)	UI	1	>>> Referenced SOP Instance UID	AUTO
(0020,000E)	UI	1	>> Series Instance UID	AUTO
(0020,000D)	UI	1	> Study Instance UID	AUTO

Table 41

SR Document Content Module

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0040,A040)	CS	1	Value Type	CONTAINER
(0040,A043)	SQ	1C	Concept Name Code Sequence	AUTO
(0008,0100)	SH	1C	> Code Value	113000
(0008,0102)	SH	1C	> Coding Scheme Designator	DCM
(0008,0104)	LO	1C	> Code Meaning	Of Interest
(0040,A050)	CS	1	Continuity of Content	SEPARATE
(0040,A504)	SQ	1C	Content Template Sequence	
(0008,0105)	CS	1	>Mapping Resource	DCMR
(0008,0118)	UI	3	>Mapping Resource UID	1.2.840.10008.8.1.1
(0040,DB00)	CS	1	>Template	2010

			Identifier	

Table 42

Private Application Module for CEUS Only

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0063,0010)	LO		Private Creator Data Elements	ZONARE CONTRAST QUANTIFICATION
(0063,1001)	LO		Private Creator Data Version	"1.1"
(0063,1030)	DS		Log-compression dynamic range	Unit: dB
(0063,1031)	DS		Total Gain	Overall contrast gain Unit: dB
(0063,1032)	DS		Anti-log law vector	Inverse log-compression law for data linearization
(0063,1034)	DS		TGC contrast gain vector	Unit: dB
(0063,1035)	LO		Palette name	Palette ID
(0063,1036)	IS		Contrast Red Palette Data	Contrast palette Red values
(0063,1037)	IS		Contrast Green Palette Data	Contrast palette Green values
(0063,1038)	IS		Contrast Blue Palette Data	Contrast palette Blue values
(0063,1040)	LO		Transducer name	
(0063,1041)	DS		Transducer frequency	Unit: MHz
(0063,1050)	IS		Vector of destructionframe numbers	
(0063,1051)	IS		Number of destruction frames (n)	Length of destruction-frame vector
(0063,1052)	CS		Nonlinear Contrast Mode	Operating Mode (i.e. Imaging mode name)

(0063,1053)	LO		Allow Quantification	Set to “False” if gain, TGC or dynamic range is changed during the course of the acquisition or “True” otherwise

Conventions used for the Value(s) and Comments section are:

MWL – the attribute value source is from Modality WORKLIST

USER – the attribute value source is from User’s input

AUTO – automatically generated by the MODALITY system

CONFIG - the attribute value source is a configurable parameter

4.2.1.3.3 Activity – Request Storage Commitment

4.2.1.3.3.1 Description and Sequencing of Activities

A possible sequence of interactions between the Storage Commitment AE and a remote AE is illustrated in the Figure 3
Sequencing of Activity – Send Storage Request.

4.2.1.3.3.2 Proposed Presentation Contexts

The Storage Commitment AE is capable of proposing the Presentation Contexts shown in the table below:

Table 43
Proposed Presentation Contexts for Activity Request Storage Commitment

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

The Storage Commitment AE will only accept the SCU role within a Presentation Context for the Storage Commitment Push Model SOP Class.

4.2.1.3.3.3 SOP Specific Conformance

4.2.1.3.3.3.1 Storage Commitment Operations (N-ACTION)

The Storage Commitment AE will request storage commitment for the configured device.

The behavior of Storage Commitment AE when receiving N-Action response status codes is summarized in the table below:

Table 44

Storage Commitment N-ACTION Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The request for storage commitment is considered successfully sent. The ultrasound system waits for the N-EVENT-REPORT in background.
*	*	Any other status code.	The request for storage commitment is failed.

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

Table 45

Storage Commitment 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.

Storage Commitment AE will request storage commitment using the following tags

NOTE: Storage Commitment may only be automatically requested upon successful completion of an end exam storage task,

Table 46

Storage Commitment N-Actiont Request Attributes

Action Type Name	Event Type ID	Attribute	Tag
Storage Commitment Request	1	Transaction UID	(0008,1195)
		Referenced SOP Sequence	(0008,1199)
		>Referenced SOP Class UID	(0008,1150)
		>Referenced SOP Instance UID	(0008,1155)
		Instance Creation Date	(0008,0012)
		Instance Creation Time	(0008,0013)

4.2.1.3.3.3.2 Storage Commitment Notifications (N-EVENT-REPORT)

Storage Commitment AE is capable of receiving an N-EVENT-REPORT on a different association than the one on which the N-ACTION operation was performed. The behavior

of Storage Commitment AE when receiving Event Types within the N-EVENT-REPORT is summarized in the table below.

Table 47

Storage Commitment N-Event-Report Behavior

Event Type ID	Behavior
1	The storage Commitment request is considered successful and the storage commitment column of Use 9.0 terminology Column is marked with a tick.
2	The storage Commitment request is considered Failed.

The reasons for returning specific status codes in a N-EVENT-REPORT response are summarized in the table below:

Table 48

Storage Commitment N-EVENT-REPORT Response Status Reasons

Service Status	Further Meaning	Error Code	Reasons
Success	Success	0000	The notification event has been successfully received.
Failure	Processing Failure	0110H	An internal error occurred during processing of the N-EVENT-REPORT.

Tags supported for an N-Event-Report message.

Table 49

Storage Commitment N-Event-Report Message Contents

EVENT TYPE NAME	EVENT TYPE ID	ATTRIBUTE	TAG	REQUIREMENT TYPE SCP
Storage Commitment Request Successful	1	Transaction UID	(0008,1195)	1
		Referenced SOP Sequence	(0008,1199)	1
		>Referenced SOP Class UID	(0008,1150)	1
		>Referenced SOP Instance UID	(0008,1155)	1
Storage Commitment Request Complete – Failures Exist	2	Transaction UID	(0008,1195)	1
		Referenced SOP Sequence	(0008,1199)	1
		>Referenced SOP Class UID	(0008,1150)	1
		>Referenced SOP Instance UID	(0008,1155)	1
		Failed SOP Sequence	(0008,1198)	1
		>Referenced SOP Class UID	(0008,1150)	1
		>Referenced SOP Instance UID	(0008,1155)	1
		>Failure Reason	(0008,1197)	1

4.2.1.3.4 Activity – Film Images

4.2.1.3.4.1 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.

The system is invoked by the user on “Send to” UI if the print remote AE is pre-configured. Status of the print-job is reported through task management UI. If pre-configured on Setup UI, the failed print task will be automatically retried specified times. If no pre-configuration, the user can also retry manually. Only one task will be active at a time for each separate hardcopy device. The same as Storage, the system could retry automatically the failed task caused by network failure，when the network is restored.

A typical sequence of DIMSE messages sent over an association between Print AE and a Printer is illustrated in Figure 4:

1. Print AE opens an association with the Printer.
2. N-GET on the Printer SOP Class is used to obtain current printer status information.
3. N-CREATE on the Film Session SOP Class create a Film Session.
4. N-CREATE on the Film Box SOP Class create a Film Box linked to the Film Session. A single Image Box will be created as the result of this operation (Print AE default uses the format STANDARD\1.1, but user can change it on Setup UI).
5. N-SET on the Image Box SOP Class transfers the contents of the film sheet to the printer.
6. N-ACTION on the Film Box SOP Class instructs the printer to print the Film Box.
7. The Printer prints the requested number of film sheets.
8. The Printer asynchronously reports its status via N-EVENT-REPORT notification (Printer SOP Class). The Printer can send this message at any time. Print AE does not require the N-EVENT-REPORT to be sent. Print AE is capable of receiving an N-EVENT-REPORT notification at any time during an association.
9. N-DELETE on the Film Box SOP Class deletes the complete Film box SOP Instance hierarchy.
10. N-DELETE on the Film Session SOP Class deletes the complete Film Session SOP Instance hierarchy.
11. Print AE closes the association with the Printer.

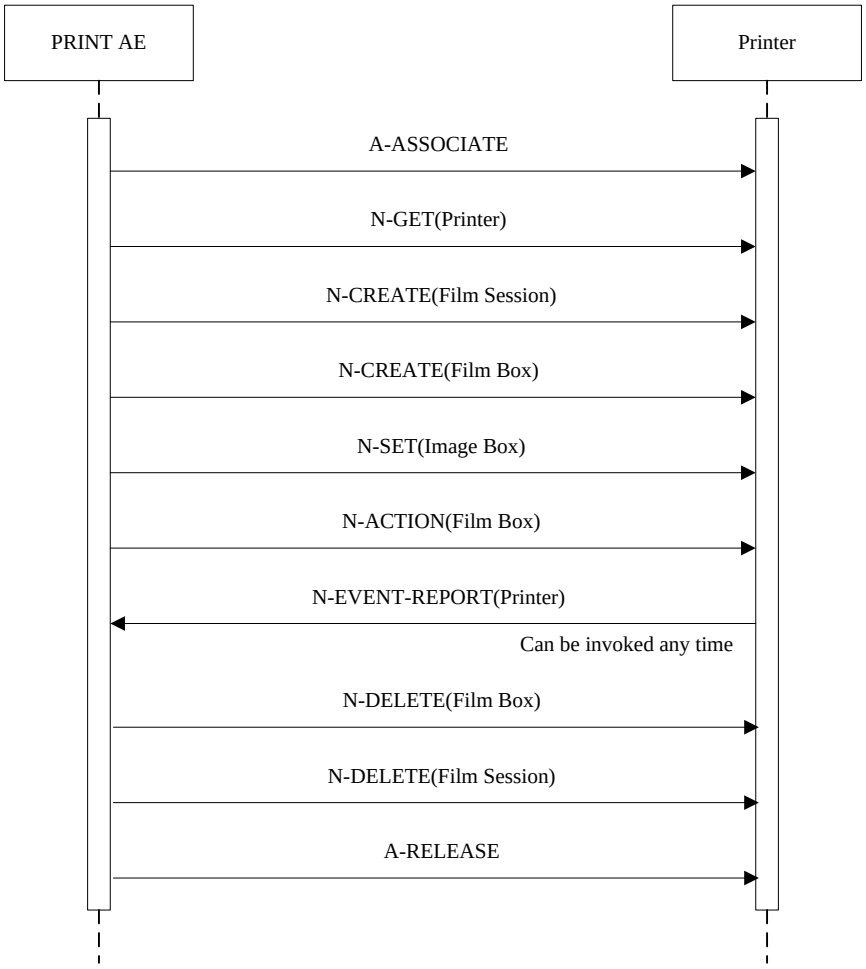

Figure 4

Sequencing of Activity – Film Images

4.2.1.3.4.2 Proposed Presentation Contexts

Print AE is capable of proposing the Presentation Contexts shown in the Table below:

Table 50

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	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

Basic Color Print Management Meta	1.2.840.10008.5.1.1.18	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

4.2.1.3.4.3 Common SOP Specific Conformance for all Print SOP Classes

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

Table 51
Print AE 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. The reason is logged and the job failure is reported to the user.

Recommended abbreviations to be used for the tables are:

VNAP Value Not Always Present (attribute sent zero length if no value is present)

ANAP Attribute Not Always Present

ALWAYS Always Present with a value

EMPTY Attribute is sent without a value

Recommended abbreviations to be used for the source of the data values in the tables are:

USER the attribute value source is from User input

AUTO the attribute value is generated automatically

CONFIG the attribute value source is a configurable parameter

PRINTER the attribute value is provided by printer

4.2.1.3.4.4 SOP Specific Conformance for the Printer SOP Class

Print AE supports the following DIMSE operations and notifications for the Printer SOP Class:

— N-GET

— N-EVENT-REPORT

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

4.2.1.3.4.4.1 Printer SOP Class Operations (N-GET)

Print AE uses the Printer SOP Class N-GET operation to obtain information about the current printer status. The attributes excepted via N-GET are listed in the Table below:

Table 52
Printer SOP Class N-GET Request Attribute Identifier List

Attribute Name	Tag
Printer Status	(2110,0010)
Printer Status Info	(2110,0020)
Printer Name	(2110,0030)
Manufacturer	(0008,0070)
Manufacturer Model Name	(0008,1090)
Device Serial Number	(0018,1000)
Software Version(s)	(0018,1020)
Date of Last Calibration	(0018,1200)
Time of Last Calibration	(0018,1201)

The behavior of Print AE when encountering status codes in a N-GET response is summarized in the Table below:

Table 53
Printer SOP Class N-GET Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The request to get printer status information was success.
Warning	any warning	xxxx	The print-job continues to be printed.
Failure	any failure	xxxx	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.1.3.4.4.2 Printer SOP Class Notifications (N-EVENT-REPORT)

Print AE is capable of receiving an N-EVENT-REPORT request at any time during an association. The behavior of Print AE when receiving Event Types within the N-EVENT-REPORT is summarized in the Table 54.

Table 54
Printer SOP Class N-Event-Report Behavior

Event Type Name	Event Type ID	Behavior
Normal	1	The print-job continues to be printed.
Warning	2	The print-job continues to be printed. The contents of Printer Status

		Info (2110, 0020) is logged and reported to the user via the job-control application.
Failure	3	The print-job is marked as failed. The contents of Printer Status Info (2110, 0020) is logged and reported to the user via the job-control application.
*	*	An invalid Event Type ID will cause a status code of 0113H to be returned in a N-EVENT-REPORT response.

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

Table 55

Printer SOP Class N-EVENT-REPORT Response Status Reasons

Service Status	Further Meaning	Error Code	Reasons
Success	Success	0000	The notification event has been successfully received.
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. A short description of the error will be returned in Error Comment (0000, 0902).

4.2.1.3.4.5 SOP Specific Conformance for the Film Session SOP Class

Print 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.

4.2.1.3.4.5.1 Film Session SOP Class Operations (N-CREATE)

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

Table 56

Film Session SOP Class N-CREATE Request Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Number of Copies	(2000,0010)	IS	[1, 100]	ALWAYS	CONFIG
Print Priority	(2000,0020)	CS	LOW, MED,HIGH	ALWAYS	CONFIG
Medium Type	(2000,0030)	CS	BLUE FILM, CLEAR FILM, PAPER	ALWAYS	CONFIG

Film Destination	(2000,0040)	CS	MAGAZINE，PROCESSOR	ALWAYS	CONFIG

The behavior of Print AE when encountering status codes in a N-CREATE response is summarized in the Table below:

Table 57

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	Memory allocation not supported	B600	The N-CREATE operation is considered successful.
Warning	any warning	xxxx	The N-CREATE operation is considered successful.
Failure	any failure	xxxx	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.1.3.4.5.2 Film Session SOP Class Operations (N-DELETE)

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

Table 58

Printer SOP Class N-DELETE Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Any warning	xxxx	The N-DELETE operation is considered successful.
Failure	Any failure	xxxx	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.1.3.4.6 SOP Specific Conformance for the Film Box SOP Class

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

— N-CREATE

— N-ACTION

— N-DELETE

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

4.2.1.3.4.6.1 Film Box SOP Class Operations (N-CREATE)

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

Table 59
Film Box SOP Class N-CREATE Request Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Display Format	(2010,0010)	CS	PORTRAIT: STANDARD\1,1 STANDARD\1,2 STANDARD\1,3 STANDARD\2,1 STANDARD\2,2 STANDARD\2,3 STANDARD\2,4 STANDARD\3,3 STANDARD\3,4 STANDARD\3,5 STANDARD\3,6 STANDARD\4,4 STANDARD\4,5 STANDARD\4,6 STANDARD\4,7 STANDARD\4,8 STANDARD\5,5 STANDARD\5,6 STANDARD\5,7 STANDARD\5,8 STANDARD\6,6 STANDARD\6,7 STANDARD\6,8 STANDARD\6,9 STANDARD\6,10 STANDARD\7,7 STANDARD\7,8	ALWAYS	CONFIG

			STANDARD\7,9 STANDARD\7,10 STANDARD\8,8 STANDARD\8,9 STANDARD\8,10 LANDSCAPE: STANDARD\1,1 STANDARD\2,1 STANDARD\3,1 STANDARD\1,2 STANDARD\2,2 STANDARD\3,2 STANDARD\4,2 STANDARD\3,3 STANDARD\4,3 STANDARD\5,3 STANDARD\6,3 STANDARD\4,4 STANDARD\5,4 STANDARD\6,4 STANDARD\7,4 STANDARD\8,4 STANDARD\5,5 STANDARD\6,5 STANDARD\7,5 STANDARD\8,5 STANDARD\6,6 STANDARD\7,6 STANDARD\8,6 STANDARD\9,6 STANDARD\10,6 STANDARD\7,7 STANDARD\8,7 STANDARD\9,7 STANDARD\10,7 STANDARD\8,8		

			STANDARD\9,8 STANDARD\10,8		
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	CONFIG
Film Size ID	(2010,0050)	CS	8INX10IN 8_5INX11IN 10INX12IN 10INX14IN 11INX14IN 11INX17IN 14INX14IN 14INX17IN 24CMX24CM 24CMX30CM A4 A3	ALWAYS	CONFIG
Magnification Type	(2010,0060)	CS	REPLICATE, BILINEAR, CUBIC or NONE	ALWAYS	CONFIG
Max Density	(2010,0130)	US	0.. 65535	ANAP	CONFIG
Min Density	(2010,0120)	US	0.. 65535	ANAP	CONFIG
Trim	(2010,0140)	CS	YES or No	ALWAYS	CONFIG
Configuration Information	(2010,0150)	ST	User defined text	ANAP	USER

The behavior of Print AE when encountering status codes in a N-CREATE response is summarized in the Table below:

Table 60

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	Requested Min Density or Max Density outside of printer's operating range	B605H	The N-CREATE operation is considered successful.
Warning	Any other warning	xxxx	The N-CREATE operation is considered successful.
Failure	There is an existing Film Box that has not been printed and N-ACTION at the Film Session level is not supported. A new Film Box will not be created when a previous Film Box has not been printed.	C616H	C The association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and the job failure is reported to the user.
Failure	Any failure	xxxx	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.1.3.4.6.2 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 Action Reply argument in an N-ACTION response is not evaluated.

The behavior of Print AE when encountering status codes in a N-ACTION response is summarized in the Table below:

Table 61

Film Box SOP Class N-ACTION Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully. The film has been accepted for printing.
Warning	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B603H	The N-ACTION operation is considered successful.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604H	The N-ACTION operation is considered successful.
Warning	Image size is larger than Image Box	B609H	The N-ACTION operation is

	size. The image has been cropped to fit.		considered successful.
Warning	Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.	B60AH	The N-ACTION operation is considered successful.
Warning	Any other warning	xxxx	The N-ACTION operation is considered successful.
Failure	Unable to create Print Job SOP Instance; print queue is full.	C602	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Image size is larger than Image Box size.	C603	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Combined Print Image Size is larger than Image Box size.	C613	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Any other failure	xxxx	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.1.3.4.6.3 Film Session SOP Class Operations (N-DELETE)

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

Table 62
Printer SOP Class N-DELETE Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Any warning	xxxx	The N-DELETE operation is considered successful.

Failure	Any other failure	xxxx	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.1.3.4.7 SOP Specific Conformance for the Image Box SOP Class

Print 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.

4.2.1.3.4.7.1 Image Box SOP Class Operations (N-SET)

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

Table 63
Image Box SOP Class N-SET Request Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Position	(2020,0010)	US	[1, num_image1]	ALWAYS	AUTO
Basic Grayscale Image Sequence	(2020,0111)	SQ		If the service is configured as MONOCHROME2	AUTO
>Samples Per Pixel	(0028,0002)	US	1	ALWAYS	AUTO
>Photometric Interpretation	(0028,0004)	CS	MONOCHROME2	ALWAYS	CONFIG
>Rows	(0028,0010)	US	Depends on film size	ALWAYS	AUTO
>Columns	(0028,0011)	US	Depends on film size	ALWAYS	AUTO
Pixel Aspect Ratio	(0028,0034)	IS	Set to zero length	VNAP	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 rendered film sheet	ALWAYS	AUTO
Basic Color Image Sequence	(2020,0111)	SQ		If the service is configured as RGB	AUTO
>Samples Per	(0028,0002)	US	3	ALWAYS	AUTO

Pixel					
>Photometric Interpretation	(0028,0004)	CS	RGB	ALWAYS	CONFIG
>Planar Configuration	(0028,0006)	US	1	ALWAYS	AUTO
>Rows	(0028,0010)	US	Depends on film size	ALWAYS	AUTO
>Columns	(0028,0011)	US	Depends on film size	ALWAYS	AUTO
Pixel Aspect Ratio	(0028,0034)	IS	Set to zero length	VNAP	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 rendered film sheet	ALWAYS	AUTO

Note：1 If the attribute of Image Display Format is (STANDARD\m, n), num_image is m*n.

The behavior of Print AE when encountering status codes in a N-SET response is summarized in the Table below:

Table 64

Image Box SOP Class N-SET Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	Image print is successful, The status code is logged and the task success is reported to the user via task management.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604H	The N-SET operation is considered successful.
Warning	Requested Min Density or Max Density outside of printer's operating range.	B605H	The N-SET operation is considered successful.
Warning	Image size is larger than Image Box size. The image has been cropped to fit.	B609H	The N-SET operation is considered successful.
Warning	Image size or Combined Print	B60AH	The N-SET operation is considered

	Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.		successful.
Warning	Any other warning	xxxx	The N-SET operation is considered successful.
Failure	Image size is larger than Image Box size.	C603	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Insufficient memory in printer to store the image.	C605	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Combined Print Image Size is larger than Image Box size.	C613	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Any other failure	xxxx	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.1.3.5 Activity – Send Find Request

4.2.1.3.5.1 Description and Sequencing of Activities

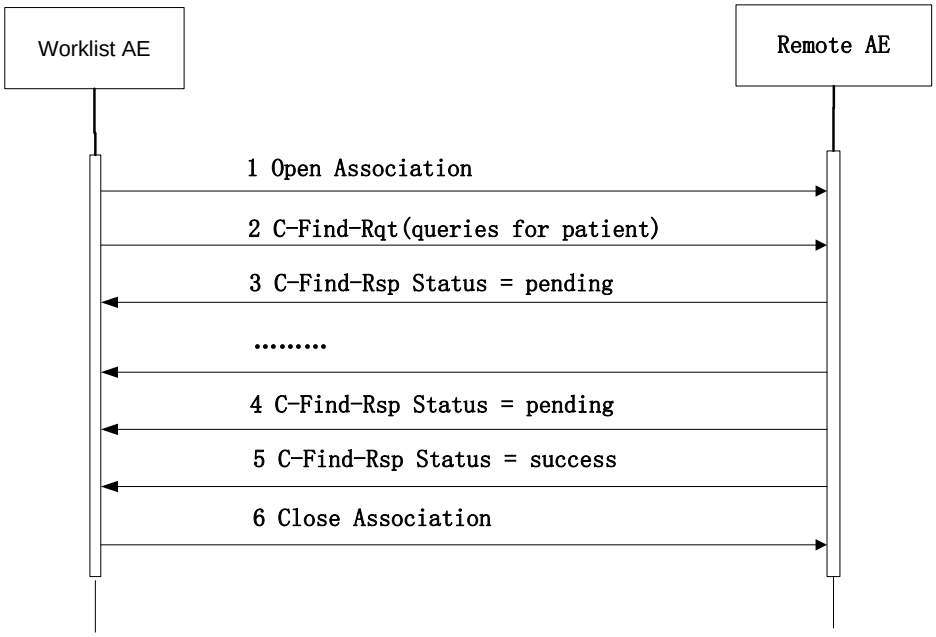

Figure 5

Sequencing of Activity – Send FIND Request

A possible sequence of interactions between the Worklist AE and a remote AE (e.g. a system such as a RIS or HIS; or a PACS) is illustrated in the Figure below:

1. The Worklist AE opens an association with the remote AE
2. The Worklist AE sends a C-FIND request to the remote AE containing the Query attributes.
3. The remote AE returns a C-FIND response containing the requested attributes of the first matching Item.
4. The remote AE returns another C-FIND response containing the requested attributes of the second matching Item. And then another one.
5. When the remote AE returns all the C-FIND responses with status Success indicating that no further matching Items exist.
6. The C-Find AE closes the association with the remote AE.

4.2.1.3.5.2 Proposed Presentation Contexts

Table 65

Proposed Presentation Contexts for Worklist AE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Modality Worklist Information Model – Find	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

Worklist AE will propose Presentation Contexts for the SOP Classes listed above. For these SOP Class, Worklist AE will propose multiple Presentation Contexts, one for each of the supported Transfer Syntaxes.

If Worklist AE is offered a choice of Transfer Syntaxes in the accepted Presentation Contexts, it will apply the first encountered to use for the C-FIND operation.

4.2.1.3.5.3 SOP Specific Conformance

Table 66
C_FIND Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior (as SCU)
Refused	Out of resources	A700	The association is aborted using A-ABORT and a notify message is displayed: Some errors happen when query worklist server.
Failed	Identifier Does Not Match SOP Class	A900	
Failed	Unable to process	Cxxx	
Cancel	Matching terminated due to Cancel request	FE00	/
Success	Matching is complete - No final Identifier is supplied.	0000	Patient lists show on the UI
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00	The worklist item contained in the Identifier is collected for later display or further processing.
Pending	Matches are continuing - Warning that one or more Optional Keys were not supported for existence for this Identifier.	FF01	The worklist item contained in the Identifier is collected for later display or further

			processing.
*	The Association is aborted using A-ABORT and the query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.	Any other status code.	The association is aborted using A-ABORT and a notify message is displayed: Some errors happen when query worklist server.

Worklist AE provides Standard Conformance to the Storage Service Class.

Worklist AE will behave as described in the Table 66 in response to the status returned in the C-FIND response command message.

The behavior of Ultrasound System during communication failure is summarized in the Table below.

Table 67

COMMUNICATION FAILURE BEHAVIOR FOR WORKLIST AE

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the query marked as failed. The reason is logged and reported to the user if an interactive query.
Association aborted by the SCP or network layers	The query is marked as failed. The reason is logged and reported to the user if an interactive query.

The Table below provides a description of the Ultrasound system Worklist Query 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 68

Worklist Request Identifier

ATTRIBUTE	VR	ATTRIBUTE NAME	MATCHING KEYS	RETURN KEYS
Module: Patient Identification Module (M)				
(0010,0010)	PN	Patient's Name	configurable	X (DI)
(0010,0020)	LO	Patient ID	configurable	X(DI)
(0010,1000)	LO	Other Patient IDs	configurable	X (DI)
Module: Patient Demographic Module (M)				
(0010,0030)	DA	Patient's Birth Date		X(DI)
(0010,0032)	TM	Patient's Birth Time		X(DI)

(0010,0040)	CS	Patient's Sex	configurable	X(DI)
(0010,1020)	DS	Patient's Size	configurable	X (DI)
(0010,1030)	DS	Patient's Weight	configurable	X (DI)
(0010,2160)	SH	Ethnic Group	configurable	X (DI)
(0010,4000)	LT	Patient Comments	configurable	X (DI)
(0040,3001)	LO	Confidentiality constraint on patient data Description		X (DI)
Module: Patient Medical Module (M)				
(0010,2000)	LO	Medical Alerts	configurable	X (DI)
(0010,2110)	LO	Contrast Allergies	configurable	X (DI)
(0010,21B0)	US	Additional Patient's History	configurable	X (DI)
(0010,21C0)	US	Pregnancy Status	configurable	X (DI)
(0010,21D0)	DA	Last Menstrual Date		X (DI)
(0038, 0050)	LO	Special Needs		X (DI)
(0038, 0500)	LO	Patient State		X (DI)
Module: Visit Relationship Module (M)				
(0008,1120)	SQ	Referenced Patient Sequence		X (DI)
Module: Visit Identification Module (M)				
(0038,0010)	LO	Admission ID	configurable	X (DI)
Module: Visit Status Module (M)				
(0038,0300)	LO	Current Patient Location	configurable	X (DI)
Module: Visit Admission Module (M)				
(0008,1080)	LO	Admitting Diagnosis Description		X (DI)
Module: Scheduled Procedure Step Module (M)				
(0040,0100)	SQ	Scheduled Procedure Step Sequence		X (DI)
>(0008,0060)	CS	Modality	Configurable and the default is set to "US"	
>(0032,1070)	LO	Requested Contrast Agent		X (DI)

>(0040,0001)	AE	Scheduled Station AE Title	configurable	X (DI)
>(0040,0002)	DA	Scheduled Procedure Step Start Date	configurable and the default is set to today’s date	X(DI)
>(0040,0003)	TM	Scheduled Procedure Step Start Time		X (DI)
>(0040,0004)	DA	Scheduled Procedure Step End Date		X (DI)
>(0040,0005)	TM	Scheduled Procedure Step End Time		X (DI)
>(0040,0006)	PN	Scheduled Performing Physician's Name		X (DI)
>(0040,0007)	LO	Scheduled Procedure Step Description	configurable	X(DI)
>(0040,0008)	SQ	Scheduled Protocol Code Sequence		X (DI)
> >(0008,0100)	SH	Code Value		X (DI)
> >(0008,0102)	SH	Coding Scheme Designator		X (DI)
> >(0008,0103)	SH	Coding Scheme Version		X (DI)
> >(0008,0104)	LO	Code Meaning		X (DI)
>(0040,0009)	SH	Scheduled Procedure Step ID	configurable	X (DI)
>(0040,0010)	SH	Scheduled Station Name	configurable	X (DI)
>(0040,0011)	SH	Scheduled Procedure Step Location	configurable	X (DI)
>(0040,0012)	LO	Pre-Medication		X (DI)
> (0040,0020)	CS	Scheduled Procedure Step Status		X (DI)
> (0040,0400)	LT	Comments on the Scheduled Procedure Step		X (DI)
Module: Requested Procedure Module (M)				
(0008,1110)	SQ	Referenced Study		X (DI)

		Sequence		
> (0008,1150)	UI	Referenced SOP Class UID		X (DI)
> (0008,1155)	UI	Referenced SOP Instance UID		X (DI)
(0020,000D)	UI	Study Instance UID	configurable	X (DI)
(0032,1060)	LO	Requested Procedure Description	configurable	X (DI)
(0032,1064)	SQ	Requested Procedure Code Sequence		X (DI)
> (0008,0100)	SH	Code Value		X (DI)
> (0008,0102)	SH	Coding Scheme Designator		X (DI)
>(0008,0103)	SH	Coding Scheme Version		X (DI)
>(0008,0104)	LO	Code Meaning		X (DI)
(0040,1001)	SH	Requested Procedure ID	configurable	X (DI)
(0040,1003)	SH	Requested Procedure Priority		X (DI)
(0040,1004)	LO	Patient Transport Arrangements		X (DI)
(0040,1010)	PN	Names of Intended Recipients of Results	configurable	X (DI)
(0040,1400)	LT	Requested Procedure Comments	configurable	X (DI)
Module: Imaging Service Request Module (M)				
(0008,0050)	SH	Accession Number	configurable	X (DI)
(0008,0090)	PN	Referring Physician's Name	configurable	X (DI)
(0032,1032)	PN	Requesting Physician	configurable	X (DI)
(0032,1033)	LO	Requesting Service	configurable	X (DI)
(0040,2400)	LT	Imaging Service Request Comments	configurable	X (DI)
(0040,2016)	LO	Placer Order Number/Imaging		X

		Service Request		
(0040,2017)	LO	Filler Order Number/Imaging Service Request		X
Module: SOP Common Module (M)				
(0008,0005)	CS	Specific Character Set		X (DI)
Module: Additional Attributes Module (M)				
(0008,0032)	TM	Acquisition Time		X (DI)

The convention used for Matching Keys is:

X - Return keys. An " X " indicates that MODALITY supplies this attribute as a Return Key with zero length for Universal Matching.

DI – Display to the user.

4.2.1.3.6 Activity – Send MPPS Request

4.2.1.3.6.1 Description and Sequencing of Activities

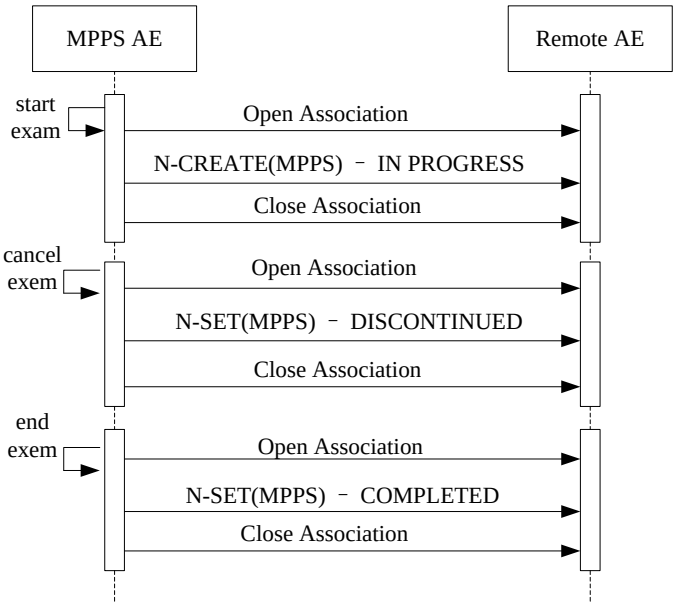

Figure 6

Sequencing of Activity – MPPS progress

A possible sequence of interactions between the MPPS AE and a Remote AE(Departmental Scheduler, e.g. a device such as a RIS or HIS which supports the MPPS SOP Class as an SCP) is illustrated in Figure B.4.2-4:

1. The MPPS AE opens an association with the Remote AE.
2. The MPPS AE sends an N-CREATE request to the Remote AE to create an MPPS instance with status of “IN PROGRESS” and create all necessary attributes. The Remote AE acknowledges the MPPS creation with an N-CREATE response (status success).

