

**DICOM CONFORMANCE
STATEMENT
FOR
M5/M5T DIAGNOSTIC
ULTRASOUND SYSTEM**

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Content

1. PURPOSE	1
1.1 REFERENCES	3
1.2 DEFINITIONS	3
1.3 ACRONYMS, ABBREVIATIONS, AND SYMBOLS	4
2. IMPLEMENTATION MODEL	6
2.1 VERIFICATION	6
2.1.1 <i>Sequence of Real World Activities</i>	6
2.2 STORAGE	7
2.2.1 <i>Application Data Flow Diagram</i>	7
2.2.2 <i>Functional Definitions of Application Entities</i>	7
2.2.3 <i>Sequence of Real World Activities</i>	8
2.3 MODALITY WORKLIST MANAGEMENT (MWL)	9
2.3.1 <i>Application Data Flow Diagram</i>	9
2.3.2 <i>Functional Definitions of Application Entities</i>	10
2.3.3 <i>Sequence of Real World Activities</i>	10
2.4 PRINT	11
2.4.1 <i>Application Data Flow Diagram</i>	11
2.4.2 <i>Functional Definitions of Application Entities</i>	12
2.4.3 <i>Sequence of Real World Activities</i>	13
2.5 MODALITY PERFORMED PROCEDURE STEP MANAGEMENT (MPPS)	15
2.5.1 <i>Application Data Flow Diagram</i>	15
2.5.2 <i>Functional Definitions of Application Entities</i>	15
2.5.3 <i>Sequence of Real World Activities</i>	15
2.6 STORAGE COMMITMENT	16
2.6.1 <i>Application Data Flow Diagram</i>	16
2.6.2 <i>Functional Definitions of Application Entities</i>	17
2.6.3 <i>Sequence of Real World Activities</i>	17
2.7 MEDIA STORAGE	18
2.7.1 <i>Application Data Flow Diagram</i>	18
2.7.2 <i>Functional Definitions of Application Entities</i>	19
2.7.3 <i>Sequence of Real World Activities</i>	19
2.8 QUERY/RETRIEVE	20
2.8.1 <i>Application Data Flow Diagram</i>	20
2.8.2 <i>Functional Definitions of Application Entities</i>	21
2.8.3 <i>Sequence of Real World Activities</i>	21
3. AE SPECIFICATIONS	23
3.1 NETWORK AE SPECIFICATION	23
3.1.1 <i>Association Establishment Policies</i>	23
3.1.2 <i>Association Initiation by Real World Activity</i>	24
3.2 MEDIA AE SPECIFICATION	61
3.2.1 <i>MODALITY AE Specification</i>	61
3.2.2 <i>Real World Activity</i>	62
4. COMMUNICATIONS PROFILES	68
4.1 SUPPORTED COMMUNICATION STACKS	68
4.2 OSI STACK	68
4.3 TCP/IP STACK	68
4.3.1 <i>Physical Media Support</i>	68
4.4 POINT TO POINT STACK	68
5. EXTENSIONS/SPECIALIZATION/PRIVATIZATION	69
5.1 STANDARD EXTENDED / SPECIALIZED / PRIVATE SOPS	69

5.2 PRIVATE TRANSFER SYNTAXES.....	69
6. CONFIGURATION	70
6.1. AE TITLE/PRESENTATION ADDRESS MAPPING.....	70
6.2. CONFIGURABLE PARAMETERS.....	70
6.3. UN-CONFIGURABLE PARAMETERS	73
7. SUPPORT OF EXTENDED CHARACTER SETS	74
A. APPENDIX : OB – GYN STRUCTURED REPORTING TEMPLATE	75
A.1. TID (300) MEASUREMENT.....	75
A.2. TID (5000) OB-GYN ULTRASOUND PROCEDURE REPORT	75
A.3. TID (SELFTMP-1) FETAL CARDIAC MEASUREMENT GROUP	77
A.4. TID (1001) OBSERVATION CONTEXT	79
A.5. TID (5001) OB-GYN PATIENT CHARACTERISTICS	80
A.6. TID (5002) OB-GYN PROCEDURE SUMMARY	80
A.7. TID (5003) OB-GYN FETUS SUMMARY.....	81
A.8. TID (FINDING_1) FETAL DESCRIPTION	82
A.9. TID (FINDING_2) FETUS LIMBS	82
A.10. TID (FINDING_3) FETAL CARDIOLOGY.....	83
A.11. TID (FINDING_4) FETAL BRAIN	83
A.12. TID (FINDING_5) SPINE.....	83
A.13. TID (FINDING_6) FETAL ENVIRONMENT	83
A.14. TID (FINDING_7) MATERNAL DESCRIPTION	83
A.15. TID (5004)FETAL BIOMETRY RATIO SECTION	84
A.16. TID (5005) FETAL BIOMETRY SECTION	84
A.17. TID (5006) FETAL LONG BONES SECTION.....	84
A.18. TID (5007) FETAL CRANIUM SECTION	85
A.19. TID (5008) FETAL BIOMETRY GROUP.....	86
A.20. TID (5009) FETAL BIOPHYSICAL PROFILE SECTION	86
A.21. TID (5010) AMNIOTIC SAC SECTION	87
A.22. TID (5011) EARLY GESTATION SECTION.....	88
A.23. TID (5012) OVARIES SECTION.....	88
A.24. TID (5013) FOLLICLES SECTION	89
A.25. TID (5014) FOLLICLE MEASUREMENT GROUP	90
A.26. TID (5015) PELVIS AND UTERUS SECTION.....	91
A.27. TID (5016) LWH VOLUME GROUP	92
A.28. TID (5025) OB-GYN FETUS VASCULAR ULTRASOUND MEASUREMENT GROUP.....	92
A.29. TID (5026) OB-GYN PELVIC VASCULAR ULTRASOUND MEASUREMENT GROUP	95
A.30. CID (228) EQUATION OR TABLE	97
A.31. CID (244) LATERALITY	97
A.32. CID (3627) MEASUREMENT TYPE	97
A.33. CID (12003) OB-GYN DATES	98
A.34. CID (12004) FETAL BIOMETRY RATIOS	98
A.35. CID (12005) FETAL BIOMETRY MEASUREMENTS	98
A.36. CID (12006) FETAL LONG BONES MEASUREMENTS	99
A.37. CID (12007) FETAL CRANIUM.....	99
A.38. CID (12008) OB-GYN AMNIOTIC SAC	99
A.39. CID (12009) EARLY GESTATION BIOMETRY MEASUREMENTS	100
A.40. CID (12011) ULTRASOUND PELVIS AND UTERUS	100
A.41. CID (12013) GESTATIONAL AGE EQUATIONS AND TABLES	100
A.42. CID (12014) FETAL BODY WEIGHT.....	102
A.43. CID (12017) GROWTH DISTRIBUTION RANK.....	102
A.44. CID (12019) OB-GYN FETUS SUMMARY	103
A.45. CID (12101) VASCULAR SUMMARY	103
A.46. CID (12119) VASCULAR ULTRASOUND PROPERTY	103
A.47. CID (12120) BLOOD VELOCITY MEASUREMENTS	103
A.48. CID (12121) VASCULAR INDICES AND RATIOS	104
A.49. CID (12122) OTHER VASCULAR PROPERTIES	104
A.50. CID (12140) PELVIC VASCULATURE ANATOMICAL LOCATION	104
A.51. CID (12141) FETAL VASCULATURE ANATOMICAL LOCATION	105

A.52.	MAPPING BETWEEN MODALITY MEASUREMENTS AND DICOM CONCEPTS	105
A.52.1.	<i>OB-GYN Measurements</i>	105
A.52.2.	<i>Vasculature Anatomic Location</i>	109
A.52.3.	<i>OB-GYN Vascular Measurements</i>	110
A.52.4.	<i>OB-GYN Cardiac Measurements</i>	111
A.52.5.	<i>Biophysical Profile Measurements</i>	112
B.	APPENDIX : CARDIAC STRUCTURED REPORTING TEMPLATE.....	113
B.1.	TID (5200) ECHOCARDIOGRAPHY PROCEDURE REPORT.....	113
B.2.	TID(1001) OBSERVATION CONTEXT	116
B.3.	TID (5201) ECHOCARDIOGRAPHY PATIENT CHARACTERISTICS	117
B.4.	TID (SELFTMP-2) ECHO PROCEDURE SUMMARY SECTION	117
B.5.	TID (5202) ECHO SECTION	118
B.6.	TID (5203) ECHO MEASUREMENT.....	119
B.7.	CID (12200) ECHOCARDIOGRAPHY LEFT VENTRICLE	119
B.8.	CID (12201) LEFT VENTRICLE LINEAR.....	120
B.9.	CID (12202) LEFT VENTRICLE VOLUME	120
B.10.	CID (12203) LEFT VENTRICLE OTHER	120
B.11.	CID (12204) ECHOCARDIOGRAPHY RIGHT VENTRICLE.....	121
B.12.	CID (12205) ECHOCARDIOGRAPHY LEFT ATRIUM.....	121
B.13.	CID (12206) ECHOCARDIOGRAPHY RIGHT ATRIUM.....	122
B.14.	CID (12207) ECHOCARDIOGRAPHY MITRAL VALVE	122
B.15.	CID (12208) ECHOCARDIOGRAPHY TRICUSPID VALVE.....	123
B.16.	CID (12209) ECHOCARDIOGRAPHY PULMONIC VALVE.....	123
B.17.	CID (12210) ECHOCARDIOGRAPHY PULMONARY ARTERY	124
B.18.	CID (12211) ECHOCARDIOGRAPHY AORTIC VALVE.....	124
B.19.	CID (12212) ECHOCARDIOGRAPHY AORTA	124
B.20.	CID (12214) ECHOCARDIOGRAPHY PULMONARY VEINS	124
B.21.	CID (12215) ECHOCARDIOGRAPHY VENA CAVAE	125
B.22.	CID (12217) ECHOCARDIOGRAPHY CARDIAC SHUNT	125
B.23.	CID (12218) ECHOCARDIOGRAPHY CONGENITAL	125
B.24.	CID (12220) ECHOCARDIOGRAPHY COMMON MEASUREMENTS	126
B.25.	CID (12221) FLOW DIRECTION	126
B.26.	CID (12222) ORIFICE FLOW PROPERTIES	126
B.27.	CID (12224) ULTRASOUND IMAGE MODES	126
B.28.	CID (12226) ECHOCARDIOGRAPHY IMAGE VIEW	127
B.29.	CID (12227) ECHOCARDIOGRAPHY MEASUREMENT METHOD	127
B.30.	CID (12228) VOLUME METHODS	128
B.31.	CID (12229) AREA METHODS	128
B.32.	CID (12230) GRADIENT METHODS	128
B.33.	CID (12231) VOLUME FLOW METHODS	128
B.34.	CID (12232) MYOCARDIUM MASS METHODS	128
B.35.	CID (12233) CARDIAC PHASE	129
B.36.	CID (12234) RESPIRATION PHASE.....	129
B.37.	CID (12239) CARDIAC OUTPUT PROPERTIES.....	129
B.38.	CID (12240) LEFT VENTRICLE AREA	129
B.39.	CID (90000) PERICARDIAL DISEASE.....	129
B.40.	MAPPING BETWEEN MODALITY MEASUREMENTS AND DICOM CONCEPTS.....	130
B.40.1.	<i>Left Ventricle Measurements</i>	130
B.40.2.	<i>Right Ventricle Measurements</i>	149
B.40.3.	<i>Left Atrium Measurements</i>	150
B.40.4.	<i>Right Atrium Measurements</i>	150
B.40.5.	<i>Aortic Valve Measurements</i>	151
B.40.6.	<i>Mitral Valve Measurements</i>	153
B.40.7.	<i>Pulmonic Valve Measurements</i>	156
B.40.8.	<i>Tricuspid Valve Measurements</i>	158
B.40.9.	<i>Aorta Measurements</i>	160
B.40.10.	<i>Pulmonary Artery Measurements</i>	160
B.40.11.	<i>Pulmonary Venous Structure Measurements</i>	161
B.40.12.	<i>Cardiac Shunt Study Measurements</i>	161

B.40.13.	<i>Congenital Anomaly of Cardiovascular System Measurements</i>	161
B.40.14.	<i>Pericardial Disease Measurements</i>	162
B.40.15.	<i>Heart Rate Measurements</i>	162
C.	APPENDIX : VASCULAR STRUCTURED REPORTING TEMPLATE	162
C.1.	TID (5100) VASCULAR ULTRASOUND REPORT	162
C.2.	TID (1001) OBSERVATION CONTEXT	167
C.3.	TID (5101) VASCULAR PATIENT CHARACTERISTICS	168
C.4.	TID (5102) VASCULAR PROCEDURE SUMMARY SECTION	168
C.5.	TID (5103) VASCULAR ULTRASOUND SECTION	170
C.6.	TID (5104) VASCULAR ULTRASOUND MEASUREMENT GROUP	171
C.7.	CID (12101) VASCULAR SUMMARY	173
C.8.	CID (12104) EXTRACRANIAL ARTERIES	173
C.9.	CID (12105) INTRACRANIAL CEREBRAL VESSELS	173
C.10.	CID (12106) INTRACRANIAL CEREBRAL VESSELS (UNILATERAL)	173
C.11.	CID (12107) UPPER EXTREMITY ARTERIES	173
C.12.	CID (12108) UPPER EXTREMITY VEINS	174
C.13.	CID (12109) LOWER EXTREMITY ARTERIES	174
C.14.	CID (12110) LOWER EXTREMITY VEINS	174
C.15.	CID (12112) ABDOMINAL ARTERIES (UNILATERAL)	175
C.16.	CID (12114) ABDOMINAL VEINS (UNILATERAL)	175
C.17.	CID (12115) RENAL VESSELS	175
C.18.	CID (12116) VESSEL SEGMENT MODIFIERS	176
C.19.	MAPPING BETWEEN MODALITY MEASUREMENTS AND DICOM CONCEPTS	176
C.19.1.	<i>Vascular Measurements</i>	176
C.19.2.	<i>Intracranial Cerebral Vessels</i>	176
C.19.3.	<i>Intracranial Cerebral Vessels (unilateral)</i>	177
C.19.4.	<i>Extracranial Arteries</i>	177
C.19.5.	<i>Lower Extremity Arteries</i>	177
C.19.6.	<i>Lower Extremity Veins</i>	177
C.19.7.	<i>Upper Extremity Arteries</i>	178
C.19.8.	<i>Upper Extremity Veins</i>	178
C.19.9.	<i>Abdominal Arteries (unilateral)</i>	178
C.19.10.	<i>Abdominal Veins (unilateral)</i>	178
C.19.11.	<i>Renal Vessels</i>	179

1. Purpose

This document describes the conformance to the ACR-NEMA DICOM 3.0 Standard by the M5/M5T ultrasound imaging system software. It is intended to provide the reader with the knowledge of how to integrate this product within a DICOM compliant hospital network. It details the DICOM Service Classes, Information Objects, and Communication Protocols which are supported by this product as follows:

Table 1 DICOM SOP CLASSES

SOP CLASSES	USER OF SERVICE (SCU)	PROVIDER OF SERVICE (SCP)
IMAGE TRANSFER (STORAGE)		
Ultrasound Image Storage	Yes	Yes
Ultrasound Multi-frame Image Storage	Yes	Yes
Secondary Capture Image Storage	Yes	Yes
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	Yes	No
Storage Commitment Push Model	Yes	No
PRINT MANAGEMENT		
Basic Color Print Management	Yes	No
Basic Grayscale Print Management	Yes	No
GENERAL		

SOP CLASSES	USER OF SERVICE (SCU)	PROVIDER OF SERVICE (SCP)
Verification	Yes	Yes

Table 2 MEDIA SERVICES

MEDIA STORAGE APPLICATION PROFILE	WRITE FILES (FSC / FSU)	READ FILES (FSR)
COMPACT DISK - RECORDABLE		
STD-US-SC-SF&MF-CDR	Yes / Yes	Yes
DVD		
STD-US-SC-SF&MF-DVD STD-US-SC-SF&MF-DVD-RAM	Yes / Yes	Yes

Table 3 STRUCTURED REPORTS

CONCEPT NAME	S SUPPORTED
OB-GYN Ultrasound Procedure Report	Yes
Echocardiography Procedure Report	Yes
Vascular Ultrasound Report	Yes

If the readers are unfamiliar with DICOM, it is recommended that they read the DICOM Specification (referenced below) prior to read this conformance statement. Also note that this document is formatted according to the DICOM Specification, Part 2: Conformance.

In this document, the MODALITY stands for the products: M5/M5T.

1.1 References

ACR-NEMA Digital Imaging and Communications in Medicine, DICOM V3.0.

1.2 Definitions

- AE- An application that supports DICOM communication with other DICOM applications.
- 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.
- Called Application Entity Title - The Called AE Title defines the intended receiver of an Association.
- Calling Application Entity Title - The Calling AE Title defines the requestor of an Association.
- DICOM Message Service Element (DIMSE) - A DIMSE defines the services and protocols utilized by an Application Entity to exchange messages.
- Information Object Definition (IOD) - An IOD is a data model which is an abstraction of real-world information. This data model defines the nature and attributes relevant to the class of real world objects represented.
- Service Class Provider (SCP) - A Service Class Provider plays the "server" role to perform operations and invoke notifications during an Association. An example of a Storage Service Class Provider would be an image storage device. In this case, the image storage device is storing the image that was sent by a Service Class User.
- Service Class User (SCU) - A Service Class User plays the "client" role to invoke operations and perform notifications during an Association. An example of a Storage Service Class User would be an image acquisition device. In this case, the image acquisition device will create and send a DICOM image by requesting a Service Class Provider to store the image.
- Service Object Pair (SOP) Class - A SOP Class is defined by the union of an Information Object Definition and a set of DIMSE Services. A DICOM Application Entity may support one or more SOP Classes. Each SOP Class is uniquely identified by a SOP Class UID.
- SOP Instance - A specific occurrence of an Information Object.

- Transfer Syntax - The Transfer Syntax is a set of encoding rules that allow DICOM Application Entities to negotiate the encoding techniques (e.g., data element structure, byte ordering, compression) they are able to support. The Transfer Syntax is negotiated during Association Negotiation.
- Unique Identifier (UID) - A Unique Identifier is a globally unique, ISO compliant, ASCII-numeric string. It guarantees uniqueness across multiple countries, sites, vendors, and equipment.
- 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.
- 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 be 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.
- 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.
- 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.

1.3 Acronyms, Abbreviations, and Symbols

The following acronyms and abbreviations are used in this document.

- ACC: American College of Cardiology
- ACR: American College of Radiology
- ASCII: American Standard Code for Information Interchange
- AE: Application Entity
- ANSI: American National Standards Institute
- DICOM: Digital Imaging and Communications in Medicine
- DIMSE: DICOM Message Service Element
- DIMSE-C: DICOM Message Service Element-Composite

- DIMSE-N: DICOM Message Service Element-Normalized
- FSC: File-Set Creator
- FSR: File-Set Reader
- FSU: File-Set Updater
- HIS: Hospital Information System
- HL7: Health Level 7
- IE: Information Entity
- IHE: Integrating the Healthcare Enterprise
- IOD: Information Object Definition
- ISO: International Standard Organization
- JIRA: Japan Industries Association of Radiological Systems
- MODALITY: M5/M5T
- NEMA: National Electrical Manufacturers Association
- PDU: Protocol Data Unit
- RIS: Radiology Information System
- SCP: Service Class Provider
- SCU: Service Class User
- SOP: Service Object Pair
- TCP/IP: Transmission Control Protocol/Internet Protocol
- UID: Unique Identifier
- SR: Structured Report

2. Implementation Model

2.1 Verification

The Verification service class defines an application level class of service which allows the service engineer to verify the ability of an application on a Remote DICOM device to respond to DICOM messages.

In the MODALITY AE, Verification is located on the DICOM service preset dialog where the user can configure the information of remote service provider, and invoke the Verification Service to the appointed SCP. According to the response, the result of “Succeed” or “Failed” is returned to the user.

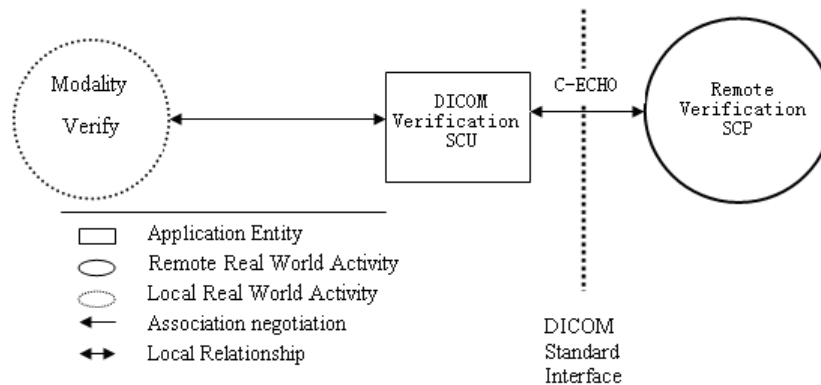


Figure 1 Verification Model

2.1.1 Sequence of Real World Activities

2.1.1.1 Features

- Service user requests to verify the activation of the Remote DICOM SCPs.
- Remote DICOM SCU requests to verify the activation of the MODALITY.
- The MODALITY acts as the SCU and SCP for Verification.
- The MODALITY will listen to the port set in the DICOM Local Preset Dialog.

2.1.1.2 Operation

The operation for verify service is described below:

Step 1: Open the DICOM service preset dialog box.

Step 2: Select one deployed remote DICOM service (One DICOM server

may provide more than one DICOM service, and the verification is aimed at the remote service).

Step 3: Request Verification to the selected remote service.

2.2 Storage

Storage SCU establishes an association for Storage of DICOM Composite Information Objects in the Remote Real World Activity.

2.2.1 Application Data Flow Diagram

The MODALITY implementation acts as the SCU for the Storage service.

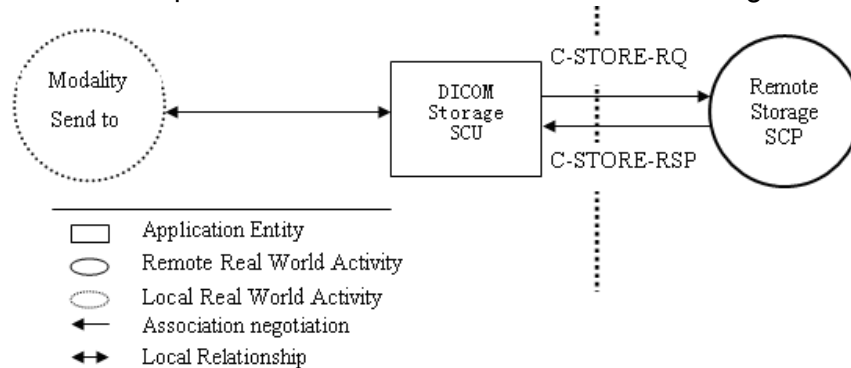


Figure 2 Storage Module

2.2.2 Functional Definitions of Application Entities

The MODALITY is used to transmit images and associated SR to a Remote DICOM device. It performs the following tasks:

- Create DICOM US Single-frame, US Multi-frame and Secondary Capture Image, SR Information Objects.
- Establish DICOM association with the Remote DICOM service.
- Store DICOM US Single-frame, US Multi-frame and Secondary Capture Image, SR Information Objects on the Remote DICOM device.
- If the user configure that US Multi-frame image isn't allowed to storage, Even though, all the other US Single-frame images of the exam which includes at least one US Multi-frame image are successfully stored, the backup flag of the exam will not be set.

2.2.3 Sequence of Real World Activities

2.2.3.1 Features

- The MODALITY acts as the SCU for Storage Service.
- The operator can select one or more storage SCPs configured in DICOM Service Preset.
- When the operator invokes DICOM storage, regardless of how many images or whether the images are single-frame or multi-frame of one patient's exam, the MODALITY creates only one association for all the images.
- Storage service requests are placed in a queue and executed one by one.
- When the study or image transmission fails, the error message is displayed to the user in the Task Manager.
- The user can cancel the image storage requests and retry the failed requests.
- The user can send the images during one examination, or save the images and send them at any time.
- The MODALITY information model is divided to 2 levels: exam (study and series are uniformed to exam) and image. The operator can invoke the storage service in any level respectively.
- The MODALITY can storage SR to SCP for obstetric, gynecology, cardiac, vascular measurements and calculations, when SR is configured to storage with the associated exam and the exam isn't active.
- Only obstetric, gynecology, cardiac, vascular measurements and calculations can generate SR.

2.2.3.2 Operation

The operations for storage service are described below:

- Operation 1
 - Step 1: Select the images from thumbnail menu.
 - Step 2: Press "Send to" button and select DICOM Storage service.
- Operation 2
 - Step 1: Enable "Send Image after End Exam" in the user preset.
 - Step 2: End Exam/ New Patient (end exam automatically).
 - Step 3: Automatically send the images (and SR) of the ended exam to the default storage service SCPs which are set to be default in the DICOM service preset dialog.

