**Siemens Medical Solutions USA, Inc.**

**Ultrasound Division**

# Antares 5.0

# DICOM Conformance Statement

# Table of Contents

# Table of Contents

# Table of Contents

# Table of Contents

# Table of Contents

# List of Tables

# List of Tables

# 1.0 Purpose

This document describes the conformance to the ACR-NEMA DICOM 3.0 Standard by the ACUSON® Antares ultrasound system software version 5.0 from Siemens Medical Solutions, Inc. Ultrasound Division. It shall establish the conformance specifications for this system only, and does not apply to other products offered by Siemens Medical Solutions, or its affiliates.

The ACUSON Antares system is a device that generates ultrasound images that can be sent using DICOM standard protocols and definitions to other DICOM compliant devices that support the SOP classes defined in Table 4: on Page 19.

## 1.1 Scope

The DICOM standard provides a well-defined set of structures and protocols that allow inter-operability of a wide variety of medical imaging devices. The ACUSON Antares system provides support for essential services related to ultrasound scanning and connectivity to DICOM compliant devices. ACUSON Antares system products will not support all features supported by the DICOM standard. This document clearly states the DICOM services and data classes that are supported by the applications included with the ACUSON Antares. The intent of this document is to allow users and other vendors who also conform to the DICOM standard to exchange information within the specific context of those elements of the DICOM standard that ACUSON Antares system supports.

This document is written with respect to the adopted portions of the DICOM standard, Version 3. The following sections of this document follow the outline specified in the DICOM Standard NEMA publication PS3.3 [1].

# 2.0 References

Specifications of the DICOM 3.0 standard may be obtained from ACR-NEMA for customers who require detailed information.

**Table 1: References**

| Document Title | Location |
|---|---|
| [1] Part 2 of the DICOM Standard: NEMA Standards Publication PS 3.2-2004, Digital Imaging and Communications in Medicine (DICOM), Part 2: Conformance | http://medical.nema.org/dicom/2004.html |
| [2] Part 4 of the DICOM Standard: NEMA Standards Publication PS 3.4-2004, Digital Imaging and Communications in Medicine (DICOM), Part 4: Service Class Specifications | http://medical.nema.org/dicom/2004.html |
| [3] Part 16 of the DICOM Standard, NEMA Standards Publication PS 3.16-2004, Digital Imaging and Communication in Medicine (DICOM), Part 16: Content Mapping Resource | http://medical.nema.org/dicom/2004.html |

# 3.0 Definitions

**Table 2: Acronyms and Abbreviations**

| Acronym or Abbreviation | Definition |
|---|---|
| ACR-NEMA | American College of Radiology - National Electrical Manufacturer's Association |
| AE | Application Entity |
| Conformance Statement | A formal statement associated with a specific implementation of the DICOM Standard. It specifies the Service Classes, Information Objects, Communications Protocols and Media Storage Application Profiles supported by the implementation. |
| DICOM 3.0 | Digital Imaging and Communications in Medicine, Version 3.0. |
| DIMSE | DICOM Message Service Element |
| EBE | Explicit Big Endian transfer syntax |
| ELE | Explicit Little Endian transfer syntax |
| ILE | Implicit Little Endian transfer syntax |
| C-STORE | Composite Store |
| Ethernet | Network topology devised in 1976 by DIX (DEC/Intel/Xerox) which is the most common in practice today. |
| IOD | Information Object Definition |
| MWL | Modality Worklist |
| OB | Obstetric or Obstetrical |
| OOG | Object Oriented Graphics |
| PACS | Picture Archiving and Communications Systems |
| PDU | Protocol Data Unit |
| RWA | Real-World Activity |
| SCP | Service Class Provider |
| SCU | Service Class User |
| SOP | Service-Object Pair |
| SR | Structured Reporting |
| syngo | Siemens DICOM Application Framework - Common User SW |
| UID | Unique identifier |

## 3.1 Support of Extended Character Sets

The Antares platform supports the ISO 8859 Latin 1 (ISO-IR 100) character set family and the same family with code extensions (ISO 2022 IR 100 Latin-1).

# 4.0 Implementation Model

ACUSON Antares system users can store images directly on the system hard drive. Images can also be transferred to DICOM workstations and archive servers on a network. Storage Commitment can be used to insure that patient images and data is safely committed. The system is capable of querying a HIS/RIS, using DICOM Basic Worklist, for a list of scheduled patient procedures. Measurements from OB, Vascular, and Cardiac exams cane be exported as DICOM SR Objects. Performed procedure status and other procedure information can be returned to the HIS/ RIS using Modality Performed Procedure Step (MPPS).

ACUSON Antares system real world activities are indicated by “Real World Activity” name while “Antares AE” indicates the invoked Application Entity. Similarly, the activities associated with service providers are indicated as “Real World Service Activity.”

## 4.1 Application Data Flow Diagrams

Figure 8: on page 15 illustrates the ACUSON Antares system Application Entities (AE) in the context of the implementation model. Relationships between users invoked activities (in the circles at the left of the AEs) and the associated real-world activities provided by DICOM service providers (in the circles on the right side of the diagram) are shown.

### 4.1.1 Verification

Verification is available in the DICOM Network nodes, Print Devices and HIS/RIS Nodes configuration pages of the Local Service UI. Verification can be used for diagnostic purposes. When used as a diagnostic tool, Verification will return the following messages to the user:

- Application Entity Title “AE Name” is responding.
- Application Entity Title “AE Name” is not responding.

The Antares also supports the Verification service as SCP, and responds to Verification requests from remote applications

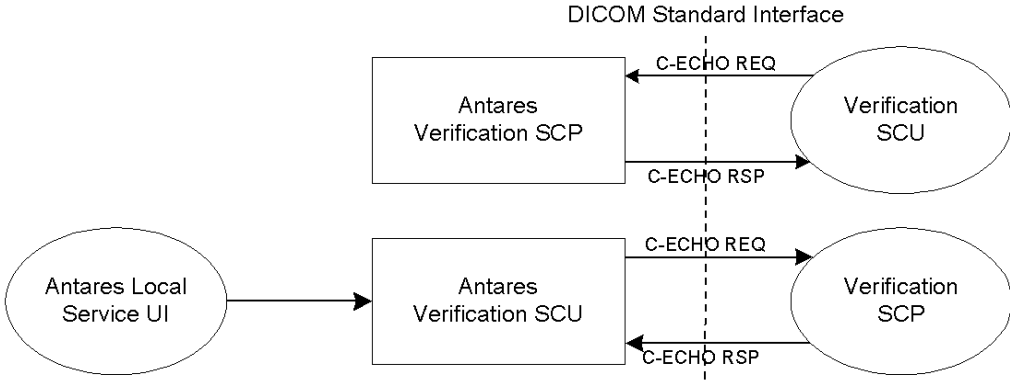


**Figure 1: Verification Model**

### 4.1.2 Storage

The Antares Storage Application Entity originates associations for transfer of DICOM Composite Information Objects to remote Application Entities. The Antares system acts as SCU for the C-STORE DICOM network service.

If configured, DICOM Store may be invoked by pressing a “Print/Store” key, which causes the image currently displayed on the system monitor screen to be captured to hard drive and transferred. Print/Store keys are configurable through the system presets function. Images may also be manually transferred through the Patient Browser UI screen.

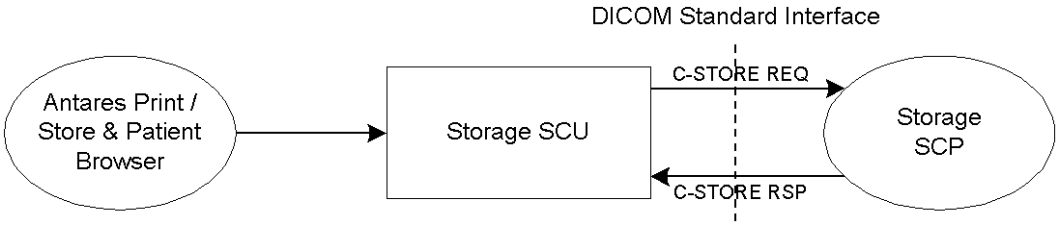


**Figure 2: Store Model**

### 4.1.3 Structured Reporting

The Structured Reporting Storage Service Class defines an application-level class of service which facilitates the transfer of measurements obtained from OB, Vascular, and Cardiac studies to storage devices that support the DICOM Comprehensive Structured Reporting Storage Service class.

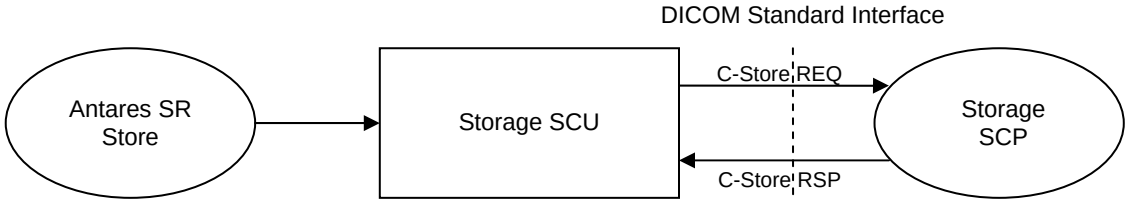


**Figure 3: Structured Report Model**

### 4.1.4 Storage Commitment

The Storage Commitment service class defines an application-level class of service which facilitates the commitment to storage. It performs an additional task of commitment of composite objects apart from the network based storage of images as defined by the Storage Service class.

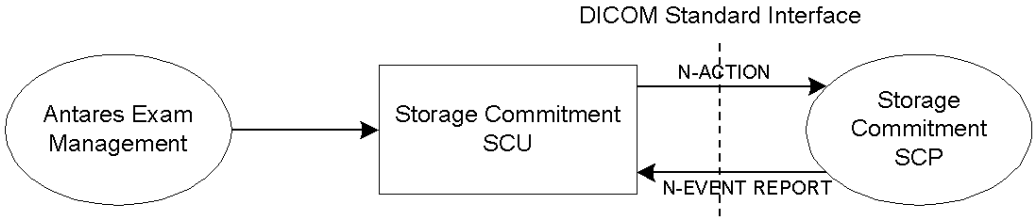


**Figure 4: Storage Commitment Model**

### 4.1.5 Print

The Print Management Service Classes define an application-level class of services which facilitate the printing of images on a hardcopy medium. The print management SCU and print management SCP are peer DICOM print management application entities. The DICOM print application supports the print management DIMSE services as SCU.

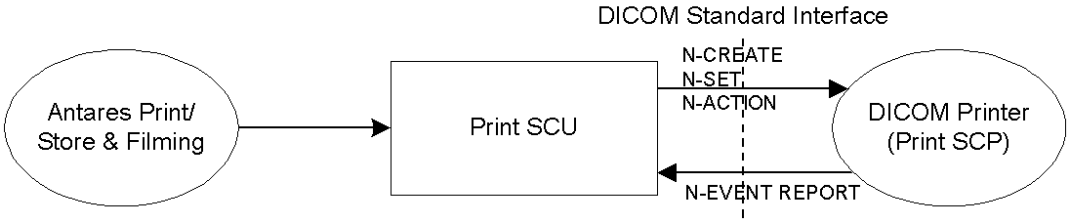


**Figure 5: Print Model**

### 4.1.6 Modality Worklist

The Modality Worklist service class defines an application-level class of service which facilitates the transfer of worklists from the information system to the imaging modality. The worklist is queried by the AE and supplies the SCU with the scheduled tasks which have to be performed on the modality. The Antares DICOM worklist application supports the worklist service as SCU.

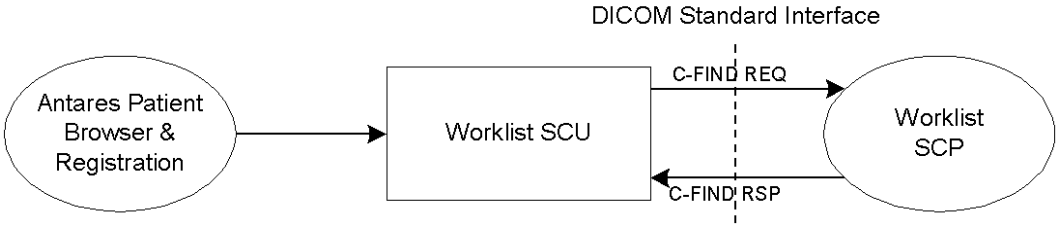


**Figure 6: Modality Worklist Model**

**Note:** It is configurable to get the worklist updates either automatically (in a configurable time interval) or manually (initiated by the user). The user can do a broad worklist query (all jobs for the own modality or own application entity).

### 4.1.7 Modality Performed Procedure Step

The Modality Performed Procedure Step service class defines an application-level class of service which facilitates the transfer of procedure status and billing information from the

imaging modality to the information system. The performed procedure step is sent by the Antares AE and supplies the SCP with the performed tasks on the modality. The DICOM performed procedure step application supports the performed procedure step service as SCU.

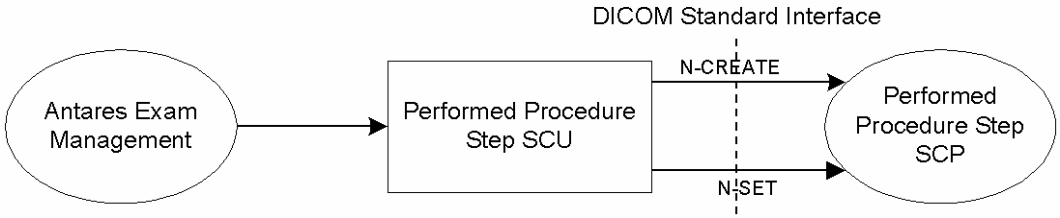


**Figure 7: Modality Performed Procedure Step Model**

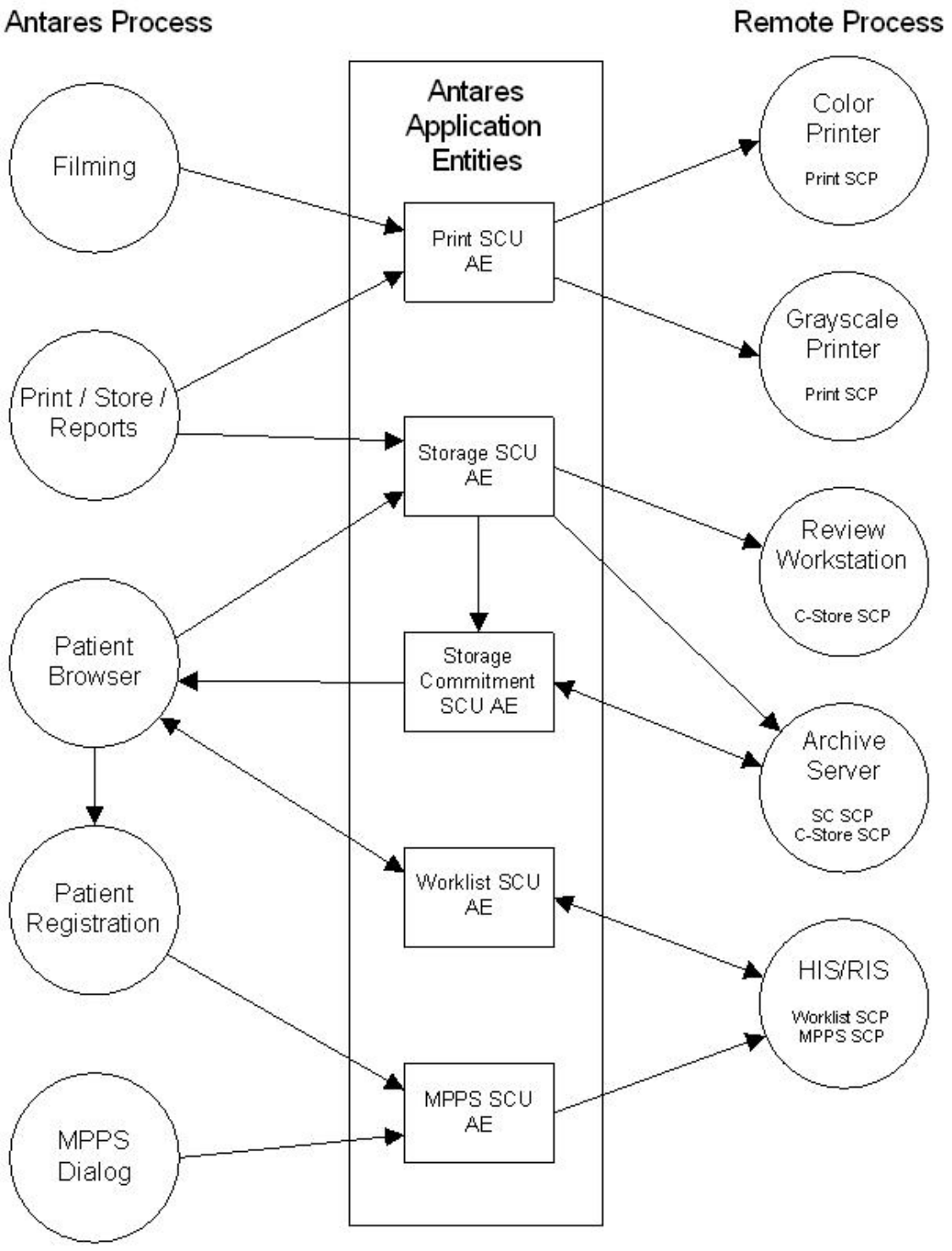


**Figure 8: Implementation Model**

## 4.2 AE Functional Definitions

### 4.2.1 Verification Real-World Activities

The Antares verification application entity support the verification service class as a SCU and as a SCP. As the SCU it allows the operator to verify the ability of a remote DICOM node to receive DICOM messages. As a SCP it allows for remote DICOM nodes to verify that DICOM message exchange is possible with the Antares system.

### 4.2.2 Storage Real-World Activities

The Antares Storage application entity performs all of the functions necessary to transmit ultrasound images and associated data to DICOM network archive servers and/or workstations. The Antares Storage AE supports the Ultrasound Image Storage SOP Class, the Ultrasound Multi-Frame Image Storage SOP Class and the Secondary Capture Image SOP Class as a SCU. The Antares Storage AE initiates separate associations to the storage SCP servers, each time the user selects “Store/Print” or “Send/Archive To Destination”.

### 4.2.3 Structured Reporting Real-World Activities

The Antares Storage application entity performs all of the functions necessary to transmit associated data to DICOM network archive servers and/or workstations. The Antares Storage AE supports the Ultrasound Comprehensive SOP class as SCU. The Antares Storage AE initiates separate associations to the storage SCP servers, when the study is closed and “Image Auto Transfer” in “Store/Print” is enabled or each time the user selects “Send/Archive To Destination”.

### 4.2.4 Storage Commitment Real-World Activities

The Storage Commitment Push Model SCU (SC-SCU) uses the Storage Commitment Service Class to request commitment for one or more composite objects from the Storage Commitment Push Model SCP (SC-SCP). SC-SCU issues an N-ACTION-RQ to SC-SCP containing a list of references to composite objects, requesting that the SC-SCP takes responsibility for storage commitment of the composite objects. If the SC-SCP has determined that all the composite objects exist and it has successfully completed storage commitment for the set of composite objects, it issues an N-EVENT-REPORT-RQ with status successful and the list of stored images. SC-SCU now knows that the composite objects have been committed by SC-SCP and can delete its copies of composite objects. The information from the N_EVENT-REPORT-RQ is propagated back to the user interface.

The Antares SCU can be configured to receive the N_EVENT_REPORT-RQ on the same association on which N_ACTION-RQ was sent or on a different association.

### 4.2.5 Print Real-World Activities

The Antares Print AE provides all aspects of the Print Management SCU. The AE initiates separate associations to the print servers, verifying their on-line status when the user selects “Print/Store” or “Expose Film Job.” The Antares Print AE accommodates both grayscale and color print servers.

To invoke the Print “REAL WORLD ACTIVITY” the user selects a “Print/Store” key. Film sheets can be transferred immediately after being filled, at the end of exam, or queued to hard disk for transfer later.

After an imaging exam is complete, the user has the ability to Print images stored on the hard drive using the Filming UI. Invoking the “Expose Film Job” Real World activity invokes the DICOM Print activity for selected exams or individual images. “Expose Film Job” is available through the Filming UI function.

### 4.2.6 Worklist Real-World Activities

Patient registration can be automated by using the ‘Worklist’ Real World Activity.

Double clicking the ‘Scheduler’ icon in the patient browser UI initiates a manual Worklist query. If no matches are found, a message will be presented to the operator indicating so. If one or more patients are found, the scheduler list will be updated with the scheduled procedures. The Worklist feature can be configured to query for either the procedures scheduled for the Local Site (Antares Worklist SCU AE Title) or for Ultrasound scheduled procedures (Modality = US). Queries can be made for today’s scheduled procedures, or a user specified range of scheduled procedure dates and times. The system can also be configured to perform automatic Worklist queries at user specified intervals.

Patient based queries are supported in the Antares 5.0 release.

Selection of a patient from the list will cause all demographic information for that patient to be loaded in to the patient data fields in the Patient Registration screen. The following patient registration fields will be populated with matching Worklist attributes:

**Table 3: Patient Registration fields populated from Worklist**

| Data Field | DICOM Attribute | DICOM Tag |
|---|---|---|
| Name | Patient's Name | (0010,0010) |
| ID | Patient ID | (0010,0020) |
| Date of Birth | Patient's Birth Date | (0010,0030) |
| Sex | Patient's Sex | (0010,0040) |
| Height | Patient's Size | (0010,1020) |
| Weight | Patient's Weight | (0010,1030) |
| Institution Name | Institution name | (0008,0080) |
| Performing Physician | Performing Physicians’ Name | (0008,1050) |
| Referring Physician | Referring Physician's Name | (0008,0090) |
| Operator | Operator’s Name | (0008,1070) |
| Accession No. | Accession Number | (0008,0050) |
| Indication | Admitting Diagnoses Description | (0008,1080) |
| Request ID | Requested Procedure ID | (0040,1001) |
| Requested Procedure | Requested Procedure Description | (0032,1060) |
| | Scheduled Procedure Step Description | (0040,0007) |
| Additional Info | Additional Patient’s History | (0010,21B0) |

### 4.2.7 Modality Performed Procedure Step Real-World Activity

The Antares supports the DICOM Modality Performed Procedure Step Service as SCU. The modality performed procedure step SCU informs the performed procedure step SCP about the procedure performed at the modality using the N-CREATE and N-SET DIMSE service.

Immediately after a new patient, study or scheduled procedure is registered (via Patient Registration) the Antares automatically performs an MPPS N-CREATE-RQ operation with a status of IN-PROGRESS for the newly created Performed Procedure Step. When the current patient procedure ends, (either with an End Exam, or new Patient / Study / Procedure) the Antares automatically performs an MPPS N-SET-RQ final operation with a status of COMPLETED. The user may also manually complete or discontinue the current Performed Procedure Step through the MPPS dialog. An MPPS N-SET-RQ final operation is performed with the appropriate status of COMPLETED or DISCONTINUED.

The modality performed procedure step SCP responds to the N-CREATE-RQ and N-SET-RQ and confirms that it received the information from the modality.

### 4.2.8 Sequencing of Real-World Activities

In order for any of the remote processes to be able to provide the SCP services which the Antares system has requested, the appropriate associations must first be opened. This initiation occurs with the following activities:

1. When a “Send To Destination” operation occurs.
2. When one or more Storage SCP devices are configured for transfer “During the exam” and the associated Print/Store key(s) are pressed. The current image displayed on the system screen in captured and transferred.
3. When one or more Storage SCP devices are configured for transfer at “End of exam” and the current patient exam ends (e.g. New Patient, Study or End Exam button is pressed). All images in the current performed procedure are transferred.
4. When configured, Storage Commitment trigger is automatically derived from the successful completion of a Send Job.
5. When an “Expose Film Job” print operation occurs.
6. When one or more Print SCP devices are configured for transfer “During the exam” and the associated Print/Store key(s) are pressed. The current film sheet is transferred after becoming filled.
7. When one or more Print SCP devices are configured for transfer at “End of exam” and the patient procedure ends (e.g. New Patient, Study or End Exam button is pressed). All film sheets in the current performed procedure are transferred.
8. When user initiated or automatic Worklist query operations occur.
9. When configured, MPPS N-CREATE (status = IN PROGRESS) operation is automatically performed when a patient is successfully registered. A MPPS N-SET-RQ is

automatically send when the patient exam ends. The status will be set to COMPLETED or DISCONTINUED depending on the user selection.

# 5.0 AE Specifications

The following specifications apply to the AE as depicted in Figure 8: on page 15. The Antares AE provides conformance to the following DICOM Service SOP Classes as an SCU.

**Table 4: Supported SOP Classes**

| Service 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 |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 |
| Ultrasound Multi-frame Image Storage † | 1.2.840.10008.5.1.4.1.1.3.1 |
| Basic Grayscale Print Management Meta SOP Class | 1.2.840.10008.5.1.1.9 |
| Basic Color Print Management Meta SOP Class | 1.2.840.10008.5.1.1.18 |
| Print Job SOP Class | 1.2.840.10008.5.1.1.14 |
| Modality Worklist Information Model - FIND | 1.2.840.10008.5.1.4.31 |
| Storage Commitment - Push Model | 1.2.840.10008.1.20.1 |
| Comprehensive SR | 1.2.840.10008.5.1.4.1.1.88.33 |
| Modality Performed Procedure Step | 1.2.840.10008.3.1.2.3.3 |

† The Ultrasound Multi-frame Image Storage SOP is used to transfer Antares Ultrasound clips & 3D volumetric data sets. When used for 3D volumetric data sets, each frame represents a single slice from the 3D volume. These 3D images may be viewed as Cine images.

## 5.1 Verification AE Specification

### 5.1.1 Association Initiation by Real-World Activity

The Antares DICOM Service Tool application attempts to initiate a new association for DIMSE C-ECHO service related operations.

#### 5.1.1.1 Real-World Activity - Verification SCU/SCP

##### 5.1.1.1.1 Associated Real-World Activity - Associated Real-World Activity

The associated Real-World activity is a C-ECHO request initiated by the DICOM Service Tool application. If the process successfully establishes an association to a remote Application Entity, it will send the C-ECHO-Request via the open association to verify that the remote Application Entity is responding to DICOM messages. If a remote process successfully establishes an association, the Antares responds to C-ECHO-Requests made from remote applications.

#### 5.1.1.1.2 Proposed Presentation Contexts - Verification SCU/SCP

The Antares DICOM application will propose Presentation Contexts as shown in the following table:

**Table 5: Verification Presentation Context Table**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Extended Negotiation |
| Name | UID | Name List | UID List | | |
| 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 | | |

#### 5.1.1.1.3 SOP Specific Conformance Statement - Verification SCU/SCP

The Antares conforms to the definition of a Verification SCU & SCP in accordance to the DICOM Standard.

## 5.2 Storage AE Specification

The Antares DICOM system provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU.

**Table 6: Supported Storage SOP Classes**

| Service SOP Class Name | SOP Class UID |
|---|---|
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 |
| Comprehensive SR | 1.2.840.10008.5.1.4.1.1.88.33 |

This is accomplished using the DIMSE C-STORE Service to whom the SCU issues a service request with a SOP instance that meets the requirements of the desired ultrasound IOD.

### 5.2.1 Association Establishment Policies

#### 5.2.1.1 General

The configuration of the Antares DICOM application defines the Application Entity Titles, the port numbers, the host names and IP addresses.

#### 5.2.1.2 Number of Associations

The Antares DICOM application initiates several associations at a time, one for each destination to which a transfer request is being processed in the active job queue list.

#### 5.2.1.3 Asynchronous Nature

The Antares DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

#### 5.2.1.4 Implementation Identifying Information

The Antares DICOM software provides a single Implementation Class UID of

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_SWFSYNGO".

#### 5.2.1.5 Maximum PDU Size Offered

The maximum PDU size offered by the Antares is configurable with default set to 28672 Bytes.

#### 5.2.1.6 DICOM Application Context

DICOM Application context name: 1.2.840.10008.3.1.1.1

### 5.2.2 Association Initiation by Real-World Activity

The Antares DICOM application attempts to initiate a new association for DIMSE C-STORE operation.

#### 5.2.2.1 Real World Activity - Storage SCU

The user selects "New Patient" at the start of each new patient examination. The user saves images to the Antares hard disk with the "Store / Print" button.

##### 5.2.2.1.1 Associated Real World Activities - Storage SCU

An association is established when the user initiates an "Archive to..." or "Send to..." destination operation from the Patient browser screen. Individual images or entire exams can be transferred to the selected DICOM Store device (C-STORE request). The association is opened when the first image of each exam is transferred and closed when the last image transfer is completed.

An association is also established when auto transfer has been configured and the user initiates a "Print/Store" operation. If transfer "during the exam" has been configured, an association is opened for each image acquired during the exam and closed when the image transfer is completed. If transfer at "end of exam" has been configured, an association is opened when the exam is completed (i.e. a new Patient / Study is registered or End Exam is performed). The association is closed when the last image transfer is completed.

If the C-STORE Response from the remote application contains an error status, the association is aborted.

##### 5.2.2.1.2 Proposed Presentation Context

The following Presentation Context(s) is presented to the SCP in an A-Associate request for DIMSE C-STORE storage services. The storage services utilize C-STORE services, whose parameters are defined in PS 3.7.

**Table 7: Store Presentation Context Table**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Extended Negotiation** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| 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 |
| | | Explicit VR Big Endian | 1.2.840.10008.1.2.2 | SCU | None |
| | | JPEG Lossy (Baseline) | 1.2.840.10008.1.2.4.50 | SCU | None |
| | | JPEG Lossless | 1.2.840.10008.1.2.4.70 | 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 |
| | | Explicit VR Big Endian | 1.2.840.10008.1.2.2 | SCU | None |
| | | JPEG Lossy (Baseline) | 1.2.840.10008.1.2.4.50 | SCU | None |
| | | JPEG Lossless | 1.2.840.10008.1.2.4.70 | SCU | None |
| † Ultrasound Multi-frame Image Storage (Clips) | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG Lossy (Baseline) | 1.2.840.10008.1.2.4.50 | SCU | None |
| Ultrasound Multi-frame Image Storage (3D volumetric data sets) | 1.2.840.10008.5.1.4.1.1.3.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | SCU | None |
| | | Explicit VR Big Endian | 1.2.840.10008.1.2.2 | SCU | None |
| | | JPEG Lossy (Baseline) | 1.2.840.10008.1.2.4.50 | SCU | None |
| | | JPEG Lossless | 1.2.840.10008.1.2.4.70 | SCU | None |
| Comprehensive SR | 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 |

† The Antares stores clips locally using JPEG Lossy (Baseline) compression and only has access to the pixel data in lossy compressed form. Conversion to other transfer syntaxes is not supported.

#### 5.2.2.1.3 Photometric Interpretation

Photometric Interpretation (color mode of the pixel image data) is not a negotiable parameter in DICOM 3.0. The Photometric Interpretation Attribute (0028,0004) is set depending on the transfer syntax, and the system configuration:

**Table 8: Photometric Interpretation**

| SOP Class | | Transfer Syntax | | Photometric Interpretation |
|---|---|---|---|---|
| **Name** | **UID** | **Name List** | **UID List** | |
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | RGB or MONOCHROME2 (if RGB to MONOCHROME is configured) |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | |
| | | Explicit VR Big Endian | 1.2.840.10008.1.2.2 | |
| | | JPEG Lossless | 1.2.840.10008.1.2.4.70 | |
| | | JPEG Lossy (Baseline) | 1.2.840.10008.1.2.4.50 | YBR_FULL_422 |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | Implicit VR Little Endian | 1.2.840.10008.1.2 | RGB or MONOCHROME2 (if RGB to MONOCHROME is configured) |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | |
| | | Explicit VR Big Endian | 1.2.840.10008.1.2.2 | |
| | | JPEG Lossless | 1.2.840.10008.1.2.4.70 | |
| | | JPEG Lossy (Baseline) | 1.2.840.10008.1.2.4.50 | YBR_FULL_422 |
| Ultrasound Multi-frame Image Storage (Clips) | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG Lossy (Baseline) | 1.2.840.10008.1.2.4.50 | YBR_FULL_422 |
| Ultrasound Multi-frame Image Storage (3D volumetric data sets) | 1.2.840.10008.5.1.4.1.1.3.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | MONOCHROME2 |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | |
| | | Explicit VR Big Endian | 1.2.840.10008.1.2.2 | |
| | | JPEG Lossy (Baseline) | 1.2.840.10008.1.2.4.50 | |
| | | JPEG Lossless | 1.2.840.10008.1.2.4.70 | |

#### 5.2.2.1.4 SOP Specific Conformance to Storage Service SOP Classes

The DICOM images created by the Antares DICOM application conform to the DICOM IOD definitions (Standard extended IODs). But they will contain additional private elements that may be discarded by a DICOM system when modifying the image.

Table 9: denotes the attributes included in the Ultrasound Image IOD as implemented on the Antares system. Attributes not listed are not used.