3. The MPPS AE closes the association with the Remote AE.
4. All images are acquired and stored in the local database.
5. The MPPS AE opens an association with the Remote AE.
6. The MPPS AE sends an N-SET request to the Remote AE to update the MPPS instance with status of “COMPLETED” and set all necessary attributes. The Departmental Scheduler acknowledges the MPPS update with an N-SET response (status success).
7. The MPPS AE closes the association with the Remote AE.

Note: The Cancel and End Exam commands are mutually exclusive. They are both represented here for illustration purposes only. Actual workflow uses one or the other for a given exam.

For each exam step transfer, an attempt will be made to transmit it to the selected remote AE. If it fails, it will automatically retry specific times if configured on Setup UI.

4.2.1.3.6.2 Proposed Presentation Contexts

Table 69

Proposed Presentation Contexts for MPPS AE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

MPPS-SCU will propose Presentation Contexts for the SOP Classes listed above. For these SOP Class, MPPS-SCU will propose multiple Presentation Contexts, one for each of the supported Transfer Syntaxes.

If MPPS AE is offered a choice of Transfer Syntaxes in the accepted Presentation Contexts, it will apply the first encountered to use for the MPPS AE operation.

4.2.1.3.6.3 SOP Specific Conformance

MPPS AE provides Standard Conformance to the MPPS Service Class.

MPPS-SCU will behave as described in the Table below in response to the status returned in the N-Create or N-Set response command message.

Table 70

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.
Failure	Processing Failure – Performed Procedure Step Object may no longer be updated	0110	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning and Additional information in the Response is logged (i.e. Error Comment and Error ID).
Warning	Attribute Value Out of Range	0116H	The MPPS operation is considered successful but the status meaning is logged. Additional information in the Response identifying the attributes out of range will be logged (i.e. Elements in the Modification List/Attribute List)
*	*	Any other status code.	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged.

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

Table 71

MPPS COMMUNICATION FAILURE BEHAVIOR

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

Table below provides a description of the MPPS N-CREATE and N-SET request identifiers sent by ultrasound system. Empty cells in the N-CREATE and N-SET columns indicate that the attribute is not sent. An “x” indicates that an appropriate value will be sent. A “Zero length” attribute will be sent with zero length.

Table 72

MPPS N-CREATE / N-SET Request Identifier

Attribute Name	Tag	Req. Type N-CREATE	Req. Type N-SET
Module: Performed Procedure Step Relationship Module (M)			
Referenced Patient Sequence	(0008,1120)	2 (Default is set to null)	Not allowed
Patient’s Name	(0010,0010)	2	Not allowed

Patient ID	(0010,0020)	2	Not allowed
Patient's Birth Date	(0010,0030)	2	Not allowed
Patient's Sex	(0010,0040)	2	Not allowed
Scheduled Step Attribute Sequence	(0040,0270)	1	Not allowed
>Accession Number	(0008,0050)	2	Not allowed
>Referenced Study Sequence	(0008,1110)	2	Not allowed
>Study Instance UID	(0020,000D)	1	Not allowed
>Requested Procedure Description	(0032,1060)	2	Not allowed
>Scheduled Procedure Step Description	(0040,0007)	2	Not allowed
>Scheduled Protocol Code Sequence	(0040,0008)	2	Not allowed
>Scheduled Procedure Step ID	(0040,0009)	2	Not allowed
>Requested Procedure ID	(0040,1001)	2	Not allowed
Module: Image Acquisition Results Module (M)			
Modality	(0008,0060)	1	Not allowed
Study ID	(0020,0010)	2	Not allowed
Performed Protocol Code Sequence	(0040,0260)	2 (Default is set to null)	3
Performed Series Sequence	(0040,0340)	2	3
>Retrieve AE Title	(0008,0054)	2 (Default is set to null)	2
>Series Description	(0008,103E)	2 (Default is set to null)	2
>Performing Physician's Name	(0008,1050)	2	2
>Operators' Name	(0008,1070)	2	2
>Referenced Image Sequence	(0008,1140)	2	2
>Protocol Name	(0018,1030)	1	1
>Series Instance UID	(0020,000E)	1	1
>Referenced Non-Image Composite SOP Instance Sequence	(0040,0220)	2 (Default is set to null)	2
Module: Billing And Material Management Code Module (M)			
Billing Procedure Step Sequence	(0040,0320)	3	3
Film Consumption Sequence	(0040,0321)	3	3
Billing Supplies and Devices	(0040,0324)	3	3

Sequence			
Module: Performed Procedure Step Information Module (M)			
Procedure Code Sequence	(0008,1032)	2 (Default is set to null)	3
Performed Station AE Title	(0040,0241)	1	Not allowed
Performed Station Name	(0040,0242)	2 (Default is set to null)	Not allowed
Performed Location	(0040,0243)	2 (Default is set to null)	Not allowed
Performed Procedure Step Start Date	(0040,0244)	1	Not allowed
Performed Procedure Step Start Time	(0040,0245)	1	Not allowed
Performed Procedure Step End Date	(0040,0250)	2 (Default is set to null)	3
Performed Procedure Step End Time	(0040,0251)	2	3
Performed Procedure Step Status	(0040,0252)	1	3
Performed Procedure Step ID	(0040,0253)	1	Not allowed
Performed Procedure Step Description	(0040,0254)	2 (Default is set to null)	3
Performed Procedure Type Description	(0040,0255)	2 (Default is set to null)	3
Performed Procedure Step Discontinuation Reason Code Sequence	(0040,0281)	3	3
Module: SOP Common Module (M)			
Specific Character Set	(0008,0005)	1C (Required if an extended or replacement character set is used)	Not allowed

4.2.1.3.7 Activity – Query/Retrieve from Remote AE

4.2.1.3.7.1 Description and Sequencing of Activities for SCU

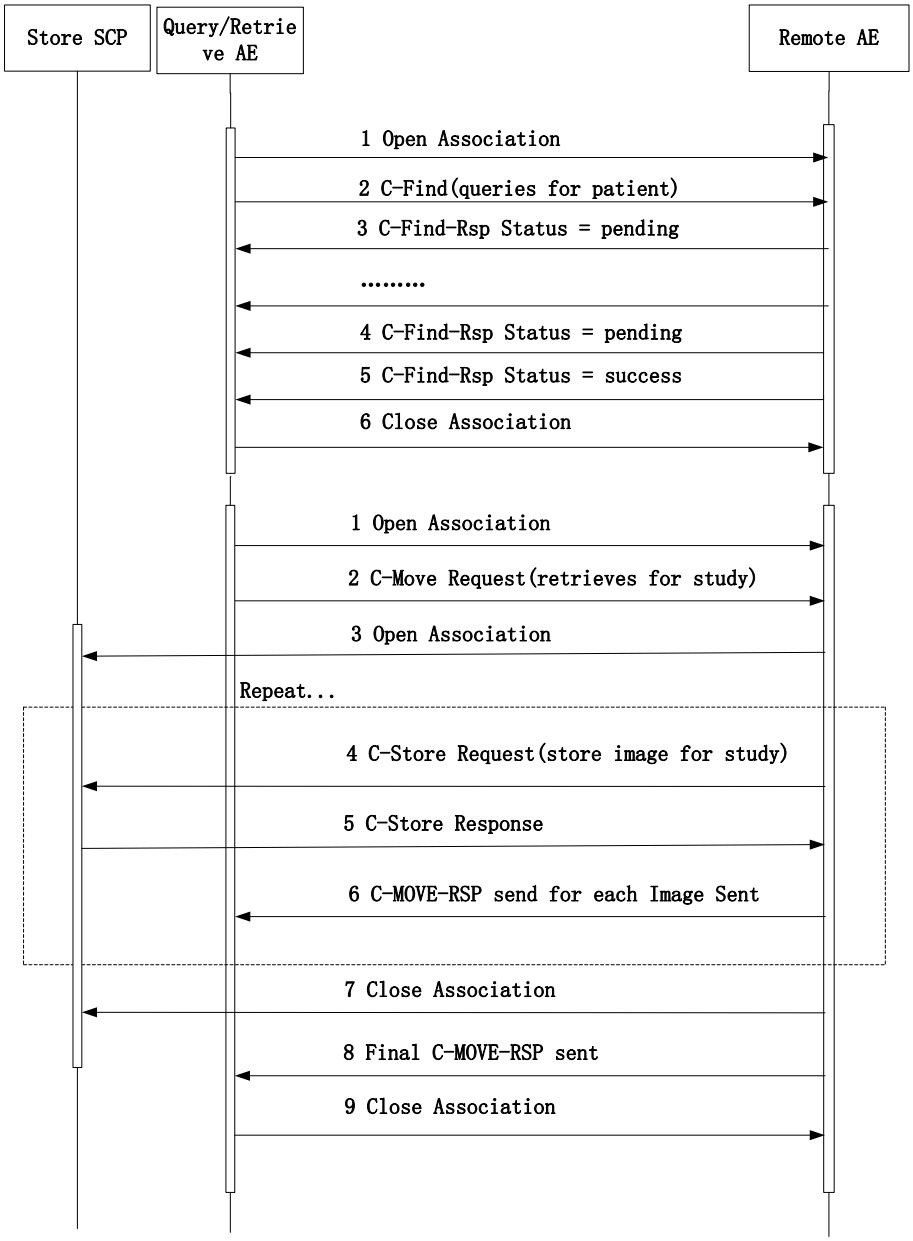

Figure 7

Sequencing of Activity – Query/Retrieve progress

The associated Real-World activity is a C-Find request initiated by the user. The user specifies some attributes the system should use to query its database. If the query user successfully establishes an association to the remote AE, it will send a C-Find request (according to the query model) and will then return the results to the application.

The C-MOVE-RQs are used to retrieve the referenced instances. The Query/Retrieve AE supports the Study Root Information Model.

4.2.1.3.7.2 Proposed Presentation Contexts

Table 73
Proposed Presentation Contexts for Query/Retrieve AE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Study Root Query/Retrieve Information Model - Find	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
Study Root Query/Retrieve Information Model - Move	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

4.2.1.3.7.3 SOP Specific Conformance

The ultrasound system provides Standard Conformance to the DICOM Query/Retrieve Class.

4.2.1.3.7.3.1 Response Status

Query/Retrieve AE will behave as described in the Table below in response to the status returned in the C-Find response command message.

Table 74
C-Find Response Status Handling Behavior

Service Status	Meaning	Protocol Codes	Related Fields	Behavior (as SCU)
Refused	Refused Out of Resources	A700	(0000,0902)	The association is aborted using A-ABORT and a notify message is displayed: The remote server error.
Failed	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)	
	Unable to process	CXXX	(0000,0901) (0000,0902)	
Canceling	Matching terminated due to Cancel request	FE00	None	
Success	Matching is complete - No final Identifier is supplied	0000	None	Patient lists show on the UI
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Identifier	/
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier	FF01	Identifier	/

The ultrasound system supports the following query levels:

- Study

The Query/Retrieve AE interprets following status codes

Table 75

C-Move Response Status Handling Behavior

Service Status	Meaning	Protocol Codes	Related Fields	Behavior (as SCU)
Refused	Refused Out of Resources	A700	(0000,0902)	The association is aborted using A-ABORT and a notify message is displayed: The remote server error.
Failed	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)	
	Unable to process	CXXX	(0000,0901) (0000,0902)	
Canceling	Matching terminated due to Cancel request	FE00	None	
Success	Matching is complete - No final Identifier is supplied	0000	None	Image retrieve is successful, Patient lists

				show on the UI
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Identifier	/
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier	FF01	Identifier	/

4.2.1.3.7.3.2 Study Root Query/Retrieve Attributes

4.2.1.3.7.3.3 Supported Matching

Following are the types of matching that can be request by the implementation:

- Single Value matching
- Universal Matching
- Wild Card Matching
- Range of date, Range of Time

The user can filter the downloaded C-FIND result, to view a limited set of the result.

4.2.1.3.7.3.4 Study Level

This section defines the keys at the Study Level of the Study Root Query/Retrieve Information Model that are supported by this implementation.

Table 76

STUDY LEVEL ATTRIBUTES

MODULE: STUDY ROOT INFORMATION MODEL (M)					
Attribute	**VR**	**Type**	**Attribute Name**	**Value**	**Matching keys**
Module: Study Root Information Model (M)					
(0008,0020)	DA	R	Study Date		DA(SK)
(0008,0030)	TM	R	Study Time		N
(0010,0010)	PN	R	Patient's Name		*(SK)
(0010,0020)	LO	R	Patient ID		S(SK)
(0008,0050)	SH	R	Accession Number		*(SK)
(0010,0030)	DA	O	Patient's Birth Date		S(SK)
(0010,0040)	CS	O	Patient's Sex		S(SK)
(0020,0010)	SH	R	Study ID		S(SK)
(0020,000D)	UI	U	Study Instance UID		N
(0008,0061)	CS	O	Modalities in Study		*(SK)
(0008,0090)	PN	O	Referring Physician's Name		*(SK)
(0008,1030)	LO	O	Study Description		N
(0008,1032)	SQ	O	Procedure Code Sequence		N
(0008,1060)	PN	O	Name of Physician(s) Reading Study		N

(0008,1080)	LO	O	Admitting Diagnoses Description		N
(0008,1110)	SQ	O	Referenced Study Sequence		N
(0008,1120)	SQ	O	Referenced Patient Sequence		N
(0010,0021)	LO	O	Issuer of Patient ID		N
(0010,0032)	TM	O	Patient's Birth Time		N
(0010,1000)	LO	O	Other Patient IDs		N
(0010,1001)	PN	O	Other Patient Names		N
(0010,1010)	AS	O	Patient's Age		N
(0010,1020)	DS	O	Patient's Size		N
(0010,1030)	DS	O	Patient's Weight		N
(0010,2160)	SH	O	Ethnic Group		N
(0010,2180)	SH	O	Occupation		N
(0010,21B0)	LT	O	Additional Patient History		N
(0010,4000)	LT	O	Patient Comments		N
(0020,1070)	IS	O	Other Study Numbers		N
(0020,1200)	IS	O	Number of Patient Related Studies		N
(0020,1202)	IS	O	Number of Patient Related Series		N
(0020,1204)	IS	O	Number of Patient Related Instances		N
(0020,1206)	IS	O	Number of Study Related Series		N
(0020,1208)	IS	O	Number of Study Related Instances		N
(4008,010C)	PN	O	Interpretation Author		N
Module: Additional Attributes Module (O)					
(0008,0062)	UN	O	SOP Classes in Study		N

4.2.1.3.7.3.5 Series Level Attributes

Table 77

SERIES LEVEL ATTRIBUTES

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE	MATCHINGKEYS
Module: Study Root Information Model (M)					
(0020,000D)	UI	U	Study Instance UID		S
(0020,000E)	UI	U	Series Instance UID		N
(0008,0060)	CS	R	Modality		*(SK)
(0020,0011)	IS	R	Series Number		S(SK)
(0008,103E)	LO	O	Series Description		*(SK)

(0020,1209)	IS	O	Number of Series Related Instances		N
(0040,0244)	DA	R	Performed Procedure Step Start Date		DA(SK)
(0040,0275)	SQ	R	Request Attribute Sequence		
>(0040,1001)	SH	R	Requested Procedure ID		S(SK)
>(0040,0009)	SH	R	Scheduled Procedure Step ID		S(SK)
Module: Additional Attributes Module (O)					
(0008,0021)	DA	O	Series Date		N
(0008,0031)	TM	O	Series Time		N

4.2.1.3.7.3.6 Composite Object Instance Level

Table 78

COMPOSITE OBJECT INSTANCE LEVEL ATTRIBUTES

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE	MATCHINGKEYS
Module: Study Root Information Model (M)					
(0020,000D)	UI	U	Study Instance UID		S
(0020,000E)	UI	U	Series Instance UID		S
(0008,0018)	UI	U	SOP Instance UID		N
(0020,0013)	IS	R	Instance Number		N
Module: Additional Attributes Module (O)					
(0008,0016)	UI	O	SOP Class UID		N
(0008,001A)	UI	O	Related General SOP Class UID		N
(0008,3001)	SQ	O	Alternate Representation Sequence		N
>(0008,1150)	UI	O	Referenced SOP Class UID		N
>(0008,1155)	UI	O	Referenced SOP Instance UID		N
>(0020,000E)	UI	O	Series Instance UID		N
>(0040,A170)	SQ	O	Purpose of Reference Code Sequence		N
>>(0008,0100)	SH	O	Code Value		N
>>(0008,0102)	SH	O	Coding Scheme Designator		N
>>(0008,0103)	SH	O	Coding Scheme Version		N
>>(0008,0104)	LO	O	Code Meaning		N
(0040,A043)	SQ	O	Concept Name Code Sequence		N
>(0008,0100)	SH	O	Code Value		N
>(0008,0102)	SH	O	Coding Scheme Designator		N
>(0008,0103)	SH	O	Coding Scheme Version		N
>(0008,0104)	LO	O	Code Meaning		N
(0040,A504)	SQ	O	Content Template Sequence		N
>(0008,0105)	CS	O	Mapping Resource		N
>(0040,DB00)	CS	O	Template Identifier		N

4.2.1.4 Association Acceptance Policy

4.2.1.4.1 Activity – Receive Echo Request

4.2.1.4.1.1 Description and Sequencing of Activities

The Verification AE (as SCP) accepts associations only if they have valid Presentation Contexts. If Verification AE (as SCP) receives an echo (C-ECHO) request then the response will be sent over the same association used to send the C-ECHO-RQ.

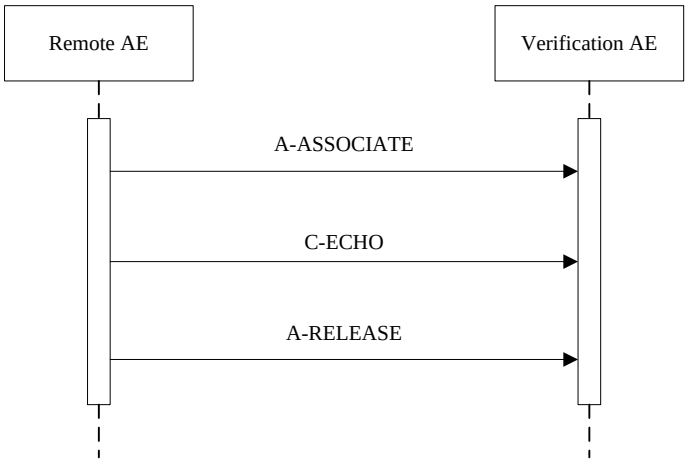

Figure 8
Sequencing of Activity – Receive Echo Request

4.2.1.4.1.2 Accepted Presentation Contexts

It will accept Presentation Contexts as shown in the following table:

Table 79
Proposed Presentation Contexts for Activity Verification

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

4.2.1.4.1.3 SOP Specific Conformance

The Application conforms to the definition of a Verification SCP in accordance with the DICOM Standard.

4.2.1.4.2 Activity – Receive Storage

4.2.1.4.2.1 Description and Sequencing of Activities

The system could act as Storage SCP in Query/Retrieve, otherwise couldn't. A possible sequence of interactions between the Storage AE (as SCP) and a remote AE is illustrated in the Figure 7.

4.2.1.4.2.2 Accepted Presentation Contexts

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

Table 80
Proposed Presentation Contexts for Storage

PROPOSED PRESENTATION CONTEXTS					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name**	**UID**		
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None

		(Process 14 [Selection Value 1])			
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	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	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
Encapsulated	1.2.840.100	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

PDF Storage	08.5.1.4.1.1.104.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None

Note：The system could not support to browse the Encapsulated PDF.

4.2.1.4.2.3 SOP Specific Conformance

The Application conforms to the definition of a Storage SCP in accordance with the DICOM Standard.

4.3 Network Interface

4.3.1 Supported Communications Stacks

Modality DICOM AEs provide DICOM 3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.3.2 TCP/IP Stack

Modality DICOM AEs inherit their TCP/IP stack from the Linux Operating System upon which they execute.

4.3.3 Physical Network Interface

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

Table 81

Supported Physical Network Interfaces

Ethernet 100baseT
Ethernet 10baseT

4.3.4 Additional Protocols

Modality does not support additional protocols.

4.4 Configuration

The Configuration Utility allows the service engineer to set and maintain configuration parameters of local and remote DICOM application entities.

4.4.1 AE Title/Presentation Address Mapping

This mapping (including IP and port numbers) is defined during the system Network Configuration procedure.

4.4.2 Configurable Parameters

Localhost DICOM Service Property(Including SCU and SCP):

- AE Title
- Port
- TLS Port
- PDU

Server Setting:

- Device
- IP address

Storage:

- Device, Service name, AE Title and Port.
- Timeout.
- TLS(Enable or not)
- Maximum retries. (default value is 3)
- Interval Time (In this version, this parameter is not usable.)

- Compression Mode, Compression Ratio.
- Color Mode (Color, Mixed, or Gray).
- Window Width，Window Center
- Allow Multiframe(Enable or not)
- Total Recall/Raw Data(Enable or not)
- SR Storage Option(“Attach SR When Store Images”, “Only Store SR”, and “Not Store SR")
- Encapsulated PDF(Enable or not)
- Storage Mode(Parallel file or Parallel frame)
- Transducer Tracking(Enable or not)
- Key Image Note/Object Selection Document(Enable or not)
- Rules
- Remove attributes

Print:

- Device, Service name, AE Title and Port .
- Timeout.
- TLS(Enable or not)
- Maximum retries. (default value is 3)
- Interval Time (In this version, this parameter is not usable.)
- Media Type: PAPER, CLEAR FILM, or BLUE FILM
- Film Size:
    - 8INX10IN
    - 8_5INX11IN
    - 10INX12IN
    - 10INX14IN
    - 11INX14IN
    - 11INX17IN
    - 14INX14IN
    - 14INX17IN
    - 24CMX24CM
    - 24CMX30CM
    - A4
    - A3
- Copies:1-100
- Max Density: 0-65535
- Min Density:0-65535

- Settings: RGB or MONOCHROME2
- Display Format:
  - ✧ PORTRAIT:
    - STANDARD\1,1
    - STANDARD\1,2
    - STANDARD\1,3
    - STANDARD\2,1
    - STANDARD\2,2
    - STANDARD\2,3
    - STANDARD\2,4
    - STANDARD\3,3
    - STANDARD\3,4
    - STANDARD\3,5
    - STANDARD\3,6
    - STANDARD\4,4
    - STANDARD\4,5
    - STANDARD\4,6
    - STANDARD\4,7
    - STANDARD\4,8
    - STANDARD\5,5
    - STANDARD\5,6
    - STANDARD\5,7
    - STANDARD\5,8
    - STANDARD\6,6
    - STANDARD\6,7
    - STANDARD\6,8
    - STANDARD\6,9
    - STANDARD\6,10
    - STANDARD\7,7
    - STANDARD\7,8
    - STANDARD\7,9
    - STANDARD\7,10
    - STANDARD\8,8
    - STANDARD\8,9
    - STANDARD\8,10
  - ✧ LANDSCAPE:
    - STANDARD\1,1

STANDARD\1,1
STANDARD\2,1
STANDARD\3,1
STANDARD\1,2
STANDARD\2,2
STANDARD\3,2
STANDARD\4,2
STANDARD\3,3
STANDARD\4,3
STANDARD\5,3
STANDARD\6,3
STANDARD\4,4
STANDARD\5,4
STANDARD\6,4
STANDARD\7,4
STANDARD\8,4
STANDARD\5,5
STANDARD\6,5
STANDARD\7,5
STANDARD\8, 5
STANDARD\6,6
STANDARD\7,6
STANDARD\8,6
STANDARD\9,6
STANDARD\10,6
STANDARD\7,7
STANDARD\8,7
STANDARD\9,7
STANDARD\10,7
STANDARD\8,8
STANDARD\9,8
STANDARD\10,8

- Destination: MAGAZINE or PROCESSOR
- Film Orientation: LANDSCAPE or PORTRAIT
- Priority: HIGH, MED, or LOW
- Configuration Info
- Magnification Type: NONE, CUBIC, REPLICATE, or BILINEAR

- Trim: Yes/No

WORKLIST:

- Device, Service name, AE Title and Port .
- Timeout.
- TLS(Enable or not)
- Maximum Retries, Interval Time (In this version, these two parameters are not usable.)
- Scheduled Start Data, Date Type, Scheduled Modality, And Scheduled Station AE Title.
- Automatic Query Type, Query on Display.
- Maximum Entries Cached, Clear Cache.
- Default Status (Y/N)

MPPS:

- Device, Service name, AE Title and Port.
- Timeout,
- TLS(Enable or not)
- Maximum retries (default value is 3)
- Interval Time (In this version, this parameter is not usable.)
- Default Status (Y/N)

Storage Commitment:

- Device, Service name, AE Title and Port.
- Timeout.
- TLS(Enable or not)
- Maximum retries, Interval Time (In this version, these two parameters are not usable.)
- Associated Storage Service
- Default Status (Not available)

Query/Retrieve

- Device, Service name, AE Title and Port.
- Timeout.
- TLS(Enable or not)
- Maximum retries, Interval Time (In this version, these two parameters are not usable.)
- Default Status (Y/N)

5 Media Storage

5.1 Implementation Model

5.1.1 Application Data Flow

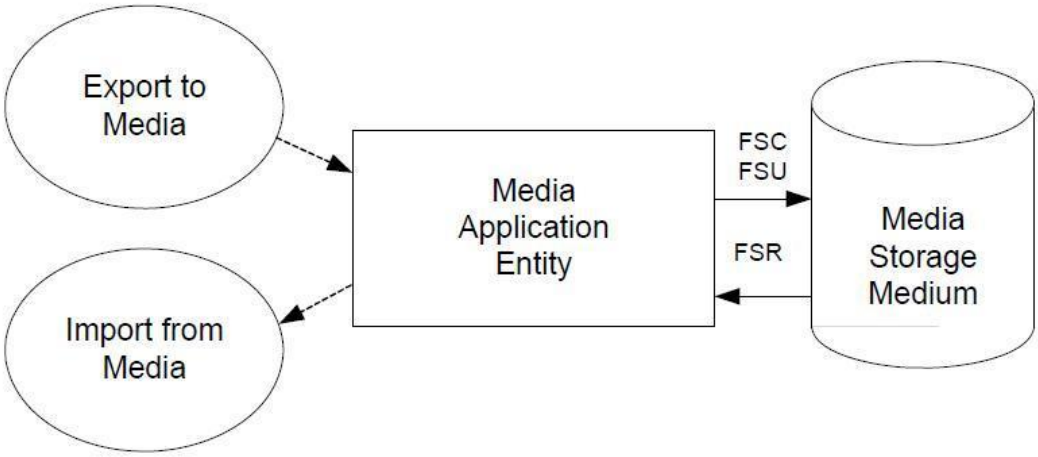

Figure 9

Application Data Flow Diagram for Media Storage

— The Media Application Entity exports Images and Structured Reports to a removable storage medium. It is associated with the local real-world activity “Send Exam” using the configured export selection parameters for selected patients’ data (images and / or Structured Reports).

5.1.2 Functional Definition of AE’s

5.1.2.1 Functional Definition of Media Application Entity

Using “Export” will pass the currently selected patients’ exams or individually selected images to the Media Application Entity. The contents of each export job will be written to the selected media destination. The size of the selected media is used to determine and display the number of media required for the export. When a device is filled to capacity, the system will prompt the user for addition media and continue.

5.1.3 Sequencing of Real-World Activities

At least one image must exist and be selected before the Media Application Entity can be

invoked. The operator can insert new media at any time. The Media Application Entity will wait indefinitely for media to be inserted before starting to write to the device.

5.1.4 File Meta Information Options

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

Table 82
DICOM Implementation Class and Version for Media Storage

Implementation Class UID	1.2.156.112536.1.2133.0.1.0.1
Implementation Version Name	ZONARE_V1.0

5.2 AE Specifications

5.2.1 Media Application Entity Specification

The Media Application Entity provides standard conformance to the Media Storage Service Class. The Application Profiles and roles are listed below: The available physical media is USB devices.

Table 83
Application Profiles, Activities and Roles

Application Profiles Supported	Real World Activity	Role
STD-GEN-USB-JPEG	Send Exam	FSC/FSU[1]
	Read Exam	FSR
	Import Exam	FSR

Note: 1 functionality requires USB

5.2.1.1 File Meta Information for the Application Entity

The File Meta Header does not include the Source Application Entity Title.

5.2.1.2 Real-World Activities

5.2.1.2.1 Activity-FSC-Export exams

When user exports exams, images, SR, key object selection documents or Encapsulated PDF to a medium on which no DICOM data resides, system creates a DICOM file set and writes this DICOM File Set to this medium.

The Media Application Entity acts as an FSC using the interchange option when requested to export SOP Instances from the local database to media on which no DICOM data resides.

5.2.1.2.2 Activity-FSR-Import exams

When user presents the directory of the media, presses “Import Exam” button and the selected exams are transferred from the media to the system for review. Objects transferred to the system retain their original SOP Instance UIDs.

The Media Application Entity acts as an FSR using the interchange option when requested to import SOP Instances from media to the local database.

5.2.1.2.3 Activity-FSU-Export exams

The user selects exams from the system’s directory for transfer to media that already contains data. The DICOMDIR is updated allowing access to original and new data.

The Media Application Entity acts as an FSU using the interchange option when requested to export SOP Instances from the local database to media upon which DICOM data already resides.

5.2.1.2.3.1 Media Storage Application Profiles

See Table 83 for supported Application Profiles.

5.2.1.2.3.1.1 Options

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

Table 84
IODs, SOP Classes and Transfer Syntaxes

Information Object Definition	SOP Class UID	Transfer Syntax	Transfer Syntax UID
DICOM Media Storage Directory	1.2.840.10008.1.3.10	Explicit VR Little Endian	1.2.840.10008.1.2.1
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70

		RLE Lossless	1.2.840.10008.1.2.5
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70
		RLE Lossless	1.2.840.10008.1.2.5
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian	1.2.840.10008.1.2.1
		JPEG Lossy, Baseline Sequential with Huffman Coding (Process 1)	1.2.840.10008.1.2.4.50
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70
		RLE Lossless	1.2.840.10008.1.2.5
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Explicit VR Little Endian	1.2.840.10008.1.2.1
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Explicit VR Little Endian	1.2.840.10008.1.2.1

5.3 Media Storage Application Profile

See Table 83 for supported Application Profiles.

5.3.1 DICOMDIR Attributes

The DICOMDIR file will contain the following attributes.

Table 85

Common Directory Information Module Attributes

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0004,1130)	CS	2	File-set ID	AUTO
(0004,1200)	UL	1	Offset of the First Directory Record of the Root Directory Entity	AUTO
(0004,1202)	UL	1	Offset of the Last Directory Record of the Root Directory Entity	AUTO
(0004,1212)	US	1	File-set Consistency Flag	0x0000
(0004,1220)	SQ	2	Directory Record Sequence	
>(0004,1400)	UL	1	Offset of the Next Directory Record	AUTO
>(0004,1410)	US	1	Record In-use Flag	0xFFFF
>(0004,1420)	UL	1	Offset of Referenced Lower-Level Directory Entity	AUTO
>(0004,1142)	CS	2	Specific Character Set of File-set Descriptor File	ISO_IR 100

Table 86

Patient Directory Record

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0004,1430)	CS	1	Directory Record Type	PATIENT
(0010,0020)	LO	1	Patient ID	MWL/USER
(0010,0010)	PN	2	Patient's Name	MWL/USER
(0010,0030)	DA	3	Patient's Birth Date	MWL/USER
(0010,0040)	CS	3	Patient's Sex	MWL/USER
(0010,1000)	LO	3	Other Patient IDs	MWL/USER

Table 87

Study Directory Record

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0004,1430)	CS	1	Directory Record Type	STUDY
(0008,0020)	DA	1	Study Date	AUTO
(0008,0030)	TM	1	Study Time	AUTO
(0020,0010)	SH	2	Study ID	AUTO
(0020,000D)	UI	1C	Study Instance UID	AUTO
(0008,0050)	SH	2	Accession Number	MWL/USER
(0008,1030)	LO	2	Study Description	If it is a scheduled exam, the value is mapped from Scheduled Procedure Step Description; If not, USER
(0008,0090)	PN		Referring Physician's Name	MWL/USER

Table 88

Series Directory Record

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0004,1430)	CS	1	Directory Record Type	SERIES
(0008,0060)	CS	1	Modality	US
(0020,000E)	UI	1	Series Instance UID	AUTO
(0020,0011)	IS	1	Series Number	AUTO
(0008,0021)	DA	3	Series Date	AUTO
(0008,0031)	TM	3	Series Time	AUTO
(0008,103e)	LO		Series Description	If it is a scheduled exam, the value is mapped from Scheduled Procedure Step Description; If not, same as the value of Study Description
(0008,1050)	PN		Performing Physician's Name	MWL/USER

Table 89

Image Directory Record

ATTRIBUTE	VR	TYPE	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0004,1430)	CS	1	Directory Record Type	IMAGE
(0004,1500)	CS	1C	Referenced File ID	AUTO
(0004,1510)	UI	1C	Referenced SOP Class UID in File	AUTO
(0004,1511)	UI	1C	Referenced SOP Instance UID in File	AUTO
(0004,1512)	UI	1C	Referenced Transfer Syntax UID in File	AUTO
(0020,0013)	IS	1	Instance Number	AUTO
(0028,0008)	IS	3	Number of Frames	AUTO(Only used for mutil-frame image)

5.4 Augmented and Private Application Profiles

No augmented/private profile is supported.