- Operation 3
 - Step 1: Open the system preset dialog and switch to the key configuration tab page.
 - Step 2: Set the shortcut key which means sending image to the default DICOM storage SCPs.
 - Step 3: During the examining, the user can press the Send key to send image to default DICOM storage service SCPs.
- Operation 4
 - Step 1: Select exams or images in the iStation Dialog, press “Send to” button. There are two “Send to” buttons in this Dialog, and the upper one is for sending the selected exams (and associated SR) and the lower one is for sending the selected images belonging to one exam
 - Step 2: Send all images.
- Operation 5
 - Step 1: Open the review dialog.
 - Step 2: Select the images and press the “Send To” button to choose the storage SCPs.

2.3 Modality Worklist Management (MWL)

Patient information can be obtained automatically by using the Worklist service. In the patient information dialog, as pressing the “Worklist” button the Worklist dialog will be shown. If the default Worklist SCP is set, the query request will be invoked automatically. The user can set the following matching key attributes: Patient Name, Patient ID, Accession Number, Requested Procedure ID, and Exam Date. The query results will be listed in the table of the Worklist dialog.

2.3.1 Application Data Flow Diagram

The MODALITY implementation acts as the SCU for the MWL service.

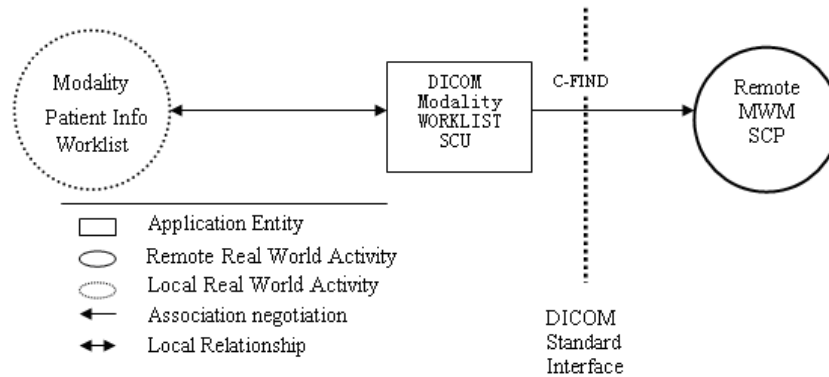


Figure 3 Modality Worklist Model

2.3.2 Functional Definitions of Application Entities

The MODALITY is used to transmit requests for retrieval of MWL information from a Remote DICOM device. Therefore it performs the following tasks:

- Establish DICOM association with the Remote DICOM device.
- Perform query request of DICOM MWL scheduled procedures on the Remote DICOM device.
- Retrieve DICOM MWL scheduled procedures from the Remote DICOM device.

2.3.3 Sequence of Real World Activities

2.3.3.1 Features

- The MODALITY acts as the SCU for the MWL.
- The operator requests retrieval of MWL information automatically or manually.
- Receive the list of matched scheduled procedures.
- When the retrieval fails, the MODALITY displays an error message.
- The MODALITY closes the association upon the completion of each query.
- The MODALITY supports both of the Broad Query and Patient Specific as defined by IHE.
- The query result from the SCP which may include many items that represent patients information will be shown all together.
- Users can view the details of the results.
- After one query, the MODALITY will remember the last result until a new

query is finished. Before the new query is finished, the last result will be shown on the Worklist dialog.

- The MODALITY can get at most 10000 query results in one query.

2.3.3.2 Operation

The operation for Worklist service is described below:

Step 1: Open the patient information dialog.

Step 2: Press the 'Worklist' button.

Step 3: Process the Worklist broad query automatically if a Worklist SCP is set to be default in the DICOM preset.

Step 4: The Worklist dialog is shown and the query result is listed in the table.

Step 5: The user can set some matching key attributes, and press "Search" button. The specific query is processed.

Step 6: The query result is listed.

2.4 Print

The images are created and stored in the MODALITY AE. The user can print the appointed single frame images of the exams. The multi-frame images can't be printed. The MODALITY can process the gray-scale and color images.

2.4.1 Application Data Flow Diagram

The MODALITY implementation acts as the SCU for the DICOM Print service.

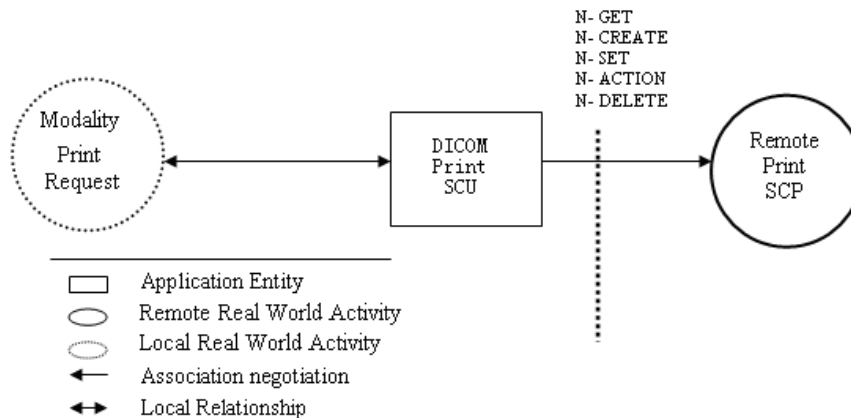


Figure 4 Print Module

2.4.2 Functional Definitions of Application Entities

The MODALITY is able to print images on a Remote DICOM device. It performs the following tasks:

- Open an association with the print service SCP.
- N-GET message on the Printer SOP Class is used to obtain current printer status information.
- N-CREATE message on the Film Session SOP Class creates a Film Session.
- N-CREATE message on the Film Box SOP Class creates a Film Box linked to an appointed Film Session.
- N-SET message on the Image Box SOP Class transmits the contents of the film sheet to the SCP.
- N-ACTION message on the Film Box SOP Class instructs the SCP to execute the print job.
- N-DELETE message on the Film Box SOP Class instructs the SCP to delete the Film Box.
- Close the association.

The following figure describes the process sequence.

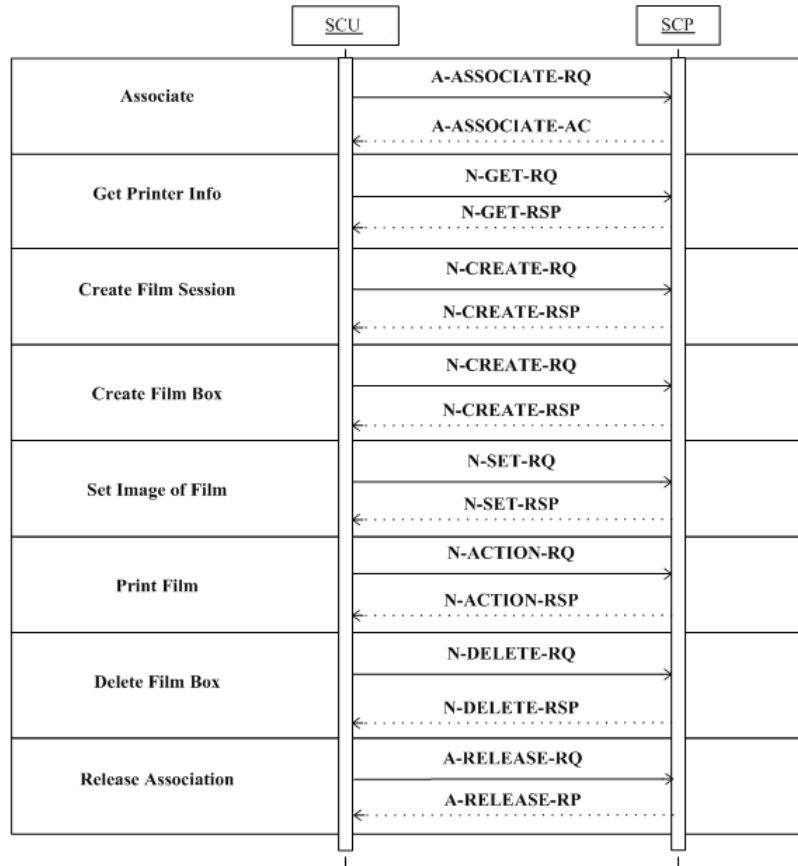


Figure 5 Process of the Print Service

2.4.3 Sequence of Real World Activities

2.4.3.1 Features

- The user specifies some print parameters in the DICOM service preset dialog: Number of Copies, Medium Type, Film Size, Photometric Interpretation, Image Display Format, Film Destination, Film Orientation, Trim or Not, Priority, Minimum Density, Maximum Density, Configuration Information and Magnification Type.
- The user can select one or more images once.
- The user can select one or more exams once and the images belonging to these exams will be printed. The images in a film must belong to the same exam.
- Print requests are placed on a queue, and are executed one by one.
- When the print request fails, the MODALITY displays an error message in the Task Manager.

- The user can cancel the image print requests and retry the failed requests.
- The multi-frame images are not able to be printed.

2.4.3.2 Operation

The operations for print service are described below:

- Operation 1
 - Step 1: Select the images from thumbnail menu.
 - Step 2: Press “Send to” button and select DICOM print service.
- Operation 2
 - Step 1: Enable “Print Image after End Exam” in the user preset.
 - Step 2: End Exam/ New Patient (end exam automatically).
 - Step 3: Automatically send the images of the ended exam to the default print service SCP which is set to be default in the DICOM service preset dialog.
- Operation 3
 - Step 1: Open the system preset dialog and switch to the key configuration tab page.
 - Step 2: Set the shortcut key which means sending images to the default DICOM print SCP.
 - Step 3: During the examining, the user can press the Send key to send images to default DICOM print service SCP.
- Operation 4
 - Step 1: Select exams or images in the iStation Dialog, press “Send to” button. There are two “Send to” buttons in this dialog, and the upper one is for sending the selected exams and the lower one is for sending the selected images belonging to one exam.
 - Step 2: Send all images.
- Operation 5
 - Step 1: Open the review dialog
 - Step 2: Select the images and press the “Send To” button to choose the storage SCPs.

Note: The operation 3 associates with the “Display Format” of the DICOM print preset; the DICOM print will be not active until one page is filled with the images.

For example, if the “Display Format” has been set to “STANDARD\2,3”, the

DICOM print will be not active until the shortcut key has been pressed 6 times.

2.5 Modality Performed Procedure Step Management (MPPS)

Modality exam state can be transmitted to the appointed SCP by using the MPPS service. If the default MPPS SCP is set, the transmission is invoked automatically.

2.5.1 Application Data Flow Diagram

The MODALITY implementation acts as the SCU for the MPPS service.

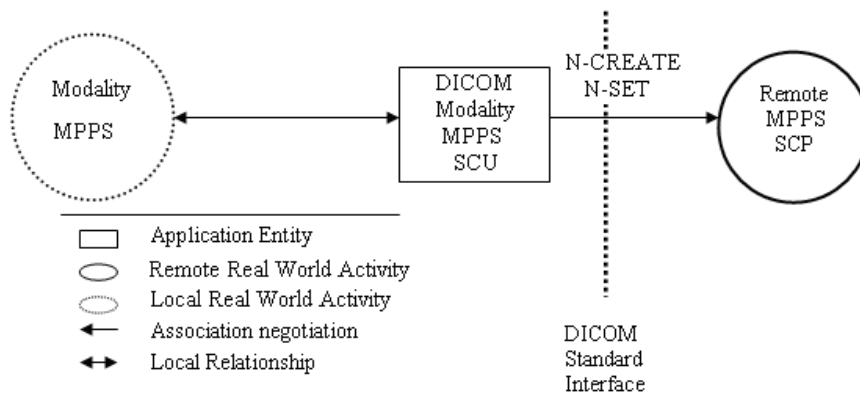


Figure 6 Modality Performed Procedure Step Model

2.5.2 Functional Definitions of Application Entities

The MODALITY is able to transmit exam state to a Remote DICOM device. Therefore it performs the following tasks:

- Establishes DICOM association with the Remote DICOM device.
- N-CREATE message on the MPPS SOP Class is used to provide information of Performed Procedure Step that is under control of the modality to the Remote DICOM device.
- N-SET message on the MPPS SOP Class is used to notify the change of Performed Procedure Step to the Remote DICOM device.

2.5.3 Sequence of Real World Activities

2.5.3.1 Features

- The MODALITY acts as the SCU for the MPPS.
- The performance of MPPS is automatic when the default MPPS service is set.
- The MODALITY closes the association upon the completion of each performance.

2.5.3.2 Operation

The operation for MPPS service is described below:

Step 1: Set the default MPPS service in the DICOM service preset dialog.

Step 2: When press the button that can change the exam states such as 'New Exam', 'Pause Exam', 'Cancel Exam', 'Active Exam', 'Continue Exam', 'End Exam'; the MPPS action will be performed automatically.

- 'New Exam', 'Active Exam' will send N-Create message with IN PROCESS status.
- 'Cancel Exam' will send N-Set message with DISCONTINUED status.
- 'End Exam' will send N-Set message with COMPLETED status.

2.6 Storage Commitment

Storage Commitment Service is used to ensure the reliable storage of DICOM composite information objects on remote DICOM device after sending DICOM Storage Service to the device.

2.6.1 Application Data Flow Diagram

The MODALITY implementation acts as the SCU for the Storage Commitment service.

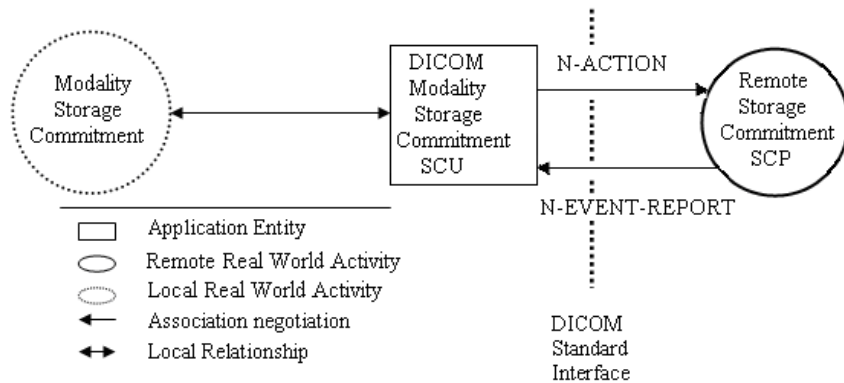


Figure 7 Storage Commitment Model

2.6.2 Functional Definitions of Application Entities

The MODALITY is able to ensure the storage on a Remote DICOM device. Therefore it performs the following tasks:

- Establishes DICOM association with the Remote DICOM device.
- N-ACTION message on the Storage Commitment SOP Class is used to request commitment of storage on the Remote DICOM device.
- N-EVENT-REPORT message on the Storage Commitment SOP Class is used to convey the result of storage commitment from the Remote DICOM device.

2.6.3 Sequence of Real World Activities

2.6.3.1 Features

- The MODALITY acts as the SCU for the Storage Commitment.
- The Storage Commitment can only apply on exam level.
- After the successful Storage service of one exam, the default Storage Commitment service will be executed automatically. All images of the exam should be stored and the Storage Commitment Service is set to associate with the Storage Service.
- If the N-ACTION has been performed successfully, the MODALITY will wait for the N-EVENT-REPORT message until the MODALITY powers down.
- The MODALITY waits for the N-EVETN-REPORT message in a separate association.
- The Storage Commitment is invoked only when the exam state is 'End

Exam'. For example, if the exam is active or paused, the Storage Commitment service will not be performed.

- In the iStation Dialog, an icon is used to indicate the exam's storage has been committed or not.
- The MODALITY will listen to one port set in the DICOM Local Preset dialog, and if the port is changed, the new port will be effective soon.

2.6.3.2 Operation

The operation for Storage Commitment service is described below:

Step 1: Associate the Storage Commitment service with one Storage service in the DICOM service preset dialog, and set it as the default service.

Step 2: After the successful performance of Storage service, the Storage Commitment action will be invoked automatically.

2.7 Media Storage

Media Storage Service is used to export exams and associated SRs to DICOM media (create a new file-set in DICOM media, or update DICOM files by adding new exams to the existing file-set), read or import exams from DICOM media. Only obstetric, gynecology, cardiac, vascular measurements and calculations can generate SR. The MODALITY supports writing SR to the media, reading back SR is not supported

2.7.1 Application Data Flow Diagram

The MODALITY implementation acts as the FSC、FSU or FSR for the Media Storage service.

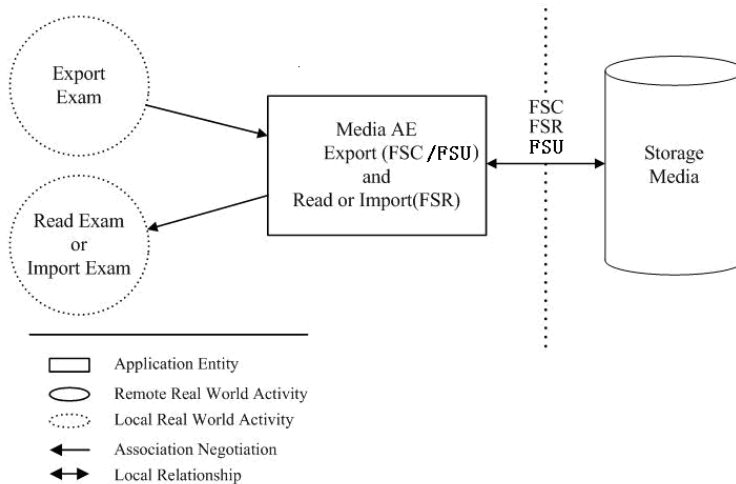


Figure 8 Media Storage Model

2.7.2 Functional Definitions of Application Entities

The MODALITY is able to export exams and associated SRs to DICOM media, read or import exams from DICOM media. Therefore it performs the following tasks:

- Create a new file-set on removable media.
- Read the existing file-set on removable media.
- Import the existing file-set from removable media.
- Update the existing file-set on removable media.

2.7.3 Sequence of Real World Activities

2.7.3.1 Features

- The MODALITY acts as the FSC to export exams to DICOM media.
- The MODALITY acts as the FSR to read or import exams from DICOM media.
- The MODALITY acts as the FSU to update DICOM files by adding new exams to the existing file-set
- The active exam can not be exported.

2.7.3.2 Operation

The operation for Media Storage service is described below:

- Export Exam to DICOM media:
 - Step 1: Select exams in the iStation Dialog, and press the “BackUp” button.
 - Step 2: Select the destination and “DICOM Format” to export.
- Read Exam on DICOM media:
 - Step 1: Open the iStation Dialog, select the Data Source to DICOM media, and the exams on media will be shown.
- Import Exam from DICOM media:
 - Step 1: Open the iStation Dialog, select the Data Source to DICOM media, and the exams on media will be shown.
 - Step 2: Select the exams and press the “Restore” button to import the exams.

2.8 Query/Retrieve

In the iStation Dialog, as pressing "Query/Retrieve" button, the Query/Retrieve dialog will be shown. The User can set the matching key attributes to query the selected remote AE for lists of studies, the query results will be listed in the table of the Query/Retrieve dialog. When the user selects studies for retrieval, a connection to the remote AE is established to initiate and monitor the process of retrieval, then the MODALITY's STORAGE-SCP will receives the retrieved studies in a new association initiated by the remote DICOM device. The MODALITY can only retrieve ultrasound images, but will leap all the other non-ultrasound ones.

2.8.1 Application Data Flow Diagram

The MODALITY implementation acts as the SCU for the Query/Retrieve service.

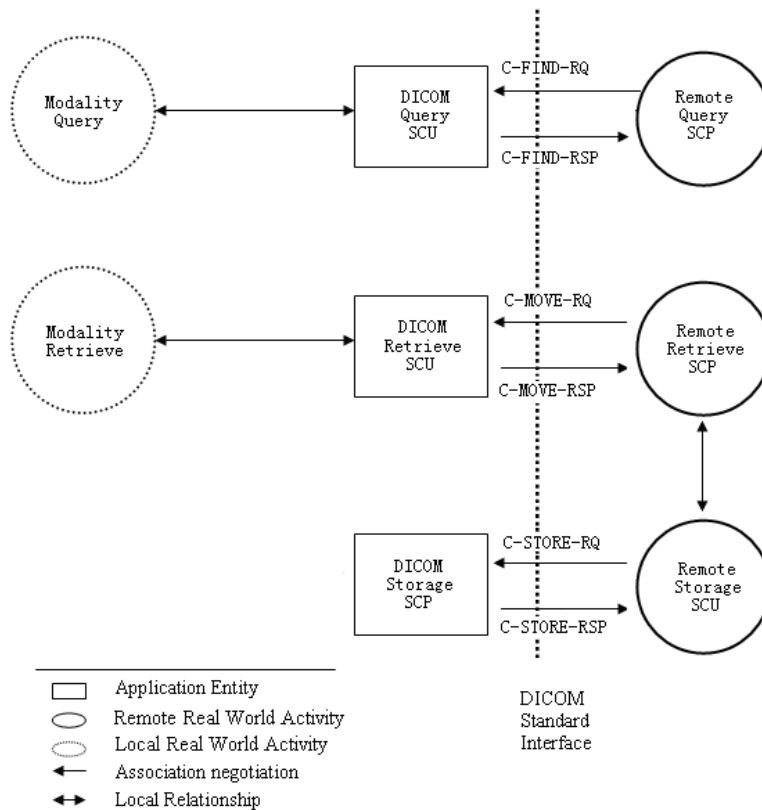


Figure 9 Query/Retrieve Model

2.8.2 Functional Definitions of Application Entities

The MODALITY is used to query lists of studies and pull images from a Remote DICOM device. Therefore it performs the following tasks:

- Establish DICOM association with the Remote DICOM device.
- Perform querying the Remote DICOM device for lists of studies.
- Retrieve selected studies from the Remote DICOM device. The MODALITY's Storage SCP accepts a new association from the Remote DICOM device and storage the studies.

2.8.3 Sequence of Real World Activities

2.8.3.1 Features

- The MODALITY acts as the SCU to query studies from the Remote DICOM device.
- The MODALITY acts as the SCU to retrieve studies from the Remote DICOM device.
- The MODALITY acts as the SCP to storage the studies from the Remote

DICOM device in another association.

- The Storage SCP is only used in Query/Retrieve and may not be used singly.
- The MODALITY only supports Study Root Query/Retrieve Information Model.
- The operator query and retrieve studies only manually.
- The MODALITY can retrieve a list of selected studies in an association.
- The MODALITY can only retrieve ultrasound images, but will leap all the other non-ultrasound ones.
- When the query or retrieve fails, the MODALITY displays an error message.
- The MODALITY closes the association upon the completion of each level query or retrieve.
- After one query, the MODALITY will remember the last result until a new query is finished. Before the new query is finished, the last result will be shown on the Query/Retrieve dialog.
- The MODALITY can get at most 10000 query results in one query.

2.8.3.2 Operation

The operation for Query/Retrieve service is described below:

Step 1: Open the iStation dialog.

Step 2: Press the 'Query/Retrieve' button.

Step 3: Select the service of the Remote DICOM device and set the matching attributes, then press 'Query' button. The specific query is processed.

Step 4: The query result is listed in the source table.

Step 5: Select the studies in the source table, and press "Retrieve" button. The specific retrieval will be processed. The successfully retrieved studies will be removed from the source table and listed in the destination table.

Step 6: Double click the successfully retrieved study in the destination table. The user can view the images of the study in the iStation dialog.

3. AE Specifications

3.1 Network AE Specification

The MODALITY AE provides Standard Conformance to the following DICOM SOP Classes as a SCU:

Table 4 DICOM SOP Classes as an SCU

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Modality WORKLIST Information Model-Find	1.2.840.10008.5.1.4.31
Basic Grayscale Print Management	1.2.840.10008.5.1.1.9
Basic Color Print Management	1.2.840.10008.5.1.1.18
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1
Printer SOP Class	1.2.840.10008.5.1.1.16
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1
Study Root Q/R Information Model – Find	1.2.840.10008.5.1.4.1.2.2.1
Study Root Q/R Information Model – Move	1.2.840.10008.5.1.4.1.2.2.2
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33

3.1.1 Association Establishment Policies

3.1.1.1 General

The MODALITY system uses TCP/IP. The Maximum Length PDU negotiation is included in all association establishment requests. The maximum length PDU offered for an association initiated by the MODALITY system is between

4096 and 65536, and the default is 32768.

3.1.1.2 Number of Association

The MODALITY initiates one/several Association(s) at a time, every association for each transfer will be processed in a separate thread. Only one Storage job will be active at a time, the others remain pending until the active job is completed or failed. Only one print job will be active at a time, the others remain pending until the active job is completed or failed.

3.1.1.3 Asynchronous Nature

The MODALITY AE (initiation/acceptance) does not support asynchronous communication (multiple outstanding transactions over a single association).