**Table 9: US Image IOD Attributes**

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| Patient | Patient's Name | (0010,0010) | 2 | from MWL or user input |
| | Patient ID | (0010,0020) | 2 | from MWL or user input |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | Patient's Birth Date | (0010,0030) | 2 | from MWL or user input |
| | Patient's Sex | (0010,0040) | 2 | from MWL or user input |
| | Other Patient IDs | (0010,1000) | 3 | from MWL |
| | Other Patient Names | (0010,1001) | 3 | from MWL |
| | Ethnic Group | (0010,2160) | 3 | from MWL |
| | Patient Comments | (0010,4000) | 3 | from MWL |
| General Study | Study Instance UID | (0020,000D) | 1 | from MWL or created |
| | Study Date | (0008,0020) | 2 | created |
| | Study Time | (0008,0030) | 2 | created |
| | Referring Physician's Name | (0008,0090) | 2 | from MWL or user input |
| | Study ID | (0020,0010) | 2 | created |
| | Accession Number | (0008,0050) | 2 | from MWL or user input |
| | Study Description | (0008,1030) | 3 | From MWL (requested procedure description or scheduled procedure step description) or user selected |
| | Referenced Study Sequence | (0008,1110) | 3 | from MWL or zero length |
| | >Referenced SOP Class UID | (0008,1150) | 1C | |
| | >Referenced SOP Instance UID | (0008,1155) | 1C | |
| | Procedure Code Sequence | (0008,1032) | 3 | |
| | > Include ‘Code Sequence Macro’ | | 3 | |
| Patient Study | Admitting Diagnoses Description | (0008,1080) | 3 | from MWL or user input |
| | Patient's Age | (0010,1010) | 3 | calculated or user input |
| | Patient's Size | (0010,1020) | 3 | from MWL or user input |
| | Patient's Weight | (0010,1030) | 3 | from MWL or user input |
| | Additional Patient’s History | (0010,21B0) | 3 | from MWL or user input |
| General Series | Modality | (0008,0060) | 1 | Set to US |
| | Series Instance UID | (0020,000E) | 1 | created |
| | Series Number | (0020,0011) | 2 | Set to 1...n |
| | Laterality | (0020,0060) | 2C | Set to zero length |
| | Series Date | (0008,0021) | 3 | created |
| | Series Time | (0008,0031) | 3 | created |
| | Performing Physicians’ Name | (0008,1050) | 3 | from MWL or user input |
| | Protocol Name | (0018,1030) | 3 | user input |
| | Series Description | (0008,103E) | 3 | user input |
| | Operators' Name | (0008,1070) | 3 | user input |
| | Referenced Study Component Sequence | (0008,1111) | 3 | created (if MPPS is supported) |
| | >Referenced SOP Class UID | (0008,1150) | 1C | 1.2.840.10008.3.1.2.3.3 (MPPS SOP Class) |
| | >Referenced SOP Instance UID | (0008,1155) | 1C | MPPS SOP Instance UID |
| | Body Part Examined | (0018,0015) | 3 | user selected |
| | Request Attributes Sequence | (0040,0275) | 3 | from MWL or zero length |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | >Requested Procedure ID | (0040,1001) | 1C | |
| | >Scheduled Procedure Step ID | (0040,0009) | 1C | |
| | >Scheduled Procedure Step Description | (0040,0007) | 3 | |
| | >Scheduled Protocol Code Sequence | (0040,0008) | 3 | |
| | >>Include 'Code Sequence Macro' | | 3 | |
| | Performed Procedure Step ID | (0040,0253) | 3 | from MWL Scheduled Procedure Step ID or created |
| | Performed Procedure Step Start Date | (0040,0244) | 3 | created |
| | Performed Procedure Step Start Time | (0040,0245) | 3 | created |
| | Performed Procedure Step Description | (0040,0254) | 3 | from MWL Scheduled Procedure Step Description or user input |
| | Performed Protocol Code Sequence | (0040,0260) | 3 | |
| | >Include 'Code Sequence Macro' | | 3 | |
| | Comments on the Performed Procedure Step | (0040,0280) | 3 | from MPPS dialog |
| General Equipment | Manufacturer | (0008,0070) | 2 | Set to "Siemens Medical Systems - Ultrasound Division" |
| | Institution Name | (0008,0080) | 3 | from MWL or user selected |
| | Institution Address | (0008,0081) | 3 | from MWL |
| | Station Name | (0008,1010) | 3 | Set to the computer's host name |
| | Manufacturer's Model Name | (0008,1090) | 3 | Set to "Antares" |
| | Device Serial Number | (0018,1000) | 3 | Set to system serial number |
| | Software Versions | (0018,1020) | 3 | Set to "200.0.054 (VE31F SL04P09)" |
| General Image | Instance Number | (0020,0013) | 2 | 1...n |
| | Patient Orientation | (0020,0020) | 2C | Set to zero length |
| | Acquisition Date | (0008,0022) | 2 | created |
| | Content Date | (0008,0023) | 2C | created |
| | Acquisition Time | (0008,0032) | 3 | created |
| | Content Time | (0008,0033) | 2C | created |
| | Derivation Description | (0008,2111) | 3 | Compress BN JPEG Lossy (xx/xxx.xx). Used if JPEG Lossy compression is applied.<br><br>Set to: Force Owner CSA-DICOM, CONVERT RGB, US to MONOCHROME2 when RGB to MONOCHROME2 is configured for remote destination. |
| | Source Image Sequence | (0008,2112) | 3 | Used if 3D rendering to reference 3D Volume. |
| | >Referenced SOP Class UID | (0008,1150) | 1C | |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | >Referenced SOP Instance UID | (0008,1155) | 1C | |
| | >Referenced Frame Number | (0008,1160) | 3 | |
| | Image Comments | (0020,4000) | 3 | user input |
| | Lossy Image Compression Ratio | (0028,2112) | 3 | Only used with JPEG Lossy compression |
| Image Pixel | Rows | (0028,0010) | 1 | Set to 768 |
| | Columns | (0028,0011) | 1 | Set to 1024 |
| | Pixel Data | (7FE0,0010) | 1 | |
| US Region Calibration | Sequence of Ultrasound Regions | (0018,6011) | 1 | one created for each US region displayed |
| | >Region Spatial Format | (0018,6012) | 1 | |
| | >Region Data Type | (0018,6014) | 1 | |
| | >Region Flags | (0018,6016) | 1 | |
| | >Region Location Min x0 | (0018,6018) | 1 | |
| | >Region Location Min y0 | (0018,601A) | 1 | |
| | >Region Location Max x1 | (0018,601C) | 1 | |
| | >Region Location Max y1 | (0018,601E) | 1 | |
| | >Reference Pixel x0 | (0018,6020) | 3 | |
| | >Reference Pixel y0 | (0018,6022) | 3 | |
| | >Physical Units X Direction | (0018,6024) | 1 | |
| | >Physical Units Y Direction | (0018,6026) | 1 | |
| | >Ref. Pixel Physical Value X | (0018,6028) | 3 | |
| | >Ref. Pixel Physical Value Y | (0018,602A) | 3 | |
| | >Physical Delta X | (0018,602C) | 1 | |
| | >Physical Delta Y | (0018,602E) | 1 | |
| | >Transducer Frequency | (0018,6030) | 3 | |
| | >Pulse Repetition Frequency | (0018,6032) | 3 | Color Flow and Doppler regions only |
| | >Doppler Correction Angle | (0018,6034) | 3 | Doppler regions only |
| US Image Module | Samples Per Pixel | (0028,0002) | 1 | Set to 3.<br><br>Set to 1 if RGB to MONOCROME2 is Configured for remote Destination. |
| | Photometric Interpretation | (0028,0004) | 1 | See Table 8: |
| | Bits Allocated | (0028,0100) | 1 | Set to 8 |
| | Bits Stored | (0028,0101) | 1 | Set to 8 |
| | High Bit | (0028,0102) | 1 | Set to 7 |
| | Planar Configuration | (0028,0006) | 1C | Set to 0 (color-by-pixel) |
| | Ultrasound Color Data Present | (0028,0014) | 1C | Set to 1 if Color Flow or Pseudo Color in image |
| | Pixel Representation | (0028,0103) | 1 | Set to 0 (unsigned integer) |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | Image Type | (0008,0008) | 2 | Normally ORIGINAL/PRIMARY.<br><br>Set to DERIVED/PRIMARY if RGB to MONOCHROME2 is configured for remote destination. |
| | Lossy Image Compression | (0028,2110) | 1C | = 01 if JPEG lossy compressed |
| | Transducer Data | (0018,5010) | 3 | Probe name (e.g. C5-2) |
| | Mechanical Index | (0018,5022) | 3 | B-mode only |
| | Bone Thermal Index | (0018,5024) | 3 | Doppler, M-Mode & Color Flow only |
| | Cranial Thermal Index | (0018,5026) | 3 | Cranial Doppler only |
| | Soft Tissue Thermal Index | (0018,5027) | 3 | Doppler, M-Mode & Color Flow only |
| Overlay Plane (not included if burned in graphics is selected) | Overlay Rows | (60xx,0010) | 1 | Set to 768 |
| | Overlay Columns | (60xx,0011) | 1 | Set to 1024 |
| | Overlay Type | (60xx,0040) | 1 | Set to G |
| | Overlay Origin | (60xx,0050) | 1 | Set to 1\1 |
| | Overlay Bits Allocated | (60xx,0100) | 1 | Set to 1 |
| | Overlay Bit Position | (60xx,0102) | 1 | Set to 0 |
| | Overlay Data | (60xx,3000) | 1C | |
| | Overlay Description | (60xx,0022) | 3 | Set to “Siemens MedCom Object Graphics” |
| SOP Common | SOP Class UID | (0008,0016) | 1 | 1.2.840.10008.5.1.4.1.1.6.1 |
| | SOP Instance UID | (0008,0018) | 1 | created |
| | Specific Character Set | (0008,0005) | 1C | From MWL or set to ISO_IR 100 |
| | Instance Creation Date | (0008,0012) | 3 | created |
| | Instance Creation Time | (0008,0013) | 3 | created |
| **Standard Extended SOP Class - Standard and Private Attributes** | | | | |
| Patient Demographic | Patient's Address | (0010,1040) | 3 | from MWL |
| | Military Rank | (0010,1080) | 3 | from MWL |
| Patient Medical | Medical Alerts | (0010,2000) | 3 | from MWL |
| | Contrast Allergies | (0010,2110) | 3 | from MWL |
| | Smoking Status | (0010,21A0) | 3 | from MWL |
| | Pregnancy Status | (0010,21C0) | 3 | from MWL |
| | Last Menstrual Date | (0010,21D0) | 3 | from MWL or input by user |
| | Special Needs | (0038,0050) | 3 | from MWL |
| | Patient State | (0038,0500) | 3 | from MWL |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| Image Plane | Pixel Spacing | (0028,0030) | 3 | This attribute is not included in images that contain Doppler or M-Mode data, or images that contain more than one 2D tissue region. |
| Study Scheduling | Requesting Physician | (0032,1032) | 3 | from MWL |
| | Requesting Service | (0032,1033) | 3 | from MWL |
| | Requested Procedure Description | (0032,1060) | 3 | from MWL |
| | Requested Procedure Code Sequence | (0032,1064) | 3 | from MWL |
| | >Include 'Code Sequence Macro' | | 3 | |
| Study Classification | Study Comments | (0032,4000) | 3 | input by user |
| Multi-Frame Overlay | Number of Frames in Overlay | (60xx,0015) | 3 | Set to 1 (only used if overlay is present) |
| | Image Frame Origin | (60xx,0051) | 3 | Set to 1 (only used if overlay is present) |
| Antares Private Attributes | Private Creator | (0019,0001) | 3 | SIEMENS MED SMS USG ANTARES |
| | Private Creator Version | (0019,1000) | 3 | 1.1 |
| | Frame Rate | (0019,1003) | 3 | in fps |
| | Burned in Graphics | (0019,100C) | 3 | 0 = Overlay,<br>1 = Graphics burned into pixel data |
| | SieClear Index | (0019,100D) | 3 | Off, 1, 2, 3, 4 |
| | B-Mode Submode | (0019,1020) | 3 | GEN, THI, etc. |
| | B-Mode Dynamic Range | (0019,1021) | 3 | in dB |
| | B-Mode Overall Gain | (0019,1022) | 3 | in dB |
| | B-Mode Res/Speed Index | (0019,1023) | 3 | Resolution Vs. Speed |
| | B-Mode Edge Enhance Index | (0019,1024) | 3 | |
| | B-Mode Persistence Index | (0019,1025) | 3 | |
| | B-Mode Map Index | (0019,1026) | 3 | |
| | B-Mode Tint Type | (0019,102A) | 3 | 0 = Grayscale,<br>1 = Color Balance,<br>2 = Pseudo Color |
| | B-Mode Tint Index | (0019,102D) | 3 | |
| | ClarifyVE Index | (0019,102E) | 3 | Off, 1, 2, 3, 4, 5, 6, 7 |
| | Image Flag | (0019,103A) | 3 | 1 = flagged image,<br>0 (or not present) = not flagged |
| | Color Flow state | (0019,1040) | 3 | Low, Gen, High |
| | Color Flow Wall Filter Index | (0019,1041) | 3 | |
| | Color Flow Submode | (0019,1042) | 3 | Power, CDV, CDE, VEL |
| | Color Flow Overall Gain | (0019,1043) | 3 | in dB |
| | Color Flow Res/Speed Index | (0019,1044) | 3 | |
| | Color Flow Smooth Index | (0019,1046) | 3 | |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | Color Flow Persistence Index | (0019,1047) | 3 | |
| | Color Flow Map Index | (0019,1048) | 3 | |
| | Color Flow Priority Index | (0019,1049) | 3 | |
| | Color Flow Maximum Velocity | (0019,1054) | 3 | in cm/sec |
| | Doppler Dynamic Range | (0019,1060) | 3 | in dB |
| | Doppler Overall Gain | (0019,1061) | 3 | in dB |
| | Doppler Wall Filter | (0019,1062) | 3 | in Hz |
| | Doppler Gate Size | (0019,1063) | 3 | in mm |
| | Doppler Map Index | (0019,1065) | 3 | |
| | Doppler Submode | (0019,1066) | 3 | PW, CW, etc. |
| | Doppler Time/Freq Res Index | (0019,1069) | 3 | |
| | Doppler Trace Inverted | (0019,106A) | 3 | 0, 1 |
| | Doppler Tint Type | (0019,106C) | 3 | 0 = Grayscale,<br>1 = Color Balance,<br>2 = Pseudo Color |
| | Doppler Tint Index | (0019,1072) | 3 | |
| | M-Mode Dynamic Range | (0019,1080) | 3 | in dB |
| | M-Mode Overall Gain | (0019,1081) | 3 | in dB |
| | M-Mode Edge Enhance Index | (0019,1082) | 3 | |
| | M-Mode Map Index | (0019,1083) | 3 | |
| | M-Mode Tint Type | (0019,1086) | 3 | 0 = Grayscale,<br>1 = Color Balance,<br>2 = Pseudo Color |
| | M-Mode Submode | (0019,1087) | 3 | GEN |
| | M-Mode Tint Index | (0019,1088) | 3 | |
| MedCom Private Attributes † | MedCom Header Info - Private Creator | (0029,0010) | 3 | SIEMENS MEDCOM HEADER |
| | MedCom Header data | (0029,1020) | 3 | |
| | PMTF Information 1 | (0029,1031) | 3 | |
| | PMTF Information 2 | (0029,1032) | 3 | |
| | PMTF Information 3 | (0029,1033) | 3 | |
| | PMTF Information 4 | (0029,1034) | 3 | DB TO DICOM |
| MedCom Private Attributes † | MedCom OOG - Private Creator | (0029,0011) | 3 | SIEMENS MEDCOM OOG |
| | MedCom OOG Type | (0029,1108) | 3 | MEDCOM OOG 2 |
| | MedCom OOG Version | (0029,1109) | 3 | VE31F |
| | MedCom OOG Info | (0029,1110) | 3 | |

† The ACUSON Antares system uses syngo MedCom private elements. These private elements are used between the Antares AE and other syngo based AE's to describe Object Oriented Graphics (OOG). This module is used when object graphics are drawn on the image and stores the properties of the graphics objects (Line, Circle, Rectangle, Arrows, etc.). The graphics objects will remain re-animate-able even if such an image is transferred via the DICOM C-Store SOP Class. The graphics objects may also be stored in a single image overlay plane for compatibility with other products which don't support the OOG module. These private elements should be discarded by non-syngo based DICOM application entities when modifying the image overlay data.

Table 10: denotes the attributes included in the Secondary Capture Image IOD as implemented on the Antares system. Attributes not listed are not used.

**Table 10: Secondary Capture IOD Attributes**

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| Patient | Patient's Name | (0010,0010) | 2 | from MWL or user input |
| | Patient ID | (0010,0020) | 2 | from MWL or user input |
| | Patient's Birth Date | (0010,0030) | 2 | from MWL or user input |
| | Patient's Sex | (0010,0040) | 2 | from MWL or user input |
| | Other Patient IDs | (0010,1000) | 3 | from MWL |
| | Other Patient Names | (0010,1001) | 3 | from MWL |
| | Ethnic Group | (0010,2160) | 3 | from MWL |
| | Patient Comments | (0010,4000) | 3 | from MWL |
| General Study | Study Instance UID | (0020,000D) | 1 | from MWL or created |
| | Study Date | (0008,0020) | 2 | created |
| | Study Time | (0008,0030) | 2 | created |
| | Referring Physician's Name | (0008,0090) | 2 | from MWL or user input |
| | Study ID | (0020,0010) | 2 | created |
| | Accession Number | (0008,0050) | 2 | from MWL or user input |
| | Study Description | (0008,1030) | 3 | from MWL (requested procedure description or scheduled procedure step description) or user selected |
| | Referenced Study Sequence | (0008,1110) | 3 | from MWL or zero length |
| | >Referenced SOP Class UID | (0008,1150) | 1C | |
| | >Referenced SOP Instance UID | (0008,1155) | 1C | |
| | Procedure Code Sequence | (0008,1032) | 3 | |
| | > Include ‘Code Sequence Macro’ | | 3 | |
| Patient Study | Admitting Diagnoses Description | (0008,1080) | 3 | from MWL or user input |
| | Patient's Age | (0010,1010) | 3 | calculated or user input |
| | Patient's Size | (0010,1020) | 3 | from MWL or user input |
| | Patient's Weight | (0010,1030) | 3 | from MWL or user input |
| Patient Study | Additional Patient’s History | (0010,21B0) | 3 | from MWL or user input |
| General Series | Series Instance UID | (0020,000E) | 1 | created |
| | Series Number | (0020,0011) | 2 | Set to 1...n |
| | Laterality | (0020,0060) | 2C | Set to zero length |
| | Series Date | (0008,0021) | 3 | created |
| | Series Time | (0008,0031) | 3 | created |
| | Performing Physicians’ Name | (0008,1050) | 3 | from MWL or user input |
| | Protocol Name | (0018,1030) | 3 | user input |
| | Series Description | (0008,103E) | 3 | user input |
| | Operators' Name | (0008,1070) | 3 | user input |
| | Referenced Study Component Sequence | (0008,1111) | 3 | created (if MPPS is supported) |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | >Referenced SOP Class UID | (0008,1150) | 1C | 1.2.840.10008.3.1.2.3.3 (MPPS SOP Class) |
| | >Referenced SOP Instance UID | (0008,1155) | 1C | MPPS SOP Instance UID |
| | Body Part Examined | (0018,0015) | 3 | user selected |
| | Request Attributes Sequence | (0040,0275) | 3 | from MWL or zero length |
| | >Requested Procedure ID | (0040,1001) | 1C | |
| | >Scheduled Procedure Step ID | (0040,0009) | 1C | |
| | >Scheduled Procedure Step Description | (0040,0007) | 3 | |
| | >Scheduled Protocol Code Sequence | (0040,0008) | 3 | |
| | >>Include 'Code Sequence Macro' | | 3 | |
| | Performed Procedure Step ID | (0040,0253) | 3 | from MWL Scheduled Procedure Step ID or created |
| | Performed Procedure Step Start Date | (0040,0244) | 3 | created |
| | Performed Procedure Step Start Time | (0040,0245) | 3 | created |
| | Performed Procedure Step Description | (0040,0254) | 3 | from MWL Scheduled Procedure Step Description or user input |
| | Performed Protocol Code Sequence | (0040,0260) | 3 | |
| | >Include 'Code Sequence Macro' | | 3 | |
| | Comments on the Performed Procedure Step | (0040,0280) | 3 | from MPPS dialog |
| General Equipment | Manufacturer | (0008,0070) | 2 | Set to "Siemens Medical Systems - Ultrasound Division" |
| | Institution Name | (0008,0080) | 3 | from MWL or user selected |
| | Institution Address | (0008,0081) | 3 | from MWL |
| | Station Name | (0008,1010) | 3 | Set to the computer's host name |
| | Manufacturer's Model Name | (0008,1090) | 3 | Set to "Antares" |
| | Device Serial Number | (0018,1000) | 3 | Set to system serial number |
| | Software Versions | (0018,1020) | 3 | Set to "200.0.054 (VE31F SL04P09)" |
| SC Equipment | Conversion Type | (0008,0064) | 1 | Set to WSD |
| | Modality | (0008,0060) | 3 | Set to US |
| General Image | Instance Number | (0020,0013) | 2 | 1...n |
| | Patient Orientation | (0020,0020) | 2C | Set to zero length |
| | Content Date | (0008,0023) | 2C | created |
| | Content Time | (0008,0033) | 2C | created |
| | Image Type | (0008,0008) | 3 | ORIGINAL/PRIMARY |
| | Acquisition Date | (0008,0022) | 2 | created |
| | Acquisition Time | (0008,0032) | 3 | created |
| | Derivation Description | (0008,2111) | 3 | Compress BN JPEG Lossy (xx/xxx.xx). Only used with JPEG Lossy compression. |
| | Image Comments | (0020,4000) | 3 | user input |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | Lossy Image Compression | (0028,2110) | 1C | = 01 if JPEG Lossy compression |
| | Lossy Image Compression Ratio | (0028,2112) | 3 | Only used with JPEG Lossy compression |
| Image Pixel | Samples Per Pixel | (0028,0002) | 1 | Set to 3 |
| | Photometric Interpretation | (0028,0004) | 1 | See Table 8: |
| | Rows | (0028,0010) | 1 | Set to 768 |
| | Columns | (0028,0011) | 1 | Set to 1024 |
| | Bits Allocated | (0028,0100) | 1 | Set to 8 |
| | Bits Stored | (0028,0101) | 1 | Set to 8 |
| | High Bit | (0028,0102) | 1 | Set to 7 |
| | Pixel Representation | (0028,0103) | 1 | Set to 0 (unsigned integer) |
| | Pixel Data | (7FE0,0010) | 1 | |
| | Planar Configuration | (0028,0006) | 1C | Set to 0 (color-by-pixel) |
| SOP Common | SOP Class UID | (0008,0016) | 1 | 1.2.840.10008.5.1.4.1.1.7 |
| | SOP Instance UID | (0008,0018) | 1 | created |
| | Specific Character Set | (0008,0005) | 1C | From MWL or set to ISO_IR 100 |
| | Instance Creation Date | (0008,0012) | 3 | created |
| | Instance Creation Time | (0008,0013) | 3 | created |
| **Standard Extended SOP Class - Standard and Private Attributes** | | | | |
| Patient Demographic | Patient's Address | (0010,1040) | 3 | from MWL |
| | Military Rank | (0010,1080) | 3 | from MWL |
| Patient Medical | Medical Alerts | (0010,2000) | 3 | from MWL |
| | Contrast Allergies | (0010,2110) | 3 | from MWL |
| | Smoking Status | (0010,21A0) | 3 | from MWL |
| | Pregnancy Status | (0010,21C0) | 3 | from MWL |
| | Last Menstrual Date | (0010,21D0) | 3 | from MWL or input by user |
| | Special Needs | (0038,0050) | 3 | from MWL |
| | Patient State | (0038,0500) | 3 | from MWL |
| Study Scheduling | Requesting Physician | (0032,1032) | 3 | from MWL |
| | Requesting Service | (0032,1033) | 3 | from MWL |
| | Requested Procedure Description | (0032,1060) | 3 | from MWL |
| | Requested Procedure Code Sequence | (0032,1064) | 3 | from MWL |
| | >Include ‘Code Sequence Macro’ | | 3 | |
| Study Classification | Study Comments | (0032,4000) | 3 | input by user |
| MedCom Private Attributes † | MedCom Header Info - Private Creator | (0029,0010) | 3 | SIEMENS MEDCOM HEADER |
| | MedCom Header data | (0029,1020) | 3 | |
| | PMTF Information 1 | (0029,1031) | 3 | |
| | PMTF Information 2 | (0029,1032) | 3 | |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | PMTF Information 3 | (0029,1033) | 3 | |
| | PMTF Information 4 | (0029,1034) | 3 | DB TO DICOM |
| | MedCom OOG - Private Creator | (0029,0011) | 3 | SIEMENS MEDCOM OOG |
| | MedCom OOG Type | (0029,1108) | 3 | MEDCOM OOG 2 |
| | MedCom OOG Version | (0029,1109) | 3 | VE31F |
| | MedCom OOG Info | (0029,1110) | 3 | |

Table 11: denotes the attributes included in the Ultrasound Multi-frame Image IOD as implemented on the Antares system, when used for Clip images. Attributes not listed are not used.

**Table 11: US-MF IOD Attributes – Clips**

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| Patient | Patient's Name | (0010,0010) | 2 | from MWL or user input |
| | Patient ID | (0010,0020) | 2 | from MWL or user input |
| | Patient's Birth Date | (0010,0030) | 2 | from MWL or user input |
| | Patient's Sex | (0010,0040) | 2 | from MWL or user input |
| | Other Patient IDs | (0010,1000) | 3 | from MWL |
| | Other Patient Names | (0010,1001) | 3 | from MWL |
| | Ethnic Group | (0010,2160) | 3 | from MWL |
| | Patient Comments | (0010,4000) | 3 | from MWL |
| General Study | Study Instance UID | (0020,000D) | 1 | from MWL or created |
| | Study Date | (0008,0020) | 2 | created |
| | Study Time | (0008,0030) | 2 | created |
| | Referring Physician's Name | (0008,0090) | 2 | from MWL or user input |
| | Study ID | (0020,0010) | 2 | created |
| | Accession Number | (0008,0050) | 2 | from MWL or user input |
| | Study Description | (0008,1030) | 3 | from MWL (requested procedure description or scheduled procedure step description) or user selected |
| | Referenced Study Sequence | (0008,1110) | 3 | from MWL or zero length |
| | >Referenced SOP Class UID | (0008,1150) | 1C | |
| | >Referenced SOP Instance UID | (0008,1155) | 1C | |
| | Procedure Code Sequence | (0008,1032) | 3 | |
| | > Include ‘Code Sequence Macro’ | | 3 | |
| Patient Study | Admitting Diagnoses Description | (0008,1080) | 3 | from MWL or user input |
| | Patient's Age | (0010,1010) | 3 | calculated or user input |
| | Patient's Size | (0010,1020) | 3 | from MWL or user input |
| | Patient's Weight | (0010,1030) | 3 | from MWL or user input |
| | Additional Patient’s History | (0010,21B0) | 3 | from MWL or user input |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| General Series | Modality | (0008,0060) | 1 | Set to US |
| | Series Instance UID | (0020,000E) | 1 | created |
| | Series Number | (0020,0011) | 2 | Set to 1...n |
| | Laterality | (0020,0060) | 2C | Set to zero length |
| | Series Date | (0008,0021) | 3 | created |
| | Series Time | (0008,0031) | 3 | created |
| | Performing Physicians' Name | (0008,1050) | 3 | from MWL or user input |
| | Protocol Name | (0018,1030) | 3 | user input |
| | Series Description | (0008,103E) | 3 | user input |
| | Operators' Name | (0008,1070) | 3 | user input |
| | Referenced Study Component Sequence | (0008,1111) | 3 | created (if MPPS is supported) |
| | >Referenced SOP Class UID | (0008,1150) | 1C | 1.2.840.10008.3.1.2.3.3 (MPPS SOP Class) |
| | >Referenced SOP Instance UID | (0008,1155) | 1C | MPPS SOP Instance UID |
| | Body Part Examined | (0018,0015) | 3 | user selected |
| | Request Attributes Sequence | (0040,0275) | 3 | from MWL or zero length |
| | >Requested Procedure ID | (0040,1001) | 1C | |
| | >Scheduled Procedure Step ID | (0040,0009) | 1C | |
| | >Scheduled Procedure Step Description | (0040,0007) | 3 | |
| | >Scheduled Protocol Code Sequence | (0040,0008) | 3 | |
| | >>Include 'Code Sequence Macro' | | 3 | |
| | Performed Procedure Step ID | (0040,0253) | 3 | from MWL Scheduled Procedure Step ID or created |
| | Performed Procedure Step Start Date | (0040,0244) | 3 | created |
| | Performed Procedure Step Start Time | (0040,0245) | 3 | created |
| | Performed Procedure Step Description | (0040,0254) | 3 | from MWL Scheduled Procedure Step Description or user input |
| | Performed Protocol Code Sequence | (0040,0260) | 3 | |
| | >Include 'Code Sequence Macro' | | 3 | |
| | Comments on the Performed Procedure Step | (0040,0280) | 3 | from MPPS dialog |
| General Equipment | Manufacturer | (0008,0070) | 2 | Set to "Siemens Medical Systems – Ultrasound Division" |
| | Institution Name | (0008,0080) | 3 | from MWL or user selected |
| | Institution Address | (0008,0081) | 3 | from MWL |
| | Station Name | (0008,1010) | 3 | Set to the computer's host name |
| | Manufacturer's Model Name | (0008,1090) | 3 | Set to "Antares" |
| | Device Serial Number | (0018,1000) | 3 | Set to system serial number |
| | Software Versions | (0018,1020) | 3 | Set to "200.0.054 (VE31F SL04P09)" |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| General Image | Instance Number | (0020,0013) | 2 | 1...n |
| | Patient Orientation | (0020,0020) | 2C | Set to zero length |
| | Content Date | (0008,0023) | 2C | created |
| | Content Time | (0008,0033) | 2C | created |
| | Acquisition Date | (0008,0022) | 2 | created |
| | Acquisition Time | (0008,0032) | 3 | created |
| | Acquisition Datetime | (0008,002A) | 3 | created |
| | Derivation Description | (0008,2111) | 3 | Compress BN JPEG Lossy (xx) where (xx) is the compression ratio. |
| | Image Comments | (0020,4000) | 3 | user input |
| | Lossy Image Compression Ratio | (0028,2112) | 3 | Only used with JPEG Lossy compression |
| Image Pixel | Rows | (0028,0010) | 1 | Set to 600 |
| | Columns | (0028,0011) | 1 | Set to 800 |
| | Pixel Data | (7FE0,0010) | 1 | |
| Cine | Frame Time Vector | (0018,1065) | 1C | 1 to Number of Frames |
| Multi-Frame | Number of Frames | (0028,0008) | 1 | |
| US Region Calibration | Sequence of Ultrasound Regions | (0018,6011) | 1 | one created for each US region displayed |
| | >Region Spatial Format | (0018,6012) | 1 | |
| | >Region Data Type | (0018,6014) | 1 | |
| | >Region Flags | (0018,6016) | 1 | |
| | >Region Location Min x0 | (0018,6018) | 1 | |
| | >Region Location Min y0 | (0018,601A) | 1 | |
| | >Region Location Max x1 | (0018,601C) | 1 | |
| | >Region Location Max y1 | (0018,601E) | 1 | |
| | >Reference Pixel x0 | (0018,6020) | 3 | |
| | >Reference Pixel y0 | (0018,6022) | 3 | |
| | >Physical Units X Direction | (0018,6024) | 1 | |
| | >Physical Units Y Direction | (0018,6026) | 1 | |
| | >Ref. Pixel Physical Value X | (0018,6028) | 3 | |
| | >Ref. Pixel Physical Value Y | (0018,602A) | 3 | |
| | >Physical Delta X | (0018,602C) | 1 | |
| | >Physical Delta Y | (0018,602E) | 1 | |
| | >Transducer Frequency | (0018,6030) | 3 | |
| | >Pulse Repetition Frequency | (0018,6032) | 3 | Color Flow and Doppler regions only |
| | >Doppler Correction Angle | (0018,6034) | 3 | Doppler regions only |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| US Image Module | Samples Per Pixel | (0028,0002) | 1 | Set to 3<br>Set to 1 if RGB to MONOCHROME2 is Configured for remote destination |
| | Photometric Interpretation | (0028,0004) | 1 | See Table 8: |
| | Bits Allocated | (0028,0100) | 1 | Set to 8 |
| | Bits Stored | (0028,0101) | 1 | Set to 8 |
| | High Bit | (0028,0102) | 1 | Set to 7 |
| | Planar Configuration | (0028,0006) | 1C | Set to 0 (color-by-pixel) |
| | Ultrasound Color Data Present | (0028,0014) | 1C | Set to 1 if Color Flow or Pseudo Color in image |
| | Pixel Representation | (0028,0103) | 1 | Set to 0 (unsigned integer) |
| | Frame Increment Pointer | (0028,0009) | 1C | Sequencing by Frame Time Vector (0018,1065) |
| | Image Type | (0008,0008) | 2 | DERIVED / PRIMARY |
| | Lossy Image Compression | (0028,2110) | 1C | Set to 01 |
| | Transducer Data | (0018,5010) | 3 | Probe name (e.g. C5-2) |
| | Mechanical Index | (0018,5022) | 3 | B-mode only |
| | Bone Thermal Index | (0018,5024) | 3 | Doppler, M-Mode & Color Flow only |
| | Cranial Thermal Index | (0018,5026) | 3 | Cranial Doppler only |
| | Soft Tissue Thermal Index | (0018,5027) | 3 | Doppler, M-Mode & Color Flow only |
| SOP Common | SOP Class UID | (0008,0016) | 1 | 1.2.840.10008.5.1.4.1.1.6.1 |
| | SOP Instance UID | (0008,0018) | 1 | created |
| | Specific Character Set | (0008,0005) | 1C | From MWL or set to ISO_IR 100 |
| | Instance Creation Date | (0008,0012) | 3 | created |
| | Instance Creation Time | (0008,0013) | 3 | created |
| **Standard Extended SOP Class - Standard and Private Attributes** | | | | |
| Patient Demographic | Patient's Address | (0010,1040) | 3 | from MWL |
| | Military Rank | (0010,1080) | 3 | from MWL |
| Patient Medical | Medical Alerts | (0010,2000) | 3 | from MWL |
| | Contrast Allergies | (0010,2110) | 3 | from MWL |
| | Smoking Status | (0010,21A0) | 3 | from MWL |
| | Pregnancy Status | (0010,21C0) | 3 | from MWL |
| | Last Menstrual Date | (0010,21D0) | 3 | from MWL or input by user |
| | Special Needs | (0038,0050) | 3 | from MWL |
| | Patient State | (0038,0500) | 3 | from MWL |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| Image Plane | Pixel Spacing | (0028,0030) | 3 | This attribute is not included in images that contain Doppler or M-Mode data, or images that contain more than one 2D tissue region. |
| Study Scheduling | Requesting Physician | (0032,1032) | 3 | from MWL |
| | Requesting Service | (0032,1033) | 3 | from MWL |
| | Requested Procedure Description | (0032,1060) | 3 | from MWL |
| | Requested Procedure Code Sequence | (0032,1064) | 3 | from MWL |
| | >Include 'Code Sequence Macro' | | 3 | |
| Study Classification | Study Comments | (0032,4000) | 3 | input by user |
| Antares Private Attributes | Private Creator | (0019,00xx) | 3 | SIEMENS MED SMS USG ANTARES |
| | Private Creator Version | (0019,xx00) | 3 | 1.1 |
| | B-Mode Tint Type | (0019,xx2A) | 3 | 0 = Grayscale ,<br>1 = Color Balance ,<br>2 = Pseudo Color |
| | B-Mode Tint Index | (0019,xx2D) | 3 | |
| | Image Flag | (0019,xx3A) | 3 | 1 = flagged image,<br>0 (or not present) = not flagged |
| | Doppler Tint Type | (0019,xx6C) | 3 | 0 = Grayscale ,<br>1 = Color Balance ,<br>2 = Pseudo Color |
| | M-Mode Tint Type | (0019,xx86) | 3 | 0 = Grayscale ,<br>1 = Color Balance ,<br>2 = Pseudo Color |
| MedCom Private Attributes † | MedCom Header Info - Private Creator | (0029,0010) | 3 | SIEMENS MEDCOM HEADER |
| | MedCom Header data | (0029,1020) | 3 | |
| | PMTF Information 1 | (0029,1031) | 3 | |
| | PMTF Information 2 | (0029,1032) | 3 | |
| | PMTF Information 3 | (0029,1033) | 3 | |
| | PMTF Information 4 | (0029,1034) | 3 | DB TO DICOM |
| | MedCom OOG - Private Creator | (0029,0011) | 3 | SIEMENS MEDCOM OOG |
| | MedCom OOG Type | (0029,1108) | 3 | MEDCOM OOG 2 |
| | MedCom OOG Version | (0029,1109) | 3 | VE31F |
| | MedCom OOG Info | (0029,1110) | 3 | |

Table 12: denotes the attributes included in the Ultrasound Multi-Frame Image IOD as implemented on the Antares system, when used for 3D volumetric data sets. Attributes not listed are not used. Each frame represents a single slice from the 3D volume.