5.5 Media Configuration

None.

6 SUPPORT OF CHARACTER SETS

In addition to the default character repertoire, the Defined Terms for Specific Character Set in Table 90 are supported:

Table 90
Supported Specific Character Set Defined Terms

Character Set Description	Defined Term	System Language
ISO 8859-1	ISO_IR 100	English, French, German, Italian, Portuguese, Spanish, Finnish, Danish, Norwegian, Swedish
ISO 8859-5	ISO_IR 144	Russian
ISO 8859-2	ISO_IR 101	Polish, Czech
Chinese	GB18030	Chinese

If the system language is configured for one of above languages, the corresponding Character Set will be used automatically. Whether or not characters are displayed correctly depends on the operating system. For example, if the system is configured for Polish, the characters of Polish could display correctly.

7 SECURITY

7.1 Security Profiles

ZS3/ZS3 Exp/ZS3 Vet/ ZS3 Pro/z.one pro/z.one pro Vet/ZS2/ZS2 Exp/ZS2t/ViewMate supports secure DICOM communication in conformance with the Basic TLS Secure Transport Connection Profile and the AES TLS Secure Transport Connection Profile.At default configuration,the TLS option is deactivated.

Basic TLS Secure Transport Connection Profile and the AES TLS Secure Transport Connection Profile are supported using Transport Layer Security Version 1.2 protocol with the following features:

Supported TLS Feature	**Mechanism**
Entity Authentication	RS A based certificates
Exchange of Master Secrets	RSA
Data Integrity	SHA
Privacy (Cyphersuite Options)	TLS_RSA_WITH_AES_128_CBC_SHA TLS_RSA_WITH_3DES_EDE_CBC_SHA

7.2 Association level security

None supported.

Any Calling AE Titles and/or IP addresses may open an Association.

7.3 Application level security

None supported.

8 ANNEXES

8.1 IOD contents

8.1.1 Created SOP Instances

None.

8.1.2 Usage of attributes from received IOD's

No SOP Class specific fields are required.

The local database makes use of the conventional identification attributes to distinguish patients, studies, series and instances. In particular, if two patients have the same value for Patient ID, Patient's Name and Patient's Sex, they will be treated as the same in the browser and the local database.

8.1.3 Attribute Mapping

Not applicable.

8.1.4 Coerced/Modified fields

No coercion is performed.

8.2 Data Dictionary of private attributes

Table 91

Image Directory Record

ATTRIBUTE	VR	VM	ATTRIBUTE NAME	VALUE(S) AND COMMENTS
(0063,00xx)	LO	1	Private Creator Data Elements	Zonare Contrast Quantification
(0063,xx01)	LO	1	Private Creator Data Version	"1.1"
(0063,xx30)	DS	1	Log-compression dynamic range	Unit: dB

(0063,xx31)	DS	1	Total Gain	Overall contrast gain Unit: dB
(0063,xx32)	DS	256	Anti-log law vector	Inverse log-compression law for data linearization
(0063,xx34)	DS	8	TGC contrast gain vector	Unit: dB
(0063,xx35)	LO	1	Palette name	Palette ID
(0063,xx36)	IS	256	Contrast Red Palette Data	Contrast palette Red values
(0063,xx37)	IS	256	Contrast Green Palette Data	Contrast palette Green values
(0063,xx38)	IS	256	Contrast Blue Palette Data	Contrast palette Blue values
(0063,xx40)	LO	1	Transducer name	
(0063,xx41)	DS	1	Transducer frequency	Unit: MHz
(0063,xx50)	IS	1-n	Vector of destructionframe numbers	
(0063,xx51)	IS	1	Number of destruction frames (n)	Length of destruction-frame vector
(0063,xx52)	CS	1	Nonlinear Contrast Mode	Operating Mode (i.e. Imaging mode name)
(0063,xx53)	LO	1	Allow Quantification	Set to “False” if gain, TGC or dynamic range is changed during the course of the acquisition or “True” otherwise

8.3 Coded terminology and templates

The value for Code Meaning will be displayed for all code sequences. No local lexicon is provided to look up alternative code meanings.

8.4 Grayscale Image Consistency

Modality does not support the Grayscale Standard Display Function.

8.5 Standard extended/specialized/private sop Classes

None.

8.6 Private Transfer Syntaxes

None.

A. Appendix : OB – GYN structured reporting template

This appendix lists the DICOM Structured Report (SR) mappings used in the Obstetric and Gynecologic Structured Reports of ultrasound system SR files.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16 of the DICOM Standard. The OB-GYN Report mappings follow the DICOM SR Template TID 5000: OB-GYN Ultrasound Procedure Report, except where noted.

All private code values use the Coding Scheme Designator "MRUS".

A.1. TID (300) Measurement

This Template provides a general structure for a numeric measurement, together with evaluations of its normality and/or significance, and the inference source(s) for its value.

NO	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			NUM	$Measurement	√		Units = $Units
2	>	HAS CONCEPT MOD	CODE	EV (G-C036, SRT, "Measurement Method")	√		$Method
3	>	HAS CONCEPT MOD	CODE	EV (121401, DCM, "Derivation")	√		$Derivation
4	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	√		$TargetSite
5	>>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, "Laterality")	√		DCID (244) Laterality
6	>	HAS PROPERTIES	CODE	EV (121404, DCM, "Selection Status")	√		
7	>	INFERRED FROM	CODE	DCID (228) Equation or Table	√		
8	>>	HAS PROPERTIES	NUM		√		

A.2. TID 1008 Subject Context, Fetus

NO	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			PNAME	EV (121036,DCM, "Mother of fetus")			
2			UIDREF	EV (121028,DCM, "Subject UID")			
3			TEXT	EV (121030,DCM, "Subject ID")			
4			TEXT	EV (11951-1,LN, "Fetus ID")	√		
5			NUM	EV (11878-6,LN, "Number of Fetuses")	√		

A.3. TID (5000) OB-GYN Ultrasound Procedure Report

This is the template for the root of the content tree for the OB-GYN ultrasound procedure report.

NO	**NL**	**Relation with Parent**	**Value Type**	**Concept Name**	**Used in MODALITY**	**Condition**	**Value Set Constraint**
1			CONTAINER	EV (125000, DCM, "OB-GYN Ultrasound Procedure Report")	√		
2	>	HAS CONCEPT MOD	INCLUDE	DTID (1204) Language of Content Item and Descendants			
3	>	HAS OBS CONTEXT	INCLUDE	DTID (1001) Observation Context	√		
4	>	CONTAINS	INCLUDE	DTID (5001) Patient Characteristics	√		
5	>	CONTAINS	CONTAINER	DT (111028, DCM, "Image Library")	√		

6	>>	CONTAINS	IMAGE	No purpose of reference	√		
7	>	CONTAINS	INCLUDE	DTID (5002) OB-GYN Procedure Summary Section	√		
8	>	CONTAINS	INCLUDE	DTID (5004) Fetal Biometry Ratio Section	√		
9	>	CONTAINS	INCLUDE	DTID (5005) Fetal Biometry Section	√		
10	>	CONTAINS	INCLUDE	DTID (5006) Long Bones Section	√		
11	>	CONTAINS	INCLUDE	DTID (5007) Fetal Cranium Section	√		
12	>	CONTAINS	INCLUDE	DTID (5009) Fetal Biophysical Profile Section	√		
13	>	CONTAINS	INCLUDE	DTID (5011) Early Gestation Section	√		
14	>	CONTAINS	INCLUDE	DTID (5010) Amniotic Sac Section	√		
15	>	CONTAINS	INCLUDE	DTID (5015) Pelvis and Uterus Section	√		
16	>	CONTAINS	INCLUDE	DTID (5012) Ovaries Section	√		
17	>	CONTAINS	INCLUDE	DTID (5013) Follicles Section	√		$Laterality = EV (G-A101, SRT, “Left”) $Number = EV (11879-4, LN, “Number of follicles in left ovary”)
18	>	CONTAINS	INCLUDE	DTID (5013) Follicles Section	√		$Laterality = EV (G-A100, SRT, “Right”) $Number = EV (11880-2, LN, “Number of follicles in right ovary”)

19	>	CONTAINS	INCLUDE	DTID (5013_1) Follicles Section	√		$Laterality = EV (G-A101, SRT, “Left”) $Number = EV (11879-4, LN, “Number of smart follicles in left ovary”)
20	>	CONTAINS	INCLUDE	DTID (5013_1) Follicles Section	√		$Laterality = EV (G-A101, SRT, “Right”) $Number = EV (11879-4, LN, “Number of smart follicles in right ovary”)
21	>	CONTAINS	CONTAINER	EV (121070, DCM, “Findings”)	√		
22	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	√		EV (T-F6800, SRT, “Embryonic Vascular Structure”)
23	>>	CONTAINS	INCLUDE	DTID (5025) OB-GYN Fetal Vascular Measurement Group	√		$AnatomyGroup = DCID (12141) Fetal Vasculature
24	>	CONTAINS	CONTAINER	EV (121070, DCM, “Findings”)	√		
25	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	√		EV (T-D6007, SRT, “Pelvic Vascular Structure”)
26	>>	CONTAINS	INCLUDE	DTID (5026) OB-GYN Pelvic Vascular Measurement Group	√		$AnatomyGroup = DCID (12140) Pelvic Vasculature Anatomical Location
27	>	CONTAINS	INCLUDE	DTID (SELFTMP-1)	√		
28	>	CONTAINS	TEXT	(20121120,MRUS, “self-defined-Measurementfile”)	√		

A.4. TID (SELFTMP-1) Fetal Cardiac Measurement Group

This is a private template referenced by TID (5000).

NO	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	EV(T0001,MRUS,Fetel Cardiac)	√		
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus	√		
3	>	CONTAINS	INCLUDE	DTID (SELFTMP-2) Fetal ZSCORE	√		$MeasType = DCID (SELFCID-1) Fetal Z-Score $Derivation = DCID (3627) Measurement Type

A.5. TID (SELFTMP-2) Fetal ZScore

This is a private template referenced by TID (5000).

NO	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1		CONTAINS	INCLUDE	DTID (300) Measurement	√		
2		CONTAINS	NUM	EV (C12017-1, MRUS, “Z-Score by Femur Length”)	√		calculated by $MeasType and Femur Length
3		CONTAINS	NUM	EV (C12017-2, MRUS, “Z-Score by Biparietal Diameter”)	√		calculated by $MeasType and Biparietal Diameter
4		CONTAINS	NUM	EV (C12017-3, MRUS, “Z-Score by Clinical Gestational Age”)	√		calculated by $MeasType and Clinical Gestational Age

A.6. TID (1001) OBSERVATION CONTEXT

This template specifies attributes of observation context that may be defined, extended or replaced at any location in the SR tree.

NO	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1	>	HAS OBS CONTEXT	CODE	EV (121005,DCM, “Observer Type”)	√		(121006,DCM, “Person”)
2	>	HAS OBS CONTEXT	PNAME	EV (121008,DCM, “Person Observer Name”)	√		Operator from Info
3	>	HAS OBS CONTEXT	TEXT	EV (121009,DCM, “ Person Observer’s Organization Name”)	√		Institution Name (0008,0080) of the General Equipment Module
4	>	HAS OBS CONTEXT	CODE	EV (121010,DCM, “ Person Observer’s Role in the Organization”)	√		(121093, DCM, "Sonographer")
5	>	HAS OBS CONTEXT	CODE	EV (121024, DCM, "Subject Class”)	√		(121025, DCM, "Patient”)
6	>	HAS OBS CONTEXT	PNAME	EV (121029,DCM, "Subject Name”)	√		value of Patient’s Name (0010,0010) in Patient Module
7	>	HAS OBS CONTEXT	DATE	EV (121031,DCM, "Subject Birth Date”)	√		value of Patient’s Birth Date (0010,0030) in Patient Module
8	>	HAS OBS CONTEXT	CODE	EV (121032,DCM, "Subject Sex”)	√		value equivalent to Patient’s Sex (0010,0040) in Patient Module
9	>	HAS OBS CONTEXT	NUM	EV (121033,DCM, "Subject Age”)	√		value of Patient’s Age (0010,1010) in Patient Study Module

A.7. TID (5001) OB-GYN Patient Characteristics

NO	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	EV (121118, DCM, “Patient Characteristics”)	√		

2	>	CONTAINS	TEXT	EV (121106, DCM, “Comment”)			
3	>	CONTAINS	NUM	EV (8302-2, LN, “Patient Height”)			
4	>	CONTAINS	NUM	EV (29463-7, LN, “Patient Weight”)			
5	>	CONTAINS	NUM	EV (11996-6, LN, “Gravida”)	√		from info
6	>	CONTAINS	NUM	EV (11977-6, LN, “Para”)	√		from info
7	>	CONTAINS	NUM	EV (11612-9, LN, “Aborta”)	√		from info
8	>	CONTAINS	NUM	EV (33065-4, LN, “Ectopic Pregnancies”)	√		from info(Ectopic)

A.8. TID (5002) OB-GYN Procedure Summary

NO	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (121111, DCM, “Summary”)	√		
2	>	CONTAINS	DATE	（11778-8, LN, "EDD"）	√		from info
3	>	CONTAINS	DATE	(11779-6, LN, "EDD from LMP")	√		from info
4	>	CONTAINS	DATE	(11781-2, LN, "EDD from average ultrasound age")	√		
5	>	CONTAINS	DATE	（11780-4, LN, "EDD from ovulation date"）	√		from info
6	>	CONTAINS	DATE	(11955-2, LN, "LMP"）	√		from info
7	>	CONTAINS	DATE	（ 33066-2, LN, "Estimated LMP by EDD"）	√		from info
8	>	CONTAINS	DATE	（ 11976-8, LN, "Ovulation date"）	√		from info
9	>	CONTAINS	DATE	(I12003-01, MRUS, "IVF")	√		from info
10	>	CONTAINS	DATE	(C12003-01, MRUS, "EDD from IVF")	√		from info

11	>	CONTAINS	DATE	(I12003-02, MRUS, "PRV")	√		from info
12	>	CONTAINS	DATE	(C12003-02, MRUS, "EDD from PRV")	√		from info
13	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11886-9, LN, "Gestational Age by ovulation date")
14	>	CONTAINS	TEXT	EV (121106, DCM, “Comment”)	√		from info
15	>	CONTAINS	TEXT	(I12101-01, MRUS, "Primary Indications")	√		from info
16	>	CONTAINS	TEXT	(I12101-02, MRUS, "Secondary Indications")	√		from info
17	>	CONTAINS	TEXT	(I12101-03, MRUS, "CPT4 Code")	√		from info
18	>	CONTAINS	TEXT	(I12101-04, MRUS, "CPT4 Description")	√		from info
19	>	CONTAINS	TEXT	(I12101-06,MRUS, "follicle-stimulating hormone")	√		
20	>	CONTAINS	TEXT	(I12101-07,MRUS, "luteinizing hormone")	√		
21	>	CONTAINS	TEXT	(I12101-08,MRUS, "estradiol")	√		
22	>	CONTAINS	TEXT	(I12101-09,MRUS, "Serum prolactin")	√		
23	>	CONTAINS	TEXT	(I12101-10,MRUS, "progesterone")	√		
24	>	CONTAINS	TEXT	(I12101-11,MRUS, "testosterone")	√		
25	>	CONTAINS	TEXT	(I12101-12,MRUS, "progesterone")	√		
26	>	CONTAINS	TEXT	(I12101-14,MRUS, "human menopausal gonadotropin")	√		
27	>	CONTAINS	TEXT	(I12101-13,MRUS, "clomiphene citrate")	√		
28	>	CONTAINS	TEXT	(I12101-15,MRUS, "Others drug")	√		

29	>	CONTAINS	NUM	(8302-2, LN, "Patient Height")	√		from info
30	>	CONTAINS	NUM	(29463-7, LN, "Patient Weight")	√		from info
31	>	CONTAINS	TEXT	EV (121106, DCM, “Comment”)	√		report interface Comments
32	>	CONTAINS	TEXT	(I12101-05, MRUS, "Prompt")	√		report interface Prompt
33	>	CONTAINS	TEXT	(121071, DCM, "Findings")	√		report interface Findings
34	>>		INCLUDE	DTID (320) Image or Spatial Coordinates			
35	>	CONTAINS	INCLUDE	FINDING_7	√		
36	>	CONTAINS	INCLUDE	BTID (5003) OB-GYN Fetus Summary	√		

A.9. TID (5003) OB-GYN Fetus Summary

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (125008, DCM, “Fetus Summary”)	√		
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1,LN,"Fetus ID”)	√		
3	>	HAS OBS CONTEXT	NUM	EV (11878-6,LN, "Number of Fetuses”)	√		
4	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (18185-9, LN, "Gestational Age")
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11888-5, LN, " Composite Ultrasound Age")
6	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11885-1, LN, "Gestational Age by LMP”)

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
7	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11727-5, LN, "Estimated Weight")
8	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11767-1, LN, "EFW percentile rank")
9	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11948-7, LN, " Fetal Heart Rate")
10	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (C12019-01, MRUS, "Gestational Age by IVF")
11	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (I12019-01, MRUS, "GA of Previous Exam")
12	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (C12019-02, MRUS, "Gestational Age by PRV")
13	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (C12019-03, MRUS, "Gestational Age by EDD")
14	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (C12019-4, MRUS, "Gestational Age by EFW")
15	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (C12019-4, MRUS, "Gestational Age by mean Gestational Sac Diameter")
16	>	CONTAINS	INCLUDE	FINDING_1	√		
17	>	CONTAINS	INCLUDE	FINDING_2	√		
18	>	CONTAINS	INCLUDE	FINDING_3	√		
19	>	CONTAINS	INCLUDE	FINDING_4	√		

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
20	>	CONTAINS	INCLUDE	FINDING_5	√		
21	>	CONTAINS	INCLUDE	FINDING_6	√		

A.10. TID (FINDING_1) Fetal Description

This is a private template referenced by TID (5003).

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1		CONTAINS	CONTAINER	(FG12019-01,MRUS,"Fetal Description")	√		
2	>	CONTAINS	TEXT	(FG12018-02,MRUS,"Fetal Lie")	√		
3	>	CONTAINS	TEXT	(FG7455-01,MRUS,"Gender")	√		
4	>	CONTAINS	TEXT	(FG7160-01,MRUS,"3 Vessel Cord")	√		
5	>	CONTAINS	TEXT	(T-D1200,SNM3,"Face")	√		
6	>	CONTAINS	TEXT	(FG4-01,MRUS,"Nose Lips")	√		
7	>	CONTAINS	TEXT	(FG12011-01,MRUS,"Cord insertion")	√		
8	>	CONTAINS	TEXT	(T-57000,SNM3,"Stomach")	√		
9	>	CONTAINS	CONTAINER	(T-71000,SRT,"Kidney")	√		
10	>>	CONTAINS	TEXT	(G-A100,SNM3,"Left")	√		
11	>>	CONTAINS	TEXT	(G-A101,SNM3,"Right")	√		
12	>	CONTAINS	TEXT	(T-74000,SRT,"Bladder")	√		
13	>	CONTAINS	TEXT	(T-63000,SRT,”Gall bladder“)	√		
14	>	CONTAINS	TEXT	(T-62000,SRT,"Liver")	√		

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
15	>	CONTAINS	TEXT	(T-D3400,SRT," Diaphragm ")			
16	>	CONTAINS	TEXT	(FG4031-02,MRUS,"Fetal Bowel")	√		

A.11. TID (FINDING_2) Fetus Limbs

This is a private template referenced by TID (5003).

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1		CONTAINS	CONTAINER	(FG4031-03,MRUS,"Fetus Limbs")	√		
2	>	CONTAINS	TEXT	(FG4031-04,MRUS,"Upper Extremities")	√		
3	>	CONTAINS	TEXT	(FG4031-05,MRUS,"Lower Extremities")	√		

A.12. TID (FINDING_3) Fetal Cardiology

This is a private template referenced by TID (5003).

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1		CONTAINS	CONTAINER	(FG4031-06,MRUS,"Fetal Cardiology")	√		
2	>	CONTAINS	TEXT	(FG12239-01,MRUS,"Cardiac Activity")	√		
3	>	CONTAINS	TEXT	(FG4031-07,MRUS,"4C HEART")	√		
4	>	CONTAINS	TEXT	(T-42000,SNM3,"Aorta")	√		
5	>	CONTAINS	TEXT	(T-44000,SNM3,Pulmonary Artery)	√		
6	>	CONTAINS	TEXT	(FG3010-02,MRUS,Ascending Aorta)	√		

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
7	>	CONTAINS	TEXT	(FG3010-01,MRUS,"ARCH")	√		
8	>	CONTAINS	TEXT	(FG3010-03,MRUS," Decrease ARCH ")	√		
9	>	CONTAINS	TEXT	(T-32650,SRT,Left Ventricular Outflow Tract)	√		
10	>	CONTAINS	TEXT	(T-32550,SRT,Right Ventricle Outflow Tract)	√		

A.13. TID (FINDING_4) Fetal Brain

This is a private template referenced by TID (5003).

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1		CONTAINS	CONTAINER	(FG4030-01,MRUS,"Fetal Brain")	√		
2	>	CONTAINS	TEXT	(FG4030-02,MRUS,"Lateral Ventricles")	√		
3	>	CONTAINS	TEXT	(11860-4,LN,"Cisterna Magna")	√		
4	>	CONTAINS	TEXT	(T-A600A,SNM3,"Cerebellum")	√		
5	>	CONTAINS	TEXT	(FG4030-03,MRUS,"CSP")	√		

A.14. TID (FINDING_5) Spine

This is a private template referenced by TID (5003).

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1		CONTAINS	CONTAINER	(T-11500,SRT,"Spine")	√		
2	>	CONTAINS	TEXT	(T-11501,SNM3,"Cervical Spine")	√		

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
3	>	CONTAINS	TEXT	(T-11502,SNM3,"Thoracic Spine")	√		
4	>	CONTAINS	TEXT	(T-11503,SNM3,"Lumbar Spine")	√		
5	>	CONTAINS	TEXT	(FG4031-08,MRUS,"Sacral Spine")	√		

A.15. TID (FINDING_6) Fetal Environment

This is a private template referenced by TID (5003).

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1		CONTAINS	CONTAINER	(FG12019-03,MRUS,"Fetal Environment")	√		
2	>	CONTAINS	TEXT	(FG12011-01,MRUS,"Placental Location")	√		
3	>	CONTAINS	TEXT	(FG12011-02,MRUS,"Amniotic Fluid")	√		
4	>	CONTAINS	TEXT	(FG12011-03,MRUS,"Placental Grade")	√		

A.16. TID (FINDING_7) Maternal Description

This is a private template referenced by TID (5003).

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1		CONTAINS	CONTAINER	(FG6088-01,MRUS,"Maternal Description")	√		
2	>	CONTAINS	CONTAINER	(FG12011-03,MRUS,"Adnexa")	√		
3	>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
4	>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
5	>	CONTAINS	CONTAINER	(T-87000,SRT,"Ovary")	√		
6	>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
7	>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
8	>	CONTAINS	CONTAINER	(T-71000,SRT,Kidney)	√		
9	>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
10	>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
11	>	CONTAINS	TEXT	(FG4031-01,MRUS,"LUS")	√		
12	>	CONTAINS	TEXT	(T-83200,SRT,Cervix)	√		

A.17. TID (5004)Fetal Biometry Ratio Section

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (125001, DCM, “Fetal Biometry Ratios”)	√		
2	>	HAS OBS CONTEXT	INCLUDE	EV (11951-1, LN, "Fetus ID”)	√		
3	>	HAS OBS CONTEXT	NUM	EV (11878-6,LN, "Number of Fetuses”)	√		
4	>	CONTAINS	NUM	（ 11947-9, LN, "HC/AC"）	√		
5	>	CONTAINS	NUM	（ 11871-1, LN, "FL/AC"）	√		
6	>	CONTAINS	NUM	（ 11872-9, LN, "FL/BPD"）	√		
7	>	CONTAINS	NUM	(11823-2, LN, "Cephalic Index")	√		
8	>	CONTAINS	NUM	(11873-7, LN, "FL/HC")	√		
9	>	CONTAINS	NUM	（C12004-05,MRUS,CIHC)	√		

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
10	>	CONTAINS	NUM	（ C12004-06,MRUS,AC(c))	√		
11	>	CONTAINS	NUM	（C12004-07,MRUS,Cereb/AC)	√		
12	>	CONTAINS	NUM	（C12004-08,MRUS，Heart/Thor)	√		
13	>	CONTAINS	NUM	（ C12004-09,MRUS,LAD/RAD 2D)	√		
14	>	CONTAINS	NUM	（ C12004-10,MRUS,LAD/RAD M)	√		
15	>	CONTAINS	NUM	（ C12004-11,MRUS,Mean Abdomen Diam)	√		
16	>	CONTAINS	NUM	（C12004-12,MRUS,APTDxTTD)	√		

A.18. TID (5005) Fetal Biometry Section

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (125002, DCM, ”Fetal Biometry”)	√		
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1,LN, "Fetus ID”)	√		
3	>	HAS OBS CONTEXT	NUM	EV (11878-6,LN, "Number of Fetuses”)	√		
4	>	CONTAINS	INCLUDE	DTID (5008) Fetal Biometry Group	√		$BiometryType = MemberOf {DCID (12005) Fetal Biometry Measurements}

A.19. TID (5006) Fetal Long Bones Section

	NL	Rel with	VT	Concept Name	Used in	Condition	Value Set

		Parent			MODALITY		Constraint
1			CONTAINER	DT (125003, DCM, ”Fetal Long Bones”)	√		
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1,LN, "Fetus ID”)	√		
3	>	HAS OBS CONTEXT	NUM	EV (11878-6,LN, "Number of Fetuses”)	√		
4	>	CONTAINS	INCLUDE	DTID (5008) Fetal Biometry Group	√		$BiometryType = MemberOf {DCID (12006) Fetal Long Bones Biometry Measurements}

A.20. TID (5007) Fetal Cranium Section

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (125004, DCM, ”Fetal Cranium”)	√		
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1,LN, "Fetus ID”)	√		
3	>	HAS OBS CONTEXT	NUM	EV (11878-6,LN, "Number of Fetuses”)	√		
4	>	CONTAINS	INCLUDE	DTID (5008) Fetal Biometry Group	√		$BiometryType = MemberOf {DCID (12007) Fetal Cranium}

A.21. TID (5008) Fetal Biometry Group

	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint

1			CONTAINER	DT(125005, DCM, ”Biometry Group”)	√		
2	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = $BiometryType
							$Derivation = DCID (3627) Measurement Type
3	>	CONTAINS	NUM	EV (18185-9, LN, ”Gestational Age”)	√		Units= EV (d,UCUM, days)
4	>>	INFERRED FROM	CODE	DCID (228) Equation or Table	√		DCID (12013) Gestational Age Equations and Tables
5	>>	R-INFERRED FROM	NUM				
6	>>	HAS PROPERTIES	NUM	DCID (226) Population Statistical Descriptors			
7	>	CONTAINS	NUM	(DCM, 125012, "Growth Percentile Rank")	√		
8	>>	INFERRED FROM	CODE	DCID (228) Equation or Table	√		

A.22. TID (5009) Fetal Biophysical Profile Section

	NL	Relation with Parent	Value Type	Concept Name	Used in Modality	Condition	Value Set Constraint
1			CONTAINER	DT (125006, DCM, ”Biophysical Profile”)	√		
2	>	HAS OBS CONTEXT	INCLUDE	EV (11951-1,LN, "Fetus ID”)	√		
3	>	HAS OBS CONTEXT	NUM	EV (11878-6,LN, "Number of Fetuses”)	√		

4	>	CONTAINS	NUM	EV (11631-9, LN, “Gross Body Movement”)	√		Units = DT (“{0:2}”, UCUM, ”range 0:2”)
5	>>	HAS PROPERTIES	TEXT	(121106, DCM, “Comment”)	√		
6	>	CONTAINS	NUM	EV (11632-7, LN, “Fetal Breathing”)	√		Units = DT (“{0:2}”, UCUM, ”range 0:2”)
7	>>	HAS PROPERTIES	TEXT	(121106, DCM, “Comment”)	√		
8	>	CONTAINS	NUM	EV (11635-0, LN, “Fetal Tone”)	√		Units = DT (“{0:2}”, UCUM, ”range 0:2”)
9	>>	HAS PROPERTIES	TEXT	(121106, DCM, “Comment”)	√		
10	>	CONTAINS	NUM	EV (11635-5, LN, “Fetal Heart Reactivity”)	√		Units = DT (“{0:2}”, UCUM, ”range 0:2”)
11	>>	HAS PROPERTIES	TEXT	(121106, DCM, “Comment”)	√		
12	>	CONTAINS	NUM	EV (11630-1, LN, “Amniotic Fluid Volume”)	√		Units = DT (“{0:2}”, UCUM, ”range 0:2”)
13	>>	HAS PROPERTIES	TEXT	(121106, DCM, “Comment”)	√		
14	>	CONTAINS	NUM	DT (11634-3, LN, “Biophysical Profile Sum Score”)	√		
15	>>	HAS PROPERTIES	TEXT	(121106, DCM, “Comment”)	√		

A.23. TID (5010) Amniotic Sac Section

	NL	**Rel with Parent**	**VT**	**Concept Name**	**Used in MODALITY**	**Condition**	**Value Set Constraint**

1			CONTAINER	DT (121070, DCM, “Findings”)	√		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	√		DT (T-F1300, SRT, ”Amniotic Sac”)
3	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = DT (11627-7, LN, “Amniotic Fluid Index”)
4	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11624-4, LN, “First Quadrant Diameter”),
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11626-9, LN, “Second Quadrant Diameter”)
6	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11625-1, LN, “Third Quadrant Diameter”)
7	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (11623-6, LN, "Fourth Quadrant Diameter”)
8	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (M12008-01,MRUS, "Amniotic Fluid")

A.24. TID (5011) Early Gestation Section

	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (125009, DCM, “Early Gestation”)	√		

2	>	HAS OBS CONTEXT	TEXT	EV (11951-1,LN, "Fetus ID")	√		
3	>	HAS OBS CONTEXT	NUM	EV (11878-6,LN, "Number of Fetuses")	√		
4	>	CONTAINS	INCLUDE	DTID (5008) Fetal Biometry Group	√		$BiometryType= Member of {DCID (12009) Early Gestation Biometry Measurements}

A.25. TID (5012) Ovaries Section

	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	√		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	√		DT (T-87000, SRT, "Ovary")
3	>	CONTAINS	INCLUDE	EV (T-87000, SRT, "Ovary")	√		$Measurement = EV (T-87000, SRT, "Ovary")
4	> >	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (11829-9,LN, "Left Ovary Width")
5	> >	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (11840-6, LN, "Left Ovary Length")

6	> >	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (11857-0 , LN," Left Ovary Height")
7	> >	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (12164-0, LN, "Left Ovary Volume")
8	>	CONTAINS	INCLUDE	EV (T-87000, SRT, "Ovary")	√		$GroupName = EV (T-87000, SRT, "Ovary")
9	> >	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (11830-7, LN, "Right Ovary Width")
10	> >	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (11841-4, LN, "Right Ovary Length")
11	> >	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (11858-8, LN, "Right Ovary Height")
12	> >	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (12165-7, LN, "Right Ovary Volume")

A.26. TID (5013) Follicles Section

	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	√		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	√		DT (T-87600, SRT, "Ovarian Follicle")
3	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, "Laterality")	√		$Laterality
4	>	CONTAINS	NUM	EV (11879-4, LN, "Number of follicles in left	√		

				ovary”) OR EV (11880-2, LN, “Number of follicles in right ovary”) Number of follicles in the ovary.			
5	>	CONTAINS	INCLUDE	DTID (5014) Follicle Measurement Group	√		