3.1.1.4 Implementation Identifying Information

The MODALITY will specify the following Implementation Identifying Information:

Implementation Class UID: 1.2.156.112536.1.2108.0.1.0.1

Implementation Version Name: MINDRAY_V1.0

3.1.2 Association Initiation by Real World Activity

The MODALITY AE initiates an association when the following activity is chosen by the operator:

- Verification: Verify the existence of the Remote DICOM service.
- Storage: Create and store a US single frame, US Multi-frame, SR or Second Capture image to a Remote DICOM device.
- MWL: Retrieve MWL information from a Remote DICOM device.
- Print: Print images to a remote print service SCP.
- MPPS: Send performance step to a remote DICOM device.
- Storage Commitment: Ensure the storage on Remote DICOM device.
- Query/Retrieve: Query and retrieve lists of studies from a Remote Dicom device.

3.1.2.1 Real World Activity – Verification

3.1.2.1.1 Associated Real World Activity

3.1.2.1.1.1 Verification SCU

The associated Real World Activity of verification SCU is a C-ECHO request initiated by the MODALITY. If the process successfully establishes an association with a remote DICOM device, it will send the C-ECHO request via the open association to verify that the Remote DICOM device is responding to DICOM messages.

3.1.2.1.1.2 Verification SCP

The associated Real World Activity of verification SCP is a C-ECHO request initiated by the remote DICOM device. When receiving the C-ECHO request, the MODALITY will reply it to show the availability on the network.

3.1.2.1.2 Proposed Presentation Contexts

The MODALITY supports the following Presentation Contexts for Verification.

Table 5 Presentation Contexts for Verification

Proposed Presentation Contexts					
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	SCU/SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

3.1.2.1.2.1 SOP Specific Conformance Statement

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

3.1.2.2 Real World Activity – Storage SCU

3.1.2.2.1 Associated Real World Activity

The associated Real World Activity is a C-STORE request that has been initiated. If the C-STORE response from the remote Application contains an error status, the association is aborted.

3.1.2.2.2 Proposed Presentation Contexts

The MODALITY supports the following Presentation Contexts for Storage.

Table 6 Presentation Contexts for Storage

Proposed Presentation Contexts					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Ultrasound 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
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2
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
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	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
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
Comprehensive SR 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
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

The following table provides the list of attributes requested in the Storage. 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

Table 7 Storage IOD Attributes

Module: Patient Module (M)				
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
(0010,0040)	CS	2	Patient's Sex	MWL/USER, default is set to zero length
(0010,1000)	LO	3	Other Patient IDs	MWL
(0010,2160)	SH	3	Ethnic Group	MWL
(0010,4000)	LT	3	Patient Comments	MWL/USER
Module: General Study Module (M)				
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	MWL/AUTO

			UID	
(0020,0010)	SH	2	Study ID	AUTO
Module: Patient Study Module (U)				
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
Module: General Series Module (M)				
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	"US"
(0008,103E)	LO	3	Series Description	MWL
(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	MPPS

			Procedure Step Start Date	
(0040,0245)	TM	3	Performed Procedure Step Start Time	MPPS
(0040,0254)	LO	3	Performed Procedure Step Description	MPPS
(0040,0260)	SQ	3	Performed Protocol Code Sequence	MPPS
Module: General Equipment Module (O)				
Attribute	VR	Type	Attribute Name	Value(s) and Comments
(0008,0070)	LO	2	Manufacturer	MINDRAY
(0008,0080)	LO	3	Institution Name	CONFIG
(0008,1010)	SH	3	Station Name	CONFIG
(0008,1040)	LO	3	Institutional Department Name	CONFIG
(0008,1090)	LO	3	Manufacturer's Model Name	M5/M5T
(0018,1000)	LO	3	Device Serial Number	The Ethernet card Mac Address
(0018,1020)	LO	3	Software Version(s)	AUTO
Module: General Image Module (M)				
Attribute	VR	Type	Attribute Name	Value(s) and Comments
(0008,0023)	DA	2C	Content Date	AUTO
(0008,0033)	TM	2C	Content Time	AUTO
(0008,2111)	ST	3	Derivation Description	CONFIG, default is set to zero length
(0020,0013)	IS	2	Instance Number	AUTO
(0020,0020)	CS	2C	Patient Orientation	Set to zero length
(0020,4000)	LT	3	Image Comments	Set to zero length
(0028,0301)	CS	3	Burned In	YES

			Annotation	
Module: US Image Module (M)				
Attribute	VR	Type	Attribute Name	Value(s) and Comments
(0008,0008)	CS	2	Image Type	ORIGINAL/PRIMARY
(0018,5010)	LO	3	Transducer Data	USER
(0018,5020)	LO	3	Processing Function ABD	USER
(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. RGB,if the image is sent using JPEG Lossless. YBR_FULL,if the image is sent using RLE Lossless. YBR_ICT,if the image is sent using JPEG 2000 Image Compression. YBR_RCT,if the image is sent using JPEG 2000 Image Compression (Lossless Only)
(0028,0006)	US	1C	Planar Configuration	0x0000=0
(0028,0009)	AT	1C	Frame Increment Pointer	Frame Time
(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; support JPEG baseline, JPEG 2000 Image Compression

				and set it to "01"
Module: Image Pixel Module (M)				
Attribute	VR	Type	Attribute Name	Value(s) and Comments
(0028,0010)	US	1	Rows	CONFIG
(0028,0011)	US	1	Columns	CONFIG
(0028,0034)	IS	1c	Pixel Aspect Ratio	Set to zero length
(7FE0,0010)	OW	1	Pixel Data	
Module: SOP Common Module (M)				
Attribute	VR	Type	Attribute Name	Value(s) and Comments
(0008,0005)	CS	1C	Specific Character Set	ISO_IR 100
(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
Module: US Region Calibration Module (U)				
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
> (0018,601A)	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
Module: Cine Module (M) 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
Module: Multi-Frame Module (M) 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

Module: SC Equipment Module (M) Used for Second Capture Images Only				
Attribute	VR	Type	Attribute Name	Value(s) and Comments
(0008,0060)	CS	3	Modality	US
(0008,0064)	CS	1	Conversion Type	WSD
(0018,1010)	LO	3	Secondary Capture Device ID	M5/M5T
(0018,1016)	LO	3	Secondary Capture Device Manufacturer	MINDRAY
(0018,1018)	LO	3	Secondary Capture Device Manufacturer's Model Name	M5/M5T
(0018,1019)	LO	3	Secondary Capture Device Software Version(s)	AUTO
Module: SC Image Module (M) Used for Second Capture Images Only				
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

3.1.2.2.2.1 SOP Specific Conformance Statement

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

3.1.2.2.3 Error Handling

The following table indicates the possible response status codes, which a SCP may return following the SCU's C-STORE-RSP command.

A successful C-STORE operation will allow the AE to continue to the next action desired by the user. If received any of the refused, error status, the MODALITY (SCU) will give up the next action and abort the association. The MODALITY will continue when received a Warning Status.

The user can press “Retry” in the Task Manager to restart the failed service.

Table 8 C-Store Status Response

Service Status	Further Meaning	Protocol Codes
Refused	Out of resources.	A7xx
Error	Data set does not match SOP Class	A9xx
	Cannot understand	Cxxx
Warning	Coercion of Data Elements	B000
	Data Set does not match SOP Class	B007
	Elements Discarded	B006
Success		0000

3.1.2.3 Real World Activity – MWL SCU

3.1.2.3.1 Associated Real World Activity

The MODALITY will issue a C-FIND request in order to retrieve information concerning a Remote DICOM device.

3.1.2.3.2 Proposed Presentation Contexts

The MODALITY supports the following Presentation Contexts for MWL.

Table 9 Presentation Contexts for MWL

Proposed Presentation Contexts					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Modality	1.2.840.1000	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Worklist Information Model Find	8.5.1.4.31	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

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

- Single Value Matching.
- Wild Card Matching.
- Range of date.

The following table provides the list of attributes requested in the Modality Worklist Query and the convention used for Matching Keys is:

S - Single Value Matching

* - Wild Carded Matching

DA – Date Range Matching

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

Table 10 Modality Worklist Data element

Module: Patient Identification Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0010,0010)	PN	Patient's Name	S, *	X (DI)
(0010,0020)	LO	Patient ID	S	X(DI)
(0010,1000)	LO	Other Patient IDs		X (DI)
Module: Patient Demographic Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0010,0030)	DA	Patient's Birth Date		X(DI)
(0010,0032)	TM	Patient's Birth Time		X(DI)
(0010,0040)	CS	Patient's Sex		X(DI)
(0010,1020)	DS	Patient's Size		X (DI)
(0010,1030)	DS	Patient's Weight		X (DI)
(0010,2160)	SH	Ethnic Group		X (DI)

(0010,4000)	LT	Patient Comments		X (DI)
(0040,3001)	LO	Confidentiality constraint on patient data Description		X (DI)
Module: Patient Medical Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0010,2000)	LO	Medical Alerts		X (DI)
(0010,2110)	LO	Contrast Allergies		X (DI)
(0010,21B0)	US	Additional Patient's History		X (DI)
(0010,21C0)	US	Pregnancy Status		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)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0008,1120)	SQ	Referenced Patient Sequence		X (DI)
Module: Visit Identification Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0038,0010)	LO	Admission ID		X (DI)
Module: Visit Status Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0038,0300)	LO	Current Patient Location		X (DI)
Module: Visit Admission Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0008,1080)	LO	Admitting Diagnosis		X (DI)

		Description		
Module: Scheduled Procedure Step Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0040,0100)	SQ	Scheduled Procedure Step Sequence		X (DI)
>(0008,0060)	CS	Modality	US	
>(0032,1070)	LO	Requested Contrast Agent		X (DI)
>(0040,0001)	AE	Scheduled Station AE Title	configurable and the default set to your AE title	X (DI)
>(0040,0002)	DA	Scheduled Procedure Step Start Date	configurable and the default 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		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		X (DI)

		Version		
> >(0008,0104)	LO	Code Meaning		X (DI)
>(0040,0009)	SH	Scheduled Procedure Step ID		X (DI)
>(0040,0010)	SH	Scheduled Station Name		X (DI)
>(0040,0011)	SH	Scheduled Procedure Step Location		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)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0008,1110)	SQ	Referenced Study Sequence		X (DI)
> (0008,1150)	UI	Referenced SOP Class UID		X (DI)
> (0008,1155)	UI	Referenced SOP Instance UID		X (DI)
(0020,000D)	UI	Study Instance UID		X (DI)
(0032,1060)	LO	Requested Procedure Description		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		X (DI)

		Version		
>(0008,0104)	LO	Code Meaning		X (DI)
(0040,1001)	SH	Requested Procedure ID	S	X (DI)
(0040,1003)	SH	Requested Procedure Priority		X (DI)
(0040,1004)	LO	Patient Transport Arrangements		X (DI)
(0040,1400)	LT	Requested Procedure Comments		X (DI)
Module: Imaging Service Request Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0008,0050)	SH	Accession Number	S	X (DI)
(0008,0090)	PN	Referring Physician's Name		X (DI)
(0032,1032)	PN	Requesting Physician		X (DI)
(0032,1033)	LO	Requesting Service		X (DI)
(0040,2400)	LT	Imaging Service Request Comments		X (DI)
Module: SOP Common Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0008,0005)	CS	Specific Character Set		X (DI)
Module: Additional Attributes Module (M)				
Attribute	VR	Attribute Name	Matching keys	Return keys
(0008,0032)	TM	Acquisition Time		X (DI)

3.1.2.3.2.1 SOP Specific Conformance Statement

The Application conforms to the definition of an MWL SCU in accordance with the DICOM Standard.

3.1.2.3.3 Error Handling

The following table indicates the possible response status codes, which a SCP may return following the SCU's C-FIND-RSP command.

Table 11 C-FIND Status Response

Service Status	Further Meaning	Protocol Codes
Refused	Out of resources	A700
Failed	Identifier Does Not Match SOP Class	A900
	Unable to process	Cxxx
Cancel	Matching terminated due to Cancel request	FE00
Success	Matching is complete - No final Identifier is supplied.	0000
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence for this Identifier.	FF01

3.1.2.4 Real World Activity – Print SCU

3.1.2.4.1 Associated Real World Activities

Individual images or entire exams can be printed to the selected DICOM print device. An association is established for a film sheet. The association is closed when the print job is finished. If any response from the remote application contains a status other than Success or Warning, the association is aborted and the related print job is switched to a failed state. It can be restarted at any time by the user. Only one job will be active at a time for each DICOM service.

3.1.2.4.2 Proposed Presentation Contexts

The MODALITY supports the following Presentation Contexts for print.

Table 12 Presentation Contexts for print

Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

3.1.2.4.2.1 SOP Specific Conformance to Basic Grayscale Print Management Meta SOP Class

The MODALITY provides standard conformance of the Grayscale Meta SOP classes as an SCU.

Table 3 SOP CLASSES FOR PRINT AE

SOP Class Name	SOP Class UID	Conformance Level
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Standard
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Standard
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Standard
Printer SOP Class	1.2.840.10008.5.1.1.16	Standard

3.1.2.4.2.1.1 SOP Specific Conformance to Basic Film Session SOP Class

The MODALITY supports the following DIMSE operations for the Film Session SOP Class:

Table 14 Basic Film Session DIMSE operations

DIMSE Operations	SCU Usage	Description
N-Create	M	Used
N-Set	U	Not used
N-Delete	U	Not used
N-Action	U	Not used

Table 15 FILM SESSION SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	SCU Usage	Description
Number of Copies	(2000,0010)	U	[1, 100]
Print Priority	(2000,0020)	U	LOW, MED, HIGH
Medium Type	(2000,0030)	U	PAPER, BLUE FILM, CLEAR FILM
Film Destination	(2000,0040)	U	MAGAZINE, PROCESSOR

3.1.2.4.2.1.2 SOP Specific Conformance to Basic Film Box SOP Class

The MODALITY supports the following DIMSE operations for the Film Box SOP Class

Table 16 Basic Film Box DIMSE operations

DIMSE Operations	SCU Usage	Description
N-Create	M	Used
N-Action	M	Used
N-Delete	U	Used
N-Set	U	Not used

Table 17 FILM BOX SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	SCU Usage	Description
Image Format Display	(2010,0010)	M	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

Attribute Name	Tag	SCU Usage	Description
			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\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

Attribute Name	Tag	SCU Usage	Description
			STANDARD\9,7 STANDARD\10,7 STANDARD\8,8 STANDARD\9,8 STANDARD\10,8
Referenced Film Session Sequence	(2010,0500)	M	Used
>Referenced SOP Class UID	(0008,1150)	M	Used
>Referenced SOP Instance UID	(0008,1155)	M	Used
Film Orientation	(2010,0040)	U	PORTRAIT, LANDSCAPE
Film Size ID	(2010,0050)	U	8INX10IN 8_5INX11IN 10INX12IN 10INX14IN 11INX14IN 11INX17IN 14INX14IN 14INX17IN 24CMX24CM 24CMX30CM A4 A3
Magnification Type	(2010,0060)	U	NONE, CUBIC, REPLICATE, BILINEAR
Min Density	(2010,0120)	U	Configurable,[0, 65535]
Max Density	(2010,0130)	U	Configurable,[0, 65535]
Trim	(2010,0140)	U	YES, NO
Configuration Information	(2010,0150)	U	Number of chars: [0, 1024]

3.1.2.4.2.1.3 SOP Specific Conformance to Basic Image Box SOP Class

The MODALITY supports the following DIMSE operations for the Image Box SOP Class

Table 18 Basic Image Box DIMSE operations

DIMSE Operations	SCU Usage	Description
N-Set	M	Used

Table 19 Image BOX SOP CLASS N-SET REQUEST ATTRIBUTES

Attribute Name	Tag	SCU Usage	Description
Magnification Type	(2010,0060)	U	NONE, CUBIC, REPLICATE, BILINEAR
Max Density	(2010,0130)	U	Configurable
Min Density	(2010,0120)	U	Configurable

3.1.2.4.2.1.4 SOP Specific Conformance to Printer SOP Class

The MODALITY supports the following DIMSE operations for the Printer SOP Class.

Table 20 Printer SOP DIMSE operations

DIMSE Operations	SCU Usage	Description
N-Get	M	Used

Table 21 Printer SOP CLASS N-GET REQUEST ATTRIBUTES

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

3.1.2.4.2.2 SOP Specific Conformance to Basic Color Print Management Meta SOP Class

The MODALITY provides standard conformance of the color Meta SOP classes as an SCU.

Table 22 SOP CLASSES FOR PRINT AE

SOP Class Name	SOP Class UID	Conformance Level
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Standard
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Standard

Basic color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Standard
Printer SOP Class	1.2.840.10008.5.1.1.16	Standard

3.1.2.4.2.2.1 SOP Specific Conformance to Basic Film Session SOP Class

The MODALITY supports the following DIMSE operations for the Film Session SOP Class:

Table 4 Basic Film Session DIMSE operations

DIMSE Operations	SCU Usage	Description
N-Create	M	Used
N-Set	U	Not used
N-Delete	U	Not used
N-Action	U	Not used

Table 24 FILM SESSION SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	SCU Usage	Description
Number of Copies	(2000,0010)	U	[1, 100]
Print Priority	(2000,0020)	U	LOW, MED, HIGH
Medium Type	(2000,0030)	U	PAPER, BLUE FILM, CLEAR FILM
Film Destination	(2000,0040)	U	MAGAZINE, PROCESSOR

3.1.2.4.2.2.2 SOP Specific Conformance to Basic Film Box SOP Class

The MODALITY supports the following DIMSE operations for the Film Box SOP Class

Table 25 Basic Film Box DIMSE operations

DIMSE Operations	SCU Usage	Description
N-Create	M	Used
N-Action	M	Used
N-Delete	U	Used
N-Set	U	Not used

Table 26 FILM BOX SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	SCU Usage	Description
Image Format Display	(2010,0010)	M	PORTRAIT: STANDARD\1,1 STANDARD\1,2

Attribute Name	Tag	SCU Usage	Description
			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\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

Attribute Name	Tag	SCU Usage	Description
			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)	M	Used
>Referenced SOP Class UID	(0008,1150)	M	Used
>Referenced SOP Instance UID	(0008,1155)	M	Used
Film Orientation	(2010,0040)	U	PORTRAIT, LANDSCAPE
Film Size ID	(2010,0050)	U	8INX10IN 8_5INX11IN 10INX12IN 10INX14IN 11INX14IN 11INX17IN 14INX14IN 14INX17IN 24CMX24CM 24CMX30CM A4 A3
Magnification Type	(2010,0060)	U	NONE, CUBIC, REPLICATE,

Attribute Name	Tag	SCU Usage	Description
			BILINEAR
Min Density	(2010,0120)	U	Configurable,[0, 65535]
Max Density	(2010,0130)	U	Configurable,[0, 65535]
Trim	(2010,0140)	U	YES, NO
Configuration Information	(2010,0150)	U	Number of chars: [0, 1024]

3.1.2.4.2.3 SOP Specific Conformance to Basic Image Box SOP Class

The MODALITY supports the following DIMSE operations for the Image Box SOP Class

Table 27 Basic Image Box DIMSE operations

DIMSE Operations	SCU Usage	Description
N-Create	M	Not Used
N-Action	M	Not Used
N-Delete	U	Not Used
N-Set	U	Used

Table 28 Image BOX SOP CLASS N-SET REQUEST ATTRIBUTES

Attribute Name	Tag	SCU Usage	Description
Magnification Type	(2010,0060)	U	NONE, CUBIC, REPLICATE, BILINEAR
Max Density	(2010,0130)	U	Configurable
Min Density	(2010,0120)	U	Configurable

3.1.2.4.2.3 Error Handling

The following table indicates the possible response status codes, which a SCP may return following the SCU's response command. If received any of the refused, error status, the MODALITY (SCU) will give up the next action and abort the association. The MODALITY will continue when receives a Warning Status.

The user can press "Retry" in the Task Manager to restart the failed print job.

Table 29 Supported Error Codes for Print Classes

Service Status	Further Meaning	Protocol Codes
Success	Printing successful	0000
Warning	All	B60x

Failed	Printing not successful	C60x
--------	-------------------------	------

3.1.2.5 Real World Activity – MPPS SCU

3.1.2.5.1 Associated Real World Activity

The MODALITY will issue the N-CREATE and N-SET request in order to report the exam status change to a Remote DICOM device.

3.1.2.5.2 Proposed Presentation Contexts

The MODALITY supports the following Presentation Contexts for MPPS.

Table 30 Presentation Contexts for Storage

Proposed Presentation Contexts					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Modality	1.2.840.	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Performed Procedure Step SOP Class	10008.3.1.2.3.3	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

Table 31 MPPS IOD Attributes

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 Sequence	(0040,0324)	3	3

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

3.1.2.5.2.1 SOP Specific Conformance Statement

The Application conforms to the definition of a MPPS SCU in accordance with the DICOM Standard.

3.1.2.5.3 Error Handling

The following table indicates the possible response status codes, which a SCP may return following the SCU's response command. If received any of the refused, error status, the MODALITY (SCU) will give up the next action and abort the association. The MODALITY will continue when receives a Warning Status.

Table 32 Supported Error Codes for MPPS Class

Service Status	Further Meaning	Protocol Codes
Success	MPPS successful	0000
Warning	All	B60x
Failed	MPPS not successful	C60x

3.1.2.6 Real World Activity – Storage Commitment SCU

3.1.2.6.1 Associated Real World Activity

The associated Real World Activity is initiated after the exam stored successfully to the Remote DICOM SCP. The association will be closed when receive the N-ACTION-RSP from the remote Application. If the N-ACTION-RSP contains no error status, a new association will be created to wait for the N-EVENT-REPORT request.

3.1.2.6.2 Proposed Presentation Contexts

The MODALITY supports the following Presentation Contexts for Storage Commitment.

Table 33 Presentation Contexts for Storage

Proposed Presentation Contexts					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Storage Commitme	1.2.840.10008.1.	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

nt Push Model SOP Class	20.1	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

Table 34 Storage Commitment Common Module Attributes

Attribute	VR	Type	Attribute Name
(0000,0000)	UL	1	Group 0000 Length
(0000,0003)	UI	1	Requested SOP Class UID
(0000,0030)	US	1	Command Field
(0000,0110)	US	1	Message ID
(0000,0800)	US	1	Data Set Type
(0000,1001)	UI	1	Requested SOP Instance UID
(0000,1008)	US	1	Action Type ID

Table 35 Storage Commitment Module Attributes

Module: Storage Commitment Module (M)					
Attribute	VR	Attribute Name	Requirement Type SCU	Requirement Type SCP (Success)	Requirement Type SCP (Fail)
(0008,1195)	UI	Transaction UID	1	1	1
(0008,1199)	SQ	Referenced SOP Sequence	1	1	1
>(0008,1150)	UI	Referenced SOP Class UID	1	1	1
>(0008,1155)	UI	Referenced SOP Instance UID	1	1	1

3.1.2.6.2.1 SOP Specific Conformance Statement

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

3.1.2.6.3 Error Handling

The following table indicates the possible response status codes, which a SCP may send following the N-EVENT-REPORT command.

Table 36 Storage Commitment Status

Service Status	Further Meaning	Protocol Codes
Failed	N-EVENT-REPORT message operate failed.	0110
Success	N-EVENT-REPORT message operate success.	0000

3.1.2.7 Real World Activity – Query SCU / Retrieve SCU

3.1.2.7.1 Associated Real World Activity

- The MODALITY initiates an association and issue a C-FIND-RQ to the Query SCP. The association will be released upon the receipt of C-FIND-RSP. Then, the user can select the studies and push the “Retrieve” button, and the Retrieve SCU will use the C-MOVE-RQ to retrieve ultrasound images of the selected studies through a new association which will be released upon the receipt of C-MOVE-RSP. The MODALITY Storage SCP accepts the association from the Remote DICOM device and storage the images.

3.1.2.7.2 Proposed Presentation Contexts

The MODALITY supports the following Presentation Contexts for Query/Retrieve. The Presentation Contexts for Storage SCP is the same as Storage SCU’s except the role (Table 6).

Table 37 Presentation Contexts for Query/Retrieve

Proposed Presentation Contexts					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Study Root	1.2.840.1000	Implicit VR Little	1.2.840.10008.1.	SCU	None
Q/R	8.5.1.4.1.2.2.	Endian	2		
Information Model - Find	1				

Study Root	1.2.840.1000	Implicit VR Little	1.2.840.10008.1.	SCU	None
Q/R	8.5.1.4.1.2.2.	Endian	2		
Information	2				
Model –Move					

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

- Single Value Matching.
- Wild Card Matching.
- Range of date.
- Universal Matching.

The following table provides the list of attributes requested in the Modality Query/Retrieve and the convention used for Matching Keys is:

S - Single Value Matching.

* - Wild Carded Matching.

DA – Date Range Matching.

N - Zero length for Universal Matching.

SK – Search key from the Query/Retrieve dialog.