**Table 12: US-MF Image IOD Attributes - 3D Volumetric Data**

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| Patient | Patient's Name | (0010,0010) | 2 | from MWL or user input |
| | Patient ID | (0010,0020) | 2 | from MWL or user input |
| | Patient's Birth Date | (0010,0030) | 2 | from MWL or user input |
| | Patient's Sex | (0010,0040) | 2 | from MWL or user input |
| | Other Patient IDs | (0010,1000) | 3 | from MWL |
| | Other Patient Names | (0010,1001) | 3 | from MWL |
| | Ethnic Group | (0010,2160) | 3 | from MWL |
| | Patient Comments | (0010,4000) | 3 | from MWL |
| General Study | Study Instance UID | (0020,000D) | 1 | from MWL or created |
| | Study Date | (0008,0020) | 2 | created |
| | Study Time | (0008,0030) | 2 | created |
| | Referring Physician's Name | (0008,0090) | 2 | from MWL or user input |
| | Study ID | (0020,0010) | 2 | created |
| | Accession Number | (0008,0050) | 2 | from MWL or user input |
| | Study Description | (0008,1030) | 3 | from MWL (requested procedure description or scheduled procedure step description) or user selected |
| | Referenced Study Sequence | (0008,1110) | 3 | from MWL or zero length |
| | >Referenced SOP Class UID | (0008,1150) | 1C | |
| | >Referenced SOP Instance UID | (0008,1155) | 1C | |
| | Procedure Code Sequence | (0008,1032) | 3 | |
| | > Include ‘Code Sequence Macro’ | | 3 | |
| Patient Study | Admitting Diagnoses Description | (0008,1080) | 3 | from MWL or user input |
| | Patient's Age | (0010,1010) | 3 | calculated or user input |
| | Patient's Size | (0010,1020) | 3 | from MWL or user input |
| | Patient's Weight | (0010,1030) | 3 | from MWL or user input |
| | Additional Patient’s History | (0010,21B0) | 3 | from MWL or user input |
| General Series | Modality | (0008,0060) | 1 | Set to US |
| | Series Instance UID | (0020,000E) | 1 | created |
| | Series Number | (0020,0011) | 2 | Set to 1...n |
| | Laterality | (0020,0060) | 2C | Set to zero length |
| | Series Date | (0008,0021) | 3 | created |
| | Series Time | (0008,0031) | 3 | created |
| | Performing Physicians’ Name | (0008,1050) | 3 | from MWL or user input |
| | Protocol Name | (0018,1030) | 3 | user input |
| | Series Description | (0008,103E) | 3 | user input |
| | Operators' Name | (0008,1070) | 3 | user input |
| | Referenced Study Component Sequence | (0008,1111) | 3 | created (if MPPS is supported) |
| | >Referenced SOP Class UID | (0008,1150) | 1C | 1.2.840.10008.3.1.2.3.3 (MPPS SOP Class) |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | >Referenced SOP Instance UID | (0008,1155) | 1C | MPPS SOP Instance UID |
| | Body Part Examined | (0018,0015) | 3 | user selected |
| | Request Attributes Sequence | (0040,0275) | 3 | from MWL or zero length |
| | >Requested Procedure ID | (0040,1001) | 1C | |
| | >Scheduled Procedure Step ID | (0040,0009) | 1C | |
| | >Scheduled Procedure Step Description | (0040,0007) | 3 | |
| | >Scheduled Protocol Code Sequence | (0040,0008) | 3 | |
| | >>Include 'Code Sequence Macro' | | 3 | |
| | Performed Procedure Step ID | (0040,0253) | 3 | from MWL Scheduled Procedure Step ID or created |
| | Performed Procedure Step Start Date | (0040,0244) | 3 | created |
| | Performed Procedure Step Start Time | (0040,0245) | 3 | created |
| | Performed Procedure Step Description | (0040,0254) | 3 | from MWL Scheduled Procedure Step Description or user input |
| | Performed Protocol Code Sequence | (0040,0260) | 3 | |
| | >Include 'Code Sequence Macro' | | 3 | |
| | Comments on the Performed Procedure Step | (0040,0280) | 3 | from MPPS dialog |
| General Equipment | Manufacturer | (0008,0070) | 2 | Set to "Siemens Medical Systems - Ultrasound Division" |
| | Institution Name | (0008,0080) | 3 | from MWL or user selected |
| | Institution Address | (0008,0081) | 3 | from MWL |
| | Station Name | (0008,1010) | 3 | Set to the computer's host name |
| | Manufacturer's Model Name | (0008,1090) | 3 | Set to "Antares" |
| | Device Serial Number | (0018,1000) | 3 | Set to system serial number |
| | Software Versions | (0018,1020) | 3 | Set to "200.0.054 (VE31F SL04P09)" |
| General Image | Instance Number | (0020,0013) | 2 | 1...n |
| | Patient Orientation | (0020,0020) | 2C | Set to zero length |
| | Acquisition Date | (0008,0022) | 2 | created |
| | Acquisition Time | (0008,0032) | 3 | created |
| | Acquisition Datetime | (0008,002A) | 3 | created |
| | Derivation Description | (0008,2111) | 3 | US_3D_VOLUME_DATA |
| | Image Comments | (0020,4000) | 3 | user input |
| | Lossy Image Compression Ratio | (0028,2112) | 3 | Only used with JPEG Lossy compression |
| Image Pixel | Rows | (0028,0010) | 1 | Set to 600 |
| | Columns | (0028,0011) | 1 | Set to 800 |
| | Pixel Data | (7FE0,0010) | 1 | |
| US Image Module | Samples Per Pixel | (0028,0002) | 1 | Set to 1 |
| | Photometric Interpretation | (0028,0004) | 1 | See Table 8: |
| | Bits Allocated | (0028,0100) | 1 | Set to 8 |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | Bits Stored | (0028,0101) | 1 | Set to 8 |
| | High Bit | (0028,0102) | 1 | Set to 7 |
| | Ultrasound Color Data Present | (0028,0014) | 1C | Set to 1 if Color Flow or Pseudo Color is present in the image |
| | Frame Increment Pointer | (0028,0009) | 1C | Set to 0018,1063 (Frame Time attribute) |
| | Pixel Representation | (0028,0103) | 1 | Set to 0 (unsigned integer) |
| | Image Type | (0008,0008) | 2 | DERIVED / PRIMARY |
| | Lossy Image Compression | (0028,2110) | 1C | = 01 if JPEG lossy compressed |
| | Transducer Data | (0018,5010) | 3 | Probe name (e.g. C5-2) |
| SOP Common | SOP Class UID | (0008,0016) | 1 | 1.2.840.10008.5.1.4.1.1.3.1 |
| | SOP Instance UID | (0008,0018) | 1 | created |
| | Specific Character Set | (0008,0005) | 1C | From MWL or set to ISO_IR 100 |
| | Instance Creation Date | (0008,0012) | 3 | created |
| | Instance Creation Time | (0008,0013) | 3 | created |
| Cine | Frame Time | (0018,1063) | 1C | created |
| Multi-Frame | Number of Frames | (0028,0008) | 1 | created |
| Frame Pointers | Representative Frame Number | (0028,6010) | 3 | Frame number used as pictorial representation of the 3D Volume. |
| **Standard Extended SOP Class - Standard and Private Attributes** | | | | |
| Patient Demographic | Patient's Address | (0010,1040) | 3 | from MWL |
| | Military Rank | (0010,1080) | 3 | from MWL |
| Patient Medical | Medical Alerts | (0010,2000) | 3 | from MWL |
| | Contrast Allergies | (0010,2110) | 3 | from MWL |
| | Smoking Status | (0010,21A0) | 3 | from MWL |
| | Pregnancy Status | (0010,21C0) | 3 | from MWL |
| | Last Menstrual Date | (0010,21D0) | 3 | from MWL or input by user |
| | Special Needs | (0038,0050) | 3 | from MWL |
| | Patient State | (0038,0500) | 3 | from MWL |
| Study Scheduling | Requesting Physician | (0032,1032) | 3 | from MWL |
| | Requesting Service | (0032,1033) | 3 | from MWL |
| | Requested Procedure Description | (0032,1060) | 3 | from MWL |
| | Requested Procedure Code Sequence | (0032,1064) | 3 | from MWL |
| | >Include ‘Code Sequence Macro’ | | 3 | |
| Study Classification | Study Comments | (0032,4000) | 3 | input by user |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| Antares Private Attributes | Private Creator | (0039,0010) | 1 | SIEMENS MED SMS USG ANTARES 3D VOLUME |
| | Release Version | (0039,1000) | 3 | 3.0.3 |
| | VolumeAcquisitionDuration | (0039,1003) | 3 | |
| | VolumeRawDataType | (0039,1004) | 3 | Data Type (Cartesian/Scan-Converted/PreScanConverted Format |
| | ScanType | (0039,1005) | 3 | |
| | ZlateralMin | (0039,1006) | 3 | Minimum span along the depth (wobble min.) |
| | ZlateralSpan | (0039,1007) | 3 | Span along the depth (wobble span) |
| | ZRadiusOfCurvature | (0039,1008) | 3 | Radius of curvature, in (wobble) |
| | WobbleCorrection | (0039,1009) | 3 | Wobbling shear correction factor (0.0 to 1.0) |
| | ScaleAlongWidth | (0039,1010) | 3 | Width scaling mm/pixel |
| | ScaleAlongHeight | (0039,1011) | 3 | Height scaling mm/pixel |
| | ScaleAlongDepth | (0039,1012) | 3 | Depth scaling mm/pixel |
| | BufferSize | (0039,1013) | 3 | |
| | AcquisitionRate | (0039,1014) | 3 | Time required to acquire one volume |
| | DepthMinCm | (0039,1015) | 3 | The min/start depth for the BImage |
| | IsLeftRightFlippedEn | (0039,1016) | 3 | Whether the acquired images were Left/Right flipped |
| | IsUpDownFlippedEn | (0039,1017) | 3 | Whether the acquired images were up/down flipped |
| | IsVolumeGeomAccurate | (0039,1018) | 3 | Is the volume passed is geometrically accurate (In order to display ruler) |
| | BByteMaskOffset | (0039,1019) | 3 | Bytemasks is the offset fro Mask data which is used for space leaping optimization in renderer |
| | BByteMaskSize | (0039,1020) | 3 | Size of the byte mask data |
| | DepthMaxCm | (0039,1021) | 3 | The max/end depth for the BImage |
| | AcqPlaneRotationDeg | (0039,1022) | 3 | Angle by which the volume is to be rotated around, normal to the Aquisition plane (Z axis) (in degrees) |
| | BeamAxialSpan | (0039,1023) | 3 | beam span, in mm |
| | BeamLateralMin | (0039,1024) | 3 | Min lateral angle |
| | BeamLateralSpan | (0039,1025) | 3 | Angular span |
| | BeamAxialMin | (0039,1026) | 3 | Axial min or radius of curvature in 2d |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | NumDisplaySamples | (0039,1027) | 3 | Number of actual samples along each beam |
| | DVolumeWidth | (0039,1028) | 3 | Volume Width of the Power/Doppler Volume |
| | DVolumeDepth | (0039,1029) | 3 | Volume Depth of the Power/Doppler Volume |
| | DVolumeHeight | (0039,1030) | 3 | Volume Height of the Power/Doppler Volume |
| | DVolumePosX | (0039,1031) | 3 | |
| | DVolumePosY | (0039,1032) | 3 | |
| | DVolumePosZ | (0039,1033 | 3 | |
| | DBeamAxialMin | (0039,1034) | 3 | Axial min or radius of curvature in 2d for Power/Doppler |
| | DBeamAxialSpan | (0039,1035) | 3 | |
| | DBeamLateralMin | (0039,1036) | 3 | Min lateral angle for Power/Doppler |
| | DBeamLateralSpan | (0039,1037) | 3 | Angular span from Power/Doppler |
| | NumOfVolumesInSequence | (0039,1038) | 3 | Number Of Volumes In Sequence |
| | DByteMaskOffset | (0039,1039) | 3 | Bytemasks is the offset for the mask data which is used for space leaping optimization in renderer when in Power/Doppler |
| | DByteMaskSize | (0039,1040) | 3 | Size of the byte mask data when in Power/Doppler |
| **Antares Private Attributes - 3D Bookmark Data** | | | | |
| Antares Private Attributes | PrivateCreatorVersionOfBookmark | (0039,1050) | 3 | 3.6.0 |
| | BCutPlaneEnable | (0039,1051) | 3 | Cut-plane volume rendering for B data |
| | BMprColorMapIndex | (0039,1052) | 3 | Index of the tint colormap for MPR B data |
| | BMprDynamicRangeDb | (0039,1053) | 3 | dB value of dynamic range curve for MPR B data |
| | BMprGrayMapIndex | (0039,1054) | 3 | Index of the image enhancement LUT for the MPR B data |
| | BVolumeRenderMode | (0039,1055) | 3 | Volume rendering mode for B data |
| | BVrBrightness | (0039,1056) | 3 | Brightness value for the volume rendered B data |
| | BVrContrast | (0039,1057) | 3 | Contrast value for the volume rendered B data |
| | BVrColorMapIndex | (0039,1058) | 3 | Index of the tint colormap for the volume rendered B data |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | BVrDynamicRangeDb | (0039,1059) | 3 | dB value of dynamic range curve for the volume rendered B data |
| | BVrGrayMapIndex | (0039,105a) | 3 | Index of the image enhancement LUT for the volume rendered B data |
| | BVrOpacity | (0039,105b) | 3 | Opacity percentage of the opacity curve used for the volume rendered B data |
| | BVrThresholdHigh | (0039,105c) | 3 | High threshold of the opacity curve used for the volume rendered B data |
| | BVrThresholdLow | (0039,105d) | 3 | Low threshold of the opacity curve used for the volume rendered B data |
| | BPreProcessFilterMix | (0039,105e) | 3 | Mix percentage used for mixing filtered data for the volume rendered B data |
| | CCutPlaneEnable | (0039,105f) | 3 | Cut-plane volume rendering for B data |
| | CFrontClipMode | (0039,1060) | 3 | Flag indicating whether Niche and Parallel Cut edit operation will clip power data. |
| | CMprColorMapIndex | (0039,1061) | 3 | Index of the tint colormap for MPR power data |
| | CMprColorFlowPriorityIndex | (0039,1062) | 3 | Threshold representing amount of power data cut from the MPR power data |
| | CVolumeRenderMode | (0039,1063) | 3 | Volume rendering mode for power data |
| | CVrColorMapIndex | (0039,1064) | 3 | Index of the tint colormap for the volume rendered power data |
| | CVrColorFlowPriorityIndex | (0039,1065) | 3 | Threshold representing amount of power data cut from the volume rendered power data |
| | CVrOpacity | (0039,1066) | 3 | Opacity percentage of the opacity curve used for the volume rendered power data |
| | CVrThresholdHigh | (0039,1067) | 3 | High threshold of the opacity curve used for the volume rendered power data |
| | CVrThresholdLow | (0039,1068) | 3 | Low threshold of the opacity curve used for the volume rendered power data |
| | VoiMode | (0039,1069) | 3 | Flag indicating whether VOI is on or off |
| | VoiRotationOffsetDeg | (0039,106a) | 3 | Fixed rotation applied to VOI |
| | VoiSizeRatioX | (0039,106b) | 3 | Width of VOI in relative units |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | VoiSizeRatioY | (0039,106c) | 3 | Length of VOI in relative units |
| | VoiSizeRatioZ | (0039,106d) | 3 | Height of VOI in relative units |
| | VoiSyncPlane | (0039,106e) | 3 | Plane synced to the VOI |
| | VoiViewMode | (0039,106f) | 3 | Type indicating whether the rendering is synced to the front or back of the VOI |
| | VrOrientationA | (0039,1070) | 3 | Matrix representing the oritentation of the volume rendered image |
| | MprOrientationA | (0039,1071) | 3 | Matrix representing the oritentation of the MPRs |
| | VrOffsetVector | (0039,1072 | 3 | Vector representing the vertical and horizontal offset of the volume on the display |
| | BlendingRatio | (0039,1073) | 3 | Value indicating the amount of blending between B and power data when blend is on |
| | FusionBlendMode | (0039,1074) | 3 | Mode for fusing in one display power and B volume rendered data |
| | QualityFactor | (0039,1075) | 3 | Factor determining the volume rendering quality |
| | RendererType | (0039,1076) | 3 | Type of the rendererer engine used |
| | SliceMode | (0039,1077) | 3 | Mode for displaying the textured map MPRs in the 3D quadrant |
| | ActiveQuad | (0039,1078) | 3 | Value indicating which quadrant in the display is active |
| | ScreenMode | (0039,1079) | 3 | Value indicating which screen layout is applied |
| | CutPlaneSide | (0039,107a) | 3 | Value indicating which half space of the cut-plane is used for volume rendering |
| | WireframeMode | (0039,107b) | 3 | Flag indicating whether wireframe around rendered data is on or off |
| | CrossmarkMode | (0039,107c) | 3 | Flag indicating whether crossmark is shown on the display |
| | MprDisplayType | (0039,107d) | 3 | Value indicating whether B or power or B+power data are displayed in the MPRs |
| | VolumeDisplayType | (0039,107e) | 3 | Value indicating whether B or power or B+power data are displayed in the volume rendered image |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | LastReset | (0039,107f) | 3 | Value indicating the last reset |
| | LastNonFullScreenMode | (0039,1080) | 3 | Value indicating the last active quadrant before entering full screen |
| | MprToolIndex | (0039,1081) | 3 | Index indicating which tool (rotation, pan, resizing) is used on the MPRs |
| | VoiToolIndex | (0039,1082) | 3 | Index indicating which tool (rotation, pan, resizing) is used on the volume rendered image when VOI is on |
| | ToolLoopMode | (0039,1083) | 3 | Value indicating in which loop |
| | VolumeArbMode | (0039,1084) | 3 | Index indicating whether volume or MPR rotation is active on the 3D display window |
| | MprZoomEn | (0039,1085) | 3 | Flag indicating whether zoom is enabled in the MPR |
| | IsVolumeZoomEn | (0039,1086) | 3 | Flag indicating whether zoom is enabled in the rendered volume |
| | ZoomLevelMpr | (0039,1087) | 3 | Value indicating the amount of zoom (in relative units) applied in the MPR |
| | ZoomLevelVolume | (0039,1088) | 3 | Value indicating the amount of zoom (in relative units) applied in the rendered volume |
| | IsAutoRotateEn | (0039,1089) | 3 | Flag indicating whether animation is enabled |
| | AutoRotateAxis | (0039,108a) | 3 | Value indicating the axis of rotation for the animation |
| | AutoRotateRangeIndex | (0039,108b) | 3 | Value indicating the total angle range for the animation |
| | AutoRotateSpeedIndex | (0039,108c) | 3 | Value indicating the speed (in relative units) for the animation |
| | CVrBrightness | (0039,108d) | 3 | Brightness value for the volume rendered power data |
| | CFlowStateIndex | (0039,108e) | 3 | Index for flow state of power data (low, medium, high) |
| | BSubmodeIndex | (0039,108f) | 3 | Index for indicating the B submode (THI, B, etc...) |
| | CSubmodeIndex | (0039,1090) | 3 | Index for indicating the C submode |
| | DICOMAttrNameCutPlane | (0039,1091 | 3 | Quadrant used to cut volume when colume cut enabled |
| | BookmarkChunkId | (0039,1092) | 3 | Index of Bookmark |
| | SequenceMinChunkId | (0039,1093) | 3 | Begin range index of volume sequence |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | SequenceMaxChunkId | (0039,1094) | 3 | End range index of volume sequence |
| | VolumeRateHz | (0039,1095) | 3 | Rate at which volumes are rendered |
| | VoiPositionOffsetX | (0039,109a) | 3 | Offset in the x dimension between the center of the VOI and center of volume in relative units |
| | VoiPositionOffsetY | (0039,109b) | 3 | Offset in the y dimension between the center of the VOI and center of volume in relative units |
| | VoiPositionOffsetZ | (0039,109c) | 3 | Offset in the z dimension between the center of the VOI and center of volume in relative units |
| | VrToolIndex | (0039,109d) | 3 | Index indicating which tool (rotation, pan, resizing) is used on the volume rendered image |
| | ShadingPercent | (0039,109e) | 3 | Value indicating the amount of shading in the volume rendered image |
| | VolumeType | (0039,109f) | 3 | Value indicating the type of volume (B or B and Power) |
| | VolumeRateHz | (0039,1095) | 3 | Rate at which volumes are rendered |
| | DICOMAttrNameVrQuadDisplayType | (0039,10a0) | 3 | The type of display to show in the volume quadrant |
| | DICOMAttrNameMprCenterLocation | (0039,10a1) | 3 | Offset location of slice centerpoint with respect to quadrant center |
| | DICOMAttrNameSliceMode | (0039,1077) | 3 | Value indicating that system in multislice mode |
| | DICOMAttrNameSliceRangeType | (0039,10e0) | 3 | Value indicating type of slice mode (horizontal/vertical) |
| | DICOMAttrNameSliceMPRPlane | (0039,10e1) | 3 | Value indicating selected MPR for slice mode (Acquisition/Elevation/Coronal) |
| | DICOMAttrNameSliceLayout | (0039,10e2) | 3 | Selected layout for slice mode (2x2, 3x3, 4x4, 6x6) |
| | DICOMAttrNameSliceSpacing | (0039,10e3) | 3 | Value indicates the spacing between MPR slices |
| | DICOMAttrNameThinVrMode | (0039,10e4) | 3 | Value indicating that system in ThinVr mode |
| | DICOMAttrNameThinVrThickness | (0039,10e5) | 3 | Selected thickness value |
| | DICOMAttrNameVoiPivotX | (0039,10e6) | 3 | Curved TOP VOI pivot x |
| | DICOMAttrNameVoiPivotY | (0039,10e7) | 3 | Curved TOP VOI pivot y |

| Module | Attribute | Tag | Type | Notes |
|---|---|---|---|---|
| | DICOMAttrNameVoiPivotZ | (0039,10e8) | 3 | Curved TOP VOI pivot z |
| | DICOMAttrNameCTopVoiQuad | (0039,10e9) | 3 | Curved TOP VOI Quad |

**Table 13: Comprehensive SR Image IOD Modules**

| Entity Name | Module Name | Reference |
|---|---|---|
| Patient | Patient | See Table 8 |
| | Specimen Identification | Not Used |
| Study | General Study | See Table 8 |
| | Patient Study | See Table 8 |
| Series | SR Document Series | See Table 13 |
| Equipment | General Equipment | See Table 8 |
| Document | SR Document General | See Table 14 |
| | SR Document Content | See Table 15 |
| | SOP Common | See Table 8, 9, 10 |

**Table 14: SR Document Series Module**

| Attribute | Tag | Type | Notes |
|---|---|---|---|
| Modality | (0008,0060) | 1 | Defined term “SR” used |
| Series Instance UID | (0020,000E) | 1 | Uniquely generated by the Antares |
| Series Number | (0020,0011) | 1 | Internally generated; incremented for each new exam within a study |
| Reference Performed Procedure Step Sequence | (0008,1111) | 2 | |
| >Referenced SOP Class UID | (0008,1150) | 1C | |
| >Reference SOP Instance UID | (0008,1155) | 1C | |

**Table 15: SR Document General Module**

| Attribute | Tag | Type | Notes |
|---|---|---|---|
| Instance Number | (0020,0013) | 1 | Internally generated incremented for each new SR document within a study |
| Completion Flag | (0040,A491) | 1 | Defined Term “PARTIAL” used |
| Verification Flag | (0040,A493) | 1 | Defined Term “UNVERIFIED” used |
| Content Date | (0008,0023) | 1 | Date of creation |
| Content Time | (0008,0033) | 1 | Time of creation |
| Referenced Request Sequence | (0040,A370) | 1C | Filled in if the exam is based on a Worklist entry |
| >Study Instance UID | (0020,000D) | 1 | Taken from the Study Instance UID in the General Study Module |
| >Accession Number | (0008,0050) | 2 | From Worklist or Patient Registration |

| Attribute | Tag | Type | Notes |
|---|---|---|---|
| >Requested Procedure ID | (0040,1001) | 2 | Taken from Worklist if available |
| >Requested Procedure Description | (0032,1060) | 2 | Taken from Worklist if available |
| Pertinent Other Evidence Sequence | (0040,A385) | 1 | |
| >Include 'SOP Instance Reference Macro' | | | |

#### 5.2.2.2 SR Document Content Module

The SR Document Content Module is described in the following table and in the appendices.

**Table 16: SR Document Content Module Attributes**

| Attribute | Tag | Type | Notes |
|---|---|---|---|
| Content Template Sequence | (0040,A504) | 1C | Template ID |
| >Template Identification Macro | | | |
| Relationship Type | (0040,A010) | 1 | CONTAINS |
| Value Type | (0040,A040) | 1 | CONTAINER |
| Continuity of Content | (0040,A050) | 1C | SEPARATE |
| Concept Name Code Sequence | (0040,A043) | 1C | See Appendix for "OB Gyn Ultrasound Procedure Report", "Vascular Ultrasound Procedure Report", or "Adult Echocardiography Procedure Report" |
| > 'Code Sequence Macro' | | | |
| Content Sequence | (0040,A730) | 1C | See Appendix for "OB Gyn Ultrasound Procedure Report", "Vascular Ultrasound Procedure Report" , or "Adult Echocardiography Procedure Report" |
| >Relationship Type | (0040,A010) | 1 | CONTAINS |

#### 5.2.2.3 Content Template

The Antares Ultrasound System supports the following root Templates for SR SOP Instances created, processed, or displayed by the Antares.

**Table 17: Root Templates for SR SOP Instances**

| SOP Class | Template ID | Template Description | Use |
|---|---|---|---|
| Comprehensive SR | 5000 | "OB-GYN Ultrasound Procedure Report" | Create |
| Comprehensive SR | 5100 | "Vascular Ultrasound Report" | Create |
| Comprehensive SR | 5200 | "Adult Echocardiography Procedure Report" | Create |

#### 5.2.2.3.1 Error Handling

Table 18: indicates the possible response status codes, which a SCP may return following the SCU's C-STORE-RSP command. Only those status responses that indicate some form of error condition are presented to the user.

A successful C-STORE operation will allow the AE to continue to the next action desired by the user.

**Table 18: C-STORE Status Responses**

| Service Status | Futher Meaning | Protocol Codes | Related Fields |
|---|---|---|---|
| Refused | Out of resources. | A7xx | None |
| Error | Data set does not match SOP Class.<br>Cannot understand. | A9xx<br>Cxxx | None |
| Warning | Coercion of data Elements.<br>Data set does not match SOP Class.<br>Elements discarded. | B000<br>B007<br>B006 | None |
| Success | | 0000 | None |

## 5.3 Storage Commitment AE Specification

The Antares Storage Commitment AE provides Standard Conformance to the following DICOM SOP Classes as an SCU.

**Table 19: Standard SOP Classes as Storage Commitment Push Model**

| SOP Class Name | SOP Class UID |
|---|---|
| Storage Commitment Push Model | 1.2.840.10008.1.20.1 |

### 5.3.1 Association Establishment Policies

#### 5.3.1.1 General

The configuration of Antares Storage Commitment AE defines the Application Entity Titles, the port numbers, the host names and IP addresses.

#### 5.3.1.2 Number of Associations

The Antares Storage Commitment AE initiates several associations at a time, one for each storage commitment request being processed.

#### 5.3.1.3 Asynchronous Nature

The Antares Storage Commitment AE does not support asynchronous communication (multiple outstanding transactions over a single association).

#### 5.3.1.4 Implementation Identifying Information

The Antares Storage Commitment AE provides a single Implementation Class UID of

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_SWFSYNGO".

## 5.3.2 Association Initiation by Real-World Activity

The Antares Storage Commitment AE initiates an association when acting as SCU, in order to send a request for storage commitment.

### 5.3.2.1 Real-World Activity - Send Storage Commitment Request

#### 5.3.2.1.1 Associated Real-World Activity - Send Storage Commitment Request

The user has sent (or archived) images to another DICOM node, which is configured as storage commitment SCP. The Antares will automatically attempt to send a storage commitment request for these images.

#### 5.3.2.1.2 Proposed Presentation Contexts - Send Storage Commitment Request

The Antares Storage Commitment AE will propose Presentation Contexts as shown in the following table:

**Table 20: Initiation Presentation Context Storage Commitment Request**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Extended Negotiation |
| Name | UID | Name List | UID List | | |
| Storage Commitment Push Model SOP Class | 1.2.840.10008.1.20.1 | Implicit VR Little Endian<br>Explicit VR Big Endian<br>Explicit VR Little Endian | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |

#### 5.3.2.1.3 SOP Specific Conformance Statement - Send Storage Commitment Request

The SCU sends the N-ACTION-RQ message and waits for the N-ACTION-RSP. After receiving this, the transaction is marked as "waiting".

When configured to automatically transfer images "During the Exam", a separate Storage Commitment Request is made for each image transferred to a Storage SCP that is configured for storage commitment.

Depending on a configuration value, the association will be closed or kept open. In the first case, there is another configurable value giving the number of minutes (by default 60) to wait for the corresponding N-EVENT-REPORT-RQ. In the second case, this time is the (also configurable) time-out for the association. For both cases, if the N_EVENT_REPORT-RQ does not arrive during the configured time, the transaction will be marked as failed.

Storage Commitment is supported for all the Storage SOP class UIDs as listed in Table 6: on page 20. The Referenced Study Component Sequence is not supported.

Storage Media File-Set ID and UID Attributes will not be supported in the N-ACTION primitive invoked by the Storage Commitment SCU.

### 5.3.3 Association Acceptance Policy

The Antares Storage Commitment AE accepts an association when acting as SCU if configured to receive N-EVENT-REPORT on a separate association. *Note: The Antares may be configured to accept results in the same or separate association as the Storage Commitment Request.*

#### 5.3.3.1 Real World Activity - Receive Storage Commitment Response

##### 5.3.3.1.1 Associated Real World Activity - Receive Storage Commitment Response

When configured to receive results on a separate association, the Antares Storage Commitment AE sends a Storage Commitment Request and then closes the association. The Antares Storage Commitment AE will then accept an association request from the Storage Commitment SCP that wants to send Storage Commitment results.

##### 5.3.3.1.2 Accepted Presentation Contexts - Receive Storage Commitment Response

The Antares Storage Commitment AE will accept Presentation Contexts as shown in the following table:

**Table 21: Presentation Context accepted for Storage Commitment**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Extended Negotiation |
| Name | UID | Name List | UID List | | |
| Storage Commitment Push Model SOP Class | 1.2.840.10008.1.20.1 | Implicit VR Little Endian<br>Explicit VR Big Endian<br>Explicit VR Little Endian | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |

##### 5.3.3.1.3 SOP Specific Conformance Statement - Receive Storage Commitment Response

If the N_EVENT_REPORT received has the status of “Complete - Failure Exists”, the transaction is marked as failed, otherwise the transaction is marked as “completed”. In both cases, a message is shown to the user. The committed images are marked in the local database.

The Antares automatically re-sends images and Storage Commitment Requests for failed storage commitment results with the following failure codes:

- 0112H - No such object instance.
- 0131H - Duplicate transaction UID.

The Antares does not re-send images from a failed storage commitment result with the following failure codes:

- 0110H - Processing failure
- 0213H - Resource limitation
- 0122H - Referenced SOP Class not supported
- 0119H - Class / Instance conflict

The storage commitment status is displayed at the image level in the Patient Browser. Statuses are:

- S?/A? = Send/Archive Storage Commitment Waiting for result.
- Sf/Af = Send/Archive Storage Commitment Failed.
- SC/AC = Send/Archive Storage Commitment Succeeded.

When all images in a series are successfully committed, a corresponding “S” or “A” is displayed at the series level of the Patient Browser.

When all series in a study are successfully committed, a corresponding “S” or “A” is displayed at the study level of the Patient Browser.

## 5.4 Print AE Specification

The print management SCU invokes print management DIMSE services to transfer images from the local AE to the remote SCP AE to print the images with the defined film format and size on a selected network DICOM hardcopy printer. See DICOM part 4 annex H.

The Antares system provides Standard Conformance to the following DICOM V3.0 Basic Grayscale Print Management Meta SOP Class, Basic Color Print Management Meta SOP Class and the optional Print Job SOP Class as an SCU.

**Table 22: Basic Gray Scale Print Management Meta SOP Classes**

| SOP Class Name | SOP Class UID | Usage |
|---|---|---|
| Basic Grayscale Print Management Meta SOP Class | 1.2.840.10008.5.1.1.9 | Standard |
| 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 |
| Print Job SOP Class | 1.2.840.10008.5.1.1.14 | Standard |

**Table 23: Basic Color Print Management Meta SOP Classes**

| SOP Class Name | SOP Class UID | Usage |
|---|---|---|
| Basic Color Print Management Meta SOP Class | 1.2.840.10008.5.1.1.18 | Standard |
| 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 |
| Print Job SOP Class | 1.2.840.10008.5.1.1.14 | Standard |

All mandatory elements of these classes are supported.

## 5.4.1 Association Establishment Policies

### 5.4.1.1 General

The configuration of the Antares DICOM print management application defines the Application Entity Titles, the port numbers, the host names and IP addresses.

### 5.4.1.2 Number of Associations

The Antares DICOM application initiates one/several association(s) at a time, one for each transfer request being processed.

### 5.4.1.3 Asynchronous Nature

The Antares DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

### 5.4.1.4 Implementation Identifying Information

The Antares DICOM software provides a single Implementation Class UID of

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_ SWFSYNGO".

## 5.4.2 Association Initiation by Real-World Activity

The Print Management SCU and SCP establish an association by using the DICOM association services. During association establishment the Print Management application entities negotiate the supported SOP classes to exchange the capabilities of the SCU and the SCP. If the SCU supports only mandatory SOP classes, the negotiation of optional capabilities is not necessary.

### 5.4.2.1 Real World Activity - Print

The system has three possible print configurations in the "Print/Store" preset page.

When "during exam" is selected, an association is opened with the destination printer after the last image on the film sheet is acquired and is closed at the end of film sheet transfer.

If transfer at "end of exam" has been configured, an association is opened with the destination printer(s) when the exam is completed (I.e. a new Patient / Study is registered or End Exam is performed). All film sheets are then transferred. An association is opened for each of the film sheets transferred.

When auto transfer is "disabled" the system copies images onto the film sheet, but auto transfer does not occur.

Printing of Multi-frame Images is not supported.

#### 5.4.2.1.1 Associated Real World Activities - Print

An association is established when the user initiates an "Expose Film Job" operation from the Filming UI screen. Individual images or entire exams can be transferred to the selected DICOM

Print device. The association is opened when the first sheet of each selected exam is transferred and closed when the last sheet transfer is completed.

#### 5.4.2.1.2 Proposed Presentation Contexts

**Table 24: Presentation Context Table**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Extended Negotiation** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Basic Grayscale Print Management Meta SOP Class | 1.2.840.10008.5.1.1.9 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCU | None |
| Basic Color Print Management Meta SOP Class | 1.2.840.10008.5.1.1.18 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCU | None |
| Basic Film Session SOP Class | 1.2.840.10008.5.1.1 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCU | None |
| Basic Film Box SOP Class | 1.2.840.10008.5.1.2 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCU | None |
| Basic Color Image Box SOP Class | 1.2.840.10008.5.1.1.4.1 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCU | None |
| Printer SOP Class | 1.2.840.10008.5.1.1.16 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCU | None |
| Print Job SOP Class | 1.2.840.10008.5.1.1.14 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCU | None |

##### 5.4.2.1.2.1 SOP Specific Conformance Statement

The Print AE provides standard conformance to the Basic Grayscale Print Management Meta SOP Class and Basic Color Print Management Meta SOP Class as an SCU.

The application uses a setting platform to define the properties of the connected DICOM SCP. For example,

- Maximum number of print jobs in the queue.
- Maximum number of print copies.
- Supported film sizes of the connected DICOM SCP.
- Supported film formats of the DICOM SCP.
- Lookup table definition.

###### 5.4.2.1.2.1.1 SOP Specific Conformance to Basic Film Session SOP Class

The Basic Film Session information object definition describes all the user-defined parameters, which are common for all the films of a film session. The Basic Film Session refers to one or more Basic Film Boxes that are printed on one hardcopy printer.

The Antares DICOM Print application supports the following DIMSE Service Elements for the Basic Film session SOP Class as SCU:

- N-CREATE
- N-DELETE

The Basic Film Session SOP Class SOP Class N_CREATE_RQ (SCU) uses the following attributes described in Table 25: .

**Table 25: Basic Film Session N_CREATE_RQ attributes**

| Attribute Name | Attribute Tag | Usage | Range | Description |
|---|---|---|---|---|
| Number of Copies | (2000, 0010) | U | 1 to 99 | Number of requested film copies. |
| Medium Type | (2000, 0030) | U | PAPER<br>CLEAR FILM<br>BLUE FILM | Media used for hardcopy; may be further limited by print vendor/server |
| Film Destination | (2000, 0040) | U | MAGAZINE<br>PROCESSOR | May be further limited by print vendor, and/or print server |

The affected SOP Instance UID received in the N_CREATE_RSP message from the SCP will be saved internally and used for later requests like N_DELETE_RQ on the Basic Film Session SOP Class.

**Table 26: Attributes of the N_DELETE_RQ - Basic Film Session SOP Class**

| Attribute Name | Attribute Tag | Source of Information |
|---|---|---|
| Requested SOP Instance UID | (0008,0018) | Affected SOP Instance UID of N_CREATE_RSP on Basic Film Session. |

The N_DELETE_RQ on the Basic Film Session SOP Class is used to delete the complete Basic Film Session SOP Instance hierarchy.

The Basic Film Session SOP Class interprets the status codes in Table 27: from (NCREATE_RSP, N_DELETE_RSP messages).

**Table 27: Basic Film Session SOP Status**

| Service Status | Meaning | Protocol Code |
|---|---|---|
| Failure | Film Session SOP Instances hierarchy does not contain film box SOP instances | C600 |
| | Unable to create print job, print queue is full | C601 |
| | Image size is larger than images box size | C603 |
| Warning | Memory allocation not supported | B600 |
| | Film session printing is not supported | B601 |
| | Film box does not contain image box (empty page) | B602 |

| | | |
|---|---|---|
| Success | Film belonging to the film session are accepted for printing | 0000 |

#### 5.4.2.1.2.1.2 SOP Specific Conformance to Basic Film Box SOP Class

The Basic Film Box Information object definition describes all the user-defined parameters of one film of the film session. The Basic Film Box information description defines the presentation parameters, which are common for all images on a given sheet of film. The Basic Film Box refers to one or more Image Boxes.

Supported as SCU are:

**Table 28: Supported DIMSE Services for Basic Film Box SOP Class**

| Name | Usage | Description |
|---|---|---|
| N-Create | M | Creates the Film Box. |
| N-Delete | U | Deletes the Film Box. Issued after each film is printed. |
| N-Action | M | PRINT. Sent after each Film Box is filled, and at the end of the exam to force a print of partially filled Film Box. |

The Basic Film Box SOP Class N_CREATE_RQ message uses the attributes in Table 29: . The used values for each attribute depend on how the DICOM printer is configured within the ACUSON Antares product.

**Table 29: Used Basic Film Box N_CREATE_RQ Attributes**

| Attribute Name | Attribute Tag | Usage | Range | Description |
|---|---|---|---|---|
| Image Display Format | (2010,0010) | M | STANDARD\C,R<br>(with C number of columns and R number of rows) | Set to STANDARD\1,1 if "formatted by printer is selected"<br>Otherwise dependent on configured printer |
| Film Orientation | (2010,0040) | M | PORTRAIT | Always set to PORTRAIT |
| Film Size ID | (2010,0050) | M | 8INX10IN<br>10INX12IN<br>10INX14IN<br>11INX14IN<br>14INX14IN<br>14INX17IN<br>24CMX24CM<br>24CMX30CM | Valid film sheet sizes |
| Magnification Type | (2010,0060) | M | REPLICATE<br>BILINEAR<br>CUBIC<br>NONE | Used. |
| Min. Density | (2010,0120) | U | 0-999 | Used - printer specific |

| Attribute Name | Attribute Tag | Usage | Range | Description |
|---|---|---|---|---|
| Max Density | (2010,0130) | U | 0-999 | Used - printer specific |
| Referenced Film Session Sequence | (2010,0500) | M | 1.2.840.10008.5.1.1.1 | |
| Referenced SOP Class UID | (0008,1150) | M | | |
| Referenced SOP Instance UID | (0008,1155) | M | | |

The N_CREATE_RSP message from the SCP then contains the References Image Box Sequence with its SOP Class and Instance UID's, which is stored internally and then used for the Basic Image Box SOP Class N-SET RQ messages.