A.27. TID (5013_1) Smart Follicles Section

	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, “Findings”)	√		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	√		DT (T-87600_1, SRT, “Ovarian Smart Follicle”)
3	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, “Laterality”)	√		$Laterality
4	>	CONTAINS	NUM	EV (11879-4, LN, “Number of smart follicles in left ovary”) OR EV (11880-2, LN, “Number of smart follicles in right ovary”) Number of smart follicles in the	√		

				ovary.			
5	>	CONTAINS	INCLUDE	DTID (5014) Follicle Measurement Group	√		

A.28. TID (5014) Follicle Measurement Group

	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	EV (125007, DCM, “Measurement Group”)	√		
2	>	HAS OBS CONTEXT	TEXT	EV (12510, DCM, “Identifier”)	√		Unique among all groups of same laterality
3	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (G-D705, SRT, “Volume”)
4	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (M11793-02, MRUS, “Follicle d1”)
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (M11793-01, LN, “Follicle d2”)
6	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (M11794-01, MRUS, “Follicle d3”)
7	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (11793-7, LN, “Follicle MeanDiam”)

A.29. TID (5014_1) Smart Follicle Measurement Group

	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Condition	Value Set Constraint

1			CONTAINER	EV (125007, DCM, “Measurement Group”)	√		
2	>	HAS OBS CONTEXT	TEXT	EV (12510, DCM, “Identifier”)	√		Unique among all groups of same laterality
3	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (G-D705_1, SRT, “Volume”)
4	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (M11793-05, MRUS, “Smart Follicle d1”)
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (M11793-06, LN, “Smart Follicle d2”)
6	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (M11793-07, MRUS, “Smart Follicle d3”)
7	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV (M11793-04, LN, “Smart Follicle MeanDiam”)

A.30. TID (5015) Pelvis And Uterus Section

	NL	**Relation with Parent**	**Value Type**	**Concept Name**	**Used in MODALITY**	**Condition**	**Value Set Constraint**
1			CONTAINER	DT (125011, DCM, “Pelvis and Uterus”)	√		
2	>	CONTAINS	CONTAINER	$GroupName	√		$GroupName = EV (T-83000, SRT, ”Uterus”)
3	>>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = $Width $Width = EV (11865-3,LN,” Uterus Width”)
4	>>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = $Length $Length = EV (11842-2,

							LN,” Uterus Length”)
5	>>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = $Height $Height = EV (11859-6, LN,” Uterus Height”)
6	>>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = $Volume $Volume = EV (33192-6, LN, ”Uterus Volume”)
7	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV(LN,11961-0,Cervix Length)
8	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = EV(LN,12145-9,Endometrium Thickness)
9	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (MRUS,M12011-01,Cervix Height)
10	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (MRUS,M12011-02,Cervix Width)
11	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (MRUS,C12011-03,Uterus Body)
12	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (MRUS,C12011-04,UT_L/CX_L)
13	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$Measurement = (MRUS,M12011-03,Matrix Kindney Length)

A.31. TID (5025) OB-GYN Fetus Vascular Ultrasound Measurement Group

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	$AnatomyGroup	√		
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1,LN, "Fetus ID”)	√		

3	>	HAS OBS CONTEXT	NUM	EV (11878-6,LN, "Number of Fetuses")	√		
4	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT "Laterality")	√		DCID (244) Laterality
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$MeasType = DCID (12119) Vascular Ultrasound Property $Derivation = DCID (3627) Measurement Type

A.32. TID (5026) OB-GYN Pelvic Vascular Ultrasound Measurement Group

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	$AnatomyGroup	√		
2	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, "Laterality")	√		DCID (244) Laterality
3	>	HAS CONCEPT MOD	TEXT	(112050, DCM, "Anatomic Identifier")	√		
4	>	CONTAINS	INCLUDE	DTID (300) Measurement	√		$MeasType = DCID (12119) Vascular Ultrasound Property $Derivation = DCID (3627) Measurement Type

A.33. CID (228) Equation or Table

CSD	CV	Code Meaning
DCM	121420	Equation
DCM	121421	Equation Citation
DCM	121424	Table of Values
DCM	121422	Table of Values Citation

DCM	121423	Method Citation

A.34. CID (244) Laterality

CSD	CV	Code Meaning
SRT	G-A100	Right
SRT	G-A101	Left
SRT	G-A102	Right and left
SRT	G-A103	Unilateral

A.35. CID (3627) Measurement Type

CSD	CV	Code Meaning
SRT	R-002E1	Best value
SRT	R-00317	Mean
SRT	R-00319	Median
SRT	R-0032E	Mode
SRT	R-00355	Point source measurement
SRT	R-00353	Peak to peak
SRT	R-41D27	Visual estimation
SRT	R-10260	Estimated
SRT	R-41D2D	Calculated
SRT	R-41D41	Measured

A.36. CID (12005) Fetal Biometry Measurements

CSD	CV	Code Meaning
LN	11979-2	Abdominal Circumference
LN	11818-2	Anterior-Posterior Abdominal Diameter
LN	11819-0	Anterior-Posterior Trunk Diameter
LN	11820-8	Biparietal Diameter
LN	11963-6	Femur Length
LN	11984-2	Head Circumference
LN	11851-3	Occipital-Frontal Diameter
LN	11988-3	Thoracic Circumference
LN	11862-0	Tranverse Abdominal Diameter
LN	33068-8	Thoracic Area

CSD	CV	Code Meaning
LN	11863-8	Trans Cerebellar Diameter
LN	11864-6	Transverse Thoracic Diameter
MRUS	M12005-01	Thoracic Diameter
MRUS	M12005-02	Heart Circumference
MRUS	M12005-03	Heart Area
MRUS	M12005-04	Facial angle
MRUS	M12005-05	Fetal Kidney length
MRUS	M12011-01	Placental Thickness
MRUS	M12005-06	Nose Bone Length
MRUS	M12005-07	Nose
MRUS	M12005-08	Lips
MRUS	M12005-09	Palate
MRUS	M12005-11	Digits
MRUS	(M12005-12	4 limbs
MRUS	M12005-13	2 hands
MRUS	M12005-14	2 feet

A.37. CID (12006) Fetal Long Bones Measurements

CSD	CV	Code Meaning
LN	11966-9	Humerus length
LN	11967-7	Radius length
LN	11969-3	Ulna length
LN	11968-5	Tibia length
LN	11964-4	Fibula length
LN	11962-8	Clavicle length
LN	11963-6	Femur Length
MRUS	M12006-1	Length of Vertebrae

A.38. CID (12007) Fetal Cranium

CSD	CV	Code Meaning
LN	12171-5	Lateral Ventrical width
LN	11860-4	Cisterna Magna length

CSD	CV	Code Meaning
LN	12146-7	Nuchal Fold thickness
LN	33070-4	Inner Orbital Diameter
LN	11629-3	Outer Orbital Diameter
LN	11863-8	Trans Cerebellar Diameter
LN	33069-6	Nuchal Translucency
LN	12170-7	Width of Hemisphere
MRUS	M12007-01	Ear Length
MRUS	M12007-02	Middle Phalanx Length
MRUS	M12007-03	Orbit
MRUS	M12007-04	OFDHC
MRUS	C12007-01	HCc

A.39. CID (12009) Early Gestation Biometry Measurements

CSD	CV	Code Meaning
LN	11957-8	Crown Rump Length
LN	11850-5	Gestational Sac Diameter
MRUS	M12009-01	Gestational Sac Diameter1
MRUS	M12009-02	Gestational Sac Diameter2
MRUS	M12009-03	Gestational Sac Diameter3
MRUS	M12009-04	Yolk Sac AP
MRUS	M12009-05	Yolk Sac Trans
MRUS	M12009-06	Yolk Sac Long
MRUS	M12009-07	Adrenal AP
MRUS	M12009-08	Adrenal Trans
MRUS	M12009-09	Adrenal Long
MRUS	C12009-02	Adrenal Volume
MRUS	M12009-10	Mat Kidney
MRUS	M12009-11	Angle between Symphisis Pubis and fetal Head
MRUS	M12009-12	Yolk Sac Mean

A.40. CID (12013) Gestational Age Equations and Tables

CSD	CV	Code Meaning
LN	11892-7	AC, Hadlock 1984
LN	11902-4	BPD, Hadlock 1984
LN	11903-2	BPD, Hansmann 1985
LN	11905-7	BPD, Jeanty 1984
LN	11910-7	CRL, Hadlock 1992
LN	11920-6	FL, Hadlock 1984
LN	11921-4	FL, Hansmann 1985
LN	11932-1	HC, Hadlock 1984
LN	11936-2	Humerus, Jeanty 1984
LN	33544-8	OFD, Hansmann 1985
LN	11941-2	Tibia, Jeanty 1984
LN	33133-0	TCD, Goldstein 1987
LN	11944-6	Ulna, Jeanty 1984
MRUS	F12013-01	AC, ASUM 2001
MRUS	F12013-02	AC,Nicolaides 1994
MRUS	F12013-03	BPD, ASUM 2001
MRUS	F12013-04	BPD, Merz 1991
MRUS	F12013-05	BPD, Tokyo 1989
MRUS	F12013-06	BPD-oo, Chitty 1994
MRUS	F12013-07	CRL, ASUM 2001
MRUS	F12013-08	CRL, Tokyo 1989
MRUS	F12013-23	EFW, Tokyo 1989
MRUS	F12013-09	FL, ASUM 2001
MRUS	F12013-10	FL, Chitty 1997
MRUS	F12013-11	FL, Merz 1991
MRUS	F12013-12	FL, Tokyo 1989
MRUS	F12013-13	FL,Warda,1985
MRUS	F12013-14	GS, Tokyo 1986
MRUS	F12013-15	HC, ASUM 2001
MRUS	F12013-16	HC derived, Chitty 1994
MRUS	F12013-17	HC,Nicolaides 1994

CSD	CV	Code Meaning
MRUS	F12013-18	Humerus Length, ASUM 2001
MRUS	F12013-19	OFD, ASUM 2001
MRUS	F12013-20	OFD,Nicolaides 1994
MRUS	F12013-21	OOD, Jeanty 1984
MRUS	F12013-22	TCD,Nicolaides 1994
MRUS	F12013-24	THD,Hansmann 1985
MRUS	F12013-25	GS, Hansmann 1985
MRUS	F12013-26	FL, Hansmann 1995
MRUS	F12013-43	EFW, Hadlock 1991
MRUS	F12013-44	Mean Sac Diameter Daya 1991
MRUS	F12013-45	GS,China 1997
MRUS	F12013-46	CRL,China 1997
MRUS	F12013-47	BPD,China 1997
MRUS	F12013-48	BPD,Nicolaides 1994
MRUS	F12013-49	FL,China 1997
MRUS	F12013-50	FL,Nicolaides 1994
MRUS	F12013-51	FL,Osaka 1989
MRUS	F12013-52	AC,Hansmann1986
MRUS	F12013-53	AC,CFEF Crequat2000
MRUS	F12013-54	AC,Chitty（plotted）1994
MRUS	F12013-55	CRL,Robinson hp BMUS 1975
MRUS	F12013-56	MSD, Hellman 1969
MRUS	F12013-57	OFD, Jeanty 1984
MRUS	F12013-58	RAD, Jeanty 1984
MRUS	F12013-59	FIB, Jeanty 1984
MRUS	F12013-57	BPD, CFEF Crequat 2000
MRUS	F12013-58	FL, CFEF Crequat 2000
MRUS	F12013-59	HC, CFEF Crequat 2000
MRUS	F12013-60	TAD, CFEF Crequat 2000
MRUS	F12013-61	FL, China 1997
MRUS	F12013-62	TTD,Hansmann 1985
MRUS	F12013-63	BOD，Jeanty 1984
MRUS	F12013-64	AC，JMedUltra 2003
MRUS	F12013-65	BPD，JMedUltra 2003
MRUS	F12013-66	CRL，JMedUltra 2003

CSD	CV	Code Meaning
MRUS	F12013-67	FL，JMedUltra 2003
MRUS	F12013-68	GS, Nyberg 1987
MRUS	F12013-69	AD，Persson 1986
MRUS	F12013-70	BPD，Persson 1986
MRUS	F12013-71	CRL，Persson 1996
MRUS	F12013-72	FL，Persson 1986
MRUS	F12013-73	OFD，Persson 1986

A.41. CID (12014) Fetal Body Weight

CSD	CV	Code Meaning
LN	11739-0	EFW by AC and BPD, Shepard 1982
LN	11756-4	EFW by AC, Campbell 1975
MRUS	F12014-07	EFW by BPD, APTD, TTD, FL, Tokyo 1987
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	11884-4	Average Ultrasound Age
MRUS	F12013-27	CUA by BPD, Hadlock 1984
MRUS	F12013-28	CUA by AC, Hadlock 1984
MRUS	F12013-29	CUA by HC, Hadlock 1984
MRUS	F12013-30	CUA by FL, Hadlock 1984
MRUS	F12013-31	CUA by BPD, HC, Hadlock 1984
MRUS	F12013-32	CUA by BPD, AC, Hadlock 1984
MRUS	F12013-33	CUA by BPD, FL, Hadlock 1984
MRUS	F12013-34	CUA by HC, AC, Hadlock 1984
MRUS	F12013-35	CUA by HC, FL, Hadlock 1984
MRUS	F12013-36	CUA by AC, FL, Hadlock 1984
MRUS	F12013-37	CUA by BPD, HC, AC, Hadlock 1984
MRUS	F12013-38	CUA by BPD, HC, FL, Hadlock 1984
MRUS	F12013-39	CUA by BPD, AC, FL, Hadlock 1984
MRUS	F12013-40	CUA by HC, AC, FL, Hadlock 1984
MRUS	F12013-41	CUA by BPD, HC, AC, FL, Hadlock 1984

CSD	CV	Code Meaning
MRUS	F12014-01	EFW by AC,BPD,Merz 1991
MRUS	F12014-02	EFW by AC,Merz 1991
MRUS	F12014-03	EFW by BPD, TTD, Hansmann 1995
MRUS	F12014-04	EFW by BPD, FTA, FL, Osaka 1983
MRUS	F12014-05	EFW by AC,HC,FL,Schild 2004
MRUS	F12014-06	EFW by BPD,FL,MAD,Persson 1996

A.42. CID (12015) Fetal Growth Equations and Tables

CSD	CV	Code Meaning
LN	33146-2	AC by GA, Hadlock 1984
LN	33198-3	BPD by GA, Hadlock 1984
LN	33166-0	FL by GA, Hadlock 1984
LN	33173-6	HC by GA, Hadlock 1984
LN	33180-1	Radius by GA, Jeanty 1983
LN	33181-9	TCD by GA Goldstein 1987
MRUS	F12015-06	BPD, Hansmann 1985
MRUS	F12015-17	EFW by GA, Hadlock 1984
MRUS	F12015-32	OFD, Hansmann 1985
MRUS	F12015-58	NBL by GA,Bunduki 2003
MRUS	F12015-59	FL，HC Ration by GA， Hadlock 1984
MRUS	F12015-60	TTD by GA, Hansmann 1985
MRUS	F12015-61	CEREB by GA，Hata 1992
MRUS	F12015-62	BOD by GA，Jeanty 1984
MRUS	F12015-63	BPD by GA, Jeanty 1984
MRUS	F12015-64	FIB by GA, Jeanty 1985
MRUS	F12015-65	FL by GA, Jeanty 1984
MRUS	F12015-66	HL by GA, Jeanty 1984
MRUS	F12015-67	TIB by GA, Jeanty 1984
MRUS	F12015-68	ULNA by GA, Jeanty 1984
MRUS	F12015-69	AC by GA，JMedUltra 2003
MRUS	F12015-70	BPD by GA，JMedUltra 2003
MRUS	F12015-71	CRL by GA，JMedUltra 2003
MRUS	F12015-72	EFW by GA，JMedUltra 2003
MRUS	F12015-73	FL by GA，JMedUltra 2003

CSD	CV	Code Meaning
MRUS	F12015-74	FIB by GA,Merz,1996
MRUS	F12015-75	RAD by GA,Merz,1996
MRUS	F12015-76	TIB by GA,Merz,1996
MRUS	F12015-77	ULNA by GA,Merz,1996
MRUS	F12015-78	CEREB by GA,Nicolaides 1994
MRUS	F12012-79	GS by GA, Nyberg 1987
MRUS	F12012-80	AD by GA，Persson 1996
MRUS	F12012-81	BPD by GA，Persson 1996
MRUS	F12012-82	CRL by GA，Persson 1996
MRUS	F12012-83	EFW by GA，Persson 1996
MRUS	F12012-84	FL by GA，Persson 1996
MRUS	F12012-85	OFD by GA，Persson 1986
MRUS	F12012-86	NBL by GA,Sonek 2003
MRUS	F12012-87	BPD by GA，TokoyShinozuka 1996
MRUS	F12012-88	EFW by GA， Williams 1982

A.43. CID (12119) Vascular Ultrasound Property

INCLUDE CID 12120 Blood Velocity Measurements
INCLUDE CID 12121 Vascular Indices and Ratios
INCLUDE CID 12122 Other Vascular Properties

A.44. CID (12120) Blood Velocity Measurements

CSD	CV	Code Meaning
LN	11653-3	End Diastolic Velocity
LN	11665-7	Minimum Diastolic Velocity
LN	11726-7	Peak Systolic Velocity
LN	20352-1	Time averaged mean velocity
LN	11692-1	Time averaged peak velocity

A.45. CID (12121) Vascular Indices and Ratios

CSD	CV	Code Meaning
LN	12008-9	Pulsatility Index
LN	12023-8	Resistivity Index

LN	12144-2	Systolic to Diastolic Velocity Ratio
MRUS	C12121-1	Systolic to Atrial Contraction Velocity Ratio
MRUS	M12120-1	Peak Early Diastolic Velocity
MRUS	C12121-2	Peak velocity index for the vein
MRUS	M12119-11	Reflux time

A.46. CID (12122) Other Vascular Properties

CSD	CV	Code Meaning
LN	20168-1	Acceleration Time
LN	20217-6	Deceleration Time
SRT	R-1025C	Vessel Intimal Diameter
LN	20247-3	Peak Gradient
LN	20256-4	Mean Gradient
LN	20354-7	Velocity Time Integral
LN	11948-7	Fetal Heart Rate
LN	8867-4	Heart rate
MRUS	M12119-02	Angle
MRUS	M12119-12	Vas Area
MRUS	C12119-1	Volume Flow(TAMX)
MRUS	C12119-2	Volume Flow(TAMN)
MRUS	M12119-13	Umbilical Vein Diameter
MRUS	M12119-64	Cord Insertion Diameter
MRUS	M12119-65	Ovarian Artery Peak Velocity
MRUS	M12119-66	Ovarian Artery Peak Velocity

A.47. CID (12140) Pelvic Vasculature Anatomical Location

CSD	CV	Code Meaning
SRT	T-F1810	Umbilical Artery
SRT	T-46980	Ovarian Artery
SRT	T-46820	Uterine Artery
MRUS	12140-2	Cord Insertion

A.48. CID (12141) Fetal Vasculature Anatomical Location

CSD	CV	Code Meaning
SRT	T-45600	Middle Cerebral Artery
MRUS	V12141-01	Ductus Venosus
SRT	T-F6845	Ductus arteriosus

A.49. CID (SELFCID-1) Fetal Z-Score

CSD	CV	Code Meaning
LN	18020-8	Main Pulmonary Artery Diameter
LN	18154-5	Interventricular Septum Diastolic Thickness
LN	18158-6	Interventricular Septum Systolic Thickness
MRUS	M12201-01	Left ventricular short-axis diameter at end diastole
MRUS	M12201-02	Left ventricular short-axis diameter at end systole
MRUS	M12205-01	Left Atrium Diameter
MRUS	M12204-01	Right ventricular short-axis diameter at end diastole
MRUS	M12204-02	Right ventricular short-axis diameter at end systole
MRUS	M12206-01	Right Atrium Diameter
MRUS	M12201-05	Left Ventricular Outflow Tract Diameter
MRUS	M12204-05	Right Ventricular Outflow Tract Diameter
MRUS	C12201-06	Left Ventricular Diameter/Right Ventricular Diameter
MRUS	M12119-14	MV Diam(Z-Score)
MRUS	M12119-15	PV Diam(Z-Score)
MRUS	M12119-16	Ascending Aorta Diam(Z-Score)
MRUS	M12119-17	Ao Desc Diam(Z-Score)
MRUS	M12119-18	Ductus Arteriosus Diam
MRUS	M12119-19	Ductus Arteriosus Diam(Z-Score)
MRUS	M12119-20	TV Diam(Z-Score)
MRUS	M12119-21	LPA Diam(Z-Score)
MRUS	M12119-22	RPA Diam(Z-Score)
MRUS	M12119-23	IVC Diam(Z-Score)
MRUS	M12119-24	MPA Diam(Z-Score)
MRUS	M12119-25	RVIDd(Z-Score)
MRUS	M12119-26	LVIDd(Z-Score)

MRUS	M12119-27	RV Diam(Z-Score)
MRUS	M12119-28	LV Diam(Z-Score)
MRUS	M12119-29	RV Area(Z-Score)
MRUS	M12119-30	LV Area(Z-Score)
MRUS	M12119-31	AV Diam(Z-Score)
MRUS	M12204-06	Right Ventricular Anterior Wall Thickness at end diastole 2D
MRUS	M12204-07	Right Ventricular Anterior Wall Thickness at end systole 2D
MRUS	M12201-06	Left Ventricular Posterior Wall Thickness at end diastole
MRUS	M12201-07	Left Ventricular Posterior Wall Thickness at end systole
MRUS	M12119-32	Angle between chest central line and interventricular septum
MRUS	M12204-08	Right Ventricular Anterior Wall Thickness at end diastole M
MRUS	M12204-09	Right Ventricular Anterior Wall Thickness at end systole M
MRUS	M12204-10	Right ventricular short-axis diameter at end diastole M
MRUS	M12204-11	Right ventricular short-axis diameter at end systole M
MRUS	M12201-08	Left ventricular short-axis diameter at end diastole M
MRUS	M12201-09	Left ventricular short-axis diameter at end systole M
MRUS	M12201-10	Left Ventricular Posterior Wall Thickness at end diastole M
MRUS	M12201-11	Left Ventricular Posterior Wall Thickness at end systole M
MRUS	M12206-03	Right Atrium Diameter M
MRUS	M12205-03	Left Atrium Diameter M
MRUS	M12119-62	Aortic Root End-Systolic Diameter
MRUS	M12119-33	Aortic Valve Systolic Separation
MRUS	M12119-34	MV D-E Excursion
MRUS	M12119-35	MV E-F Slope
MRUS	M12119-36	MV E Point Septal Separation
MRUS	M12119-37	MV E Vel
MRUS	M12119-38	MV A Vel
MRUS	M12119-39	TV E Vel
MRUS	M12119-40	TV A Vel
MRUS	M12119-41	Asc Aorta Peak Velocity
MRUS	M12119-42	Desc Aorta Peak Velocity
MRUS	M12119-43	MR Peak Velocity
MRUS	M12119-44	TR Peak Velocity
MRUS	M12119-45	Pulmonary Valve Regurgitation Velocity at end diastole
MRUS	M12119-46	MPA Peak Velocity
MRUS	M12119-47	IVC Peak Velocity

MRUS	M12119-48	Pulm Vein Peak Velocity
MRUS	M12119-49	Hepatic V S Vel
MRUS	M12119-50	Hepatic V S Vel
MRUS	M12119-51	MV S' Lat
MRUS	M12119-52	MV E' Lat
MRUS	M12119-53	MV A' Lat
MRUS	M12119-54	MV S' Sep
MRUS	M12119-55	MV E' Sep
MRUS	M12119-56	MV A' Sep
MRUS	M12119-57	TV S' Ant
MRUS	M12119-58	TV E' Ant
MRUS	M12119-59	TV A' Ant
MRUS	M12119-60	Fetal Aorta Peak Velocity
MRUS	M12119-61	Ascending Aorta Diam

A.50. Mapping between Modality measurements and DICOM Concepts.

A.50.1. OB-GYN Measurements

MODALITY Label	***DICOM Mapping***
FHR	11948-7,LN,Fetal Heart Rate
HC/AC	11947-9,LN,HC/AC
FL/AC	11871-1,LN,FL/AC
FL/BPD	11872-9,LN,FL/BPD
CI	11823-2,LN,Cephalic Index
FL/HC	11873-7,LN,FL/HC
CIHC	C12004-05,MRUS,CIHC
Cereb/AC	C12004-07,MRUS,Cereb/AC
AC(c)	C12004-06,MRUS,AC(c)
LVW/HW	C12201-06,MRUS,Left Ventricular Diameter/Right Ventricular Diameter
LAD/RAD	C12004-09,MRUS,LAD/RAD 2D
Heart/Thor	C12004-08,MRUS，Heart/Thor
AD	C12004-11,MRUS,Mean Abdomen Diam
APTDxTTD	C12004-12,MRUS,APTDxTTD

MODALITY Label	***DICOM Mapping***
AC	11979-2,LN,Abdominal Circumference
BPD	11820-8,LN,Biparietal Diameter
FL	11963-6,LN,Femur Length
HC	11984-2,LN,Head Circumference
OFD	11851-3,LN,Occipital-Frontal Diameter
APAD	11818-2,LN,Anterior-Posterior Abdominal Diameter
Thor Circ	11988-3,LN,Thoracic Circumference
TAD	11862-0,LN,Tranverse Abdominal Diameter
Cereb	11863-8,LN,Trans Cerebellar Diameter
LAD/RAD	C12004-10,MRUS,LAD/RAD M
TTD	11864-6,LN,Transverse Thoracic Diameter
APTD	11819-0,LN,Anterior-Posterior Trunk Diameter
FTA	33068-8,LN,Thoracic Area
Cist Magna	11860-4,LN,Cisterna Magna
F-kidney	M12005-05, MRUS, Fetal Kidney length
Thor_Diam	M12005-01,MRUS,Thoracic Diameter
Heart Circ	M12005-02,MRUS,Heart Circumference
HL	11966-9,LN,Humerus length
RAD	11967-7,LN,Radius length
ULNA	11969-3,LN,Ulna length
TIB	11968-5,LN,Tibia length
FIB	11964-4,LN,Fibula length
CLAV	11962-8,LN,Clavicle length
LVW	12171-5,LN,Lateral Ventrical width
NF	12146-7,LN,Nuchal Fold thickness
IOD	33070-4,LN,Inner Orbital Diameter
BOD	11629-3,LN,Outer Orbital Diameter
NBL	M12005-06，MRUS，Nose Bone Length
Nose	M12005-07，MRUS，Nose
Lips	M12005-08，MRUS，Lips
Palate	M12005-09，MRUS，Palate
Facial-Angle	M12005-04,MRUS,Facial angle
Diaphragm	T-D3400,SRT,Diaphragm
4 limbs	M12005-12，MRUS，4 limbs

MODALITY Label	***DICOM Mapping***
2 hands	M12005-13，MRUS，2 hands
Digits	M12005-11，MRUS，Digits
2 feet	M12005-14，MRUS，2 feet
HW	12170-7,LN,Width of Hemisphere
Ear	M12007-01,MRUS,Ear Length
MP	M12007-02,MRUS,Middle Phalanx Length
Orbit	M12007-03,MRUS,Orbit
OFD(HC)	M12007-04,MRUS,OFDHC
HC(c)	C12007-01,MRUS,HCc
AF1	11624-4,LN,First Quadrant Diameter
AF2	11626-9,LN,Second Quadrant Diameter
AF3	11625-1,LN,Third Quadrant Diameter
AF4	11623-6,LN,Fourth Quadrant Diameter
AF	M12008-01,MRUS,Amniotic Fluid
CRL	11957-8,LN,Crown Rump Length
GS	11850-5,LN,Gestational Sac Diameter
Vertebrae	33071-2,LN,Spine Length
Yolk Sac AP	M12009-04，MRUS，Yolk Sac AP
Yolk Sac Trans	M12009-05，MRUS，Yolk Sac Trans
Yolk Sac Long	M12009-06，MRUS，Yolk Sac Long
MeanDiam	M12009-12，MRUS，Yolk Sac Mean
NT	33069-6,LN,Nuchal Translucency
Cervix L	LN,11961-0,Cervix Length
Endo	LN,12145-9,Endometrium Thickness
Mat Kidney	M12011-03,MRUS,Matrix Kindney Length
AFI	11627-7,LN,Amniotic Fluid Index
Ovary Trans	11829-9, LN, Left Ovary Width;11830-7, LN, Right Ovary Width
Ovary Long	11840-6, LN, Left Ovary Length;11841-4, LN, Right Ovary Length
Ovary AP	11857-0, LN, Left Ovary Height;11858-8, LN, Right Ovary Height
Ovary Volume	12164-0, LN, Left Ovary Volume;12165-7, LN, Right Ovary Volume
Uterus Trans	11865-3,LN,Uterus Width
Uterus Long	11842-2,LN,Uterus Length
Uterus AP	11859-6,LN,Uterus Height
Uterus Vol	33192-6,LN,Uterus Volume

MODALITY Label	***DICOM Mapping***
d1*	M11793-01, MRUS, Follicle d1
d2*	M11793-02,MRUS,Follicle d2
d3*	M11793-03,MRUS,Follicle d3
Vol*	G-D705,SRT,Volume
Uterine Finding 1 D1	MRUS，M12011-5，Uterine Finding 1 D1
Uterine Finding 1 D2	MRUS，M12011-6，Uterine Finding 1 D2
Uterine Finding 1 D3	MRUS，M12011-7，Uterine Finding 1 D3
Uterine Finding 1 Vol	MRUS，C12011-1，Uterine Finding 1 Volume
Uterine Finding 2 D1	MRUS，M12011-8，Uterine Finding 2 D1
Uterine Finding 2 D2	MRUS，M12011-9，Uterine Finding 2 D2
Uterine Finding 2 D3	MRUS，M12011-10，Uterine Finding 2 D3
Uterine Finding 2 Vol	MRUS，C12011-2，Uterine Finding 2 Volume
Uterine Finding 3 D1	MRUS，M12011-11，Uterine Finding 3 D1
Uterine Finding 3 D2	MRUS，M12011-12，Uterine Finding 3 D2
Uterine Finding 3 D3	MRUS，M12011-13，Uterine Finding 3 D3
Uterine Finding 3 Vol	MRUS，C12011-3，Uterine Finding 3 Vol
Uterine Finding 4 D1	MRUS，M12011-14，Uterine Finding 4 D1
Uterine Finding 4 D2	MRUS，M12011-15，Uterine Finding 4 D2
Uterine Finding 4 D3	MRUS，M12011-16，Uterine Finding 4 D3
Uterine Finding 4 Vol	MRUS，C12011-4，Uterine Finding 4 Volume

MODALITY Label	***DICOM Mapping***
Uterine Finding 5 D1	MRUS，M12011-17，Uterine Finding 5 D1
Uterine Finding 5 D2	MRUS，M12011-18，Uterine Finding 5 D2
Uterine Finding 5 D3	MRUS，M12011-19，Uterine Finding 5 D3
Uterine Finding 5 Vol	MRUS，C12011-5，Uterine Finding 5 Volume
Uterine Finding 6 D1	MRUS，M12011-20，Uterine Finding 6 D1
Uterine Finding 6 D2	MRUS，M12011-21，Uterine Finding 6 D2
Uterine Finding 6 D3	MRUS，M12011-22，Uterine Finding 6 D3
Uterine Finding 6 Vol	MRUS，C12011-6，Uterine Finding 6 Volume
Ovarian Finding 1 D1	MT-87000-02，MRUS，Ovarian Finding 1 D1
Ovarian Finding 1 D2	MT-87000-03，MRUS，Ovarian Finding 1 D2
Ovarian Finding 1 D3	MT-87000-04，MRUS，Ovarian Finding 1 D3
Ovarian Finding 1 Vol	CT-87000-01，MRUS，Ovarian Finding 1 Volume
Ovarian Finding 2 D1	MT-87000-05，MRUS，Ovarian Finding 2 D1
Ovarian Finding 2 D2	MT-87000-06，MRUS，Ovarian Finding 2 D2
Ovarian Finding 2 D3	MT-87000-07，MRUS，Ovarian Finding 2 D3
Ovarian Finding 2 Vol	CT-87000-02，MRUS，Ovarian Finding 2 Volume
Ovarian Finding 3 D1	MT-87000-08，MRUS，Ovarian Finding 3 D1
Ovarian Finding 3 D2	MT-87000-09，MRUS，Ovarian Finding 3 D2

MODALITY Label	***DICOM Mapping***
Ovarian Finding 3 D3	MT-87000-10，MRUS，Ovarian Finding 3 D3
Ovarian Finding 3 Vol	CT-87000-03，MRUS，Ovarian Finding 3Volume
Ovarian Finding 4 D1	MT-87000-11，MRUS，Ovarian Finding 4 D1
Ovarian Finding 4 D2	MT-87000-12，MRUS，Ovarian Finding 4 D2
Ovarian Finding 4 D3	MT-87000-13，MRUS，Ovarian Finding 4 D3
Ovarian Finding 4 Vol	CT-87000-04，MRUS，Ovarian Finding 4 Volume
Ovarian Finding 5 D1	MT-87000-14，MRUS，Ovarian Finding 5 D1
Ovarian Finding 5 D2	MT-87000-15，MRUS，Ovarian Finding 5 D2
Ovarian Finding 5 D3	MT-87000-16，MRUS，Ovarian Finding 5 D3
Ovarian Finding 5 Vol	CT-87000-05，MRUS，Ovarian Finding 5 Volume
Ovarian Finding 6 D1	T-87000-17，MRUS，Ovarian Finding 6 D1
Ovarian Finding 6 D1	MT-87000-18，MRUS，Ovarian Finding 6 D1
Ovarian Finding 6 D1	MT-87000-19，MRUS，Ovarian Finding 6 D1
Ovarian Finding 6 Vol	CT-87000-06，MRUS，Ovarian Finding 6 Volume
EFW1	11727-5,LN,Estimated Weight
EFW2	11727-5,LN,Estimated Weight
Clinic_Percent1	11767-1,LN，EFW percentile rank
Us_Percent1	11767-1,LN，EFW percentile rank
Clinic_Percent2	11767-1,LN，EFW percentile rank
Us_Percent2	11767-1,LN，EFW percentile rank
EFW(Campbell)	11727-5,LN,Estimated Weight
EFW(Hadlock1)	11727-5,LN,Estimated Weight

MODALITY Label	*DICOM Mapping*
EFW(Hadlock2)	11727-5,LN,Estimated Weight
EFW(Hadlock3)	11727-5,LN,Estimated Weight
EFW(Hadlock4)	11727-5,LN,Estimated Weight
EFW(Hansmann)	11727-5,LN,Estimated Weight
EFW(Merz1)	11727-5,LN,Estimated Weight
EFW(Merz2)	11727-5,LN,Estimated Weight
EFW(Osaka)	11727-5,LN,Estimated Weight
EFW(Shepard)	11727-5,LN,Estimated Weight
EFW(Tokyo)	11727-5,LN,Estimated Weight
EFW（Schild）	11727-5,LN,Estimated Weight
EFW（Persson）	11727-5,LN,Estimated Weight
Placenta	M12011-01,MRUS,Placental Thickness
Facial angle	M12005-04,MRUS,Facial angle
GS1	M12009-01,MRUS,Gestational Sac Diameter1
GS2	M12009-02,MRUS,Gestational Sac Diameter2
GS3	M12009-03,MRUS,Gestational Sac Diameter3

*: Follicle.1 , Follicle.2 , Follicle.3 , Follicle.4 , Follicle.5 , Follicle.6 , Follicle.7 , Follicle.8 , Follicle.9, Follicle.10, Follicle.11, Follicle.12, Follicle.13, Follicle.14, Follicle.15, Follicle.16, Follicle.17, Follicle.18, Follicle.19, Follicle.20, Follicle.21, Follicle.22, Follicle.23, Follicle.24, Follicle.25, Follicle.26, Follicle.27, Follicle.28, Follicle.29, Follicle.30 have these measurements.