Table 38 STUDY LEVEL ATTRIBUTES

Module: Study Root Information Model (M)					
Attribute	VR	Type	Attribute Name	Value	Matching keys
(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	US	N
(0008,0090)	PN	O	Referring Physician's Name		N
(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)					
Attribute	VR	Type	Attribute Name	Value	Matching

					keys
(0008,0062)	UN	O	SOP Classes in Study		N

Table 39 SERIES LEVEL ATTRIBUTES

Module: Study Root Information Model (M)					
Attribute	VR	Type	Attribute Name	Value	Matching Keys
(0020,000D)	UI	U	Study Instance UID		S
(0020,000E)	UI	U	Series Instance UID		N
(0008,0060)	CS	R	Modality		N
(0020,0011)	IS	R	Series Number		N
(0020,1209)	IS	O	Number of Series Related Instances		N
Module: Additional Attributes Module (O)					
Attribute	VR	Type	Attribute Name	Value	Matching Keys
(0008,0021)	DA	O	Series Date		N
(0008,0031)	TM	O	Series Time		N

Table 40 COMPOSITE OBJECT INSTANCE LEVEL ATTRIBUTES

Module: Study Root Information Model (M)					
Attribute	VR	Type	Attribute Name	Value	Matching Keys
(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)					
Attribute	VR	Type	Attribute Name		N
(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

3.1.2.7.2.1 SOP Specific Conformance Statement

The Application conforms to the definition of Query SCU, Retrieve SCU and Storage SCP in accordance with the DICOM Standard.

3.1.2.7.3 Error Handling

The following table indicates the possible response status codes, which a SCP may return following the SCU's C-FIND-RSP command.

Table 41 C-FIND Status Response

Service Status	Further Meaning	Protocol Codes
Refused	Out of resources	A700
Failed	Identifier Does Not Match SOP Class	A900
	Unable to process	Cxxx

Cancel	Matching terminated due to Cancel request	FE00
Success	Matching is complete - No final Identifier is supplied.	0000
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence for this Identifier.	FF01

The following table indicates the possible response status codes, which a SCP may return following the SCU's C-MOVE-RSP command.

Table 42 C-MOVE Status Response

Service Status	Further Meaning	Protocol Codes
Failure	Refused: Out of Resources – Unable to calculate number of matches	A701
	Refused: Out of Resources – Unable to perform sub-operations	A702
	Refused: Move Destination unknown	A801
	Identifier does not match SOP Class	A900
	Unable to Process	Cxxx
Cancel	Sub-operations terminated due to Cancel Indication	FE00
Warning	Sub-operations Complete – One or more Failures	B000
Success	Sub-operations Complete – No Failures	0000
Pending	Sub-operations are continuing	FF00

3.2 Media AE Specification

3.2.1 MODALITY AE Specification

3.2.1.1 File Meta Information Options

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

Implementation Class UID: 1.2.156.112536.1.2108.0.1.0.1

Implementation Version Name: MINDRAY_V1.0

3.2.1.2 Ultrasound Application Profile

The MODALITY conforms to the Application Profile for Ultrasound Media Storage applications. The available physical media is CD-R, CD-RW, DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM or USB.

Table 43 Application Profiles

Supported Application Profile	Real-World Activity	Roles
STD-US-SC-SF&MF-CDR	Export Exam	FSC/FSU
STD-US-SC-SF&MF-DVD	Read Exam	FSR
STD-US-SC-SF&MF-DVD-RAM	Import Exam	FSR

3.2.2 Real World Activity

3.2.2.1 Proposed Presentation Context

3.2.2.1.1 Export Exam

The MODALITY supports the following Presentation Contexts for Media Storage Service when export exam.

Table 44 Presentation Contexts for Media Storage When Export Exam

Proposed Presentation Contexts			
Abstract Syntax		Transfer Syntax	
Name	SOP Class UID	Name	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
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
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

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
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3.2.2.1.2 Read Exam or Import Exam

The MODALITY supports the following Presentation Contexts for Media Storage Service when read or import exam.

Table 45 Presentation Contexts for Media Storage When Read or Import Exam

Proposed Presentation Contexts			
Abstract Syntax		Transfer Syntax	
Name	SOP Class UID	Name	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	Implicit VR Little Endian	1.2.840.10008.1.2
		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
		Explicit VR Big Endian	1.2.840.10008.1.2.2
		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
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91
Ultrasound	1.2.840.10008.5.1.4.	Implicit VR Little Endian	1.2.840.10008.1.2

Multi-frame Image Storage	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
		Explicit VR Big Endian	1.2.840.10008.1.2.2
		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
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2
		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
		Explicit VR Big Endian	1.2.840.10008.1.2.2
		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
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91		

3.2.2.2 Information Module Definitions

The following tables provide the list of attributes requested in the Media Storage. Conventions used for the Value(s) and Comments section are:

AUTO – automatically generated by the MODALITY system

Table 46 File-set Identification Module Attributes

Attribute	VR	Type	Attribute Name	Value(s) and Comments
(0004,1130)	CS	2	File-set ID	MINDRAY_US
(0004,1142)	CS	2	Specific Character Set of File-set Descriptor File	ISO_IR 100

Table 47 Common Directory Information Module Attributes

Attribute	VR	Type	Attribute Name	Value(s) and Comments
(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	0xFFFF
(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

Table 48 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	AUTO
(0010,0010)	PN	2	Patient's Name	AUTO

Table 49 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	1	Study ID	AUTO
(0020,000D)	UI	1C	Study Instance UID	AUTO
(0008,0050)	SH	2	Accession Number	AUTO
(0008,1030)	LO	2	Study Description	AUTO

Table 50 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

Table 51 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)

3.2.2.3 Error Handling

The following table indicates the possible status.

The user can press “Retry” in the Task Manager to restart the failed service.

Table 52 Supported Error for Media Storage

Service Status	Further Meaning
Success	Successful
Failed	Media not ready
	Fail to store on media

4. Communications Profiles

4.1 Supported Communication Stacks

This system provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.2 OSI Stack

Not applicable to this product.

4.3 TCP/IP Stack

TCP/IP networking protocol is used, with static or DHCP IP addressing. The TCP/IP stack is inherited from the product's operating system.

4.3.1 Physical Media Support

10BaseT, 100BaseT and 1000BaseT are supported.

4.4 Point to Point Stack

Not applicable to this product.

5. Extensions/Specialization/Privatization

5.1 Standard Extended / Specialized / Private SOPs

None.

5.2 Private Transfer Syntaxes

None.

6. Configuration

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

6.1. AE Title/Presentation Address Mapping

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

6.2. Configurable Parameters

- Calling AE Titles
- Called AE Titles

Local:

- AE Title
- Port
- Maximum PDU size.

Remote Server:

- Device Name
- IP address

Remote Storage Service SCP:

- Device, Service name, AE Title and port .
- Timeout.
- Maximum retries. (default value is 3)
- Interval Time(In this version, this parameter is not usable.)
- Allow multi-frame, Enable Structured Reporting.
- Compression Mode, Compression Ratio.

Remote Modality WORKLIST Service SCP:

- Device, Service name, AE Title and port .
- Timeout.
- Maximum retries, Interval Time(In this version, these two parameters are not usable.)
- Scheduled Station AE Title

Remote Query/Retrieve Service SCP:

- Device, Service name, AE Title and port .
- Timeout.
- Maximum retries, Interval Time(In this version, these two parameters are not usable.)

Remote Print Service SCP:

- Device, Service name, AE Title and port .
- Timeout.
- Maximum retries. (default value is 3)
- Interval Time (In this version, this parameter is not usable.)
- Media Type: PAPER,CLEAR FILM,BLUE FILM
- Film Size:

- 8INX10IN
- 8_5INX11IN
- 10INX12IN
- 10INX14IN
- 11INX14IN
- 11INX17IN
- 14INX14IN
- 14INX17IN
- 24CMX24CM
- 24CMX30CM
- A4
- A3

- Copies.
- Max Density.
- Min Density.
- Settings: RGB, 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\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, PROCESSOR
- Film Orientation: LANDSCAPE, PORTRAIT
- Priority: HIGH, MED, LOW
- Configuration Info
- Magnification Type: NONE, CUBIC, REPLICATE, BILINEAR
- Trim or Not

Remote MPPS Service SCP:

- Device, Service name, AE Title and port .
- Timeout.
- Maximum retries, Interval Time(In this version, this parameter is not usable.)

Remote Storage Commitment Service SCP:

- Device, Service name, AE Title and port .
- Timeout.
- Maximum retries, Interval Time(In this version, these two parameters are not usable.)
- Associated Storage Service

6.3. Un-Configurable Parameters

The MODALITY supports the standard Value Representation for the Date format – yyyyymmdd, it does not support the format yyyy.mm.dd.

7. Support of Extended Character Sets

This Product supports the following character sets:

- ISO-IR 100(Latin alphabet No.1) Supplementary set of ISO 8859 as default.
- GB18030.

A. Appendix : OB – GYN structured reporting template

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.

	NL	Relation with Parent	Value Type	Concept Name	MODALITY	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 (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	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
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	CONTAINER	EV (121070, DCM, "Findings")		✓
20	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	EV (T-F6800, SRT, "Embryonic Vascular Structure")	✓
21	>>	CONTAINS	INCLUDE	DTID (5025) OB-GYN Fetal Vascular Measurement Group	\$AnatomyGroup = DCID (12141) Fetal Vasculature	✓
22	>	CONTAINS	CONTAINER	EV (121070, DCM, "Findings")		✓
23	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	EV (T-D6007, SRT, "Pelvic Vascular Structure")	✓
24	>>	CONTAINS	INCLUDE	DTID (5026) OB-GYN Pelvic Vascular Measurement Group	\$AnatomyGroup = DCID (12140) Pelvic Vasculature Anatomical Location	✓
25	>	CONTAINS	INCLUDE	DTID (SELFTMP-1)		✓

A.3. TID (SELFTMP-1) Fetal Cardiac Measurement Group

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

	NL	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
1			CONTAINER	EV(T0001,MRUS,Fetel cardio)		✓
2	>	CONTAINS	INCLUDE	DTID (300) Measurement	\$MeasType = DCID (12119) Vascular Ultrasound Property \$Derivation = DCID (3627) Measurement Type	✓
					M12201-01,MRUS,Left ventricular short-axis diameter at end diastole	✓

					M12201-02,MRUS,Left ventricular short-axis diameter at end systole	✓
					M12201-03,MRUS,Left ventricular Diameter	✓
					M12205-01,MRUS,Left Atrium Diameter	✓
					M12204-01,MRUS,Right ventricular short-axis diameter at end diastole	✓
					M12204-02,MRUS,Right ventricular short-axis diameter at end systole	✓
					M12204-03,MRUS,Right ventricular Diameter	✓
					M12206-01,MRUS,Right Atrium Diameter	✓
					18154-5,LN,Interventricular Septum Diastolic Thickness	✓
					18158-6,LN,Interventricular Septum Systolic Thickness	✓
					M12201-04,MRUS,interventricular septal thickness	✓
					M12240-01,MRUS,Left ventricular area	✓
					M12205-02,MRUS,Left Atrium area	✓
					M12204-04,MRUS,Right ventricular area	✓
					M12206-02,MRUS,Right Atrium area	✓
					18015-8,LN,Aortic Root Diameter	✓
					18020-8,LN,Main Pulmonary Artery Diameter	✓
					M12201-05,MRUS,Left Ventricular Outflow Tract Diameter	✓

					M12204-05,MRUS,Right Ventricular Outflow Tract Diameter	✓
					C12201-06,MRUS,Left Ventricular Diameter/Right Ventricular Diameter	✓
					C12205-03,MRUS,Left Atrium Diameter / Right Atrium Diameter	✓
					C12212-01,MRUS,Aorta Diameter / Main Pulmonary Artery Diameter	✓
					C12205-04,MRUS,Left Atrium Diameter / Aorta Diameter	✓

A.4. 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	Value Set Constraint	MODALITY
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.5. TID (5001) OB-GYN Patient Characteristics

NO	NL	Rel with Parent	VT	Concept Name	MODALITY	comment
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.6. TID (5002) OB-GYN Procedure Summary

	NL	Rel with Parent	VT	Concept Name	comment
1			CONTAINER	DT (121111, DCM, "Summary")	
2	>	CONTAINS	DATE	DCID (12003) OB-GYN Dates	from info
3	>	CONTAINS	DATE	(11778-8, LN, EDD)	from info
4	>	CONTAINS	DATE	(11779-6, LN, EDD from LMP)	from info
5	>	CONTAINS	DATE	(11781-2, LN, EDD from average	

				ultrasound age)	
6	>	CONTAINS	DATE	(11780-4, LN, EDD from ovulation date)	from info
7	>	CONTAINS	DATE	(11955-2, LN, LMP)	from info
8	>	CONTAINS	DATE	(33066-2, LN, Estimated LMP by EDD)	from info
9	>	CONTAINS	DATE	(11976-8, LN, Ovulation date)	from info
10	>	CONTAINS	DATE	(I12003-01, MRUS, IVF)	from info
11	>	CONTAINS	DATE	(C12003-01, MRUS, EDD from IVF)	from info
12	>	CONTAINS	DATE	(I12003-02, MRUS, PRV)	from info
13	>	CONTAINS	DATE	(C12003-02, MRUS, EDD from PRV)	from info
14	>	CONTAINS	INCLUDE	DTID (300) Measurement	
15	>	CONTAINS	TEXT	EV (121106, DCM, "Comment")	from info
16	>	CONTAINS	TEXT	(I12101-01, MRUS, Primary Indications)	from info
17	>	CONTAINS	TEXT	(I12101-02, MRUS, Secondary Indications)	from info
18	>	CONTAINS	TEXT	(I12101-03, MRUS, CPT4 Code)	from info
19	>	CONTAINS	TEXT	(I12101-04, MRUS, CPT4 Description)	from info
20	>	CONTAINS	TEXT	EV (121106, DCM, "Comment")	report interface Comments
21	>	CONTAINS	TEXT	(I12101-05, MRUS, Prompt)	report interface Prompt
22	>	CONTAINS	TEXT	(121071, DCM, Findings)	report interface Findings
23	>>		INCLUDE	DTID (320) Image or Spatial Coordinates	
24	>	CONTAINS	INCLUDE	BTID (5003) OB-GYN Fetus Summary	

A.7. TID (5003) OB-GYN Fetus Summary

	NL	Rel with Parent	VT	Concept Name	MODALITY
1			CONTAINER	DT (125008, DCM, "Fetus Summary")	✓
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus	✓
3	>	HAS OBS CONTEXT	TEXT	EV (11951-1, LN, "Fetus ID")	✓

	NL	Rel with Parent	VT	Concept Name	MODALITY
4	>	HAS OBS CONTEXT	NUM	EV (11878-6, LN, "Number of Fetuses")	✓
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	✓
6	>	CONTAINS	INCLUDE	FINDING_1	✓
7	>	CONTAINS	INCLUDE	FINDING_2	✓
8	>	CONTAINS	INCLUDE	FINDING_3	✓
9	>	CONTAINS	INCLUDE	FINDING_4	✓
10	>	CONTAINS	INCLUDE	FINDING_5	✓
11	>	CONTAINS	INCLUDE	FINDING_6	✓
12	>	CONTAINS	INCLUDE	FINDING_7	✓

A.8. TID (FINDING_1) Fetal Description

	NL	Rel with Parent	VT	Concept Name	MODALITY
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	(FG4031-01, MRUS, "LUS")	✓
9	>	CONTAINS	TEXT	(T-57000, SNM3, "Stomach")	✓
10	>	CONTAINS	CONTAINER	(T-71000, SRT, "Kidney")	✓
11	>>	CONTAINS	TEXT	(G-A100, SNM3, "Left")	✓
12	>>	CONTAINS	TEXT	(G-A101, SNM3, "Right")	✓
13	>	CONTAINS	TEXT	(T-74000, SRT, "Bladder")	✓
14	>	CONTAINS	TEXT	(T-63000, SRT, "Gall bladder")	✓
15	>	CONTAINS	TEXT	(T-62000, SRT, "Liver")	✓
16	>	CONTAINS	TEXT	(FG4031-03, MRUS, "Fetal Bowel")	✓

A.9. TID (FINDING_2) Fetus Limbs

	NL	Rel with Parent	VT	Concept Name	MODALITY
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.10. TID (FINDING_3) Fetal Cardiology

	NL	Rel with Parent	VT	Concept Name	MODALITY
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	(FG3010-01,MRUS,"ARCH")	✓

A.11. TID (FINDING_4) Fetal Brain

	NL	Rel with Parent	VT	Concept Name	MODALITY
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.12. TID (FINDING_5) Spine

	NL	Rel with Parent	VT	Concept Name	MODALITY
1		CONTAINS	CONTAINER	(T-11500,SRT,"Spine")	✓
2	>	CONTAINS	TEXT	(T-11501,SNM3,"Cervical Spine")	✓
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.13. TID (FINDING_6) Fetal Environment

	NL	Rel with Parent	VT	Concept Name	MODALITY
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.14. TID (FINDING_7) Maternal Description

	NL	Rel with Parent	VT	Concept Name	MODALITY
1		CONTAINS	CONTAINER	(FG6088-01,MRUS,"Maternal Description")	✓
2	>	CONTAINS	CONTAINER	(FG12011-03,MRUS,"Adnexa")	✓
3	>>	CONTAINS	TEXT	(G-A100,SNM3,Right)	✓

	NL	Rel with Parent	VT	Concept Name	MODALITY
4	>>	CONTAINS	TEXT	(G-A101,SNM3,Left)	✓
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	(T-83200,SRT,Cervix)	✓

A.15. TID (5004)Fetal Biometry Ratio Section

	NL	Rel with Parent	VT	Concept Name	MODALITY
1			CONTAINER	DT (125001, DCM, "Fetal Biometry Ratios")	✓
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus	✓
				EV (11951-1,LN, "Fetus ID")	✓
3	>	CONTAINS	NUM	DCID (12004) Fetal Biometry Ratios	✓

A.16. TID (5005) Fetal Biometry Section

	NL	Rel with Parent	VT	Concept Name	Condition
1			CONTAINER	DT (125002, DCM, "Fetal Biometry")	
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus	IF this template is invoked more than once to describe more than one fetus
			TEXT	EV (11951-1,LN, "Fetus ID")	
3	>	CONTAINS	INCLUDE	DTID (5008) Fetal Biometry Group	

A.17. TID (5006) Fetal Long Bones Section

	NL	Rel with Parent	VT	Concept Name	Condition	Value Set Constraint
1			CONTAINER	DT (125003, DCM, "Fetal Long Bones")		
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus	IF this template is invoked more than once to describe more than one fetus	
3	>	CONTAINS	INCLUDE	DTID (5008) Fetal Biometry Group		\$BiometryType = MemberOf {DCID (12006) Fetal Long Bones Biometry Measurements}

A.18. TID (5007) Fetal Cranium Section

	NL	Rel with Parent	VT	Concept Name	Condition	Value Set Constraint
1			CONTAINER	DT (125004, DCM, "Fetal Cranium")		
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus	IF this template is invoked more than once to describe more than one fetus	
3	>	CONTAINS	INCLUDE	DTID (5008) Fetal Biometry Group		\$BiometryType = MemberOf {DCID (12007) Fetal Cranium}

A.19. TID (5008) Fetal Biometry Group

	NL	Relation with Parent	Value Type	Concept Name	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	

A.20. TID (5009) Fetal Biophysical Profile Section

	NL	Relation with Parent	Value Type	Concept Name	Value Set Constraint
1			CONTAINER	DT (125006, DCM, "Biophysical Profile")	
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus	
				EV (11951-1, LN, "Fetus ID")	
3	>	CONTAINS	NUM	EV (11631-9, LN, "Gross Body Movement")	Units = DT ("{0:2}", UCUM, "range 0:2")
				EV (11631-9, LN, "Gross Body Movement")	
4	>>	HAS PROPERTIES	TEXT	(121106, DCM, "Comment")	
5	>	CONTAINS	NUM	EV (11632-7, LN, "Fetal Breathing")	Units = DT ("{0:2}", UCUM, "range 0:2")

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

A.21. TID (5010) Amniotic Sac Section

	NL	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
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	INCLU	DTID (300)	\$Measurement = DT (11627-7, LN,	✓

			DE	Measurement	"Amniotic Fluid Index")	
4	>	CONTAINS	INCLU DE	DTID (300) Measurement	\$Measurement = DCID (12008) OB-GYN Amniotic Sac	✓

A.22. TID (5011) Early Gestation Section

	NL	Relation with Parent	Value Type	Concept Name	Value Set Constraint	MODALITY
1			CONTAINER	DT (125009, DCM, "Early Gestation")		✓
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus		✓
3	>	CONTAINS	INCLUDE	DTID (5008) Fetal Biometry Group	\$BiometryType= Member of {DCID (12009) Early Gestation Biometry Measurements}	✓

A.23. TID (5012) Ovaries Section

	NL	Relation with Parent	Value Type	Concept Name	Value Set Constraint	MODALITY
1			CONTAINER	DT (121070, DCM, "Findings")		✓
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	DT (T-87000, SRT, "Ovary")	✓
					DT (T-87000, SRT, "Ovary")	
3	>	CONTAINS	INCLUDE	DTID (5016) LWH Volume Group	\$GroupName = EV (T-87000, SRT, "Ovary")	✓
					\$Width =EV (11829-9, LN, "Left Ovary Width")	✓
					\$Length =EV (11840-6, LN, "Left Ovary Length")	✓
					\$Height =EV (11857-0 , LN, "Left Ovary Height")	✓

					\$Volume=EV (12164-0, LN, "Left Ovary Volume")	✓
					EV (T-87000, SRT, "Ovary")	✓
					EV (11829-9, LN, "Left Ovary Width")	✓
					EV (11840-6, LN, "Left Ovary Length")	✓
					EV (11857-0, LN, "Left Ovary Height")	✓
					EV (12164-0, LN, "Left Ovary Volume")	✓
4	>	CONTAINS	INCLUDE	DTID (5016) LWH Volume Group	\$GroupName = EV (T-87000, SRT, "Ovary")	✓
					\$Width = EV (11830-7, LN, "Right Ovary Width")	✓
					\$Length = EV (11841-4, LN, "Right Ovary Length")	✓
					\$Height = EV (11858-8, LN, "Right Ovary Height")	✓
					\$Volume= EV (12165-7, LN, "Right Ovary Volume")	✓
					EV (T-87000, SRT, "Ovary")	✓
					EV (11829-9, LN, "Right Ovary Width")	✓
					EV (11840-6, LN, "Right Ovary Length")	✓
					EV (11857-0, LN, "Right Ovary Height")	✓
					EV (12164-0, LN, "Right Ovary Volume")	✓

A.24. TID (5013) Follicles Section

	NL	Relation with Parent	Value Type	Concept Name	Value Set Constraint	MODALITY
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1			CONTAINER	DT (121070, DCM, "Findings")		✓
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	DT (T-87600, SRT, "Ovarian Follicle")	
					DT (T-87600, SRT, "Ovarian Follicle")	✓
3	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, "Laterality")	\$Laterality	✓
4	>	CONTAINS	NUM	\$Number		✓
5	>	CONTAINS	INCLUDE	DTID (5014) Follicle Measurement Group		✓

A.25. TID (5014) Follicle Measurement Group

	NL	Relation with Parent	Value Type	Concept Name	Value Set Constraint	MODALITY
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")	✓
					EV (G-D705, SRT, "Volume")	✓
4	>	CONTAINS	INCLUDE	DTID (300) Measurement	\$Measurement = EV (11793-7, LN, "Follicle Diameter")	✓
					EV (11793-7, LN, "Follicle Diameter")	✓
					(M11793-01, MRUS, "Follicle Width")	✓

					(C11793-01, MRUS, "Mean Follicle Diameter")	✓
					\$Derivation = DCID (3627) Measurement Type	✓

A.26. TID (5015) Pelvis And Uterus Section

	NL	Relation with Parent	Value Type	Concept Name	Value Set Constraint	MODALITY
1			CONTAINER	DT (125011, DCM, "Pelvis and Uterus")		✓
2	>	CONTAINS	INCLUDE	DTID (5016) LWH Volume Group	\$GroupName = EV (T-83000, SRT, "Uterus")	✓
					\$Width = EV (11865-3, LN, " Uterus Width")	✓
					\$Length = EV (11842-2, LN, " Uterus Length")	✓
					\$Height = EV (11859-6, LN, " Uterus Height")	✓
					\$Volume = EV (33192-6, LN, "Uterus Volume")	✓
3	>	CONTAINS	INCLUDE	DTID (300) Measurement	\$Measurement = DCID (12011) Ultrasound Pelvis and Uterus	✓
					\$Derivation = DCID (3627) Measurement Type	✓
					EV(LN,11961-0,Cervix Length)	✓
					EV(LN,12145-9,Endometrium Thickness)	✓
					(MRUS,M12011-01,Cervix Height)	✓
					(MRUS,M12011-02,Cervix Width)	✓
					(MRUS,C12011-03,Uterus Body)	✓
					(MRUS,C12011-04,UT_L/CX_L)	✓

					(MRUS,M12011-03,Matrix Kindney Length)	✓
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A.27. TID (5016) LWH Volume Group