After all parameters for the Image boxes on the film sheet have been sent then the Antares DICOM Print application SCU will issue a N_ACTION_RQ message with the SOP Instance UID of the Basic Film Box (returned in the N_CREATE_RSP of the Basic Film Box SOP Class) and the Action Type ID set to 1.

The affected SOP Instance UID received in N_CREATE_RSP message from the SCP will be saved internally and can be used later for the N_DELETE_RQ request on the Basic Film Box SOP Class (see Table 30: ).

**Table 30: Attributes of the N_DELETE_RQ on the Basic Film Session SOP Class**

| Attribute Name | Tag | Source of Information |
|---|---|---|
| Requested SOP Instance UID | (0008,0018) | Affected SOP Instance UID of N_CREATE_RSP on Basic Film Box |

The Basic Film Box SOP class interprets the status codes Table 31: from the N_CREATE_RSP, N_DELETE_RSP and N_ACTION_RSP messages.

**Table 31: Basic Film Box SOP Status**

| Service Status | Meaning | Protocol Codes |
|---|---|---|
| Failure | Unable to create print job; print queue is full | C602 |
| | Image size is larger than image box size | C603 |
| Warning | Film box does not contain image box (empty page) | B603 |
| | Requested MinDensity or MaxDensity outside of printer's operating range | B605 |
| Success | Film accepted for printing | 0000 |

#### 5.4.2.1.2.1.3 SOP Specific Conformance to Basic Grayscale Image Box SOP Class

The Basic Grayscale Image Box information object definition is the presentation of an image and image related data in the image area of a film. The Basic Image Box information describes the parameters and image pixel data, which apply to a single image of a sheet of film.

The printing is only suspended in the case of a failure return status of the SCP

The Grayscale Image Box SOP Class uses only the N_SET_RQ with the attributes in Table 32: .

**Table 32: Used Basic Grayscale Image Box N-Set Attributes**

| Name | Attribute | Usage SCU | Supported Values |
|---|---|---|---|
| Image Position | (2020,0010) | M | 1, if "formatted by printer" is selected, otherwise position for each image |
| Basic Grayscale Image Sequence | (2020,0110) | M | |
| >Samples Per Pixel | (0028,0002) | M | 1 |
| >Photometric Interpretation | (0028,0004) | M | MONOCHROME2 for Grayscale images |
| >Rows | (0028,0010) | M | |
| >Columns | (0028,0011) | M | |
| >Pixel Aspect Ratio | (0028,0034) | M | |
| >Bits Allocated | (0028,0100) | M | 8 |
| >Bits Stored | (0028,0101) | M | 8 |
| >High Bit | (0028,0102) | M | 7 |
| >Pixel Representation | (0028,0103) | M | 0 |
| >Pixel Data | (7FE0,0010) | M | |

The Grayscale Image Box SOP Class interprets the following status codes:

**Table 33: Basic Grayscale Image Box SOP Status**

| Service Status | Meaning | Protocol Codes |
|---|---|---|
| Failure | Image contains more pixels than printer can print in Image Box | C603 |
| | Insufficient memory in printer to store the image | C605 |
| Success | | 0000 |

#### 5.4.2.1.2.1.4 SOP Specific Conformance to Basic Color Image Box SOP Class

The Basic Color Image Box information object definition is the presentation of an image and image related data in the image area of a film. The Basic Image Box information describes the presentation parameters and image pixel data, which apply to a single image of a sheet of film.

The Color Image Box SOP Class uses only the N_SET_RQ with the attributes in Table 34: .

**Table 34: Used Basic Color Image Box N-Set Attributes**

| Name | Attribute | Usage SCU | Supported Values |
|---|---|---|---|
| Image Position | (2020,0010) | M | 1 |
| Basic Color Image Sequence | (2020,0111) | M | |
| >Samples Per Pixel | (0028,0002) | M | 3 |
| >Photometric Interpretation | (0028,0004) | M | RGB |
| >Planar Configuration | (0028,0006) | M | 0 |
| >Rows | (0028,0010) | M | |
| >Columns | (0028,0011) | M | |

| | | | |
|---|---|---|---|
| >Pixel Aspect Ratio | (0028,0034) | M | |
| >Bits Allocated | (0028,0100) | M | 8 |
| >Bits Stored | (0028,0101) | M | 8 |
| >High Bit | (0028,0102) | M | 7 |
| >Pixel Representation | (0028,0103) | M | 0 |
| >Pixel Data | (7FE0,0010) | M | |

The Color Image Box SOP Class interprets the status codes in Table 35: .

**Table 35: Basic Color Image Box SOP Status**

| Service Status | Meaning | Protocol Codes |
|---|---|---|
| Warning | Image size larger than image box size | B604 |
| Failure | Image contains more pixels than printer can print in Image Box | C603 |
| | Insufficient memory in printer to store the image | C605 |
| Success | | 0000 |

#### 5.4.2.1.2.1.5 SOP Specific Conformance to Printer SOP Class

The Printer SOP Class has the possibility to monitor the status of the hardcopy printer in a synchronous and asynchronous way.

The Antares DICOM Print application uses the mandatory N-EVENT Report DIMSE service to monitor the changes of the printer status in an asynchronous way.

It can directly ask the Print SCP for it's status or can receive Events from the Print SCP asynchronously:

- N-GET as SCU
- N-EVENT-REPORT as SCU

In both cases the following information is supported:

**Table 36: Used Printer N-Event Reports**

| Event type name | Event | Attributes | Tag | Usage SCU |
|---|---|---|---|---|
| Normal | 1 | 0000 | | |
| Warning | 2 | Printer status info | (2110,0020) | U |
| Failure | 3 | Printer status info | (2110,0020) | U |

**Table 37: Mandatory Printer N_GET_RSP, N_EVENT_REPORT_RQ Attributes**

| Attribute Name | Tag | Usage SCP | Supported Values |
|---|---|---|---|
| Printer Status | (2110,0010) | M | NORMAL<br>FAILURE<br>WARNING |
| Printer Status Info | (2110,0020) | M | SUPPLY EMPTY<br>SUPPLY LOW<br>RECEIVER FULL<br>NO RECEIVE MGZ<br>FILM JAM |

#### 5.4.2.1.2.1.6 SOP Specific Conformance to Print Job SOP Class

The Print Job SOP Class has the possibility to monitor the execution of the print process. The Antares DICOM Print application supports the optional N-EVENT-REPORT DIMSE service to receive the changes of the print job status in an asynchronous way.

The following information is supported:

**Table 38: Used Print Job N-Event Reports**

| Event Type Name | Event | Attributes | Tag | Usage SCU |
|---|---|---|---|---|
| Normal | 1 | Execution Status Info | (2100,0030) | U |
| | | Print Job ID | (2100,0010) | Print Queue Management SOP Class not supported |
| | | Film Session Label | (2000,0050) | U |
| | | Printer Name | (2110,0030) | U |
| Printing | 2 | Exception Status Info | (2100,0030) | U |
| | | Print Job ID | (2110,0020) | Print Queue Management SOP Class not supported |
| | | Film Session Label | (2000,0050) | U |
| | | Printer Name | (2110,0030) | U |
| Done | 3 | Exception Status Info | (2100,0030) | U |
| | | Print Job ID | (2100,0010) | Print Queue Management SOP Class not supported |
| | | Film Session Label | (2000,0050) | U |
| | | Printer Name | (2110,0030) | U |
| Failure | 4 | Exception Status Info | (2100,0030) | U |
| | | Print Job ID | (2100,0010) | Print Queue Management SOP Class not supported |
| | | Film Session Label | (2000,0050) | U |
| | | Printer Name | (2110,0030) | U |

## 5.5 Modality Worklist AE Specification

The Modality Worklist SCU requests that the remote SCP performs a match of all keys specified in the query against the information in its worklist database. The Antares system provides Standard Conformance to the following DICOM V3.0 SOP Class as an SCU:

**Table 39: SOP Classes as an SCU**

| SOP Class Name | SOP Class UID |
|---|---|
| Modality Worklist Information Model - FIND | 1.2.840.10008.5.1.4.31 |

### 5.5.1 Association Establishment Policies

#### 5.5.1.1 General

The configuration of the Antares DICOM modality worklist application defines the Application Entity Title, the port number, the host name and IP address.

#### 5.5.1.2 Number of Associations

The Antares DICOM application initiates one worklist association at a time, one for each transfer request being processed.

#### 5.5.1.3 Asynchronous Nature

The Antares DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

#### 5.5.1.4 Implementation Identifying Information

The Antares DICOM software provides a single Implementation Class UID of

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_ SWFSYNGO".

### 5.5.2 Association Initiation by Real-World Activity

The Modality Worklist SCU establishes an association by using the DICOM association services.

The following DIMSE-C operation is supported as SCU: C-FIND.

#### 5.5.2.1 Real World Activity—Worklist

A separate Network association is established by the AE for each Worklist query operation, with only one active query at a time. The association is closed at completion of the query.

#### 5.5.2.1.1 Proposed Presentation Context

**Table 40: Worklist Presentation Context Table**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Extended Negotiation |
| Name | UID | Name List | UID List | | |
| Modality Worklist Information Model – FIND | 1.2.840.10008.5.1.4.31 | Implicit VR Little Endian<br>Explicit VR Big Endian<br>Explicit VR Little Endian | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |

The Antares system will always act as an SCU and be the client in a client-server model.

#### 5.5.2.1.2 SOP Specific Conformance to Modality Worklist Service SOP Class

The Antares Worklist AE provides conformance to the following DICOM Service SOP Classes as an SCU all at a standard extended level of conformance:

Table 41: provides the list of user configurable matching attributes requested in the Broad Query of the Modality Worklist (C-FIND).

**Table 41: Modality Worklist Matching Key Attributes (Broad Query)**

| Module | Attribute Name | Tag | Match Type | Query Value |
|---|---|---|---|---|
| Scheduled Procedure Step | Scheduled Procedure Step Sequence | (0040,0100) | R | |
| | >Scheduled Station AE Title | (0040,0001) | R | Antares HIS/RIS SCU AE Title or "*" |
| | >Scheduled Procedure Step Start Date | (0040,0002) | R | Today's date or user specified date range |
| | >Scheduled Procedure Step Start Time | (0040,0003) | O | Current time - 23:59:59 or User specified time range or zero length |
| | >Modality | (0008,0060) | R | "US" or "*" |

Table 41: provides the list of user configurable matching attributes requested in the Patient based Query of the Modality Worklist (C-FIND).

**Table 42: Modality Worklist Matching Key Attributes (Patient Based Query)**

| Module | Attribute Name | Tag | Match Type | Query Value |
|---|---|---|---|---|
| Requested Procedure Module | Requested Procedure ID | (0040,1001) | R | As entered in the "Patient Worklist Query" dialog |
| Image Service Request | Accession Number | (0008,0050) | R | As entered in the "Patient Worklist Query" dialog |
| Patient Identification | Patient's Name | (0010,0010) | R | As entered in the "Patient Worklist Query" dialog |
| | Patient ID | (0010,0020) | R | As entered in the "Patient Worklist Query" dialog |

**Return Key Attributes used from the Worklist C_FIND_RSP**

The Antares DICOM worklist SCU supports worklist queries with return key attributes of all types. The following table describes the return keys that the SCU supports. Most attributes can be shown in the User Interface; Patient Registration or Patient Browser. Attributes displayed in the Patient Browser are configurable.

**Table 43: Modality Worklist C_FIND_RSP Return Key Attributes**

| Attribute Name | Tag | Return Key Type | Displayed in User Interface |
|---|---|---|---|
| **SOP Common** | | | |
| Specific Character Set | (0008,0005) | 1C | |
| **Scheduled Procedure Step** | | | |
| Scheduled Procedure Step Sequence | (0040,0100) | 1 | |
| >Scheduled Station AE Title | (0040,0001) | 1 | yes |
| >Scheduled Procedure Step Start Date | (0040,0002) | 1 | yes |
| >Scheduled Procedure Step Start Time | (0040,0003) | 1 | yes |
| >Scheduled Procedure Step End Date | (0040,0004) | 3 | |
| >Scheduled Procedure Step End Time | (0040,0005) | 3 | |
| >Modality | (0008,0060) | 1 | yes |
| >Scheduled Performing Physician's Name | (0040,0006) | 2 | yes |
| >Scheduled Procedure Step Description | (0040,0007) | 1C | yes |
| >Scheduled Station Name | (0040,0010) | 2 | yes |
| >Scheduled Procedure Step Location | (0040,0011) | 2 | yes |
| >Scheduled Protocol Code Sequence | (0040,0008) | 1C | |
| >>Code Value | (0008,0100) | 1C | yes |
| >>Coding Scheme Designator | (0008,0102) | 1C | yes |
| >>Coding Scheme Version | (0008,0103) | 3 | yes |
| >>Code Meaning | (0008,0104) | 3 | yes |
| >Pre-Medication | (0040,0012) | 2C | yes |
| >Scheduled Procedure Step ID | (0040,0009) | 1 | yes |
| >Requested Contrast Agent | (0032,1070) | 2C | yes |
| >Scheduled Procedure Step Status | (0040,0020) | 3 | yes |
| >Comments on the Scheduled Procedure Step | (0040,0400) | 3 | |
| **Requested Procedure** | | | |
| Requested Procedure ID | (0040,1001) | 1 | yes |
| Requested Procedure Description | (0032,1060) | 1C | yes |
| Requested Procedure Code Sequence | (0032,1064) | 1C | |
| >Code Value | (0008,0100) | 1C | yes |
| >Code Scheme Designator | (0008,0102) | 1C | yes |
| >Code Scheme Version | (0008,0103) | 3 | yes |
| >Code Meaning | (0008,0104) | 3 | yes |
| Study Instance UID | (0020,000D) | 1 | |
| Referenced Study Sequence | (0008,1110) | 2 | |
| >Referenced SOP Class UID | (0008,1150) | 1C | |

| Attribute Name | Tag | Return Key Type | Displayed in User Interface |
|---|---|---|---|
| >Referenced SOP Instance UID | (0008,1155) | 1C | |
| Requested Procedure Priority | (0040,1003) | 2 | yes |
| Patient Transport Arrangements | (0040,1004) | 2 | |
| Reason for the Requested Procedure | (0040,1002) | 3 | |
| Confidentiality Code | (0040,1008) | 3 | |
| Reporting Priority | (0040,1009) | 3 | |
| Names of Intended Recipients of results | (0040,1010) | 3 | |
| Requested Procedure Comments | (0040,1400) | 3 | yes |
| Requested Procedure Location | (0040,1005) | 3 | |
| **Imaging Service Request** | | | |
| Accession Number | (0008,0050) | 2 | yes |
| Requesting Physician | (0032,1032) | 2 | yes |
| Referring Physician's Name | (0008,0090) | 2 | yes |
| Reason for the Imaging Service Request | (0040,2001) | 3 | |
| Imaging Service Request Comments | (0040,2400) | 3 | yes |
| Requesting Service | (0032,1033) | 3 | yes |
| Issuing Date of Imaging Service Request | (0040,2004) | 3 | |
| Issuing Time of Imaging Service Request | (0040,2005) | 3 | |
| Placer Order Number / Imaging Service Request | (0040,2016) | 3 | |
| Filler Order Number / Imaging Service Request | (0040,2017) | 3 | |
| Order entered by... | (0040,2008) | 3 | |
| Order Enterer's Location | (0040,2009) | 3 | |
| Order Callback Phone Number | (0040,2010) | 3 | |
| **Visit Identification** | | | |
| Admission ID | (0038,0010) | 2 | yes |
| Issuer of Admission ID | (0038,0011) | 3 | |
| **Visit Status** | | | |
| Current Patient Location | (0038,0300) | 2 | yes |
| **Visit Relationship** | | | |
| Referenced Patient Sequence | (0008,1120) | 2 | |
| >Referenced SOP Class UID | (0008,1150) | 2 | |
| >Referenced SOP Instance UID | (0008,1155) | 2 | |
| **Visit Admission** | | | |
| Institution Name | (0008,0080) | 3 | yes |
| Admitting Diagnoses Description | (0008,1080) | 3 | yes |
| **Patient Identification** | | | |
| Patient's Name | (0010,0010) | 1 | yes |
| Patient ID | (0010,0020) | 1 | yes |
| Other Patient IDs | (0010,1000) | 3 | |

| Attribute Name | Tag | Return Key Type | Displayed in User Interface |
|---|---|---|---|
| Other Patient Names | (0010,1001) | 3 | |
| **Patient Demographic** | | | |
| Patients Birth Date | (0010,0030) | 2 | yes |
| Patient's Sex | (0010,0040) | 2 | yes |
| Patient's Primary Language Code Sequence | (0010,0101) | 3 | |
| >Code Value | (0008,0100) | 1 | |
| >Coding Scheme Designator | (0008,0102) | 1 | |
| >Code Meaning | (0008,0104) | 1 | |
| >Patient's Primary Language Code Modifier Sequence | (0010,0102) | 3 | |
| >>Code Value | (0008,0100) | 1 | |
| >>Coding Scheme Designator | (0008,0102) | 1 | |
| >>Code Meaning | (0008,0104) | 1 | |
| Patient's Size | (0010,1020) | 3 | yes |
| Patient's Weight | (0010,1030) | 2 | yes |
| Confidentiality constraint on patient data | (0040,3001) | 2 | |
| Patient's Address | (0010,1040) | 3 | |
| Military Rank | (0010,1080) | 3 | yes |
| Ethnic Group | (0010,2160) | 3 | yes |
| Patient Comments | (0010,4000) | 3 | yes |
| **Patient Medical** | | | |
| Patient State | (0038,0500) | 2 | yes |
| Pregnancy Status | (0010,21C0) | 2 | yes |
| Medical Alerts | (0010,2000) | 2 | yes |
| Contrast Allergies | (0010,2110) | 2 | yes |
| Special Needs | (0038,0050) | 2 | yes |
| Smoking Status | (0010,21A0) | 3 | yes |
| Last Menstrual Date | (0010,21D0) | 3 | yes |
| Additional Patient History | (0010,21B0) | 3 | yes |

#### 5.5.2.1.3 Error Handling

Table 44: indicates the possible response status codes, which a SCP may return following the SCU's C-FIND command. Only those status responses that indicate some form of error condition are presented to the user.

**Table 44: C-FIND Status Responses**

| Service Status | Further Meaning | Protocol Codes |
|---|---|---|
| Refused | Out of resources | A700 |
| Failed | Identifier does not match SOP Class | A900 |
| | Unable to process | Cxxx |

| Service Status | Further Meaning | Protocol Codes |
|---|---|---|
| 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 and/or for this Identifier. | FF01 |

## 5.6 Modality Performed Procedure Step AE Specification

The Modality Performed Procedure Step SCU informs the remote SCP about the performed examinations at the modality. The ACUSON Antares system provides Standard Conformance to the following DICOM V3.0 SOP Class as an SCU:

**Table 45: SOP Classes as an SCU**

| SOP Class Name | SOP Class UID |
|---|---|
| Modality Performed Procedure Step | 1.2.840.10008.3.1.2.3.3 |

### 5.6.1 Association Establishment Policies

#### 5.6.1.1 General

The configuration of the Antares DICOM Performed Procedure Step application defines the Application Entity Title, the port number, the host name and IP address.

#### 5.6.1.2 Number of Associations

The Antares DICOM application initiates one/several association(s) at a time, one for each transfer request being processed.

#### 5.6.1.3 Asynchronous Nature

The Antares DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

#### 5.6.1.4 Implementation Identifying Information

The Antares DICOM software provides a single Implementation Class UID of

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_ SWFSYNGO".

### 5.6.2 Association Initiation by Real-World Activity

The Modality Performed Procedure Step SCU establishes an association by using the DICOM association services.

The following DIMSE-N operations are supported as SCU:

- N-CREATE
- N-SET

### 5.6.2.1 Real World Activity

#### 5.6.2.1.1 Associated Real-World Activity

The associated Real-World activity is to send examination information to an SCP by using the DICOM Modality Performed Procedure Step Service.

#### 5.6.2.1.2 Proposed Presentation Contexts

The Antares DICOM application will propose Presentation Contexts as shown in the following table:

**Table 46: Proposed Presentation Contexts**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Extended Negotiation |
| Name | UID | Name List | UID List | | |
| Modality Performed Procedure Step | 1.2.840.10008.3.1.2.3.3 | Implicit VR Little Endian<br>Explicit VR Big Endian<br>Explicit VR Little Endian | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |

#### 5.6.2.1.3 SOP Specific Conformance Statement

**Attributes used for the Performed Procedure Step N-CREATE**

The Antares DICOM performed procedure step SCU informs the remote SCP when the examination of a scheduled procedure step will be performed. The N-CREATE message is sent when the examination is started. The following table describes the supported attributes for a N-CREATE message.

**Table 47: Performed Procedure Step N-CREATE Attributes**

| Attribute Name | Tag | Required Type | Value |
|---|---|---|---|
| **SOP Common** | | | |
| Specific Character Set | (0008,0005) | 1C | from MWL or created |
| **Performed Procedure Step Relationship** | | | |
| Scheduled Step Attribute Sequence | (0040,0270) | 1 | |
| >Study Instance UID | (0020,000D) | 1 | from MWL or created |
| >Referenced Study Sequence | (0008,1110) | 2 | from MWL or zero length |
| >>Referenced SOP Class UID | (0008,1150) | 1C | |
| >>Referenced SOP Instance UID | (0008,1155) | 1C | |
| >Accession Number | (0008,0050) | 2 | from MWL or user input |
| >Placer Order Number / Imaging Service Request | (0040,2016) | 3 | from MWL or zero length |
| >Filler Order Number / Imaging Service Request | (0040,2017) | 3 | from MWL or zero length |

| Attribute Name | Tag | Required Type | Value |
|---|---|---|---|
| >Requested Procedure ID | (0040,1001) | 2 | from MWL or user input |
| >Requested Procedure Description | (0032,1060) | 2 | from MWL or zero length |
| >Scheduled Procedure Step ID | (0040,0009) | 2 | from MWL or zero length |
| >Scheduled Procedure Step Description | (0040,0007) | 2 | from MWL or zero length |
| >Scheduled Protocol Code Sequence | (0040,0008) | 2 | from MWL or zero length |
| >>Code Value | (0008,0100) | 1C | |
| >>Coding Scheme Designator | (0008,0102) | 1C | |
| >>Code Scheme Version | (0008,0103) | 3 | |
| >>Code Meaning | (0008,0104) | 3 | |
| Patient's Name | (0010,0010) | 2 | from MWL or user input |
| Patient ID | (0010,0020) | 2 | from MWL or user input or created |
| Patients Birth Date | (0010,0030) | 2 | from MWL or user input |
| Patient's Sex | (0010,0040) | 2 | from MWL or user input |
| Referenced Patient Sequence | (0008,1120) | 2 | from MWL or zero length |
| >Referenced SOP Class UID | (0008,1150) | 1C | |
| >Referenced SOP Instance UID | (0008,1155) | 1C | |
| **Performed Procedure Step Information** | | | |
| Performed Procedure Step ID | (0040,0253) | 1 | from SPS ID or created |
| Performed Station AE Title | (0040,0241) | 1 | own AE Title |
| Performed Station Name | (0040,0242) | 2 | own hostname |
| Performed Location | (0040,0243) | 2 | from SPS Location or zero length |
| Performed Procedure Step Start Date | (0040,0244) | 1 | created |
| Performed Procedure Step Start Time | (0040,0245) | 1 | created |
| Performed Procedure Step Status | (0040,0252) | 1 | IN PROGRESS |
| Performed Procedure Step Description | (0040,0254) | 2 | from SPS Description or zero length |
| Performed Procedure Type Description | (0040,0255) | 2 | zero length |
| Procedure Code Sequence | (0008,1032) | 2 | from Requested Procedure Code or zero length |
| >Code Value | (0008,0100) | 1C | |
| >Code Scheme Designator | (0008,0102) | 1C | |
| >Code Scheme Version | (0008,0103) | 3 | |
| >Code Meaning | (0008,0104) | 3 | |
| Performed Procedure Step End Date | (0040,0250) | 2 | zero length |
| Performed Procedure Step End Time | (0040,0251) | 2 | zero length |
| Comments on the Performed Procedure Step | (0040,0280) | 3 | from MPPS dialog |
| **Image Acquisition Results** | | | |
| Modality | (0008,0060) | 1 | US |
| Study ID | (0020,0010) | 2 | from Requested Procedure ID or created |

| Attribute Name | Tag | Required Type | Value |
|---|---|---|---|
| Performed Protocol Code Sequence | (0040,0260) | 2 | from Scheduled Action Item Code SQ or zero length |
| >Code Value | (0008,0100) | 1C | |
| >Code Scheme Designator | (0008,0102) | 1C | |
| >Code Scheme Version | (0008,0103) | 3 | |
| >Code Meaning | (0008,0104) | 3 | |
| Performed Series Sequence | (0040,0340) | 2 | |
| >Performing Physicians's Name | (0008,1050) | 2C | from MWL or user input |
| >Protocol Name | (0018,1030) | 1C | set to "unknown" |
| >Operator's Name | (0008,1070) | 2C | user input |
| >Series Instance UID | (0020,000E) | 1C | created |
| >Series Description | (0008,103E) | 2C | zero length |
| >Retrieve AE Title | (0008,0054) | 2C | zero length |
| >Referenced Image Sequence | (0008,1140) | 2C | zero length |
| >>Referenced SOP Class UID | (0008,1150) | 1C | |
| >>Referenced SOP Instance UID | (0008,1155) | 1C | |
| >Referenced Non-Image Composite SOP Instance Sequence | (0040,0220) | 2C | |
| >>Referenced SOP Class UID | (0008,1150) | 1C | |
| >>Referenced SOP Instance UID | (0008,1155) | 1C | |
| >Referenced Standalone SOP Instance Sequence | (0040,0220) | 2C | zero length |
| **Billing and Material Code** | | | |
| Billing Procedure Step Sequence | (0040,0320) | 3 | |
| >Code Value | (0008,0100) | 1C | |
| >Code Scheme Designator | (0008,0102) | 1C | |
| >Code Scheme Version | (0008,0103) | 1C | |
| >Code Meaning | (0008,0104) | 1C | |
| Film Consumption Sequence | (0040,0321) | 3 | |
| >Number of Films | (2100,0170) | 3 | |
| >Medium Type | (2000,0030) | 3 | |
| >Film Size ID | (2010,0050) | 3 | |
| Billing Supplies and Devices Sequence | (0040,0324) | 3 | |
| >Billing Item Sequence | (0040,0296) | 3 | |
| >>Code Value | (0008,0100) | 1C | |
| >>Code Scheme Designator | (0008,0102) | 1C | |
| >>Code Scheme Version | (0008,0103) | 1C | |
| >>Code Meaning | (0008,0104) | 1C | |
| >Quantity Sequence | (0040,0293) | 3 | |
| >> Quantity | (0040,0294) | 3 | |
| >>Measuring Units Sequence | (0040,0295) | 3 | |
| >>>Code Value | (0008,0100) | 1C | |

| Attribute Name | Tag | Required Type | Value |
|---|---|---|---|
| >>>Code Scheme Designator | (0008,0102) | 1C | |
| >>>Code Scheme Version | (0008,0103) | 1C | |
| >>>Code Meaning | (0008,0104) | 1C | |

### Status Codes of the Performed Procedure Step N-CREATE

The Performed Procedure Step SCU interprets the following status values:

**Table 48: N-CREATE Response Status**

| Service Status | Meaning | Status Codes (0000,0900) |
|---|---|---|
| Failure | Processing Failure | 0110 |
| | No such attribute | 0105 |
| | Invalid attribute value | 0106 |
| | Duplicate SOP Instance | 0111 |
| | No such SOP Instance | 0112 |
| | No such SOP class | 0118 |
| | Class instance conflict | 0119 |
| | Missing attribute | 0120 |
| | Missing attribute value | 0121 |
| | Resource limitation | 0213 |
| Success | Successful Operation | 0000 |

### Attributes used for the Performed Procedure Step N-SET

The Antares DICOM performed procedure step SCU informs the remote SCP about the performed examination and its status. The N-SET message is only sent once when the exam is ended with status “COMPLETED” or when the examination could not be completed with status “DISCONTINUED”. The following table describes the supported attributes for a N-SET message.

**Table 49: Performed Procedure Step N-SET Attributes**

| Attribute name | Tag | Required Type | Value |
|---|---|---|---|
| **Performed Procedure Step Information** | | | |
| Performed Procedure Step Status | (0040,0252) | 3 | COMPLETED or DISCONTINUED |
| Performed Procedure Step Description | (0040,0254) | 3 | from SPS Description or user input |
| Performed Procedure Type Description | (0040,0255) | 3 | user input |
| Procedure Code Sequence | (0008,1032) | 3 | from Requested Procedure Code |
| >Code Value | (0008,0100) | 1C | |
| >Code Scheme Designator | (0008,0102) | 1C | |
| >Code Scheme Version | (0008,0103) | 3 | |

| Attribute name | Tag | Required Type | Value |
|---|---|---|---|
| >Code Meaning | (0008,0104) | 3 | |
| Performed Procedure Step End Date | (0040,0250) | 3 | created |
| Performed Procedure Step End Time | (0040,0251) | 3 | created |
| **Image Acquisition Results** | | | |
| Performed Action Item Code Sequence | (0040,0260) | 3 | from Scheduled Action Item Code SQ. |
| >Code Value | (0008,0100) | 1C | |
| >Code Scheme Designator | (0008,0102) | 1C | |
| >Code Scheme Version | (0008,0103) | 3 | |
| >Code Meaning | (0008,0104) | 3 | |
| Performed Series Sequence | (0040,0340) | 3 | |
| >Performing Physicians's Name | (0008,1050) | 2C | from MWL or user input |
| >Protocol Name | (0018,1030) | 1C | user input or set to "unknown" |
| >Operator's Name | (0008,1070) | 2C | user input |
| >Series Instance UID | (0020,000E) | 1C | created |
| >Series Description | (0008,103E) | 2C | user input |
| >Retrieve AE Title | (0008,0054) | 2C | from Storage Commitment RSP or zero length |
| >Referenced Image Sequence | (0008,1140) | 2C | created |
| >>Referenced SOP Class UID | (0008,1150) | 1C | |
| >>Referenced SOP Instance UID | (0008,1155) | 1C | |
| >Referenced Standalone SOP Instance Sequence | (0040,0220) | 2C | zero length |
| All other attributes from Billing and Material Code Module | | 3 | user input |

### Status Codes of the Performed Procedure Step N-SET

The Performed Procedure Step SCU interprets the following status values:

**Table 50: N-SET Response Status**

| Service Status | Meaning | Status Codes (0000,0900) |
|---|---|---|
| Failure | Processing Failure: Performed Procedure Step Object may no longer be updated | 0110 |
| | No such attribute | 0105 |
| | Invalid attribute value | 0106 |
| | No such SOP Instance | 0112 |
| | Invalid object instance | 0117 |
| | No such SOP class | 0118 |
| | Class instance conflict | 0119 |
| | Missing attribute value | 0121 |
| | Resource limitation | 0213 |

| Service Status | Meaning | Status Codes (0000,0900) |
|---|---|---|
| Success | Successful Operation | 0000 |

# 6.0 Communication Profiles

All ACUSON Antares system application entities utilize the DICOM 3.0 TCP/IP communication support as defined in PS3.8 (Part 8) of the DICOM 3.0 Standard.

## 6.1 TCP/IP Stack Supported

Each process inherits its TCP/IP stack from the ACUSON Antares's operating system TCP/IP stack. Port number 104 is used for DICOM communication with the Antares.

### 6.1.1 Physical Media Supported

Standard representations of IEEE 802.3 (10 Base-T and 100 Base-T is supported).

# 7.0 Extensions/Specializations/Privatizations

## 7.1 Standard extended/specialized/private Syntaxes

The ACUSON Antares includes standard extended and private attributes in the US Image and US-MF Image IODs. All standard extended and private attributes are type 3. Support for these attributes by receiving SCPs is not required. See Table 9: US Image IOD Attributes and Table 12: US-MF Image IOD Attributes - 3D Volumetric Data for more information.

## 7.2 Private Transfer Syntaxes

None.

# 8.0 Configuration

ACUSON Antares Networking and DICOM parameters can be configured through the Antares Service configuration UI screens. The following configuration is supported:

- Network (local and remote)
- DICOM Store & Storage Commitment
- DICOM Print
- DICOM Worklist & MPPS

## 8.1 Basic System Configuration

The following system parameters can be configured via the Antares System Presets Basic Menu screens. These parameters are configured in the form of pick lists and are available to the user when registering a patient or correcting patient data. When selected, these parameters are mapped to DICOM image attributes:

- Institution Name (0008, 0080)

- Operators Name (0008,1070)
- Referring Physician (0008,0090)
- Performing Physician (0008,1050)
- Requesting Physician (0032,1032)

## 8.2 DICOM Network Configuration

DICOM and networking parameters can be configured for both the local Antares device and remote DICOM Service Class Providers through the Local Service Configuration User Interface.

### 8.2.1 Local Host - TCP/IP and General

The ACUSON Antares local network parameters are configurable. The following network parameters can be configured for Antares device:

- Host Name
- IP address
- Network IP mask
- Router/Gateway IP addresses
- DICOM Storage, Print and HIS/RIS SCU Application Entity Titles

## 8.3 DICOM Storage Configuration

Remote DICOM Storage and Storage Commitment Service Class Providers are configured through the DICOM - Network Nodes Configuration menu. The following parameters can be configured for each device:

- Host name
- IP address
- AET - Application Entity Title
- Port number
- Proposed transfer syntaxes - (ILE, ELE, EBE, JPEG Lossy, JPEG Lossless)
- Storage Commitment Results in same association as Storage Commitment Request.
- Storage Commitment Results time-out

## 8.4 DICOM HIS/RIS Configuration

Remote DICOM Worklist and Modality Performed Procedure Step Service Class Providers are configured through the DICOM - HIS/RIS Configuration menu. The following parameters can be configured for each Worklist/MPPS server:

- Host name
- IP address
- AET - Application Entity Title

- Port number
- Query waiting time (in seconds)
- Maximum number of matching results
- Automatic Worklist query interval (in minutes)

## 8.5 DICOM Print Configuration

For each DICOM Print server, the following data is configurable by the user using the Hardcopy Devices page of the Service User Interface The user can change the page layout and the destination printer at any time during the operation of the Antares. The effect of changing parameters of the DICOM Print server will be seen at the next film sheet. The current film sheet is not affected by changing these parameters.

**Table 51: User Configurable Printer Parameters**

| Parameter | Description |
|---|---|
| Host name | |
| IP Address | |
| AE Title | Application Entity Title |
| Port number | |
| Color Appearance | Color or monochrome |
| Print Priority | HIGH= Urgent |
| Medium Type | CLEAR FILM, BLUE FILM, and Paper |
| Film Destination | MAGAZINE, PROCESSOR |
| Max. Density | Used to define the Black value - printer specific |
| Min. Density | Used to define the White value - printer specific |
| Transformation | replicate, bilinear, cubic, none |
| Smoothing | 0, 2, 3, 4 |
| Background | Black or White |

## 8.6 “Print/Store” Key Configuration

The Antares user can configure “Print/Store” hard keys to “Output Device” mapping through the System Presets - Print/Store Configuration menu. Images are acquired and sent to the assigned device when the user presses the associated key. The following configuration is supported.

### 8.6.1 Multiple Destinations - Auto Transfer

The Antares “Print/Store” keys may be individually configured to transfer images to multiple DICOM Storage devices with a single key press. The system can be configured to automatically transfer images during the exam (with each Print/Store key press) or at the end of the exam (with an End Exam button press or a New Patient or Study). Configuration is on a per destination storage SCP basis.

### 8.6.2 Overlay or Burned in graphics

By default the Antares system burns all text and graphics into the image pixel data. Alternatively, the Antares may be configured to store image text and graphics using the DICOM Overlay module.

### 8.6.3 Secondary Capture Image Storage SOP Class

By default the Antares system stores all static images to the local database using the Ultrasound Image Storage SOP Class. The Antares may be configured to store all static images as Secondary Capture (Secondary Capture Image Storage SOP Class). This is done to allow image transfer to remote Storage SCPs that do not support the Ultrasound Image Storage SOP Class.