A.50.2. Vasculature Anatomic Location

MODALITY Vasculature Anatomic Location	*DICOM Mapping*
Ovarian A	T-46980, SRT, Ovarian Artery
Ut A	T-46820, SRT, Uterine Artery
Cord Insertion	12140-2，MRUS，Cord Insertion
Umb A	T-F1810, SRT, Umbilical Artery
MCA	T-45600, SRT, Middle Cerebral Artery
Duct Veno	T-F6806, SRT, Ductus Venosus
Duct Art	T-F6845,SRT,Ductus arteriosus

A.50.3. OB-GYN Vascular Measurements

MODALITY Label	*DICOM Mapping*
<Vasculature Anatomic Location> ED	11653-3, LN, End Diastolic Velocity

MODALITY Label	*DICOM Mapping*
<Vasculature Anatomic Location> MD	11665-7 , LN, Minimum Diastolic Velocity
<Vasculature Anatomic Location> PS	11726-7, LN, Peak Systolic Velocity
<Vasculature Anatomic Location> TAMEAN	20352-1, LN, Time averaged mean velocity
<Vasculature Anatomic Location> TAMAX	11692-1, LN, Time averaged peak velocity
<Vasculature Anatomic Location> PI	12008-9, LN, Pulsatility Index
<Vasculature Anatomic Location> RI	12023-8, LN, Resistivity Index
<Vasculature Anatomic Location> S/D	12144-2, LN, Systolic to Diastolic Velocity Ratio
<Vasculature Anatomic Location> D/S	M12119-04, MRUS, Diastolic to SystolicVelocity Ratio
<Vasculature Anatomic Location> AT	20168-1, LN, Acceleration Time
<Vasculature Anatomic Location> DT	20217-6, LN, Deceleration Time
<Vasculature Anatomic Location> PPG	20247-3, LN, Peak Gradient
<Vasculature Anatomic Location> MPG	20256-4, LN, Mean Gradient
<Vasculature Anatomic Location> MMPG	M12119-01, MRUS, Mean Velocity Mean Pressure Gradient
<Vasculature Anatomic Location> VTI	M12119-02, MRUS,Velocity-Time Integral
<Vasculature Anatomic Location> HR	11948-7, LN, Fetal Heart Rate
<Vasculature Anatomic Location> θ	M12119-03, MRUS, Angle
<Vasculature Anatomic Location> Vas Area	M12119-12,MRUS,Vas Area
<Vasculature Anatomic Location> Volume Flow(TAMX)	C12119-1,MRUS,Volume Flow(TAMX)
<Vasculature Anatomic Location> Volume Flow(TAMN)	C12119-2,MRUS,Volume Flow(TAMN)

A.50.4. OB-GYN Cardiac Measurements

MODALITY Label	*DICOM Mapping*
Asc Aorta Diam	M12119-61，MRUS，Ascending Aorta Diam
MPA Diam	18020-8,LN,Main Pulmonary Artery Diameter
Duct.Art Diam	M12119-18,MRUS,Ductus Arteriosus Diam
LA Diam	M12205-01,MRUS,Left Atrium Diameter
RA Diam	M12206-01,MRUS,Right Atrium Diameter
RV Wall d	M12204-06,MRUS,Right Ventricular Anterior Wall Thickness at end diastole 2D
RV Wall s	M12204-07,MRUS,Right Ventricular Anterior Wall Thickness at end systole 2D
RVIDd	M12204-01,MRUS,Right ventricular short-axis diameter at end diastole
RVIDs	M12204-02,MRUS,Right ventricular short-axis diameter at end systole
IVSd	18154-5, LN, Interventricular Septum Diastolic Thickness
IVSs	18158-6, LN, Interventricular Septum Systolic Thickness
LVIDd	M12201-01,MRUS,Left ventricular short-axis diameter at end diastole
LVIDs	M12201-02,MRUS,Left ventricular short-axis diameter at end systole
LVPWd	M12201-06,MRUS,Left Ventricular Posterior Wall Thickness at end diastole
LVPWs	M12204-07,MRUS,Right Ventricular Anterior Wall Thickness at end systole 2D

LVOT Diam	M12201-05,MRUS,Left Ventricular Outflow Tract Diameter
RVOT Diam	M12204-05,MRUS,Right Ventricular Outflow Tract Diameter
Heart Angle	M12119-32,MRUS,Angle between chest central line and interventricular septum
AV Diam(Z-Score)	M12119-31,MRUS,AV Diam(Z-Score)
PV Diam(Z-Score)	M12119-15,MRUS,PV Diam(Z-Score)
Ao Asc Diam(Z-Score)	M12119-16,MRUS,Ascending Aorta Diam(Z-Score)
Ao Desc Diam(Z-Score)	M12119-17,MRUS,Ao Desc Diam(Z-Score)
IVC Diam(Z-Score)	M12119-23，MRUS，IVC Diam(Z-Score)
MPA Diam(Z-Score)	M12119-24，MRUS，MPA Diam(Z-Score)
RPA Diam(Z-Score)	M12119-22，MRUS，RPA Diam(Z-Score)
LPA Diam(Z-Score)	M12119-21，MRUS，LPA Diam(Z-Score)
Duct Art Diam(Z-Score)	M12119-19，MRUS，Ductus Arteriosus Diam(Z-Score)
TV Diam(Z-Score)	M12119-20，MRUS，TV Diam(Z-Score)
RVIDd(Z-Score)"	M12119-25，MRUS，RVIDd(Z-Score)
RV Diam(Z-Score)	M12119-27，MRUS，RV Diam(Z-Score)
RV Area(Z-Score)	M12119-29，MRUS，RV Area(Z-Score)
MV Diam(Z-Score)	M12119-14，MRUS，MV Diam(Z-Score)
LVIDd(Z-Score)	M12119-26，MRUS，LVIDd(Z-Score)
LV Diam(Z-Score)	M12119-28，MRUS，LV Diam(Z-Score)
LV Area(Z-Score)	M12119-30，MRUS，LV Area(Z-Score)
RV Wall d	M12204-08,MRUS,Right Ventricular Anterior Wall Thickness at end diastole M
RV Wall s	M12204-09,MRUS,Right Ventricular Anterior Wall Thickness at end systole M
RVIDd	MRUS,Right ventricular short-axis diameter at end diastole M
RVIDs	M12204-11,MRUS,Right ventricular short-axis diameter at end systole M
IVSd	18154-5,LN,Interventricular Septum Diastolic Thickness
IVSs	18158-6,LN,Interventricular Septum Systolic Thickness
LVIDd	M12201-08,MRUS,Left ventricular short-axis diameter at end diastole M
LVIDs	M12201-09,MRUS,Left ventricular short-axis diameter at end systole M
LVPWd	M12201-10,MRUS,Left Ventricular Posterior Wall Thickness at end diastole M
LVPWs	M12201-11,MRUS,Left Ventricular Posterior Wall Thickness at end systole M
LA Diam	M12205-03,MRUS,Left Atrium Diameter M
RA Diam	M12206-03,MRUS,Right Atrium Diameter M
AoR	M12119-62，MRUS，Aortic Root End-Systolic Diameter
AoCS	M12119-33，MRUS，Aortic Valve Systolic Separation
D-E Excursion	M12119-34，MRUS，MV D-E Excursion
MV E-F Slope	M12119-35，MRUS，MV E-F Slope
EPSS	M12119-36，MRUS，MV E Point Septal Separation
MV E Vel	M12119-37，MRUS，MV E Vel
MV A Vel	M12119-38，MRUS，MV A Vel
TV E Vel	M12119-39，MRUS，TV E Vel
TV A Vel	M12119-40，MRUS，TV A Vel
Asc Aorta	M12119-41，MRUS，Asc Aorta Peak Velocity
Desc Aorta	M12119-42，MRUS，Desc Aorta Peak Velocity

MR	M12119-43，MRUS，MR Peak Velocity
TR	M12119-44，MRUS，TR Peak Velocity
MPA	M12119-46，MRUS，MPA Peak Velocity
IVC	M12119-47，MRUS，IVC Peak Velocity
PR Ved	M12119-45，MRUS，Pulmonary Valve Regurgitation Velocity at end diastole
Pulm V	M12119-48，MRUS，Pulm Vein Peak Velocity
Hepatic V S Vel	M12119-49，MRUS，Hepatic V S Vel
Hepatic V D Vel	M12119-50，MRUS，Hepatic V D Vel
MV S' Lat	M12119-51，MRUS，MV S' Lat
MV E' Lat	M12119-52，MRUS，MV E' Lat
MV A' Lat	M12119-53，MRUS，MV A' Lat
MV S' Sep	M12119-54，MRUS，MV S' Sep
MV E' Sep	M12119-55，MRUS，MV E' Sep
MV A' Sep	M12119-56，MRUS，MV A' Sep
TV S' Ant	M12119-57，MRUS，TV S' Ant
TV E' Ant	M12119-58，MRUS，TV E' Ant
TV A' Ant	M12119-59，MRUS，TV A' Ant
Fetal Aorta	M12119-60，MRUS，Fetal Aorta Peak Velocity

A.50.5. Biophysical Profile Measurements

MODALITY Label	***DICOM Mapping***
FM	11631-9,LN,Gross Body Movement
FBM	11632-7,LN,Fetal Breathing
FT	11635-0,LN,Fetal Tone
FHR	11635-5,LN,Fetal Heart Reactivity
AF	11630-1,LN,Amniotic Fluid Volume
Total Score	11634-3,LN,Biophysical Profile Sum Score
Fetal Lie	FG12018-02,MRUS,Fetal Lie
Gender	FG7455-01,MRUS,Gender
3 Vessel Cord	FG7160-01,MRUS,3 Vessel Cord
Face	T-D1200,SNM3,Face
Nose Lips	FG4-01,MRUS,Nose Lips
Cord insertion	FG12011-01,MRUS,Cord insertion
LUS	FG4031-02,MRUS,LUS
Stomach	T-57000,SNM3,Stomach
Left Kidney	T-71000,SRT,Kidney
Right Kidney	T-71000,SRT,Kidney
Bladder	T-74000,SRT,Bladder
Gall Bladder	T-63000,SRT,Gall bladder
Liver	T-62000,SRT,Liver
Fetal Bowel	FG4031-03,MRUS,Fetal Bowel
Upper Extremities	FG4031-05,MRUS,Upper Extremities
Lower Extremities	FG4031-06,MRUS,Lower Extremities

Cardiac Activity	FG12239-01,MRUS,Cardiac Activity
4C HEART	FG4031-08,MRUS,4C HEART
Aorta	T-42000,SNM3,Aorta
Pulmonary Artery	T-44000,SNM3,Pulmonary Artery
ARCH	FG3010-01,MRUS,ARCH
LVOT	T-32650,SRT,Left Ventricular Outflow Tract
RVOT	T-32550,SRT,Right Ventricle Outflow Tract
Lateral Ventricles	FG4030-02,MRUS,Lateral Ventricles
Cisterna Magna	11860-4,LN,Cisterna Magna
Cerebellum	T-A600A,SNM3,Cerebellum
CSP	FG4030-03,MRUS,CSP
Cervical Spine	T-11501,SNM3,Cervical Spine
Thoracic Spine	T-11502,SNM3,Thoracic Spine
Lumbar Spine	T-11503,SNM3,Lumbar Spine
Sacral Spine	FG4031-,MRUS,Sacral Spine
Placental Location	FG12011-01,MRUS,Placental Location
Amniotic Fluid	FG12011-02,MRUS,Amniotic Fluid
Placental Grade	FG12011-03,MRUS,Placental Grade
Adnexa	FG12011-03,MRUS,Adnexa
Ovaries	T-87000,SRT,Ovary
Kidney	T-71000,SRT,Kidney
Cervix	T-83200,SRT,Cervix

B. Appendix : Cardiac structured reporting template

This appendix lists the DICOM Structured Report (SR) mappings used in the

Cardiac Structured Reports of ultrasound system SR files.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16 of the DICOM Standard. The Cardiac Report mappings follow the DICOM SR Template TID 5200: Cardiac Ultrasound Procedure Report, except where noted.

All private code values use the Coding Scheme Designator "MRUS".

B.1. TID (5200) Echocardiography Procedure Report

This template forms the top of a content tree that allows an ultrasound system to describe the results of an adult echocardiography imaging procedure.

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1			CONTAINER	EV (125200, DCM, "Adult Echocardiography Procedure Report")	√		
2	>	HAS CONCEPT MOD	INCLUDE	DTID (1204) Language of Content Item and Descendants			
3	>	HAS OBS CONTEXT	INCLUDE	DTID (1001) Observation Context	√		
4	>	CONTAINS	INCLUDE	DTID (5201) Echocardiography Patient Characteristics	√		
5	>	CONTAINS	CONTAINER	(111028, DCM, "Image Library")			
6	>>	CONTAINS	IMAGE	No purpose of reference			
7	>	CONTAINS	INCLUDE	DTID(SELFTEM-2)Echo Procedure Summary Section	√		
8	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-32600, SRT, "Left Ventricle") $MeasType = DCID

							(12200) Echocardiography Left Ventricle
9	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-32500, SRT, “Right Ventricle”) $MeasType = DCID (12204) Echocardiography Right Ventricle
10	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-32300, SRT, “Left Atrium”) $MeasType = DCID (12205) Echocardiography Left Atrium
11	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-32200, SRT, “Right Atrium”) $MeasType = DCID (12206) Echocardiography Right Atrium
12	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-35400, SRT, “Aortic Valve”) $MeasType = DCID (12211) Echocardiography Aortic Valve
13	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-35300, SRT, “Mitral Valve”) $MeasType = DCID (12207) Echocardiography Mitral Valve
14	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-35200, SRT, “Pulmonic Valve”) $MeasType = DCID (12209)

							Echocardiography Pulmonic Valve
15	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-35100, SRT, “Tricuspid Valve”) $MeasType = DCID (12208) Echocardiography Tricuspid Valve
16	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-42000, SRT, “Aorta”) $MeasType= DCID (12212) Echocardiography Aorta
17	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-44000, SRT, “Pulmonary artery”) $MeasType DCID (12210) = Echocardiography Pulmonary Artery
18	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-48600, SRT, “Vena Cava”) $MeasType = DCID (12215) Echocardiography Vena Cavae
19	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-48581, SRT, “Pulmonary Venous Structure”) $MeasType = DCID (12214) Echocardiography Pulmonary Veins
20	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (P5-30031, SRT, “Cardiac Shunt Study”) $MeasType = DCID (12217)

							Echocardiography Cardiac Shunt
21	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (D4-30000, SRT, “Congenital Anomaly of Cardiovascular System”) $MeasType = DCID (12218) Echocardiography Congenital
22	>	CONTAINS	INCLUDE	DTID (5204) Wall Motion Analysis			
23	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (D3-90000, SRT, “Pericardial disease") $MeasType = DCID (90000) Pericardial disease
24	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (T-48720, SRT, “Hepatic Vein") $MeasType = DCID (12216) Echocardiography Hepatic Veins
25	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	√		$SectionSubject = EV (8867-4, SRT, “Hear rate”) $MeasType = DCID (12220) Echocardiography Common Measurements
26	>	CONTAINS	TEXT	(20121120,MRUS, “self-defined-Measurementfile”)	√		

B.2. TID(1001) Observation Context

This template specifies attributes of observation context that may be defined, extended or replaced at any location in the SR tree.

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Condition	Value Set Constraint
1	>	HAS OBS CONTEXT	CODE	EV (121005,DCM, “Observer Type”)	√		(121006,DCM, “Person”)
2	>	HAS OBS CONTEXT	PNAME	EV (121008,DCM, “Person Observer Name”)	√		Operator from Info
3	>	HAS OBS CONTEXT	TEXT	EV (121009,DCM, “ Person Observer’s Organization Name”)	√		Institution Name (0008,0080) of the General Equipment Module
4	>	HAS OBS CONTEXT	CODE	EV (121010,DCM, “ Person Observer’s Role in the Organization”)	√		(121093, DCM, "Sonographer")
5	>	HAS OBS CONTEXT	CODE	EV (121024, DCM, "Subject Class”)	√		(121025, DCM, "Patient”)
6	>	HAS OBS CONTEXT	PNAME	EV (121029,DCM, "Subject Name”)	√		value of Patient’s Name (0010,0010) in Patient Module
7	>	HAS OBS CONTEXT	DATE	EV (121031,DCM, "Subject Birth Date”)	√		value of Patient’s Birth Date (0010,0030) in Patient Module
8	>	HAS OBS CONTEXT	CODE	EV (121032,DCM, "Subject Sex”)	√		value equivalent to Patient’s Sex (0010,0040) in Patient Module
9	>	HAS OBS CONTEXT	NUM	EV (121033,DCM, "Subject Age”)	√		value of Patient’s Age (0010,1010) in Patient Study Module

B.3. TID (5201) Echocardiography Patient Characteristics

	NL	Rel with Parent	VT	Concept Name	Used in Modality	Value Set Constraint	Comments
1			CONTAINER	EV (121118, DCM, “Patient Characteristics”)	√		

2	>	CONTAINS	NUM	EV (121033, DCM, "Subject Age")	√	Units = DCID (7456) Units of Measure for Age	from Info
3	>	CONTAINS	CODE	EV (121032, DCM, "Subject Sex")	√	DCID (7455) Sex	from worklist or Info
4	>	CONTAINS	NUM	EV (8867-4, LN, "Heart Rate")	√		from Info
5	>	CONTAINS	NUM	EV (F-008EC, SRT, "Systolic Blood Pressure")	√		from Info
6	>	CONTAINS	NUM	EV (F-008ED, SRT, "Diastolic Blood Pressure")	√		from Info
7	>	CONTAINS	NUM	EV(18070-3,LN,"Right Atrium Systolic Pressure")	√		from Info
8	>	CONTAINS	NUM	EV (8302-2, LN, "Patient Height")	√		from worklist or Info
9	>	CONTAINS	NUM	EV (29463-7, LN, "Patient Weight")	√		from worklist or Info
10	>	CONTAINS	NUM	EV (8277-6, LN, "Body Surface Area")	√		from Info
11	>>	INFERRED FROM	CODE	EV (8278-4, LN, "Body Surface Area Formula")	√	BCID (3663) Body Surface Area Equations	

B.4. TID (SELFTMP-2) Echo Procedure Summary Section

This is a private template referenced by TID(5200).

	NL	Rel with Parent	VT	Concept Name	Used in Modality	Value Set Constraint	Comment
1			CONTAINER	DT(12111,DCM,"Summary")	√		
2	>	CONTAINS	TEXT	EV(121106,DCM,"Comment")	√		from Info
3	>	CONTAINS	TEXT	(I12101-01,MRUS,"Primary Indications")	√		from Info
4	>	CONTAINS	TEXT	(I12101-02,MRUS,"Secondary Indications")	√		from Info

5	>	CONTAINS	TEXT	(I12101-03,MRUS,"CPT4 Code")	√		from Info
6	>	CONTAINS	TEXT	(I12101-04,MRUS,"CPT4 Description")	√		from Info
7	>	CONTAINS	TEXT	EV (121106, DCM, "Comment")	√		from report interface Comment
8	>	CONTAINS	TEXT	(I12101-05,MRUS,"Prompt")	√		from report interface Comment
9	>	CONTAINS	TEXT	(121071,DCM,"Findings")	√		from report interface Comment

B.5. TID (5202) ECHO SECTION

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Value Set Constraint	Comment
1			CONTAINER	EV (121070, DCM, ”Findings”)	√		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	√	$SectionSubject = EV (T-32600, SRT, “Left Ventricle”)	
3	>	CONTAINS	CONTAINER	DT (125007, DCM, “Measurement Group”)	√		
4	>>	HAS CONCEPT MOD	CODE	EV (G-0373, SRT,”Image Mode”)		BCID (12224) Ultrasound Image Modes	
5	>>	HAS CONCEPT MOD	CODE	DT (125203,DCM,”Acquisition Protocol”)			
6	>>	CONTAINS	INCLUDE	DTID (5203) Echo Measurement	√	$Measurement= $MeasType = DCID (12200) Echocardiography Left Ventricle $Method=CID (12227) Echocardiography	

						Measurement Method	

B.6. TID (5203) Echo Measurement

	NL	Relation with Parent	Value Type	Concept Name	Used in MODALITY	Value Set Constraint	Comment
1			INCLUDE	DTID (300) Measurement	√	$Measurement = $Measurement $Method = $Method $TargetSite = BCID (12236) Echo Anatomic Sites $TargetSiteMod = BCID (12237) Echocardiography Anatomic Site Modifiers	
2	>	HAS CONCEPT MOD	CODE	EV(G-C036,SRT,"Measurement Method")	√	This row is used only if the measurement or calculation this template is invoked with mandates it. Otherwise this row is not used. The values are taken from the BCID 12227	
3	>	HAS CONCEPT MOD	CODE	EV (G-C048, SRT, “Flow Direction”)	√	BCID (12221) Flow Direction	
4	>	HAS CONCEPT MOD	CODE	EV (R-40899, SRT, “Respiratory Cycle Point”)		DCID (12234) Respiration State	

5	>	HAS CONCEPT MOD	CODE	EV (R-4089A, SRT, “Cardiac Cycle Point”)	√	DCID (12233) Respiration State	
6	>	HAS ACQ CONTEXT	CODE	EV (G-0373, SRT, “Image Mode”)	√	DCID (12224) Ultrasound Image Modes	
7	>	HAS ACQ CONTEXT	CODE	EV (111031, DCM, “Image View”)	√	BCID (12226) Echocardiography Image View	

B.7. CID (12200) Echocardiography Left Ventricle

INCLUDE CID 12220 Echocardiography Common Measurements
INCLUDE CID 12201 Left Ventricle Linear
INCLUDE CID 12240 Left Ventricle Area
INCLUDE CID 12202 Left Ventricle Volume
INCLUDE CID 12222 Orifice Flow Properties
INCLUDE CID 12203 Left Ventricle Other
INCLUDE CID 12239 Cardiac Output Properties

B.8. CID (12201) Left Ventricle Linear

CSD	**CV**	**Code Meaning**
LN	29436-3	Left Ventricle Internal End Diastolic Dimension
LN	29438-9	Left Ventricle Internal Systolic Dimension
LN	18051-3	Left Ventricular Fractional Shortening
LN	18154-5	Interventricular Septum Diastolic Thickness
LN	18155-2	Interventricular Septum to Posterior Wall Thickness Ratio
LN	18054-7	Interventricular Septum % Thickening
LN	18158-6	Interventricular Septum Systolic Thickness
LN	18053-9	Left Ventricle Posterior Wall % Thickening
LN	18156-0	Left Ventricle Posterior Wall Systolic Thickness
LN	18152-9	Left Ventricle Posterior Wall Diastolic Thickness
MRUS	M12201-09	Left Ventricular Long-axis Length at End Diastole
MRUS	M12201-10	Left Ventricular Long-axis Length at End Systole
MRUS	C12201-02	Left Atrium Diameter/Aorta Diameter

MRUS	C12201-03	LV short-axis Diameter Index at End Diastole
MRUS	C12201-04	LV short-axis Diameter Index at End Systole

B.9. CID (12202) Left Ventricle Volume

CSD	CV	Code Meaning
LN	18026-5	Left Ventricular End Diastolic Volume
LN	18148-7	Left Ventricular End Systolic Volume
LN	18043-0	Left Ventricular Ejection Fraction
MRUS	C12202-01	Teichholz-End-diastolic left ventricular volume Index
MRUS	C12202-02	Teichholz-End-systolic left ventricular volume Index

B.10. CID (12203) Left Ventricle Other

CSD	CV	Code Meaning
LN	18087-7	Left Ventricle Mass
LN	18071-1	Left Ventricular Isovolumic Relaxation Time
MRUS	M12203-02	Left Ventricle Ejection Time
MRUS	C12203-01	Left ventricular Mass Weight Index
MRUS	M12203-03	Left Ventricular Mass Weight T-E a 2D
MRUS	M12203-04	Left Ventricular Mass Weight T-E d 2D
MRUS	C12203-03	Left Ventricular Mass Weight(T-E)
MRUS	C12203-04	Left Ventricular Mass Weight Index(T-E)
MRUS	C12203-05	Left Ventricular Mass Weight(A-L)
MRUS	C12203-06	Left Ventricular Mass Weight Index(A-L)
LN	59099-2	Myocardial Performance Index (Tei)
MRUS	C12203-07	Left Ventricular Mass Weight T-E b 2D
MRUS	C12203-08	Left Ventricular Mass Weight t 2D

B.11. CID (12204) Echocardiography Right Ventricle

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
INCLUDE CID 12222 Orifice Flow Properties		
INCLUDE CID 12239 Cardiac Output Properties		

CSD	CV	Code Meaning
LN	20304-2	Right Ventricular Internal Diastolic Dimension
LN	20305-9	Right Ventricular Internal Systolic Dimension
LN	18153-7	Right Ventricular Anterior Wall Diastolic Thickness
LN	18157-8	Right Ventricular Anterior Wall Systolic Thickness
MRUS	M12204-03	Right ventricular Area at end-diastole
MRUS	M12204-04	Right ventricular Area at end-systole
MRUS	M12204-06	Right Ventricle Ejection Time
MRUS	C12204-03	Right Ventricular Fractional Area Change
MRUS	M12204-07	Right Ventricular Diameter at the base of the Right Ventricle
MRUS	M12204-08	Right Ventricular Diameter at the Mid of the Right Ventricle
MRUS	M12204-09	Right Ventricular Diameter
MRUS	C12204-04	Right Ventricular Fractional Shortening
LN	59099-2	Myocardial Performance Index (Tei)

B.12. CID (12205) Echocardiography Left Atrium

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
LN	29469-4	Left Atrium Antero-posterior Systolic Dimension
LN	17977-0	Left Atrium Systolic Area
SRT	G-0383	Left Atrium Systolic Volume
MRUS	M12205-03	Left AtriumApical Diameter
MRUS	C12205-02	Left Atrium Volume Index(A2C)
MRUS	C12205-03	Left Atrium Volume Index(A4C)
MRUS	C12205-04	Left Atrium Volume(A-L)
MRUS	C12205-05	Left Atrium Volume Index(A-L)

B.13. CID (12206) Echocardiography Right Atrium

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
LN	18070-3	Right Atrium Systolic Pressure
MRUS	M12206-03	Right atrium Volume
MRUS	M12206-04	Right atrium Volume index

B.14. CID (12207) Echocardiography Mitral Valve

CSD	CV	Code Meaning
SRT	F-32120	Stroke Volume
INCLUDE CID 12220 Echocardiography Common Measurements		
INCLUDE CID 12222 Orifice Flow Properties		
INCLUDE CID 12239 Cardiac Output Properties		
LN	17978-8	Mitral Valve A-Wave Peak Velocity
LN	18037-2	Mitral Valve E-Wave Peak Velocity
LN	18038-0	Mitral Valve E to A Ratio
SRT	G-0384	Mitral Valve E-Wave Deceleration Time
LN	18040-6	Mitral Valve E-F Slope by M-Mode
LN	18036-4	Mitral Valve EPSS, E wave
SRT	G-0385	Mitral Valve A-Wave Duration
MRUS	M12207-05	Amplitude from D point to E point
MRUS	M12207-07	Mitral Valve E-wave Pressure Gradient
MRUS	M12207-08	Mitral Valve A-wave Pressure Gradient
MRUS	M12207-39	Mitral Annular Plane Systolic Excursion

B.15. CID (12208) Echocardiography Tricuspid Valve

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
INCLUDE CID 12222 Orifice Flow Properties		
LN	18031-5	Tricuspid Valve E Wave Peak Velocity
LN	18030-7	Tricuspid Valve A Wave Peak Velocity
SRT	G-0389	Tricuspid Valve Closure to Opening Time
MRUS	M12208-02	Tricuspid Valve E Wave Pressure Gradient
MRUS	M12208-03	Tricuspid Valve A Wave Pressure Gradient
MRUS	M12208-04	Tricuspid Annular Plane Systolic Excursion
MRUS	C12208-05	TV E/E'
MRUS	M12208-11	Tricuspid Valve anterior leaflet annulus S-wave Velocity
MRUS	M12208-12	Tricuspid Valve anterior leaflet annulus E-wave Velocity
MRUS	M12208-13	Tricuspid Valve anterior leaflet annulus

CSD	CV	Code Meaning
		A-wave Velocity
MRUS	C12208-06	TV E'/A'

B.16. CID (12209) Echocardiography Pulmonic Valve

INCLUDE CID 12220 Echocardiography Common Measurements
INCLUDE CID 12222 Orifice Flow Properties

B.17. CID (12210) Echocardiography Pulmonary Artery

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
MRUS	C12210-01	Pulmonary Artery End Diastolic Pressure

B.18. CID (12211) Echocardiography Aortic Valve

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
INCLUDE CID 12222 Orifice Flow Properties		
LN	17996-0	Aortic Valve Cusp Separation

B.19. CID (12212) Echocardiography Aorta

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
LN	18015-8	Aortic Root Diameter
LN	18011-7	Aortic Arch Diameter
LN	18012-5	Ascending Aortic Diameter
LN	18013-3	Descending Aortic Diameter
MRUS	M12212-01	Aortic Sinotubular junction Diameter
MRUS	M12212-02	Aortic Sinus Valsalva Diameter

B.20. CID (12214) Echocardiography Pulmonary Veins

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		

CSD	CV	Code Meaning
SRT	G-038B	Pulmonary Vein A-Wave Duration
LN	29450-4	Pulmonary Vein Systolic Peak Velocity
LN	29451-2	Pulmonary Vein Diastolic Peak Velocity
MRUS	M12214-03	Pulmonary Vein A-wave flow Velocity
MRUS	M12214-05	Pulmonary Vein Ratio of S-Wave velocity to D-wave velocity

B.21. CID (12215) Echocardiography Vena Cavae

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
LN	18006-7	Inferior Vena Cava Diameter

B.22. CID (12216) Echocardiography Hepatic Veins

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
MRUS	M12216-1	Hepatic Vein diameter
MRUS	M12216-2	Hepatic Vein S-D-A-V
MRUS	M12216-3	Hepatic Vein S-wave Flow Velocity
MRUS	M12216-4	Hepatic Vein D-wave Flow Velocity
MRUS	M12216-5	Hepatic Vein A-wave Reversal Flow Velocity
MRUS	M12216-6	Hepatic Vein V-wave Reversal Flow Velocity
MRUS	C12216-1	Ratio of S-wave Flow Velocity toD-wave Flow Velocity