	NL	Relation with Parent	Value Type	Concept Name	Value Set Constraint	MODALITY
1			CONTAINER	\$GroupName		✓
2	>	CONTAINS	INCLUDE	DTID (300) Measurement	\$Measurement = \$Volume	✓
3	>	CONTAINS	INCLUDE	DTID (300) Measurement	\$Measurement = \$Length \$Derivation = DCID (3627) Measurement Type	✓
4	>	CONTAINS	INCLUDE	DTID (300) Measurement	\$Measurement = \$Width \$Derivation = DCID (3627) Measurement Type	✓
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	\$Measurement = \$Height \$Derivation = DCID (3627) Measurement Type	✓
	>>	HAS CONCEPT MOD	CODE	“Derived”	EV (11859-6, LN,” Uterus Height”)	✓
	>>	HAS PROPERTIES	CODE	Selection Status		✓
	>>	INFERRED FROM	IMAGE	ReferencedContentItemIdentifier		

A.28. TID (5025) OB-GYN Fetus Vascular Ultrasound Measurement Group

	NL	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
1			CONTAINER	\$AnatomyGroup		✓
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1008) Subject Context, Fetus		✓
			text	EV (11951-1, LN, "Fetus ID")		✓
3	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT "Laterality")	DCID (244) Laterality	✓
4	>	CONTAINS	INCLUDE	DTID (300) Measurement	\$MeasType = DCID (12119) Vascular Ultrasound Property \$Derivation = DCID (3627) Measurement Type	
					EV(LN,11653-3,End Diastolic Velocity)	✓
					EV(LN,11665-7,Minimum Diastolic Velocity)	✓
					EV(LN,11726-7,Peak Systolic Velocity)	✓
					EV(LN,20352-1,Time averaged mean velocity)	✓
					EV(LN,11692-1,Time averaged peak velocity)	✓
					EV(LN,20167-3,Acceleration Index)	
					EV(SRT,R-101BA,Lumen Area Stenosis)	
					EV(SRT,R-101BB,Lumen Diameter Stenosis)	
					EV(LN,12008-9,Pulsatility Index)	✓
					EV(LN,12023-8,Resistivity Index)	✓
					EV(LN,12144-2,Systolic to Diastolic Velocity Ratio)	✓
					EV(LN,33867-3,Velocity ratio)	
					EV(LN,20168-1,Acceleration Time)	✓

					EV(LN,20217-6,Deceleration Time)	✓
					EV(SRT ,G-0364,Vessel lumen diameter)	
					EV(SRT,R-1025C,Vessel Intimal Diameter)	
					EV(SRT,R-1025D,Vessel Intimal Cross-Sectional Area)	
					EV(SRT ,G-0365,Vessel outside diameter)	
					EV(SRT ,G-0366,Vessel lumen cross-sectional area)	
					EV(LN ,33878-0 , Volume flow)	
					EV(SRT,R-1025E,Vessel depth from surface)	
					EV(LN,20247-3,Peak Gradient)	✓
					EV(LN,20256-4,Mean Gradient)	✓
					EV(SRT,R-1025F,Length of Segment)	
					Peak Velocity (LN, 11726-7, Peak Velocity)	✓
					Mean Velocity Mean Pressure Gradient (M12119-01,MRUS,Mean Velocity Mean Pressure Gradient)	✓
					Velocity-Time Integral (20354-7, LN, Velocity Time Integral)	✓
					Heart Rate(LN, 11948-7, Fetal Heart Rate)	✓
					Angle(M12119-02,MRUS,Angle)	✓

					Diastolic to Systolic Velocity Ratio (M12119-04,MRUS,Diastolic to Systolic Velocity Ratio)	✓
					(R-1025C,SRT,Vessel Intimal Diameter)	✓

A.29. TID (5026) OB-GYN Pelvic Vascular Ultrasound Measurement

Group

	NL	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
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	✓
					EV(LN,11653-3,End Diastolic Velocity)	✓
					EV(LN,11665-7 ,Minimum Diastolic Velocity)	✓
					EV(LN,11726-7 ,Peak Systolic Velocity)	✓
					EV(LN,20352-1,Time averaged mean velocity)	✓
					EV(LN ,11692-1,Time averaged peak velocity)	✓
					EV(LN,20167-3,Acceleration Index)	
					EV(SRT,R-101BA,Lumen Area Stenosis)	
					EV(SRT,R-101BB,Lumen Diameter Stenosis)	

					EV(LN,12008-9,Pulsatility Index)	✓
					EV(LN,12023-8,Resistivity Index)	✓
					EV(LN,12144-2,Systolic to Diastolic Velocity Ratio)	✓
					EV(LN,33867-3,Velocity ratio)	
					EV(LN,20168-1,Acceleration Time)	✓
					EV(LN,20217-6,Deceleration Time)	✓
					EV(SRT ,G-0364,Vessel lumen diameter)	
					EV(SRT,R-1025C,Vessel Intimal Diameter)	
					EV(SRT,R-1025D,Vessel Intimal Cross-Sectional Area)	
					EV(SRT ,G-0365,Vessel outside diameter)	
					EV(SRT ,G-0366,Vessel lumen cross-sectional area)	
					EV(LN ,33878-0 , Volume flow)	
					EV(SRT,R-1025E,Vessel depth from surface)	
					EV(LN,20247-3,Peak Gradient)	✓
					EV(LN,20256-4,Mean Gradient)	✓
					EV(SRT,R-1025F,Length of Segment)	✓
					Peak Velocity (LN, 11726-7, Peak Velocity)	✓
					Mean Velocity Mean Pressure Gradient (M12119-01,MRUS,Mean Velocity Mean Pressure Gradient)	✓
					Velocity-Time Integral (20354-7, LN, Velocity Time Integral)	✓
					Heart Rate(LN, 11948-7, Fetal Heart Rate)	✓

					Angle(M12119-02,MRUS,Angle)	✓
					Diastolic to SystolicVelocity Ratio (M12119-04,MRUS,Diastolic to SystolicVelocity Ratio)	✓

A.30. 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.31. 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.32. 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.33. CID (12003) OB-GYN Dates

CSD	CV	Code Meaning
LN	11778-8	EDD
LN	11779-6	EDD from LMP
LN	11781-2	EDD from average ultrasound age
LN	11780-4	EDD from ovulation date
LN	11955-2	LMP
LN	33066-2	Estimated LMP by EDD
LN	11976-8	Ovulation date
LN	33067-0	Conception Date
MRUS	I12003-01	IVF
MRUS	C12003-01	EDD from IVF
MRUS	I12003-02	PRV
MRUS	C12003-02	EDD from PRV

A.34. CID (12004) Fetal Biometry Ratios

CSD	CV	Code Meaning
LN	11947-9	HC/AC
LN	11871-1	FL/AC
LN	11872-9	FL/BPD
LN	11823-2	Cephalic Index
LN	11873-7	FL/HC

A.35. 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	11860-4	Cisterna Magna
LN	11963-6	Femur Length
LN	11965-1	Foot length
LN	11984-2	Head Circumference
LN	11851-3	Occipital-Frontal Diameter
LN	11988-3	Thoracic Circumference
LN	33068-8	Thoracic Area
LN	11862-0	Transverse Abdominal Diameter
LN	11863-8	Trans Cerebellar Diameter

CSD	CV	Code Meaning
LN	11864-6	Transverse Thoracic Diameter
LN	11834-9	Left Kidney length
LN	11836-4	Right Kidney length
LN	33191-8	APAD * TAD

A.36. 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

A.37. CID (12007) Fetal Cranium

CSD	CV	Code Meaning
LN	12171-5	Lateral Ventricular width
LN	11860-4	Cisterna Magna length
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	33197-5	Anterior Horn Lateral ventricular width
LN	33196-7	Posterior Horn Lateral ventricular width
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.38. CID (12008) OB-GYN Amniotic Sac

CSD	CV	Code Meaning
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LN	11624-4	First Quadrant Diameter
LN	11626-9	Second Quadrant Diameter
LN	11625-1	Third Quadrant Diameter
LN	11623-6	Fourth Quadrant Diameter
MRUS	M12008-01	Amniotic Fluid

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

CSD	CV	Code Meaning
LN	11957-8	Crown Rump Length
LN	11850-5	Gestational Sac Diameter
LN	33071-2	Spine Length
LN	11816-6	Yolk Sac length
LN	33069-6	Nuchal Translucency
MRUS	C12009-01	Mean Gestational Sac Diameter
MRUS	M12009-01	Gestational Sac Diameter1
MRUS	M12009-02	Gestational Sac Diameter2
MRUS	M12009-03	Gestational Sac Diameter3

A.40. CID (12011) Ultrasound Pelvis and Uterus

CSD	CV	Code Meaning
LN	11961-0	Cervix Length
LN	12145-9	Endometrium Thickness
MRUS	M12011-01	Cervix Height
MRUS	M12011-02	Cervix Width
MRUS	C12011-03	Uterus Body
MRUS	C12011-04	UT_L/CX_L
MRUS	M12011-03	Matrix Kindney Length

A.41. CID (12013) Gestational Age Equations and Tables

CSD	CV	Code Meaning
LN	11885-1	Gestational Age by LMP
LN	11884-4	Average Ultrasound Age
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	33082-9	BPD, Osaka 1989
LN	33083-7	BPD, Rempen 1991

CSD	CV	Code Meaning
LN	33088-6	Clavical length,Yarkoni 1985
LN	11910-7	CRL, Hadlock 1992
LN	11911-5	CRL, Hansmann 1985
LN	11917-2	CRL, Jeanty 1984
LN	11913-1	CRL, Nelson 1981
LN	33094-4	CRL, Rempen 1991
LN	11914-9	CRL, Robinson 1975
LN	33138-9	Fetal Trunk Cross-Sectional Area, Osaka 1989
LN	11920-6	FL, Hadlock 1984
LN	11922-2	FL, Hohler 1982
LN	11923-0	FL, Jeanty 1984
LN	11929-7	GS, Rempen 1991
LN	11932-1	HC, Hadlock 1984
LN	33112-4	HC, Hansmann 1985
LN	11934-7	HC, Jeanty 1984
LN	11936-2	Humerus, Jeanty 1984
LN	33544-8	OFD, Hansmann 1985
LN	33134-8	TCD, Hill 1990
MRUS	F12013-01	AC, ASUM 2001
MRUS	F12013-02	AC,Nicolaides 1994
MRUS	F12013-03	BPD, ASUM 2001
MRUS	F12013-04	BPD, Mertz 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	F12013-16	HC derived, Chitty 1994
MRUS	F12013-15	HC, ASUM 2001
MRUS	F12013-17	HC,Nicolaides 1994
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

CSD	CV	Code Meaning
MRUS	F12013-24	THD,Hansmann 1985
MRUS	F12013-25	GS, Hansmann 1985
MRUS	F12013-26	FL, Hansmann 1995
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

A.42. 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
LN	33144-7	EFW by BPD, APAD, TAD, FL, Tokyo 1987
LN	33140-5	EFW by BPD, FTA, FL, Osaka 1983
LN	33139-7	EFW by BPD, TTD, Hansmann 1995
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
MRUS	F12014-01	EFW by AC,BPD,Merz 1991
MRUS	F12014-02	EFW by AC,Merz 1991

A.43. CID (12017) Growth Distribution Rank

CSD	CV	Code Meaning
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DCM	125012	Growth Percentile Rank
DCM	125013	Growth Z-score

A.44. CID (12019) OB-GYN Fetus Summary

CSD	CV	Code Meaning
LN	18185-9	Gestational Age
LN	11888-5	Composite Ultrasound Age
LN	11885-1	Gestational Age by LMP
LN	11727-5	Estimated Weight
LN	11767-1	EFW percentile rank
LN	11948-7	Fetal Heart Rate
MRUS	C12019-01	Gestational Age by IVF
MRUS	I12019-01	GA of Previous Exam
MRUS	C12019-02	Gestational Age by PRV
MRUS	C12019-03	Gestational Age by EDD

A.45. CID (12101) Vascular Summary

CSD	CV	Code Meaning
MRUS	I12101-01	Primary Indications
MRUS	I12101-02	Secondary Indications
MRUS	I12101-03	CPT4 Code
MRUS	I12101-04	CPT4 Description

A.46. CID (12119) Vascular Ultrasound Property

CSD	CV	Code Meaning
INCLUDE	CID 12120	Blood Velocity Measurements
INCLUDE	CID 12121	Vascular Indices and Ratios
INCLUDE	CID 12122	Other Vascular Properties

A.47. 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.48. CID (12121) Vascular Indices and Ratios

CSD	CV	Code Meaning
LN	20167-3	Acceleration Index
SRT	R-101BA	Lumen Area Stenosis
SRT	R-101BB	Lumen Diameter Stenosis
LN	12008-9	Pulsatility Index
LN	12023-8	Resistivity Index
LN	12144-2	Systolic to Diastolic Velocity Ratio
LN	33867-3	Velocity ratio

A.49. CID (12122) Other Vascular Properties

CSD	CV	Code Meaning
LN	20168-1	Acceleration Time
LN	20217-6	Deceleration Time
SRT	G-0364	Vessel lumen diameter
SRT	R-1025C	Vessel Intimal Diameter
SRT	R-1025D	Vessel Intimal Cross-Sectional Area
SRT	G-0365	Vessel outside diameter
SRT	G-0366	Vessel lumen cross-sectional area
LN	33878-0	Volume flow
SRT	R-1025E	Vessel depth from surface
LN	20247-3	Peak Gradient
LN	20256-4	Mean Gradient
SRT	R-1025F	Length of Segment

A.50. CID (12140) Pelvic Vasculature Anatomical Location

CSD	CV	Code Meaning
SRT	T-F1810	Umbilical Artery
SRT	T-F1820	Umbilical Vein
SRT	T-46980	Ovarian Artery
SRT	T-48780	Ovarian Vein
SRT	T-46820	Uterine Artery
SRT	T-49010	Uterine Vein

SRT	T-F1412	Vitelline Artery of Placenta
SRT	T-F1413	Vitelline Vein of Placenta
SRT	T-46710	Common Iliac Artery

A.51. CID (12141) Fetal Vasculature Anatomical Location

CSD	CV	Code Meaning
SRT	T-42000	Aorta
SRT	T-D0765	Descending Aorta
SRT	T-45600	Middle Cerebral Artery
SRT	T-48581	Pulmonary Vein
SRT	T-44000	Pulmonary Artery
MRSU	V12141-01	Ductus Venosus

A.52. Mapping between Modality measurements and DICOM Concepts.

A.52.1.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
HrtC/TC	C12004-01, MRUS, HrtC/TC
TCD/AC	C12004-02, MRUS, TCD/AC
LVW/HW	C12004-03, MRUS, LVW/HW
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
TC	11988-3, LN, Thoracic Circumference
TAD	11862-0, LN, Transverse Abdominal Diameter
TTD	11864-6, LN, Transverse Thoracic Diameter
APTD	11819-0, LN, Anterior-Posterior Trunk Diameter

MODALITY Label	DICOM Mapping
FTA	33068-8,LN,Thoracic Area
TCD	11863-8,LN,Trans Cerebellar Diameter
Foot	11965-1,LN,Foot length
Cist Magna	11860-4,LN,Cisterna Magna
AXT	33191-8,LN,APAD * TAD
F-kidney	11834-9,LN,Left Kidney length 11836-4,LN,Right Kidney length
THD	M12005-01,MRUS,Thoracic Diameter
HrtC	M12005-02,MRUS,Heart Circumference
HUM	11966-9,LN,Humerus length
RAD	11967-7,LN,Radius length
Ulna	11969-3,LN,Ulna length
Tibia	11968-5,LN,Tibia length
FIB	11964-4,LN,Fibula length
CLAV	11962-8,LN,Clavicle length
LVW	12171-5,LN,Lateral Ventricular width
NF	12146-7,LN,Nuchal Fold thickness
IOD	33070-4,LN,Inner Orbital Diameter
OOD	11629-3,LN,Outer Orbital Diameter
TCD	11863-8,LN,Trans Cerebellar Diameter
NT	33069-6,LN,Nuchal Translucency
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(e)	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
YS	11816-6,LN,Yolk Sac length
NT	33069-6,LN,Nuchal Translucency
Mean Sac Diam	C12009-01,MRUS,Mean Gestational Sac Diameter
Cervix L	11961-0,LN,Cervix Length
Cervix L	11961-0,LN,Cervix Length

MODALITY Label	DICOM Mapping
Endo	12145-9, LN, Endometrium Thickness
Cervix H	M12011-01, MRUS, Cervix Height
Cervix W	M12011-02, MRUS, Cervix Width
Uterus Body	C12011-03, MRUS, Uterus Body
UT-L/CX-L	C12011-04, MRUS, UT_L/CX_L
Mat Kidney	M12011-03, MRUS, Matrix Kidney Length
AFI	11627-7, LN, Amniotic Fluid Index
Ovary W	11829-9, LN, Left Ovary Width; 11830-7, LN, Right Ovary Width
Ovary L	11840-6, LN, Left Ovary Length; 11841-4, LN, Right Ovary Length
Ovary H	11857-0, LN, Left Ovary Height; 11858-8, LN, Right Ovary Height
Ovary Vol	12164-0, LN, Left Ovary Volume; 12165-7, LN, Right Ovary Volume
Follicle1 L	11793-7, LN, Follicle Diameter
Follicle2 L	11793-7, LN, Follicle Diameter
Follicle3 L	11793-7, LN, Follicle Diameter
Follicle4 L	11793-7, LN, Follicle Diameter
Follicle5 L	11793-7, LN, Follicle Diameter
Follicle6 L	11793-7, LN, Follicle Diameter
Follicle7 L	11793-7, LN, Follicle Diameter
Follicle8 L	11793-7, LN, Follicle Diameter
Follicle9 L	11793-7, LN, Follicle Diameter
Follicle10 L	11793-7, LN, Follicle Diameter
Follicle11 L	11793-7, LN, Follicle Diameter
Follicle12 L	11793-7, LN, Follicle Diameter
Follicle13 L	11793-7, LN, Follicle Diameter
Follicle14 L	11793-7, LN, Follicle Diameter
Follicle15 L	11793-7, LN, Follicle Diameter
Follicle16 L	11793-7, LN, Follicle Diameter
UT W	11865-3, LN, Uterus Width
UT L	11842-2, LN, Uterus Length
UT H	11859-6, LN, Uterus Height
UT Vol	33192-6, LN, Uterus Volume
Follicle1 W	M11793-01, MRUS, Follicle Width
Follicle2 W	M11793-01, MRUS, Follicle Width
Follicle3 W	M11793-01, MRUS, Follicle Width
Follicle4 W	M11793-01, MRUS, Follicle Width
Follicle5 W	M11793-01, MRUS, Follicle Width

MODALITY Label	DICOM Mapping
Follicle6 W	M11793-01,MRUS,Follicle Width
Follicle7 W	M11793-01,MRUS,Follicle Width
Follicle8 W	M11793-01,MRUS,Follicle Width
Follicle9 W	M11793-01,MRUS,Follicle Width
Follicle10 W	M11793-01,MRUS,Follicle Width
Follicle11 W	M11793-01,MRUS,Follicle Width
Follicle12 W	M11793-01,MRUS,Follicle Width
Follicle13 W	M11793-01,MRUS,Follicle Width
Follicle14 W	M11793-01,MRUS,Follicle Width
Follicle15 W	M11793-01,MRUS,Follicle Width
Follicle16 W	M11793-01,MRUS,Follicle Width
Follicle1 Vol	G-D705,SRT,Volume
Follicle2 Vol	G-D705,SRT,Volume
Follicle3 Vol	G-D705,SRT,Volume
Follicle4 Vol	G-D705,SRT,Volume
Follicle5 Vol	G-D705,SRT,Volume
Follicle6 Vol	G-D705,SRT,Volume
Follicle7 Vol	G-D705,SRT,Volume
Follicle8 Vol	G-D705,SRT,Volume
Follicle9 Vol	G-D705,SRT,Volume
Follicle10 Vol	G-D705,SRT,Volume
Follicle11 Vol	G-D705,SRT,Volume
Follicle12 Vol	G-D705,SRT,Volume
Follicle13 Vol	G-D705,SRT,Volume
Follicle14 Vol	G-D705,SRT,Volume
Follicle15 Vol	G-D705,SRT,Volume
Follicle16 Vol	G-D705,SRT,Volume
Follicle1 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle2 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle3 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle4 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle5 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle6 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle7 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle8 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle9 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle10 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle11 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle12 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle13 Diam	C11793-01,MRUS,Mean Follicle Diameter

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
Follicle14 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle15 Diam	C11793-01,MRUS,Mean Follicle Diameter
Follicle16 Diam	C11793-01,MRUS,Mean Follicle Diameter
EFW1	11727-5,LN,Estimated Weight
EFW2	11727-5,LN,Estimated Weight
CP	11767-1,LN, EFW percentile rank
UP	11767-1,LN, EFW percentile rank
CP	11767-1,LN, EFW percentile rank
UP	11767-1,LN, EFW percentile rank
EFW(Campbell)	11727-5,LN,Estimated Weight
EFW(Hadlock1)	11727-5,LN,Estimated Weight
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
PL Thickness	M12011-01,MRUS,Placental Thickness
Sac Diam1	M12009-01,MRUS,Gestational Sac Diameter1
Sac Diam2	M12009-02,MRUS,Gestational Sac Diameter2
Sac Diam3	M12009-03,MRUS,Gestational Sac Diameter3

A.52.2.Vasculature Anatomic Location

<i>MODALITY Vasculature Anatomic Location</i>	<i>DICOM Mapping</i>
Ovarian A	T-46980 SRT Ovarian Artery
Ut A	T-46820 SRT Uterine Artery
Fetal Ao	T-42000 SRT Aorta
Desc Aorta	T-D0765 SRT Descending Aorta

<i>MODALITY Vasculature Anatomic Location</i>	<i>DICOM Mapping</i>
MCA	T-45600 SRT Middle Cerebral Artery
Duct Venos	V12141-01 MRUS Ductus Venos
Umb A	T-F1810 SRT Umbilical Artery
Umb V	T-F1820 SRT Umbilical Vein
Placenta A	T-F1412 SRT Vitelline Artery of Placenta

A.52.3.OB-GYN Vascular Measurements

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
<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> D/S	M12119-04 MRUS Diastolic to Systolic Velocity Ratio

MODALITY Label	DICOM Mapping
<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> Theta	M12119-03 MRUS Angle
<Vasculature Anatomic Location> VD	R-1025C SRT Vessel Intimal Diameter

A.52.4.OB-GYN Cardiac Measurements

MODALITY Label	DICOM Mapping
AoD/MPAD	C12212-01,MRUS,Aorta Diameter/Main Pulmonary Artery Diameter
LAD/AoD	C12205-04,MRUS,Left Atrium Diameter / Aorta Diameter
LAD/RAD	C12205-03,MRUS,Left Atrium Diameter / Right Atrium Diameter
LVD/RVD	C12201-06,MRUS,Left Ventricular Diameter/Right Ventricular Diameter
Ao Diam	18015-8,LN,Aortic Root Diameter
IVS	M12201-04,MRUS,interventricular septal thickness
IVSd	18154-5,LN,Interventricular Septum Diastolic Thickness
IVSs	18158-6,LN,Interventricular Septum Systolic Thickness
LA Diam	M12205-01,MRUS,Left Atrium Diameter
LV Diam	M12201-03,MRUS,Left ventricular Diameter
LVIDd	M12201-01,MRUS,Left ventricular short-axis diameter at end diastole
LVIDs	M12201-02,MRUS,Left ventricular short-axis diameter at end systole
LVOT Diam	M12201-05,MRUS,Left Ventricular Outflow Tract Diameter
MPA Diam	18020-8,LN,Main Pulmonary Artery Diameter
RA Diam	M12206-01,MRUS,Right Atrium Diameter
RV Diam	M12204-03,MRUS,Right ventricular Diameter
RVIDd	M12204-01,MRUS,Right ventricular short-axis diameter at end diastole

RVIDs	M12204-02,MRUS,Right ventricular short-axis diameter at end systole
RVOT Diam	M12204-05,MRUS,Right Ventricular Outflow Tract Diameter
LV Area	M12240-01,MRUS,Left ventricular area
LA Area	M12205-02,MRUS,Left Atrium area
RV Area	M12204-04,MRUS,Right ventricular area
RA Area	M12206-02,MRUS,Right Atrium area

A.52.5.Biophysical Profile Measurements

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
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
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

B.1. TID (5200) Echocardiography Procedure Report

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

	NL	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
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,	✓

					<p>“Tricuspid Valve”) \$MeasType = DCID (12208) Echocardiography Tricuspid Valve</p>	
16	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	<p>\$SectionSubject = EV (T-42000, SRT, “Aorta”) \$MeasType= DCID (12212) Echocardiography Aorta</p>	✓
17	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	<p>\$SectionSubject = EV (T-44000, SRT, “Pulmonary artery”) \$MeasType DCID (12210) = Echocardiography Pulmonary Artery</p>	✓
18	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	<p>\$SectionSubject = EV (T-48600, SRT, “Vena Cava”) \$MeasType = DCID (12215) Echocardiography Vena Cavae</p>	✓
19	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	<p>\$SectionSubject = EV (T-48581, SRT, “Pulmonary Venous Structure”) \$MeasType = DCID (12214) Echocardiography Pulmonary Veins</p>	✓
20	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	<p>\$SectionSubject = EV (P5-30031, SRT, “Cardiac Shunt Study”) \$MeasType = DCID (12217) Echocardiography Cardiac Shunt</p>	✓
21	>	CONTAINS	INCLUDE	DTID (5202) Echo Section	<p>\$SectionSubject = EV (D4-30000, SRT, “Congenital Anomaly of Cardiovascular System”) \$MeasType = DCID</p>	✓