### 8.6.4 Auto Retry

Auto retry allows images to be automatically resent to destination Storage SCP devices when certain failures have occurred, or if the destination device is offline. The user can configure the retry interval (5 - 60 minutes) and the maximum number of retries (0 - 512). Auto Retry is configured through the Advanced - Transfer Configuration Menu. These are global setting and apply to all configured Storage SCP devices.

### 8.6.5 Compression

The user may configure the desired compression type (transfer syntax) for image transfer through the Advanced - Transfer Configuration Menu. Configuration is on a per Storage SCP device basis. Choices are:

- None (uses preferred ELE, ILE, EBE transfer syntax)
- JPEG Lossless (Non-Hierarchical, First-Order Prediction - UID = 1.2.840.10008.1.2.4.70)
- JPEG Lossy (JPEG Baseline, Process 1 - UID = 1.2.840.10008.1.2.4.50)

When JPEG Lossy is selected the use can also enter a compression Quality Factor, in percent.

*Note: JPEG Quality factor below 100% may lead to insufficient diagnostic quality of transferred image.*

### 8.6.6 Print Routing - Auto Transfer

The Antares “Print/Store” keys may be individually configured to transfer images to DICOM Printers, or Local OEM Printers. The “Print/Store” keys may also be individually configured to automatically route images to either a B/W or Color printer based on image content. Routing is determined by the following image types:

1. **B&W—**The image only contains only B&W (grayscale) data.
2. **Color Doppler—**The image contains Color Doppler data.
3. **Tinted—**The image contains only B&W (grayscale) data that is pseudo color tinted.
4. **2D Ref.—**The 2D reference image contains Color Doppler data.
5. **Misc.—**Miscellaneous images. This includes GUI screen captures, external video captures such as VCR, and image review screens containing multiple images.

The user assigns the desired network grayscale or color printer or print server using the “Print/ Store” Configuration presets function. Print media size, format and orientation for the selected Printer device can also be configured through the “Print/Store” Presets function.

# 9.0 Media Storage

The ACUSON Antares system is a device that generates ultrasound images that can be saved to CD-R (CD-Recordable) media using DICOM standard protocols and definitions. The applications described refer to the Antares DICOM off-line media storage implementation acting as FSC for the specific application profiles and the related SOP Class instances. The ACUSON Antares system acts as a File Set Reader and Updater only for CD-R discs that were created on an ACUSON Antares system.

## 9.1 Implementation Model

ACUSON Antares system users can store images directly on the system hard disk.

## 9.2 Application Data Flow Diagram

Figure 9: illustrates the ACUSON Antares system’s Application Entity (AE) Data Flow Diagram. All relationships between user invoked activities and the associated real-world activities provided by the DICOM archive application are depicted.

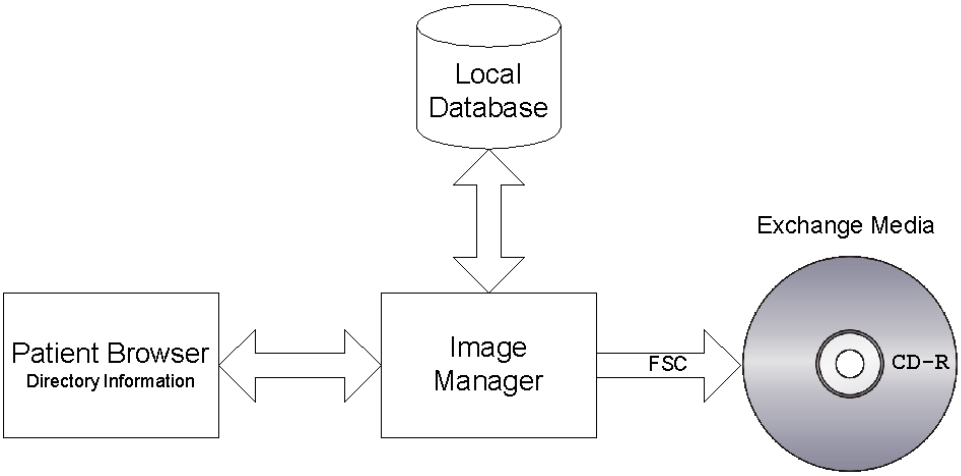


**Figure 9: Media Storage Application Data Flow Diagram**

# 10.0 Media Storage AE Functional Definition

The ACUSON Antares DICOM offline media storage application consists of the DICOM Image Manager application entity serving all interfaces to access offline media. The DICOM application is capable of:

- Creating a new File set onto an unwritten medium (FSC)

- Updating an existing File set by writing new SOP Instances onto the medium. This is only supported on media that was created on the Antares system.
- Reading the File set's DICOMDIR and displaying the information. This is only supported on media that was created on the Antares system.
- Copying SOP Instances from the medium onto local storage. This is only supported on media and SOP Instances that were created on the Antares system.

## 10.1 Real-World Activities for Media Storage

### 10.1.1 Browse Directory Information—Real World Activity

The Antares application entity is capable of browsing CD DICOM Exchange media and displaying the contents of the DICOMDIR. This is only supported on media that was created on the Antares system.

### 10.1.2 Import into Local Storage—Real-World Activity

The Antares application entity acts as a FSR using the interchange option when requested to import SOP Instances from the CD media into local storage.

The SOP Instance selected from the media directory will be copied into the local storage. This is only supported on media and SOP Instances that were created on the Antares system.

### 10.1.3 Export to Local Archive Media—Real-World Activity

The Antares application acts as a FSC (media not initialized) using the interchange option when requested to copy SOP Instances from the local database to the local archive media (CD-R).

### 10.1.4 Sequencing of Real World Activities

The DICOM Archive application will not perform updates before the Directory information of the DICOMDIR is completely read.

## 10.2 AE Specifications

### 10.2.1 Antares Media Storage AE Specification

The Antares AE provides conformance to the following DICOM SOP Classes as an FSC. The following specifications apply to the AE as depicted in Figure 9: .

When configuring an uncompressed Transfer Syntax, the STD-US and STD-GEN application profile classes will be extended to store instances of the following SOP classes in compressed format.

**Table 52: Application profiles, Activities, and Roles for DICOM Exchange Media**

| Application Profiles Supported | Real World Activity | Role | SC Option |
|---|---|---|---|
| STD-GEN-CDR<br>STD-US-SC-MF-CDR<br>STD-US-ID-MF-CDR | Create CD-R | FSC † | Interchange |
| | Update CD-R | n/a † | Interchange |
| | Display Directory | n/a † | Interchange |
| | Copy to Local Storage | n/a † | Interchange |

† The ACUSON Antares system acts as a File Set Reader (FSR) and File Set Updater (FSU) for CD-R discs that were created on an ACUSON Antares system.

### 10.2.2 File Meta Information Options

The Implementation Class UID is:

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_ SWFSYNGO".

## 10.3 Media Storage Application Profile

### 10.3.1 DICOMDIR keys

The DICOMDIR file will contain the following attributes for the levels Patient - Study - Series - Image (valid for all Application profiles described in this section).

**Table 53: DICOMDIR Keys**

| Attribute Name | Tag | Type | Notes |
|---|---|---|---|
| **File-Set Identification** | | | |
| File-set ID | (0004,1130) | 2 | Volume label of media |
| **Directory Information** | | | |
| Offset of the First Directory Record of the Root Directory Entry | (0004,1200) | 1 | |
| Offset of the Last Directory Record of the Root Directory Entity | (0004,1202) | 1 | |
| File-set Consistency Flag | (0004,1212) | 1 | 0000H |
| Directory Record Sequence | (0004,1220) | 2 | |
| > Offset of the Next Directory Record | (0004,1400) | 1C | |
| > Record In-use flag | (0004,1410) | 1C | FFFFH |
| > Offset of Referenced Lower-Level Directory Entity | (0004,1420) | 1C | |
| > Directory Record Type | (0004,1430) | 1C | PATIENT, STUDY, SERIES, IMAGE |
| > Referenced File ID | (0004,1500) | 1C | contains the filename on media for the Directory Records of Type IMAGE |
| > Referenced SOP Class UID in File | (0004,1510) | 1C | for the Directory Records of Type IMAGE |
| > Referenced SOP Instance UID in File | (0004,1511) | 1C | for the Directory Records of Type IMAGE |
| > Referenced Transfer Syntax UID in File | (0004,1512) | 1C | for the Directory Records of Type IMAGE |
| > Record Selection Keys | see below | | |
| **Patient Keys** | | | **Directory Record Type PATIENT** |
| Specific Character Set | (0008,0005) | 1C | |
| Patient's Name | (0010,0010) | 2 | |

| Attribute Name | Tag | Type | Notes |
|---|---|---|---|
| Patient ID | (0010,0020) | 1 | |
| Date Of Birth | (0010,0030) | 3 | |
| Patient's Sex | (0010,0040) | 3 | |
| **Study Keys** | | | **Directory Record Type STUDY** |
| Specific Character Set | (0008,0005) | 1C | |
| Study Date | (0008,0020) | 1 | |
| Study Time | (0008,0030) | 1 | |
| Accession Number | (0008,0050) | 2 | |
| Study Description | (0008,1030) | 2 | |
| Study Instance UID | (0020,000D) | 1C | |
| Study ID | (0020,0010) | 1 | Will be generated automatically, if not present. Value = "-" |
| **Series Keys** | | | **Directory Record Type SERIES** |
| Specific Character Set | (0008,0005) | 1C | |
| Series Date | (0008,0021) | 3 | |
| Series Time | (0008,0031) | 3 | |
| Modality | (0008,0060) | 1 | |
| Institution name | (0008,0080) | 3 | |
| Institution Address | (0008,0081) | 3 | |
| Series Description | (0008,103E) | 3 | |
| Performing Physician | (0008,1050) | 3 | |
| Series Instance UID | (0020,000E) | 1 | |
| Series Number | (0020,0011) | 1 | |
| **Image Keys** | | | **Directory Record Type IMAGE** |
| Specific Character Set | (0008,0005) | 1C | |
| Image Type | (0008,0008) | 3 | |
| SOP Class UID | (0008,0016) | 3 | |
| SOP Instance UID | (0008,0018) | 3 | |
| Image Date | (0008,0023) | 3 | |
| Image Time | (0008,0033) | 3 | |
| Image Number | (0020,0013) | 1 | |
| Rows | (0028,0010) | 3 | |
| Columns | (0028,0011) | 3 | |
| Icon Image Sequence | (0088,0200) | 3 | |
| > Samples per Pixel | (0028,0002) | | 1 |
| > Photometric Interpretation | (0028,0004) | | MONOCHROME2 or PALETTE COLOR |
| > Rows | (0028,0010) | | 64 |
| > Columns | (0028,0011) | | 64 |
| > Bits Allocated | (0028,0100) | | 8 |
| > Bits Stored | (0028,0101) | | 8 |

| Attribute Name | Tag | Type | Notes |
|---|---|---|---|
| > High Bit | (0028,0102) | | 7 |
| > Pixel Representation | (0028,0103) | | 0 (unsigned) |
| > Pixel Data | (7FE0,0010) | | Icon Image pixel data |
| **SR Document Keys** | | | **Directory Record Type SR Document** |
| Specific Character Set | (0008,0005) | 1C | |
| Image Date | (0008,0023) | 1 | |
| Image Time | (0008,0033) | 1 | |
| Image Number | (0020,0013) | 1 | |
| Concept Name Code Sequence | (0040,A043) | 1 | |
| > Code Value | (0008,0100) | 1C | One of the following combinations:<br>125000, DCM, OB-GYN Ultrasound Procedure Report<br>125001, DCM, Vascular Ultrasound Procedure Report<br>125200, DCM, Adult Echocardiography Procedure Report |
| > Coding Scheme Designator | (0008,0102) | 1C | |
| > Code Meaning | (0008,0104) | 1C | |
| Completion Flag | (0040,A491) | 1 | PARTIAL |
| Verification Flag | (0040,A493) | 1 | UNVERIFIED |

### 10.3.2 Compliance to STD-GEN-CDR

The ACUSON Antares conforms to the STD-GEN-CDR profile. The following SOP Classes will be supported as an FSC.

**Table 54: STD-GEN-CDR Supported SOP Classes**

| IOD | SOP Class UID | Transfer Syntax and UID | FSC | FSR | FSU |
|---|---|---|---|---|---|
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | Explicit VR Little Endian | Yes | No † | No † |

### 10.3.3 Compliance to STD-US-SC-MF-CDR

For media conforming to the STD-US-SC-MF-CDR profiles the following SOP Classes and transfer syntaxes will be supported as an FSC.

**Table 55: STD-US-SC-MF-CDR Supported SOP Classes**

| IOD | SOP Class UID | Transfer Syntax and UID | FSC | FSR | FSU |
|---|---|---|---|---|---|
| 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 | Yes | No † | No † |
| | | JPEG Lossy (Baseline) 1.2.840.10008.1.2.4.50 | | | |
| Ultrasound Multi-frame Image Storage (Clips) | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG Lossy (Baseline) 1.2.840.10008.1.2.4.50 | Yes | No † | No † |

The following Photometric Interpretations are supported by FSC:

- RGB - Ultrasound Image Storage only
- YBR_FULL_422 - Ultrasound Multi-frame Image Storage (Clips) only

Note: The Antares stores clips locally using JPEG Lossy (Baseline) compression and only has access to the pixel data in lossy compressed form. Conversion to other transfer syntaxes is not supported.

† The ACUSON Antares system acts as a File Set Reader (FSR) and File Set Updater (FSU) only for CD-R discs that were created on an ACUSON Antares system.

### 10.3.4 Compliance to STD-US-ID-MF-CDR

For media conforming to the STD-US-ID-MF-CDR profiles the following SOP Classes and transfer syntaxes will be supported as an FSC.

**Table 56: STD-US-ID-MF-CDR Supported SOP Classes**

| IOD | SOP Class UID | Transfer Syntax and UID | FSC | FSR | FSU |
|---|---|---|---|---|---|
| Ultrasound Multi-frame Image Storage (3D volumetric data sets) | 1.2.840.10008.5.1.4.1.1.3.1 | Explicit VR Little Endian 1.2.840.10008.1.2.1 | Yes | No † | No † |
| | | JPEG Lossy (Baseline) 1.2.840.10008.1.2.4.50 | | | |

The following Photometric Interpretations are supported by FSC:

- MONOCHROME2

Note: The Ultrasound Multi-frame Image Storage SOP is used to transfer Antares Ultrasound 3D volumetric data sets. Each frame represents a single slice from the 3D volume.

† The ACUSON Antares system acts as a File Set Reader (FSR) and File Set Updater (FSU) only for CD-R discs that were created on a ACUSON Antares system.

## 10.4 Augmented and Private Profiles

### 10.4.1 Augmented Application Profiles

When configuring a compressed Transfer Syntax the STD-US and STD-GEN application profile classes will be extended to store instances of the following SOP classes in compressed format.

**Table 57: Augmented Application profiles, Activities, and Roles for DICOM Exchange Media**

| Application Profiles Supported | Real World Activity | Role | SC Option |
|---|---|---|---|
| AUG-GEN-CDR<br>AUG-US-SC-MF-CDR<br>AUG-US-ID-MF-CDR | Create CD-R | FSC † | Interchange |
| | Update CD-R | n/a † | Interchange |
| | Display Directory | n/a † | Interchange |
| | Copy to Local Storage | n/a † | Interchange |

#### 10.4.1.1 AUG-GEN-CDR, AUG-US-SC-MF-CDR, AUG-US-ID-MF-CDR

For media conforming to the AUG-GEN-CDR, AUG-US-SC-MF-CDR and AUG-US-ID-MF-CDR Profile the following SOP classes will be supported as an FSC.

**Table 58: AUG-GEN-CDR, AUG-US-SC-MF-CDR and AUG-US-ID-MF-CDR Supported SOP Classes**

| Information Object Definitions | SOP Class UID | Transfer Syntax and UID | FSC | FSR | FSU |
|---|---|---|---|---|---|
| US-MF image (3D data set) | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG Lossless Process 14 1.2.840.10008.1.2.4.70 | Yes | No † | No † |
| US Image | 1.2.840.10008.5.1.4.1.1.6.1 | JPEG Lossless Process 14 1.2.840.10008.1.2.4.70 | Yes | No † | No † |
| SC Image | 1.2.840.10008.5.1.4.1.1.7 | JPEG Lossless Process 14 1.2.840.10008.1.2.4.70 | Yes | No † | No † |
| SC Image | 1.2.840.10008.5.1.4.1.1.7 | JPEG lossy (baseline) 1.2.840.10008.1.2.4.50 | Yes | No † | No † |
| Comprehensive SR | 1.2.840.10008.5.1.4.1.1.88.33 | Explicit VR Little Endian 1.2.840.10008.1.2.1 | Yes | No † | No † |

† The ACUSON Antares system acts as a File Set Reader (FSR) and File Set Updater (FSU) only for CD-R discs that were created on an ACUSON Antares system.

### 10.4.2 Private Application Profiles

None.

## 10.5 Extensions, Specializations and Privatizations of SOP Classes and Transfer Syntaxes

None.

## 10.6 Configuration

### 10.6.1 AE Title Mapping

#### 10.6.1.1 DICOM Media Storage AE Title

The DICOM Media Storage application (Image Manager) provides the application entity title: CsaImageManager

## 10.7 Support of Extended Character Sets

The Antares system supports the ISO 8859 Latin 1 (ISO-IR 100) character set family and the same family with code extensions (ISO 2022 IR 100 Latin-1).

# 11.0 Appendix A: OB-GYN Structured Report Measurements

This appendix lists the DICOM Structured Report (SR) mappings used in the Obstetric and Gynecologic Structured Reports of Antares SR files, version 5.0.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16-2004 of the DICOM Standard. The "Label" column identifies the on-screen report label associated with a measurement. All private code values use the Coding Scheme Designator "99ANTARES".

The OB-GYN Report mappings follow the DICOM SR Template TID 5000: OB-GYN Ultrasound Procedure Report, except where noted. Amniotic Sacs (for multiple fetuses), Ovaries, Follicles, Cysts, Bladder, and Maternal Kidney are private sections in this release.

For a single fetus, the Amniotic Sac Section and the Umbilical Artery in the Pelvic Vascular Section follow the DICOM Standard. For multiple fetuses, the Amniotic Sac section is a private section and the Umbilical Artery is in the Fetal Vascular Section because the DICOM Standard does not support multiple fetuses for these measurements. These sections are associated with the appropriate fetus.

Notation:

<L or R> indicates that L or R is in the label name for Left or Right laterality
< … Author > means additional author information is provided in a following subsection
<units> means that the Distance units will be displayed on the report
[ … ] is additional information about the label

**TID5000: OB-GYN Ultrasound Procedure Report**

## 11.1 Patient Characteristics

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Patient Characteristics** | Container: Patient Characteristics (DCM, 121118) | | |
| Indication | Comment (DCM, 121106) | | |
| Height | Patient Height (LN, 8302-2) | | |
| Weight | Patient Weight (LN, 29463-7) | | |
| Gravida | Gravida (LN, 11996-6) | | |
| Para | Para (LN, 11977-6) | | |
| Aborta | Aborta (LN, 11612-9) | | |
| Ectopics | Ectopic Pregnancies (LN, 33065-4) | | |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| BP | Systolic Blood Pressure (SRT, F-008EC) | | |
| | Diastolic Blood Pressure (SRT, F-008ED) | | |

## 11.2 OB-GYN Summary

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **OB-GYN Summary** | Container: Summary (DCM, 121111) | | |
| No. Fetuses | Number of Fetuses (LN, 11878-6) | | |
| Additional Info. | Comment (DCM, 121106) | | |
| Comments | Comment (DCM, 121106) | | |
| EDC | EDD (LN, 11778-8) | | |
| LMP | LMP (LN, 11955-2) | | |
| IVF | IVF Date (99ANTARES, IVFDate) | | |

## 11.3 Fetus Summary

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Fetus Summary** | Container: Fetus Summary (DCM, 125008) | | |
| Clinical Age | Gestational Age (LN, 18185-9) | | |
| US Age <Author Label> | Composite Ultrasound Age (LN, 11888-5) | < US Age Author Information> | |
| US Age <Author Label> +/- | 2 Sigma deviation of population (DCM, 121417) | | Composite Ultrasound Age (LN, 11888-5) <US Age Author Information> |
| EFW <Author Label> | Estimated Weight (LN, 11727-5) | <EFW Author Information> | |
| EFW <Author Label> +/- | 2 Sigma Deviation of Population (DCM, 121417) | | Estimated Weight (LN, 11727-5) <EFW Author Information> |
| EFW% <Author Label> | EFW percentile rank (LN, 11767-1) | <EFW% Author Information> | Estimated Weight (LN, 11727-5) |
| EFW <Author Label> | Gestational Age (LN, 18185-9) | <EFW Gestational Age Author Information> | Estimated Weight (LN, 11727-5) |
| Fetal HR | Fetal Heart Rate (LN, 11948-7) | | |
| US EDC | EDC using Composite Age (99ANTARES, CompositeEdc) | | |

### 11.3.1 US Age Authors

| Author Label | Author Information | Comments |
|---|---|---|
| Average | Equation: Average Ultrasound Age (LN, 11884-4) | |
| Hadlock (BPD, HC, AC, FL) | Equation: Composite GA, Hadlock BPD, HC, AC, FL (99ANTARES,CompGAHadlock1) | |
| Hadlock (BPD, HC, AC) | Equation: Composite GA, Hadlock BPD, HC, AC (99ANTARES, CompGAHadlock2) | |
| Hadlock (HC, AC, FL) | Equation: Composite GA, Hadlock HC, AC, FL (99ANTARES, CompGAHadlock3) | |
| Hadlock (BPD, HC, FL) | Equation: Composite GA, Hadlock BPD, HC, FL (99ANTARES, CompGAHadlock4) | |
| Hadlock (BPD, AC, FL) | Equation: Composite GA, Hadlock BPD, AC, FL (99ANTARES, CompGAHadlock5) | |
| Hadlock (AC, FL) | Equation: Composite GA, Hadlock AC, FL (99ANTARES, CompGAHadlock6) | |
| Hadlock (HC, FL) | Equation: Composite GA, Hadlock HC, FL (99ANTARES, CompGAHadlock7) | |
| Hadlock (HC, AC) | Equation: Composite GA, Hadlock HC, AC (99ANTARES, CompGAHadlock8) | |
| Hadlock (BPD, FL) | Equation: Composite GA, Hadlock BPD, FL (99ANTARES, CompGAHadlock9) | |
| Hadlock (BPD, HC) | Equation: Composite GA, Hadlock BPD, HC (99ANTARES, CompGAHadlock10) | |
| Hadlock (BPD, AC) | Equation: Composite GA, Hadlock BPD, AC (99ANTARES, CompGAHadlock11) | |

### 11.3.2 EFW Authors

| Author Label | Author Information | Comments |
|---|---|---|
| Hadlock (BPD, HC, AC, FL) | Equation: EFW by AC, BPD, FL, HC, Hadlock 1985 (LN, 11732-5) | |
| Hadlock (BPD, AC, FL) | Equation: EFW by AC, BPD, FL, Hadlock 1985 (LN, 11735-8) | |
| Hadlock (HC, AC, FL) | Equation: EFW by AC, FL, HC, Hadlock 1985 (LN, 11746-5) | |
| Hadlock (AC, FL) | Equation: EFW by AC, FL, Hadlock 1985 (LN, 11751-5) | |
| Shepard (BPD, AC) | Equation: EFW by AC, BPD, Shepard 1982 (LN, 11739-0) | |
| Tokyo (BPD, APAD, TAD, FL) | Equation: EFW by BPD, APAD, TAD, FL, Tokyo 1987 (LN, 33144-7) | No associated “2 Sigma Deviation of Population” value. |
| Osaka (BPD, FTA, FL) | Equation: EFW by BPD, FTA, FL, Osaka 1990 (LN, 33140-5) | No associated “2 Sigma Deviation of Population” value. |
| JSUM (BPD, AC, FL) | Equation: EFW by BPD, AC, FL, JSUM (99ANTARES, EFWJSUMBpdAcFl) | No associated “2 Sigma Deviation of Population” value. |
| JSUM (BPD, APAD, TAD, FL) | Equation: EFW by BPD, APAD, TAD, FL, JSUM (99ANTARES, EFWJSUMBpdApad) | No associated “2 Sigma Deviation of Population” value. |
| Merz (BPD, AC) | Equation: EFW by BPD, AC, Merz (99ANTARES, EFWMerzBpdAc) | |

### 11.3.3 EFW% Authors

| Author Label | EFW Growth Author Information | Comments |
|---|---|---|
| Hadlock | Equation: FWP by GA, Hadlock 1991 (LN, 33162-9) | |
| Williams | Equation: FWP by GA, Williams 1982 (LN, 33184-3) | |
| Jeanty | Equation: FWP by GA, Jeanty (99ANTARES, GCEFWJeanty) | |
| Yarkoni | Equation: FWP by GA, Yarkoni (99ANTARES, GCEFWYarkoni) | |
| JSUM | Equation: FWP by GA, JSUM (99ANTARES, GCEFWJSUM) | |
| Tokyo | Equation: FWP by GA, Tokyo (99ANTARES, GCEFWTokyo) | |
| Osaka | Equation: FWP by GA, Osaka (99ANTARES, GCEFWOsaka) | |

### 11.3.4 EFW Gestational Age Authors

| Author Label | EFW Author Information | Comments |
|---|---|---|
| Tokyo | Table: EFW GA Tokyo (99ANTARES, EFWGATokyo) | No associated “2 Sigma Deviation of Population” value. |
| Osaka | Table: EFW GA Osaka (99ANTARES, EFWGAOsaka) | No associated “2 Sigma Deviation of Population” value. |
| JSUM | Table: EFW GA JSUM (99ANTARES, EFWGAJSUM) | No associated “2 Sigma Deviation of Population” value. |

## 11.4 Fetal Biometry Ratios

[Note: The Code Value for the Normal Range Lower Limit is incorrectly listed as (SRT, R-10041) in the DICOM Standard, Part 16. The correct code is used in this release.]

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Fetal Biometry Ratios** | Container: Fetal Biometry Ratios (DCM, 125001) | | |
| HC/AC Ratio | HC/AC (LN, 11947-9) | | |
| HC/AC Range High | Normal Range Upper Limit (SRT, R-0038B) | | HC/AC (LN, 11947-9) |
| HC/AC Range Low | Normal Range Lower Limit (SRT, R-41F90) | | HC/AC (LN, 11947-9) |
| FL/AC Ratio | FL/AC (LN, 11871-1) | | |
| FL/AC Range High | Normal Range Upper Limit (SRT, R-0038B) | | FL/AC (LN, 11871-1) |
| FL/AC Range Low | Normal Range Lower Limit (SRT, R-41F90) | | FL/AC (LN, 11871-1) |
| FL/BPD Ratio | FL/BPD (LN, 11872-9) | | |
| FL/BPD Range High | Normal Range Upper Limit (SRT, R-0038B) | | FL/BPD (LN, 11872-9) |
| FL/BPD Range Low | Normal Range Lower Limit (SRT, R-41F90) | | FL/BPD (LN, 11872-9) |
| CI Ratio | Cephalic Index (LN, 11823-2) | | |
| CI Range High | Normal Range Upper Limit (SRT, R-0038B) | | Cephalic Index (LN, 11823-2) |
| CI Range Low | Normal Range Lower Limit (SRT, R-41F90) | | Cephalic Index (LN, 11823-2) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| FL/HC Ratio | FL/HC (LN, 11873-7) | | |
| FL/HC Range High | Normal Range Upper Limit (SRT, R-0038B) | | FL/HC (LN, 11873-7) |
| FL/HC Range Low | Normal Range Lower Limit (SRT, R-41F90) | | FL/HC (LN, 11873-7) |
| TCD/AC | TCD/AC (99ANTARES, RatioTCDAC) | | |
| TCD/AC Range High | Normal Range Upper Limit (SRT, R-0038B) | | TCD/AC (99ANTARES, RatioTCDAC) |
| TCD/AC Range Low | Normal Range Lower Limit (SRT, R-41F90) | | TCD/AC (99ANTARES, RatioTCDAC) |
| LVW/HW | LVW OVER HW RATIO (99ANTARES, RatioLVWHW) | | |
| LVW/HW Range High | Normal Range Upper Limit (SRT, R-0038B) | | LVW OVER HW RATIO (99ANTARES, RatioLVWHW) |
| LVW/HW Range Low | Normal Range Lower Limit (SRT, R-41F90) | | LVW OVER HW RATIO (99ANTARES, RatioLVWHW) |
| HA/TA | HA/TA (99ANTARES, RatioHATA) | | |

## 11.5 Fetal Biometry Measurements

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Fetal Biometry Measurements** | Container: Fetal Biometry (DCM, 125002) | | |
| AC | Abdominal Circumference (LN, 11979-2) | | |
| AC <Gestational Age Author> | Gestational Age (LN, 18185-9) | <AC Gestational Age Author Information> | Abdominal Circumference (LN, 11979-2) |
| AC <Gestational Age Author> 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br><AC Gestational Age Author Information><br>Abdominal Circumference (LN, 11979-2) |
| AC Mean | Abdominal Circumference (LN, 11979-2) | Derivation: Mean (SRT, R-00317) | |
| AC <Growth Author> | Growth Percentile Rank (DCM, 125012) | <AC Growth Author Information> | Abdominal Circumference (LN, 11979-2) |
| APAD | Anterior Posterior Abdominal Diameter (LN, 11818-2) | | |
| APAD Mean | Anterior Posterior Abdominal Diameter (LN, 11818-2) | Derivation: Mean (SRT, R-00317) | |
| BPD | Biparietal Diameter (LN, 11820-8) | | |
| BPD <Gestational Age Author> | Gestational Age (LN, 18185-9) | <BPD Gestational Age Author Information> | Biparietal Diameter (LN, 11820-8) |
| BPD <Gestational Age Author> 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br><BPD Gestational Age Author Information><br>Biparietal Diameter (LN, 11820-8) |
| BPD Mean | Biparietal Diameter (LN, 11820-8) | Derivation: Mean (SRT, R-00317) | |
| BPD <Growth Author> | Growth Percentile Rank (DCM, 125012) | <BPD Growth Author Information> | Biparietal Diameter (LN, 11820-8) |

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| FL | Femur Length (LN, 11963-6) | | |
| FL <Gestational Age Author> | Gestational Age (LN, 18185-9) | <FL Gestational Age Author Information> | Femur Length (LN, 11963-6) |
| FL <Gestational Age Author> 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br><FL Gestational Age Author Information><br>Femur Length (LN, 11963-6) |
| FL Mean | Femur Length (LN, 11963-6) | Derivation: Mean (SRT, R-00317) | |
| FL <Growth Author> | Growth Percentile Rank (DCM, 125012) | <FL Growth Author Information> | Femur Length (LN, 11963-6) |
| Foot | Foot Length (LN, 11965-1) | | |
| Foot, Author: Mercer | Gestational Age (LN, 18185-9) | Equation: Foot Length, Mercer 1987<br>(LN, 11926-3) | Foot Length (LN, 11965-1) |
| Foot, Author: Mercer, 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br>Equation: Foot Length, Mercer 1987<br>(LN, 11926-3)<br>Foot Length (LN, 11965-1) |
| Foot Mean | Foot Length (LN, 11965-1) | Derivation: Mean (SRT, R-00317) | |
| HC | Head Circumference (LN, 11984-2) | | |
| HC <Gestational Age Author> | Gestational Age (LN, 18185-9) | <HC Gestational Age Author Information> | Head Circumference (LN, 11984-2) |
| HC <Gestational Age Author> 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br><HC Gestational Age Author Information><br>Head Circumference (LN, 11984-2) |
| HC Mean | Head Circumference (LN, 11984-2) | Derivation: Mean (SRT, R-00317) | |
| HC <Growth Author> | Growth Percentile Rank (DCM, 125012) | <HC Growth Author Information> | Head Circumference (LN, 11984-2) |
| OFD | Occipital Frontal Diameter (LN, 11851-3) | | |
| OFD, Author: ASUM2000 | Gestational Age (LN, 18185-9) | Equation: OFD, ASUM 2000 (LN, 33119-9) | Occipital Frontal Diameter (LN, 11851-3) |
| OFD Mean | Occipital Frontal Diameter (LN, 11851-3) | Derivation: Mean (SRT, R-00317) | |
| OFD, Growth Author: ASUM2000 | Growth Percentile Rank (DCM, 125012) | Table: OFD by GA, ASUM 2000<br>(LN, 33178-5) | Occipital Frontal Diameter (LN, 11851-3) |
| TC | Thoracic Circumference (LN, 11988-3) | | |
| TC Mean | Thoracic Circumference (LN, 11988-3) | Derivation: Mean (SRT, R-00317) | |
| TA | Thoracic Area (LN, 33068-8) | | |
| TA Mean | Thoracic Area (LN, 33068-8) | Derivation: Mean (SRT, R-00317) | |
| TAD | Transverse Abdominal Diameter (LN, 11862-0) | | |
| TAD Mean | Transverse Abdominal Diameter (LN, 11862-0) | Derivation: Mean (SRT, R-00317) | |
| TAD, Growth Author: CFEF | Growth Percentile Rank (DCM, 125012) | Table: TAD by GA CFEF<br>(99ANTARES, GCTADCFEF) | Transverse Abdominal Diameter<br>(LN, 11862-0) |
| 2D-Mode: L Kidney mm | Left Kidney Length (LN, 11834-9) | | |
| 2D-Mode: L Kidney Mean | Left Kidney Length (LN, 11834-9) | Derivation: Mean (SRT, R-00317) | |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| 2D-Mode: R Kidney mm | Right Kidney Length (LN, 11836-4) | | |
| 2D-Mode: R Kidney Mean | Right Kidney Length (LN, 11836-4) | Derivation: Mean (SRT, R-00317) | |
| APAD x TAD | APAD*TAD (LN, 33191-8) | | |
| APAD x TAD, Author: Tokyo | Gestational Age (LN, 18185-9) | Table: APAD*TAD, Tokyo (99ANTARES, APADxTADGATokyo) | APAD*TAD (LN, 33191-8) |
| APAD x TAD Mean | APAD*TAD (LN, 33191-8) | Derivation: Mean (SRT, R-00317) | |
| APAD x TAD, Growth Author: Tokyo | Growth Percentile Rank (DCM, 125012) | Table: APAD TIMES TAD by GA Tokyo (99ANTARES, GCAPADxTADTokyo) | APAD*TAD (LN, 33191-8) |
| HA | Heart Area (99ANTARES, HeartArea) | | |
| FTA | Fetal Trunk Area (99ANTARES, FTrunkArea) | | |
| FTA, Author: Osaka | Gestational Age (LN, 18185-9) | Table: FTA, Osaka 1989 (LN, 33138-9) | Fetal Trunk Area (99ANTARES, FTrunkArea) |
| FTA Mean | Fetal Trunk Area (99ANTARES, FTrunkArea) | Derivation: Mean (SRT, R-00317) | |
| FTA, Growth Author: Osaka | Growth Percentile Rank (DCM, 125012) | Table: FTA by GA Osaka (99ANTARES, GCFTAOsaka) | Thoracic Area (LN, 33068-8) |
| HC/AC, Growth Author: Campbell | Growth Percentile Rank (DCM, 125012) | Table: HC/AC by GA, Campbell 1977 (LN, 33182-7) | |
| Volume: L Kidney V | Left Fetal Kidney Volume (99ANTARES, LFKidneyVol) | | |
| Volume: L Kidney Mean | Left Fetal Kidney Volume (99ANTARES, LFKidneyVol) | Derivation: Mean (SRT, R-00317) | |
| Volume: L Kidney D1 | Left Fetal Kidney Volume: Distance 1 (99ANTARES, LFKidneyVolD1) | | |
| Volume: L Kidney D2 | Left Fetal Kidney Volume: Distance 2 (99ANTARES, LFKidneyVolD2) | | |
| Volume: L Kidney D3 | Left Fetal Kidney Volume: Distance 3 (99ANTARES, LFKidneyVolD3) | | |
| Volume: R Kidney V | Right Fetal Kidney Volume (99ANTARES, RFKidneyVol) | | |
| Volume: R Kidney Mean | Right Fetal Kidney Volume (99ANTARES, RFKidneyVol) | Derivation: Mean (SRT, R-00317) | |
| Volume: R Kidney D1 | Right Fetal Kidney Volume: Distance 1 (99ANTARES, RFKidneyVolD1) | | |
| Volume: R Kidney D2 | Right Fetal Kidney Volume: Distance 2 (99ANTARES, RFKidneyVolD2) | | |
| Volume: R Kidney D3 | Right Fetal Kidney Volume: Distance 3 (99ANTARES, RFKidneyVolD3) | | |