B.23. CID (12220) Echocardiography Common Measurements

CSD	CV	Code Meaning
LN	8867-4	Heart rate

B.24. CID (12221) Flow Direction

CSD	CV	Code Meaning
SRT	R-42047	Antegrade Flow
SRT	R-42E61	Regurgitant Flow

B.25. CID (12222) Orifice Flow Properties

CSD	CV	Code Meaning
SRT	G-038E	Cardiovascular Orifice Area
SRT	G-038F	Cardiovascular Orifice Diameter
LN	11726-7	Peak Velocity
LN	20247-3	Peak Gradient
LN	20168-1	Acceleration Time
LN	20217-6	Deceleration Time
MRUS	M12222-05	Aliasing Velocity
LN	33878-0	Volume Flow
LN	34141-2	Peak Instantaneous Flow Rate
SRT	G-0390	Regurgitant Fraction
LN	20280-4	Pressure Half-Time
MRUS	M12222-04	Time
MRUS	M12222-09	Effective Regurgitant Orifice Area
MRUS	M12222-10	Mitral Valve Lateral Wall S-wave Velocity
MRUS	M12222-11	Mitral Valve Lateral Wall E-wave Velocity
MRUS	M12222-12	Mitral Valve Lateral Wall A-wave Velocity
MRUS	M12222-13	Mitral Valve Septal Wall S-wave Velocity
MRUS	M12222-14	Mitral Valve Septal Wall E-wave Velocity
MRUS	M12222-15	Mitral Valve Septal Wall A-wave Velocity
MRUS	M12222-16	MV Regurgitation Proximal Isovelocity Surface Area Radius
MRUS	C12222-02	MV E'/A' Lat
MRUS	C12222-03	MV E'/A' Sep
MRUS	C12222-04	MV E/E' Lat
MRUS	C12222-05	MV E/E' Sep
MRUS	C12222-06	MV E/E'
LN	11653-3	End Diastolic Velocity
MRUS	M12222-08	Presure Gradient at end-Diastole
MRUS	M12222-06	Flow Radius
MRUS	C12222-07	Ratio of E-wave Flow Velocity to A-wave Flow Velocity
MRUS	C12222-08	Mean Pulmonary Artery Gradient

B.26. CID (12224) Ultrasound Image Modes

CSD	CV	Code Meaning
SRT	G-03A2	2D mode
SRT	G-0394	M mode
SRT	R-409E2	Doppler Color Flow
SRT	R-409E4	Doppler Pulsed
SRT	R-409E3	Doppler Continuous Wave
DCM	125230	Power Doppler
DCM	125231	3D mode
SRT	P5-B0128	Tissue Doppler Imaging

B.27. CID (12226) Echocardiography Image View

CSD	CV	Code Meaning
SRT	G-A19B	Apical two chamber
SRT	G-A19C	Apical four chamber
SRT	G-0395	Apical long axis
SRT	G-0396	Parasternal long axis
SRT	G-0397	Parasternal short axis
SRT	G-0398	Parasternal short axis at the aortic valve level
SRT	G-0399	Parasternal short axis at the level of the mitral chords
SRT	G-039A	Parasternal short axis at the Mitral Valve level
SRT	G-039B	Parasternal short axis at the Papillary Muscle level
SRT	G-039C	Right Ventricular Inflow Tract View
SRT	G-039D	Right Ventricular Outflow Tract View
SRT	G-039E	Subcostal long axis
SRT	G-039F	Subcostal short axis
SRT	G-03A0	Suprasternal long axis
SRT	G-03A1	Suprasternal short axis

B.28. CID (12227) Echocardiography Measurement Method

INCLUDE CID 12228 Echocardiography Volume Methods

INCLUDE CID 12229 Echocardiography Area Methods
INCLUDE CID 12231 Volume Flow Methods
INCLUDE CID 12232 Myocardium Mass Methods

B.29. CID (12228) Volume Methods

CSD	CV	Code Meaning
DCM	125204	Area-Length Biplane
DCM	125205	Area-Length Single Plane
DCM	125211	Biplane Ellipse
DCM	125226	Single Plane Ellipse
DCM	125206	Cube Method
DCM	125207	Method of Disks, Biplane
DCM	125208	Method of Disks, Single Plane
DCM	125209	Teichholz
MRUS	VM12228-01	Bullet
MRUS	VM12228-02	Method of Disks,Simpson
MRUS	VM12228-03	Gibson

B.30. CID (12229) Area Methods

CSD	CV	Code Meaning
DCM	125210	Area by Pressure Half-Time
DCM	125212	Continuity Equation
DCM	125213	Continuity Equation by Mean Velocity
DCM	125214	Continuity Equation by Peak Velocity
DCM	125215	Continuity Equation by Velocity Time Integral
DCM	125216	Proximal Isovelocity Surface Area
DCM	125220	Planimetry

B.31. CID (12230) Gradient Methods

CSD	CV	Code Meaning
DCM	125217	Full Bernoulli
DCM	125218	Simplified Bernoulli

B.32. CID (12231) Volume Flow Methods

CSD	CV	Code Meaning
DCM	125219	Doppler Volume Flow
DCM	125216	Proximal Isovelocity Surface Area

B.33. CID (12232) Myocardium Mass Methods

CSD	CV	Code Meaning
DCM	125221	Left Ventricle Mass by M-mode
DCM	125222	Left Ventricle Mass by Truncated Ellipse

B.34. CID (12233) Cardiac Phase

CSD	CV	Code Meaning
SRT	F-32020	Systole
SRT	F-32010	Diastole
SRT	F-32011	End Diastole
DCM	109070	End Systole

B.35. CID (12234) Respiration Phase

CSD	CV	Code Meaning
SRT	F-20010	During Inspiration
SRT	F-20020	During Expiration

B.36. CID (12239) Cardiac Output Properties

CSD	CV	Code Meaning
SRT	F-32120	Stroke Volume
SRT	F-32100	Cardiac Output
SRT	F-32110	Cardiac Index
SRT	F-00078	Stroke Index
LN	29462-9	Pulmonary-to-Systemic Shunt Flow Ratio

B.37. CID (12240) Left Ventricle Area

CSD	CV	Code Meaning
SRT	G-0379	Left Ventricle Epicardial Diastolic Area, psax pap view
MRUS	M12240-01	Left Ventricle Endocardiac Diastolic Area, psax pap view
MRUS	M12240-02	LVAd Sax MV
MRUS	M12240-03	LVAs Sax MV

B.38. Mapping between Modality measurements and DICOM Concepts.

B.38.1. Left Ventricle Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
HR	8867-4,LN,Heart rate	ImageMode = G-03A2,SRT,2D mode;
HR	8867-4,LN,Heart rate	ImageMode = G-0394,SRT,M Mode;
LVIDd	29436-3,LN,Left Ventricle Internal End Diastolic Dimension	ImageMode = G-03A2,SRT,2D mode;
LVIDd	29436-3,LN,Left Ventricle Internal End Diastolic Dimension	ImageMode = G-0394,SRT,M Mode;
LVIDs	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-03A2,SRT,2D mode;
LVIDs	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-0394,SRT,M Mode;
FS	LN,18051-3,Left Ventricular Fractional Shortening	ImageMode = G-03A2,SRT,2D mode;
FS	LN,18051-3,Left Ventricular Fractional Shortening	ImageMode = G-0394,SRT,M Mode;
IVSd	18154-5,LN,Interventricular Septum Diastolic Thickness	ImageMode = G-03A2,SRT,2D mode;
IVSd	18154-5,LN,Interventricular Septum Diastolic Thickness	ImageMode = G-0394,SRT,M Mode;
IVSd/LVPWd	18155-2,LN,Interventricular Septum to Posterior Wall Thickness Ratio	CardiacCyclePoint =F-32011,SRT,End Diastole; ImageMode = G-03A2,SRT,2D mode;
IVSs/LVPWs	18155-2,LN,Interventricular Septum to Posterior Wall Thickness Ratio	CardiacCyclePoint =109070,SRT,End Systole; ImageMode = G-03A2,SRT,2D mode;

IVSd/LVPWd	18155-2,LN,Interventricular Septum to Posterior Wall Thickness Ratio	CardiacCyclePoint =F-32011,SRT,End Diastole; ImageMode = G-0394,SRT,M Mode;
IVSs/LVPWs	18155-2,LN,Interventricular Septum to Posterior Wall Thickness Ratio	CardiacCyclePoint =109070,SRT,End Systole; ImageMode = G-0394,SRT,M Mode;
IVS%	18054-7,LN,Interventricular Septum % Thickening	ImageMode = G-03A2,SRT,2D mode;
IVS%	18054-7,LN,Interventricular Septum % Thickening	ImageMode = G-0394,SRT,M Mode;
IVSs	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-03A2,SRT,2D mode;
IVSs	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-0394,SRT,M Mode;
LVPW%	18053-9,LN,Left Ventricle Posterior Wall % Thickening	ImageMode = G-03A2,SRT,2D mode;
LVPW%	18053-9,LN,Left Ventricle Posterior Wall % Thickening	ImageMode = G-0394,SRT,M Mode;
LVPWs	18156-0,LN,Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-03A2,SRT,2D mode;
LVPWs	18156-0,LN,Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-0394,SRT,M Mode;
LVPWd	18152-9,LN,Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-03A2,SRT,2D mode;
LVPWd	18152-9,LN,Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-0394,SRT,M Mode;
LVLd apical	MRUS,M12201-09,Left Ventricular Long-axis Length at End Diastole	ImageMode = G-03A2,SRT,2D mode;
LVLs apical	MRUS,M12201-10,Left Ventricular Long-axis Length at End Systole	ImageMode = G-03A2,SRT,2D mode;
LA/AoR	MRUS,C12201-02,Left Atrium Diameter/Aorta Diameter	ImageMode = G-03A2,SRT,2D mode;
LA/AoR	MRUS,C12201-02,Left Atrium Diameter/Aorta Diameter	ImageMode = G-0394,SRT,M Mode;
LVIDd Index	MRUS,C12201-03,LV short-axis Diameter Index at End Diastole	ImageMode = G-03A2,SRT,2D mode;
LVIDd Index	MRUS,C12201-03,LV short-axis Diameter Index at End Diastole	ImageMode = G-0394,SRT,M Mode;
LVISs Index	MRUS,C12201-04,LV short-axis Diameter Index at End Systole	ImageMode = G-03A2,SRT,2D mode;

LVISs Index	MRUS,C12201-04,LV short-axis Diameter Index at End Systole	ImageMode = G-0394,SRT,M Mode;
LVAd Sax Epi	SRT,G-0379,Left Ventricle Epicardial Diastolic Area, psax pap view	ImageMode =G-03A2,SRT,2D mode; ImageView = G-039B,SRT,Parasternal short axis at the Papillary Muscle level; Method =125222,DCM,Left Ventricle Mass by Truncated Ellipse
LVAd Sax Endo	M12240-01,MRUS,Left Ventricle Endocardiac Diastolic Area, psax pap view	ImageMode =G-03A2,SRT,2D mode; ImageView = G-039B,SRT,Parasternal short axis at the Papillary Muscle level; Method =125222,DCM,Left Ventricle Mass by Truncated Ellipse
LVAd Sax MV	MRUS,M12240-02,LVAd Sax MV	ImageMode =G-03A2,SRT,2D mode;
LVAs Sax MV	MRUS,M12240-03,LVAs Sax MV	ImageMode =G-03A2,SRT,2D mode;
EDV(Teich)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
EDV(Teich)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
EDV(Bullet)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-0394,SRT,M Mode; Method =125228,DCM,Bullet Method
EDV(BP)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125207,DCM,Method of Disks, Biplane
EDV(A2C)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125208,DCM,Method of Disks, Single Plane
EDV(A4C)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
EDV(Cubed)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
EDV(Cubed)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
ESV(Teich)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
ESV(Bullet)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet

ESV(Teich)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
ESV(BP)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
ESV(A2C)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125208,DCM,Method of Disks, Single Plane
ESV(A4C)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
ESV(Cube)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
ESV(Cube)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
EDV Index(Teich)	MRUS,C12202-01,Teichholz-End-diastolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
EDV Index(Teich)	MRUS,C12202-01,Teichholz-End-diastolic left ventricular volume Index	ImageMode =G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
EDV Index (Bullet)	MRUS,C12202-01,Teichholz-End-diastolic left ventricular volume Index	ImageMode =G-0394,SRT,M Mode; Method =125228,DCM,Bullet Method
EDV Index (BP)	MRUS,C12202-01,Teichholz-End-diastolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; Method =125207,DCM,Method of Disks, Biplane
EDV Index (A2C)	MRUS,C12202-01,Teichholz-End-diastolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125208,DCM,Method of Disks, Single Plane
EDV Index (A4C)	MRUS,C12202-01,Teichholz-End-diastolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
EDV Index (Cubed)	MRUS,C12202-01,Teichholz-End-diastolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
EDV Index (Cubed)	MRUS,C12202-01,Teichholz-End-diastolic left ventricular volume Index	ImageMode =G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
ESV Index (Teich)	MRUS,C12202-02,Teichholz-End-systolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz

ESV Index (Bullet)	MRUS,C12202-02,Teichholz-End-systolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
ESV Index (Teich)	MRUS,C12202-02,Teichholz-End-systolic left ventricular volume Index	ImageMode =G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
ESV Index (BP)	MRUS,C12202-02,Teichholz-End-systolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
ESV Index (A2C)	MRUS,C12202-02,Teichholz-End-systolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125208,DCM,Method of Disks, Single Plane
ESV Index (A4C)	MRUS,C12202-02,Teichholz-End-systolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
ESV Index (Cube)	MRUS,C12202-02,Teichholz-End-systolic left ventricular volume Index	ImageMode =G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
ESV Index (Cube)	MRUS,C12202-02,Teichholz-End-systolic left ventricular volume Index	ImageMode =G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
LVOT Area	G-038E,SRT,Cardiovascular Orifice Area	ImageMode =G-03A2,SRT,2D mode;
LVOT Diam	G-038F,SRT,Cardiovascular Orifice Diameter	ImageMode =G-03A2,SRT,2D mode;
LV Mass	18087-7,LN,Left Ventricle Mass	ImageMode =G-03A2,SRT,2D mode;
LV Mass	18087-7,LN,Left Ventricle Mass	ImageMode =G-0394,SRT,M Mode; Method =125221,DCM,Left Ventricle Mass by M-mode
IVRT	LN,18071-1,Left Ventricular Isovolumic Relaxation Time	ImageMode = R-409E4,SRT,Doppler Pulsed
LVET	MRUS,M12203-02,Left Ventricle Ejection Time	ImageMode = R-409E4,SRT,Doppler Pulsed
a	MRUS,M12203-03,Left Ventricular Mass Weight T-E a 2D	ImageMode =G-03A2,SRT,2D mode;
d	MRUS,M12203-04,Left Ventricular Mass Weight T-E d 2D	ImageMode =G-03A2,SRT,2D mode;
LV Mass(T-E)	MRUS,C12203-03,Left Ventricular Mass Weight(T-E)	ImageMode =G-03A2,SRT,2D mode;
LV Mass Index(T-E)	MRUS,C12203-04,Left Ventricular Mass Weight Index(T-E)	ImageMode =G-03A2,SRT,2D mode;
LV Mass(A-L)	MRUS,C12203-05,Left Ventricular Mass Weight(A-L)	ImageMode =G-03A2,SRT,2D mode;

LV Mass Index(A-L)	MRUS,C12203-06,Left Ventricular Mass Weight Index(A-L)	ImageMode =G-03A2,SRT,2D mode;
LV Tei Index	LN,59099-2,Myocardial Performance Index (Tei)	ImageMode = R-409E4,SRT,Doppler Pulsed
b	MRUS,C12203-07,Left Ventricular Mass Weight T-E b 2D	ImageMode =G-03A2,SRT,2D mode;
t	MRUS,C12203-08,Left Ventricular Mass Weight t 2D	ImageMode =G-03A2,SRT,2D mode;
SV(Teich)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
SV(Bullet)	F-32120,SRT,Stroke Volume	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
SV(Teich)	F-32120,SRT,Stroke Volume	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
LVOT SV	F-32120,SRT,Stroke Volume	
SV(BP)	F-32120,SRT,Stroke Volume	ImageMode =G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
SV(A2C)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane
SV(A4C)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
SV(Cubed)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
SV(Cubed)	F-32120,SRT,Stroke Volume	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
CO(Teich)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
CO(Bullet)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
CO(Teich)	F-32100,SRT,Cardiac Output	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
LVOT CO	F-32100,SRT,Cardiac Output	
CO(BP)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
CO(A2C)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane

CO(A4C)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
CO(Cube-d)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
CO(Cubed)	F-32100,SRT,Cardiac Output	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
CI(Teich)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
CI(Bullet)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
CI(Teich)	F-32110,SRT,Cardiac Index	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
LVOT CI	F-32110,SRT,Cardiac Index	
CI(BP)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
CI(A2C)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane
CI(A4C)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
CI(Cubed)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
CI(Cubed)	F-32110,SRT,Cardiac Index	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
SI(Teich)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
SI(Bullet)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
SI(Teich)	F-00078,SRT,Stroke Index	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
LVOT SI	F-00078,SRT,Stroke Index	
SI(BP)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
SI(A2C)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane

SI(A4C)	F-00078,SRT,Stroke Index	G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
SI(Cubed)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
SI(Cubed)	F-00078,SRT,Stroke Index	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method

B.38.2. Right Ventricle Measurements

MODALITY Label	***DICOM Mapping***	***Optional Modifiers***
RVIDd	20304-2,LN,Right Ventricular Internal Diastolic Dimension	ImageMode = G-03A2,SRT,2D mode;
RVIDd	20304-2,LN,Right Ventricular Internal Diastolic Dimension	ImageMode = G-0394,SRT,M Mode;
RVIDs	20305-9,LN,Right Ventricular Internal Systolic Dimension	ImageMode = G-03A2,SRT,2D mode;
RVIDs	20305-9,LN,Right Ventricular Internal Systolic Dimension	ImageMode = G-0394,SRT,M Mode;
RVWall d	18153-7,LN,Right Ventricular Anterior Wall Diastolic Thickness	ImageMode = G-03A2,SRT,2D mode;
RVWall d	18153-7,LN,Right Ventricular Anterior Wall Diastolic Thickness	ImageMode = G-0394,SRT,M Mode;
RVWall d s	18157-8,LN,Right Ventricular Anterior Wall Systolic Thickness	ImageMode = G-03A2,SRT,2D mode;
RVWall d s	18157-8,LN,Right Ventricular Anterior Wall Systolic Thickness	ImageMode = G-0394,SRT,M Mode;
RV Area(d)	M12204-03,MRUS,Right ventricular Area at end-diastole	ImageMode = G-03A2,SRT,2D mode;
RV Area(s)	M12204-04,MRUS,Right ventricular Area at end-systole	ImageMode = G-03A2,SRT,2D mode;
RVET	M12204-06,MRUS,Right Ventricle Ejection Time	ImageMode = G-0394,SRT,M Mode;
RVET	M12204-06,MRUS,Right Ventricle Ejection Time	ImageMode = R-409E4,SRT,Doppler Pulsed
RV FAC	MRUS,C12204-03,Right Ventricular Fractional Area Change	Method = VM12228-02,MRUS,Method of Disks,Simpson
RVD(Base)	MRUS,M12204-07,Right Ventricular Diameter at the base of the Right Ventricle	ImageMode = G-03A2,SRT,2D mode;

RVD(Mid)	MRUS,M12204-08,Right Ventricular Diameter at the Mid of the Right Ventricle	ImageMode = G-03A2,SRT,2D mode;
RVD Length	MRUS,M12204-09,Right Ventricular Diameter	ImageMode = G-03A2,SRT,2D mode;
RV FS	MRUS,C12204-04,Right Ventricular Fractional Shortening	ImageMode = G-03A2,SRT,2D mode;
RV FS	MRUS,C12204-04,Right Ventricular Fractional Shortening	ImageMode = G-0394,SRT,M Mode;
RV Tei Index	LN,59099-2,Myocardial Performance Index (Tei)	ImageMode = G-0394,SRT,M Mode;
RV MPI	LN,59099-2,Myocardial Performance Index (Tei)	ImageMode = R-409E4,SRT,Doppler Pulsed
RVOT Diam	G-038F,SRT,Cardiovascular Orifice Diameter	ImageMode = G-03A2,SRT,2D mode;
RVOT SV	F-32120,SRT,Stroke Volume	ImageMode = R-409E4,SRT,Doppler Pulsed
RVOT CO	F-32100,SRT,Cardiac Output	ImageMode = R-409E4,SRT,Doppler Pulsed
RVOT CI	F-32110,SRT,Cardiac Index	ImageMode = R-409E4,SRT,Doppler Pulsed
RVOT SI	F-00078,SRT,Stroke Index	ImageMode = R-409E4,SRT,Doppler Pulsed

B.38.3. Left Atrium Measurements

MODALITY Label	***DICOM Mapping***	***Optional Modifiers***
LA	29469-4,LN,Left Atrium Antero-posterior Systolic Dimension	ImageMode = G-03A2,SRT,2D mode;
LA	29469-4,LN,Left Atrium Antero-posterior Systolic Dimension	ImageMode = G-0394,SRT,M Mode;
LA Area(A2C)	17977-0,LN,Left Atrium Systolic Area	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method = 125205,DCM,Area-Length Single Plane
LA Area(A4C)	17977-0,LN,Left Atrium Systolic Area	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method = 125205,DCM,Area-Length Single Plane

LA Volume(A2C)	G-0383,SRT,Left Atrium Systolic Volume	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method = 125208,DCM,Method of Disks, Single Plane
LA Volume(A4C)	G-0383,SRT,Left Atrium Systolic Volume	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method = 125208,DCM,Method of Disks, Single Plane
LA Apical	MRUS,M12205-03,Left AtriumApical Diameter	ImageMode = G-03A2,SRT,2D mode;
LA Volume Index(A2C)	MRUS,C12205-02,Left Atrium Volume Index(A2C)	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method = 125208,DCM,Method of Disks, Single Plane
LA Volume Index(A4C)	MRUS,C12205-03,Left Atrium Volume Index(A4C)	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method = 125208,DCM,Method of Disks, Single Plane
LA Volume(A-L)	MRUS,C12205-04,Left Atrium Volume(A-L)	ImageMode = G-03A2,SRT,2D mode; Method = 125204,DCM,Area-Length Biplane
LA Volume Index(A-L)	MRUS,C12205-05,Left Atrium Volume Index(A-L)	ImageMode = G-03A2,SRT,2D mode; I Method = 125204,DCM,Area-Length Biplane

B.38.4. Right Atrium Measurements

MODALITY Label	***DICOM Mapping***	***Optional Modifiers***
RAP	18070-3,LN,Right Atrium Systolic Pressure	
RVSP	18070-3,LN,Right Atrium Systolic Pressure	
RV Volume(A4C)	MRUS,C12206-01,Right atrium Volume	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method = 125208,DCM,Method of Disks, Single Plane

RV Volume Index(A4C)	MRUS,C12206-02,Right Atrium Volume Index(A4C)	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method = 125208,DCM,Method of Disks, Single Plane

B.38.5. Aortic Valve Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
AoCS	17996-0,LN,Aortic Valve Cusp Separation	ImageMode = G-03A2,SRT,2D mode;
AoCS	17996-0,LN,Aortic Valve Cusp Separation	ImageMode = G-0394,SRT,M Mode;
AV HR	8867-4,LN,Heart rate	
AV Area(VTI)	G-038E,SRT,Cardiovascular Orifice Area	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = R-409E4,SRT,Doppler Pulsed; Method =125220,DCM,Planimetry
AR Peak Vel	11726-7,LN,Peak Velocity	Flow Direction = R-42E61,SRT,Regurgitant Flow;
AR EDV	11726-7,LN,Peak Velocity	Flow Direction = R-42E61,SRT,Regurgitant Flow;
AR PHT	20280-4,LN,Pressure Half-Time	Flow Direction = R-42E61,SRT,Regurgitant Flow;
AR Dec Tme	20217-6,LN,Deceleration Time	Flow Direction = R-42047,SRT,Antegrade Flow;
MR Alias Vel	M12222-05,MRUS,Aliasing Velocity	Flow Direction = R-42E61,SRT,Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow;

B.38.6. Mitral Valve Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
MV A Vel	17978-8,LN,Mitral Valve A-Wave Peak Velocity	Image Mode = R-409E4,SRT,Doppler Pulsed
MV E Vel	18037-2,LN,Mitral Valve E-Wave Peak Velocity	Image Mode = R-409E4,SRT,Doppler Pulsed
MV E/A	18038-0,LN,Mitral Valve E to A Ratio	Image Mode = R-409E4,SRT,Doppler Pulsed
MV DecT	G-0384,SRT,Mitral Valve E-Wave Deceleration Time	Image Mode = R-409E4,SRT,Doppler Pulsed
MV E-F Slope	18040-6,LN,Mitral Valve E-F Slope by M-Mode	ImageMode = G-0394,SRT,M Mode ;
EPSS	18036-4,LN,Mitral Valve EPSS, E wave	ImageMode = G-0394,SRT,M Mode ;
A Wave Dur	G-0385,SRT,Mitral Valve A-Wave Duration	Image Mode = R-409E4,SRT,Doppler Pulsed

D-E Excursion	M12207-05,MRUS,Amplitude from D Point to E Point	ImageMode = G-0394,SRT,M Mode ;
MV E Grad	M12207-07,MRUS,Mitral Valve E-wave Pressure Gradient	Image Mode = R-409E4,SRT,Doppler Pulsed; Flow Direction =R-42047,SRT,Antegrade Flow;
MV A Grad	M12207-08,MRUS, Mitral Valve A-wave Pressure Gradient	Image Mode = R-409E4,SRT,Doppler Pulsed; Flow Direction =R-42047,SRT,Antegrade Flow;
MAPSE	MRUS,M12207-39,Mitral Annular Plane Systolic Excursion	ImageMode = G-0394,SRT,M Mode ;
MV HR	8867-4,LN,Heart rate	
MR Flow	33878-0,LN,Volume Flow	Flow Direction =R-42E61,SRT,Regurgitant Flow; Method = 125216,DCM,Proximal Isovelocity Surface Area
MR Flow Rate	34141-2,LN,Peak Instantaneous Flow Rate	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow; Method = 125216,DCM,Proximal Isovelocity Surface Area
MVArea(VTI)	G-038E,SRT,Cardiovascular Orifice Area	Flow Direction =R-42047,SRT,Antegrade Flow; Method = 125215,DCM,Continuity Equation by Velocity Time Integral
MVArea(PHT)	G-038E,SRT,Cardiovascular Orifice Area	Flow Direction =R-42047,SRT,Antegrade Flow; Method = 125210,DCM,Area by Pressure Half-Time
MV Diam	G-038F,SRT,Cardiovascular Orifice Diameter	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = G-03A2,SRT,2D mode;
MR Vena Contracta	G-038F,SRT,Cardiovascular Orifice Diameter	Flow Direction = R-42E61,SRT,Regurgitant Flow; ImageMode = G-03A2,SRT,2D mode;
MR Fraction	G-0390,SRT,Regurgitant Fraction	Flow Direction =R-42E61,SRT,Regurgitant Flow; Method = 125216,DCM,Proximal Isovelocity Surface Area
MV PHT	20280-4,LN,Pressure Half-Time	Flow Direction =R-42047,SRT, Antegrade Flow;

MR dt	M12222-04,MRUS,Time	Flow Direction =R-42E61,SRT,Regurgitant Flow;
MR EROA	MRUS,M12222-09, Effective Regurgitant Orifice Area	Flow Direction =R-42E61,SRT,Regurgitant Flow; Method = 125216,DCM,Proximal Isovelocity Surface Area
MV S' Lat	MRUS,M12222-10,Mitral Valve Lateral Wall S-wave Velocity	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV E' Lat	MRUS,M12222-11,Mitral Valve Lateral Wall E-wave Velocity	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV A' Lat	MRUS,M12222-12,Mitral Valve Lateral Wall A-wave Velocity	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV S' Sep	MRUS,M12222-13,Mitral Valve Septal Wall S-wave Velocity	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV E' Sep	MRUS,M12222-14,Mitral Valve Septal Wall E-wave Velocity	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV A' Sep	MRUS,M12222-15,Mitral Valve Septal Wall A-wave Velocity	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MR PISA Radius	MRUS,M12222-16,MV Regurgitation Proximal Isovelocity Surface Area Radius	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = G-03A2,SRT,2D mode

MV E'/A' Lat	MRUS,C12222-02,MV E'/A' Lat	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
,MV E'/A' Sep	MRUS,C12222-03,MV E'/A' Sep	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV E/E' Lat	MRUS,C12222-04,MV E/E' Lat	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV E/E' Sep	MRUS,C12222-05,MV E/E' Sep	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV E/E'	MRUS,C12222-06,MV E/E'	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = P5-B0128,SRT,Tissue Doppler Imaging
MV SV	F-32120,SRT,Stroke Volume	
MV CO	F-32100,SRT,Cardiac Output	
MV CI	F-32110,SRT,Cardiac Index	
MV SI	F-00078,SRT,Stroke Index	

B.38.7. Pulmonic Valve Measurements

MODALITY Label	***DICOM Mapping***	***Optional Modifiers***
PV HR	8867-4,LN,Heart rate	
PR EDV	11653-3,LN,End Diastolic Velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow;
PR Vmax	11726-7,LN,Peak Velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow;
PV Vmean	20352-1,LN,Mean Velocity	Flow Direction =R-42047,SRT, Antegrade Flow;
PR PeakGrad	20247-3,LN,Peak Gradient	Flow Direction =R-42E61,SRT,Regurgitant Flow;

PR ED Grad	M12222-08,MRUS,Presure Gradient at end-Diastole	Flow Direction =R-42E61,SRT,Regurgitant Flow;

B.38.8. Tricuspid Valve Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
TV E Vel	18031-5,LN,Tricuspid Valve E Wave Peak Velocity	
TV A Vel	18030-7,LN,Tricuspid Valve A Wave Peak Velocity	
TCO	G-0389,SRT,Tricuspid Valve Closure to Opening Time	ImageMode=G-03A2,SRT,2D mode;
TCO	G-0389,SRT,Tricuspid Valve Closure to Opening Time	ImageMode = R-409E4,SRT,Doppler Pulsed;
TV E Grad	M12208-02,MRUS,Tricuspid Valve E Wave Pressure Gradient	Flow Direction =R-42047,SRT, Antegrade Flow;
TV A Grad	M12208-03,MRUS,Tricuspid Valve A Wave Pressure Gradient	Flow Direction =R-42047,SRT, Antegrade Flow;
TAPSE	MRUS,M12208-04,Tricuspid Annular Plane Systolic Excursion	ImageMode = G-0394,SRT,M Mode;
TV E/E’	MRUS,C12208-05,TV E/E'	ImageMode = P5-B0128,SRT,Tissue Doppler Imaging;
TV S’ Ant	MRUS,M12208-11,Tricuspid Valve anterior leaflet annulus S-wave Velocity	ImageMode = P5-B0128,SRT,Tissue Doppler Imaging;
TV E’ Ant	MRUS,M12208-12,Tricuspid Valve anterior leaflet annulus E-wave Velocity	ImageMode = P5-B0128,SRT,Tissue Doppler Imaging;
TV A’ Ant	MRUS,M12208-13,Tricuspid Valve anterior leaflet annulus A-wave Velocity	ImageMode = P5-B0128,SRT,Tissue Doppler Imaging;
TV E’/A’	MRUS,C12208-06,TV E’/A’	ImageMode = P5-B0128,SRT,Tissue Doppler Imaging;
TR Flow Rate	34141-2,LN,Peak Instantaneous Flow Rate	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow; Method = 125216,DCM,Proximal Isovelocity Surface Area

TV Diam	G-038F,SRT,Cardiovascular Orifice Diameter	Flow Direction =R-42047,SRT, Antegrade Flow; ImageMode = G-03A2,SRT,2D mode;
TV Vena Contracta	G-038F,SRT,Cardiovascular Orifice Diameter	Flow Direction = R-42E61,SRT,Regurgitant Flow; ImageMode = G-03A2,SRT,2D mode;
TR Flow Rate	G-0390,SRT,Regurgitant Fraction	Flow Direction =R-42E61,SRT,Regurgitant Flow; Method = 125216,DCM,Proximal Isovelocity Surface Area
TV Vmax	11726-7,LN,Peak Velocity	Flow Direction =R-42047,SRT, Antegrade Flow;
TR Vmax	11726-7,LN,Peak Velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow;
TRPISA Radius	M12222-06,MRUS,Flow Radius	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow;
TR Als.Vel	M12222-05,MRUS,Aliasing Velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow; Method =125216,DCM,Proximal Isovelocity Surface Area
TR EROA	M12222-09,MRUS, Effective Regurgitant Orifice Area	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow; Method =125216,DCM,Proximal Isovelocity Surface Area
TV E/A	MRUS,C12222-07,Ratio of E-wave Flow Velocity to A-wave Flow Velocity	imageMode = R-409E4,SRT,Doppler Pulsed
TV HR	8867-4,LN,Heart rate	
TV SV	F-32120,SRT,Stroke Volume	
TV CO	F-32100,SRT,Cardiac Output	
TV CI	F-32110,SRT,Cardiac Index	
TV SI	F-00078,SRT,Stroke Index	

B.38.9. Aorta Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
AoR	18015-8,LN,Aortic Root Diameter	ImageMode = G-03A2,SRT,2D mode;
AoR	18015-8,LN,Aortic Root Diameter	ImageMode = G-0394,SRT,M Mode;
Aortic Arch	18011-7,LN,Aortic Arch Diameter	ImageMode = G-03A2,SRT,2D mode;
Asc Aorta	18012-5,LN,Ascending Aortic Diameter	ImageMode = G-03A2,SRT,2D mode;
Sinotub Junc	M12212-01,MRUS,Aortic Sinotubular junction Diameter	ImageMode = G-03A2,SRT,2D mode;
Sinus Valsalva	M12212-02,MRUS,Aortic Sinus Diameter	ImageMode = G-03A2,SRT,2D mode;
Asc Aorta Vmax	11726-7,LN,Peak Velocity	
Desc Aorta Vmax	11726-7,LN,Peak Velocity	
Asc Aorta PeakGrad	20247-3,LN,Peak Gradient	
Desc Aorta PeakGrad	20247-3,LN,Peak Gradient	

B.38.10. Pulmonary Artery Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
PAEDP	C12210-01,MRUS,Pulmonary Artery End Diastolic Pressure	R-409E4,SRT,Doppler Pulsed

B.38.11. Vena Cava Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
IVC Diam	18006-7,LN,Inferior Vena Cava Diameter	ImageMode =G-03A2,SRT,2D mode;

B.38.12. Pulmonary Venous Structure Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
Plum V Sys	LN,29450-4,Pulmonary Vein Systolic Peak Velocity	
Plum V Dias	LN,29451-2,Pulmonary Vein Diastolic Peak Velocity	
Plum V A Dur	G-038B,SRT,Pulmonary Vein A-Wave Duration	
Plum V A Vmax	M12214-03,MRUS,Pulmonary Vein A-wave flow Velocity	
Plum V S/D	M12214-05,MRUS,Pulmonary Vein Ratio of S-Wave velocity to D-wave velocity	

B.38.13. Heart Rate Measurements

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*

MODALITY Label	*DICOM Mapping*	*Optional Modifiers*
HR	8867-4，LN，Heart rate	Image Mode = G-0394,SRT,M Mode
HRSP.Ellipse	8867-4，LN，Heart rate	Method =125226,DCM,Single Plane Ellipse
HRBP.Ellipse	8867-4，LN，Heart rate	Method=125211,DCM,Biplane Ellipse
HRBullet	8867-4，LN，Heart rate	Method =VM12228-01,MRUS,Bullet
HRMod.Simp	8867-4，LN，Heart rate	Method= VM12228-02,MRUS,Method of Disks,Simpson
HRSimp.SP	8867-4，LN，Heart rate	Method= 125208,DCM,Method of Disks, Single Plane
HRSimp.SP.A4C	8867-4，LN，Heart rate	Method= 125208,DCM,Method of Disks, Single Plane
HRSimp.BP	8867-4，LN，Heart rate	Method= 125207,DCM,Method of Disks, Biplane
HRTeich.2D	8867-4，LN，Heart rate	Method= 125209,DCM,Teichholz
HRTeich.M	8867-4，LN，Heart rate	Method= 125209,DCM,Teichholz
HRCube.2D	8867-4，LN，Heart rate	Method= 125206,DCM,Cube Metho
HRCube.M	8867-4，LN，Heart rate	Method= 125206,DCM,Cube Method
HRGibson.2D	8867-4，LN，Heart rate	Method= VM12228-03,MRUS,Gibson
HRGibson.M	8867-4，LN，Heart rate	Method= VM12228-03,MRUS,Gibson

C. Appendix : Vascular structured reporting template

This appendix lists the DICOM Structured Report (SR) mappings used in the

Vascular Structured Reports of ultrasound system SR files.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16 of the DICOM Standard. The Vascular Report mappings follow the DICOM SR Template TID 5100: Vascular Ultrasound Procedure Report, except where noted.