					(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 (G-0394, SRT, "Hear rate") \$MeasType = DCID (12220) Echocardiography Common Measurements	✓

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	Value Set Constraint
	>	HAS OBS CONTEXT	CODE	EV (121005,DCM, "Observer Type")	(121006,DCM, "Person")
	>	HAS OBS CONTEXT	PNAME	EV (121008,DCM, "Person Observer Name")	Operator from Info
	>	HAS OBS CONTEXT	TEXT	EV (121009,DCM, " Person Observer's Organization Name")	Institution Name (0008,0080) of the General Equipment Module
	>	HAS OBS CONTEXT	CODE	EV (121010,DCM, " Person Observer's Role in the Organization")	(121093, DCM, "Sonographer")
	>	HAS OBS CONTEXT	CODE	EV (121024, DCM, "Subject Class")	(121025, DCM, "Patient")
	>	HAS OBS CONTEXT	PNAME	EV (121029,DCM, "Subject Name")	value of Patient's Name (0010,0010) in Patient Module
	>	HAS OBS CONTEXT	DATE	EV (121031,DCM, "Subject Birth Date")	value of Patient's Birth Date (0010,0030) in Patient Module

	>	HAS OBS CONTEXT	CODE	EV (121032,DCM, "Subject Sex")	value equivalent to Patient's Sex (0010,0040) in Patient Module
	>	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	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	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	Comment
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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	Value Set Constraint	MODALITY
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	
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B.6. TID (5203) Echo Measurement

	NL	Relation with Parent	Value Type	Concept Name	Value Set Constraint
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 ACQ CONTEXT	CODE	EV (G-0373, SRT, "Image Mode")	DCID (12224) Ultrasound Image Modes
6	>	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	18077-8	Left Ventricle diastolic major axis
LN	18076-0	Left Ventricle systolic major axis
LN	18156-0	Left Ventricle Posterior Wall Systolic Thickness
LN	18152-9	Left Ventricle Posterior Wall Diastolic Thickness
MRUS	M12201-01	Left ventricular Major
MRUS	M12201-02	Left ventricular Minor
MRUS	C12201-01	Mean Velocity of Circumferential Fiber Shortening
MRUS	M12201-03	A Distance
MRUS	M12201-04	B Distance
MRUS	M12201-05	Left ventricular internal diameter to BSA Ratio

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

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
SRT	G-037E	Left Ventricular Isovolumic Contraction Time
SRT	G-037F	Left Ventricular Index of Myocardial Performance
MRUS	M12203-01	Left Ventricle Pre-Ejection Period

CSD	CV	Code Meaning
MRUS	M12203-02	Left Ventricle Ejection Time
MRUS	C12203-01	Left ventricular Mass Weight Index
MRUS	C12203-02	Left Ventricle Pre-Ejection Period to Ejection Time Ratio

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		
LN	20304-2	Right Ventricular Internal Diastolic Dimension
LN	20305-9	Right Ventricular Internal Systolic Dimension
SRT	G-0381	Right Ventricular Index of Myocardial Performance
SRT	G-0380	Right Ventricular Peak Systolic Pressure
LN	18153-7	Right Ventricular Anterior Wall Diastolic Thickness
LN	18157-8	Right Ventricular Anterior Wall Systolic Thickness
MRUS	M12204-01	Right ventricular Major
MRUS	M12204-02	Right ventricular Minor
MRUS	M12204-03	Right ventricular Area at end-diastole
MRUS	M12204-04	Right ventricular Area at end-systole
MRUS	M12204-05	Right Ventricle Pre-Ejection Period
MRUS	M12204-06	Right Ventricle Ejection Time
MRUS	C12204-01	Right Ventricle Pre-Ejection Period to Ejection Time Ratio

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

CSD	CV	Code Meaning
		Dimension
LN	17985-3	Left Atrium to Aortic Root Ratio
LN	17977-0	Left Atrium Systolic Area
SRT	G-0383	Left Atrium Systolic Volume
MRUS	M12205-01	Left atrium Major
MRUS	M12205-02	Left atrium Minor

B.13. CID (12206) Echocardiography Right Atrium

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
LN	17988-7	Right Atrium Systolic Area
MRUS	M12206-01	Right atrium Major
MRUS	M12206-02	Right atrium Minor
MRUS	M12206-03	Right atrium Volume

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-0386	Mitral Valve AT/DT Ratio
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
SRT	G-0387	Mitral Valve Closure to Opening Time
LN	18035-6	Mitral Regurgitation dP/dt derived from Mitral Reg. velocity
MRUS	M12207-01	Mitral valve cusp separate distance
MRUS	M12207-02	Mitral Valve D-E Slope
MRUS	M12207-03	Amplitude of the A wave
MRUS	M12207-04	Amplitude of the E wave
MRUS	M12207-05	Amplitude from D point to E point
MRUS	M12207-06	Mitral Valve E-wave Pressure Gradient
MRUS	M12207-07	Mitral Valve A-wave Pressure Gradient
MRUS	M12207-08	E wave Velocity Time Integral

CSD	CV	Code Meaning
MRUS	M12207-9	A wave Velocity Time Integral
MRUS	M12207-10	Mitral Valve E-Wave Duration
MRUS	M12207-11	Systolic Velocity of the Mitral Annulus(medial)
MRUS	M12207-12	Early diastolic velocity of the mitral annulus(medial)
MRUS	M12207-13	Late diastolic velocity of the mitral annulus(medial)
MRUS	M12207-14	Early diastolic velocity to Late diastolic velocity Ratio
MRUS	M12207-15	Acceleration Time of Early diastolic velocity
MRUS	M12207-16	Acceleration Rate of Early diastolic velocity
MRUS	M12207-17	Deceleration Time of Early diastolic velocity
MRUS	M12207-18	Deceleration Rate of Early diastolic velocity
MRUS	M12207-19	Systolic Velocity of the Mitral Annulus(lateral)
MRUS	M12207-20	Early diastolic velocity of the mitral annulus(lateral)
MRUS	M12207-21	Late diastolic velocity of the mitral annulus(lateral)
MRUS	M12207-22	Early diastolic velocity to Late diastolic velocity Ratio
MRUS	M12207-23	Acceleration Time of Early diastolic velocity
MRUS	M12207-24	Acceleration Rate of Early diastolic velocity
MRUS	M12207-25	Deceleration Time of Early diastolic velocity
MRUS	M12207-26	Deceleration Rate of Early diastolic velocity
MRUS	M12207-27	Mitral Stenosis Radius
MRUS	M12207-28	Mitral Stenosis Aliasing Velocity
MRUS	M12207-29	Mitral Stenosis Maximum Velocity
MRUS	M12207-30	Mitral Stenosis Area
MRUS	C12207-01	Mitral Stenosis Maximum Pressure Gradient

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
LN	18039-8	Tricuspid Valve E to A Ratio
SRT	G-0389	Tricuspid Valve Closure to Opening Time
MRUS	M12208-01	Tricuspid Valve E-Wave Duration
MRUS	M12208-02	Tricuspid Valve E Wave Pressure Gradient
MRUS	M12208-03	Tricuspid Valve A Wave Pressure Gradient

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		
LN	18020-8	Main Pulmonary Artery Diameter
LN	18021-6	Right Pulmonary Artery Diameter
LN	18019-0	Left Pulmonary Artery Diameter
SRT	G-038A	Main Pulmonary Artery Peak Velocity
MRUS	M12210-01	Posterior ductal Diameter
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
SRT	G-0382	Ratio of Aortic Valve Acceleration Time to Ejection Time

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	18014-1	Aortic Isthmus Diameter
LN	18013-3	Descending Aortic Diameter
MRUS	M12212-01	Aortic Sinotubular junction Diameter
MRUS	M12212-02	Aortic Sinus Diameter
MRUS	M12212-03	Ductus Artery Diameter
MRUS	M12212-04	Previous Ductal Diameter
MRUS	M12212-05	Left Coronary Artery Diameter
MRUS	M12212-06	Right Coronary Artery Diameter
MRUS	C12212-02	Aortic Sinotubular junction Diameter/Aorta Root Diameter

B.20. CID (12214) Echocardiography Pulmonary Veins

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
SRT	G-038B	Pulmonary Vein A-Wave Duration
SRT	G-038D	Pulmonary Vein D-Wave Velocity Time Integral/

CSD	CV	Code Meaning
SRT	G-038C	Pulmonary Vein S-Wave Velocity Time Integral
MRUS	M12214-01	Pulmonary Vein S wave flow Velocity
MRUS	M12214-02	Pulmonary Vein D-wave flow Velocity
MRUS	M12214-03	Pulmonary Vein A-wave flow Velocity
MRUS	M12214-04	Pulmonary Vein Deceleration Time
MRUS	M12214-05	Pulmonary Vein Ratio of S-Wave velocity to D-wave velocity
MRUS	M12214-06	Pulmonary Vein Systolic fraction

B.21. CID (12215) Echocardiography Vena Cavae

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
LN	18006-7	Inferior Vena Cava Diameter
MRUS	M12215-01	Superior Vena Cava Diameter

B.22. CID (12217) Echocardiography Cardiac Shunt

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
INCLUDE CID 12239 Cardiac Output Properties		
LN	29462-9	Pulmonary-to-Systemic Shunt Flow Ratio
MRUS	M12217-01	Pulmonary-sub-Systemic Shunt Flow Difference

B.23. CID (12218) Echocardiography Congenital

CSD	CV	Code Meaning
INCLUDE CID 12220 Echocardiography Common Measurements		
INCLUDE CID 12222 Orifice Flow Properties		
MRUS	M12218-01	Patent Ductus Arteriosus Diameter
MRUS	M12218-02	Patent Foramen Ovale Diameter
MRUS	M12218-03	Patent Ductus Arteriosus Diastolic Velocity
MRUS	M12218-04	Patent Ductus Arteriosus Systolic Velocity
MRUS	M12218-05	Coarctation of Pre-Ductus Velocity
MRUS	M12218-06	Coarctation of Post-Ductus Velocity
MRUS	M12218-07	Patent Ductus Arteriosus Diastolic Peak Gradient
MRUS	M12218-08	Patent Ductus Arteriosus Systolic Peak Gradient
MRUS	M12218-09	Coarctation of Pre-Ductus Peak Gradient
MRUS	M12218-10	Coarctation of Post-Ductus Peak Gradient

B.24. CID (12220) Echocardiography Common Measurements

CSD	CV	Code Meaning
LN	8867-4	Heart rate

B.25. CID (12221) Flow Direction

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

B.26. CID (12222) Orifice Flow Properties

CSD	CV	Code Meaning
SRT	G-038E	Cardiovascular Orifice Area
SRT	G-038F	Cardiovascular Orifice Diameter
SRT	G-0390	Regurgitant Fraction
LN	11726-7	Peak Velocity
LN	20352-1	Mean Velocity
LN	20247-3	Peak Gradient
LN	20256-4	Mean Gradient
LN	20354-7	Velocity Time Integral
LN	20168-1	Acceleration Time
LN	11653-3	End Diastolic Velocity
LN	20280-4	Pressure Half-Time
LN	20217-6	Deceleration Time
LN	33878-0	Volume Flow
LN	34141-2	Peak Instantaneous Flow Rate
LN	20216-8	Deceleration Slope
MRUS	M12222-05	Aliasing Velocity
MRUS	M12222-04	Time
MRUS	M12222-02	Acceleration Slope
MRUS	M12222-06	Flow Radius
MRUS	M12222-01	Angle
MRUS	M12222-08	Pressure Gradient at end-Diastole
MRUS	M12222-07	Acceleration Time/Deceleration Time

B.27. CID (12224) Ultrasound Image Modes

CSD	CV	Code Meaning
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CSD	CV	Code Meaning
SRT	G-03A2	2D mode
SRT	G-0394	M mode
SRT	R-409E2	Doppler Color Flow
SRT	G-0394	M mode
SRT	R-409E4	Doppler Pulsed
SRT	R-409E3	Doppler Continuous Wave
DCM	125230	Power Doppler
DCM	125231	3D mode
MRUS	IM12224-01	Tissue Doppler Imaging

B.28. 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.29. 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.30. 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.31. 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.32. CID (12230) Gradient Methods

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

B.33. CID (12231) Volume Flow Methods

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

B.34. 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.35. 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.36. CID (12234) Respiration Phase

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

B.37. 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

B.38. CID (12240) Left Ventricle Area

CSD	CV	Code Meaning
LN	8867-4	Heart rate
SRT	G-0374	Left Ventricular Systolic Area
SRT	G-0375	Left Ventricular Diastolic Area
SRT	G-0379	Left Ventricle Epicardial Diastolic Area, psax pap view
MRUS	M12240-01	Left Ventricle Endocardial Diastolic Area, psax pap view

B.39. CID (90000) Pericardial disease

CSD	CV	Code Meaning
MRUS	C90000-01	Pericard Effusion at end-diastole
MRUS	C90000-02	Pericard Effusion at end-systole

B.40. Mapping between Modality measurements and DICOM Concepts.

B.40.1. Left Ventricle Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
LVOT HR	8867-4, LN, Heart rate	
LVIDd(2D)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-03A2, SRT, 2D mode;
LVIDd(Cube-2D)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-03A2, SRT, 2D mode; Method =125206, DCM, Cube Method
LVIDd(Teich-2D)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-03A2, SRT, 2D mode; Method =125209, DCM, Teichholz
LVIDd(Gibson-2D)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-03A2, SRT, 2D mode; Method =VM12228-03, MRUS, Gibson
LVIDd(Gibson-M)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-0394, SRT, M Mode; Method =VM12228-03, MRUS, Gibson
LVIDd(Cube-M)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-0394, SRT, M Mode; Method =125206, DCM, Cube Method
LVIDd(Teich-M)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-0394, SRT, M Mode; Method =125209, DCM, Teichholz
LVIDd(LV Mass Cube-2D)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-03A2, SRT, 2D mode;
LVIDd(LV Mass Cube-M)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-0394, SRT, M Mode; Method =125221, DCM, Left Ventricle Mass by M-mode
LVIDd(BP Ellipse)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-03A2, SRT, 2D mode; Method =125211, DCM, Biplane Ellipse
LVIDd(M)	29436-3, LN, Left Ventricle Internal End Diastolic Dimension	ImageMode = G-0394, SRT, M Mode;
LVIDs(2D)	29438-9, LN, Left Ventricle Internal Systolic Dimension	ImageMode = G-03A2, SRT, 2D mode;

LVIDs(Cube-2D)	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
LVIDs(Teich-2D)	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
LVIDs(Gibson-2D)	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
LVIDs(Cube-M)	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
LVIDs(Teich-M)	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
LVIDs(Gibson-M)	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
LVIDs(BP Ellipse)	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
LVIDs(M)	29438-9,LN,Left Ventricle Internal Systolic Dimension	ImageMode = G-0394,SRT,M Mode;
FS(Cube-M)	18051-3,LN,Left Ventricular Fractional Shortening	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
FS(Teich-M)	18051-3,LN,Left Ventricular Fractional Shortening	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
FS(Gibson-M)	18051-3,LN,Left Ventricular Fractional Shortening	ImageMode = G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
FS(Cube-2D)	18051-3,LN,Left Ventricular Fractional Shortening	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
FS(Teich-2D)	18051-3,LN,Left Ventricular Fractional Shortening	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
FS(Gibson-2D)	18051-3,LN,Left Ventricular Fractional Shortening	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
IVSd(2D)	18154-5,LN,Interventricular Septum Diastolic Thickness	ImageMode = G-03A2,SRT,2D mode;

IVSd(LV Mass Cube-2D)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode;
IVSd(LV Mass Cube-M)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =125221, DCM, Left Ventricle Mass by M-mode
IVSd(M)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =
IVSd(Teich-2D)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode; Method =125209, DCM, Teichholz
IVSd(Teich-M)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =125209, DCM, Teichholz
IVSd(Cube-2D)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode; Method =125206, DCM, Cube Method
IVSd(Cube-M)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =125206, DCM, Cube Method
IVSd(Gibson-2D)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode; Method =VM12228-03, MRUS, Gibson
IVSd(Gibson-M)	18154-5, LN, Interventricular Septum Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =VM12228-03, MRUS, Gibson
IVSd/LVPWd(2D)	18155-2, LN, Interventricular Septum to Posterior Wall Thickness Ratio	CardiacCyclePoint =F-32011, SRT, End Diastole; ImageMode = G-03A2, SRT, 2D mode;
IVSs/LVPWs(2D)	18155-2, LN, Interventricular Septum to Posterior Wall Thickness Ratio	CardiacCyclePoint =109070, SRT, End Systole; ImageMode = G-03A2, SRT, 2D mode;
IVSd/LVPWd(M)	18155-2, LN, Interventricular Septum to Posterior Wall Thickness Ratio	CardiacCyclePoint =F-32011, SRT, End Diastole; ImageMode = G-0394, SRT, M Mode;
IVSs/LVPWs(M)	18155-2, LN, Interventricular Septum to Posterior Wall Thickness Ratio	CardiacCyclePoint =109070, SRT, End Systole; ImageMode = G-0394, SRT, M Mode;
IVS%(2D)	18054-7, LN, Interventricular Septum % Thickening	ImageMode = G-03A2, SRT, 2D mode;
IVS%(M)	18054-7, LN, Interventricular Septum % Thickening	ImageMode = G-0394, SRT, M Mode;

IVSs(2D)	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-03A2,SRT,2D mode;
IVSs(M)	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-0394,SRT,M Mode;
IVSs(Teich-2D)	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
IVSs(Teich-M)	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
IVSs(Cube-2D)	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
IVSs(Cube-M)	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
IVSs(Gibson-2D)	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
IVSs(Gibson-M)	18158-6,LN,Interventricular Septum Systolic Thickness	ImageMode = G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
LVPW%(2D)	18053-9,LN,Left Ventricle Posterior Wall % Thickening	ImageMode = G-03A2,SRT,2D mode;
LVPW%(M)	18053-9,LN,Left Ventricle Posterior Wall % Thickening	ImageMode = G-0394,SRT,M Mode;
LVLd apical	18077-8,LN,Left Ventricle diastolic major axis	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-02,MRUS,Method of Disks,Simpson
LVLd(A2C)	18077-8,LN,Left Ventricle diastolic major axis	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125208,DCM,Method of Disks, Single Plane
LVLd(A4C)	18077-8,LN,Left Ventricle diastolic major axis	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane

LVLd2i	18077-8,LN,Left Ventricle diastolic major axis	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane
LVLd4i	18077-8,LN,Left Ventricle diastolic major axis	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
LVLs apical(Mod.Simpson)	18076-0,LN,Left Ventricle systolic major axis	ImageMode = G-03A2,SRT,2D mode;
LVLs(A2C)	18076-0,LN,Left Ventricle systolic major axis	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method = 125208,DCM,Method of Disks, Single Plane
LVLs(A4C)	18076-0,LN,Left Ventricle systolic major axis	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method = 125208,DCM,Method of Disks, Single Plane
LVLs2i	18076-0,LN,Left Ventricle systolic major axis	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane
LVLs4i	18076-0,LN,Left Ventricle systolic major axis	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
LVPWs(2D)	18156-0,LN,Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-03A2,SRT,2D mode;
LVPWs(M)	18156-0,LN,Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-0394,SRT,M Mode;
LVPWs(Cube-2D)	18156-0,LN,Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
LVPWs(Cube-M)	18156-0,LN,Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method

LVPWs(Teich-2D)	18156-0, LN, Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-03A2, SRT, 2D mode; Method =125209, DCM, Teichholz
LVPWs(Teich-M)	18156-0, LN, Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =125209, DCM, Teichholz
LVPWs(Gibson-2D)	18156-0, LN, Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-03A2, SRT, 2D mode; Method =VM12228-03, MRUS, Gibson
LVPWs(Gibson-M)	18156-0, LN, Left Ventricle Posterior Wall Systolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =VM12228-03, MRUS, Gibson
LVPWd(2D)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode;
LVPWd(LV Mass-2D)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode;
LVPWd(LV Mass-M)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =125221, DCM, Left Ventricle Mass by M-mode
LVPWd(M)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-0394, SRT, M Mode;
LVPWd(Cube-2D)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode; Method =125206, DCM, Cube Method
LVPWd(Cube-M)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =125206, DCM, Cube Method
LVPWd(Teich-2D)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode; Method =125209, DCM, Teichholz
LVPWd(Teich-M)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =125209, DCM, Teichholz
LVPWd(Gibson-2D)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode; Method =VM12228-03, MRUS, Gibson
LVPWd(Gibson-M)	18152-9, LN, Left Ventricle Posterior Wall Diastolic Thickness	ImageMode = G-0394, SRT, M Mode; Method =VM12228-03, MRUS, Gibson
LV Major	M12201-01, MRUS, Left ventricular Major	ImageMode = G-03A2, SRT, 2D mode;

LV Minor	M12201-02,MRUS,Left ventricular Minor	ImageMode = G-03A2,SRT,2D mode;
MVCF(Cube-M)	C12201-01,MRUS,Mean Velocity of Circumferential Fiber Shortening	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
MVCF(Teich-M)	C12201-01,MRUS,Mean Velocity of Circumferential Fiber Shortening	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
MVCF(Gibson-M)	C12201-01,MRUS,Mean Velocity of Circumferential Fiber Shortening	ImageMode = G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
MVCF(Cube-2D)	C12201-01,MRUS,Mean Velocity of Circumferential Fiber Shortening	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
MVCF(Teich-2D)	C12201-01,MRUS,Mean Velocity of Circumferential Fiber Shortening	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
MVCF(Gibson-2D)	C12201-01,MRUS,Mean Velocity of Circumferential Fiber Shortening	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
a	M12201-03,MRUS,A Distance	ImageMode = G-03A2,SRT,2D mode;
d	M12201-04,MRUS,B Distance	ImageMode = G-03A2,SRT,2D mode;
LVIDd Index(M)	M12201-05,MRUS,Left ventricular internal diameter to BSA Ratio	CardiacCyclePoint =F-32011,SRT,End Diastole; ImageMode = G-0394,SRT,M Mode;
LVIDs Index(M)	M12201-05,MRUS,Left ventricular internal diameter to BSA Ratio	CardiacCyclePoint =109070,SRT,End Systole; ImageMode = G-0394,SRT,M Mode;
LVIDd Index(2D)	M12201-05,MRUS,Left ventricular internal diameter to BSA Ratio	CardiacCyclePoint =F-32011,SRT,End Diastole; ImageMode = G-03A2,SRT,2D mode;
LVIDs Index(2D)	M12201-05,MRUS,Left ventricular internal diameter to BSA Ratio	CardiacCyclePoint =109070,SRT,End Systole; ImageMode = G-03A2,SRT,2D mode;
rd2i	M12222-06,MRUS,Flow Radius	CardiacCyclePoint =F-32011,SRT,End Diastole; ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane

rd4i	M12222-06,MRUS,Flow Radius	CardiacCyclePoint =F-32011,SRT,End Diastole; ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
rs2i	M12222-06,MRUS,Flow Radius	CardiacCyclePoint =109070,SRT,End Systole; ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane
rs4i	M12222-06,MRUS,Flow Radius	CardiacCyclePoint =109070,SRT,End Systole; ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
LV Area(s)	G-0374,SRT,Left Ventricular Systolic Area	ImageMode = G-03A2,SRT,2D mode; Method = VM12228-02,MRUS,Method of Disks,Simpson
LVA's apical	G-0374,SRT,Left Ventricular Systolic Area	ImageMode = G-03A2,SRT,2D mode; ImageView = G-0395,SRT,Apical long axis;
LVA's sax MV	G-0374,SRT,Left Ventricular Systolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-039A,SRT,Parasternal short axis at the Mitral Valve level;
LVA's sax PM	G-0374,SRT,Left Ventricular Systolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-039B,SRT,Parasternal short axis at the Papillary Muscle level;
LVA's(A2C)	G-0374,SRT,Left Ventricular Systolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125208,DCM,Method of Disks, Single Plane
LVA's(A4C)	G-0374,SRT,Left Ventricular Systolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane

LV Area(d)	G-0375,SRT,Left Ventricular Diastolic Area	ImageMode =G-03A2,SRT,2D mode; Method = "VM12228-02,MRUS,Method of Disks,Simpson"
LVAd apical	G-0375,SRT,Left Ventricular Diastolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-0395,SRT,Apical long axis;
LVAd sax MV	G-0375,SRT,Left Ventricular Diastolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-039A,SRT,Parasternal short axis at the Mitral Valve level;
LVAd sax PM	G-0375,SRT,Left Ventricular Diastolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-039B,SRT,Parasternal short axis at the Papillary Muscle level;
LVAd(A2C)	G-0375,SRT,Left Ventricular Diastolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125208,DCM,Method of Disks, Single Plane
LVAd(A4C)	G-0375,SRT,Left Ventricular Diastolic Area	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
LVAd sax Epi	G-0379,SRT,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
EDV(SP Ellipse)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125226,DCM,Single Plane Ellipse
EDV(BP Ellipse)	18026-5,LN,Left Ventricular End Diastolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse

EDV(Bullet)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-03A2, SRT, 2D mode; Method =VM12228-01, MRUS, Bullet
EDV(Mod.Simpson)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-03A2, SRT, 2D mode; Method =VM12228-02, MRUS, Method of Disks, Simpson
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(Simpson BP)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-03A2, SRT, 2D mode; Method =125207, DCM, Method of Disks, Biplane
EDV(Simp BP-A2C)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-03A2, SRT, 2D mode; ImageView = G-A19B, SRT, Apical two chamber; Method =125207, DCM, Method of Disks, Biplane
EDV(Simp BP-A4C)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-03A2, SRT, 2D mode; ImageView = G-A19C, SRT, Apical four chamber; Method =125207, DCM, Method of Disks, Biplane
EDV(Cube-M)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-0394, SRT, M Mode; Method =125206, DCM, Cube Method
EDV(Teich-M)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-0394, SRT, M Mode; Method =125209, DCM, Teichholz
EDV(Gibson-M)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-0394, SRT, M Mode; Method =VM12228-03, MRUS, Gibson
EDV(Cube-2D)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-03A2, SRT, 2D mode; Method =125206, DCM, Cube Method
EDV(Teich-2D)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-03A2, SRT, 2D mode; Method =125209, DCM, Teichholz
EDV(Gibson-2D)	18026-5, LN, Left Ventricular End Diastolic Volume	ImageMode =G-03A2, SRT, 2D mode; Method =VM12228-03, MRUS, Gibson

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
ESV(SP Ellipse)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125226,DCM,Single Plane Ellipse
ESV(BP Ellipse)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
ESV(Bullet)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
ESV(Mod.Simpson)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-02,MRUS,Method of Disks,Simpson
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(Simpson BP)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125207,DCM,Method of Disks, Biplane
ESV(Simp BP-A2C)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane
ESV(Simp BP-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-M)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
ESV(Teich-M)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-0394,SRT,M Mode; Method =125209,DCM,Teichholz

ESV(Gibson-M)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
ESV(Cube-2D)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
ESV(Teich-2D)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
ESV(Gibson-2D)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
ESV(Simp SP-A4C)	18148-7,LN,Left Ventricular End Systolic Volume	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
EF(SP Ellipse)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =125226,DCM,Single Plane Ellipse
EF(BP Ellipse)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
EF(Bullet)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
EF(Mod.Simpson)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-02,MRUS,Method of Disks,Simpson
EF(Simp SP-A2C)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane
EF(Simpson BP)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =125207,DCM,Method of Disks, Biplane
EF2(Simpson BP)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane

EF4(Simpson BP)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
EF(Cube-M)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
EF(Teich-M)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
EF(Gibson-M)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
EF(Cube-2D)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
EF(Teich-2D)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
EF(Gibson-2D)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
EF(Simp SP-A4C)	18043-0,LN,Left Ventricular Ejection Fraction	ImageMode =G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125208,DCM,Method of Disks, Single Plane
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;
LVOT Vmean	20352-1,LN,Mean Velocity	
LVOT PGmax	20247-3,LN,Peak Gradient	
LVOT PGmean	20256-4,LN,Mean Gradient	
LVOT VTI	20354-7,LN,Velocity Time Integral	
LVOT AccT	20168-1,LN,Acceleration Time	
LVOT θ	M12222-01,MRUS, Angle	
LVOT Acc Slope	M12222-02,MRUS, Acceleration Slope	
LV Mass(Cube-M)	18087-7,LN,Left Ventricle Mass	ImageMode =G-0394,SRT,M Mode; Method =125221,DCM,Left Ventricle Mass by M-mode

LV Mass(T-E)	18087-7, LN, Left Ventricle Mass	ImageMode =G-03A2, SRT, 2D mode; Method =125222, DCM, Left Ventricle Mass by Truncated Ellipse
LV Mass(A-L)	18087-7, LN, Left Ventricle Mass	ImageMode =G-03A2, SRT, 2D mode; Method =125205, DCM, Area-Length Single Plane
LV Mass(Cube-2D)	18087-7, LN, Left Ventricle Mass	ImageMode =G-03A2, SRT, 2D mode;
IVRT	18071-1, LN, Left Ventricular Isovolumic Relaxation Time	
IVCT	G-037E, SRT, Left Ventricular Isovolumic Contraction Time	
LVIMP	G-037F, SRT, Left Ventricular Index of Myocardial Performance	ImageMode =G-0394, SRT, M Mode;
LVPEP(M)	M12203-01, MRUS, Left Ventricle Pre-Ejection Period	ImageMode =G-0394, SRT, M Mode;
LVET(M)	M12203-02, MRUS, Left Ventricle Ejection Time	ImageMode =G-0394, SRT, M Mode;
LV Mass-I(Cube-M)	C12203-01, MRUS, Left ventricular Mass Weight Index	ImageMode =G-0394, SRT, M Mode; Method =125221, DCM, Left Ventricle Mass by M-mode
LV Mass-I(T-E)	C12203-01, MRUS, Left ventricular Mass Weight Index	ImageMode =G-03A2, SRT, 2D mode; Method =125222, DCM, Left Ventricle Mass by Truncated Ellipse
LV Mass-I(A-L)	C12203-01, MRUS, Left ventricular Mass Weight Index	ImageMode =G-03A2, SRT, 2D mode; Method =125205, DCM, Area-Length Single Plane
LV Mass-I(Cube-2D)	C12203-01, MRUS, Left ventricular Mass Weight Index	ImageMode =G-03A2, SRT, 2D mode;
LVPEP/ET	C12203-02, MRUS, Left Ventricle Pre-Ejection Period to Ejection Time Ratio	ImageMode =G-0394, SRT, M Mode;
LVOT SV	F-32120, SRT, Stroke Volume	
SV(SP Ellipse)	F-32120, SRT, Stroke Volume	ImageMode =G-03A2, SRT, 2D mode; Method =125226, DCM, Single Plane Ellipse
SV(BP Ellipse)	F-32120, SRT, Stroke Volume	ImageMode =G-03A2, SRT, 2D mode; Method =125211, DCM, Biplane Ellipse

SV(Bullet)	F-32120,SRT,Stroke Volume	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
SV(Mod.Simpson)	F-32120,SRT,Stroke Volume	ImageMode =G-03A2,SRT,2D mode; Method =VM12228-02,MRUS,Method of Disks,Simpson
SV(Simp SP-A2C)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane
SV(Simpson BP)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; Method =125207,DCM,Method of Disks, Biplane
SV2(Simpson BP)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane
SV4(Simpson BP)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
SV(Cube-M)	F-32120,SRT,Stroke Volume	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
SV(Teich-M)	F-32120,SRT,Stroke Volume	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
SV(Gibson-M)	F-32120,SRT,Stroke Volume	ImageMode = G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
SV(Cube-2D)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
SV(Teich-2D)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
SV(Gibson-2D)	F-32120,SRT,Stroke Volume	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson

SV(Simp SP-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
LVOT CO	F-32100,SRT,Cardiac Output	
CO(SP Ellipse)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125226,DCM,Single Plane Ellipse
CO(BP Ellipse)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
CO(Bullet)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
CO(Mod.Simpson)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-02,MRUS,Method of Disks,Simpson
CO(Simp SP-A2C)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane
CO(Simpson BP)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125207,DCM,Method of Disks, Biplane
CO2(Simpson BP)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane
CO4(Simpson BP)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
CO(Cube-M)	F-32100,SRT,Cardiac Output	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
CO(Teich-M)	F-32100,SRT,Cardiac Output	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz

CO(Gibson-M)	F-32100,SRT,Cardiac Output	ImageMode = G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
CO(Cube-2D)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
CO(Teich-2D)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
CO(Gibson-2D)	F-32100,SRT,Cardiac Output	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
CO(Simp SP-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
LVOT CI	F-32110,SRT,Cardiac Index	
CI(SP Ellipse)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125226,DCM,Single Plane Ellipse
CI(BP Ellipse)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
CI(Bullet)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
CI(Mod.Simpson)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-02,MRUS,Method of Disks,Simpson
CI(Simp SP-A2C)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane
CI(Simpson BP)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125207,DCM,Method of Disks, Biplane
CI2(Simpson BP)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane

CI4(Simpson BP)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
CI(Cube-M)	F-32110,SRT,Cardiac Index	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
CI(Teich-M)	F-32110,SRT,Cardiac Index	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
CI(Gibson-M)	F-32110,SRT,Cardiac Index	ImageMode = G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
CI(Cube-2D)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
CI(Teich-2D)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
CI(Gibson-2D)	F-32110,SRT,Cardiac Index	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
CI(Simp SP-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
LVOT SI	F-00078,SRT,Stroke Index	
SI(SP Ellipse)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125226,DCM,Single Plane Ellipse
SI(BP Ellipse)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125211,DCM,Biplane Ellipse
SI(Bullet)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-01,MRUS,Bullet
SI(Mod.Simpson)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-02,MRUS,Method of Disks,Simpson

SI(Simp SP-A2C)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125208,DCM,Method of Disks, Single Plane
SI(Simpson BP)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125207,DCM,Method of Disks, Biplane
SI2(Simpson BP)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19B,SRT,Apical two chamber; Method =125207,DCM,Method of Disks, Biplane
SI4(Simpson BP)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method =125207,DCM,Method of Disks, Biplane
SI(Cube-M)	F-00078,SRT,Stroke Index	ImageMode = G-0394,SRT,M Mode; Method =125206,DCM,Cube Method
SI(Teich-M)	F-00078,SRT,Stroke Index	ImageMode = G-0394,SRT,M Mode; Method =125209,DCM,Teichholz
SI(Gibson-M)	F-00078,SRT,Stroke Index	ImageMode = G-0394,SRT,M Mode; Method =VM12228-03,MRUS,Gibson
SI(Cube-2D)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125206,DCM,Cube Method
SI(Teich-2D)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =125209,DCM,Teichholz
SI(Gibson-2D)	F-00078,SRT,Stroke Index	ImageMode = G-03A2,SRT,2D mode; Method =VM12228-03,MRUS,Gibson
SI(Simp SP-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

B.40.2. Right Ventricle Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
RVdD	20304-2, LN, Right Ventricular Internal Diastolic Dimension	ImageMode = G-03A2, SRT, 2D mode;
RVDs	20305-9, LN, Right Ventricular Internal Systolic Dimension	ImageMode = G-03A2, SRT, 2D mode;
RVIMP	G-0381, SRT, Right Ventricular Index of Myocardial Performance	
RVSP	G-0380, SRT, Right Ventricular Peak Systolic Pressure	
RVAWd	18153-7, LN, Right Ventricular Anterior Wall Diastolic Thickness	ImageMode = G-03A2, SRT, 2D mode;
RVAWs(2D)	18157-8, LN, Right Ventricular Anterior Wall Systolic Thickness	ImageMode = G-03A2, SRT, 2D mode;
RV Major	M12204-01, MRUS, Right ventricular Major	ImageMode = G-03A2, SRT, 2D mode;
RV Minor	M12204-02, MRUS, Right ventricular Minor	ImageMode = G-03A2, SRT, 2D 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;
RVPEP	M12204-05, MRUS, Right Ventricle Pre-Ejection Period	ImageMode = G-0394, SRT, M Mode;
RVET	M12204-06, MRUS, Right Ventricle Ejection Time	ImageMode = G-0394, SRT, M Mode;
RVPEP/ET	C12204-01, MRUS, Right Ventricle Pre-Ejection Period to Ejection Time Ratio	ImageMode = G-0394, SRT, M Mode;
RVOT HR	8867-4, LN, Heart rate	
RVOT Diam	G-038F, SRT, Cardiovascular Orifice Diameter	ImageMode = G-03A2, SRT, 2D mode;
RVOT Diam(M)	G-038F, SRT, Cardiovascular Orifice Diameter	ImageMode = G-0394, SRT, M Mode;
RVOT Vmax	11726-7, LN, Peak Velocity	
RVOT Vmean	20352-1, LN, Mean Velocity	
RVOT PGmax	20247-3, LN, Peak Gradient	
RVOT PGmean	20256-4, LN, Mean Gradient	
RVOT VTI	20354-7, LN, Velocity Time Integral	
RV AccT	20168-1, LN, Acceleration Time	
RVOT θ	M12222-01, MRUS, Angle	
RV AccT/ET	C12204-02, MRUS, Right Ventricle Acceleration Time to Ejection Time Ratio	ImageMode = G-0394, SRT, M Mode;

B.40.3. Left Atrium Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
LA Diam	29469-4, LN, Left Atrium Antero-posterior Systolic Dimension	ImageMode = G-03A2, SRT, 2D mode;
LA/Ao	17985-3, LN, Left Atrium to Aortic Root Ratio	ImageMode = G-03A2, SRT, 2D mode;
LA Area	17977-0, LN, Left Atrium Systolic Area	ImageMode = G-03A2, SRT, 2D mode;
LAA(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
LAA(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 Vol(A-L)	G-0383, SRT, Left Atrium Systolic Volume	ImageMode = G-03A2, SRT, 2D mode; Method = 125205, DCM, Area-Length Single Plane
LA Vol(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 Vol(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 Major	M12205-01, MRUS, Left atrium Major	ImageMode = G-03A2, SRT, 2D mode;
LA Minor	M12205-02, MRUS, Left atrium Minor	ImageMode = G-03A2, SRT, 2D mode;
Ao/LA	C12205-01, MRUS, Aortic Root to Left Atrium Ratio	ImageMode = G-03A2, SRT, 2D mode; ImageMode = G-0394, SRT, M Mode;

B.40.4. Right Atrium Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
RA Area	17988-7, LN, Right Atrium Systolic Area	ImageMode = G-03A2, SRT, 2D mode;
RA Major	M12206-01, MRUS, Right atrium Major	ImageMode = G-03A2, SRT, 2D mode;
RA Minor	M12206-02, MRUS, Right atrium Minor	ImageMode = G-03A2, SRT, 2D mode;

RA Vol(A4C)	M12206-03,MRUS,Right atrium Volume	ImageMode = G-03A2,SRT,2D mode; ImageView = G-A19C,SRT,Apical four chamber; Method = 125208,DCM,Method of Disks, Single Plane
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B.40.5. Aortic Valve Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
ACS	17996-0,LN,Aortic Valve Cusp Separation	ImageMode = G-03A2,SRT,2D mode;
AV AccT/ET	G-0382,SRT,Ratio of Aortic Valve Acceleration Time to Ejection Time	
AV HR	8867-4,LN,Heart rate	
AR Flow	33878-0,LN,Volume Flow	Flow Direction =R-42E61,SRT,Regurgitant Flow; Method =125216,DCM,Proximal Isovelocity Surface Area
AR 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
AVA	G-038E,SRT,Cardiovascular Orifice Area	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = G-03A2,SRT,2D mode; Method =125220,DCM,Planimetry
AVA(VTI)	G-038E,SRT,Cardiovascular Orifice Area	Flow Direction =R-42047,SRT,Antegrade Flow; Method =125215,DCM,Continuity Equation by Velocity Time Integral
AV Diam	G-038F,SRT,Cardiovascular Orifice Diameter	ImageMode = G-03A2,SRT,2D mode;
AR Fraction	G-0390,SRT,Regurgitant Fraction	Flow Direction =R-42E61,SRT,Regurgitant Flow; Method =125216,DCM,Proximal Isovelocity Surface Area
AR Ved	11653-3,LN,End Diastolic Velocity	Flow Direction = R-42E61,SRT,Regurgitant Flow
AV Vmax	11726-7,LN,Peak Velocity	Flow Direction = R-42047,SRT,Antegrade Flow;

AR Vmax	11726-7, LN, Peak Velocity	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AV Vmean	20352-1, LN, Mean Velocity	Flow Direction = R-42047, SRT, Antegrade Flow;
AR Vmean	20352-1, LN, Mean Velocity	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AV PGmax	20247-3, LN, Peak Gradient	Flow Direction = R-42047, SRT, Antegrade Flow;
AR PGmax	20247-3, LN, Peak Gradient	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AV PGmean	20256-4, LN, Mean Gradient	Flow Direction = R-42047, SRT, Antegrade Flow;
AR PGmean	20256-4, LN, Mean Gradient	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AV VTI	20354-7, LN, Velocity Time Integral	Flow Direction = R-42047, SRT, Antegrade Flow;
AR VTI	20354-7, LN, Velocity Time Integral	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AR PHT	20280-4, LN, Pressure Half-Time	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AV AccT	20168-1, LN, Acceleration Time	Flow Direction = R-42047, SRT, Antegrade Flow;
AV DecT	20217-6, LN, Deceleration Time	Flow Direction = R-42047, SRT, Antegrade Flow;
AR DcT	20217-6, LN, Deceleration Time	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AR DecT	20217-6, LN, Deceleration Time	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AV Dec Slope	20216-8, LN, Deceleration Slope	Flow Direction = R-42047, SRT, Antegrade Flow;
AR Dec Slope	20216-8, LN, Deceleration Slope	Flow Direction = R-42E61, SRT, Regurgitant Flow;
AV Acc Slope	M12222-02, MRUS, Acceleration Slope	Flow Direction = R-42047, SRT, Antegrade Flow;
AR Rad	M12222-06, MRUS, Flow Radius	Flow Direction = R-42E61, SRT, Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow;
AR Als. Vel	M12222-05, MRUS, Aliasing Velocity	Flow Direction = R-42E61, SRT, Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow;

AR Time	M12222-04,MRUS,Time	Flow Direction = R-42E61,SRT,Regurgitant Flow;
AR DcR	M12222-03,MRUS,Deceleration Rate	Flow Direction = R-42E61,SRT,Regurgitant Flow;
AV θ	M12222-01,MRUS,Angle	Flow Direction = R-42047,SRT,Antegrade Flow;
AR θ	M12222-01,MRUS,Angle	Flow Direction = R-42E61,SRT,Regurgitant Flow;
AV SV	F-32120,SRT,Stroke Volume	
AV CO	F-32100,SRT,Cardiac Output	
AV CI	F-32110,SRT,Cardiac Index	
AV SI	F-00078,SRT,Stroke Index	

B.40.6.Mitral Valve Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
MV A Vel	17978-8 LN Mitral Valve A-Wave Peak Velocity	Image Mode = G-0394,SRT,M Mode
MV A Vel	17978-8,LN,Mitral Valve A-Wave Peak Velocity	
MV E Vel	18037-2,LN,Mitral Valve E-Wave Peak Velocity	
MV E/A	18038-0,LN,Mitral Valve E to A Ratio	
MV AccT/DecT	G-0386,SRT,Mitral Valve AT/DT Ratio	
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-03A2,SRT,2D mode;
MV A Dur	G-0385,SRT,Mitral Valve A-Wave Duration	
MV C-O dur	G-0387,SRT,Mitral Valve Closure to Opening Time	ImageMode = G-0394,SRT,M Mode;
dP/dt	18035-6,LN,Mitral Regurgitation dP/dt derived from Mitral Reg. velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow;
MCS	M12207-01,MRUS,Mitral valve cusp separate distance	ImageMode = G-03A2,SRT,2D mode;
MCS(M)	M12207-01,MRUS,Mitral valve cusp separate distance	ImageMode = G-0394,SRT,M Mode;
MV D-E Slope	M12207-02,MRUS,Mitral Valve D-E Slope	ImageMode = G-0394,SRT,M Mode;
MV A Amp	M12207-03,MRUS,Amplitude of the A wave	ImageMode = G-0394,SRT,M Mode;
MV E Amp	M12207-04,MRUS,Amplitude of the E wave	ImageMode = G-0394,SRT,M Mode;

MV DE	M12207-05,MRUS,Amplitude from D point to E point	ImageMode = G-0394,SRT,M Mode;
MV E PG	M12207-06,MRUS,Mitral Valve E-wave Pressure Gradient	
MV A PG	M12207-07,MRUS,Mitral Valve A-wave Pressure Gradient	
MV E VTI	M12207-08,MRUS,E wave Velocity Time Integral	Flow Direction =R-42047,SRT,Antegrade Flow;
MV A VTI	M12207-09,MRUS,A wave Velocity Time Integral	Flow Direction =R-42047,SRT,Antegrade Flow;
MV E Dur	M12207-10,MRUS,Mitral Valve E-Wave Duration	
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 IsovLOCITY 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 IsovLOCITY Surface Area
MVA	G-038E,SRT,Cardiovascular Orifice Area	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = G-03A2,SRT,2D mode; Method = 125220,DCM,Planimetry
MVA(PHT)	G-038E,SRT,Cardiovascular Orifice Area	Flow Direction =R-42047,SRT,Antegrade Flow; Method = 125210,DCM,Area by Pressure Half-Time
MVA(VTI)	G-038E,SRT,Cardiovascular Orifice Area	Flow Direction =R-42047,SRT,Antegrade Flow; Method = 125215,DCM,Continuity Equation by Velocity Time Integral
MV Diam	G-038F,SRT,Cardiovascular Orifice Diameter	Flow Direction =R-42047,SRT,Antegrade 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 IsovLOCITY Surface Area

MV Vmax	11726-7,LN,Peak Velocity	Flow Direction =R-42047,SRT, Antegrade Flow;
MR Vmax	11726-7,LN,Peak Velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = G-03A2,SRT,2D mode;
MV Vmean	20352-1,LN,Mean Velocity	Flow Direction =R-42047,SRT, Antegrade Flow;
MR Vmean	20352-1,LN,Mean Velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow;
MV PGmax	20247-3,LN,Peak Gradient	Flow Direction =R-42047,SRT, Antegrade Flow;
MR PGmax	20247-3,LN,Peak Gradient	Flow Direction =R-42E61,SRT,Regurgitant Flow;
MV PGmean	20256-4,LN,Mean Gradient	Flow Direction =R-42047,SRT, Antegrade Flow;
MR PGmean	20256-4,LN,Mean Gradient	Flow Direction =R-42E61,SRT,Regurgitant Flow;
MV VTI	20354-7,LN,Velocity Time Integral	Flow Direction =R-42047,SRT, Antegrade Flow;
MR VTI	20354-7,LN,Velocity Time Integral	Flow Direction =R-42E61,SRT,Regurgitant Flow;
MV PHT	20280-4,LN,Pressure Half-Time	Flow Direction =R-42047,SRT, Antegrade Flow;
MV AccT	20168-1,LN,Acceleration Time	Flow Direction =R-42047,SRT, Antegrade Flow;
MV DecT	20217-6,LN,Deceleration Time	Flow Direction =R-42047,SRT, Antegrade Flow;
MV Dec Slope	20216-8,LN,Deceleration Slope	Flow Direction =R-42047,SRT, Antegrade Flow;
MV Acc Slope	M12222-02,MRUS,Acceleration Slope	Flow Direction =R-42047,SRT, Antegrade Flow;
dt	M12222-04,MRUS,Time	Flow Direction =R-42E61,SRT,Regurgitant Flow;
MR Rad	M12222-06,MRUS,Flow Radius	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow;
MR Als.Vel	M12222-05,MRUS,Aliasing Velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow;
MV θ	M12222-01,MRUS,Angle	Flow Direction =R-42047,SRT,Antegrade Flow;

MR θ	M12222-01,MRUS,Angle	Flow Direction =R-42E61,SRT,Regurgitant Flow;
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	
MV A/E	M12207-06, MRUS, Mitral Valve A-wave Velocity/E-wave Velocity	
MV ACV	M12207-33, MRUS, Mitral Valve A-C Slope	
MV CA/CE	M12207-34, MRUS, A Wave Amplitude to C Wave Amplitude Ratio	