### 11.5.1 AC Gestational Age Authors

| Author Label | AC Gestational Age Author Information | Comments |
|---|---|---|
| ASUM2000 | Equation: AC, ASUM 2000 (LN, 33072-0) | No associated “2 Sigma Deviation of Population” value. |
| Hadlock | Equation: AC, Hadlock 1984 (LN, 11892-7) | |
| ASUM | Equation: AC GA ASUM (99ANTARES, ACGAASUM) | No associated “2 Sigma Deviation of Population” value. |
| Lasser | Table: AC GA Lasser (99ANTARES, ACGALasser) | |
| Merz | Table: AC GA Merz (99ANTARES, ACGAMerz) | |
| JSUM | Table: AC GA JSUM (99ANTARES, ACGAJSUM) | |

### 11.5.2 AC Growth Authors

| Author Label | AC Growth Author Information | Comments |
|---|---|---|
| Hadlock | Equation: AC by GA, Hadlock 1984 (LN, 33146-2) | |
| Merz | Table: AC by GA, Merz 1988 (LN, 33148-8) | |
| Chitty | Equation: AC (measured) by GA, Chitty 1994 (LN, 33147-0) | |
| ASUM2000 | Table: AC by GA, ASUM 2000 (LN, 33145-4) | |
| Jeanty | Table: AC by GA Jeanty (99ANTARES, GCACJeanty) | |
| ASUM | Equation: AC by GA ASUM (99ANTARES, GCACASUM) | |
| Grumback | Table: AC by GA Grumback (99ANTARES, GCACGrumback) | |
| Deter | Equation: AC by GA Deter (99ANTARES, GCACDeter) | |
| JSUM | Table: AC by GA JSUM (99ANTARES, GCACJSUM) | |
| CFEF | Table: AC by GA CFEF (99ANTARES, GCACCFEF) | |

### 11.5.3 BPD Gestational Age Authors

| Author Label | BPD Gestational Age Author Information | Comments |
|---|---|---|
| Hadlock | Equation: BPD, Hadlock 1984 (LN, 11902-4) | |
| Hansmann | Table: BPD, Hansmann 1986 (LN, 33538-0) | |
| Rempen | Table: BPD, Rempen 1991 (LN, 33083-7) | |
| ASUM | Table: BPD, ASUM 1989 (LN, 33079-5) | |
| Tokyo | Table: BPD, Tokyo 1986 (LN, 33085-2) | No associated “2 Sigma Deviation of Population” value. |
| Osaka | Table: BPD, Osaka 1989 (LN, 33082-9) | No associated “2 Sigma Deviation of Population” value. |
| ASUM2000 | Equation: BPD GA ASUM2000 (99ANTARES, BPDGAASUM2000) | No associated “2 Sigma Deviation of Population” value. |
| Lasser | Table: BPD GA Lasser (99ANTARES, BPDGALasser) | |
| Merz | Table: BPD GA Merz (99ANTARES, BPDGAMerz) | |
| JSUM | Table: BPD GA JSUM (99ANTARES, BPDGAJSUM) | |

## 11.5.4 BPD Growth Authors

| Author Label | BPD Growth Author Information | Comments |
|---|---|---|
| Hadlock | Equation: BPD by GA, Hadlock 1984 (LN, 33198-3) | |
| Merz | Table: BPD by GA, Merz 1988 (LN, 33154-6) | |
| Rempen | Table: BPD by GA, Rempen 1991 (LN, 33155-3) | |
| Chitty (out-to-in) | Equation: BPD outer inner by GA, Chitty 1994 (LN, 33556-2) | |
| Chitty (out-to-out) | Equation: BPD outer outer by GA, Chitty 1994 (LN, 33152-0) | |
| ASUM2000 | Table: BPD by GA, ASUM 2000 (LN, 33151-2) | |
| Hansmann | Table: BPD by GA Hansmann (99ANTARES, GCBPDHansmann) | |
| Lasser | Equation: BPD by GA Lasser (99ANTARES, GCBPDLasser) | |
| Grumback | Table: BPD by GA Grumback (99ANTARES, GCBPDGrumback) | |
| JSUM | Table: BPD by GA JSUM (99ANTARES, GCBPDJSUM) | |
| Tokyo | Table: BPD by GA Tokyo (99ANTARES, GCBPDTokyo) | |
| Osaka | Table: BPD by GA Osaka (99ANTARES, GCBPDOsaka) | |
| CFEF | Table: BPD by GA CFEF (99ANTARES, GCBPDCFEF) | |
| ASUM | Table: BPD by GA ASUM (99ANTARES, GCBPDASUM) | |

## 11.5.5 FL Gestational Age Authors

| Author Label | FL Gestational Age Author Information | Comments |
|---|---|---|
| Hadlock | Equation: FL, Hadlock 1984 (LN, 11920-6) | |
| Jeanty | Equation: FL, Jeanty 1984 (LN, 11923-0) | |
| Merz | Table: FL, Merz 1988 (LN, 33542-2) | |
| Tokyo | Table: FL, Tokyo 1986 (LN, 33103-3) | No associated “2 Sigma Deviation of Population” value. |
| Osaka | Table: FL, Osaka 1989 (LN, 33101-7) | No associated “2 Sigma Deviation of Population” value. |
| ASUM | Equation: FL GA ASUM (99ANTARES, FLGAASUM) | |
| ASUM2000 | Equation: FL GA ASUM2000 (99ANTARES, FLGAASUM2000) | No associated “2 Sigma Deviation of Population” value. |
| Warda | Equation: FL GA Warda (99ANTARES, FLGAWarda) | |
| JSUM | Table: FL GA JSUM (99ANTARES, FLGAJSUM) | |

## 11.5.6 FL Growth Authors

| Author Label | FL Growth Author Information | Comments |
|---|---|---|
| Hadlock | Equation: FL by GA, Hadlock 1984 (LN, 33166-0) | |
| Jeanty | Equation: FL by GA, Jeanty 1982 (LN, 33168-6) | |
| Merz | Table: FL by GA, Merz 1988 (LN, 33169-4) | |
| Chitty | Equation: FL by GA, Chitty 1994 (LN, 33167-8) | |
| ASUM2000 | Table: FL by GA, ASUM 2000 (LN, 33165-2) | |

| Author Label | FL Growth Author Information | Comments |
|---|---|---|
| Warda | Equation: FL by GA Warda (99ANTARES, GCFLWarda) | |
| JSUM | Table: FL by GA JSUM (99ANTARES, GCFLJSUM) | |
| Tokyo | Table: FL by GA Tokyo (99ANTARES, GCFLTokyo) | |
| Osaka | Table: FL by GA Osaka (99ANTARES, GCFLOsaka) | |
| CFEF | Table: FL by GA CFEF (99ANTARES, GCFLCFEF) | |
| ASUM | Equation: FL by GA ASUM (99ANTARES, GCFLASUM) | |

### 11.5.7 HC Gestational Age Authors

| Author Label | HC Gestational Age Author Information | Comments |
|---|---|---|
| ASUM2000 | Equation: HC, ASUM 2000 (LN, 33109-0) | No associated “2 Sigma Deviation of Population” value. |
| Hadlock | Equation: HC, Hadlock 1984 (LN, 11932-1) | |
| Hansmann | Table: HC, Hansmann 1986 (LN, 33543-0) | |
| Merz | Table: HC, Merz 1988 (LN, 33115-7) | |
| Lasser | Table: HC GA Lasser (99ANTARES, HCGALasser) | |

### 11.5.8 HC Growth Authors

| Author Label | HC Growth Author Information | Comments |
|---|---|---|
| Hadlock | Equation: HC by GA, Hadlock 1984 (LN, 33173-6) | |
| Merz | Table: HC by GA, Merz 1988 (LN, 33176-9) | |
| Chitty | Equation: HC derived by GA, Chitty 1994 (LN, 33174-4) | |
| ASUM2000 | Table: HC by GA, ASUM 2000 (LN, 33172-8) | |
| Hansmann | Table: HC by GA Hansmann (99ANTARES, GCHCHansmann) | |
| ASUM | Equation: HC by GA ASUM (99ANTARES, GCHCASUM) | |
| Chitty | Equation: HC by GA Chitty (99ANTARES, GCHCChitty) | |
| Deter | Equation: HC by GA Deter (99ANTARES, GCHCDeter) | |
| CFEF | Table: HC by GA CFEF (99ANTARES, GCHCCFEF) | |

## 11.6 Fetal Long Bones Biometry Measurements

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Fetal Long Bones Biometry Measurements** | Container: Fetal Long Bones (DCM, 125003) | | |
| Clavicle | Clavicle Length (LN, 11962-8) | | |
| Clavicle, Author: Yarkoni | Gestational Age (LN, 18185-9) | Equation: Clavical Length, Yarkoni 1985 (LN, 33088-6) | Clavicle Length (LN, 11962-8) |
| Clavicle, Author: Yarkoni, 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br>Equation: Clavical Length, Yarkoni 1985 (LN, 33088-6)<br>Clavicle Length (LN, 11962-8) |
| Clavicle Mean | Clavicle Length (LN, 11962-8) | Derivation: Mean (SRT, R-00317) | |
| HL | Humerus Length (LN, 11966-9) | | |
| HL <Gestational Age Author> | Gestational Age (LN, 18185-9) | <HL Gestational Age Author Information> | Humerus Length (LN, 11966-9) |
| HL <Gestational Age Author> 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br><HL Gestational Age Author Information><br>Humerus Length (LN, 11966-9) |
| HL Mean | Humerus Length (LN, 11966-9) | Derivation: Mean (SRT, R-00317) | |
| HL <Growth Author> | Growth Percentile Rank (DCM, 125012) | <HL Growth Author Information> | Humerus Length (LN, 11966-9) |
| Radius | Radius Length (LN, 11967-7) | | |
| Radius Mean | Radius Length (LN, 11967-7) | Derivation: Mean (SRT, R-00317) | |
| Tibia | Tibia Length (LN, 11968-5) | | |
| Tibia, Author: Jeanty | Gestational Age (LN, 18185-9) | Equation: Tibia, Jeanty 1984 (LN, 11941-2) | Tibia Length (LN, 11968-5) |
| Tibia, Author: Jeanty, 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br>Equation: Tibia, Jeanty 1984 (LN, 11941-2)<br>Tibia Length (LN, 11968-5) |
| Tibia Mean | Tibia Length (LN, 11968-5) | Derivation: Mean (SRT, R-00317) | |
| Ulna | Ulna Length (LN, 11969-3) | | |
| Ulna, Author: Jeanty | Gestational Age (LN, 18185-9) | Equation: Ulna, Jeanty 1984 (LN, 11944-6) | Ulna Length (LN, 11969-3) |
| Ulna, Author: Jeanty, 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br>Equation: Ulna, Jeanty 1984 (LN, 11944-6)<br>Ulna Length (LN, 11969-3) |
| Ulna Mean | Ulna Length (LN, 11969-3) | Derivation: Mean (SRT, R-00317) | |

### 11.6.1 HL Gestational Age Authors

| Author Label | HL Gestational Age Author Information | Comments |
|---|---|---|
| ASUM 2000 | Equation: Humerus Length, ASUM 2000 (LN, 33116-5) | No associated “2 Sigma Deviation of Population” value. |
| Jeanty | Equation: Humerus, Jeanty 1984 (LN, 11936-2) | |
| Osaka | Table: Humerus Length, Osaka 1989 (LN, 33117-3) | No associated “2 Sigma Deviation of Population” value. |

### 11.6.2 HL Growth Authors

| Author Label | HL Growth Author Information | Comments |
|---|---|---|
| ASUM2000 | Table: Humerus Length by GA, ASUM 2000 (LN, 33177-7) | |
| Jeanty | Equation: HL by GA Jeanty (99ANTARES, GCHLJeanty) | |
| Merz | Table: HL by GA Merz (99ANTARES, GCHLMerz) | |
| Osaka | Table: HL by GA Osaka (99ANTARES, GCHLOsaka) | |

## 11.7 Fetal Cranium

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Fetal Cranium** | Container: Fetal Cranium (DCM, 125004) | | |
| LVW | Lateral Ventrical Width (LN, 12171-5) | | |
| LVW Mean | Lateral Ventrical Width (LN, 12171-5) | Derivation: Mean (SRT, R-00317) | |
| Cist Magna | Cisterna Magna (LN, 11860-4) | | |
| Cist Magna Mean | Cisterna Magna (LN, 11860-4) | Derivation: Mean (SRT, R-00317) | |
| Nuchal Thick | Nuchal Fold Thickness (LN, 12146-7) | | |
| Nuchal Thick Mean | Nuchal Fold Thickness (LN, 12146-7) | Derivation: Mean (SRT, R-00317) | |
| Binoc D | Outer Orbital Diameter (LN, 11629-3) | | |
| Binoc D <Gestational Age Author> | Gestational Age (LN, 18185-9) | <Binoc D Gestational Age Author Information> | Outer Orbital Diameter (LN, 11629-3) |
| Binoc D <Gestational Age Author> 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br><Binoc D Gestational Age Author Information><br>Outer Orbital Diameter (LN, 11629-3) |
| Binoc D Mean | Outer Orbital Diameter (LN, 11629-3) | Derivation: Mean (SRT, R-00317) | |
| TCD | Trans Cerebellar Diameter (LN, 11863-8) | | |
| TCD Mean | Trans Cerebellar Diameter (LN, 11863-8) | Derivation: Mean (SRT, R-00317) | |
| HW | Width of Hemisphere (LN, 12170-7) | | |
| HW Mean | Width of Hemisphere (LN, 12170-7) | Derivation: Mean (SRT, R-00317) | |

### 11.7.1 Binoc D Gestational Age Authors

| Author Label | Binoc D Gestational Age Author Information | Comments |
|---|---|---|
| Jeanty | Table: Binoc D, Jeanty (99ANTARES, BNGAJeanty) | |
| Tongsong | Equation: Binoc D, Tongsong (99ANTARES, BNGATongsong) | |

## 11.8 Amniotic Sac

[Note: AFI values appear in a private Amniotic Sacs section when there are multiple fetuses.]

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Amniotic Sac** | Finding Site: Amniotic Sac (SRT, T-F1300) | | |
| AFI Sum | Amniotic Fluid Index (LN, 11627-7) | | |
| AFI Q1 | First Quadrant Diameter (LN, 11624-4) | | |
| AFI Q2 | Second Quadrant Diameter (LN, 11626-9) | | |
| AFI Q3 | Third Quadrant Diameter (LN, 11625-1) | | |
| AFI Q4 | Fourth Quadrant Diameter (LN, 11623-6) | | |

## 11.9 Early Gestation Biometry Measurements

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Early Gestation Biometry Measurements** | Container: Early Gestation (DCM, 125009) | | |
| CRL | Crown Rump Length (LN, 11957-8) | | |
| CRL <Gestational Age Author> | Gestational Age (LN, 18185-9) | <CRL Gestational Age Author Information> | Crown Rump Length (LN, 11957-8) |
| CRL <Gestational Age Author> 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br><CRL Gestational Age Author Information><br>Crown Rump Length (LN, 11957-8) |
| CRL Mean | Crown Rump Length (LN, 11957-8) | Derivation: Mean (SRT, R-00317) | |
| CRL <Growth Author> | Growth Percentile Rank (DCM, 125012) | <CRL Growth Author Information> | Crown Rump Length (LN, 11957-8) |
| GSD | Gestational Sac Diameter (LN, 11850-5) | | |
| GSD <Gestational Age Author> | Gestational Age (LN, 18185-9) | <GSD Gestational Age Author Information> | Gestational Sac Diameter (LN, 11850-5) |
| GSD <Gestational Age Author> 2SD | 2 Sigma Deviation of Population (DCM, 121417) | | Gestational Age (LN, 18185-9)<br><GSD Gestational Age Author Information><br>Gestational Sac Diameter (LN, 11850-5) |
| GSD Mean | Gestational Sac Diameter (LN, 11850-5) | Derivation: Mean (SRT, R-00317) | |
| GSD <Growth Author> | Growth Percentile Rank (DCM, 125012) | <GSD Growth Author Information> | Gestational Sac Diameter (LN, 11850-5) |
| Yolk Sac | Yolk Sac Length (LN, 11816-6) | | |
| Yolk Sac Mean | Yolk Sac Length (LN, 11816-6) | Derivation: Mean (SRT, R-00317) | |

### 11.9.1 CRL Gestational Age Authors

| Author Label | CRL Gestational Age Author Information | Comments |
|---|---|---|
| ASUM2000 | Equation: CRL, ASUM 2000 (LN, 33090-2) | No associated “2 Sigma Deviation of Population” value. |
| Hadlock | Equation: CRL, Hadlock 1992 (LN, 11910-7) | |
| Hansmann | Table: CRL, Hansmann 1986 (LN, 33540-6) | |
| Rempen | Table: CRL, Rempen 1991 (LN, 33094-4) | |
| Osaka | Table: CRL, Osaka 1989 (LN, 33093-6) | No associated “2 Sigma Deviation of Population” value. |
| Robinson | Equation: CRL, Robinson 1975 (LN, 11914-9) | |
| Tokyo | Table: CRL, Tokyo 1986 (LN, 33096-9) | No associated “2 Sigma Deviation of Population” value. |
| Lasser | Table: CRL GA Lasser (99ANTARES, CRLGALasser) | |
| JSUM | Table: CRL GA JSUM (99ANTARES, CRLGAJSUM) | |

### 11.9.2 CRL Growth Authors

| Author Label | CRL Growth Author Information | Comments |
|---|---|---|
| Rempen | Table: CRL by GA, Rempen 1991 (LN, 33160-3) | |
| ASUM2000 | Table: CRL by GA, ASUM 2000 (LN, 33159-5) | |
| Hadlock | Equation: CRL by GA Hadlock (99ANTARES, GCCRLHadlock) | |
| Robinson | Equation: CRL by GA Robinson (99ANTARES, GCCRLRobinson) | |
| Hansmann | Table: CRL by GA Hansmann (99ANTARES, GCCRLHansmann) | |
| JSUM | Table: CRL by GA JSUM (99ANTARES, GCCRLJSUM) | |
| Tokyo | Table: CRL by GA Tokyo (99ANTARES, GCCRLTokyo) | |
| Osaka | Table: CRL by GA Osaka (99ANTARES, GCCRLOsaka) | |

### 11.9.3 GSD Gestational Age Authors

| Author Label | GSD Gestational Age Author Information | Comments |
|---|---|---|
| Rempen | Table: GS, Rempen 1991 (LN, 11929-7) | |
| Tokyo | Table: GS, Tokyo 1986 (LN, 33108-2) | No associated “2 Sigma Deviation of Population” value. |

### 11.9.4 GSD Growth Authors

| Author Label | GSD Growth Author Information | Comments |
|---|---|---|
| Hellman | Equation: GSD by GA Hellman (99ANTARES, GCGSDHellman) | |
| Tokyo | Table: GSD by GA Tokyo (99ANTARES, GCGSDTokyo) | |

## 11.10 Fetal Biophysical Profile

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Fetal Biophysical Profile** | Container: Biophysical Profile (DCM, 125006) | | |
| Fetal Movements | Gross Body Movement (LN, 11631-9) | | |
| Fetal Breathing | Fetal Breathing (LN, 11632-7) | | |
| Fetal Tone | Fetal Tone (LN, 11635-0) | | |
| Amniotic Fluid | Amniotic Fluid Volume (LN, 11630-1) | | |
| Score | Biophysical Profile Sum Score (LN, 11634-3) | | |

## 11.11 Pelvis and Uterus

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Pelvis and Uterus** | Container: Pelvis and Uterus (DCM, 125011) | | |
| Cervix Len | Cervix Length (LN, 11961-0) | | |
| Cervix Len Mean | Cervix Length (LN, 11961-0) | Derivation: Mean (SRT, R-00317) | |
| Endomet | Endometrium Thickness (LN, 12145-9) | | |
| Endomet Mean | Endometrium Thickness (LN, 12145-9) | Derivation: Mean (SRT, R-00317) | |
| Uterus | Uterus Distance (99ANTARES, UterusDist) | | |
| Uterus Mean | Uterus Distance (99ANTARES, UterusDist) | Derivation: Mean (SRT, R-00317) | |

## 11.12 Fetal and Pelvic Vasculature

The measurements in this table apply to the vessels listed for Fetal Vasculature (section 11.12.1) and Pelvic Vasculature (section 11.12.2).

| Label (Section: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Doppler: PS | Peak Systolic Velocity (LN, 11726-7) | |
| Doppler: ED | End Diastolic Velocity (LN, 11653-3) | |
| Doppler: S/D | Systolic to Diastolic Velocity Ratio (LN, 12144-2) | |
| Doppler: TAV | Time Averaged Peak Velocity (LN, 11692-1) | |
| Doppler: PI | Pulsatility Index (LN, 12008-9) | |
| Doppler: RI | Resistivity Index (LN, 12023-8) | |
| Doppler: Angle | Doppler Angle Correction (99ANTARES, DopAngleCor) | |
| Acceleration: Acceleration | Acceleration Index (LN, 20167-3) | |
| Acceleration: Mean | Acceleration Index (LN, 20167-3) | Derivation: Mean (SRT, R-00317) |
| Acceleration: V1 | Acceleration Velocity 1 (99ANTARES, AccelVel1) | |

| **Label**<br>**(Section: Measurement)** | **Code Meaning**<br>**(Coding Scheme Designator, Code Value)** | **Modifiers** |
|---|---|---|
| Acceleration: V2 | Acceleration Velocity 2 (99ANTARES, AccelVel2) | |
| Acceleration: T | Acceleration Time (LN, 20168-1) | |
| Volume Flow: Volume Flow | Volume Flow (LN, 33878-0) | |
| Volume Flow: Mean | Volume Flow (LN, 33878-0) | Derivation: Mean (SRT, R-00317) |
| Volume Flow: A | Volume Flow Area (99ANTARES, VolFArea) | |
| Volume Flow: D | Volume Flow Distance (99ANTARES, VolFDist) | |
| Volume Flow: TAMn | Volume Flow Time-Averaged Mean Velocity (99ANTARES, VolFTAVmV) | |
| Stenosis: %Stenosis [Area] | % Area Reduction (SRT, G-0371) | |
| Stenosis: Mean [Area] | % Area Reduction (SRT, G-0371) | Derivation: Mean (SRT, R-00317) |
| Stenosis: A1 Meas 1 | Vessel Lumen Cross-Sectional Area (SRT, G-0366) | |
| Stenosis: A2 Meas 2 | Vessel Lumen Cross-Sectional Area (SRT, G-0366) | |
| Stenosis: %Stenosis [Distance] | % Diameter Reduction (SRT, G-0372) | |
| Stenosis: Mean [Distance] | % Diameter Reduction (SRT, G-0372) | Derivation: Mean (SRT, R-00317) |
| Stenosis: D1 Meas 1 | Vessel Lumen Diameter (SRT, G-0364) | |
| Stenosis: D2 Meas 2 | Vessel Lumen Diameter (SRT, G-0364) | |
| 2D-Mode: <units> | Distance (99ANTARES, Distance) | |
| 2D-Mode: Mean | Distance (99ANTARES, Distance) | Derivation: Mean (SRT, R-00317) |
| Velocity: Vel | Velocity (99ANTARES, Velocity) | |
| Velocity: Mean | Velocity (99ANTARES, Velocity) | Derivation: Mean (SRT, R-00317) |
| Velocity: Angle | Velocity Angle Correction (99ANTARES, VelAngleCor) | |

### 11.12.1 Fetal Vasculature

[Note: Umbilical Artery (Umb A) measurements appear in this section when there are multiple fetuses.]

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Fetal Vasculature** | Finding Site: Embryonic Vascular Structure (SRT, T-F6800) | | |
| Fetal Ao | Location: Aorta (SRT, T-4200) | | |
| L MCA | Location: Middle Cerebral Artery (SRT, T-45600) | Laterality: Left (SRT, G-A101) | |
| R MCA | Location: Middle Cerebral Artery (SRT, T-45600) | Laterality: Right (SRT, G-A100) | |
| Umb A | Location: Umbilical Artery (SRT, T-F1810) | | |

### 11.12.2 Pelvic Vasculature

[Note: Umbilical Artery (Umb A) measurements appear in this section when there is only one fetus.]

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Pelvic Vasculature** | Finding Site: Pelvic Vascular Structure (SRT, T-D6007) | | |
| Umb A | Location: Umbilical Artery (SRT, T-F1810) | | |
| L Uterine A | Location: Uterine Artery (SRT, T-46820) | Laterality: Left (SRT, G-A101) | |
| R Uterine A | Location: Uterine Artery (SRT, T-46820) | Laterality: Right (SRT, G-A100) | |
| L Ovarian A | Location: Ovarian Artery (SRT, T-46980) | Laterality: Left (SRT, G-A101) | |
| R Ovarian A | Location: Ovarian Artery (SRT, T-46980) | Laterality: Right (SRT, G-A100) | |
| Arcuate A | Location: Arcuate Artery (99ANTARES, ArcuateArtery) | | |

## 11.13 Private Section: Ovaries

| Label (Section: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Ovaries** | Container: Ovaries Section (99ANTARES, Ovaries) | | |
| 2D-Mode: L Ovary <units> | Left Ovary Distance (99ANTARES, LOvaryDist) | | |
| 2D-Mode: L Ovary Mean | Left Ovary Distance (99ANTARES, LOvaryDist) | Derivation: Mean (SRT, R-00317) | |
| Volume: L Ovary V | Left Ovary Volume (LN, 12164-0) | | |
| Volume: L Ovary Mean | Left Ovary Volume (LN, 12164-0) | Derivation: Mean (SRT, R-00317) | |

| Label<br>(Section: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| Volume: L Ovary D1 | Left Ovary Volume: Distance 1<br>(99ANTARES, LOvaryVolD1) | | |
| Volume: L Ovary D2 | Left Ovary Volume: Distance 2<br>(99ANTARES, LOvaryVolD2) | | |
| Volume: L Ovary D3 | Left Ovary Volume: Distance 3<br>(99ANTARES, LOvaryVolD3) | | |
| 2D-Mode: R Ovary <units> | Right Ovary Distance (99ANTARES, ROvaryDist) | | |
| 2D-Mode: R Ovary Mean | Right Ovary Distance (99ANTARES, ROvaryDist) | Derivation: Mean (SRT, R-00317) | |
| Volume: R Ovary V | Right Ovary Volume (LN, 12165-7) | | |
| Volume: R Ovary Mean | Right Ovary Volume (LN, 12165-7) | Derivation: Mean (SRT, R-00317) | |
| Volume: R Ovary D1 | Right Ovary Volume: Distance 1<br>(99ANTARES, ROvaryVolD1) | | |
| Volume: R Ovary D2 | Right Ovary Volume: Distance 2<br>(99ANTARES, ROvaryVolD2) | | |
| Volume: R Ovary D3 | Right Ovary Volume: Distance 3<br>(99ANTARES, ROvaryVolD3) | | |

## 11.14 Private Sections: Left Follicles and Right Follicles

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Follicles** | Container: Follicles Section<br>(99ANTARES, Follicles) | Laterality: Left (SRT, G-A101)<br>or Laterality: Right (SRT, G-A100) | |
| <L or R> Follicle 1 | Follicle 1 Distance (99ANTARES, Follicle1Dist) | | |
| <L or R> Follicle 1 Mean | Follicle 1 Distance (99ANTARES, Follicle1Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Follicle 2 | Follicle 2 Distance (99ANTARES, Follicle2Dist) | | |
| <L or R> Follicle 2 Mean | Follicle 2 Distance (99ANTARES, Follicle2Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Follicle 3 | Follicle 3 Distance (99ANTARES, Follicle3Dist) | | |
| <L or R> Follicle 3 Mean | Follicle 3 Distance (99ANTARES, Follicle3Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Follicle 4 | Follicle 4 Distance (99ANTARES, Follicle4Dist) | | |
| <L or R> Follicle 4 Mean | Follicle 4 Distance (99ANTARES, Follicle4Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Follicle 5 | Follicle 5 Distance (99ANTARES, Follicle5Dist) | | |
| <L or R> Follicle 5 Mean | Follicle 5 Distance (99ANTARES, Follicle5Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Follicle 6 | Follicle 6 Distance (99ANTARES, Follicle6Dist) | | |
| <L or R> Follicle 6 Mean | Follicle 6 Distance (99ANTARES, Follicle6Dist) | Derivation: Mean (SRT, R-00317) | |

## 11.15 Private Sections: Left Cysts and Right Cysts

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Cysts** | Container: Cysts Section (99ANTARES, Cysts) | Laterality: Left (SRT, G-A101) or Laterality: Right (SRT, G-A100) | |
| <L or R> Cyst 1 | Cyst 1 Distance (99ANTARES, Cyst1Dist) | | |
| <L or R> Cyst 1 Mean | Cyst 1 Distance (99ANTARES, Cyst1Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Cyst 2 | Cyst 2 Distance (99ANTARES, Cyst2Dist) | | |
| <L or R> Cyst 2 Mean | Cyst 2 Distance (99ANTARES, Cyst2Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Cyst 3 | Cyst 3 Distance (99ANTARES, Cyst3Dist) | | |
| <L or R> Cyst 3 Mean | Cyst 3 Distance (99ANTARES, Cyst3Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Cyst 4 | Cyst 4 Distance (99ANTARES, Cyst4Dist) | | |
| <L or R> Cyst 4 Mean | Cyst 4 Distance (99ANTARES, Cyst4Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Cyst 5 | Cyst 5 Distance (99ANTARES, Cyst5Dist) | | |
| <L or R> Cyst 5 Mean | Cyst 5 Distance (99ANTARES, Cyst5Dist) | Derivation: Mean (SRT, R-00317) | |
| <L or R> Cyst 6 | Cyst 6 Distance (99ANTARES, Cyst6Dist) | | |
| <L or R> Cyst 6 Mean | Cyst 6 Distance (99ANTARES, Cyst6Dist) | Derivation: Mean (SRT, R-00317) | |

## 11.16 Private Section: Bladder

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Bladder** | Container: Bladder Section (99ANTARES, Bladder) | | |
| Micturated | Micturated Volume (99ANTARES, MicturatedVol) | | |
| PreVoid Bld V | Pre-Void Volume (99ANTARES, PreVoidVol) | | |
| PreVoid Bld Mean | Pre-Void Volume (99ANTARES, PreVoidVol) | Derivation: Mean (SRT, R-00317) | |
| PreVoid Bld D1 | Pre-Void Volume: Distance 1 (99ANTARES, PreVoidVolD1) | | |
| PreVoid Bld D2 | Pre-Void Volume: Distance 2 (99ANTARES, PreVoidVolD2) | | |
| PreVoid Bld D3 | Pre-Void Volume: Distance 3 (99ANTARES, PreVoidVolD3) | | |
| PostVoid Bld V | Post-Void Volume (99ANTARES, PostVoidVol) | | |
| PostVoid Bld Mean | Post-Void Volume (99ANTARES, PostVoidVol) | Derivation: Mean (SRT, R-00317) | |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| PostVoid Bld D1 | Post-Void Volume: Distance 1 (99ANTARES, PostVoidVolD1) | | |
| PostVoid Bld D2 | Post-Void Volume: Distance 2 (99ANTARES, PostVoidVolD2) | | |
| PostVoid Bld D3 | Post-Void Volume: Distance 3 (99ANTARES, PostVoidVolD3) | | |

## 11.17 Private Section: Maternal Kidney

| Label (Section: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| **Maternal Kidney** | Container: Maternal Kidney (99ANTARES, MKidney) | | |
| 2D-Mode: L Mat Kidney <units> | Left Maternal Kidney Distance (99ANTARES, LMKidneyDist) | | |
| 2D-Mode: L Mat Kidney Mean | Left Maternal Kidney Distance (99ANTARES, LMKidneyDist) | Derivation: Mean (SRT, R-00317) | |
| Volume: L Mat Kidney V | Left Maternal Kidney Volume (99ANTARES, LMKidneyVol) | | |
| Volume: L Mat Kidney Mean | Left Maternal Kidney Volume (99ANTARES, LMKidneyVol) | Derivation: Mean (SRT, R-00317) | |
| Volume: L Mat Kidney D1 | Left Maternal Kidney Volume: Distance 1 (99ANTARES, LMKidneyVolD1) | | |
| Volume: L Mat Kidney D2 | Left Maternal Kidney Volume: Distance 2 (99ANTARES, LMKidneyVolD2) | | |
| Volume: L Mat Kidney D3 | Left Maternal Kidney Volume: Distance 3 (99ANTARES, LMKidneyVolD3) | | |
| 2D: R Mat Kidney <units> | Right Maternal Kidney Distance (99ANTARES, RMKidneyDist) | | |
| 2D: R Mat Kidney Mean | Right Maternal Kidney Distance (99ANTARES, RMKidneyDist) | Derivation: Mean (SRT, R-00317) | |
| Volume: R Mat Kidney V | Right Maternal Kidney Volume (99ANTARES, RMKidneyVol) | | |
| Volume: R Mat Kidney Mean | Right Maternal Kidney Volume (99ANTARES, RMKidneyVol) | Derivation: Mean (SRT, R-00317) | |

| Label<br>(Section: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers | Measurement References |
|---|---|---|---|
| Volume: R Mat Kidney D1 | Right Maternal Kidney Volume: Distance 1<br>(99ANTARES, RMKidneyVolD1) | | |
| Volume: R Mat Kidney D2 | Right Maternal Kidney Volume: Distance 2<br>(99ANTARES, RMKidneyVolD2) | | |
| Volume: R Mat Kidney D3 | Right Maternal Kidney Volume: Distance 3<br>(99ANTARES, RMKidneyVolD3) | | |

# 12.0 Appendix B: Vascular Structured Report Measurements

This appendix lists the DICOM Structured Report (SR) mappings used in the Vascular Structured Reports of Antares SR files, version 5.0.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16-2004 of the DICOM Standard. The "Label" column identifies the on-screen report label associated with a measurement. All private code values use the Coding Scheme Designator "99ANTARES".

The Vascular Report mappings follow the DICOM SR Template TID 5100: Vascular Ultrasound Report. Mixed Carotid Ratios, Kidney, Ureter, Bladder, "Liver, Gall Bladder, Pancreas", and Spleen are private sections in this release.

The measurements in the table below apply to the vessels listed in this Appendix. The %Stenosis and %Stenosis-related measurements are not available for veins. "Mean" values are not present in the SR for the following vessels because these vessels are available as labeled measurements in multiple exam headings: Common Carotid Artery, Vertebral Artery, Innominate Artery, Abdominal Aorta, Inferior Vena Cava, Renal Artery.