All private code values use the Coding Scheme Designator "MRUS".

C.1. TID (5100) Vascular Ultrasoud Report

This is the template for the root the content tree for the vascular ultrasound procedure report.

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Value Set Constraint	Comment
1			CONTAINER	EV (125100, DCM, “Vascular Ultrasound Procedure Report”)	√		
2	>	HAS OBS CONTEXT	CODE	EV (R-40FB8, SRT, “Temporal periods Relating to Procedure”)		DCID (12102) Temporal Periods Relating To Procedure or Therapy	
3	>	HAS CONCEPT MOD	INCL UDE	DTID (1204) Language of Content Item and Descendants			
4	>	HAS OBS CONTEXT	INCLUDE	DTID (1001) Observation Context	√		
5	>	CONTAINS	INCLUDE	DTID (5101) Vascular Patient Characteristics	√		
6	>	CONTAINS	CONTAINER	EV (111028, DCM, “Image Library”)	√		
7	>>	CONTAINS	IMAGE	No purpose of reference	√		
8	>	CONTAINS	INCLUDE	DTID (5102) Vascular Procedure Summary Section	√		

9	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-40501, SRT, ”Blood Vessel of Head”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12105) Intracranial Cerebral Vessels	
10	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-40501, SRT, ”Blood Vessel of Head”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12105) Intracranial Cerebral Vessels	
11	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-40501, SRT, ”Blood Vessel of Head”) $SectionLaterality = EV (G-A103, SRT, ”Unilateral”) $Anatomy = DCID (12106) Intracranial Cerebral Vessels (unilateral)	
12	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-45005, SRT, ”Artery of neck”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12104) Extracranial Arteries $AnatomyRatio = DCID (12123) Carotid Ratios	

13	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-45005, SRT, ”Artery of neck”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12104) Extracranial Arteries $AnatomyRatio = DCID (12123) Carotid Ratios	
14	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-47040, SRT, ”Artery of Lower Extremity”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12109) Lower Extremity Arteries $AnatomyRatio = 8581-1,LN,Tibial/brachial index	
15	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-47040, SRT, ”Artery of Lower Extremity”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12109) Lower Extremity Arteries $AnatomyRatio = 8581-1,LN,Tibial/brachial index	
15	>	CONTAINS	INCLUDE	DTID (5103_3_1) Vascular Ultrasound Section	√	$SectionScope = DT (T-47040, SRT, ”Artery of Lower Extremity”)	

16	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-49403, SRT, ”Vein of Lower Extremity”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12110) Lower Extremity Veins	
17	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-49403, SRT, ”Vein of Lower Extremity”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12110) Lower Extremity Veins	
18	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-47020, SRT, ”Artery Of Upper Extremity”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12107) Upper Extremity Arteries	
19	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-47020, SRT, ”Artery Of Upper Extremity”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12107) Upper Extremity Arteries	

20	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-47020, SRT, ”Artery Of Upper Extremity”) $SectionLaterality = EV (G-A100, SRT, ” Unilateral”) $Anatomy = DCID (SELFCID-2) Upper Extremity Arteries(unilateral)	
21	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-49103, SRT, ”Vein Of Upper Extremity”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12108) Upper Extremity Veins	
22	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-49103, SRT, ”Vein Of Upper Extremity”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12108) Upper Extremity Veins	
23	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section		$SectionScope = DT (T-46002, SRT, ”Artery of Abdomen”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12111) Abdominal Arteries (lateral)	

24	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section		$SectionScope = DT (T-46002, SRT, ”Artery of Abdomen”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12111) Abdominal Arteries (lateral)	
25	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-46002, SRT, ”Artery of Abdomen”) $SectionLaterality = EV (G-A103, SRT, ”Unilateral”) $Anatomy = DCID (12112) Abdominal Arteries (unilateral)	
26	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section		$SectionScope = DT (T-487A0, SRT, ”Vein of Abdomen”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12113) Abdominal Veins (lateral)	
27	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section		$SectionScope = DT (T-487A0, SRT, ”Vein of Abdomen”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12113) Abdominal Veins (lateral)	

28	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-487A0, SRT, ” Vein of Abdomen”) $SectionLaterality = EV (G-A103, SRT, ”Unilateral”) $Anatomy = DCID (12114) Abdominal Veins (unilateral)	
29	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-71019, SRT, ”Vascular Structure Of Kidney”) $SectionLaterality = EV (G-A101, SRT, ”Left”) $Anatomy = DCID (12115) Renal Vessels	
30	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	√	$SectionScope = DT (T-71019, SRT, ”Vascular Structure Of Kidney”) $SectionLaterality = EV (G-A100, SRT, ”Right”) $Anatomy = DCID (12115) Renal Vessels	
31	>	CONTAINS	INCLUDE	DTID (5105) Ultrasound Graft Section			
32	>	CONTAINS	TEXT	(20121120,MRUS, “self-defined-Measurementfile”)	√		

C.2. TID (1001) Observation Context

This template specifies attributes of observation context that may be defined, extended or replaced at any location in the SR tree.

	NL	**Rel with Parent**	**VT**	**Concept Name**	**Used in MODALITY**	**Value Set Constraint**	**Comment**
	>	HAS OBS	CODE	EV (121005,DCM,	√	(121006,DCM,	

1		CONTEXT		“Observer Type”)		“Person”)	
2	>	HAS OBS CONTEXT	PNAME	EV (121008,DCM, “Person Observer Name”)	√	Operator from Info	
3	>	HAS OBS CONTEXT	TEXT	EV (121009,DCM, “ Person Observer’s Organization Name”)	√	Institution Name (0008,0080) of the General Equipment Module	
4	>	HAS OBS CONTEXT	CODE	EV (121010,DCM, “ Person Observer’s Role in the Organization”)	√	(121093, DCM, "Sonographer")	
5	>	HAS OBS CONTEXT	CODE	EV (121024, DCM, "Subject Class”)	√	(121025, DCM, "Patient”)	
6	>	HAS OBS CONTEXT	PNAME	EV (121029,DCM, "Subject Name”)	√	value of Patient’s Name (0010,0010) in Patient Module	
7	>	HAS OBS CONTEXT	DATE	EV (121031,DCM, "Subject Birth Date”)	√	value of Patient’s Birth Date (0010,0030) in Patient Module	
8	>	HAS OBS CONTEXT	CODE	EV (121032,DCM, "Subject Sex”)	√	value equivalent to Patient’s Sex (0010,0040) in Patient Module	
9	>	HAS OBS CONTEXT	NUM	EV (121033,DCM, "Subject Age”)	√	value of Patient’s Age (0010,1010) in Patient Study Module	

C.3. TID (5101) Vascular Patient Characteristics

	NL	**Rel with Parent**	**VT**	**Concept Name**	**Used in MODALITY**	**Value Set Constraint**	**Comment**
1			CONTAINER	EV (121118, DCM, “Patient Characteristics”)			
2	>	CONTAINS	NUM	EV (121033, DCM, "Subject Age”)	√	Units = DCID (7456) Units of Measure for Age	

3	>	CONTAINS	CODE	EV (121032, DCM, "Subject Sex")	√	DCID (7455) Sex	
4	>	CONTAINS	NUM	EV (F-008EC, SRT, "Systolic Blood Pressure")	√		
5	>	CONTAINS	NUM	EV (F-008ED, SRT, "Diastolic Blood Pressure")	√		
6	>	CONTAINS	NUM	EV (8302-2, LN, "Patient Height")	√		
7	>	CONTAINS	NUM	EV (29463-7, LN, "Patient Weight")	√		
8	>	CONTAINS	NUM	EV (8277-6, LN, "Body Surface Area")	√		
9	> >	INFERRED FROM	CODE	EV (8278-4, LN, "Body Surface Area Formula")	√		

C.4. TID (5102) Vascular Procedure Summary Section

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Value Set Constraint	COMMENT
1			CONTAINER	DT (121111, DCM, "Summary")			
2	>	CONTAINS	TEXT	DCID (12101) Vascular Summary	√		from Info comment
3	>	CONTAINS	TEXT	(I12101-01,MRUS,"Primary Indications")	√		from Info
4	>	CONTAINS	TEXT	(I12101-02,MRUS,"Secondary Indications")	√		from Info
5	>	CONTAINS	TEXT	(I12101-03,MRUS,"CPT4 Code")	√		from Info
6	>	CONTAINS	TEXT	(I12101-04,MRUS,"CPT4 Description")	√		from Info
7	>	CONTAINS	TEXT	EV (121106, DCM, "Comment")	√		From report interface Comment

8	>	CONTAINS	TEXT	(I12101-05,MRUS,"Prompt")	√		From report interface Prompt
9	>	CONTAINS	TEXT	(121071,DCM,"Findings")	√		From report interface Findings
10	>	CONTAINS	CONTAINER	(T-45100, SNM3, Common carotid artery)	√		
11	>>	CONTAINS	CONTAINER	(FG3495-01, MRUS, Plaque Description)	√		
12	>>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
13	>>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
14	>>	CONTAINS	CONTAINER	(FG3495-02, MRUS, Plaque Area)	√		
15	>>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
16	>>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
17	>	CONTAINS	CONTAINER	(T-45160,SRT,Carotid Bifurcation)	√		
18	>>	CONTAINS	CONTAINER	(FG3495-01, MRUS, Plaque Description)	√		
19	>>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
20	>>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
21	>>	CONTAINS	CONTAINER	(FG3495-02, MRUS, Plaque Area)	√		
22	>>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
23	>>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
24	>	CONTAINS	CONTAINER	(T-45300, SRT, Internal Carotid Artery)	√		ICA
25	>>	CONTAINS	CONTAINER	(FG3495-01, MRUS, Plaque Description)	√		
26	>>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
27	>>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
28	>>	CONTAINS	CONTAINER	(FG3495-02, MRUS, Plaque Area)	√		
29	>>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
30	>>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		

31	>	CONTAINS	CONTAINER	(T-45200,SRT,External Carotid Artery)	√		ECA
32	>>	CONTAINS	CONTAINER	(FG3495-01, MRUS, Plaque Description)	√		
33	>>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
34	>>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
35	>>	CONTAINS	CONTAINER	(FG3495-02, MRUS, Plaque Area)	√		
36	>>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
37	>>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
38	>	CONTAINS	CONTAINER	(T-45700 ,SRT ,Vertebral Artery)	√		
39	>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
40	>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
41	>	CONTAINS	CONTAINER	(T-46100,SRT,Subclavian Artery)	√		
42	>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	√		
43	>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	√		
44	>	CONTAINS	TEXT	(T-46010,SRT,Brachiocephalic trunk)	√		

C.5. TID (5103) Vascular Ultrasound Section

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Value Set Constraint	Comment
1			CONTAINER	DT (121070, DCM, “Findings”)	√		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, “Finding Site”)	√	$SectionScope	
3	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, “Laterality”)	√	$SectionLaterality	
4	>	CONTAINS	INCLUDE	DTID (5104) Vascular Measurement Group	√	$AnatomyGroup = $Anatomy=	

						DCID (12105) Intracranial Cerebral Vessels	
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	√	$Measurement = $AnatomyRatio	Only for Artery of neck

C.6. TID (5104) Vascular Ultrasound Measurement Group

	NL	Rel with Parent	VT	Concept Name	Used in MODALITY	Value Set Constraint	Comment
1			CONTAINER	$AnatomyGroup	√		
2	>	HAS CONCEPT MOD	CODE	EV (G-A1F8, SRT, "Topographical Modifier")	√	DCID (12116) Vessel Segment Modifiers	
3	>	HAS CONCEPT MOD	CODE	EV (125101, DCM, "Vessel Branch")	√	DCID (12117) Vessel Branch Modifiers	
4	>	CONTAINS	INCLUDE	DTID (300) Measurement		$Measurement = DCID (12119) Vascular Ultrasound Property $Derivation = DCID (3627) Measurement Type	
5	>>	HAS CONCEPT MOD	CODE	EV (R-4089A, SRT, "Cardiac Cycle Point")		DCID (12233) Cardiac Phase	
6	>>	HAS CONCEPT MOD	CODE	EV (R-41FFC, SRT, "Temporal period related to eating")		DT (G-A491, SRT, "Post-prandial")	

C.7. CID (12104) Extracranial Arteries

CSD	CV	Code Meaning

CSD	CV	Code Meaning
SRT	T-45160	Carotid Bifurcation
SRT	T-45170	Carotid Bulb
SRT	T-45100	Common Carotid Artery
SRT	T-45200	External Carotid Artery
SRT	T-45300	Internal Carotid Artery
SRT	T-46100	Subclavian Artery
SRT	T-45700	Vertebral Artery
MRUS	A12104-1	Terminal Vertebral Artery
MRUS	A12104-2	Carotid Graft 1 Anastomosis
MRUS	A12104-3	Carotid Graft 1 Graft
MRUS	A12104-4	Carotid Graft 2 Anastomosis
MRUS	A12104-5	Carotid Graft 2 Graft
MRUS	A12104-6	Carotid Graft 3 Anastomosis
MRUS	A12104-7	Carotid Graft 3 Graft
MRUS	A12104-8	Carotid Stent 1
MRUS	A12104-9	Carotid Stent 2
MRUS	A12104-10	Carotid Stent 3
MRUS	A12104-11	Carotid Graft 1 Native Inflow
MRUS	A12104-12	Carotid Graft 1 Anastomosis Pre
MRUS	A12104-13	Carotid Graft 1 Anastomosis Max
MRUS	A12104-14	Carotid Graft 1 Anastomosis Post
MRUS	A12104-15	Carotid Graft 1 Native Outflow
MRUS	A12104-16	Carotid Graft 2 Native Inflow
MRUS	A12104-17	Carotid Graft 2 Anastomosis Pre
MRUS	A12104-18	Carotid Graft 2 Anastomosis Max
MRUS	A12104-19	Carotid Graft 2 Anastomosis Post
MRUS	A12104-20	Carotid Graft 2 Native Outflow
MRUS	A12104-21	Carotid Graft 3 Native Inflow
MRUS	A12104-22	Carotid Graft 3 Anastomosis Pre
MRUS	A12104-23	Carotid Graft 3 Anastomosis Max
MRUS	A12104-24	Carotid Graft 3 Anastomosis Post
MRUS	A12104-25	Carotid Graft 3 Native Outflow
MRUS	A12104-26	Common Carotid Arterial Aneurysm
MRUS	A12104-27	Bulbillate Aneurysm
MRUS	A12104-28	Carotid Bifurcation Aneurysm

CSD	CV	Code Meaning
MRUS	A12104-29	Internal Carotid Arterial Aneurysm
MRUS	A12104-30	External Carotid Arterial Aneurysm
MRUS	A12104-31	Vertebral Arterial Aneurysm
MRUS	A12104-32	Subclavian Arterial Aneurysm
MRUS	A12104-33	Common Carotid Artery Stenosis
MRUS	A12104-34	Bulbillate Stenosis
MRUS	A12104-35	Carotid Bifurcation Stenosis
MRUS	A12104-36	Internal Carotid Artery Stenosis
MRUS	A12104-37	External Carotid Artery Stenosis
MRUS	A12104-38	Vertebral Artery Stenosis
MRUS	A12104-39	Subclavian Artery Stenosis
MRUS	A12104-40	Carotid Stenosis 1
MRUS	A12104-41	Carotid Stenosis 2
MRUS	A12104-42	Carotid Stenosis 3
MRUS	A12104-43	Carotid Stenosis 4

C.8. CID (12105) Intracranial Cerebral Vessels

CSD	CV	Code Meaning
SRT	R-102BD	Terminal internal carotid artery
SRT	R-1024F	Middle Cerebral Artery M1 Segment
SRT	R-10251	Middle Cerebral Artery M2 Segment
SRT	T-45400	Ophthalmic Artery
SRT	R-10253	Posterior Cerebral Artery P1 Segment
SRT	R-10255	Posterior Cerebral Artery P2 Segment
SRT	T-45320	Posterior Communicating Artery
MRUS	A12105-1	Anterior Cerebral Artery A1
MRUS	A12105-2	Internal Carotid Artery Siphon
MRUS	A12105-3	Distal Internal Carotid Artery

C.9. CID (12106) Intracranial Cerebral Vessels (unilateral)

CSD	CV	Code Meaning

CSD	CV	Code Meaning
SRT	T-45800	Basilar Artery
SRT	T-45530	Anterior Communicating Artery
MRUS	C12105-1	CCA/MCA
MRUS	C12105-2	ICA/MCA
MRUS	C12105-3	ICA/CCA
MRUS	C12105-4	ICAed/CCAed

C.10. CID (12107) Upper Extremity Arteries

CSD	CV	Code Meaning
SRT	T-47100	Axillary Artery
SRT	T-47160	Brachial Artery
SRT	T-47300	Radial Artery
SRT	T-47200	Ulnar Artery
SRT	T-46010	Innominate Artery
MRUS	A12107-1	Mammary Artery
MRUS	A12107-2	Upper External Arterial Graft 1 Native Inflow
MRUS	A12107-3	Upper External Arterial Graft 1 Anastomosis
MRUS	A12107-4	Upper External Arterial Graft 1 Graft
MRUS	A12107-5	Upper External Arterial Graft 1 Native Outflow
MRUS	A12107-6	Upper External Arterial Graft 2 Native Inflow
MRUS	A12107-7	Upper External Arterial Graft 2 Anastomosis
MRUS	A12107-8	Upper External Arterial Graft 2 Graft
MRUS	A12107-9	Upper External Arterial Graft 2 Native Outflow
MRUS	A12107-10	Upper External Arterial Graft 3 Native Inflow
MRUS	A12107-11	Upper External Arterial Graft 3 Anastomosis
MRUS	A12107-12	Upper External Arterial Graft 3 Graft
MRUS	A12107-13	Upper External Arterial Graft 3 Native Outflow
MRUS	A12107-14	Upper External Arterial Stent 1
MRUS	A12107-15	Upper External Arterial Stent 2
MRUS	A12107-16	Upper External Arterial Stent 3
MRUS	A12107-17	Mammary Arterial Aneurysm
MRUS	A12107-18	Axillary Artery Aneurysm

CSD	CV	Code Meaning
MRUS	A12107-19	Brachial Artery Aneurysm
MRUS	A12107-20	Radial Artery Aneurysm
MRUS	A12107-21	Ulnar Artery Aneurysm
MRUS	A12107-22	Brachiocephalic Aneurysm
MRUS	A12107-23	Brachiocephalic Stenosis
MRUS	A12107-24	Mammary A Stenosis
MRUS	A12107-25	Axillary Artery Stenosis
MRUS	A12107-26	Brachial Artery Stenosis
MRUS	A12107-27	Radial Artery Stenosis
MRUS	A12107-28	Ulnar Artery Stenosis
MRUS	A12107-29	Upper External Arterial Stenosis 1
MRUS	A12107-30	Upper External Arterial Stenosis 2
MRUS	A12107-31	Upper External Arterial Stenosis 3
MRUS	A12107-32	Upper External Arterial Stenosis 4

C.11. CID (12108) Upper Extremity Veins

CSD	CV	Code Meaning
SRT	T-49110	Axillary vein
SRT	T-49350	Brachial vein
SRT	T-48620	Innominate vein
SRT	T-48170	Internal Jugular vein
SRT	T-49340	Radial vein
SRT	T-48330	Subclavian vein
SRT	T-49330	Ulnar vein
SRT	T-48610	Superior Vena Cava
MRUS	V12108-1	Cephalic Vein and Axillary Vein Junction
MRUS	V12108-2	Upper Arm Cephalic Vein
MRUS	V12108-3	Cephalic Anterior-Cubital Vein
MRUS	V12108-4	Forearm Cephalic Vein
MRUS	V12108-5	Basilic Vein and Axillary Vein Junction
MRUS	V12108-6	Upper Arm Basilic Vein
MRUS	V12108-7	Basilic Anterior-Cubital Vein
MRUS	V12108-8	Forearm Basilic Vein
MRUS	V12108-9	Digital Vein

CSD	CV	Code Meaning
MRUS	V12108-10	Arteriovenous Fistula-Inflow Artery
MRUS	V12108-11	Arteriovenous Fistula-Arterial Anastomosis
MRUS	V12108-12	Arteriovenous Fistula-Outflow Vein Level 1
MRUS	V12108-13	Arteriovenous Fistula-Outflow Vein Level 2
MRUS	V12108-14	Arteriovenous Fistula-Outflow Vein Level 3
MRUS	V12108-15	Arteriovenous Fistula-Outflow Vein Level 4
MRUS	V12108-16	Arteriovenous Fistula-Outflow Vein Level 5
MRUS	V12108-17	Arteriovenous Fistula-Outflow Vein Level 6
MRUS	V12108-18	Arteriovenous Fistula-Stenosis 1
MRUS	V12108-19	Arteriovenous Fistula-Stenosis 2
MRUS	V12108-20	Arteriovenous Fistula-Stenosis 3
MRUS	V12108-21	Arteriovenous Fistula-Aneurysm 1
MRUS	V12108-22	Arteriovenous Fistula-Aneurysm 2
MRUS	V12108-23	Arteriovenous Fistula-Aneurysm 3
MRUS	V12108-24	Arteriovenous Graft-Inflow Artery
MRUS	V12108-25	Arteriovenous Graft-Arterial Anastomosis
MRUS	V12108-26	Arteriovenous Graft-Graft
MRUS	V12108-27	Arteriovenous Graft-Venous Anastomosis
MRUS	V12108-28	Arteriovenous Graft-Outflow Vein Level 1
MRUS	V12108-29	Arteriovenous Graft-Outflow Vein Level 2
MRUS	V12108-30	Arteriovenous Graft-Outflow Vein Level 3
MRUS	V12108-31	Arteriovenous Graft-Outflow Vein Level 4
MRUS	V12108-32	Arteriovenous Graft-Outflow Vein Level 5
MRUS	V12108-33	Arteriovenous Graft-Outflow Vein Level 6
MRUS	V12108-34	Volar Vein
MRUS	V12108-35	Median Cubital Vein

C.12. CID (12109) Lower Extremity Arteries

CSD	CV	Code Meaning
SRT	T-46710	Common Iliac Artery
SRT	T-47700	Anterior Tibial Artery
SRT	T-47400	Common Femoral Artery
SRT	T-47741	Dorsalis Pedis Artery
SRT	T-46910	External Iliac Artery

CSD	CV	Code Meaning
SRT	T-46740	Internal Iliac Artery
SRT	T-47630	Peroneal Artery
SRT	T-47500	Popliteal Artery
SRT	T-47600	Posterior Tibial Artery
SRT	T-47440	Profunda Femoris Artery
SRT	T-47403	Superficial Femoral Artery
MRUS	V12109-01	TP Trunk Artery
MRUS	A12109-2	Lower External Arterial Graft 1 Native Inflow
MRUS	A12109-3	Lower External Arterial Graft 1 Anastomosis
MRUS	A12109-4	Lower External Arterial Graft 1 Graft
MRUS	A12109-5	Lower External Arterial Graft 1 Native Outflow
MRUS	A12109-6	Lower External Arterial Graft 2 Native Inflow
MRUS	A12109-7	Lower External Arterial Graft 2 Anastomosis
MRUS	A12109-8	Lower External Arterial Graft 2 Graft
MRUS	A12109-9	Lower External Arterial Graft 2 Native Outflow
MRUS	A12109-10	Lower External Arterial Graft 3 Native Inflow
MRUS	A12109-11	Lower External Arterial Graft 3 Anastomosis
MRUS	A12109-12	Lower External Arterial Graft 3 Graft
MRUS	A12109-13	Lower External Arterial Graft 3 Native Outflow
MRUS	A12109-14	Lower External Arterial Stent 1
MRUS	A12109-15	Lower External Arterial Stent 2
MRUS	A12109-16	Lower External Arterial Stent 3
MRUS	A12109-17	Lower External Arterial Finding 1
MRUS	A12109-18	Lower External Arterial Finding 2
MRUS	A12109-19	Lower External Arterial Finding 3
MRUS	A12109-20	Lower External Arterial Finding 4
MRUS	A12109-21	Lower External Arterial Finding 5
MRUS	A12109-22	Lower External Arterial Finding 6
MRUS	A12109-23	Common Iliac Arterial Aneurysm
MRUS	A12109-24	External Iliac Arterial Aneurysm
MRUS	A12109-25	Common Femoral Arterial Aneurysm
MRUS	A12109-26	Profunda Femoral Arterial Aneurysm
MRUS	A12109-27	Superficial Femoral Arterial Aneurysm
MRUS	A12109-28	Popliteal Arterial Aneurysm
MRUS	A12109-29	Tibial Peroneal Trunk Arterial Aneurysm

CSD	CV	Code Meaning
MRUS	A12109-30	Anterior Tibial Arterial Aneurysm
MRUS	A12109-31	Peroneal Arterial Aneurysm
MRUS	A12109-32	Posterior Tibial Arterial Aneurysm
MRUS	A12109-33	Dorsalis Pedis Arterial Aneurysm
MRUS	A12109-34	Lower External Arterial Graft 1 Anastomosis Pre
MRUS	A12109-35	Lower External Arterial Graft 1 Anastomosis Max
MRUS	A12109-36	Lower External Arterial Graft 1 Anastomosis Post
MRUS	A12109-37	Lower External Arterial Graft 2 Anastomosis Pre
MRUS	A12109-38	Lower External Arterial Graft 2 Anastomosis Max
MRUS	A12109-39	Lower External Arterial Graft 2 Anastomosis Post
MRUS	A12109-40	Lower External Arterial Graft 3 Anastomosis Pre
MRUS	A12109-41	Lower External Arterial Graft 3 Anastomosis Max
MRUS	A12109-42	Lower External Arterial Graft 3 Anastomosis Post
MRUS	A12109-43	Common Iliac Artery Stenosis
MRUS	A12109-44	External Iliac Artery Stenosis
MRUS	A12109-45	Common Femoral Artery Stenosis
MRUS	A12109-46	Profunda Femoral Artery Stenosis
MRUS	A12109-47	Superficial Femoral Artery Stenosis
MRUS	A12109-48	Popliteal Artery Stenosis
MRUS	A12109-49	Tibial Peroneal Trunk Artery Stenosis
MRUS	A12109-50	Anterior Tibial Artery Stenosis
MRUS	A12109-51	Peroneal Artery Stenosis
MRUS	A12109-52	Posterior Tibial Artery Stenosis
MRUS	A12109-53	Dorsalis Pedis Artery Stenosis
MRUS	A12109-54	Lower External Arterial Stenosis 1
MRUS	A12109-55	Lower External Arterial Stenosis 2
MRUS	A12109-56	Lower External Arterial Stenosis 3
MRUS	A12109-57	Lower External Arterial Stenosis 4

C.13. CID (12110) Lower Extremity Veins

CSD	CV	Code Meaning
SRT	T-49630	Anterior Tibial Vein
SRT	G-035B	Common Femoral Vein
SRT	T-48920	Common Iliac Vein

CSD	CV	Code Meaning
SRT	T-48930	External Iliac Vein
SRT	T-4942D	Gastrocnemius vein
SRT	R-10259	Great Saphenous Vein of Thigh
SRT	R-1025A	Great Saphenous Vein of Calf
SRT	T-49550	Lesser Saphenous Vein
SRT	T-49650	Peroneal Vein
SRT	T-49640	Popliteal Vein
SRT	T-49620	Posterior Tibial Vein
SRT	T-49660	Profunda Femoris Vein
SRT	T-D930A	Saphenofemoral Junction
SRT	G-036B	Soleal vein
SRT	T-4942C	Thigh perforator
SRT	T-4941A	Saphenopopliteal junction
SRT	T-49410	Femoral vein
MRUS	V12110-02	Great Saphenous Vein Knee
MRUS	V12110-03	Small Saphenous Vein Thigh Extension
MRUS	V12110-04	AASV
MRUS	V12110-05	PASV
MRUS	V12110-06	Prox Calf Perf
MRUS	V12110-07	Mid Calf Perf
MRUS	V12110-08	Dist Calf Perf

C.14. CID (12112) Abdominal Arteries (unilateral)

CSD	CV	Code Meaning
SRT	T-42000	Aorta
SRT	T-46400	Celiac Axis
SRT	T-46440	Gastroduodenal Artery
SRT	T-46520	Inferior Mesenteric Artery
SRT	T-46422	Proper Hepatic Artery
SRT	T-46460	Splenic Artery
SRT	T-46510	Superior Mesenteric Artery
MRUS	A12120-1	renal Aorta
MRUS	A12120-2	Aortic Endograft Residual Aneurysm Sac

CSD	CV	Code Meaning
MRUS	A12120-3	Aortic Endograft Inflow
MRUS	A12120-4	Aortic Endograft Graft Body
MRUS	A12120-5	Aortic Endograft Limb
MRUS	A12120-6	Aortic Endograft Outflow
MRUS	A12120-7	Aortic Bypass Graft Anastomosis
MRUS	A12120-8	Aortic Bypass Graft Graft
MRUS	A12120-12	Abdominal Aorta Aneurysm
MRUS	A12120-13	Celiac Axis Aneurysm
MRUS	A12120-14	Superior Mesenteric Arterial Aneurysm
MRUS	A12120-15	Hepatic Arterial Aneurysm
MRUS	A12120-16	Splenic Arterial Aneurysm
MRUS	A12120-17	Gastroduodenal Arterial Aneurysm
MRUS	A12120-18	Inferior Mesenteric Arterial Aneurysm
MRUS	A12120-19	Arterial Post Abdominal Aorta
MRUS	A12120-20	Arterial Post Celiac Axis
MRUS	A12120-21	Arterial Post SMA
MRUS	A12120-22	Arterial Post Hepatic Artery
MRUS	A12120-23	Arterial Post Splenic Artery
MRUS	A12120-24	Arterial Post GDA
MRUS	A12120-25	Arterial Post IMA

C.15. CID (12114) Abdominal Veins (unilateral)

CSD	CV	Code Meaning
SRT	T-48720	Hepatic Vein
SRT	T-48810	Portal Vein
SRT	T-48710	Inferior Vena Cava
SRT	T-48890	Splenic Vein
SRT	T-48840	Superior Mesenteric Vein
MRUS	V12114-08	Hepatic A Anast Liver Transplant
MRUS	V12114-09	Hepatic V Anast Liver Transplant
MRUS	V12114-10	Portal V Anast Liver Transplant
MRUS	V12114-11	IVC Liver Transplant
MRUS	V12114-12	Hep V Confl Liver Transplant
MRUS	V12114-13	Donor IVC Liver Transplant

CSD	CV	Code Meaning
SRT	T-48720	Hepatic Vein
MRUS	V12114-14	TIPS

C.16. CID (12115) Renal Vessels

CSD	CV	Code Meaning
SRT	T-46659	Segmental Artery
SRT	T-48740	Renal Vein
SRT	T-46600	Renal Artery
SRT	T-4668A	Arcuate Artery of the Kidney
SRT	T-4667D	Interlobar Artery of Kidney
MRUS	A12115-2	Renal Artery A1
MRUS	A12115-3	Renal Artery A2
MRUS	A12115-4	Hilum
MRUS	A12115-20	Artery Anast Transplant 1
MRUS	A12115-21	Artery Anast 2 Transplant 1
MRUS	V12115-06	Vein Anast Transplant 1
MRUS	V12115-07	Vein Anast 2 Transplant 1
MRUS	A12115-22	Artery Anast Transplant 2
MRUS	A12115-23	Artery Anast 2 Transplant 2
MRUS	V12115-08	Vein Anast Transplant 2
MRUS	V12115-09	Vein Anast 2 Transplant 2
MRUS	A12115-5	Renal Arterial Aneurysm
MRUS	A12115-6	Renal A Transplant 1
MRUS	A12115-7	Renal A1 Transplant 1
MRUS	A12115-8	Renal A2 Transplant 1
MRUS	A12115-9	Hilum Transplant 1
MRUS	A12115-10	Interlobar A Transplant 1
MRUS	A12115-11	Arcuate A Transplant 1
MRUS	A12115-12	Segmental A Transplant 1
MRUS	V12115-02	Renal Vein 1 Transplant 1
MRUS	V12115-03	Renal Vein 2 Transplant 1
MRUS	A12115-13	Renal A Transplant 2
MRUS	A12115-14	Renal A1 Transplant 2
MRUS	A12115-15	Renal A2 Transplant 2

CSD	CV	Code Meaning
MRUS	A12115-16	Hilum Transplant 2
MRUS	A12115-17	Interlobar A Transplant 2
MRUS	A12115-18	Arcuate A Transplant 2
MRUS	A12115-19	Segmental A Transplant 2
MRUS	V12115-04	Renal Vein 1 Transplant 2
MRUS	V12115-05	Renal Vein 2 Transplant 2

C.17. CID (12116) Vessel Segment Modifiers

CSD	CV	Code Meaning
SRT	G-A119	Distal
SRT	G-A188	Mid-longitudinal
SRT	G-A118	Proximal
SRT	R-40775	None
SRT	G-036A	Origin of vessel
SRT	R-42191	Superior
SRT	R-404D5	Medial
SRT	R-4094A	Inferior
MRUS	12116-4	Prox-Mid
MRUS	12116-5	Mid-Dist
MRUS	12116-6	tightest spot on stenosis
MRUS	12116-7	SupraRenal
MRUS	12116-8	Renal
MRUS	12116-12	Pre Sten
MRUS	12116-13	Sten
MRUS	12116-14	Post Sten

C.18. CID (12117) Vessel Branch Modifiers

CSD	CV	Code Meaning
SRT	R-404D5	Medial
SRT	G-A100	Right
SRT	G-A101	Left
SRT	G-A332	Main
MRUS	12117-1	Common
MRUS	12117-2	Proper

CSD	CV	Code Meaning
MRUS	12117-3	R Ant
MRUS	12117-4	R Post

C.19. Mapping between Modality measurements and DICOM Concepts.