B.40.7. Pulmonic Valve Measurements

<i>MODALITY Label</i>	<i>DICOM Mapping</i>	<i>Optional Modifiers</i>
PV θ	M12222-01,MRUS,Angle	Flow Direction =R-42047,SRT,Antegrade Flow;
PR θ	M12222-01,MRUS,Angle	Flow Direction =R-42E61,SRT,Regurgitant Flow;
PV HR	8867-4,LN,Heart rate	
PR Flow	33878-0,LN,Volume Flow	Flow Direction =R-42E61,SRT,Regurgitant Flow; Method = 125216,DCM,Proximal Isovelocity Surface Area
PR 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
PV Diam	G-038F,SRT,Cardiovascular Orifice Diameter	Flow Direction =R-42047,SRT,Antegrade Flow; ImageMode = G-03A2,SRT,2D mode;
PR Fraction	G-0390,SRT,Regurgitant Fraction	Flow Direction =R-42E61,SRT,Regurgitant Flow; Method = 125216,DCM,Proximal Isovelocity Surface Area
PR Ved	11653-3,LN,End Diastolic Velocity	Flow Direction =R-42E61,SRT,Regurgitant Flow;
PV Vmax	11726-7,LN,Peak Velocity	Flow Direction =R-42047,SRT, Antegrade 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 Vmean	20352-1, LN, Mean Velocity	Flow Direction =R-42E61, SRT, Regurgitant Flow;
PV PGmax	20247-3, LN, Peak Gradient	Flow Direction =R-42047, SRT, Antegrade Flow;
PR PGmax	20247-3, LN, Peak Gradient	Flow Direction =R-42E61, SRT, Regurgitant Flow;
PV PGmean	20256-4, LN, Mean Gradient	Flow Direction =R-42047, SRT, Antegrade Flow;
PR PGmean	20256-4, LN, Mean Gradient	Flow Direction =R-42E61, SRT, Regurgitant Flow;
PV VTI	20354-7, LN, Velocity Time Integral	Flow Direction =R-42047, SRT, Antegrade Flow;
PR VTI	20354-7, LN, Velocity Time Integral	Flow Direction =R-42E61, SRT, Regurgitant Flow;
PR PHT	20280-4, LN, Pressure Half-Time	Flow Direction =R-42E61, SRT, Regurgitant Flow;
PV AccT	20168-1, LN, Acceleration Time	Flow Direction =R-42047, SRT, Antegrade Flow;
PR DecT	20217-6, LN, Deceleration Time	Flow Direction =R-42E61, SRT, Regurgitant Flow;
PR Dec Slope	20216-8, LN, Deceleration Slope	Flow Direction =R-42E61, SRT, Regurgitant Flow;
PV Acc Slope	M12222-02, MRUS, Acceleration Slope	Flow Direction =R-42047, SRT, Antegrade Flow;
PR Rad	M12222-06, MRUS, Flow Radius	Flow Direction =R-42E61, SRT, Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow;
PR Als. Vel	M12222-05, MRUS, Aliasing Velocity	Flow Direction =R-42E61, SRT, Regurgitant Flow; ImageMode = R-409E2, SRT, Doppler Color Flow;
PR Ved PG	M12222-08, MRUS, Pressure Gradient at end-Diastole	Flow Direction =R-42E61, SRT, Regurgitant Flow;
PV SV	F-32120, SRT, Stroke Volume	
PV CO	F-32100, SRT, Cardiac Output	
PV CI	F-32110, SRT, Cardiac Index	
PV SI	F-00078, SRT, Stroke Index	

B.40.8. 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	
TV E/A	18039-8, LN, Tricuspid Valve E to A Ratio	
TV C-O dur	G-0389, SRT, Tricuspid Valve Closure to Opening Time	
TV θ	M12222-01, MRUS, Angle	Flow Direction =R-42047, SRT, Antegrade Flow;
TR θ	M12222-01, MRUS, Angle	Flow Direction =R-42E61, SRT, Regurgitant Flow;
TV HR	8867-4, LN, Heart rate	
TR Flow	33878-0, LN, Volume Flow	Flow Direction =R-42E61, SRT, Regurgitant Flow; Method = 125216, DCM, Proximal IsovLOCITY Surface Area
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 IsovLOCITY Surface Area
TVA	G-038E, SRT, Cardiovascular Orifice Area	Flow Direction =R-42047, SRT, Antegrade Flow; ImageMode = G-03A2, SRT, 2D mode; Method = 125220, DCM, Planimetry
TVA(PHT)	G-038E, SRT, Cardiovascular Orifice Area	Flow Direction =R-42047, SRT, Antegrade Flow; Method = 125210, DCM, Area by Pressure Half-Time
TV Diam	G-038F, SRT, Cardiovascular Orifice Diameter	Flow Direction =R-42047, SRT, Antegrade Flow; ImageMode = G-03A2, SRT, 2D mode;
TR Fraction	G-0390, SRT, Regurgitant Fraction	Flow Direction =R-42E61, SRT, Regurgitant Flow; Method = 125216, DCM, Proximal IsovLOCITY 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;

TV Vmean	20352-1, LN, Mean Velocity	Flow Direction =R-42047, SRT, Antegrade Flow;
TR Vmean	20352-1, LN, Mean Velocity	Flow Direction =R-42E61, SRT, Regurgitant Flow;
TV PGmax	20247-3, LN, Peak Gradient	Flow Direction =R-42047, SRT, Antegrade Flow;
TR PGmax	20247-3, LN, Peak Gradient	Flow Direction =R-42E61, SRT, Regurgitant Flow;
TV PGmean	20256-4, LN, Mean Gradient	Flow Direction =R-42047, SRT, Antegrade Flow;
TR PGmean	20256-4, LN, Mean Gradient	Flow Direction =R-42E61, SRT, Regurgitant Flow;
TV VTI	20354-7, LN, Velocity Time Integral	Flow Direction =R-42047, SRT, Antegrade Flow;
TR VTI	20354-7, LN, Velocity Time Integral	Flow Direction =R-42E61, SRT, Regurgitant Flow;
TV PHT	20280-4, LN, Pressure Half-Time	Flow Direction = R-42047, SRT, Antegrade Flow; ;
TV AccT	20168-1, LN, Acceleration Time	Flow Direction =R-42047, SRT, Antegrade Flow;
TV DecT	20217-6, LN, Deceleration Time	Flow Direction = R-42047, SRT, Antegrade Flow; ;
TV Dec Slope	20216-8, LN, Deceleration Slope	Flow Direction = R-42047, SRT, Antegrade Flow; ;
TV A Dur	M12208-01, MRUS, Tricuspid Valve E-Wave Duration	Flow Direction =R-42047, SRT, Antegrade Flow;
TV E PG	M12208-02, MRUS, Tricuspid Valve E Wave Pressure Gradient	Flow Direction =R-42047, SRT, Antegrade Flow;
TV A PG	M12208-03, MRUS, Tricuspid Valve A Wave Pressure Gradient	Flow Direction =R-42047, SRT, Antegrade Flow;
TV Acc Slope	M12222-02, MRUS, Acceleration Slope	Flow Direction =R-42047, SRT, Antegrade Flow;
TV AccT/DecT	M12222-07, MRUS, Acceleration Time/Deceleration Time	Flow Direction =R-42047, SRT, Antegrade Flow;
TR Rad	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	ImageMode = R-409E2, SRT, Doppler Color Flow;
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	
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B.40.9. Aorta Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
Ao Diam	18015-8, LN, Aortic Root Diameter	ImageMode = G-03A2, SRT, 2D mode;
Ao Arch Diam	18011-7, LN, Aortic Arch Diameter	ImageMode = G-03A2, SRT, 2D mode;
Ao Asc Diam	18012-5, LN, Ascending Aortic Diameter	ImageMode = G-03A2, SRT, 2D mode;
Ao Isthmus	18014-1, LN, Aortic Isthmus Diameter	ImageMode = G-03A2, SRT, 2D mode;
Ao Desc Diam	18013-3, LN, Descending Aortic Diameter	ImageMode = G-03A2, SRT, 2D mode;
Ao st junct	M12212-01, MRUS, Aortic Sinotubular junction Diameter	ImageMode = G-03A2, SRT, 2D mode;
Ao Sinus Diam	M12212-02, MRUS, Aortic Sinus Diameter	ImageMode = G-03A2, SRT, 2D mode;
Duct Art Diam	M12212-03, MRUS, Ductus Artery Diameter	ImageMode = G-03A2, SRT, 2D mode;
Pre Ductal	M12212-04, MRUS, Previous Ductal Diameter	ImageMode = G-03A2, SRT, 2D mode;
AAo Vmax	11726-7, LN, Peak Velocity	
DAo Vmax	11726-7, LN, Peak Velocity	
AAo PGmax	20247-3, LN, Peak Gradient	
DAo PGmax	20247-3, LN, Peak Gradient	
Ao st junct/Ao	C12212-02, MRUS, Aortic Sinotubular junction Diameter/Aorta Root Diameter	ImageMode = G-03A2, SRT, 2D mode;

B.40.10. Pulmonary Artery Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
MPA Diam	18020-8, LN, Main Pulmonary Artery Diameter	ImageMode =G-03A2, SRT, 2D mode;
RPA Diam	18021-6, LN, Right Pulmonary Artery Diameter	ImageMode =G-03A2, SRT, 2D mode;
LPA Diam	18019-0, LN, Left Pulmonary Artery Diameter	ImageMode =G-03A2, SRT, 2D mode;
MPA Vmax	G-038A, SRT, Main Pulmonary Artery Peak Velocity	
Post Ductal	M12210-01, MRUS, Posterior ductal Diameter	ImageMode =G-03A2, SRT, 2D mode;
PAEDP	C12210-01, MRUS, Pulmonary Artery End Diastolic Pressure	
LPA Vmax	11726-7, LN, Peak Velocity	
RPA Vmax	11726-7, LN, Peak Velocity	
MPA PGmax	20247-3, LN, Peak Gradient	
LPA PGmax	20247-3, LN, Peak Gradient	
RPA PGmax	20247-3, LN, Peak Gradient	

B.40.11. Pulmonary Venous Structure Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
PVein A Dur	G-038B,SRT,Pulmonary Vein A-Wave Duration	
PVein D VTI	G-038D,SRT,Pulmonary Vein D-Wave Velocity Time Integral	
PVein S VTI	G-038C,SRT,Pulmonary Vein S-Wave Velocity Time Integral	
PVein S Vel	M12214-01,MRUS,Pulmonary Vein S wave flow Velocity	
PVein D Vel	M12214-02,MRUS,Pulmonary Vein D-wave flow Velocity	
PVein A Vel	M12214-03,MRUS,Pulmonary Vein A-wave flow Velocity	
PVein DecT	M12214-04,MRUS,Pulmonary Vein Deceleration Time	
PVein S/D	M12214-05,MRUS,Pulmonary Vein Ratio of S-Wave velocity to D-wave velocity	
PVein SF	M12214-06,MRUS,Pulmonary Vein Systolic fraction	
PVein S1 Vel	M12214-07, MRUS, Pulmonary Vein S1-wave flow Velocity	

B.40.12. Cardiac Shunt Study Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
Qp/Qs	29462-9,LN,Pulmonary-to-Systemic Shunt Flow Ratio	
Qp-Qs	M12217-01,MRUS,Pulmonary-sub-Systemic Shunt Flow Difference	

B.40.13. Congenital Anomaly of Cardiovascular System Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
PDA Diam	M12218-01,MRUS,Patent Ductus Arteriosus Diameter	ImageMode =G-03A2,SRT,2D mode;
PFO Diam	M12218-02,MRUS,Patent Foramen Ovale Diameter	ImageMode =G-03A2,SRT,2D mode;
PDA Vel(d)	M12218-03,MRUS,Patent Ductus Arteriosus Diastolic Velocity	
PDA Vel(s)	M12218-04,MRUS,Patent Ductus Arteriosus Systolic Velocity	
Coarc Pre-Duct	M12218-05,MRUS,Coarctation of Pre-Ductus Velocity	

Coarc Post-Duct	M12218-06,MRUS,Coarctation of Post-Ductus Velocity	
PDA Dias PG	M12218-07,MRUS,Patent Ductus Arteriosus Diastolic Pressure Gradient	
PDA Sys PG	M12218-08,MRUS,Patent Ductus Arteriosus Systolic Pressure Gradient	
Coarc Pre-Duct PG	M12218-09,MRUS,Coarctation of Pre-Ductus Pressure Gradient	
Coarc Post-Duc PG	M12218-10,MRUS,Coarctation of Post-Ductus Pressure Gradient	
VSD Diam	G-038F,SRT,Cardiovascular Orifice Diameter	ImageMode =G-03A2,SRT,2D mode;
ASD Diam	G-038F,SRT,Cardiovascular Orifice Diameter	ImageMode =G-03A2,SRT,2D mode;
VSD Vmax	11726-7,LN,Peak Velocity	
ASD Vmax	11726-7,LN,Peak Velocity	
VSD PGmax	20247-3,LN,Peak Gradient	
ASD PGmax	20247-3,LN,Peak Gradient	

B.40.14. Pericardial Disease Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
PEd	C90000-01,MRUS,Pericard Effusion at end-diastole	ImageMode =G-03A2,SRT,2D mode;
PEs	C90000-02,MRUS,Pericard Effusion at end-systole	ImageMode =G-03A2,SRT,2D mode;

B.40.15. Heart Rate Measurements

MODALITY Label	DICOM Mapping	Optional Modifiers
HR	8867-4, LN, Heart rate	Image Mode = G-0394,SRT,M Mode

C. Appendix : Vascular structured reporting template

C.1. TID (5100) Vascular Ultrasound Report

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

	NL	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
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)	

1 2	>	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	
1 3	>	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	
1 4	>	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	
1 5	>	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	
1 6	>	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	

1 7	>	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	
1 8	>	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	
1 9	>	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	
2 0	>	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	
2 1	>	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	
2 2	>	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	
					\$AnatomyRatio = DCID (12124) Renal Ratios	
2 3	>	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	
					\$AnatomyRatio = DCID (12124) Renal Ratios	
2 4	>	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)	
2 5	>	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)	
2 6	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	\$SectionScope = DT (T-46002, SRT, "Artery of Abdomen")	
					\$SectionLaterality = EV (G-A103, SRT, "Unilateral")	✓
					\$Anatomy = DCID (1Modality) Abdominal Arteries (unilateral)	
2 7	>	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)	
28	>	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)	
29	>	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)	
30	>	CONTAINS	INCLUDE	DTID (5105) Ultrasound Graft Section		
31	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	\$SectionScope = DT (T-71019, SRT, "Vascular Structure Of Kidney")	✓
					\$Anatomy = DCID (12115) Renal Vessels	
					\$AnatomyRatio = DCID (12124) Renal Ratios	

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	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

C.3. TID (5101) Vascular Patient Characteristics

	NL	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
1			CONT AINER	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 (8867-4, LN, “Heart Rate”)		
5	>	CONTAINS	NUM	EV (F-008EC, SRT, “Systolic Blood Pressure”)		✓
6	>	CONTAINS	NUM	EV (F-008ED, SRT, "Diastolic Blood Pressure")		✓

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

	NL	Rel with Parent	VT	Concept Name	MODALITY	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	Value Set Constraint	MODALITY
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	

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

	NL	Rel with Parent	VT	Concept Name	Value Set Constraint	MODALITY
1			CONTAINER	\$AnatomyGroup		√
2	>	HAS CONCEPT MOD	CODE	EV (G-A1F8, SRT, “Topographical Modifier”)	DCID (12116) Vessel Segment Modifiers	√
					(G-A119 ,SRT, Distal)	
					(G-A188, SRT, Mid-longitudinal)	
					(G-A118, SRT, Proximal)	
					(G-036A, SRT, Origin of vessel)	
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	√
					(11653-3, LN, End Diastolic Velocity)	
					(11665-7, LN, Minimum Diastolic Velocity)	
					(11726-7, LN, Peak Systolic Velocity)	
					(20352-1, LN, Time averaged mean velocity)	
					(11692-1, LN, Time averaged peak velocity)	
					(20167-3, LN, Acceleration Index)	
					(G-0366, SRT, Vessel lumen cross-sectional area)	
					(M12119-05, MRUS, Residual Area)	
					(R-101BA, SRT, Lumen Area Stenosis)	
					(G-0364, SRT, Vessel lumen diameter)	
					(M12119-06, MRUS, Residual Diameter)	

					(R-101BB, SRT, Lumen Diameter Stenosis)	
					(12008-9, LN, Pulsatility Index)	
					(12023-8, LN, Resistivity Index)	
					(12144-2, LN, Systolic to Diastolic Velocity Ratio)	
					(33867-3, LN, Velocity ratio)	
					(20168-1, LN, Acceleration Time)	
					(20217-6, LN, Deceleration Time)	
					(R-1025C, SRT, Vessel Intimal Diameter)	
					(R-1025D, SRT, Vessel Intimal Cross-Sectional Area)	
					(G-0365, SRT, Vessel outside diameter)	
					(33878-0, LN, Volume flow)	
					(R-1025E, SRT, Vessel depth from surface)	
					(20247-3, LN, Peak Gradient)	
					(20256-4, LN, Mean Gradient)	
					(M12119-01, MRUS, Mean Velocity Mean Pressure Gradient)	
					(R-1025F, SRT, Length of Segment)	
					(121206, DCM, Distance)	
					(121056, DCM, Area Outline)	
					(121216, DCM, Volume estimated from single 2D region)	
					(122350, DCM, Lumen Diameter Ratio)	
					(20354-7, LN, Velocity Time Integral)	
					(8867-4, LN, Heart rate)	
					(M12119-02, MRUS, Angle)	
					(11726-7, LN, Peak Velocity)	
					(M12119-04, MRUS, Diastolic to Systolic Velocity Ratio)	
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")	
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C.7. CID (12101) Vascular Summary

CSD	CV	Code Meaning
DCM	121106	Comment

C.8. CID (12104) Extracranial Arteries

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

C.9. CID (12105) Intracranial Cerebral Vessels

CSD	CV	Code Meaning
q	T-45540	Anterior Cerebral Artery
SRT	T-45600	Middle Cerebral Artery
SRT	T-45900	Posterior Cerebral Artery
SRT	T-45320	Posterior Communicating Artery

C.10. CID (12106) Intracranial Cerebral Vessels (unilateral)

CSD	CV	Code Meaning
SRT	T-45800	Basilar Artery
SRT	T-45530	Anterior Communicating Artery
MRUS	V12106-01	Basilar Vein

C.11. 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-46100	Subclavian Artery

CSD	CV	Code Meaning
SRT	T-47200	Ulnar Artery

C.12. CID (12108) Upper Extremity Veins

CSD	CV	Code Meaning
SRT	T-49110	Axillary vein
SRT	T-48052	Basilic vein
SRT	T-49350	Brachial vein
SRT	T-49240	Cephalic vein
SRT	T-49340	Radial vein
SRT	T-48330	Subclavian vein
SRT	T-49330	Ulnar vein

C.13. 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
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

C.14. 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
SRT	T-48930	External Iliac Vein
SRT	T-4942D	Gastrocnemius vein
SRT	T-49530	Great Saphenous Vein
SRT	T-49550	Lesser Saphenous Vein
SRT	T-49650	Peroneal Vein
SRT	T-49640	Popliteal Vein
SRT	G-036E	Posterior arch vein

CSD	CV	Code Meaning
SRT	T-49620	Posterior Tibial Vein
SRT	T-49660	Profunda Femoris Vein
SRT	G-036B	Soleal vein
SRT	G-035A	Superficial Femoral Vein
SRT	T-48940	Internal iliac vein
SRT	T-49410	Femoral vein
MRUS	V12110-01	TP Trunk Vein

C.15. CID (12112) Abdominal Arteries (unilateral)

CSD	CV	Code Meaning
SRT	T-42000	Aorta
SRT	T-46400	Celiac Axis
SRT	T-46421	Common Hepatic Artery
SRT	T-46422	Proper Hepatic Artery
SRT	T-46460	Splenic Artery
SRT	T-46510	Superior Mesenteric Artery

C.16. CID (12114) Abdominal Veins (unilateral)

CSD	CV	Code Meaning
SRT	T-48727	Left Hepatic Vein
SRT	T-48726	Middle Hepatic Vein
SRT	T-48725	Right 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	V12114-01	Main Portal Vein

C.17. CID (12115) Renal Vessels

CSD	CV	Code Meaning
SRT	T-46600	Renal Artery
SRT	T-46659	Segmental Artery
SRT	T-4668A	Arcuate Artery of the Kidney
SRT	T-4667D	Interlobar Artery of Kidney
SRT	T-48740	Renal Vein
MRUS	V12115-01	Main Renal Artery

C.18. CID (12116) Vessel Segment Modifiers

CSD	CV	Code Meaning
SRT	G-A119	Distal
SRT	G-A188	Mid-longitudinal
SRT	G-036A	Origin of vessel
SRT	G-A118	Proximal
SRT	R-1025B	Dilated portion of segment

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

C.19.1. Vascular Measurements

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
ED	11653-3, LN, End Diastolic Velocity
MD	11665-7, LN, Minimum Diastolic Velocity
TAMEAN	20352-1, LN, Time averaged mean velocity
TAMAX	11692-1, LN, Time averaged peak velocity
PS	11726-7, LN, Peak Systolic Velocity
PV	11726-7, LN, Peak Velocity
PI	12008-9, LN, Pulsatility Index
RI	12023-8, LN, Resistivity Index
S/D	12144-2, LN, Systolic to Diastolic Velocity Ratio
D/S	M12119-04, MRUS, Diastolic to Systolic Velocity Ratio
AT	20168-1, LN, Acceleration Time
DT	20217-6, LN, Deceleration Time
PPG	20247-3, LN, Peak Gradient
MPG	20256-4, LN, Mean Gradient
MMPG	M12119-01, MRUS, Mean Velocity Mean Pressure Gradient
VTI	20354-7, LN, Velocity Time Integral
HR	8867-4, LN, Heart rate
θ	M12119-03, MRUS, Angle

C.19.2. Intracranial Cerebral Vessels

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
ACA	T-45540, SRT, Anterior Cerebral Artery
MCA	T-45600, SRT, Middle Cerebral Artery
PCA	T-45900, SRT, Posterior Cerebral Artery
PCoMA	T-45320, SRT, Posterior Communicating Artery

C.19.3. Intracranial Cerebral Vessels (unilateral)

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
BA	T-45800,SRT,Basilar Artery
AComA	T-45530,SRT,Anterior Communicating Artery
Ba V	V12106-01,MRUS,Basilar Vein

C.19.4. Extracranial Arteries

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
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

C.19.5. Lower Extremity Arteries

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
C.Iliac A	T-46710,SRT,Common Iliac Artery
A.Tib A	T-47700,SRT ,Anterior Tibial Artery
CFA	T-47400,SRT ,Common Femoral Artery
Dors.Ped A	T-47741,SRT,Dorsalis Pedis Artery
Ex.Iliac A	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
P.Tib A	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

C.19.6. Lower Extremity Veins

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
A.Tib V	T-49630,SRT,Anterior Tibial Vein
CFV	G-035B,SRT,Common Femoral Vein
C.Iliac V	T-48920,SRT,Common Iliac Vein
Ex.Iliac V	T-48930,SRT,External Iliac Vein
Sural V	T-4942D,SRT,Gastrocnemius vein
Saph V	T-49530,SRT,Great Saphenous Vein

SSV	T-49550,SRT,Lesser Saphenous Vein
Peroneal V	T-49650,SRT,Peroneal Vein
Pop V	T-49640,SRT,Popliteal Vein
P.Tib V	T-49620,SRT,Posterior Tibial Vein
PFV	T-49660,SRT,Profunda Femoris Vein
Soleal V	G-036B,SRT,Soleal vein
SFV	G-035A,SRT,Superficial Femoral Vein
IIV	T-48940,SRT,Internal iliac vein
Femoral V	T-49410,SRT,Femoral vein
TP Trunk V	V12110-01,MRUS,TP Trunk Vein

C.19.7.Upper Extremity Arteries

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
Axill A	T-47100,SRT,Axillary Artery
Innom A	T-46010,SRT,Innominate Artery
Radial A	T-47300,SRT,Radial Artery
Ulnar A	T-47200,SRT ,Ulnar Artery

C.19.8.Upper Extremity Veins

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
Axill V	T-49110,SRT ,Axillary vein
Basilic V	T-48052,SRT,Basilic vein
Brachial V	T-49350,SRT,Brachial vein
Cephalic V	T-49240,SRT,Cephalic vein
Radial V	T-49340,SRT,Radial vein
Subclav V	T-48330,SRT,Subclavian vein
Ulnar V	T-49330,SRT,Ulnar vein

C.19.9.Abdominal Arteries (unilateral)

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
Abdominal Aorta	T-42000,SRT,Aorta
Celiac Axis	T-46400,SRT,Celiac Axis
C Hepatic A	T-46421,SRT,Common Hepatic Artery
Hepatic A	T-46422,SRT,Proper Hepatic Artery
Splenic A	T-46460,SRT,Splenic Artery
SMA	T-46510,SRT,Superior Mesenteric Artery

C.19.10. Abdominal Veins (unilateral)

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
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Hepatic V	T-48727,SRT,Left Hepatic Vein
M Hepatic V	T-48726,SRT,Middle Hepatic Vein
Hepatic V	T-48727,SRT,Left Hepatic Vein T-48725,SRT,Right 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
M Portal V	V12114-01,MRUS,Main Portal Vein

C.19.11. Renal Vessels

<i>MODALITY Label</i>	<i>DICOM Mapping</i>
Ren A Org	T-46600,SRT,Renal Artery
Renal A	T-46600,SRT,Renal Artery
Segment A	T-46659,SRT,Segmental Artery
Arcuate A	T-4668A,SRT,Arcuate Artery of the Kidney
Interlobar A	T-4667D,SRT,Interlobar Artery of Kidney
Renal V	T-48740,SRT,Renal Vein
M Renal A	V12115-01,MRUS,Main Renal Artery