Notation:

<units> means that the Distance units will be displayed on the report

[ … ] is additional information about the label

| **Label (Section: Measurement)** | **Code Meaning (Coding Scheme Designator, Code Value)** | **Modifiers** |
|---|---|---|
| Doppler: PS | Peak Systolic Velocity (LN, 11726-7) | |
| Doppler: ED | End Diastolic Velocity (LN, 11653-3) | |
| Doppler: S/D | Systolic to Diastolic Velocity Ratio (LN, 12144-2) | |
| Doppler: TAV | Time Averaged Peak Velocity (LN, 11692-1) | |
| Doppler: TAV | Doppler Time Averaged Velocity (99ANTARES, DopTAV) | |
| Doppler: PI | Pulsatility Index (LN, 12008-9) | |
| Doppler: RI | Resistivity Index (LN, 12023-8) | |
| Doppler: Angle | Doppler Angle Correction (99ANTARES, DopAngleCor) | |
| Acceleration: Acceleration | Acceleration Index (LN, 20167-3) | |
| Acceleration: Mean | Acceleration Index (LN, 20167-3) | Derivation: Mean (SRT, R-00317) |
| Acceleration: V1 | Acceleration Velocity 1 (99ANTARES, AccelVel1) | |
| Acceleration: V2 | Acceleration Velocity 2 (99ANTARES, AccelVel2) | |
| Acceleration: T | Acceleration Time (LN, 20168-1) | |

| Label<br>(Section: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Volume Flow: Volume Flow | Volume Flow (LN, 33878-0) | |
| Volume Flow: Mean | Volume Flow (LN, 33878-0) | Derivation: Mean (SRT, R-00317) |
| Volume Flow: A | Volume Flow Area (99ANTARES, VolFArea) | |
| Volume Flow: D | Volume Flow Distance (99ANTARES, VolFDist) | |
| Volume Flow: TAMn | Volume Flow Time-Averaged Mean Velocity<br>(99ANTARES, VolFTAVmV) | |
| Stenosis: %Stenosis [Area] | % Area Reduction (SRT, G-0371) | |
| Stenosis: Mean [Area] | % Area Reduction (SRT, G-0371) | Derivation: Mean (SRT, R-00317) |
| Stenosis: A1 Meas 1 | Vessel Lumen Cross-Sectional Area<br>(SRT, G-0366) | |
| Stenosis: A2 Meas 2 | Vessel Lumen Cross-Sectional Area<br>(SRT, G-0366) | |
| Stenosis: %Stenosis [Distance] | % Diameter Reduction (SRT, G-0372) | |
| Stenosis: Mean [Distance] | % Diameter Reduction (SRT, G-0372) | Derivation: Mean (SRT, R-00317) |
| Stenosis: D1 Meas 1 | Vessel Lumen Diameter (SRT, G-0364) | |
| Stenosis: D2 Meas 2 | Vessel Lumen Diameter (SRT, G-0364) | |
| 2D-Mode: <units> | Distance (99ANTARES, Distance) | |
| 2D-Mode: Mean | Distance (99ANTARES, Distance) | Derivation: Mean (SRT, R-00317) |
| Velocity: Vel | Velocity (99ANTARES, Velocity) | |
| Velocity: Mean | Velocity (99ANTARES, Velocity) | Derivation: Mean (SRT, R-00317) |
| Velocity: Angle | Velocity Angle Correction<br>(99ANTARES, VelAngleCor) | |

**TID5100: Vascular Ultrasound Report**

## 12.1 Patient Characteristics

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Patient Characteristics** | Container: Patient Characteristics<br>(DCM, 121118) | |
| Age | Subject Age (DCM, 121033) | |
| Sex | Subject Sex (DCM, 121032) | |
| HR | Heart Rate (LN, 8867-4) | |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| BP | Systolic Blood Pressure (SRT, F-008EC) | |
| | Diastolic Blood Pressure (SRT, F-008ED) | |

## 12.2 Procedure Summary

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Procedure Summary** | Container: Summary (DCM, 121111) | |
| Indication | Comment (DCM, 121106) | |
| Additional Info. | Comment (DCM, 121106) | |
| Comments | Comment (DCM, 121106) | |

## 12.3 Blood Vessels of Head (Left Intracranial Cerebral Vessels)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Blood Vessel of Head (Intracranial Cerebral Vessels)** | Finding Site: Blood Vessel of Head (SRT, T-40501) | Laterality: Left (SRT, G-A101) |
| L MCA/L ICA-Siphon | MCA/ICA Siphon (99ANTARES, McaIcaSRatio) | |
| L ICA-Siphon [Label:TCD] | Location: Carotid Siphon (SRT, T-45308) | Laterality: Left (SRT, G-A101) |
| L MCA [Label:TCD] | Location: Middle Cerebral Artery (SRT, T-45600) | Laterality: Left (SRT, G-A101) |
| L PCA [Label:TCD] | Location: Posterior Cerebral Artery (SRT, T-45900) | Laterality: Left (SRT, G-A101) |
| L ACA-A1 [Label:TCD] | Location: Anterior Cerebral Artery A1 (99ANTARES, AntCerebAA1) | Laterality: Left (SRT, G-A101) |
| L ACA-A2 [Label:TCD] | Location: Anterior Cerebral Artery A2 (99ANTARES, AntCerebAA2) | Laterality: Left (SRT, G-A101) |
| L PCA-P1 [Label:TCD] | Location: Posterior Cerebral Artery P1 (99ANTARES, PostCerebAP1) | Laterality: Left (SRT, G-A101) |
| L PCA-P2 [Label:TCD] | Location: Posterior Cerebral Artery P2 (99ANTARES, PostCerebAP2) | Laterality: Left (SRT, G-A101) |

## 12.4 Blood Vessel of Head (Right Intracranial Cerebral Vessels)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Blood Vessel of Head (Intracranial Cerebral Vessels)** | Finding Site: Blood Vessel of Head (SRT, T-40501) | Laterality: Right (SRT, G-A100) |
| R MCA/R ICA-Siphon | MCA/ICA Siphon (99ANTARES, McaIcaSRatio) | |
| R ICA-Siphon [Label:TCD] | Location: Carotid Siphon (SRT, T-45308) | Laterality: Right (SRT, G-A100) |
| R MCA [Label:TCD] | Location: Middle Cerebral Artery (SRT, T-45600) | Laterality: Right (SRT, G-A100) |

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| R PCA [Label:TCD] | Location: Posterior Cerebral Artery (SRT, T-45900) | Laterality: Right (SRT, G-A100) |
| R ACA-A1 [Label: TCD] | Location: Anterior Cerebral Artery A1 (99ANTARES, AntCerebAA1) | Laterality: Right (SRT, G-A100) |
| R ACA-A2 [Label: TCD] | Location: Anterior Cerebral Artery A2 (99ANTARES, AntCerebAA2) | Laterality: Right (SRT, G-A100) |
| R PCA-P1 [Label: TCD] | Location: Posterior Cerebral Artery P1<br>(99ANTARES, PostCerebAP1) | Laterality: Right (SRT, G-A100) |
| R PCA-P2 [Label: TCD] | Location: Posterior Cerebral Artery P2<br>(99ANTARES, PostCerebAP2) | Laterality: Right (SRT, G-A100) |

## 12.5 Blood Vessel of Head (Unilateral Intracranial Cerebral Vessels)

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Blood Vessel of Head<br>(Intracranial Cerebral Vessels)** | Finding Site: Blood Vessel of Head (SRT, T-40501) | Laterality: Unilateral (SRT, G-A103) |
| Basilar A [Label: TCD] | Location: Basilar Artery (SRT, T-45800) | Laterality: Unilateral (SRT, G-A103) |
| ACoA [Label: TCD] | Location: Anterior Communicating Artery (SRT, T-45530) | Laterality: Unilateral (SRT, G-A103) |
| PCoA [Label: TCD] | Location: Posterior Communicating Artery (SRT, T-45320) | Laterality: Unilateral (SRT, G-A103) |

## 12.6 Artery of Neck (Left Extracranial Arteries, Carotid Ratios)

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Artery of Neck<br>(Extracranial Arteries, Carotid Ratios)** | Finding Site: Artery of Neck (SRT, T-45005) | Laterality: Left (SRT, G-A101) |
| L <Prox, Mid, or Dist> ICA / L <Prox, Mid, or Dist> CCA<br>[User selected CV Velocity Ratios] | ICA/CCA velocity ratio (LN, 33868-1) | |
| L <Prox, Mid, or Dist> ICA / L <Prox, Mid, or Dist> CCA ED<br>[User selected CV ICA/CCA Ratios] | End Diastole: ICA/CCA (99ANTARES, EDIcaCCARatio) | |
| L <Prox, Mid, or Dist> ICA / L <Prox, Mid, or Dist> CCA PS<br>[User selected CV ICA/CCA Ratios] | Peak Systole: ICA/CCA (99ANTARES, PSIcaCCARatio) | |
| L CCA [Labels: CV, PV-Art] | Location: Common Carotid Artery (SRT, T-45100) | Laterality: Left (SRT, G-A101) |
| L P CCA | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M CCA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D CCA | | Topographical Modifier: Distal (SRT, G-A119) |
| L ECA [Label: CV] | Location: External Carotid Artery (SRT, T-45200) | Laterality: Left (SRT, G-A101) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| L P ECA | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M ECA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D ECA | | Topographical Modifier: Distal (SRT, G-A119) |
| L ICA [Label: CV] | Location: Internal Carotid Artery (SRT, T-45300) | Laterality: Left (SRT, G-A101) |
| L P ICA | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M ICA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D ICA | | Topographical Modifier: Distal (SRT, G-A119) |
| L Subclav A [Label: CV] | Location: Subclavian Artery (SRT, T-46100) | Laterality: Left (SRT, G-A101) |
| L P Subclav A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Subclav A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Subclav A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Vert A [Labels: CV, PV-Art, TCD] | Location: Vertebral Artery (SRT, T-45700) | Laterality: Left (SRT, G-A101) |
| L Vert A | | |
| L P Vert A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Vert A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Vert A | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.7 Artery of Neck (Right Extracranial Arteries, Carotid Ratios)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Artery of Neck (Extracranial Arteries, Carotid Ratios)** | Finding Site: Artery of Neck (SRT, T-45005) | Laterality: Right (SRT, G-A100) |
| R <Prox, Mid, or Dist> ICA / R <Prox, Mid, or Dist> CCA [User selected CV Velocity Ratios] | ICA/CCA velocity ratio (LN, 33868-1) | |
| R <Prox, Mid, or Dist> ICA / R <Prox, Mid, or Dist> CCA ED [User selected CV ICA/CCA Ratios] | End Diastole: ICA/CCA (99ANTARES, EDIcaCCARatio) | |
| R <Prox, Mid, or Dist> ICA / R <Prox, Mid, or Dist> CCA PS [User selected CV ICA/CCA Ratios] | Peak Systole: ICA/CCA (99ANTARES, PSIcaCCARatio) | |
| R CCA [Labels: CV, PV-Art] | Location: Common Carotid Artery (SRT, T-45100) | Laterality: Right (SRT, G-A100) |
| R P CCA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M CCA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D CCA | | Topographical Modifier: Distal (SRT, G-A119) |
| R ECA [Label: CV] | Location: External Carotid Artery (SRT, T-45200) | Laterality: Right (SRT, G-A100) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| R P ECA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M ECA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D ECA | | Topographical Modifier: Distal (SRT, G-A119) |
| R ICA [Label: CV] | Location: Internal Carotid Artery (SRT, T-45300) | Laterality: Right (SRT, G-A100) |
| R P ICA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M ICA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D ICA | | Topographical Modifier: Distal (SRT, G-A119) |
| R Subclav A [Label: CV] | Location: Subclavian Artery (SRT, T-46100) | Laterality: Right (SRT, G-A100) |
| R P Subclav A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Subclav A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Subclav A | | Topographical Modifier: Distal (SRT, G-A119) |
| R Vert A [Labels: CV, PV-Art, TCD] | Location: Vertebral Artery (SRT, T-45700) | Laterality: Right (SRT, G-A100) |
| R Vert A | | |
| R P Vert A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Vert A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Vert A | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.8 Artery of Lower Extremity (Left Side)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Artery of Lower Extremity** | Finding Site: Artery of Lower Extremity (SRT, T-47040) | Laterality: Left (SRT, G-A101) |
| L CIA [Label: PV-Art]<br>L Iliac A [Label: Abd] | Location: Common Iliac Artery (SRT, T-46710) | Laterality: Left (SRT, G-A101) |
| L P CIA<br>L P Iliac A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M CIA<br>L M Iliac A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D CIA<br>L D Iliac A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Ant Tib A [Label: PV-Art] | Location: Anterior Tibial Artery (SRT, T-47700) | Laterality: Left (SRT, G-A101) |
| L P Ant Tib A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Ant Tib A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Ant Tib A | | Topographical Modifier: Distal (SRT, G-A119) |
| L CFA [Label: PV-Art] | Location: Common Femoral Artery (SRT, T-47400) | Laterality: Left (SRT, G-A101) |
| L P CFA | | Topographical Modifier: Proximal (SRT, G-A118) |

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| L M CFA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D CFA | | Topographical Modifier: Distal (SRT, G-A119) |
| L DPA [Label: PV-Art] | Location: Dorsalis Pedis Artery (SRT, T-47741) | Laterality: Left (SRT, G-A101) |
| L P DPA | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M DPA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D DPA | | Topographical Modifier: Distal (SRT, G-A119) |
| L EIA [Label: PV-Art] | Location: External Iliac Artery (SRT, T-46910) | Laterality: Left (SRT, G-A101) |
| L P EIA | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M EIA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D EIA | | Topographical Modifier: Distal (SRT, G-A119) |
| L IIA [Label: PV-Art] | Location: Internal Iliac Artery (SRT, T-46740) | Laterality: Left (SRT, G-A101) |
| L P IIA | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M IIA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D IIA | | Topographical Modifier: Distal (SRT, G-A119) |
| L Peroneal A [Label: PV-Art] | Location: Peroneal Artery (SRT, T-47630) | Laterality: Left (SRT, G-A101) |
| L P Peroneal A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Peroneal A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Peroneal A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Pop A [Label: PV-Art] | Location: Popliteal Artery (SRT, T-47500) | Laterality: Left (SRT, G-A101) |
| L P Pop A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Pop A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Pop A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Post Tib A [Label: PV-Art] | Location: Posterior Tibial Artery (SRT, T-47600) | Laterality: Left (SRT, G-A101) |
| L P Post Tib A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Post Tib A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Post Tib A | | Topographical Modifier: Distal (SRT, G-A119) |
| L PFA [Label: PV-Art] | Location: Profunda Femoris Artery (SRT, T-47440) | Laterality: Left (SRT, G-A101) |
| L P PFA | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M PFA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D PFA | | Topographical Modifier: Distal (SRT, G-A119) |
| L SFA [Label: PV-Art] | Location: Superficial Femoral Artery (SRT, T-47403) | Laterality: Left (SRT, G-A101) |
| L P SFA | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M SFA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D SFA | | Topographical Modifier: Distal (SRT, G-A119) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| L T-P Trunk A [Label: PV-Art] | Location: Tibial-Peroneal Trunk Artery (99ANTARES, TibPeronTrnkA) | Laterality: Left (SRT, G-A101) |
| L P T-P Trunk A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M T-P Trunk A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D T-P Trunk A | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.9 Artery of Lower Extremity (Right Side)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Artery of Lower Extremity** | Finding Site: Artery of Lower Extremity (SRT, T-47040) | Laterality: Right (SRT, G-A100) |
| R CIA [Label: PV-Art, Abd] | Location: Common Iliac Artery (SRT, T-46710) | Laterality: Right (SRT, G-A100) |
| R P CIA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M CIA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D CIA | | Topographical Modifier: Distal (SRT, G-A119) |
| R Ant Tib A [Label: PV-Art] | Location: Anterior Tibial Artery (SRT, T-47700) | Laterality: Right (SRT, G-A100) |
| R P Ant Tib A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Ant Tib A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Ant Tib A | | Topographical Modifier: Distal (SRT, G-A119) |
| R CFA [Label: PV-Art] | Location: Common Femoral Artery (SRT, T-47400) | Laterality: Right (SRT, G-A100) |
| R P CFA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M CFA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D CFA | | Topographical Modifier: Distal (SRT, G-A119) |
| R DPA [Label: PV-Art] | Location: Dorsalis Pedis Artery (SRT, T-47741) | Laterality: Right (SRT, G-A100) |
| R P DPA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M DPA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D DPA | | Topographical Modifier: Distal (SRT, G-A119) |
| R EIA [Label: PV-Art] | Location: External Iliac Artery (SRT, T-46910) | Laterality: Right (SRT, G-A100) |
| R P EIA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M EIA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D EIA | | Topographical Modifier: Distal (SRT, G-A119) |
| R IIA [Label: PV-Art] | Location: Internal Iliac Artery (SRT, T-46740) | Laterality: Right (SRT, G-A100) |
| R P IIA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M IIA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| R D IIA | | Topographical Modifier: Distal (SRT, G-A119) |
| R Peroneal A [Label: PV-Art] | Location: Peroneal Artery (SRT, T-47630) | Laterality: Right (SRT, G-A100) |
| R P Peroneal A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Peroneal A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Peroneal A | | Topographical Modifier: Distal (SRT, G-A119) |
| R Pop A [Label: PV-Art] | Location: Popliteal Artery (SRT, T-47500) | Laterality: Right (SRT, G-A100) |
| R P Pop A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Pop A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Pop A | | Topographical Modifier: Distal (SRT, G-A119) |
| R Post Tib A [Label: PV-Art] | Location: Posterior Tibial Artery (SRT, T-47600) | Laterality: Right (SRT, G-A100) |
| R P Post Tib A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Post Tib A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Post Tib A | | Topographical Modifier: Distal (SRT, G-A119) |
| R PFA [Label: PV-Art] | Location: Profunda Femoris Artery (SRT, T-47440) | Laterality: Right (SRT, G-A100) |
| R P PFA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M PFA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D PFA | | Topographical Modifier: Distal (SRT, G-A119) |
| R SFA [Label: PV-Art] | Location: Superficial Femoral Artery (SRT, T-47403) | Laterality: Right (SRT, G-A100) |
| R P SFA | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M SFA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D SFA | | Topographical Modifier: Distal (SRT, G-A119) |
| R T-P Trunk A [Label: PV-Art] | Location: Tibial-Peroneal Trunk Artery (99ANTARES, TibPeronTrnkA) | Laterality: Right (SRT, G-A100) |
| R P T-P Trunk A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M T-P Trunk A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D T-P Trunk A | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.10 Artery of Upper Extremity (Left Side)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Artery of Upper Extremity** | Finding Site: Artery of Upper Extremity (SRT, T-47020) | Laterality: Left (SRT, G-A101) |
| L Axillary A [Label: PV-Art] | Location: Axillary Artery (SRT, T-47100) | Laterality: Left (SRT, G-A101) |
| L P Axillary A | | Topographical Modifier: Proximal (SRT, G-A118) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| L M Axillary A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Axillary A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Brachial A [Label: PV-Art] | Location: Brachial Artery (SRT, T-47160) | Laterality: Left (SRT, G-A101) |
| L P Brachial A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Brachial A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Brachial A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Deep Brachial A [Label: PV-Art] | Location: Deep Brachial Artery (99Antares, DeepBrachialA) | Laterality: Left (SRT, G-A101) |
| L P Deep Brachial A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Deep Brachial A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Deep Brachial A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Radial A [Label: PV-Art] | Location: Radial Artery (SRT, T-47300) | Laterality: Left (SRT, G-A101) |
| L P Radial A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Radial A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Radial A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Subclav A [Label: PV-Art] | Location: Subclavian Artery (SRT, T-46100) | Laterality: Left (SRT, G-A101) |
| L P Subclav A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Subclav A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Subclav A | | Topographical Modifier: Distal (SRT, G-A119) |
| L Ulnar A [Label: PV-Art] | Location: Ulnar Artery (SRT, T-47200) | Laterality: Left (SRT, G-A101) |
| L P Ulnar A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Ulnar A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Ulnar A | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.11 Artery of Upper Extremity (Right Side)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Artery of Upper Extremity** | Finding Site: Artery of Upper Extremity (SRT, T-47020) | Laterality: Right (SRT, G-A100) |
| R Axillary A [Label: PV-Art] | Location: Axillary Artery (SRT, T-47100) | Laterality: Right (SRT, G-A100) |
| R P Axillary A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Axillary A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Axillary A | | Topographical Modifier: Distal (SRT, G-A119) |
| R Brachial A [Label: PV-Art] | Location: Brachial Artery (SRT, T-47160) | Laterality: Right (SRT, G-A100) |
| R P Brachial A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Brachial A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Brachial A | | Topographical Modifier: Distal (SRT, G-A119) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| R Deep Brachial A [Label: PV-Art] | Location: Brachial Artery (99Antares, DeepBrachialA) | Laterality: Right (SRT, G-A100) |
| R P Brachial A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Brachial A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Brachial A | | Topographical Modifier: Distal (SRT, G-A119) |
| Innom A [Labels: CV, PV-Art] | Location: Innominate Artery (SRT, T-46010) | Laterality: Right (SRT, G-A100) |
| P Innom A | | Topographical Modifier: Proximal (SRT, G-A118) |
| M Innom A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D Innom A | | Topographical Modifier: Distal (SRT, G-A119) |
| R Radial A [Label: PV-Art] | Location: Radial Artery (SRT, T-47300) | Laterality: Right (SRT, G-A100) |
| R P Radial A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Radial A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Radial A | | Topographical Modifier: Distal (SRT, G-A119) |
| R Subclav A [Label: PV-Art] | Location: Subclavian Artery (SRT, T-46100) | Laterality: Right (SRT, G-A100) |
| R P Subclav A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Subclav A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Subclav A | | Topographical Modifier: Distal (SRT, G-A119) |
| R Ulnar A [Label: PV-Art] | Location: Ulnar Artery (SRT, T-47200) | Laterality: Right (SRT, G-A100) |
| R P Ulnar A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Ulnar A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Ulnar A | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.12 Vascular Structure of Kidney (Left Side)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Vascular Structure of Kidney** | Finding Site: Vascular Structure of Kidney (SRT, T-71019) | Laterality: Left (SRT, G-A101) |
| Renal A [Labels: Abd, Renal] | Location: Renal Artery (SRT, T-46600) | Laterality: Left (SRT, G-A101) |
| L P Renal A | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Renal A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Renal A | | Topographical Modifier: Distal (SRT, G-A119) |
| Segmental A [Label: Renal] | Location: Segmental Artery (SRT, T-46659) | Laterality: Left (SRT, G-A101) |
| Arcuate A [Label: Renal] | Location: Arcuate Artery of the Kidney (SRT, T-4668A) | Laterality: Left (SRT, G-A101) |
| Interlobar A [Label: Renal] | Location: Interlobar Artery of Kidney (SRT, T-4667D) | Laterality: Left (SRT, G-A101) |
| Renal V [Labels: Abd, Renal] | Location: Renal Vein (SRT, T-48740) | Laterality: Left (SRT, G-A101) |

## 12.13 Vascular Structure of Kidney (Right Side)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Vascular Structure of Kidney** | Finding Site: Vascular Structure of Kidney (SRT, T-71019) | Laterality: Right (SRT, G-A100) |
| Renal A [Labels: Abd, Renal] | Location: Renal Artery (SRT, T-46600) | Laterality: Right (SRT, G-A100) |
| R P Renal A | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Renal A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Renal A | | Topographical Modifier: Distal (SRT, G-A119) |
| Segmental A [Label: Renal] | Location: Segmental Artery (SRT, T-46659) | Laterality: Right (SRT, G-A100) |
| Arcuate A [Label: Renal] | Location: Arcuate Artery of the Kidney (SRT, T-4668A) | Laterality: Right (SRT, G-A100) |
| Interlobar A [Label: Renal] | Location: Interlobar Artery of Kidney (SRT, T-4667D) | Laterality: Right (SRT, G-A100) |
| Renal V [Labels: Abd, Renal] | Location: Renal Vein (SRT, T-48740) | Laterality: Right (SRT, G-A100) |

## 12.14 Artery of Abdomen (Unilateral)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Artery of Abdomen** | Finding Site: Artery of Abdomen (SRT, T-46002) | Laterality: Unilateral (SRT, G-C171) |
| Aorta [Labels: Abd, CV, Renal]<br>Abd Aorta [Labels: PV-Art] | Location: Aorta (SRT, T-42000) | |
| P Aorta<br>P Abd Aorta | | Topographical Modifier: Proximal (SRT, G-A118) |
| M Aorta<br>M Abd Aorta | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D Aorta<br>D Abd Aorta | | Topographical Modifier: Distal (SRT, G-A119) |
| Celiac A [Label: Abd] | Location: Celiac Axis (SRT, T-46400) | |
| Common Heptatic Artery [Label: Abd] | Location: Common Hepatic Artery (SRT, T-46421) | |
| P Hepatic A | | Topographical Modifier: Proximal (SRT, G-A118) |
| M Hepatic A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D Hepatic A | | Topographical Modifier: Distal (SRT, G-A119) |
| Gastric A [Label: Abd] | Location: Gastric Artery (SRT, T-46410) | |
| P Gastric A | | Topographical Modifier: Proximal (SRT, G-A118) |
| M Gastric A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D Gastric A | | Topographical Modifier: Distal (SRT, G-A119) |
| Inferior Mesenteric Artery [Label: Abd] | Location: Inferior Mesenteric Artery (SRT, T-46520) | |
| P IMA | | Topographical Modifier: Proximal (SRT, G-A118) |
| M IMA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| D IMA | | Topographical Modifier: Distal (SRT, G-A119) |
| Splenic Artery [Label: Abd] | Location: Splenic Artery (SRT, T-46460) | |
| P Splenic A | | Topographical Modifier: Proximal (SRT, G-A118) |
| M Splenic A | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D Splenic A | | Topographical Modifier: Distal (SRT, G-A119) |
| Superior Mesenteric Artery [Label: Abd] | Location: Superior Mesenteric Artery (SRT, T-46510) | |
| P SMA | | Topographical Modifier: Proximal (SRT, G-A118) |
| M SMA | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D SMA | | Topographical Modifier: Distal (SRT, G-A119) |
| Bifurcation A [Label: Abd] | Location: Bifurcation Artery (99ANTARES, BifurA) | |

## 12.15 Vein of Abdomen (Left Side)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Vein of Abdomen** | Finding Site: Vein of Abdomen (SRT, T-487A0) | Laterality: Left (SRT, G-A101) |
| Iliac V [Label: Abd] | Location: Common Iliac Vein (SRT, T-48920) | |
| L P Iliac V | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Iliac V | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Iliac V | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.16 Vein of Abdomen (Right Side)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Vein of Abdomen** | Finding Site: Vein of Abdomen (SRT, T-487A0) | Laterality: Right (SRT, G-A100) |
| Iliac V [Label: Abd] | Location: Common Iliac Vein (SRT, T-48920) | |
| R P Iliac V | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Iliac V | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Iliac V | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.17 Vein of Abdomen (Unilateral)

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Vein of Abdomen** | Finding Site: Vein of Abdomen (SRT, T-487A0) | Laterality: Unilateral (SRT, G-C171) |
| Left Hepatic Vein [Label: Abd] | Location: Left Hepatic Vein (SRT, T-48727) | |
| L P Hepatic V | | Topographical Modifier: Proximal (SRT, G-A118) |
| L M Hepatic V | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| L D Hepatic V | | Topographical Modifier: Distal (SRT, G-A119) |
| Middle Hepatic Vein [Label: Abd] | Location: Middle Hepatic Vein (SRT, T-48726) | |
| M P Hepatic V | | Topographical Modifier: Proximal (SRT, G-A118) |
| M M Hepatic V | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| M D Hepatic V | | Topographical Modifier: Distal (SRT, G-A119) |
| Right Hepatic Vein [Label: Abd] | Location: Right Hepatic Vein (SRT, T-48725) | |
| R P Hepatic V | | Topographical Modifier: Proximal (SRT, G-A118) |
| R M Hepatic V | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R D Hepatic V | | Topographical Modifier: Distal (SRT, G-A119) |
| Portal Vein [Label: Abd] | Location:Portal Vein (SRT, T-488810) | |
| P Portal V | | Topographical Modifier: Proximal (SRT, G-A118) |
| M Portal V | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D Portal V | | Topographical Modifier: Distal (SRT, G-A119) |
| Inferior Vena Cava [Labels: Abd, Renal] | Location: Inferior Vena Cava (SRT, T-48710) | |
| P IVC | | Topographical Modifier: Proximal (SRT, G-A118) |
| M IVC | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D IVC | | Topographical Modifier: Distal (SRT, G-A119) |
| Splenic Vein [Label: Abd] | Location: Splenic Vein (SRT, T-48890) | |
| P Splenic V | | Topographical Modifier: Proximal (SRT, G-A118) |
| M Splenic V | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D Splenic V | | Topographical Modifier: Distal (SRT, G-A119) |
| Superior Mesenteric Vein [Label: Abd] | Location: Superior Mesenteric Vein (SRT, T-48840) | |
| P SMV | | Topographical Modifier: Proximal (SRT, G-A118) |
| M SMV | | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| D SMV | | Topographical Modifier: Distal (SRT, G-A119) |

## 12.18 Ultrasound Graft

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Ultrasound Graft** | Finding Site: Vascular Graft (SRT, T-D000F) | |
| Left Abominal Anastomosis Artery [Label: Abd] | Location: Abdominal Anastomosis Artery (99ANTARES, AbdAnastA) | Laterality: Left (SRT, G-A101) |
| L P Abd Anast A | | Location: Proximal Anastomosis (SRT, G-D871) |
| L M Abd Anast A | | Location: Middle Anastomosis (99ANTARES, MidAnast) |
| L D Abd Anast A | | Location: Distal Anastomosis (SRT, G-D872) |
| Right Abominal Anastomosis Artery [Label: Abd] | Location: Abdominal Anastomosis Artery (99ANTARES, AbdAnastA) | Laterality: Right (SRT, G-A100) |
| R P Abd Anast A | | Location: Proximal Anastomosis (SRT, G-D871) |
| R M Abd Anast A | | Location: Middle Anastomosis (99ANTARES, MidAnast) |
| R D Abd Anast A | | Location: Distal Anastomosis (SRT, G-D872) |
| Left Abominal Anastomosis Vein [Label: Abd] | Location: Abdominal Anastomosis Vein (99ANTARES, AbdAnastV) | Laterality: Left (SRT, G-A101) |
| L P Abd Anast V | | Location: Proximal Anastomosis (SRT, G-D871) |
| L M Abd Anast V | | Location: Middle Anastomosis (99ANTARES, MidAnast) |
| L D Abd Anast V | | Location: Distal Anastomosis (SRT, G-D872) |
| Right Abominal Anastomosis Vein [Label: Abd] | Location: Abdominal Anastomosis Vein (99ANTARES, AbdAnastV) | Laterality: Right (SRT, G-A100) |
| R P Abd Anast V | | Location: Proximal Anastomosis (SRT, G-D871) |
| R M Abd Anast V | | Location: Middle Anastomosis (99ANTARES, MidAnast) |
| R D Abd Anast V | | Location: Distal Anastomosis (SRT, G-D872) |
| Left Renal Anastomosis Artery [Label: Renal] | Location: Renal Anastomosis Artery (99ANTARES, RenalAnastA) | Laterality: Left (SRT, G-A101) |
| L P Renal Anast A | | Location: Proximal Anastomosis (SRT, G-D871) |
| L M Renal Anast A | | Location: Middle Anastomosis (99ANTARES, MidAnast) |
| L D Renal Anast A | | Location: Distal Anastomosis (SRT, G-D872) |
| Right Renal Anastomosis Artery [Label: Renal] | Location: Renal Anastomosis Artery (99ANTARES, RenalAnastA) | Laterality: Right (SRT, G-A100) |
| R P Renal Anast A | | Location: Proximal Anastomosis (SRT, G-D871) |
| R M Renal Anast A | | Location: Middle Anastomosis (99ANTARES, MidAnast) |
| R D Renal Anast A | | Location: Distal Anastomosis (SRT, G-D872) |
| Left Renal Anastomosis Vein [Label: Renal] | Location: Renal Anastomosis Vein (99ANTARES, RenalAnastV) | Laterality: Left (SRT, G-A101) |
| L P Renal Anast V | | Location: Proximal Anastomosis (SRT, G-D871) |
| L M Renal Anast V | | Location: Middle Anastomosis (99ANTARES, MidAnast) |

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| L D Renal Anast V | | Location: Distal Anastomosis (SRT, G-D872) |
| Right Renal Anastomosis Vein [Label: Renal] | Location: Renal Anastomosis Vein (99ANTARES, RenalAnastV) | Laterality: Right (SRT, G-A100) |
| R P Renal Anast V | | Location: Proximal Anastomosis (SRT, G-D871) |
| R M Renal Anast V | | Location: Middle Anastomosis (99ANTARES, MidAnast) |
| R D Renal Anast V | | Location: Distal Anastomosis (SRT, G-D872) |

## 12.19 Private Section: Mixed Carotid Ratios

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Mixed Carotid Ratios** | Container: Mixed Carotid Ratios (99ANTARES, MxCarotidRatios) | |
| R Prox CCA/L Prox CCA | Right CCA/Left CCA (99ANTARES, RCCAoverLCCA) | Topographical Modifier: Proximal (SRT, G-A118) |
| R Mid CCA/L Mid CCA | Right CCA/Left CCA (99ANTARES, RCCAoverLCCA) | Topographical Modifier: Mid-longitudinal (SRT, G-A188) |
| R Dist CCA/L Dist CCA | Right CCA/Left CCA (99ANTARES, RCCAoverLCCA) | Topographical Modifier: Distal (SRT, G-A119) |

## 12.20 Private Section: Kidney

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Kidney** | Container: Kidney (99ANTARES, Kidney) | |
| L Kidney | Left Kidney Distance (99ANTARES, LKidneyDist) | |
| L Kidney Mean [2D-Mode] | Left Kidney Distance (99ANTARES, LKidneyDist) | Derivation: Mean (SRT, R-00317) |
| L Kidney V | Left Kidney Volume (99ANTARES, LKidneyVol) | |
| L Kidney Mean [Volume] | Left Kidney Volume (99ANTARES, LKidneyVol) | Derivation: Mean (SRT, R-00317) |
| L Kidney D1 | Left Kidney Volume: Distance 1 (99ANTARES, LKidneyVolD1) | |
| L Kidney D2 | Left Kidney Volume: Distance 2 (99ANTARES, LKidneyVolD2) | |
| L Kidney D3 | Left Kidney Volume: Distance 3 (99ANTARES, LKidneyVolD3) | |
| R Kidney | Right Kidney Distance (99ANTARES, RKidneyDist) | |
| R Kidney Mean [2D-Mode] | Right Kidney Distance (99ANTARES, RKidneyDist) | Derivation: Mean (SRT, R-00317) |
| R Kidney V | Right Kidney Volume (99ANTARES, RKidneyVol) | |
| R Kidney Mean [Volume] | Right Kidney Volume (99ANTARES, RKidneyVol) | Derivation: Mean (SRT, R-00317) |
| R Kidney D1 | Right Kidney Volume: Distance 1 (99ANTARES, RKidneyVolD1) | |
| R Kidney D2 | Right Kidney Volume: Distance 2 (99ANTARES, RKidneyVolD2) | |
| R Kidney D3 | Right Kidney Volume: Distance 3 (99ANTARES, RKidneyVolD3) | |

## 12.21 Private Section: Ureter

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Ureter** | Container: Ureter (99ANTARES, Ureter) | |
| L Ureter | Left Ureter Distance (99ANTARES, LUreterDist) | |
| L Ureter Mean | Left Ureter Distance (99ANTARES, LUreterDist) | Derivation: Mean (SRT, R-00317) |
| R Ureter | Right Ureter Distance (99ANTARES, RUreterDist) | |
| R Ureter Mean | Right Ureter Distance (99ANTARES, RUreterDist) | Derivation: Mean (SRT, R-00317) |

## 12.22 Private Section: Bladder

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Bladder** | Container: Bladder (99ANTARES, Bladder) | |
| Micturated | Micturated Volume (99ANTARES, MicturatedVol) | |
| PreVoid Bld V | Pre-Void Volume (99ANTARES, PreVoidVol) | |
| PreVoid Bld Mean | Pre-Void Volume (99ANTARES, PreVoidVol) | Derivation: Mean (SRT, R-00317) |
| PreVoid Bld D1 | Pre-Void Volume: Distance 1 (99ANTARES, PreVoidVolD1) | |
| PreVoid Bld D2 | Pre-Void Volume: Distance 2 (99ANTARES, PreVoidVolD2) | |
| PreVoid Bld D3 | Pre-Void Volume: Distance 3 (99ANTARES, PreVoidVolD3) | |
| PostVoid Bld V | Post-Void Volume (99ANTARES, PostVoidVol) | |
| PostVoid Bld Mean | Post-Void Volume (99ANTARES, PostVoidVol) | Derivation: Mean (SRT, R-00317) |
| PostVoid Bld D1 | Post-Void Volume: Distance 1 (99ANTARES, PostVoidVolD1) | |
| PostVoid Bld D2 | Post-Void Volume: Distance 2 (99ANTARES, PostVoidVolD2) | |
| PostVoid Bld D3 | Post-Void Volume: Distance 3 (99ANTARES, PostVoidVolD3) | |

## 12.23 Private Section: Liver, Gall Bladder, Pancreas

| Label | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Liver, Gall Bladder, Pancreas** | Container: Liver, Gall Bladder, Pancreas (99ANTARES, LiverGallBPancr) | |
| Liver | Liver Distance (99ANTARES, LiverDist) | |
| Liver Mean [2D-Mode] | Liver Distance (99ANTARES, LiverDist) | Derivation: Mean (SRT, R-00317) |
| Liver V | Liver Volume (99ANTARES, LiverVol) | |
| Liver Mean [Volume] | Liver Volume (99ANTARES, LiverVol) | Derivation: Mean (SRT, R-00317) |
| Liver D1 | Liver Volume: Distance 1 (99ANTARES, LiverVolD1) | |
| Liver D2 | Liver Volume: Distance 2 (99ANTARES, LiverVolD2) | |
| Liver D3 | Liver Volume: Distance 3 (99ANTARES, LiverVolD3) | |

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| CHD | Common Hepatic Duct Distance (99ANTARES, CHDuctDist) | |
| CHD Mean | Common Hepatic Duct Distance (99ANTARES, CHDuctDist) | Derivation: Mean (SRT, R-00317) |
| CBD | Common Bile Duct Distance (99ANTARES, CBDuctDist) | |
| CBD Mean | Common Bile Duct Distance (99ANTARES, CBDuctDist) | Derivation: Mean (SRT, R-00317) |
| GB Wall | Gall Bladder Wall Thickness (99ANTARES, GallBWallThk) | |
| GB Wall Mean | Gall Bladder Wall Thickness<br>(99ANTARES, GallBWallThk) | Derivation: Mean (SRT, R-00317) |
| Panc duct | Pancreatic Duct Distance<br>(99ANTARES, PancrDuctDist) | |
| Panc duct Mean | Pancreatic Duct Distance<br>(99ANTARES, PancrDuctDist) | Derivation: Mean (SRT, R-00317) |

## 12.24 Private Section: Spleen

| Label | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Spleen** | Container: Spleen (99ANTARES, Spleen) | |
| Spleen | Spleen Distance (99ANTARES, SpleenDist) | |
| Spleen Mean [2D-Mode] | Spleen Distance (99ANTARES, SpleenDist) | Derivation: Mean (SRT, R-00317) |
| Spleen V | Spleen Volume (99ANTARES, SpleenVol) | |
| Spleen Mean [Volume] | Spleen Volume (99ANTARES, SpleenVol) | Derivation: Mean (SRT, R-00317) |
| Spleen D1 | Spleen Volume: Distance 1 (99ANTARES, SpleenVolD1) | |
| Spleen D2 | Spleen Volume: Distance 2 (99ANTARES, SpleenVolD2) | |
| Spleen D3 | Spleen Volume: Distance 3 (99ANTARES, SpleenVolD3) | |

# 13.0 Appendix C: Echocardiography Structured Report

This appendix lists the DICOM Structured Report (SR) mappings used in the Cardiac Structured Reports of Antares SR files, version 5.0.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16-2004 of the DICOM Standard. The "Label" column identifies the on-screen report label associated with a measurement. All private code values use the Coding Scheme Designator "99SIEMENSUS".