C.19.1. Vascular Measurements

MODALITY Label	*DICOM Mapping*	*Contain Content*
<Vasculature Anatomic Location> ED	11653-3, LN, End Diastolic Velocity	
<Vasculature Anatomic Location> MD	11665-7 , LN, Minimum Diastolic Velocity	
<Vasculature Anatomic Location> PS	11726-7, LN, Peak Systolic Velocity	
<Vasculature Anatomic Location> TAMEAN	20352-1, LN, Time averaged mean velocity	
<Vasculature Anatomic Location> TAMAX	11692-1, LN, Time averaged peak velocity	
<Vasculature Anatomic Location> PV	11726-7, LN, Peak Velocity	
<Vasculature Anatomic Location> PI	12008-9, LN, Pulsatility Index	
<Vasculature Anatomic Location> RI	12023-8, LN, Resistivity Index	
<Vasculature Anatomic Location> S/D	12144-2, LN, Systolic to Diastolic Velocity Ratio	
<Vasculature Anatomic Location> AT	20168-1, LN, Acceleration Time	
<Vasculature Anatomic Location> DT	20217-6, LN, Deceleration Time	
<Vasculature Anatomic Location> PPG	20247-3, LN, Peak Gradient	
<Vasculature Anatomic Location> MPG	20256-4, LN, Mean Gradient	
<Vasculature Anatomic Location> MMPG	M12119-01, MRUS, Mean Velocity Mean Pressure Gradient	
<Vasculature Anatomic Location> VTI	M12119-02, MRUS,Velocity-Time Integral	
<Vasculature Anatomic Location> HR	8867-4, LN, Heart Rate	
<Vasculature Anatomic Location> θ	M12119-03, MRUS, Angle	
<Vasculature Anatomic Location> AI	20167-3, LN, Acceleration Index	
<Vasculature Anatomic Location>AP	(DCM,122675,Anterior-Posterior	
<Vasculature Anatomic Location>Trans	SRT,G-A117,Transverse	
<Vasculature Anatomic Location>Outer.D	Vessel lumen diameter	
<Vasculature Anatomic Location>Inner.D	Residual Diameter	
<Vasculature Anatomic Location>Outer.A	Vessel lumen cross-sectional area	
<Vasculature Anatomic Location>Inner.A	Residual Area	
<Vasculature Anatomic Location>Stenosis.D	Lumen Diameter Stenosis	
<Vasculature Anatomic Location>Stenosis.A	Lumen Area Stenosis	
<Vasculature Anatomic Location> VD	R-1025C, SRT, Vessel Intimal Diameter	
<Vasculature Anatomic Location> Pkv	11726-7, LN, Peak Velocity	
<Vasculature Anatomic Location> Long	SRT，G-A143，Longitudinal	

MODALITY Label	*DICOM Mapping*	*Contain Content*
<Vasculature Anatomic Location> Reflux V	M12119-20, MRUS,Reflux V	
<Vasculature Anatomic Location> Reflux time	M12119-11,MRUS,Reflux time	
<Vasculature Anatomic Location>Pre Sten	M12119-21, MRUS,Previous Stenosis	
<Vasculature Anatomic Location>Sten	M12119-22, MRUS,Stenosis	
<Vasculature Anatomic Location>Post Sten	M12119-23, MRUS,Posterior Stenosis	
<Vasculature Anatomic Location> Depth	SRT,G-D785,Depth	
<Vasculature Anatomic Location> Splenic V Diam	M12119-12,MRUS,Splenic V Diam	Splenic Vein
<Vasculature Anatomic Location> SMV Diam	M12119-24,MRUS， Superior Mesenteric Vein Diameter	Smv
<Vasculature Anatomic Location> Renal V Diam	M12119-25,MRUS，Renal Vein Diameter	Renal Vein
<Vasculature Anatomic Location> Renal V Diam(Renal Transplant1)	M12119-26,Renal V Diam Renal Transplant 1 Diameter	Renal Transplant1
<Vasculature Anatomic Location> Renal V Diam(Renal Transplant2)	M12119-27,Renal V Diam Renal Transplant 2 Diameter	Renal Transplant2
<Vasculature Anatomic Location> PS Conflnc Diam	M12119-28,Portal Splenic Confluence Diameter	Portal Splenic Confluence Diameter

C.19.2. Extracranial Arteries

MODALITY Label	*DICOM Mapping*
Carotid Bifurcation	T-45160,SRT, Carotid Bifurcation
Bulb	T-45170,SRT,Carotid Bulb
CCA	T-45100,SRT,Common Carotid Artery
ECA	T-45200,SRT,External Carotid Artery
ICA	T-45300,SRT,Internal Carotid Artery
Subclav A	T-46100,SRT,Subclavian Artery
Vert A	T-45700,SRT,Vertebral Artery
Terminal Vert A	MRUS,A12104-1,Terminal Vertebral Artery
Anast	MRUS,A12104-2,Carotid Graft 1 Anastomosis
Graft	MRUS,A12104-3,Carotid Graft 1 Graft
Anast	MRUS,A12104-4,Carotid Graft 2 Anastomosis
Graft	MRUS,A12104-5,Carotid Graft 2 Graft
Anast	MRUS,A12104-6,Carotid Graft 3 Anastomosis
Graft	MRUS,A12104-7,Carotid Graft 3 Graft
Stent 1	MRUS,A12104-8,Carotid Stent 1
Stent 2	MRUS,A12104-9,Carotid Stent 2
Stent 3	MRUS,A12104-10,Carotid Stent 3

Native Inflow	MRUS,A12104-11,Carotid Graft 1 Native Inflow
Anst Pre	MRUS,A12104-12,Carotid Graft 1 Anastomosis Pre
Anst Max	MRUS,A12104-13,Carotid Graft 1 Anastomosis Max
Anst Post	MRUS,A12104-14,Carotid Graft 1 Anastomosis Post
Native Outflow	MRUS,A12104-15,Carotid Graft 1 Native Outflow
Native Inflow	MRUS,A12104-16,Carotid Graft 2 Native Inflow
Anst Pre	MRUS,A12104-17,Carotid Graft 2 Anastomosis Pre
Anst Max	MRUS,A12104-18,Carotid Graft 2 Anastomosis Max
Anst Post	MRUS,A12104-19,Carotid Graft 2 Anastomosis Post
Native Outflow	MRUS,A12104-20,Carotid Graft 2 Native Outflow
Native Inflow	MRUS,A12104-21,Carotid Graft 3 Native Inflow
Anst Pre	MRUS,A12104-22,Carotid Graft 3 Anastomosis Pre
Anst Max	MRUS,A12104-23,Carotid Graft 3 Anastomosis Max
Anst Post	MRUS,A12104-24,Carotid Graft 3 Anastomosis Post
Native Outflow	MRUS,A12104-25,Carotid Graft 3 Native Outflow
CCA Aneurysm	MRUS,A12104-26,Common Carotid Arterial Aneurysm
Bulb Aneurysm	MRUS,A12104-27,Bulbillate Aneurysm
Bifurcation Aneurysm	MRUS,A12104-28,Carotid Bifurcation Aneurysm
Bifurcation Aneurysm	MRUS,A12104-29,Internal Carotid Arterial Aneurysm
ECA Aneurysm	MRUS,A12104-30,External Carotid Arterial Aneurysm
Vert A Aneurysm	MRUS,A12104-31,Vertebral Arterial Aneurysm
Subclav A Aneurysm	MRUS,A12104-32,Subclavian Arterial Aneurysm
CCA(Sten)	MRUS,A12104-33,Common Carotid Artery Stenosis
Bulb(Sten)	MRUS,A12104-34,Bulbillate Stenosis
Carotid Bifurcation(Sten)	MRUS,A12104-35,Carotid Bifurcation Stenosis
ICA(Sten)	MRUS,A12104-36,Internal Carotid Artery Stenosis
ECA(Sten)	MRUS,A12104-37,External Carotid Artery Stenosis
Vert A(Sten)	MRUS,A12104-38,Vertebral Artery Stenosis
Subclav A(Sten)	MRUS,A12104-39,Subclavian Artery Stenosis
Stenosis 1	MRUS,A12104-40,Carotid Stenosis 1
Stenosis 2	MRUS,A12104-41,Carotid Stenosis 2
Stenosis 3	MRUS,A12104-42,Carotid Stenosis 3
Stenosis 4	MRUS,A12104-43,Carotid Stenosis 4

C.19.3. Intracranial Cerebral Vessels

MODALITY Label	*DICOM Mapping*
Terminal ICA	SRT,R-102BD,Terminal internal carotid artery
M1 MCA	SRT,R-1024F,Middle Cerebral Artery M1 Segment
M2 MCA	SRT,R-10251,Middle Cerebral Artery M2 Segment
PComA	T-45320,SRT,Posterior Communicating Artery
A1 ACA	MRUS,A12105-1,Anterior Cerebral Artery A1
P1 PCA	SRT,R-10253,Posterior Cerebral Artery P1 Segment
P2 PCA	SRT,R-10255,Posterior Cerebral Artery P2 Segment
ICA Siphon	MRUS.A12105-2,Internal Carotid Artery Siphon
Distal ICA	MRUS,A12105-3,Distal Internal Carotid Artery
Ophthalmic A	SRT,T-45400,Ophthalmic Artery

C.19.4. Intracranial Cerebral Vessels (unilateral)

MODALITY Label	*DICOM Mapping*
Basilar A	T-45800,SRT,Basilar Artery
AComA	T-45530,SRT,Anterior Communicating Artery

C.19.5. Upper Extremity Arteries

MODALITY Label	*DICOM Mapping*
Axillary A	T-47100,SRT,Axillary Artery
Brachial A	T-47160, SRT, Brachial Artery
Radial A	T-47300,SRT,Radial Artery
Ulnar A	T-47200,SRT ,Ulnar Artery
Mammary A	MRUS,A12107-1,Mammary Artery
Native Inflow	MRUS,A12107-2,Upper External Arterial Graft 1 Native Inflow
Anast	MRUS,A12107-3,Upper External Arterial Graft 1 Anastomosis
Graft	MRUS,A12107-4,Upper External Arterial Graft 1 Graft
Native Outflow	MRUS,A12107-5,Upper External Arterial Graft 1 Native Outflow
Native Inflow	MRUS,A12107-6,Upper External Arterial Graft 2 Native Inflow

Anast	MRUS,A12107-7,Upper External Arterial Graft 2 Anastomosis
Graft	MRUS,A12107-8,Upper External Arterial Graft 2 Graft
Native Outflow	MRUS,A12107-9,Upper External Arterial Graft 2 Native Outflow
Native Inflow	MRUS,A12107-10,Upper External Arterial Graft 3 Native Inflow
Anast	MRUS,A12107-11,Upper External Arterial Graft 3 Anastomosis
Graft	MRUS,A12107-12,Upper External Arterial Graft 3 Graft
Native Outflow	MRUS,A12107-13,Upper External Arterial Graft 3 Native Outflow
Stent 1	MRUS,A12107-14,Upper External Arterial Stent 1
Stent 2	MRUS,A12107-15,Upper External Arterial Stent 2
Stent 3	MRUS,A12107-16,Upper External Arterial Stent 3
Mammary A Aneurysm	MRUS,A12107-17,Mammary Arterial Aneurysm
Axillary A Aneurysm	MRUS,A12107-18,Axillary Artery Aneurysm
Brachial A Aneurysm	MRUS,A12107-19,Brachial Artery Aneurysm
Radial A Aneurysm	MRUS,A12107-20,Radial Artery Aneurysm
Ulnar A Aneurysm	MRUS,A12107-21,Ulnar Artery Aneurysm
Aneurysm	MRUS,A12107-22,Brachiocephalic Aneurysm
Aneurysm	MRUS,A12107-23,Brachiocephalic Stenosis
Mammary A(Sten)	MRUS,A12107-24,Mammary A Stenosis
Axillary A(Sten)	MRUS,A12107-25,Axillary Artery Stenosis
Brachial A(Sten)	MRUS,A12107-26,Brachial Artery Stenosis
Radial A(Sten)	MRUS,A12107-27,Radial Artery Stenosis
Ulnar A(Sten)	MRUS,A12107-28,Ulnar Artery Stenosis
Stenosis 1	MRUS,A12107-29,Upper External Arterial Stenosis 1
Stenosis 2	MRUS,A12107-30,Upper External Arterial Stenosis 2

Stenosis 3	MRUS,A12107-31,Upper External Arterial Stenosis 3
Stenosis 4	MRUS,A12107-32,Upper External Arterial Stenosis 4

C.19.6. Upper Extremity Veins

MODALITY Label	***DICOM Mapping***
Axillary V	T-49110,SRT ,Axillary vein
Brachial V	T-49350,SRT,Brachial vein
Innom V	SRT,T-48620,Innominate vein
Int Jug V	SRT,T-48170,Internal Jugular vein
Radial V	T-49340,SRT,Radial vein
Subclav V	T-48330,SRT,Subclavian vein
Ulnar V	T-49330,SRT,Ulnar vein
SVC	SRT,T-48610,Superior Vena Cava
CA Junction	MRUS,V12108-1,Cephalic Vein and Axillary Vein Junction
Upper Arm Cephalic V	MRUS,V12108-2,Upper Arm Cephalic Vein
Cephalic-Antecubital V	MRUS,V12108-3,Cephalic Anterior-Cubital Vein
Forearm Cephalic V	MRUS,V12108-4,Forearm Cephalic Vein
BA Junction	MRUS,V12108-5,Basilic Vein and Axillary Vein Junction
Upper Arm Basilic V	MRUS,V12108-6,Upper Arm Basilic Vein
Basilic-Antecubital V	MRUS,V12108-7,Basilic Anterior-Cubital Vein
Forearm Basilic V	MRUS,V12108-8,Forearm Basilic Vein
Digital V	MRUS,V12108-9,Digital Vein
Inflow Artery	MRUS,V12108-10,Arteriovenous Fistula-Inflow Artery
Anast	MRUS,V12108-11,Arteriovenous Fistula-Arterial Anastomosis
Outflow Vein Level 1	MRUS,V12108-12 ,Arteriovenous Fistula-Outflow Vein Level 1
Outflow Vein Level 2	MRUS,V12108-13,Arteriovenous Fistula-Outflow Vein Level 2
Outflow Vein Level 3	MRUS,V12108-14,Arteriovenous Fistula-Outflow Vein Level 3

Outflow Vein Level 4	MRUS,V12108-15,Arteriovenous Fistula-Outflow Vein Level 4
Outflow Vein Level 5	MRUS,V12108-16,Arteriovenous Fistula-Outflow Vein Level 5
Outflow Vein Level 6	MRUS,V12108-17,Arteriovenous Fistula-Outflow Vein Level 6
Stenosis 1	MRUS,V12108-18,Arteriovenous Fistula-Stenosis 1
Stenosis 2	MRUS,V12108-19,Arteriovenous Fistula-Stenosis 2
Stenosis 13	MRUS,V12108-20,Arteriovenous Fistula-Stenosis 3
Aneurysm 1	MRUS,V12108-21,Arteriovenous Fistula- Aneurysm 1
Aneurysm 2	MRUS,V12108-22,Arteriovenous Fistula-Aneurysm 2
Aneurysm 3	MRUS,V12108-23,Arteriovenous Fistula-Aneurysm 3
Inflow Artery	MRUS,V12108-24,Arteriovenous Graft-Inflow Artery
Arterial Anast	MRUS,V12108-25,Arteriovenous Graft-Arterial Anastomosis
Graft	MRUS,V12108-26,Arteriovenous Graft-Graft
Venous Anast	MRUS,V12108-27,Arteriovenous Graft-Venous Anastomosis
Outflow Vein Level 1	MRUS,V12108-28,Arteriovenous Graft-Outflow Vein Level 1
Outflow Vein Level 2	MRUS,V12108-29,Arteriovenous Graft-Outflow Vein Level 2
Outflow Vein Level 3	MRUS,V12108-30,Arteriovenous Graft-Outflow Vein Level 3
Outflow Vein Level 4	MRUS,V12108-31,Arteriovenous Graft-Outflow Vein Level 4
Outflow Vein Level 5	MRUS,V12108-32,Arteriovenous Graft-Outflow Vein Level 5
Outflow Vein Level 6	MRUS,V12108-33,Arteriovenous Graft-Outflow Vein Level 6
Volar V	MRUS,V12108-34,Volar Vein
Median Cubital V	MRUS,V12108-35,Median Cubital Vein

C.19.7. Lower Extremity Arteries

MODALITY Label	***DICOM Mapping***
CIA	T-46710,SRT,Common Iliac Artery
ATA	T-47700,SRT ,Anterior Tibial Artery

CFA	T-47400,SRT ,Common Femoral Artery
DPA	T-47741,SRT,Dorsalis Pedis Artery
EIA	T-46910,SRT ,External Iliac Artery
IIA	T-46740,SRT ,Internal Iliac Artery
Peroneal A	T-47630,SRT ,Peroneal Artery
Pop A	T-47500,SRT ,Popliteal Artery
PTA	T-47600,SRT ,Posterior Tibial Artery
PFA	T-47440,SRT ,Profunda Femoris Artery
SFA	T-47403 ,SRT ,Superficial Femoral Artery
TP Trunk A	V12109-01,MRUS,TP Trunk Artery
Native Inflow	MRUS,A12109-2,Lower External Arterial Graft 1 Native Inflow
Anst	MRUS,A12109-3,Lower External Arterial Graft 1 Anastomosis
Graft	MRUS,A12109-4,Lower External Arterial Graft 1 Graft
Native Outflow	MRUS,A12109-5,Lower External Arterial Graft 1 Native Outflow
Native Inflow	MRUS,A12109-6,Lower External Arterial Graft 2 Native Inflow
Anst	MRUS,A12109-7,Lower External Arterial Graft 2 Anastomosis
Graft	MRUS,A12109-8,Lower External Arterial Graft 2 Graft
Native Outflow	MRUS,A12109-9,Lower External Arterial Graft 2 Native Outflow
Native Inflow	MRUS,A12109-10,Lower External Arterial Graft 3 Native Inflow
Anst	MRUS,A12109-11,Lower External Arterial Graft 3 Anastomosis
Graft	MRUS,A12109-12,Lower External Arterial Graft 3 Graft
Native Outflow	MRUS,A12109-13,Lower External Arterial Graft 3 Native Outflow
Stent 1	MRUS,A12109-14,Lower External Arterial Stent 1
Stent 2	MRUS,A12109-15,Lower External Arterial Stent 2
Stent 3	MRUS,A12109-16,Lower External Arterial Stent 3
Finding 1	MRUS,A12109-17,Lower External Arterial Finding 1
Finding 2	MRUS,A12109-18,Lower External Arterial Finding 2
Finding 3	MRUS,A12109-19,Lower External Arterial Finding 3
Finding 4	MRUS,A12109-20,Lower External Arterial Finding 4
Finding 5	MRUS,A12109-21,Lower External Arterial Finding 5

Finding 6	MRUS,A12109-22,Lower External Arterial Finding 6
CIA Aneurysm	MRUS,A12109-23,Common Iliac Arterial Aneurysm
EIA Aneurysm	MRUS,A12109-24,External Iliac Arterial Aneurysm
CFA Aneurysm	MRUS,A12109-25,Common Femoral Arterial Aneurysm
PFA Aneurysm	MRUS,A12109-26,Profunda Femoral Arterial Aneurysm
SFA Aneurysm	MRUS,A12109-27,Superficial Femoral Arterial Aneurysm
Pop A Aneurysm	MRUS,A12109-28,Popliteal Arterial Aneurysm
TP Trunk A Aneurysm	MRUS,A12109-29,Tibial Peroneal Trunk Arterial Aneurysm
ATA Aneurysm	MRUS,A12109-30,Anterior Tibial Arterial Aneurysm
Peroneal A Aneurysm	MRUS,A12109-31,Peroneal Arterial Aneurysm
PTA Aneurysm	MRUS,A12109-32,Posterior Tibial Arterial Aneurysm
DPA Aneurysm	MRUS,A12109-33,Dorsalis Pedis Arterial Aneurysm
Anst Pre	MRUS,A12109-34,Lower External Arterial Graft 1 Anastomosis Pre
Anst Max	MRUS,A12109-35,Lower External Arterial Graft 1 Anastomosis Max
Anst Post	MRUS,A12109-36,Lower External Arterial Graft 1 Anastomosis Post
Anst Pre	MRUS,A12109-37,Lower External Arterial Graft 2 Anastomosis Pre
Anst Max	MRUS,A12109-38,Lower External Arterial Graft 2 Anastomosis Max
Anst Post	MRUS,A12109-39,Lower External Arterial Graft 2 Anastomosis Post
Anst Pre	MRUS,A12109-40,Lower External Arterial Graft 3 Anastomosis Pre
Anst Max	MRUS,A12109-41,Lower External Arterial Graft 3 Anastomosis Max
Anst Post	MRUS,A12109-42,Lower External Arterial Graft 3 Anastomosis Post
CIA(Sten)	MRUS,A12109-43,Common Iliac Artery Stenosis
EIA(Sten)	MRUS,A12109-44,External Iliac Artery Stenosis
CFA(Sten)	MRUS,A12109-45,Common Femoral Artery Stenosis
PFA(Sten)	MRUS,A12109-46,Profunda Femoral Artery Stenosis
SFA(Sten)	MRUS,A12109-47,Superficial Femoral Artery Stenosis
Pop A(Sten)	MRUS,A12109-48,Popliteal Artery Stenosis
TP Trunk A(Sten)	MRUS,A12109-49,Tibial Peroneal Trunk Artery Stenosis

ATA(Sten)	MRUS,A12109-50,Anterior Tibial Artery Stenosis
Peroneal A(Sten)	MRUS,A12109-51,Peroneal Artery Stenosis
PTA(Sten)	MRUS,A12109-52,Posterior Tibial Artery Stenosis
DPA(Sten)	MRUS,A12109-53,Dorsalis Pedis Artery Stenosis
Stenosis 1	MRUS,A12109-54,Lower External Arterial Stenosis 1
Stenosis 2	MRUS,A12109-55,Lower External Arterial Stenosis 2
Stenosis3	MRUS,A12109-56,Lower External Arterial Stenosis 3
Stenosis 4	MRUS,A12109-57,Lower External Arterial Stenosis 4

C.19.8. Lower Extremity Veins

MODALITY Label	***DICOM Mapping***
ATV	T-49630,SRT,Anterior Tibial Vein
CFV	G-035B,SRT,Common Femoral Vein
CIV	T-48920,SRT,Common Iliac Vein
EIV	T-48930,SRT,External Iliac Vein
Gastroc V	T-4942D,SRT,Gastrocnemius vein
GSV Thigh	SRT,R-10259,Great Saphenous Vein of Thigh
GSV Calf	SRT,R-1025A,Great Saphenous Vein of Calf
GSV Knee	MRUS,V12110-02,Great Saphenous Vein Knee
SSV	T-49550,SRT,Lesser Saphenous Vein
Peroneal V	T-49650,SRT,Peroneal Vein
PopV	T-49640,SRT,Popliteal Vein
PTV	T-49620,SRT,Posterior Tibial Vein
DFV	T-49660,SRT,Profunda Femoris Vein
Soleal V	G-036B,SRT,Soleal vein
FV	T-49410,SRT,Femoral vein
TP Trunk V	V12110-01,MRUS,TP Trunk Vein
SF Junction	SRT,T-D930A,Saphenofemoral Junction
SP Junction	SRT,T-4941A,Saphenopopliteal junction
Thigh Perf	SRT,T-4942C,Thigh perforator
SSV Thigh Extension	MRUS,V12110-03,Small Saphenous Vein Thigh Extension
AASV	MRUS,V12110-04,AASV
PASV	MRUS,V12110-05,PASV
Prox Calf Perf	MRUS,V12110-06,Prox Calf Perf
Mid Calf Perf	MRUS,V12110-07,Mid Calf Perf

Dist Calf Perf	MRUS,V12110-08,Dist Calf Perf

C.19.9. Abdominal Arteries (unilateral)

MODALITY Label	***DICOM Mapping***
Aorta	T-42000,SRT,Aorta
Celiac A	T-46400,SRT,Celiac Axis
GDA	SRT,T-46440,Gastroduodenal Artery
Hep A	T-46422,SRT,Proper Hepatic Artery
Splenic A	T-46460,SRT,Splenic Artery
SMA	T-46510,SRT,Superior Mesenteric Artery
IMA	T-46520,SRT,Inferior Mesenteric Artery
Residual Aneurysm Sac	MRUS,A12120-2,Aortic Endograft Residual Aneurysm Sac
Inflow	MRUS,A12120-3,Aortic Endograft Inflow
Graft Body	MRUS,A12120-4,Aortic Endograft Graft Body
Limb	MRUS,A12120-5,Aortic Endograft Limb
Outflow	MRUS,A12120-6,Aortic Endograft Outflow
Anast	MRUS,A12120-7,Aortic Bypass Graft Anastomosis
Graft	MRUS,A12120-8,Aortic Bypass Graft Graft
Aorta Aneurysm	MRUS,A12120-12,Abdominal Aorta Aneurysm
Celiac A Aneurysm	MRUS,A12120-13,Celiac Axis Aneurysm
SMA Aneurysm	MRUS,A12120-14,Superior Mesenteric Arterial Aneurysm
Hep A Aneurysm	MRUS,A12120-15,Hepatic Arterial Aneurysm
Splenic A Aneurysm	MRUS,A12120-16,Splenic Arterial Aneurysm
GDA Aneurysm	MRUS,A12120-17,Gastroduodenal Arterial Aneurysm
IMA Aneurysm	MRUS,A12120-18,Inferior Mesenteric Arterial Aneurysm
Aorta	MRUS,A12120-19,Arterial Post Abdominal Aorta
Celiac A	MRUS,A12120-20,Arterial Post Celiac Axis
SMA	MRUS,A12120-21,Arterial Post SMA
Hep A	MRUS,A12120-22,Arterial Post Hepatic Artery
Splenic A	MRUS,A12120-23,Arterial Post Splenic Artery
GDA	MRUS,A12120-24,Arterial Post GDA
IMA	MRUS,A12120-25,Arterial Post IMA

C.19.10. Abdominal Veins (unilateral)

MODALITY Label	*DICOM Mapping*
Hepatic V	T-48720,SRT,Hepatic Vein
Portal V	T-48810,SRT,Portal Vein
IVC	T-48710,SRT,Inferior Vena Cava
Splenic V	T-48890,SRT,Splenic Vein
SMV	T-48840,SRT,Superior Mesenteric Vein
Hepatic A Anast	MRUS,V12114-08,Hepatic A Anast Liver Transplant
Hepatic V Anast	MRUS,V12114-09,Hepatic V Anast Liver Transplant
Portal V Anast	MRUS,V12114-10,Portal V Anast Liver Transplant
IVC	MRUS,V12114-11,IVC Liver Transplant
Hep V Confl	MRUS,V12114-12,Hep V Confl Liver Transplant
Donor IVC	MRUS,V12114-13,Donor IVC Liver Transplant
TIPS	MRUS,V12114-14,TIPS

C.19.11. Renal Vessels

MODALITY Label	*DICOM Mapping*
Renal A	T-46600,SRT,Renal Artery
Arcuate A	T-4668A, SRT, Arcuate Artery of the Kidney
Renal A1	MRUS,A12115-2,Renal Artery A1
Renal A2	MRUS,A12115-3,Renal Artery A2
Hilum	MRUS,A12115-4,Hilum
Interlobar A	SRT,T-4667D,Interlobar Artery of Kidney
Artery Anast	MRUS,A12115-20,Artery Anast Transplant 1
Artery Anast 2	MRUS,A12115-21,Artery Anast 2 Transplant 1
Vein Anast	MRUS,V12115-06,Vein Anast Transplant 1
Vein Anast 2	MRUS,V12115-07,Vein Anast 2 Transplant 1
Artery Anast	MRUS,A12115-22,Artery Anast Transplant 2
Artery Anast 2	MRUS,A12115-23,Artery Anast 2 Transplant 2
Vein Anast	MRUS,V12115-08,Vein Anast Transplant 2
Vein Anast 2	MRUS,V12115-09,Vein Anast 2 Transplant 2

D. Appendix : Other structured reporting

Empty structured report template will apply to other kinds of exams. Empty structured report template is used to send self-defined measurements,not standard measurements.