The Cardiac Report mappings follow the DICOM SR Template TID 5200: Echocardiography Procedure Report. The Qp-Qs and Qp/Qs measurements that are displayed on the report page are not available in the SR.

Notation:

[ … ] is additional information about the label

**TID5200: Echocardiography Procedure Report**

## 13.1 Left Ventricle

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Left Ventricle** | Finding Site: Left Ventricle (SRT, T-32600) | |
| Aortic Valve: CI | Cardiac Index (SRT, F-32110) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Aortic Valve: CO | Cardiac Output (SRT, F-32100) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Aortic Valve: IVRT<br>Mitral Valve: IVRT | Left Ventricular Isovolumic Relaxation Time<br>(LN, 18071-1) | |
| Aortic Valve: LVOT diam<br>Mitral Valve: LVOT diam | Cardiovascular Orifice Diameter (SRT, G-038F) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) |
| Aortic Valve: LVOT PGmax | Peak Gradient (LN, 20247-3) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Aortic Valve: LVOT PGmean | Mean Gradient (LN, 20256-4) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Aortic Valve: LVOT Vmax | Peak Systolic Velocity (LN, 11726-7) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Aortic Valve: LVOT Vmean | Mean Velocity (LN, 20352-1) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Aortic Valve: LVOT VTI<br>Mitral Valve: LVOT VTI | Velocity Time Integral (LN, 20354-7) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Direction of Flow: Antegrade Flow (SRT, R-42047) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Aortic Valve: SI | Stroke Index (SRT, F-00078) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Aortic Valve: SV | Stroke Volume (SRT, F-32120) | Finding Site: Left Ventricle Outflow Tract (SNM3, T-32650)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Aortic Valve: VSD PGmax | Peak Gradient (LN, 20247-3) | Finding Site: Ventricular Septal Defect (SRT, D4-31150) |
| Aortic Valve: VSD Vmax | Peak Systolic Velocity (LN, 11726-7) | Finding Site: Ventricular Septal Defect (SRT, D4-31150) |
| Mitral Valve: CO | Cardiac Output (SRT, F-32100) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Mitral Valve: MV LVIMP | Left Ventricular Index of Myocardial Performance (SRT, G-037F) | |
| Mitral Valve: SV | Stroke Volume (SRT, F-32120) | Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)<br>Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Cubed(2D): CI | Cardiac Index (SRT, F-32110) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): CO | Cardiac Output (SRT, F-32100) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): EDV | Left Ventricular End Diastolic Volume (LN, 18026-5) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): EF | Left Ventricular Ejection Fraction (LN, 18043-0) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): ESV | Left Ventricular End Systolic Volume (LN, 18148-7) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): FS | Left Ventricular Fractional Shortening (LN, 18051-3) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): HR | Heart Rate (LN, 8867-4) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): IVSd | Interventricular Septum Diastolic Thickness (LN, 18154-5) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): IVSs | Interventricular Septum Systolic Thickness (LN, 18158-6) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): LVIDd | Left Ventricle Internal End Diastolic Dimension (LN, 29436-3) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): LVIDs | Left Ventricle Internal Systolic Dimension (LN, 29438-9) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): LVPWd | Left Ventricle Posterior Wall Diastolic Thickness (LN, 18152-9) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Cubed(2D): LVPWs | Left Ventricle Posterior Wall Systolic Thickness (LN, 18156-0) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): SI | Stroke Index (SRT, F-00078) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): SV | Stroke Volume (SRT, F-32120) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| DTI: Aa(l) | LV Peak Diastolic Tissue Velocity During Atrial Systole<br>(SRT, G-037C) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: Aa(m) | LV Peak Diastolic Tissue Velocity During Atrial Systole (SRT, G-037C) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| DTI: ARa(l) | Mitral Valve DTI acceleration rate of Ea (99SIEMENSUS, CA_MV_ARa) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: ARa(m) | Mitral Valve DTI acceleration rate of Ea (99SIEMENSUS, CA_MV_ARa) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| DTI: ATa(l) | Mitral Valve DTI acceleration time of Ea (99SIEMENSUS, CA_MV_ATa) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: ATa(m) | Mitral Valve DTI acceleration time of Ea (99SIEMENSUS, CA_MV_ATa) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| DTI: DRa(l) | Mitral Valve DTI deceleration rate of Ea (99SIEMENSUS, CA_MV_DRa) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: DRa(m) | Mitral Valve DTI deceleration rate of Ea<br>(99SIEMENSUS, CA_MV_DRa) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| DTI: DTa(l) | Mitral Valve DTI deceleration time of Ea<br>(99SIEMENSUS, CA_MV_DTa) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: DTa(m) | Mitral Valve DTI deceleration time of Ea<br>(99SIEMENSUS, CA_MV_DTa) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| DTI: E/Ea(l) | Ratio of MV Peak Velocity to LV Peak Tissue Velocity E-Wave<br>(SRT, G-037B) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: E/Ea(m) | Ratio of MV Peak Velocity to LV Peak Tissue Velocity E-Wave<br>(SRT, G-037B) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| DTI: Ea(l) | Left Ventricular Peak Early Diastolic Tissue Velocity (SRT, G-037A) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: Ea(m) | Left Ventricular Peak Early Diastolic Tissue Velocity (SRT, G-037A) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| DTI: Ea/Aa(l) | Mitral Valve DTI Ea to Aa Ratio (99SIEMENSUS, CA_MV_Ea2Aa) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: Ea/Aa(m) | Mitral Valve DTI Ea to Aa Ratio (99SIEMENSUS, CA_MV_Ea2Aa) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| DTI: Sa(l) | Left Ventricular Peak Systolic Tissue Velocity (SRT, G-037D) | Finding Site: Lateral Mitral Annulus (SRT, G-0392) |
| DTI: Sa(m) | Left Ventricular Peak Systolic Tissue Velocity (SRT, G-037D) | Finding Site: Medial Mitral Annulus (SRT, G-0391) |
| LV/Cubed(M): CI | Cardiac Index (SRT, F-32110) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): CO | Cardiac Output (SRT, F-32100) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): EDV | Left Ventricular End Diastolic Volume (LN, 18026-5) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| LV/Cubed(M): EF | Left Ventricular Ejection Fraction (LN, 18043-0) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): ESV | Left Ventricular End Systolic Volume (LN, 18148-7) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): FS | Left Ventricular Fractional Shortening (LN, 18051-3) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): HR | Heart Rate (LN, 8867-4) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): IVSd | Interventricular Septum Diastolic Thickness (LN, 18154-5) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): IVSs | Interventricular Septum Systolic Thickness (LN, 18158-6) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): LV MASS | Left Ventricle Mass (LN, 18087-7) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): LV MASS-c | Left Ventricle Mass corrected (99SIEMENSUS, CA_LV_MASSc) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): LV MASS-l | Left Ventricle Mass (LN, 18087-7) | Image Mode: M-Mode (SRT, G-0394)<br>Index: Body Surface Area (LN, 8277-6)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): LVIDd | Left Ventricle Internal End Diastolic Dimension (LN, 29436-3) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): LVIDs | Left Ventricle Internal Systolic Dimension (LN, 29438-9) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): LVPWd | Left Ventricle Posterior Wall Diastolic Thickness (LN, 18152-9) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): LVPWs | Left Ventricle Posterior Wall Systolic Thickness (LN, 18156-0) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): mVcf | Systolic Index (99SIEMENSUS, CA_LF_VCF) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): SI | Stroke Index (SRT, F-00078) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): SV | Stroke Volume (SRT, F-32120) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Teichholz(M): CI | Cardiac Index (SRT, F-32110) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): CO | Cardiac Output (SRT, F-32100) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| LV/Teichholz(M): EDV | Left Ventricular End Diastolic Volume (LN, 18026-5) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): EF | Left Ventricular Ejection Fraction (LN, 18043-0) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): ESV | Left Ventricular End Systolic Volume (LN, 18148-7) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): FS | Left Ventricular Fractional Shortening (LN, 18051-3) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): HR | Heart Rate (LN, 8867-4) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): IVSd | Interventricular Septum Diastolic Thickness (LN, 18154-5) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): IVSs | Interventricular Septum Systolic Thickness (LN, 18158-6) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): LV MASS | Left Ventricle Mass (LN, 18087-7) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): LV MASS-c | Left Ventricle Mass corrected (99SIEMENSUS, CA_LV_MASSc) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): LV MASS-l | Left Ventricle Mass (LN, 18087-7) | Image Mode: M-Mode (SRT, G-0394)<br>Index: Body Surface Area (LN, 8277-6)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): LVIDd | Left Ventricle Internal End Diastolic Dimension (LN, 29436-3) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): LVIDs | Left Ventricle Internal Systolic Dimension (LN, 29438-9) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): LVPWd | Left Ventricle Posterior Wall Diastolic Thickness (LN, 18152-9) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): LVPWs | Left Ventricle Posterior Wall Systolic Thickness (LN, 18156-0) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): mVcf | Systolic Index (99SIEMENSUS, CA_LF_VCF) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): SI | Stroke Index (SRT, F-00078) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Teichholz(M): SV | Stroke Volume (SRT, F-32120) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| LV MASS A-L: A Sax Endo | Left Ventricular Diastolic Area (SRT, G-0375) | Image Mode: 2D mode (SRT, G-03A2)<br>Image View: Parasternal Short Axis at the Papillary Muscle Level (SRT, G-039B)<br>Measurement Method: Left Ventricle Mass by Area Length (99SIEMENSUS, LVMassAL) |
| LV MASS A-L: A Sax Epi | Left Ventricle Epicardial Diastolic Area, psax pap view (SRT, G-0379) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Left Ventricle Mass by Area Length (99SIEMENSUS, LVMassAL) |
| LV MASS A-L: LV MASS | Left Ventricle Mass (LN, 18087-7) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Left Ventricle Mass by Area Length (99SIEMENSUS, LVMassAL) |
| LV MASS A-L: LV MASS-l | Left Ventricle Mass (LN, 18087-7) | Image Mode: 2D mode (SRT, G-03A2)<br>Index: Body Surface Area (LN, 8277-6)<br>Measurement Method: Left Ventricle Mass by Area Length (99SIEMENSUS, LVMassAL) |
| LV MASS A-L: LVL | Left Ventricle Diastolic Major Axis (LN, 18077-8) | Image Mode: 2D mode (SRT, G-03A2) |
| LV MASS A-L: t | Myocardial Thickness calculated from Short Axis Epicardial and Cavity Areas (99SIEMENSUS, CA_LV_MyoTh) | Image Mode: 2D mode (SRT, G-03A2) |
| LV MASS T-E: a | Left Ventricle Semi-major Axis Diastolic Dimension (SRT, G-0377) | Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222) |
| LV MASS T-E: A Sax Endo | Left Ventricular Diastolic Area (SRT, G-0375) | Image View: Parasternal Short Axis at the Papillary Muscle Level (SRT, G-039B)<br>Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222) |
| LV MASS T-E: A Sax Epi | Left Ventricle Epicardial Diastolic Area, psax pap view (SRT, G-0379) | Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222) |
| LV MASS T-E: b | Short axis radius calculated from short axis cavity area (99SIEMENSUS, CA_LV_RadSAX) | Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222) |
| LV MASS T-E: d | Left Ventricle Truncated Semi-major Axis Diastolic Dimension (SRT, G-0378) | Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222) |
| LV MASS T-E: LV Mass | Left Ventricle Mass (LN, 18087-7) | Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222) |
| LV MASS T-E: LV Mass-l | Left Ventricle Mass (LN, 18087-7) | Index: Body Surface Area (LN, 8277-6)<br>Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222) |
| LV MASS T-E: t | Myocardial Thickness calculated from short axis epicardial and cavity areas (99SIEMENSUS, CA_LV_MyoTh) | Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222) |
| Simpson BP: CI | Cardiac Index (SRT, F-32110) | Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: CI2 | Cardiac Index (SRT, F-32110) | Image View: Apical Two Chamber (SRT, G-A19B)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Simpson BP: CI4 | Cardiac Index (SRT, F-32110) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: CO | Cardiac Output (SRT, F-32100) | Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: CO2 | Cardiac Output (SRT, F-32100) | Image View: Apical Two Chamber (SRT, G-A19B)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: CO4 | Cardiac Output (SRT, F-32100) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: difD | LV Difference (99SIEMENSUS, CA_LV_DIF) | Cardiac Cycle Point: End Diastole (SRT, F-32011)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: difS | LV Difference (99SIEMENSUS, CA_LV_DIF) | Cardiac Cycle Point: F-32011, SRT, End Systole<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: EDV | Left Ventricular End Diastolic Volume (LN, 18026-5) | Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: EDV2 | Left Ventricular End Diastolic Volume (LN, 18026-5) | Image View: Apical Two Chamber (SRT, G-A19B)<br>Measurement Method: Method of Disks,Biplane (DCM, 125207) |
| Simpson BP: EDV4 | Left Ventricular End Diastolic Volume (LN, 18026-5) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: EF | Left Ventricular Ejection Fraction (LN, 18043-0) | Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: EF2 | Left Ventricular Ejection Fraction (LN, 18043-0) | Image View: Apical Two Chamber (SRT, G-A19B)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: EF4 | Left Ventricular Ejection Fraction (LN, 18043-0) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: ESV | Left Ventricular End Systolic Volume (LN, 18148-7) | Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: ESV2 | Left Ventricular End Systolic Volume (LN, 18148-7) | Image View: Apical Two Chamber (SRT, G-A19B)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: ESV4 | Left Ventricular End Systolic Volume (LN, 18148-7) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: HR | Heart Rate (LN, 8867-4) | Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: SI | Stroke Index (SRT, F-00078) | Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: SI2 | Stroke Index (SRT, F-00078) | Image View: Apical Two Chamber (SRT, G-A19B)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: SI4 | Stroke Index (SRT, F-00078) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: SV | Stroke Volume (SRT, F-32120) | Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: SV2 | Stroke Volume (SRT, F-32120) | Image View: Apical Two Chamber (SRT, G-A19B)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |
| Simpson BP: SV4 | Stroke Volume (SRT, F-32120) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Biplane (DCM, 125207) |

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Simpson SP: CI | Cardiac Index (SRT, F-32110) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Single Plane (DCM, 125208) |
| Simpson SP: CO | Cardiac Output (SRT, F-32100) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Single Plane (DCM, 125208) |
| Simpson SP: EDV | Left Ventricular End Diastolic Volume (LN, 18026-5) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Single Plane (DCM, 125208) |
| Simpson SP: EF | Left Ventricular Ejection Fraction (LN, 18043-0) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Single Plane (DCM, 125208) |
| Simpson SP: ESV | Left Ventricular End Systolic Volume (LN, 18148-7) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Single Plane (DCM, 125208) |
| Simpson SP: HR | Heart Rate (LN, 8867-4) | Measurement Method: Method of Disks, Single Plane (DCM, 125208) |
| Simpson SP: SI | Stroke Index (SRT, F-00078) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Single Plane (DCM, 125208) |
| Simpson SP: SV | Stroke Volume (SRT, F-32120) | Image View: Apical Four Chamber (SRT, G-A19C)<br>Measurement Method: Method of Disks, Single Plane (DCM, 125208) |
| Teichholz(2D): CI | Cardiac Index (SRT, F-32110) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): CO | Cardiac Output (SRT, F-32100) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): EDV | Left Ventricular End Diastolic Volume (LN, 18026-5) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): EF | Left Ventricular Ejection Fraction (LN, 18043-0) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): ESV | Left Ventricular End Systolic Volume (LN, 18148-7) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): FS | Left Ventricular Fractional Shortening(LN, 18051-3) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): HR | Heart Rate (LN, 8867-4) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): IVSd | Interventricular Septum Diastolic Thickness (LN, 18154-5) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Teichholz(2D): IVSs | Interventricular Septum Systolic Thickness (LN, 18158-6) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): LVIDd | Left Ventricle Internal End Diastolic Dimension (LN, 29436-3) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): LVIDs | Left Ventricle Internal Systolic Dimension (LN, 29438-9) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): LVPWd | Left Ventricle Posterior Wall Diastolic Thickness (LN, 18152-9) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): LVPWs | Left Ventricle Posterior Wall Systolic Thickness (LN, 18156-0) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): SI | Stroke Index (SRT, F-00078) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): SV | Stroke Volume (SRT, F-32120) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |

## 13.2 Right Ventricle

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Right Ventricle** | Finding Site: Right Ventricle (SRT, T-32500) | |
| AV/LA(2D): RV diam | Right Ventricular Internal Diastolic Dimension at AV/LA (99SIEMENSUS, CA_RV_INTDIA_AV2LA) | Image Mode: 2D mode (SRT, G-03A2) |
| AV/LA(M): RV diam | Right Ventricular Internal Diastolic Dimension at AV/LA (99SIEMENSUS, CA_RV_INTDIA_AV2LA) | Image Mode: M-Mode (SRT, G-0394) |
| Cubed(2D): RVAWd | Right Ventricle Anterior Wall Diastolic Thickness (LN, 18153-7) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| Cubed(2D): RVDd | Right Ventricular Internal Diastolic Dimension (LN, 20304-2) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Cubed(M): RVDd | Right Ventricular Internal Diastolic Dimension (LN, 20304-2) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |
| LV/Teichholz(M): RVDd | Right Ventricular Internal Diastolic Dimension (LN, 20304-2) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| Pulmonary Valve: CI | Cardiac Index (SRT, F-32110) | Finding Site: Right Ventricle Outflow Tract (SRT, T-32550)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Pulmonary Valve: CO | Cardiac Output (SRT, F-32100) | Finding Site: Right Ventricle Outflow Tract (SRT, T-32550)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Pulmonary Valve: RVOT diam | Cardiovascular Orifice Diameter (SRT, G-038F) | Finding Site: Right Ventricle Outflow Tract (SRT, T-32550)<br>Image Mode:2D mode (SRT, G-03A2) |

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Pulmonary Valve: SI | Stroke Index (SRT, F-00078) | Finding Site: Right Ventricle Outflow Tract (SRT, T-32550)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Pulmonary Valve: SV | Stroke Volume (SRT, F-32120) | Finding Site: Right Ventricle Outflow Tract (SRT, T-32550)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| RV: RV diam<br>[for 2D and M-Mode] | Right Ventricular Internal Diastolic Dimension<br>(LN, 20304-2) | |
| Teichholz(2D): RVAWd | Right Ventricle Anterior Wall Diastolic Thickness (LN, 18153-7) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| Teichholz(2D): RVDd | Right Ventricular Internal Diastolic Dimension<br>(LN, 20304-2) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Teichholz (DCM, 125209) |
| TR: RVSP | Right Ventricular Peak Systolic Pressure<br>(SRT, G-0380) | |
| Tricuspid Valve: RVIMP | Right Ventricular Index of Myocardial Performance (SRT, G-0381) | |

## 13.3 Left Atrium

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Left Atrium** | Finding Site: Left Atrium (SRT, T-32300) | |
| AV/LA(2D): LA diam | Left Atrium Antero-posterior Systolic Dimension (LN, 29469-4) | Image Mode: 2D mode (SRT, G-03A2) |
| AV/LA(M): LA diam | Left Atrium Antero-posterior Systolic Dimension (LN, 29469-4) | Image Mode: M-Mode (SRT, G-0394) |

## 13.4 Right Atrium

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Right Atrium** | Finding Site: Right Atrium (SRT, T-32200) | |
| PR: RAP<br>TR: RAP<br>or not shown on report | Right Atrium Systolic Pressure (LN, 18070-3) | |

## 13.5 Aortic Valve

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Aortic Valve** | Finding Site: Aortic Valve (SRT, T-35400) | |
| Aortic Valve: AV PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Antegrade Flow (SRT, R-42047) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Aortic Valve: AV PGmean | Mean Gradient (LN, 20256-4) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Aortic Valve: AV Vmax | Peak Systolic Velocity (LN, 11726-7) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Aortic Valve: AV Vmean | Mean Velocity (LN, 20352-1) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Aortic Valve: AV VTI | Velocity Time Integral (LN, 20354-7) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Aortic Valve: AVA(Trace) | Cardiovascular Orifice Area (SRT, G-038E) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Planimetry (DCM, 125220) |
| Aortic Valve: AVA(Vmax) | Cardiovascular Orifice Area (SRT, G-038E) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Continuity Equation by Peak Velocity (DCM, 125214); |
| Aortic Valve: AVA(VTI) | Cardiovascular Orifice Area (SRT, G-038E) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Continuity Equation by Velocity Time Integral (DCM, 125215) |
| Aortic Valve: HR | Heart Rate (LN, 8867-4) | Finding Site: Aortic Valve (SRT, T-35400) |
| Aortic Valve: LVET | Aortic Valve Ejection Time (LN, 18041-4) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) |
| Aortic Valve: LVPEP | Pre-Ejection Period (LN, 18068-7) | |
| Aortic Valve: LVSTI | Aortic Valve Pre-ejection Period to Ejection Time (99SIEMENSUS, CA-AV_PEP2ET) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) |
| AR: AI Dec Slope | Deceleration Slope (LN, 20216-8) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Area by Pressure Half-Time (DCM, 125210) |
| AR: AI Dec Time | Deceleration Time ( LN, 20217-6) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Area by Pressure Half-Time (DCM, 125210) |
| AR: AI PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Area by Pressure Half-Time (DCM, 125210) |
| AR: AI PHT | Pressure Half-Time (LN, 20280-4) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Area by Pressure Half-Time (DCM, 125210) |
| AR: AI Vmax | Maximum Velocity (LN, 20351-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Area by Pressure Half-Time (DCM, 125210) |
| AR: AR PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| AR: AR Time | Aortic Valve Regurgitant Diastolic Deceleration Time (LN, 17998-6) | |
| AR: AR V ed | End Diastolic Velocity (LN, 11653-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| AR: AR Vmax | Maximum Velocity (LN, 20351-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| AR: Decel Rate | Deceleration Slope (LN, 20216-8) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| AV/LA(2D): ACS | Aortic Valve Cusp Separation (LN, 17996-0) | Image Mode: 2D mode (SRT, G-03A2) |
| AV/LA(2D): AO/LA | Aortic Root Diameter to Left Atrium Diameter Ratio (99SIEMENSUS, CA_LA_AO2LA) | Image Mode: 2D mode (SRT, G-03A2) |
| AV/LA(M): ACS | Aortic Valve Cusp Separation (LN, 17996-0) | Image Mode: M-Mode (SRT, G-0394) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| AV/LA(M): AO/LA | Aortic Root Diameter to Left Atrium Diameter Ratio<br>(99SIEMENSUS, CA_LA_AO2LA) | Image Mode: M-Mode (SRT, G-0394) |
| AV/LA(2D): LVET<br>AV/LA(M): LVET | Aortic Valve Ejection Time (LN, 18041-4) | Image Mode: M-Mode (SRT, G-0394) |
| AV/LA(2D): LVPEP<br>AV/LA(M): LVPEP | Pre-Ejection Period (LN, 18068-7) | Image Mode: M-Mode (SRT, G-0394) |
| AV/LA(2D): LVSTI<br>AV/LA(M): LVSTI | Aortic Valve Pre-ejection Period to Ejection Time<br>(99SIEMENSUS, CA-AV_PEP2ET) | Image Mode: M-Mode (SRT, G-0394) |
| LV/Teichholz(M): LVET | Aortic Valve Ejection Time (LN, 18041-4) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Teichholz (DCM, 125209) |
| LV/Cubed(M): LVET | Aortic Valve Ejection Time (LN, 18041-4) | Image Mode: M-Mode (SRT, G-0394)<br>Measurement Method: Cube Method (DCM, 125206) |

## 13.6 Mitral Valve

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Mitral Valve** | Finding Site: Mitral Valve (SRT, T-35300) | |
| Mitral Valve: A/E | Mitral Valve A to E Ratio (99SIEMENSUS, CA_MV_A2E) | |
| Mitral Valve: A duration | Mitral Valve A-Wave Duration (SRT, G-0385) | |
| Mitral Valve: CA/CE | Mitral Valve A to E Ratio<br>(99SIEMENSUS, CA_MV_A2E) | Image Mode: M-Mode (SRT, G-0394) |
| Mitral Valve: CA amp | Amplitude A Wave Mmode<br>(99SIEMENSUS, CA_MV_AwaveAmpl) | Image Mode: M-Mode (SRT, G-0394) |
| Mitral Valve: CE amp | Amplitude E Wave Mmode<br>(99SIEMENSUS, CA_MV_EwaveAmpl) | Image Mode: M-Mode (SRT, G-0394) |
| Mitral Valve: CI | Cardiac Index (SRT, F-32110) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)<br>Measurement Method: Doppler Volume Flow (DCM, 125219) |
| Mitral Valve: DE amp | Amplitude D-E Wave Mmode<br>(99SIEMENSUS, CA_MV_DEWaveAmpl) | Image Mode: M-Mode (SRT, G-0394) |
| Mitral Valve: DE excursion | Mitral Valve D-E Excursion (LN, 17997-8) | Image Mode: M-Mode (SRT, G-0394) |
| Mitral Valve: Dec Slope | Deceleration Slope (LN, 20216-8) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) |
| Mitral Valve: Dec Time | Mitral Valve E-Wave Deceleration Time<br>(SRT, G-0384) | |
| Mitral Valve: E/A | Mitral Valve E to A Ratio (LN, 18038-0) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) |
| Mitral Valve: E duration | Mitral Valve E-Wave Duration (99SIEMENSUS, CA_MV_DURe) | |
| Mitral Valve: EF slope | Mitral Valve E-F Slope by M-Mode (LN, 18040-6) | Image Mode: M-Mode (SRT, G-0394) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| Mitral Valve: EPSS | Mitral Valve EPSS, E wave (LN, 18036-4) | Image Mode: 2D mode (SRT, G-03A2) |
| Mitral Valve: EPSS | Mitral Valve EPSS, E wave (LN, 18036-4) | Image Mode: M-Mode (SRT, G-0394) |
| Mitral Valve: HR | Heart Rate (LN, 8867-4) | |
| Mitral Valve: MV A pt | Mitral Valve A-Wave Peak Velocity (LN, 17978-8) | |
| Mitral Valve: MV C-Odur | Mitral Valve Closure to Opening Time<br>(SRT, G-0387) | |
| Mitral Valve: MV diam | Cardiovascular Orifice Diameter (SRT, G-038F) | |
| Mitral Valve: MV E pt | Mitral Valve E-Wave Peak Velocity (LN, 18037-2) | |
| Mitral Valve: MV LVET | Aortic Valve Ejection Time (LN, 18041-4) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) |
| Mitral Valve: MV PGmax | Mitral Valve Diastolic Peak Instantaneous Gradient (LN, 18057-0) | |
| Mitral Valve: MV PGmean | Mean Gradient (LN, 20256-4) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Mitral Valve: MV PHT | Pressure Half-Time (LN, 20280-4) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Mitral Valve: MV Vmax | Maximum Velocity (LN, 20351-3) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Mitral Valve: MV Vmean | Mean Velocity (LN, 20352-1) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Mitral Valve: MV VTI | Velocity Time Integral (LN, 20354-7) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Mitral Valve: MVA(PHT) | Cardiovascular Orifice Area (SRT, G-038E) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)<br>Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Area by Pressure Half-Time (DCM, 125210) |
| Mitral Valve: MVA(Trace) | Cardiovascular Orifice Area (SRT, G-038E) | Image Mode: 2D mode (SRT, G-03A2)<br>Measurement Method: Planimetry (DCM, 125220); |
| Mitral Valve: MVA(VTI) | Cardiovascular Orifice Area (SRT, G-038E) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)<br>Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Continuity Equation (DCM, 125212) |
| Mitral Valve: SI | Stroke Index (SRT, F-00078) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) |
| MR: dP/dt | Mitral Regurgitation dP/dt derived from Mitral Regurgitation Velocity (LN, 18035-6) | |
| MR: dt | Deceleration Time (LN, 20217-6) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| MR: MR PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| MR: MR Vmax | Peak Systolic Velocity (LN, 11726-7) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| PISA(MR): Aliasing Vel | Mean Velocity (LN, 20252-1) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)<br>Derivation: Estimated (DCM, 121427) |
| PISA(MR): EO Area | Cardiovascular Orifice Area (SRT, G-038E) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)<br>Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |

| Label (Heading: Measurement) | Code Meaning<br>(Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| PISA(MR): Flow Rate | Peak Instantaneous Flow Rate (LN, 34141-2) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MR): Flow Vol | Volume Flow (LN, 33878-0) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MR): MR Vmax | Peak Systolic Velocity (LN, 11726-7) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MR): MR VTI | Velocity Time Integral (LN, 20354-7) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MR): Radius | Dome Radius (99SIEMENSUS, CA_DOME) | Direction of Flow: Regurgitant Flow (SRT, R-42E61)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MS): Aliasing Vel | Mean Velocity (LN, 20252-1) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)<br>Derivation: Estimated (DCM, 121427) |
| PISA(MS): Angle | Angle measured at Mitral Valve Stenosis (99SIEMENSUS, CA_MS_Angle) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MS): Flow Rate | Peak Instantaneous Flow Rate (LN, 34141-2) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MS): Flow Vol | Volume Flow (LN, 33878-0) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MS): MS PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MS): MS Vmax | Maximum Velocity (LN, 20351-3) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MS): MS VTI | Velocity Time Integral (LN, 20354-7) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| PISA(MS): MS MVA | Cardiovascular Orifice Area (SRT, G-038E) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)<br>Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |
| PISA(MS): Radius | Dome Radius (99SIEMENSUS, CA_DOME) | Direction of Flow: Antegrade Flow (SRT, R-42047)<br>Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) |

## 13.7 Pulmonic Valve

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Pulmonic Valve** | Finding Site: Pulmonic Valve (SRT, T-35200) | |
| PR: PR PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| PR: PR PGmean | Mean Gradient (LN, 20256-4) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| PR: PR Ved | End Diastolic Velocity (LN, 11653-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| PR: PR Vmax | Maximum Velocity (LN, 20351-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| PR: PR Vmean | Mean Velocity (LN, 20352-1) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| PR: PR VTI | Velocity Time Integral (LN, 20354-7) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| Pulmonary Valve: HR | Heart Rate (LN, 8867-4) | |
| Pulmonary Valve: PV PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Pulmonary Valve: PV PGmean | Mean Gradient (LN, 20256-4) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Pulmonary Valve: PV Vmax | Peak Systolic Velocity (LN, 11726-7) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Pulmonary Valve: PV Vmean | Mean Velocity (LN, 20352-1) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Pulmonary Valve: RV Acc T/ET | Ratio of Pulmonic Valve Acceleration Time to Ejection Time (SRT, G-0388) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Pulmonary Valve: RV Acc Time | Acceleration Time (LN, 20168-1) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Pulmonary Valve: RVET<br>Tricuspid Valve: RVET | Pulmonic Valve Ejection Time (LN, 18042-2) | |
| Pulmonary Valve: RVOT VTI | Velocity Time Integral (LN, 20354-7) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Pulmonary Valve: RVPEP | Right Ventricle Pre-Ejection Period (LN, 20301-8) | Image Mode: M-Mode (SRT, G-0394) |
| Pulmonary Valve: RVSTI | Pulmonic Valve Pre-ejection Period to Ejection Time (99SIEMENSUS, CA_PV_PEP2ET) | Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) |

## 13.8 Tricuspid Valve

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Tricuspid Valve** | Finding Site: Tricuspid Valve (SRT, T-35100) | |
| TR: TR PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| TR: TR PGmean | Mean Gradient (LN, 20256-4) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| TR: TR Vmax | Peak Systolic Velocity (LN, 11726-7) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| TR: TR Vmean | Mean Velocity (LN, 20352-1) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| TR: TR VTI | Velocity Time Integral (LN, 20354-7) | Direction of Flow: Regurgitant Flow (SRT, R-42E61) |
| Tricuspid Valve: E/A | Tricuspid Valve E to A Ratio (LN, 18039-8) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Tricuspid Valve: TV A pt | Tricuspid Valve A Wave Peak Velocity (LN, 18030-7) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Tricuspid Valve: TV C-Odur | Tricuspid Valve Closure to Opening Time (SRT, G-0389) | |
| Tricuspid Valve: TV E pt | Tricuspid Valve E Wave Peak Velocity (LN, 18031-5) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Tricuspid Valve: TV PGmax | Peak Gradient (LN, 20247-3) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Tricuspid Valve: TV PGmean | Mean Gradient (LN, 20256-4) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Tricuspid Valve: TV Vmax | Maximum Velocity (LN, 20351-3) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Tricuspid Valve: TV Vmean | Mean Velocity (LN, 20352-1) | Direction of Flow: Antegrade Flow (SRT, R-42047) |
| Tricuspid Valve: TV VTI | Velocity Time Integral (LN, 20354-7) | Direction of Flow: Antegrade Flow (SRT, R-42047) |

## 13.9 Aorta

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Aorta** | Finding Site: Aorta (SRT, T-42000) | |
| AV/LA(2D): AO | Aortic Root Diameter (LN, 18015-8) | Image Mode: 2D mode (SRT, G-03A2)<br>Cardiac Cycle Point: Systole (SRT, F-32020) |
| AV/LA(M): AO | Aortic Root Diameter (LN, 18015-8) | Image Mode: M-Mode (SRT, G-0394)<br>Cardiac Cycle Point: Systole (SRT, F-32020) |

## 13.10 Pulmonary Artery

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Pulmonary Artery** | Finding Site: Pulmonary Artery (SRT, T-44000) | |
| PR: PAEDP | Pulmonary Artery Pressure (SRT, F-0212C) | Cardiac Cycle Point: End Diastole (SRT, F-32011) |
| Pulmonary Valve: PA Acc Time | Acceleration Time (LN, 20168-1) | Direction of Flow: Antegrade Flow (SRT, R-42047) |

## 13.11 Pulmonary Venous Structure

| Label (Heading: Measurement) | Code Meaning (Coding Scheme Designator, Code Value) | Modifiers |
|---|---|---|
| **Pulmonary Venous Structure** | Finding Site: Pulmonary Venous Structure (SRT, T-48581) | |
| Pulmonary Vein: PVa Dur | Pulmonary Vein A-Wave Duration (SRT, G-038B) | |
| Pulmonary Vein: PVa Vel | Pulmonary Vein Atrial Contraction Reversal Peak Velocity (LN, 29453-8) | Cardiac Cycle Point: Diastole (SRT, F-32010) |
| Pulmonary Vein: PVd Decel T | Deceleration Time (LN, 20217-6) | Cardiac Cycle Point: Diastole (SRT, F-32010) |
| Pulmonary Vein: PVd Vel | Pulmonary Vein Diastolic Peak Velocity (LN, 29451-2) | Cardiac Cycle Point: Diastole (SRT, F-32010) |
| Pulmonary Vein: PVd VTI | Pulmonary Vein D-Wave Velocity Time Integral (SRT, G-038D) | |
| Pulmonary Vein: PVs VTI | Pulmonary Vein S-Wave Velocity Time Integral (SRT, G-038C) | |
| Pulmonary Vein: PVs1 Vel | Pulmonary Vein Systolic Peak Velocity (LN, 29450-4) | Topographical Modifier: Peak1 (99SIEME, Peak1) |
| Pulmonary Vein: PVs2/PVd | Pulmonary Vein Systolic to Diastolic Ratio (LN, 29452-0) | |
| Pulmonary Vein: PVs2 Vel | Pulmonary Vein Systolic Peak Velocity (LN, 29450-4) | Topographical Modifier: Peak2 (99SIEME, Peak2) |
| Pulmonary Vein: Sys Fraction | Pulmonary Vein Systolic Fraction (99SIEMENSUS, CA_PVE_SF) | |